

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 50-155/90025(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: November 27 through December 31, 1990

Inspector: E. A. Plettner

Approved By: *RW DeFayette*
R. W. DeFayette, Chief
Reactor Projects Section 2B

JAN 11 1991

Date

Inspection Summary

Inspection on November 27 through December 31, 1990 (Report No. 50-155/90025(DRP))

Areas Inspected: The inspection was routine, unannounced, and conducted by the Senior Resident Inspector. The functional areas inspected consisted of the following: follow-up on previous inspection findings consisting of four unresolved items and one open item, surveillance activities, maintenance activities on various components, operational safety verification which included the control rod drive system, and plant start-up from refueling.

Results: The surveillance, maintenance, and operational safety programs were implemented in a manner to ensure public health and safety. No significant safety items were identified in this report.

DETAILS

1. Persons Contacted

- *W. Beckman, Plant Manager
- L. Monshor, Quality Assurance Superintendent
- *H. Hoffman, Maintenance Superintendent
- R. Garrett, Chemistry/Health Physics Supervisor
- *W. Trubilowicz, Operations Superintendent
- *G. Withrow, Plant Engineering Superintendent
- *R. Alexander, Technical Engineer
- E. Zienert, Director Human Resources
- *P. Donnelly, Nuclear Assurance Administrator
- *J. Beer, Chemistry/Health Physics Superintendent
- *D. LaCroix, Nuclear Training Administrator
- *T. Dugan, Plant Safety Coordinator
- *R. Krchmar, Acting Quality Assurance Superintendent
- *M. Bourassa, Senior Technologist

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

*Denotes those present at the exit interview on January 3, 1991.

2. Licensee Action on Previous Inspection Findings (92701)

(Closed) Unresolved Item 50-155/86013-01(DRS): Inadequate implementation of SER/TER commitment regarding the qualification of polyethylene and butyl rubber insulated cables.

The licensee utilized a consultant to evaluate the formulation of each cable insulation type and the variations between the known manufacturers of Big Rock's cable. The evaluation demonstrated that materials, manufacturing processes, and fabrication of the cables were similar and did not affect the cables' functional capabilities. This information was used to establish the link for similarity to cables which were qualified for the environmental conditions which envelop Big Rock Point. Since the areas outside containment are significantly less hostile than inside containment, similarity will be fully acceptable for cables in these areas. No cable was replaced outside containment.

The CRD scram solenoid was removed from the EEQ list and the cables which remain were replaced with fully qualified cables in 1987 under Field Change 610. This item is closed.

(Closed) Unresolved Item 50-155/86013-05(DRS): Limitorque Actuator not qualified to DOR guidelines for operation in a design basis accident due to unqualified materials.

Big Rock Point replaced VOP-7068 in accordance with Specification Change SC 86-019. The new operator was a Limitorque SMB-00. The operator was originally installed in the cancelled Midland Nuclear Plant Unit 1 and

was fully qualified for inside containment conditions per Limitorque Report 600456. This item is closed.

(Closed) Unresolved Item 50-155/86013-06(DRS): Rotork actuator MO-7072 not qualified to DOR guidelines for operation in a design basis accident due to unqualified materials.

This valve actuator was removed from the EEQ list and a justification documentation letter sent to the NRC dated September 26, 1986. This item is closed.

(Closed) Open Item 50-155/86013-08(DRS): Deficiencies in the EQ files for various power and control cables.

Performance criteria relative to the EEQ files were updated using revision sheets as follows: File 2.10, Revision 1, dated August 12, 1987; File 2.16, Revision 1, dated August 11, 1987, and File 2.25, Revision 1, dated September 3, 1987. This item is closed.

(Closed) Unresolved Item 50-155/86013-12(DRS): Limitorque actuator MO-7080 not qualified to DOR guidelines due to broken terminal block barriers.

The terminal strip was replaced and internal wires were rerouted to eliminate tight bend radius situations with work order No. 86-PIS-0042, dated September 23, 1986, and closed in licensee Deviation Report BRP-86-32. This item is closed.

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 were verified to be in their current cycle of calibration, personnel performing the tests were qualified, and test data was reviewed for accuracy and completeness. The NRC inspector ascertained that any deficiencies identified were reviewed and resolved. The NRC inspector observed the licensee's performance of the following surveillance tests on the indicated dates:

December 19: T30-59, "RDS Channel Test," Revision 4, October 25, 1990. The test, which performs a circuitry and logic check, was conducted in a professional manner with the appropriate number of personnel. The equipment responded as required and the system was returned to normal operation upon completion of the test.

