

**MAY 14 2004**

L-PI-04-062  
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

2003 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 2003 Annual Radioactive Effluent Report which comprises the following reports:

Attachment 1 contains the Off-Site Radiation Dose Assessment for January through December 2003 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, 2003 through December 31, 2003 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.

Pursuant to the requirements of TS 5.5.1.c, Attachment 4 contains a complete copy of the entire ODCM, Revision 18, and includes a summary of changes to the ODCM.

Summary of Commitments

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

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A009

Please address any comments or questions regarding this letter to Mr. Jack Leveille at 651-388-1121.

A handwritten signature in cursive script, appearing to read "Richard Graham".

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

Enclosures (4)

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 2003**

**(5 pages follow)**

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

**January through December 2003**

An Assessment of the radiation dose due to releases from Prairie Island Nuclear Generating Plant during 2003 was performed in accordance with the Offsite Dose Calculations 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 2003.

**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. 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. 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 were reported in Table 1.

## ABNORMAL RELEASES

Between the dates of May 6, 2003 and July 8, 2003, 3700 cubic feet was lost from the waste gas system. The gas was released via the Auxiliary Building Normal Ventilation System to the environment. The loss was identified by review of the waste gas inventory. The leak occurred over the dates indicated and was released without sampling or analysis prior to the release, as required by Table 3.1 of the Offsite Dose Calculations Manual.

Cause: A leak was identified on the 121 Auto Gas Analyzer Pump #1.

Corrective Action: 121 Auto Gas Analyzer Pumps #1 and #2 were replaced. A careful evaluation of gas inventory indicated that no further leakage.

Since activity levels were too low to be noted on monitor readings or routine weekly ventilation gas grabs, the activity released was determined by sampling of the inservice gas decay tank. The total activity release was assumed to be uniformly released over the entire period and was equally distributed over the release files for Unit 1 and Unit 2 Auxiliary Buildings for the 9 week period.

### Total Activity Released:

Kr-85	2.06E+05 uCi
Xe-133	5.68E+03 uCi
Xe-133M	1.03E+02 uCi
Xe-135	1.87E+02 uCi

Result: Activities and subsequent doses were conservatively determined and compared to release rate and dose limitations. Due to the release, the calculated gamma dose was 6.37E-06 mrad and the calculated beta dose was 4.38E-04 mrad. 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-031301.

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 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 ISFSI**

No fuel casks were loaded and placed in the storage facility during the 2003 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 Calculations Manual was revised this year. The current revision is 18. The revision date is June 26, 2003. A copy is included with this report.

#### **PROCESS CONTROL PROGRAM**

There **were no** changes made to the Process Control Program in 2003. Current manual is revision 8, August 8, 1999.

Table 1

## OFF-SITE RADIATION DOSE ASSESSMENT - PRAIRIE ISLAND

PERIOD: JANUARY through DECEMBER 200310 CFR Part 50 Appendix I  
Guidelines for a 2-unit site per yearGaseous Releases

Maximum Site Boundry Gamma Air Dose (mrad)	5.66E-05	20
Maximum Site Boundry Beta Air Dose (mrad)	6.13E-03	40
Maximum Off-site Dose to any organ (mrem)*	3.32E-02	30
Offshore Location		
Gamma Dose (mrad)	3.05E-06	
Total Body (mrem)*	1.58E-03	
Organ (mrad)*	1.58E-03	30

Liquid Releases

Maximum Off-site Dose Total Body (mrem)	2.06E-03	6
Maximum Off-site Dose Organ - GI TRACT (mrem)	3.53E-03	20
Limiting Organ Dose Organ - TOTAL BODY (mrem)	2.06E-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 2003**

**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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