REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

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AUTHOR AFFILIATION

FEY, F. L. RECIP. NAME Northern States Power Co.

RECIPIENT AFFILIATION

"Effluent & Waste Disposal Semiannual Rept, Jan-June 1986." SUBJECT:

W/860828 1tr.

DISTRIBUTION CODE: 1E25D COPIES RECEIVED: LTR 1 ENCL 1 SIZE: TITLE: Periodic Environ Monitoring Rept (50 DKT)-Annual/Semiannual/Effluent/

NOTES:

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	BWR PSB		3	3			•	
INTERNAL:	AEOD		1	1	AEOD/PTB		1	1
	IE FILE	01	1	1	NRR BWR AI)TS	1	1
	NRR PWR-A	ADTS	1	1	NRR PWR-B	ADTS	1	1
	NRR/DSRO/R	RAB	1	1	RGN2/DRSS/	EPRPB	1	1
•	RM/DDAMI/M	IB	1	1				
EXTERNAL:	LPDR	03	1	1	NRC PDR	02	1	1

Period: Jan - Jun 1986 License No. DPR-22

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT

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 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 E-04 uci/ml for dissolved and entrained gases
- 3. Average Energy:

(Not Applicable)

Period: Jan - Jun 1986

License No. DPR-22

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT.

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 steam jet

- air ejector stream. Monthly analysis of storage tank contents.
- 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: Continuous monitoring with silica gel cartridges in Reactor Building vent and plant stack exhaust streams with biweekly analysis.
- E. Liquid Effluents:
 Tank sample analyzed prior to each planned release and continuous
 monitoring of gross activity during planned release.

5. Batch Releases:

-	_	•			٠	•	
A	ı.	1	α	11	٦.	đ	:

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 Releases	0.0	Cf/sec

B. Gaseous:

1.	Number of Batch Releases	0	
2.	Total Time Period for Batch Releases	NA	Min
3.	Maximum Time Period for a Batch Release	ИA	Min
4.	Average Time Period for a Batch Release	ИA	Min
5.	Minimum Time Period for a Batch Release	NA	Min

6. Abnormal Releases:

A. Liquid:

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

B. Gaseous

Gaseous:			
 Number of Releases 		0	
2. Total Activity Released	•	0.0	Ci

Period: Jan - Jun 1986

License No. DPR-22

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT

Table 1A Gaseous Effluents - Summation of all Releases

		Units	1st Qtr	2nd 2tr	Pont Est Error
-A. N	oble Gases:				
1	. Total Release:				
	A. Elevated Release	Ci	4.88E+02		
	B. Building Vent Release	Ci	3.49E+02		
	C. Total	Ci	8.37E+02	3.27E+02	5.00E+01
2	. Average Release Rate:				
	A. Elevated Release		6.27E+01		
	B. Building Vent Release		4.49E+01		
	C. Total	uCi/sec	1.08E+02	4.16E+01	5.00E+01
3	. Percent Tech Spec Qtrly Reporting				
	Gamma Radiation		8.06E+00	3.02E+00	
	Beta Radiation			1.91E+00	
B. I	odines:				
1	. Total I-131:				
	A. Elevated Release	Ci	2.41E-03	3.42E-03	•
	B. Building Vent Release	Ci	8.50E-03		
	C. Total	Ci	1.09E-02	2.08E-02	5.00E+01
2	. Average I-131 Release Rate:				
	A. Elevated Release	uCi/sec	3.10E-04	4.35E-04	
	B. Building Vent Release		1.09E-03		
	C. Total	uCi/sec	1.40E-03	2.64E-03	5.00E+01
c. I	ong Lived Particulates and Gross Al	ipha Relea	ıses:		
1	. Total Particulates:				
	A. Elevated Release	Ci	1.16E-03	4.81F-04	
	B. Building Vent Release	Ci	1.06E-03		
	C. Total	Ci		2.32E-03	
2	. Average Release Rate:				
	A. Elevated Release	uCi/sec	1.50E-04	6.12E-05	
	B. Building Vent Release		1.37E-04		
	C. Total		2.86E-04		

Patriculates, and Tritium

D.

E.

