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Indiana Michigan
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P.O. Box 16631
Columbus, OH 43216



March 20, 1995

AEP:NRC:0842X
10 CFR 50.36a(a) (2)

Docket Nos.: 50-315
50-316

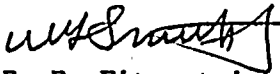
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Gentlemen:

Donald C. Cook Nuclear Plant Units 1 and 2
ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT
JANUARY 1, 1994 TO DECEMBER 31, 1994

Enclosed herewith are six copies of the Radioactive Effluent Release Report for Donald C. Cook Nuclear Plant Units 1 and 2, corresponding to the period from January 1, 1994 to December 31, 1994. This report was prepared in accordance with Section 6.9.1.9 of the plant's "Appendix A Technical Specification."

Sincerely,

for 
E. E. Fitzpatrick
Vice President

blb

Enclosures (6)

c: A. A. Blind
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RADIOACTIVE EFFLUENT RELEASE REPORT

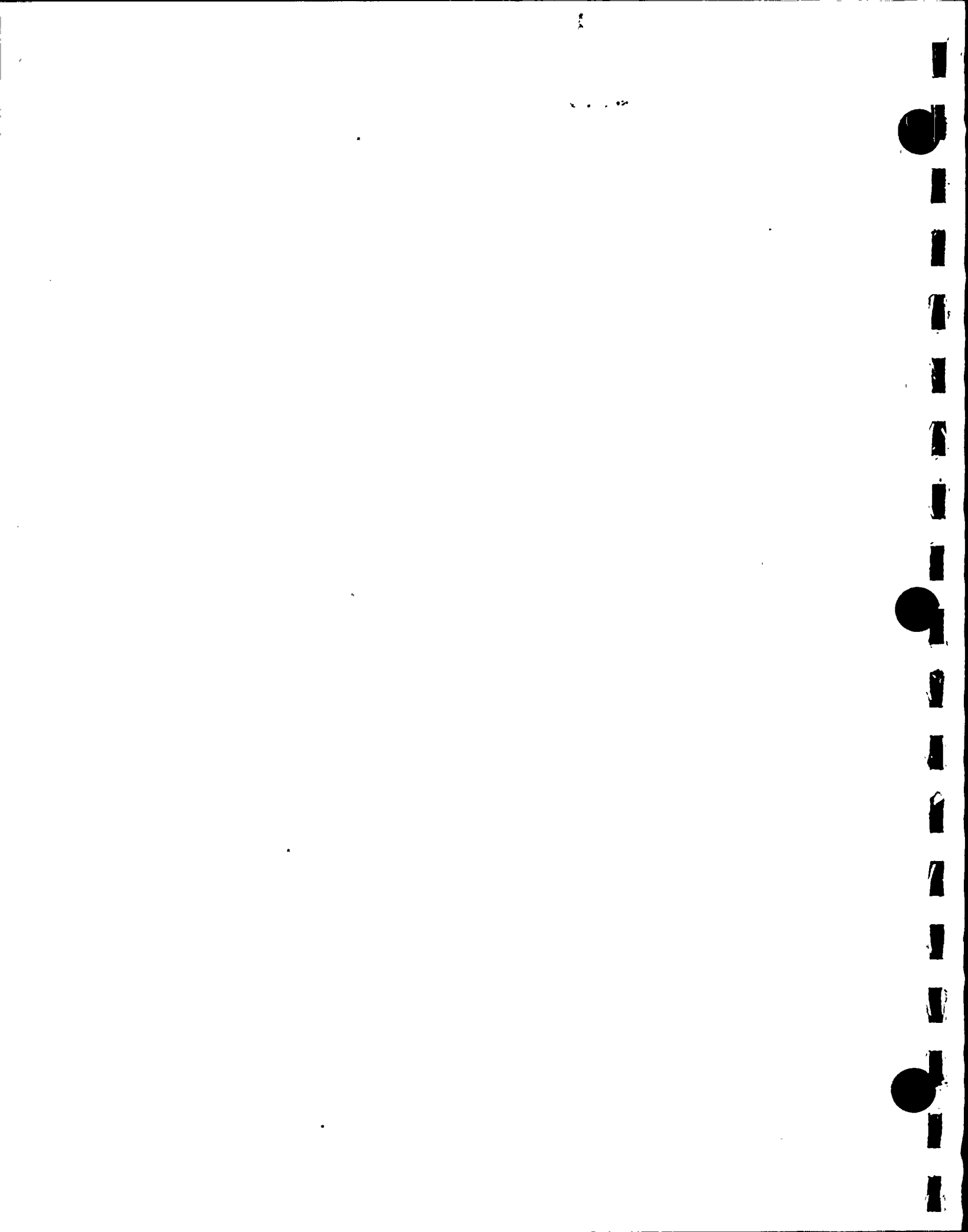
FOR DONALD C. COOK NUCLEAR PLANT UNITS 1 AND 2

Annual Radioactive Effluent Release Report

January 1, through December 31, 1994

Indiana Michigan Power Company
Bridgman, Michigan

Docket Nos. 50-315 & 50-316
License Nos. DPR-58 & DPR-74



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APPENDIX

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I. INTRODUCTION

This report discusses the radioactive discharges from Unit 1 and Unit 2 of the Donald C. Cook Nuclear Plant during 1994. This is in accordance with the requirements of Cook Nuclear Plant Technical Specifications Sections 6.9.1.8 and 6.9.1.9.

The table below summarizes the pertinent statistics concerning the Plant's operation during the period from January 1, to December 31, 1994. The data in this table and the descriptive information on plant operation are based upon the respective Unit's Monthly Operating Reports for 1994.

<u>Parameter</u>	<u>Unit 1</u>	<u>Unit 2</u>
Gross Electrical Energy Generation (MWH)	5,982,780	3,699,090
Unit Service Factor (%)	70.9	54.3
Unit Capacity Factor - MDC* Net (%)	65.7	38.0
* Maximum Dependable Capacity		

Unit 1 entered the reporting period in mode 1 at 86% rated thermal power (RTP). On January 3, 1994, reactor power was stabilized at 70% RTP, and on January 27, 1994, the second phase of the coastdown plan was initiated. On February 12, 1994, the unit was removed from service for the maintenance/refueling outage. On May 27, 1994, the reactor reached criticality. On July 23, 1994, the reactor was stabilized at 100% RTP. On September 10, 1994, the reactor power was reduced to 50% to allow application of biocide into the circulating water system, and was restored to 100% on September 15, 1994. The unit exited this reporting period at 100% RTP.

Unit 2 entered the reporting period in mode 1 at 85% RTP. On January 21, 1994, a reactor shutdown was commenced to repair an unisolable leak on #21 steam generator blowdown line. The unit was paralleled to the grid on January 27, 1994. On February 1, 1994, reactor power was ramped down to 57% RTP. On February 21, 1994, the reactor tripped during post maintenance testing of steam generator #4 stop valve dump valve. On March 3, 1994, during main turbine rollup, the turbine was manually tripped due to high vibrations. Repairs were completed with the Main Generator being paralleled to the grid on April 24. On August 15, 1994, a turbine trip followed by a reactor trip occurred due to blockage of feedpump condenser tubes. The reactor was taken critical on August 16, 1994. The unit was removed from service on September 6, 1994 for the cycle 9 to 10 refueling/maintenance outage. The reactor was taken critical on December 10, 1994 for the first time in cycle 10. During the subsequent power increase, a reactor trip at 19% RTP occurred which was generated from an MSR high level trip signal. The reactor was taken critical on December 12, 1994. The unit exited this reporting period in mode 1 at 100% RTP.

II. RADIOACTIVE RELEASES AND RADIOLOGICAL IMPACT UPON MAN

Since a number of release points are common to both units, the release data from both units are combined to form this two-unit, Annual Radioactive Effluent Release Report. Appendix 1 of this report presents the information in accordance with section 6.9.1.9 of Appendix A to the Facility Operating Licenses, as specified in the Technical Specification and 10 CFR Part 50, Appendix I.

The "MIDAS System" by Pickard, Lowe and Garrick, Inc., is a computer code that calculates doses for all isotopes that were released by the Donald C. Cook Nuclear Plant.

All liquid and gaseous releases were well within Technical Specifications limits.

There were no abnormal liquid or gaseous releases during 1994.

Liquid Releases

During the first quarter of 1994 there were 32 liquid batch releases. During the second quarter there were 32. During the third quarter there were 20. And during the fourth quarter there were 25.

There were no abnormal liquid releases during 1994.

For the purpose of dose assessment, batch releases were treated as continuous releases. Estimated doses (in millirem) to maximally exposed individuals via the liquid release pathway are given in appendices 1.2, 1.3, 1.4, and 1.5 of this report.

Gaseous Releases

During the first quarter of 1994 there were 118 gaseous batch releases. During the second quarter there were 96. During the third quarter there were 85. And during the fourth quarter there were 86.

Containment pressure reliefs (CPR) are listed as batch releases in accordance with NRC inspections 50-315/89016 (DRSS) and 50-316/89017 (DRSS). There were 355 CPRs during 1994.

There were 17 waste gas decay tank releases and 8 releases from CVCS HUTs during 1994.

In calculating the dose consequences for continuous and batch gaseous releases during 1994, the meteorological data measured at the time of release were used.

The estimated doses (in millirem) to maximally exposed individuals via the gaseous release pathway are given in appendices 1.2, 1.3, 1.4, and 1.5 of this report.

Solid Waste Disposition

There were no shipments of radioactive waste made during 1994.

III. METEOROLOGICAL

Appendices 2.1, 2.2, 2.3, and 2.4 of this report contain the cumulative joint frequency distributions of wind speed and wind direction, corresponding to the various atmospheric stability classes for the first, second, third and fourth quarters of 1994. Hourly meteorological data are available for review and/or inspection upon request.

IV. PROCESS CONTROL PROGRAM (PCP) CHANGES

The Radioactive Waste Process Control Manual 12 PMP 3150 PCP.100 was revised during this report period. The procedure was renumbered to 12 PMP 6010 PCP.900. 12 PMP 3150 PCP.200 was revised during this report period. The procedure was renumbered to 12 PMP 6010 PCP.901. The reasons for the changes and the PNSRC approval are documented on the procedure cover sheet. It has been determined that the changes made did not reduce the overall conformance of the solidified waste product to existing criteria for solid wastes.

V. OFFSITE DOSE CALCULATION MANUAL (ODCM) CHANGES

The Offsite Dose Calculation Manual, PMP 6010.OSD.001, was changed during the report period. The reasons for the changes and the PNSRC approval are documented on the procedure cover sheet. These changes did not reduce the accuracy or reliability of dose calculations or setpoint determinations.

VI. TOTAL DOSE

Technical Specification 3.11.4 requires that the dose or dose commitment to a real individual from all uranium fuel cycle sources be limited to no more than twenty-five (25) millirem to the total body or any organ over a period of twelve (12) consecutive months to show conformance with the requirements of 40 CFR Part 190. The maximum cumulative dose to an individual from liquid and gaseous effluents during 1994 was well within Technical Specification 3.11.4 limits. Measurements using thermoluminescent dosimeters at ten (10) offsite background stations indicate that the dose due to direct radiation is negligible.

An assessment showed that radiation doses from radioactive liquid and gaseous effluents to members of the public due to their activities inside the site boundary are also negligible.

VII. CONCLUSION

Based on the information presented in this report, it is concluded that the Donald C. Cook Nuclear Plant Units 1 and 2 performed their intended design function with no demonstrable adverse affect on the health and safety of the general public.

