U. S. NUCLEAR REGULATORY COMMISSION

REGION III

Reports No. 50-440/84-18(DRS); 50-441/84-16(DRS)

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: August 1-3, 1984

Inspectors: FOR R. Mendez — 8/17/84 Date

K. Tani — 8/17/84 Date

E. Christnot — 8/17/84 Date

Approved By: C. C. Williams, Chief
Plant Systems Section — 8/17/84 Date

Inspection Summary

Inspection on August 1-3, 1984 (Reports No. 50-440/84-18(DRS); 50-441/84-16(DRS))
Areas Inspected: Routine unannounced inspection concerning followup of licensee action on previously identified open and unresolved items and 10 CFR 50.55(e) reportable items. The inspection involved a total of 70 inspector-hours on site by three NRC inspectors including 16 inspector-hours offsite during off-shifts.
Results: In the areas inspected, no items of noncompliance or deviations were identified.

DETAILS

1. Persons Contacted

Cleveland Electric Illuminating (CEI)

*E. Riley, General Supervisor - Construction Quality Section
*T. Stear, Lead Electrical Construction Engineer
*P. Martin, General Supervisor Engineer - Construction Quality Section
*G. Hicks, Supervisor - Construction Quality Section
*V. Higaki, Unit Supervisor - Electrical Unit
*S. Morreale, Sr. Test Engineer - Nuclear Test Section
*J. Hoge, Electrical Admin. Assn't - Nuclear Test Section
*K. Cimorelli, Lead Quality Engineer
*W. Boyd, Quality Engineer
J. Lesnick, Quality Engineer
W. Morris, Quality Inspector
R. Matthys, Quality Engineer
*K. Kaplan, Sr. Engineering Technician

The inspectors also contacted and interviewed other licensee and contractor employees.

*Denotes those present at the exit interview on August 3, 1984.

2. Licensee Actions on Previously Identified Items

(CLOSED) Open Item (440/83-24-01; 441/83-23-01): It was previously identified that the responsible organization for installation of boots on 4.16KV switchgear terminations was not identified in Specification No. SP-33-4549-00 and LKC Procedure No. 4.3.6, dated January 3, 1983. It was also identified that no QC requirements for verification of proper boot installation were called out in the installation procedure.

The licensee has taken corrective action by revising specification SP-33-4599-00 and LKC Procedure 4.3.6 dated February 10, 1984. These revisions require that the boots shall be installed by the site organization (CEI) and that proper installation methods and checklist be used by QC for boot installation verification. This item is closed.

(CLOSED) Open Item (440/81-19-04; 441/81-19-04): It was previously identified that checklists did not specify adequate acceptance criteria to verify the proper installation of electrical penetrations. The licensee has taken corrective action by including in the installation procedure checklist attributes as specified by Westinghouse for inspection of low and medium voltage penetrations (Procedure No. LKC 4.3.10 dated April 29, 1983). This item is closed.

(CLOSED) Unresolved Item (440/81-19-18; 441/81-19-18): It was previously identified that IEEE Standard 420 was not referenced in the FSAR.

The NRC inspector reviewed the licensee response in a CEI memo dated March 19, 1982, stating that the licensee was not committed to IEEE Standard 420-1973 and quoted Paragraph 4.3.1 of the Standard as a basis for the licensee's position.

The inspector also reviewed the Perry Fire Protection Evaluation Report (PFPER) dated June 18, 1982, which concludes that allowances for miscellaneous flammable materials was included in the analysis and that the results of the evaluation were at a minimum, representative and most likely worst case conditions for similar electrical equipment including AC and DC distribution panels, auxiliary relay cabinets, and control panels. The licensee further justified the PFPER report by referencing 10 CFR 50, Appendix A, Criterion III, on Fire Protection which states in part that "Noncombustible and heat resistant materials shall be used wherever practical throughout the unit, particularly in locations such as the Containment and Control Room." The licensee stated that the PFPER was written recognizing that elimination of all flammable materials was desirable, but not completely achievable. This item is closed. Review of Perry Fire Protection Evaluation Report (PFPER) by the NRC staff is still pending.

