

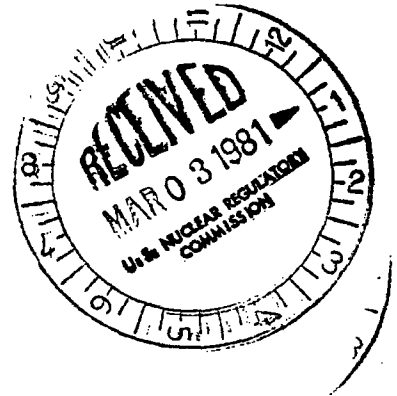


**Consumers
Power
Company**

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

COPY

February 27, 1981



Mr James G Keppler
Office of Inspection and Enforcement
Region III
U S Nuclear Regulatory Commission
799 Roosevelt Road
Glen Ellyn, IL 60137

DOCKET 50-155 - LICENSE DPR-6 -
BIG ROCK POINT PLANT - SEMI-ANNUAL
RADIOACTIVE EFFLUENT RELEASE REPORT
JULY - DECEMBER 1980

Attached please find the Radioactive Effluent Release Report for the Big Rock Point Plant for the period of July through December 1980. The attached report is submitted in accordance with 10 CFR 50.36a(2) and Technical Specification 6.9.3.

Gregory C Withrow (Signed)

Gregory C Withrow
Senior Licensing Engineer

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

Attachment - 8 pages

A007
s
1/1

8103040669

R

BIG ROCK POINT NUCLEAR POWER PLANT

RADIOACTIVE EFFLUENT RELEASE

JULY - DECEMBER 1980

8103040673

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 1980 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 $1.38\text{E}+03$ $\mu\text{Ci}/\text{second}$.

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 $5.61\text{E}-07$ $\mu\text{Ci}/\text{ml}$.

4. Solid Waste

Table 4 presents a summary of radioactive waste shipped offsite for burial during the period. Total volume of solid waste shipped offsite during the first six months of 1980 was approximately 1313 cubic feet. Shipment dates were July 17, 1980; August 22, 1980; August 25, 1980; and December 17, 1980.

TABLE 1
BIG ROCK POINT NUCLEAR POWER PLANT
BATCH RELEASES (1980)

A. GASEOUS

WASTE GAS DECAY TANKS	UNITS	3rd Quarter	4th 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	3rd Quarter	4th Quarter
Number of Releases		6	19
Total Release Time	Minutes	1311	3463
Maximum Release Time	Minutes	297	346
Average Release Time	Minutes	219	182
Minimum Release Time	Minutes	154	13

TABLE 2a

BIG ROCK POINT NUCLEAR POWER PLANT

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (1980)

GASEOUS EFFLUENTS - SUMMATION OF ALL RELEASES

	UNITS	3rd Quarter	4th Quarter
--	-------	----------------	----------------

A. FISSION & ACTIVATION GASES

1. Total release	Ci	6.15E+03	2.64E+03
2. Average release rate for period	$\mu\text{Ci/sec}$	7.74E+02	3.32E+02
3. Percent of Technical Specification Limit	%	7.73E-02	3.32E-02

B. IODINES

1. Total iodine-131	Ci	4.30E-04	2.69E-04
2. Average release rate for period (I-131)	$\mu\text{Ci/sec}$	5.41E-05	3.38E-05
3. Percent of Technical Specification Limit (I-131)	%	4.51E-03	2.82E-03

C. PARTICULATES

1. Particulates with half-lives >8 days	Ci	7.18E-03	1.46E-03
2. Average release rate for period	$\mu\text{Ci/sec}$	9.03E-04	1.84E-03
3. Percent of Technical Specification Limit	%	2.44E-02	9.97E-03
4. Gross alpha radioactivity	Ci	5.80E-07	5.31E-07

D. TRITIUM

1. Total release	Ci	3.79E+00	1.72E+00
2. Average release rate for period	$\mu\text{Ci/sec}$	4.77E-01	2.16E-01
3. Percent of Technical Specification Limit	%	1.99E-02	9.03E-03

TABLE 2b

4

BIG ROCK POINT NUCLEAR POWER PLANT
EFFLUENT AND WASTE DISPOSAL SEMI-ANNUAL REPORT (1980)
GASEOUS EFFLUENTS - ELEVATED RELEASE

NUCLIDES RELEASED	UNITS	3rd Quarter	4th Quarter
-------------------	-------	-------------	-------------

1. FISSION GASES

Xenon-138	Ci	2.44E+03	9.08E+02
Krypton-87	Ci	4.37E+02	1.49E+02
Krypton-88	Ci	2.59E+02	1.18E+02
Krypton-85m	Ci	1.11E+02	5.97E+01
Xenon-135	Ci	4.15E+02	1.50E+02
Xenon-133	Ci	2.11E+01	1.01E+01
Xenon-143	Ci	---	---
Krypton-94	Ci	---	---
Krypton-93	Ci	---	---
Xenon-141	Ci	---	---
Krypton-92	Ci	---	---
Krypton-91	Ci	3.83E+00	2.05E+00
Xenon-140	Ci	4.13E+01	2.22E+01
Krypton-90	Ci	3.07E+02	1.65E+02
Xenon-139	Ci	4.10E+02	2.20E+02
Krypton-89	Ci	2.73E+02	1.46E+02
Xenon-137	Ci	4.34E+02	2.33E+02
Xenon-135m	Ci	4.45E+02	2.39E+02
Krypton-83m	Ci	9.69E+01	5.20E+01
Xenon-133m	Ci	1.57E+00	8.41E-01
Xenon-131m	Ci	2.82E-02	1.51E-02