APPENDIX 1.1

Radioactive Release Data
January 1 - December 31, 1994



1994
EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT

Supplemental Information

Facility: Donald C. Cook Plant
Licensee: Indiana Michigan Power Company

1. Regulatory Limits

A. Noble Gases

The air dose in unrestricted areas due to noble gases released in gaseous effluents shall be limited to the following:

1. During any calendar quarter, to ≤ 5 mrad for gamma radiation and ≤ 10 mrad for beta radiation;
2. During any calendar year, to ≤ 10 mrad for gamma radiation and ≤ 20 mrad for beta radiation.

B. Iodines - Particulates

The dose to a member of the public from radioiodines, radioactive materials in particulate form, and radionuclides other than noble gases with half-lives greater than 8 days in gaseous effluents released to unrestricted areas shall be limited to the following:

1. During any calendar quarter to ≤ 7.5 mrem to any organ;
2. During any calendar year to ≤ 15 mrem to any organ.

C. Liquid Effluents

The dose or dose commitment to an individual from radioactive material in liquid effluents released to unrestricted areas shall be limited:

1. During any calendar quarter to ≤ 1.5 mrem to the total body and to ≤ 5 mrem to any organ;
2. During any calendar year to ≤ 3 mrem to the total body and to ≤ 10 mrem to any organ.

D. Total Dose

The dose or dose commitment to a real individual from all uranium fuel cycle sources is limited to ≤ 25 mrem to the total body or any organ (except the thyroid, which is limited to ≤ 75 mrem) over a period of 12 consecutive months.

2. Maximum Permissible Concentrations

A. Gaseous Effluents

The dose rate due to radioactive materials released in gaseous effluents from the site shall be limited to the following:

1. For noble gases: ≤ 500 mrem/yr to the total body and ≤ 3000 mrem/yr to the skin;
2. For all radioiodines and for all radioactive materials in particulate form and radionuclides (other than noble gases) with half-lives greater than 8 days: ≤ 1500 mrem/yr to any organ.

The above limits are provided to insure that radioactive material discharged in gaseous effluents will not result in the exposure of an individual in an unrestricted area to annual average concentrations exceeding the limits in 10 CFR Part 20, Appendix B, Table II.

B. Liquid Effluents

The concentration of radioactive material released at any time from the site to unrestricted areas shall be limited to the concentrations specified in 10 CFR Part 20, Appendix B, Table II, Column 2, for radionuclides other than dissolved or entrained noble gases. For dissolved or entrained noble gases, the concentration shall be limited to 2×10^{-4} $\mu\text{Ci/ml}$ total activity.

3. Average Energy

The average energy (\bar{E}) of the radionuclide mixture in releases of fission and activation gases as defined in Regulatory Guide 1.21 Appendix B Section A.3 is not applicable because the limits used for gaseous releases are based on calculated dose to members of the public.

4. Measurements and Approximations of Total Radioactivity

A. Fission and Activation Gases

Sampled and analyzed on a 4096 channel analyzer and HpGe detector.

B. Iodines

Sampled on iodine adsorbing media and analyzed on a 4096 channel analyzer and HpGe detector.

C. Particulates

Sampled on a glass filter and analyzed on a 4096 channel analyzer and HpGe detector.

D. Liquid Effluents

Sampled and analyzed on a 4096 channel analyzer and HpGe detector.

5. Batch Releases

A. Liquid

1. Number of batch releases:

32 releases in the 1st quarter, 1994
32 releases in the 2nd quarter, 1994
20 releases in the 3rd quarter, 1994
25 releases in the 4th quarter, 1994

2. Total time period for batch releases:

2.09E+4 minutes

3. Maximum time for a batch release:

1.16E+3 minutes

4. Average time period for batch release:

1.92E+2 minutes

5. Minimum time period for a batch release:

1.0 minutes

6. Average stream flow during periods of release of effluent into a flowing stream:

6.29E+5 gpm circulating water

B. Gaseous

1. Number of batch releases:

118 in the 1st quarter, 1994
96 in the 2nd quarter, 1994
85 in the 3rd quarter, 1994
86 in the 4th quarter, 1994

2. Total time period of batch releases:

1.62E+4 minutes

3. Maximum time period for a batch release:

1.63E+3 minutes

4. Average time period for batch releases:

4.2E+1 minutes

5. Minimum time period for a batch release:

9 minutes

6. Abnormal Releases

A. Liquid

1. Number of Releases:

1st <u>Quarter</u>	2nd <u>Quarter</u>	3rd <u>Quarter</u>	4th <u>Quarter</u>
0	0	0	0

2. Total activity released (Ci):

1st <u>Quarter</u>	2nd <u>Quarter</u>	3rd <u>Quarter</u>	4th <u>Quarter</u>
0	0	0	0

B. Gaseous

1. Number of Releases:

1st <u>Quarter</u>	2nd <u>Quarter</u>	3rd <u>Quarter</u>	4th <u>Quarter</u>
0	0	0	0

2. Total activity released (Ci):

1st <u>Quarter</u>	2nd <u>Quarter</u>	3rd <u>Quarter</u>	4th <u>Quarter</u>
0	0	0	0

B. Gaseous

1. Number of batch releases:

161 in the 1st quarter, 1993
124 in the 2nd quarter, 1993
83 in the 3rd quarter, 1993
116 in the 4th quarter, 1993

2. Total time period of batch releases:

1.60E+4 minutes

3. Maximum time period for a batch release:

1.06E+3 minutes

4. Average time period for batch releases:

3.3E+1 minutes

5. Minimum time period for a batch release:

8 minutes

6. Abnormal Releases

A. Liquid

1. Number of Releases:

1st <u>Quarter</u>	2nd <u>Quarter</u>	3rd <u>Quarter</u>	4th <u>Quarter</u>
0	0	0	0

* 2. Total activity released (Ci):

1st <u>Quarter</u>	2nd <u>Quarter</u>	3rd <u>Quarter</u>	4th <u>Quarter</u>
0	0	0	0

B. Gaseous

1. Number of Releases:

1st <u>Quarter</u>	2nd <u>Quarter</u>	3rd <u>Quarter</u>	4th <u>Quarter</u>
1	0	0	0

* 2. Total activity released (Ci):

1st <u>Quarter</u>	2nd <u>Quarter</u>	3rd <u>Quarter</u>	4th <u>Quarter</u>
5.66E-1	0	0	0

* This is a correction from the 1993 Radioactive Effluent Release Report.
Units (Ci) were added to 6.A.2 and 6.B.2.

1994

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT
GASEOUS EFFLUENTS - GROUND-LEVEL RELEASES

CONTINUOUS MODE

Nuclides released	Unit	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
1. FISSION GASES					
Krypton-85	Ci				
Krypton-85m	Ci	7.27E-1	8.07E-4	8.46E-3	2.16E-2
Krypton-87	Ci	7.14E-3	6.46E-4	9.03E-3	2.36E-2
Xenon-131m	Ci				
Xenon-133	Ci	1.54E+2	1.38E+0	9.14E+0	9.25E+0
Xenon-135	Ci	8.37E+0	5.04E-3	3.9E-1	3.18E-1
Xenon-135m	Ci	6.98E-3	1.66E-3	1.08E-2	2.67E-2
Ar-41	Ci	8.53E-3	2.78E-3	7.79E-3	8.06E-3
Krypton-88	Ci	1.47E-2	6.01E-4	1.26E-2	3.76E-2
Xenon-133m	Ci	6.59E-3	5.36E-4	4.68E-3	1.52E-2
Xenon-138	Ci	1.53E-3		3.11E-3	1.77E-2
Total for Period	Ci	1.63E+2	1.39E+0	9.59E+0	9.72E+0
2. IODINES					
I-131	Ci	3.38E-3	3.17E-4	4.57E-4	1.35E-4
I-133	Ci	4.95E-5	2.33E-4	1.49E-4	7.92E-5
I-135	Ci				2.55E-5
I-132	Ci	1.48E-5	9.27E-6	7.84E-5	1.84E-5
Total for Period	Ci	3.44E-3	5.59E-4	6.84E-4	2.58E-4
3. PARTICULATES					
Strontium-89	Ci	1.13E-6			
Strontium-90	Ci				
Cesium-134	Ci	2.36E-7	8.52E-5	2.28E-5	1.55E-5
Cesium-137	Ci	5.42E-5	4.07E-4	8.83E-5	1.36E-4
Cobalt-58	Ci	3.97E-5	8.66E-5	1.23E-5	2.77E-7
Cobalt-60	Ci	4.47E-5	8.46E-6	1.29E-6	1.89E-6
Manganese-54	Ci		2.31E-6	4.73E-8	1.59E-7
Silver-110m	Ci		1.41E-7	1.03E-8	
Sodium-24	Ci		5.7E-5		
Niobium-95	Ci				1.43E-8
Cesium-138	Ci				4.15E-8
	Ci				
	Ci				
Total for Period	Ci	1.40E-4	6.47E-4	1.25E-4	1.54E-4

A1.1-6

1994

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT
GASEOUS EFFLUENTS - GROUND-LEVEL RELEASES

BATCH MODE

Nuclides released	Unit	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
1. FISSION GASES					
Krypton-85	ci	1.21E+1	4.51E+0	5.17E+0	3.42E+0
Krypton-85m	ci	6.84E-2	2.36E-4	6.98E-3	6.04E-4
Krypton-87	ci	1.40E-2			
Xenon-131m	ci	1.60E+0	4.76E-2	7.78E-2	5.46E-2
Xenon-133	ci	6.31E+1	1.96E+0	5.72E+0	3.29E+0
Xenon-135	ci	1.08E+0	1.72E-2	1.01E-1	1.39E-2
Xenon-135m	ci				
Ar-41	ci	1.38E+0	6.45E-1	3.51E-1	1.35E-1
Krypton-88	ci	7.09E-2	1.18E-4	1.88E-4	2.72E-4
Xenon-133m	ci	4.47E-1	5.44E-3	5.81E-2	1.45E-2
Xenon-138	ci				
Xenon-127	ci	1.50E-1			
Total for Period	ci	8.00E+1	7.19E+0	1.15E+1	6.93E+0
2. IODINES					
I-131	ci	4.04E-4	1.31E-6	2.73E-6	
I-133	ci	8.61E-6		3.15E-6	
I-135	ci				
	ci				
Total for Period	ci	4.13E-4	1.31E-6	5.88E-6	
3. PARTICULATES					
Strontium-89	ci				
Strontium-90	ci				
Cesium-134	ci	1.16E-6	9.27E-7	2.37E-8	
Cesium-137	ci	3.12E-5	3.02E-6		3.34E-8
Cobalt-58	ci	5.16E-6			
Cobalt-60	ci	3.07E-6	2.57E-6		
	ci				
	ci				
	ci				
	ci				
	ci				
	ci				
Total for Period	ci	4.06E-5	6.52E-6	2.37E-8	3.34E-8

