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L-PI-15-038

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
Docket Nos. 50-282 and 50-306
Renewed Operating License Nos. DPR-42 and DPR-60

2014 Annual Radioactive Effluent Report and Offsite Dose Calculation Manual (ODCM)

Pursuant to the applicable Prairie Island Nuclear Generating Plant (PINGP) Technical Specifications (TS), Appendix A to Renewed Operating Licenses DPR-42 and DPR-60, and the requirements of the Offsite Dose Calculation Manual, Northern States Power Company, a Minnesota corporation, doing business as Xcel Energy (hereafter "NSPM"), submits the 2014 Annual Radioactive Effluent Report which is comprised of the following:

Enclosure 1 contains the Off-Site Radiation Dose Assessment for the period January 1, 2014, through December 31, 2014, in accordance with ODCM sections 8.1.1c, e, f, g, h, i, j, and k.

Enclosure 2 contains the Annual Radioactive Effluent Report, Supplemental Information, for the period January 1, 2014, through December 31, 2014, in accordance with TS 5.6.3 and ODCM section 8.1.1b.

Enclosure 3 contains the Low Level Waste Disposal Annual Report, Solid Waste and Irradiated Component Shipments, for the period January 1, 2014, through December 31, 2014, in accordance with TS 5.6.3 and ODCM section 8.1.1d.

Enclosure 4 contains a complete copy of H4, Offsite Dose Calculation Manual, Revision 29, dated August 22, 2014. In accordance with TS 5.5.1.c. and ODCM section 8.1.1i, 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.

Enclosure 5 contains a complete copy of the D59, The Process Control Program (PCP) for Solidification/Dewatering of Radioactive Waste from Liquid Systems (D59), Revision 11, dated October 23, 2014, in accordance with the ODCM section 8.1.1m.

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Enclosure 6 contains the 2014 supporting data for determination of facility-related dose, including direct sources, demonstrating compliance with 40CFR190.10.

An error in the 2011 report was documented on 2/12/2015. The omission of Carbon-14 (C-14) curies requires 90-day reporting pursuant to ODCM section 8.7.2. The corrections are provided in Enclosure 1.

Summary of Commitments

This letter contains no new commitment and no revision to an existing commitment.



Kevin Davison
Site Vice President, Prairie Island Nuclear Generating Plant
Northern States Power Company - Minnesota

Enclosures

cc: Regional Administrator, USNRC, Region III
Project Manager, Prairie Island Nuclear Generating Plant, USNRC, NRR
NRC Resident Inspector – Prairie Island Nuclear Generating Plant
Department of Health, State of Minnesota
PI Dakota Community Environmental Coordinator

ENCLOSURE 1

OFF-SITE RADIATION DOSE ASSESSMENT

January 1, 2014 – December 31, 2014

6 pages to follow

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

January 1, 2014 - December 31, 2014

An Assessment of the radiation dose due to releases from Prairie Island Nuclear Generating Plant during 2014 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 historical meteorological data were used in making this assessment. Source terms were obtained from the Annual Radioactive Effluent and Waste Disposal Report and prepared for NRC review, for the year of 2014.

OFFSITE 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.

OFFSITE 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 Boundary 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 thirteen (13) Abnormal Releases Permits generated for 2014, to characterize one (1) single release source.

11 Steam Generator Safety Valve Leakage (RS-21-5)

EVENT:

Upon startup from Unit 1 Refueling Outage 1R28, it was noted that downstream temperatures for 11 Steam Generator Safety Valve (RS-21-5) were elevated, indicating leakage. Engineering determined the leakage to be 7800 lbm/hour.

EVALUATION:

Data review indicated that no overpressure condition existed.

The valve could not be repaired on-line. Repairs were planned for the next refueling outage 1R29, in the fall of 2014. Downstream temperatures were routinely reviewed to ensure that no change in leak rate occurred.

During Refueling Outage 1R29, the valve was removed and sent off site for refurbishment. Upon startup, temperatures remained elevated indicating that refurbishment had not corrected the condition.

Investigation and troubleshooting to resolve this issue is on-going.

Activity is assessed daily, with highest values noted used in subsequent dose calculations. No nuclides, other than tritium, were detected on the daily samples.

Abnormal Release Permits were created on a periodic basis to track and account for the release, and to ensure that the dose was attributed to the corresponding release quarters.

0.151 curies of tritium were released. Associated dose from the release tritium was 6.88E-04 mrem, maximum organ dose at the critical receptor location.

