U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 50-440/85029(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 Plant, Unit 1

Inspection At: Perry Site, Perry, Ohio

Inspection Conducted: May 11 through June 21, 1985

Inspectors: D. E. Hills — 7/11/85 Date

R. D. Lanksbury — 7/11/85 Date

G. F. O'Dwyer — 7/11/85 Date

Approved By: M. A. Ring, Chief
Test Programs Section — 7/11/85 Date

Inspection Summary

Inspection on May 11 through June 21, 1985 (Report No. 50-440/85029(DRS))
Areas Inspected: Routine, unannounced inspection of previous inspection findings, preoperational test procedure review, preoperational test witnessing, preoperational test results review, and preoperational test program implementation. The inspection involved a total of 214 inspector-hours onsite by 3 inspectors including 73 inspector-hours during off-shifts. In addition, there were 79 inspector-hours spent offsite.
Results: Of the five areas inspected, no items of noncompliance or deviations were identified in three areas. Within the remaining two areas, two items of noncompliance were identified (Paragraph 3.a: failure to provide adequate preoperational test procedures; Paragraph 6.b: failure to follow administrative procedures).

DETAILS

1. Persons Contacted

*M. D. Lyster, Manager, Perry Plant Operations Department
*C. M. Schuster, Manager, Nuclear Quality Assurance Department
*G. R. Leidich, General Supervising Engineer, Nuclear Test Section
*J. H. Bellack, General Supervising Engineer, Nuclear Engineering Department
*K. A. Matheny, Element Supervisor, Nuclear Test Section
*A. H. Lambacher, Supervisor, Administration Unit, Operations Quality Section
*V. K. Higaki, Supervisor, Electrical I&C, Operations Quality Section
*B. S. Ferrell, Licensing Engineering, Nuclear Engineering Department
*N. J. Lehman, Staff Analyst, Perry Plant Technical 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 June 20, 1985.

2. Licensee Action on Previous Inspection Findings

a. (Closed) Noncompliance (440/85013-07(DRS)): Failure to adhere to jurisdictional controls. The inspector verified that appropriate tags were provided subsequent to the identification of the discrepancies and that the cable for the velocity feedback signal from the actuator on the Recirculation Flow Control Valve 1B33-F060A was reconnected and verified functional during preoperational test TP 1B33-P002. Furthermore, the inspector reviewed training records to ensure that appropriate personnel had been given additional training on procedures covering jurisdictional controls and equipment operation. In addition, licensee surveillances of jurisdictional tagging conducted since this training has shown improvement in this area. Considering that no further examples of this problem have been identified pursuant to routine NRC inspections subsequent to the licensee training, the inspector has no further concerns in this area.

b. (Closed) Unresolved Item (440/85017-09(DRS)): Breaker EF1B13 (Tie Breaker to Bus EF1A) racked out from its cubicle, thus taking it out-of-service, without being tagged with an out-of-service tag. The licensee has determined that the most likely cause of this occurrence is that, subsequent to reinstallation of the breaker following preventative maintenance, the completed work authorization was returned to the control room personnel, who, contrary to normal practice, failed to send personnel to check and rack in the breaker. The major contributing factor that allowed this occurrence was that work order number 840003626 indicated that a tagout was not required when the breaker was removed from the cubicle pocket. Therefore, an administrative mechanism, such as clearing of a tagout, was not instituted which would have forced operating personnel to

check the breaker following reinstallation. In order to ensure a uniform clarification of tagging requirements for this type of circumstance, the licensee has instituted a change to Plant Administrative Procedure (PAP)-1401 "Equipment Tagging" to require that when a breaker is removed from its cubicle pocket both it and its cubicle door shall be tagged. Considering that this was identified as an isolated case and that prompt action was taken to prevent its recurrence, the inspector has no further concerns in this area.

