

BIG ROCK POINT PLANT
RADIOACTIVE EFFLUENT RELEASE
January - June 1982

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BIG ROCK POINT SEMI ANNUAL EFFLUENT REPORT
JAN - JUNE 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 January through June 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

No abnormal releases of radioactive effluents to the environment occurred during the period.

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-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 $7.47E+02$ $\mu\text{Ci}/\text{second}$.

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 $6.34E-07$ $\mu\text{Ci}/\text{ml}$.

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 first six months of 1982 was approximately 2909 cubic feet. Shipment dates were June 2, 1982, June 10, 1982 and June 15, 1982.

TABLE 1

BATCH RELEASES (1982)

BIG ROCK POINT NUCLEAR POWER PLANT
JANUARY - JUNE EFFLUENT REPORT

A. GASEOUS

WASTE GAS DECAY TANKS	UNITS	1st	2nd
Number of Releases		Continuous	Continuous
Total Release Time	Minutes	--	--
Maximum Release Time	Minutes	--	--
Average Release Time	Minutes	--	--
Minimum Release Time	Minutes	--	--

B. LIQUID

	UNITS	1st	2nd
Number of Releases		15	9
Total Release Time	Minutes	4882	2147
Maximum Release Time	Minutes	648	370
Average Release Time	Minutes	325.5	238.6
Minimum Release Time	Minutes	195	130

Table 2a
 BIG ROCK POINT NUCLEAR POWER PLANT
 EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (1982)
 GASEOUS EFFLUENTS - SUMMATION OF ALL RELEASES

	UNITS	1st	2nd
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A. FISSION & ACTIVATION GASES

1. Total release	Ci	1.68E+03	2.65E+03
2. Average release rate for period	μCi/sec	2.16E+02	3.37E+02
3. Percent of Technical Specification Limit	%	2.16E-02	3.37E-02

B. IODINES

1. Total iodine-131	Ci	3.12E-04	5.89E-04
2. Average release rate for period (I-131)	μCi/sec	4.01E-05	7.49E-05
3. Percent of Technical Specification Limit (I-131)	%	3.34E-03	6.24E-03

C. PARTICULATES

1. Particulates with half-lives >8 days	Ci	5.60E-04	5.41E-04
2. Average release rate for period	μCi/sec	7.20E-05	6.88E-05
3. Percent of Technical Specification Limit	%	6.19E-03	1.90E-03
4. Gross alpha radioactivity	Ci	3.71E-07	8.42E-07

D. TRITIUM

1. Total release	Ci	1.13E+00	1.40E+00
2. Average release rate for period	μCi/sec	1.45E-01	1.78E-01
3. Percent of Technical Specification Limit	%	6.04E-03	7.42E-03

Total gaseous effluents are less than 2% of appendix I values.

TABLE 2b

BIG ROCK POINT NUCLEAR POWER PLANT
 EFFLUENT AND WASTE DISPOSAL SEMI-ANNUAL REPORT (1982)
 GASEOUS EFFLUENTS - ELEVATED RELEASE

NUCLIDES RELEASED	UNITS	1st	2nd
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1. FISSION GASES

Kr83m	Ci	3.22E+01	4.76E+01
Kr85	Ci	4.10E-04	6.05E-04
Kr85M	Ci	3.71E+01	5.47E+01
Kr87	Ci	9.79E+01	1.52E+02
Kr88	Ci	8.72E+01	1.28E+02
Kr89	Ci	9.09E+01	1.34E+02
Kr90	Ci	1.02E+02	1.51E+02
Xe131M	Ci	9.38E-03	1.39E-02
Xe133	Ci	8.65E+00	1.08E+01
Xe133m	Ci	5.22E-01	7.71E-01
Xe135	Ci	1.08E+02	1.54E+02
Xe135m	Ci	1.48E+02	2.19E+02
Xe137	Ci	1.45E+02	2.13E+02
Xe138	Ci	5.45E+02	9.23E+02
Xe139	Ci	1.37E+02	2.01E+02

TABLE 2b (Continued)

BIG ROCK POINT NUCLEAR POWER PLANT
 EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (1982)
 GASEOUS EFFLUENTS - ELEVATED RELEASE

NUCLIDES RELEASED	UNITS	1st	2nd
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1. FISSION GASES (Continued)

N-13	Ci	1.27E+02	2.35E+02
Total for period	Ci	1.68E+03	2.65E+03

2. IODINES

Iodine-131	Ci	3.12E-04	5.89E-04
Iodine-133	Ci	1.77E-03	6.55E-03
Iodine-135	Ci	2.05E-03	9.79E-03
Total for period	Ci	4.13E-03	1.69E-02