The dose from the activity released represented a small percentage of the total dose for 2014 and a very small percentage of limits. The dose did not impose upon the health and safety of the public.

40CFR190 COMPLIANCE

REMP environmental TLD results for 2014 were reviewed per ANSI/HPS N13.37-2014 methodology for determining any plant effect above ambient gamma radiation measurements. Attachment 6 demonstrates that facility-related dose for quarterly and annual exposure intervals was not detected for all measurement locations. All measurements are considered to be within the range of variations in natural background radiation.

SAMPLING, ANALYSIS AND LLD REQUIREMENTS

The lower limit of detection (LLD) requirements, as specified in ODCM Table 2.1 and 3.1 were met for 2014. The minimum sampling frequency requirements, as specified in ODCM Table 2.1 and 3.1 were met for 2014.

MONITORING INSTRUMENTATION

For 2014, there were no (0) 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):

Three (3) fuel casks were loaded and placed in the storage facility during the 2014 calendar year. The total number of casks in the ISFSI is thirty-eight (38). There was no release of radioactive effluents from the ISFSI.

CURRENT OFFSITE DOSE CALCULATIONS MANUAL (ODCM) REVISION:

The Offsite Dose Calculation Manual was revised in 2014. The 2014 revision is revision 29. The date of revision 29 is August 22, 2014. A copy of revision 29 is submitted with this year's report as Enclosures 4.

CRITICAL RECEPTOR

Based on the Annual Land Use Census, there was no change in critical receptor.

PROCESS CONTROL PROGRAM

The Process Control Program for Solidification/Dewatering of Radioactive Waste from Liquid Systems (D 59) was revised in 2014. Current manual revision is 11. The revision date is October 23, 2014. A copy of revision 11 is submitted with this year's report as Enclosures 5.

SOLID WASTE SHIPMENTS

A copy of the "LOW LEVEL WASTE DISPOSAL ANNUAL REPORT SOLID WASTE AND IRRADIATED COMPONENT SHIPMENTS" is included as enclosure 3.

INDUSTRY INITIATIVE ON GROUND WATER PROTECTION:

There was zero (0) events for inclusion in the Annual Effluent Report, as part of the NEI Ground Water Initiative.

ERRATA DATA:

An omission was noted in the 2011 Annual Effluent Release Report.

Carbon-14 dose is reported as part of the I-131, I-133, Long Lived Particulate and Tritium dose and compared to the applicable limits. In 2011, Carbon-14 dose was correctly included in total critical location dose for the I-131, I-133, tritium, and long-lived particulate. No discrepancy in dose reporting was noted. However, although Carbon-14 curies were correctly included in dose reported, specific reporting of Carbon-14 curies was not present in the Regulatory Guide 1.21 Report.

Effluents software was modified to support Carbon-14 reporting. Software was verified to correctly report dose and curies due to Carbon 14, in individual release permits and in quarterly reports. Software was verified to correctly report dose in the annual report. The software failed to report Carbon-14 curies in the annual report. This was not captured in software development or in report preparation and review.

2011 Carbon-14 Release (Curies):

QUARTER 1	QUARTER2	QUARTER 3	QUARTER 4
2.80E+00	2.15E+00	2.92E+00	2.67E+00

Table 1

OFF-SITE RADIATION DOSE ASSESSMENT - PRAIRIE ISLAND

PERIOD: JANUARY 2014 through DECEMBER 2014

10 CFR Part 50
Appendix I Guidelines
(2-unit site per year)

Gaseous Releases

Maximum Site Boundary Gamma Air Dose (mrad)	6.21E-07	20
Maximum Site Boundary Beta Air Dose (mrad)	2.59E-06	40
Maximum Off-site Dose to any organ (mrem)* Organ:	7.84E-02 Child - bone	30
Offshore Location Gamma Dose (mrad)	1.24E-08	20
Total Body (mrem)	5.06E-06	30
Organ (mrem)* Organ:	5.06E-03 Teen - Lung	30

Liquid Releases

Maximum Off-site Dose Total Body (mrem)	2.81E-03	6
Maximum Off-site Dose (mrem) Organ:	2.84E-03 Adult - Gi-LLi	20

