

U.S. NUCLEAR REGULATORY COMMISSION
REGION III

Report No. 50-155/89016(DRP)

Docket No. 50-155

License No. DPR-6

Licensee: Consumers Power Company
212 West Michigan Avenue
Jackson, MI 49201

Facility Name: Big Rock Point Nuclear Plant

Inspection At: Charlevoix, Michigan

Inspection Conducted: September 6 through October 17, 1989

Inspectors: E. Plettner

N. Williamsen

Approved By: *Mat Jackiw*
I. N. Jackiw, Chief,
Reactor Projects Section 2B

10/27/89
Date

Inspection Summary

Inspection on September 6 through October 17, 1989 (Report No. 50-155/89016(DRP))

Areas Inspected: The inspection was routine, unannounced, and conducted by the senior resident inspector and the resident inspector. The functional areas inspected consisted of the following: follow-up on previous inspection findings; meetings; surveillance activities; maintenance activities on various components; operational safety verification; including, the core spray system; engineered safety feature walkdown of the reactor depressurization system; emergency offsite facility; and follow-up on licensee event reports and information notices.

Results: The licensee has responded in a timely manner to issues and concerns presented to them by the NRC. The surveillance, maintenance, operational safety, engineered safety feature walkdown, and emergency offsite facility programs appeared to be performed in a manner to ensure public health and safety. No significant safety items were identified in this report.

DETAILS

1. Persons Contacted

- *T. Elward, Plant Manager
- L. Monshor, Quality Assurance Superintendent
- *H. Hoffman, Maintenance Superintendent
- R. Garrett, Chemistry/Health Physics Supervisor
- W. Trubilowicz, Operations Supervisor
- G. Withrow, Plant Engineering Superintendent
- R. Alexander, Technical Engineer
- *E. Zienert, Director Human Resources
- P. Donnelly, Nuclear Assurance Administrator
- *R. Krchmar, Acting Quality Assurance Superintendent
- *J. Beer, Chemistry/Health Physics Superintendent
- *R. Schrader, Acting Engineering Superintendent
- *G. Boss, Acting Production and Performance Superintendent

The inspectors also contacted other licensee personnel in the Operations, Maintenance, Engineering, Radiation Protection, and Technical Departments.

*Denotes those present at the exit interview on October 16, 1989.

2. Licensee Action On Previous Inspection Findings (92702)

- a. (Closed) Violation (88013-01): This violation involved the failure to control activities associated with control rod drive scram valve diaphragms. After review of the licensee's response and additional information, the NRC has concluded that no violation of NRC requirements occurred and therefore, the violation is withdrawn and documented in a letter to David Hoffman, Vice President Nuclear Operations, dated July 18, 1989.
- b. (Closed) Violation (88013-02): This violation involved the failure to control working level procedures. The licensee's corrective actions included retraining of personnel on the correct practices for using procedures in the field and plant areas, to sweep the plant and remove all unmarked copies of working procedures, and to add the item to the routine surveillance conducted by the Quality Assurance Organization. Lesson plans were also updated to include the training for new employees. These lesson plans included: Operator Licensing Plan BAE-01, Maintenance Lesson Plan BMI-02, and I&C Lesson Plan BII-05, to include the appropriate content of Big Rock Point Administration Procedure 4.1.8.

3. Monthly Surveillance Observation (61726)

Station surveillance activities listed below were observed to verify that the activities were conducted in accordance with the Technical Specifications and surveillance procedures. The applicable procedures were reviewed for adequacy, test and process instrumentation was verified to be in their current cycle of calibration, personnel performing the

tests appeared to be qualified, and test data was reviewed for accuracy and completeness. The NRC inspectors ascertained that any deficiencies identified were reviewed and resolved. The NRC inspectors observed the licensee's performance of the following surveillance tests on the indicated dates:

September 11: T7-21, "Standby Diesel Generator Start and Run Test," Revision 16, March 16, 1988, with Procedure Change Form, dated March 15, 1989.

