



MAY 16 2005

L-PI-05-046

TS 5.5.1.c

TS 5.6.3

U S Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555

Prairie Island Nuclear Generating Plant Units 1 and 2
Dockets 50-282 and 50-306
License Nos. DPR-42, DPR-60

2004 Annual Radioactive Effluent Report and Offsite Dose Calculation Manual

Pursuant to the applicable Prairie Island Nuclear Generating Plant Technical Specifications (TS), Appendix A to Operating Licenses DPR-42 and DPR-60, and the requirements of the Offsite Dose Calculation Manual (ODCM), the Nuclear Management Company, LLC (NMC) by this letter submits the 2004 Annual Radioactive Effluent Report which comprises the following reports:

Attachment 1 contains the Off-Site Radiation Dose Assessment for January through December 2004 in accordance with the requirements of the ODCM;

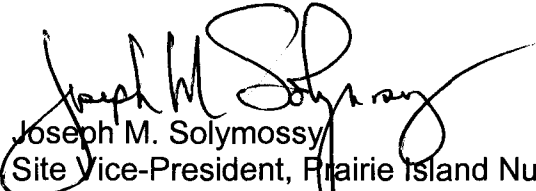
Attachment 2 contains the Annual Radioactive Effluent Report, Supplemental Information, Revision 0, for the period January 1, 2004 through December 31, 2004 in accordance with the requirements of TS 5.6.3 and the ODCM; and

Attachment 3 contains the Effluent and Waste Disposal Annual Report, Solid Waste and Irradiated Fuel Shipments, in accordance with the requirements of TS 5.6.3 and the ODCM.

TS 5.5.1.c requires submittal of a complete copy of the entire ODCM and a summary of changes to the ODCM, when there are changes. The ODCM has not been changed since 2003 and the current revision was submitted last year. Hence, no copy of the ODCM is being submitted.

Summary of Commitments

This letter contains no new commitments and no revisions to existing commitments.



Joseph M. Solymossy
Site Vice-President, Prairie Island Nuclear Generating Plant Units 1 and 2
Nuclear Management Company, LLC

Enclosures (3)

cc: Regional Administrator, USNRC, Region III
Project Manager, Prairie Island Nuclear Generating Plant, USNRC, NRR
NRC Resident Inspector – Prairie Island Nuclear Generating Plant
Tim Donakowski, State of Minnesota

ENCLOSURE 1
OFF-SITE RADIATION DOSE ASSESSMENT FOR
January through December 2004

(8 pages follow)

PRAIRIE ISLAND NUCLEAR GENERATING PLANT
OFF-SITE RADIATION DOSE ASSESSMENT FOR

January through December 2004

An Assessment of the radiation dose due to releases from Prairie Island Nuclear Generating Plant during 2004 was performed in accordance with the Offsite Dose Calculation Manual as required by Technical Specifications. Computed doses were well below the 40 CFR Part 190 Standards and 10 CFR Part 50 Appendix I Guidelines.

Off-site dose calculation formulas and meteorological data from the Off-site Dose Calculation Manual were used in making this assessment. Source terms were obtained from the Annual Radioactive Effluent and Waste Disposal Report prepared for NRC review for the year of 2004.

Off-site Doses from Gaseous Release

Computed doses due to gaseous releases are reported in Table 1. Critical receptor location and pathways for organ doses are reported in Table 2. Gaseous release doses are a small percentage of Appendix I Guidelines.

Off-site Doses from Liquid Release

Computed doses due to liquid releases are reported in Table 1. Critical receptor information is reported in Table 2. Liquid release doses, both whole body and organ, are a small percentage of Appendix I Guidelines.

Doses to Individuals Due to Activities Inside the Site Boundary

Occasionally sportsmen enter the Prairie Island site for recreational activities. These individuals are not expected to spend more than a few hours per year within the site boundary. Commercial and recreational river traffic exists through this area.