A1.1-7

1994

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT
GASEOUS EFFLUENTS - SUMMATION OF ALL RELEASES

		Units	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Est. Total Error, %
A.	FISSION AND ACTIVATION GASES						
1.	Total release.	Ci	2.43E+2	8.58E+0	2.11E+1	1.67E+1	1.47E+1
2.	Average release rate for period.	$\mu\text{Ci/sec}$	3.13E+1	1.09E+0	2.65E+0	2.10E+0	
3.	Percent of * applicable limit.	% γ % β	4.08E-1 5.02E-1	3.90E-2 2.76E-2	1.19E-1 1.19E-1	3.70E-2 4.35E-2	
	*(T/S 3.11.2.2)						
B.	IODINES						
1.	Total I-131.	Ci	3.78E-3	3.18E-4	4.60E-4	1.35E-4	1.22E+1
2.	Average release rate for period.	$\mu\text{Ci/sec}$	4.86E-4	4.04E-5	5.79E-5	1.70E-5	
3.	Percent of * applicable limit.	%	1.11E+0	2.28E-1	3.40E-1	9.37E-2	
	*(T/S 3.11.2.3)						
C.	PARTICULATES						
1.	Particulates with half lives > 8 days.	Ci	1.81E-4	5.96E-4	1.25E-4	1.54E-4	1.85E+1
2.	Average release rate for period.	$\mu\text{Ci/sec}$	2.33E-5	7.58E-5	1.57E-5	1.94E-5	
3.	Percent of * applicable limit.	%	1.11E+0	2.28E-1	3.40E-1	9.37E-2	
4.	Gross alpha radioactivity.	Ci	1.38E-6	4.84E-7	7.54E-7	8.61E-6	
	*(T/S 3.11.2.3)						
D.	Tritium						
1.	Total release	Ci	7.05E+0	6.48E+0	3.32E+0	1.60E+0	1.01E+1
2.	Average release rate for period.	$\mu\text{Ci/sec}$	9.07E-1	8.24E-1	4.18E-1	2.01E-1	
3.	Percent of # applicable limit.	%	1.19E+1	1.10E+1	5.33E+0	2.88E+0	

#(10 CFR 20 limit)

A1.1-8

1993

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT
GASEOUS EFFLUENTS - SUMMATION OF ALL RELEASES

		Units	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Est. Total Error, %
A.	FISSION AND ACTIVATION GASES						
1.	Total release.	Ci	1.89E+2	1.52E+2	1.19E+3	5.30E+2	1.63E+1
2.	Average release rate for period.	$\mu\text{Ci/sec}$	2.43E+1	1.93E+1	1.50E+2	6.67E+1	
3.	Percent of * applicable limit.	% γ β	1.09E+0 3.91E-1	3.66E-1 4.84E-1	1.73E+0 1.51E+1	6.14E-1 1.63E+0	
	*(T/S 3.11.2.2)						
B.	IODINES						
1.	Total I-131.	Ci	4.22E-6	9.62E-6	4.59E-5	1.71E-5	2.12E+1
2.	Average release rate for period.	$\mu\text{Ci/sec}$	5.43E-7	1.22E-6	5.77E-6	2.15E-6	
3.	Percent of * applicable limit.	%	3.68E-2	5.72E-2	1.48E-1	1.59E-1	
	*(T/S 3.11.2.3)						
C.	PARTICULATES						
1.	Particulates with half lives > 8 days.	Ci	7.53E-5	1.54E-4	8.81E-5	1.07E-4	1.69E+1
2.	Average release rate for period.	$\mu\text{Ci/sec}$	9.70E-6	1.94E-5	1.11E-5	1.35E-5	
3.	Percent of * applicable limit.	%	3.68E-2	5.72E-2	1.48E-1	1.59E-1	
4.	Gross alpha radioactivity.	Ci	<6.87E-7	<7.14E-7	<7.09E-7	<7.64E-7	
	*(T/S 3.11.2.3)						
D.	Tritium						
1.	Total release	Ci	3.17E+0	3.73E+0	8.27E+0	1.06E+1	1.12E+1
2.	Average release rate for period.	$\mu\text{Ci/sec}$	4.08E-1	4.74E-1	1.04E+0	1.33E+0	
3.	Percent of # applicable limit.	%	5.54E+0	6.60E+0	1.26E+1	1.73E+1	

#(10 CFR 20 limit)

§ Revised due to transposition error.

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EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT
LIQUID EFFLUENTS

BATCH MODE

Nuclides released	Unit	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
Strontium-89	ci	4.01E-4	5.66E-5		2.13E-4
Strontium-90	ci				5.68E-5
Cesium-134	ci	1.75E-3	8.46E-3	3.21E-4	2.20E-5
Cesium-137	ci	1.75E-3	8.57E-3	6.28E-4	1.99E-5
Cobalt-58	ci	2.12E-1	2.55E-1	5.20E-1	6.72E-2
Cobalt-60	ci	1.19E-1	7.76E-2	4.99E-2	1.65E-2
Manganese-54	ci	8.68E-3	1.10E-2	5.05E-3	4.45E-3
Iodine-131	ci	2.64E-4	4.42E-5	1.31E-5	4.03E-5
Iodine-132	ci				
Iodine-133	ci		2.23E-7		
Iodine-135	ci				
Sodium-24	ci	2.38E-5	7.86E-5	6.41E-5	8.21E-5
Iron-55	ci	1.89E-2	2.14E-3	8.82E-2	8.89E-2
Chromium-51	ci	5.63E-2	3.08E-2	1.28E-3	4.14E-3
Iron-59	ci	1.27E-3	1.31E-3	1.14E-3	2.12E-4
Zinc-65	ci	4.68E-3	3.41E-3	8.65E-4	4.7E-4
Zirconium/Niobium-95	ci	3.06E-2	3.60E-2	4.26E-3	2.01E-3
Barium/Lanthanum-140	ci	4.30E-5		1.24E-5	8.21E-6
Silver-110m	ci	8.69E-3	1.26E-2	7.67E-3	1.13E-2
Cobalt-57	ci	8.65E-4	1.22E-3	4.95E-3	4.04E-4
Antimony-124	ci	4.38E-3	3.7E-3	3.11E-3	6.65E-3
Antimony-125	ci	6.24E-3	7.81E-3	6.73E-3	5.68E-3
Cesium-136	ci	3.48E-6			
Tin-113	ci	7.78E-4	1.19E-3	1.05E-4	2.90E-5
Antimony-122	ci	1.19E-5			
	ci				
	ci				
	ci				
	ci				
Xenon-131m	ci	3.78E-4			
Krypton-85	ci	3.85E-4	1.83E-4		
Xenon-133	ci	2.29E-2	1.39E-3	4.49E-4	6.17E-4
Xenon-135	ci	3.60E-6	9.71E-7		
Krypton-88	ci			1.85E-4	
Xenon-133m	ci		1.14E-5		

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EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT
LIQUID EFFLUENTS - SUMMATION OF ALL RELEASES

CONTINUOUS

		Units	Quarter 1st	Quarter 2nd	Quarter 3rd	Quarter 4th	Est. Total Error, %
A.	FISSION AND ACTIVATION PRODUCTS						
1.	Total Release.	Ci	3.91E-3	3.87E-3	7.01E-3	1.82E-2	2.13E+1
2.	Average diluted concentration during period.	$\mu\text{Ci/ml}$	8.39E-12	6.31E-12	9.96E-12	3.14E-11	
3.	Percent of applicable limit.	%	8.19E-4	3.93E-4	5.88E-4	1.23E-3	
B.	TRITIUM						
1.	Total Release	Ci	5.59E-1	1.70E-1	1.12E+0	1.02E+0	1.17E+1
2.	Average diluted concentration during period.	$\mu\text{Ci/ml}$	1.20E-9	2.77E-10	1.59E-9	1.76E-9	
3.	Percent of applicable limit.	%	1.20E-4	2.77E-5	1.59E-4	1.76E-4	
C.	DISSOLVED AND ENTRAINED GASES						
1.	Total Release	Ci	7.47E-5		5.24E-5	8.41E-5	3.31E+1
2.	Average diluted concentration during period.	$\mu\text{Ci/ml}$	1.60E-13		7.44E-14	1.45E-13	
3.	Percent of applicable limit.	%	8.04E-8		3.73E-8	7.29E-8	

1994

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT
LIQUID EFFLUENTS - SUMMATION OF ALL RELEASES

BATCH

		Units	Quarter 1st	Quarter 2nd	Quarter 3rd	Quarter 4th	Est. Total Error, %
A.	FISSION AND ACTIVATION PRODUCTS						
1.	Total Release.	Ci	4.77E-1	4.61E-1	6.94E-1	2.08E-1	2.16E+1
2.	Average diluted concentration during period.	$\mu\text{Ci/ml}$	3.61E-8	2.38E-8	6.67E-8	1.79E-8	
3.	Percent of applicable limit.	%	4.51E-1	3.20E-1	4.56E-1	1.16E-1	
B.	TRITIUM						
1.	Total Release	Ci	2.92E+2	4.07E+2	1.62E+2	1.44E+2	1.01E+1
2.	Average diluted concentration during period.	$\mu\text{Ci/ml}$	2.21E-5	2.10E-5	1.56E-5	1.24E-5	
3.	Percent of applicable limit.	%	2.21E+0	2.10E+0	1.56E+0	1.24E+0	
C.	DISSOLVED AND ENTRAINED GASES						
1.	Total Release	Ci	2.37E-2	1.59E-3	6.34E-4	6.17E-4	1.33E+1
2.	Average diluted concentration during period.	$\mu\text{Ci/ml}$	1.80E-9	8.20E-11	6.10E-11	5.32E-11	
3.	Percent of applicable limit.	%	8.94E-4	4.08E-5	3.05E-5	2.66E-5	

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EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT
LIQUID EFFLUENTS

CONTINUOUS

		Unit	Quarter 1st	Quarter 2nd	Quarter 3rd	Quarter 4th	Est. Total Error, %
D.	Gross Alpha Radioactivity Total Release	Ci	<3.65E-3	<1.09E-2	<1.13E-2	<1.13E-2	N/A
E.	Volume of Waste Released	Liters	1.43E+8	1.81E+8	1.67E+8	1.67E+8	2.00E+0
F.	Volume of Dilution Water used During Period	Liters	4.66E+11	6.13E+11	7.04E+11	5.79E+11	3.48E+0

BATCH

		Unit	Quarter 1st	Quarter 2nd	Quarter 3rd	Quarter 4th	Est. Total Error, %
D.	Gross Alpha Radioactivity Total Release	Ci	<4.02E-5	<1.13E-4	<1.42E-4	<8.78E-5	N/A
E.	Volume of Waste Released	Liters	1.70E+6	1.92E+6	1.18E+6	1.30E+6	2.00E+0
F.	Volume of Dilution Water used During Period	Liters	1.32E+10	1.94E+10	1.04E+10	1.16E+10	3.48E+0

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EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT
SOLID WASTE AND IRRADIATED FUEL SHIPMENTS

A. Solid Waste Shipped Offsite for Burial or Disposal

1.	Type of Waste	Unit	12 month Period	Est.Total Error, %
a.	Spent resins, filter sludges, evaporator bottoms, etc.	m ³ Ci	0 0	
b.	Dry compressible waste, contaminated equipment, etc.	m ³ Ci	0 0	
c.	Irradiated components, control rods, etc.	m ³ Ci	0 0	
d.	Other	m ³ Ci		

2. Estimate of Major Nuclide Composition

a.	Cs-137	N/A	%
	Cs-134	N/A	%
	Co-58	N/A	%
	Co-60	N/A	%
b.	Co-60	N/A	%
	Co-58	N/A	%
	Cs-137	N/A	%
	Cs-134	N/A	%

3. Solid Waste Disposition

<u>No. of Shipments</u>	<u>Mode of Transportation</u>	<u>Destination</u>
0		Barnwell, SC
0		Richland, WA

4. Type of Containers Used for Shipment

There were no waste shipments made to a burial site during this reporting period.

5. Solidification Agent

There were no solidifications performed during this reporting period.

