



Monticello Nuclear Generating Plant  
2807 West County Road 75  
Monticello, MN 55362-9637  
Operated by Nuclear Management  
Company LLC

August 25, 2000

Technical Specification 6.7.A.4

US Nuclear Regulatory Commission  
Attn: Document Control Desk  
Washington, DC 20555

MONTICELLO NUCLEAR GENERATING PLANT  
Docket No. 50-263 License No. DPR-22

Effluent and Waste Disposal  
Semi-Annual Report for January Through June, 2000

In accordance with Monticello Technical Specification Section 6.7.A.4, we are submitting the following information as an attachment:

- A. Effluent and Waste Disposal Semi-Annual Report for January - June, 2000.

There were no changes to the Process Control Program (PCP) Manual during the reporting period. Also, there were no milk and vegetable sampling deviations during this reporting period.

This letter contains no new NRC commitments, nor does it modify any prior commitments. Please contact Sam Shirey at (763) 295-1449 if you require further information.

Michael F. Hammer  
Site General Manager  
Monticello Nuclear Generating Plant

- c: Regional Administrator - III, NRC  
NRR Project Manager, NRC  
Sr. Resident Inspector, NRC  
Minnesota Department of Commerce  
J Silberg

IE48

**Attachment A**

Effluent and Waste Disposal Semi-Annual Report  
for  
January - June, 2000

(The attached Report contains 10 pages.)

NORTHERN STATES POWER COMPANY  
MONTICELLO NUCLEAR GENERATING PLANT  
License No. DPR-22

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT  
Period : Jan - Jun 2000

Supplemental Information

1. Regulatory Limits - Quarterly levels requiring reporting to Nuclear Regulatory Commission
  - A. Noble Gases :
    - 5 mrad/quarter gamma radiation
    - 10 mrad/quarter beta radiation
  - B. Long Lived Iodines, Particulates, and Tritium :
    - 7.5 mrem/quarter dose to any organ
  - C. Liquid Effluents :
    - 1.5 mrem/quarter dose to the total body
    - 5.0 mrem/quarter dose to any organ
  
2. Maximum Permissible Concentrations
  - A. Noble Gases :
    - 10 CFR Part 20, Appendix B, Table II, Column 1
  - B. Long Lived Iodines, Particulates, and Tritium :
    - 10 CFR Part 20, Appendix B, Table II, Column 1
  - C. Liquid Effluents :
    - 10 CFR Part 20, Appendix B, Table II, Column 2
    - 2.0 E-4 uci/ml for dissolved and entrained gases
  
3. Average Energy
  - (Not Applicable)

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Supplemental Information (continued)

4. Measurements and Approximations of Total Radioactivity

A. Noble Gases :

Continuous gross activity monitors in Reactor Building Vent and Plant Stack exhaust streams. Weekly isotopic analysis of exhaust streams.

B. Iodines in Gaseous Effluent :

Continuous monitoring with charcoal cartridges in Reactor Building Vent and Plant Stack exhaust streams with weekly analysis.

C. Particulates in Gaseous Effluent :

Continuous monitoring with particulate filters in Reactor Building Vent and Plant Stack exhaust streams with weekly analysis.

D. Tritium in Gaseous Effluent :

Weekly grab samples from Reactor Building Vent and Plant Stack exhaust streams.

E. Liquid Effluents :

Tank sample analyzed prior to each planned release and continuous monitoring of gross activity during planned release.

5. Batch Releases

A. Liquid :

1. Number of Batch Releases	0	
2. Total Time Period for Batch Releases	0.0	min
3. Maximum Time Period for a Batch Release	0.0	min
4. Average Time Period for a Batch Release	0.0	min
5. Minimum Time Period for a Batch Release	0.0	min
6. Average River Flow During Release	0.0	cf/sec

B. Gaseous :

1. Number of Batch Releases	2	
2. Total Time Period for Batch Releases	1308.0	min
3. Maximum Time Period for a Batch Release	885.0	min
4. Average Time Period for a Batch Release	654.0	min
5. Minimum Time Period for a Batch Release	423.0	min

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## Supplemental Information (continued)