Period: Jan - Jun 1986

License No. DPR-22

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT

Table 1A Gaseous Effluents - Summation of All Releases (Continued)

	Units	1st Qtr	2nd Qtr	Pont Est Error
3. Gross Alpha Radioactivity:				
A. Elevated Release	Ci	3.02E-07	1.34E-06	
B. Building Vent Release	Ci	6.96E-06	1.17E-05	
C. Total	Ci	7.26E-06	1.30E-05	1.00E+02
Tritium:				
1. Total Release:				
A. Elevated Release	Ci	2.01E+00	2.49E+00	
B. Building Vent Release	Ci	1.42E+01	1.09E+01	
C. Total	CI	1.62E+01	1.34E+01	5.00E+01
2. Average Release Rate:				
A. Elevated Release	uCi/sec	2.58E-01	3.17E-01	
B. Building Vent Release	uCi/sec	1.82E+00	1.39E+00	
C. Total	uCi/sec	2.08E+00	1.70E+00	5.00E+01
Percent Tech Spec Qtrly Reporting Level for Long Lived Iodines,		3.20E+00	6.16E+00	

Period: Jan - Jun 1986

License No. DPR-22

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT

Table 1B Gaseous Effluents - Elevated Release

•		`	Continuous Mode		Batch Mode	
Nuc	clides Released	Units	1st Qtr	2nd Qtr		2nd Qtr
1.	Noble Gases:			. ,		
	•			The state of the s		
	Xe 133	Ci	1.71E+02			0.0
	Xe 135		4.79E+00			
	Kr85M	Ci	1.01E+00	4.53E-01	0.0	0.0
	Kr88	Ci	3.38E+00			
	Kr87	Ci	3.91E+00	1.67E+00	0.0	0.0
	Xe138	Ci	7.31E+01	2.94E+01	0.0	0.0
	Kr90	Ci	2.52E+00	9.96E-01	0.0	0.0
	Xe 139	Ci	7.51E+00	2.97E+00	0.0	0.0
	Kr89	Ci	7.51E+01	2.99E+01	0.0	0.0
	Xe 137	Ci	9.82E+01	3.92E+01	0.0	0.0
	Xe 135M	Ci	5.90E+00	2.40E+00	0.0	0.0
	Kr83M	Ci	8.69E-01	3.64E-01	0.0	0.0
	Xe 133M	Ci	4.24E-01	1.97E-01	0.0	0.0
	Xe131M	Ci	1.26E+00	4.51E-01	0.0	0.0
	Kr85	Ci	3.91E+01	1.37E+01	0.0	0.0
	Total for Period	Ci	4.88E+02	1.90E+02	0.0	0.0
2.	Iodines:				·	
	I-131	Ci	2.41E-03	3.42E-03	0.0	0.0
	I-133	Ci	1.26E-02	8.58E-03	0.0	0.0
	I-135	Ci	1.50E-02	7.56E-03	0.0	0.0
	Total	Ci	3.00E-02	1.96E-02	0 - 0	0.0

Period: Jan - Jun 1986

License No. DPR-22

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT

Table 1B Gaseous Effluents - Elevated Release (Continued)

		Continuo	us Mode	Batch Mode	
Nuclides Released	Units	1st Qtr	2nd Qtr	1st Qtr	2nd Qtr
3. Particulates:					-
Ce 144	Ci	9.01E-06	2.55E-06	0.0	0.0
Ce 141	Ci	3.57E-06	4.94E-06	0.0	0.0
Ba140	Ci	7.88E-04	2.45E-04	0.0	0.0
Cs 137	Ci	9.91E-06	2.49E-05	0.0	0.0
Cs 136	Ci	0.0	2.38E-07	0.0	0.0
Cs 134	Ci	0.0	5.97E-06	0.0	0.0
. Ru 103	Ci	0.0	4.73E-07	0.0	0.0
Sr90	Ci	1.61E-06	1.40E-06	0.0	0.0
Sr89	Ci	3.43E-04	8.18E-05	0.0	0.0
Zn65	Ci	0.0	2.63E-06	0.0	0.0
Co60	Ci	6.92E-06	3.39E-05	0.0	0.0
Co58	Ci	0.0	1.38E-06	0.0	0.0
Mn54	Ci	0.0	5.11E-06	0.0	0.0
Cr51	Ci	0.0	7.08E-05	0.0	0.0
Total	Ci	1.16E-03	4.81E-04	0.0	0.0

