

U.S. NUCLEAR REGULATORY COMMISSION
OFFICE OF INSPECTION AND ENFORCEMENT

REGION III

Report Nos. 50-373/81-26; 50-374/81-14

Docket Nos. 50-373; 50-374

License Nos. CPPR-99; CPPR-100

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

Facility Name: LaSalle County Station, Units 1 and 2

Inspection At: LaSalle County Station, Marsailles, IL

Inspection Conducted: July 20-24, 1981

Inspectors: *H. M. Wescott*
H. M. Wescott

8/20/81

R. Sutphin
R. Sutphin

8/19/87

R. Gardner
R. Gardner

8/19/81

R. Love
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8/19/81

F. Reimann
F. Reimann, Acting Chief
Projects Section 1C

8/21/81

Approved By: F. Reimann, Acting Chief
Projects Section 1C

Inspection Summary

Inspection on July 20-24, 1981 (Report Nos. 50-373/81-26; 50-374/80-14)

Areas Inspected: Routine announced inspection; in-depth QA inspection of performance; followup of noncompliances and unresolved items. The inspection involved a total of 134 inspector-hours onsite by four NRC inspectors including 0 inspector-hours onsite during off-shifts.

Results: Of the areas inspected, no items of noncompliance or deviations were identified.

DETAILS

1. Persons Contacted

Commonwealth Edison Company

- *R. A. Braun, QA Supervisor
- *L. J. Burke, Site Project Superintendent
- *J. W. Giesecker, Staff Assistant Project Superintendent
- *S. P. Johnson, Construction Supervisor
- *L. H. Lauderbach, QA Supervisor
- *W. E. Reidy, QA Engineer
- *D. L. Shamblin, Staff Assistant Project Manager's Office
- *D. J. Skoza, PCD Engineer
- *D. A. Spencer, QA Engineer
- *R. D. Vine, QA Engineer
- *R. E. Waninski, QA Engineer

Foley Construction

- *D. Heider, QC Supervisor

Morrison Construction Company

- *D. Kanakares, QC Inspector
- *M. Wherry, QC Supervisor

*Denotes those present at the exit interview.

2. Licensee Action on Previous Inspection Findings

- a. (Closed) Unresolved Item (50-373/80-44-01; 50-374/80-28-01):
LaSalle FSAR Sections 8.3.3.4 and 9.5.1.2.5 stated that cable tray fire stops will be of a silicone compound with a three hour fire rating. Firecode CT gypsum was being used for raceway fire stops as was noted in the above referenced inspection reports. Amendment 54, dated January, 1981, of the LaSalle FSAR revised Sections 8.3.3.4 and 9.5.1.2.5 to now read: "Within the tray section, a fire stop is provided using a fire resistant compound with a 3 hour fire rating." The inspectors reviewed the fire rating test reports for Firecode CT gypsum material and found them acceptable. This item is closed.
- b. (Closed) Noncompliance Item (50-373/80-54-03; 50-374/80-34-01):
Cable tray at riser openings in the diesel room floors were not completely enclosed for a distance of eight feet above the floor as required in Section 8.3.3.4 of the LaSalle FSAR. Amendment 54, dated January 1981, revised Section 8.3.3.4 of the FSAR to now read: "When it penetrates a floor, the tray section is completely enclosed for distance of six feet above the floor surface." The cable trays in question were enclosed for a distance of seven feet above the floor in accordance with Sargent and Lundy drawings. This item is closed.

SECTION I

Prepared By R. N. Gardner and R. S. Love
Reviewed By C. C. Williams, Chief
Plant Systems Section

