BIG ROCK POINT NUCLEAR POWER PLANT

RADIOACTIVE EFFLUENT RELEASE

JANUARY-JUNE 1979

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 1979 in the format contained in plant Technical Specification 6.9.3.

1. Supplemental Information

   a. Batch Releases

      Information relating to batch 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 the monthly short-lived halogen analyses to the weekly I-131 analyses. The maximum noble gas release rate was 1.27 E+03 uCi/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 1.12 E-06 uCi/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 1979 was approximately 2115 cubic feet. Shipment dates were 6-20-79 and 6-28-79.

TABLE 1

BIG ROCK POINT POWER PLANT

BATCH RELEASES (1979)

A. GASEOUS

WASTE GAS DECAY TANKS	UNITS	FIRST QUARTER	SECOND QUARTER
Number of Releases		Continuous	Continuous
Total Release Time	Minutes	-----	-----
Maximum Release Time	Minutes	-----	-----
Average Release Time	Minutes	-----	-----
Minimum Release Time	Minutes	-----	-----

B. LIQUID

	UNITS	FIRST QUARTER	SECOND QUARTER
Number of Releases		22	13
Total Release Time	Minutes	8685	3045
Maximum Release Time	Minutes	1530	391
Average Release Time	Minutes	395	234
Minimum Release Time	Minutes	49	45

8105215

TABLE 2a

BIG ROCK POINT NUCLEAR POWER PLANT

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (1979)

GASEOUS EFFLUENTS - SUMMATION OF ALL RELEASES

	UNITS	FIRST QUARTER	SECOND QUARTER
A. FISSION & ACTIVATION GASES			
1. Total release	Ci	2.54E+03	6.73E+01
2. Average release rate for period	µCi/sec	3.27E+02	8.56E+00
3. Percent of Technical Specification Limit	%	3.27E-02	8.56E-04
B. IODINES			
1. Total iodine-131	Ci	1.24E-04	-------
2. Average release rate for period (I-131)	µCi/sec	1.59E-05	-------
3. Percent of Technical Specification Limit (I-131)	%	1.32E-03	-------
C. PARTICULATES			
1. Particulates with half-lives >8 days	Ci	4.28E-04	1.75E-04
2. Average release rate for period	µCi/sec	5.50E-05	2.23E-05
3. Percent of Technical Specification Limit	%	2.98E-03	4.67E-04
4. Gross alpha radioactivity	Ci	2.60E-07	4.38E-07
D. TRITIUM			
1. Total release	Ci	1.05E+00	2.22E-01
2. Average release rate for period	µCi/sec	1.35E-01	2.82E-02
3. Percent of Technical Specification Limit	%	5.63E-03	1.18E-03

TABLE 2b

BIG ROCK POINT NUCLEAR POWER PLANT

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (1979)

GASEOUS EFFLUENTS - ELEVATED RELEASE

NUCLIDES RELEASED	UNITS	FIRST QUARTER	SECOND QUARTER
1. FISSION GASES			
Xenon-138	Ci	6.64E+02	3.33E+01
Krypton-87	Ci	1.37E+02	5.91E+00
Krypton-88	Ci	8.67E+01	3.65E+00
Krypton-85m	Ci	8.54E+01	3.81E+00
Xenon-135	Ci	1.36E+02	8.29E+00
Xenon-133	Ci	2.49E+01	2.20E+00
Xenon-143	Ci	-----	-----
Krypton-94	Ci	-----	-----
Krypton-93	Ci	-----	-----
Xenon-141	Ci	-----	-----
Krypton-92	Ci	-----	-----
Krypton-91	Ci	2.29E+00	-----
Xenon-140	Ci	2.48E+01	-----
Krypton-90	Ci	1.85E+02	<1
Xenon-139	Ci	2.47E+02	<1
Krypton-89	Ci	1.68E+02	1.03E+00
Xenon-137	Ci	2.67E+02	1.79E+00
Xenon-135m	Ci	2.84E+02	3.72E+00
Krypton-83m	Ci	6.85E+01	2.16E+00
Xenon-133m	Ci	1.87E+00	<1
Xenon-131m	Ci	<1	<1

TABLE 2b (Continued)

BIG ROCK POINT NUCLEAR POWER PLANT

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (1979)

