

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

REGION III

Report No. 50-155/78-03

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: March 7-10, 1978

Inspectors: *A. G. Januska*
A. G. Januska

3/31/78

R. J. Greer
R. J. Greer

4/3/78

Approved by: *T. H. Essig*
T. H. Essig, Chief
Environmental and Special
Projects Section

4/4/78

Inspection Summary

Inspection on March 7-10, 1978 (Report No. 50-155/78-03)

Areas Inspected: Reviewed emergency planning relating to agreements and coordination with offsite agencies; facilities, equipment and procedures; records of tests, drills, and training; reviewed environmental monitoring program results; discussed confirmatory measurement results from a previous sample collection, and reviewed records and procedures pertaining to radioanalytical laboratory quality control programs. The inspection involved 52 inspector-hours onsite by two NRC inspectors.

Results: No items of noncompliance or deviations were identified.

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DETAILS

1. Persons Contacted

Principal Licensee Employees

- *C. Axtell, Plant Health Physicist (BRP)
- *T. Brun, Chemistry and Radiation Protection Supervisor (BRP)
- *G. Gilbody, Quality Assurance (BRP)
T. Fisher, Quality Assurance Auditor (BRP)
- *J. Flynn, Operations Supervisor (BRP)
M. Dickson, Senior Engineering Technician (CP)
- *M. Jury, Radiological Training and Coordination Supervisor (CP)
B. Skibitsky, Senior Licensing Engineer (CP)
R. English, Consumers Power

Offsite Agencies

- I. Seidel, R.N., In-Service Director, Charlevoix Hospital
- G. Lasater, Sheriff, Charlevoix County
- J. Curtis, Chief, Charlevoix Fire Department
- C. Smith, R.N., Emergency Room Supervisor, Northern Michigan Hospital, Inc., Little Traverse Division
- N. Croff, Ambulance Driver, Petosky Fire Department
- M. Wiklanski, Ambulance Driver, Petosky Fire Department

2. Licensee Action on Previous Inspection Findings

(Closed) Outstanding Inspection Item (50-155/77-04): Completion of a study to determine radiation shine dose from the containment sphere and containment penetration leakage. The licensee has completed this study, and submitted it to the NRC on August 29, 1977, with a revision submitted February 2, 1978. The inspectors reviewed these studies, discussed them with site and corporate personnel, and determined them to be adequate.

(Closed) Outstanding Inspection Item (50-155/77-04): Incorporation of State of Michigan or EPA Protective Action Guides (PAG's) into the Site Emergency Plan. State of Michigan PAG's were incorporated into the Plan in a December 1977 revision. The State PAG's are more restrictive than the EPA PAG's.

3. General

This inspection consisted of an examination of the licensee's environmental monitoring and emergency planning programs, a discussion of the licensee's analyses of actual effluent samples, and a review of the licensee's program for quality assurance of analytical measurements.

The emergency planning portion of the inspection included an examination of the Big Rock Point Plant Site Emergency Plan (Revision No. 40, January 10, 1978) and implementing cards. Principal offsite support agencies were visited, documentation pertaining to various aspects of the emergency plan was reviewed, and selected emergency equipment was inspected.

The licensee's radiological environmental activities, monitoring results, and management control were examined. The licensee conducts a radiological monitoring program, although the Technical Specifications require only film monitoring.

Confirmatory measurement results of effluent samples were compared to those of the NRC reference laboratory, and discussed with the licensee. The measurements made by the NRC reference laboratory are referenced to the National Bureau of Standards. The licensee's program for quality assurance of laboratory analytical measurements was also discussed.

