

ENCLOSURE 1

**RADIOACTIVE EFFLUENT RELEASE REPORT FOR
JANUARY 1 – DECEMBER 31, 2005**

13 pages follow

NUCLEAR MANAGEMENT COMPANY
MONTICELLO NUCLEAR GENERATING PLANT
License No. DPR-22

RADIOACTIVE EFFLUENT RELEASE REPORT
Period : Jan - Dec 2005

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)

RADIOACTIVE EFFLUENT RELEASE REPORT
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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	1700.0	min
3. Maximum Time Period for a Batch Release	1360.0	min
4. Average Time Period for a Batch Release	850.0	min
5. Minimum Time Period for a Batch Release	340.0	min

RADIOACTIVE EFFLUENT RELEASE REPORT
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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

RADIOACTIVE EFFLUENT RELEASE REPORT
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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 & Activation gases

1. Total Release	Ci	3.85E+01	2.46E+01	2.00E+01
2. Average Release Rate	uci/sec	4.95E+00	3.13E+00	
3. Percent Tech Spec Qtrly Reporting Level				
Gamma Radiation	%	2.32E-02	1.20E-02	
Beta Radiation	%	9.59E-03	2.84E-03	

B. Iodines

1. Total I-131 Release	Ci	4.82E-04	1.94E-04	1.00E+01
2. Average I-131 Release Rate	uci/sec	6.20E-05	2.46E-05	

C. Particulates

1. Total Particulates	Ci	2.83E-04	1.80E-04	3.00E+01
2. Average Release Rate	uci/sec	3.64E-05	2.29E-05	
3. Gross Alpha Radioactivity	Ci	6.66E-07	4.54E-07	

D. Tritium

1. Total Release	Ci	3.58E+00	2.38E+00	1.00E+01
2. Average Release Rate	uci/sec	4.61E-01	3.03E-01	

E. Percent Qtrly Tech Spec Reporting Levels

1. Iodines, Particulates, and Tritium	%	7.70E-02	2.38E-02	
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RADIOACTIVE EFFLUENT RELEASE REPORT
Period : Jan - Dec 2005

Table 1A Gaseous Effluents - Summation of all Releases

	Units	3rd Qtr	4th Qtr	Est. Total Error, %
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A. Fission & Activation gases

1. Total Release	Ci	3.34E+01	2.94E+01	2.00E+01
2. Average Release Rate	uci/sec	4.21E+00	3.69E+00	
3. Percent Tech Spec Qtrly Reporting Level				
Gamma Radiation	%	1.96E-02	2.05E-02	
Beta Radiation	%	8.45E-03	9.03E-03	

B. Iodines

1. Total I-131 Release	Ci	3.09E-04	1.89E-04	1.00E+01
2. Average I-131 Release Rate	uci/sec	3.89E-05	2.38E-05	

C. Particulates

1. Total Particulates	Ci	1.64E-04	9.82E-05	3.00E+01
2. Average Release Rate	uci/sec	2.06E-05	1.24E-05	
3. Gross Alpha Radioactivity	Ci	3.15E-07	4.37E-07	

D. Tritium

1. Total Release	Ci	4.46E+00	3.39E+00	1.00E+01
2. Average Release Rate	uci/sec	5.61E-01	4.26E-01	

E. Percent Qtrly Tech Spec Reporting Levels

1. Iodines, Particulates, and Tritium	%	2.28E-02	1.04E-02	
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RADIOACTIVE EFFLUENT RELEASE REPORT
Period : Jan - Dec 2005

