

ATTACHMENT

Consumers Power Company
Big Rock Point Plant
Docket 50-155

SEMIANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT
JANUARY - JUNE 1983

August 31, 1983

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BIG ROCK POINT SEMIANNUAL EFFLUENT REPORT
JANUARY-JUNE 1983

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 January through June 1983 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

None.

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 $6.41\text{E}+02$ $\mu\text{Ci}/\text{second}$.

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 $2.95\text{E}-07$ $\mu\text{Ci}/\text{ml}$.

4. Solid Waste

Table 4 presents a summary of radioactive waste shipped offsite for burial during the period. There were no radioactive waste shipments during the report period.

5. Radiological Impact on Man

Potential doses to individuals and populations were calculated using GASPAR and LADTAP computer codes. The semiannual 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 $3.08\text{E}-02$ mrem maximum total body dose (adult) and $5.14\text{E}-02$ mrem maximum organ dose (teenage liver dose).

- b. The maximum offsite air doses are $4.16\text{E-}02$ mrads for beta and $6.10\text{E-}02$ mrads 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 $1.11\text{E-}05$ 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 $1.40\text{E-}02$ manrem and $9.09\text{E-}05$ 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 $6.95\text{E-}03$ manrem and $4.52\text{E-}05$ mrem respectively.

TABLE I

BIG ROCK POINT PLANT
BATCH RELEASES

January 1, 1983 to June 30, 1983

A. GASEOUS - Continuous Elevated Releases

B. LIQUID	Units	QTR 1st	QTR 2nd
Number of Releases		3	9
Total Release Time	Min.	487	1822
Maximum Release Time	Min.	250	335
Average Release Time	Min.	162.3	202.4
Minimum Release Time	Min.	100	130

Table 2a

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

January 1, 1983 to June 30, 1983

A. FISSION & ACTIVATION GASES	Units	Qtr 1st	Qtr 2nd	Est Total Error %
1. Total Releases	Ci	4.31E+03	1.86E+03	1.11E+01
2. Average Release Rate for Period	μCi/sec	5.54E+02	2.37E+02	
3. Percent of Technical Specification Limit	%	5.54E-02	2.37E-02	

B. IODINES				
1. Total Iodine-131	Ci	5.29E-04	2.31E-04	4.44E+00
2. Average Release Rate for Period (I-131)	μCi/sec	6.80E-05	2.94E-05	
3. Percent of Technical Specification Limit (I-131)	%	5.67E-03	2.45E-03	

C. PARTICULATES				
1. Particulate with half-lives >8 days	Ci	5.25E-04	3.55E-04	1.64E+01
2. Average Release Rate for Period	μCi/sec	6.75E-05	4.52E-05	
3. Percent of Technical Specification Limit	%	2.22E-03	3.99E-03	
4. Gross Alpha Radioactivity	Ci	4.70E-07	7.93E-07	

D. TRITIUM				
1. Total Release	Ci	6.07E+00	3.58E+00	
2. Average Release Rate for Period	μCi/sec	7.80E-01	4.55E-01	
*3. Percent of Technical Specification Limit	%	3.25E-02	1.90E-02	

PERCENT OF GASEOUS EFFLUENTS OF APPENDIX I E. VALUES	%	6.29E-01	2.93E-01	
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* There is not a required Technical Specification limit, however, number given is percent of 10 CFR, Part 20, Appendix B, Table II, Col 1 limit.

Table 2b

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

January 1, 1983 to June 30, 1983

1. FISSION GASES	Units	QTR 1st	QTR 2nd
Krypton -83m	Ci	4.96E+01	2.23E+01
Krypton-85	Ci	6.29E-04	2.84E-04
Krypton-85m	Ci	5.78E+01	2.60E+01
Krypton-87	Ci	2.95E+02	1.32E+02
Krypton-88	Ci	1.82E+02	7.88E+01
Krypton-89	Ci	1.40E+02	6.29E+01
Krypton-90	Ci	1.57E+02	7.06E+01
Xenon-131m	Ci	1.44E-02	6.49E-03
Xenon-133	Ci	2.61E+01	1.21E+01
Xenon-133m	Ci	8.01E-01	3.61E-01
Xenon-135	Ci	2.83E+02	1.24E+02
Xenon-135m	Ci	2.28E+02	1.03E+02
Xenon-137	Ci	2.22E+02	9.98E+01
Xenon-138	Ci	1.97E+03	8.38E+02
Xenon-139	Ci	2.10E+02	9.42E+01
N-13	Ci	4.92E+02	1.91E+02
Total for period	Ci	4.31E+03	1.86E+03

Table 2b (continued)