1994

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT

YEARLY RELEASE RATES

I. Gases

A.	<u>Fission and Activation Gases</u>	<u>Units</u>
1.	Total Release	Ci 2.89E+2
2.	Average Release Rate	$\mu\text{Ci/sec}$ 9.16E+0
3.	% of Applicable Limits	γ % 3.01E-1 β % 3.46E-1
B.	<u>Iodines</u>	
1.	Total Iodine-131 Release	Ci 4.69E-3
2.	Average Release Rate	$\mu\text{Ci/sec}$ 1.49E-4
3.	% of Applicable Limit	% 8.87E-1
C.	<u>Particulates</u>	
1.	Total Release	Ci 1.06E-3
2.	Average Release Rate	$\mu\text{Ci/sec}$ 3.36E-5
3.	% of Applicable Limit	% 8.87E-1

II. Liquids

A.	<u>Fission and Activation Products</u>	
1.	Total Release	Ci 1.87E+0
2.	Average Diluted Concentration	$\mu\text{Ci/ml}$ 3.42E-8
3.	% of Applicable Limit	Total Body % 3.60E+0 GI Tract % 5.73E+0

Release	Date	Time	Xe131m	Xe133	I131	H3	Xe133m	Kr85	Ar41	Xe135	Co60	Cs137	Kr88	Kr85m	I133
G-94-1+	Jan 17/18	1447-0135	3.39E-3	1.12E-1		1.84E-3	6.64E-4	2.54E-1		2.06E-4	8.76E-8				
G-94-2@	Jan 23	1345-1528		7.61E-2	6.32E-7	2.56E-2			2.49E-2	2.20E-3		1.08E-6			5.16E-7
G-94-3*	Jan 29	2113-2155	2.59E-4	1.20E-2		3.25E-5	9.99E-5	3.30E-1	8.47E-5	6.61E-5					
G-94-4*	Feb 1	0438-0533	8.55E-4	8.49E-4		2.61E-5		4.99E-1			8.60E-8	5.58E-8			
G-94-5*	Feb 9	0357-0447	1.08E-3	3.12E-3		2.43E-5	3.26E-5	5.16E-1		4.30E-5					
G-94-6*	Feb 12	1600-1642	6.83E-3	4.79E-2		4.23E-5		4.78E-1							
G-94-7@	Feb 12/13	1924-2235	1.30E+0	4.95E+1	7.75E-6	1.17E+0	3.75E-1	7.46E+0	1.67E-1	1.01E+0	Kr87 1.40E-2	1.22E-5	7.03E-2	6.74E-2	3.45E-6
G-94-8@	Feb 13/14	2235-0018	1.84E-1	7.93E+0	9.30E-6	8.14E-2	4.77E-2	1.06E+0		3.11E-2	2.90E-6	2.70E-6	Cs134 1.16E-6	Co58 5.16E-6	4.63E-6
G-94-9+	Feb 28	0526-0834	1.27E-3	3.66E-2	3.76E-4	7.34E-6	6.73E-5	1.77E-2				1.51E-5			
G-94-10+	Mar 13/14	1708-0408	7.77E-3	7.67E-2	9.73E-6	1.70E-4		9.53E-2							
G-94-11*	Mar 20	1700-1746	1.04E-3	9.71E-4		2.17E-5		4.53E-1							
G-94-13+	Apr 11/12	0510-0110	2.35E-3	2.03E-3	1.08E-6	5.31E-3		1.21E-1							
G-94-14*	Apr 13	0950-1030	1.46E-3	5.89E-4		4.88E-5		6.10E-1				2.31E-8			
G-94-15*	Apr 13	1653-1738	3.01E-4	2.10E-4		1.85E-5		3.11E-1							
G-94-16+	Apr 26/27	1343-0256	3.90E-4	1.20E-4	2.34E-7	1.19E-4		5.43E-2							
G-94-17*	May 10	1625-1706	4.14E-3	7.71E-4		9.18E-5		1.10E+0				2.87E-8			
G-94-18@	May 14	1038-1221				5.33E-2					2.57E-6	2.97E-6		Cs134 9.26E-7	
G-94-19*	May 27	0220-0251	5.08E-4	2.76E-5		6.61E-5		6.73E-1							
G-94-20*	Jun 4	0019-0102	8.38E-4	1.23E-4		8.74E-5		1.25E+0							
G-94-21*	Jul 5	1629-1709		4.85E-3		5.99E-5	8.21E-5	1.48E+0		9.46E-5					

A1.1-17

* Gas Decay Tank Releases
+ CVCS Hold Up Tank Releases
@ Containment Purge

Release	Date	Time	Xe131m	Xe133	I131	H3	Xe133m	Kr85	Ar41	Xe135	Co60	Cs137	Kr88	Kr85m	I133
G-94-22*	Aug 17	0233-0320		1.32E+0		1.20E-4	2.22E-2	6.56E-1		3.64E-2				2.49E-3	
G-94-23*	Aug 17	1421-1502		1.31E+0	2.21E-8	2.02E-4	1.98E-2	7.27E-1		3.77E-2		2.87E-8		3.21E-3	Cs134 2.37E-8
G-94-24+	Sep 1	0147-1050	1.40E-2	6.66E-1	3.28E-8	8.78E-4	3.71E-3	4.63E-1		9.81E-5					
G-94-25*	Sep 3	0435-0512	3.18E-3	8.17E-3		2.81E-5		7.33E-1							
G-94-26+	Sep 4	0200-1020	7.82E-4	2.10E-2		2.05E-4	1.01E-4	1.89E-1		7.26E-5					
G-94-278	Sep 7	1352-1535	2.05E-2	2.85E-1	2.67E-6	1.22E-1	3.61E-3	3.97E-1	2.72E-2	1.42E-2				8.88E-4	3.14E-6
G-94-28*	Nov 4	1309-1349	8.79E-4	3.06E-3		4.33E-5	4.65E-5	9.00E-1		5.96E-5		3.34E-8			
G-94-29+	Nov 24	0254-1342	1.95E-3	2.19E-2		3.90E-4	9.31E-5	2.36E-1							
G-94-30*	Dec 13	1410-1453	2.73E-3	6.63E-1		6.85E-5	9.30E-3	8.61E-1		4.37E-3					
G-94-31*	Dec 30/31	2335-0010		2.08E-2		3.60E-5	2.14E-4	8.93E-1		1.43E-4					

A1.1-18

* Gas Decay Tank Releases
+ CVCS Hold Up Tank Releases
@ Containment Purge

CPR N	SDate	STime	Xe131m	Xe133	Xe135	Ar41	Xe133m	Kr85	Kr85m	Kr88
94-1	Jan 1	0555-0620	2.16E-03	1.07E-01	2.56E-04	6.27E-04	5.63E-04	1.70E-02	2.56E-05	1.28E-05
94-2	Jan 3	0418-0439	2.43E-03	1.21E-01	2.88E-04	7.06E-04	6.34E-04	1.91E-02	2.88E-05	1.44E-05
94-3	Jan 3	2248-2307	2.18E-03	1.08E-01	2.58E-04	6.32E-04	5.68E-04	1.71E-02	2.58E-05	1.29E-05
94-4	Jan 5	1521-1542	2.65E-03	1.32E-01	3.14E-04	7.69E-04	6.91E-04	2.08E-02	3.14E-05	1.57E-05
94-5	Jan 6	0258-0320	2.77E-03	1.38E-01	3.28E-04	8.04E-04	7.22E-04	2.18E-02	3.28E-05	1.64E-05
94-6	Jan 10	0501-0520	2.01E-03	9.98E-02	2.38E-04	5.83E-04	5.24E-04	1.58E-02	2.38E-05	1.19E-05
94-7	Jan 10	1723-1745	2.30E-03	1.14E-01	2.72E-04	6.66E-04	5.98E-04	1.80E-02	2.72E-05	1.36E-05
94-8	Jan 12	0035-0057	2.38E-03	1.18E-01	2.82E-04	6.91E-04	6.20E-04	1.87E-02	2.82E-05	1.41E-05
94-9	Jan 12	1303-1325	2.47E-03	1.22E-01	2.92E-04	7.15E-04	6.42E-04	1.94E-02	2.92E-05	1.46E-05
94-10	Jan 13	1400-1415	1.54E-03	7.63E-02	1.82E-04	4.46E-04	4.00E-04	1.21E-02	1.82E-05	9.10E-06
94-11	Jan 14	2138-2154	1.71E-03	8.47E-02	2.02E-04	4.95E-04	4.44E-04	1.34E-02	2.02E-05	1.01E-05
94-12	Jan 16	1108-1122	2.04E-03	1.01E-01	2.42E-04	5.93E-04	5.32E-04	1.61E-02	2.42E-05	1.21E-05
94-13	Jan 16	1818-1836	2.48E-03	1.23E-01	2.94E-04	7.20E-04	6.47E-04	1.95E-02	2.94E-05	1.47E-05
94-14	Jan 17	0218-0234	2.37E-03	1.17E-01	2.80E-04	6.86E-04	6.16E-04	1.86E-02	2.80E-05	1.40E-05
94-15	Jan 19	1657-1715	2.52E-03	1.25E-01	2.98E-04	7.30E-04	6.56E-04	1.98E-02	2.98E-05	1.49E-05
94-16	Jan 21	0434-0450	2.18E-03	1.08E-01	2.58E-04	6.32E-04	5.68E-04	1.71E-02	2.58E-05	1.29E-05
94-17	Jan 21	1537-1558	3.03E-03	1.50E-01	3.58E-04	8.77E-04	7.88E-04	2.38E-02	3.58E-05	1.79E-05
94-18	Jan 22	2153-2209	2.37E-03	1.17E-01	2.80E-04	6.86E-04	6.16E-04	1.86E-02	2.80E-05	1.40E-05
94-19	Jan 23	1428-1444	2.62E-03	1.30E-01	3.10E-04	7.60E-04	6.82E-04	2.06E-02	3.10E-05	1.55E-05
94-20	Jan 25	1030-1049	2.62E-03	1.30E-01	3.10E-04	7.60E-04	6.82E-04	2.06E-02	3.10E-05	1.55E-05
94-21	Jan 26	2154-2211	3.13E-03	1.55E-01	3.70E-04	9.07E-04	8.14E-04	2.45E-02	3.70E-05	1.85E-05
94-22	Jan 27	0558-0618	2.72E-03	1.35E-01	3.22E-04	7.89E-04	7.08E-04	2.14E-02	3.22E-05	1.61E-05
94-23	Jan 27	1726-1742	2.69E-03	1.33E-01	3.18E-04	7.79E-04	7.00E-04	2.11E-02	3.18E-05	1.59E-05
94-24	Jan 28	0324-0341	2.35E-03	1.17E-01	2.78E-04	6.81E-04	6.12E-04	1.84E-02	2.78E-05	1.39E-05
94-25	Jan 31	0245-0301	2.08E-03	1.03E-01	2.46E-04	6.03E-04	5.41E-04	1.63E-02	2.46E-05	1.23E-05
94-26	Feb 1	0303-0323	1.93E-03	9.56E-02	2.28E-04	5.59E-04	5.02E-04	1.51E-02	2.28E-05	1.14E-05
94-27	Feb 2	0326-0407	5.42E-03	2.69E-01	6.42E-04	1.57E-03	1.41E-03	4.26E-02	6.42E-05	3.21E-05
94-28	Feb 2	2100-2118	2.38E-03	1.18E-01	2.82E-04	6.91E-04	6.20E-04	1.87E-02	2.82E-05	1.41E-05
94-29	Feb 4	1813-1828	1.81E-03	8.98E-02	2.14E-04	5.24E-04	4.71E-04	1.42E-02	2.14E-05	1.07E-05
94-30	Feb 5	1410-1425	1.93E-03	9.56E-02	2.28E-04	5.59E-04	5.02E-04	1.51E-02	2.28E-05	1.14E-05
94-31	Feb 6	0905-0934	4.07E-03	2.02E-01	4.82E-04	1.18E-03	1.06E-03	3.20E-02	4.82E-05	2.41E-05
94-32	Feb 8	1018-1032	2.37E-03	1.17E-01	2.80E-04	6.86E-04	6.16E-04	1.86E-02	2.80E-05	1.40E-05
94-33	Feb 8	1840-1855	1.63E-03	8.07E-02	1.92E-04	4.71E-04	4.23E-04	1.28E-02	1.92E-05	9.62E-06
94-34	Feb 10	1715-1735	2.45E-03	1.22E-01	2.90E-04	7.11E-04	6.38E-04	1.92E-02	2.90E-05	1.45E-05
94-35	Feb 11	1746-1802	1.68E-03	8.35E-02	1.99E-04	4.88E-04	4.38E-04	1.32E-02	1.99E-05	9.96E-06
94-36	Feb 12	0621-0642	2.45E-03	1.22E-01	2.90E-04	7.11E-04	6.38E-04	1.92E-02	2.90E-05	1.45E-05
94-37	May 2	1605-1624	7.29E-04	3.68E-02	1.26E-04	2.04E-04	2.00E-04	5.34E-03	8.68E-06	4.34E-06
94-38	May 3	1044-1105	7.95E-04	4.01E-02	1.37E-04	2.22E-04	2.18E-04	5.82E-03	9.46E-06	4.73E-06
94-39	May 4	0230-0252	6.45E-04	3.26E-02	1.11E-04	1.80E-04	1.77E-04	4.72E-03	7.68E-06	3.84E-06
94-40	May 4	1624-1648	7.98E-04	4.03E-02	1.38E-04	2.23E-04	2.19E-04	5.84E-03	9.50E-06	4.75E-06
94-41	May 5	1253-1314	5.81E-04	2.93E-02	1.00E-04	1.63E-04	1.59E-04	4.26E-03	6.92E-06	3.46E-06
94-42	May 6	0548-0605	5.83E-04	2.94E-02	1.01E-04	1.63E-04	1.60E-04	4.27E-03	6.94E-06	3.47E-06