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

Table 2

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

January 1, 2014 – December 31, 2014

Gaseous Releases

**Maximum Site Boundary
Dose Location
(From Building Vents)**

Sector	W
Distance (miles)	0.36

**Offshore Location
Within Site Boundary**

Sector	ESE
Distance (miles)	0.2
Pathway	Inhalation

Maximum Off-site

Sector	NNW
Distance (miles)	0.60
Pathways	Ground, Inhalation Vegetable
Age Group	Child

Liquid Release

**Maximum Off-site Dose
Location Downstream**

Pathway	Fish
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ENCLOSURE 2

ANNUAL RADIOACTIVE EFFLUENT REPORT
SUPPLEMENTAL INFORMATION

January 1, 2014 – December 31, 2014

8 pages to follow

ANNUAL RADIOACTIVE EFFLUENT REPORT

01-JAN-14 THROUGH 31-DEC-14

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. 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: 29
Revision date : August 22, 2014

Prairie Island Nuclear Generating Station
PI 2014 Annual Release Summary

Batch Release Summary

Liquid Releases	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Year
Number of Releases:	14	23	32	62	131
Total Time for All Releases (Minutes):	1077.0	1837.0	2477.0	5233.0	10624.0
Maximum Time for All Releases (Minutes):	86.0	98.0	102.0	124.0	124.0
Average Time for All Releases (Minutes):	76.9	79.9	77.4	84.4	81.1
Minimum Time for All Releases (Minutes):	67.0	68.0	58.0	62.0	58.0

Gaseous Releases	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Year
Number of Releases:	6	4	4	40	51
* Total Time for All Releases (Minutes):	132480.0	131040.0	132480.0	122063.0	518063.0
* Maximum Time for All Releases (Minutes):	41760.0	41760.0	43200.0	44640.0	50400.0
Average Time for All Releases (Minutes):	22080.0	32760.0	33120.0	3051.6	10158.1
Minimum Time for All Releases (Minutes):	1440.0	8640.0	8640.0	124.0	124.0

Abnormal Release Summary

Liquid Releases

Number of Abnormal Releases:	0
Total Activity for Abnormal Releases:	0.00E+00 Curies

Gaseous Releases

Number of Abnormal Releases:	13
Total Activity for Abnormal Releases:	1.51E-01 Curies

*

The Number of Gaseous Releases for the year does not equal the sum of the Number of Gaseous Releases for the quarters. In some cases, a release, as defined by a Release Permit, straddles a quarter; i.e.: a release permit may begin before the beginning of the quarter or end after the end of the quarter. The software will ratio the dose and curies to the appropriate quarters. Therefore a given release permit may be used to define dose and curies attributed to two different quarters. The Number of Releases for the four individual quarters and the Number of Releases for the year were verified correct.

This same issue of a release permit straddling two quarters is the reason that the Year Maximum Time for All Releases exceeds the Maximum Time for All Releases, for the individual quarters. A release permit exists that was 50,400 minutes in duration, however it straddled two quarters, with only a portion being attributed to each quarter. The four Maximum Time for All Releases for individual quarters and the Maximum Time for All Releases for the year were verified correct.

Prairie Island Nuclear Generating Station
PI 2014 Annual Release Summary

Gaseous Effluents-Summation of All Releases

Type of Effluent	Units	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Est. Total Error, %
A. Fission & Activation Gases						
1. Total Release	Curies	2.86E-03	0.00E+00	0.00E+00	0.00E+00	2.50E+01
2. Average Release Rate for Period	µCi/sec	3.67E-04	0.00E+00	0.00E+00	0.00E+00	
3. Percent of Applicable Limit	%	1.29E-05	0.00E+00	0.00E+00	0.00E+00	
B. Iodines						
1. Total Iodine-131	Curies	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.50E+01
2. Average Release Rate for Period	µCi/sec	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
3. Percent of Applicable Limit	%	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
C. Particulates						
1. Total Particulates (Half-lives > 8 days)	Curies	1.31E-08	0.00E+00	0.00E+00	3.07E-07	2.50E+01
2. Average Release Rate for Period	µCi/sec	1.68E-09	0.00E+00	0.00E+00	3.86E-08	
3. Percent of Applicable Limit	%	1.50E-07	0.00E+00	0.00E+00	8.31E-07	
4. Gross Alpha Activity	Curies	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.50E+01
D. Tritium						
1. Total Release	Curies	5.46E+00	5.30E+00	4.72E+00	5.45E+00	2.50E+01
2. Average Release Rate for Period	µCi/sec	7.02E-01	6.74E-01	5.94E-01	6.86E-01	
3. Percent of Applicable Limit	%	4.17E-02	4.04E-02	3.50E-02	4.01E-02	
E. Carbon-14						
1. Total Release	Curies	2.75E+00	2.77E+00	2.92E+00	1.88E+00	2.50E+01

