

U.S. NUCLEAR REGULATORY COMMISSION
OFFICE OF INSPECTION AND ENFORCEMENT

REGION III

Report No. 50-155/78-06

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: Big Rock Point Site, Charlevoix, MI

Inspection Conducted: May 22-26, 1978

Inspectors: *D. R. Hunter*
D. R. Hunter

B. W. Jorgensen
B. W. Jorgensen

Approved By: *R. F. Warnick*
R. F. Warnick, Chief
Reactor Projects Section 2

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Inspection Summary

Inspection on May 22-26, 1978 (Report No. 50-155/78-06)

Areas Inspected: Routine, unannounced inspection of operations, reportable events, modifications, procedures, maintenance, review and audit, headquarters requested item, IE Bulletin and Circulars, item of noncompliance, and outstanding inspection items. The inspection involved 54 inspection-hours onsite by two NRC inspectors.

Results: Of the ten areas inspected, no items of noncompliance or deviations were identified in nine areas; one item of noncompliance (infraction - operation with a safety-related system in the degraded condition - Paragraph 4.c) was identified in one area.

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DETAILS

1. Persons Contacted

- *C. J. Hartman, Plant Superintendent
- *D. E. DeMoor, Technical Engineer
- *J. Rang, Maintenance Superintendent
- *T. C. Bordine, QA Superintendent
- R. E. Schrader, Technical Superintendent
- *D. P. Blanchard, Reactor Engineer
- *A. C. Sevener, Operations Supervisor
- *G. D. Gilbody, QA Engineer
- R. M. Brzezinski, I&E Engineer
- J. J. Popa, Maintenance Engineer
- H. E. Black, Maintenance Supervisor
- C. F. Sonenberg, Shift Supervisor
- W. F. Blissett, Shift Supervisor
- *K. M. Brun, Technical Clerk

The inspector contacted other plant personnel including members of the operations, technical, and administrative staff.

*Denotes those attending the management exit on May 26, 1978.

2. License Action on Previously Identified Items

- a. (Closed) IE Inspection Report No. 50-155/77-08, Deficiency: The licensee has taken corrective actions and has subsequently rewritten the procedure for the shutdown margin check (TR-43).
- b. (Closed) IE Inspection Report No. 50-155/75-05, Unresolved: the licensee has completed the fabrication of test flanges for the containment ventilation supply and exhaust lines and tested the ventilation valves and flanges in the direction of the LOCA at PA(27 Psig).

3. Plant Operations

- a. The inspector observed plant operating conditions and controls, control room manning, and equipment tagout status in the plant tour. In addition, selected operating records and procedures were reviewed as follows:
 - (1) Shift Supervisor Log (May 1978)
 - (2) Control Room Log (April and May 1978)
 - (3) Control Room Sheets (April and May 1978)

- (4) Reactor Log (April 1978)
- (5) Daily Order Book (through May 18, 1978)
- (6) Switching Orders in Effect
- (7) Lockout and Jumper Controls
- (8) Deviation Reports
- (9) Event Reports

Compliance with technical specification and plant Administrative Procedures, including management review, was verified where applicable.

No items of noncompliance or deviations were identified.

4. Reportable Events

The inspector reviewed the licensee actions concerning the following nonroutine event reports to verify the licensee evaluation, review, and corrective actions were performed, and that the plant limits were not exceeded. The review included personnel interviews, plant records, and PRC minutes.