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-85M	Ci	1.07E+00	1.06E-02	0.00E+00	0.00E+00
KR-87	Ci	1.21E+00	1.87E-01	0.00E+00	0.00E+00
KR-88	Ci	2.47E+00	0.00E+00	0.00E+00	0.00E+00
XE-133	Ci	1.68E+01	1.03E+01	0.00E+00	0.00E+00
XE-133M	Ci	3.40E-01	3.82E-02	0.00E+00	0.00E+00
XE-135	Ci	9.27E+00	8.46E-01	0.00E+00	0.00E+00
XE-135M	Ci	7.62E-01	2.08E+00	0.00E+00	0.00E+00
XE-137	Ci	1.90E+00	1.12E+00	0.00E+00	0.00E+00
XE-138	Ci	1.93E+00	9.08E+00	0.00E+00	0.00E+00
AR-41	Ci	1.03E-01	0.00E+00	0.00E+00	0.00E+00
Total for Period	Ci	3.59E+01	2.37E+01	0.00E+00	0.00E+00
2. Iodines					
I-131	Ci	2.06E-04	1.29E-04	0.00E+00	0.00E+00
I-133	Ci	1.69E-03	1.31E-03	0.00E+00	0.00E+00
I-135	Ci	2.86E-03	2.49E-03	0.00E+00	0.00E+00
Total for Period	Ci	4.75E-03	3.93E-03	0.00E+00	0.00E+00
3. Particulates					
MN-54	Ci	1.50E-07	2.46E-07	0.00E+00	0.00E+00
CO-60	Ci	5.74E-06	3.30E-06	0.00E+00	0.00E+00
CS-137	Ci	1.33E-07	1.96E-07	0.00E+00	0.00E+00
BA-140	Ci	1.01E-05	9.44E-06	0.00E+00	0.00E+00
SR-89	Ci	1.28E-06	4.43E-06	0.00E+00	0.00E+00
SR-90	Ci	6.80E-09	7.09E-08	0.00E+00	0.00E+00
SE-75	Ci	3.59E-11	2.27E-12	0.00E+00	0.00E+00
Total for Period	Ci	1.74E-05	1.77E-05	0.00E+00	0.00E+00

RADIOACTIVE EFFLUENT RELEASE REPORT
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Table 1B Gaseous Effluents - Elevated Releases

Nuclides Released	Unit	Continuous Mode		Batch Mode	
		3rd Qtr	4th Qtr	3rd Qtr	4th Qtr
1. Fission Gases					
KR-87	Ci	6.10E-02	8.15E-02	0.00E+00	0.00E+00
KR-88	Ci	0.00E+00	3.88E-02	0.00E+00	0.00E+00
KR-89	Ci	0.00E+00	4.88E-01	0.00E+00	0.00E+00
XE-133	Ci	2.13E+01	1.37E+01	0.00E+00	0.00E+00
XE-133M	Ci	6.60E-02	3.77E-02	0.00E+00	0.00E+00
XE-135	Ci	1.14E+00	1.22E+00	0.00E+00	0.00E+00
XE-135M	Ci	2.03E+00	2.39E+00	0.00E+00	0.00E+00
XE-137	Ci	1.08E+00	2.52E+00	0.00E+00	0.00E+00
XE-138	Ci	5.29E+00	6.29E+00	0.00E+00	0.00E+00
Total for Period	Ci	3.09E+01	2.68E+01	0.00E+00	0.00E+00
2. Iodines					
I-131	Ci	2.10E-04	1.22E-04	0.00E+00	0.00E+00
I-133	Ci	1.98E-03	1.12E-03	0.00E+00	0.00E+00
I-135	Ci	3.59E-03	2.03E-03	0.00E+00	0.00E+00
Total for Period	Ci	5.78E-03	3.28E-03	0.00E+00	0.00E+00
3. Particulates					
CO-60	Ci	1.03E-06	5.69E-07	0.00E+00	0.00E+00
BA-140	Ci	1.50E-05	9.47E-06	0.00E+00	0.00E+00
SR-89	Ci	5.40E-06	3.07E-06	0.00E+00	0.00E+00
SR-90	Ci	3.61E-08	2.18E-08	0.00E+00	0.00E+00
Total for Period	Ci	2.15E-05	1.31E-05	0.00E+00	0.00E+00

RADIOACTIVE EFFLUENT RELEASE REPORT
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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-133	Ci	0.00E+00	6.03E-01	0.00E+00	0.00E+00
XE-135	Ci	2.57E+00	3.46E-01	3.83E-03	0.00E+00
AR-41	Ci	0.00E+00	0.00E+00	9.07E-03	0.00E+00
Total for Period	Ci	2.57E+00	9.49E-01	1.29E-02	0.00E+00
2. Iodines					
I-131	Ci	2.76E-04	6.48E-05	0.00E+00	0.00E+00
I-133	Ci	9.22E-04	4.61E-04	0.00E+00	0.00E+00
I-135	Ci	5.19E-04	0.00E+00	0.00E+00	0.00E+00
Total for Period	Ci	1.72E-03	5.26E-04	0.00E+00	0.00E+00
3. Particulates					
MN-54	Ci	1.30E-05	9.42E-06	0.00E+00	0.00E+00
CO-58	Ci	4.36E-06	0.00E+00	0.00E+00	0.00E+00
CO-60	Ci	1.53E-04	9.33E-05	1.01E-05	0.00E+00
ZN-65	Ci	3.98E-05	3.48E-05	0.00E+00	0.00E+00
CS-137	Ci	3.41E-05	2.22E-05	0.00E+00	0.00E+00
BA-140	Ci	1.02E-05	0.00E+00	0.00E+00	0.00E+00
CE-141	Ci	4.97E-07	0.00E+00	0.00E+00	0.00E+00
SR-89	Ci	3.11E-07	2.38E-06	0.00E+00	0.00E+00
SR-90	Ci	1.91E-09	2.53E-07	0.00E+00	0.00E+00
Total for Period	Ci	2.55E-04	1.62E-04	1.01E-05	0.00E+00

