

ATTACHMENT 1

PALISADES NUCLEAR POWER PLANT
RADIOACTIVE EFFLUENT AND
WASTE DISPOSAL SEMIANNUAL REPORT

JANUARY-JUNE 1979

8007210440

This report provides information relating to radioactive effluent releases and solid radioactive waste disposal operations of the Palisades Plant during the period of January through June 1979 in the format contained in plant Technical Specification Section 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

Two abnormal releases occurred during the second quarter totaling $2.53E+00$ Curies.

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 of the total release was 0.0006% 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 of the total release was 0.003% of the total release.

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 effluent data contained in Tables 2 and 3, and the dose conversion factors contained in the February/March 1979 Appendix I submittal.

- a. Total body and significant organ doses to individuals in unrestricted areas from receiving water-related exposure pathways were calculated to be less than 1 millirem.
- b. The maximum offsite air doses due to beta and gamma radiation at locations near ground level from gaseous effluents were calculated to be less than 1 millirad.

- c. Organ doses to individuals in unrestricted areas from radioactive iodine and radioactive material in particulate form from the major pathways of exposure were calculated to be less than 1 millirem.
- 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 were calculated to be less than 1 manrem and 1 millirem, 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 were calculated to be less than 1 manrem and 1 millirem, respectively.

TABLE I
PALISADES NUCLEAR POWER PLANT
BATCH RELEASES (1979)

A. GASEOUS

WASTE GAS DECAY TANKS	UNITS	FIRST QUARTER	SECOND QUARTER
Number of Releases		8	19
Total Release Time	Minutes	2075	4287
Maximum Release Time	Minutes	378	435
Average Release Time	Minutes	259	226
Minimum Release Time	Minutes	135	95
Total Continuous Stack Gas Release Period	Seconds	7.84E+06	8.05E+06

B. LIQUID

	UNITS	FIRST QUARTER	SECOND QUARTER
Number of Releases		8	10
Total Release Time	Minutes	2889	2959
Maximum Release Time	Minutes	1038	1430
Average Release Time	Minutes	361	296
Minimum Release Time	Minutes	80	91

C. ABNORMAL RELEASES

There were 2 abnormal gaseous releases totaling 2.53E+00 curies.

TABLE 2a

PALISADES NUCLEAR POWER PLANT

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (1979)

GASEOUS EFFLUENTS - SUMMATION OF ALL RELEASES

	UNITS	FIRST QUARTER	SECOND QUARTER	EST. TOTAL ERROR, %
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A. FISSION & ACTIVATION GASES

1. Total release	Ci	2.34E+00	4.69E+01	± 5%
2. Average release rate for period	μCi/sec	2.98E-01	5.83E+00	
3. Percent of Technical Specification Limit	%	2.10E-04	3.90E-03	

B. IODINES

1. Total iodine-131	Ci	5.51E-03	5.35E-03	± 5%
2. Average release rate for period (I-131)	μCi/sec	7.03E-04	6.65E-04	
3. Percent of Technical Specification Limit (I-131)	%	4.92E-02	4.65E-02	

C. PARTICULATES

1. Particulates with half-lives >8 days	Ci	1.80E-03	6.18E-04	± 16%
2. Average release rate for period	μCi/sec	2.30E-04	7.68E-05	
3. Percent of Technical Specification Limit	%	7.64E-03	4.00E-03	
4. Gross alpha radioactivity	Ci	4.12E-06	5.06E-06	

D. TRITIUM

1. Total release	Ci	1.10E+00	1.15E+00	
2. Average release rate for period	μCi/sec	1.40E-01	1.43E-01	
3. Percent of Technical Specification Limit	%	1.40E-04	1.43E-04	

Total	Ci	3.44E+00	4.81E+01
Total Percent of Tech Spec Limit	%	5.72E-02	5.45E-02

TABLE 2b

PALISADES NUCLEAR POWER PLANT

EFFLUENT AND WASTE DISPOSAL SEMI-ANNUAL REPORT (1979)

GASEOUS EFFLUENTS - GROUND-LEVEL RELEASES

NUCLIDES RELEASED	UNITS	FIRST QUARTER	SECOND QUARTER
1. FISSION GASES			
Xenon-133m	Ci	-	4.24E-02
Krypton-85	Ci	5.40E-01	1.25E+00
Xenon-133	Ci	1.56E+00	4.53E+01
Xenon-135	Ci	4.91E-02	4.87E-02
Xenon-133m	Ci	1.75E-01	2.58E-01
Argon-41	Ci	1.10E-02	1.36E-02
Total for period	Ci	2.34E+00	4.69E+01
2. IODINES			
Iodine-131	Ci	5.51E-03	5.35E-03
Iodine-133	Ci	3.14E-03	2.95E-03
Iodine-135	Ci	4.62E-04	1.36E-03
Total for period	Ci	9.11E-03	9.66E-03
3. PARTICULATES			
Cesium-134	Ci	1.62E-05	5.14E-06
Cesium-137	Ci	3.52E-05	1.85E-05
Cobalt-57	Ci	1.17E-06	1.19E-06
Manganese-54	Ci	2.03E-04	7.63E-05
Cobalt-58	Ci	5.95E-04	1.50E-04
Cobalt-60	Ci	5.39E-04	2.60E-04
Iron-59	Ci	3.68E-06	-
Chromium-51	Ci	2.06E-04	-
Niobium-95	Ci	2.27E-05	1.57E-06
Net Unidentified Beta	Ci	1.82E-04	1.05E-04

