

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

REGION III

Report of Operations Inspection

IE Inspection Report No. 050-155/76-01

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

Big Rock Point  
Charlevoix, Michigan

License No. DPR-6  
Category: C

Type of Licensee: BWR (GE) 240 MWT

Type of Inspection: Announced, Investigation and Routine

Dates of Inspection: January 5-9, 1976

Principal Inspector: *D. R. Hunter*  
D. R. Hunter

2/11/76  
(Date)

Accompanying Inspector: *J. Kohler*  
J. Kohler

2/11/76  
(Date)

Other Accompanying Personnel: None

Reviewed By: *E. L. Jordan*  
E. L. Jordan  
Section Leader  
Reactor Projects No. 2

2/27/76  
(Date)

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## SUMMARY OF FINDINGS

### Inspection Summary

Inspection of January 5-9, (76-01): Review of reportable occurrences, construction activities, procurement, maintenance activities, pre-refueling activities, review of operations, refueling operations, inspector identified and outstanding items, and a facility tour. Two items of noncompliance were identified concerning failure to meet a limiting condition for operation and failure to conduct safety evaluation for construction activities.

### Enforcement Items

#### A. Violations

None.

#### B. Infractions

1. Contrary to Technical Specification 5.1.3, a rod drive accumulator was removed from service on November 13, 1975, on a rod, not fully inserted and valved out, with the reactor system pressure below 450 psig. (Paragraph 1.a, Report Details II)
2. Contrary to 10 CFR 50.59, safety evaluations were not conducted as required prior to performing construction activities relative to the following plant modifications involving safety related equipment.
  - a. The fire protection system sprinkler header was modified on October 24, 1975, without prior review and documented safety evaluation. (Paragraph 1.e, Report Details II)
  - b. Construction activity on December 19, 1975, concerning excavation between the turbine building and the containment building resulted in damage to the turbine building ventilation exhaust line while the reactor was operating. No review and documented safety evaluation was performed preceding this activity. (Paragraph 1.f, Report Details II)

#### C. Deficiencies

None.

### Licensee Action on Previously Identified Enforcement Items

None.

## Other Significant Findings

### A. Systems and Components

The licensee plans to inspect for leaking fuel elements by dry sipping.

### B. Facility Items (Plans and Procedures)

The licensee has postponed the scheduled refueling outage until January 30, 1976, as a result of delays in delivery of necessary modification equipment and components.

The major plant changes concerning the Reactor Depressurization System and the High Energy Pipe Whip modifications are in progress.

The fire barrier modifications are scheduled to be performed during the extended refueling outage commencing January 30, 1976.

During the 1976 refueling outage, 24 fuel assemblies, representing approximately 25% of the core, will be replaced. The new elements consist of 9 x 9 and 11 x 11 arrays with 8 assemblies being mixed oxide.

The position of the containment vent valves during fuel movement is being reviewed by NRR in relation to a postulated fuel cask drop accident. This item will be resolved prior to any fuel movement.

### C. Managerial Items

The licensee promoted Mr. A. C. Sevener to the position of Operations Supervisor, effective January 1, 1976. Mr. Sevener was previously a shift supervisor at the facility.

Facility key supervisory personnel title changes have been made to provide Quality Assurance Program and management uniformity in Consumers Power Company Nuclear Plants. The Operations Engineer, Technical Engineer, Quality Assurance Engineer and Maintenance Engineer titles are changed to the Operations Superintendent, Technical Superintendent, Quality Assurance Superintendent and Maintenance Superintendent, respectively. The facility has filled the position of Quality Assurance Engineer.

The licensee is in the process of developing an integrated schedule for maintenance related activities to be performed during the 1976 refueling outage.

### D. Noncompliance Identified and Corrected by the Licensee

1. Contrary to Criterion V of Appendix B to 10 CFR 50, the control rod drive timing test was initiated on December 5, 1975, without utilizing the approved surveillance test procedure. (Paragraph 1.b, Report Details II)

2. Contrary to Technical Specification 6.4.3(b), the weekly analysis of the stack gas particulate and iodine filters was not performed on December 25, 1975, as required. (Paragraph 1.g, Report Details II)

E. Deviations

None.