September 26: T7-18, "Bypass Valve Test," Revision 10, May 18, 1988.

September 26: T7-04, "Weekly Reactor Protection Logic System Test," Revision 11, September 19, 1989.

September 27: T7-33, "Weekly Check of ASD System Equipment," Revision 1, February 1, 1989.

September 28: T7-28, "Emergency Diesel Generator Auto Test Start," Revision 8, October 24, 1988. Vibration readings were taken for trending machine performance.

September 28, 29: T30-43, "Steam Drum Relief Valve Monitor Checkout," Revision 4, September 26, 1989.

October 1: T365-20, "Inspection of Fire Resistant Wrapping on RDS Conduits," Revision 1, December 22, 1988. A maintenance order was submitted to correct minor deficiencies noted during the inspections.

October 1: T7-03, "Control Rod Coupling Integrity Test at Power," Revision 14, September 15, 1988, with Procedure Change Form dated September 5, 1989.

October 12: T90-23, "Portable Pump Function and Capacity Test," Revision 1, March 27, 1989, with Procedure Change Form dated October 12, 1989.

October 12: T7-28, "Emergency Diesel Generator Auto Test Start," Revision 8, October 24, 1988. Vibration readings were taken for trending machine performance.

No violations or deviations were identified in this area.

4. Monthly Maintenance Observation (62703)

Station maintenance activities of safety related systems and components listed below were observed/reviewed to ascertain that they were conducted in accordance with approved procedures, regulatory guides and industry codes or standards and in conformance with Technical Specifications.

The following items were considered during this review: the limiting conditions for operation were met while components or systems were removed from service; approvals were obtained prior to initiating the work; activities were accomplished using approved procedures and were inspected

as applicable; functional testing and/or calibrations were performed prior to returning components or systems to service; quality control records were maintained; activities were accomplished by qualified personnel; parts and materials used were certified; radiological and fire prevention controls were implemented.

Work requests were reviewed to determine status of outstanding jobs and to assure that priority was assigned to safety related equipment maintenance which may affect system performance.

On October 2, 1989, the licensee was performing Surveillance Test Procedure T180-01A, "Containment Ventilation Valve Leak Test," on both the exhaust and supply ventilation isolation valves to the sphere. The supply side valve failed the surveillance test. The licensee took corrective actions to establish containment integrity and notified the senior resident inspector of the problem. Maintenance activities commenced on October 3, at 7:00 a.m. when the maintenance personnel arrived at the site. Maintenance order No. 89-CIS-0017, dated October 3, was issued for replacing the valve-seat seal on the containment ventilation supply side isolation valve CV-4096; in conjunction with Procedure MCIS-3, "Adjustment/Cleaning or Valve Seat Replacement of Sphere Ventilation Valve," Revision 12, January 26, 1989, with appropriate Procedure Change Form. A new seat was installed and subsequently tested using Surveillance Procedure T180-01A. The valve failed to pass the surveillance test. Further investigation was performed by the licensee to determine cause of the failure. One of the items noted was the seat material installed had a durometer reading of 90, meaning it was very stiff. The seat removed in August 1989, had a durometer reading between 60 and 65, making it more flexible. The licensee reinstalled the softer more flexible material in hopes that the seating problem could be resolved. The more flexible seat was installed and tested using the appropriate procedures with no success. The licensee then rotated the valve seat approximately 80 degrees in the clockwise direction to see if that would improve seating surfaces. The surveillance test was performed with acceptable results. The licensee decided not to return the system to normal operation until root cause could be determined and resolved. Measurements indicated that a possible problem existed with the valve shaft and bushings. New bushings were ordered, but due to the long delay in receiving them the licensee manufactured the temporary parts on site. On October 13 the licensee commenced repairs on the valve under Maintenance Order No. 89-CIS-0020 and 89-CIS-0022. After the protective cover plates were removed it was noted that the packing around the shaft and bushing was less than the required amount. The shaft and bushing showed no excessive wear. The packing was replaced and a new valve seat with a durometer reading of 90 installed using a new torquing procedure on the mounting bolts. The valve was stroke tested ten times to ensure proper operation. The timing test and leak rate test were successfully performed with the valve being returned to service at 11:21 p.m. the same day. The licensee is still investigating the seat durometer conditions with the vendor.

