

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 50-373/82-19(DETP)

Docket No. 50-373

License No. NPF-11

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

Facility Name: LaSalle County Station, Unit 1

Inspection At: LaSalle Site, Marseilles, IL

Inspection Conducted: March 17-19, 24-26 and April 8, 1982

Inspectors: *R. Mendez*
R. Mendez

9/14/82

J. Grobe
J. Grobe

9/14/82

Approved By: *C. C. Williams*
C. C. Williams, Chief
Plant Systems Section

9/14/82

Inspection Summary

Inspection on March 17-19, 24-26 and April 8, 1982 (Report No. 50-373/82-19(DETP))

Areas Inspected: Routine announced inspection to review Licensee Action on Previous Inspection Findings identified in Reports No. 50-373/80-55, 50-373/82-07, 50-373/82-11 and 50-373/82-13 concerning the fire protection program. This inspection involved 130 inspector-hours onsite by two NRC inspectors.

Results: Of the areas inspected, no items of noncompliance were identified in any areas.

DETAILS

1. Persons Contacted

- *R. Bishop, Assistant Superintendent, Administrative and Support Services
- *J. Renwick, Technical Staff Supervisor
- *T. Meyer, Station Fire Marshall
- *T. Hausheer, Fire Protection Engineer

*Denotes those persons present at the exit interview on March 26, 1982.

2. Licensee Action on Previous Inspection Findings

(Closed) Unresolved Item (50-373/82-11-10): Cable Spreading Room Fire Detection System Design Deficiencies. The fire detection system in the cable spreading room does not meet the design and installation specification in NFPA 72E, Automatic Fire Detectors. This system functions to actuate the cable tray closed-head water spray system in the cable spreading room.

Although this fire detection system does not meet industry standards and LaSalle County Station commitments, the Office of Nuclear Reactor Regulation accepted the Cable Spreading Room fire protection system in its as-built condition as reflected in Section 9.5.1.2 of Supplement No. 3 to NUREG-0519, Safety Evaluation Report related to the Operation of LaSalle County Station, Units 1 and 2. This item is closed.

(Closed) Unresolved Item (50-373/82-11-11): Cable Spreading Room Water Spray System. The cable tray closed head water spray system in the Cable Spreading Room does not meet the design and installation requirements in NFPA 15, Water Spray Fixed Systems. The system does not provide the required water spray density over the protected area.

Although this water spray system does not meet industry standards and LaSalle County Station commitments, the Office of Nuclear Reactor Regulation accepted the Cable Spreading Room fire protection system in its as-built condition as reflected in Section 9.5.1.2 of Supplement No. 3 to NUREG-0519, Safety Evaluation Report related to the Operation of LaSalle County Station, Units 1 and 2. This item is closed.

(Closed) Open Item (50-373/82-11-12): FSAR Commitment for Fire Detection Systems. LaSalle County Station AIR 1-82-146 required that the typographical error concerning the fire detection system commitment to comply with NFPA 72E be corrected in the next FSAR Amendment. This AIR will be closed upon the issuance of Amendment No. 62 to the FSAR. This amendment has been submitted to the NRC and is in the process of being issued. This item is closed.

(Closed) Open Item (50-373/82-11-13): Sprinkler System Drawing Error. The inspectors reviewed the revised and approved drawings for the HPCS Diesel Oil Day Tank Room Sprinkler System (Viking Drawing No. 11-75307, Sheet 10). The approved drawing reflects the as-built configuration and this item is closed.

(Closed) Open Item (50-373/82-13-01A): Auxiliary Equipment Room and Division II Switchgear Room Fire Dampers. The inspectors reviewed Nonconformance Report No. 2238 (The Zack Co.) and spoke with the Quality Control Inspector who closed this NCR. The inspectors also examined AIR 1-82-159 which tracked three fire damper qualifications deficiencies. AIR 1-82-159 was closed on June 14, 1982. This item is closed.

(Closed) Open Item (50-373/82-13-01B): Redundant Division Separation. The licensee committed to relocate cable trays at the 731' elevation in Fire Zone 2F to provide a 50 foot separation between redundant divisions of cabling. The inspector observed that the redundant divisions were wrapped with a fire resistant material, but the trays had not been relocated. The licensee requested that the Office of Nuclear Reactor Regulation approve the as-built condition and, although this condition does not meet previous commitments, NRR approved the as-built separation as reflected in Section 9.5.8 of Supplement No. 2 to NUREG-0519. This item is closed.

