

**Consumers
Power
Company**

General Offices: 212 West Michigan Avenue, Jackson, Michigan 49201 • Area Code 517 788-0550

January 11, 1977

Director of Nuclear Reactor Regulation
US Nuclear Regulatory Commission
Washington, DC 20555



DOCKET 50-155, LICENSE DPR-6 -
BIG ROCK POINT PLANT

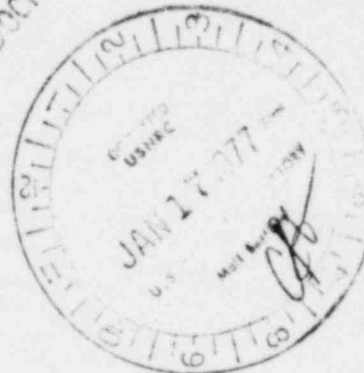
On August 31, 1976 (with corrections dated September 15, 1976), Consumers Power Company transmitted radioactive effluent summaries for the Big Rock Point Plant in accordance with the requirements of 10 CFR 50.36.a(2). Due to an oversight, we did not include information regarding radioactive waste shipments and radiological environmental monitoring, as required by Technical Specification Section 6.9.3. This information is transmitted attached and should be added to the effluent summaries submitted August 31, 1976.

Ralph B. Sewell, NS

Ralph B Sewell
Nuclear Licensing Administrator

CC: JGKepler, USNRC

Regulatory Docket File



Radioactive Waste Shipments

During the period of January thru June 1976, seven shipments of radioactive material left the site. Two shipments involved exempt quantities and two others were irradiated cobalt totaling approximately 575,000 Curies. Of the remaining three shipments (approximately 0.14 Curie) only one involved solid waste for burial. The following table lists all shipments for the period.

OFF-SITE SHIPMENTS OF RADIOACTIVE MATERIAL

<u>SHIPMENT NUMBER</u>	<u>DATE</u>	<u>TRANSFERRED FROM</u>	<u>TRANSFERRED TO</u>	<u>RADIOACTIVE MATERIAL</u>	<u>VOLUME</u>	<u>DISPOSITION</u>
393	2/20/76	DPR-6	GINNA Station (Exempt Quantity)	Fuel Insp Tools (0.16 μ Ci)	2 ft ³	Reuse
394	3/11/76	DPR-6	Exxon, Richland, WA WN-I-062-1	Fuel Insp Tools (4.98 mCi)	6 ft ³	Reuse
395	3/17/76	DPR-6	Battelle, Columbus, OH 34-06854-05	16 Co-60 Rods (287,000 Ci)	<1 ft ³	Processing
396	3/22/76	DPR-6	NES, Rockville, MD (Exempt Quantity)	Carbon filter crud samples (<100 μ Ci)	1 ft ³	Analyses
397	4/21/76	DPR-6	Battelle, Columbus, OH 34-06854-05	Steam drum relief Valve nozzles (300 μ Ci)	5 ft ³	Examination
398	4/29/76	DPR-6	Battelle, Columbus, Oh 34-06854-05	19 Co-60 Rods (287,565 Ci)	<1 ft ³	Processing
399	5/20/76	DPR-6	NECO, Morehead, KY 16-NSF-1	123 DOT 17H Barrels (0.13 Ci)	918 ft ³	Burial

Radiological Environmental Monitoring Program

Tables 1 and 2 summarize the results of the radiological environmental monitoring program for the first six months of 1976. The only two locations at which levels were found to be significantly above local background were the plant intake and discharge. Table 3 compares the measured intake and discharge gross beta activity to that calculated from effluent data. The calculated average monthly discharge concentrations do not compare well with the measured concentration. This is due in part to a fixed sampling rate while the discharge flow varies significantly during each sampling period (see Table 3). The average for the first six months, however, is within a factor of two of calculated concentration for the period. This is considered reasonable for this type of data. The high intake concentrations are believed due to the use of a warming line from the discharge to the intake for prevention of ice buildup. Table 4 contains the results of isotopic analysis of the intake and discharge samples with gross beta concentrations in excess of 10 pCi/l.

Levels of radioactive materials in the sampled environmental media do not indicate the likelihood of public intakes in excess of 1% of those that could result from continuous annual exposure to the concentration values listed in Appendix B, Table II, 10CFR20.