Prairie Island Nuclear Generating Station
PI 2014 Annual Release Summary

Gaseous Effluents - Ground Level Releases

Nuclides Released	Units	Continuous Mode				Batch Mode			
		Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4
1. Fission and Activation Gases									
Kr-85	Curies	5.23E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Xe-133	Curies	2.33E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total for Period	Curies	2.86E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2. Iodines									
Total for Period	Curies	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3. Particulates									
Co-58	Curies	1.31E-08	0.00E+00	0.00E+00	3.07E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total for Period	Curies	1.31E-08	0.00E+00	0.00E+00	3.07E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4. Tritium									
H-3	Curies	5.39E+00	5.23E+00	4.71E+00	5.44E+00	7.11E-02	6.41E-02	1.58E-02	4.99E-03
5. Carbon-14									
C-14	Curies	2.75E+00	2.77E+00	2.92E+00	1.88E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Prairie Island Nuclear Generating Station
PI 2014 Annual Release Summary

Liquid Effluents - Summation of All Releases

Type of Effluent	Units	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Est. Total Error, %
A. Fission & Activation Products						
1. Total Release (not including Tritium, Gases, and Alpha)	Curies	9.41E-04	5.64E-04	4.79E-04	1.37E-03	2.50E+01
2. Average Diluted Concentration During Period	µCi/ml	1.28E-11	7.34E-12	5.07E-12	1.42E-11	
3. Percent of Applicable Limit	%	1.88E-02	1.13E-02	9.58E-03	2.75E-02	
B. Tritium						
1. Total Release	Curies	3.24E+01	2.65E+02	1.75E+02	1.40E+02	2.50E+01
2. Average Diluted Concentration During Period	µCi/ml	4.43E-07	3.45E-06	1.85E-06	1.45E-06	
3. Percent of Applicable Limit	%	4.43E-02	3.45E-01	1.85E-01	1.45E-01	
C. Dissolved and Entrained Gases						
1. Total Release	Curies	0.00E+00	1.25E-04	3.35E-04	1.58E-04	2.50E+01
2. Average Diluted Concentration During Period	µCi/ses	0.00E+00	1.63E-12	3.55E-12	1.64E-12	
3. Percent of Applicable Limit	%	0.00E+00	8.13E-07	1.78E-06	8.20E-07	
D. Gross Alpha Radioactivity						
1. Total Release	Curies	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.50E+01
E. Waste Volume Released (Pre-Dilution)						
F. Volume of Dilution Water Used						
E. Waste Volume Released (Pre-Dilution)	Liters	4.18E+07	4.75E+07	4.21E+07	3.39E+07	2.50E+01
F. Volume of Dilution Water Used	Liters	7.32E+10	7.68E+10	9.44E+10	9.64E+10	2.50E+01

Prairie Island Nuclear Generating Station
PI 2014 Annual Release Summary

Liquid Effluents

Nuclides Released	Units	Continuous Mode				Batch Mode			
		Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4
Ag-110m	Curies	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.22E-06	0.00E+00	1.33E-05	1.71E-05
Ar-41	Curies	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.14E-06	2.19E-06	2.45E-06
Co-57	Curies	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.43E-07	0.00E+00	0.00E+00
Co-58	Curies	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.73E-04	6.33E-05	1.63E-05	8.78E-04
Co-60	Curies	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.03E-05	6.69E-05	5.04E-05	8.94E-05
Cr-51	Curies	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.94E-05
Fe-55	Curies	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.41E-05	0.00E+00	0.00E+00	0.00E+00
Fe-59	Curies	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.05E-05
H-3	Curies	1.01E-01	1.58E-01	1.09E-01	8.72E-02	3.23E+01	2.65E+02	1.75E+02	1.40E+02
La-140	Curies	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.98E-07
Mn-54	Curies	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.90E-07	0.00E+00	0.00E+00	8.85E-07
Nb-95	Curies	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.00E-06	0.00E+00	7.11E-06
Nb-97	Curies	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.26E-06	8.36E-07	3.30E-06	4.96E-06
Ni-63	Curies	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.67E-04	3.79E-04	3.82E-04	5.36E-05
Sb-125	Curies	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.11E-05	1.48E-05	7.63E-06	2.71E-05
Sr-92	Curies	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.70E-07
Te-123M	Curies	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.97E-05	3.81E-05	4.58E-06	2.03E-04
Te-132	Curies	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.70E-07
W-187	Curies	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.02E-06	0.00E+00
Xe-133	Curies	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.08E-04	3.06E-04	1.41E-04
Xe-135	Curies	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.30E-05	2.75E-05	1.48E-05
Total for Period	Curies	1.01E-01	1.58E-01	1.09E-01	8.72E-02	3.23E+01	2.65E+02	1.75E+02	1.40E+02

