U. S. NUCLEAR REGULATORY COMMISSION

REGION III

Report Nos. 50-373/84-17(DRP); 50-374/84-22(DRP)

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

Licensee: Commonwealth Edison Company
Post Office Box 767
Chicago, IL 60690

Facility Name: LaSalle County Station, Units 1 and 2

Inspection At: LaSalle Site, Marseilles, IL

Inspection Conducted: June 19 through July 30, 1984

Inspectors: M. J. Jordan

S. C. Guthrie

C. D. Evans

for J. Jacobson

Approved By: N. J. Chrissotimos, Chief
Reactor Projects Section 2C

8-15-84
Date

Inspection Summary

Inspection on June 19 through July 30, 1984 (Report Nos. 50-373/84-17(DRP); 50-374/84-22(DRP))

Areas Inspected: Routine, unannounced inspection conducted by resident inspectors of licensee actions on previous inspection findings; operational safety; monthly surveillance; startup testing witnessing; plant trips; potential guard strike; followup on regional requests; IE Bulletins; review of periodic and special reports, and Licensee Event Reports. The inspection involved a total of 279 inspector-hours onsite by three NRC inspectors including 56 inspector-hours onsite during off-shifts.

Results: In the ten areas inspected, one item of noncompliance was identified (failure to control access to a high radiation area - Paragraph 3).

DETAILS

1. Persons Contacted

*G. J. Diederich, Superintendent, LaSalle Station
*R. D. Bishop, Administrative and Support Services Assistant Superintendent
C. E. Sargent, Operating Assistant Superintendent
J. Schmeltz, Operating Engineer - Unit 1
W. Huntington, Technical Staff Supervisor
*R. Kyrouac, Quality Assurance Supervisor
D. Berkman, Operating Engineer - Unit 2
W. Sheldon, Maintenance Assistant Superintendent
*P. Manning, Assistant Technical Staff Supervisor
*L. Aldrich, Lead Health Physicist

The inspectors also talked with and interviewed members of the operations, maintenance, health physics, and instrument and control sections.

*Denotes personnel attending exit interview held on July 30, 1984.

2. Licensee Action on Previous Inspection Findings

(Closed) Open Item (373/84-05-06(DPRP)): This open item tracked licensee commitments to reexamine administrative controls that ensure modification packages are reviewed for impact on safety related or Technical Specification equipment. The licensee has revised procedure LAP 1300-2 to include an attachment for precautions to be initiated by the Maintenance Department and Shift Engineer for any anticipated impact on safety related or Technical Specification equipment prior to work activities.

(Closed) Open Item (373/84-14-04 and 374/84-18-04(DPRP)): This open item tracked the action associated with possible need for a modification on two 2" check valves manufactured by Anderson Greenwood and Company. The inspector reviewed the licensee's action concerning this item and identified the valves to be in the Drywell Pneumatic System for each unit. Both valves had passed local leak rate testing. The valves are labeled 1IN018 and 2IN018. No further action by the licensee will be done based on the acceptable local leak rate tests.

(Closed) Open Item (374/84-02-02(DPRP)): This item tracked completion of corrective actions specified in LER 374/84-010. The inspector was informed by licensee representatives that the cause of the differential temperature trip of the reactor water cleanup pump was the result of an out of calibration control loop in the reactor building ventilation system. The out of calibration control loop would not permit the blast coils to operate when sudden surges of cold air entered the ventilation system. This allowed inlet temperature to go below design temperature on cold days thus initiating a trip on differential temperature as sensed by the leak detection system. The control loop was recalibrated. No further pump trips have occurred since the recalibration.

(Open) Open Item (373/84-11-01(DPRP); 374/84-15-01(DPRP)): This item tracked problems with identified cracks in the flywheel of Cummins Diesel Engines on two fire pumps. The discovery of a 360 degree through wall crack on the flywheel of "B" diesel fire pump engine on December 21, 1983 prompted inspection of the flywheel on "A" fire pump engine. The "A" fire pump engine exhibited a 180 degree through wall (360 degree on inside face) at the same location. New flywheels were installed on the two operating pumps and the one spare. The new flywheels were receipt inspected and examined by the magnetic particle method. Operating vibration was also reduced by an improvement in the equipment foundations at this time. The licensee committed to a dye penetrant inspection of the flywheel every 3 months until the problem is resolved. Cummins Diesel is currently investigating the failed components.

