

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

REGION III

Report No. 50-155/78-01

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: January 16-20, 1978

Inspector: *M. C. Schumacher* 3/14/78
M. C. Schumacher

Approved by: *W. L. Fisher* 2/15/78
W. L. Fisher, Chief
Fuel Facility Projects and
Radiation Support Section

Inspection Summary

Inspection on January 16-20, 1978 (Report No. 50-155/78-01)

Areas Inspected: Routine, unannounced inspection of radioactive waste systems, including: effluent releases; records and reports of effluents; effluent control instrumentation; procedures for controlling releases; containment air-cleaning systems; reactor coolant water quality; solid radioactive waste; and review of licensee event reports. The inspection involved 50 inspector-hours onsite by one NRC inspector.

Results: No items of noncompliance were identified in 5 of the 8 areas inspected. One item of noncompliance was identified in each of the areas of liquid effluent releases, solid radioactive waste, and effluent control instrumentation.

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DETAILS

1. Persons Contacted

- *C. J. Hartman, Plant Superintendent
- *C. E. Axtell, Health Physicist
- *T. M. Brun, Chemical and Radiation Protection Supervisor
- *D. DeMoor, Technical Engineer
- *G. Gilbody, QA Engineer

The inspector also talked with other licensee employees, including operators and health physics and instrument control technicians.

*denotes those present at exit interview.

2. General

This inspection, which began at 8:00 a.m. on January 16, 1978, was conducted to examine licensee activities with regard to radioactive waste management. The plant was in cold shutdown for repair work on control rod drives. An initial tour was made of selected areas of the plant, including access control, radwaste, various process monitor locations, and the control room. A more extensive tour of the plant was made later in the inspection. Radiological conditions within the plant appeared satisfactory; good housekeeping was evident. A small office near access control has been given over to health physics use. Licensee employees indicated that it is also used for the one-on-one respirator training formerly given in access control as noted during a previous inspection.^{1/}

No items of noncompliance were observed.

3. Licensee Action on Previous Inspection Findings

(Closed) Exit Interview Commitment (155/77-09): review and revise air sampling analysis procedures as necessary. Appropriate changes to Procedure RP-29, "Radiological Surveys," were made by the licensee.

4. Airborne Effluents

Plant records of airborne release samples for 1977 were examined. These data are used by the licensee's corporate office staff to

1/ RIII Inspection Rpt No. 50-155/77-09.

generate, by computer, the data presented in the semiannual effluent report. No significant inconsistencies were noted between the two data sets. Noble gas releases are based on daily samples of off-gas. Isotopic characteristics are specified based on weekly spectral analysis of an off-gas sample. Release rates measured during 1977 were relatively stable in the range of 400 to 1100 microcuries per second, less than one percent of the technical specification limits. Iodine and particulate releases are determined from continuously collected particulate and charcoal filters that are changed and analyzed weekly. Technetium-99m (half-life approximately six hours), reported previously only in January 1976, became the dominant particulate released, beginning in April 1977. Licensee representatives were unable to explain this matter but agreed to look into it. All iodine and particulate releases during the period were less than one percent of the technical specification limits.

No items of noncompliance were identified.

5. Liquid Effluents

The records of 37 liquid waste batches released during 1977 were reviewed. In accordance with Licensing Procedure RCP-7, "Analysis of Liquid Radwaste Batch," each batch was sampled, counted for gross alpha and beta activity, and analyzed to determine isotopic composition. The permissible release rate, a function of the batch isotopic characteristics, is calculated for the available dilution flow. All releases made in 1977 appeared to meet technical specification requirements with regard to release concentrations.

During releases, the radwaste monitor is set to alarm at a count rate that corresponds to a concentration of $1E-5$ microcuries per milliliter, plus background. This setting is derived using the monitor calibration curve, the expected dilution flow, and the authorized discharge flow. It assumes an applicable MPC value of $1E-6$ microcuries per milliliter, which is further augmented by the factor 10 to allow for monitor vagaries. This practice appears to be contrary to Technical Specification 6.4.1.d, which requires that the monitor alarm be set to detect 10 CFR 20, Appendix B, Table 2, Column 2 levels. The licensee's set points have averaged about a factor of three higher than those corresponding to

the 10 CFR 20 limits determined from the licensee's isotopic analyses. The maximum variation has been about a factor of 10. It was also noted that during the last quarter of 1977 the monitor background increased by a factor of about five to greater than 100,000 counts per minute. The need for improved monitor decontamination was discussed at the exit interview.

