

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 50-440/85047 (DRP); 50-441/85019 (DRP)

Docket No. 50-440; 50-441

License No. CPPR-148; CPPR-149

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

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

Inspection at: Perry Site, Perry, OH

Inspection Conducted: July 8-12 and July 15-19, 1985

Inspector: C. H. Scheibelhut

C. H. Scheibelhut
Date 6/1/85

Approved by: R. C. Knop, Chief
Reactor Projects, Section 1A

William L. Stoney
Date 8/08/85

Inspection Summary

Inspection on July 8-12 and July 15-19, 1985 (Reports No. 50-440/85047 (DRP); 50-441/85019 (DRP))

Areas Inspected: Routine safety inspection by a Regional Inspector of licensee actions on previous inspection findings, 10 CFR 50.55(e) items, evaluation of licensee action with regard to IE Circulars and an evaluation of licensee action with regard to IE Notices. The inspection involved a total of 72 inspector-hours onsite by one NRC inspector and includes 0 inspector-hours during off-shifts.

Results: No violations or deviations were identified.

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Details

1. Persons Contacted

Cleveland Electric Illuminating Company

C. M. Schuster, Manager, Nuclear Quality Assurance Department (NQAD)

J. J. Waldron, Manager, Perry Plant Technical Department (PPTD)

G. R. Leidich, General Supervising Engineer, Perry Plant Operating Department (PPOD)

S. F. Kensiki, Technical Superintendant, PPTD

W. R. Kanda, General Supervising Engineer, PPTD

B. B. Liddell, Operation Engineer, PPTD

P. Russ, Compliance Engineer, PPTD

N. J. Lehman, Staff Analyst, PPTD

M. Helle, Engineering Technician, PPTD

E. Riley, General Supervisor, Construction Quality Section (CQS)

B. D. Walrath, General Supervisor, Engineering, Operational Quality Section (OQS)

G. Parker, Unit Supervisor, CQS

N. Fife, Mechanical Inspector, CQS

D. J. Takacs, General Supervisor, Maintenance, PPOD

F. H. Sondgeroth, Senior Engineer, Nuclear Licensing and Fuel Management Section (NL&FMS)

J. J. Haddick, Engineer, Reliability and Design Assurance Section (R&DAS)

The inspector also contacted other licensee and contractor personnel during the course of the inspection.

The personnel listed above attended the exit interview on July 19, 1985.

2. Licensee Actions on Previously Identified Items (92701, 92702)

- a. (Closed) Open Item (440/84009-02(DRP), 441/84009-02(DRP)) "Concerns about the interface between the reactor pressure vessel integrated system flush and individual system flushes." While the individual systems connected to the reactor pressure vessel had been flushed using bypass and test lines, an integrated system flush of the vessel would involve piping that could not have been flushed previously. The inspector was concerned that the previously cleaned systems could be recontaminated during the integral flushes.

The licensee wrote Integrated Flush Instruction IB13-F-104 rev. 0 to accomplish the flushing of lines that connected to the reactor vessel that had not been previously flushed and then to complete a series of recirculation flushes of the reactor vessel and associated piping systems.

The inspector reviewed the Integrated Flush Instruction and the results of the flushes. Previously unflushed lines were flushed by gravity from the pressure vessel to waste or a suitable receiver. In the one instance where this was not possible (the reactor recirculation system), the lines were large enough to permit manual cleaning of the piping interior. After the gravity flushes were completed, a closed loop cleanup path was established. This path was from the reactor pressure vessel to the condenser hot well via

the main steam lines, and then back to the vessel via the condensate lines, condensate filters and demineralizers, and feedwater lines. This cleanup path was operated until the reactor water quality requirements were met. Then, the residual heat removal system, the high pressure core spray system, the low pressure core spray system, the reactor water cleanup system, and the standby liquid control system were systematically placed in operation. These were run until each system showed acceptable water quality.

The review showed that the reactor pressure vessel and all systems connected to it have been flushed clean to the required cleanliness level. This item is closed.

- b. (Closed) Open Item (440/84028-03(DRP)) "Lexan material in reactor vessel." Two energized underwater lights suspended in the reactor vessel were uncovered due to decreasing water level. The lights overheated causing the plastic (Lexan) shatter shields to melt and drip into the reactor vessel. Inspection Report 50-440/84028 details the activities following the event. A Nonconformance Report (NR) and Field Deviation Disposition Request (FDDR) were written to document and disposition the problem. The item was left open to track the closeout of the NR and FDDR.