For purposes of estimating the dose due to recreational and river water transportation activities within the site boundary, it is assumed that the limiting dose within the site boundary would be received by an individual who spends a total of seven days per year on the river just off-shore from the plant buildings (ESE at 0.2 miles). The gamma dose from noble gas releases and the whole body and organ doses from the inhalation pathway due to Iodine 131, Iodine-133, tritium and long-lived particulates were calculated for this location and occupancy time. These doses are reported in Table 1.

ABNORMAL RELEASES

1. Uncontrolled release of gases from vent header into Auxiliary Building:

From June 21-24, 2,430 cubic feet of vent header gases were released into the Auxiliary Building during maintenance activities. A control valve used for isolation leaked. The release was via the Auxiliary Building normal ventilation system. There was no detectable activity on grab samples collected in the area of the leak and there was no detectable increase on the applicable radiation stack monitors.

Cause: Leaking valve.

Corrective Action: Based on gas decay tank activity, the radioactive gases released totaled:

Kr-85 - 5.65E+04 uCi
Xe-133 - 5.83E+02 uCi

Based on the conservative assumption that the gas was released evenly, out the unit's stack over the entire period of release, the dose off site as a result of this release was:

Gamma Dose - 1.26E-06 mRad
Beta Dose - 1.19E-04 mRad

Release files RAC0115 and RAC0116 were created to document this release.

Result: The dose from the activity released represented a small percentage of the total dose and was a very small percentage of limits. The dose did not impose upon the health and safety of the public.

The event was captured in the site's Action Request Process, CAP-037271.

The event was reported to the NRC Region 3 Radiation Protection (RP) Inspector, at the time of the event.

2. Uncontrolled release of gases from Chemical Volume Control System due to relief valve leak:

From June 25-30, 16, 350 cubic feet of vent header gases were released while diverting to 121 Chemical and Volume Control System (CVCS) Holdup Tank during a down power evolution. A relief valve on the 121 CVCS Holdup Tank leaked. Release from the plant was via the Auxiliary Building normal ventilation system. There was no detectable activity on grab samples collected in the area of the leak and there was a slight increase (10-15 CPM) above background on the applicable radiation stack monitors.

Cause: Leaking relief valve

Corrective Action: Based on gas decay tank analysis, the radioactive gases released totaled:

Kr-85 - 3.80E+05 uCi
Xe-133 - 3.92E+03 uCi

Based on the conservative assumption that all the gases escaped evenly out a single units vent stack over the entire period of the release the dose off site as a result of this release was:

Gamma Dose - 8.47E-06 mRad
Beta Dose - 7.09E-04 mRad

Release files RAC0137 and RAC0138 were created to document this release.

Result: The dose from the activity released represented a small percentage of the total dose and was a very small percentage of limits. The dose did not impose upon the health and safety of the public.

The event was captured in the site's Action Request Process CAP-037309.

The event was reported to the NRC Region 3 RP Inspector at the time of the event.

3. Temporary filter installed in Spent Fuel Pool exhaust without tritium monitor:

A high efficiency particulate air filter (HEPA) unit installed by RP in the Spent Fuel Pool (SFP) area discharged outside the SFP and did not measure or account for the tritium released. The Chemistry department was not informed of the ventilation change and there were no samples collected for the airborne tritium removed from the SFP area IAW the ODCM, Table 3.1. The HEPA was in place from Aug 13, 2004 at 07:00 through Sep 08, 2004 at 17:08.

Cause: RP was unaware of the requirement and did not contact the Chemistry department, who is responsible for the effluent requirements and would have ensured the required samples were collected.

Corrective

Action: The period of release was conservatively determined to be the entire period of Aug 13, 04 07:00 to Sep 08,04 17:08.

Tritium activity was based on SFP Normal Ventilation routine measurements.

Hours were adjusted in the release files, to compensate for the difference in flow of the HEPA and SFP Normal Ventilation.

Release files RAC0167, RAC0168, RAC0169, RAC0170 and RAC0175 were created to document this release.

RP was counseled on this issue.

Result: The dose from the activity released represented a small percentage of the total dose, and was a very small percentage of limits. The dose did not impose upon the health and safety of the public.

