



**Consumers
Power
Company**

General Offices: 212 West Michigan Avenue, Jackson, MI 49201 • (517) 788-0550

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6 month efflu
release report

COPY

February 25, 1983

James G Keppler, Administrator
Region III
US Nuclear Regulatory Commission
799 Roosevelt Road
Glen Ellyn, IL 60137

DOCKET 50-155 - LICENSE DPR-6 -
BIG ROCK POINT PLANT - SEMIANNUAL
RADIOACTIVE EFFLUENT RELEASE REPORT
JULY - DECEMBER 1982

Attached please find the Radioactive Effluent Release Report for the Big Rock Point Plant for the period of July through December 1982. The attached report is submitted in accordance with 10 CFR 50.36a(2) and Technical Specification 6.9.3.

Brian D Johnson (Signed)

Brian D Johnson
Staff Licensing Engineer

CC Director, Office of Nuclear Reactor Regulation
Director, Office of Inspection and Enforcement
NRC Resident Inspector-Big Rock Point

Attachment

oc0283-0153a142

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ADD: Central Files
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SEMIANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT,
JULY - DECEMBER 1982

Consumers Power Company
Big Rock Point Plant
February 25, 1983

10 pages

ic0283-0153b142

BIG ROCK POINT SEMI ANNUAL EFFLUENT REPORT
JULY-DECEMBER 1982

This report provides information relating to radioactive effluent releases and solid radioactive waste disposal operations of the Big Rock Point Plant during the period of July through December 1982 in the format contained in Plant Technical Specification 6.9.3.

1. Supplemental Information

a. Batch Releases

Information relating to batch and continuous releases of liquid and gaseous effluents is provided in Table 1.

b. Abnormal Releases

A radioactive effluent release of $5.8E-01$ mCi was made to the Charlevoix sewer system.

2. Gaseous Effluents

Table 2a presents a summary of all gaseous radioactive effluents released during the period. Release totals for each radionuclide determined to be present in gaseous effluents are contained in Table 2b. Gaseous releases of I-132, I-134 and I-135 were determined from the ratios of monthly short-lived halogen analyses to the weekly I-131 analyses. The maximum noble gas release rate was $7.33E+02$ μ Ci/second.

3. Liquid Effluents

Table 3a presents a summary of all liquid radioactive effluents released during the period. Release totals for each radionuclide determined to be present in liquid effluents are contained in Table 3b. The maximum concentration was $4.10E-08$ μ Ci/ml.

4. Solid Waste

Table 4 presents a summary of radioactive waste shipped offsite for burial during the period. Total volume of solid waste shipped offsite during the second six months of 1982 was approximately 939 cubic feet. One shipment was made during report period on November 9, 1982.

5. Radiological Impact on Man

Potential doses to individuals and populations were calculated using GASPAR and LADTAP computer codes. Values for curies released were input as total annual releases for each nuclide.

- a. Doses to individuals in unrestricted areas received from water related exposure pathways are $1.34E-01$ mrem maximum total body dose (adult) and $2.24E-01$ mrem maximum organ dose (teenage liver dose).
- b. The maximum offsite air doses are $8.64E-02$ mrad for beta, and $1.20E-01$ mrad for gamma.
- c. The most restrictive organ dose is the thyroid dose. The average thyroid dose to individuals within a distance of 50 miles of the site from radioactive iodine and radioactive material in particulate form from major pathways of exposure is $3.68E-05$ mrem.
- d. Total body doses to the population and average doses to individuals in the population from receiving water related pathways to a distance of 50 miles from the site are $7.03E-02$ manrem and $4.56E-04$ mrem respectively.
- e. Total body doses to the population and average doses to individuals in the population from gaseous effluents to a distance of 50 miles from the site are $1.44E-02$ manrem and $9.36E-05$ mrem respectively.

