

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 50-155/85008(DRSS)

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 13-17, 1985

Inspector: *N. A. Nicholson*
N. A. Nicholson

6/12/85
Date

Approved By: *L. R. Greger*
L. R. Greger, Chief
Facilities Radiation Protection
Section

6/12/85
Date

Inspection Summary

Inspection on May 13-17, 1985 (Report No. 50-155/85008(DRSS))

Areas Inspected: Routine, unannounced inspection of the radiation protection and radwaste programs including: control of radioactive material ; transportation; solid radwaste; facilities and equipment; staffing; licensee inspection of the recirculation pump seals; licensee response to IE Bulletin 84-03; and selected open items. The inspection involved 38 inspector-hours onsite by one NRC inspector.

Results: No apparent violations were identified.

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DETAILS

1. Persons Contacted

- *R. Alexander, Technical Engineer
- *J. Beer, Chemistry/Radiation Protection (C/RP) Superintendent
- *R. Burdette, C/RP Supervisor
- G. Fox, C/RP Supervisor
- *R. Frisch, Senior Licensing Analyst
- R. Garrett, C/RP Supervisor
- *T. Hancock, C/RP Engineer
- *D. Hoffman, Plant Superintendent
- *L. Monshor, Quality Assurance Superintendent
- *G. Slade, Executive Director, NAD
- D. VanDeWalle, Director Nuclear Licensing
- *J. Werner, C/RP Supervisor

- *S. Guthrie, Senior Resident Inspector

The inspector also contacted C/RP technicians and members of the engineering staff during this inspection.

*Attended the May 17, 1985 exit meeting.

2. General

This inspection, which began at 1:30 p.m. May 13, 1985, was conducted to review the operational radiation protection program including control of radioactive material, transportation, solid radwaste, C/RP staffing, protective measures taken during entry into the recirculation pump area, disposition of contaminated soil, the status of the facial hair/respirator use policy, and response to IE Notice 84-03 (Refueling Cavity Water Seals). Area postings, access controls, and housekeeping were good.

3. Licensee Action on Previous Findings

(Open) Open Item (155/84-08-01): Licensee representatives have not contacted NRR regarding disposal of the onsite contaminated soil pursuant to 10 CFR 20.302. Although the licensee was informed of the need for such contact during inspections conducted in July 1984 and September 1984, the licensee concluded that formal notification of NRR was not necessary. This position was stated in a December 6, 1984 letter to Region III. Region III referred this matter to the Radiological Assessment Branch of NRR for guidance in a March 14, 1985 memo. The NRR response, dated April 11, 1985 (Attachment 1), concluded: (1) the contaminated soil must be properly disposed either by excavation and offsite shipment, or by in-place disposal pursuant to 10 CFR 20.302 approval; and (2) the licensee must account for concentrations released to unrestricted areas as they occur in accordance with 10 CFR 20.105 and 20.106. This matter was discussed at the exit meeting.

(Open) Open Item (155/84-12-01): Replace Bio-Pak 60P respirators with open circuit SCBAs. The licensee has procured the SCBAs and has ordered a cascade system for refilling SCBA tanks. Licensee representatives anticipate the SCBAs to be in service by July 1, 1985.

(Open) Open Item (155/84-22-01) and Unresolved Item (155/84-22-01): Administrative procedure allows persons with facial hair, including members of the fire brigade and radiation protection technicians, to wear SCBAs during emergencies. By a March 14, 1985 cover letter to the licensee, Region III forwarded an IE memorandum concerning facial hair prohibitions with tight fitting respirator use. Currently the respirator/facial hair policy is under review by licensee management. Licensee representatives committed to contact Region III by mid-June regarding the conclusions of that review.

(Open) Deviation (155/85003-02): Failure to implement Sections X and XI of the Nuclear Operations Department Radiation Safety Plan by March 1983. The Radiation Safety Plan is being revised and will be implemented September 30, 1985. This will be reviewed during a future inspection.

(Open) Open Item (155/85003-01): Minimal QA coverage of health physics activities. The inspector reviewed a recently issued QA audit report (QT-85-4) of health physics activities, including the transportation program. The health physics department had not responded to the findings. This item will be further reviewed.

4. Control of Radioactive Materials and Contamination

The inspector reviewed the licensee's program for control of radioactive materials and contamination, including: adequacy of supply, maintenance, and calibration of contamination survey and monitoring equipment; effectiveness of survey methods, practices, equipment, and procedures; adequacy of review and dissemination of survey data; and effectiveness of methods of control of radioactive and contaminated materials.

In general, a threshold level of 400 dpm/100 cm² is used for decontamination. Contaminated areas greater than 400 dpm/100 cm² that cannot be readily decontaminated because of ALARA considerations are positively controlled by physical boundaries. Although the extent of contaminated areas is not tracked, the C/RP Superintendent estimated approximately 10% of the controlled area is boundaried. Survey data reviewed indicated general area smears of the controlled area below the 400 dpm/100 cm² level. The highest smearable contamination was consistently found at the reactor deck, a boundaried area.