December 28: T1-09, "Heat Balance Calculation," Revision 14, June 15, 1990. The inspector performed a manual calculation using Attachment 1 of the procedure to verify the normal computer calculation. There was no discrepancy between the calculations.

December 28: T1-02, "Primary System Leakage Test," Revision 18, September 4, 1990. The inspector performed a manual calculation using Attachment 2 of the procedure to verify the normal computer calculation. There was no discrepancy between the calculations.

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, and radiological and fire prevention controls were implemented.

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

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

December 28: No. 90-CRD-0296, dated December 25, 1990, to repair the accumulator for F-3. The accumulator for F-3 required repairs because it did not hold a nitrogen charge. The repair work was performed using maintenance procedure MCRD-3 "Control Rod Drive Accumulator Repair," Revision 21, dated April 17, 1990. The work was performed correctly by two maintenance personnel. A maintenance supervisor stopped at the work site to observe work activities. The supervisor also provided assistance in documenting the activity. Visual inspection of the gasket and seal ring parts was inconclusive as to the root cause of the nitrogen leak. Operations personnel returned the equipment to service and satisfactorily tested it for performance.

December 28: No. 90-EPS-0354, dated December 27, 1990, to investigate a possible clicking sound heard in the exciter of the Emergency Diesel Generator. When the protective cover for the generator was removed, it was noted that one of its mounting bolts was loose. The diesel generator was started in hopes of determining the cause of the reported clicking sound. No clicking sound was heard by the two maintenance personnel, the Instrument and Control supervisor, the Maintenance supervisor, or by the Senior Resident Inspector. The engine was in operation for one half hour while monitoring the equipment. Since no clicking sound was heard, and the equipment was operating as expected, the cover was replaced, the

bolts tightened, and the equipment returned to the normal line up. The licensee will monitor the equipment during the next weekly load test for a possible clicking sound. The inspector will also follow licensee actions in this matter and will document the results in a future inspection report.

No violations or deviations were identified in this area.

5. Operational Safety Verification (71707)

The NRC inspector 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 was the status of control room annunciators. The inspector conducted reviews to confirm that the required leak rate calculations were performed and were within technical specification limits. The inspector observed the Plant Manager and the Operations Superintendent performing plant tours. They also made frequent visits to the control room. The Senior Resident Inspector performed a walkdown of the Control Rod Drive System and noted no abnormalities. The Senior Resident Inspector toured the containment sphere and turbine building 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 inspector observed site security measures including access control of personnel and vehicles, proper display of identification badges for personnel within the protected area, and site compensatory measures when security equipment had a failure or impairment.

On November 28, 1990, the licensee commenced a plant start-up from the completed maintenance/refueling outage (documented in Section 6 of this report). The plant maintained continuous operation at near full capacity throughout the inspection period.

No violations or deviations were identified in this area.

6. Plant Start-up from Refueling (71711)

This inspection was performed to ascertain that systems disturbed or tested during the refueling outage were returned to a operable status prior to plant start-up. In addition, the inspector observed that plant start-up, heat-up, approach to criticality and appropriate core physics tests were conducted in accordance with approved procedures.

On November 28 at 5:58 a.m. (EST), the reactor at Big Rock Point achieved criticality following a 68 day refueling and maintenance outage. The outage was scheduled for 60 days. The NRC inspector observed the start-up. Besides the normal on shift crew an extra reactor operator and auxiliary operator were present. Two reactor operator trainees were also

present to conduct control rod manipulations as part of the training evolutions to become reactor operators. The startup was performed in a proper and professional manner, using correct and current procedures. A problem with low accumulator pressure was noted and corrected during the reactor start-up.

The plant continued to heat-up within the required limits. Extensive main turbine testing was conducted because of the major generator overhaul performed during the maintenance outage, which included the addition of counterbalance weights on one section of the low pressure turbine. No problems were identified during the testing of the turbine. The generator was first synchronized to the grid at 3:38 p.m. the same day. Later in the day the generator was removed from the grid for overspeed trip tests on the turbine and then resynchronized with the grid. No problems were noted in the overspeed trip test. Power ascension was continued as necessary to meet plant conditions and electrical generation needs as requested by the load dispatcher.

No violations or deviations were identified in this area.

7. Exit Interview

The inspector 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 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.