Period: Jan - Jun 1986

License No. DPR-22

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT

Table 1C Gaseous Effluents - Building Vent Release

		•	Continuous Mode		Batch Mode	
Нu	clides Released	Units	1st 2tr			
1.	Noble Gases:					
		•				
	Xe 133	Ci	1.29E+00	2.93E+01	0.0	0.0
	Xe 135	Ci	6.02E+00	1.11E+00	0.0	0.0
	Kr85M	Ci	1.22E+00	2.55E-01	0.0	0.0
	Kr88	Ci	4.27E+00	8.00E-01	0.0	0.0
	Kr87	Ci	4.95E+00	9.45E-01	0.0	0.0
	Xe 138	Ci	9.12E+01	1.65E+01	0.0	0.0
	Kr90	Ci	3.19E+00	5.61E-01	0.0	0.0
	Xe 139	Ci	9.52E+00	1.71E+00	0.0	0.0
	Kr89	Ci	9.49E+01	1.69E+01	0.0	0.0
	Xe 137	Ci	1.24E+02	2.21E+01	0.0	0.0
	Xe 135M	Ci	7.44E+00	1.35E+00	0.0	0.0
	Kr83M	Ci	1.09E+00	2.05E-01	0.0	0.0
	Xe 133M	Ci	4.25E-02	1.01E-01	0.0	0.0
	Xe131M	Ci	3.14E-03	4.51E-01	0.0	0.0
	Kr85	Ci	4.01E-02	4.47E+01	0.0	0.0
	Total for Period	Ci	3.49E+02	1.37E+02	0.0	0.0
2.	Iodines:					
	I-131	Ci	8.50E-03	1.73E-02	0.0	0.0
	I-133	Ci	5.98E-02	1.07E-02	0.0	0.0
	I-135	Ci	9.61E-02	1.64E-02	0.0	0.0
	Total	Ci	1.64E-01	4.45E-02	0.0	0.0

Period: Jan - Jun 1986

License No. DPR-22

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT

Table 1C Gaseous Effluents - Building Vent Releases (Continued)

		Continuous Mode		Batch Mo	de
Nuclides Released	Units	1st Qtr	2nd Qtr	1st Qtr	2nd Qtr
•					
3. Particulates:					
Ce 141	Ci	6.33E-06	8.84E-06	0.0	0.0
Ba140	Ci	5.87E-04	1.39E-04	0.0	0.0
Cs 137	Ci	4.80E-05	1.30E-04	0.0	0.0
Cs 134	Ci	0.0	2.21E-05	0.0	0.0
Ru103	Ci	0.0	1.08E-05	0.0	0.0
Sr90	Ci	1.02E-06	4.32E-06	0.0	0.0
Sr89	Ci	9.33E-05	2.33E-05	0.0	0.0
Zn65	Ci	0.0	7.66E-05	0.0	0.0
Co60	Ci	5.70E-05	3.65E-04	0.0	0.0
Co58	Ci	0.0	1.00E-05	0.0	0.0
Mn54	Ci	0.0	2.83E-05	0.0	0.0
Cr51	Ci	2.72E-04	1.02E-03	0.0	0.0
Total	Ci	1.06E-03	1.84E-03	0.0	0.0

Period: Jan - Jun 1986

License No. DPR-22

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT

Table 2A Liquid Effluents - Summation of All Releases

		Units	1st Qtr	2nd Qtr	Pont Est Error
A.	Fission and Activation Products:				
	 Total Release (Except H-3, Gases, and Alpha) 	Ci	0.0	0.0	0.0
	2. Avg Diluted Concentration	uCi/ml	0.0	0.0	
в.	Tritium:		•		
	1. Total Release	Ci	0.0	0.0	0.0
	2. Avg Diluted Concentration	uCi/ml	0.0	0.0	
c.	Dissolved and Entrained Gases:				
	1. Total Release	Ci	0.0	0.0	0.0
	2. Avg Diluted Concentration	uCi/ml	0.0	0.0	
D.	Percent 2trly Tech Spec Reporting Level				
	Whole Body Dose		0.0	0.0	
	Organ Dose		0.0	0.0	
E.	Gross Alpha Radioactivity:		,		
	1. Total Release	Ci	0.0	0.0	0.0
F.	Volume of Waste Released	Liters	0.0	0.0	0.0
G.	Volume of Dilution Water Used	Liters	0.0	0.0	0.0