F. Status of Previously Reported Unresolved Items

1. The operation of the shutdown cooling system with the system available for remote service was reviewed and no apparent discrepancies were noted. This item is considered resolved. (Paragraph 4.d, Report Details II)
2. The identification of the 1974 inservice inspection (ISI) test blocks was reviewed. No problems were noted. This item is considered resolved. (Paragraph 5, Report Details II)
3. The welder qualifications concerning the emergency condenser repair were reviewed. No problems were noted. This item is considered resolved. (Paragraph 6, Report Details II)

Management Interview

The management interview was conducted on January 9, 1976, with the following persons present:

- C. J. Hartman, Plant Superintendent
- C. R. Abel, Operations Superintendent
- D. E. DeMoor, Technical Superintendent
- G. C. Tyson, Maintenance Superintendent
- E. F. Peltier, Shift Supervisor
- R. E. Voll, Reactor Engineer
- S. E. Martin, General Engineer
- J. J. Zabritzki, Quality Assurance Engineer
- G. B. Szczotka, Quality Assurance Superintendent
- W. Clark, Project Engineer, GMPD

- A. The inspector stated that procurement of controlled materials as specified in the Big Rock Point QA Manual was being implemented. (Paragraph 7, Report Details I)
- B. The inspector stated that the development of a maintenance schedule for maintenance activities to be performed during the 1976 refueling outage was not keeping pace with the scheduled reactor shutdown date of January 23, 1976. The licensee acknowledged this. (Paragraph 8, Report Details I)

- C. The inspector stated that he agreed with the licensee's review and subsequent conclusion that the installation of the fuel sipping apparatus did not represent an unreviewed safety question under 10 CFR 50.59, thus permitting the installation of the apparatus in the spent fuel pit prior to approval of its use from NRR. (Paragraph 6, Report Details I)
- D. The inspector stated that the licensee had no system that would detect high particulate and gaseous activity on the refueling deck and initiate an automatic containment isolation. The licensee stated that the criticality monitor located on the refueling deck would alarm in the control room and a procedure was written to manually isolate the containment. (Paragraph 4, Report Details I)
- E. The inspector stated that there was no master refueling checklist which referenced all prerequisites needed to be accomplished before any movement of fuel. At the exit interview, the reactor engineer stated that he was in the process of revising the existing procedure to include references to the pertinent refueling prerequisites. (Paragraph 2, Report Details I)
- F. The inspector stated that the position of the containment vent valves during refueling was being reviewed by NRR in conjunction with a postulated fuel transfer cask accident. He advised the licensee to substantiate the necessity of having the vent valves open during refueling activities, and to work with Consumers Power Corporate Office to make the plant position clear to NRR. The licensee stated he will do this. (Paragraph 3, Report Details I)
- G. The inspector stated that a review of reportable occurrence reports identified five items of noncompliance concerning the removal of a control rod drive accumulator from service (AO 25-75), failure to utilize approved procedures (AO 27-75), failure to perform the required safety evaluations for facility modification activities (AO 26-75 and AO 30-75), and failure to perform radioactive analysis within the time requirements of the technical specifications. (Paragraph 1, Report Details II)
- G. The inspector stated that a review of reportable occurrence reports and activities as a result of previously reported reportable occurrences indicated a continuation of construction activities without the proper documented safety evaluations being performed concerning the plant interface areas, and this activity was considered to be in noncompliance with 10 CFR 50.59. (Paragraph 3, Report Details II)

The inspector asked the licensee to consider an immediate review of the new and in-progress safety related construction activities to assure that the reviews and safety evaluations had been performed. The licensee stated that a review would be conducted and that no new

work activities (work packages) would be commenced until the reviews were completed. The licensee stated that the status of the reviews on work packages in progress would be examined.

By telephone communication with Mr. F. L. Jordan of the IE:III office on January 9, 1976, the licensee stated that documented safety evaluations concerning the in-progress safety related work would be completed immediately and no safety related work would be performed until the reviews and documented safety evaluations were completed.