4. Emergency Planning

a. Coordination with Offsite Agencies

The inspectors visited the Charlevoix Hospital; Northern Michigan Hospital, Inc., Little Traverse Division; Charlevoix Fire Department; Charlevoix County Sheriff; and the Petosky Fire Department to determine if coordination between the agencies and the licensee is being maintained. Representatives of the first four agencies listed stated that coordination and training provided by the licensee is adequate. However, two ambulance drivers from the Petosky Fire Department stated that they had not been trained, although at least one of them had participated in an Emergency Plan drill conducted in 1977. The licensee stated that although Petosky Fire Department ambulance drivers had been given formal training in the past, retraining would be provided during 1978. This item will be reviewed during a future inspection.

While reviewing letters of agreement from offsite support agencies, the inspectors noted that at least two of the letters had not been signed by the current agency head. The Charlevoix County Sheriff stated that he would prefer to sign a letter himself. This was discussed with the licensee, who stated that new letters of agreement would be sent to the Charlevoix County Sheriff and the Petosky Fire Department. The letters of agreement have a clause extending the term of the agreement from year-to-year from the date of issuance unless terminated as provided therein, thus eliminating the need for annual updating of the letters.

b. Facilities, Equipment, and Procedures

The inspectors reviewed emergency kit inventory sheets for 1977 and found that the kits had been inspected on the required frequency, and that the contents were as required. The portable air sampler to be taken on the ambulance was found to be inoperable; however, the licensee submitted it for repair prior to termination of the inspection.

Emergency supplies at both hospitals were examined. The inspectors noted that inventory sheets were apparently not available for either locker. This was discussed with the licensee, who agreed to check the lockers and supply an inventory sheet if necessary.

Emergency Plan implementing cards were reviewed. Some cards were found to need revision. The Plant Health Physicist was beginning the required quarterly review of the cards, and stated that these cards would be changed. Records showed that the Plan was reviewed as required in 1977. This item will be reviewed in a future inspection.

c. Tests, Drills, and Training

The inspectors reviewed documentation of tests and drills conducted during 1977, and determined that requirements in Section 9.11 of the Site Emergency Plan had been met. However, it was noted that documentation of follow-up action on areas needing improvement was missing. The licensee stated that, in the future, documentation of follow-up action would be provided.

The inspectors reviewed training records for site personnel and certain offsite agencies and determined that the requirements in Section 9.12 of the Site Emergency Plan had been met.

No items of noncompliance or deviations were identified.

5. Environmental Monitoring

The licensee's environmental monitoring program and contractual services have not changed since the last inspection.^{1/}

a. Air Samplers

Three air sampling stations, chosen at random, were visited and found to be operational^{2/}. In response to an item discussed in a previous inspection,^{2/} the licensee has oriented the charcoal filters horizontally.

b. Film Monitoring

Monitoring results for 1977 were examined. Apparent errors of dates of exposure were resolved with a General Office representative. No unusual results or trends were observed.

c. Voluntary Radiological Monitoring Program

The licensee presently conducts a radiological monitoring program not required by the Technical Specifications. The inspectors examined data generated by this program through September, 1977. The licensee is presently conducting an evaluation of the use of thermoluminescent dosimeters (TLD's) In addition to the required film monitoring, the licensee samples milk, lake water, well water, algae, fish, and periphyton. No anomolous results or trends were noted.

6. Audits

The inspectors reviewed records of audits conducted in 1977 by both plant and General Office personnel. These audits included various aspects of the Emergency Plan, environmental program, and laboratory radiochemistry. No major problems or deficiencies in the program were noted.

^{1/} IE Inspection Rpt No. 50-155/74-04.

^{2/} Ibid.

7. Results of Comparative Analyses

Results of comparative analyses performed on effluent samples split at the site in November of 1977 are shown on Table 1. The criteria for comparing measurement results are given in Attachment 1. For twenty two sample comparisons, the licensee's results yielded eighteen agreements or possible agreements. The results were discussed with the licensee. The licensee failed to identify Cr-51 on his particulate filter and Hg-203 on his charcoal adsorber. An examination of the licensee's analyses did not indicate the presence of either nuclide on his computer printout and no reason for the failure to identify these nuclides was apparent.

