

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Report Nos. 50-373/84-23(DRP); 50-374/84-30(DRP)

Docket Nos. 50-373; 50-374

Licenses No. NPF-11; NPF-18

Licensee: Commonwealth Edison Company  
P. O. Box 767  
Chicago, IL 60690

Facility Name: LaSalle County Station, Unit 2

Inspection At: LaSalle County Station, Marseilles, IL

Inspection Conducted: August 12 through September 11, 1984

Inspectors: C. D. Evans

S. Guthrie

M. J. Jordan

Approved By: *V. P. Shales for*  
N. J. Chrissotimos, Chief  
Reactor Projects Section 2C

*10-4-84*  
Date

Inspection Summary

Inspection on August 12 through September 11, 1984 (Report Nos. 50-373/84-23(DRP); 50-374/84-30(DRP))

Areas Inspected: Special inspection by the resident inspectors of activities surrounding the violation of the Technical Specification 3.6.1.8 Action Statement. The Drywell Purging System was operated for 2 1/2 hours more than the allowable time period and several other personnel errors occurred over a short period of time. The inspection involved a total of 116 inspector-hours onsite by three NRC inspectors.

Results: Four items of noncompliance were identified (one for Technical Specification violation - Paragraph 1.a, and three for failure to follow procedures with several examples - Paragraphs 1.a, 1.b, 1.c and 1.d.

## DETAILS

### 1. Persons Contacted

#### Commonwealth Edison Representatives

- D. Galle, Division Vice President and General Manager for Nuclear Stations
- D. Farrar, Director, Nuclear Licensing
- B. Stephenson, Manager of Production
- G. J. Diederich, Plant Superintendent, LaSalle County Station
- R. D. Bishop, Assistant Superintendent, Administration and Support Services for LaSalle County Station
- C. E. Sargent, Assistant Superintendent, Operation for LaSalle County Station
- D. Berkman, Operator Engineer, LaSalle County Station, Unit 2
- B. S. Westphal, Assistant Technical Staff Supervisor, LaSalle County Station
- J. G. Marshall, Nuclear Licensing Administrator, LaSalle County Station
- E. L. O'Connell, Station Control Room Engineer, LaSalle County Station

#### NRC Representatives

- A. B. Davis, Deputy Regional Administrator
- C. E. Norelius, Director, Division of Reactor Projects
- B. Benson, Regional Counsel
- N. Chrissotimos, Chief, Reactor Projects 2C
- M. Jordan, Senior Resident Inspector, LaSalle County Station
- C. D. Evans, Resident Inspector, LaSalle County Station
- G. C. Wright, Chief, Reactor Projects 2A
- R. Landsman, Project Inspector

### 2. Inspection of the Significant Events

- a. On August 11, 1984, at 8:35 a.m., with Unit 2 in a hot shutdown condition, the licensee initiated drywell purging in order to reduce drywell temperature and to remove nitrogen gas which was being used to drive pneumatic tools so that maintenance personnel could safely perform work activities in the drywell. Based on discussions with NRR in July 1982, the licensee contended that although cooling of the drywell was not an activity specified by Technical Specification 3.6.1.8, that it was nevertheless permissible. Subsequent discussions with NRR do not substantiate the licensee's position. NRC Region III will pursue this matter further which is considered an unresolved item (374/84-30-01(DRP)).

At approximately 7:00 a.m. on August 12, 1984, the Shift Engineer (SE) confirmed with the Shift Control Room Engineer (SCRE) that at 8:00 a.m. the SCRE would direct the Unit 2 Reactor Operator (RO)

to terminate purging, thus satisfying the Action Statement of Technical Specification 3.6.1.8 which required closing the valve or being in cold shutdown. On August 12, 1984, at 11:00 a.m., the Shift Control Room Engineer (SCRE) recognized that the Limiting Condition for Operation (LCO) time clock of 24 hours had been exceeded. The licensee immediately terminated drywell purging. The fact that the LCO was exceeded appears to be attributable to the forgetfulness of the SCRE near the end of the LCO time period and the apparent lack of adequate administrative controls for LCO time clocks. There were no significant plant activities which might have distracted the operations personnel during this period. At approximately 1:00 p.m., the licensee notified the HQ Duty Officer that the LCO had been exceeded. During the LCO time period, Rx pressure was being maintained at 30-80 psig and the respective saturation temperature.

