

ATTACHMENT

Consumers Power Company
Big Rock Point Plant
Docket 50-155

SEMIANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT
JANUARY THROUGH June 1985

August 29, 1985

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BIG ROCK POINT SEMIANNUAL EFFLUENT REPORT
JANUARY - JUNE 1985

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 1985 in the format contained in Plant Technical Specification 6.9.2.

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-133 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 $7.08\text{E}+03$ uCi/second. There were no I-134 releases.

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 $1.47\text{E}-07$ uCi/ml.

4. Solid Waste

Table 4 presents a summary of radioactive waste shipped offsite for burial during the period. Total volume of radioactive waste shipped offsite during the first six months of 1985 is 390.0 cubic ft.

5. Radiological Impact on Man

Potential doses to individuals and populations were calculated using GASPAR and LADTAP computer codes. The semi-annual totals for curies released were input per nuclide.

- a. Doses to individuals in unrestricted areas received from water related exposure pathways are $1.01\text{E}-02$ mRem maximum total body dose (adult) and $1.65\text{E}-02$ mRem maximum organ dose (teenage liver dose).

- b. The maximum offsite air doses are $3.24\text{E-}01$ mrad for beta and $5.87\text{E-}01$ 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 $6.90\text{E-}04$.
- 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 $5.57\text{E-}03$ manRem and $3.62\text{E-}05$ 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 $9.88\text{E-}01$ manRem and $6.41\text{E-}03$ mRem respectively.

TABLE 1
BIG ROCK POINT
BATCH RELEASES
JANUARY 1985 to JUNE 1985

A. GASEOUS - Continuous Elevated Releases

B. LIQUID	Units	1st Quarter	2nd Quarter
Number of Releases		3	3
Total Release Time	Min	1004	491
Maximum Release Time	Min	557	256
Average Release Time	Min	335	164
Minimum Release Time	Min	196	68

TABLE 2a
BIG ROCK POINT PLANT

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT
GASEOUS EFFLUENTS - SUMMATION OF ALL RELEASE

JANUARY 1985 to JUNE 1985

A. FISSION AND ACTIVATION GASES	Units	Qtr 1st	Qtr 2nd	Est Total Error %
1. Total release	Ci	3.22E+04	1.70E+04	11.0
2. Average release rate for period	uCi/sec	4.14E+03	2.16E+03	
3. Percent of annual avg MPC	%	4.14E-01	2.16E-01	

B. IODINES				
1. Total Iodine	Ci	1.49E-02	4.50E-02	4.0
2. Average release rate for period	uCi/sec	1.92E-03	5.73E-03	
3. Percent of annual avg MPC	%	1.60E-01	4.78E-01	

C. PARTICULATES				
1. Particulates with half-life >8 days	Ci	3.83E-03	6.93E-03	12.5
2. Average release rate for period	uCi/sec	4.93E-04	8.81E-04	
3. Percent of annual avg MPC	%	8.2E-03	1.53E-02	
4. Gross alpha radioactivity	Ci	1.79E-07	5.31E-07	

D. TRITIUM				
1. Total Release	Ci	1.03E+01	1.02E+01	
2. Average release rate for period	uCi/sec	1.33E+00	1.29E+00	
3. Percent of annual avg MPC	%	5.54E-02	5.40E-02	

E.				
1. Percent of Gaseous Effluents of Appendix I Values	%	6.67	3.52	

TABLE 2B

BIG ROCK POINT

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT
GASEOUS EFFLUENTS - GROUND LEVEL RELEASESJANUARY 1985 to June 1985