The event was captured in the site's Action Request Process, CAP-038133.

The event was reported to the NRC Region 3 RP Inspector, at the time of the event.

4. Inadequate controls of airflow from Unit 1 Containment while equipment hatched removed:

Between September 18, 2004 and September 22, 2004, there was a period of 27.6 hours when the Unit 1 Equipment Hatch was removed, with no Inservice Purge or Large Containment Purge fans in service. One train of Shield Building Ventilation and Shield Building Recirculation Fans were providing ventilation to the Shield Building, exhausting to the Shield Building Exhaust Stack.

During periods when the West Fuel Receipt Rollup Door was opened and certain weather conditions existed, it is believed that movement of air may have been out of containment.

Cause: Control of the roll-up door was not considered for its potential impact on containment air flow.

Corrective Actions: All air samples collected in the vicinity of the Equipment Hatch were reviewed. Only one particulate filter had activity. The air sampler was an AMS-4, located at the hatch, just inside the hatch. Activity was $1.5E-12$ uCi/cc Co-58 and $3.7E-14$ uCi/cc Nb-95. This activity was assigned to the release. Tritium level, for the release, was assigned based on silica gel tritium sampling for Unit 1 Shield Building Stack.

A release file (RAC0236) was created for Effluent Surveillance Week 37, to document the release. The conservative estimates of a release flow rate of 1000 CFM, a release duration of 27.6 were used in calculating release volume. Release volume was $4.69E+10$ cc. Conservative maximum activity and maximum off site dose are calculated as follows:

Co-58	$7.03E-02$ uCi	$9.78E-08$ mRem
Nb-95	$1.74E-03$ uCi	$1.35E-09$ mRem
H-3	$5.77E+02$ uCi	$1.03E-06$ mRem
Total		$1.13E-06$ mRem

Additional controls were placed on the roll up door, during outage.

Result: The dose from the activity released represented a small percentage of the total dose and were a very small percentage of limits. The dose did not impose upon the health and safety of the public.

The event was captured in the site's Action Request Process, CAP-038784.

The event was reported to the NRC Region 3 RP Inspector, at the time of the event.

40CFR190 COMPLIANCE

The calculated dose from the release of radioactive materials in liquid or gaseous effluents **did not** exceed twice the limits of 10CFR50, Appendix I, therefore compliance with 40CFR190 **is not** required to be assessed, in this report.

SAMPLING, ANALYSIS AND LLD REQUIREMENTS

The minimum sampling frequency, minimum analysis frequency and lower limit of detection (LLD) requirements, as specified in ODCM Tables 2.1 and 3.1 **were not** exceeded.

MONITORING INSTRUMENTATION

There **were no** occurrences when less than the minimum required radioactive liquid and/or gaseous effluent monitoring instrumentation channels were operable as required by ODCM Tables 2.2 and 3.2.

Doses to Individuals Due to Effluent Releases from the Independent Spent Fuel Storage Facility (ISFSI)

No fuel casks were loaded and placed in the storage facility during the 2004 calendar year. The total number of casks in the ISFSI is seventeen. There has been no release of radioactive effluents from the ISFSI.

CURRENT ODCM REVISION

The Offsite Dose Calculation Manual **was not** revised in 2004. The current revision is 18. The revision date is June 26, 2003. A copy was submitted with last year's report.

PROCESS CONTROL PROGRAM

There **were no** changes made to the Process Control Program in 2004. Current manual is revision 8, August 8, 1999.

