

EFFLUENT AND WASTE DISPOSAL SEMI-ANNUAL REPORT

January THROUGH June 1983

SUPPLEMENTAL INFORMATION

Facility - Prairie Island Nuclear Generating Plant

Licensee - Northern States Power Company License Nos. - DPR-42 & DPR-60

1. Regulatory Limits

a. Liquid Effluents:

1. The dose or dose commitment to an individual from radioactive materials in liquid effluents released from the site shall be limited:

for the Quarter	3.0 mrem Total Body
	10.0 mrem Any Organ

for the Year	6.0 mrem Total Body
	20.0 mrem Any Organ

b. Gaseous Effluents:

1. The dose rate due to radioactive materials released in gaseous effluents from the site shall be limited to:

Noble Gases	$\leq$ 500 mrem/Year Total Body
	$\leq$ 3000 mrem/Year Skin

I-131, H-3, LLP	$\leq$ 1500 mrem/Year Any Organ
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2. The dose due to radioactive gaseous effluents shall be limited to:

Noble Gases	$\leq$ 10 mrad/Qtr Gamma
	$\leq$ 20 mrad/Qtr Beta
	$\leq$ 20 mrad/Year Gamma
	$\leq$ 40 mrad/Year Beta

I-131, H-3, LLP	$\leq$ 15 mrem/Qtr
	$\leq$ 30 mrem/Year

2. Maximum Permissible Concentrations

- a. Fission and activation gases in gaseous releases:

10 CFR 20, Appendix B, Table 2, Column 1

- b. Iodine and particulates with half-lives greater than 8 days in gaseous releases:

10 CFR 20, Appendix B, Table 2, Column 1

- c. Liquid Effluents for radionuclides other than dissolved or entrained gases:

10 CFR 20, Appendix B, Table 2, Column 2

- d. Liquid Effluent dissolved and entrained gases:

2.0E-04 μ ci/ml Total Activity

3.0 Average Energy

Not applicable to Prairie Island Regulatory Limits.

4.0 Measurements and Approximations of Total Radioactivity

a. Fission and activation gases in gaseous releases:	Total	Geli
	Nuclide	Geli
b. Iodines in gaseous releases	Total	Geli
	Nuclide	Geli
c. Particulates in gaseous releases:	Total	Geli
	Nuclide	Geli
d. Liquid Effluents:	Total	Geli
	Nuclide	Geli

BATCH RELEASES

a. Liquid	QTR 1	QTR 2
Number of Batch Releases	6.50E01	5.80E01
Total Time Period for a Batch Release (hr)	9.66E01	8.63E01
Maximum Time for a Batch Release (hr)	2.30E00	2.00E00
Average Time for a Batch Release (hr)	1.50E00	1.50E00
Minimum Time for a Batch Release (hr)	1.10E00	9.00E-01
Ave Mississippi flow during Quarter (CFS)	2.82E04	3.90E04

b. Gaseous
Number of Batch Releases
Total Time Period for a Batch Release (hr)
Maximum Time for a Batch Release (hr)
Average Time for a Batch Release (hr)
Minimum Time for a Batch Release (hr)

QTR 1	QTR 2
3.00E00	2.00E00
1.17E01	1.08E01
6.80E00	8.00E00
3.90E00	5.40E00
2.40E00	2.80E00

ABNORMAL RELEASES

a. Liquid
Number of Batch Releases
Total Activity Release (Ci)
Total Tritium Release (Ci)

QTR 1	QTR 2
0.00E00	0.00E00
0.00E00	0.00E00
0.00E00	0.00E00

b. Gaseous
Number of Batch Releases
Total Activity Release (Ci)

QTR 1	QTR 2
0.00E00	0.00E00
0.00E00	0.00E00

TABLE 1A
EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT
GASEOUS EFFLUENTS - SUMMATION OF ALL RELEASES

UNIT	QTR 1	QTR 2	EST TOTAL ERROR %
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A. Fission and Activation Gases

