

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 50-440/85069(DRS)

Docket No. 50-440

License No. CPPR-148

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

Facility Name: Perry Nuclear Power Plants, Unit 1

Inspection At: Perry Site, Perry, Ohio

Inspection Conducted: October 19 through November 15, 1985

*D. E. Hills*  
Inspectors: D. E. Hills

11/27/85  
Date

*G. F. O'Dwyer*  
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11/27/85  
Date

*P. R. Rescheske*  
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11/27/85  
Date

*M. A. Ring*  
Approved By: M. A. Ring, Chief  
Test Programs Section

11/27/85  
Date

Inspection Summary

Inspection on October 19 through November 15, 1985 (Report No. 50-440/85069(DRS))

Areas Inspected: Routine, announced inspection of previous inspection findings, preoperational test witnessing, preoperational test results verification, preoperational test results review, and startup test procedure review. The inspection involved a total of 86 inspector-hours onsite by 3 inspectors including 12 inspector-hours during off-shifts. In addition, there were 94 inspector-hours spent offsite.

Results: No violations or deviations were identified.

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## DETAILS

### 1. Persons Contacted

- \*M. D. Lyster, Manager, Perry Plant Operations Department
- \*J. J. Waldron, Manager, Perry Plant Technical Department
- \*C. M. Shuster, Manager, Nuclear Quality Assurance Department
- \*L. B. Biddlecome, Startup Director
- \*B. D. Walrath, General Supervising Engineer, Operations Quality Assurance
- \*J. J. Lausberg, Supervisor, Nuclear Quality Assurance Department
- \*G. H. Gerber, General Supervising Engineer, Nuclear Test Section
- \*J. G. Cantlin, Senior Engineer, Startup
- \*N. J. Lehman, Staff Analyst, Perry Plant Technical Department
- \*B. B. Liddell, Operations Engineer, Perry Plant Technical Department
- \*B. S. Ferrell, Licensing Engineer, Nuclear Engineering Department

The inspector also interviewed other licensee employees including members of the quality assurance, technical, operating, and testing staff.

\*Denotes persons attending the exit meeting of November 15, 1985.

### 2. Licensee Action on Previous Inspection Items

- a. (Closed) Open Item (440/85053-06(DRS)): Discrepancies noted between the intended startup test program and the Final Safety Analysis Report (FSAR). The inspector has reviewed Revision 1 to PAP-1104, "Startup Test Program," and proposed changes to the FSAR depicted in the licensee's letter to NRR (Office of Nuclear Reactor Regulation), dated October 23, 1985 (PY-CEI/NRR-0377L). The inspector has concluded that the identified discrepancies have been adequately resolved in these documents. The inspector has no other concerns in this area.
- b. (Closed) Open Item (440/85053-05(DRS)): Inspector to perform review of PAP-1104, "Startup Test Program," Revision 1, to ensure that indicated changes have been incorporated and any additional changes meet regulatory requirements. The inspector has completed the subject review and has no other concerns in this area.
- c. (Closed) Violation (440/85053-03(DRS)): Testing conducted in conjunction with several preoperational test procedures not accomplished in accordance with applicable procedure requirements. The inspector verified through interviews of randomly selected operators that they had been advised of the details of the operator error involving improper racking in of a breaker. Furthermore, the inspector reviewed PAP-0205, "Operability of Plant Systems," Revision 2, to ensure that it requires independent verification of the alignment of safety-related systems. In addition, the inspector reviewed electrical lineup instructions to ensure that specific steps are included that prescribe checking the switches for the charging spring motors prior to declaring equipment

operable. In reference to the improper conduct of a test reperformance, the inspector verified that the Lead System Test Engineer has since reviewed the reperformance steps and initialed in the chronological log for his concurrence. The inspector also verified that appropriate personnel have received additional training concerning administrative requirements of reperformances. Finally, in reference to the errors involving improperly signing off procedure prerequisites and improperly changing a procedure, the inspector has also verified that appropriate personnel have received additional training concerning these items. The inspector has no other concerns in this area.