GASEOUS EFFLUENTS - ELEVATED RELEASE

NUCLIDES RELEASED	UNITS	FIRST QUARTER	SECOND QUARTER
1. FISSION GASES (Continued)			
Krypton-85	Ci	< 1	-----
N-13	Ci	1.53E + 02	-----
Total for period	Ci	2.54E + 03	6.73E + 01
2. IODINES			
Iodine-131	Ci	1.24E - 04	-----
Iodine-133	Ci	1.16E - 03	-----
Iodine-135	Ci	1.45E - 03	-----
Total for period	Ci	2.73E - 03	-----
3. PARTICULATES			
Cesium-137	Ci	3.88E - 05	7.98E - 05
Barium-140	Ci	3.87E - 05	-----
Lanthanum-140*	Ci	2.60E - 04	-----
Zinc-65	Ci	1.07E - 05	-----
Manganese-54	Ci	1.40E - 05	2.77E - 05
Cobalt-60	Ci	9.20E - 05	6.33E - 05
Neptunium-239*	Ci	5.36E - 06	-----
Bromine-82*	Ci	2.74E - 04	-----
Net Unidentified Beta	Ci	2.34E - 04	4.21E - 06
Total for period	Ci	9.68E - 04	1.75E - 04

*half-life < 8 days

TABLE 3a

BIG ROCK POINT NUCLEAR POWER PLANT

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (1979)

LIQUID EFFLUENTS - SUMMATION OF ALL RELEASES

	UNITS	FIRST QUARTER	SECOND QUARTER
A. FISSION AND ACTIVATION PRODUCTS			
1. Total release (not including tritium, gases, alpha)	Ci	3.52E-01	2.21E-01
2. Average diluted concentration during period	µCi/ml	1.82E-08	2.08E-08
3 Percent of applicable limit	%	1.86E-01	3.28E-01*
B. TRITIUM			
1. Total release	Ci	3.37E+00	1.47E+00**
2. Average diluted concentration during period	µCi/ml	1.75E-07	1.39E-07
3 Percent of applicable limit	%	5.82E-03	4.62E-03
C. DISSOLVED AND ENTRAINED GASES			
1. Total release	Ci	4.97E-04	-----
2. Average diluted concentration during period	µCi/ml	2.58E-11	-----
3 Percent of applicable limit Modified Liquid Waste System only	%	8.60E-04	-----
D. GROSS ALPHA RADIOACTIVITY			
1. Total release	Ci	9.50E-06	2.39E-06
E. VOLUME OF WASTE RELEASED (PRIOR TO DILUTION)	Liters	3.83E+05	2.35E+05
F. VOLUME OF DILUTION WATER USED DURING PERIOD	Liters	1.93E+10	1.06E+10

*The second quarter percent of applicable limit is conservative. The May and June Strontium 89/90 analysis result was not available in time for inclusion in this report.

**The average tritium concentration over the six month period was used to calculate the May tritium release.

TABLE 3b

BIG ROCK POINT NUCLEAR POWER PLANT

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (1979)

LIQUID EFFLUENTS

NUCLIDES RELEASED	UNITS	FIRST QUARTER	SECOND QUARTER
Lanthanum-140	Ci	1.63E-04	-----
Cesium-134	Ci	1.74E-02	1.70E-02
Cesium-137	Ci	1.77E-01	1.41E-01
Iodine-133	Ci	2.82E-04	-----
Cobalt-58	Ci	1.70E-03	-----
Cobalt-60	Ci	4.27E-02	1.75E-02
Manganese-54	Ci	3.12E-02	2.[illegible]3
Chromium-51	Ci	5.77E-03	-----
Iron-59	Ci	5.01E-03	-----
Neptunium-239	Ci	1.27E-03	-----
Antimony-124	Ci	4.44E-03	-----
Zinc-65	Ci	9.28E-04	-----
Strontium-89	Ci	3.40E-04	5.17E-05*
Strontium-80	Ci	4.60E-04	2.28E-04*
Net Unidentified Beta	Ci	6.34E-02	4.27E-02
Total for Period (Above)	Ci	3.52E-01	2.21E-01
Xenon-133	Ci	4.97E-04	-----

*The May and June Strontium 89/90 analysis result was not available in time for inclusion in this report.

TABLE 4

BIG ROCK POINT NUCLEAR POWER PLANT

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (1979)

SOLID WASTE AND IRRADIATED FUEL SHIPMENTS

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

1. Type of Waste	Units	FIRST SIX MONTHS
a. Spent resins, filter sludges, evaporator bottoms, etc.	m^3 Ci	---- ----
b. Dry compressible waste, contaminated equipment, etc.	m^3 Ci	5.99E+01 2.07E+00
c. Irradiated components, control rods, etc.	m^3 Ci	---- ----
d. Other (describe)	m^3 Ci	---- ----

2. Solid Waste Disposition

Number of Shipments	Mode of Transportation	Destination License Number
2	Truck	Nuclear Engineering Co Richland, Washington WN-I019-2

B. IRRADIATED FUEL SHIPMENTS (DISPOSITION)

Number of Shipments	Mode of Transportation	Destination
None	----	----