



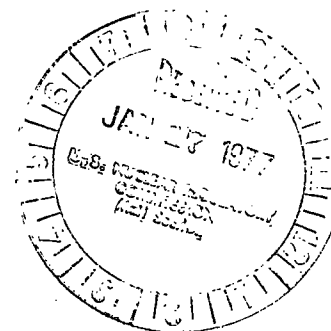
**Consumers
Power
Company**

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

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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 (Signed)

Ralph B Sewell
Nuclear Licensing Administrator

CC: JGKeppler, USNRC

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 lcfm	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, Gamms Isotopic	Semiannual	5	23

TABLE 2

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

MEDIA	TYPE OF ANALYSIS	UNITS	LOCATION	HIGH	LOW	AVERAGE
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
	Cs-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		GROSS BETA CONCENTRATION				CIRCULATING DISCHARGE WATER		
START	FINISH	MEASURED		CALCULATED DISCHARGE		FLOW RATE (MGD)		
		INTAKE	DISCHARGE	AVERAGE	MAXIMUM	HIGH	LOW	AVERAGE
1/2/76	2/12/76	24 \pm 3	24 \pm 3	5.2	340	73.4	2.9	60.5
2/13/76	3/11/76	107 \pm 5	129 \pm 5	30	1070	68.1	2.9	35.0
3/12/76	4/07/76	10 \pm 2	26 \pm 3	9.3	420	43.9	0.4	28.5
4/08/76	5/13/76	13 \pm 2	67 \pm 4	120	1630	37.8	2.9	8.5
5/14/76	6/10/76	6 \pm 2	25 \pm 3	89	6200	72.0	2.9	34.7
6/11/76	7/07/76	8 \pm 2	21 \pm 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 3 σ level, others are 2 σ . Listed concentration is for Cs-137 and may be slightly more or less sensitive for other nuclides.