

ATTACHMENT

Consumers Power Company

Palisades Plant - Docket 50-255

RADIOACTIVE EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT  
JULY THROUGH DECEMBER 1983

February 1984

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PALISADES NUCLEAR PLANT SEMI-ANNUAL EFFLUENT REPORT  
JULY - DECEMBER 1983

This report provides information relating to radioactive effluent releases and solid radioactive waste disposal operations of the Palisades Plant during the period of July through December 1983 in the format contained in Plant Technical Specification 6.9.3.1.A.

1. Supplemental Information

a. Batch Releases

Information relating to batch releases of liquid and gaseous effluents is provided in Table 1.

b. Abnormal Releases - none.

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. The unidentified portion was  $4.00\text{E-}6\%$  of the total release.

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 unidentified portion was  $6.05\text{E-}4\%$  of the total release. Laundry releases for 1983 were 41.6% of Technical Specification limits.

4. Solid Waste

Quantities of solid waste shipped offsite and the disposition of these shipments are presented in Table 4.

5. Radiological Impact on Man

Potential doses to individuals and populations were calculated using GASPAR and LADTAP computer codes. The annual values for curies released were input for each nuclide.

a. Doses to individuals in unrestricted areas received from water related exposure pathways are  $4.74\text{E-}2$  mrem maximum total body dose (adult) and  $7.51\text{E-}2$  mrem maximum organ dose (teenage liver dose).

b. The maximum offsite air doses are  $1.50\text{E-}1$  mrad for beta and  $5.05\text{E-}2$  mrad for gamma.

- c. The most restrictive organ dose is the thyroid dose. The average thyroid dose to individuals within a distance of 50 miles of the site from radioactive iodine and radioactive material in particulate form from major pathways of exposure is  $1.23\text{E-}3$  mrem.
- d. Total body doses to the population and average doses to individuals in the population from receiving water related pathways to a distance of 50 miles from the site are  $1.58\text{E-}1$  manrem and  $1.50\text{E-}4$  mrem respectively.
- e. Total body doses to the population and average doses to individuals in the population from gaseous effluents to a distance of 50 miles from the site are  $7.37\text{E-}2$  manrem and  $7.02\text{E-}5$  mrem respectively.

TABLE 1  
PALISADES PLANT  
BATCH RELEASES  
JULY 1983 through DECEMBER 1983

A. GASEOUS	Units	Third Quarter	Fourth Quarter
Number of Releases		9	1
Total Release Time	Minutes	2.39E3	5.66E2
Maximum Release Time	Minutes	6.30E2	5.66E2
Average Release Time	Minutes	2.65E2	5.66E2
Minimum Release Time	Minutes	1.50E2	5.66E2

B. LIQUID			
Number of Releases		49	50
Total Release Time	Minutes	8.86E3	6.87E3
Maximum Release Time	Minutes	9.76E2	5.50E2
Average Release Time	Minutes	1.81E2	1.37E2
Minimum Release Time	Minutes	37	40

TABLE 2a  
PALISADES PLANT  
EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT  
GASEOUS EFFLUENTS - SUMMATION OF ALL RELEASES  
JULY 1983 through DECEMBER 1983.

A. FISSION & ACTIVATION GASES	UNITS	THIRD QUARTER	FOURTH QUARTER	EST TOTAL ERROR %
1. Total release	Ci	8.14E2	1.32E-2	4.01
2. Average release rate for period	µCi/sec	1.02E2	1.66E-3	
3. Percent of Technical Specification Limit	%	6.82E-2	1.11E-6	

B. IODINES				
1. Total Iodine-131	Ci	1.80E-2	8.15E-4	5.20
2. Average release rate for period (I-131)	µCi/sec	2.26E-3	1.03E-4	
3. Percent of Technical Specification Limit (I-131)	%	1.58E-1	7.20E-3	

C. PARTICULATES				
1. Particulates with half-life >8 days	Ci	1.50E-4	1.05E-3	29.2
2. Average release rate for period	µCi/sec	1.88E-5	1.32E-4	
3. Percent of Technical Specification Limit	%	1.34E-4	1.07E-4	
4. Gross alpha radioactivity	Ci	1.68E-6	1.19E-6	

D. TRITIUM				
1. Total release	Ci	1.78	2.38	
2. Average release rate for period	µCi/sec	2.24E-1	2.99E-1	
3. Percent of Technical Specification Limit	%	2.24E-4	2.99E-4	

E. PERCENT OF GASEOUS EFFLUENTS OF APPENDIX I VALUES	%	1.12	5.89E-2	
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TABLE 2b  
PALISADES PLANT  
EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT  
GASEOUS EFFLUENTS - GROUND LEVEL RELEASES  
JULY 1983 through DECEMBER 1983

1. FISSION GASES	Units	Third Quarter	Fourth Quarter
Krypton-85	Ci	2.15	1.32E-2
Krypton-85m	Ci	1.06E-2	--
Krypton-87	Ci	1.29E-3	--
Krypton-88	Ci	1.57E-2	--
Xenon-131m	Ci	1.33	--
Xenon-133	Ci	8.10E2	--
Xenon-133m	Ci	4.31E-2	--
Xenon-135	Ci	9.24E-2	--
Xenon-135m	Ci	8.34E-2	--
Argon-41	Ci	3.86E-3	--
Total for period	Ci	8.14E2	1.32E-2

1. IODINES			
Iodine-131	Ci	1.80E-2	8.15E-4
Iodine-132	Ci	1.55E-3	--
Iodine-133	Ci	4.54E-3	--
Iodine-135	Ci	1.99E-3	--
Total for period	Ci	2.61E-2	8.15E-4

TABLE 2b (continued)

## PALISADES PLANT

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT  
GASEOUS EFFLUENTS - GROUND LEVEL RELEASES  
JULY 1983 through DECEMBER 1983

3. *PARTICULATES	Units	Third Quarter	Fourth Quarter
Chromium-51	Ci	--	--
Manganese-54	Ci	--	--
Cobalt-58	Ci	3.08E-5	3.53E-5
Cobalt-60	Ci	2.73E-5	1.79E-5
Zinc-65	Ci	--	--
Silver-110m	Ci	--	--
Cesium-134	Ci	1.72E-6	--
Cesium-137	Ci	1.56E-5	9.39E-6
Barium-140	Ci	--	--
Mercury-203	Ci	--	--
Selenium-75	Ci	4.57E-5	9.84E-4
Net unidentified beta	Ci	2.87E-5	3.76E-6
Total		1.50E-4	1.05E-3

\*Particulates with half live &gt;8 days.