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Period : Jan - Dec 2005

Table 1C Gaseous Effluents - Building Vent Releases

Nuclides Released	Unit	Continuous Mode		Batch Mode	
		3rd Qtr	4th Qtr	3rd Qtr	4th Qtr
1. Fission Gases					
XE-135	Ci	2.35E+00	2.58E+00	0.00E+00	0.00E+00
XE-135M	Ci	1.60E-01	0.00E+00	0.00E+00	0.00E+00
Total for Period	Ci	2.51E+00	2.58E+00	0.00E+00	0.00E+00
2. Iodines					
I-131	Ci	9.96E-05	6.75E-05	0.00E+00	0.00E+00
I-133	Ci	7.29E-04	5.29E-04	0.00E+00	0.00E+00
Total for Period	Ci	8.28E-04	5.96E-04	0.00E+00	0.00E+00
3. Particulates					
CO-60	Ci	7.17E-05	5.48E-05	0.00E+00	0.00E+00
ZN-65	Ci	2.52E-05	0.00E+00	0.00E+00	0.00E+00
CS-137	Ci	4.07E-05	2.76E-05	0.00E+00	0.00E+00
SR-89	Ci	4.82E-06	2.63E-06	0.00E+00	0.00E+00
SR-90	Ci	8.62E-09	2.65E-08	0.00E+00	0.00E+00
Total for Period	Ci	1.42E-04	8.50E-05	0.00E+00	0.00E+00

RADIOACTIVE EFFLUENT RELEASE REPORT
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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	0.00E+00	0.00E+00
2. Avg Diluted Concentration	uci/ml	0.00E+00	0.00E+00	
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	0.00E+00	
2. Organ Dose	%	0.00E+00	0.00E+00	
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	0.00E+00	0.00E+00
F. Volume of Dilution Water Used				
	Liters	0.00E+00	0.00E+00	0.00E+00

Table 2B Liquid Effluents

Nuclides Released	Unit	Continuous Mode		Batch Mode	
		1st Qtr	2nd Qtr	1st Qtr	2nd Qtr

None Released This Period

RADIOACTIVE EFFLUENT RELEASE REPORT
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Table 2A Liquid Effluents - Summation of all Releases

	Units	3rd Qtr	4th 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	0.00E+00	0.00E+00
2. Avg Diluted Concentration	uci/ml	0.00E+00	0.00E+00	
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	0.00E+00	
2. Organ Dose	%	0.00E+00	0.00E+00	
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	0.00E+00	0.00E+00
F. Volume of Dilution Water Used				
	Liters	0.00E+00	0.00E+00	0.00E+00

Table 2B Liquid Effluents

Nuclides Released	Unit	Continuous Mode		Batch Mode	
		3rd Qtr	4th Qtr	3rd Qtr	4th Qtr