Table 1

OFF-SITE RADIATION DOSE ASSESSMENT - PRAIRIE ISLAND

PERIOD: JANUARY through DECEMBER 2004

10 CFR Part 50 Appendix I
Guidelines for a 2-unit site per year

Gaseous Releases

Maximum Site Boundry Gamma Air Dose (mrad)	9.73E-06	20
Maximum Site Boundry Beta Air Dose (mrad)	9.15E-04	40
Maximum Off-site Dose to any organ (mrem)*	3.69E-02	30
Offshore Location		
Gamma Dose (mrad)	7.19E-07	
Total Body (mrem)*	1.63E-03	
Organ (mrad)*	1.64E-03	30

Liquid Releases

Maximum Off-site Dose Total Body (mrem)	1.87E-03	6
Maximum Off-site Dose Organ - GI TRACT (mrem)	4.81E-03	20
Limiting Organ Dose Organ - TOTAL BODY (mrem)	1.87E-03	6

* Long-Lived Particulate, I-131, I-133 and Tritium

Table 2

**OFF-SITE RADIATION DOSE ASSESSMENT - PRAIRIE ISLAND
SUPPLEMENTAL INFORMATION**

PERIOD: JANUARY through DECEMBER 2004

Gaseous Releases

Maximum Site Boundary
Dose Location
(From Building Vents)

Sector		WNW
Distance	(miles)	0.4

Offshore Location
Within Site Boundary

Sector		ESE
Distance	(miles)	0.2
Pathway		Inhalation

Maximum Off-site

Sector		SSE
Distance (miles)		0.6
Pathways		Plume, Ground, Inhalation, Vegetables
Age Group		Child

Liquid Releases

Maximum Off-site Dose
Location Downstream

Pathway	Fish
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ENCLOSURE 2

**ANNUAL RADIOACTIVE EFFLUENT REPORT
01-JAN-04 THROUGH 31-DEC-04
SUPPLEMENTAL INFORMATION**

(8 pages follow)

ANNUAL RADIOACTIVE EFFLUENT REPORT

01-JAN-04 THROUGH 31-DEC-04

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
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for the year	6.0 mrem to the total body 20.0 mrem to any organ
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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
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I-131, I-133, H-3, LLP	≤ 1500 mrem/year to any organ
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- b. The dose due to radioactive gaseous effluents released from the site shall be limited to:

noble gases	≤ 10 mrad/quarter gamma ≤ 20 mrad/quarter beta ≤ 20 mrad/year gamma ≤ 40 mrad/year beta
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I-131, I-133, H-3, LLP	≤ 15 mrem/quarter to any organ ≤ 30 mrem/year to any organ
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B. Water Effluent Concentration

1. Fission and activation gases in gaseous releases:
10 CFR 20, Appendix B, Table 2, Column 1
2. Iodine and particulates with half lives 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	Gem Gem	±25%
2. Iodines in gaseous releases:	Total Nuclide	Gem Gem	±25%
3. Particulates in gaseous releases:	Total Nuclide	Gem Gem	±25%
4. Liquid effluents	Total Nuclide	Gem Gem	±25%

E. Manual Revisions

1. Offsite Dose Calculations Manual latest Revision number: 18

Revision date : 6/26/03

1.0 BATCH RELEASES (LIQUID)

1.1 NUMBER OF BATCH RELEASES
 1.2 TOTAL TIME PERIOD (HRS)
 1.3 MAXIMUM TIME PERIOD (HRS)
 1.4 AVERAGE TIME PERIOD (HRS)
 1.5 MINIMUM TIME PERIOD (HRS)
 1.6 AVERAGE MISSISSIPPI RIVER FLOW (CFS)

QTR: 01	QTR: 02	QTR: 03	QTR: 04
2.80E+01	1.80E+01	5.20E+01	4.90E+01
5.09E+01	3.24E+01	9.57E+01	9.22E+01
2.83E+00	2.00E+00	3.48E+00	3.52E+00
1.82E+00	1.80E+00	1.84E+00	1.88E+00
1.58E+00	1.45E+00	1.25E+00	1.20E+00
9.54E+03	2.99E+04	1.64E+04	1.79E+04

2.0 BATCH RELEASES (AIRBORNE)

2.1 NUMBER OF BATCH RELEASES
 2.2 TOTAL TIME PERIOD (HRS)
 2.3 MAXIMUM TIME PERIOD (HRS)
 2.4 AVERAGE TIME PERIOD (HRS)
 2.5 MINIMUM TIME PERIOD (HRS)