Prairie Island Nuclear Generating Station
2014 Annual Dose Summary

Gaseous Effluents

	Parameter	Location	Dose	Dose Limit	% of Limit
Qtr 1	Gamma Air Dose (mrad)	0.58 km W	6.21E-07	1.00E+01	0.00
	Beta Air Dose (mrad)	0.58 km W	2.59E-06	2.00E+01	0.00
	Total Body Dose (mrem)	0.58 km W	5.18E-07	5.00E+00	0.00
	Skin Dose (mrem)	0.58 km W	1.74E-06	1.50E+01	0.00
	Max Organ Dose (mrem)	0.97 km NNW	6.26E-03	1.50E+01	0.04
	Child - Lung				
Qtr 2	Gamma Air Dose (mrad)	0.58 km W	0.00E+00	1.00E+01	0.00
	Beta Air Dose (mrad)	0.58 km W	0.00E+00	2.00E+01	0.00
	Total Body Dose (mrem)	0.58 km W	0.00E+00	5.00E+00	0.00
	Skin Dose (mrem)	0.58 km W	0.00E+00	1.50E+01	0.00
	Max Organ Dose (mrem)	0.97 km NNW	3.03E-02	1.50E+01	0.20
	Child - Bone				
Qtr 3	Gamma Air Dose (mrad)	0.58 km W	0.00E+00	1.00E+01	0.00
	Beta Air Dose (mrad)	0.58 km W	0.00E+00	2.00E+01	0.00
	Total Body Dose (mrem)	0.58 km W	0.00E+00	5.00E+00	0.00
	Skin Dose (mrem)	0.58 km W	0.00E+00	1.50E+01	0.00
	Max Organ Dose (mrem)	0.97 km NNW	4.82E-02	1.50E+01	0.32
	Child - Bone				
Qtr 4	Gamma Air Dose (mrad)	0.58 km W	0.00E+00	1.00E+01	0.00
	Beta Air Dose (mrad)	0.58 km W	0.00E+00	2.00E+01	0.00
	Total Body Dose (mrem)	0.58 km W	0.00E+00	5.00E+00	0.00
	Skin Dose (mrem)	0.58 km W	0.00E+00	1.50E+01	0.00
	Max Organ Dose (mrem)	0.97 km NNW	6.02E-03	1.50E+01	0.04
	Child - Lung				
Year	Gamma Air Dose (mrad)	0.58 km W	6.21E-07	2.00E+01	0.00
	Beta Air Dose (mrad)	0.58 km W	2.59E-06	4.00E+01	0.00
	Total Body Dose (mrem)	0.58 km W	5.18E-07	1.00E+01	0.00
	Skin Dose (mrem)	0.58 km W	1.74E-06	3.00E+01	0.00
	Max Organ Dose (mrem)	0.97 km NNW	7.84E-02	3.00E+01	0.26
	Child - Bone				

Liquid Effluents

	Parameter	Max Receptor	Dose	Dose Limit	% of Limit
Qtr 1	Max Organ Dose (mrem)	Adult - Bone	1.66E-04	1.00E+01	0.00
	Total Body Dose (mrem)	Adult - Total Body	1.24E-04	3.00E+00	0.00
Qtr 2	Max Organ Dose (mrem)	Adult - Liver	1.64E-03	1.00E+01	0.02
	Total Body Dose (mrem)	Adult - Total Body	1.63E-03	3.00E+00	0.05
Qtr 3	Max Organ Dose (mrem)	Adult - Liver	3.89E-04	1.00E+01	0.00
	Total Body Dose (mrem)	Adult - Total Body	3.85E-04	3.00E+00	0.01
Qtr 4	Max Organ Dose (mrem)	Adult - Gi-LLi	6.87E-04	1.00E+01	0.01
	Total Body Dose (mrem)	Adult - Total Body	6.66E-04	3.00E+00	0.02
Year	Max Organ Dose (mrem)	Adult - Gi-LLi	2.84E-03	2.00E+01	0.01
	Total Body Dose (mrem)	Adult - Total Body	2.81E-03	6.00E+00	0.05

