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August 31, 1981

Mr James G Keppler
 Office of Inspection and Enforcement
 Region III
 U S Nuclear Regulatory Commission
 799 Roosevelt Road
 Glen Ellyn, IL 60137



DOCKET 50-255 - LICENSE DPR-20 -
 PALISADES PLANT - SEMIANNUAL
 RADIOACTIVE EFFLUENT RELEASE
 REPORT FROM JANUARY - JUNE 1981

Attached is the Semiannual Radioactive Effluent Release Report for the Palisades Plant covering the period from January - June 1981.

This is submitted in accordance with 10 CFR 50.36a(2) and Technical Specification Section 6.9.3.

Brian D. Johnson

Brian D Johnson
 Senior Licensing Engineer

CC Director, Office of Nuclear Reactor Regulation
 Director, Office of Inspection and Enforcement
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PALISADES NUCLEAR POWER PLANT
RADIOACTIVE EFFLUENT AND
WASTE DISPOSAL SEMI-ANNUAL REPORT

January - June 1981

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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 1981 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

No abnormal releases of radioactivity occurred during the period.

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 0.003% 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 0.002% of the total release.

4 Solid Waste

Quantities of solid waste shipped off-site 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 off-site 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 for any organ.

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 1
PALISADES NUCLEAR POWER PLANT
BATCH RELEASES (1981)

A. GASEOUS

WASTE GAS DECAY TANKS	UNITS	FIRST QUARTER	SECOND QUARTER
Number of Releases		9	6
Total Release Time	Minutes	4.95E+03	1.90E+03
Maximum Release Time	Minutes	3.65E+03	1.12E+03
Average Release Time	Minutes	5.50E+02	3.16E+02
Minimum Release Time	Minutes	3.50E+01	2.50E+01

B. LIQUID

	UNITS	FIRST QUARTER	SECOND QUARTER
Number of Releases		2	5
Total Release Time	Minutes	5.22E+03	5.14E+03
Maximum Release Time	Minutes	4.36E+03	1.37E+03
Average Release Time	Minutes	2.61E+03	1.03E+03
Minimum Release Time	Minutes	8.58E+02	2.00E+02

PALISADES NUCLEAR POWER PLANT

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (1981)

CASEOUS EFFLUENTS - SUMMATION OF ALL RELEASES

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

1. Total release	Ci	1.413E+02	2.03E+01	5.0E+00
2. Average release rate for period	$\mu\text{Ci}/\text{sec}$	1.817E+00	2.58E+00	
3. Percent of Technical Specification Limit	%	1.20E-02	2.0E-03	

B. IODINES

1. Total iodine-131	Ci	1.19E-02	3.04E-03	5.0E+00
2. Average release rate for period (I-131)	$\mu\text{Ci}/\text{sec}$	1.53E-03	3.87E-04	
3. Percent of Technical Specification Limit (I-131)	%	1.09E-01	2.80E-02	

C. PARTICULATES

1. Particulates with half-lives >8 days	Ci	3.43E-04	5.52E-05	1.06E+01
2. Average release rate for period	$\mu\text{Ci}/\text{sec}$	4.41E-05	7.02E-06	
3. Percent of Technical Specification Limit	%	1.70E-03	5.00E-04	
4. Gross alpha radioactivity	Ci	1.37E-06	7.80E-07	

D. TRITIUM

1. Total release	Ci	1.25E+00	1.301E+00	
2. Average release rate for period	$\mu\text{Ci}/\text{sec}$	1.61E-01	1.65E-01	
3. Percent of Technical Specification Limit	%	1.6E-04	1.6E-04	

TABLE 2b
PALISADES NUCLEAR POWER PLANT

EFFLUENT AND WASTE DISPOSAL SEMI-ANNUAL REPORT (1981)

GASEOUS EFFLUENTS - GROUND-LEVEL RELEASES

NUCLIDES RELEASED	UNITS	FIRST QUARTER	SECOND QUARTER
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1. FISSION GASES

Krypton-85	Ci	8.22E-01	1.139E+00
Xenon-133	Ci	1.39E+02	1.785E+01
Xenon-135	Ci	4.78E-01	4.16E-01
Xenon-131m	Ci	4.97E-03	4.09E-01
Xenon-133m	Ci	2.19E-02	4.39E-02
Xenon-135m	Ci	2.08E-01	2.35E-01
Krypton-85m	Ci	7.53E-02	6.16E-02
Krypton-87	Ci	1.27E-01	6.63E-02
Krypton-88	Ci	2.08E-01	8.69E-02
Total for period	Ci	1.41E+02	2.03E+01