QTR: 01	QTR: 02	QTR: 03	QTR: 04
0.00E+00	0.00E+00	0.00E+00	2.50E+01
0.00E+00	0.00E+00	0.00E+00	3.26E+02
0.00E+00	0.00E+00	0.00E+00	2.40E+01
0.00E+00	0.00E+00	0.00E+00	1.30E+01
0.00E+00	0.00E+00	0.00E+00	3.33E-04

3.0 ABNORMAL RELEASES (LIQUID)

3.1 NUMBER OF BATCH RELEASES
 3.2 TOTAL ACTIVITY RELEASED (CI)
 3.3 TOTAL TRITIUM RELEASED (CI)

QTR: 01	QTR: 02	QTR: 03	QTR: 04
0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00	0.00E+00	0.00E+00

4.0 ABNORMAL RELEASES (AIRBORNE)

4.1 NUMBER OF BATCH RELEASES
 4.2 TOTAL ACTIVITY RELEASED (CI)

QTR: 01	QTR: 02	QTR: 03	QTR: 04
0.00E+00	2.00E+00	2.00E+00	0.00E+00
0.00E+00	4.42E-01	1.18E-01	0.00E+00

5.0 FISSION AND ACTIVATION GASES

5.1 TOTAL RELEASE (CI)

5.2 AVERAGE RELEASE RATE (UCI/SEC)

5.3 GAMMA DOSE (MRAD)

5.4 BETA DOSE (MRAD)

5.5 PERCENT OF GAMMA TECH SPEC (%)

5.6 PERCENT OF BETA TECH SPEC (%)

QTR: 01	QTR: 02	QTR: 03	QTR: 04
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0.00E+00	4.40E-01	0.00E+00	0.00E+00
0.00E+00	5.60E-02	0.00E+00	0.00E+00
0.00E+00	9.73E-06	0.00E+00	0.00E+00
0.00E+00	9.15E-04	0.00E+00	0.00E+00
0.00E+00	9.73E-05	0.00E+00	0.00E+00
0.00E+00	4.57E-03	0.00E+00	0.00E+00

6.0 IODINES

6.1 TOTAL I-131 (CI)

6.2 AVERAGE RELEASE RATE (UCI/SEC)

0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00	0.00E+00	0.00E+00

7.0 PARTICULATES

7.1 TOTAL RELEASE (CI)

7.2 AVERAGE RELEASE RATE (UCI/SEC)

8.62E-09	0.00E+00	4.92E-06	6.10E-05
1.10E-09	0.00E+00	6.25E-07	7.77E-06

8.0 TRITIUM

8.1 TOTAL RELEASE (CI)

8.2 AVERAGE RELEASE RATE (UCI/SEC)

3.10E+00	3.24E+00	5.27E+00	5.17E+00
3.94E-01	4.12E-01	6.70E-01	6.57E-01

9.0 TOTAL IODINE, PARTICULATE AND TRITIUM (UCI/SEC)

3.94E-01	4.12E-01	6.70E-01	6.57E-01
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10.0 DOSE FROM IODINE, LLP, AND TRITIUM (MREM)

5.54E-03	5.80E-03	9.45E-03	1.61E-02
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11.0 PERCENT OF TECH SPEC (%)

3.69E-02	3.87E-02	6.30E-02	1.08E-01
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12.0 GROSS ALPHA (CI)

0.00E+00	0.00E+00	0.00E+00	0.00E+00
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TABLE 1C

GASEOUS EFFLUENTS - GROUND LEVEL RELEASES (CI)

13.0 FISSION AND ACTIVATION GASES

NUCLIDE	UNITS	CONTINUOUS MODE				BATCH MODE			
		QTR: 01	QTR: 02	QTR: 03	QTR: 04	QTR: 01	QTR: 02	QTR: 03	QTR: 04
KR-85	CI		4.35E-01						
XE-133	CI		4.49E-03						
TOTALS	CI	0.00E+00	4.40E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