- I. The inspector noted that the facility tour and review of operations revealed that two safety related annunciators were being momentarily defeated due to interference (sporadic alarm) created by welding machines being used in the containment. The licensee acknowledged the concern by the inspector and indicated a review of the situation would be considered. (Paragraph 4, Report Details II)
- J. The inspector discussed an offgas explosion which had occurred at the Cooper Station on January 7, 1976, in a building containing the offgas recombiner system. The licensee acknowledged the information.

REPORT DETAILS

Part I

Prepared by: J. E. Kohler  
J. E. Kohler  
Reviewed by: W. S. Little  
W. S. Little

Persons Contacted

J. Popa, Maintenance Engineer  
L. A. Cappell, Administrative Supervisor  
G. C. Tyson, Maintenance Superintendent  
R. E. Voll, Reactor Engineer

1. Preparation for Refueling

The licensee's pre-refueling activities were inspected to determine whether the appropriate technical specification and approved refueling procedures would be followed during the present refueling outage. The following procedures were reviewed and found acceptable.

- a. Refueling Interlock Check
- b. Fuel Handling Equipment Safety Check (including crane testing)
- c. Fuel Transfer Cask Preparation for Refueling
- d. Communication Systems between Control Room and Loading Area

2. Revision to Master Refueling Checklist (RE-02)

The licensee is in the process of revising the master refueling outage procedure BRP-RE-02 to include all appropriate technical specifications and applicable refueling procedures as prerequisites requiring sign off prior to any fuel movement. The revision to RE-02 should include reference to the following two Technical Specifications:

- 5.2.5 Shutdown Margin Checks
- 6.3.1 Trip Devices to be Connected to the Reactor During Refueling

The inspectors will review the revisions to procedure RE-02 at the next scheduled inspection.

3. Ventilation Requirements in Fuel Storage Areas

During refueling, the containment vent valves are fully open. While these valves do have the capability to isolate on a reactor trip, they will not isolate automatically on high radiation levels.

The licensee stated that fuel movement could not take place with the containment isolated, because airborne activity would reach the level necessitating containment evacuation within approximately 15 minutes (MPC) after containment isolation.

4. Refueling Radiation Deck Monitors

There is no control room indication of high gaseous or particulate activity on the refueling deck. Particulate radiation on the refueling deck will be monitored by portable continuous air monitors which locally annunciate by light (yellow signaling at 1/2 MPC and red signaling at 2 MPC). Two criticality monitors in the region of the spend fuel pit will alarm in the control room on high radiation at 15 millirem per hour.

The containment radiation monitoring system at Big Rock Point used during fuel movement is being reviewed by NRR in conjunction with the fuel cask and fuel handling accidents, and will be reviewed at the next inspection.

5. Fuel Inspections

The BRP plant contains experimental fuel bundles in addition to mixed oxide bundles. These bundles will be inspected by the appropriate vendor under his own criteria. A fuel report will be submitted to NRR by the vendors at the conclusion of the vendor fuel inspections.

In addition to vendor inspection, BRP plans to sip all 84 existing fuel elements for the detection of leakers. Elements showing visual indication of leakage will not be sipped. The inspector has no further questions regarding this item.

6. Fuel Sipping Operations

The licensee plans to inspect the fuel for leakers by dry sipping. The preliminary determination by the Plant Review Committee was that the technique represents an unreviewed safety question under 10 CFR 50.59. As such, the dry fuel sipping procedure was submitted to NRR<sup>1/</sup> for approval.

The inspector agreed at the management exit that the Plant Review Committee's review, and subsequent conclusion that the installation

<sup>1/</sup> CP to NRR, ltr dtd 12/18/75.

of the dry sipping apparatus in the fuel pool did not represent an unreviewed safety question: thus permitting installation prior to NRR approval of dry sipping. Subsequent communication with NRR<sup>2/</sup> by the licensee indicated that the dry fuel sipping operation was within the previous analysis provided in Amendment 10 to the FHSR and did not represent an unreviewed safety question. The inspector has no further question concerning this item at this time.

7. Procurement

The inspector reviewed the licensee's procedure for acquiring OA material. Request for OA material were reviewed to determine whether the appropriate OA reviews and material receipt inspections were performed. The following procurement packages were reviewed for completeness:

"Rotork" Operators  
Steam Drum Plates  
Yarway Level Sensors Replacement Parts  
Portable Pneumatic Calibrator

The above material was traced from the material request form to the storage location in the warehouse. No deficiencies were found and the inspector has no further questions regarding this item.