c. (Closed) Unresolved Item (440/85017-06(DRS)): Review of suppression pool cleanliness conditions and requirements. This item was identified as a result of Residual Heat Removal (RHR) Pump B suction test strainers becoming clogged during the 24 hour endurance run of test section 6.4.3.b of preoperational test TP 1E12-P001 "RHR System." During Reperformance #4 of preoperational test TP 1E22-P002 "High Pressure Core Spray (HPCS) Diesel Generator," the HPCS pump suction test strainers also became clogged. The plugging of Emergency Core Cooling System (ECCS) pump suction strainers was attributed to silt picked up from the bottom of the suppression pool. The inspector has reviewed the circumstances contributing to these occurrences, any applicable requirements, and possible ramifications to determine if any safety implications exist. In order to reach a reasonable determination, it must be considered that the suppression pool, lying directly beneath and completely open to the containment atmosphere in the BWR Mark III containment design, is uniquely vulnerable to entry of foreign debris. Recognizing that in a construction environment maintenance of suppression pool cleanliness is difficult, the licensee had previously installed a special plywood and herculon covering over the suppression pool grating to prevent debris from being dropped into the area. In order to preclude debris, which may have found its way past this barrier and into the suppression pool, from contaminating ECCS piping and causing possible pump damage, the licensee had taken the added precaution of installing 40 and 80 mesh strainers on ECCS pump suctions. These special test strainers were those mentioned earlier which experienced plugging during testing. Furthermore, the licensee required suppression pool samples to be taken and compared to General Electric specified requirements prior to ECCS pump operation with suppression pool suction. These samples, however, would not be indicative of the silt which had settled to the bottom only to be stirred up later and drawn into pump suctions.

Since the 8 mesh cone-shaped strainers which are permanently installed on suction piping in the suppression pool would preclude entry of larger items into ECCS piping, the inspector concerns revolved around only the silt as having a possible safety implication. Further review indicated that permanent system design required only 20 mesh strainers on the ECCS pump suctions and thus the 40 and 80 mesh temporary test suction strainers installed by the licensee were extremely conservative as to these design requirements. In addition, the licensee has indicated that to further ensure piping

cleanliness downstream of the temporary test strainers whenever the system was opened as part of normal maintenance activities cleanliness inspections were conducted with no identified problems and that in the future the NRC would be notified of such opportunities to inspect open piping.

Therefore, the only remaining inspector concern is silt remaining in piping upstream of the temporary test suction strainers which could find its way downstream subsequent to the removal of these strainers. The licensee has indicated that suction piping has been hydrolazed numerous times in the past as the opportunity presented itself. Also a Master Deficiency List (MDL) item has been added for each ECCS system to again hydrolaze suction piping after removal of the temporary test strainers and prior to subsequent system operation. These actions should preclude later contamination of downstream piping. In consideration of the unique suppression pool cleanliness vulnerability presented by the BWR Mark III design containment in a construction environment (which would be substantially diminished during operations) and also licensee previous recognition of this fact and their resulting actions to ensure all possible safety implications have been addressed, the inspector has no further concerns in this area.

d. (Closed) Open Item (440/85002-03(DRP)): Correction of Safety Evaluation Report (SER) discrepancy pertaining to Automatic Depressurization System (ADS) accumulator actuations. The inspector reviewed NUREG-0887 Supplement Number 5, "Perry Safety Evaluation Report", and verified that Appendix G, "Errata to the Safety Evaluation Report and Supplemental Safety Evaluation Reports," corrected the identified discrepancy.

e. (Closed) Open Item 440/84-11-15(DRS)): Review licensee's response to how their program will minimize problems identified in preoperational testing at other facilities. The licensee has provided a written response which the inspector has reviewed and determined to be adequate.

f. (Open) Open Item (440/85017-10(DRS)): Licensee to provide list of Initial Checkout and Run-in tests being used to satisfy preoperational test acceptance criteria. The licensee has submitted the subject list. This item is to remain open until the inspector has reviewed the list to verify conformance with licensee commitments and requirements.

