



**Consumers
Power
Company**

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COPY

April 16, 1981

M R Beebe
US Nuclear Regulatory Commission
Office of Management and Program Analysis
Licensee Operations Evaluation Branch
Washington, DC 20555



DOCKET 50-155 - LICENSE DPR-6 -
BIG ROCK POINT PLANT - SUMMARY
OF RADIOACTIVE EFFLUENTS - 1979

NRC letter dated March 26, 1981 requested Consumers Power Company to review the provided data for Big Rock Point for 1979 to be used in a summary of radioactive effluents released report being made by Brookhaven National Laboratories. The noted corrections generally reflect corrected data submitted to the NRC by Consumers Power submittal dated August 27, 1980. The enclosed corrected tables identify corrections by the use of parentheses.

A summary of major changes is as follows:

Batch Releases - Added data for first and second quarters for liquid releases.

Gaseous Effluents - Summation of all releases - Fourth quarter data was changed to reflect revised tables which were submitted to the NRC on August 27, 1980 along with the Radioactive Effluent Semi-Annual Report for January-June 1980.

Liquid Effluents - Tables were changed to show that releases are made as batches and not continuously.

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

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INSTALLATION BIG ROCK POINT LOCATION 4 MI NE CHARLEVOIX MI

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT FOR YEAR 1972
SUPPLEMENTAL INFORMATION

UNIT NUMBER 1 LICENSEE CONSUMERS POWER
TYPE PWR LICENSED POWER (MW) 240.0
DOCKET NO. 50-155 INITIAL CRITICALITY 09/27/62
COOLING WATER SOURCE LAKE MICHIGAN

MAXIMUM PERMISSIBLE CONCENTRATIONS (MICROCURI/ML)

MEASUREMENTS AND APPROXIMATIONS OF TOTAL RADIOACTIVITY

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

INSTALLATION BIG ROCK POINT

LOCATION 4 MI NE CHARLEVOIX MI

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT FOR YEAR 1979
SUPPLEMENTAL INFORMATION

AVERAGE ENERGY (MEV/DISINTEGRATION)

BETA		GAMMA	
QUARTER 1	QUARTER 2	QUARTER 1	QUARTER 2
(N/A)	(N/A)	(N/A)	(N/A)

BATCH RELEASES

A. LIQUID

	QUARTER 1	QUARTER 2
1. NUMBER OF BATCH RELEASES-		
2. TOTAL TIME PERIOD FOR BATCH RELEASE (MIN)-	(8.69E+03)	(3.05E+03)
3. MAXIMUM TIME PERIOD FOR A BATCH RELEASE (MIN)-	(1.53E+03)	(3.91E+02)
4. AVERAGE TIME PERIOD FOR BATCH RELEASES (MIN)-	(3.95E+02)	(2.34E+02)
5. MINIMUM TIME PERIOD FOR A BATCH RELEASE (MIN)-	(4.90E+01)	(4.50E+01)
6. AVERAGE STREAM FLOW DURING PERIODS OF RELEASE OF EFFLUENT INTO A FLOWING STREAM (LTS/MIN)-		

B. GASEOUS

	QUARTER 1	QUARTER 2
1. NUMBER OF BATCH RELEASES-	(None)	(None)
2. TOTAL TIME PERIOD FOR BATCH RELEASES (MIN)-		
3. MAXIMUM TIME PERIOD FOR A BATCH RELEASE (MIN)-		
4. AVERAGE TIME PERIOD FOR BATCH RELEASES (MIN)-		
5. MINIMUM PERIOD FOR A BATCH RELEASE (MIN)-		

ABNORMAL RELEASES

A. LIQUID

	QUARTER 1	QUARTER 2
1. NUMBER OF RELEASES	(None)	(None)
2. TOTAL ACTIVITY RELEASED (CURIES)		

B. GASEOUS

	QUARTER 1	QUARTER 2
1. NUMBER OF RELEASES	(None)	(None)
2. TOTAL ACTIVITY RELEASED (CURIES)		