## 6. Abnormal Releases

## A. Liquid :

1. Number of Releases	0	
2. Total Activity Released	0.0	Ci

## B. Gaseous :

1. Number of Releases	0	
2. Total Activity Released	0.0	Ci

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Table 1A Gaseous Effluents - Summation of all Releases

	Units	1st Qtr	2nd Qtr	Est. Total Error, %
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## A. Fission &amp; Activation gases

1. Total Release	Ci	1.93E+01	3.41E+01	2.00E+01
2. Average Release Rate	uci/sec	2.49E+00	4.34E+00	
3. Percent Tech Spec Qtrly Reporting Level				
Gamma Radiation	%	6.08E-03	2.39E-02	
Beta Radiation	%	1.47E-03	1.04E-02	

## B. Iodines

1. Total I-131 Release	Ci	6.58E-04	6.51E-04	1.00E+01
2. Average I-131 Release Rate	uci/sec	8.46E-05	8.28E-05	

## C. Particulates

1. Total Particulates	Ci	1.80E-04	2.43E-04	3.00E+01
2. Average Release Rate	uci/sec	2.32E-05	3.09E-05	
3. Gross Alpha Radioactivity	Ci	7.37E-07	2.42E-07	

## D. Tritium

1. Total Release	Ci	1.58E+00	2.51E+00	1.00E+01
2. Average Release Rate	uci/sec	2.03E-01	3.19E-01	

## E. Percent Qtrly Tech Spec Reporting Levels

1. Iodines, Particulates, and Tritium	%	9.48E-02	7.56E-02	
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EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT  
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Table 1B Gaseous Effluents - Elevated Releases

Nuclides Released	Unit	Continuous Mode		Batch Mode	
		1st Qtr	2nd Qtr	1st Qtr	2nd Qtr
1. Fission Gases					
KR-87	Ci	2.14E-01	3.50E-01	0.00E+00	0.00E+00
KR-88	Ci	0.00E+00	3.06E-02	0.00E+00	0.00E+00
KR-89	Ci	0.00E+00	1.65E+00	0.00E+00	0.00E+00
XE-133	Ci	6.63E+00	7.68E+00	0.00E+00	0.00E+00
XE-133M	Ci	0.00E+00	3.71E-02	0.00E+00	0.00E+00
XE-135	Ci	1.89E+00	1.48E+00	0.00E+00	0.00E+00
XE-135M	Ci	1.79E+00	3.21E+00	0.00E+00	0.00E+00
XE-137	Ci	5.31E+00	9.60E+00	0.00E+00	0.00E+00
XE-138	Ci	3.49E+00	7.54E+00	0.00E+00	0.00E+00
Total for Period	Ci	1.93E+01	3.16E+01	0.00E+00	0.00E+00
2. Iodines					
I-131	Ci	1.96E-04	4.11E-04	0.00E+00	0.00E+00
I-133	Ci	9.65E-04	3.14E-03	0.00E+00	0.00E+00
I-135	Ci	1.34E-03	5.16E-03	0.00E+00	0.00E+00
Total for Period	Ci	2.50E-03	8.72E-03	0.00E+00	0.00E+00
3. Particulates					
MN-54	Ci	9.33E-07	0.00E+00	0.00E+00	0.00E+00
CO-60	Ci	3.09E-06	1.59E-06	0.00E+00	0.00E+00
CS-137	Ci	8.90E-08	0.00E+00	0.00E+00	0.00E+00
BA-140	Ci	1.22E-05	2.63E-05	0.00E+00	0.00E+00
SR-89	Ci	4.51E-06	1.09E-05	0.00E+00	0.00E+00
SR-90	Ci	6.32E-08	4.69E-08	0.00E+00	0.00E+00
Total for Period	Ci	2.08E-05	3.88E-05	0.00E+00	0.00E+00

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Table 1C Gaseous Effluents - Building Vent Releases