3. PARTICULATES

Na24	Ci	2.72E-04	2.97E-04
* Cr51	Ci	1.62E-05	2.02E-04
* Mn54	Ci	1.24E-05	1.97E-05
* Fe59	Ci	--	3.12E-06
* Co60	Ci	6.36E-05	1.08E-04
* Zn65	Ci	2.85E-05	2.59E-05
Br82	Ci	4.99E-04	1.16E-03
Mo99	Ci	--	1.24E-04
* Ag110m	Ci	--	2.02E-05
* Cs136	Ci	6.32E-06	5.36E-06

*half life >8 days

(continued)

TABLE 2b (Continued)

BIG ROCK POINT NUCLEAR POWER PLANT
 EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (1982)
 GASEOUS EFFLUENTS - ELEVATED RELEASE

3. PARTICULATES (Continued)

* Cs137	Ci	8.41E-05	2.46E-06
* Ba140	Ci	1.89E-04	1.18E-04
La140	Ci	9.61E-04	6.18E-04
Np239	Ci	6.64E-05	4.55E-04
* Net Unidentified Beta	Ci	1.60E-04	3.60E-05

*half life >8 days

TABLE 3a
BIG ROCK POINT NUCLEAR POWER PLANT

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (1982)

LIQUID EFFLUENTS - SUMMATION OF ALL RELEASES

	UNITS	1st	2nd
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A. FISSION AND ACTIVATION PRODUCTS

1. Total release (not including tritium, gases, alpha)	Ci	1.86E-01	5.07E-02
2. Average diluted concentration during period	μCi/ml	1.18E-08	2.77E-09
3. Percent of Technical Specification Limit	%	1.18E-01	1.16E-01

*

B. TRITIUM

1. Total release	Ci	1.47E+00	9.77E-01
2. Average diluted concentration during period	μCi/ml	9.30E-08	5.34E-08
3. Percent of Technical Specification Limit	%	3.10E-03	1.78E-03

C. DISSOLVED AND ENTRAINED GASES

1. Total release	Ci	3.30E-04	--
2. Average diluted concentration during period	μCi/ml	2.09E-11	--
3. Percent of Technical Specification Limit	%	9.08E-06	--

D. GROSS ALPHA RADIOACTIVITY

1. Total release	Ci	6.49E-06	3.35E-06
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E. VOLUME OF WASTE RELEASED (PRIOR TO DILUTION)	Liters	2.68E+05	1.46E+05
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F. VOLUME OF DILUTION WATER USED DURING PERIOD	Liters	1.58E+10	1.83E+10
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*See note Table 3.b.

Total liquid effluents are less than 4.6% of Appendix I values

TABLE 3b

BIG ROCK POINT NUCLEAR POWER PLANT
EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (1982)

LIQUID EFFLUENTS

NUCLIDES RELEASED	UNITS	1st	2nd
Cs137	Ci	3.84E-02	1.58E-02
Cs134	Ci	1.13E-03	4.32E-04
Mn54	Ci	4.38E-02	8.69E-03
Fe59	Ci	2.85E-02	1.10E-03
Co60	Ci	2.83E-02	1.29E-02
Co58	Ci	1.90E-03	--
Zn65	Ci	1.52E-03	--
Sb124	Ci	1.36E-03	5.91E-05
La140	Ci	1.66E-04	--
Sr89	Ci	2.83E-05	1.63E-04 *
Sr90	Ci	2.88E-04	5.92E-03 *
Net Unidentified Beta	Ci	4.07E-02	5.60E-03
Total for Period (Above)	Ci	1.86E-01	5.07E-02 *
Xenon-133	Ci	3.30E-04	--

*Estimated based on unidentified beta values as June values are not available.

TABLE 4
 BIG ROCK POINT NUCLEAR POWER PLANT
 EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (1982)
 SOLID WASTE AND IRRADIATED FUEL SHIPMENTS

A. SOLID WASTE SHIPPED OFFSITE FOR BURIAL OR DISPOSAL (NOT IRRADIATED FUEL)

1. Type of Waste	Units	1st Half
a. Spent resins, filter sludges, evaporator bottoms, etc.	m ³ Ci	--
b. Dry compressible waste, contaminated equipment, etc.	ft ³ Ci	2909* 2.51Ci
c. Irradiated components, control rods, etc.	m ³ Ci	--
d. Other (describe)	m ³ Ci	--

2. Solid Waste Disposition

<u>Number of Shipments</u>	<u>Mode of Transportation</u>	<u>Destination License Number</u>
3 (6/15/82, 6/10/82, 6/2/82)	Truck	Richland, WA WN-1019-2

B. IRRADIATED FUEL SHIPMENTS (DISPOSITION)

<u>Number of Shipments</u>	<u>Mode of Transportation</u>	<u>Destination</u>
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*Technical Specification requires this value to be reported in cubic feet. Volume in cubic meters is 82.4.