8. Maintenance

Maintenance packages involving safety related equipment were reviewed to determine whether approved procedures would be in effect during the outage. The following packages were reviewed for completeness. No deficiencies were found.

- a. Removal of Reactor Vessel Head
- b. Reinstallation of Reactor Vessel Head
- c. Setting of Limit Switches on "Limitorque" Valves

The licensee is in the process of developing an integrated schedule for maintenance activities to be performed during this outage. This will be followed by the inspectors at the next inspection.

<sup>2/</sup> CP to NRR, ltr dtd 1/14/76.

REPORT DETAILS

Part II

Prepared by:

D. Hunter  
D. Hunter

Reviewed by:

E. L. Jordan  
E. L. Jordan

Persons Contacted

C. J. Hartman, Plant Superintendent  
C. R. Abel, Operations Superintendent  
D. E. DeMoor, Technical Superintendent  
C. E. Axtell, Chemistry and Radiological Protection Supervisor  
T. M. Brun, Assistant Chemistry and Radiological Protection Supervisor  
S. A. Carlisle, Shift Supervisor  
R. W. Doan, Shift Supervisor and Training Coordinator  
A. C. Sevener, Shift Supervisor  
E. F. Peltier, Shift Supervisor  
H. E. Black Maintenance Supervisor  
G. B. Szczotka, Quality Assurance Superintendent  
W. Clark, Project Engineer, GPMD

1. Review of Reportable Occurrence Reports

- a. AO 050-155/25-75, control rod drive scram accumulator removed from service during low reactor pressure operation, reported on November 13, 1975. The licensee reported<sup>3/</sup> that the accumulator for control rod E-4 was isolated for maintenance while the reactor pressure was at approximately 400 psig. Technical Specification 5.1.3 (proposed Technical Specification 3.1.1.D) requires accumulators to be operable on any rod, not fully inserted and valved out, when the reactor pressure is below 450 psig. The inspector reviewed the corrective action taken by the licensee including discussion of the incident with the shift supervisor, the revisions to Operations Memo 12-75, the Operating Procedure B-50 revision, and the Administrative Procedure revision requiring PRC review of Operations Memos after they have been issued. The inspector reviewed, with the licensee representative, the procedure requirements of ANSI-N18.7, indicating that maintenance procedure controls would eliminate errors of this type. The removal of the E-4 accumulator from service with the reactor system pressure below 450 psig, with rod E-4, not fully inserted and valved out, is considered an item of noncompliance pursuant to

3/ CP to NRR, ltr dtd 11/24/75.

Technical Specification 5.1.3 (proposed Technical Specification 3.1.1.D). The licensee has taken corrective actions to prevent this event from recurring.

- b. AO 050-155/27-75, testing was conducted without proper use of a written procedure, reported on December 6, 1975. The licensee reported<sup>4/</sup> that the scram timing test was performed using a checklist rather than the newly approved and implemented surveillance test procedure (TR-01). The inspector reviewed the corrective actions taken by the licensee including the issuance of a training memo to operations personnel on December 2<sup>c</sup>, 1975. The failure to use the approved, written procedure (TR-01) during the initial phase of the control rod testing is considered an item of noncompliance pursuant to Criterion V of Appendix B to 10 CFR 50. The licensee actions and corrective actions concerning this event were considered acceptable.
- c. AO 050-155/28-75, rod drive withdrawal time less than the 23-second technical specification limit, reported on December 8, 1975. The licensee reported<sup>5/</sup> that the control rod withdrawal times on 14 drives were less than the 23-second limit. The inspector verified that the control rod speeds were reset to approximately 36 seconds and retested. The continuous rod withdrawal feature continues to remain defeated to prevent the possibility of continuous rod withdrawal except during performance of the specific testing requirements<sup>6/</sup> under the controlled conditions of the surveillance procedure (TR-01).
- d. AO 050-155/29-75, failure of piping component in control rod drive pump No. 1 discharge piping, reported on December 9, 1975. The licensee reported<sup>7/</sup> that a leak had developed in a 1 inch threaded nipple on the No. 1 control rod drive pump discharge line, pipe-to-relief valve connection. The leak appeared to be a crack in the threaded area of the nipple which was replaced and submitted for offsite failure analysis. Preliminary evaluation by the licensee indicated a failure from fatigue due to vibrations resulting from the positive displacement CRD pumps.
- e. AO 050-155/26-75, improperly authorized change made to the fire system, reported on November 14, 1975. The licensee reported<sup>8/</sup> that an unauthorized change was made to fire protection system sprinkler header during an activity associated with plant modifications (RDS) on about October 24, 1975. Subsequent plant review revealed the performance of the activity outside the

