

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 50-373/88010

Docket No. 50-373

License No. NPF-11

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

Facility Name: LaSalle County Station, Unit 1

Inspection At: LaSalle Site, Marseilles, Illinois

Inspection Conducted: March 24 through April 25, 1988

Inspector: *Beth A. Azab*
Beth A. Azab

4/28/88
Date

Approved By: *M. P. Phillips for*
Monte P. Phillips, Chief
Operational Programs Section

4/29/88
Date

Inspection Summary

Inspection on March 24 through April 25, 1988 (Report No. 50-373/88010 (DRS))

Areas Inspected: Routine announced safety inspection of defueling activities (60710).

Results: One violation was identified for failure to follow shift change and log keeping procedures.

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DETAILS

1. Persons Contacted

Commonwealth Edison Company

- *G. Diederich, Station Manager
- *D. A. Brown, Quality Assurance Superintendent
- *M. Cray, Instrument Maintenance Department, Lead Foreman
- *W. R. Huntington, Services Superintendent
- +P. F. Manning, Assistant Superintendent, Technical Services
- *W. J. Marcis, Site Engineering Supervisor
- *V. V. Masterson, Fuel Handling Foreman
- *E. A. McVey, Technical Staff, Assistant Lead Nuclear Engineer
- +J. Miller, Technical Staff, Lead Nuclear Engineer
- +*J. C. Renwick, Production Superintendent
- +*J. Schmeltz, Assistant Superintendent of Operations
- +*A. C. Settles, Regulatory Assurance

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- +*R. A. Kopriva, Resident Inspector
- +P. R. Rescheske, Reactor Safety Inspector
- +G. C. Wright, Chief, Operations Branch

The inspector also interviewed other licensee personnel during the course of the inspection including members of the operations and technical staff.

*Denotes persons attending the exit meeting of April 5, 1988.

+Denotes persons attending the second exit meeting of April 21, 1988, held via teleconference.

2. Refueling Activities

The inspector reviewed a number of completed procedures relating to defueling activities for procedural adequacy and compliance with Technical Specifications, particularly section 3/4.9 which deals with refueling operations. The following procedures were reviewed and found adequate:

- LFP-100-1, "Master Refuel Procedure, Revision 11.
- LTP-1100-6, "Duties of the On-site Nuclear Observer," Revision 6
- LTP-1600-26, "General Procedure for Fuel Transfers within the Station," Revision 12 and Attachment C: "Nuclear Component Transfer List," completed March 26, 1988.
- LFS-100-4, "Core Alteration Shiftly Surveillances," Revision 6, performed March 19-23, 1988.

- LAP-100-29, "Refuel Platform Main Hoist Interlocks Check for Core Alterations," Revision 3, performed March 25, 1988.
- LOS-AA-S1, "Unit 1 Shiftly Surveillance," Revision 23, performed March 19-23, 1988.
- LIS-NR-301, "Unit 1 Source Range Monitor Rod Block Functional Test Data Sheet (Unit 1 NOT in "RUN" Mode)," Revision 4, performed March 19, 1988.
- LIS-NR-302, "Unit 1 Intermediate Range Monitor Rod Block and Reactor Scram Functional Test Data Sheet (Reactor in Startup-Shutdown-Refuel Modes)," Revision 5, completed March 18, 1988.
- LIS-NR-303, "Unit 1 Average Power Range Monitor Rod Block and Scram Functional Test," Revision 7, completed March 18, 1988.

The inspector witnessed defueling activities on the refuel floor performed by both refueling crews and in the control room during day shift. The fuel was handled safely and in accordance with written procedures. Communications between the refuel bridge and control room were very good: The control room was informed of each separate fuel handling step performed. The inspector also observed good housekeeping practices on the refueling bridge and near the open reactor cavity.

The inspector identified two concerns in the area of radiological controls which were referred to regional radiation protection inspectors who were on site at the time of the inspection.

- a. Two Area Radiation Monitors (ARM) located on the refuel floor had calibration stickers that were older than the required 18 month calibration period. One ARM had a calibration sticker dated 1984. The licensee produced the calibration data sheets for the ARMs which were performed within the specified time period. The licensee stated that they no longer use calibration stickers and are in the process of removing them when the instrument is calibrated.
- b. The inspector observed licensee personnel in street clothing leaning over a railing that acted as the barrier between a clean and contaminated area to observe fuel movements on the refuel floor. The top of the railing had magenta and yellow tape on it and contaminated area signs were posted on the side of the railing.