ENCLOSURE 3

**LOW LEVEL WASTE DISPOSAL ANNUAL REPORT
SOLID WASTE AND IRRADIATED COMPONENT SHIPMENTS**

January 1, 2014 – December 31, 2014

4 pages to follow

PRAIRIE ISLAND NUCLEAR GENERATING PLANT
 NORTHERN STATES POWER

Period: 1/1/14 to 12/31/14
 License No. DPR-42/60

**LOW LEVEL WASTE DISPOSAL ANNUAL REPORT
 SOLID WASTE AND IRRADIATED COMPONENT SHIPMENTS**

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

1. Solid Waste Total Volumes, Total Curie Quantities, and Major Nuclides:

Resins, Filters, and Evaporator Bottoms Waste Class	Volume		Curies Shipped
	ft ³	m ³	Curies
A	0.00E+00	0.00E+00	0.00E+00
B	0.00E+00	0.00E+00	0.00E+00
C	0.00E+00	0.00E+00	0.00E+00
ALL	0.00E+00	0.00E+00	0.00E+00

Major Nuclides for the Above Table:

Dry Active Waste Waste Class	Volume		Curies Shipped
	ft ³	m ³	Curies
A	5.50E+04	1.56E+03	3.35E-01
B	0.00E+00	0.00E+00	0.00E+00
C	0.00E+00	0.00E+00	0.00E+00
ALL	5.50E+04	1.56E+03	3.35E-01

Major Nuclides for the Above Table:

Fe-55, Co-58, Co-60, Ni-63, Zr-95, Nb-95.

PRAIRIE ISLAND NUCLEAR GENERATING PLANT
 NORTHERN STATES POWER

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**LOW LEVEL WASTE DISPOSAL ANNUAL REPORT
 SOLID WASTE AND IRRADIATED COMPONENT SHIPMENTS**

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

Irradiated Components Waste Class	Volume		Curies Shipped
	ft ³	m ³	Curies
A	0.00E+00	0.00E+00	0.00E+00
B	0.00E+00	0.00E+00	0.00E+00
C	0.00E+00	0.00E+00	0.00E+00
ALL	0.00E+00	0.00E+00	0.00E+00

Major Nuclides for the Above Table:

Other Waste Waste Class	Volume		Curies Shipped
	ft ³	m ³	Curies
A	2.82E+02	7.99E+00	3.65E-01
B	0.00E+00	0.00E+00	0.00E+00
C	0.00E+00	0.00E+00	0.00E+00
ALL	2.82E+02	7.99E+00	3.65E-01

Major Nuclides for the Above Table:

C-14, Co-60, Ni-59, Ni-63, Cs-137,

PRAIRIE ISLAND NUCLEAR GENERATING PLANT
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**LOW LEVEL WASTE DISPOSAL ANNUAL REPORT
SOLID WASTE AND IRRADIATED COMPONENT SHIPMENTS**

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

Sum of All Low Level Waste Shipped from Site	Volume		Curies Shipped
Waste Class	ft³	m³	Curies
A	5.53E+04	1.57E+03	6.99E-01
B	0.00E+00	0.00E+00	0.00E+00
C	0.00E+00	0.00E+00	0.00E+00
ALL	5.53E+04	1.57E+03	6.99E-01

Major Nuclides for the Above Table:

C-14, Fe-55, Co-58, Co-60, Ni-59, Ni-63, Zr-95, Nb-95, Cs-137.

PRAIRIE ISLAND NUCLEAR GENERATING PLANT
NORTHERN STATES POWER

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**LOW LEVEL WASTE DISPOSAL ANNUAL REPORT
SOLID WASTE AND IRRADIATED COMPONENT SHIPMENTS**

**B. PROCESS CONTROL PROGRAM CHANGES
(NOT IRRADIATED FUEL) [continued]**

2. Process Control for Solidification/Dewatering of Radioactive Waste from Liquid Systems

Current Revision Number: 11 Effective Date: 10/23/14

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 H4 (ODCM) 8.1 m. Attach the sidelined pages to this report.
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Changes/Justification:

Deleted section 5.0 "Processing of Wet Trash by Compaction/Cementation" and section 9.0 "Processing Certain Waste Liquids by Evaporation" as these processes are no longer used.