During the week of June 18, the licensee reported that the flywheels from the "A" and "B" diesels had been removed and dye penetrant examined This examination included both sides of the flywheel while the previous 3 month inspection included the outside face only. The dye penetrant revealed 360 degree cracks on both flywheels at the inner face. The cracks had not propagated through wall to the outside face as of yet.

The inspector witnessed a dye penetrant examination of both cracked flywheels on June 25. The examination revealed essentially a 360 degree crack interrupted by the bolt holes and located at the root of a machined relief on the inside face. New flywheels were again installed on the "A" and "B" diesel.

The inspector returned to the site on July 12 to witness vibration testing of the diesel by Cummins representatives. The results of this test were not available as of the writing of this report.

The section thickness in the hub area of the flywheel is approximately 5/8". This 5/8" is further reduced by a relief cut approximately 1/8" deep, located just outside of the bolt holes. The cracking of all four flywheels originated at the root of this relief. The jack shaft and associated universal joint is bolted to the face of the flywheel and has approximately a 2' length. The evidence strongly suggests the following reasons for failure.

a. The material, gray cast iron, has little ductility and is susceptible to fracture.

b. The relief cut in the hub area effectively reduces the section thickness to about 1/2" in addition to providing a stress rising mechanical notch.

c. The jack shaft length and massive universal joint may cause excessive loads on the hub area.

It appears that the flywheel design may not be suited for this application. The licensee is changing their inspection program to a dye penetrant examination on both sides at approximately 50 operating hour intervals upon the inspector's suggestion. This program will continue until the final fix is effected.

(Closed) Unresolved Item (373/82-15-01(DPRP)): This unresolved item tracked the licensee's action concerning eliminating unnecessary snubbers in high radiation areas. This item was similar to license condition 2C(5)(b), (open item 373/81-00-131), which was closed in inspection report 373/83-10. This item is also considered closed for the same reason. A change to the Technical Specifications deleting the safety related snubber listing was submitted on March 23, 1984.

No items of noncompliance or deviations were identified in this area.

3. Operational Safety Verification

The inspector observed control room operations, reviewed applicable logs and conducted discussions with control room operators during the inspection period. The inspector verified the operability of selected emergency systems, reviewed tagout records and verified proper return to service of affected components. Tours of Units 1 and 2 reactor buildings and turbine buildings were conducted to observe plant equipment conditions, including potential fire hazards, fluid leaks, and excessive vibrations and to verify that maintenance requests had been initiated for equipment in need of maintenance. The inspector by observation and direct interview verified that the physical security plan was being implemented in accordance with the station security plan.

The inspector observed plant housekeeping/cleanliness conditions and verified implementation of radiation protection controls. During the inspection period, the inspector walked down the accessible portions of the A, B and C Residual Heat Removal (RHR) systems of Unit 1 and Unit 2 to verify operability. The inspector also witnessed portions of the radioactive waste system controls associated with radwaste shipments and barreling.

These reviews and observations were conducted to verify that facility operations were in conformance with the requirements established under technical specifications, 10 CFR, and administrative procedures.

On July 15 the inspector learned that a spill of an estimated 100-120 gallons of condensate polisher resin had occurred at the "A" Drum Processing Unit (DPU) in the Radwaste Building. The spill resulted from the malfunction of the digital counter on the Solid Radwaste Control Panel, OPL06J, which failed to stop the operation of the metering pump at the point where the required 18.5 gallons had been injected into a barrel. The metering pump injects into the barrel at the rate of 0.5 gallons per stroke and the digital counter functions to stop pump operation only when it reads exactly 18.5. The licensee informed the inspector that an estimated 12-15 overflows have occurred in the approximate one year period during which the counter has been malfunctioning, and that while control circuit card replacement corrected the problem on several occasions no determination has been made concerning the cause of the sporadic failures. The tendency of the counter to malfunction and cause a spill is not included in operator training and no warning is posted on the control panel. Operators become aware of the malfunction only if the situation is encountered during daily activities. The licensee informed the inspector that the operator

