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August 31, 1981

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



DOCKET 50-155 - LICENSE DPR-6 -  
BIG ROCK POINT PLANT - SEMIANNUAL  
RADIOACTIVE EFFLUENT RELEASE REPORT  
JANUARY - JUNE 1981

Attached please find the Radioactive Effluent Release Report for the Big Rock Point Plant for the period of January through June 1981. The attached report is submitted in accordance with 10CFR50.36a(2) and Technical Specifications 6.9.3.

*Thomas C. Bordine*

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 Plant

Attachment

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BIG ROCK POINT NUCLEAR POWER PLANT

RADIOACTIVE EFFLUENT RELEASE

January - June 1981

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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 1981 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  $7.63\text{E}+02$   $\mu\text{Ci/second}$ .

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  $5.38\text{E}-07$   $\mu\text{Ci/ml}$ .

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 1981 was approximately  $4.03\text{E}+03$  cubic feet including five shipments of spent resins during the time span of May 18, to June 19, 1981.

TABLE 1

## BIG ROCK POINT NUCLEAR POWER PLANT

JANUARY - JUNE EFFLUENT REPORT

## BATCH RELEASES (1981)

## 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		19	5
Total Release Time	Minutes	3915	1076
Maximum Release Time	Minutes	664	244
Average Release Time	Minutes	206	215
Minimum Release Time	Minutes	21	176

TABLE 2a  
BIG ROCK POINT NUCLEAR POWER PLANT  
JANUARY - JUNE  
EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (1981)  
GASEOUS EFFLUENTS - SUMMATION OF ALL RELEASES

	UNITS	First Quarter	Second Quarter
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A. FISSION & ACTIVATION GASES

1. Total release	Ci	2.80E+03	4.72E+03
2. Average release rate for period	μCi/sec	3.60E+02	6.00E+02
3. Percent of Technical Specification Limit	%	3.60E-02	6.00E-02

B. IODINES

1. Total iodine-131	Ci	2.76E-04	7.67E-04
2. Average release rate for period (I-131)	μCi/sec	3.55E-05	9.76E-05
3. Percent of Technical Specification Limit (I-131)	%	2.96E-03	8.13E-03

C. PARTICULATES

1. Particulates with half-lives >8 days	Ci	8.31E-04	1.78E-03
2. Average release rate for period	μCi/sec	1.07E-04	2.26E-04
3. Percent of Technical Specification Limit	%	4.70E-03	9.61E-03
4. Gross alpha radioactivity	Ci	3.77E-07	4.22E-07

D. TRITIUM

1. Total release	Ci	<2.00E+00	<2.74E+00
2. Average release rate for period	μCi/sec	<2.57E-01	<3.49E-01
3. Percent of Technical Specification Limit	%	<1.07E-02	<1.45E-02

Note: Tritium values are shown as "less than" figures due to a small component of the total which was assumed present at the limit of detection.

TABLE 2b

## BIG ROCK POINT NUCLEAR POWER PLANT

## EFFLUENT AND WASTE DISPOSAL SEMI-ANNUAL REPORT (1981)

## GASEOUS EFFLUENTS - ELEVATED RELEASE

NUCLIDES RELEASED	UNITS	FIRST QUARTER	SECOND QUARTER
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## 1. FISSION GASES

Xenon-138	Ci	1.06E+03	1.83E+03
Krypton-87	Ci	1.84E+02	3.69E+02
Krypton-88	Ci	1.32E+02	2.64E+02
Krypton-85m	Ci	5.21E+01	7.64E+01
Xenon-135	Ci	1.72E+02	3.36E+02
Xenon-133	Ci	2.15E+02	2.03E+01
Xenon-143	Ci	—	—
Krypton-94	Ci	—	—
Krypton-93	Ci	—	—
Xenon-141	Ci	—	—
Krypton-92	Ci	—	—
Krypton-91	Ci	1.26E+00	2.49E+00
Xenon-140	Ci	1.36E+01	2.69E+01
Krypton-90	Ci	1.01E+02	2.00E+02
Xenon-139	Ci	1.35E+02	2.67E+02
Krypton-89	Ci	9.06E+01	1.79E+02
Xenon-137	Ci	1.44E+02	2.84E+02
Xenon-135m	Ci	1.50E+02	2.93E+02
Krypton-83m	Ci	3.76E+01	6.52E+01
Xenon-133m	Ci	3.18E+00	1.22E+00
Xenon-131m	Ci	5.10E-01	2.65E-02

TABLE 2b (Continued)

## BIG ROCK POINT NUCLEAR POWER PLANT

## EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (1981)

## GASEOUS EFFLUENTS - ELEVATED RELEASE

NUCLIDES RELEASED	UNITS	FIRST QUARTER	SECOND QUARTER
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## 1. FISSION GASES (Continued)