Total Release	Ci	9.95E01	1.19E02	±2.50E01
Average Release Rate	µCi/sec	1.26E01	1.42E01	
Gamma Dose	mrads	3.67E-02	8.38E-02	
Beta Dose	mrads	1.35E-01	2.30E-01	
% of Gamma T.S. Limit	%	3.67E-01	8.38E-01	
% of Beta T.S. Limit	%	6.75E-01	1.15E00	

B. Iodines

Total I131	Ci	2.34E-04	5.16E-03	±2.50E01
Average Release Rate	µCi/sec	2.98E-05	6.56E-04	

C. Particulates

Total Release	Ci	3.46E-07	1.13E-07	±2.50E01
Average Release Rate	µCi/sec	4.40E-08	1.44E-08	

D. Tritium

Total Release	Ci	1.81E01	1.88E01	±2.50E01
Average Release Rate	µCi/sec	2.30E00	2.39E00	

Total B & C & D	µCi/sec	1.81E01	1.88E01	±2.50E01
Dose	mrem	5.11E-02	4.19E-01	
% of T.S. Limit	%	3.41E-01	2.79E00	

E. Gross Alpha

Total Release	Ci	0.00E00	0.00E00	±2.50E01
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TABLE 1C
EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT
GASEOUS EFFLUENTS
GROUND LEVEL RELEASES
CONTINUOUS MODE BATCH MODE

NUCLIDE	UNIT	QTR <u>1</u>	QTR <u>2</u>	QTR <u>1</u>	QTR <u>2</u>
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1. Fission and Activation Gases

Kr85	Ci	9.77E01	7.04E-01		7.33E-01
Kr85m	Ci				
Kr87	Ci				
Kr88	Ci				
Xel33	Ci	2.27E00	8.90E01		2.33E01
Xel35	Ci	5.43E-01	4.72E00		6.06E-01
Xel35m	Ci				
Xel38	Ci				
Xel31m	Ci	3.44E-03			
Ar41	Ci				
Xel33m	Ci	2.43E-05			3.27E-01
Total	Ci	9.95E01	9.44E01	0.00EE	2.50E01

2. Iodines

I131	Ci	2.34E-04	5.16E-03		3.47E-06
I133	Ci	2.10E-04	7.22E-04		5.36E-07
I135	Ci				
Total	Ci	4.44E-04	5.88E-03	0.00E00	4.01E-06

CONTINUOUS MODE

BATCH MODE

NUCLIDE	UNIT	QTR <u>1</u>	QTR <u>2</u>	QTR <u>1</u>	QTR <u>2</u>
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3. Particulates

Sr89	Ci	1.29E-07			
Sr90	Ci	4.63E-09			
Cs134	Ci				
Cs137	Ci				
Ba-La140	Ci				
Co58	Ci	2.12E-07	1.13E-07		
Co60	Ci				
Total	Ci	3.46E-07	1.13E-07	0.00E00	0.00E00

TABLE 2A
EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT
LIQUID EFFLUENTS - SUMMATION OF ALL RELEASES

UNIT	QTR <u>1</u>	QTR <u>2</u>	TOTAL ERROR %
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A. Fission and Activation Products

Total Release W/O H-3, Rad Gas, Alpha	Ci	2.10E-04	2.39E-03	±2.50E01
Average Diluted Concentration	µCi/ml	6.05E-14	5.24E-13	

B. Tritium

Total Release	Ci	1.12E02	1.66E02	±2.50E01
Average Diluted Concentration	µCi/ml	3.23E-08	3.64E-08	

Total A & B	µCi/ml	3.23E-08	3.64E-08	
Total Body Dose	mrem	2.39E-04	4.36E-04	
Critical Organ Dose	mrem	4.80E-04	1.57E-03	
	Organ	GI	THYROID	
% Total Body T.S. Limit	%	7.93E-03	1.45E-02	
% of Critical Organ T.S. Limit	%	4.80E-03	1.57E-02	

C. Dissolved and Entrained Gases

Total Release	Ci	5.19E-05	7.23E-02	±2.50E01
Average Diluted Concentration	µCi/ml	1.50E-14	1.59E-11	

D. Gross Alpha

Total Release	Ci	0.00E00	0.00E00	±2.50E01
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E. Volume of Waste

(Prior to Dilution)

Liters	3.22E07	2.71E07	±2.50E01
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F. Volume of Dilution