1. Review of Drawings, Specifications, and Procedures

The Region III inspectors reviewed system drawings, field drawings, design specifications, construction specifications, and work procedures associated with Reactor Vessel Water Level Instrument LIS-B21N031A (and associated Class 1E electrical cable 2HP096) and Reactor Pressure Instrument PSH-B21N023A. LIS-B21N031A is part of the Engineer Safety Feature (ESF) System instrumentation and serves to initiate High-Pressure Core Spray (HPCS) for a specified Reactor Vessel Low Water Level. PSH-B21N023A is part of the Reactor Protection System (RPS) instrumentation and serves to initiate a reactor trip signal for a specified Reactor Pressure. The purpose of the review was to determine whether the drawings, specifications, and procedures were in agreement with the LaSalle Safety Analysis Report (SAR). The Region III inspectors reviewed the following drawings, specifications, and procedures:

a. Drawings

- (1) Sargent and Lundy (S&L) "Piping and Instrumentation Drawing" M139, Sheet 4, Revision D.
- (2) S&L "Instrument Piping Plan" M-1303, Sheet 17, Revision D.
- (3) S&L "Instrument Installation Details" M-1340, Sheet 29, Revision D.
- (4) General Electric (GE) "Reactor Vessel Level and Pressure Local Panel A" drawing 127D1826TD, Revision 2.
- (5) S&L "Electrical Installation Notes" drawing 1E-D-3070, Revision R.
- (6) S&L "Equipment Installation" drawing 1E-2-3521, Sheet 1, Revision K.
- (7) S&L "Internal/External Wiring Diagram" drawing 1E-2-4634AA, Revision J.
- (8) S&L "Schematic Diagram High Pressure Core Spray System" drawing 1E-2-4222AB, Revision G.
- (9) S&L "Schematic Diagram Reactor Protection System" 1E-2-4215AC, Revision K.

- (10) S&L "Electrical Installation Drawing" 1E-2-3501, Sheet 1, Revision L.
- (11) S&L "Electrical Installation Drawing" 1E-2-3424, Sheet 1, Revision S.
- (12) S&L "Electrical Installation Drawing" 1E-1-3518, Revision R.
- (13) S&L "Electrical Installation Drawing" 1E-2-3521, Sheet 1, Revision K.
- (14) Morrison Isometric Drawing 2NB-11, Revision A.
- (15) Morrison Isometric Drawing 2NB-45, Revision B.
- (16) Morrison Isometric Drawing 2NB-56, Revision A.
- (17) Morrison Isometric Drawing 2NB-124, Revision B.
- (18) Morrison Isometric Drawing 2NB-131, Revision A.

b. Specifications

- (1) S&L Design Criteria "Physical Separation of Mechanical, Electrical and Instrumentation Equipment" DC-ME-01-LS, Revision 1.
- (2) S&L Cable Pulling Specification STD-EA-121.
- (3) S&L Cable Installation Specification STD-EA-122.
- (4) S&L Raceway Specification STD-EB-146.
- (5) S&L Raceway Specification STD-EB-702.
- (6) S&L Cable Identification Specification STD-EA-204.

c. Procedures

- (1) Foley Cable Pulling Procedure, WI-400, Revision 7.
- (2) Foley Cable Termination Procedure, WI-500, Revision 9.
- (3) Foley Work Instruction for the Installation of Cable Tray, WI-300, Revision 3.
- (4) Foley Work Instruction for the Installation of Embedded Conduit, WI-301, Revision 1.
- (5) Foley Work Instruction for the Installation of Safety Related Exposed Conduit Systems, WI-302, Revision 5.

