U. S. NUCLEAR REGULATORY COMMISSION

REGION III

Reports No. 50-373/90022(DRS); 50-374/90023(DRS)

Docket Nos. 50-373; 50-374 Licenses No. NPF-11; NPF-18

Licensee: Commonwealth Edison Company
Opus West III
1400 Opus Place
Downers Grove, IL 60515

Facility Name: LaSalle County Station, Units 1 and 2

Inspection At: LaSalle Site, Marseilles, Illinois

Inspection Conducted: September 17 through September 21, 1990

Inspectors: M. J. Kopp — Date: 10/10/90
M. J. Kopp

G. M. Hausman — Date: 10/10/90
G. M. Hausman

Approved By: Ronald N. Gardner — Date: 10/10/90
Ronald N. Gardner, Chief
Plant Systems Section

Inspection Summary

Inspection on September 17 through September 21, 1990 (Reports No. 50-373/90022(DRS); No. 50-374/90023(DRS))
Areas Inspected: Special announced safety inspection of previously identified unresolved items concerning the instrumentation system for assessing plant conditions during and following an accident as specified in Regulatory Guide (RG) 1.97, Revision 2 (Modules 30703 and 2515/087); SIMS Number 67.3.3.
Results: In the area inspected, one deviation was identified. This deviation concerned reactor vessel level instrument loop LT-1(2)B21-26BA and the use of resistors as isolation devices to isolate the RG 1.97 circuit from the nonsafety-related Startrec system.

Based on this inspection, the inspectors concluded that actions have been taken to resolve three of the six unresolved items identified in Inspection Reports No. 50-373/88027(DRS) and No. 50-374/88026(DRS).

Details

1. Persons Contacted

Commonwealth Edison Company (CECo)

+G. J. Diederich, Station Manager
+W. Huntington, Technical Superintendent
+W. Betournr, Nuclear Quality Program Superintendent
+J. Gieseker, Technical Staff Supervisor
+B. Wong, BWR System Design, Principal Engineer
M. Vrla, BWR System Design, Principal Engineer
D. Sharko, BWR System Design, General Engineer
T. Hammerick, Regulatory Assurance Supervisor
M. Pack, BWR System Design, Senior Technical Analyst
+L. Beason, Nuclear Quality Program Auditor
+P. Wisniewski, Regulatory Assurance
+J. Kocek, Technical Staff Lead Engineer

Sargent and Lundy Engineers (S&L)

T. Naylor, Senior Project Engineer
V. Gilautra, Senior Project Engineer

U. S. Nuclear Regulatory Commission (USNRC)

R. Pulsifer, NRR Project Manager, LaSalle
+R. Kopriva, Resident Inspector, LaSalle

Illinois Department of Nuclear Safety (IDNS)

+J. Roman, Resident Engineer

+Denotes those participating in the exit meeting on September 21, 1990.

2. Licensee's Actions Regarding Previously Identified NRC Findings

a. (Open) Unresolved Item (373/88027-01(DRS);374/88026-01(DRS)):

The NRC Regulatory Guide (RG) 1.97 Safety Evaluation Report (SER), dated August 20, 1987, stated that the neutron flux monitoring instrumentation system installed at the LaSalle County Station (LSCS) did not comply with the Category 1 requirements of RG 1.97, Revision 2. The letter transmitting the SER required the licensee to install an upgraded neutron flux monitoring system to comply with the Category 1 criteria. During the October 1988 NRC inspection, the inspectors noted that although upgraded neutron flux instrumentation systems were available, the licensee had not met this SER commitment. The licensee was informed at the completion of the inspection that they were required to comply with the SER and upgrade their neutron flux instrumentation system to Category 1 requirements.

During this current NRC inspection, the inspectors determined that CECo committed to follow the Boiling Water Reactors Owner's Group (BWROG) recommendation regarding the installation of an upgraded neutron flux monitoring system. The BWROG submitted to the NRC a Licensing Topical Report (LTR) entitled "Position on NRC Regulatory Guide 1.97, Revision 3, Requirements for Post-Accident Neutron Monitoring System (General Electric Report NEDO-31558)," which addressed an alternative to the RG 1.97 approach for neutron flux monitoring. The BWROG requested NRR to review and approve the proposed alternatives contained in the LTR. On January 29, 1990, the Staff issued a SER which concluded that the alternatives were unacceptable. However, in a letter dated August 16, 1990, the BWROG appealed the Staff's decision and requested that this matter be reviewed by the Committee to Review Generic Requirements (CRGR). Pending further review of this matter by NRR, this Unresolved Item remains open.

