

U.S. NUCLEAR REGULATORY COMMISSION

REGION IIII

Reports No. 50-440/83-05(DE); 50-441/83-05(DE)

Docket Nos. 50-440; 50-441

Licenses No. CPPR-148; CPPR-149

Licensee: Cleveland Electric Illuminating Company  
Post Office Box 5000  
Cleveland, OH 44101

Facility Name: Perry Nuclear Power Plants, Units 1 and 2

Inspection At: Perry Site, Perry, OH

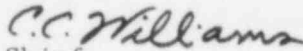
Inspection Conducted: February 1-3, 1983

Inspector: K. R. Naidu



2/24/83

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



2/24/83

Inspection Summary

Inspection on February 1-3, 1983 (Reports No. 440/83-05(DE); 50-441/83-05(DE))

Areas Inspected: Action taken on IE Bulletins and circulars; licensee's reply dated October 27 and November 7, 1982 outlining the actions taken to correct items of noncompliances identified in IE Reports No. 50-440/81-19; 50-441/81-19. This inspection involved 24 inspector-hours by one NRC inspector.

Results: No items of noncompliance were identified.

## DETAILS

### 1. Persons Contacted

#### a. Cleveland Electric Illuminating Company (CEI)

- \*C. M. Shuster, Manager, Quality Assurance
- \*F. J. Stead, Manager, Nuclear Engineering
- \*G. Leidich, Senior Engineer
- \*B. Walrath, Operation Quality Section

#### Construction Quality Section

- \*E. Reily, General Supervisor
- \*K. Cimorell, Quality Engineer
- \*V. K. Higaki, Quality Engineer

#### Project Quality Assurance Section

- \*K. C. Kaplan, Senior Engineering Technician
- \*T. Swansinger, Supervisor

#### b. Kaiser Engineer Incorporated (KEI)

J. S. Kerr, Supervisor, Construction Quality Section

#### c. L. K. Comstock Company (LKC)

- T. J. Woodman, Project Manager
- C. W. Hart, Assistant Quality Control Manager
- R. L. Bower, QC Manager
- E. Jockey, Corporate QA Engineer

\*Denotes those who were present at the exit meeting

### 2. Licensee Action on IE Bulletins

- a. (Closed) IE Bulletin No. 79-28: Possible malfunction of NAMCO Model EA 180 limit switches at elevated temperatures. As stated in the licensee's letter dated February 4, 1980 the licensee will examine the gaskets in NAMCO limit switches whose identification numbers falls between 02-79 and 08-79 and replace if necessary during startup testing. The startup testing has not commenced. The requirement to check the gaskets has been incorporated in Procedure No. GEN-E-004.
- b. (Open) IE Bulletin No. 80-06 Engineered Safety Features reset control: On January 13, 1983, the licensee determined that two NSSS Systems and four BOP Systems would not remain in an emergency mode when isolation actuation signals were reset. This item has been entered in the licensee's "License Commitment Tracking Log (LCTL)". This item remains open pending modifications to the circuitry.

- c. (Open) IE Bulletin No. 80-16: Potential Misapplication of Rosemont Type 1151 and 1152 pressure transmitters with either A or D channel. The licensee stated in their letter dated May 6, 1982 that the replacement of all Rosemont pressure transmitters Type 1151 and 1152 will be completed by April 1, 1983.

3. Licensee Action on IE Circulars

- a. (Open) Circular No. 80-01 GE service advice for GE induction type relay IAV. This item has been entered in the LCTL. The procedure for calibrating IAV relays has not been developed.
- b. (Open) Circular No. 80-13 Torque switch electrical by-pass circuit for safeguard service valve motors. This matter has also been entered in the LCTL and will be implemented during preops.
- c. (Open) Circular No. 79-24 Proper installation and calibration of core spray break detection equipment of BWRs. An internal memo dated December 1, 1980 requested modification of the instrument calibration procedure and technical specification. This matter has also been entered in the LCTL and will be implemented at an appropriate time.

4. Licensee Action on Previous Inspection Findings

(Closed) Noncompliance (440/81-19-01; 441/81-19-01): Nonconformance reports were voided without a valid reason. During this inspection, the inspector reviewed NCRs 231 and 521 which had been previously voided without a valid reason. During a previous inspection, the inspector determined that the NCRs were voided with a valid signature only. LKC has since provided valid reasons for "voiding" the NCRs.

(Closed) Unresolved Item (440/81-19-02; 441/81-19-02): Conduits installed outdoors did not have a requirement for the ends to be capped. Engineering Change Notice 9075-33-2006 has been issued to clarify the need to install end caps for conduits installed above ground. Paragraph 5.08.15 Subsection 3 of Specification SP-33 is to require that all exposed conduit ends shall be covered with bushings.