Unit 1 CPRs unless otherwise designated

CPR N	SDate	STime	Xe131m	Xe133	Xe135	Ar41	Xe133m	Kr85	Kr85m	Kr88
94-43	May 7	0748-0819	9.93E-04	5.01E-02	1.71E-04	2.78E-04	2.72E-04	7.27E-03	1.18E-05	5.91E-06
94-44	May 8	1932-1951	5.98E-04	3.02E-02	1.03E-04	1.67E-04	1.64E-04	4.38E-03	7.12E-06	3.56E-06
94-45	May 11	0233-0253	5.64E-04	2.85E-02	9.74E-05	1.58E-04	1.55E-04	4.13E-03	6.72E-06	3.36E-06
94-46	May 11	1713-1731	4.87E-04	2.46E-02	8.41E-05	1.36E-04	1.33E-04	3.57E-03	5.80E-06	2.90E-06
94-47	May 13	1954-2013	5.88E-04	2.97E-02	1.02E-04	1.65E-04	1.61E-04	4.31E-03	7.00E-06	3.50E-06
94-48	May 25	1853-1914	9.02E-04	4.55E-02	1.56E-04	2.52E-04	2.47E-04	6.61E-03	1.07E-05	5.37E-06
94-49	May 28	1555-1611	4.69E-04	2.37E-02	8.09E-05	1.31E-04	1.28E-04	3.43E-03	5.58E-06	2.79E-06
94-50	May 29	1436-1458	7.04E-04	3.55E-02	1.22E-04	1.97E-04	1.93E-04	5.15E-03	8.38E-06	4.19E-06
94-51	May 31	1623-1640	6.20E-04	3.13E-02	1.07E-04	1.73E-04	1.70E-04	4.54E-03	7.38E-06	3.69E-06
94-52	Jun 3	1657-1713	5.07E-04	2.56E-02	8.76E-05	1.42E-04	1.39E-04	3.71E-03	6.04E-06	3.02E-06
94-53	Jun 4	1229-1246	5.17E-04	2.61E-02	8.93E-05	1.45E-04	1.42E-04	3.79E-03	6.16E-06	3.08E-06
94-54	Jun 5	1231-1254	7.83E-04	3.95E-02	1.35E-04	2.19E-04	2.14E-04	5.73E-03	9.32E-06	4.66E-06
94-55	Jun 6	1612-1628	8.11E-04	4.09E-02	1.40E-04	2.27E-04	2.22E-04	5.94E-03	9.66E-06	4.83E-06
94-56	Jun 10	1402-1420	6.08E-04	3.07E-02	1.05E-04	1.70E-04	1.67E-04	4.45E-03	7.24E-06	3.62E-06
94-57	Jun 11	1725-1748	9.58E-04	4.83E-02	1.65E-04	2.68E-04	2.62E-04	7.01E-03	1.14E-05	5.70E-06
94-58	Jun 13	0640-0655	5.95E-04	3.00E-02	1.03E-04	1.66E-04	1.63E-04	4.35E-03	7.08E-06	3.54E-06
94-59	Jun 16	1857-1915	5.34E-04	2.70E-02	9.22E-05	1.49E-04	1.46E-04	3.91E-03	6.36E-06	3.18E-06
94-60	Jun 18	1904-1923	6.79E-04	3.42E-02	1.17E-04	1.90E-04	1.86E-04	4.97E-03	8.08E-06	4.04E-06
94-61	Jun 20	1608-1628	6.00E-04	3.03E-02	1.04E-04	1.68E-04	1.64E-04	4.39E-03	7.14E-06	3.57E-06
94-62	Jun 22	1711-1733	8.38E-04	4.23E-02	1.45E-04	2.35E-04	2.30E-04	6.14E-03	9.98E-06	4.99E-06
94-63	Jun 23	1843-1901	5.63E-04	2.84E-02	9.72E-05	1.57E-04	1.54E-04	4.12E-03	6.70E-06	3.35E-06
94-64	Jun 26	0550-0603	4.38E-04	2.21E-02	7.57E-05	1.23E-04	1.20E-04	3.21E-03	5.22E-06	2.61E-06
94-65	Jun 28	1000-1019	7.27E-04	3.67E-02	1.26E-04	2.04E-04	1.99E-04	5.33E-03	8.66E-06	4.33E-06
94-66	Jun 29	0403-0420	6.23E-04	3.14E-02	1.08E-04	1.74E-04	1.71E-04	4.56E-03	7.42E-06	3.71E-06
94-67	Jul 1	1625-1641	5.86E-04	2.96E-02	1.01E-04	1.64E-04	1.61E-04	4.28E-03	6.98E-06	3.49E-06
94-68	Jul 4	1349-1410	6.96E-04	3.51E-02	1.20E-04	1.95E-04	1.90E-04	5.08E-03	8.28E-06	4.14E-06
94-69	Jul 6	1354-1411	5.93E-04	2.99E-02	1.02E-04	1.66E-04	1.62E-04	4.33E-03	7.06E-06	3.53E-06
94-70	Jul 11	0447-0504	1.04E-03	5.24E-02	1.79E-04	2.90E-04	2.84E-04	7.58E-03	1.24E-05	6.18E-06
94-71	Jul 14	1410-1421	6.33E-04	3.20E-02	1.09E-04	1.77E-04	1.73E-04	4.63E-03	7.54E-06	3.77E-06
94-72	Jul 17	1215-1229	5.16E-04	2.60E-02	8.90E-05	1.44E-04	1.41E-04	3.77E-03	6.14E-06	3.07E-06
94-73	Jul 20	1806-1826	7.88E-04	3.98E-02	1.36E-04	2.20E-04	2.16E-04	5.75E-03	9.38E-06	4.69E-06
94-74	Jul 24	1322-1345	8.77E-04	4.43E-02	1.51E-04	2.45E-04	2.40E-04	6.40E-03	1.04E-05	5.22E-06
94-75	Jul 30	1825-1846	1.81E-03	9.16E-02	3.13E-04	5.08E-04	4.97E-04	1.33E-02	2.16E-05	1.08E-05
94-76	Aug 1	1547-1608	1.08E-03	5.44E-02	1.86E-04	3.02E-04	2.95E-04	7.88E-03	1.28E-05	6.42E-06
94-77	Aug 3	1444-1505	1.02E-03	5.17E-02	1.77E-04	2.87E-04	2.81E-04	7.48E-03	1.22E-05	6.10E-06
94-78	Aug 7	0448-0507	9.31E-04	4.70E-02	1.61E-04	2.60E-04	2.55E-04	6.80E-03	1.11E-05	5.54E-06
94-79	Aug 8	0626-0646	2.23E-03	1.13E-01	3.86E-04	6.25E-04	6.12E-04	1.63E-02	2.66E-05	1.33E-05
94-80	Aug 11	0028-0100	1.64E-03	8.30E-02	2.84E-04	4.60E-04	4.50E-04	1.20E-02	1.96E-05	9.79E-06
94-81	Aug 12/13	2352-0010	9.49E-04	4.79E-02	1.64E-04	2.66E-04	2.60E-04	6.93E-03	1.13E-05	5.65E-06
94-82	Aug 14	0702-0716	5.68E-04	2.87E-02	9.80E-05	1.59E-04	1.55E-04	4.15E-03	6.76E-06	3.38E-06
94-83	Aug 17	1534-1553	9.17E-04	4.63E-02	1.58E-04	2.57E-04	2.51E-04	6.70E-03	1.09E-05	5.46E-06
94-84	Aug 19	1615-1635	1.10E-03	5.55E-02	1.90E-04	3.08E-04	3.01E-04	8.04E-03	1.31E-05	6.55E-06

