NMC
Committed to Nuclear Excellence

Prairie Island Nuclear Generating Plant
Operated by Nuclear Management Company, LLC

MAY 13 2008

L-PI-08-027
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, 50-306 and 72-10
License Nos. DPR-42, DPR-60 and SNM-2506

2007 Annual Radioactive Effluent Report and Offsite Dose Calculation Manual

Pursuant to the applicable Prairie Island Nuclear Generating Plant (PINGP) Technical Specifications (TS), Appendix A to Operating Licenses DPR-42 and DPR-60, and the requirements of the Offsite Dose Calculation Manual (ODCM), Nuclear Management Company, LLC (NMC) submits the 2007 Annual Radioactive Effluent Report which is comprised of the following reports:

Enclosure 1 contains the Off-Site Radiation Dose Assessment for the period January 1, 2007 through December 31, 2007 in accordance with the requirements of the ODCM.

Enclosure 2 contains the Annual Radioactive Effluent Report, Supplemental Information, for the period January 1, 2007 through December 31, 2007 in accordance with the requirements of TS 5.6.3 and the ODCM.

Enclosure 3 contains the Effluent and Waste Disposal Annual Report, Solid Waste and Irradiated Fuel Shipments, for the period January 1, 2007 through December 31, 2007 in accordance with the requirements of TS 5.6.3 and the ODCM.

Enclosure 4 is an attachment to the 2007 Annual Effluent Report which contains a dose assessment, for the first quarter of 2007. In accordance with industry guidelines on groundwater monitoring, the report includes the dose assessment for a secondary steam condensate leakage which occurred March 21, 2007.

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Enclosure 5 contains a complete copy of the entire ODCM, Revision 21, dated 7/25/07. In accordance with the requirements of TS 5.5.1.c., the changes are identified by markings in the margin of the affected pages. The manual also contains a Record of Revisions which includes a summary of the revision changes (refer to page 8 of the ODCM).

Summary of Commitments

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

Michael D Wadley

Michael D. Wadley
Site Vice President, Prairie Island Nuclear Generating Plant
Nuclear Management Company, LLC

Enclosures (5)

cc: Regional Administrator, USNRC, Region III
Project Manager, Prairie Island Nuclear Generating Plant, USNRC, NRR
NRC Resident Inspector – Prairie Island Nuclear Generating Plant
Minnesota Department of Health – Radiation Unit

ENCLOSURE 1

OFF-SITE RADIATION DOSE ASSESSMENT

January 01, 2007 – December 31, 2007

6 pages follow

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

January through December 2007

An Assessment of the radiation dose due to releases from Prairie Island Nuclear Generating Plant during 2007 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 2007.

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.

Critical Receptor location and pathways for organ doses are reported in Table 2.

ABNORMAL RELEASES

There were a total of two (2) abnormal releases for 2007. The 2007 abnormal releases are summarized below:

1. Leak in Waste Gas System

On 10/16/07 during data review, operations noted a negative trend in total volume for the routine Waste Gas System inventory. Further investigation determined that a Waste Gas Decay Tank Release had not occurred for an atypical length of time. Ventilation monitor trend plots and weekly gas grabs were reviewed and indicated no activity. It was determined that a very small leak had been present for as much as 6 months. Engineering determined that approximately 3,000 cubic feet of waste gas was lost.

Cause: Leakage was identified at the Gas Analyzer Panel pump. The Gas Analyzer was isolated until repairs could be performed. Leakage stopped. From this location all release would have exited through Unit One Auxiliary Building Ventilation.

Corrective Action: 129 Waste Gas Decay Tank (WGDT), the inservice tank, was sampled for nuclide mix. The identified mix was used in the release calculations but, activity levels were determined to be unrepresentatively low, due to the extended time period of release.