Nuclides Released	Unit	Continuous Mode		Batch Mode	
		1st Qtr	2nd Qtr	1st Qtr	2nd Qtr
1. Fission Gases					
XE-135	Ci	0.00E+00	2.52E+00	2.60E-03	0.00E+00
AR-41	Ci	0.00E+00	0.00E+00	1.14E-02	0.00E+00
Total for Period	Ci	0.00E+00	2.52E+00	1.40E-02	0.00E+00
2. Iodines					
I-131	Ci	4.62E-04	2.40E-04	0.00E+00	0.00E+00
I-133	Ci	1.11E-03	1.60E-03	0.00E+00	0.00E+00
I-135	Ci	5.15E-04	0.00E+00	0.00E+00	0.00E+00
Total for Period	Ci	2.09E-03	1.84E-03	0.00E+00	0.00E+00
3. Particulates					
MN-54	Ci	1.50E-05	6.15E-06	0.00E+00	0.00E+00
CO-58	Ci	4.12E-06	0.00E+00	0.00E+00	0.00E+00
CO-60	Ci	8.83E-05	1.05E-04	5.21E-06	0.00E+00
ZN-65	Ci	1.16E-05	0.00E+00	0.00E+00	0.00E+00
CS-137	Ci	3.34E-05	9.00E-05	0.00E+00	0.00E+00
SR-89	Ci	2.02E-06	3.04E-06	0.00E+00	0.00E+00
SR-90	Ci	5.19E-09	0.00E+00	0.00E+00	0.00E+00
Total for Period	Ci	1.54E-04	2.04E-04	5.21E-06	0.00E+00



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Table 2A Liquid Effluents - Summation of all Releases

	Units	1st Qtr	2nd Qtr	Est. Total Error, %
A. Fission & Activation products				
1. Total Release (not including tritium, gases, alpha)	Ci	0.00E+00	0.00E+00	0.00E+00
2. Avg Diluted Concentration	uci/ml	0.00E+00	0.00E+00	
B. Tritium				
1. Total Release	Ci	0.00E+00	1.67E-05	3.00E+01
2. Avg Diluted Concentration	uci/ml	0.00E+00	3.82E-10	
C. Dissolved and Entrained Gases				
1. Total Release	Ci	0.00E+00	0.00E+00	0.00E+00
2. Avg Diluted Concentration	uci/ml	0.00E+00	0.00E+00	
D. Percent Qtrly Tech Spec Reporting Level				
1. Whole Body Dose	%	0.00E+00	1.00E-11	
2. Organ Dose	%	0.00E+00	3.01E-12	
E. Gross Alpha Radioactivity				
1. Total Release	Ci	0.00E+00	0.00E+00	0.00E+00
F. Volume of Waste Released				
	Liters	0.00E+00	1.67E+04	3.00E+01
F. Volume of Dilution Water Used				
	Liters	0.00E+00	4.37E+07	3.00E+01

Table 2B Liquid Effluents

Nuclides Released	Unit	Continuous Mode		Batch Mode	
		1st Qtr	2nd Qtr	1st Qtr	2nd Qtr
None Released This Period					

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Table 3 Solid Waste and Irradiated Fuel Shipments

## A. Solid Waste Shipped Offsite for Burial or Disposal (not irradiated fuel)

1. Type of Waste	Units	6-month Period	Est. Total Error, %
a. Spent resins, filter sludges, evaporator bottoms, etc.	Cu. Meter Ci (est)	2.34E+01 1.13E+02	3.70E+01
b. Dry compressible waste, contaminated equipment, etc.	Cu. Meter Ci (est)	1.55E+01 1.00E+01	3.50E+01
c. Irradiated components, control rods, etc.	Cu. Meter Ci	0.00E+00 0.00E+00	0.00E+00
d. Other (describe)	Cu. Meter Ci	0.00E+00 0.00E+00	0.00E+00