Technical Specification 3.6.1.8 states that with drywell and/or suppression chamber purge supply and/or exhaust butterfly isolation valves open for other than inerting, deinerting, or pressure control, or not blocked to less than or equal to 50° open, close the butterfly valves within one hour or be in at least hot shutdown within the next 12 hours and in cold shutdown within the following 24 hours. The Drywell Purging System was operated for other than those activities specified in Technical Specification 3.6.1.8 for approximately 26 1/2 hours, exceeding the allowable LCO time period by 2 1/2 hours. This is an item of noncompliance (373/84-23-01(DRP); 374/84-30-02(DRP)).

A review of the logs and procedures revealed the following:

- (1) Procedure LAP-200-3, "Shift Change", requires that a component, system, or activity be recorded in the Degraded Equipment Log if the deficiency affects system operability as defined in the Technical Specifications (Definition 1.25). The operation of the Drywell Purge System for activities other than those specified in Technical Specification 3.6.1.8 entered the licensee into the associated Action Statement. The Unit 2 RO failed to adhere to the requirement contained in Procedure LAP-200-3 in that no entry was made to the Degraded Equipment Log of the operation of the Drywell Purge System.
- (2) Procedure LAP-220-2, "Unit Operator's Log", requires that the startup and the shutdown of plant systems and abnormal plant conditions be recorded in the RO's log. The operation of the Drywell Purge System in the Action Statement of Technical Specification 3.6.1.8 constituted an abnormal plant condition. The Unit 2 RO's log for four shifts failed to adhere to the requirements contained in Procedure LAP-220-2, in that no entry was made of the startup and the shutdown of the Drywell Purge System, and of the continued operation of the system when its operation would maintain the licensee in the Action Statement of Technical Specification 3.6.1.8.

The previous two mentioned examples are failures to adhere to administrative procedures for shift and relief turnover and log entries as required by Technical Specification 6.2A. This is an item of noncompliance (373/84-23-02(DRP); 374/84-30-03(DRP)).

The failure of the Unit 2 RO to record the startup of the Drywell Purge System on August 11, 1984, and the absence of any subsequent entries pertaining to the operation of the system invalidated a major element of shift turnover accountability. The lack of any log entries provided no information to the oncoming shift RO of the continuing operation of the system or that the operation of the system in its present application had entered the licensee in the Action Statement of Technical Specification 3.6.1.8. The only methodology available to the oncoming RO would have been the identification of the system operation from his panel walkdowns and by informal communication with previous members of the outgoing shift of the status of the Drywell Purging System.

The inspectors determined that the only tracking mechanism in place during the period of August 11-12, 1984, was the SCRE turnover status sheets which indicated the licensee was in the Action Statement of Technical Specification 3.6.1.8. This document was not a requirement of any station administrative procedure. In discussions with the RO's, the inspectors identified an unusual reliance by the RO's on the SCRE as the person chiefly responsible for LCO time clock activities. This may be the result of the SCRE having been the individual assigned responsibility for surveillance time clock activities. There existed no mechanism that would have provided a redundant notification of impending expirations of LCO time clocks if the SCRE forgot. The administrative controls did not provide the assurance of the conveyance of pertinent information from the off-going shift to the on-going shift. This lack of assurance promulgates inadequate shift turnover.

Additionally, plant management had directed the oncoming shifts, through written instructions on the shift turnover sheets, not to bring the unit to cold shutdown. We must question this philosophy with respect to conservative operational practices. This does not appear to be consistent with licensee commitments made in the Regulatory Improvement Program.

- b. On August 24, 1984 while performing LES RP 102, "RPS Electric Power Monitoring Assembly Channel Functional Test by O.A.D.", for the Unit 2 Reactor Protection System Motor-Generator (RPS-MG) sets, Unit 1 and Unit 2 received an unplanned isolation of the outboard dampers for the reactor building ventilation system (VR) at 3:55 p.m. CDT, and a subsequent unplanned isolation of both the inboard and outboard dampers of the VR system at 5:30 p.m. CDT. The first isolation of the VR system was attributed to the failure of the licensee to recognize the crosstie between electrical (DC) Division I and electrical (DC) Division II being fed off the B Reactor Protection System-Motor Generator (RPS-MG). During the surveillance, the licensee jumpered Division I, the division in which the isolation was expected to occur when the B RPS power supply was transferred from the B RPS-MG to the alternate power supply. Upon

