

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 50-440/85089(DRS)

Docket No. 50-440

License No. CPPR-148

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: December 3, 1985 through January 10, 1986

Inspector: J. H. Neisler

*John H. Neisler*

2-10-86  
Date

Approved By:

*James W. Muffet*  
J. W. Muffet, Chief  
Plant Systems Section

2/10/86  
Date

Inspection Summary

Inspection on December 3, 1985 through January 10, 1986 (Report No. 50-440/85089(DRS))

Areas Inspected: Followup licensee action relative to previous inspection findings 10 CFR 50.55(e) reports; 10 CFR 21 reports and review of preoperational tests of the underdrain system. The inspection involved a total of 32 inspector-hours by one NRC inspector.

Results: No violations or deviations were identified.

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## DETAILS

### 1. Persons Contacted

#### Principle Licensee Employees

\*C. Shuster, Manager, Quality Assurance  
\*E. Riley, General Supervisor, QA  
\*K. Cimonelli, Lead Quality Engineer, CQS Electrical  
\*V. Higak, Unit Supervisor, OQS  
\*W. Elgin, Licensing Engineer  
D. McKibbin, Operations Engineer  
W. Babiak, System Design Engineer  
B. Borsworth, Test Engineer, NTS  
M. Pudelski, Test Engineer, NTS  
\*S. Tulk, Unit Supervisor, CQS Electrical  
K. C. Kaplan, Senior Engineering Technician, NED  
\*T. Heatherly, Compliance Engineer, PPTD

\*Denotes those persons attending exit interview.

### 2. Licensee Action on Previous Inspection Findings

(Closed) Open Item (440/84028-01): Adequacy of fuse control during testing and operations. The inspector reviewed the results of the licensee's fuse verification program. The verification program consisted of a walkdown inspection of 100% of the safety-related fuses in the plant to determine whether the fuse classes, types, and ratings were in accordance with as-built test record drawings and applicable engineering change notices. Plant procedures have been established to provide control and verification of fuse replacement during plant operation. The NRC inspection reviewed the licensee's program and the results of the program. Both the program and the results were acceptable.

### 3. Construction Deficiency Reports (10 CFR 50.55(e))

(Closed) 10 CFR 50.55(e) Report (440/85021-EE) (DAR 246): Voltage drop in long length cables under degraded voltage conditions. The inspector reviewed minimum voltage tests on the hydrogen ignitors and determined that the ignitors would reach their qualified temperature of 1500°F at 90 volts AC. This is well below the calculated voltage of 103.8 vac. In addition, the inspector reviewed transformer tap change orders issued to increase output voltage to the ignitors. The inspection also reviewed wire lists showing that replacement or parallel circuits had been installed to some motors, and engineering change notices that documented the installation of interpassing relays and larger control transformers in the excess length control circuits.

(Closed) 10 CFR 50.55(e) Report (440/84047-EE) (DAR 212): Dresser Industries diaphragm seal globe valves stick closed. The malfunction was caused by insufficient clearance between the valve disc cap and guide and by sharp edges on the disc cap preventing the valve from reaching full travel. The inspector determined that all the valves had been reworked according to the

manufacturer's instructions. The rework included chamfering the edges of the disc cap, replacing the disc or replacing the valve. The licensee also issued procedure PTI-GEN-P0009 "Dresser Valve Operability Testing" to require periodic testing of the diaphragm valves during plant operations.

(Closed) 10 CFR 50.55(e) Report (440/85009-EE)(DAR 230): A review of the 4000 volt and 480 volt power system indicated that a LOCA in combination with a degraded offsite power supply could result in inadequate starting voltage to some motors. The original load flow analysis did not extend below 4000 volts consequently there is a potential for low voltage at 480 volt motors. The inspector reviewed documentary evidence of transformer tap changes and installation of sequencing relays to alleviate low voltage conditions caused by simultaneous starting of large motors and wire lists documenting that larger sized cable or parallel circuits had been installed. These actions are acceptable to close this issue.

4. 10 CFR 21 Reports

(Closed) Part 21 Report (440/83001-PP) Cutler-Hammer Eaton: During qualification testing of aged electrical equipment certain anomalies occurred. The inspector verified that plant procedures have been revised to require overload relays to be exercised electrically and mechanically at 18 month intervals as recommended by the vendor, and to measure and tighten electrical interlocks. The damaged capacitors were replaced as stated in Work Order 85-9005. These actions are acceptable to close this issue.

5. Plant Underdrain System Test

(Closed) SER Confirmatory Issue (54): The inspector reviewed the plant underdrain system preoperational test results to determine whether the test met the objectives delineated in the approved test procedure. The inspector verified that:

- a. Pump start/stop float switches were calibrated.
- b. Float level switches were calibrated.
- c. Flow meters were calibrated.
- d. Piezometer readings were consistent with measured valves.
- e. Plugs were installed in the North and South ends of the 12 inch porous pipes for the functionability test.
- f. Regulating and throttling were adjusted according to procedure.
- g. One piezometer, No. 17, was identified as acting more slowly than the other units. Test records indicate that this piezometer lagged the other piezometers by approximately two 3 hour readings during the test by less than one foot. The lag appeared at both ascending and descending levels.

- h. Test results indicated groundwater inflow to be approximately 12 gpm.
- i. During the functionability test there appeared to be no significant differences in manhole water levels. Pump operation appeared to be within design requirements. During the portion of the test requiring the establishment of equilibrium conditions and increasing flow in 50 gpm increments, an equilibrium was established at 50 gpm input but when the flow was increased to 100 gpm west side water level reached elevation 570 feet. This part of the test was stopped upon reaching the 570 foot level per Step 3.K.(3) in the procedure. Since flow increments did not reach the combined flows suggested in the procedure, the licensee has included additional testing at several flow rates on the plant master deficiency tracking system (MDL) as MDL No. 1P72-00111.

The inspector will review the disposition of these test discrepancies (g and i) during a future inspection, this is considered to be an open item. (440/85089-01).

The test demonstrated that the underdrain system will perform its design function of ensuring that groundwater will not be permitted to rise about 594.0 feet mean sea level at the power block area.

6. Review of Engineering Design Deficiency Reports

The inspector examined the licensee's disposition and corrective action relative to ten engineering design deficiency reports (EDDR) identified as potential findings during the Perry System Functional Capability Review. Each EDDR had been evaluated by a responsible engineer and the evaluation reviewed by the architect/engineer and the licensee's nuclear engineering department. In each instance where the EDDR resolution required that hardware modifications or drawing changes be initiated, the inspector verified that those modifications or changes had been effected.

No violations or deviations were identified in this area.

7. Unresolved Items

Unresolved items are matters about which more information is required in order to ascertain whether it is an acceptable item, a violation or a deviation. An unresolved item is identified in Paragraph 5.i.

8. Exit Interview

The inspector met with licensee representatives (denoted in Paragraph 1) at the conclusion of the inspection. The inspector summarized the scope and findings of the inspection. The licensee acknowledged the inspectors' comments. The inspector also discussed the likely informational content of the inspection report with regard to documents or processes reviewed during the inspection. The licensee representatives did not identify any such documents or processes as proprietary.