Krypton-85	Ci	3.62E+00	7.28E-03
N-13	Ci	2.98E+02	5.09E+02
Total for period	Ci	2.80E+03	4.72E+03

## 2. IODINES

Iodine-131	Ci	2.76E-04	7.67E-04
Iodine-133	Ci	1.84E-03	1.95E-02
Iodine-135	Ci	3.24E-03	9.00E-03
Total for period	Ci	5.36E-03	2.93E-02

## 3. PARTICULATES

Chromium - 51	Ci	1.15E-04	3.61E-04
Cesium - 137	Ci	4.83E-05	4.79E-05
Barium - 140	Ci	1.52E-04	4.63E-04
Lanthanum - 140	Ci	7.12E-04	4.58E-03
Cobalt - 60	Ci	9.03E-05	3.62E-05
Cesium - 136	Ci	3.83E-06	3.24E-05
Manganese - 54	Ci	4.31E-05	5.14E-06
Net Unidentified Beta	Ci	3.79E-04	8.38E-04
Bromine-82	Ci	1.35E-03	6.08E-03

TABLE 3a

## BIG ROCK POINT NUCLEAR POWER PLANT

## EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (1981)

## LIQUID EFFLUENTS - SUMMATION OF ALL RELEASES

	UNITS	FIRST QUARTER	SECOND QUARTER
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## A. FISSION AND ACTIVATION PRODUCTS

1. Total release (not including tritium, gases, alpha)	Ci	2.17E-01	4.70E-02
2. Average diluted concentration during period	µCi/ml	1.10E-08	1.00E-09
3. Percent of Technical Specification limit	%	1.01E+00	1.04E-01

## B. TRITIUM

1. Total release	Ci	2.26E+00	5.50E-01
2. Average diluted concentration during period	µCi/ml	1.14E-07	2.22E-08
3. Percent of Technical Specification limit	%	3.80E-03	7.40E-04

## C. DISSOLVED AND ENTRAINED GASES

1. Total release	Ci	2.44E-05	--
2. Average diluted concentration during period	µCi/ml	1.23E-12	--
3. Percent of Technical Specification limit	%	5.36E-07	--

## D. GROSS ALPHA RADIOACTIVITY

1. Total release	Ci	2.60E-05	2.82E-06
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E. VOLUME OF WASTE RELEASED (PRIOR TO DILUTION)	Liters	2.90E+05	2.06E+04
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F. VOLUME OF DILUTION WATER USED DURING PERIOD	Liters	1.08E+10	2.49E+10
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TABLE 3b

## BIG ROCK POINT NUCLEAR POWER PLANT

## EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (1981)

## LIQUID EFFLUENTS

NUCLIDES RELEASED	UNITS	First Quarter	Second Quarter
Antimony-124	Ci	1.37E-04	--
Cesium-134	Ci	2.45E-02	5.87E-03
Cesium-137	Ci	6.93E-02	1.96E-02
Iron-59	Ci	2.37E-03	--
Zinc-65	Ci	1.82E-04	--
Cobalt-60	Ci	3.48E-02	6.94E-03
Manganese-54	Ci	1.40E-02	1.68E-03
Lanthanum-140	Ci	5.92E-06	--
Silver-110m	Ci	1.44E-04	--
Strontium-89	Ci	3.04E-05	3.50E-05 *
Strontium-90	Ci	4.87E-04	9.88E-05 *
Cobalt-58	Ci	1.39E-04	8.59E-05
Strontium-92	Ci	2.56E-05	--
Net Unidentified Beta	Ci	5.70E-02	7.05E-03
Chromium-51	Ci	1.35E-02	5.56E-03
Iodine-131	Ci	1.39E-04	5.45E-05
Total for Period	Ci	2.17E-01	4.70E-02
Xenon-133	Ci	2.44E-05	--

\*June results not available at time of report

*corrected attached*

TABLE 4

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BIG ROCK POINT NUCLEAR POWER PLANT  
EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (1981)

~~SOLID WASTE AND IRRADIATED FUEL SHIPMENTS~~

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

<del>1. Type of Waste</del>	<del>Units</del>	<del>FIRST SIX MONTHS</del>
<del>a. Spent resins, filter sludges, evaporator bottoms, etc.</del>	<del>m<sup>3</sup> Ci</del>	<del>41.06 189.8</del>
<del>b. Dry compressible waste, contaminated equipment, etc.</del>	<del>m<sup>3</sup> Ci</del>	<del>72.1 3.57</del>
<del>c. Irradiated components, control rods, etc.</del>	<del>m<sup>3</sup> Ci</del>	<del>- -</del>
<del>d. Other (describe)</del>	<del>m<sup>3</sup> Ci</del>	<del>- -</del>

~~2. Solid Waste Disposition~~

<del>Number of Shipments</del>	<del>Mode of Transportation</del>	<del>Destination License Number</del>
<del>8</del>	<del>Truck</del>	<del>Chem-Nuclear Systems, Inc Barnwell, SC 146-13536-01</del>
<del>3</del>	<del>Truck</del>	<del>US Ecology Richland, WA WN-1019-2</del>