- d. (Closed) Unresolved Item (440/85063-01(DRS)): Complete the review of containment isolation preoperational testing to determine whether testing was accomplished to show the function will go to completion. FSAR Section 6.2.4.1 indicates that "after initiation of containment isolation, either automatically or manually, the function goes to completion." There are several logic design features which ensure the correct performance of this function; the majority of which were adequately tested. However, the inspector determined that the portion of the valve circuitry which prevents the operator from remote manually opening the valve, following containment isolation initiation but prior to the valve reaching full closure, was not adequately tested in the preoperational test. Failure of this portion of the valve logic thus would allow an operator to interfere with the design function and prevent the action from going to completion. In reality, although failure of these components would allow the operator to open the valve prior to it becoming fully closed, the valve would again automatically close after reaching the full open position and the operator releasing the handswitch. Thus, this failure would not actually prevent containment isolation but could allow a delay in its completion. Following completion of valve closure, system design does allow reopening of the valve by the operator (although the valve will automatically reclose unless the initiating signal has cleared and the reset pushbutton has been depressed). In order for the operator to be able to interfere with this design function, there would have to be a mechanical failure of the reversing contactor unit in addition to the failure of the electrical interlock. Thus, failure to test the subject function is considered minimal in safety significance due to the small chance of an operator error, mechanical error, and electrical error occurring simultaneously and the small consequences upon actual occurrence. Furthermore, these interlocks were tested in Initial Checkout and Run-in (IC&R) tests. However, insufficient documentation exists as to the method used during the IC&R testing and thus to make a determination as to its adequacy. The inspector has interviewed personnel involved in the IC&R testing and determined that general testing methods they described would constitute adequate testing of these interlocks if properly documented. In order to provide further confidence to the inspector that actual field problems do not exist, the licensee successfully conducted testing on randomly

selected containment isolation valves which the inspector witnessed. Therefore, the inspector is no longer concerned in this area due to the minimal safety significance and due to a high degree of confidence that no field problems actually exist.

### 3. Preoperational Test Witnessing

The inspector witnessed portions of the following preoperational tests to ascertain through observation and review of documentation that testing was conducted in accordance with approved procedures and that test results appeared to be acceptable or proper corrective actions were taken. Additionally, the performance of licensee personnel was evaluated during the test. These were found to be satisfactory except as noted below:

TP 1M98-P001, "Supplemental Charcoal & HEPA Filter Efficiency Test," Revision 2

The inspector observed the performance of prerequisite steps 5.15 and 5.16 which documented the visually inspected conditions of the "A" and "B" filter trains of the Annulus Exhaust Gas Treatment System (AEGTS). The inspector also observed the performance of prerequisite step 5.9 which consisted of the completion of the Instrument Summary Sheet. Further witnessing included step 6.2.2.a in which the capacity of the exhaust fan for the "A" train of AEGTS was determined. In addition, the inspector witnessed portions of Section 6.3 consisting of verification of airflow distribution through the HEPA filters and the carbon bed of AEGTS. Witnessing also included portions of Section 6.4 which ensured adequate mixing of the aerosol used to periodically test the airflow in the HEPA filters and carbon bed. Finally, the inspector witnessed portions of Reperformance No. 1 and No. 2 which were necessitated by adjustment to the injection ports on the aerosol injection manifold due to previously inadequate air/aerosol distribution.

No violations or deviations were identified.

### 4. Preoperational Test Results Verification

The inspector verified that the following preoperational test results were documented, reviewed, and approved by the licensee in accordance with the requirements of Regulatory Guide 1.68, the Test Programs Manual (TPM), the Final Safety Analysis Report (FSAR), the Safety Evaluation Report (SER), and the Quality Assurance (QA) Program and found them satisfactory.

TP 1C11A-P001, "Rod Control Information System," Revision 1  
TP 1C51B-P001, "Power Range Neutron Monitoring System Average Power Range Preop," Revision 1  
TP 1D23-P001, "Containment Atmosphere Monitoring System," Revision 1  
TP 1E51-P001, "Reactor Core Isolation Cooling," Revision 1  
TP 1M16/17-P001, "Drywell and Containment Vacuum Relief Systems," Revision 0  
TP 1P45-P001, "Emergency Service Water System," Revision 2  
TP 1R61-A001, "Main Control Room Annunciator," Revision 1

No violations or deviations were identified.