1. FISSION GASES	Units	Qtr 1st	Qtr 2nd
Krypton-83m	Ci	5.49E+02	4.62E+02
Krypton-85	Ci	1.58E+00	1.32E+00
Krypton-85m	Ci	9.75E+02	8.18E+02
Krypton-87	Ci	4.48E+03	2.02E+03
Krypton 88	Ci	1.07E+04	1.92E+03
Krypton 89	Ci	2.62E+02	2.19E+02
Krypton 90	Ci	1.21E+02	1.01E+02
Xenon-131m	Ci	1.99E+00	1.67E+00
Xenon-133	Ci	2.26E+03	1.91E+03
Xenon-133m	Ci	4.80E+01	4.03E+01
Xenon-135	Ci	5.29E+03	3.53E+03
Xenon-135m	Ci	9.46E+02	7.94E+02
Xenon-137	Ci	4.55E+02	3.81E+02
Xenon-138	Ci	5.42E+03	4.22E+03
Xenon-139	Ci	1.79E+02	1.50E+02
N-3	Ci	5.08E+02	3.79E+02
Total for Period	Ci	3.22E+04	1.70E+04

TABLE 2B (cont'd)

BIG ROCK POINT

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT
GASEOUS EFFLUENTS - GROUND LEVEL RELEASESJANUARY 1985 to June 1985

2. IODINES	Units	Qtr 1st	Qtr 2nd
Iodine-131	Ci	1.49E-02	4.50E-02
Iodine-132	Ci	7.29E-03	2.13E-02
Iodine-133	Ci	1.47E-02	4.58E-02
Iodine-134	Ci	-0-	-0-
Iodine-135	Ci	1.45E-02	3.84E-02
Total for Period	Ci	5.14E-02	1.51E-01

3. *PARTICULATES			
Chromium-51	Ci	1.27E-03	3.60E-03
Manganese-54	Ci	1.06E-05	7.11E-05
Iron-59	Ci	-0-	3.68E-05
Cobalt-60	Ci	5.33E-05	1.99E-04
Zinc-65	Ci	1.90E-05	3.14E-04
Silver-110m	Ci	1.88E-05	3.76E-04
Cesium-136	Ci	5.77E-06	1.75E-04
Cesium-137	Ci	1.56E-04	7.14E-04
Barium-140	Ci	2.77E-04	5.45E-04
Mercury-203	Ci	1.49E-06	5.81E-05
Cesium-134	Ci	9.00E-05	5.42E-04
Cobalt-58	Ci	1.54E-06	3.00E-05
Niobium-95	Ci	-0-	2.25E-07

TABLE 2B (cont'd)

BIG ROCK POINT

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT
GASEOUS EFFLUENTS - GROUND LEVEL RELEASESJANUARY 1985 to June 1985

2. PARTICULATES	Units	Qtr 1st	Qtr 2nd
*Lathanum-140	Ci	1.40E-03	2.70E-03
*Bromine-82	Ci	1.65E-03	1.57E-03
*Cesium-138	Ci	1.34+00	1.08E+00
*Molybdenum-99	Ci	6.66E-04	1.11E-03
*Manganese-56	Ci	-0-	2.35E-04
*Neptunium-239	Ci	2.15E-04	1.56E-03
*Sodium 24	Ci	1.13E-03	4.93E-04
Sr-89	Ci	1.93E-03	-0-
Sr-90	Ci	3.32E-06	-0-
Net Unidentified Beta	Ci	-0-	2.66E-04
Total for Period	Ci	3.83E-3	6.93E-03