(CLOSED) Noncompliance Item (440/83-06-06; 441/83-06-06): It was previously identified that Manufacturer's Design and Specification No. SP.33, Paragraph 5.08.1.4C, was not adequately translated into construction drawings and instructions. The licensee has taken corrective action by revising the construction drawings and instructions to include manufacturer's design and specification. The weld process sheet also has been revised to include a mandatory hold point for the installation and verification for the 'Backing Ring' that is required in penetration installations for Unit 2. Backing rings were not installed in the Unit 1 electrical penetrations. The licensee indicated that ASME Code Section III, N242 allows the use of a full penetration weld (which was used by licensee) without a backing ring. Based on the above corrective action taken by the licensee, this item is closed.

(OPEN) Noncompliance Item (440/83-26-01): It was previously identified that the supports for 4.16KV Bus Bars were modified without an approved Field Variance Authorization (FVA). The bus bar supports were modified by filing them down. The licensee issued nonconformance report (NCR) #OQC-0297, Revision 1, dated December 5, 1983, and dispositioned the NCR as "use as is" without technical justification as to how this effected the seismic qualification of the bus bar supports. The licensee agreed to provide technical justification in the form of calculations or test specifications. Pending a field inspection of the modified bus bar supports and a review of the documented technical justification, this item remains open.

(CLOSED) Noncompliance Item (440/83-37-04; 441/83-35-04): It was previously identified that Project Administration Procedure No. 0302, Project Control and Interface with G. E. Field Disposition Instructions / Field Disposition Request (FDDR/FDI) was not adequate, because the procedure did not require Gilberts Associates, Inc. (GAI) Engineers to initiate an NCR when potentially defective components or procured items were identified during review of FDDR's/FDI's. The licensee has taken corrective action

by revising Procedure 0302 to require a CEI Engineer to review FDDR's/FDI's for nonconforming items and initiate an NCR when necessary. The licensee has also initiated a program for review of FDDR's/FDI's issued prior to the revision of Procedure 0302. Based on the above corrective action by the licensee, this item is closed.

(CLOSED) Noncompliance (440/81-19-11; 441/81-19-11): It was previously identified that the installation of three safety-related conduits were not in accordance with the one inch minimum separation requirement between safety-related and nonsafety conduits. The inspector reviewed three NCR's pertaining to the three conduits as follows:

(1) NCR-LKC 1193 dated April 19, 1982, and closed out on October 27, 1982, states that the installation of safety-related conduit 1R33R 1024A and the nonsafety-related conduit 1D21R 36X would be reworked to comply with the minimum separation criteria.

(2) NCR-LKC 1329, dated June 25, 1982, and closed out on August 19, 1982, stated that the installation of the safety-related conduit 1R33R 516A and the nonsafety related conduit 1R52W 91X would be reworked to comply with the minimum separation criteria.

(3) NCR-LKC 1323 dated June 18, 1982, and closed out on December 8, 1982, stated that the installation of the safety-related conduit 1R33R 334C and the nonsafety-related conduit 1R33C 1098X would be reworked to comply with the minimum separation criteria.

Records further indicate that training was conducted to ensure that personnel were aware of the minimum separation criteria between safety related and nonsafety-related conduits. The inspector observed that the conduits now meet the minimum separation criteria. This item is closed.

(OPEN) Noncompliance (440/83-06-01; 441/83-06-01): It was previously identified that the licensee failed to provide control over the deficiencies identified by the L. K. Comstock Company (LKC) task force. The inspectors reviewed several of the deficiencies that the task force documented. However, due to the large amount of documents and the number of task force areas, this item remains open pending further in depth review.

(CLOSED) Open Item (440/83-08-03; 441/83-07-03): It was previously identified that a clarification on the use of Inspection Reports (IR's) and NCR's by L. K. Comstock (LKC) was needed and that a large electrical inspection backlog existed. The inspectors determined the following:

(1) The inspectors reviewed LKC Procedure 4.11.1, "Nonconformance Control," dated October 26, 1984, and the procedure appeared to be specific as to IR's and NCR's. The inspectors interviewed three QC Inspectors and observed that each inspector had a copy of Procedure 4.11.1, dated October 26, 1984. The inspectors appeared to possess a thorough knowledge of the procedure regarding IR's and NCR's. Records further indicated that each inspector was trained on the procedure.