CPR N	SDate	STime	Xe131m	Xe133	Xe135	Ar41	Xe133m	Kr85	Kr85m	Kr88
94-85	Aug 24	2012-2027	5.70E-04	2.87E-02	9.83E-05	1.59E-04	1.56E-04	4.16E-03	6.78E-06	3.39E-06
94-86	Aug 27	1620-1638	1.53E-03	7.73E-02	2.64E-04	4.29E-04	4.20E-04	1.12E-02	1.82E-05	9.12E-06
94-87	Aug 28	1120-1134	5.36E-04	2.71E-02	9.25E-05	1.50E-04	1.47E-04	3.91E-03	6.38E-06	3.19E-06
94-88	Aug 30	1704-1726	1.11E-03	5.58E-02	1.91E-04	3.09E-04	3.03E-04	8.07E-03	1.32E-05	6.58E-06
94-89	Sep 4	1515-1540	1.26E-03	6.37E-02	2.18E-04	3.53E-04	3.45E-04	9.21E-03	1.50E-05	7.51E-06
94-90	Sep 7	1747-1804	8.38E-04	4.23E-02	1.45E-04	2.35E-04	2.30E-04	6.12E-03	9.98E-06	4.99E-06
94-91	Sep 11	1307-1328	7.90E-04	3.99E-02	1.36E-04	2.21E-04	2.16E-04	5.77E-03	9.40E-06	4.70E-06
94-92	Sep 13	1202-1222	9.73E-04	4.91E-02	1.68E-04	2.72E-04	2.66E-04	7.10E-03	1.16E-05	5.79E-06
94-93	Sep 14	1606-1627	8.32E-04	4.20E-02	1.44E-04	2.33E-04	2.28E-04	6.07E-03	9.90E-06	4.95E-06
94-94	Sep 16	1512-1531	1.27E-03	6.40E-02	2.19E-04	3.55E-04	3.47E-04	9.26E-03	1.51E-05	7.55E-06
94-95	Sep 21	0305-0320	8.37E-04	4.22E-02	1.44E-04	2.34E-04	2.29E-04	6.11E-03	9.96E-06	4.98E-06
94-96	Sep 22	1330-1347	1.20E-03	6.05E-02	2.07E-04	3.35E-04	3.28E-04	8.75E-03	1.43E-05	7.13E-06
94-97	Sep 25	1407-1420	7.11E-04	3.59E-02	1.23E-04	1.99E-04	1.95E-04	5.19E-03	8.46E-06	4.23E-06
94-98	Sep 30	1622-1637	1.07E-03	5.42E-02	1.85E-04	3.00E-04	2.94E-04	7.84E-03	1.28E-05	6.39E-06
94-99	Oct 5	1621-1634	8.90E-04	4.56E-02	1.72E-04	2.79E-04	2.47E-04	6.38E-03	1.07E-05	5.36E-06
94-100	Oct 7	1321-1337	7.64E-04	3.91E-02	1.47E-04	2.39E-04	2.12E-04	5.48E-03	9.20E-06	4.60E-06
94-101	Oct 12	1349-1405	9.15E-04	4.69E-02	1.76E-04	2.87E-04	2.53E-04	6.56E-03	1.10E-05	5.51E-06
94-102	Oct 16	1316-1326	4.85E-04	2.48E-02	9.34E-05	1.52E-04	1.34E-04	3.48E-03	5.84E-06	2.92E-06
94-103	Oct 17	2033-2057	1.39E-03	7.11E-02	2.67E-04	4.34E-04	3.84E-04	9.94E-03	1.67E-05	8.35E-06
94-104	Oct 22	1223-1238	9.59E-04	4.92E-02	1.85E-04	3.01E-04	2.66E-04	6.88E-03	1.16E-05	5.78E-06
94-105	Oct 28	0158-0210	7.35E-04	3.77E-02	1.42E-04	2.30E-04	2.04E-04	5.28E-03	8.86E-06	4.43E-06
94-106	Oct 28	1658-1715	1.25E-03	6.43E-02	2.42E-04	3.93E-04	3.48E-04	9.00E-03	1.51E-05	7.56E-06
94-107	Oct 31	1043-1057	8.52E-04	4.37E-02	1.64E-04	2.67E-04	2.36E-04	6.11E-03	1.03E-05	5.13E-06
94-108	Oct 31	2130-2145	1.06E-03	5.43E-02	2.04E-04	3.32E-04	2.93E-04	7.60E-03	1.28E-05	6.38E-06
94-109	Nov 4	1221-1235	9.50E-04	4.87E-02	1.83E-04	2.97E-04	2.63E-04	6.81E-03	1.14E-05	5.72E-06
94-110	Nov 5	1558-1614	1.36E-03	6.97E-02	2.62E-04	4.26E-04	3.77E-04	9.75E-03	1.64E-05	8.19E-06
94-111	Nov 8	1720-1735	8.17E-04	4.19E-02	1.57E-04	2.56E-04	2.26E-04	5.86E-03	9.84E-06	4.92E-06
94-112	Nov 11	2218-2235	9.78E-04	5.01E-02	1.88E-04	3.06E-04	2.71E-04	7.01E-03	1.18E-05	5.89E-06
94-113	Nov 13	0957-1018	1.33E-03	6.84E-02	2.57E-04	4.18E-04	3.70E-04	9.58E-03	1.61E-05	8.04E-06
94-114	Nov 16	1432-1458	1.60E-03	8.18E-02	3.08E-04	5.00E-04	4.42E-04	1.14E-02	1.92E-05	9.61E-06
94-115	Nov 17	2013-2030	1.04E-03	5.31E-02	2.00E-04	3.24E-04	2.87E-04	7.43E-03	1.25E-05	6.24E-06
94-116	Nov 20	1208-1227	9.51E-04	4.88E-02	1.83E-04	2.98E-04	2.64E-04	6.82E-03	1.15E-05	5.73E-06
94-117	Nov 20	2125-2144	1.05E-03	5.37E-02	2.02E-04	3.28E-04	2.90E-04	7.52E-03	1.26E-05	6.31E-06
94-118	Nov 21	0426-0456	1.41E-03	7.25E-02	2.73E-04	4.43E-04	3.92E-04	1.01E-02	1.70E-05	8.52E-06
94-119	Nov 27	0122-0132	1.13E-03	5.79E-02	2.18E-04	3.54E-04	3.13E-04	8.10E-03	1.36E-05	6.80E-06
94-120	Nov 27	1010-1027	1.08E-03	5.54E-02	2.08E-04	3.39E-04	2.99E-04	7.75E-03	1.30E-05	6.51E-06
94-121	Nov 27	1502-1525	1.56E-03	7.97E-02	3.00E-04	4.87E-04	4.31E-04	1.12E-02	1.87E-05	9.37E-06
94-122	Dec 4	0956-1015	1.21E-03	6.22E-02	2.34E-04	3.80E-04	3.36E-04	8.71E-03	1.46E-05	7.31E-06
94-123	Dec 6	2209-2227	1.15E-03	5.91E-02	2.22E-04	3.61E-04	3.19E-04	8.27E-03	1.39E-05	6.94E-06
94-124	Dec 9	0332-0353	1.89E-03	9.70E-02	3.65E-04	5.93E-04	5.24E-04	1.36E-02	2.28E-05	1.14E-05
94-125	Dec 10	1355-1413	1.15E-03	5.91E-02	2.22E-04	3.61E-04	3.20E-04	8.28E-03	1.39E-05	6.95E-06
94-126	Dec 14	1339-1352	9.81E-04	5.03E-02	1.89E-04	3.07E-04	2.72E-04	7.04E-03	1.18E-05	5.91E-06

CPR N	SDate	STime	Xe131m	Xe133	Xe135	Ar41	Xe133m	Kr85	Kr85m	Kr88
94-127	Dec 15	0850-0859	6.59E-04	3.38E-02	1.27E-04	2.06E-04	1.83E-04	4.73E-03	7.94E-06	3.97E-06
94-128	Dec 16	0852-0908	1.19E-03	6.10E-02	2.29E-04	3.73E-04	3.30E-04	8.54E-03	1.43E-05	7.17E-06
94-129	Dec 16	1629-1647	1.27E-03	6.53E-02	2.46E-04	3.99E-04	3.53E-04	9.15E-03	1.54E-05	7.68E-06
94-130	Dec 19	2004-2020	1.42E-03	7.28E-02	2.74E-04	4.45E-04	3.93E-04	1.02E-02	1.71E-05	8.55E-06
94-131	Dec 21	1624-1638	7.92E-04	4.06E-02	1.53E-04	2.48E-04	2.19E-04	5.68E-03	9.54E-06	4.77E-06
94-132	Dec 22	1628-1645	1.73E-03	8.85E-02	3.33E-04	5.41E-04	4.78E-04	1.24E-02	2.08E-05	1.04E-05
94-133	Dec 24	2238-2256	1.09E-03	5.60E-02	2.11E-04	3.42E-04	3.03E-04	7.84E-03	1.32E-05	6.58E-06
94-134	Dec 26	1525-1545	1.35E-03	6.90E-02	2.60E-04	4.22E-04	3.73E-04	9.66E-03	1.62E-05	8.11E-06
94-135	Dec 27	1608-1629	2.08E-03	1.06E-01	4.00E-04	6.50E-04	5.75E-04	1.49E-02	2.50E-05	1.25E-05
94-136	Dec 30	1302-1325	1.35E-03	6.93E-02	2.60E-04	4.23E-04	3.74E-04	9.69E-03	1.63E-05	8.14E-06
94-137	Dec 31	2245-2305	1.25E-03	6.38E-02	2.40E-04	3.90E-04	3.45E-04	8.93E-03	1.50E-05	7.50E-06
2-94-1	Jan 1	1156-1220		1.32E-02	3.07E-04	1.89E-02		3.72E-03		
2-94-2	Jan 3	0849-0912		2.67E-02	6.21E-04	3.82E-02		7.53E-03		
2-94-3	Jan 4	0245-0306		2.27E-02	5.28E-04	3.24E-02		6.40E-03		
2-94-4	Jan 5	1909-2030		6.42E-02	5.51E-03					
2-94-5	Jan 6	0513-0642		8.14E-02	8.55E-03				Xe127	1.50E-01
2-94-8	Jan 11	2210-2239		1.56E-02	3.64E-04	2.24E-02		4.41E-03		
2-94-9	Jan 12	1202-1229		1.32E-02	3.07E-04	1.89E-02		3.72E-03		
2-94-10	Jan 13	1312-1340		1.99E-02	4.63E-04	2.85E-02		5.61E-03		
2-94-11	Jan 14	2258-2324		1.41E-02	3.28E-04	2.02E-02		3.98E-03		
2-94-12	Jan 16	1415-1437		8.69E-03	2.02E-04	1.24E-02		2.45E-03		
2-94-13	Jan 17	0108-0137		1.32E-02	3.07E-04	1.89E-02		3.72E-03		
2-94-14	Jan 19	1300-1323		8.14E-03	1.90E-04	1.16E-02		2.30E-03		
2-94-15	Jan 21	0120-0145		8.07E-03	1.88E-04	1.15E-02		2.28E-03		
2-94-16	Jan 21	1312-1334		7.12E-03	1.66E-04	1.02E-02		2.01E-03		
2-94-17	Jan 23	0009-0033		1.19E-02	2.76E-04	1.70E-02		3.35E-03		
2-94-18	Jan 25	1123-1255		6.61E-03						
2-94-19	Jan 26	2107-2209		6.10E-03						
2-94-20	Jan 27	0558-0728		1.13E-02	9.00E-04					
2-94-21	Jan 27	1728-1755		8.98E-03	2.09E-04	1.28E-02		2.53E-03		
2-94-22	Jan 28	0725-0747		9.42E-03	2.19E-04	1.35E-02		2.66E-03		
2-94-23	Jan 31	0333-0355		8.11E-03	1.89E-04	1.16E-02		2.29E-03		
2-94-24	Feb 1	0323-0344		9.46E-03	2.20E-04	1.35E-02		2.67E-03		
2-94-25	Feb 2	0139-0158		1.06E-02	2.47E-04	1.52E-02		3.00E-03		
2-94-26	Feb 2	1550-1615		1.10E-02	2.57E-04	1.58E-02		3.11E-03		
2-94-27	Feb 4	1520-1545		1.09E-02	2.54E-04	1.56E-02		3.08E-03		
2-94-28	Feb 5	0905-0925		7.71E-03	1.79E-04	1.10E-02		2.17E-03		
2-94-29	Feb 6	1430-1457		1.33E-02	3.09E-04	1.90E-02		3.75E-03		
2-94-30	Feb 8	0941-1007		1.16E-02	2.69E-04	1.66E-02		3.27E-03		
2-94-31	Feb 10	1640-1705		1.08E-02	2.52E-04	1.55E-02		3.05E-03		

* CPR 94-6, 7 were performed, but no activity was detected in the grab sample (VRS-25-05 was OOS).