Activity levels of the identified mix were extrapolated to the level of the sample taken for a last WGDT release performed prior to the leak:

Nuclide	uCi Released	Gamma Dose (mrad)	Beta Dose (mrad)
Ar-41	1.08E+02	1.08E-06	3.80E-07
Kr-85	9.59E+04	2.00E-04	1.77E-06
Kr-85M	7.62E+01	1.61E-07	1.00E-07
Xe-133	2.44E+04	2.74E-04	9.22E-05
Xe-135	1.32E+03	3.48E-06	2.72E-06
TOTAL		4.79E-04	9.72E-05

H3 1.26E+03 uCi 2.16E-06 mrem

Activity was applied to abnormal release file RAC0193, as a Unit One Auxiliary Building Release. Release duration was conservatively set at 1 week and total dose was applied to the month of October, the 4th Quarter.

Event was captured in the site's Action Request System: CAP-01115005.
Repairs were accomplished and the Gas Analyzer was returned to service.

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

2. Leaking 11 Steam Generator Relief

On 6/17/07, while performing a surveillance procedure on 11 Steam Generator Safety Relief, CV-31084 did not completely reseat. Discharge piping temperatures increased. The isolation was shut and the valve was stroked in an attempt to reset. It was determined that CV-31084 did reseat as evidenced by decreasing downstream temperatures.

Cause: CV-31084 did not fully reseat during performance of surveillance procedure. When the valve was unisolated, following performance of the SP, it leaked.

Corrective Action: CV-31084 was reisolated and stroked. Leakage ended. Work Request #25903 was issued.

Engineering provided a volume released. Based on this volume it was determined that a one second release with the valve full open would conservatively represent the release volume.

The Steam Generators were sampled and a release file was created to document the release.

The dose consequences were determined to be:

H3	1.53E+01 uCi	2.6E-09 mrem

Activity was applied to abnormal release file RAB0060, as an 11 Steam Generator Steam Release.

Event was captured in the site's Action Request System: CAP-01097198.

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 reported to the NRC Region 3 Radiation Protection (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 in 2007.

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)

Two (2) fuel casks were loaded and placed in the storage facility during the 2007 calendar year. The total number of casks in the ISFSI is twenty-four (24). There has been no release of radioactive effluents from the ISFSI.

CURRENT ODCM REVISION

The Offsite Dose Calculation Manual **was** revised in 2007. The current revision is 21. The revision date is July 25, 2007. A copy is submitted with this year's report.

PROCESS CONTROL PROGRAM

There **were no** changes made to the Process Control Program in 2007. Current manual is revision 8, August 25, 1999.

Table 1

OFF-SITE RADIATION DOSE ASSESSMENT - PRAIRIE ISLAND

PERIOD: JANUARY through DECEMBER 2007

		10 CFR Part 50 Appendix I Guidelines for a 2-unit site per year
Gaseous Releases		
Maximum Site Boundry Gamma Air Dose (mrad)	6.57E-06	20
Maximum Site Boundry Beta Air Dose (mrad)	2.05E-04	40
Maximum Off-site Dose to any organ (mrem)*	3.26E-02	30
Offshore Location		
Gamma Dose (mrad)	4.86E-07	
Total Body (mrem)*	1.28E-03	
Organ (mrad)*	1.28E-03	30
Liquid Releases		
Maximum Off-site Dose Total Body (mrem)	1.72E-03	6
Maximum Off-site Dose Organ - GI TRACT (mrem)	2.50E-03	20
Limiting Organ Dose Organ - TOTAL BODY (mrem)	1.72E-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 2007

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

ENCLOSURE 2

ANNUAL RADIOACTIVE EFFLUENT REPORT
SUPPLEMENTAL INFORMATION

January 01, 2007 – December 31, 2007

9 pages follow

ANNUAL RADIOACTIVE EFFLUENT REPORT

01-JAN-07 THROUGH 31-DEC-07

SUPPLEMENTAL INFORMATION

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, I-133, H-3, LLP	≤1500 mrem/year to any organ

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
I-131, I-133, H-3, LLP	≤15 mrem/quarter to any organ ≤30 mrem/year to any organ