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

INSTALLATION BIG ROCK POINT

LOCATION 4 MI NE CHARLEVOIX MI

EFFLUENT AND WASTE DISPOSAL SEMI-ANNUAL REPORT FOR YEAR 1979
SUPPLEMENTAL INFORMATION

AVERAGE ENERGY (MEV/DISINTEGRATION)

	BETA		GAMMA	
	QUARTER 3	QUARTER 4	QUARTER 3	QUARTER 4
	(N/A)	(N/A)	(N/A)	(N/A)

BATCH RELEASES

A. LIQUID

	QUARTER 3	QUARTER 4
1. NUMBER OF BATCH RELEASES-	4	17
2. TOTAL TIME PERIOD FOR BATCH RELEASE (MIN)-	3.41E 03	3.28E 03
3. MAXIMUM TIME PERIOD FOR A BATCH RELEASE (MIN)-	9.26E 02	3.20E 02
4. AVERAGE TIME PERIOD FOR BATCH RELEASES (MIN)-	3.79E 02	1.93E 02
5. MINIMUM TIME PERIOD FOR A BATCH RELEASE (MIN)-	1.50E 02	7.10E 01
6. AVERAGE STREAM FLOW DURING PERIODS OF RELEASE OF EFFLUENT INTO A FLOWING STREAM (LTS/MIN)-		*

B. GASEOUS

1. NUMBER OF BATCH RELEASES-	NONE	NONE
2. TOTAL TIME PERIOD FOR BATCH RELEASES (MIN)-		
3. MAXIMUM TIME PERIOD FOR A BATCH RELEASE (MIN)-		
4. AVERAGE TIME PERIOD FOR BATCH RELEASES (MIN)-		
5. MINIMUM PERIOD FOR A BATCH RELEASE (MIN)-		

ABNORMAL RELEASES

A. LIQUID

1. NUMBER OF RELEASES	NONE	NONE
2. TOTAL ACTIVITY RELEASED (CURIES)		

B. GASEOUS

1. NUMBER OF RELEASES	NONE	NONE
2. TOTAL ACTIVITY RELEASED (CURIES)		

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

INSTALLATION#RIG ROCK POINT

EFFLUENT AND WASTE DISPOSAL SEMI-ANNUAL REPORT 1979

GASEOUS EFFLUENTS-SUMMATION OF ALL RELEASES

	UNIT	QUARTER 1	QUARTER 2	EST. TOTAL ERROR, %
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A. FISSION AND ACTIVATION GASES

1. TOTAL RELEASE	CI	2.54E-03	6.73E-01	
2. AVERAGE RELEASE RATE FOR PERIOD	UCI/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	(N/D)	
2. AVERAGE RELEASE RATE FOR PERIOD	UCI/SEC	1.59E-05		
3. PERCENT OF TECHNICAL SPECIFICATION LIMIT	%	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	UCI/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	UCI/SEC	1.35E-01	2.82E-02	
3. PERCENT OF TECHNICAL SPECIFICATION LIMIT	%	5.63E-03	1.18E-03	

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

INSTALLATION=RIG ROCK POINT

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT 1979

GASEOUS EFFLUENTS-SUMMATION OF ALL RELEASES

	UNIT	QUARTER 3	QUARTER 4	EST. TOTAL ERROR, %
A. FISSION AND ACTIVATION GASES				
1. TOTAL RELEASE	CI	(N/D)	(4.06E+03)	
2. AVERAGE RELEASE RATE FOR PERIOD	UCI/SEC		(5.11E+02)	
3. PERCENT OF TECHNICAL SPECIFICATION LIMIT	%		(5.11E-02)	
B. IODINES				
1. TOTAL IODINE-131	CI	(N/D)	(9.93E-05)	
2. AVERAGE RELEASE RATE FOR PERIOD	UCI/SEC		(1.25E-05)	
3. PERCENT OF TECHNICAL SPECIFICATION LIMIT	%		(1.04E-03)	
C. PARTICULATES				
1. PARTICULATES WITH HALF-LIVES > 8 DAYS	CI	7.69E-05	(3.00E-03)	
2. AVERAGE RELEASE RATE FOR PERIOD	UCI/SEC	9.67E-06	(1.26E-04)	
3. PERCENT OF TECHNICAL SPECIFICATION LIMIT	%	7.76E-04	(7.00E-03)	
4. GROSS ALPHA RADIOACTIVITY	CI	7.15E-07	(5.04E-07)	
D. TRITIUM				
1. TOTAL RELEASE	CI	2.19E-01	(1.66E+00)	
2. AVERAGE RELEASE RATE FOR PERIOD	UCI/SEC	2.76E-02	(2.09E-01)	
3. PERCENT OF TECHNICAL SPECIFICATION LIMIT	%	1.15E-03	(8.71E-03)	