The NRC inspectors observed the licensee's performance of the following maintenance work orders on the indicated dates:

September 28: No. 89-RIA-0029, dated September 27, 1989, for calibrating the area radiation monitors using procedure RIP-15, "Calibration of Area and Emergency Condenser Vent Monitors," Revision 16, June 20, 1988.

September 27-29: No 89-CAS-005, dated August 12, 1989, for the semi-annual inspection and overhaul of the No. 3 house service air compressor.

September 29: No. 89-FPS-0140, dated September 11, 1989, for taking battery readings on the diesel fire pump batteries, per procedure T30-57, "Battery Voltage and Specific Gravity Determination (Diesel Generator and Diesel Fire Pump)," Revision 2, June 13, 1989.

September 29: No. 89-EPS-0240, dated September 11, 1989, for taking monthly station battery readings.

No violations or deviations were identified in this area.

5. Operational Safety Verification (71707)

The NRC inspectors observed control room operations, reviewed applicable logs, and conducted discussions with control room operators during the inspection period. Instrumentation and recorder traces were examined for abnormalities and discussed with the control room operators, as were the status of control room annunciators. Reviews were conducted to confirm that the required leak rate calculations were performed and were within Technical Specification limits. It was observed that the Plant Manager, the Production and Performance Superintendent, and the Operations Supervisor were well informed on the overall status of the plant making visits to the control room and touring the plant. A system walkdown was performed to verify the operability of the Core Spray Recirculation System. Tours of the containment sphere and turbine building were conducted to observe plant equipment conditions; including, potential fire hazards, fluid leaks, and excessive vibrations, and to verify that maintenance requests had been initiated for equipment in need of maintenance. Radiation protection controls were inspected, including Radiation Work Permits, calibration of radiation detectors, and proper posting and observance of radiation and/or contaminated areas. The inspectors observed site security measures including access control of personnel and vehicles, proper display of identification badges for personnel within the protected area, and compensatory measures when security equipment had a failure or impairment.

During this inspection period Amendment 101 was issued. Amendment 101 changes the calibration frequency for portable gamma and neutron dose-rate measuring instruments and changes the source check on each scale or decade (instead of on only one scale) normally used on a daily basis or prior to use of these instruments.

Licensee Event Report (LER) 89-007, "Technical Specification Violation - Omission of Fire Detector Testing" and LER 89-008, "Reactor Trip resulting from Turbine Control Failure". Both of these items will be closed at a later inspection report when corrective actions have been completed.

No violations or deviations were identified in this area.

6. Engineered Safety Feature System Walkdown (71710)

The NRC inspectors verified the operability of the Reactor Depressurization System which is an Engineered Safety Feature System (ESF). The verification included a complete walkdown of the accessible portions of the system. Included were verification of valve labels, equipment condition, correct valve and breaker positions and apparent operability of support systems essential to the ESF system. A detailed review was conducted to confirm that the licensee's system lineup procedure matched the applicable as-built drawings; this included the following documents:

1. Procedure OTGS-1, A-10, "RDS System Valve Check-off List", Revision 27, June 30, 1989.
2. Drawing No. 0740G44009, "Reactor Depressurizing System Valve Line-Up Diagram (S-009)," Revision 16, June 9, 1989.
3. Drawing No. CPC-0740G41003, "Reactor Depressurizing System, Emergency Core Cooling System Modification," Revision 5, July 29, 1988.