~~B. IRRADIATED FUEL SHIPMENTS (DISPOSITION)~~

<del>Number of Shipments</del>	<del>Mode of Transportation</del>	<del>Destination</del>
<del>none</del>	<del>-</del>	<del>-</del>

*correction attached*



**Consumers  
Power  
Company**

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

November 6, 1981

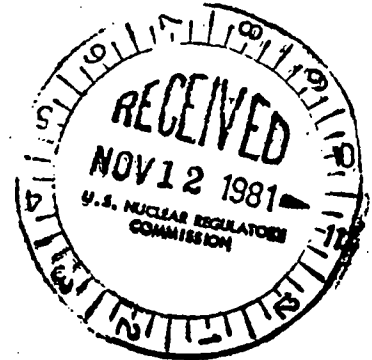
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Mr James G Keppler  
Office of Inspection and Enforcement  
Region III  
US Nuclear Regulatory Commission  
799 Roosevelt Road  
Glen Ellyn, IL 60137



DOCKET 50-155 - LICENSE DPR-6 - BIG ROCK POINT  
PLANT - CORRECTIONS TO SEMI-ANNUAL RADIOACTIVE  
EFFLUENT RELEASE REPORT FOR JANUARY-JUNE 1981

Consumers Power Company submitted the Big Rock Point Radioactive Effluent Release Report for the period of January through June, 1981 by letter dated August 31, 1981. Subsequent review of our results has necessitated the following changes:

- a. Table 3b, Liquid Effluents,  $2.56E-05$  Ci of Sr-92 were reported when it should actually have been  $2.56E-05$  Ci of Ag-110m. This increased the total curies of Ag-110m from  $1.44E-04$  Ci to  $1.70E-04$  Ci for the first quarter.
- b. Table 4, Solid Waste and Irradiated Fuel Shipments, for type waste (a) spent resins, filter sludges, evaporator bottoms, etc,  $41.06 \text{ m}^3$  and  $189.8 \text{ Ci}$  were reported where the actual shipments for this type waste was  $38 \text{ m}^3$  and  $292.1 \text{ Ci}$ .

Changes in these tables are noted by a line in the right hand margin. Please replace Table 3b and Table 4 included in our August 31, 1981 submittal with the attached.

*Thomas C. Bordine*  
Thomas C Bordine

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

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TABLE 3b  
BIG ROCK POINT NUCLEAR POWER PLANT  
EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (1981)

LIQUID EFFLUENTS

NUCLIDES RELEASED	UNITS	FIRST QUARTER	SECOND QUARTER
Antimony-124	Ci	1.37E-04	--
Cesium-134	Ci	2.45E-02	5.87E-03
Cesium-137	Ci	6.93E-02	1.96E-02
Iron-59	Ci	2.37E-03	--
Zinc-65	Ci	1.82E-04	--
Cobalt-60	Ci	3.48E-02	6.94E-03
Manganese-54	Ci	1.40E-02	1.68E-03
Lanthanum-140	Ci	5.92E-06	--
Silver-110m	Ci	1.70E-04	--
Strontium-89	Ci	3.04E-05	3.50E-05*
Strontium-90	Ci	4.87E-04	9.88E-05*
Cobalt-58	Ci	1.39E-04	8.59E-05
	Ci	--	--
Net Unidentified Beta	Ci	5.70E-02	7.05E-03
Chromium-51	Ci	1.35E-02	5.56E-03
Iodine-131	Ci	1.39E-04	5.45E-05
Total for Period	Ci	2.17E-01	4.70E-02
Xenon-133	Ci	2.44E-05	--

\*June results not available at time of report

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TABLE 4

BIG ROCK POINT NUCLEAR POWER PLANT  
EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (1981)  
SOLID WASTE AND IRRADIATED FUEL SHIPMENTS

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

1. Type of Waste	Units	First 6 Months
a. Spent resins, filter sludges, evaporator bottoms, etc.	m <sup>3</sup> Ci	38.0 292.1
b. Dry compressible waste, contaminated equipment, etc.	m <sup>3</sup> Ci	72.1 3.57
c. Irradiated components, control rods, etc.	m <sup>3</sup> Ci	- -
d. Other (describe)	m <sup>3</sup> Ci	- -

## 2. Solid Waste Disposition

<u>No. of Shipments</u>	<u>Mode of Transportation</u>	<u>Destination License Number</u>
8	Truck	Chem-Nuclear Systems Barnwell, SC 146-13536-01
3	Truck	US Ecology Richland, WA WN-I019-2

## B. IRRADIATED FUEL SHIPMENTS (DISPOSITION)

<u>No. of Shipments</u>	<u>Mode of Transportation</u>	<u>Destination</u>
None	-	-