14.0 IODINES

NUCLIDE	UNITS	CONTINUOUS MODE				BATCH MODE			
		QTR: 01	QTR: 02	QTR: 03	QTR: 04	QTR: 01	QTR: 02	QTR: 03	QTR: 04
TOTALS	CI	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

15.0 PARTICULATES

NUCLIDE	UNITS	CONTINUOUS MODE				BATCH MODE			
		QTR: 01	QTR: 02	QTR: 03	QTR: 04	QTR: 01	QTR: 02	QTR: 03	QTR: 04
CO-58	CI			4.27E-06	5.59E-05				1.29E-07
CO-60	CI			4.27E-07	4.93E-06				
MN-54	CI				6.84E-08				
NE-95	CI			2.21E-07					
SR-89	CI	8.62E-09							
TOTALS	CI	8.62E-09	0.00E+00	4.92E-06	6.09E-05	0.00E+00	0.00E+00	0.00E+00	1.29E-07

TABLE 1A

LIQUID EFFLUENTS - SUMMATION OF ALL RELEASES

	QTR: 01	QTR: 02	QTR: 03	QTR: 04
16.0 VOLUME OF WASTE PRIOR TO DILUTION (LITERS)	2.49E+07	2.99E+07	5.09E+07	5.99E+07
17.0 VOLUME OF DILUTION WATER (LITERS)	1.72E+11	1.02E+11	2.35E+11	1.52E+11
18.0 FISSION AND ACTIVATION PRODUCTS				
18.1 TOTAL RELEASES W/O H-3, RADGAS, ALPHA (CI)	2.00E-02	5.27E-03	9.61E-03	8.20E-02
18.2 AVERAGE DILUTION CONCENTRATION (UCI/ML)	1.16E-10	5.18E-11	4.08E-11	5.39E-10
19.0 TRITIUM				
19.1 TOTAL RELEASE (CI)	1.41E+02	2.21E+02	2.50E+02	1.37E+02
19.2 AVERAGE DILUTION CONCENTRATION (UCI/ML)	8.20E-07	2.18E-06	1.06E-06	9.03E-07
20.0 DISSOLVED AND ENTRAINED GASES				
20.1 TOTAL RELEASE (CI)	0.00E+00	1.26E-04	4.64E-04	5.64E-05
20.2 AVERAGE DILUTION CONCENTRATION (UCI/ML)	0.00E+00	1.23E-12	1.97E-12	3.71E-13
21.0 GROSS ALPHA (CI)	0.00E+00	0.00E+00	0.00E+00	0.00E+00
22.0 TOTAL TRITIUM, FISSION & ACTIVATION PRODUCTS (UCI/ML)	8.20E-07	2.18E-06	1.06E-06	9.04E-07
23.0 TOTAL BODY DOSE (MREM)	3.52E-04	4.95E-04	5.73E-04	4.48E-04
24.0 CRITICAL ORGAN				
24.1 DOSE (MREM)	1.26E-03	4.95E-04	5.73E-04	2.38E-03
24.2 ORGAN	GI TRACT	TOT BODY	TOT BODY	GI TRACT
25.0 PERCENT OF TECHNICAL SPECIFICATIONS LIMIT (%)	1.17E-02	1.65E-02	1.91E-02	1.49E-02
26.0 PERCENT OF CRITICAL ORGAN TECH SPEC LIMIT (%)	1.26E-02	1.65E-02	1.91E-02	2.38E-02

TABLE 2A

LIQUID EFFLUENTS - SUMMATION OF ALL RELEASES (CI)