TABLE I

BIG ROCK POINT PLANT
BATCH RELEASES

July 1, 1982 to December 31, 1982

A. GASEOUS - Continuous Elevated Releases

B. LIQUID	Units	QTR 3rd	QTR 4th
Number of Releases		3	4
Total Release Time	Min.	602	934
Maximum Release Time	Min.	298	315
Average Release Time	Min.	201	234
Minimum Release Time	Min.	139	180

Table 2a

BIG ROCK POINT PLANT
EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT
GASEOUS EFFLUENTS - SUMMATION OF ALL RELEASES

7/1/82 to 12/31/82

A. FISSION & ACTIVATION GASES	Units	Qtr 2nd	Qtr 3rd	Est Total Error %
1. Total Releases	Ci	4.46E+03	4.14E+03	1.13E+01
2. Average Release Rate for Period	µCi/sec	5.61E+02	5.21E+02	
3. Percent of Technical Specification Limit	%	5.61E-02	5.21E-02	
B. IODINES				
1. Total Iodine-131	Ci	8.86E-04	7.19E-04	4.40E+00
2. Average Release Rate for Period (I-131)	µCi/sec	1.11E-04	9.04E-05	
3. Percent of Technical Specification Limit (I-131)	%	9.25E-03	7.53E-03	
C. PARTICULATES				
1. Particulate with half-lives >8 days	Ci	5.20E-04	5.84E-04	1.89E+01
2. Average Release Rate for Period	µCi/sec	6.54E-05	7.34E-05	
3. Percent of Technical Specification Limit	%	5.95E-04	7.97E-04	
4. Gross Alpha Radioactivity	Ci	3.87E-07	4.15E-07	
D. TRITIUM				
1. Total Release	Ci	1.89E+00	1.84E+00	
2. Average Release Rate for Period	µCi/sec	2.38E-01	2.31E-01	
3. Percent of Technical Specification Limit	%	No T.S. Limit	No T.S. Limit	
E. PERCENT OF GASEOUS EFFLUENTS OF APPENDIX I VALUES				
	%	6.31E-01	5.78E-01	

Table 2b

BIG ROCK POINT PLANT
EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT
GASEOUS EFFLUENTS - ELEVATED RELEASE

7/1/82 to 12/31/82

1. FISSION GASES	Units	QTR 3rd	QTR 4th
Krypton -83m	Ci	5.88E+01	5.28E+01
Krypton-85	Ci	7.46E-04	6.71E-04
Krypton-85m	Ci	6.75E+01	6.09E+01
Krypton-87	Ci	3.41E+02	3.14E+02
Krypton-88	Ci	2.08E+02	1.94E+02
Krypton-89	Ci	1.66E+02	1.49E+02
Krypton-90	Ci	1.86E+02	1.67E+02
Xenon-131m	Ci	1.71E-02	1.54E-02
Xenon-133	Ci	2.79E+01	2.46E+01
Xenon-133m	Ci	9.51E-01	8.55E-01
Xenon-135	Ci	3.10E+02	2.95E+02
Xenon-135m	Ci	2.70E+02	2.43E+02
Xenon-137	Ci	2.63E+02	2.37E+02
Xenon-138	Ci	1.80E+03	1.66E+03
Xenon-139	Ci	2.48E+02	2.23E+02
N-13	Ci	5.13E+02	5.14E+02
Total for period	Ci	4.46E+03	4.14E+03

Table 2b (continued)

BIG ROCK POINT PLANT
EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT
GASEOUS EFFLUENTS - ELEVATED RELEASE

7/1/82 to 12/31/82

2. IODINES	Units	Qtr 3rd	Qtr 4th
Iodine-131	Ci	8.86E-04	7.19E-04
Iodine-132	Ci	9.42E-03	1.06E-02
Iodine-133	Ci	8.58E-03	6.64E-03
Iodine-134	Ci	1.34E-02	2.83E-02
Iodine-135	Ci	2.27E-02	1.34E-02
Total for Period	Ci	5.50E-02	5.97E-02

3. PARTICULATES			
* Chromium-51	Ci	9.56E-05	1.33E-04
* Manganese-54	Ci	8.00E-06	1.53E-05
* Iron-59	Ci	0	3.37E-06
* Cobalt-60	Ci	3.15E-05	5.74E-05
* Zinc-65	Ci	1.05E-05	1.17E-05
* Silver-110m	Ci	2.87E-06	1.45E-05
* Cesium-134	Ci	3.62E-07	2.93E-07
* Cesium-137	Ci	4.21E-05	4.80E-05
* Barium-140	Ci	3.26E-04	2.85E-04
* Mercury-203	Ci	1.59E-06	2.78E-06
* Cobalt-58	Ci	1.01E-06	3.00E-06
* Niobium-95	Ci	0	6.40E-06
Lanthanum-140	Ci	1.61E-03	1.20E-03