(2) The inspectors reviewed the records of electrical work backlog and determined that the backlog has been decreased to a manageable level. The LKC QC manager informed the inspector that the number at Electrical Inspectors was increased and that additional facilities for them were provided. This item is closed.

(CLOSED) Deviation (440/83-30-01): It was previously identified that the licensee's procedures and drawings were not adequate to assure verification of the installation of dual element fuses. The inspectors determined the following:

(1) Engineering Change Notice (ECN) 4719-86-23 was issued to reflect the correct horse power and/or fuse sizes on design documents for the residual heat removal (1E12) system motor operated valves (MOV) and check and install as necessary the correct size fuses in motor control centers (MCC) with type FRS, dual element fuses.

(2) The inspector reviewed the following records:

(a) MPL 1E12-F004A

1 Form EG02B indicated that type FRS fuses were installed on December 2, 1983.

2 Inspection Report 83-4284, dated December 5, 1983, indicated that the correct fuses were installed.

(b) MPL 1E12-F049

1 Form EG02B indicated that type FRS fuses were installed on January 20, 1984.

2 Inspection Report 84-0274, dated January 20, 1984, indicated that the correct fuses were installed.

(c) MPL 1E12-F064B

1 Form EG02B indicated that type FRS fuses were installed on January 20, 1984.

2 Inspection Report 84-0268, dated January 20, 1984 indicated that the correct fuses were installed.

(3) The inspectors reviewed Procedures GEN-E-002, Revision 5, "480 VAC and 125 VDC Motor Control Centers Test Procedure Inspection and Electrical Checks," and GEN-E-003, Revision 8, "Motor Operated Valves Test Procedure." GEN-E-002 requires that the size and type of fuse for the MCC compartment be entered on data sheet Form EG02B and GEN-E-003 requires the use of dual element fuses of appropriate size and to perform the MCC compartment checks in Procedure GEN-E-002.

The inspectors observed recently completed forms which indicated the type and size of fuses were being noted in the appropriate blocks. No discrepancies were identified. This item is closed.

(OPEN) Unresolved Item (440/83-30-02): It was previously identified that operational procedures did not exist for the control, installation and/or replacement of fuses. The inspectors reviewed the Project Administration Procedure (PAP)-0407, Revision 2, "Procurement Requirements Evaluation," and the PAP-0402, Revision 2, "Procurement of Spare Parts, Material and Replacement Components." The inspector observed that the "Procurement Document Engineering Evaluation Basis Form" with attachments indicated that only type RKS fuses would be ordered through spare parts and that Type H fuses are not authorized for use. However, the inspectors observed that PAP-0307, Revision 0, "Operation, Maintenance and Testing of Fused Circuits," had not been issued for use. This item remains open pending issuance of PAP-0307.

(CLOSED) Unresolved Item (440/83-30-03; 441/83-29-01): It was previously identified that the licensee lacked a program for the installation of cable tray side rails. The inspectors reviewed Specification SP-33-45-4549-00, Section 9, which stated that the contractor shall install tray height extensions as per Specification SP-558, Item 1:06.4.4 and that the installation shall be done upon completion of cable pulling. The Inspectors determined that the program for installing side rail extensions is in place. This item is closed.

(CLOSED) Unresolved Item (440/83-33-02): It was previously identified that unsigned tags were observed inside DC Distribution Panel 1B24 S025 and that a review of the corrective action as described in Action Request P083038 would be completed. The inspectors observed that the corrective action stated that this was an isolated occurrence and the the individual responsible for signing the tags would receive additional training on Procedure Volume 6-1104-4 2/PRN, "Control of Lifted Leads, Jumpers and Electrical Devices." Records indicate that the training was conducted on November 9, 1983. The item is closed.

(CLOSED) Noncompliance (440/83-31-01; 441/83-30-01): It was previously identified that cable tray segments did not maintain the required separation distances between divisions as specified on Gilbert Associates, Inc. (GAI) Drawing D-214-004, Revision K. This problem involved documentation of Class 1E raceway installations that indicated separation criteria was satisfied, although a number of raceway installations which were verified did not conform to the separation requirements. The licensee has developed several methods to assure that separation conflicts are identified and where identified fire barriers will be installed. The first method involves walkdowns by GAI to identify all separation violations and to develop short size drawings to document the findings. The second involves a 100% QC verification of barriers which are to be installed by the electrical contractor. Finally, Construction Quality Assurance Procedure 21-1009 was developed to provide further guidance in the event any separation violations were missed. In addition, the licensee has corrected all QC inspection checklists which had previously indicated that barrier installation was verified.