Water

Liters	3.47E12	4.56E12	±2.50E01
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TABLE 2A
EFFLUENT AND WASTE DISPOSAL SEMIANNUAL RPEORT
LIQUID EFFLUENTS - SUMMATION OF ALL RELEASES

CONTINUOUS MODE				BATCH MODE	
NUCLIDE	UNIT	QTR 1	QTR 2	QTR 1	QTR 2
Sr89	Ci				
Sr90	Ci				
Cs134	Ci				8.10E-06
Cs137	Ci				8.88E-06
I131	Ci		1.58E-04		1.86E-03
Co58	Ci		5.95E-05	1.08E-05	2.62E-04
Co60	Ci	4.94E-06		1.78E-04	4.05E-06
Fe59	Ci				
Zn65	Ci				
Mn54	Ci				
Cr51	Ci				
Zr-Nb95	Ci			1.58E-05	
Mo99	Ci				
Ba-La140	Ci				
Tc-99m	Ci				
Ce-141	Ci				
I-133	Ci				2.57E-05
Total	Ci	4.94E-06	2.18E-04	2.05E-04	2.17E-03

CONTINUOUS MODE				BATCH MODE	
NUCLIDE	UNIT	QTR 1	QTR 2	QTR 1	QTR 2
Xe133	Ci			2.89E-05	7.11E-02
Xe133m	Ci				3.76E-04
Xe131m	Ci			1.70E-05	5.43E-04
Xe135	Ci			5.96E-06	2.80E-04
Kr85m	Ci				
Kr85	Ci				
Kr88	Ci				
Total	Ci	0.00E00	0.00E00	5.19E-05	7.23E-02

TABLE 2A

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT

SOLID RADIOACTIVE WASTE SEMI-ANNUAL REPORT

JAN 1983 THROUGH JUN 1983

Volume (FT ³)	Curie Quantity ¹	Radionuclides ¹	Percent Abundance	Container Type	Quantity
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CEMENTED WASTE	1.11E03	1.31E01	Co 60	9.16E01	DOT 7A	1.34E02
			Cs 134	9.90E-01	TYPE A	
			Cs 137	6.39E-00	55 GAL	
			Mn 54	1.02E00	AND	
					83 GAL	
					DRUM	

COMPACTED TRASH	2.37E03	2.29E00	Ag110M	3.77E00	DOT 7A	3.22E02
			Cs 137	4.24E00	TYPE A	
			Co 58	2.94E00	55 GAL	
			Mn 54	1.10E00	DRUM	
			Co 60	8.79E01		

DEWATERED RESIN	3.30E02	4.53E00	Co 60	9.72E01		3.00E00
			Mn 54	1.01E00		
			Cs 137	1.80E00		
					STEEL LINER	

NON-COMPACTED TRASH	2.14E03	3.20E-01	Sb 124	7.51E-01	WOOD	2.20E01
			Ag 110M	3.47E00	AND	
			Cs 137	3.00E00	METAL	
			Nb 95	8.35E-01	BOXES	
			Co 58	3.49E01		
			Mn 54	2.16E00		
			Co 60	5.49E01		

Total Volume 5.95E03 FT³

Total Curie Content 2.02E01 Curies

¹Curie Quantity and Radionuclides are measured not estimated



DMB

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August 29, 1983

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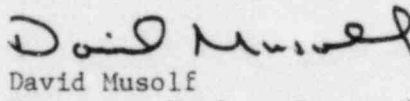
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PRINCIPAL STAFF			
RA		SCS	
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OPRP		SCS	
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NL		SCS	
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PRAIRIE ISLAND NUCLEAR GENERATING PLANT
Docket No. 50-282 License No. DPR-42
50-306 DPR-60

Effluent and Waste Disposal Semiannual Report
for January 1, 1983 through June 30, 1983

In accordance with the Prairie Island Technical Specifications, Appendix A to Operating Licenses DPR-42 and DPR-60, we are submitting one copy of the Effluent and Waste Disposal Semiannual Report covering the first half of 1983.


David Musolf
Manager - Nuclear Support Services

DMM/bd

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Attachment

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