None Released This Period

RADIOACTIVE EFFLUENT RELEASE REPORT
Period : Jan - Dec 2005

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	12-month Period	Est. Total Error, %
A. Spent resins, filter sludges, evaporator bottoms, etc.	Cu. Meter Ci (est)	1.75E+01 6.29E+01	3.70E+01
B. Dry compressible waste, contaminated equipment, etc.	Cu. Meter Ci (est)	3.20E+02 1.60E+00	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	9.81E-02	1.13E-01		
C-14	7.84E-02	2.30E-01		
Cr-51		1.91E+00		
Mn-54	3.34E+00	2.70E+00		
Fe-55	4.37E+01	6.52E+01		
Co-57		1.81E-02		
Co-58	2.76E-01	9.16E-01		
Fe-59		6.85E-01		
Ni-59	7.29E-03	9.73E-02		
Co-60	2.83E+01	1.46E+01		
Ni-63	9.78E-01	9.86E-01		
Zn-65	1.10E+01	6.51E+00		
Sr-89		8.00E-03		
Sr-90	3.14E-02	5.28E-02		
Nb-95		7.63E-02		
Zr-95		4.31E-01		
Tc-99	3.55E-04			
Ag110m	1.06E-01	1.18E-01		
Sb-124		1.84E-01		
Sb-125		6.07E-01		
Cs-134		8.32E-02		
Cs-137	1.19E+01	2.50E+00		
Ce-141		1.41E+00		
Ce-144	4.71E-03	2.76E-01		
Pu-238	1.00E-03	3.09E-03		
Pu-239	3.55E-04	2.72E-03		
Am-241	2.35E-03	8.89E-03		
Pu-241	2.11E-02	1.20E-01		
Cm-242	1.00E-03	1.73E-03		
Cm-243	1.00E-03	1.66E-03		
Eu-152		1.40E-01		

RADIOACTIVE EFFLUENT RELEASE REPORT
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Table 3 Solid Waste and Irradiated Fuel Shipments

3. Solid waste disposal

Number of Shipments	Mode of Transportation	Destination
3	Truck	Envirocare, Clive, UT.
6	Truck	RACE Inc., Memphis, TN.

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
0516	6.16E+01	5.62E-01	B	L	N
0548	3.81E+01	2.16E-01	B	L	N
0549	3.81E+01	2.70E-01	B	L	N
0550	5.89E+01	1.25E-01	B	L	N
0551	5.89E+01	1.47E-02	B	L	N
0561	6.42E+01	4.16E-01	B	L	N
0563	5.83E+00	1.71E+01	A	L	D
0564	5.83E+00	2.23E+01	A	L	D
0565	5.83E+00	2.35E+01	A	L	D

Waste type Codes :

- A - Spent resins, sludges
- B - Dry waste, equipment
- C - Irradiated components
- D - Other (describe)

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

ENCLOSURE 2

**OFF-SITE RADIATION DOSE ASSESSMENT FOR
JANUARY 1 – DECEMBER 31, 2005**

5 pages follow

MONTICELLO NUCLEAR GENERATING PLANT

Offsite Radiation Dose Assessment for January 1, - December 31, 2005

An assessment of radiation dose due to releases from the Monticello Nuclear Generating Plant during 2005 was performed in accordance with the Offsite Dose Calculation Manual (ODCM). Computed doses were well below the 40 CFR 190 Standards and 10 CFR Part 50, Appendix I Guidelines.

Offsite dose calculation formulas and meteorological data from the Offsite Dose Calculation Manual were used in making this assessment. Source terms were obtained from the Radioactive Effluent Release Report for 2005.

Offsite Dose from Gaseous Releases (ODCM -08.01 section 2.1.3)

Computed dose due to gaseous releases are reported in Table 1. Critical receptor location and pathways for organ dose are reported in Table 2. Whole body and organ dose due to gaseous releases are a small percentage of Appendix I Guidelines.

Offsite Dose From Liquid Releases (ODCM -08.01 section 2.1.3)

Dose from liquid releases are listed in Table 1.

Dose to Individuals Due to Their Activities Inside the Site Boundary (ODCM -08.01 section 2.1.3)

Computed dose to the whole body, skin and organ (thyroid), are reported in Table 1. There are several groups of concern, Security Officers training at the rifle range at the old EPA station, cleaning contractors in the SAB and Warehouse 5 and XCEL Energy Company transmission and distribution crews working in the substation. Use of a very conservative assumption of 40 hours/week spent inside the site boundary by these groups would conservatively represent the most exposed individual. The annual whole body, skin and organ dose was computed using plant stack and reactor building vent X/Q and D/Q values for the Substation (a bounding location due to predominant wind direction and nearness to the release points) as input to the GASPAR code. This computed dose was reduced by the factor of 40/168 to account for limited occupancy.

Dose to the Likely Most Exposed Member of the General Public from Reactor Releases and Other Nearby Uranium Fuel Cycle Sources (ODCM -08.01 section 2.1.4)

There are no other uranium fuel facilities in the vicinity of the Monticello site. The only artificial source of exposure to the general public in addition to the plant effluent releases is from direct radiation of the reactor and the steam turbines.

Environmental TLDs were used to provide data on direct and skyshine radiation dose and the GASPAR code was used to provide data on dose from airborne pathways.