TABLE 3a

PALISADES NUCLEAR POWER PLANT

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (1979)

LIQUID EFFLUENTS - SUMMATION OF ALL RELEASES

	UNITS	FIRST QUARTER	SECOND QUARTER	EST. TOTAL ERROR, %
A. FISSION AND ACTIVATION PRODUCTS				
1. Total release (not including tritium, gases, alpha)	Ci	1.79E-02	9.99E-03	± 9%
2. Average diluted concentration during period	µCi/ml	7.30E-10	4.03E-10	
3. Percent of applicable limit (1% MPC)	%	7.56E-01	1.75E+00	
B. TRITIUM				
1. Total release	Ci	2.67E+01	1.87E+01	± 4%
2. Average diluted concentration during period	µCi/ml	1.09E-06	7.54E-07	
3. Percent of applicable limit (1% MPC)	%	3.63E+00	2.51E+00	
C. DISSOLVED AND ENTRAINED GASES				
1. Total release	Ci	2.95E-04	1.12E-03	± 7%
2. Average diluted concentration during period	µCi/ml	1.20E-11	4.52E-11	
3. Percent of applicable limit (1% MPC)	%	5.24E-04	1.96E-03	
D. GROSS ALPHA RADIOACTIVITY				
1. Total release	Ci	-----	-----	
E. VOLUME OF WASTE RELEASED (PRIOR TO DILUTION)				
	Liters	6.73E+06*	6.05E+06*	
F. VOLUME OF DILUTION WATER USED DURING PERIOD				
	Liters	2.45E+10	2.48E+10	
TOTAL	Ci	2.67E+01	1.87E+01	
TOTAL % of 1% MPC Limit	%	4.39E+00	4.26E+00	
Laundry System Percent of Limit	%	3.67E+00	2.27E+00	

NOTE: *Includes continuous turbine sump discharge.

TABLE 3b

PALISADES NUCLEAR POWER PLANT

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (1979)

LIQUID EFFLUENTS

NUCLIDES RELEASED	UNITS	FIRST QUARTER	SECOND QUARTER
Cesium-136	C1	7.00E-06	-----
Cesium-134	C1	1.60E-03	2.01E-04
Cesium-137	C1	5.05E-03	1.31E-03
Iodine-131	C1	2.22E-04	1.41E-04
Cobalt-58	C1	5.56E-03	4.43E-03
Cobalt-60	C1	1.89E-03	6.62E-04
Manganese-54	C1	1.50E-03	1.59E-03
Chromium-51	C1	1.69E-03	3.89E-04
Zirconium-95	C1	2.80E-05	-----
Niobium-95	C1	7.60E-05	2.60E-05
Cobalt-57	C1	-----	5.00E-06
Zinc-65	C1	-----	-----
Iron-59		8.70E-05	1.35E-04
Net Unidentified Beta	C1	1.62E-04	1.10E-03
Total for Period (Above)	C1	1.79E-02	9.99E-03
Xenon-133	C1	2.95E-04	1.12E-03

TABLE 4

PALISADES NUCLEAR POWER PLANT

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (1979)

SOLID WASTE AND IRRADIATED FUEL SHIPMENTS

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

1. Type of Waste	Units	FIRST SIX MONTHS
a. Spent resins, filter sludges, evaporator bottoms, etc.	m ³ Ci	2.06E+02 4.89E+01
b. Dry compressible waste, contaminated equipment, etc.	m ³ Ci	1.21E+02 1.98E+00
c. Irradiated components, control rods, etc.	m ³ Ci	----- -----
d. Other (describe)	m ³ Ci	----- -----

2. Solid Waste Disposition

<u>Number of Shipments</u>	<u>Mode of Transportation</u>	<u>Destination License Number</u>
11	Truck	Beatty, Nevada
5	Truck	Barnwell, S.C.
1	Truck	Beatty-Southwest Nuclear-Pleasanton, California

B. IRRADIATED FUEL SHIPMENTS (DISPOSITION)

<u>Number of Shipments</u>	<u>Mode of Transportation</u>	<u>Destination</u>
None	-----	----