b. (Closed) Unresolved Item (373/88027-02(DRS);374/88026-02(DRS)):

During the October 1988 NRC inspection, the inspectors determined that RG 1.97 required the measurement of reactor water level from -320.5" to +120.5" based on instrument zero. The inspectors noted, however, that the available range for the installed RG 1.97 wide range instrumentation was from -150" to +60" based on instrument zero. The licensee stated that they had identified the above range in their RG 1.97 submittal. However, the inspectors noted that the NRC did not address this deviation in the August 20, 1987 SER. The inspectors informed the licensee that the LSCS instrumentation range for reactor vessel water level was not in compliance with RG 1.97, Revision 2.

During this current inspection, the inspectors determined that in addition to the wide range instrumentation the licensee designated and identified the fuel zone level instrumentation as RG 1.97, Category 1. The fuel zone level instrumentation covers the range from the bottom of active fuel to over 4 feet above the top of active fuel (-311.5" to -111.5"). The inspectors also noted that the upset range instrumentation monitored the range between 0" to +180" with respect to instrument zero. However, this instrumentation was not included in the RG 1.97 program since it did not meet Category 1 requirements. Based on discussions with the Instrumentation and Control Systems Branch (SICB) at NRR, it was concluded that the upset range instrumentation could satisfy RG 1.97, Category 3 requirements provided no automatic or manual actions were taken in response to readings from this instrumentation. Based upon NRR's position, the licensee performed a review and concluded that the upset range instrumentation was acceptable and meets RG 1.97, Category 3 requirements. The licensee committed to document their review and conclusions, and to include the upset range in the RG 1.97 program. The inspectors concluded that based upon the use of the fuel zone instruments and NRR's position concerning the upset range instruments, this Unresolved Item is closed.

c. (Closed) Unresolved Item (373/88027-03(DRS);374/88026-03(DRS)):

This item concerned the isolation of the safety-related RG 1.97 reactor vessel level instrument loop LT-1(2)B21-26BA from the nonsafety-related Startrec system. The inspectors noted that circuit isolation was provided by two 22k Ohm resistors. The inspectors informed the licensee that resistors were not acceptable for the isolation of RG 1.97 instrumentation as they have not been tested and demonstrated to isolate a maximum credible fault. The licensee was also informed that the resistors must be replaced with a qualified isolator or a deviation requested from NRR.

During this current inspection, the inspectors reviewed the electrical schematics for instrument loop LT-1(2)B21-26BA and noted that the resistors had not been replaced with qualified isolators. The licensee stated that their engineering analysis concluded that the resistors would provide the required isolation and therefore the installation was considered acceptable to meet RG 1.97 criteria. The inspectors informed the licensee that this was considered a Deviation from a commitment to comply with RG 1.97, Revision 2. This Unresolved Item is considered closed. This issue is further discussed in Section 3.

d. (Closed) Unresolved Item (373/88027-04(DRS);374/88026-04(DRS)):

During the October 1988 NRC inspection, the inspectors noted that the required RG 1.97 range for containment and drywell hydrogen concentration was 0 to 30%. The inspectors identified that the installed instrumentation had a range of 0 to 10%. This discrepancy was not addressed in the RG 1.97 August 20, 1987 SER. The licensee was informed that the instrument range for this variable was not in compliance with RG 1.97, Revision 2.

During this current inspection, the inspectors noted that the licensee responded to this item in a letter to the NRC on March 2, 1989. The letter stated that the range of 0 to 10% was accepted by the NRC and documented in a SER dated March 1981 (NUREG-0519, page 22-87). The SER concluded that the range of 0 to 10% met the "TMI Requirements for Additional Accident-Monitoring Instrumentation," II.F.1, Attachment 6, Containment Hydrogen Monitor. Based on this interpretation, the licensee concluded that the RG 1.97 range requirements for the containment and drywell hydrogen concentration had been accepted by the NRC. The inspectors reviewed the NRC March 1981 SER and discussed this interpretation with NRR/SICB. The inspectors concluded that the 0 to 10% range is considered acceptable for RG 1.97. This Unresolved Item is closed.

e. (Open) Unresolved Item (373/88027-05(DRS);374/88026-05(DRS)):

This item concerned the use of two 22k Ohm resistors to isolate RG 1.97 containment pressure instrument loop 1(2)PT-CM028 from the non-safety related Startrec system. The licensee was informed that resistors were not acceptable isolation devices for the isolation of RG 1.97 circuits

as they have not been tested and demonstrated to isolate a maximum credible fault. The licensee was requested to either replace the resistors with qualified isolators or request a deviation from NRR.