Period: Jan - Jun 1986

License No. DPR-22

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT

Table 2B Liquid Effluents

Nuclides Released

Continuous Mode Batch Mode
Units 1st 2tr 2nd 2tr 1st 2tr 2nd 2tr

None Released This Period

Period: Jan - Jun 1986

License No. DPR-22

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT

Table 3 Solid Waste and Irradiated Fuel Shipments

1. Solid Waste Shipped Offsite For Burial or Disposal:

1. Type of Waste:

None

		Units	Total	Pont Est Error
A.	Spent Resins, Filter Sludges, Evaporator Bottoms, Etc.	Cu Meter Ci	3.96E+01 2.55E+02	5.00E+01
В.	Dry Compressible Waste, Contaminated Equip, Etc.	Cu Meter Ci	1.23E+02 5.73E+01	5.00E+01
C.	Irradiated Components, Control Rods, Etc.	Cu Meter Ci	3.26E+00 2.69E+04	5.00E+01
D.	Other (described below):	·		•

Period: Jan - Jun 1986

License No. DPR-22

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT

Table 3 Solid Waste and Irradiated Fuel Shipments (Continued)

2. Measured Major Nuclide Composition by Type of Waste:

TYPE	Nuclide	Percent
A The state of the	Ba 140	4.38E+00
	Cs 137	1.92E+01
	Cs 134	7.73E-01
	Sr89	3.40E-01
	Zn65	1.12E+01
	C060	1.67E+01
	Co58	1.94E+00
	Mn54	3.62E+00
	Cr51	1.51E+01
	La 140	7.26E-01
	I 131	2.92E+00
	Fe55	1.67E+01
В	Cs 137	3.31E+00
	Nb95	5.89E-02
	Sr90	3.04E-02
	Sr89	4.46E-02
	Zn65	2.96E+00
	Co60	5.62E+01
	Fe59	8.98E-02
	Co58	4.56E-02
	Mn54	1.96E+00
	Cr51	1.75E+00
	Fe55	2.14E+01
C	Cs137	1.00E-03
	Zn65	1.00E-03
	C060	9.09E+01
	Fe59	3.00E-03
	Co58	1.00E-03
	Mn 54	4.20E-02
	Cr51	2.80E-02
	Fe55	6.54E+00

Period: Jan - Jun 1986

License No. DPR-22

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT

Table 3 Solid Waste and Irradiated Fuel Shipments (Continued)

3. Solid Waste Disposition:

Number of Shipments	Mode	Destination
1	Truck	Chem-Nuc Inc., Barnwell, SC
3	Truck	US Ecology, Richland, WA
9	Rail	US Ecology, Richland, WA

B. Irradiated Fuel Shipments:

Number of Shipments	Mode	Destination

None

Period: Jan - Jun 1986

License No. DPR-22

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT

Table 3 Solid Waste and Irradiated Fuel Shipments (Continued)

C. Shipping Container and Solidification Method:

No.	Volume (M3)	Activity (Ci)	* -	Container Code	Solidification Code
(86-01)	3.26E+00	2.69E+04	C	Q	
(86-02)	5.66E+00	2.19E+01	A	A	c
(86-05)	5.66E+00	3.65E+01	A	A	С
(86-06)	5.66E+00	3.00E+01	A	A	C
(86-08)	5.66E+00	3.13E+01	A	A .	С
(86-09)	3.26E+00	3.71E+01	В	A	·
(86-10)	5.66E+00	2.77E+01	A	A	C
(86-12)	3.81E+01	1.96E+00	В́	L	•
(86-14)	5.66E+00	1.44E+01	В	A	
(86-15)	5.66E+00	2.67E+01	A	A	· C
(86-19)	3.81E+01	1.86E+00	В	L	
(86-20)	3.81E+01	1.93E+00	В	L	
	5.66E+00		A	Ā	C