No violations or deviations were identified in this area.

3. Intermediate Range Monitors Operability

During defueling activities the licensee had two Intermediate Range Monitors (IRMs) on the same trip system declared inoperable which is one more than allowed by Technical Specification 3.1.1. The following is a chronology of events:

- March 13 'D' IRM read lower than the others on Range 10 during the reactor shutdown and was declared inoperable on the Degraded Equipment Log. After the reactor scram 'D' IRM read the same as the others, so it was not bypassed, but still declared inoperable. Because it was not bypassed some operations staff thought it had been upgraded from inoperable to degraded status, although an entry was made in the Degraded Equipment Log (DEL) indicating that the 'D' IRM was inoperable.
- March 15 'F' IRM was declared inoperable and bypassed because it spiked high and caused a spurious half scram. There are a total of eight IRMs, four per trip system; with both 'D' and 'F' IRM on the same trip system. The plant was in Mode 4, and was required to have two operable IRMs per trip system per Technical Specification 3.3.1.
- March 17 The plant entered Mode 5 (Refueling Mode) and was required per Technical Specification 3.3.1 to have three operable IRMs per trip system. However, both 'D' and 'F' IRM were still declared inoperable, therefore only two IRMs were operable on trip System B. The action for having less than the number of IRMs required is to suspend all operations involving core alterations and insert all insertable control rods within one hour. All control rods remained inserted since the scram on March 13.
- March 19 Core alterations began, contrary to the action statement of Technical Specification 3.3.1.
- March 25 Instrument Mechanics (IMs) requested permission to perform their weekly functional tests on the IRMs. The SCRE then realized that two IRMs were entered inoperable on the DEL and started to investigate. Core alterations were suspended because operating personnel realized they were not in compliance with Technical Specification 3.3.1.

The IMs inspected 'F' IRM and found a loose connector, which could have caused the spiking. 'F' IRM passed its functional test and was declared operable and core alterations were commenced.

The IMs performed both a calibration and functional test on 'D' IRM. The calibration as-left and as-found values remained unchanged and the functional test passed.

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'D' IRM was upgraded from inoperable to degraded status pending a calibration during startup testing. The basis for the upgrade was a passed functional test and no detection of abnormalities during calibration and trouble-shooting.

The purpose of the IRMs during Refueling Mode is to provide a rod block function which is an automatic protection against an operational error, such as pulling two adjacent rods and obtaining an inadvertent criticality. The IRMs do not provide a count rate during refueling; Source Range Monitors (SRMs) provide that function. The Technical Specification definition of operability states that a component or device is operable when it is capable of performing its intended function. Since no adjustment was made to 'D' IRM between the time it was declared inoperable and the time it passed the IRM functional test, Surveillance LIS-NR-302, and it was never placed in bypass; there is a question as to whether 'D' IRM was ever technically inoperable (incapable of performing its intended function). Because 'D' IRM was probably always operable, as indicated by an instrument calibration and functional tests performed, a violation of Technical Specification 3.3.1 did not exist.

The main concern with this incident was that of procedural and administrative errors that resulted in a Mode change without the required instrumentation operable and, more importantly, operating personnel not aware that they were in noncompliance with Technical Specifications for eight days.

As corrective action, the licensee wrote a draft procedure to verify compliance with Technical Specification requirements prior to Mode change from Condition 4 to 5. The incident was partially due to the fact that some operating personnel were unaware that the IRM operability requirement went up for a Mode 4 to 5 change, where most equipment requirements normally become less restrictive when coming down in Modes. The draft procedure was comprehensive in that it addressed all the systems and components required for Mode 5 and should prevent another Mode 4 to 5 change without the required equipment operable.