- d. The Region III inspectors identified the following areas of concern.
- (1) The Region III inspectors observed that Sargent and Lundy (S&L) Design Criteria DC-ME-01-LS, Revision 1, requires that Class 1E instrument sensing lines be tagged/color-coded. Paragraph 2.1.1.e states, "Physical color coding and tagging of equipment, pipes, cable pans, conduits, and sensing lines shall be accomplished in the plant." The licensee informed the inspectors that while neither the Unit 1 nor the Unit 2 class 1E instrument sensing lines had been tagged/color coded, the requirements of the subject design specification would be implemented. The licensee stated that this tagging would occur prior to operation but was not required during construction since the sensing lines were not field run and the separation requirements were implemented in the installation drawings. Pending the observation of installed tags/color-coding on class 1E instrument sensing lines, this matter is unresolved. (50-373/81-26-01; 50-374/81-14-01)
 - (2) The Region III inspectors observed that neither the Foley "Cable Pulling Procedure" WI-500, Revision 9, nor the S&L specifications, listed in Paragraph 1.a. of this report, addressed the subject of torquing requirements for cable terminations. The licensee stated that they do not consider torquing as a requirement for the terminations of class 1E cables at the LaSalle plants (except the 125 Vdc battery connections are torqued per manufacturers recommendations). The licensee further stated that the aforementioned procedure, WI-500, contained sufficient guidance to assure that cable terminations would be adequately tight. Paragraph 3.4.5 of WI-500 states "The connection shall be tightened in a good workmanship-like manner." The Region III inspectors requested the licensee to provide a written engineering evaluation of the current practice of terminating class 1E cables without the requirement that certain specified sizes of termination hardware be torqued. The Region III inspectors informed the licensee that this evaluation was needed to establish confidence that the connections involving power cable terminations such as large class 1E motor connections would be sufficiently tight to ensure a good electrical connection that would not subsequently be degraded by plant vibrations, etc. Pending review of this evaluation, this matter is unresolved. (50-373/81-26-02; 50-374/81-14-02).
 - (3) The Region III inspectors, in reviewing the Foley "Cable Pulling Procedure" WI-400, Revision 7, observed that there were two apparent methods for calculating the combined pulling tension of multiple cable pulls. One method involved a formula which based the required pull tension

on the smallest cable in the pull while the other method stated "For multiple cable pulls add the combined pulling tensions. This will give the maximum pulling tension allowed..." The inspectors discussed this subject with both field engineering and quality control and determined that only the former method was being used. The licensee stated that the subject procedure would be revised to delete the latter method. This matter will be reviewed during a subsequent inspection. (50-373/81-26-03; 50-374/81-14-03).

The Region III inspectors in reviewing the Unit 2 S&L drawing 1E-2-4634AA, Revision J, "Internal/External Wiring Diagram" observed the following apparent errors:

- (1) Cable 2RP 600 segregation code is identified as A2C. The cable schedule and the instrument index indicate that the cable segregation code should be A1C. Cable 2RP600 has not been pulled.
- (2) Cable 2PC 130 segregation code is identified as A2C. The cable schedule and the instrument index indicate that the cable segregation code should be A1C. Cable 2PC 130 has not been pulled.

The inspectors reviewed Field Change Request (FCR) 8289, dated July 15, 1981, which identified the correct segregation codes for the aforementioned cables. Furthermore, the inspectors reviewed S&L drawing 1E-1-4634AA, Revision L, which is the corresponding Unit 1 drawing and verified that the segregation codes were correctly identified for Unit 1. The licensee stated that the Unit 2 drawing would be corrected by S&L as a result of the FCR.

No items of noncompliance or deviations were identified.

2. Field Inspection

- a. The Region III inspectors observed that High Pressure Core Spray (HPCS) instrument cable number 2HP096 was routed between J-box 2J681R and HPCS panel 2H13-P625 in accordance with the Cable Pull Sheet dated June 23, 1980. This cable had been pulled between 2HP13-P625 and instrument rack 2H22-P004 on March 18, 1981 and terminated on March 20, 1981. The "To" end, 2H22-P004, was de-terminated on April 1, 1981 and the cable pulled back to the first J-box, 2J681R, and coiled on April 8, 1981 in accordance with Work Order 1539. The inspectors traced cable 2HP096 from J-box 2J681R to panel 2H13-P625. The routing was as follows: 2J681R, 2" conduit, 2J794R, 2" conduit, 2J850R, 3" conduit, 2J151R, 4" conduit, 2J043R, 4" conduit, tray 1000 B, penetration RB14, tray 1001B, tray 1002B, tray 1003B, penetration AR244, tray 120B, tray 121B, and tray 122B, where the cable dropped into HPCS panel 2H13-P625.

The inspectors observed that the permanent cable support had been removed at cable trays 120A and B and penetration AR244 to facilitate cable installation, thereby presenting a sharp edge on the end of trays 120 A and B. No cables had been damaged. The licensee took immediate action to have temporary tray-edge-softeners installed on the subject trays.

The inspectors also observed that the temporary construction markings (i.e. cable numbers are marked on the conduit to identify cables to be pulled into that conduit) were reversed on the two 1½" conduits installed between J-box 2J681R and instrument rack 2H22-P004. No cables were installed in the subject conduits. The licensee took immediate action to have the construction markings corrected.

