AMENDMENT

to the
PRAIRIE ISLAND

Effluent and Waste Disposal Semiannual Report

(for the 1st Half year of 1988)

This report is being resubmitted to address discrepancies between the report filed to update the composite results and the report submitted to correct the airborne tritium problem detected in 1988.

EFFLUENT SEMIANNUAL REPORT

01-JAN-88 THROUGH 30-JUN-88

SUPPLEMENTAL INFORMATION

Facility: Prairie Island Nuclear Generating Plant

Licensee: Northern States Power Company

License Numbers: DPR-42 & DPR-60

A. Regulatory Limits

1. Liquid Effluents:

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

for the quarter	3.0 mrem to the total body
	10.0 mrem to any organ
for the year	6.0 mrem to the total body
	20.0 mrem to any organ

2. Gaseous Effluents:

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

noble gases	≤500 mrem/year total body
	≤3000 mrem/year skin
I-131, H-3, LLP	≤1500 mrem/year to any organ

b. The dose due to radioactive gaseous effluents shall be limited to:

noble gases	≤10 mrad/quarter gamma
	≤20 mrad/quarter beta
	≤20 mrad/year gamma
	≤40 mrad/year beta
I-131, H-3, LLP	≤15 mrad/quarter
	≤30 mrad/year

B. **Maximum Permissible Concentration**

1. Fission and activation gases in gaseous releases:

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

2. Iodine and particulates with halflives greater than 8 days in gaseous releases:

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

3. Liquid effluents for radionuclides other than dissolved or entrained gases:

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

4. Liquid effluent dissolved and entrained gases:

   2.0E-04 uCi/ml Total Activity

C. **Average Energy**

Not applicable to Prairie Island regulatory limits.

D. **Measurements and approximations of total activity**

1.	Fission and activation gases in gaseous releases:	Total Nuclide	GeLi GeLi	±25%
2.	Iodines in gaseous releases:	Total Nuclide	GeLi GeLi	±25%
3.	Particulates in gaseous releases:	Total Nuclide	GeLi GeLi	±25%
4.	Liquid effluents	Total Nuclide	GeLi GeLi	±25%

1.0 BATCH RELEASES (LIQUID)

	QTR: 01	QTR: 02
1.1 NUMBER OF BATCH RELEASES	5.50E+01	2.80E+01
1.2 TOTAL TIME PERIOD (HRS)	8.60E+01	4.58E+01
1.3 MAXIMUM TIME PERIOD (HRS)	1.90E+00	2.30E+00
1.4 AVERAGE TIME PERIOD (HRS)	1.56E+00	1.64E+00
1.5 MINIMUM TIME PERIOD (HRS)	1.00E+00	1.30E+00
1.6 AVERAGE MISSISSIPPI RIVER FLOW (CFS)	1.01E+04	1.32E+04

2.0 BATCH RELEASES (GASEOUS)

	QTR: 01	QTR: 02
2.1 NUMBER OF BATCH RELEASES	1.60E+01	1.00E+00
2.2 TOTAL TIME PERIOD (HRS)	1.27E+02	2.90E+00
2.3 MAXIMUM TIME PERIOD (HRS)	3.27E+01	2.90E+00
2.4 AVERAGE TIME PERIOD (HRS)	7.92E+00	2.90E+00
2.5 MINIMUM TIME PERIOD (HRS)	3.00E-02	2.90E+00

3.0 ABNORMAL RELEASES (LIQUID)

	QTR: 01	QTR: 02
3.1 NUMBER OF BATCH RELEASES	0.00E+00	0.00E+00
3.2 TOTAL ACTIVITY RELEASED (CI)	0.00E+00	0.00E+00
3.3 TOTAL TRITIUM RELEASED (CI)	0.00E+00	0.00E+00