*Half-lives > 8 days

(continued)

Table 2b (Continued)
 BIG ROCK POINT PLANT
 EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT
 GASEOUS EFFLUENTS - ELEVATED RELEASE
 July 1, 1983 to December 31, 1982

3. PARTICULATES (continued)	Units	Qtr 3rd	Qtr 4th
Bromine-82	Ci	2.56E-03	1.90E-03
Strontium-91	Ci	4.15E-03	3.65E-03
Net unidentified Beta	Ci	7.78E-07	3.31E-06

Table 3a

BIG ROCK POINT PLANT
EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT
LIQUID EFFLUENTS - SUMMATION OF ALL RELEASES

7/1/82 to 12/31/82

A. FISSION & ACTIVATION PRODUCTS	Units	Qtr 3rd	Qtr 4th	Est Total Error %
1. Total Release (not including tritium, gases, alpha)	Ci	3.01E-03	1.98E-02	5.3E+00
2. Average Diluted Concentration During Period	µCi/ml	1.20E-10	7.87E-10	
3. Percent of Technical Specification Limit	%	1.53E-03	1.14E-02	
B. TRITIUM				
1. Total Releases	Ci	2.49E-02	5.11E-01	4.8E+00
2. Average Diluted concentration During Period	µCi/ml	9.96E-10	2.04E-08	
Percent of Technical Specification Limit	%	3.32E-05	6.79E-04	
C. DISSOLVED & ENTRAINED GASES				
1. Total Releases	Ci	0	0	0
2. Average Diluted Concentration During Period	µCi/ml	0	0	
3. Percent of Technical Specification Limit	%	0	0	
D. GROSS ALPHA RADIOACTIVITY (total release)				
	Ci	3.48E-07	4.41E-06	
E. VOLUME OF WASTE RELEASED (prior to dilution)				
	liters	3.86E+04	6.93E+04	
F. VOLUME OF DILUTION WATER USED DURING PERIOD				
	liters	2.50E+10	2.51E+10	
G. PERCENT OF APPENDIX I ANNUAL LIMIT				
	%	7.57E-02	3.33E-01	

Table 3b

BIG ROCK POINT PLANT
EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT
LIQUID EFFLUENTS

7/1/82 to 12/31/82

NUCLIDES RELEASED	Units	Qtr 3rd.	Qtr 4th
Cesium-137	Ci	9.05E-04	3.22E-03
Cobalt-58	Ci	3.30E-06	2.77E-05
Manganese-54	Ci	6.30E-04	5.52E-03
Cobalt-60	Ci	8.02E-04	8.46E-03
Cesium-134	Ci	3.52E-05	9.19E-05
Iron-59	Ci	6.93E-06	6.70E-05
Lanthanum-140	Ci	1.59E-05	0
Zinc-65	Ci	0	2.06E-04
Chromium-51	Ci	0	3.13E-04
Strontium-89	Ci	7.87E-06	1.30E-04
Strontium-90	Ci	3.17E-05	5.79E-04
Net Unidentified Beta	Ci	5.69E-04	1.14E-03
Total for Period (above)	Ci	3.01E-03	1.98E-02
Xenon-133	Ci	0	0

Table 4

EIG ROCK POINT PLANT
 EFFLUENT AND WASTE DISPOSAL SEMI-ANNUAL REPORT
 SOLID WASTE AND IRRADIATED FUEL SHIPMENTS

7/1/82 to 12/31/82

A. SOLID WASTE SHIPPED OFFSITE FOR BURIAL OR DISPOSAL (not irradiated fuel)	Units	
1. Spent resins, filter sludges, evaporator bottoms, etc.	m ³ ft ³ Ci	5.10E+00 1.80E+02 3.70E-01
2. Dry compressible waste, contaminated equipment, etc.	m ³ ft ³ Ci	2.15E+01 7.59E+02 1.45E+00
3. Irradiated components, control rods, etc.	m ³ ft ³ Ci	0
4. Other (describe)	m ³ ft ³ Ci	0

B. SOLID WASTE SHIPMENT DISPOSITION

Date of Shipments

11/9/82

Mode of Transportation

Tri-State Truck

Destination

Richland, WA
(US Ecology)

C. IRRADIATED FUEL SHIPMENT DISPOSITION

Date of Shipments

N/A

Mode of Transportation

N/A

Destination

N/A