- a. LER 78-06, 78-09, 78-13, and 78-14 - Reactor Depressurization System Channels Removed From Service for Maintenance.
- b. LER 78-07, Emergency Diesel Generator Trip on High Water Temperature. The failure of the cooling water system was a result of a leaking packing which caused the pump to become airborne. The corrective action included the installation of a mechanical seal to upgrade the pump. Subsequent operation of the diesel has revealed no additional problems. The licensee is continuing to observe the diesel generator testing activities closely to identify and evaluate any further problems encountered during routine testing.
- c. LER 78-08, Reactor Depressurization System Placed in a Degraded Condition During Maintenance Activities. The licensee reviewed the event with the plant operations personnel, reviewed the key controls, and placed a caution tag on the control panel to remind the operations personnel of the operability requirements for the "INHIBIT" switches for the fire pumps. The licensee has an established requirement for the removal and return to service of safety-related equipment. Plant power operation with the reactor depressurization system in the degraded condition is an item of noncompliance pursuant to Technical Specification 11/3.1.5.A and is an infraction. The licensee corrective

actions appear acceptable and no further questions are required of this matter at this time (This item was discussed at the management exit).

- d. LER 78-10, Steam Drum Level Switches Inadequate Environmental Qualification. The licensee replaced the yarway plastic parts, cover, diffuser, and dial with qualified components.
- e. LER 78-11 and 12, Unqualified Pilot Solenoid Valves.^{1/} The licensee modified the two unqualified solenoid valves using qualified high temperature components.
- f. LER 78-15, Potentially Unqualified Submerged Electrical Circuitry.
- g. LER 78-16, Daily Primary System Unidentified Leakage in Excess of Allowable.
- h. LER 78-17, Scram Pilot Valve Control Switch Placed in the Reset Position.
- i. LER 78-18, Steam Drum Level Switches Failed to Operate.
- j. LER 78-19, Condenser Vacuum Switch Set Point Drift.
- k. LER 78-20, Off-gas System Inoperable.
- l. LER 78-21, Degraded Off-site Power Source During Reactor Power Operations.^{2/}
- m. LER 78-22, Loss of One Off-site Power Source During Reactor Power Operations.^{3/}

No other items of noncompliance or deviations were identified.

5. Design, Design Changes, and Modifications

The inspector reviewed the following modifications to assure that the changes were performed in accordance with the requirements:

- a. FC-223, Fuel Pit Surge Tank Level Indication.
- b. FC-242, Reactor Protection System key lock switch.

^{1/} IE Inspection Report No. 50-155/78-02.
^{2/} Ltr, CP to NRR, dtd 5/11/78.
^{3/} Ibid.

- c. FC-266, Emergency Lighting Transformer supply breaker tripped annunciator.
- d. FC-355, Emergency Condenser sample line check valve.
- e. FC-384, Containment Vent Valves nitrogen bottle isolation valves.
- f. FC-405, Reactor Depressurization Valves test piping.
- g. FC-420, Emergency Diesel Generator Trouble Annunciator.
- h. FC-421, Containment Ventilation Supply and Exhaust Line Test Flanges.^{4/}

No items of noncompliance or deviations were identified.

6. Maintenance

The inspector reviewed the following activities to assure that the maintenance items were performed in accordance with the requirements.

- a. 76 RWS 28211, Installation of air chamber and level instruments on the fuel pool surge tank.
- b. 76 SPS 24702, Installation of emergency lighting annunciation alarm.
- c. 77 CLS 08915, Installation of nitrogen bottles fittings and accessories.
- d. 77 RDS 01012, Installation of threadolets on discharge piping.
- e. 77 EPS 00603, Installation of an oil line on the Emergency Diesel Generator governor valve.
- f. 77 PIS 17902, Installation of new relief valves on the core spray lines.
- g. 77 PCS 08102, Calibration of the pressure indications on the reactor recirculation pump seals.
- h. 77 RDS 30102, Repair of trip lights on the AC 1, L2 module.

^{4/} IE Inspection Report No. 50-155/75-05.

- i. 77 RPS 03802, Installation of the ECCS on line test fittings.
- j. 77 RSD 11208, Remove and replace the No. 2 safety valve with the spare.

No items of noncompliance or deviations were identified.