4/ CP to NRR, ltr dtd 12/16/75.

5/ Ibid.

6/ CP to DL, ltr dtd 7/19/74.

7/ Ibid.

8/ CP to NRR, ltr dtd 11/24/75.

required procedural controls and procedures resulting from a failure to provide the required review and documented safety evaluation. This occurrence is similar to previous events<sup>9/10/</sup> reported to the NRC. The inspector reviewed the corrective action as indicated in the licensee response to the occurrence to verify that Administrative Procedure Section 1.9 had been revised. The failure to provide adequate review and documented safety evaluation, as a result of a breakdown in administrative controls, is considered an item of noncompliance pursuant to 10 CFR 50.59.

- f. AO 050-155/30-75, inadequate preparation and review of a construction activity, reported on December 19, 1975. The licensee reported<sup>11/</sup> that during construction activities in the yard between the turbine building and the containment building a construction crew using a power shovel to prepare for the installation of a blowout panel, contacted and damaged a 30 inch turbine building ventilation exhaust line. The damage was only superficial and after ceasing the activity, the area was surveyed for possible damage to other equipment. No damage was revealed. The exposed ventilation line was insulated and covered to prevent freezing. The failure to provide an adequate review and documented safety evaluation of the construction activity as a result of a breakdown in administrative control is considered an item of noncompliance pursuant to 10 CFR 50.59. This occurrence is similar to previous events reported<sup>12/13/14/</sup> to the NRC. The inspector reviewed the corrective actions associated with AO 050-155/24-75. The "O" list was issued and being utilized at the facility. The revision to plant and corporate procedures relating to modification control have not been completed at this time. The corrective actions in AO 050-155/24-75 stated that all facility changes are to be considered safety related until deemed otherwise by the Plant Review Committee action just prior to the facility work.
- g. The licensee reported to the NRC inspector onsite on January 6, 1976, that the stack gas particulate and iodine filters were removed on December 23, 1975, for routine weekly analysis on December 25, 1975; and due to an oversight, the analysis was not performed until December 30, 1975. The inspector discussed the failure to review the surveillance items in a timely manner with the chemistry and radiological protection supervisor and his assistant. The licensee representative indicated that the newly revised checklist and schedule will aid in preventing

- 9/ AO 050-155/22-75.  
10/ AO 050-155/24-75.  
11/ CP to NRR, ltr dtd 12/26/75.  
12/ AO 050-155/22-75.  
13/ AO 050-155/24-75.  
14/ AO 050-155/26-75.

oversight and failures to meet the required technical specification sampling frequencies. The inspector noted that the analysis of the filters indicated no unusual conditions and the offgas release rates had been normal during the week of December 25, 1975. The failure to analyze the filters within Technical Specification (6.5.3(h)) requirements is considered an item of noncompliance. The corrective actions being taken by the licensee appear adequate and no further information is required at this time.

By telephone communication with the licensee this item was clarified to be a nonreportable event with respect to the newly issued Technical Specifications, Section 10; therefore, it is not considered a reportable occurrence.