The licensee failed to accurately quantify Mn-54 on his particulate filter and Co-60 on his charcoal adsorber. Investigation failed to identify a reason.

The inspectors noted that the licensee's results for the particulate filter except for Cr-51, were higher than HSL's results and that none are in the agreement category. The inspectors and the licensee representatives discussed the possibility of an improper calibration, or damage to the calibration standard used. The licensee representative acknowledged the inspectors' comments and stated that this geometry had been calibrated in December of 1977, using a standard made from a newly acquired standard solution. This will be examined during a future inspection.

8. Licensee Program for Quality Control of Analytical Measurements

The inspectors discussed the assignment of responsibility and authority for management control of analytical measurements and reviewed all procedures associated with radiological measurements of effluents and nonradiological measurements of reactor coolant water quality.

A review of records for counting equipment backgrounds and calibrations revealed that the proportional counter is checked daily, a plateau established weekly and a calibration performed annually or after major repair or maintenance. The TASC-2 (GeLi) system is energy calibrated weekly. Efficiency verification counts must be within a prescribed range. The RIDL (NaI) system uses the same checks as the TASC-2 system.

Procedure numbers RCP-2 (Revision 3), RCP-9 (Revision 1), RCP -22, CIP-10 CIP-11, CIP-13, CAP-5, and CAP-7 were reviewed. All procedures were issued December 31, 1976, and have a two year review requirement.

9. Exit Interview

The inspectors met with licensee representatives (denoted in Paragraph 1) at the conclusion of this inspection on March 10, 1978. The purpose, scope, and findings of the inspection were discussed. The licensee agreed to:

- a. Send new letters of agreement to the Charlevoix County Sheriff and the Petosky Fire Department;
- b. Provide documentation of follow-up action for items identified in tests and drills;
- c. Provide additional training for ambulance personnel in the Petosky Fire Department;
- d. Provide inventory sheets for the emergency lockers in the two hospitals listed in Paragraph 1; and
- e. Update the Emergency Plan implementing cards.

Attachments:

1. Table 1, Confirmatory
Measurements Program
2. Attachment 1, Criteria for
Comparing Analytical Measurements

ATTACHMENT 1

CRITERIA FOR COMPARING ANALYTICAL MEASUREMENTS

This attachment provides criteria for comparing results of capability tests and verification measurements. The criteria are based on an empirical relationship which combines prior experience and the accuracy needs of this program.

In these criteria, the judgment limits are variable in relation to the comparison of the NRC Reference Laboratory's value to its associated one sigma uncertainty. As that ratio, referred to in this program as "Resolution", increases, the acceptability of a licensee's measurement should be more selective. Conversely, poorer agreement should be considered acceptable as the resolution decreases. The values in the ratio criteria may be rounded to fewer significant figures to maintain statistical consistency with the number of significant figures reported by the NRC Reference Laboratory, unless such rounding will result in a narrowed category of acceptance. The acceptance category reported will be the narrowest into which the ratio fits for the resolution being used.

<u>RESOLUTION</u>	<u>RATIO = LICENSEE VALUE/NRC REFERENCE VALUE</u>		
	<u>Agreement</u>	<u>Possible Agreement "A"</u>	<u>Possible Agreeable "B"</u>
<3	No Comparison	No Comparison	No Comparison
>3 and <4	0.4 - 2.5	0.3 - 3.0	No Comparison
>4 and <8	0.5 - 2.0	0.4 - 2.5	0.3 - 3.0
>8 and <16	0.6 - 1.67	0.5 - 2.0	0.4 - 2.5
>16 and <51	0.75 - 1.33	0.6 - 1.67	0.5 - 2.0
>51 and <200	0.80 - 1.25	0.75 - 1.33	0.6 - 1.67
>200	0.85 - 1.18	0.80 - 1.25	0.75 - 1.33

"A" criteria are applied to the following analyses:

Gamma spectrometry, where principal gamma energy used for identification is greater than 250 keV.