Additionally, it was previously identified that numerous separation violations existed in the Power Generation Control Complex. The licensee had indicated that approved barriers would be installed at a later date to correct this condition. However, adequate procedural controls did not exist to assure that ductway covers for the PGCC received the appropriate quality inspections. L. K. Comstock Procedure 4.3.30 was modified to address the question of the installation of ductway covers. In addition, the procedure requires that the ductway cover installation be a QC hold point. This item is closed.

3. Licensee Action on 50.55(e) Items

(OPEN) 10 CFR 50.55(e) (440/81-02-EE; 441/81-02-EE) (DAR 46): The licensee determined that a vendor's quality control program was not established for qualifying Namco limit switch Models EA 180 and EA 740. The licensee was committed to replacing all limit switches which were procured from Namco through vendors. The inspector verified that records were available for 346 limit switches. The licensee had previously identified that approximately 340 limit switches would be replaced, but lacked auditable records. Testing to qualify the limit switches is underway and it is expected that qualification testing will be completed by September 28, 1984.

(OPEN) 10 CFR 50.55(e) (440/83-13-EE; 441/83-13-EE) (DAR 131): Potential deficiencies were discovered by the electrical contractor in the High Pressure Core Spray (HPCS) diesel generator electrical panels. Some examples of the deficiencies were: improperly crimped ring lug terminations; missing covers on relays; use of unqualified tape; cable bend radius violations; broken wire strands; and use of unapproved cable cleats. The attachment to Nonconformance Report (NCR)P033-1650 lists numerous examples of sixteen separate violations. Resolution of the deficiencies resulted in reworking, replacing or accepting as-is, fifteen of the sixteen deficiencies. The licensee indicated that approved cable cleats have not been installed in the electrical panels. Pending closure of the NCR, this item remains open.

(OPEN) 10 CFR 50.55(e) (440/83-14-EE; 441/83-14-EE) (DAR 133): Failures were discovered in several seals during qualification of the safety relief valves (SRVs) supplied by General Electric. The seals which failed were in the pneumatic actuator needed to operate the SRV's. The SRV's were rebuilt and retesting was begun; however, the SRV's again experienced test failure. There were two solenoids in the valve, one was continuously energized, the other intermittently energized. During actuation, the SRV stuck open; this was caused by the continuously energized solenoid. General Electric is presently investigating the cause of the second failure.

(OPEN) 10 CFR 50.55(e) (440/83-15-EE; 441/83-15-EE) (DAR 134): During environmental testing of the main steam isolation valves (MSIV's) the actuator supplied by General Electric failed when subjected to radiation exposure. This caused deterioration of various seals and o-rings which in turn caused hydraulic and pneumatic leaking. The proposed corrective action was to replace the seals and o-rings with those having a higher radiation exposure than the original ones. During requalification, the MSIV's experienced several other problems, for example: (1) terminal

blocks in the limit switch fell out, breaking the wires, (2) the MSIV control solenoid conduits sheared, (3) the bolts holding the limit switch to the bracket also sheared. The proposed corrective action was to hard wire and eliminate the terminal blocks and to inspect and replace components every five years. A re-test of the MSIV has been scheduled for November 30, 1984.

(CLOSED) 10 CFR 50.55(e) (440/83-17-EE; 441/83-17-EE) (DAR 139): "Use of non-Class IE Control Power and Control Components in the Diesel Generator Building Ventilation Systems." It was reported that relays associated with the standby diesel generator were being operated from a non-Class 1E power supply. Relays RIA and RIAA are used to control the safety related ventilation systems equipment in the diesel generator building. The licensee issued Field Change Notice (FCN) 20879-33-3376 which implemented corrective action to revise the 125V DC source of the relays from non-Class 1E to Class 1E. The start signal has been transferred to a safety related circuit that contains only safety-related components. The inspector verified that the relays were being fed from a safety-related power supply.