2. IODINES

Iodine-131	Ci	1.19E-02	3.04E-03
Iodine-133	Ci	6.22E-03	2.99E-03
Iodine-135	Ci	1.35E-03	1.08E-03
Iodine-132	Ci	6.26E-04	1.75E-04
Total for period	Ci	2.01E-02	7.28E-03

3. PARTICULATES

Cesium-134	Ci	1.63E-05	2.91E-07
Cesium-137	Ci	1.37E-04	1.89E-05
Manganese	Ci	5.24E-05	7.41E-06
Cobalt-58	Ci	3.91E-06	2.57E-06
Cobalt-60	Ci	1.30E-04	1.18E-05
Net Unidentified Beta	Ci	3.32E-05	1.36E-05

PALISADES NUCLEAR POWER PLANT

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (1981)

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	2.28E-03	2.33E-03	8.5E+00
2. Average diluted concentration during period	µCi/ml	9.59E-11	9.40E-11	
3a. Percent of applicable limit Modified Liquid Waste System only	%	8.37E-01	1.12E+00	
3b. Percent of applicable limit Laundry System Drains only Note 1	%	No Laundry Releases	9.5E-02	
B. TRITIUM				
1. Total release	Ci	5.41E+01	7.53E+01	5.0E+00
2. Average diluted concentration during period	µCi/ml	2.21E-06	3.04E-06	
3a. Percent of applicable limit Modified Liquid Waste System only	%	7.4E+00	1.01E+01	
3b. Percent of applicable limit Laundry System Drains only Note 1	%	No Laundry Releases	8.3E-01	
C. DISSOLVED AND ENTRAINED GASES				
1. Total release	Ci	1.23E-03	9.74E-04	9.0E+00
2. Average diluted concentration during period	µCi/ml	5.02E-11	3.93E-11	
3a. Percent of applicable limit Modified Liquid Waste System only	%	2.0E-03	2.0E-03	
3b. Percent of applicable limit Laundry System Drains only Note 1	%	No Laundry Releases	1.48E-03	
D. GROSS ALPHA RADIOACTIVITY				
1. Total release	Ci			
E. VOLUME OF WASTE RELEASED (PRIOR TO DILUTION)				
	Liters	7.69E+06	6.612E+06	
F. VOLUME OF DILUTION WATER USED DURING PERIOD				
	Liters	2.45E+10	2.48E+10	

Note 1: The effluents from the Laundry System Drains were included in the total release and the average diluted concentration during period. These effluents are given in Table 3c.

PALISADES NUCLEAR POWER PLANT

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (1981)

LIQUID EFFLUENTS

NUCLIDES RELEASED	UNITS	FIRST QUARTER	SECOND QUARTER
Cesium-134	Ci	-	4.64E-05
Cesium-137	Ci	-	2.29E-04
Cobalt-58	Ci	8.63E-05	2.78E-04
Cobalt-60	Ci	6.05E-04	5.14E-04
Manganese-54	Ci	9.72E-04	4.50E-04
Lanthanum-140	Ci	-	-
Strontium-89	Ci	-	-
Strontium-90	Ci	-	-
Net Unidentified Beta	Ci	6.18E-04	8.10E-04
Total for Period (Above)	Ci	2.28E-03	2.33E-03
Xenon-133	Ci	1.23E-03	9.74E-04

TABLE 3c

PALISADES NUCLEAR POWER PLANT

EFFLUENT AND WASTE DISPOSAL SEMI-ANNUAL REPORT (1981)

Laundry Effluents

<u>Isotope</u>	<u>Curies</u>
CS-134	4.64E-05
CS-137	1.24E-04
Co-58	2.78E-04
Ms-54	5.25E-05
Co-60	9.12E-05
TOTAL	5.12E-05
Xe-133	9.19E-05
Tritium	5.16E-03
TOTAL	5.84E-03
Dilution, liters	2.48E+10
Diluted Average μ Ci/ml	2.35E-10
Percent of Technical Specification Limits	9.4E-01
Volume Release	9810 liters
Number of Releases	1
TOTAL RELEASE PERIOD	200 minutes

PALISADES NUCLEAR POWER PLANT

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (1981)

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	3.93E+01 2.306E+00
b. Dry compressible waste, contaminated equipment, etc.	m ³ Ci	2.103E+02 5.758E+00
c. Irradiated components, control rods, etc.	m ³ Ci	0.0 0.0
d. Other (describe)	m ³ Ci	0.0 0.0

2. Solid Waste Disposition

<u>Number of Shipments</u>	<u>Mode of Transportation</u>	<u>Destination License Number</u>
12	Truck	US Ecology Richland WA License WN-I-019-2
1	Truck	Chem Nuclear Barnwell SC License 097

B. IRRADIATED FUEL SHIPMENTS (DISPOSITION)

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