7. Review and Audit

The inspector reviewed the Plant Review Committee minutes to ascertain that the review activities were performed in accordance with the requirements:

- a. On-site PRC meetings were conducted at the required frequency and consisted of a quorum.
- b. Proposed tests and experiments were reviewed as required.
 - (1) SST-01, Instorage Test of 24" butterfly valve seat.
 - (2) SST-02, Reactor Depressurization Valves Test (TV-12)
 - (3) SST-07, Emergency Condenser Sample Line Leak Test
 - (4) SST-08, Supply Vent Valve Leak Rate Test.
 - (5) SST-09, Special Installation Valve Test.
 - (6) SST-10, Feedwater Check Valve Leak Test
 - (7) SST-11, Reactor Depressurization System Channel D Leak Rate Test.
 - (8) SST-12, CRD C1 and E3 Scram
 - (9) SST-14, Irradiated Fuel Examination.
- c. Proposed Changes to Technical Specification.
- d. Violations of the Technical Specifications. Certain deviation reports (corrective action system) concerning the violation of the specifications were not apparently reviewed by the plant review committee as required by the Technical Specifications 6.5.1.5.E. The licensee is reviewing the specific area and developing formal procedures to upgrade the management controls. This item will remain unresolved pending completion of the

review by the licensee and review by the inspector at a subsequent inspection (This item was discussed at the management exit and by telephone on June 1, 1978).

No items of noncompliance or deviations were identified.

8. Reactor System Decontamination

The inspector reviewed the use of chemical decontamination solutions at the facility on reactor system pressure boundary components.

- a. No decontamination performed or planned.
- b. No decontamination chemicals introduced into the primary system (This item was discussed at the management exit).

No items of noncompliance or deviations were identified.

9. IE Bulletin and Circulars

The inspector reviewed the following IE Bulletins and Circulars to assure the licensee reviewed and evaluated the items as appropriate.

- a. IEB 78-03, Potential Explosive Gas Mixture Accumulation Associated with BWR Off Gas Systems.
- b. IEB 78-04, Environmental Qualification of Certain Stem Mounted Limit Switches Inside Reactor Containment.
- c. IEC 78-02, Proper Lubricating Oil for Terry Turbines.
- d. IEC 77-15, Degradation of Fuel Oil Flow to the Emergency Diesel Generator.
- e. IEC 77-16, Emergency Diesel Generator Electrical Trip Lock-out features.

No items of noncompliance or deviations were identified.

10. Item of Noncompliance

The inspector reviewed the corrective actions taken by the licensee concerning an item of noncompliance (deficiency).^{5/} The licensee

5/ IE Inspection Report No. 50-155/77-08.

had completed the corrective action indicated in the response^{6/} and had subsequently rewritten the procedure for the shutdown margin test (RE-08, now TR-43).

No further questions are required of this matter at this time and this matter is considered closed.

11. Procedures

The inspector reviewed the following procedures to insure the procedures were issued, reviewed, and approved in accordance with the requirements; also that the procedure changes were reviewed and approved and did not conflict with the Technical Specifications.

a. General Operating Procedures

- (1) GOP 1, Rev. 2, Startup from Cold Shutdown. The licensee master checklist/system checklists does not include a line up of the station electrical systems (2.4 KV, 480V, station lighting, protection, and 125V DC) specifically to assure alignment of all breakers and equipment prior to plant startup. The breaker and equipment positions are maintained through routine operations and maintenance controls. During the inspection no equipment was noted to be out of position. The licensee is reviewing the need for an electrical line-up checklist. This item will remain open and will be reviewed at a future inspection.
- (2) GOP 2, Rev. 2, Hot Startup.
- (3) GOP 4, Rev. 3, Reactor Trip Recovery
- (4) GOP 5, Rev. 2, Power Operations

The licensee performs a heat balance weekly (T7-06) or as required and adjusts the power range instrumentation as necessary to maintain the reactor thermal power below the administrative limits set by management. The inspector noted that the power range instruments were administratively set between 97 percent and 100 percent. A discussion of the setpoints on the power range instruments and the allowable increase in power from 97 percent indicated to 100 percent indicated power, in addition to the assumed 2 percent inaccuracy assumed in the manual heat balance, a total of 5 percent thermal power error could result in the approach

^{6/} Ltr, CP to RIII, dtd 8/10/77.

and/or exceeding of certain core power limits. A review of the deviations issued previously when the indicated thermal power administrative limit was exceeded revealed that the core limits had not been exceeded. The licensee is reviewing the administrative power limits and the use of the computer heat balance (corrected to the last hand heat balance calculation) in addition to the feedwater and steam flows as a trending method to assure the core limits are not approached or exceeded. This item will remain open and be reviewed at a future inspection (This item was discussed at the management exit).