TABLE 2b (Continued)

5

BIG ROCK POINT NUCLEAR POWER PLANT

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (1980)

· GASEOUS EFFLUENTS - ELEVATED RELEASE

NUCLIDES RELEASED	UNITS	3rd Quarter	4th Quarter
-------------------	-------	-------------	-------------

1. FISSION GASES (Continued)

Krypton-85	Ci	1.23E-03	6.59E-04
N-13	Ci	4.57E+02	1.65E+02
Total for period	Ci	6.15E+03	2.64E+03

2. IODINES

Iodine-131	Ci	4.30E-04	2.69E-04
Iodine-133	Ci	4.02E-03	2.51E-03
Iodine-135	Ci	5.04E-03	3.15E-03
Total for period	Ci	9.49E-03	5.93E-03

3. PARTICULATES

Cesium 137	Ci	1.98E-05	2.61E-05
Barium/Lanthanum 140	Ci	1.18E-03	---
Barium 140	Ci	2.15E-03	4.67E-04
Lanthanum 140	Ci	4.51E-03	2.25E-03
Cobalt 60	Ci	8.47E-06	5.86E-05
Neptunium 239	Ci	5.34E-05	---
Cesium 136	Ci	1.35E-05	---
Bromine 82	Ci	2.67E-03	1.30E-03
Strontium 91	Ci	1.84E-03	---
Manganese 54	Ci	---	2.47E-05
Cobalt 58	Ci	---	8.20E-07
Zinc 65	Ci	---	3.20E-06
Iron 59	Ci	---	4.73E-06
Net Unidentified Beta	Ci	1.97E-03	8.77E-04

TABLE 3a

BIG ROCK POINT NUCLEAR POWER PLANT

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (1980)

LIQUID EFFLUENTS - SUMMATION OF ALL RELEASES

	UNITS	3rd Quarter	4th Quarter
--	-------	-------------	-------------

A. FISSION AND ACTIVATION PRODUCTS

1. Total release (not including tritium, gases, alpha)	Ci	8.72E-02	1.38E-01
2. Average diluted concentration during period	$\mu\text{Ci/ml}$	3.41E-09	1.25E-08
3. Percent of Technical Specification Limit	%	4.06E-02	1.53E-01

B. TRITIUM

1. Total release	Ci	1.30E+00	2.25E+00
2. Average diluted concentration during period	$\mu\text{Ci/ml}$	5.08E-08	2.05E-07
3. Percent of Technical Specification Limit	%	1.69E-03	6.82E-03

C. DISSOLVED AND ENTRAINED GASES

1. Total release	Ci	---	---
2. Average diluted concentration during period	$\mu\text{Ci/ml}$	---	---
3. Percent of Technical Specification Limit	%	---	---

D. GROSS ALPHA RADIOACTIVITY

1. Total release	Ci	4.03E-06	2.95E-05
------------------	----	----------	----------

E. VOLUME OF WASTE RELEASED (PRIOR TO DILUTION)	Liters	1.10E+05	3.23E+05
---	--------	----------	----------

F. VOLUME OF DILUTION WATER USED DURING PERIOD	Liters	2.56E+10	1.10E+10
--	--------	----------	----------

TABLE 3b

BIG ROCK POINT NUCLEAR POWER PLANT

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (1980)

LIQUID EFFLUENTS

NUCLIDES RELEASED	UNITS	3rd Quarter	4th Quarter
Cesium-134	Ci	2.92E-03	1.95E-03
Cesium-137	Ci	5.77E-02	6.33E-02
Chromium-51	Ci	5.78E-03	1.35E-03
Cobalt-60	Ci	3.97E-03	2.56E-02
Manganese-54	Ci	7.83E-04	1.01E-02
Cobalt-58	Ci	---	9.63E-05
Iodine-131	Ci	4.34E-04	---
Strontium-89	Ci	1.04E-04	3.06E-04
Strontium-90	Ci	1.25E-04	4.71E-04
Iron-59	Ci	---	2.06E-03
Net Unidentified Beta	Ci	1.54E-02	3.24E-02
Total for Period (Above)	Ci	8.72E-02	1.38E-06
Xenon-133	Ci	---	---

TABLE 4

BIG ROCK POINT NUCLEAR POWER PLANT
EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (1980)
SOLID WASTE AND IRRADIATED FUEL SHIPMENTS

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

1. Type of Waste	Units	Second Six Months
a. Spent resins, filter sludges, evaporator bottoms, etc.	ft ³ Ci	2.55E+02 2.03E+01
b. Dry compressible waste, contaminated equipment, etc.	ft ³ Ci	1.06E+03 8.70E-01
c. Irradiated components, control rods, etc.	ft ³ Ci	--- ---
d. Other (describe)	ft ³ Ci	--- ---

2. Solid Waste Disposition

<u>Number of Shipments</u>	<u>Mode of Transportation</u>	<u>Destination License Number</u>
1	Truck	Nuclear Engineering Co Richland, WA WN-I019-Z
3	Truck	Chem-Nuclear Systems, Inc Barnwell, SC 146-13536-01

B. IRRADIATED FUEL SHIPMENTS (DISPOSITION)

<u>Number of Shipments</u>	<u>Mode of Transportation</u>	<u>Destination</u>
None	---	---