g. (Closed) Open Item (440/85013-04(DRS)): Inspector concern over use of system air monitors to take acceptance criteria in lieu of pitot tube traverse as required by American National Standard Institute (ANSI) N510-1980. The licensee has resolved this concern by committing to not using system air monitors to take acceptance criteria in preoperational and surveillance testing required by ANSI N510-1980. Instead, pitot tube traverses will be used as described in ANSI N510-1980, Paragraph 8. The licensee intends to only use

the air monitors for routine system performance checks. The inspector reviewed, in part, Revision 1 of preoperational test procedure 1M98-P-001, "Supplementary Charcoal and HEPA Filters Efficiency Preoperational Test", and noted that it had been changed to reflect the above commitment. The inspector has no further concerns in this area.

h. (Open) Open Item (440/85013-03(DRS)): Preoperational test procedure 1M98-P-001 to be revised to reflect the required ANSI N510-1980 test methodology for a Type III charcoal adsorber bed and change to the Final Safety Analysis Report (FSAR) to upgrade licensee's commitment from ANSI N510-1975 to ANSI N510-1980. The inspector reviewed, in part, Revision 1 of preoperational test procedure 1M98-P-001 and noted that it had been changed to reflect the testing methodology for a Type III charcoal adsorber bed as required by ANSI N510-1980. It was also noted that the licensee had made several changes in the FSAR to upgrade their commitment for ANSI N510 from the 1975 to the 1980 version, however, due to the complex method chosen by the licensee to do this, the changes were incomplete. The licensee has indicated that they will review this issue to see what additional changes are required. This item remains open pending completion of all required changes.

i. (Closed) Open Item (440/85013-02(DRS)): Inspector comment on lack of override capability for the control room emergency recirculation toxic gas monitor signal that initiates both trains. The licensee pursued the desirability of adding an override circuit with their Nuclear Design and Analysis Section (NDAS). In response to this, Engineering Change Notice (ECN) 26610-86-1323 was issued to provide the necessary system modifications for both the toxic gas and hi-rad monitors. Subsequently, Revision 3 to preoperational test procedure TP OM25/26-P-001 was issued that included requirements for testing the new circuit modifications for the override capability of the toxic gas monitors and the hi-rad monitors. The inspector has no further concerns in this area.

j. (Closed) Open Item (440/85002-06(DRP)): Licensee commitment to establish a program to verify that all surveillance requirements issued with the technical specifications at the time of license issuance have not invalidated any preoperational tests or surveillance tests performed prior to license issuance. The licensee has issued Guide Number DG-A-033, "Commitment Search Program", to address this concern. The inspector reviewed DG-A-033, Revision 0, and the Technical Specification Matrix that had been developed as part of the program implementation. This review indicated that the licensee was taking appropriate action to insure that changes to the technical specifications would be reviewed for effect on completed preoperational and surveillance testing. The inspector has no further concerns in this area.

No violations or deviations were identified.

3. Preoperational Test Procedure Review

The inspector reviewed the following approved test procedures against the FSAR, the SER, Regulatory Guide 1.68, the Quality Assurance (QA) Manual, Test Programs Manual, applicable Regulatory Guides and ANSI Standards, and docketed correspondence and found them satisfactory except as noted below:

a. TP 1M15-P-001, "Annulus Exhaust Gas Treatment (AEGT) System," Revision 1

The inspector noted during the review of this test that at the end of the testing section (Section 6) no instructions for system restoration existed. Test Program Instruction (TPI)-7 requires that at the end of Section 6 of every preoperational, acceptance, and special test a statement for system restoration be included. The failure to include any requirements for the system restoration subsequent to the test, as required by TPI-7, is considered to be a violation of 10 CFR 50, Appendix B, Criterion V, in that an activity affecting quality was not accomplished in accordance with written instructions (440/85029-01(DRS)).