7. Operational Status of the Emergency Preparedness Program (82701)

The purpose of the inspection was to determine whether the licensee's emergency preparedness program is maintained in a state of operational readiness. The senior resident inspector conducted a tour of the emergency response facility and was accompanied by the site emergency planning coordinator to ensure that essential emergency facilities, equipment, instrumentation, and supplies were being maintained in a state of operational readiness. Current revisions were inserted in the control copies of procedures maintained at the emergency response facility.

No violations or deviations were identified in this area.

8. Licensee Event Reports Followup (92700)

Through direct observations, discussions with licensee personnel, and review of records, the following event report was reviewed to determine that reportability requirements were fulfilled, timely immediate corrective action was accomplished, and corrective action to prevent recurrence had been accomplished in accordance with Technical Specifications. In addition, the event was evaluated for previous similar events, root cause, and potential generic applicability.

(Closed) LER 155/88008: "Reactor Trip on Low Condenser Vacuum Following Load Rejection." On October 28, 1988, at 4:30 p.m. the reactor scrammed from full power when the plant's main transformer output breaker tripped due to an offsite transmission line fault. Investigation showed that the cause of the main breaker trip was a short circuit on the transmission line approximately ten miles from the plant site, caused by a broken lightning rod which shorted the power lines at a licensee substation. All control rods inserted and no other engineered safety features were actuated by the trip. The alternate power supply for the rod position

indicators did not supply sufficient voltage to illuminate all of the rod position indicator lights. Operators immediately used other plant parameters to conclude sufficient rod insertion occurred to maintain the reactor in a shutdown condition. Within five minutes full voltage was restored to the rod position indicator lights verifying that all rods had fully inserted into the core. Corrective actions included investigation of the transmission line fault, the low voltage output from the alternate power supply for the rod position indicator lights, and testing of the plant relays and breakers. The corrective actions were successfully completed and the reactor was restarted on October 29, 1988. Full power operation was achieved on October 30. This LER is closed.

(Closed) LER 155/88009: "Reactor Trip Resulting from Turbine Control Valve Failure." On November 21, 1988, the reactor scrambled from full power, when a mechanical failure occurred in the high pressure turbine steam admission valves, resulting in a high power reactor trip. All control rods inserted successfully and no other safety systems were actuated by the trip. The initial corrective action was the onsite fabrication of a new connecting rod. The plant was returned to power operation on November 24, 1988. Subsequently, the failed connecting rod was analyzed by the licensee's laboratory which determined root cause to be fatigue-fracture. It recommended obtaining a connecting rod manufactured to original equipment specifications, since the broken connecting rod had lasted twenty years. A new connecting rod manufactured by General Electric Company, (the original supplier) was installed and tested during the 1989 maintenance and retuning outage, which involved a major turbine overhaul. This LER is closed.

9. Licensee Action On Information Notices (92701)

The inspectors reviewed the following selected Information Notice (IN) to assure that the licensee had reviewed the IN for applicability, distribution to the appropriate personnel at the corporate and site levels, and if applicable, the scheduling or performance of appropriate corrective actions.

(Closed) Information Notice 88-51: "Failure of Main Steam Isolation Valves." This IN alerted licensees to potential problems discovered with main steam isolation valve (MSIV) operability surveillance tests. The licensee staff reviewed the IN and the appropriate surveillance procedures. The results of the review indicated that the two surveillance tests were adequate to ensure proper operation of the motor-operated MSIV valve. The IN identified the root cause of the problem as excessively tight Chevron packing (used in an air-operated valve) clamping the valve stem and preventing valve movement. A motor-operated valve does not use Chevron packing, thus, removing the possibility of stem clamping.

10. Exit Interview

The inspectors met with licensee representatives (denoted in Paragraph 1) throughout the month and at the conclusion of the inspection period and summarized the scope and findings of the inspection activities. The licensee acknowledged these findings. The inspectors also discussed the

likely informational content of the inspection report with regard to documents or processes reviewed by the inspectors during the inspection. The licensee did not identify any such documents or processes as proprietary.