27.0 INDIVIDUAL LIQUID EFFLUENT

NUCLIDE	UNITS	CONTINUOUS MODE				BATCH MODE			
		QTR: 01	QTR: 02	QTR: 03	QTR: 04	QTR: 01	QTR: 02	QTR: 03	QTR: 04
AG-108M	CI								6.39E-06
AG-110M	CI					1.35E-03	2.55E-04	1.09E-04	1.31E-03
BE-7	CI							3.09E-06	
CO-57	CI					2.14E-06	6.80E-07	7.46E-06	1.24E-04
CO-58	CI				1.58E-05	1.03E-03	1.97E-04	4.06E-03	3.05E-02
CO-60	CI					3.36E-04	8.43E-05	1.78E-04	6.94E-04
CR-51	CI					1.41E-04	7.31E-06	9.27E-04	1.10E-03
CS-137	CI							1.60E-06	
FE-55	CI				1.29E-05	4.35E-03	3.26E-03	3.29E-03	2.69E-02
FE-59	CI					7.77E-05	6.45E-06	1.15E-05	7.19E-04
MN-54	CI					4.60E-06		3.44E-06	5.35E-05
NA-24	CI								4.44E-06
NB-95	CI					4.70E-06			3.11E-04
NB-97	CI					6.54E-07	1.12E-06	1.62E-05	3.77E-06
SB-122	CI								2.08E-06
SB-124	CI					3.39E-04	1.34E-04	6.78E-06	1.66E-03
SB-125	CI					3.12E-03	1.30E-03	8.79E-04	4.94E-03
SN-113	CI								3.80E-05
SR-92	CI					2.79E-05	3.29E-06	2.03E-06	2.12E-05
TE-123M	CI					3.34E-04	2.16E-05	3.65E-05	3.56E-04
TE-125M	CI					8.90E-03		6.54E-05	1.31E-02
TE-132	CI							4.66E-06	
ZR-95	CI					4.70E-06			1.71E-04
TOTALS	CI	0.00E+00	0.00E+00	0.00E+00	2.87E-05	2.00E-02	5.27E-03	9.61E-03	8.20E-02

TABLE 2A

LIQUID EFFLUENTS - SUMMATION OF ALL RELEASES (CI) (CONTINUED)

28.0 DISSOLVED AND ENTRAINED GASES

NUCLIDE	UNITS	CONTINUOUS MODE				BATCH MODE			
		QTR: 01	QTR: 02	QTR: 03	QTR: 04	QTR: 01	QTR: 02	QTR: 03	QTR: 04
XE-133	CI						1.22E-04	4.18E-04	5.30E-05
XE-133M	CI								3.42E-06
XE-135	CI						3.28E-06	4.56E-05	
TOTALS	CI	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.26E-04	4.64E-04	5.64E-05

ENCLOSURE 3

**EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT
SOLID WASTE AND IRRADIATED FUEL SHIPMENTS**

(7 pages follow)

PRAIRIE ISLAND NUCLEAR GENERATING PLANT
 NORTHERN STATES POWER

Period: 01/01/04-12/31/04
 License No. DPR-42/60

**EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT
 SOLID WASTE AND IRRADIATED FUEL SHIPMENTS**

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

1. Solid Waste Total Volumes and Total Curie Quantities:

TYPE OF WASTE	UNITS	PERIOD TOTALS (0.00 E00)	EST. TOTAL ERROR, % (0.00 E00)	CONTAINER DISPOSAL VOL (ft ³) (LIST)
A. Resins	m ³ ft ³ Ci	_____ _____ _____	_____	_____ _____ _____
B. Dry-Compacted	m ³ ft ³ Ci	_____ _____ _____	_____	_____ _____ _____
C. Non-Compacted	m ³ ft ³ Ci	4.35E+02 1.54E+04 3.41E-01	2.50E+01	1280 _____ _____
D. Filter Media	m ³ ft ³ Ci	_____ _____ _____	_____	_____ _____ _____
S. Other (furnish description) Old Steam Generators	m ³ ft ³ Ci	4.79E+02 1.69E+04 1.25E+03	2.50E+01	4071 4384 _____

NOTE:	The solid waste information provided in this report is the volume and activity of the low-level waste leaving the Prairie Island site. No allowance is made for off-site volume reduction prior to disposal.
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PRAIRIE ISLAND NUCLEAR GENERATING PLANT
 NORTHERN STATES POWER

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**EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT
 SOLID WASTE AND IRRADIATED FUEL SHIPMENTS**