TLD results from the area of the site boundary and the 5 mile ring show no significant differences between these TLD's and the control TLD's.

Therefore, the likely most exposed member of the general public will not receive an annual radiation dose from reactor effluent releases and all other fuel cycle activities in excess of 40 CFR 190 standards of 25 millirem to the whole body, 75 millirem to the thyroid, and 25 millirem to any other organ.

Changes in Land Use and Non Obtainable Milk or Vegetable Samples
(ODCM -08.01 sections 2.1.8 and 2.1.9)

There were no changes in land use resulting in significant increases in calculated doses. Milk samples were unavailable at sample location M-28 (Hoglund Farm) from 6/29/05 to 10/05/05 due to the farm being temporarily out of business. Land use census results show that there were no other indicator sample locations to replace this farm. Milk production and sampling has resumed at the Hoglund farm starting 10/20/05. There were no vegetable samples that could not be obtained during this reporting period.

Table 1

Offsite Radiation Dose Assessment - Monticello

PERIOD: January 1, through December 31, 2005

GASEOUS RELEASES	DOSE	10CFR50 Appendix I Guidelines
Maximum Site Boundary Gamma Air Dose (mrad/year)	0.003	10
Maximum Site Boundary Beta Air Dose (mrad/year)	0.003	20
Maximum Off-Site Dose to Any Organ (mrem/year)	0.025	15
Maximum Dose to the Likely Most Exposed Member of the General Public (mrem/year)		
Whole Body	0.016	5
Skin	0.025	15
Max Organ (Skin)	0.025	15
LIQUID RELEASES		
Maximum Off-Site Dose (mrem)		
Whole Body	0.00	3
Max Organ (All except bone)	0.00	10
GASEOUS RELEASES	DOSE	40 CFR 190 LIMITS
Maximum Dose to Individuals due to their Activities Inside the Site Boundary (mrem)		
Whole Body	0.015	25
Thyroid	0.016	75
Max Other Organ (Skin)	0.019	25

Table 2

**Offsite Radiation Dose Assessment - Monticello
Supplemental Information**

PERIOD: January 1, through December 31, 2005

GASEOUS RELEASES		
Maximum Site Boundary Dose Location (from Reactor Building Vents)		
Sector	SSE	
Distance (miles)	0.40	
Substation		
Sector	S	
Distance from Plant Stack (miles)	0.2	
Distance from Reactor Building Vents	0.2	
Critical Receptor Location		
Sector	SSW	
Distance from Reactor Building Vents (miles)	0.64	
Pathways	Plume, Ground, Inhalation, Vegetable	
Age Group	CHILD	
Organ	SKIN	
LIQUID RELEASES		
St. Paul Drinking Water Intake Location		
Pathways	Drinking Water	Drinking Water, Fish
Age Group	Infant	Adult
Organ	Whole Body	GI Tract
Dilution Factor (drinking water)	7:1	7:1

Bases for Radiation Dose Statements

Thermoluminescent dosimeters (TLD) are stationed around MNGP to measure the ambient gamma radiation field. Monitoring stations are placed near the site boundary and approximately five (5) miles from the reactor, in locations representing sixteen (16) compass sectors. Other locations are chosen to measure the radiation field at places of special interest such as nearby residences, meeting places and population centers. Control sites are located further than ten (10) miles from the site, in areas that should not be affected by plant operations. The results from the TLD's are reported in the Annual Radiological Environmental Monitoring Report (REMP). The results from this effort indicated no excess dose to offsite areas.

Additionally, NUREG-0543, METHODS FOR DEMONSTRATING LWR COMPLIANCE WITH THE EPA URANIUM FUEL CYCLE STANDARD (40 CFR PART 190) states in section IV, "As long as a nuclear plant site operates at a level below the Appendix I reporting requirements, no extra analysis is required to demonstrate compliance with 40 CFR Part 190". The organ and whole body doses reported in Table 1 are determined using 10 CFR 50 Appendix I methodology. The doses reported are well below the limits of Appendix I.

ENCLOSURE 4

**OFF-SITE RADIATION DOSE ASSESSMENT FOR
JANUARY 1 – DECEMBER 31, 2003**

5 Pages Follow

MONTICELLO NUCLEAR GENERATING PLANT

Offsite Radiation Dose Assessment for January 1, - December 31, 2003

An assessment of radiation dose due to releases from the Monticello Nuclear Generating Plant during 2003 was performed in accordance with the Offsite Dose Calculation Manual (ODCM). Computed doses were well below the 40 CFR 190 Standards and 10 CFR Part 50, Appendix I Guidelines.