NR OQC 1545 and FDDR KLI-4020 have now been closed. A detailed vessel inspection following certain preoperational tests was required for the closeout of the documents.

The inspector reviewed the NR, FDDR, and inspection report R85-9206 that documented the post preoperation test inspection. The review showed that little if any Lexan remains in the vessel, small remaining quantities would not be deleterious, and the corrective actions taken were proper. This item is closed.

- c. (Closed) Item of Noncompliance (440/85010-01(DRP)) A. Fuel Handling Area Structural Steel Cleaning. B. Violation of Equipment Protection Requirements. C. Fuel Handling Area Material Accountability."

- A. Cleaning activities performed to meet quality requirements were being done without the required procedures and record keeping. The structural steel in the fuel handling building was cleaned without using procedures or keeping records. The licensee indicated that no housekeeping or cleaning activities were accomplished using procedures.

To rectify this problem, the licensee revised Plant Administrative Procedure (PAP)-0204, "Housekeeping/Cleanliness Control Program," to require that cleaning activities performed to meet quality requirements be performed in accordance with PAP-0905, "Work Order Process." PAP-0905 requires written procedures, involvement of QC and record keeping.

- B. In section 1.8 of the Perry Final Safety Analysis Report (FSAR), the licensee committed to the requirements of Regulatory Guide 1.39, rev. 2, "Housekeeping Requirement for

Water Cooled Nuclear Power Plants" and ANSI N45.2.3-1973, "Housekeeping During the Construction Phase of Nuclear Power Plants." During plant tours, the inspector found the following violations of the requirements:

1. No protection for certain items of safety-related equipment in high construction traffic areas.
2. Inconsistencies between the housekeeping zone designation floor plans, the implementing procedures and actual field practices.

To rectify these problems, test engineers and operation personnel were instructed to provide installation of protection where needed. Also, the housekeeping zone designation floor plans were updated, the zones posted with signs that delineate the zone requirements, and personnel made aware of the housekeeping/cleanliness policies.

- C. The inspector found that controls necessary to prevent the introduction of foreign material into the Fuel Handling Area fuel pools (i.e. material accountability) had not been established. The inspector observed individuals with loose materials on the fuel handling machine bridge moving a fuel bundle over to the fuel storage area.

To rectify this deficiency, the licensee instituted the controls specified in PAP-1303, "Fuel Receipt, Handling, Storage, and Shipment." The requirements of ANSI N45.2.3-1973 have been included in PAP-1303 as applicable. In addition, the material accountability requirements have been posted at the access control point into the fuel storage areas and are applicable to all personnel.

To further strengthen the housekeeping program, the licensee has withdrawn the exception taken in the FSAR (section 1.8) to ANSI N45.2.3-1973 (which provided for three housekeeping zones) and has committed to the five housekeeping zones prescribed by the standard. The FSAR is being amended to reflect this. PAP-0204 was revised (rev. 1) to incorporate the five housekeeping zones.

The inspector reviewed PAP-0204, rev. 1 and found it to be in agreement with ANSI N45.2.3-1973 and ANSI N45.2.1-1973, "Cleaning of Fluid Systems and Associated Components During the Construction Phase of Nuclear Power Plants." Also reviewed were PAP-0905 and -1303. These were found to be in agreement with the ANSI N45.2.3 and 10 CFR #50 Appendix B, Criterion V. The inspector also toured the plant and found no instance of unprotected equipment that required protection, housekeeping zones clearly marked, and material accountability procedures in force at the access portals to the Fuel Handling Area and the Refueling Floor. The licensee also undertook a plant appearance improvement in the general housekeeping of the plant and has also instituted more stringent access control to

various areas of the plant.

Based on the reviews and observations, the inspector concludes that the corrective actions taken are adequate and full compliance has been achieved. This item is closed.

No violations or deviations were identified.