(Closed) Unresolved Item (50-373/80-55-02): Fire Protection Equipment and Systems. The inspectors examined the licensee's fire suppression, fire detection and emergency systems including the carbon dioxide suppression system, the fire water supply system, the automatic and manual water sprinkler and spray systems, the ionization and heat detection systems and the installed fire barriers. These systems and equipment were reviewed using the commitments and requirements contained in the Safety Evaluation Report (SER) related to the Operation of LaSalle County Station, Units 1 and 2 (NUREG-0519 with Supplements No. 1, 2, and 3) and the proposed Operating License for LaSalle County Station, Unit 1. The inspection consisted of visual examination of selected systems and equipment to verify that they were installed in accordance with the design drawings and applicable codes and standards, and to determine if the installed systems were adequate and satisfied the design specifications. The completed preoperational tests of selected systems installed to protect safe shutdown equipment were also reviewed to verify that the systems function as designed.

a. Water Supply Systems

The inspector reviewed the preoperational logic test, SD-FP-10³, and data sheets for the two diesel fire pumps (OFPO1KA/OFPO1PA and OFPO1KB/OFPO1PB). A review of the preoperational test indicated that both pumps started when the system pressure dropped to 123 PSIG, when used as the primary backups. When utilized as the secondary backups, both diesel pumps activated when the system pressure fell to 118 PSIG. Separate alarms are provided in the control room on panel 1PM09J to monitor pump operation. In addition, a low header pressure alarm sounds in the control room on panel 1PM09J and, the diesel fire pumps are supplied by individual pump battery systems.

No items of noncompliance were identified in this area.

b. Sprinkler and Standpipe Systems

The inspectors reviewed the following drawings:

<u>Number</u>	<u>Title</u>	<u>Date and Revision</u>
S&L M-776 Sheet 4 of 14	Reactor Building Floor Plan	7/8/80 Revision C
S&L M-776 Sheet 5 of 14	Fire Protection Equipment Location - Main Floor Plans	7/8/80 Revision C
S&L M-776 Sheet 6 of 14	Mezzanine Floor Plan	7/8/80 Revision C
S&L M-776 Sheet 10 of 14	Cable Spreading Room Miscellaneous Floor Plans	7/8/80 Revision C
S&L M-72 Sheet 1 of 2	P and ID Fire Protection	2/2/82 Revision J
S&L 1E-1-4033AR	Schematic Diagram Cable Spreading Room Fire Protection Control Panel 1FP05J Pt. 1	2/1/82 Revision J

The inspectors examined automatic and manual water suppression systems during tours of the following plant areas:

Turbine Building
Standby Gas Treatment System Charcoal Adsorbers
Dirty and Clean Oil Tank Room
Emergency Diesel Generator Fuel Storage Tank Rooms "1A" and "0"
HPCS Diesel Day Tank Room
Hallway Outside Emergency Diesel Generator Rooms
Reactor Feed Pump Rooms
Condensate Pump Rooms
Reactor Feed Pump Exhaust Duct Rooms
Railroad Entrance Area of Reactor Building
Auxiliary Building Ground Floor, Zone 4F3
Cable Spreading Room

In addition to the visual observations made in the plant areas mentioned above, preoperational tests for manual and automatic water suppression systems were also reviewed for the following areas:

Control Room Emergency Makeup System Charcoal Filters
Auxiliary Electric Equipment Room Supply Air System Filters
Primary Containment Purge Air System Filters
Control Room Supply Air System Filters
Diesel Fire Pump Rooms
Radwaste Building Truck Bay and Dry Waste Storage Area

The inspectors also reviewed the procedures listed below:

<u>Title</u>	<u>Number</u>	<u>Date and Revision</u>
Use of Locks on Valves	LAP-240-1	12/29/81 Revision 4
Fire Protection Flow Path Valve Position	LOS-FP-M3	11/20/81 Revision 3

The inspectors reviewed construction drawings and preoperational logic tests (SD-FP-101, Section 10.4) for the water supply valves to all the automatic and manual sprinkler systems listed in the SER and verified that they were electrically supervised with audio and visual "trouble" alarms in the control room on panels 1FP04JB and 1FP04JC. Additionally, the integrated tests for all automatic sprinkler systems were performed and documented in Section 10.5 of the preoperational. The automatic sprinkler systems have water flow "actuate" alarms which annunciate in the control room on panels 1FP04JB and 1FP04JC and also in the Division 2 switchgear room.

The test procedures for the suppression systems and supervised valves appear adequate. Each step for a system is signed off and dated. Deficiencies are recorded and corrective action taken to correct the problem is documented.