5. Preoperational Test Results Review

The inspector reviewed the results of the following tests against the FSAR, the SER, Regulatory Guide 1.68, the QA Manual, and the TPM, and determined that test changes and test exceptions were processed in accordance with administrative controls, test deficiencies were identified, processed, and corrected as required, results were evaluated and met the acceptance criteria, and the results were reviewed and approved as required.

TP 1E22-0001, "High Pressure Core Spray," Revision 1

In addition, a review was begun on the following preoperational test results and will be completed in a subsequent inspection.

TP 1E12-P001, "Residual Heat Removal System," Revision 1

No violations or deviations were identified.

6. Startup Test Procedure Review

The inspector reviewed a number of approved Startup Test Instructions (STIs) against the Perry FSAR, Chapter 14; the Perry "Startup Test Program," PAP-1104, Revision 1; Regulatory Guide 1.68, Revision 2; the General Electric Company Test Specifications (22A7637) and Startup Data (22A4670); and other licensee commitments and requirements. The following procedures were reviewed and found acceptable:

- STI-C51-006, "SRM Performance and Control Rod Sequence," Revision 0
- STI-C11-005, "Control Rod Drive System," Revision 0
- STI-C51-010, "IRM Performance," Revision 0
- STI-C51-011, "LPRM Calibration," Revision 0
- STI-J11-021, "Core Power - Void Mode Response," Revision 0
- STI-C11-008, "Control Rod Sequence Exchange," Revision 0
- STI-B21-025A, "MSIV Function Test," Revision 0

The inspector performed a detailed review of the procedures and found that the administrative requirements and regulatory commitments were satisfied, and that the methodology was technically adequate. However, a thorough line-by-line review revealed that portions of the following procedures were not clear and sometimes confusing (i.e., instructions in the procedures could not be performed as written):

- STI-J11-004, "Full Core Shutdown Margin," Revision 0
- STI-C51-012, "APRM Calibration," Revision 0
- STI-C91-018, "Core Power Distribution," Revision 0
- STI-C91-019, "Core Performance," Revision 0

During the review and subsequent discussions with the licensee, the inspector determined that the identified problems appeared to be due to the lack of a detailed review in the licensee's startup procedure review process. Licensee review of Revision 0 of the procedures, in general, involved only a technical review. Drafts of Revision 1 are currently in progress; however, not all of the inspector's concerns had been identified by the licensee prior to this inspection. The licensee noted all inspection concerns regarding the above procedures and the startup procedure review process. The licensee has agreed to incorporate into the procedure review process for Revision 1 an independent Quality Assurance review/approval step (per PAP-1104). This will insure that a thorough line-by-line review of startup procedures is performed prior to the procedure being approved for use and implemented during startup. The licensee further stated that Revision 0 procedures would not be used to perform the required test; a later revision (i.e., Revision 1) would be used to perform the actual startup test. This issue will be tracked as an unresolved item pending further NRC review of the effectiveness of the above licensee actions (440/85069-01(DRS)). The inspector noted that this issue has minimal safety or technical significance.

Sufficient time was not available to complete the review of STI-C91-013, "Process Computer," Revision 0. The inspector will track this procedure as an open item until a review of the revised procedure, Revision 1, can be completed (440/85069-02(DRS)).

No violations or deviations were identified; however, portions of this area require further review and are considered unresolved or open items.

7. Unresolved Items

Unresolved items are matters about which information is required in order to ascertain whether they are acceptable items, violations, or deviations. The unresolved item disclosed during the inspection is discussed in Paragraph 6.

8. Open Items

Open items are matters which have been discussed with the licensee which will be reviewed further by the inspector, and which involve some action on the part of the NRC or licensee or both. The open item disclosed during the inspection is discussed in Paragraph 6.

9. Exit Interview

The inspector met with licensee representatives denoted in Paragraph 1 on November 15, 1985. The inspector summarized the scope and findings of the inspection and discussed the likely content of this inspection report. The licensee did not indicate that any of the information disclosed during the inspection could be considered proprietary in nature.