### 3. Onsite Construction Activities

The inspector reviewed the management controls associated with the construction activities being controlled by Consumers Power, GPMD, and subcontracted to a construction firm. The review was conducted as a result of an apparent problem area identified through reportable occurrences and a stop work given on a particular construction activity when the turbine building exhaust line was damaged during digging activities. It was discovered by the plant staff that the work activity was not covered by a work package including adequate drawings and specifications, and an adequate documented safety evaluation. A review of the work packages, documented safety evaluations provided the interface areas, and the construction work in progress revealed this matter warranted additional control. Construction activities within the work packages were continuing without the required completed review and documented safety evaluations. The licensee's administrative controls system, committed to as a result of previous reportable occurrences<sup>15/16/17/</sup> and an item of noncompliance<sup>18/</sup> associated with a modification, required that the Plant Review Committee be directly involved in the classification of the work activities as well as the review and approval of the documented safety evaluations being performed by the responsible engineer (refer to section 2.f, Report Details II). The inspector noted that the plant quality assurance department was involved in the evaluation and correction of the discrepancies. The inspector verified through discussions with the licensee representatives and review of certain work activities that all work concerning the modifications (Reactor Depressurization System and the Main Steam Blowout Panel) were being performed within the reviewed work packages. These work packages included the prerequisites, the work steps and all the applicable drawings and specifications. A plant review of these items by the responsible engineer and the Plant Review Committee appears to provide adequate administrative controls since the review will be completed prior to commencing the work activity.

15/ AO 050-155/22-75.

16/ AO 050-155/24-75.

17/ AO 050-155/26-75.

18/ CP to NRR, ltr dtd 12/19/75.

4. Facility Tour and Operations Review

- a. The inspectors toured the facility with a licensee representative. The areas reviewed appeared acceptable, with the inspectors noting construction scaffolding and materials in the controlled areas. No discrepancies were noted.
- b. A review of the control room annunciators revealed two questionable items relating to safe operation of the facility.
  - (1) The inspector noted the high noise levels being created by the construction forces drilling holes through the concrete structures near the control room. For short periods of time during the activities the operator's ability to hear certain alarms was being degraded by the noise. The licensee indicated that the activity had been reviewed by plant management with no major problems revealed.
  - (2) Two safety related annunciator plates were noted by the inspector to be partially retracted, removing them from service. The inspector verified that the shift supervisor and the control operator were aware of the deactivated annunciators, the reason for the action, and the actions to be taken if the annunciators were required. The inspector indicated his concern to plant management and noted corrective action being taken to properly review and document the condition as an operating memo.
- c. The inspector reviewed the control room materials including operating memos, administrative memos and control room staffing during two separate shifts. The inspector noted that one operator at the facility was maintaining a backup man in the control room with him at all times as required by his operator license. No discrepancies were noted.
- d. The inspector reviewed the changes to the operation of the shutdown cooling system and determined that the new arrangement of the system appeared to meet the intent of the FHSR.<sup>19/</sup> The review of Operating Procedure B5, as revised and approved on December 6, 1975, places the No. 1 system in the isolated condition for normal use when the containment building activity allows, and the No. 2 system in the standby condition and ready for remote operation from the control room if the entry into the containment building is prohibited. The use of inhibited water, only as a long term system shutdown item, appears acceptable. This item is considered resolved.
- e. The inspector noted that the retest of the offgas isolation system was attempted on December 6, 1975, and the test failed. The

19/ IE:III Inspection Rpt No. 050-155/75-15.

licensee is performing further review of the procedure and the isolation system in an attempt to determine the location of the system unidentified bypass flow path which occurs during isolation. The licensee plans to retest the offgas at the next outage, presently scheduled for January 30, 1976.

5. The inspector reviewed the unresolved item<sup>20/</sup> concerning the identification of the 1974 ISI test blocks. A review of a memorandum<sup>21/</sup> from Southwest Research Institute to the quality assurance superintendent indicated that no similar test blocks were brought to the site; therefore, the Consumers Power Company test blocks, now serialized, were used for the inservice inspection. The licensee was asked to insure all of the associated drawings were updated with the appropriate test block information to provide a complete ISI package. This matter is considered resolved and no further information is required at this time.
6. The inspector reviewed the unresolved item<sup>22/</sup> concerning the welder qualifications for procedure SM-1-1 on the Emergency Condenser piping repairs. The review of the welder's qualification documentation indicated that the man was qualified by procedure qualification and by process from January 18, 1974, through February 16, 1975. The welder's qualification history documentation was available in the work package. This matter is considered resolved and no further information is required at this time.

20/ IE:III Inspection Rpt No. 050-155/75-13.

21/ SWRI to CP, ltr dtd 12/19/75.

22/ IE:III Inspection Rpt No. 050-155/75-03.