4.0 ABNORMAL RELEASES (GASEOUS)

	QTR: 01	QTR: 02
4.1 NUMBER OF BATCH RELEASES	0.00E+00	0.00E+00
4.2 TOTAL ACTIVITY RELEASED (CI)	0.00E+00	0.00E+00

TABLE 1A
GASEOUS EFFLUENTS - SUMMATION OF ALL RELEASES

	QTR: 01	QTR: 02
5.0 FISSION AND ACTIVATION GASES		
5.1 TOTAL RELEASE (CI)	6.60E-02	3.75E-02
5.2 AVERAGE RELEASE RATE (UCI/SEC)	8.40E-03	4.77E-03
5.3 GAMMA DOSE (MRAD)	2.86E-05	4.21E-06
5.4 BETA DOSE (MRAD)	4.86E-04	3.01E-04
5.5 PERCENT OF GAMMA TECH SPEC (%)	2.86E-04	4.21E-05
5.6 PERCENT OF BETA TECH SPEC (%)	2.43E-03	1.51E-03
6.0 IODINES		
6.1 TOTAL I-131 (CI)	0.00E+00	6.49E-07
6.2 AVERAGE RELEASE RATE (UCI/SEC)	0.00E+00	8.26E-08
7.0 PARTICULATES		
7.1 TOTAL RELEASE (CI)	9.25E-07	2.78E-07
7.2 AVERAGE RELEASE RATE (UCI/SEC)	1.18E-07	3.54E-08
8.0 TRITIUM		
8.1 TOTAL RELEASE (CI)	3.53E+01	3.29E+01
8.2 AVERAGE RELEASE RATE (UCI/SEC)	4.48E+00	4.19E+00
9.0 TOTAL IODINE, PARTICULATE AND TRITIUM (UCI/SEC)	4.48E+00	4.19E+00
10.0 DOSE (MREM)	6.36E-02	5.93E-02
11.0 PERCENT OF TECH SPEC (%)	4.24E-01	3.59E-01
12.0 GROSS ALPHA (CI)	5.02E-07	3.44E-07

TABLE 1C
GASEOUS EFFLUENTS - GROUND LEVEL RELEASES

13.0 FISSION AND ACTIVATION GASES

		CONTINUOUS MODE		BATCH MODE	
NUCLIDE	UNITS	QTR: 01	QTR: 02	QTR: 01	QTR: 02
KR-85	CI			5.14E-02	3.64E-02
XE-133	CI			1.41E-02	1.08E-03
XE-135	CI			5.12E-04	
TOTAL	CI	0.00E+00	0.00E+00	6.60E-02	3.75E-02

14.0 IODINES

		CONTINUOUS MODE		BATCH MODE	
NUCLIDE	UNITS	QTR: 01	QTR: 02	QTR: 01	QTR: 02
I-131	CI		6.49E-07		
I-133	CI		2.00E-05		
TOTAL	CI	0.00E+00	2.06E-05	0.00E+00	0.00E+00

15.0 PARTICULATES

		CONTINUOUS MODE		BATCH MODE	
NUCLIDE	UNITS	QTR: 01	QTR: 02	QTR: 01	QTR: 02
CO-60	CI	6.86E-07			
CS-137	CI		2.78E-07	2.08E-07	
SR-90	CI	3.07E-08			
TOTAL	CI	7.17E-07	2.78E-07	2.08E-07	0.00E+00

TABLE 2A
LIQUID EFFLUENTS - SUMMATION OF ALL RELEASES

	QTR: 01	QTR: 02
16.0 VOLUME OF WASTE PRIOR TO DILUTION (LITERS)	7.58E+07	3.36E+07
17.0 VOLUME OF DILUTION WATER (LITERS)	1.08E+11	7.97E+10
18.0 FISSION AND ACTIVATION PRODUCTS		
18.1 TOTAL RELEASE W/O H-3, RADGAS, ALPHA (CI)	1.26E-02	5.54E-03
18.2 AVERAGE DILUTED CONCENTRATION (UCI/ML)	1.17E-10	6.95E-11
19.0 TRITIUM		
19.1 TOTAL RELEASE (CI)	1.60E+02	6.14E+01
19.2 AVERAGE DILUTED CONCENTRATION (UCI/ML)	1.48E-06	7.70E-07
20.0 DISSOLVED AND ENTRAINED GASES		
20.1 TOTAL RELEASE (CI)	1.75E-03	1.94E-03
20.2 AVERAGE DILUTED CONCENTRATION (UCI/ML)	1.62E-11	2.44E-11

21.0 GROSS ALPHA (CI)	0.00E+00	0.00E+00
22.0 TOTAL TRITIUM, FISSION AND ACTIVATION PRODUCTS (UCI/ML)	1.48E-06	7.70E-07
23.0 TOTAL BODY DOSE (MREM)	4.13E-04	2.09E-04
24.0 CRITICAL ORGAN		
24.1 DOSE (MREM)	3.15E-03	2.09E-04
24.2 ORGAN	GI-LLI	TTL BODY
25.0 PERCENT OF TOTAL BODY TECH SPEC LIMIT (%)	1.37E-02	6.97E-03
26.0 PERCENT OF CRITICAL ORGAN TECH SPEC LIMIT (%)	3.15E-02	6.97E-03