During walkdowns of selected plant areas automatic and manual fire protection valves were observed to have breakaway locks and were controlled by a key locking procedure which included surveillance check-off lists.

Fourteen of the twenty areas listed in Section 7.5.1 of the SER were randomly inspected to determine whether they had been equipped with automatic and manual water suppression systems. The inspectors also examined supervised limit switches on the water supply valves to the automatic and manual sprinkler systems.

The inspectors examined construction drawings to verify that the hose station outside the cable spreading rooms has a separate connection to the fire protection supply header, with valves installed to prevent a failure from affecting both the Cable Spreading Room automatic suppression system and the hose station.

During a walkdown of this area, it was noted that the hose station had been upgraded to the required 100 foot length hose.

An additional manual suppression hose station had been added in fire zone 4A. Furthermore, six fire hose stations have been upgraded to 100 ft. of hose in fire zones 2B1, 5A3 and 5B3.

No items of noncompliance were identified in this area.

c. Fire Suppression Gas Systems

The inspectors examined the preoperational tests for the following systems:

<u>Title</u>	<u>Area</u>	<u>Date</u>
Low Pressure CO ₂ Field Test Report	Diesel Generator Room 1B	8/1/79
Low Pressure CO ₂ Field Test Report	Diesel Generator Room 1A	8/1/79
Low Pressure CO ₂ Field Test Report	Diesel Generator Room 0	8/1/79

The inspectors also reviewed the listed drawing:

<u>Number</u>	<u>Title</u>	<u>Revision Date</u>
S&L M-78 Sheet 1	P & ID Hydrogen and CO ₂	9/25/81

The inspectors reviewed the preoperational tests for the 1A, the 1B and the 0 Diesel Generator Room carbon dioxide systems. The results of the tests adequately met the commitment criteria of discharging a 34% concentration of carbon dioxide after a time delay of 30 seconds.

The inspector verified through a drawing review and selected visual observations, that seventeen carbon dioxide hose reels have been provided in areas with high concentration of electrical cabling.

No items of noncompliance were identified in this area.

d. Fire Detection Systems

The inspectors examined the following drawings:

<u>Number</u>	<u>Title</u>	<u>Revision Date</u>
S&L 1E-0-3930	Fire Detection System Floor Elev. 820'-0" and 786'-6"	1/19/82 Revision E
S&L 1E-0-3931	Fire Detection System Floor Elev. 754'-0", 761'-0" and 768'-0"	1/19/82 Revision E
S&L 1E-0-3932	Fire Detection System Floor Elev. 677'-0", 749'-0" 843'-6"	1/19/82 Revision E
S&L 1E-0-3933	Fire Detection System Floor	1/19/82 Revision E

<u>Number</u>	<u>Title</u>	<u>Revision Date</u>
S&L 1E-0-3934	Fire Detection System Floor Elev. 710'-6"	1/19/82 Revision E
S&L 1E-0-3935	Fire Detection System Floor Elev. 687'-0", 692'-6" 694'-0" and 694'-6"	1/19/82 Revision E
S&L 1E-0-3939	Fire Detection System Floor Elev. 662'-4", 663'-0" and 673'-4"	1/19/82 Revision C

The inspectors examined ionization and heat detectors during tours of the following plant areas:

Reactor Building
Control Room
Cable Spreading Room
Division 1 Essential Switchgear Rooms
Division 2 Essential Switchgear Room
Electrical Equipment Room
Auxiliary Equipment Room

Fire protection preoperational test procedure SD-FP-101, Section 10.5, was reviewed for the fire detection systems in the following fire zones which contain safe shutdown equipment:

<u>Fire Zone</u>	<u>Corresponding Detection Zone</u>
2B1	1-24
2D	1-36 and 1-37
2E	1-34 and 1-35
2F	17 and 17P
2G	22 and 22P
2H1, 2H2, 2H3, 2H4 and 2H5	1-32 and 1-33
2I1, 2I2, 2I3, 2I4, and 2I5	1-30 and 1-31
2J	1-16 and 1-16P
4B	1-2
4C1	1-5
4D1	S-1
4D3	1-12
HE1	1-27
4E3	1-8
4F1	1-9
4F3	V-0-9
5C11	1-25, V-1-25, 1-4 and 1-19
5D1	1-10

The inspector audited the fire protection preoperational test SD-FP-101 and examined construction drawings to determine adequacy of fire zone detector operability and coverage in all fire zones necessary for safe shutdown. In addition, the

inspector toured selected plant areas to verify equipment installation as designed and drawn. Integrated tests were performed for the detectors and were documented in the preoperational test procedure.