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: 21

   Revision date : 7/25/07

1.0 BATCH RELEASES (LIQUID)

	QTR: 01	QTR: 02	QTR: 03	QTR: 04
1.1 NUMBER OF BATCH RELEASES	4.10E+01	3.80E+01	2.00E+01	5.20E+01
1.2 TOTAL TIME PERIOD (HRS)	7.36E+01	6.63E+01	3.66E+01	9.18E+01
1.3 MAXIMUM TIME PERIOD (HRS)	2.92E+00	2.30E+00	2.25E+00	2.22E+00
1.4 AVERAGE TIME PERIOD (HRS)	1.80E+00	1.74E+00	1.83E+00	1.77E+00
1.5 MINIMUM TIME PERIOD (HRS)	1.48E+00	9.83E-01	1.52E+00	1.48E+00
1.6 AVERAGE MISSISSIPPI RIVER FLOW (CFS)	1.21E+04	2.90E+04	7.24E+03	1.86E+04

2.0 BATCH RELEASES (AIRBORNE)

	QTR: 01	QTR: 02	QTR: 03	QTR: 04
2.1 NUMBER OF BATCH RELEASES	8.00E+00	1.10E+01	0.00E+00	0.00E+00
2.2 TOTAL TIME PERIOD (HRS)	3.18E+01	1.42E+02	0.00E+00	0.00E+00
2.3 MAXIMUM TIME PERIOD (HRS)	1.14E+01	2.48E+01	0.00E+00	0.00E+00
2.4 AVERAGE TIME PERIOD (HRS)	3.98E+00	1.29E+01	0.00E+00	0.00E+00
2.5 MINIMUM TIME PERIOD (HRS)	1.43E-01	3.33E-04	0.00E+00	0.00E+00

3.0 ABNORMAL RELEASES (LIQUID)

	QTR: 01	QTR: 02	QTR: 03	QTR: 04
3.1 NUMBER OF BATCH RELEASES	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3.2 TOTAL ACTIVITY RELEASED (CI)	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3.3 TOTAL TRITIUM RELEASED (CI)	0.00E+00	0.00E+00	0.00E+00	0.00E+00

4.0 ABNORMAL RELEASES (AIRBORNE)

	QTR: 01	QTR: 02	QTR: 03	QTR: 04
4.1 NUMBER OF BATCH RELEASES	0.00E+00	1.00E+00	0.00E+00	1.00E+00
4.2 TOTAL ACTIVITY RELEASED (CI)	0.00E+00	1.53E-05	0.00E+00	1.00E- 1

TABLE 1A
GASEOUS EFFLUENTS - SUMMATION OF ALL RELEASES

	QTR: 01	QTR: 02	QTR: 03	QTR: 04
5.0 FISSION AND ACTIVATION GASES				
5.1 TOTAL RELEASE (CI)	0.00E+00	0.00E+00	0.00E+00	9.89E-02
5.2 AVERAGE RELEASE RATE (UCI/SEC)	0.00E+00	0.00E+00	0.00E+00	1.26E-02
5.3 GAMMA DOSE (MRAD)	0.00E+00	0.00E+00	0.00E+00	6.57E-06
5.4 BETA DOSE (MRAD)	0.00E+00	0.00E+00	0.00E+00	2.05E-04
5.5 PERCENT OF GAMMA TECH SPEC (%)	0.00E+00	0.00E+00	0.00E+00	6.57E-05
5.6 PERCENT OF BETA TECH SPEC (%)	0.00E+00	0.00E+00	0.00E+00	1.03E-03
6.0 IODINES				
6.1 TOTAL I-131 (CI)	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.2 AVERAGE RELEASE RATE (UCI/SEC)	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7.0 PARTICULATES				
7.1 TOTAL RELEASE (CI)	4.17E-06	0.00E+00	0.00E+00	0.00E+00
7.2 AVERAGE RELEASE RATE (UCI/SEC)	5.31E-07	0.00E+00	0.00E+00	0.00E+00
8.0 TRITIUM				
8.1 TOTAL RELEASE (CI)	3.33E+00	3.35E+00	2.73E+00	2.38E+00
8.2 AVERAGE RELEASE RATE (UCI/SEC)	4.23E-01	4.26E-01	3.47E-01	3.02E-01
9.0 TOTAL IODINE, PARTICULATE AND TRITIUM (UCI/SEC)	4.23E-01	4.26E-01	3.47E-01	3.02E-01
10.0 DOSE FROM IODINE, LLP, AND TRITIUM (MREM)	1.42E-02	9.22E-03	4.88E-03	4.25E-03
11.0 PERCENT OF TECH SPEC (%)	9.50E-02	6.15E-02	3.25E-02	2.83E-02
12.0 GROSS ALPHA (CI)	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TABLE 1C