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N/R=NOT REPORTED

INSTALLATION=RIG ROCK POINT

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT 1979

GAS EFFLUENTS ELEVATED RELEASE

NUCLIDES RELEASED	UNIT	CONTINUOUS MODE		BATCH MODE	
		QUARTER	QUARTER	QUARTER	QUARTER
		1	2	1	2
FISSION GASES					
KR-83M	CI	6.85E 01	2.1E 00		
KR-85	CI	<1.00E 00	(N/D)		
KR-85M	CI	8.54E 01	3.81E 00		
KR-87	CI	1.37E 02	5.91E 00		
KR-88	CI	8.67E 01	3.65E 00		
KR-89	CI	1.68E 02	1.07E 00		
KR-90	CI	1.85E 02	<1.00E 00		
KR-91	CI	2.29E 00	(N/D)		
N-13	CI	1.53E 02	(N/D)		
XE-131M	CI	<1.00E 00	<1.00E 00		
XE-133	CI	2.49E 01	2.26E 00		
XE-133M	CI	1.07E 00	<1.00E 00		
XE-135	CI	1.36E 02	8.29E 00		
XE-135M	CI	2.84E 02	3.72E 00		
XE-137	CI	2.67E 02	1.79E 00		
XE-138	CI	6.64E 02	3.33E 01		
XE-139	CI	2.47E 02	<1.00E 00		
XE-140	CI	2.48E 01	(N/D)		
IODINES					
I-131	CI	1.24E-04	(N/D)		
I-133	CI	1.16E-03	(N/D)		
I-135	CI	1.45E-03	(N/D)		
PARTICULATES					
BA-140	CI	3.87E-05	(N/D)		
BR-82	CI	2.74E-04	(N/D)		
CU-60	CI	9.20E-05	6.33E-05		
CS-137	CI	3.88E-05	7.96E-05		
LA-140	CI	2.60E-04	(N/D)		
MN-54	CI	1.40E-05	2.77E-05		
NP-239	CI	5.36E-06	(N/D)		
UNIDENTIFIED	CI	2.34E-04	4.21E-06		
ZN-65	CI	1.07E-05	(N/D)		

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

INSTALLATION=BIG ROCK POINT

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT 1979

GAS EFFLUENTS ELEVATED RELEASE

NUCLIDES RELEASED	UNIT	CONTINUOUS MODE		BATCH MODE	
		QUARTER	QUARTER	QUARTER	QUARTER
		3	4	3	4
FISSION GASES					
KR-83M	CI	(N/D)	(1.00E+02)		
KR-85M	CI	(N/D)	(1.25E+02)		
KR-87	CI	(N/D)	(3.49E+02)		
KR-88	CI	(N/D)	(1.83E+02)		
KR-89	CI	(N/D)	(2.47E+02)		
KR-90	CI	(N/D)	(2.72E+02)		
KR-91	CI	(N/D)	(3.37E+00)		
N-13	CI	(N/D)	2.86E 02		
XE-131M	CI	(N/D)	(N/D)		
XE-133	CI	(N/D)	(5.33E+01)		
XE-133M	CI	(N/D)	(2.72E+00)		
XE-135	CI	(N/D)	(2.94E+02)		
XE-135M	CI	(N/D)	(4.17E+02)		
XE-137	CI	(N/D)	(3.94E+02)		
XE-138	CI	(N/D)	1.03E 03		
XE-139	CI	(N/D)	(2.64E+02)		
XE-140	CI	(N/D)	(3.65E+01)		
IODINES					
I-131	CI	(N/D)	(9.93E-05)		
I-133	CI	(N/D)	(9.28E-04)		
I-135	CI	(N/D)	(1.16E-03)		
PARTICULATES					
BA-140	CI	(N/D)	(1.89E-04)		
CU-60	CI	2.80E-05	(8.09E-05)		
CR-51	CI	(N/D)	6.72E-06		
CS-134	CI	2.92E-06	1.17E-06		
CS-137	CI	3.73E-05	(1.07E-04)		
LA-140	CI	(N/D)	(1.22E-03)		
MN-54	CI	4.43E-07	1.41E-05		
(BR-82)	CI	(N/D)	(9.91E-04)		
(CS-136)	(CI)	(N/D)	(6.81E-06)		
(Unidentified)	(CI)	(3.93E-06)	(5.99E-04)		