was relatively new to that assignment and likely had little reason to be alert to the potential malfunction. In this instance, the operator was not monitoring the operations of the DPU from the control panel as required by LaSalle Operating Procedure LOP-WX-03, step 4.f., and was not present to take action to manually stop the metering pump. A rad-chem survey of the area of the spill indicated whole body exposure rates to cleanup personnel of 25 mrem/hr to the chest and 75 mrem/hr to the knees. In addition to concerns over avoidable exposure, are the concerns of inadequate operator training, the absence of any warnings of potential counter malfunction and the consequences, failure of the operator to operate the DPU in accordance with procedural requirements, the willingness to tolerate predictable malfunctions of a component that has already caused a number of spills over a period of one year, and the continued poor housekeeping practices in the radwaste control room area. Resolution of these concerns will be tracked as an open item (373/84-17-01(DPRP)).

On June 14 the inspector learned that approximately 60 gallons of used solvent from the mechanical maintenance shop parts cleaner had been removed from the site by vendor personnel without an unconditional release of the material by the site radiation chemistry department. Although licensee personnel from the Stores Department had requested a sample of the solvent to be analyzed prior to shipment, an absence of administrative controls resulted in no cognizant licensee individual being assigned to oversee the shipment. Both the vendor driver and the security guard assigned as escorts were unaware of the unconditional release requirement. The isotopic analysis of the solvent, completed after the material left the site, showed the presence of 3.2×10^{-8} mC/cc of Co-60 and 2×10^{-8} mC/cc Mn-54, concentrations that would be below MPC for release of water to the unrestricted area. Licensee personnel were dispatched to the vendor's place of business to retrieve the solvent shipment and return it to the site where it was reanalyzed with results that confirmed the original findings. Licensee surveys of the vendor's truck and premises showed no contamination. The licensee determined that contamination present in the solvent sludge of the parts cleaner, which is located in an uncontrolled area, has accumulated over a long period of washing items which are contaminated to levels low enough to pass undetected through radiation detector devices used at the control points for radiologically controlled areas. The licensee has conducted training sessions to reemphasize to Stores Department personnel the need for adequate sampling of materials to be transported off-site, and reviewed the incident with all department heads in an effort to obtain additional supervisory involvement. The licensee is currently evaluating the need for further administrative controls of all materials leaving the site, including those not reasonably expected to be contaminated, and the need to relocate the parts cleaner to a radiologically controlled area or eliminate it altogether. The eventual relocation and contamination control of the parts cleaner and the administrative controls over items leaving the site with the accumulation of low levels of contamination will be tracked as an open item (373/84-17-02(DRMSP)).

On July 3, 1984 at 1:00 p.m., the resident inspectors observed that the Unit 2 charcoal absorber vault (CAV) room door was posted as a radiation area. During this period of time, a group of instrument mechanic trainees were observed entering the CAV room as part of their walk-through training. They remained in the room for approximately two minutes. The inspector questioned whether the CAV room should have been posted and controlled as a high radiation area based on the fact that reactor power had been greater than 50 percent power for about four weeks and was currently at 70 percent power. The inspector informed the licensee's health physics organization of his concern and requested that a radiation survey of the CAV room be conducted. The results of the survey indicated that one of six charcoal absorber vessels in the CAV room had a dose rate of 1.4 mrem/hr at 2 inches, 400 mrem/hr at 1 foot, and 100 mrem/hr at 3 feet from the vessel surface. The survey schedule for the CAV room had been established on a monthly basis which did not provide adequate surveillance of the changing dose rates expected during Unit 2 startup. After identification of the CAV room as a high radiation area, licensee representatives took immediate corrective action which included posting and updating of the CAV door status in the computerized security card reader system to a high radiation area. In addition, licensee representatives conducted a review of other locations in Unit 2 which might now have the potential of being a high radiation area. No such areas were identified. The failure to properly post and to control access to a high radiation area as required by Technical Specification 6.1.1.1 is considered an item of noncompliance (374/84-22-01).

The inspector reviewed Licensee Event Report 84-34 in response to the failure to control access to the CAV room. Immediate corrective action was taken by properly securing the door. Corrective action was also taken to avoid further noncompliance by requiring all radiation/chemistry management personnel to review the LER to remind them of their responsibilities toward high radiation area security and posting. Full compliance was achieved on August 1, 1984. No response is required of the licensee for this item of noncompliance.