*b. TP 1B21-P001, "Automatic Depressurization System/Safety Relief Valves," Revision 1

*c. TP 1M51-P001, "Containment Combustible Gas Control," Revision 0

*d. TP 1P57-P001, "Safety Related Instrument Air," Revision 0

*Currently under review and will be completed in a subsequent inspection.

No additional violations or deviations were identified.

4. Preoperational Test Witnessing

The inspector witnessed 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 unless otherwise noted.

a. TP 1E22-P002, "High Pressure Core Spray (HPCS) Diesel Generator," Revision 1. The inspector witnessed portions of Reperformance #5 consisting of the full load rejection test following installation of a new governor.

b. TP 1B21B-P001, "Automatic Depressurization System (ADS)/Safety Relief Valves (SRV)," Revision 1. The inspector witnessed a portion of Section 6.16 "Safety Relief Valve Actuations" which ensures that each ADS-SRV has sufficient accumulator capacity to provide five SRV actuations. The test procedure requires the accumulators to be

initially charged to approximately 15[illegible] psig in test step 6.16.3. However, it was found that the accumulators supplied from the "B" train of safety-related instrument air were only pressurized to around 60 psig. The problem was subsequently traced to a closed instrument air valve 1P57-F015B. Prerequisite 5.7 had been signed off earlier indicating that the safety-related air system (P57) was verified operable and capable of supporting the test. However, this step was inadequately accomplished in that this verification did not include the complete necessary valve lineup and thus this is considered an isolated case of failing to properly verify testing prerequisites. After opening valve 1P57-F015B the remaining accumulators pressurized and testing was continued. While performing testing on the first ADS valve, 1B21-F041F, it was observed that several of the ADS accumulators were experiencing an inexplicable loss of air pressure. The source of accumulator pressure drop was subsequently traced to leakage past the accumulator check valves. ADS/SRV testing was postponed until the problem with the check valves could be rectified. The inspector also witnessed portions of sections 6.4, 6.5, 6.6, and 6.7 consisting of functional testing of ADS logic.

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 Test Program Manual 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 1E21-P001, "Low Pressure Core Spray," Revision 2

During this review the inspector expressed concern that test log sheet 32 indicated Test Bypass Valve 1E21-F012 and Minimum Flow to Suppression Pool Valve 1E21-F011 were being operated but the test procedure did not contain steps prescribing this operation. The STE indicated that at that point the test was in a stopped condition and that operation of the valves was being conducted in accordance with a Temporary Operating Instruction in conjunction with trouble-shooting activities. The test results package does not adequately document this explanation and therefore the STE has indicated that he will add a clarification in a test addendum. The inspector also noted that an improper date was also entered on a correction to test step 6.1.10.1.c data. The STE indicated this discrepancy would also be addressed in the test addendum. This is an open item until the inspector has reviewed the test addendum (440/85029-02(DRS)).

No violations or deviations were identified.

6. Preoperational Test Program Implementation

a. The inspector verified that the General Supervising Engineer (GSE), Nuclear Test Section (NTS) is familiar with the general description of the test program and that he is aware of his responsibilities in the conduct of the test program. It was also determined that the GSE-NTS understands the following:

- responsibilities of key test personnel
- method and responsibility for appointing test personnel
- lines of authority and responsibility
- organizational interfaces for organizations involved in the test program