(OPEN) 10 CFR 50.55(e) (440/83-22-EE; 441/83-22-EE) (DAR 145): A potential problem was identified with an engine mounted fuel oil line on the diesel generators engines supplied by Transamerica Delaval, Inc.. The licensee issued NCR TAS 0067 which identified failure of the fuel oil line due to excessive vibration. Additional tubing supports were required and ordered from Delavel. The licensee has completed rework of the fuel oil lines and closed out the NCR on August 3, 1984. Pending review of the NCR package, this item remains open.

4. Observation of Instrument Sensing Line Installation

The inspector examined Instrument Sensing Lines B21-N12/AZ 15°, AZ 20°, AZ 195°, and AZ 200° in the Nuclear Boiler System that provide reactor low water level signal for the initiation of the Reactor Core Isolation Cooling System which is required for Reactor Safe Shutdown, and observed that the sensing lines did not have ¼" flanged restricting orifices as indicated in Construction Drawing D814-605, sheet 1, Revision F. The inspector also observed that there were no tags on the sensing lines to indicate that the ¼" orifices had not been installed and would be installed at a later date.

The instrument sensing lines are part of the pressure boundary design and the ¼" orifices are required to meet current licensing practices described in 10 CFR 50, Appendix A, Criteria 55 and 56, and Regulatory Guide 1.11 for instrument sensing lines.

The inspector requested that the licensee provide the following additional information:

a. Describe controls that licensee had in place to require or remind the licensee to go back and install the ¼" flanged restrictive orifices in the instrument sensing lines as required by current licensing practices.

b. Describe how the licensee has complied with Regulatory Guide 1.11, Paragraph E(b) which states in part that "for each instrument line penetrating containment, including those connected to containment atmosphere, some method of verifying during operation the status (open or closed) of each isolation valve should be provided.

c. Describe the areas of the Reactor Building that shall be subject to 10 CFR 50, Appendix J, Type 'A' test (containment leakage test) requirements.

d. Describe how the licensee has complied with or intends to comply with Regulatory Guide 1.11, Paragraph C(1C) which states in part that "Sensing lines for instruments that are part of the protection system should be provided with an isolation valve capable of automatic operation or remote operation from the Control Room or from another appropriate location, and located in the line outside the containment as close to the containment as possible.

Pending a review of the requested information, field inspection of the orifice installation and review of the orifice installation/QC inspection records, this item is considered unresolved (440/84-18-01).

5. Review of Instrument Installation Records

The inspector reviewed installation records for Instrument Rack IH22-P027 and Sensing Line 821-N12/AZ 195° and determined the following:

a. Weld No. 101 and 107 on Sensing Line No. B21-N12/AZ 195° was completely installed, inspected and approved by a QC Inspector; however, the welds were later cut out and replaced by Welds No. 235 and 236, apparently without an approved Inspection Surveillance Report (ISA) or NCR written to do the rework on the sensing line as required by procedures.

b. Review of the Installation/Fabrication Record for line B21-N12/AZ 195° indicates that Welds No. 18 through 20 and 22 through 29 were deleted and replaced by Welds No. 245 through 291, but these changes were not reflected on the currently available weld data sheets.

c. It appears that Welds No. 13 and 15 of Sensing Line No. B21-N12/AZ 195° were not verified for cleanliness before the final welds were performed.

d. Records were not immediately available to indicate that 48 stud welds for Instrument Rack IH22-P027 were inspected for cleanliness before final welds were performed. Further, the stud weld installation/inspection checklist appeared to not adequately specify attributes inspected by QC inspector. Also, torque values for the stud bolts were not specified in the installation/inspection checklist.

Pending further review of these and other Sensing Line and Instrument Rack installation/inspection records, this item is considered unresolved (440/84-18-02).

6. Unresolved Items

Unresolved items are matters about which more information is required in order to ascertain whether that are acceptable items, items of noncompliance or deviations. Unresolved items disclosed during the inspection are discussed in Paragraphs 4 and 5.

7. Exit Interview

The inspector met with licensee representatives (denoted under Persons Contacted) on August 3, 1984, at the conclusion of the inspection. The inspector summarized the scope and findings of the inspection. The licensee representatives acknowledged the findings reported in previous paragraphs.