GASEOUS EFFLUENTS - GROUND LEVEL RELEASES (CI)

13.0 **FISSION AND ACTIVATION GASES**

		CONTINUOUS MODE				BATCH MODE			
NUCLIDE	UNITS	QTR: 01	QTR: 02	QTR: 03	QTR: 04	QTR: 01	QTR: 02	QTR: 03	QTR: 04
AR-41	CI				1.08E-04				
KR-85	CI				9.50E-02				
KR-85M	CI				7.62E-05				
XE-133	CI				2.44E-03				
XE-135	CI				1.32E-03				
TOTALS	CI	0.00E+00	0.00E+00	0.00E+00	9.89E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00

14.0 **IODINES**

		CONTINUOUS MODE				BATCH MODE			
NUCLIDE	UNITS	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

TABLE 1C

GASEOUS EFFLUENTS - GROUND LEVEL RELEASES (CONTINUED)

15.0 **PARTICULATES**

		CONTINUOUS MODE				BATCH MODE			
NUCLIDE	UNITS	QTR: 01	QTR: 02	QTR: 03	QTR: 04	QTR: 01	QTR: 02	QTR: 03	QTR: 04
CS-137	CI					4.17E-06			
TOTALS	CI	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.17E-06	0.00E+00	0.00E+00	0.00E+00

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)	1.81E+07	2.95E+07	2.17E+07	2.32E+07
17.0 VOLUME OF DILUTION WATER (LITERS)	1.84E+11	1.05E+11	2.57E+11	2.22E+11
18.0 FISSION AND ACTIVATION PRODUCTS				
18.1 TOTAL RELEASES W/O H-3, RADGAS, ALPHA (CI)	4.84E-02	1.24E-02	4.08E-03	4.90E-02
18.2 AVERAGE DILUTION CONCENTRATION (UCI/ML)	2.63E-10	1.18E-10	1.59E-11	2.20E-10
19.0 TRITIUM				
19.1 TOTAL RELEASE (CI)	1.47E+02	2.53E+02	8.42E+01	2.36E+02
19.2 AVERAGE DILUTION CONCENTRATION (UCI/ML)	8.01E-07	2.41E-06	3.28E-07	1.06E-06
20.0 DISSOLVED AND ENTRAINED GASES				
20.1 TOTAL RELEASE (CI)	3.51E-06	4.00E-05	0.00E+00	8.73E-04
20.2 AVERAGE DILUTION CONCENTRATION (UCI/ML)	1.91E-14	3.80E-13	0.00E+00	3.93E-12
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)	8.01E-07	2.41E-06	3.28E-07	1.06E-06
23.0 TOTAL BODY DOSE (MREM)	4.16E-04	5.77E-04	1.89E-04	5.35E-04
24.0 CRITICAL ORGAN				
24.1 DOSE (MREM)	4.16E-04	5.77E-04	1.89E-04	5.35E-04
24.2 ORGAN	TOT BODY	TOT BODY	TOT BODY	TOT BODY
25.0 PERCENT OF TECHNICAL SPECIFICATIONS LIMIT (%)	1.39E-02	1.92E-02	6.31E-03	1.78E-02
26.0 PERCENT OF CRITICAL ORGAN TECH SPEC LIMIT (%)	1.39E-02	1.92E-02	6.31E-03	1.78E-02

TABLE 2A

LIQUID EFFLUENTS - SUMMATION OF ALL RELEASES (CI)