Tritium analyses of liquid samples.

"B" criteria are applied to the following analyses:

Gamma spectrometry, where principal gamma energy used for identification is less than 250 keV.

Sr-89 and Sr-90 determinations.

Gross beta, where samples are counted on the same date using the same reference nuclide.

TABLE J

U S NUCLEAR REGULATORY COMMISSION
 OFFICE OF INSPECTION AND ENFORCEMENT
 CONFIRMATORY MEASUREMENTS PROGRAM
 FACILITY: BIG ROCK PT
 FOR THE 4 QUARTER OF 1977

SAMPLE	ISOTOPE	NRC		LICENSEE		NRC:LICENSEE		
		RESULT	ERROR	RESULT	ERROR	RATIO	RES	T
OFF GAS	XE 133	4.0E-03	1.2E-04	4.5E-03	3.6E-04	1.1E+00	3.3E+01	A
	XE 133M	5.5E-04	7.0E-05	7.0E-04	6.0E-06	1.3E+00	7.9E+00	A
L WASTE	BETA	3.1E-04	1.0E-05	3.1E-04	1.2E-05	1.0E+00	3.1E+01	A
	H 3	2.7E-03	2.0E-05	3.2E-03	3.0E-04	1.2E+00	1.3E+02	A
	SR 89	3.0E-07	2.0E-07	2.2E-06	3.0E-07	7.3E+00	1.5E+00	N
	SR 90	3.5E-06	2.0E-07	2.2E-06	2.0E-07	6.3E-01	1.8E+01	P
	CS 134	3.8E-05	1.2E-06	4.0E-05	7.0E-07	1.1E+00	3.2E+01	A
	CS 137	2.3E-04	6.7E-06	2.2E-04	1.0E-06	9.6E-01	3.4E+01	A
	MN 54	6.1E-05	1.9E-06	7.6E-05	1.0E-06	1.2E+00	3.2E+01	A
	FF 59	6.3E-06	1.2E-06	8.7E-06	1.1E-06	1.4E+00	5.2E+00	A
	ZN 65	3.2E-05	1.5E-06	2.7E-05	1.7E-06	8.4E-01	2.1E+01	A
	CO 60	1.5E-04	4.5E-06	1.8E-04	1.0E-06	1.2E+00	3.3E+01	A
P FILTER	CF 51	5.7E-04	1.1E-04	0.0	0.0	0.0	5.2E+00	D
	BA 140	2.6E-03	1.5E-04	3.8E-03	2.0E-04	1.5E+00	1.7E+01	P
	CS 134	3.7E-04	1.7E-05	6.0E-04	4.7E-05	1.6E+00	2.2E+01	P
	CS 137	1.3E-03	4.5E-05	2.0E-03	8.0E-05	1.5E+00	2.9E+01	P
	MN 54	2.3E-04	1.4E-05	5.1E-04	4.9E-05	2.2E+00	1.6E+01	D
	CO 60	5.1E-04	2.5E-05	6.8E-04	1.0E-04	1.3E+00	2.0E+01	P
	I 131	1.9E-04	5.0E-05	4.8E-04	4.3E-05	2.5E+00	3.8E+00	P
	ZN 65	1.7E-04	2.0E-05	2.9E-04	9.3E-05	1.7E+00	8.5E+00	P
C FILTER	I 131	4.4E-03	1.8E-04	3.8E-03	8.0E-05	8.6E-01	2.4E+01	A
	CO 60	5.5E-05	1.5E-05	7.5E-04	5.6E-05	1.4E+01	3.7E+00	D
	HG 203	4.8E-05	1.1E-05	0.0	0.0	0.0	4.4E+00	D

T TEST RESULTS:
 A=AGREEMENT
 D=DISAGREEMENT
 P=POSSIBLE AGREEMENT
 N=NO COMPARISON