Fire detection systems have audible and visual alarms which annunciate in the control room. Local audible sirens have also been provided.

The test procedure for the detection systems appears adequate. Each step for a system is signed-off and dated. Deficiencies are recorded and corrective action taken.

No items of noncompliance were identified in this area.

e. Fire Barriers and Barrier Penetrations

The inspectors reviewed the listed coating inspection reports:

<u>Report No.</u>	<u>Fire Zone</u>	<u>Date</u>
594	5A1	1/19/82
592	4D1, 4D3	1/15/82
591	4F3, 4D3, 8B1, 5C11	1/14/82
587	4E1, 5B13	1/9/82
589	5B13, 4A	1/12/82
590	4C1, 4A, 5B13, 5A4, 4C1, 4D3	1/13/82

The inspector observed fireproofing in all areas addressed in the SER. The following is a list of the plant areas inspected and the required fire rating:

<u>Area or Zone</u>	<u>Fireproof Rating</u>
Cable Spreading Room	3 hour
Control Room	3 hour
Fire Zone 5A1	3 hour
Fire Zone 5A2	3 hour
Fire Zone 5B13	3 hour
Fire Zone 5C11	3 hour
Switchgear Room	2 hour
Auxiliary Equipment Room	2 hour
Diesel Generator Ventilation Equipment Room	1 hour

The inspectors also reviewed the following procedures:

<u>Title</u>	<u>Number</u>
Fire Protection Coating Procedure	JLM/QP-07
Fire Proofing Rating	FD90876-2

The inspectors examined all the above areas and determined that structural steel members within these areas have been suitably fireproofed to the required thickness. A fire protection

coating procedure encompasses application technique and thickness required for a given fire rating. In addition, a coating inspection record documents the fire coated area the coating thickness and the relative humidity at the location when the coating was applied.

No items of noncompliance were identified in this area.

f. Plant Areas Containing Redundant Divisions

The requirements for an automatic sprinkler system where redundant safe shutdown equipment are not separated by 3-hour fire barriers applies in two areas; the diesel generator corridor and the area above the health physics lab. These two areas are equipped with pre-action dry pipe sprinkler systems that are automatically actuated by ionization fire detectors.

The inspector examined the fire protection preoperational test SD-FP-101, Section 10.5, to determine equipment operability. The systems were tested by actuating a fire detection zone and verifying that "trouble" and "actuate" alarms were received in the control room on panel 1FP04JB. The sprinkler systems meet the SER commitments by having audio and visual alarms and a completed test procedure that is signed off and dated.

The SER requires a one-hour enclosure for one of the redundant cable runs in the Diesel Generator Corridor (Zone 5C11). The redundant division in question was wrapped on three sides with three inches of Kaowool. The top of the tray had not been enclosed due to ampacity load considerations. The licensee requested NRR to qualify the as-built condition of the cable tray. NRR refused to accept the as-built condition and the applicant committed to install a fire barrier on the top of the tray and install an area sprinkler system in Zone 5C11. This system was installed prior to initial criticality.

No items of noncompliance were identified in this area.

g. Emergency Lighting

The inspectors examined the following drawings:

<u>Number</u>	<u>Title or Description</u>	<u>Date and Revision</u>
S&L 1E-1-3717	Lighting Reactor Building Elevation 761'0" col 9-12; A-D, E	3/28/80 Revision K
S&L 1E-1-3719	Lighting Reactor Building Elevation 761'0" col 9-12; D, E-J	

The inspectors examined emergency lighting during tours of the following plant areas:

Cable Spreading Room
Diesel Generator Rooms
Control Room
Auxiliary Equipment Room
Divisions 1 and 2 Essential Switchgear Room

Selected areas necessary for safe shutdown were examined during the inspection. In these areas, eight-hour battery pack emergency lights had been installed and a walkdown of the adjacent access routes indicated adequate coverage. An Action Item Request dated September 18, 1981 and completed March 11, 1982 verified the installation of the 8-hour battery packs in all areas that could be manned to bring the plant to a safe shutdown.

h. Auxiliary Equipment Room

The inspectors examined the following drawing:

<u>Number</u>	<u>Title</u>	<u>Date and Revision</u>
S&L M-1443 Sheet 4 of 14	P and ID Auxiliary Electric Equipment Rooms Air Conditioning System	2/4/82 Revision K

The inspectors also examined the QC inspection reports for the following dampers:

<u>Damper</u>	<u>Date Inspected</u>
OVE 374	10/15/81
OVE 444	11/25/81

The inspectors verified the following modifications had been completed: A three hour fire barrier by column line 14 has been provided to separate redundant divisions; a single 3-hour UL labeled fire door had been installed to provide access between rooms; and a certified 3-hour roll up fire door with a liquid tight sill and a manual pull chain had been provided in the fire barrier to permit access to the back panels adjacent to the fire barrier.