**A. SOLID WASTE SHIPPED OFFSITE FOR BURIAL OR DISPOSAL
 (NOT IRRADIATED FUEL) [continued]**

2. Principal Radionuclide Composition by Type of Waste:
 (Bold letter designation from Page 1)

<u>TYPE</u>	<u>Nuclide</u>	<u>Percent % Abundance (0.00E0)</u>
<u>C</u>	*Fe-55	5.92E+01
	Co-58	1.22E+01
	Co-60	7.40E+00
	*Ni-63	1.07E+01
	Zr-95	2.88E+00
	Nb-95	3.05E+00
<u>S</u>	*Fe-55	5.00E+01
	Co-58	1.68E+01
	Co-60	6.12E+00
	Nb-95	6.84E+00
	Zr-95	4.18E+00
	Cr-51	3.09E+00
	*C-14	7.00E-01

* = Inferred - Not Measured on Site

PRAIRIE ISLAND NUCLEAR GENERATING PLANT
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EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT
SOLID WASTE AND IRRADIATED FUEL SHIPMENTS

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

2. **Principal Radionuclide Composition by Type of Waste (Continuation):**
(Bold letter designation from Page 1)

<u>TYPE</u>	<u>Nuclide</u>	Percent % Abundance (0.00E0)
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

* = Inferred - Not Measured on Site

PRAIRIE ISLAND NUCLEAR GENERATING PLANT
NORTHERN STATES POWER

Period: 01-01-04/12-31-04
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**EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT
SOLID WASTE AND IRRADIATED FUEL SHIPMENTS**

**A. SOLID WASTE SHIPPED OFFSITE FOR BURIAL OR DISPOSAL
(NOT IRRADIATED FUEL) [continued]**

3. Solid Waste Disposition:

<u>Number of Shipments</u>	<u>Mode</u>	<u>Destination</u>
6	RACE Logistics	RACE, LLC
2	Canadian Pacific Railroad	Envirocare of Utah
2	Perkins	Envirocare of Utah

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**EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT
 SOLID WASTE AND IRRADIATED FUEL SHIPMENTS**

**A. SOLID WASTE SHIPPED OFFSITE FOR BURIAL OR DISPOSAL
 (NOT IRRADIATED FUEL) [continued]**

4. Shipping Container and Solidification Method:

No.	Disposal Volume (Ft ³ /m ³)	Activity (Ci)	Type of Waste	Container Code	Solidif. Code
04-035	4384/124.14	8.38E+02	S	DOT-E 13401	N/A
04-036	4384/124.14	4.14E+02	S	DOT-E 13401	N/A
04-052	4071/115.28	2.50E-04	S	L	N/A
04-053	4071/115.28	2.50E-04	S	L	N/A
04-081	2560/72.5	1.27E-02	C	L	N/A
04-084	2560/72.5	1.27E-02	C	L	N/A
04-085	2560/72.5	6.21E-02	C	L	N/A
04-087	2560/72.5	8.60E-02	C	L	N/A
04-089	2560/72.5	5.49E-02	C	L	N/A
04-092	2560/72.5	1.12E-01	C	L	N/A
TOTAL S	10	32300/914	1250.34		

CONTAINER CODES: L = LSA
 (Shipment type) A = Type A
 B = Type B
 Q = Highway Route Controlled Quantity

SOLIDIFICATION CODES: C = Cement

TYPES OF WASTES: A = Resins
 B = Dry Compacted
 C = Non-Compacted
 D = Filter Media
 S = Other

PRAIRIE ISLAND NUCLEAR GENERATING PLANT
NORTHERN STATES POWER

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**EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT
SOLID WASTE AND IRRADIATED FUEL SHIPMENTS**

C. PROCESS CONTROL PROGRAM CHANGES

TITLE: Process Control for Solidification/Dewatering of Radioactive
Waste from Liquid Systems

Current Revision Number: 8 Effective Date: 8/25/1999

NOTE:	If the effective date of the PCP is within the period covered by this report, then a description and justification of the changes to the PCP is required (T.S.6.5.D) (I.T.S.5.5.4). Attach the sidelined pages to this report.
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Changes/Justification: N/A