TABLE 2A
LIQUID EFFLUENTS - SUMMATION OF ALL RELEASES

27.0 INDIVIDUAL LIQUID EFFLUENT

		CONTINUOUS MODE		BATCH MODE	
NUCLIDE	UNITS	QTR: 01	QTR: 02	QTR: 01	QTR: 02
AG-110M	CI			3.34E-04	7.67E-04
CO-57	CI			2.13E-06	
CO-58	CI			5.22E-03	4.33E-04
CO-60	CI	5.12E-04		1.63E-03	5.92E-04
CR-51	CI			4.03E-04	2.04E-04
CS-137	CI			2.22E-06	
CS-138	CI				4.75E-06
FE-59	CI			7.28E-04	3.29E-05
FE-55	CI	6.20E-04			1.84E-03
MN-54	CI			3.13E-04	9.33E-06
NA-24	CI				1.11E-06
NB-95	CI			2.42E-04	7.20E-06
NB-97	CI			3.69E-05	1.48E-05
SB-122	CI			6.54E-06	
SB-124	CI			4.94E-04	1.88E-04
SB-125	CI			4.35E-04	5.08E-04
SC-47	CI			3.29E-04	
SN-113	CI				6.99E-05
SR-89	CI	1.24E-03	8.01E-04		
SR-90	CI		4.58E-05	7.02E-06	
SR-92	CI				2.27E-06
ZN-65	CI			7.63E-06	5.26E-06
ZR-97	CI				1.43E-05
TOTAL	CI	2.37E-03	8.47E-04	1.02E-02	4.69E-03

TABLE 2A (CONTINUED)
LIQUID EFFLUENTS - SUMMATION OF ALL RELEASES

28.0 DISSOLVED AND ENTRAINED GASES

		CONTINUOUS MODE		BATCH MODE	
NUCLIDE	UNITS	QTR: 01	QTR: 02	QTR: 01	QTR: 02
XE-133	CI			1.73E-03	1.79E-03
XE-135	CI			2.36E-05	1.54E-04
TOTAL	CI	0.00E+00	0.00E+00	1.75E-03	1.94E-03

PRAIRIE ISLAND NUCLEAR GENERATING PLANT
NORTHERN STATES POWER

Period: 1-1-88 to 6-30-88
License No. DPR-42

SOLID RADIOACTIVE WASTE DISPOSAL SEMI-ANNUAL REPORT

Table I: Solid Waste and Irradiated Fuel Shipments

A. Solid Waste Total Volumes and Measured Curie Quantities:

1. Type of Waste:

		Units	Total	Container Volumes
A.				
B.				
C.	Non Compacted	ft^3	748.8	96
	DAW	Ci	1.458	
D.				
S.				

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SOLID RADIOACTIVE WASTE DISPOSAL SEMI-ANNUAL REPORT

Table I: Solid Waste and Irradiated Fuel Shipments (Continued)

2. Measured Major Nuclide Composition by Type of Waste:

TYPE (From Page 1)		Nuclide	Percent
C	*	H-3	40.5
	*	C-14	3.8
	*	Fe-55	28.7
	*	NI-63	16.0
		Co-60	7.9
		Co-58	0.8
		SB-125	0.7

* = Inferred - Not Measured on Site

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SOLID RADIOACTIVE WASTE DISPOSAL SEMI-ANNUAL REPORT

Table I: Solid Waste and Irradiated Fuel Shipments (Continued)

2. Measured Major Nuclide Composition by Type of Waste (Continuation):

TYPE (From Page 1)	Nuclide	Percent

* = Inferred - Not Measured on Site

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SOLID RADIOACTIVE WASTE DISPOSAL SEMI-ANNUAL REPORT

Table I: Solid Waste and Irradiated Fuel Shipments (Continued)

3. Solid Waste Disposition:

Number of Shipments	Mode	Destination
2	Truck	Scientific Ecology Group
1	Truck	Quadrex Recycle Center

B. Irradiated Fuel Shipments:

Number of Shipments	Mode	Destination
0		

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SOLID RADIOACTIVE WASTE DISPOSAL SEMI-ANNUAL REPORT

Table I: Solid Waste and Irradiated Fuel Shipments (Continued)

C. Shipping Container and Solidification Method:

No.	Volume (Ft3)	Activity (Ci)	Type of Waste	Container Code	Solidify Code
87-39	240.0	0.541	C	L	N/A
87-40	96.3	0.366	C	L	N/A
87-42	412.5	0.551	C	L	N/A
TOTALS 3	748.8	1.458			

CONTAINER CODES:
L = LSA
A = Type A
B = Type B
Q = Large Quantity

SOLIDIFICATION CODES: C = Cement

TYPES OF WASTE:
A = Resins
B = Dry Compacted
C = Non-Compacted
D = Wst. Conc.
S = Spent Fuel