During this current inspection, the inspectors determined that the 22k Ohm resistors were replaced per Engineering Change Notices (ECN) ED-307/M1-1-87-026 and ED-310/M1-2-87-006 with Rochester Model SC-1302 isolators. The licensee stated that the Rochester isolators were installed due to modifications made to the instrument loop and not to resolve NRC concerns. The licensee also stated that the Rochester isolators had been tested and demonstrated to be capable of withstanding the maximum credible fault. Pending review of the Rochester Test Report No. 16376, Revision 4, by Region III and NRR/SICB, this Unresolved Item remains open.

f. (Closed) Unresolved Item (373/88027-06(DRS);374/88026-06(DRS)):

During the NRC October 1988 inspection, the inspectors noted that the human factors analysis of the control room had not been completed because of pending NRC reviews of the Detailed Control Room Design Review (DCRDR) and Safety Parameter Display Station (SPDS). The inspectors were concerned because the instruments had not been identified as required by RG 1.97 or located on the control room panels in accordance with the human factors analysis. The licensee stated that the RG 1.97 instruments would be identified and located on the panels once the human factors reviews were complete and the modifications performed. In addition, the inspectors noted that the operators had not received RG 1.97 training, and that the Emergency Operating Procedures (EOPs) did not address the use of RG 1.97 instruments. The inspectors informed the licensee that identification and location of RG 1.97 instruments, and appropriate training of operators was necessary for the safe operation of the plant. The licensee took immediate corrective action and temporarily identified appropriate RG 1.97 instruments in the Unit 1 and 2 control rooms. In addition, the operators were briefed on the proper use of the RG 1.97 instruments.

During this current inspection, the inspectors reviewed procedure LAP-1600-15, "Regulatory Guide 1.97 Instruments", Revision 0, performed a control room walkdown, reviewed the licensee's training records, and reviewed the status of the licensee's human factor modifications. The results indicated that the licensee had:

- Identified the RG 1.97 instruments in the control room as identified in LAP-1600-15, Revision 0.
- Performed and documented RG 1.97 training of Operators.
- Completed the RG 1.97 human factor modifications.

This Unresolved Item is closed.

3. Isolation of RG 1.97 Reactor Water Level Instrumentation

Regulatory Guide (RG) 1.97, Revision 2, requires for Category 1 instrumentation that redundant or diverse channels be electrically independent and physically separated from each other and from equipment not classified important to safety in accordance with Regulatory Guide 1.75, "Physical Independence of Electric Systems," up to and including any isolation device. A review of the schematic drawings for the RG 1.97, Category 1 reactor water level instrument loop LT-1(2)B21-26BA identified that resistors are used to isolate the nonsafety-related Startrec system from this safety-related instrument circuit. The licensee stated that an engineering analysis was performed and the resistors were determined to be acceptable isolation devices for this application. The inspectors informed the licensee that resistors were not acceptable isolation devices because they had not been tested and demonstrated to be capable of isolating the maximum credible fault. In addition, previous reviews by NRR/SICB concerning the use of resistors as isolation devices in RG 1.97 circuits have determined that testing is required to demonstrate acceptability. Therefore, the licensee's failure to install qualified isolators to isolate the RG 1.97 reactor water level instrument circuit from the nonsafety-related Startrec system is considered a Deviation from a commitment to comply with RG 1.97, Revision 2 (50-373/90022-01(DRS);50-374/90023-01(DRS)). A written response is required.

4. Unresolved Items

An unresolved item is a matter about which more information is required in order to ascertain whether it is an acceptable item, an open item, a deviation, or a violation. Unresolved items remaining open during this inspection are discussed in Paragraph 2(a) and 2(e).

5. Exit Interview

The Region III inspectors met with the licensee's representatives (denoted in Paragraph 1) and discussed their findings at the conclusion of the inspection on September 21, 1990. The inspectors discussed the likely content of the inspection report with regard to documents or processes reviewed by the inspectors. The licensee did not identify any such documents or processes as proprietary.