TABLE 1

RADIOLOGICAL ENVIRONMENTAL MONITORING
 SAMPLING AND ANALYSIS SUMMARY
 JANUARY 1, 1976 TO JUNE 30, 1976

<u>MEDIUM</u>	<u>DESCRIPTION</u>	<u>TYPE OF ANALYSIS</u>	<u>FREQUENCY</u>	<u>NUMBER OF SAMPLING LOCATIONS</u>	<u>NUMBER OF SAMPLES COLLECTED</u>
Air	Continuous @ approx 1cfm	Gross Beta, I-131	Weekly	7	182
Lake Water	Composite	Gross Beta, H-3	Monthly	3	18
Well Water	Grab	Gross Beta	Monthly	1	6
Milk	Grab	I-131, Sr-89/90 Gamma Isotopic	Monthly	4	23
Gamma Dose	Continuous	TLD	Monthly	13	90
			Quarterly	13	30
		Film	Monthly	16	96
Aquatic Biota	Grab	Gross Beta, Sr-89/ 90, Gamma Isotopic	Semiannual	5	23

TABLE 2

HIGH, LOW AND AVERAGE CONCENTRATION
FOR THE HIGHEST AVERAGE SAMPLING LOCATION
JANUARY 1, 1976 TO JUNE 30, 1976

<u>MEDIA</u>	<u>TYPE OF ANALYSIS</u>	<u>UNITS</u>	<u>LOCATION</u>	<u>HIGH</u>	<u>LOW</u>	<u>AVERAGE</u>
Air	Gross Beta	pCi/m ³	TR (50 mi SSW)	0.05	<0.01	0.028
	I-131 ⁽¹⁾	pCi/m ³	All	----	-----	< MDL
Lake Water	Gross Beta	pCi/l	Discharge	129	21	49
	H-3	pCi/l	Discharge	820	180	480
Well Water	Gross Beta	pCi/l	Site	7	<3	4.3
Milk	I-131 ⁽²⁾	pCi/l	All	----	-----	<MDL
	Ca-137		LK (3.5 mi E)	12	<5	9.2
	Sr-89		GS (2.3 mi SE)	9	<5	<5
	Sr-90		LK (3.5 mi E)	16	9	11.4
Gamma Dose	TLD (monthly)	μR/day	E (site boundary)	191	117	159
	TLD (quarterly)	μR/day	E (site boundary)	174	130	152
	Film (monthly)	mR/mo	NM (3 mi E)	5.5	0	1.2
Biota ⁽³⁾						
Periphyton	Gross Beta	pCi/g (wet)	Discharge	----	-----	41
Algae			Discharge	----	-----	51
Fish ⁽⁴⁾			Discharge	----	-----	18
Shore Minnows			$\frac{1}{4}$ mi N, Discharge	----	-----	14
Crayfish			$\frac{1}{4}$ mi N	----	-----	14

NOTES:

- (1) Minimum Detectable Level (MDL) = 0.02 pCi/m³; some samples may have higher MDLs due to extended shipping time.
- (2) MDL = 0.5 pCi/l; some samples may have higher MDLs due to extended shipping time.
- (3) One sample per location.
- (4) Only location where fish samples were obtained.

TABLE 3

COMPARISON OF MEASURED AND CALCULATED
LAKE WATER CONCENTRATIONS

SAMPLING PERIOD START FINISH		GROSS BETA CONCENTRATION				CIRCULATING DISCHARGE WATER FLOW RATE (MGD)		
		MEASURED		CALCULATED DISCHARGE		HIGH	LOW	AVERAGE
		INTAKE	DISCHARGE	AVERAGE	MAXIMUM			
1/2/76	2/12/76	24 ± 3	24 ± 3	5.2	340	73.4	2.9	60.5
2/13/76	3/11/76	107 ± 5	129 ± 5	30	1070	68.1	2.9	35.0
3/12/76	4/07/76	10 ± 2	26 ± 3	9.3	420	43.9	0.4	28.5
4/08/76	5/13/76	13 ± 2	67 ± 4	120	1630	37.8	2.9	8.5
5/14/76	6/10/76	6 ± 2	25 ± 3	89	6200	72.0	2.9	34.7
6/11/76	7/07/76	8 ± 2	21 ± 2	17	1350	72.0	40.8	66.1
Average		28	49	28	6200	73.4	0.4	39.7