The inspectors also indicated additional concerns with regard to Licensee Event Reports (LERs) 374-22, 373-25, 373-34, and 373-36, which documented failure to control access to high radiation areas. For the year, there have been 22 occurrences where access to high radiation areas has not been secured. Of the 22 occurrences, only the above mentioned LERs were deemed reportable based on a review of the probability of exposure to plant personnel.

On July 13, 1984 the licensee reported to the inspector that a letter was received from Sargent and Lundy (S&L) stating that Automatic Switch Company (ASCo) solenoid valves must be in the vertical and upright position in order to function. The licensee identified all ASCo solenoid valves in both units and commenced a program of relocating all mispositioned valves to a vertical position, 19 on Unit 1 and 20 on Unit 2. A similar event was reported by the Tennessee Valley Authority at the Bellefonte Plant in Region II in accordance with 10 CFR 50.55(e) on December 28, 1983. Approximately seven solenoid valves inside the Unit 1 drywell were not

looked at because of accessibility. These solenoid valves were for bypass valves around the testable check valves for Emergency Core Cooling Systems (ECCS). These solenoid valves were declared inoperable and will be looked at during the next outage in October for proper orientation (Open Item 373/84-17-03). Similar valves had been removed from Unit 2 and will be removed from Unit 1 during the next refueling outage.

On July 15 the licensee removed from service both security computers after transferring to the site security training computer. This action was in preparation for upgrading of security computers and card readers. The inspector confirmed the adequacy of the substitute computer and on July 22 verified the security staff's ability to institute compensatory measures during periods of computer unavailability. The inspector reviewed with the site security administrator the licensee's plan which provided full compensatory coverage during the period July 27-30 for final replacement of the site security computers.

One item of noncompliance and no deviations were identified in this area.

4. Monthly Surveillance Observation

The inspector observed technical specifications required surveillance testing on the Monthly Fire Inspection of Tech Spec Fire Hose Stations and verified that testing was performed in accordance with adequate procedures, that test instrumentation was calibrated, that limiting conditions for operation were met, that removal and restoration of the affected components were accomplished, that test results conformed with technical specifications and procedure requirements and were reviewed by personnel other than the individual directing the test, and that any deficiencies identified during the testing were properly reviewed and resolved by appropriate management personnel.

No items of noncompliance or deviations were identified in this area.

5. Startup Testing Witness

During the inspection period, the inspector witnessed all or part of the performance of the following LaSalle Unit 2 Startup Test Procedures to fulfill the requirements of MC 2514 and MC 2594:

Test Condition 3

STP 27 - Turbine Trip
STP 31 - Loss of Offsite Power
STP 26 - Relief Valve Testing
STP 22 - Pressure Regulator Setpoint
STP 29 - Flow Control System Testing

Test Condition 4 (Natural Circulation)

STP 21 - Flux Response to Rod Movement
STP 22 - Pressure Regulator Setpoint
STP 23A - Level Setpoint
STP 16 - Temperature Stratification
STP 9 - Narrow and Wide Range Level Verification

Test Condition 5

STP 21 - Flux Response to Rod Movement
STP 25 - Functional Test of MSIVs

Test Condition 6

STP 22 - Pressure Regulator Setpoint
STP 29 - Flow Control System Test
STP 23A - Feed Water Control System Test

Testing requirements of Test Conditions 3, 4, and 5 were completed on July 18. Efforts to raise power to 95% to commence testing in Test Condition 6 were hindered by elevated lake water temperatures. Test Condition 6 was achieved on July 25th and testing continued.

No items of noncompliance or deviations were identified.

6. Unit Trips

a. On July 9, 1984 at 7:06 p.m., Unit 2 experienced a reactor scram on high pressure from 67% power. No Emergency Core Cooling Systems were activated. The scram resulted from a perturbation in the Electro-Hydraulic Control System (EHC) which caused the turbine bypass valves to cycle open and then close and the turbine intercept valves to fast close. The perturbation in the EHC system was the result of an unintentional grounding of the +30 Vdc power supply by an instrument mechanic who was troubleshooting problems with the recirculation flow master controller automatic function.