The licensee has established a routine decontamination program. General areas of the sphere are deconned monthly. Under a recent policy implemented in late 1984, higher contaminated areas are identified and scheduled for decontamination. Four decontamination lockers have recently been positioned throughout the plant to increase availability of supplies. Management is reviewing this policy to determine its effectiveness. Maintenance and/or operations personnel may decontaminate a contaminated

area resulting from a specific maintenance or operations function; however, radiation protection and chemistry personnel complete most decontamination work. There are no dedicated decontamination workers.

The inspector accompanied an RP/C technician on a routine daily survey in accordance with RP-29, Radiological Surveys. Instruments in use and those stationed throughout the plant were operable and calibrated. No problems were noted.

Personnel contamination reports were reviewed. Reports are routinely tracked as an ALARA measure and sources/causes of the contamination are reviewed. All reported cases for 1985 involved facial and/or hand contamination that was reduced to background levels by routine soap and water cleansings. Licensee personnel indicated that the contamination report form would be revised to include a reminder for a whole body count for any contaminations greater than 10,000 dpm above the neck. Nasal smears and whole body counts are routinely conducted in these cases.

Clean trash is segregated from contaminated trash on the controlled side. The clean trash is frisked daily by C/RP personnel before disposal into a locked dumpster for offsite release. These surveys are noted in the HP logbook; dumpster keys are positively controlled by C/RP personnel to prevent inadvertent release of contaminated trash. No problems were noted.

No violations were identified.

5. Transportation of Radioactive Materials

The inspector reviewed the licensee's transportation of radioactive materials program, including: determination whether written implementing procedures are adequate, maintained current, properly approved and acceptably implemented; determination whether shipments are in compliance with NRC and DOT regulations and the licensee's quality assurance program; determination if there were any transportation incidents involving licensee shipments; adequacy of required records, reports, shipment documentation, and notifications; and experience concerning identification and correction of programmatic weaknesses.

Two radwaste shipments have been made since April 1984; LSA material was trucked to Hanford in October 1984 and a High Intensity Container (HIC) was shipped to Barnwell in February 1985. An increased number of shipments is planned for the rest of 1985 in anticipation of possible burial site closures January 1, 1986. Shipping papers reviewed were in accordance with applicable regulations; survey readings were within limits. Station QA representatives complete an activity inspection checklist for each shipment verifying shipping papers, survey procedures, instrument calibrations, and vehicle integrity. No transportation incidents were noted. No problems with standing water were identified.

The inspector previously reviewed licensee methods used to assure packages are in an unimpaired physical condition before shipment¹. According to the radwaste supervisor, the attending C/RP technician visually inspects

¹ IE Report No. 50-409/84-14

drums and LSA boxes before shipment in accordance with Procedure RM-50, Solid Radioactive Waste. Filled drums and boxes are stored in the radwaste building. Empty LSA boxes are stored outside this building on a concrete pad. Maximum storage time is approximately one year, estimated by the radwaste supervisor. The inspector observed eighteen boxes outside that had been received during the first quarter 1985; no corrosion was observed around the seal that would effect the sealing surface. Station QA staff inspect the empty drums and boxes upon receipt.

No violations were identified.

6. Solid Radioactive Waste

The inspector reviewed the licensee's solid radioactive waste management program, including: determination whether changes to equipment and procedures were in accordance with 10 CFR 50.59; adequacy of implementing procedures to properly classify and characterize waste, prepare manifests, and mark packages; overall performance of the process control and quality assurance programs; adequacy of required records, reports, and notifications; and experience concerning identification and correction of programmatic weaknesses.

Solid radwaste handling and storage facilities are located in the radwaste building, bounded by a chain link fence outside the protected area. Building keys are positively controlled by the RP/Chem department.

The inspector briefly observed compaction of dry active waste in accordance with Procedure RM-50, Solid Radioactive Waste. Measures were taken to minimize free standing liquid and volume. No problems were noted.

Filled LSA boxes and DAW compacted drums are stored in the southeast section of this building. During a routine survey on May 1, 1985, the licensee noted increased readings (maximum of 0.8 mR/hr) at the chain link fence inside the owner controlled area. Readings decreased to 0.1-0.2 mR/hr following rearrangement of the drums and boxes; these values were independently verified by the inspector with an NRC survey instrument.

Higher activity resins and filters are loaded into HICs from steel liners with limited personnel handling. Exposure credited to 1984 radwaste activities under the applicable RWP was 5.2 person-rem, approximately 4% of the station total. HICs are stored in three vaults in the radwaste building before shipment. Total radwaste inventory, volume, and production are tracked monthly. As of April 13, 1985, 403 Ci remained onsite, approximately 10% of Technical Specifications 6.5.4.c inventory limits.

No violations were identified.