The inspectors observed that the subject cable, raceway, and J-boxes were identified in accordance with LaSalle FSAR requirements.

- b. The Region III inspectors observed the installation of Class 1E instrument sensing lines associated with Engineered Safety Feature (ESF) instrument LIS-B21N031A and Reactor Protection System (RPS) instrument PSH-B21N023A. The installation is incomplete in that temporary supports are being used to support the installed sensing lines. The inspectors determined by observation and by obtaining measurements of selected vertical and horizontal sections of the installed sensing lines that the installation was in accordance with the following Morrison isometric drawings:

<u>Instrument</u>	<u>Drawing</u>
LIS-B21N031A	2NB-45, Revision B 2NB-124, Revision B
PSH-B21N023A	2NB-11, Revision A 2NB-56, Revision A 2NB-131, Revision A

The inspectors observed that the welders ID and the Quality Control inspectors signature were recorded on the isometric drawings.

- c. The Region III inspectors observed that the cable termination hardware and the battery rack hardware associated with the Class 1E batteries had no apparent protective coating to provide protection from the acidic environment to which they may be exposed. The inspectors further noted that the battery rack hardware and the welds securing the battery racks to the foundation were rusting. The licensee has addressed this concern as documented in Quality Assurance Letter QAL #2862, dated September 26, 1980. Pending review of the response to this letter, this matter is unresolved. (50-373/81-26-04; 50-374/81-14-04)

No items of noncompliance or deviations were identified.

3. QC Inspection Records

- a. The Region III inspectors reviewed the QC inspection records for the following safety related raceway nodes:
- (1) Cable trays 120B, 121B and 122B. These trays were installed and inspected to drawings 1E-2-3661, Revision B and 1E-2-3124, Revision C.
 - (2) 2-1/2" rigid conduit between J-boxes 2J974R and 2J850R. This conduit and the J-boxes were installed and inspected to drawings 1E-2-3518, Revision K and 1E-2-3521, Revision H.
 - (3) 4" conduit from J-box 2J043 to end of cable tray 1000B. This conduit and J-box was installed and inspected to drawings 1E-2-3501, Revision F and 1E-2-3506, Revision F.
 - (4) 1-1/4" conduit from J-box 2J681R to reactor level and pressure panel "A" (2H22-P004). This conduit and J-box was installed to drawing 1E-2-3521, Revision G and Field Change Request (FCR) 6608 and inspected to drawing 1E-2-3521, Revision H and FCR 6608.

The foreman inspects and documents the installation of raceway on an "Installation Checklist" which is forwarded to the QA Department. If the installation is safety related, a "Verification Required" stamp is placed on the checklist prepared by the foreman. After QC has accepted a segment of raceway, the checklist prepared by the QC inspector is stamped "Released for Cable Pull." A copy of the inspector's checklist is forwarded to the Engineering Department to inform them that the raceway segment has been accepted and cable may be installed in that segment.

- b. The Region III inspectors reviewed the QC records for a segment of raceway that required removal and rework after QC had accepted the raceway. Cable tray R499 had to be removed and reworked due to an interference with mechanical hanger RH59-1003G. This tray had been inspected, accepted, and released for cable pull on April 19, 1979, using drawings 1E-1-3654, Revision G; 1E-1-3241, Revision D and 1E-1-3241H01, Revision E. On June 5, 1981, the QA Department was notified by Speed Letter that the segment of cable tray R499 between elevations 782'0" and 786'6" in Unit 1 containment, had been removed and that rework would be required due to interferences. The subject cable tray was reinspected and released for cable pulling on June 29, 1981 using drawings 1E-1-3654, Revision G; 1E-1-3241, Revision G and 1E-1-3241 H01, Revision H.

No items of noncompliance or deviations were identified.