CPR N	SDate	STime	Xe131m	Xe133	Xe135	Ar41	Xe133m	Kr85	Kr85m	288
2-94-32	Feb 11	2103-2130		9.53E-03	2.22E-04	1.36E-02		2.69E-03		
2-94-33	Feb 12	1209-1231		7.49E-03	1.74E-04	1.07E-02		2.11E-03		
2-94-34	Feb 14	0815-0840		8.62E-03	2.01E-04	1.23E-02		2.43E-03		
2-94-35	Feb 15	0323-0347		4.31E-02	1.00E-03	6.16E-02		1.22E-02		
2-94-36	Feb 17	0206-0229		2.17E-02	5.05E-04	3.10E-02		6.12E-03		
2-94-37	Feb 18	0411-0436		1.60E-02	3.71E-04	2.28E-02		4.50E-03		
2-94-38	Feb 19	0133-0213		2.73E-02	6.35E-04	3.90E-02		7.69E-03		
2-94-39	Feb 20	0225-0253		1.99E-02	4.62E-04	2.84E-02		5.60E-03		
2-94-40	Feb 22	1328-1354		1.35E-02	3.14E-04	1.93E-02		3.80E-03		
2-94-41	Feb 23	0045-0105		1.01E-02	2.35E-04	1.44E-02		2.84E-03		
2-94-42	Feb 23	1040-1113		1.48E-02	3.44E-04	2.12E-02		4.17E-03		
2-94-43	Feb 25	1006-1034		1.12E-02	2.61E-04	1.60E-02		3.16E-03		
2-94-44	Feb 27	1949-2012		1.48E-02	3.45E-04	2.12E-02		4.18E-03		
2-94-45	Feb 28	1821-1845		6.54E-03	1.52E-04	9.35E-03		1.84E-03		
2-94-46	Mar 1	1650-1718		9.24E-03	2.15E-04	1.32E-02		2.61E-03		
2-94-47	Mar 2	1500-1522		6.72E-03	1.56E-04	9.61E-03		1.90E-03		
2-94-48	Mar 3	0948-1010		5.99E-03	1.39E-04	8.57E-03		1.69E-03		
2-94-49	Mar 3/4	2357-0028		7.08E-03	1.65E-04	1.01E-02		2.00E-03		
2-94-50	Mar 5	1848-1922		2.39E-02	5.56E-04	3.42E-02		6.74E-03		
2-94-51	Mar 7	1555-1621		1.08E-02	2.52E-04	1.55E-02		3.06E-03		
2-94-52	Mar 9	0624-0655		1.04E-02	2.41E-04	1.48E-02		2.93E-03		
2-94-53	Mar 10	0035-0100		1.23E-02	2.86E-04	1.76E-02		3.47E-03		
2-94-54	Mar 12	0044-0109		1.13E-02	2.64E-04	1.62E-02		3.19E-03		
2-94-55	Mar 12	1800-1830		1.68E-02	3.90E-04	2.40E-02		4.73E-03		
2-94-56	Mar 13	1333-1353		7.85E-03	1.83E-04	1.12E-02		2.21E-03		
2-94-57	Mar 14	0501-0524		9.13E-03	2.13E-04	1.31E-02		2.58E-03		
2-94-58	Mar 14	1500-1526		1.33E-02	3.09E-04	1.90E-02		3.74E-03		
2-94-59	Mar 17	0617-0644		1.12E-02	2.62E-04	1.61E-02		3.17E-03		
2-94-60	Mar 17	1626-1651		9.13E-03	2.13E-04	1.31E-02		2.58E-03		
2-94-61	Mar 18	0158-0220		1.17E-02	2.72E-04	1.67E-02		3.30E-03		
2-94-62	Mar 19	2031-2052		1.04E-02	2.41E-04	1.48E-02		2.93E-03		
2-94-63	Mar 20	1522-1545		9.93E-03	2.31E-04	1.42E-02		2.80E-03		
2-94-64	Mar 21	0140-0203		1.07E-02	2.49E-04	1.53E-02		3.02E-03		
2-94-65	Mar 22	1521-1549		1.35E-02	3.15E-04	1.94E-02		3.82E-03		
2-94-66	Mar 23	1452-1520		1.50E-02	3.50E-04	2.15E-02		4.24E-03		
2-94-67	Mar 26	0210-0232		1.21E-02	2.81E-04	1.72E-02		3.40E-03		
2-94-68	Mar 26	1542-1606		9.20E-03	2.14E-04	1.32E-02		2.60E-03		
2-94-69	Mar 27	0544-0604		1.09E-02	2.53E-04	1.56E-02		3.07E-03		
2-94-70	Mar 30	1529-1551		1.09E-02	2.53E-04	1.56E-02		3.07E-03		
2-94-71	Mar 31	1140-1205		1.22E-02	2.84E-04	1.74E-02		3.44E-03		
2-94-72	Apr 1	0248-0310	2.75E-04	1.48E-02	2.14E-04	9.91E-03		3.70E-03		
2-94-73	Apr 2	0152-0219	3.52E-04	1.90E-02	2.75E-04	1.27E-02		4.75E-03		

CPR N	SDate	STime	Xe131m	Xe133	Xe135	Ar41	Xe133m	Kr85	Kr85m	Kr88
2-94-74	Apr 3	2043-2108	2.97E-04	1.60E-02	2.32E-04	1.07E-02		4.01E-03		
2-94-79	Apr 9	1738-1800	2.46E-04	1.33E-02	1.92E-04	8.88E-03		3.32E-03		
2-94-80	Apr 11	1801-1828	4.29E-04	2.32E-02	3.34E-04	1.55E-02		5.79E-03		
2-94-81	Apr 12	0522-0544	2.81E-04	1.52E-02	2.19E-04	1.01E-02		3.79E-03		
2-94-82	Apr 12	1556-1628	2.34E-04	1.26E-02	1.82E-04	8.43E-03		3.15E-03		
2-94-83	Apr 14	1643-1710	1.79E-04	9.63E-03	1.39E-04	6.44E-03		2.41E-03		
2-94-84	Apr 15	1050-1117	2.54E-04	1.37E-02	1.98E-04	9.15E-03		3.42E-03		
2-94-85	Apr 17	1013-1034	9.35E-05	5.04E-03	7.28E-05	3.37E-03		1.26E-03		
2-94-86	Apr 18	1049-1115	2.66E-04	1.43E-02	2.07E-04	9.60E-03		3.59E-03		
2-94-87	Apr 21	0338-0403	1.85E-04	9.95E-03	1.44E-04	6.68E-03		2.50E-03		
2-94-88	Apr 22	1155-1521	1.16E-04	6.25E-03	9.03E-05	4.18E-03		1.56E-03		
2-94-89	Apr 23	1513-1547	2.21E-04	1.19E-02	1.72E-04	7.99E-03		2.98E-03		
2-94-90	Apr 24	1400-1424	1.44E-04	7.79E-03	1.12E-04	5.21E-03		1.95E-03		
2-94-91	Apr 25	1614-1640	2.03E-04	1.10E-02	1.58E-04	7.34E-03		2.74E-03		
2-94-92	Apr 26	1750-1813	1.21E-04	6.50E-03	9.40E-05	4.35E-03		1.63E-03		
2-94-93	Apr 30	0851-0917	4.28E-04	2.30E-02	3.33E-04	1.54E-02		5.76E-03		
2-94-94	May 2	1643-1708	3.99E-04	2.15E-02	3.11E-04	1.44E-02		5.38E-03		
2-94-95	May 3	1753-1816	3.34E-04	1.80E-02	2.60E-04	1.21E-02		4.51E-03		
2-94-96	May 4	1634-1658	5.47E-04	2.95E-02	4.26E-04	1.97E-02		7.38E-03		
2-94-97	May 6	1504-1535	4.34E-04	2.34E-02	3.38E-04	1.57E-02		5.85E-03		
2-94-98	May 8	0920-0945	4.23E-04	2.28E-02	3.29E-04	1.53E-02		5.70E-03		
2-94-99	May 9	0638-0659	4.63E-04	2.49E-02	3.60E-04	1.67E-02		6.24E-03		
2-94-100	May 11	0316-0345	5.12E-04	2.76E-02	3.99E-04	1.85E-02		6.90E-03		
2-94-101	May 13	1600-1623	2.90E-04	1.56E-02	2.26E-04	1.05E-02		3.91E-03		
2-94-102	May 14	1256-1322	3.40E-04	1.83E-02	2.65E-04	1.23E-02		4.59E-03		
2-94-103	May 15	1311-1348	2.75E-04	1.48E-02	2.14E-04	9.91E-03		3.70E-03		
2-94-104	May 18	2134-2157	2.28E-04	1.23E-02	1.78E-04	8.23E-03		3.07E-03		
2-94-105	May 20	0135-0203	3.43E-04	1.85E-02	2.67E-04	1.24E-02		4.62E-03		
2-94-106	May 21	1510-1538	4.93E-04	2.66E-02	3.84E-04	1.78E-02		6.65E-03		
2-94-107	May 22	1857-1923	4.15E-04	2.24E-02	3.23E-04	1.50E-02		5.60E-03		
2-94-108	May 24	0218-0300	4.19E-04	2.26E-02	3.26E-04	1.51E-02		5.65E-03		
2-94-109	May 25	1730-1755	2.30E-04	1.24E-02	1.79E-04	8.30E-03		3.10E-03		
2-94-110	May 28	0620-0644	3.64E-04	1.96E-02	2.83E-04	1.31E-02		4.91E-03		
2-94-111	May 29	1039-1104	6.44E-04	3.47E-02	5.02E-04	2.32E-02		8.69E-03		
2-94-112	May 30	1905-1932	2.69E-04	1.45E-02	2.09E-04	9.70E-03		3.63E-03		
2-94-113	Jun 3	1609-1634	2.02E-04	1.09E-02	1.58E-04	7.30E-03		2.73E-03		
2-94-114	Jun 4	1933-2006	3.47E-04	1.87E-02	2.70E-04	1.25E-02		4.68E-03		
2-94-115	Jun 5	1420-1440	2.16E-04	1.16E-02	1.68E-04	7.78E-03		2.91E-03		
2-94-116	Jun 6	2140-2202	2.00E-03	1.08E-01	1.55E-03	7.20E-02		2.69E-02		
2-94-117	Jun 9	1708-1732	2.83E-04	1.53E-02	2.21E-04	1.02E-02		3.82E-03		
2-94-118	Jun 11	0311-0337	1.96E-04	1.06E-02	1.52E-04	7.06E-03		2.64E-03		
2-94-119	Jun 12	1101-1129	2.58E-04	1.39E-02	2.01E-04	9.32E-03		3.48E-03		

* CPR 94-74 through 78 were performed, not no activity was detected to grab samples (VRS 25-05 was OOS).