Offsite dose calculation formulas and meteorological data from the Offsite Dose Calculation Manual were used in making this assessment. Source terms were obtained from the Radioactive Effluent Release Report for 2003.

Offsite Dose from Gaseous Releases (ODCM -08.01 section 2.1.3)

Computed dose due to gaseous releases are reported in Table 1. Critical receptor location and pathways for organ dose are reported in Table 2. Whole body and organ dose due to gaseous releases are a small percentage of Appendix I Guidelines.

Offsite Dose From Liquid Releases (ODCM -08.01 section 2.1.3)

Dose from liquid releases are listed in Table 1. Dose is based on release of Turbine Building Normal Drain Sump water releases in the second quarter with H-3, Mn-54, Co-58, Co-60, Zn-65, Xe-133 and I-131 activity present. Whole body and organ dose due to liquid releases are a small percentage of Appendix I Guidelines.

Dose to Individuals Due to Their Activities Inside the Site Boundary (ODCM -08.01 section 2.1.3)

Computed dose to the whole body, thyroid and organ (skin), are reported in Table 1. There are several groups of concern, construction work on the cooling towers and XCEL Energy Company transmission and distribution crews working in the substation. Use of a very conservative assumption of 40 hours/week spent inside the site boundary by these groups would conservatively represent the most exposed individual. The annual whole body, skin and organ dose was computed using plant stack and reactor building vent X/Q and D/Q values for the number 11 cooling tower location (a bounding location due to predominant wind direction and nearness to the release points) as input to the GASPAR code. This computed dose was reduced by the factor of 40/168 to account for limited occupancy.

Dose to the Likely Most Exposed Member of the General Public from Reactor Releases and Other Nearby Uranium Fuel Cycle Sources (ODCM -08.01 section 2.1.4)

There are no other uranium fuel facilities in the vicinity of the Monticello site. The only artificial source of exposure to the general public in addition to the plant effluent releases is from direct radiation of the reactor and the steam turbines.

Environmental TLDs were used to provide data on direct and skyshine radiation dose and the GASPAR code was used to provide data on dose from airborne pathways.

TLD results from the area of the site boundary and the 5 mile ring show no significant differences between these TLD's and the control TLD's.

Therefore, the likely most exposed member of the general public will not receive an annual radiation dose from reactor effluent releases and all other fuel cycle activities in excess of 40 CFR 190 standards of 25 millirem to the whole body, 75 millirem to the thyroid, and 25 millirem to any other organ.

Changes in Land Use and Non Obtainable Milk or Vegetable Samples
(ODCM -08.01 sections 2.1.8 and 2.1.9)

There were no changes in land use resulting in significant increases in calculated doses. The Control dairy farm changed from the Goenner Farm, M-10 (out of business) to the Campbell Farm, M-10. Milk samples were unavailable at sample location M-10 (Goenner Farm) on 4/9/03 due to the farmer going out of business. Milk samples were unavailable at sample location M-28 (Hoglund Farm) from 6/4/03 to 9/9/03 due to the farm being temporarily out of business. Land use census results show that there were no other indicator sample locations to replace this farm. Milk production and sampling has resumed at the Hoglund farm starting 9/24/03. There were no vegetable samples that could not be obtained during this reporting period.

Table 1

Offsite Radiation Dose Assessment - Monticello

PERIOD: January 1, through December 31, 2003

GASEOUS RELEASES	DOSE	10CFR50 Appendix I Guidelines
Maximum Site Boundary Gamma Air Dose (mrad/year)	0.022	10
Maximum Site Boundary Beta Air Dose (mrad/year)	0.017	20
Maximum Off-Site Dose to Any Organ (mrem/year)	0.047	15
Maximum Dose to the Likely Most Exposed Member of the General Public (mrem/year)		
Whole Body	0.039	5
Skin	0.073	15
Max Organ (Thyroid)	0.047	15
LIQUID RELEASES		
Maximum Off-Site Dose (mrem)		
Whole Body	2.45E-07	3
Max Organ (Liver)	5.55E-07	10
GASEOUS RELEASES	DOSE	40 CFR 190 LIMITS
Maximum Dose to Individuals due to their Activities Inside the Site Boundary (mrem)		
Whole Body	0.02	25
Thyroid	0.03	75
Max Other Organ (Skin)	0.03	25