6. Solid Radioactive Waste

The records of 14 solid waste shipments made during 1977 were reviewed. Twelve shipments of greater than Type A quantities of dewatered spent resins were made during the period May 24-June 21, 1977. In apparent noncompliance with 10 CFR 71.3, the shipments were made in packages unapproved as required by 10 CFR 71.12. Before this inspection, the licensee determined that the packages were not approved. Following this determination, arrangements were made with the consignee and package owner (Nuclear Engineering Company, Morehead, Kentucky) to provide an approved Type B Cask for such shipments until approvals for the formerly used packages are obtained.

Accordingly, the licensee had on hand copies of the licenses and reference documents for NUS Cask Model SN-1 (Certificate Number 6771). The inspector pointed out the 10 CFR 71.12 notification requirement before first use of this cask. The corrective action taken by the licensee in this matter appears to be satisfactory.

7. Records and Reports of Effluents

The licensee's semiannual report for the period January to June 1977 was reviewed for internal consistency. No problems were identified. Licensee effluent records examined at the plant were satisfactory.

8. Effluent Control Instrumentation

Process monitor calibration records for 1977 were reviewed. The records indicated noncompliance with the calibration check requirements of Technical Specification 6.4.3.d when the monthly check of the radwaste monitor was missed during 1977. The missed surveillance was an isolated occurrence; the licensee's surveillance procedures appear adequate to prevent recurrence.

9. Reactor Coolant Water Quality

Records of daily radioactivity measurements in reactor coolant water during 1977 were reviewed.

No items of noncompliance were identified.

10. Procedures

The following radwaste procedures, added or amended since the radwaste inspection of December 1976,^{2/} were reviewed.

RCP2, "Analysis of Offgas," Revision 2, December 1, 1977: No problems were identified.

RCP5, "Changing Stack Gas Sampling Filters," Revision 3, November 15, 1977: The possible effects of leaking valves on the sampling system integrity test in this procedure was discussed; the absence of a valve line-up checklist in the procedure was noted. Licensee employees indicated the procedure would be reviewed.

RCP6, "Analysis of Stack Gas Filters," Revision 5, December 2, 1977: No problems were identified.

RCP7, Analysis of Liquid Radioactive Batch, "Revision 2, December 2, 1977: No problems were identified.

CIP3, "Operation of the TASC-2 Radioisotope Analyzer," Revision 1, December 9, 1977: No problems were identified.

The inspector also reviewed the following procedures related to radiation protection.

RP4, "Radiation Protection Procedures for Radiation Workers," Revision 2, September 26, 1977: No problems were identified.

RP10, "Use of High Radiation Area Worksheet," Revision 1, October 31, 1977: No problems were identified.

RP29, "Radiological Surveys," Revision 3, August 12, 1977, Revision 4, November 7, 1977, Revision 5, November 29, 1977: This procedure was changed to address problems noted during a previous inspection.^{3/} No problems were identified in this review.

RIP10, "Sphere and Turbine Room, Calibration of Continuous Air Monitors (CAMs)," Revision 1, December 11, 1977: The inspector noted the absence of the requirement for running a plateau on the Geiger Mueller detector. It was also noted that the method of setting the monitor alarm was dependent upon an unvarying detector counting efficiency. Alternate

2/ RIII Inspection Rpt No. 50-155/76-22.

3/ RIII Inspection Rpt No. 50-155/77-09.

schemes for determining alarm set points were discussed with licensee representatives, who indicated the procedure would be reviewed.

RIP11, "Calibration of Continuous Air Monitor-Sphere Exhaust CAM," Revision 0, December 8, 1977: The inspector noted that there was no requirement to run a plateau for the Geiger Mueller detector.

An arithmetic error was noted in the particulate channel calibration in Section 6.5.

11. Review of Licensee Event Report

The licensee's corrective actions on the following licensee event reports were reviewed.

155/77-25 Water and clean up resin drain to floor of clean up demineralizer room, September 24, 1977.

155/77-44 Plant heating boiler contaminated by reactor closed cooling water, October 31, 1977.

No items of noncompliance were identified in this review.

12. Containment Air Cleaning Systems

The offgas is treated for removal of particulates by passing through a high efficiency (HEPA) filter near the base of the stack. Other air exhausted through the stack is unfiltered.

The filter is changed at refueling outages. No provision was made for introducing a test aerosol for in-place efficiency testing.

13. Exit Interview

The inspection results were discussed with Mr. Hartman and others of the station staff at the close of the inspection. The inspector stated that corrective actions regarding the missed radwaste monitor calibration check and unapproved solid radwaste packages appeared adequate.

The need for lower radwaste monitor background was discussed. The licensee stated that steps would be taken to improve monitor background.