(Closed) Noncompliance (441/81-19-03; 441/81-19-03): It was previously identified that an inspection program had not been developed for the inspection of 4.16 KV, 480 Volt Switchgear and 480 Volt Motor Control center.

- a. During this inspection, the inspector reviewed the inspections performed on a typical 4.16 KV switchgear identified as 1R 22 S009. The following documents indicated that the inspections were performed.
  - (1) Attachment A to LKC Procedure 4.3.4 Class 1E switchgear and termination cabinet installation checklist. This check list indicates that the equipment was installed per manufacturer's installation instructions, levelled and aligned, welded and connected to station ground.

- (2) Weld documentation records indicate that the fit up and finished welds were inspected. Shims were installed to reduce the fit up gaps. Information on the withdrawal slips indicates that 3/32 inch diameter E-7018 type weld rod was used.
  - (3) Material Receiving Report dated November 15, 1979 indicates that the switchgear had minor scratches on the glass.
  - (4) Warehouse issue ticket releasing the material from the warehouse.
  - (5) Conditional release dated November 9, 1979 stating that the environmental qualification records were not received.
  - (6) Nonconformance Reports associated with the switchgear.
  - (7) Inspection report dated July 31, 1980 on the welding. The plug welding was stopped at that time.
  - (8) Equipment storage maintenance requirement and their verification records.
- b. The inspector reviewed a typical documentation package of 480 volt motor control center for Equipment 1R24S021. The documents indicated that the following inspections were performed:

- (1) Class 1E switchgear and termination cabinet installation checklist dated October 12, 1982 indicating that the equipment was installed to the manufacturer's recommendations, the adjacent sections were levelled and bolted together, contact surfaces of splices were cleaned and station ground connected.
- (2) Weld documentation record.
- (3) Material receiving report dated March 11, 1979.
- (4) Conditional release dated April 6, 1979 for releasing the equipment without equipment qualification records.

NCR 1599 dated November 1, 1982 identified that shim plates with optional slot welds were installed and were not inspected prior to equipment hold down welding. The slot welds are inaccessible for visual inspections. Ultrasonic testing was recommended to determine the extent of acceptability. Three categories were identified during the UT: substantially fused denotes 95% to 100% fusion, partially fused denotes greater than 75% fusion. On some welds due to the fillet weld obstruction, UT could not be performed. An engineering evaluation of the UT results determined that the slot welds were acceptable.

At the request of the NRC inspector, the licensee personnel, who set up the ultrasonic test program, demonstrated the UT examination with the aid of the UT machine and the weld mock up. The NRC inspector has no further questions.

- c. The inspector reviewed the inspections performed on Unit Substation Transformer identified as 1R23S009. The documents indicated that the following inspections were performed:
- (1) Equipment intalled per drawing of manufacturer's installations.
  - (2) Inspection Report 3388 dated August 11, 1982 documenting the measurements for levelness and alignment. The deviations observed in the alignment were approved by CEI Engineering.
  - (3) Inspection Report 3631 dated September 16, 1982 indicates that all shipping split bolts were tight.
  - (4) The acceptability of the switchgear internals could not be determined and NCR 1527 was initiated. This NCR was closed based on the inspections performed by NTS on the same attributes during pre-operational tests.
  - (5) Inspection Records on welds on the switchgear.

(Closed) Noncompliance (441/81-19-03b; 441/81-19-03b): The licensee provided LK Comstock (LKC) Audit Finding Report (AFR) 1228 dated February 26, 1982. The AFR 1228 indicates that the sharp edges and burrs on Cable Tray B3021 were removed and the corrective action was verified on March 23, 1982 and determined acceptable.

(Closed) Noncompliance (440/81-19-1b; 441/81-10-01b): LKC NCR 1314 was initiated on July 16, 1982 to document that Cables 8M32R8B, 1M32R9B and 1M32R11B were not stored adequately. These cables were subsequently recoiled and determined to be acceptable on October 22, 1982. Insulation resistance and megger tests were performed to LKC Procedure 4.3.18 on September 22, 1982 and the cables were determined to be satisfactory.

(Closed) Unresolved (440/81-19-07; 441/81-19-07): It was previously identified that the licensee's CQC initiated NCR 2290 on June 9, 1981 identified that for some motor control centers uniform heat and temperature control exceeded the procedural requirement of 140°C. This NCR was revised on August 15, 1981 because no evaluation was made on the MCCs to ascertain whether any damage had occurred from the excessive temperature and the location where the temperatures should be sensed was not specified. Further review indicated that 150°C was measured immediately when the new tarps were placed over the MCCs. Heaters were shutoff and the MCCs were inspected for physical damage. The inspection revealed no physical damage. The latest Field Storage Maintenance Requirements for 480 MCC and other switchgear require the space heaters and light bulb to be de-energized because the buildings are heated.