- (5) GOP 6, Rev. 2, Hot Shutdown.
- (6) GOP 7, Rev. 2, Cold Shutdown.

b. Standard Operating Procedures

- (1) SOP 1, Rev. 9, Reactor Operations.
- (2) SOP 3, Rev. 6, Reactor Cleanup System.
- (3) SOP 5, Rev. 5, Reactor Shutdown Cooling System.
- (4) SOP 6, Rev. 2, Emergency Condenser System.
- (5) SOP 8, Rev. 4, Post Incident System.
- (6) SOP 9, Rev. 2, Fuel Pool System.
- (7) SOP 14, Rev. 2, Station Substation.
- (8) SOP 18, Rev. 7, Reactor Depressurization System.
- (9) SOP 22, Rev. 1, Air Ejector Offgas System.
- (10) SOP 26, Rev. 11, Fire Protection System.
- (11) SOP 28, Rev. 6, Station Power System.
- (12) SOP 29, Rev. 4, Nuclear Steam Supply System.
- (13) SOP 30, Rev. 7, Control Rod Drive System.
- (14) SOP 32, Rev. 2, Incore Instrumentation System.

- (15) SOP 33, Rev. 2, Air Ejection Offgas System.
- (16) SOP 36, Rev. 1, Emergency Condenser Vent Monitor.
- (17) SOP 42, Rev. 1, Annunciators.

c. Offnormal Procedures

- (1) ONP 2.2, Rev. 3, Loss of Instrument Air System.
- (2) ONP 2.3, Rev. 2, Loss of Condensate System.

The review revealed that the procedures inadequately addressed the loss of the "fill valve" from the condensate storage tank to the condenser. The fill valve operability is required for continued plant operation. The licensee issued a daily order and temporary procedure and a permanent procedure change will be issued presently. This item will remain open pending the review of the procedure change at a subsequent inspection (This item was discussed at the management exit).

- (3) ONP 2.5, Rev. 2, Abnormal Radioactive Releases in Containment Building and Emergency Entry.
- (4) ONP 2.14, Rev. 3, Loss of Emergency Diesel Generator.
- (5) ONP 2.16, Rev. 5, Loss of Fire Protection System.
- (6) ONP 2.17, Rev. 3, Abnormal Off-Gas or Stack-Gas Release.
- (7) ONP 2.32, Rev. 3, Low and High Steam Drum Level.
- (8) ONP 2.36, Rev. 2, Loss of Station Power.
- (9) ONP 2.37, Rev. 2, Trouble in Reactor Depressurization System.

d. Emergency Procedures

- (1) EMP 3.1, Rev. 3, Loss of DC Power System.
- (2) EMP 3.2, Rev. 2, Loss of Neutron Flux Indication.
- (3) EMP 3.3, Rev. 6, Loss of Reactor Coolant.

The inspector noted that the loss of coolant accident being an emergency condenser tube rupture did not appear to be adequately addressed (This item was discussed at the management exit).