However, the writing of a Mode change procedure did not address the fact that several operating procedures were previously in place to verify that Technical Specification requirements for equipment operability were being met, but these procedures were not followed. Procedure LAP-200-3, "Shift Change," Revision 15, required both the off-going and on-coming Shift Engineers to review the DEL. It also required the on-coming SCRE to review and discuss the DEL with the off-going SCRE. Both 'D' and 'F' IRMs were listed as being inoperable in the DEL in Mode 5 for eight days without any operating personnel discovering it in their shift reviews of the DEL. The procedure also instructed the off-going Shift Engineer to log in the Shift Engineer's Log when it was declared inoperable. Procedure LAP-220-2, "Unit Operators' Log," Revision 13, stated that the log should include a descriptive chronology for the main events of the

shift, such as, new DEL entries. The 'D' IRM DEL entry was not documented in either the Shift Engineer's Log or the Unit Operators' Log. Procedure LAP-220-4, "Degraded Equipment Log," Revision 2 required the Operating Engineer review the DEL weekly "to ensure that Technical Specification requirements are being met . . ." and to document this review by making a line entry in the DEL. The Operating Engineer signed the DEL signifying that he reviewed it on March 11 and 25, thereby missing a weekly review signature during the eight day period in question, and not ensuring Technical Specification requirements were being met as instructed by procedure.

The above examples are considered a violation (373/88010-01(DRS)) of Technical Specification 6.A.2.1, which states that written procedures shall be prepared, approved and adhered to.

4. Corrective Actions

The inspector reviewed the additional corrective actions discussed in the exit meeting conducted on April 21, 1988, with operations personnel at the site on April 25, 1988. The additional corrective actions were a result of the licensee's investigation of the incident. The licensee is making the following revisions to Procedure, LAP-220-4, "Degraded Equipment Log," Revision 3:

- Instructions to place red tags on inoperable technical specification or safety related equipment on control room switches and indicators are being incorporated into the procedure. The tags will clearly designate to the operators during panel walkdowns the equipment that is inoperable.
- The Operating Engineer's weekly DEL review is being expanded to allow other off-shift personnel, who were not responsible for maintaining the log, to review the DEL for compliance with Technical Specification requirements.
- Attachment B of the procedure is being revised to add spaces for documenting changes in equipment status, and documenting the date and time red tags on inoperable equipment have been placed and removed.
- Attachment F of the procedure is being revised to require operating personnel to clearly delineate whether the equipment is inoperable or degraded. Also, the dates red tags are placed and removed will be logged on this attachment.
- A new Attachment, I, "Degraded Equipment Status Change History," is being created to clearly track status changes of equipment and provide reliable information to the operating staff concerning the status of equipment.

The operating staff will be trained on the revisions to the DEL procedure and the use of red tags either in pre-shift briefings or by a required reading package.

The licensee is also considering reformatting their Technical Specification Surveillances to help eliminate possible noncompliances with Technical Specifications. The text of the required steps will be moved to the Attachments, so that it is on the back of the page preceding the data. The location of the text will not interfere with the data, and will allow the requirements to be readily available to both the data taker and reviewer. The surveillances will also be broken down by operating modes to eliminate possible errors regarding different requirements for the various modes, and excessive use of N/A's when in a mode where the surveillance is not applicable. The licensee's Weekly Technical Specification Surveillance procedure has been reformatted and is currently undergoing a trial period. Daily and Shiftly Technical Specification Surveillances may be reformatted, pending the results of using the new Weekly Surveillance.

The above corrective actions will be further reviewed by the NRC during followup of the violation identified in this report as appropriate.

No violations or deviations were identified.

5. Quality Assurance Effectiveness

The inspector interviewed Quality Assurance personnel during the inspection. Two Quality Assurance personnel witnessed defueling activities performed by both defueling crews. An audit of the completed refueling procedures was expected to be performed after the completion of refueling activities which would include a check for Technical Specification requirements and surveillances. The violation previously discussed could not have reasonably been expected to be identified by the Quality Assurance organization and their review of refueling activities appeared to be adequate.

6. Exit Interview

The inspector met with licensee representatives (denoted in Paragraph 1) at the conclusion of the inspection on April 5, 1988, and summarized the scope and findings of the inspection. The licensee acknowledge the statements made by the inspector with respect to the violation (denoted in Paragraph 3). The inspector also discussed the likely informational content of the inspection report with regard to documents or processes reviewed by the inspector during the inspection. The licensee stated that no material reviewed by the inspector was considered proprietary.

A second exit meeting was held on April 21, 1988, via teleconference, to discuss the licensee's corrective actions for the IRM operability incident. Details of the corrective actions are discussed in Paragraph 4.