7. Staff Stability

The inspector reviewed the radiation protection and chemistry department staffing and its impact on routine operations and the ALARA program. A relatively high technician turnover rate has occurred since October, 1984; six of the twelve technician positions have been vacated since then. Three technicians transferred to other positions within the company; one was promoted to an RP/Chemistry supervisor position; and two left the company. The licensee is actively screening and hiring candidates. Currently, nine technicians qualified for backshift coverage are available. The RP/Chemistry superintendent noted a 15-20% overtime average over the past few months because of the reduced staff. A new schedule with alternating backshift coverage has been implemented for the rest of CY 1985. No adverse impact on the routine radiation protection program was noted; however, overtime is necessary to cover nonroutine operations. This was discussed at the exit meeting.

HP contractor reliance is minimal; contractors are routinely procured only during an outage. Attempts are being made to retain a previously used contractor vendor for the upcoming outage.

Staff qualifications are comparable to industry norms². Individual jobs are assigned to technicians based on qualifications and experience, and exposure/ALARA considerations.

No apparent violations were identified.

8. Facilities and Equipment

The inspector toured radiation protection facilities, observed radiation protection equipment in use, and discussed plans for additional facilities and equipment with health physics staff.

Currently, respirators are cleaned in a sink in the health physics/access control area. According to a licensee representative, approximately twelve respirators can be cleaned at one time. During outages, this limited cleaning capacity affects respirator availability negatively. A facility change has been submitted to locate a respirator cleaning dishwasher near the laundry facilities on the turbine deck. This change is scheduled to be completed by the September 1985 outage. The licensee's respirator inventory appears adequate.

This sink is also used for minor personal decontaminations. Effective decontamination practices were observed during this inspection. Licensee representatives stated the sink is cleaned after use; no significant cross contaminations were noted. A complete decontamination shower is located near the health physics/access control area.

No violations were identified.

9. Off Gas Releases

The licensee continues to track elevated off gas releases resulting from leaking fuel bundles. A decrease in mid-May to 1500 uCi/sec (150 MW thermal) was noted in comparison to a maximum of 4,000 uCi/sec (200-220 MW thermal) in mid-February. A more gradual increase was noted during the first and second quarters of 1985 over the third and fourth quarters 1984. All values were within the Technical Specification 6.5.4.a limit of one curie per second.

No violations were identified.

10. Recirculation Pump Area Entry

The inspector reviewed two personnel entries made May 1, 1985, into the recirculation pump area, a high radiation area, to visually inspect a suspected leaking seal. The entries were made in accordance with applicable procedures. Reactor power was reduced to a steady state at 12 MWe, approximately 20% of full power. The shift engineer and maintenance supervisor were accompanied by a senior radiation technician with neutron and gamma survey instruments. Respirators were worn and appropriate MPC hours assigned, as independently verified by the inspector. Total dose for the entries was 0.184 person-rem. A prejob briefing was held to discuss RWP requirements, ALARA considerations, and dose estimates derived from previous entries. The control room was notified and key control maintained.

No violations were identified.

11. Procedural Review

The inspector reviewed the following radiation protection and radwaste procedures for regulatory adherence. No problems were noted.

RP-2/Rev. 6	ALARA, Pre-Job Planning
RP-3/Rev. 8	ALARA Work Document Preparation and Review
RP-5/Rev. 10	Radiation Work Permit
RP-6/Rev. 6	Female Employees
RP-8/Rev. 9	High Radiation Area Key and Access Control
RP-9/Rev. 3	Contamination Control
RP-10/Rev. 10	Respiratory Protection and Airborne Contamination Guides
RP-11/Rev. 2	Radioactive Material Control
RP-12/Rev. 3	Plant Visitors - Exposure Accounting
RP-13/Rev. 1	Instructions of Worker's Responsibility Concerning Radiological Conditions
RM-50/Rev. 7	Solid Radioactive Waste
RM-51/Rev. 1	Radiological Safety Requirements for Pumping Spent Resin From Disposal Tank to Concentrated Waste Tank
RM-53/Rev. 13	Radioactive Materials Shipment
RM-55/Rev. 6	Transfer of Spent Resin

No apparent violations were identified.

12. IE Bulletin 84-03: Refueling Cavity Water Seal

The onsite technical engineering staff reviewed this IE bulletin describing failure of pneumatic refueling cavity water seals to determine if this design were applicable to Big Rock Point. The evaluation concluded this type of failure and resulting flooding was not applicable because: (1) the BRP seals were of a different design from those described in the Bulletin and (2) the spent fuel pool is physically isolated from the reactor cavity.

13. Exit Meeting

The inspector met with those noted in Section 1 on May 17, 1985 to discuss the scope and findings of the inspection. 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/processes as proprietary. In response to the inspector's comments, the licensee:

- a. Stated they would petition NRR for an alternative disposal method pursuant to 10 CFR 20.302. This commitment responded to the inspector's comments that the licensee had not effectively addressed this issue in the past, nor had the licensee acted in a timely manner to inform NRR or Region III of their actions to resolve this matter (Section 3).
- b. Stated that they would contact Region III by mid-June regarding their respirator policy (Section 3).
- c. Acknowledged the reduced RP/Chem technician staff and stated their intent to procure qualified candidates (Section 7).