During followup of this scram, the inspector investigated an occurrence where the isolation valve for the high level alarm switch on the scram discharge volume (SDV) was not verified properly. An operations person (B-man) became confused while performing the second check on a surveillance valve lineup when he was interrupted by an Instrument Mechanic (IM) working in the area, who asked him a question. The B-man then failed to check all the valve positions required by the surveillance procedure, LOS-RP-W1, and upon returning to the control room signed that all the valve positions were correct. A mispositioned valve was identified by an IM while performing a separate surveillance test that same day prior to returning the unit to power. The inspector discussed this event with the B-man who performed the initial surveillance and the B-man who performed the second check and was convinced

that the individuals knew what was expected of them, but the second B-man became confused and failed to perform his assigned duty. The instrument that was found isolated performed only an alarm function. No scram function was bypassed.

b. On June 24, 1984 at 8:20 a.m. Unit 1 scrammed on low vessel water level. The unit was operating at 85% power when the feedwater system received a signal from the Reactor Water Level Control System (RWLC) logic to reduce flow. This caused the vessel level to drop and scram on low reactor water level. The cause was attributed to the flow summar or dynamic compensate used for monitoring steam flow in the RWLC logic dropping to zero. With steam flow logic dropping to zero, the feedwater demand dropped to zero also because level controller was in three element control. The reason for this input to drop to zero was not determined. The licensee monitored this logic input while returning the unit to power and the event did not reoccur.

c. On July 27, 1984, on Unit 2, a steam leak was detected on a weld in the vent and drain line from the first stage of the 2B Moisture Separator Reheater (MSR). After isolating the steam leak, the licensee started a controlled shutdown of the unit for repairs. At approximately 14% power the Rod Sequence Control System (RSCS) which was controlling rod pattern for insertion, malfunctioned with the screen going blank and inserting a rod block. The licensee was unable to repair the RSCS and initiated a manual scram of the unit on July 28.

The cause of the failure of the weld on the 6" vent and drain line was due to the lack of an orifice to minimize steam flow through the line. The orifice was left out during the construction phase of the plant. The associated orifice to the first and second stages for both the A and B MSRs were installed before returning the unit to power. The cause of the failure on the RSCS was determined to be a first stage pressure transmitter failing high.

After the scram, the licensee opened the vacuum breakers to the condenser, which caused a Group I isolation on low vacuum. The licensee is presently preparing a change to the procedure for breaking vacuum that would require placing the Group I isolation on low vacuum in bypass prior to breaking vacuum. The procedure change for breaking vacuum will be tracked by a Licensee Event Report (LER) the licensee is presently preparing.

No items of noncompliance or deviations were identified in this area.

7. Potential Guard Strike

On July 18 the inspector was informed that a local labor bargaining unit contract ratification/strike authorization vote had been conducted by security officers with results overwhelmingly in support of strike action. No target date for strike implementation has been determined pending

sanctioning by the international union. The inspector reviewed with the site security administrator contingency plans for use of management personnel and qualified guards temporarily reassigned from other licensee sites to provide adequate coverage during the period any strike action would be in effect. The inspector determined that the licensee's plan appeared to provide adequate coverage without imposing an unbearable overtime burden on security personnel.

No items of noncompliance or deviations were identified in this area.

8. Review of Periodic and Special Reports

During the inspection period the inspector reviewed the following reports and verified that they were submitted in a timely manner and contained the required information.

a. Special Report concerning loose-part monitor failure dated June 25, 1984. This report was issued late; however, corrective action to prevent this recurrence was specified in the report.

b. A followup report to a Special Report dated January 20, 1984 was reviewed concerning Terra Tech digital cassette seismic monitors. The report was dated May 30, 1984 and was for Unit 1.

c. Special Report concerning removal of smoke detectors for greater than 14 days due to welding and cutting in the area. The report was dated July 9, 1984.

d. Two month observation of Operational Fog and Rime Ice.

9. Licensee Event Reports Followup

Through direct observations, discussions with licensee personnel, and review of records, the following Licensee Event Reports (LERs) were reviewed to determine that reportability requirements were fulfilled, immediate corrective action was accomplished, and corrective action to prevent recurrence had been accomplished in accordance with Technical Specifications.