2. Estimate of major nuclide composition (by type of waste)				
Nuclide	Type A percent	Type B percent	Type C percent	Type D percent
H-3	2.79E-01	2.84E-02		
C-14	2.30E-01	4.62E-02		
Cr-51	7.69E-01	6.70E-01		
Mn-54	4.81E+00	2.40E+00		
Fe-55	4.16E+01	6.76E+01		
Co-57		8.64E-03		
Co-58	8.71E-01	2.65E-01		
Fe-59	2.94E-01	2.61E-01		
Ni-59	7.86E-03	1.85E-02		
Co-60	2.53E+01	2.28E+01		
Ni-63	6.28E-01	8.32E-01		
Zn-65	9.19E+00	3.21E+00		
Sr-89		1.42E-03		
Sr-90	7.29E-02	1.97E-02		
Nb-95		4.57E-02		
Zr-95		1.09E-01		
Cd-109	1.80E-01			
Ag110m		2.37E-02		
Sb-124		4.74E-02		
Sb-125		1.16E-01		
I-131		6.66E-03		
Cs-134		1.83E-02		
Cs-137	1.57E+01	9.89E-01		
Ba-140	1.78E-05	1.94E-03		
Ce-141		3.07E-02		
Ce-144	7.85E-03	5.52E-02		
Eu-154		7.35E-04		
Pu-238	1.00E-03	7.73E-03		
Pu-239	5.16E-04	4.79E-03		
Am-241	3.10E-03	1.35E-02		
Pu-241	3.58E-02	1.95E-01		
Cm-242	2.40E-03	2.49E-03		
Pu-242		2.73E-03		
Cm-243	1.61E-03	2.21E-03		
Eu-152		5.72E-03		

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Table 3 Solid Waste and Irradiated Fuel Shipments

## 3. Solid waste disposal

Number of Shipments	Mode of Transportation	Destination
9	Truck	Chem-Nuc Inc., Barnwell, SC.
30	Truck	Envirocare, Clive, UT.

## B. Irradiated Fuel Shipments

## 1. Disposition

Number of Shipments	Mode of Transportation	Destination
None This Period		

## C. Shipping Container and Solidification Method

No.	Volume M3	Activity Ci	Type of Waste	Container Code	Solidification Code
9917D	3.17E-01	1.10E-03	B	A	N
9917E	2.27E-01	7.00E-04	B	A	N
9908D	2.27E-01	1.39E-02	B	A	N
9908E	6.12E-01	3.11E-02	B	A	N
0026B	6.34E-02	1.40E-02	B	A	N
0026C	1.53E-01	2.40E-03	B	A	N
0026D	6.23E-02	5.60E-03	B	A	N
0026E	5.61E-02	5.60E-03	B	A	N
0035C	4.76E-01	5.00E-02	B	A	N
0035D	7.70E-01	8.30E-02	B	A	N
0035E	1.41E-01	9.60E-02	B	A	N
0035F	1.36E-01	1.50E-02	B	A	N
0035G	1.70E-01	2.80E-02	B	A	N
0035H	1.97E-01	2.49E-01	B	A	N
0036A	2.04E-01	9.60E-03	B	A	N
0036B	1.59E+00	5.30E-02	B	A	N
0036C	2.72E-01	7.60E-03	B	A	N
0036D	1.59E-01	5.60E-03	B	A	N
0036E	3.17E-01	1.30E-02	B	A	N
0036F	2.79E-01	1.43E-01	B	A	N
0035A	9.71E-01	6.90E-02	B	A	N
0035B	2.27E-01	2.03E-02	B	A	N
9917F	4.64E-02	3.10E-03	B	A	N
00-38	5.83E+00	4.45E+01	A	L	D
00-40	5.83E+00	2.01E+01	A	L	D
00-44	5.83E+00	8.45E+00	A	L	D
00-46	5.69E+00	8.79E+00	B	L	N
00-43	5.83E+00	1.14E+01	A	L	D

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## C. Shipping Container and Solidification Method (Cont.)

No.	Volume M3	Activity Ci	Type of Waste	Container Code	Solidification Code
9908F	4.70E-02	2.00E-04	B	A	N
0026A	5.66E-01	7.00E-03	B	A	N
99-23	5.30E-02	1.61E+01	A	A	N
0026F	9.20E-02	4.00E-03	B	A	N
0036G	3.77E-01	1.13E-02	B	A	N
9906C	2.16E-01	2.00E-03	B	A	N
9906D	1.36E-01	1.40E-03	B	A	N
9535D	6.82E-01	2.27E-01	B	A	N
9535E	1.98E-02	4.64E-02	B	A	N
9928A	1.10E-02	3.98E+00	A	A	N
9928B	1.67E-02	8.44E+00	A	A	N

## Container Codes :

L - LSA  
A - Type A  
B - Type B  
Q - Large Quantity

## Solidification Codes :

C - Cement  
U - Urea Formaldehyde  
D - Dewatering  
N - Not Applicable