(Closed) Unresolved (440/81-19-09; 441/81-19-09): It was previously identified that LKC corporate audit findings were not being responded to in a timely manner. The LKC Corporate Quality Engineer indicated

that all the corporate audit findings indentified during the previous audits were closed in a timely manner and there are no open LKC Corporate QA findings.

(Closed) Unresolved (440/81-19-12; 441/81-19-12): It was previously identified that several conduits belonging to different reactor protection system divisions were being supported on a common hanger. Additional information indicated that although these conduits belonged to different RPS divisions they are physically mounted on equipment which is not seismic Class 1/Quality Class 1 and are located in the turbine generator building which is not seismic Class 1. For this reason and other considerations the as-built configuration is acceptable.

(Closed) Unresolved (440/81-19-13; 441/81-19-13) It was previously identified that several cable trays were installed closer than the specified 14". Additional information was requested to verify whether the installation met the approved drawing requirements. Surveillance Report SE-1118 dated November 1, 1982 verified the installation and determined that the installation met the drawing requirements. In some cases, firebarriers called for in the drawings had not been installed; they are normally installed after all the cable pulling has been totally complete.

(Closed) Unresolved (440/81-19-16; 441/81-19-16): It was previously identified that several non safety related cable trays were filled with cables up to the siderails. The licensee was requested to provide additional information regarding measures established to preclude over filling in safety-related cable trays. LKC revised Procedure 4.3.3 and it now requires in Paragraph 3.1.14 notification of the licensee when the cable fill reaches 1/2" below the top of the side rail. ECN-8701-33-1932 was initiated to revise Paragraph 5.08.13, Sub-item 6 of the specification. The revised paragraph states that "The cable fill may exceed the tope of the side rail due to field installed conditions." The NRC inspector pointed out this condition would be contrary to Paragraph 8.3.1.4.3 of the Perry FSAR. The licensee stated that the sentence would be deleted from the specifications.

(Closed) Unresolved (440/81-19-17; 441/81-19-17): LKC Inspection Report (IR) 1213 dated December 31, 1981 identified that switches in the panels listed were not uniquely identified. LKC clarified the inspection findings. The IR was reviewed and IR 1490 was issued confirming that the switches identified do not require unique identification because the interconnection wiring diagrams are layed out to show locations of switches in each panel.

(Open) Unresolved (440/81-19-18; 441/81-19-18) CEI's Operational Quality Control initiated NCR 0151 on June 16, 1982 identifying that Panduit ABM 25 A-D was found to propogate flame. Subsequent tests on Thomas and Betts (T&B) cable mounting blocks Type TC345A and TC345 was also found to propagate flame. The licensee's AE disposition of this issue was "use as is." "Acceptance is based



on the information provided with this NR as contained with the GE panel specification. It is the opinion of the engineer that the installation of field installed cable tie mounting bases fall within the intent of 4.5.11 of GE Specifications 22A 3888, Revision 7."

Paragraph 4.5.11 of GE Specification 22 A 3888 states the following:

"Fire retardant material shall be used throughout in so far as practical. In general, poly vinyl chloride (PVC) shall not be used as wire insulation and wire duct material, nor as auxiliary supporting material however, a small amount (less than 1 lb) of PVC per panel may be used as insulation material of electronic components and subassemblies (eg flexible ribbon cable, heat shrinkage tubing, spaghetti tubing, and hook up wire)." The licensee did not adequately demonstrate the relevancy of this specification to the contractor's installation of non-flame retardant material in GE panels which may negate GE's qualification of this equipment.

Regarding other equipment, the licensee's CQC initiated NCR 2371 on October 12, 1981 identifying devices installed by LKC craft inside MCC 1R24 5018 and 1R24 5023 without prior site acceptance of these devices. The proposed disposition was for LKC to replace the "Panduit" cable tie mounting devices with an approved type. (CQC NCR 151 dated June 16, 1982 identified that both TC 345 and TC 345A cable mounting blocks exhibited flammable characteristics). The removal of unapproved "Panduit" cable tie mounts in MCC 1R24 45018 and 5023 was verified on October 12, 1981. Additionally Action Request OB5-000-LKC-033 was initiated on October 23, 1981 to remove all Panduit ABM25-A-D cable tie mounting devices from the field and place them in the "hold area" of the LKC warehouse and references LKC AFR 933. LKC warehouse was instructed not to release any material to the field until written approval was given on the type of material to be used. The AE gave advance approval on October 12, 1981 to use T&B TC 345 and TC 345A type cable tie mounting bases for use in Class 1E installations. It appears that the AE did not evaluate the characteristics of this material prior to approval for use.