* Half-live less than 8 days; not included in overall totals

TABLE 3a

BIG ROCK POINT PLANT

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT
LIQUID EFFLUENTS - SUMMATION OF ALL RELEASE

JANUARY 1985 to JUNE 1985

A. FISSION AND ACTIVATION PRODUCTS		Units	1st Qtr	2nd Qtr	Est Total Error %
1.	Total release (not including tritium, gases, alpha)	Ci	1.58E-02	9.00E-03	5.1
2.	Average diluted concentration during period	uCi/ml	6.49E-10	3.93E-10	
3.	Percent of MPC	%	2.15E-02	1.80E-02	
B. TRITIUM					
1.	Total Release	Ci	4.46E-2	2.64E-2	4.0
2.	Average diluted concentration during period	uCi/ml	1.83E-9	1.16E-9	
3.	Percent of MPC	%	6.11E-5	3.86E-5	
C. DISSOLVED AND ENTRAINED GASES					
1.	Total Release	Ci	5.63E-05	5.16E-05	14.9
2.	Average diluted concentration during period	uCi/ml	2.31E-12	2.26E-12	
3.	Percent of MPC	%	1.16E-06	1.13E-06	
D. GROSS ALPHA RADIOACTIVITY (total release)					
		Ci	1.76E-06	4.82E-07	
E. VOLUME OF WASTE RELEASED (prior to dilution)					
		liters	5.29E+04	4.20E+04	
F. VOLUME OF DILUTION WATER USED DURING PERIOD					
		liters	2.43E+10	2.29E+10	
G. PERCENT OF APPENDEX I ANNUAL LIMIT					
		%	2.00E-01	1.85E-01	

TABLE 3B
BIG ROCK POINT PLANT
EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT
LIQUID EFFLUENTS

JANUARY 1985 to June 1985

1. NUCLIDES RELEASED	Units	Qtr 1st	Qtr 2nd
Cesium-137	Ci	1.84E-03	1.43E-03
Cobalt-58	Ci	1.14E-05	7.34E-05
Manganese-54	Ci	2.68E-03	1.65E-03
Cobalt-60	Ci	2.96E-03	1.99E-03
Cesium-134	Ci	3.24E-04	5.14E-04
Iron-59	Ci	8.73E-05	1.02E-04
Lathanum-140	Ci	-0-	-0-
Zinc-65	Ci	9.45E-05	1.29E-04
Strontium-92	Ci	5.23E-06	1.16E-05
Iodine-131	Ci	7.88E-04	9.54E-04
Silver-110m	Ci	3.34E-05	4.06E-05
Iodine-133	Ci	-0-	5.00E-06
Molybdenum-99	Ci	-0-	1.80E-05
Cesium-136	Ci	-0-	2.81E-05
Strontium-89	Ci	2.09E-05	6.53E-06
Strontium-90	Ci	1.51E-05	9.32E-06
Net Unidentified Beta	Ci	6.91E-03	2.04E-03
Total for Period (above)	Ci	1.58E-02	9.00E-03
Xenon-133	Ci	5.63E-05	5.16E-05

TABLE 4

BIG ROCK POINT PLANT

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT
SOLID WASTE AND IRRADIATED FUEL SHIPMENTSJanuary 1985 to June 1985

A. SOLID WASTE SHIPPED OFFSITE FOR BURIAL OR DISPOSAL (not irradiated fuel)		UNITS	
1. Spent resins, filter sludges, evaporator bottoms, etc.	m ³	5.5	
	ft ³	195.0	
	Ci	27.7	
2. Dry compressible waste, contaminated equipment, etc.	m ³	5.5	
	ft ³	195.0	
	Ci	4.7	
3. Irradiated components, control rods, etc.	m ³	-None-	
	ft ³		
	Ci		
4. Other (describe)	m ³	-None-	
	ft ³		
	Ci		

B. SOLID WASTE SHIPMENT DISPOSITION

<u>Date of Shipments</u>	<u>Mode of Transportation</u>	<u>Destination</u>
2/25/85	Truck	Barnwell
1/28/85	Truck	Barnwell

C. IRRADIATION FUEL SHIPMENT DISPOSITION

<u>Date of Shipments</u>	<u>Mode of Transportation</u>	<u>Destination</u>
- NONE -		



Consumers
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August 29, 1985

PRIORITY ROUTING

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DOCKET 50-155 - LICENSE DPR-6 - BIG ROCK POINT PLANT -
SEMIANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT -
JANUARY THROUGH JUNE 1985

Attached please find the Radioactive Effluent Release Report for the Big Rock Point Plant for the period January 1985 through June 1985. The attached report is submitted in accordance with 10CFR50.36a(2) and Technical Specifications Section 6.9.2.

Brian D. Johnson

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

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