CONTAINER CODES:

L - LSA

A - Type A

B - Type B

2 - Large Quantity

SOLIFICATION CODES: C - Cement

U - Urea Formaldehyde

Period: Jan - Jun 1986

License No. DPR-22

. EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT

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Notes:

1. Release of individual noble gas isotopes from the plant stack was determined using an isotopic analysis at the steam jet air ejector. Xe133, Xe135, Kr85M, Kr88, Kr87, and Xe138 were measured and used to characterize the mode of gas release from the fuel. Other significant noble gases were determined using known ratios, the measured total offgas holdup system delay time, and the known fraction of the offgas stream released via the gland exhauster.

- 2. An isotopic analysis for noble gases is normally not possible at the building vents. Individual isotopes are generally below their lower limit of detection (LLD). Therefore, for reactor building vent releases, the noble gas isotopic mixture is assumed to be the same as the mixture determined at the steam jet air ejector.
- 3. Information specified in Regulatory Guide 1.21 which is not applicable to the Monticello plant is indicated by 'NA'.
- 4. Nuclides not detected in plant effluents (those below the LLD of the analysis) are not included in the quantities reported released. LLD values are recorded and must be less than the minimum LLD values stated in the Monticello Technical Specifications.

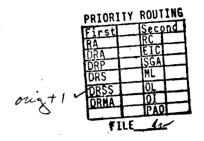




August 28, 1986

Northern States Power Company

414 Nicollet Mall Minneapolis, Minnesota 55401 Telephone (612) 330-5500



Regional Administrator Region III U S Nuclear Regulatory Commission 799 Roosevelt Road Glen Ellyn, Illinois 60137

> Monticello Nuclear Generating Plant Docket No. 50-623 License No. DPR-22

Effluent and Waste Disposal Semi-Annual Report for January 1, 1986 through June 30, 1986

In accordance with the Monicello Technical Specifications, Appendix A to Operating License DPR-22, we are submitting one copy of the Effluent and Waste Disposal Semi-Annual Report, covering the first half of 1986.

Fred Litry

F. L. Fey, Jr., General Superintendent Radiological Protection and Chemistry Nuclear Radiological Services Department

Attachment

cc: U S NRC, Document Control Desk (1)
 G. Charnoff (w/o attachment)

MPCA

Attn: J W Ferman

Resident Inspector, USNRC (Monticello)

Project Manager, USNRC

Bert Clark

File:

gdw

105

TRANSMITTAL MANIFEST

NORTHERN STATES POWER COMPANY

NUCLEAR RADIOLOGICAL SERVICES DEPARTMENT

MONTICELLO NUCLEAR GENERATING PLANT

Effluent and Waste Disposal Semi-Annual Report for January 1, 1986 through June 30, 1986

Manifest Date: August 28, 19	986		
USNRC		•	
Regional Admin-III DCD Resident Inspector	1 1	General Electric San Jose Cust Serv San Jose-Fuel Proj Mgr	2
NRR Project Manager	i	J N Sorensen (NUS)	1
R J Jensen	1	· · · · · · · · · · · · · · · · · · ·	_
L R Eliason	1	Safety Audit Committee	9
G T Goering/G H Neils	1	D M Musolf	
M B Sellman	1	K J Albrecht	
G Charnoff	1	M H Clarity	
D C Lowens	1	H S Isbin	
B W Clark	1	D D Lanning	
ERAD Dept	1	T M Parker	
Attn: Records Clerk		W A Shamla	
MDH	1	J A Thie	
Attn: Commissioner of Health		F P Tierney	
MPCA	1	SAC File (Manifest only)	
Attn: J W Ferman			
Monticello Plant Manager	8		
Prairie Island Plant Manager (E L Watzl)	1	·	
Media Services Dept	1		
L H Waldinger	1		
NSS File	1		
NDS File	1		