transfer of the electrical feed to B RPS, the power to the Division II VR isolation dampers were subsequently lost resulting in the closure of the outboard dampers. A second isolation was attributed to removal of the jumpers and the failure of the unit operator to reset the trips on the radiation monitors for the reactor building and the refueling floor ventilation. The annunciator alarms were illuminated in the control room making the operator aware of existence of the tripped radiation monitors. The annunciators came up due to a voltage spike associated with the RPS power supply transfer. There were no precautions in the procedure to instruct the reactor operator to reset the trips of the radiation monitors. The licensee failed to recognize, the Division I and II reactor ventilation isolation crosstie through RPS B bus and the potential for VR isolations, in the procedural review chain. The failure to provide an adequate Procedure, LES-RP-102, as required by Technical Specification 6.2A, is considered an item of noncompliance (373/84-23-03a(DRP); 374/84-30-04a(DRP)).

The licensee's Procedure LAP 1600-2, paragraph F.1.y requires the control room operator to monitor the control room annunciators status to detect abnormalities, and in paragraph F.1.aa the control room operator is expected to know the reason for an annunciator.

Technical Specification 6.2.A requires written procedures to be prepared, approved and adhered to for actions to be taken to correct specific and foreseen potential malfunctions of systems or components including response to alarms.

The failure of the operator to identify the off normal condition of the two (2) annunciators on the ventilation system before authorizing removal of the jumper is an item of noncompliance (373/84-23-04a(DRP); 374/84-30-05a(DRP)).

- c. On August 25, 1984 at 8:42 a.m. CDT, Unit 1 experienced a trip of the 1B recirculation pump during the performance of LIS-NB-09, "High Pressure Recirculation Pump Trip Calibration and Functional Test", while the reactor was operating at near 100% power. The pump trip resulted in a loss of recirculation flow and subsequent power reduction to approximately 60%. The trip was attributed to the unfamiliarity of the associated trip circuitry for the Anticipated Transient Without Scram (ATWS) function by the Instrument Mechanic. The Instrument Mechanic was under the impression that the position of the "ATWS test switch" would allow bypassing of both A and C channels. However, the position of the switch would allow bypassing of either channel A or C. The mechanic bypassed channel A and performed surveillance testing on pressure switch PS-1 B21-N045C, inserting a trip signal through channel C which was not bypassed, resulting in the recirculation pump trip. The failure to adhere with the procedural requirements of LIS-NB-09 as required by Technical Specification 6.7.A, is an item of noncompliance (373/84-23-03b(DRP); 374/84-30-04b(DRP)).

A similar event occurred on June 11, 1984 during the performance of LIS-NB-03, "Reactor Vessel Low Low Water Level Recirculation Pump Trip Calibration", in that the Instrument Mechanic bypassed one trip channel but inadvertently inserted a trip signal into another channel. This was identified in Inspection Report 84-14 as an item of noncompliance. The licensee's corrective action consisted of retraining of the Instrument Mechanics on this particular surveillance. The circuitry of the vessel level trip and pressure trip of the ATWS function are identical; therefore, it is questionable as to the quality and completeness of the retraining activity. In addition, the procedures for these surveillance activities may not have had the clarity necessary to assist the Instrument Mechanics in their assigned duties.

- d. On August 29, 1984 at 10:45 a.m., CDT, a safety relief valve (SRV) cycled approximately three times in a 15 second period while Unit 1 was at approximately 100% power. The RO determined that an SRV had lifted based on the receipt of the Automatic Depressurization System/Safety Relief Valve Open annunciator alarm. Other control room indicators verified that the valve had in fact cycled open and then closed. The licensee initiated a work request to have the Instrument Mechanic Department verify the pressure setpoints for the relief function of the valve. The surveillance procedure for measurement of the pressure switches had to be temporarily revised because the procedure as written was for use in cold shutdown and refueling.

At approximately 14 hours subsequent to the valves lifting, the surveillance was completed, revealing that the pressure switches were within their specified band. The licensees reported on August 30, 1984, that the valve had opened twice earlier on August 28 and 29, 1984. This determination was based on the review of the safety relief tail pipe temperature chart and on the annunciator alarm and process computer printouts. The first occurrence was on August 28 at approximately 11:00 a.m. CDT, at which time the high tailpipe temperature annunciator alarm illuminated. The ADS/SRV valve open annunciator alarm did not illuminate; however, the receipt of that alarm was recorded on the alarm printer. The RO and Shift Control Room Engineer (SCRE) responded to the tailpipe temperature alarm and concluded that it was a spurious alarm, although other control room indicators such as reactor pressure traces were available but they were not reviewed to identify that the valve had lifted. The valve opening that occurred early on August 29 was estimated to be a few seconds in duration only. The "ADS/SRV valve open" annunciator did not come up on either the alarm printer or the alarm annunciator panel, but was received on the process computer printout. The tail pipe temperature was noted as being about 240° F, which is ten degrees below the alarm point.