The inspector reviewed the relevant specification, procurement documentation and vendor certification regarding the flame-retardancy requirements for materials in the 4.16 KV switchgear, 480 volt load centers and 480 motor control centers. The result is as follows:

4.16 KV Class 1E switchgear: Specification SP-552 references IEEE 308, 323 and 344. IEEE383 is not referenced. Paragraphs 2.4.1, 2.06.6 specify the use of flame retardant control wiring by specifying Type SIS, capable of passing Section 6.19.6 of 1PCEA S-19-81. The NRC inspector confirmed that the vendor supplied wiring in the switchgear is flame-retardant.

480 volt unit load centers: Specification 553 references IEEE 308, 323, and 344. IEEE 383 is not referenced. Paragraphs 2:07.7.1 and 2:10.5 specify the use of flame retardance control wiring capable

of passing IPCEA Section 6.19.6 of S-19-81. The NRC inspector confirmed that the vendor supplied wiring in the switchgear is flame-retardant.

480 Volt Motor Control Centers: Specification SP-557 references IEE 315, 323 and 344. IEEE 383 is not referenced. This specification does not require the use of flame-retardant control wiring. The licensee's letter dated June 25, 1980 reported that (1) nonconforming wire not meeting IEE 383 was used in 2% of the units, (2) terminal clamps with incorrect saddle clamps were used and (3) 3 out of 43 (3/8") carriage bolts for splice-bolts broke when torqued to 20 ft. lbs. Cable manufactured by Rockbestos was used in the MCCs.

The licensee stated that GAI, the AE, performed a fire evaluation report. The NRC has to review this report. Pending this review, the matter remains open.

(Closed) Unresolved 440/81-19-15; 441/81-19-15: It was previously identified that certain site contractor and turnover procedures were inadequate. Licensee's corrective action included withdrawal of Procedures 1-110 and 2-1101. Other procedures have been considerably revised. The inspector discussed the contents of the revised procedures with the licensee personnel responsible for implementation and considered them adequate to the extent to provide the status of completion of the equipment installation. "Interim" releases of electrical equipment have been eliminated.

(Closed) Unresolved Item (440/81-19-20; 441/81-19-20): Additional information was requested to indicate that the separation wall between redundant safety-related switchgear at elevation 620' in the control complex meets the FSAR commitments. There were two issues, namely, the seismic criteria and the fire-retardancy. The seismic criteria have been addressed; the wall is not seismically qualified.

GAI enclosed with their letter PY-GAI/CEI-12696 dated June 29, 1982, an analysis performed on the possibility of a 5 KV breaker missile and compliance of the fire wall between the redundant divisions switchgear room. The analysis concludes that the 5 KV circuit breakers will clear the fault well in advance of an explosion. The 3-hour fire rating of the gypsum wall separating the redundant switchgear is an open item in 440/81-06-01; 441/81-06-01 and will remain open pending review by NRR.

(Closed) Unresolved (440/81-19-22; 441/81-19-22): Corrective action taken on Audit Report 417 relative to the incorrect installation of an instrument hanger. JCI initiated NCR 0063 in February 24, 1982 and has replaced the hanger. Corrective action was verified by the JCI QA manager on May 27, 1982. On February 2, 1982 the NRC inspector observed that the hanger was replaced.

(Closed) Unresolved (440/81-19-24; 441/81-19-24): Information on CEI's assessment of all the contractors onsite.



The LKC Corporate QA Staff has been increased from one to five. At the site the QC staff has been expanded and consists of one assistant QC manager, seven quality assurance engineers, four Level I QA inspectors and thirty one Level II QC inspectors.

CEI performed an audit on LKC during April 26 through May 10, 1982. Ten audit findings were documented in this audit report 684. Eight of the ten responses conveyed by LKC in their letter dated June 17, 1982 were rejected. LKC responded in a letter dated July 15, 1982. CEI performed follow up audits No. 722 during Spetember 27 through October 6, 1982 and No. 774 during December 16 through 22, 1982. All but four findings were closed. Each audit finding had multiple subparts and CEI was able in some cases to close sub parts of audit findings. The next audit is scheduled for February 3, 1982.

5. Exit Interview

The inspector and the resident inspector met with the licensee representatives (denoted in the Persons Contacted) at the conclusion of the inspection on February 3, 1983. The inspectors summarized the purpose and findings of the inspection, which were acknowledged by the licensee.