b. Qualification records were also verified for fifteen key personnel selected at random and it was determined that they all met the specified qualification requirements. However during this review, the inspector found that selected Nuclear Test Section (NTS) Certification Evaluation Forms for several of the individuals appeared to be missing. These are to be completed on an annual basis for each discipline to which the individual has been certified per requirements of Test Program Instruction (TPI)-3, "NTS Certification and Training." This requirement was instituted to provide conformance to ANSI N45.2.6-1978 which states that "any person who has not performed inspection, examination, or testing activities in his qualified area for a period of one year shall be reevaluated by a redetermination of required capability." Following inspector identification of this problem, the licensee reviewed all NTS qualification records and indicated that they found 27 instances where required NTS Certification Evaluation Forms were not completed. Further licensee investigation has identified the cause of this problem as a failure to completely implement requirement changes resulting from a procedure revision. Nuclear Test 6-0202 Revision 3 previously did not require the yearly evaluation to be conducted on the discipline to which the individual had been assigned. This administrative procedure was superseded on July 30, 1984 by TPI-3 Revision 0 which required the evaluation for all disciplines. Subsequent to TPI-3 issuance, the licensee failed to properly implement the additional requirement by conducting only those evaluations as would be required under the superseded procedure. This resulted in several evaluations within the time frame of several months following TPI-3 Revision 0 issuance which were not conducted as required. The failure to follow administrative requirements of TPI-3 which specifies this annual evaluation to determine if the individual has worked in that discipline within the past year and whether it is necessary to continue that certification is considered a violation of 10CFR50, Appendix B, Criterion V (440/85029-03(DRS)). The inspector has verified licensee corrective action consisting of a review of all NTS qualification records and conduct of all missed evaluations that were identified as a result. The inspector has no further concerns in this area.

c. The inspector also reviewed training records for two test personnel selected at random and verified that they have received the required training including administrative controls for testing, quality assurance/ quality control indoctrination, and technical training as appropriate. The inspector did note, however, that the NTS training records are not organized conducive to the audit function by necessitating a long and tedious process to verify whether an individual has had all required training per the Training Matrix. Training verification records, documented on class roster forms, are organized along subject guidelines which means a review must be done of the entire file for that particular type of training to determine if the individual has ever attended and to which revision he has attended. This review must be conducted for each type of training specified for the individual's position in the Training Matrix. A single source of information showing all training received by an individual, which would greatly enhance training record retrievability, does not yet exist. The licensee has recently developed a system of individual training records which is at this time of minimal use since it contains only records generated since its implementation. The inspector advised the licensee that the existing system is extremely cumbersome and time consuming which impedes the process of training verification. The licensee indicated that the current system would be reviewed to determine if any action is warranted.

d. The inspector also attended Test Program Review Committee (TPRC) Meeting #411 held on June 5, 1985, and also the Test Plan of the Day (TPOD) Meetings held on June 4 and 5, 1985, to ensure that they were conducted in accordance with applicable administrative procedures. As a result of observations made during the TPOD meetings, the inspector expressed concern whether the existing format provides a sufficient degree of test coordination as required by administrative procedures. TPI-5, "Test Program Planning", states that the purpose of the TPOD meeting is to "address interface and support activities and prioritize activities that are restraining testing." The inspector noted that the meetings appeared to adequately accomplish the scheduling portion of this purpose by providing testing status and identifying and prioritizing restraining activities but did not appear to provide enough emphasis on the portion dealing with system test interface activities. Previous concerns about coordination of testing of related systems were identified during witnessing of Standby Diesel Generator testing as described in inspection report 440/85017(DRS). In subsequent discussions, the licensee has indicated that in order to provide increased coordination and awareness of related plant activities, the status board located in the control room would be kept to a greater degree of detail showing the section of the test procedure being conducted and major pieces of equipment being operated. Also in consideration of the shift supervisor's role as test coordinator, control room personnel will be given added responsibility and authority for test schedule, restraints, and coordination concerns. This action should contribute to greater operating personnel involvement and

responsibility in testing activities so as to provide them more experience in controlling plant activities. The inspector will continue to follow these concerns as part of the normal inspection process.

No additional violations or deviations were identified.

7. 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. Open items disclosed during the inspection are discussed in Paragraph 5.a.

8. Exit Interview

The inspector met with licensee representatives denoted in Paragraph 1 on June 20, 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.

The licensee acknowledged the statements by the inspector with respect to the violations in Paragraphs 3.a and 6.b.