Table 2

**Offsite Radiation Dose Assessment - Monticello
Supplemental Information**

PERIOD: January 1, through December 31, 2003

GASEOUS RELEASES		
Maximum Site Boundary Dose Location (from Reactor Building Vents)		
Sector	SSE	
Distance (miles)	0.40	
Number 11 Cooling Tower		
Sector	NE	
Distance from Plant Stack (miles)	0.09	
Distance from Reactor Building Vents	0.13	
Critical Receptor Location		
Sector	SE	
Distance from Reactor Building Vents (miles)	1.1	
Pathways	Plume, Ground, Inhalation, Vegetable	
Age Group	CHILD	
Organ	THYROID	
LIQUID RELEASES		
St. Paul Drinking Water Intake Location		
Pathways		
Age Group		
Organ		
Dilution Factor (drinking water)	Drinking Water Infant Whole Body 7:1	Drinking Water, Fish Adult GI Tract 7:1

Bases for Radiation Dose Statements

Thermoluminescent dosimeters (TLD) are stationed around MNGP to measure the ambient gamma radiation field. Monitoring stations are placed near the site boundary and approximately five (5) miles from the reactor, in locations representing sixteen (16) compass sectors. Other locations are chosen to measure the radiation field at places of special interest such as nearby residences, meeting places and population centers. Control sites are located further than ten (10) miles from the site, in areas that should not be affected by plant operations. The results from the TLD's are reported in the Annual Radiological Environmental Monitoring Report (REMP). The results from this effort indicated no excess dose to offsite areas.

Additionally, NUREG-0543, METHODS FOR DEMONSTRATING LWR COMPLIANCE WITH THE EPA URANIUM FUEL CYCLE STANDARD (40 CFR PART 190) states in section IV, "As long as a nuclear plant site operates at a level below the Appendix I reporting requirements, no extra analysis is required to demonstrate compliance with 40 CFR Part 190". The organ and whole body doses reported in Table 1 are determined using 10 CFR 50 Appendix I methodology. The doses reported are well below the limits of Appendix I.

ENCLOSURE 5

**OFF-SITE RADIATION DOSE ASSESSMENT FOR
JANUARY 1 – DECEMBER 31, 2004**

5 Pages Follow

MONTICELLO NUCLEAR GENERATING PLANT

Offsite Radiation Dose Assessment for January 1, - December 31, 2004

An assessment of radiation dose due to releases from the Monticello Nuclear Generating Plant during 2004 was performed in accordance with the Offsite Dose Calculation Manual (ODCM). Computed doses were well below the 40 CFR 190 Standards and 10 CFR Part 50, Appendix I Guidelines.

Offsite dose calculation formulas and meteorological data from the Offsite Dose Calculation Manual were used in making this assessment. Source terms were obtained from the Radioactive Effluent Release Report for 2004.

Offsite Dose from Gaseous Releases (ODCM -08.01 section 2.1.3)

Computed dose due to gaseous releases are reported in Table 1. Critical receptor location and pathways for organ dose are reported in Table 2. Whole body and organ dose due to gaseous releases are a small percentage of Appendix I Guidelines.

Offsite Dose From Liquid Releases (ODCM -08.01 section 2.1.3)

Dose from liquid releases are listed in Table 1. Dose is based on release of Turbine Building Normal Drain Sump water released in the fourth quarter with H-3 activity present. Whole body and organ dose due to liquid releases are a small percentage of Appendix I Guidelines.

Dose to Individuals Due to Their Activities Inside the Site Boundary (ODCM -08.01 section 2.1.3)

Computed dose to the whole body, thyroid and organ (skin), are reported in Table 1. There are several groups of concern, Security Officers training at the rifle range at the old EPA station, Security Officers at the Interim Barrier Fence Gate House and XCEL Energy Company transmission and distribution crews working in the substation. Use of a very conservative assumption of 40 hours/week spent inside the site boundary by these groups would conservatively represent the most exposed individual. The annual whole body, skin and organ dose was computed using plant stack and reactor building vent X/Q and D/Q values for the Security Officers Training trailer located near the old EPA station (a bounding location due to predominant wind direction and nearness to the release points) as input to the GASPARE code. This computed dose was reduced by the factor of 40/168 to account for limited occupancy.

Dose to the Likely Most Exposed Member of the General Public from Reactor Releases and Other Nearby Uranium Fuel Cycle Sources (ODCM -08.01 section 2.1.4)

There are no other uranium fuel facilities in the vicinity of the Monticello site. The only artificial source of exposure to the general public in addition to the plant effluent releases is from direct radiation of the reactor and the steam turbines.