- (4) EMP 3.4, Rev. 3, Fuel Handling Accidents.
- (5) EMP 3.6, Rev. 4, Fires in Plant.

e. Administrative Procedures

- (1) 1.2, Organization and Responsibility.
- (2) 1.4, Operations Department Administrative.
 - (a) Shift Relief and Turnover
 - (b) On-duty Superintendent
 - (c) Shift Logs
 - (d) System Status
 - (e) System Tagging
 - (f) Adherence to Procedure and Temporary Procedure changes.
 - (g) Surveillance
- (3) Maintenance Administrative
 - (a) Adherence to Procedures and Temporary Procedure Changes.
 - (b) Surveillance
 - (c) Fire Hazards
 - (d) Cleanliness
 - (e) Control of Test and Measurement Equipment
- (4) Controlled Materials Procedures Manual
- (5) Master Training Manual

f. Maintenance Procedures

- (1) 76-EPS-073, Rev. 0, 3/14/77, Emergency Diesel Generator Trouble Annunciation.
- (2) 76-SPS-247, Rev. 0, 12/7/76, Emergency Lighting Annunciation Installations.
- (3) 77-RPS-C413-A, Rev. 0, 2/10/77, ECCs On-line Test Fittings Installation.
- (4) MRSD-3, Rev. 3, 10/28/77, Steam Drum Safety Valves.
- (5) IEPS-2, Rev. 0, 4/17/78, Emergency Diesel Generator Battery Undervoltage Monitor Calibration and Test.
- (6) INUMS-8, Rev. 2, 3/16/78, Bench Calibration of Log-N Amplifier.
- (7) IRPS-10, Rev. 1, 5/2/78, Component Inspection and Circuits Resistance Check on Channel 1 and 2 Logic Units.
- (8) MEPS-1, Rev. 4, 4/25/78, Emergency Diesel Generator Inspection and Repair.

... Outstanding Inspection

The inspector reviewed selected outstanding items to assure licensee actions as required.

a. Fire Protection System^{7/}

Items of review included the new and upgraded surveillance procedures, completed testing, and the revised operating procedures.

- (1) T30-34, Rev. 1, Monthly Fire Protection System Testing.
- (2) TR 69, Rev. 1, Fire Protection System Flush and Inspection.
- (3) TR 70, Rev. 0, Fire Suppression Water System Functional Test and Pump Test.
- (4) TR 71, Rev. 0, Fire Protection System Deluge Test.

7/ Ltr, NRR to CP, dtd 3/6/78.

- (5) TV 22, Rev. 2, Three-Year Fire Protection System Check and Test.

No items of noncompliance or deviations were identified.

b. Milestone Event^{8/}

The licensee study of the facility electrical system has been essentially completed and is being reviewed by the plant personnel prior to submitted to NRR (This item was discussed at the management exit and by telephone on June 2, 1978, with Nuclear Licensing Department).

13. Management Exit Interview

The inspector conducted a management exit interview with the licensee representatives denoted in Paragraph 1 at the conclusion of the inspection on May 26, 1978. The inspector summarized the scope and findings of the inspection and the licensee made the following comments and statements concerning the items discussed by the inspector:

The licensee stated that the study being performed as a result of the undervoltage event at the Milestone Station was continuing. The completion was projected to be in early June 1978 (Paragraph 12b).

The licensee stated that no decontamination of the primary system had been performed nor was planned and routine decontamination of components for maintenance was performed utilizing water and standard practices (Paragraph 8).

The licensee acknowledged the inspector's statement that the operation of the plant with the reactor depressurization system in the degraded condition was an item of noncompliance (infraction) and that corrective actions taken appeared adequate to prevent recurrence; therefore, no response was required for this item (Paragraph 4c).

The licensee stated that the administrative limits on power and the gain settings on the "picos" following a heat balance performance would be reviewed (Paragraph 11a).

The licensee stated that the off-normal procedures concerning the loss of the condenser fill valve would be reviewed and updated (Paragraph 11c).

^{8/} Ltr, CP to NRR, dtd 12/9/76.

The licensee stated that loss of coolant accident as a result of an emergency condenser tube leak was being reviewed (Paragraph 11d).

The licensee stated that the deviation reports concerning violation of procedures when dealing with operability requirements of safety-related activities would be reviewed. The licensee also stated that the administrative guidelines would be developed and implemented to review the outstanding deviation reports during 1978 in order to comply with the requirements (Paragraph 7d).