The inspectors examined damper inspection reports and a construction drawing to determine whether the licensee had provided 3-hour UL listed fire rated dampers at all duct penetrations of the fire barrier walls and at the floor/ceiling construction in the Auxiliary Equipment Room. All dampers in this area have the required 3-hour fire rating.

No items of noncompliance were identified in this area.

i. Division 2 Essential Switchgear Room

The inspectors examined the following drawings:

<u>Number</u>	<u>Title</u>	<u>Date and Revision</u>
S&L 1E-0-3074A	Electrical Installation Fire Stop and Fire Barriers	2/4/82 Revision K
S&L 1E-1-3644	Non-Segregated Bus Duct Auxiliary Building. Plan Elevation 73'-0" columns 9-12 and J-N	1/22/82 Revision J
S&L M-1462 Sheet 1 of 2	P & ID Switchgear Heat Removal System	9/30/81 Revision F

The inspectors also reviewed the following reports:

<u>Title and Number</u>	<u>Date</u>
Damper Inspection Report 1UX10Y	1 /14/82
Damper Inspection Report 1UX16Y	3/16/82
Damper Inspection Report 1UX364	11/02/81
Damper Inspection Report 1UX584	10/03/81
Nonconformance Report No. 2238	4-01081
Tech Sil, Inc. - Penetration Traceability and Inspection Log No. 542B	3/16/82

The inspectors reviewed drawings and a traceability and inspection log to verify the installation of a fire stop in the bus duct located by column N-11 which penetrates the floor between Division 1 and Division 2 essential switchgear rooms.

A review of QC reports indicated that certain dampers in the switchgear room had 1 1/2-hour rating. A nonconformance report had already been issued and corrective action on all dampers was acceptably completed by April 1, 1982.

The cable riser gallery in the northeast corner of the fire zone has been provided with a 3-hour fire rated barrier at column line 13 to separate Division 1 and Division 2 circuits.

No items of noncompliance were identified in this area.

j. Diesel Generator Rooms

The inspectors examined the "1A", the "1B", and the "C" diesel-generator rooms and observed fire coating on the structural steel members in all rooms. A review of J. L. Manta's fire coating records substantiated adequate application for the required 3-hour thickness.

Curbs to contain liquid spills were observed to be in place at the entrances to the diesel generator rooms and separating the diesel generator rooms.

The position of the Division 1 diesel generator air intake is satisfactory. The licensee has moved the air intake about 30 feet above the roof of the auxiliary building.

No items of noncompliance were identified in this area.

k. Reactor Building

A sufficient number of portable extinguishers were observed during a walkdown inside the reactor building outside containment.

The inspector was not able to directly verify the fire rated cover over the oil separator unit in zone 2I4 but examined an Action Item Request No. 1-81-589 and Work Request No. L10992 and determined that the appropriate fire rated cover had been installed.

No items of noncompliance were identified in this area.

l. Unit 2 Fire Protection Equipment Required for Unit 1 Fueload

The inspectors examined fire protection preoperational tests for sprinkler systems, carbon dioxide flooding systems and fire detectors for the following Unit 2 areas:

(1) Sprinkler Systems

System Auxiliary Transformer
Diesel Generator Day Tank 2A
Diesel Generator Storage Tank 2A
Diesel Generator Corridor
Cable Spreading Room
Standby Gas Treatment
Turbine Oil Tank

(2) Fire Detection Zones

2-1	2-12
2-2	2-18
2-3	2-24
2-4	2-25
2-5	2-26
2-6	2-27
2-7	2-28
2-8	2-29
2-9	

(3) Other Systems

Carbon dioxide flooding system for D-G 2A, operator breathing air, sirens and lights.

The inspectors reviewed the preoperational logic and integrated tests of all the above systems to verify equipment operability. All the above systems with the exception of the evacuation lights (not listed) were determined to have been acceptably tested and annunciate in the control room with audible and visual alarms.

3. Exit Interview

The inspectors met with the licensee representatives denoted in Paragraph 1 at the conclusion of the inspection on April 8, 1982. The inspectors summarized the purpose and the scope of the inspection and discussed the findings.