TABLE 3a  
PALISADES PLANT  
EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT  
LIQUID EFFLUENTS - SUMMATION OF ALL RELEASES  
JULY 1983 through DECEMBER 1983

A. FISSION & ACTIVATION PRODUCTS	UNITS	THIRD QUARTER	FOURTH QUARTER	EST TOTAL ERROR %
1. Total release (not including tritium, gases, alpha)	Ci	2.57E-2	4.80E-2	7.24
2. Average diluted concentration during period	µCi/ml	9.38E-10	2.81E-9	
3. Percent of applicable limit Liquid Waste System 1% of MPC	%	1.21	1.17	

B. TRITIUM				
1. Total Release	Ci	4.79E1	4.86E1	4.1
2. Average diluted concentration during period	µCi/ml	1.75E-6	2.84E-6	
3. Percent of applicable limit Liquid Waste System 1% of MPC	%	5.83	9.47	

C. DISSOLVED & ENTRAINED GASES				
1. Total release	Ci	6.75E-3	---	10.4
2. Average diluted concentration during period	µCi/ml	2.46E-10	---	
3. Percent of applicable limit Liquid Waste System 1% of MPC	%	1.07E-2	---	

D. GROSS ALPHA RADIOACTIVITY (total release)	Ci	<2.74E-2	<1.71E-2	
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E. VOLUME OF WASTE RELEASED (prior to dilution)	liters	2.04E6	1.52E6	
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F. VOLUME OF DILUTION WATER USED DURING PERIOD	liters	2.74E10	1.71E10	
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G. PERCENT OF APPENDIX I ANNUAL LIMIT	%	6.74E-1	1.02	
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TABLE 3b  
PALISADES PLANT  
EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT  
LIQUID EFFLUENTS  
JULY 1983 through DECEMBER 1983

NUCLIDES RELEASED	Units	Third Quarter	Fourth Quarter
Cesium-137	Ci	6.59E-3	7.75E-3
Cobalt-58	Ci	7.92E-3	2.87E-2
Manganese-54	Ci	1.01E-3	2.14E-3
Cobalt-60	Ci	7.15E-3	3.99E-3
Cesium-134	Ci	1.94E-3	5.28E-3
Barium-140	Ci	1.58E-4	--
Lanthanum-140	Ci	9.36E-5	--
Chromium-51	Ci	1.52E-5	--
Cesium-136	Ci	2.11E-5	--
Niobium-95	Ci	1.89E-8	7.06E-6
Iodine-131	Ci	3.04E-4	--
Silver-110m	Ci	2.98E-5	--
Zirconium-95	Ci	2.26E-6	--
Net unidentified beta	Ci	4.19E-4	1.65E-4
Subtotal for Period (above)	Ci	2.57E-2	4.80E-2
Xenon-133	Ci	6.75E-3	--
Tritium	Ci	4.79E1	4.86E1
Grand Totals		4.79E1	4.86E1

TABLE 4

## PALISADES PLANT

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT  
SOLID WASTE AND IRRADIATED FUEL SHIPMENTS

JULY 1983 through DECEMBER 1983

A. SOLID WASTE SHIPPED OFFSITE FOR BURIAL OR DISPOSAL (not irradiated fuel)	UNITS	
1. Spent resins, filter sludges, evaporator bottoms, etc.	m <sup>3</sup> Ci	9.25E1 2.39E2
2. Dry compressible waste, contaminated equipment, etc.	m <sup>3</sup> Ci	2.89E2 6.39
3. Irradiated components, control rods, etc. (In-cores)	m <sup>3</sup> Ci	3.30E-1 2.53E4
4. Other (describe)	m <sup>3</sup> Ci	-- --

## B. SOLID WASTE SHIPMENT DISPOSITION

<u>Date of Shipments</u>	<u>Mode of Transportation</u>	<u>Destination</u>
8/25/83, 9/1/83, 9/9/83, 9/16/83, 10/3/83, 10/7/83, 10/12/83, 10/18/83, 10/21/83, 10/27/83, 11/4/83, 11/22/83, 12/1/83, 12/7/83, 12/13/83	Truck	Richland, WA
7/18/83, 9/24/83, 11/3/83 11/10/83, 12/9/83	Truck	Barnwell, SC

## C. IRRADIATED FUEL SHIPMENTS (DISPOSITION)

<u>Date of Shipments</u>	<u>Mode of Transportation</u>	<u>Destination</u>
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NONE



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February 29, 1984

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PALISADES PLANT - SEMIANNUAL RADIOACTIVE EFFLUENT RELEASE AND WASTE DISPOSAL  
REPORT - JULY THROUGH DECEMBER 1983

Attached is the Semiannual Radioactive Effluent Release and Waste Disposal  
Report for the Palisades Plant covering the period from July through December  
1983. This is submitted in accordance with 10 CFR 50.63a(2) and Technical  
Specification Section 6.9.3.

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Attachment

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