3. Licensee Actions on 10 CFR 50.55(e) Items (92700)

- a. (Closed) 10 CFR 50.55(e) Report (440/85008-EE, 441/85008-EE(DAR 229)). "A design change to the position of the scram discharge volume level switch resulted in a condition that would have prevented upper level actuations." In Inspection Report 50-440/85039(DRP), 50-441/85017(DRP), it was found that on rising water level in the Scram Discharge Volume (SDV) the Magnetrol magnetic level switch would close and on further rise of water level, would reopen. Under certain conditions, this could lead to a "half scram" condition. While this condition would not automatically reset when the switch reopened (it would require a manual reset), a further review was deemed necessary and the item was left open. Subsequently, the licensee has found that the switch does not reopen on further rises of water level. The float is restrained from rising further by a built-in stop and the switch remains closed. Therefore, the condition (high water level in the SDV) cannot be reset until this water level actually falls and the system operates as intended. This item is closed.
- b. (Closed) 10 CFR 50.55(e) Report (440/85016-EE, 441/85016-EE(DAR 242)). "Per Brown Boveri part 21, Perry announced that low voltage (480V) K-Line circuit breakers potentially have incorrect short time delay band levers installed in the electromechanical overcurrent trip devices. (Type OD-4 and OD-5)." Brown Boveri, Inc. (BBC) notified the licensee that certain K-Line circuit breakers using OD-4 and OD-5 trip devices may have an incorrect lever installed. The incorrect levers were inadvertently installed between certain known dates. The use of the incorrect lever would cause the short time element of the overcurrent trip device to be inoperative in the maximum setting.

The licensee determined that all BBC K-Line breakers installed in the plant were manufactured well before the date supplied by BBC. However, 22 Type OD-4 trip devices that had been procured as spares were manufactured in the critical time frame. Nonconformance reports NDS-126 and NDS-127 were written to inspect the trip devices in the warehouse and return defective ones to BBC. The inspection found that 17 of the 22 devices had incorrect levers. The 17 were returned to BBC.

The inspector reviewed the nonconformance reports, Inspection Report PQU-2915, and the Goods Returned form No. 4875 dated 7/8/85. The review showed that all suspect devices were inspected and all defective trip devices have been removed from the site. This item is closed.

No violations or deviations were identified.

4. Evaluation of Licensee Action with Regard to IE Circulars (92717, 42450 & 42452)

For the IE Circulars listed below, the inspector verified that the circulars were received by the licensee management, that a review for applicability was performed, and if the Circular was applicable to the facility, appropriate corrective actions were taken or scheduled to be taken.

- a. (Closed) IE Circular 80-02 (440/80002-CC, 441/80002-CC) "Interim Criteria for Shift Staffing." This circular recommended minimum levels of personnel of different types to be present on each operating shift. Generic Letter 82-02, "Nuclear Power Plant Staff Working Hours," recommended maximum working hours and minimum rest periods between shifts for shift workers.

The licensee wrote Plant Administrative Procedure (PAP)-0110, "Shift Staffing", to cover the recommendations of the Circular and Generic Letter .

The inspector reviewed PAP-0110 and found that it complied with all of the recommendations. This item is closed.

- b. (Closed) IE Circular 81-02 (440/81002-CC, 441/81002-CC) "Performance of NRC-Licensed Individuals While on Duty." Based on some adverse findings in operating reactors, the NRC promulgated certain conditions and practices believed necessary for the safe operation of reactors and presented them in the Circular.

In response, the licensee wrote PAP-0201, "Conduct of Operation," to govern the operation of the plant.

The inspector reviewed PAP-0201 and found that it complied with the Circular in all respects. This item is closed.

- c. (Closed) IE Circular 81-04 (440/81004-CC, 441-81004-CC) "The Role of Shift Technical Advisors and Importance of Reporting Operational Events." The Circular was issued to focus attention of licensees on implementation of the shift technical advisor (STA) program and the program for reporting operational events. The circular identified areas in both programs that needed strengthening.

The licensee responded by issuing Technical Administrative Procedure (TAP)-0101, "Duties of the Shift Technical Advisor," and PAP-0603, "Technical Specification Reportable Occurrence."

The inspector reviewed the documents and found that they addressed the concerns of the Circular in all respects. This item is closed.

- d. (Open) IE Circular 81-05 (440/81005-CC, 441/81005-CC) "Self-Aligning Rod End Bushings for Pipe Supports." Based on field reports, self-aligning rod end bushings in the saddles of pipe supports can become disengaged if there is sufficient clearance in the clamp. This condition can seriously degrade the performance of the pipe support. The Circular recommended a number of actions that

licensees should take.

The licensee determined that the clearance in the clamps from two suppliers is insufficient to permit disengagement. The third supplier had a reasonably secure method for retaining the bushings. However, a pre-service inspection was recommended to check for damage and general conditions. The licensee has a commitment for a pre-service examination (and preoperational testing), but the procedures are not complete. Until these procedures are approved and reviewed by an inspector, this item remains open.

- e. (Closed) IE Circular 81-11 (440/81011-CC, 441/81011-CC) "Inadequate Decay Heat Removal During Reactor Shutdown." The Circular describes several instances of complete loss of decay heat removal capability at reactors during shutdown and recommends several steps that should be taken.

The licensee has written two procedures that cover the situation: Integrated Operating Instruction (IOI)-12, "Maintaining Cold Shutdown," and Off-Normal Instructions (ONI) E-12, "Loss of Shutdown Cooling."

The inspector reviewed both instructions and found that they respond to the concerns and recommendations of the Circular. This item is closed.

- f. (Closed) IE Circular 81-14 (440/81014-CC, 441-81014-CC) "Main Steam Isolation Valve Failures to Close." The NRC found that Main Steam Isolation Valve (MSIV) failure to close events were primarily related to two causes: (1) poor quality instrument air to the pilot valves and (2) binding of the MSIV valve stems with the valve packing. Both causes represent common-mode failure mechanisms. The Circular listed a number of recommended actions to be taken by licensees.

In responding to this Circular, the licensee noted that the instrument air quality requirements for the Perry plant are such that no contamination is expected. The Generic Maintenance Instruction (GMI)-0061, "Valve Packing Instruction," details the installation of packing in valves. Surveillance Procedures require periodic testing of the MSIVs' operability. They are Surveillance Instructions (SI)-1180, "MSIV Full Closure Timing," and SI-2003, "MSIV Partial Exercise Test."

The inspector reviewed the instrument air quality requirements, the valve packing instructions and the surveillance instructions and concluded that MSIV failure to close should not be a problem. This item is closed.

No violations or deviations were identified.

5. Evaluation of Licensee Action with Regard to IE Notices (92717)

Current NRC Region III policy does not require review of licensee action

with regard to IE Notices on an individual Notice basis as is required for IE Bulletins and Circulars. Instead, on an audit basis, the licensee's program is reviewed. The review is to determine if all of the IE Notices have been received by the licensee management, that a review for applicability was performed, and if the Notice was applicable to the facility, that appropriate corrective actions were taken or scheduled to be taken.

The inspector compared the contents of the licensee's IE Notice files with the NRC resident inspector's IE Notice file and found that all IE Notices from January 1, 1979 through July 9, 1985, had been received by the licensee. The licensee wrote Project Administration (PA) procedure 1601, "Evaluation of IE/INPO Documents." This procedure requires a review for applicability, and if applicable a designation of responsibility for disposition of all IE Bulletins, Circulars, and Notices and INPO SERs and SOERs. The inspector randomly selected the following IE Notices for detailed review: 79-04, 79-07, 79-35, 80-18, 80-29, 80-30, 80-43, 81-11, 81-35, 81-38, 82-16, 82-31, 82-41, 83-14, 83-44, 83-83, 83-04, 84-52, 84-53, 84-61, 84-84, 85-02, 85-13, and 85-22. The sample size was about 12% of the total IE Notices received. The review of the selected Notices showed that a documented review for applicability was made in each case. The inspector agreed with the results of each review. Where the Notice was applicable to Perry, appropriate personnel received the notice for action. The appropriate actions were taken and documented or are scheduled to be taken. Before a Notice is considered closed, a final review of the actions taken is made by a review group. Instances were found where the review group did not agree with the closeout and further action was required. The inspector agrees that all of the actions taken in the Notices reviewed were proper and technically sound.

Based on this review of samples of the licensee actions with regard to IE Notices, the inspector concluded that the actions were proper, thorough and well documented. This item is closed.

No violations or deviations were identified.

6. Exit Interview (30703)

The inspector met with the resident inspector and licensee representatives (denoted in paragraph 1) at the conclusion of the inspection on July 19, 1985. The resident inspector summarized the scope and findings of the inspection. The licensee acknowledged the inspector's findings. The licensee did not indicate that any of the information disclosed during the inspection could be considered proprietary in nature.