SECTION II

Prepared By R. N. Sutphin
Reviewed By K. R. Baker

1. Observations of Quality Program Relating to Field Drawings and Specifications

The inspector reviewed the drawings, specifications and reference documents associated with the activities identified in Section I of this report for compliance with document control concepts, for change control concepts, reviews and approvals, referenced code requirements, technical data, FSAR commitments, quality program requirements, regulatory requirements and found that they were essentially in accord with documented program requirements. The documents had been reviewed, approved, processed marked and identified in accord with program requirements in a uniformly acceptable manner, controls of change activity were evident, and were found to be appropriate and effective. Similar documents of major contractors at the site were reviewed for the same basic requirements and all reviewed found to be adequate and acceptable. Some details of FSAR commitments remain to be clarified as noted in Section I of this report.

2. Observations of Activities Related to Quality of Workmanship

The inspector conducted interviews with several persons at various levels of authority and responsibility at the site, including licensee and major contractor personnel, on policies and practices related to workmanship concepts. It was determined that all interviewed were not uniformly informed, trained, and knowledgeable in workmanship policies, procedures or requirements, defined workmanship goals, standards of acceptance, performance guidelines, and the preventive/appraisal quality aspects of workmanship programs. However, there were no significant overall deficiencies in the understanding and application of good workmanship practices identified. Variations existed in the several aspects of licensee/contractor qualification requirements, training and testing of personnel, identification and handling of workmanship inadequacies and acceptance of level of performance by the crafts, but results of the work indicated no major problems with workmanship.

3. Observations of Field Engineering Activity

The inspector determined that field engineering functions independent of quality control or quality assurance were being performed at the site. Personnel with engineering or appropriate technical background were assigned, providing direction and assisting in control of the work. Problems identified were referred to appropriate management and/or design personnel and documented in field change requests, nonconformance reports, etc. Per program requirements in some instances personnel performing field engineering functions did not

maintain a log of their activity or prepare periodic written reports; however, no instances were found wherein effective verbal communications were not maintained, or that problems identified by field engineering personnel were not handled or dispositioned adequately.

4. Observations of Quality Control/Inspection Activities

The inspector reviewed the quality control and inspection activities and determined that these functions were being performed by contractors in an effective independent manner and that some overview inspection was also performed by licensee personnel. Inspections were planned and check lists used in many instances. Significant findings of inspection activities were documented and reported in an appropriate manner, controlled processed, and timely repairs or dispositions effected. In some cases additional detailed instructions to inspectors would be appropriate. However, no significant deficiencies in the inspection planning process was identified. Reports of inspections and records did not always contain references to dimensions and acceptance criteria but reports were otherwise generally complete and acceptable. The number and levels of inspectors assigned to various areas of activities appeared to be adequate. Training and qualification of inspection personnel in the areas of activity covered by Section I of this report appeared adequate.

5. Observations of Nonconformance Reports and Corrective Action Activity

The inspector reviewed records and programs relative to nonconformance reporting and the preventive/appraisal aspects of corrective action. In general the records and reports adequately addressed the identification of discrepancies, the determination of an apparent cause and the action necessary to repair or disposition the problem with appropriate reviews, referrals, approvals, and signoffs. Reportability to NRC was not addressed in a uniform manner in all areas of contracted activity and the approaches to preventive aspects of corrective action to preclude recurrence varied considerably between various activities areas at the site, however, no significant problems were identified. Trend analysis program activity also existed but at a varying level of visibility in some areas.

6. Observation of Programs Relating to Procurement, Control, and Use of Materials and Equipment at the Site

The inspector reviewed the general procedures and programs relating to the procurement, receipt, inspection, control and use of materials and equipment. A specific selected sample of an item procured for use in areas covered by activities reported in Section I of this report was reviewed in detail and found to be satisfactorily in accord with all appropriate technical, procedural and program requirements. Licensee appears to have adequate control of this aspect of the program at this stage of the construction activity

7. Observations of Audit Programs

The inspector reviewed selected audit reports and discussed audit program policies and procedures with various quality assurance and supervisory personnel at the site. The trend in level of audit activity is favorable and appropriate in the opinion of the inspector. An increase in the number of audits is appropriate as construction progresses. Audits need to be more meaningful, effective, better able to reflect quality performance, confirm that corrective action is specified when required, that it is completed satisfactorily and in a timely manner, and audit reports finalized into appropriate typewritten reports with management review and acceptance in a more timely manner. The audit program observed was not found to be inadequate in the areas covered by this inspection.