373/84-05 Reactor Scram on Loss of Main Condenser, Rev. 1

373/84-25 Lack of Positive Control on Entry Into a High Radiation Area

373/84-27 Missed Off Gas Hydrogen Sampling

373/84-28 RCIC Isolation Inboard System

374/84-05 HPCS Pump Breaker, Rev. 1

374/84-18 HPCS Pump Breaker Malfunction

374/84-19 Missed 4 Hour Hydrogen Sampling of Off Gas System

374/84-22	Loss of Positive Control on High Radiation Gate
374/84-23	Reactor Water Cleanup Isolation
374/84-16	Reactor Water Cleanup High Ambient Temperature Isolation
373/84-30	Reactor Water Cleanup High Differential Flow
373/84-31	Reactor Water Cleanup Isolation on Pump Room Differential Temperature
374/84-29	Reactor Water Isolation on High Differential Flow
373/84-034	Unsecured High Radiation Area Door
373/84-036	Unsecured High Radiation Area Door
374/84-030	HPCS Discharger Relief Valve Failure
373/84-038	Unsealed Fire Penetration/Sleeve
374/84-028	Reactor Water Cleanup High Ambient Temperature Isolation
374/84-031	Reactor Water Cleanup Differential Temperature Isolation
373/84-032	Reactor Water Cleanup High Differential Flow Isolation
	The licensee agreed to issue a revision to this LER changing the cause code from "other" to "defective procedure."
373/84-035	O.B. Diesel Fire Pump Flywheel
374/84-27	Loss of Reactor Water Cleanup Isolation Leak Detector
	The licensee agreed that this LER was misclassified and will be reclassified as 50.73(a)(2)(i)(B) in lieu of 50.73(a)(2)(U).
374/84-026	RWCU High Differential Temperature Pump Room and Heat Exchanger Room Isolation
373/84-037	OA Diesel Fire Pump Flywheel Had Cracks
373/84-033	RWCU Isolation on High Differential Flow
373/84-039	Scram on Low Water Level
374/84-033	Failure of Isolation Valve to Close
374/84-032	RWCU Isolation While Performing RCIC Surveillance

374/84-034 High Radiation Area Unsecured and Unposted

374/84-035 Scram on Reactor Vessel High Pressure

No items of noncompliance or deviations were identified in this area.

10. IE Bulletin Followup

For the IE Bulletins listed below the inspector verified that the Bulletin was received by licensee management and reviewed for its applicability to the facility. If the Bulletin was applicable the inspector verified that the written response was within the time period stated in the Bulletin, that the written response included the information required to be reported, that the written response included adequate corrective action commitments based on information presented in the Bulletin and the licensee's response, that the licensee management forwarded copies of the written response to the appropriate onsite management representatives, that information discussed in the licensee's written response was accurate, and that corrective action taken by the licensee was as described in the written response.

IE Bulletin 84-02	Failure of General Electric Type HFA Relays in Use in Class 1E Safety Systems. The bulletin will remain open until the licensee produces documentation of the upgrading that has been completed.

No items of noncompliance or deviations were identified in this area.

11. Response to Regional Requests

The inspectors provided a site floor plan of the resident's office designating the phone locations, phone numbers, and types of instruments. This information was sent to the region as requested by memorandum dated May 30, 1984.

12. Inspector Support to Other Offices

a. During the week of July 16-20 the inspector provided assistance and input to a team of security experts from NMSS, NRR, IE, and RIII during performance of a Regulatory Effectiveness Review (RER) conducted as required by NUREG-0992, "Report of the Committee to Review Safeguards Requirements at Power Reactors."

b. The resident inspector attended a meeting between representatives from the Office For Analysis and Evaluation of Operational Data (AEOD) and the licensee on July 11, 1984. The meeting was arranged by AEOD to collect information pertaining to events involving pressurization of valve bonnets on ECCS systems. The licensee's comments during the meeting will be used by AEOD to determine the need for the issuance of a bulletin concerning pressurization of valve bonnets.

13. Open Items

Open items are matters which have been discussed with the licensee, which will be reviewed further by the inspector, and which involve some action on the part of the NRC or licensee or both. Open items disclosed during the inspection are discussed in Paragraph 3.

14. Exit Interview

The inspector met with licensee representatives (denoted in Paragraph 1) throughout the month and at the conclusion of the inspection period and summarized the scope and findings of the inspection activities. The licensee acknowledged these findings.