27.0 **INDIVIDUAL LIQUID EFFLUENT**

		CONTINUOUS MODE				BATCH MODE			
NUCLIDE	UNITS	QTR: 01	QTR: 02	QTR: 03	QTR: 04	QTR: 01	QTR: 02	QTR: 03	QTR: 04
AG-108M	CI					4.17E-07			
AG-110M	CI					8.01E-03	4.16E-03	1.50E-03	1.88E-03
BA-139	CI					7.58E-06		1.04E-05	
CE-139	CI					1.30E-06		1.84E-06	
CO-57	CI					1.53E-06			1.00E-06
CO-58	CI					4.37E-03	1.55E-03	1.21E-04	2.32E-04
CO-60	CI					1.70E-03	4.85E-04	1.46E-04	4.25E-04
CR-51	CI					1.87E-03	7.98E-05	1.28E-05	1.89E-04
CS-137	CI	1.34E-05							6.18E-07
FE-55	CI					1.27E-02	3.85E-03	1.44E-03	4.75E-03
FE-59	CI					3.03E-04	2.40E-05		
LA-140	CI					8.30E-06			
MN-54	CI					6.78E-05	4.62E-06		1.85E-06
NA-24	CI								9.29E-07
NB-95	CI					7.14E-05			
NB-97	CI					7.56E-06	7.60E-06	1.02E-05	1.39E-05
SB-124	CI					2.22E-03	7.88E-06	3.13E-05	9.70E-04
SB-125	CI					1.31E-02	5.87E-04	7.72E-04	4.05E-02
SN-113	CI					7.37E-05	5.91E-06		
SR-85	CI								3.23E-06
SR-92	CI					9.67E-05	4.57E-05	2.32E-05	2.15E-05
TE-123M	CI					5.26E-04	6.53E-05		
TE-125M	CI					3.06E-03	1.52E-03		
TE-132	CI								2.19E-06
TL-201	CI					1.05E-05			

(CONTINUED)

TABLE 2A

LIQUID EFFLUENTS - SUMMATION OF ALL RELEASES (CONTINUED)

27.0 INDIVIDUAL LIQUID EFFLUENT

		CONTINUOUS MODE				BATCH MODE			
NUCLIDE	UNITS	QTR: 01	QTR: 02	QTR: 03	QTR: 04	QTR: 01	QTR: 02	QTR: 03	QTR: 04
ZR-95	CI					1.74E-04			
ZR-97	CI					3.64E-06	5.96E-06	2.20E-06	4.60E-06
TOTALS	CI	1.34E-05	0.00E+00	0.00E+00	0.00E+00	4.84E-02	1.24E-02	4.08E-03	4.90E-02

28.0 DISSOLVED AND ENTRAINED GASES

		CONTINUOUS MODE				BATCH MODE			
NUCLIDE	UNITS	QTR: 01	QTR: 02	QTR: 03	QTR: 04	QTR: 01	QTR: 02	QTR: 03	QTR: 04
KR-85	CI								7.46E-04
XE-133	CI					3.51E-06	3.71E-05		1.27E-04
XE-135	CI						2.88E-06		
TOTALS	CI	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.51E-06	4.00E-05	0.00E+00	8.73E-04

ENCLOSURE 3

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

January 01, 2007 – December 31, 2007

7 pages follow

PRAIRIE ISLAND NUCLEAR GENERATING PLANT
NORTHERN STATES POWER

Period: 01/01/07-12/31/07
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	1.02E+01		179.4
	ft^3	3.59E+02		
	Ci	5.59E-01	2.50E+01	
B. Dry-Compacted	m^3			
	ft^3			
	Ci			
C. Non-Compacted	m^3	2.90E+02		1280
	ft^3	1.02E+04		
	Ci	8.08E-01	2.50E+01	
D. Filter Media	m^3			
	ft^3			
	Ci			
S. Other (furnish description)	m^3	7.25E+01		1280
Combined DAW/Charcoal/Grit	ft^3	2.56E+03		
	Ci	6.35E-02	2.50E+01	

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.**

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)