On August 30, 1984, the licensee determined the reason the safety valve lifted all three times was due to a ground on the power supply to the C solenoid valve. This solenoid was not in the logic used for the Automatic Depressurization System (ADS) function of this valve and therefore, the licensee had not planned on reporting its opening. Following discussions with the resident inspector, the licensee reported the event using the Emergency Notification System (ENS) phone in accordance with 10 CFR 50.72.

Technical Specification 6.2.A.3 specifies that procedures be written and adhered to for actions to correct specific malfunctions of systems including responses to alarms.

Licensee's Procedure LAP-1600-2, paragraph F.1.y requires the control room operators to monitor control room instrumentation and annunciator status to detect abnormalities and identify trends in important parameters and they should not rely solely on annunciators for plant status changes.

Failure of the operator to recognize the abnormal condition of the safety relief valve lifting is considered an item of noncompliance (373/84-23-04b(DRP); 374/84-30-05b(DRP)).

- e. On August 19, 1984 at 1:05 p.m. CDT, on Unit 2, the Residual Heat Removing (RHR) Service water strainer was found to be leaking. It was subsequently isolated making the RHR B loop inoperable. The inoperability of the RHR B loop entered the licensee into the Action Statement of Technical Specification 3.4.9.2. Special Procedure LLP 84-24, "Alternate Shutdown Cooling", had been approved earlier on August 18, 1984, in preparation for the planned work activities on the B-RHR full flow test valve. This procedure provided two alternative methods for cooling, consisting of the use of the reactor water cleanup heat exchangers or the use of the main condenser and the main steam line drains. On August 20, 1984 at 12:35 p.m. CDT, the licensee tested the shutdown cooling capability of the reactor water cleanup heat exchangers. A heatup rate of 6° F per hour was measured in lieu of a cool down rate. On August 19, 1984, at 2:05 p.m., the licensee began transferring water from the suppression pool to the condenser hotwell via radwaste, in order to raise condenser water level to the level specified in special Procedure LLP 84-22. The lineup for filling the condenser was altered on August 21 at 12:30 p.m. when suppression pool cooling was placed in operation which transfers water from the pool via the condensate polisher to the condenser. On August 22 at 9:00 a.m. the condenser was filled to the level specified in special Procedure LLP 84-24 and the alternate shutdown cooling mode was "demonstrated" operable in that a flow path was established between the condenser and reactor and indication of cooling of the reactor was noted. It is understood by the NRC that the ability to "demonstrate" the operability of an alternate shutdown cooling mode within one hour as required by Technical Specification 3.4.9.2 was difficult; however, the failure to demonstrate an alternate shutdown cooling method within 68 hours is not viewed as an adequate attempt to meet Technical Specification 3.4.9.2. The licensee's understanding of "demonstrate the operability" of another shutdown cooling mode within one hour required by Technical Specification 3.4.9.2, was to have a procedure for accomplishing the work and an analysis that showed it would perform its intended function. This event will be looked into further by the inspectors for interpretation of the Technical Specification and will be tracked as an unresolved item (373/84-23-5(DRP)).

### 3. Enforcement Conference

On September 17, 1984, an enforcement conference was held between Commonwealth Edison Company (CECo) and NRC Region III management. Attendees are listed in paragraph 1. The discussion covered an overview of the vent and purge valve Limiting Condition for Operation (LCO) violation comparison with previous violations, a review of a number of personnel errors which occurred over a short period of time and the corrective actions being taken to improve and prevent recurrences of these events.

The licensee attributed the root cause of the vent and purge valve violation to be personnel oversight by the Shift Control Room Engineer (SCRE) who became distracted and forgot the LCO time clock. The safety significance of the vent and purge valve event was discussed, and although the event was taken by the licensee to be a serious occurrence because of violating a Technical Specification LCO, the safety significance was minimal. The unit was already in hot shutdown and personnel were aware of the work going on in the drywell.

A discussion was then held concerning a number of personnel errors which occurred in a short period of time. The licensee's presentation addressed the NRC concerns and the action being taken to resolve these issues.

The issues are identified as items of noncompliance in paragraph 2 and the licensee will document his corrective action in response to the items.