TABLE 4

RADIONUCLIDES IN WATER SAMPLES CONTAINING GROSS BETA CONCENTRATIONS
IN EXCESS OF 10 pCi/l

COLLECTION DATE	LOCATION	pCi/l								
		Gross B	Cs-134	Cs-137	Co-60	Mn-54	Other Gamma*	Sr-89	Sr-90	I-131 (a)
02/12/76	STLWI	24 + 3	8 + 1	20 + 2	<5	<5	<5	<5	<1	<3.5
02/12/76	STLWO	24 + 3	5 + 1	15 + 2	<5	<5	<5	<5	2 + 1	<3.5
03/11/76	STLWI	107 + 11	30 + 8	90 + 20	<5	<5	<5	<5	3 + 1	<5.0
03/11/76	STLWO	129 + 11	40 + 5	110 + 20	<5	<5	<5	<5	2 + 1	<5.0
04/07/76	STLWO	26 + 3	<5	<5	<5	<5	<5	<5	<1.3	<0.5
05/13/76	STLWI	13 + 2	15 + 2	46 + 3	<5	<5	<5	<5	2 + 2	<0.12(b)
05/13/76	STLWO	67 + 4	2 + 0.2	6 + 0.4	<5	<5	<5	<5	3 + 1	<0.12(b)
06/10/76	STLWO	25 + 3	6 + 0.4	19 + 1.0	<1	<1	<1	<2	<1	<4.2
07/07/76	STLWO	21 + 2	5 + 1	14 + 1	<5	<5	<1	<5	<1	<1.5(c)

(a) as of collection date

(b) as of 6/23/76

(c) as of date of analysis; insufficient sample remaining for more sensitive analysis

* The spectrum is computer scanned from ~20 to ~2000 KeV. Specifically included are Ce-144, Ba-La-140, Cs-134, Cs-137, Zr-Nb-95, Co-58, Co-60, Mn-54, Zn-65. Naturally-occurring gamma emitters such as K-40 and Ra daughters are frequently detected but not listed here. Data listed as "<" are at the 3σ level, others are 2σ. Listed concentration is for Cs-137 and may be slightly more or less sensitive for other nuclides.

NRC DISTRIBUTION FOR PART 50 DOCKET MATERIAL

FILE NUMBER

TO: NRC

FROM: Consumers Pwr Co
Jackson, Mich
R B Sewell

DATE OF DOCUMENT
1-11-77

DATE RECEIVED 1-17-77

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DESCRIPTION

Ltr re their 8-31-76 submittal....trans the following:

lp

PLANT NAME: Big Rock Point

ENCLOSURE

Info regarding radioactive waste shipments & radiological environmental monitoring...
....for addition to effluent summaries of their 8-31-76 submittal.....

(40 cys encl rec'd)

**ACKNOWLEDGED
DO NOT REMOVE**

SAFETY FOR ACTION/INFORMATION ENVIRO 1-17-77 df

ASSIGNED AD:		ASSIGNED AD:
BRANCH CHIEF:	<i>Ziemann (5)</i>	BRANCH CHIEF:
PROJECT MANAGER:	<i>Reeves</i>	PROJECT MANAGER:
LIC. ASST. :	<i>O'ISS</i>	LIC. ASST. :

INTERNAL DISTRIBUTION

<input checked="" type="checkbox"/> REG FILE	SYSTEMS SAFETY	PLANT SYSTEMS	SITE SAFETY &
<input checked="" type="checkbox"/> NRC PDR	HEINEMAN	TEDESCO	ENVIRO ANALYSIS
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<input checked="" type="checkbox"/> OELD		LAINAS	
<input checked="" type="checkbox"/> GOSSICK & STAFF	ENGINEERING	IPPOLITO	ENVIRO TECH.
MIPC	MACARRY	KIRKWOOD	ERNST
CASE	KNIGHT		BALLARD
HANAUER	SIHWEIL	OPERATING REACTORS	SPANGLER
HARLESS	PAWLICKI	STELLO	
			SITE TECH.
PROJECT MANAGEMENT	REACTOR SAFETY	OPERATING TECH.	GAMMILL
BOYD	ROSS	EISENHUT	STEPP
P. COLLINS	NOVAK	SHAO	HULMAN
HOUSTON	ROSZTOCZY	BAER	
PETERSON	CHECK	BUTLER	SITE ANALYSIS
MELTZ		GRIMES	VOLLMER
HELTEMES	AT & I		BUNCH
SKOVHOLT	SALTZMAN		J. COLLINS
	RUTBERG		KREGER

EXTERNAL DISTRIBUTION

<input checked="" type="checkbox"/> LPDR:	NAT. LAB:	BROOKHAVEN NAT. LAB.	CONTROL NUMBER 489 155 M 1/17/77
<input checked="" type="checkbox"/> TIC:	REG V.IE	ULRIKSON (ORNL)	
<input checked="" type="checkbox"/> NSIC:	LA PDR		
<input checked="" type="checkbox"/> ASLB:	CONSULTANTS:		
<input checked="" type="checkbox"/> ACRS / 6 CYS HOLDING / SENT AS CAT B 1-17-77			