TYPE	**Nuclide**	**Percent % Abundance (0.00E0)**
C	*Fe-55	6.35E+01
	Co-58	8.85E+00
	Co-60	8.07E+00
	*Ni-63	1.19E+01
	Zr-95	2.01E+00
	Nb-95	1.59E+00
1% cutoff		
S	*Fe-55	2.77E+01
	Co-58	4.40E+00
	Co-60	4.96E+00
	Nb-95	1.16E+00
	Zr-95	1.03E+00
	*C-14	7.85E+00
	*Ni-63	1.58E+01
	*H-3	3.50E+01
1% cutoff		

* = Inferred - Not Measured on Site

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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)

TYPE	Nuclide	Percent % Abundance (0.00E0)
A	*H-3	1.18E+00
	*Fe-55	3.48E+01
	*Ni-63	3.53E+01
	Co-60	1.33E+01
	Co-58	1.14E+00
	Cs-137	3.83E+00
	C-14	3.51E+00
	Sb-125	5.61E+00

1% cutoff

* = Inferred - Not Measured on Site

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SOLID WASTE AND IRRADIATED FUEL SHIPMENTS

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

3. Solid Waste Disposition:

Number of Shipments	Mode	Destination
5	StudsvikLogistics	StudsvikRACE, LLC
2	Hittman Transport Services	Studsvik Processing Facility, LLC

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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
07-004	2560/72.5	0.390	C	L	N/A
07-005	2560/72.5	0.141	C	L	N/A
07-006	2560/72.5	0.226	C	L	N/A
07-011	179.4/5.1	0.296	A	L	N/A
07-012	179.4/5.1	0.263	A	L	N/A
07-018	2560/72.5	0.065	C	L	N/A
07-019	2560/72.5	0.049	C	L	N/A
TOTALS 7	13200/373	1.43			

CONTAINER CODES: (Shipment type)	L	=	LSA
	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

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

B. IRRADIATED FUEL SHIPMENTS (DISPOSITION)

Number of Shipments	Mode	Destination
0		

PRAIRIE ISLAND NUCLEAR GENERATING PLANT
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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) (IT.S.5.5.4). Attach the sidelined pages to this report.**

Changes/Justification: N/A

ENCLOSURE 4

ATTATCHMENT TO THE 2007 EFFLUENT REPORT

Description and Dose Assessment of Quarter 1 of 2007 Leak Communicated per ODCM (H4, Section 8.4) Industry Initiative on Groundwater Protection

1 page follows

ATTACHMENT TO THE 2007 ANNUAL EFFLUENT REPORT

Description and dose assessment of a leak communicated per ODCM (H4, Section 8.4) Industry Initiative on Groundwater Protection

Quarter 1, 2007

Summary

This dose assessment for the leak described in this attachment did not change the total liquid dose to the critical receptor for the first quarter of 2007.

Background

On March 21, 2007, approximately 150 gallons of secondary steam condensate leaked to the ground outside the northeast side of the turbine building during transfer of turbine building sump water to the landlocked canal. This water had a tritium concentration of 5,150 pCi/L. The transfer of water was secured and no further leakage to the environment occurred. This release occurred from a monitored release path.

ODCM Considerations

Since the release occurred via a monitored release path, the dose calculations were performed per the ODCM. The released effluent did not flow to the normal landlocked location but was absorbed into the ground closer to the turbine building. At this location, the water has farther to travel to the receptor and is subject to greater dispersion than the normal release location. The ODCM dose calculations over-estimate the dose from this release. Corrective actions have been taken to prevent a similar spill in the future.

Dose Calculation Assumptions

The dose calculation was performed per the ODCM for the annual effluent report. This dose over-estimates the dose under the conditions of this release. No revision to the ODCM dose calculation is warranted.

Discussion

The critical receptor is located 0.6 miles to the SSE of the Prairie Island site. The leaked water would have to travel in the groundwater under the recycle canal and discharge canal to reach the critical receptor. This assumed water flow maximizes the dose because the normal groundwater flow is towards the Vermillion River which would not carry the tritium toward the critical receptor.