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

INSTALLATION=RIG ROCK POINT

EFFLUENT AND WASTE DISPOSAL SEMI-ANNUAL REPORT 1979

LIQUID EFFLUENTS-SUMMATION OF ALL RELEASES

	UNIT	QUARTER 1	QUARTER 2	EST. TOTAL ERROR, %
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	UCI/ML	1.82E-08	2.04E-08	
3. PERCENT OF APPLICABLE LIMIT	%	1.86E-01	3.24E-01	
B. TRITIUM				
1. TOTAL RELEASE	CI	3.37E 00	1.47E 00	
2. AVERAGE DILUTED CONCENTRATION DURING PERIOD	UCI/ML	1.75E-07	1.39E-07	
3. PERCENT OF APPLICABLE LIMIT	%	5.62E-03	4.62E-03	
C. DISSOLVED AND ENTRAINED GASES				
1. TOTAL RELEASE	CI	4.97E-04	(N/D)	
2. AVERAGE DILUTED CONCENTRATION DURING PERIOD	UCI/ML	2.54E-11	(N/D)	
3. PERCENT OF APPLICABLE LIMIT	%	8.60E-04	(N/D)	
D. GROSS ALPHA RADI-ACTIVITY				
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	

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

INSTALLATION-RIG ROCK POINT

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT 1979

LIQUID EFFLUENTS-SUMMATION OF ALL RELEASES

UNIT QUARTER 3 QUARTER 4 EST. TOTAL ERROR, %

A. FISSION AND ACTIVATION PRODUCTS

1. TOTAL RELEASE (NOT INCLUDING TRITIUM, GASES, ALPHA)

2. AVERAGE DILUTED CONCENTRATION DURING PERIOD

3. PERCENT OF APPLICABLE LIMIT

CI 1.67E-01 1.63E-01

UCI/ML 1.26E-08 7.55E-09

% 2.31E-01 1.62E-01

B. TRITIUM

1. TOTAL RELEASE

2. AVERAGE DILUTED CONCENTRATION DURING PERIOD

3. PERCENT OF APPLICABLE LIMIT

CI 6.10E-01 4.11E-03

UCI/ML 4.59E-08 1.90E-10

% 1.53E-03 6.34E-06

C. DISSOLVED AND ENTRAINED GASES

1. TOTAL RELEASE

2. AVERAGE DILUTED CONCENTRATION DURING PERIOD

3. PERCENT OF APPLICABLE LIMIT

CI (N/D) 4.74E-05

UCI/ML 2.21E-12

% 9.62E-07

D. GROSS ALPHA RADIOACTIVITY

1. TOTAL RELEASE

CI 9.99E-05 9.71E-06

E. VOLUME OF WASTE RELEASED (PRIOR TO DILUTION)

LITERS 1.70E 05 2.60E 05

F. VOLUME OF DILUTION WATER USED DURING PERIOD

LITERS 1.23E 10 2.16E 10

N/A=NOT APPLICABLE

N/U=NOT DETECTED

N/R=NOT REPORTED

INSTALLATION=HIG ROCK POINT

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT 1979

LIQUID EFFLUENTS

NUCLIDES RELEASED	UNIT	CONTINUOUS MODE		BATCH MODE	
		QUARTER 1	QUARTER 2	QUARTER 1	QUARTER 2

CO-58	CI	1.70E-03	(N/D)		
CO-60	CI	4.27E-02	1.75E-02		
CR-51	CI	5.77E-03	(N/D)		
CS-134	CI	1.74E-02	1.70E-02		
CS-137	CI	1.77E-01	1.1E-01		
FE-59	CI	5.01E-03	(N/D)		
I-133	CI	2.82E-04	(N/D)		
LA-140	CI	1.63E-04	(N/D)		
MN-54	CI	3.12E-02	2.22E-03		
NP-239	CI	1.27E-03	(N/D)		
SR-124	CI	4.49E-03	(N/D)		
SR-89	CI	3.40E-04	5.17E-05		
SR-90	CI	4.60E-04	2.24E-04		
UNIDENTIFIED	CI	(6.34E-02)	(4.27E-02)		