Environmental TLDs were used to provide data on direct and skyshine radiation dose and the GASPAR code was used to provide data on dose from airborne pathways.

TLD results from the area of the site boundary and the 5 mile ring show no significant differences between these TLD's and the control TLD's.

Therefore, the likely most exposed member of the general public will not receive an annual radiation dose from reactor effluent releases and all other fuel cycle activities in excess of 40 CFR 190 standards of 25 millirem to the whole body, 75 millirem to the thyroid, and 25 millirem to any other organ.

Changes in Land Use and Non Obtainable Milk or Vegetable Samples
(ODCM -08.01 sections 2.1.8 and 2.1.9)

There were no changes in land use resulting in significant increases in calculated doses. The Critical Receptor location changed from the Trefethen residence to the Wise residence due to Mr. Wise planting a garden this year. Milk samples were unavailable at sample location M-28 (Hoglund Farm) from 6/30/04 to 10/20/04 due to the farm being temporarily out of business. Land use census results show that there were no other indicator sample locations to replace this farm. Milk production and sampling has resumed at the Hoglund farm starting 10/18/04. There were no vegetable samples that could not be obtained during this reporting period.

Table 1**Offsite Radiation Dose Assessment - Monticello****PERIOD: January 1, through December 31, 2004**

GASEOUS RELEASES	DOSE	10CFR50 Appendix I Guidelines
Maximum Site Boundary Gamma Air Dose (mrad/year)	0.013	10
Maximum Site Boundary Beta Air Dose (mrad/year)	0.01	20
Maximum Off-Site Dose to Any Organ (mrem/year)	0.037	15
Maximum Dose to the Likely Most Exposed Member of the General Public (mrem/year)		
Whole Body	0.022	5
Skin	0.037	15
Max Organ (Skin)	0.037	15
LIQUID RELEASES		
Maximum Off-Site Dose (mrem)		
Whole Body	1.94E-10	3
Max Organ (All except bone)	1.94E-10	10
GASEOUS RELEASES	DOSE	40 CFR 190 LIMITS
Maximum Dose to Individuals due to their Activities Inside the Site Boundary (mrem)		
Whole Body	0.009	25
Thyroid	0.009	75
Max Other Organ (Skin)	0.011	25

Table 2

**Offsite Radiation Dose Assessment - Monticello
Supplemental Information**

PERIOD: January 1, through December 31, 2004

GASEOUS RELEASES		
Maximum Site Boundary Dose Location (from Reactor Building Vents)		
Sector	SSE	
Distance (miles)	0.40	
Security Training Trailer		
Sector	ESE	
Distance from Plant Stack (miles)	0.3	
Distance from Reactor Building Vents	0.4	
Critical Receptor Location		
Sector	SSW	
Distance from Reactor Building Vents (miles)	0.64	
Pathways	Plume, Ground, Inhalation, Vegetable	
Age Group	CHILD	
Organ	SKIN	
LIQUID RELEASES		
St. Paul Drinking Water Intake Location		
Pathways	Drinking Water Infant Whole Body 7:1	Drinking Water, Fish Adult GI Tract 7:1
Age Group		
Organ		
Dilution Factor (drinking water)		

Bases for Radiation Dose Statements

Thermoluminescent dosimeters (TLD) are stationed around MNGP to measure the ambient gamma radiation field. Monitoring stations are placed near the site boundary and approximately five (5) miles from the reactor, in locations representing sixteen (16) compass sectors. Other locations are chosen to measure the radiation field at places of special interest such as nearby residences, meeting places and population centers. Control sites are located further than ten (10) miles from the site, in areas that should not be affected by plant operations. The results from the TLD's are reported in the Annual Radiological Environmental Monitoring Report (REMP). The results from this effort indicated no excess dose to offsite areas.

Additionally, NUREG-0543, METHODS FOR DEMONSTRATING LWR COMPLIANCE WITH THE EPA URANIUM FUEL CYCLE STANDARD (40 CFR PART 190) states in section IV, "As long as a nuclear plant site operates at a level below the Appendix I reporting requirements, no extra analysis is required to demonstrate compliance with 40 CFR Part 190". The organ and whole body doses reported in Table 1 are determined using 10 CFR 50 Appendix I methodology. The doses reported are well below the limits of Appendix I.