SECTION III

Prepared By H. M. Wescott, Project Inspector
Reviewed By F. Reimann, Acting Chief
Reactor Projects Section 1C

1. Review of Audits (Vendor and Site)

The inspector reviewed audits to determine that (1) site work is being performed in accordance with NRC requirements and SAR commitments, (2) the QA/QC program is functioning to assure requirements are met, and (3) prompt and effective action is taken to achieve permanent corrective action on significant discrepancies, as follows:

a. Vendor Audits

(1) <u>Report No.</u>	<u>Vendor</u>	<u>Date</u>
	B. F. Shaw	3/5/76
	B. F. Shaw	8/7/75
	B. F. Shaw	5/4/76
	B. F. Shaw	9/3/75
	B. F. Shaw	9/26/77
1-80-26	B. F. Shaw	4/18/80
1-79-18	B. F. Shaw	4/25/79
1-77-30	Anchor/Darling	
1-81-22	Anchor/Darling	
1-79-7	Anderson Greenwood	2/25/79

(2) Review of CECO's annual audit schedule dated January 22, 1981.

b. Onsite Audits of Subcontractors

(1) <u>Report No.</u>	<u>Contractor</u>	<u>Date</u>
1-81-14	MCCO	3/20/81
1-81-7	MCCO	2/19/81
1-81-27	MCCO	6/23/81
1-80-102	MCCO	11/17/80
1-80-93	MCCO	10/22/80
1-80-31	MCCO	8/8/80
1-80-51	MCCO	8/28/80
1-81-15	Walsh	3/9/81
1-80-89	Walsh	10/17/80
1-81-18	Zack	3/31/81
1-81-19	Zack	3/18/81
1-81-4	Zack	1/29/81
1-80-6	Zack	2/21/80
1-81-5	RCI	2/6/81
1-81-17	RCI	3/19/81

<u>Report No.</u>	<u>Contractor</u>	<u>Date</u>
1-80-74	RCI	9/4/80
1-80-76	RCI	9/11/80
1-80-21	RCI	4/1/80
1-80-55	RCI	8/22/80

- (2) Review of Surveillance Report No. 80-276 dated May 19, 1980 (trend analysis by CECO of Walsh Construction Company)

Followup surveillances were made in timely manner and corrective action to preclude recurrence was taken.

No items of noncompliance or deviations were identified.

2. Nonconformance Reports

The inspector reviewed nonconformance reports and procedures to determine that (1) site work is being performed in accordance with NRC requirements and SAR commitments, (2) the QA/QC program is functioning to assure requirements are met, and (3) prompt and effective action is taken to achieve permanent corrective action on significant discrepancies, as follows:

- (1) Q.R. 15.0 "Nonconforming Materials, Parts or Components and Operations," Revision No. 7, dated November 17, 1977.
- (2) Q.P. 15.1 "Reporting Quality Nonconformances During Construction and Test," Revision No. 7, dated January 20, 1981.
- (3) Review of approximately thirty-five (35) NCR's.

The NCR's appeared adequate. Review for prompt corrective action to preclude recurrence was performed.

No items of noncompliance or deviations were identified.

3. Piping QA Documentation

The inspector further reviewed QA packages for certain pipe spools as follows:

- a. B. F. Shaw spool No. 2RR07AB-12"-3
- b. B. F. Shaw Ringheader No. 2RH59AA-16"-1.

These packages contained the ASME Data Reports (NPP-1), shop travelers, radiograph and liquid penetrant test reports, material test reports, and certification of solution annealing and delta ferrite for Item 3.a. above.

No items of noncompliance or deviations were identified.

4. Unresolved Items

Unresolved items are matters about which more information is required in order to ascertain whether they are acceptable items, items of noncompliance, or deviations. Unresolved items disclosed during the inspection are discussed in Section I Paragraphs 1.d.(1), 1.d.(2), 1.d.(3), and 2.c.

5. Exit Interview

The inspectors met with licensee representatives (denoted under Persons Contacted) at the conclusion of the inspection on July 24, 1981. The inspectors summarized the scope and findings of the inspection. The licensee acknowledged the information.