ZN-65	CI	9.28E-04	(N/D)		
XE-133	CI	4.97E-04	(N/D)		

Releases made as
batches only - all
numbers should be
listed in batch mode
columns

These columns should
be blank

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

INSTALLATION=BIG ROCK POINT

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT 1974

LIQUID EFFLUENTS

NUCLIDES RELEASED	UNIT	CONTINUOUS MODE		BATCH MODE	
		QUARTER 3	QUARTER 4	QUARTER 3	QUARTER 4
CQ-60	CI	2.83E-02	4.14E-02	} Releases made as batches only - all numbers should be listed in batch mode columns	
CS-134	CI	1.07E-02	4.99E-03		
CS-137	CI	9.52E-02	5.95E-02		
MN-54	CI	5.83E-03	1.97E-02		
NA-24	CI		3.67E-05		
SR-89	CI	3.73E-05	(N/D)		
SH-90	CI	2.15E-04	2.38E-04		
UNIDENTIFIED	CI	2.68E-02	3.70E-02		
XE-133	CI	(N/D)	4.78E-05		

These columns
should be blank

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

INSTALLATION= BIG ROCK POINT

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT 1979
(JANUARY-JUNE)

SOLID WASTE AND IRRADIATED FUEL SHIPMENTS

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

1. TYPE OF WASTE	UNIT	6-MONTH PERIOD	EST. TOTAL ERROR, %
A. SPENT RESINS, FILTER SLUDGES, EVAPORATOR BOTTOMS, ETC.	M3	(N/A)	
	CI		
B. DRY COMPRESSIBLE WASTE, CONTAMINATED EQUIPMENT, ETC.	M3	5.99E 01	
	CI	2.07E 00	
C. IRRADIATED COMPONENTS, CONTROL RODS, ETC.	M3	(N/A)	
	CI		
D. OTHER (DESCRIBE)	M3	(N/A)	
	CI		

3. SOLID WASTE DISPOSITION-

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
2	TRUCK	(RICHLAND WA)

B. IRRADIATED FUEL SHIPMENTS (DISPOSITION)

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
0	N/A	N/A

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

INSTALLATION BIG ROCK POINT

EFFLUENT AND WASTE DISPOSAL SEMI-ANNUAL REPORT 1979 (JULY-DECEMBER)

SOLID WASTE AND IRRADIATED FUEL SHIPMENTS

A. SOLID WASTE SHIPPED OFFSITE FOR BURIAL OR DISPOSAL (NOT IRRADIATED FUEL) 1. TYPE OF WASTE

UNIT	EST. TOTAL EMR009, K
A. SPENT RESINS, FILTER SLUDGES, EVAPORATOR BOTTOMS, ETC.	3.00E 01
B. DRY COMPRESSIBLE WASTE, CONTAMINATED EQUIPMENT, ETC.	2.75E 02 (N/A)
C. IRRADIATED COMPONENTS, CONTROL RODS, ETC.	(N/A)
D. OTHER (DESCRIBE)	(N/A)

3. SOLID WASTE DISPOSITION- NUMBER OF SHIPMENTS MODE OF TRANSPORTATION DESTINATION

A	TRUCK	HARWELL S.C.
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B. IRRADIATED FUEL SHIPMENTS (DISPOSITION) NUMBER OF SHIPMENTS MODE OF TRANSPORTATION DESTINATION

0	N/A	N/A
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N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED