

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 50-461/85055(DRS)

Docket No. 50-461

License No. CPPR-137

Licensee: Illinois Power Company
500 South 27th Street
Decatur, IL 62525

Facility Name: Clinton Nuclear Power Station, Unit 1

Inspection At: Clinton Site, Clinton, IL

Inspection Conducted: October 11 through November 8, 1985

Inspectors: *Stevie G. DuPont*
Stevie G. DuPont

11-22-85
Date

Nanette Valliere
Nanette Valliere

11-22-85
Date

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

11-22-85
Date

Inspection Summary

Inspection on October 11 through November 8, 1985 (Report No. 50-461/85055(DRS))

Areas Inspected: Actions on previous inspection findings, preoperational procedure review, preoperational test witnessing, preoperational test result review and preoperational test result verification. The inspection involved 92 inspector-hours onsite by two NRC inspectors including 16 inspector-hours onsite during off-shifts.

Results: No violations or deviations were identified.

DETAILS

1. Persons Contacted

- *F. A. Spangenberg, Manager, Licensing and Safety
- *J. W. Wilson, Plant Manager
- *J. H. Green, Manager of Startup
- *J. Greenwood, Manager, Power Supply
- *J. S. Perry, Manager, Nuclear Program Coordinator
- *W. Connell, Manager, Quality Assurance
- *E. J. Corrigan, Director, Quality Engineering and Verification
- *E. B. Vaughan, Technical Advisor
- *K. A. Baker, Acting Supervisor, Inspection and Enforcement Interface
- J. Miller, Director, Startup Programs
- D. Holesinger, Director, Startup Testing

The inspectors also interviewed other licensee employees, including members of the quality assurance, startup, and operating staff.

*Denotes those attending the exit interview on November 8, 1985.

2. Actions on Previous Inspection Findings

(Closed) Open Item (461/85036-03): PTP-HP-01, "High Pressure Core Spray," (HPCS) preoperational test did not include the allowed diesel generator starting time in the acceptance criteria for response time of the HPCS injection valve opening to rated flow from an initiation signal. PTP-HP-01 was revised to include the correct acceptance criteria. In addition, preoperational test PTP-DG-03, "Division 3 Diesel Generator," (HPCS) will demonstrate the HPCS time response to full rated flow under actual diesel generator starting conditions. The inspector has no further concerns.

3. Preoperational Test Procedure Review

The inspector reviewed the "Reactor Control and Information System" preoperational procedure, PTP-RC-01, for compliance with the FSAR, the SER, Regulatory Guide 1.68, and the Startup Manual. The inspector determined that the procedure was satisfactory and that the procedure's acceptance criteria was in compliance with the required design documents.

No violations, deviations or unresolved items were identified.

4. Preoperational Test Witnessing

The inspectors witnessed the following preoperational testing to ascertain through observation and record review that testing was conducted in accordance with approved procedures and the requirements of the Startup Manual. The tests were found to be satisfactory except as noted below:

PTP-SX-02, "Shutdown Service Water Vortex Test"

PTP-DG/D0-03, "Diesel Generator 1C"

PTP-RC-01, "Reactor Control and Information System"

- a. PTP-5X-02. The inspector verified by direct observations and independent calculations that all three divisions of service water demonstrated no vortex existence in the pump's suction during the worst case low lake level condition. The inspector has no further concerns.
- b. PTP-RC-01. The inspector witnessed portions of the "Reactor Control and Information System" logic testing. The inspector will continue to witness additional sections of the preoperational test during subsequent inspections including testing of rod motion inhibit and rod pattern control.
- c. PTP-DG/D0-03. The inspector witnessed by direct observation the first three starts of the 69 consecutive starts required by Regulatory Guide 1.108, "Emergency Diesel Generator Testing," and the full load test of diesel generator 1C with HPCS operating at rated flow. The objective of the tests included the verification of the diesel generator starting time, sequence, and loading times. In addition to the above tests, the inspector verified by document review that the acceptance criteria of the full load reject test was met.

During the diesel generator full load test with HPCS, HPCS flow degraded from rated flow of 5600 gallons per minute (gpm) to 3400 gpm with excessive HPCS discharge pressure. The HPCS pump was stopped and the event was investigated by the licensee's staff. The HPCS system has two in-line throttle valves (HP-10 and HP-11) and a flow restricting orifice. The licensee examined the orifice and discovered that a valve shaft key, part of the internal mechanism which connects the valve disk to the valve shaft, was wedged against the orifice plate. The licensee examined both HP-10 and HP-11 to determine the shaft key's source. The examination revealed that HP-10 was missing both shaft keys and that HP-11's shaft had failed and was sheared into two parts. Completion of this evaluation is considered an unresolved item (461/85055-01(DRS)) in that the causes of both failures were not determined prior to the completion of the inspection. The inspector will review the licensee's evaluation of the failures during subsequent inspections.

No other violations, or deviations, were identified, however, a portion of this area requires further review and is considered an unresolved item.

5. Preoperational Test Result Review

The inspector reviewed the following preoperational test results for acceptance and completion of test objectives in accordance with the FSAR and SER. In addition, the licensee's test results evaluations were reviewed for adequacy and found satisfactory:

PTP-AZ-01, "480V Auxiliary Power"

PTP-DC-01, "125VDC Subsystem 1A"

PTP-DC-02, "125VDC Subsystem 1B"

PTP-CC-01, "Component Cooling System"

No violations, deviations or unresolved items were identified.

6. Preoperational Test Results Verification

The inspector verified that the following acceptance (ATP) and preoperation (PTP) test results were reviewed and accepted by the licensee in accordance with the Startup Manual and were found to be satisfactory:

ATP-CA-01, "Condenser Vacuum, Mechanical Subsystem"

ATP-CA-02, "Condenser Vacuum, Electrical Subsystem"

ATP-CY/MC-01, "Cycled Condensate and Clean Condensate Storage"

ATP-EH-01, "Turbine Electro Hydraulic Control"

ATP-EH-02, "Steam Bypass and Pressure Regulation System"

ATP-ES-01, "Extraction Steam"

ATP-GS-01, "Turbine Gland Seal Steam"

ATP-HD/DV-01, "Feedwater Heater Drains"

ATP-SF-01, "Suppression Pool Cleanup and Transfer"

ATP-VS-01, "Machine Shop"

ATP-VV-01, "EOF HVAC"

ATP-WM-01, "Makeup Demineralizer"

ATP-WS-01, "Plant Service Water"

ATP-WT-02, "Turbine Building Closed Cooling Water"

PTP-CW-01, "Circulating Water System"

PTP-FW-02, "Feedwater Control System"

PTP-IA/SA-01, "Service and Instrument Air"

PTP-ZM-01, "Loose Parts Monitoring"

PTP-OG-01, "Off Gas Glycol"

PTP-RF-01, "Containment and Fuel Building Floor Drains"

PTP-TE-01, "Building Equipment Drains"

7. Unresolved Items

Unresolved items are matters about which more information is required in order to ascertain whether they are acceptable items, items of violation or deviations. An unresolved items disclosed during the inspection is discussed in Paragraph 4.c.

8. Exit Interview

The inspector met with licensee representatives (denoted in Paragraph 1) on November 8, 1985. The inspector summarized the scope and findings of the inspection. The inspector also discussed the likely informational content of the inspection report with regard to documents or processes reviewed by the inspector during the inspection. The licensee did not identify any such documents or processes as proprietary. The licensee acknowledged the statements made by the inspector with respect to the findings.