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

January 1, 1983 to June 30, 1983

2. IODINES	Units	Qtr 1st	Qtr 2nd
Iodine-131	Ci	5.29E-04	2.31E-04
Iodine-132	Ci	5.24E-03	1.69E-03
Iodine-133	Ci	4.03E-03	1.48E-03
Iodine-134	Ci	5.14E-03	2.92E-03
Iodine-135	Ci	6.51E-03	3.00E-03
Total for Period	Ci	2.14E-02	9.32E-03

3. PARTICULATES			
* Chromium-51	Ci	1.01E-04	3.92E-05
* Manganese-54	Ci	1.11E-05	2.09E-05
* Iron-59	Ci	- 0 -	- 0 -
* Cobalt-60	Ci	3.42E-05	3.84E-05
* Zinc-65	Ci	5.88E-06	1.34E-05
* Silver-110m	Ci	1.30E-05	5.63E-06
* Cesium-136	Ci	- 0 -	- 0 -
* Cesium-137	Ci	4.75E-05	4.72E-05
* Barium-140	Ci	2.62E-04	8.63E-05
* Mercury-203	Ci	4.88E-07	2.78E-07
* Cobalt-58	Ci	1.57E-06	- 0 -
* Niobium-95	Ci	1.22E-06	- 0 -
* Cesium-134	Ci	4.23E-07	5.36E-07

* Half-lives > 8 days

(continued)

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

[illegible]

Table 3a
BIG ROCK POINT PLANT
EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT
LIQUID EFFLUENTS - SUMMATION OF ALL RELEASES

January 1, 1983 to June 30, 1983

A. FISSION & ACTIVATION PRODUCTS	Units	Qtr 1st	Qtr 2nd	Est Total Error %
1. Total Release (not including tritium, gases, alpha)	Ci	1.05E-02	2.55E-02	4.90E+00
2. Average Diluted Concentration During Period	µCi/ml	4.25E-10	1.46E-09	
3. Percent of Technical Specification Limit	%	5.31E-03	1.36E-02	

B. TRITIUM				
1. Total Releases	Ci	1.54E+00	1.71E+01	9.24E+00
2. Average Diluted concentration During Period	µCi/ml	6.29E-08	9.77E-07	
3. Percent of Technical Specification Limit	%	2.10E-03	3.26E-02	

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	6.59E-06	4.31E-06	
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E. VOLUME OF WASTE RELEASED (prior to dilution)	liters	3.56E+04	1.40E+05	
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F. VOLUME OF DILUTION WATER USED DURING PERIOD	liters	2.45E+10	1.75E+10	
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G. PERCENT OF APPENDIX I ANNUAL LIMIT	%	4.06E-01	6.77E-01	
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Table 3b

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

January 1, 1983 to June 30, 1983

NUCLIDES RELEASED	Units	Qtr 1st	Qtr 2nd
Cesium-137	Ci	5.40E-03	8.60E-03
Cobalt-58	Ci	- 0 -	7.75E-05
Manganese-54	Ci	5.67E-04	4.14E-03
Cobalt-60	Ci	1.49E-03	5.10E-03
Cesium-134	Ci	1.37E-04	2.01E-04
Iron-59	Ci	- 0 -	1.49E-03
Lanthanum-140	Ci	- 0 -	- 0 -
Zinc-65	Ci	1.31E-05	2.62E-04
Sodium-24	Ci	- 0 -	4.49E-06
Chromium-51	Ci	2.65E-05	5.84E-04
Antimony-124	Ci	- 0 -	3.79E-05
Strontium-89	Ci	3.98E-06	6.50 E-06
Strontium-90	Ci	1.23E-06	4.37 E-06
Net Unidentified Beta	Ci	2.87E-03	4.99E-03
Total for Period (above)	Ci	1.05E-02	2.55E-02
Xenon-133	Ci	- 0 -	- 0 -

Table 4

BIG ROCK POINT PLANT
EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT
SOLID WASTE AND IRRADIATED FUEL SHIPMENTS

January 1, 1983 to June 30, 1983

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	-0-
2. Dry compressible waste, contaminated equipment, etc.	m ³ ft ³ Ci	-0-
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 ShipmentsMode of TransportationDestination

None.

C. IRRADIATED FUEL SHIPMENT DISPOSITION

Date of ShipmentsMode of TransportationDestination

None.



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August 31, 1983

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BIG ROCK POINT PLANT - SEMIANNUAL RADIOACTIVE
EFFLUENT RELEASE REPORT, JANUARY - JUNE 1983

Attached is the Radioactive Effluent Release Report for the Big Rock Point Plant for the period of January through June 1983.

The attached report is submitted in accordance with 10 CFR 50.36a(2) and Technical Specification 6.9.3.

Thomas C. Bordine *TJB*
Thomas C Bordine
Staff Licensing Engineer

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

Attachment

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