CPR N	SDate	STime	Xe131m	Xe133	Xe135	Ar41	Xe133m	Kr85	Kr85m	Kr88
2-94-120	Jun 14	2008-2031	1.84E-04	9.94E-03	1.44E-04	6.65E-03		2.49E-03		
2-94-121	Jun 16	1820-1850	2.27E-04	1.22E-02	1.77E-04	8.19E-03		3.06E-03		
2-94-122	Jun 18	0454-0519	2.30E-04	1.24E-02	1.79E-04	8.30E-03		3.10E-03		
2-94-123	Jun 20	1538-1604	2.11E-04	1.14E-02	1.64E-04	7.61E-03		2.84E-03		
2-94-124	Jun 21	1630-1651	2.45E-04	1.32E-02	1.91E-04	8.84E-03		3.30E-03		
2-94-125	Jun 22	1958-2022	2.35E-04	1.27E-02	1.83E-04	8.47E-03		3.16E-03		
2-94-126	Jun 23	1838-1908	2.65E-04	1.43E-02	2.06E-04	9.56E-03		3.57E-03		
2-94-127	Jun 26	0236-0306	2.57E-04	1.38E-02	2.00E-04	9.26E-03		3.46E-03		
2-94-128	Jun 28	0510-0532	3.97E-04	2.14E-02	3.09E-04	1.43E-02		5.35E-03		
2-94-129	Jun 28	2102-2124	2.29E-04	1.23E-02	1.78E-04	8.26E-03		3.09E-03		
2-94-130	Jul 1	0445-0513	1.80E-04	1.21E-02	1.66E-04	7.32E-03		6.66E-03		
2-94-131	Jul 4	0039-0105	2.35E-04	1.58E-02	2.18E-04	9.59E-03		8.73E-03		
2-94-132	Jul 5	0912-0934	6.80E-05	4.57E-03	6.30E-05	2.77E-03		2.52E-03		
2-94-133	Jul 6	1437-1503	2.19E-04	1.47E-02	2.03E-04	8.93E-03		8.13E-03		
2-94-134	Jul 8	0225-0250	1.69E-04	1.13E-02	1.56E-04	6.87E-03		6.26E-03		
2-94-135	Jul 10	1421-1447	1.89E-04	1.27E-02	1.75E-04	7.71E-03		7.02E-03		
2-94-136	Jul 11	1727-1752	1.55E-04	1.04E-02	1.44E-04	6.32E-03		5.75E-03		
2-94-137	Jul 12	1849-1917	1.61E-04	1.08E-02	1.49E-04	6.57E-03		5.98E-03		
2-94-138	Jul 14	1752-1820	1.97E-04	1.32E-02	1.82E-04	8.01E-03		7.29E-03		
2-94-139	Jul 16	1655-1720	1.14E-04	7.64E-03	1.05E-04	4.63E-03		4.22E-03		
2-94-140	Jul 17	0812-0833	2.01E-04	1.35E-02	1.86E-04	8.21E-03		7.47E-03		
2-94-141	Jul 19	0300-0323	1.77E-04	1.19E-02	1.64E-04	7.23E-03		6.59E-03		
2-94-142	Jul 20	0513-0532	1.30E-04	8.73E-03	1.20E-04	5.29E-03		4.82E-03		
2-94-143	Jul 21	0641-0706	1.43E-04	9.65E-03	1.33E-04	5.85E-03		5.33E-03		
2-94-144	Jul 22	1118-1142	1.46E-04	9.83E-03	1.35E-04	5.96E-03		5.43E-03		
2-94-145	Jul 24	0238-0311	2.23E-04	1.50E-02	2.07E-04	9.09E-03		8.28E-03		
2-94-146	Jul 25	0717-0744	1.60E-04	1.07E-02	1.48E-04	6.51E-03		5.93E-03		
2-94-147	Jul 27	0421-0446	1.46E-04	9.83E-03	1.35E-04	5.96E-03		5.43E-03		
2-94-148	Jul 29	1614-1642	1.68E-04	1.13E-02	1.56E-04	6.85E-03		6.23E-03		
2-94-149	Jul 30	2008-2032	1.66E-04	1.12E-02	1.54E-04	6.76E-03		6.16E-03		
2-94-150	Aug 1	1502-1529	2.28E-04	1.53E-02	2.11E-04	9.29E-03		8.46E-03		
2-94-151	Aug 3	0859-0924	1.35E-04	9.10E-03	1.25E-04	5.52E-03		5.02E-03		
2-94-152	Aug 4	0657-0727	2.01E-04	1.35E-02	1.86E-04	8.21E-03		7.47E-03		
2-94-153	Aug 7	0730-0755	1.10E-04	7.41E-03	1.02E-04	4.49E-03		4.09E-03		
2-94-154	Aug 8	1108-1137	1.60E-04	1.07E-02	1.48E-04	6.51E-03		5.93E-03		
2-94-155	Aug 10	1608-1637	1.72E-04	1.16E-02	1.59E-04	7.01E-03		6.39E-03		
2-94-156	Aug 11	1425-1453	1.81E-04	1.22E-02	1.68E-04	7.37E-03		6.71E-03		
2-94-157	Aug 12	1920-1943	1.27E-04	8.55E-03	1.18E-04	5.18E-03		4.72E-03		
2-94-158	Aug 13	1746-1811	1.46E-04	9.83E-03	1.35E-04	5.96E-03		5.43E-03		
2-94-159	Aug 14	1241-1314	1.64E-04	1.10E-02	1.52E-04	6.68E-03		6.08E-03		
2-94-160	Aug 15	2310-2339	1.43E-04	9.60E-03	1.32E-04	5.82E-03		5.30E-03		
2-94-161	Aug 17	0955-1019	9.18E-05	6.17E-03	8.51E-05	3.74E-03		3.41E-03		

CPR N	SDate	STime	Xe131m	Xe133	Xe135	Ar41	Xe133m	Kr85	Kr85m	Kr88
2-94-162	Aug 18	1652-1727	3.09E-04	2.08E-02	2.86E-04	1.26E-02		1.15E-02		
2-94-163	Aug 19	1749-1818	1.99E-04	1.34E-02	1.85E-04	8.12E-03		7.40E-03		
2-94-164	Aug 20	2001-2028	1.69E-04	1.14E-02	1.57E-04	6.90E-03		6.28E-03		
2-94-165	Aug 22	1626-1651	1.05E-04	7.04E-03	9.70E-05	4.27E-03		3.89E-03		
2-94-166	Aug 24	0413-0434	2.26E-04	1.52E-02	2.10E-04	9.23E-03		8.40E-03		
2-94-167	Aug 25	1555-1621	1.24E-04	8.32E-03	1.15E-04	5.05E-03		4.59E-03		
2-94-168	Aug 26	1659-1722	1.46E-04	9.78E-03	1.35E-04	5.93E-03		5.40E-03		
2-94-169	Aug 27	1605-1628	9.52E-05	6.40E-03	8.82E-05	3.88E-03		3.53E-03		
2-94-170	Aug 28	0625-0652	1.31E-04	8.82E-03	1.22E-04	5.35E-03		4.87E-03		
2-94-171	Aug 30	0151-0223	2.16E-04	1.45E-02	2.00E-04	8.79E-03		8.00E-03		
2-94-172	Aug 31	0138-0211	1.82E-04	1.23E-02	1.69E-04	7.43E-03		6.76E-03		
2-94-173	Sep 3	0458-0526	1.63E-04	1.10E-02	1.51E-04	6.65E-03		6.06E-03		
2-94-174	Sep 4	1308-1337	1.85E-04	1.24E-02	1.71E-04	7.54E-03		6.87E-03		
2-94-175	Sep 5	1600-1635	2.90E-04	1.95E-02	2.68E-04	1.18E-02		1.08E-02		
2-94-176	Nov 20	1536-1600	5.08E-04	3.57E-02	8.88E-05	1.61E-02	8.88E-05	2.85E-02		
2-94-177	Nov 20/21	2353-0013	4.61E-04	3.24E-02	8.05E-05	1.46E-02	8.05E-05	2.59E-02		
2-94-178	Nov 29	1913-1935	7.18E-05	5.04E-03	1.25E-05	2.27E-03	1.25E-05	4.03E-03		
2-94-179	Dec 1	0125-0145	7.94E-05	5.57E-03	1.39E-05	2.51E-03	1.39E-05	4.45E-03		
2-94-180	Dec 1	1408-1426	6.99E-05	4.91E-03	1.22E-05	2.21E-03	1.22E-05	3.92E-03		
2-94-181	Dec 2	0327-0341	5.12E-05	3.60E-03	8.94E-06	1.62E-03	8.94E-06	2.87E-03		
2-94-182	Dec 2	1509-1534	9.89E-05	6.94E-03	1.73E-05	3.13E-03	1.73E-05	5.55E-03		
2-94-183	Dec 3	1237-1252	4.91E-05	3.45E-03	8.58E-06	1.55E-03	8.58E-06	2.76E-03		
2-94-184	Dec 4	0838-0855	6.36E-05	4.47E-03	1.11E-05	2.01E-03	1.11E-05	3.57E-03		
2-94-185	Dec 4	2139-2152	6.28E-05	4.41E-03	1.10E-05	1.99E-03	1.10E-05	3.52E-03		
2-94-186	Dec 5	1612-1638	1.57E-04	1.10E-02	2.74E-05	4.96E-03	2.74E-05	8.80E-03		
2-94-187	Dec 6	1641-1701	1.04E-04	7.30E-03	1.82E-05	3.29E-03	1.82E-05	5.83E-03		
2-94-188	Dec 7	0137-0157	8.25E-05	5.79E-03	1.44E-05	2.61E-03	1.44E-05	4.63E-03		
2-94-189	Dec 8	1000-1019	9.20E-05	6.46E-03	1.61E-05	2.91E-03	1.61E-05	5.16E-03		
2-94-190	Dec 8	1820-1839	7.81E-05	5.48E-03	1.36E-05	2.47E-03	1.36E-05	4.38E-03		
2-94-191	Dec 9	0428-0448	1.33E-04	9.33E-03	2.32E-05	4.21E-03	2.32E-05	7.45E-03		
2-94-192	Dec 10	0635-0655	8.88E-05	6.24E-03	1.55E-05	2.81E-03	1.55E-05	4.98E-03		
2-94-193	Dec 10	1425-1446	1.01E-04	7.12E-03	1.77E-05	3.21E-03	1.77E-05	5.69E-03		
2-94-194	Dec 12	1132-1152	3.99E-05	2.80E-03	6.97E-06	1.26E-03	6.97E-06	2.24E-03		
2-94-195	Dec 13	0253-0314	5.66E-05	3.98E-03	9.89E-06	1.79E-03	9.89E-06	3.18E-03		
2-94-196	Dec 14	0121-0142	4.91E-05	3.45E-03	8.58E-06	1.55E-03	8.58E-06	2.76E-03		
2-94-197	Dec 14	2115-2135	5.55E-05	3.90E-03	9.69E-06	1.76E-03	9.69E-06	3.11E-03		
2-94-198	Dec 15	1215-1235	6.01E-05	4.22E-03	1.05E-05	1.90E-03	1.05E-05	3.37E-03		
2-94-199	Dec 16	0627-0649	5.56E-05	3.91E-03	9.71E-06	1.76E-03	9.71E-06	3.12E-03		
2-94-200	Dec 16	1540-1559	8.69E-05	6.10E-03	1.52E-05	2.75E-03	1.52E-05	4.88E-03		
2-94-201	Dec 17	1428-1447	6.03E-05	4.23E-03	1.05E-05	1.91E-03	1.05E-05	3.38E-03		
2-94-202	Dec 18	1241-1257	5.76E-05	4.05E-03	1.01E-05	1.82E-03	1.01E-05	3.23E-03		
2-94-203	Dec 19	1308-1328	8.00E-05	5.62E-03	1.40E-05	2.53E-03	1.40E-05	4.49E-03		

[illegible]

Release Number	Start Stop	Start Stop	Xel131m	Xel133	Xel135	Ar41	Xel133m	Kr85	Kr85m	Kr88
1-CPR-93-241	10/16/93 10/16/93	1943 2010	5.68E-03	3.01E-01	4.94E-04	2.08E-03	1.55E-03	4.24E-02	3.53E-05	
1-CPR-93-242 *	10/20/93 10/20/93	1010 1037	5.96E-03	3.15E-01	5.18E-04	2.18E-03	1.63E-03	4.44E-02	3.70E-05	
1-CPR-93-243	10/23/93 10/23/93	1317 1337	4.72E-03	2.50E-01	4.10E-04	1.73E-03	1.29E-03	3.52E-02	2.93E-05	
1-CPR-93-244	10/24/93 10/24/93	1226 1255	6.50E-03	3.44E-01	5.66E-04	2.38E-03	1.78E-03	4.85E-02	4.04E-05	
1-CPR-93-245	10/26/93 10/26/93	0528 0543	3.28E-03	1.74E-01	2.86E-04	1.20E-03	8.98E-04	2.45E-02	2.04E-05	
1-CPR-93-246	10/27/93 10/27/93	1613 1630	2.79E-03	1.47E-01	2.42E-04	1.02E-03	7.61E-04	2.08E-02	1.73E-05	
1-CPR-93-247	10/28/93 10/28/93	0525 0540	2.21E-03	1.17E-01	1.92E-04	8.08E-04	6.03E-04	1.65E-02	1.37E-05	
1-CPR-93-248	10/31/93 10/31/93	0808 0823	3.03E-03	1.60E-01	2.63E-04	1.11E-03	8.27E-04	2.26E-02	1.88E-05	
1-CPR-93-249	11/02/93 11/02/93	1559 1612	2.27E-03	1.20E-01	1.97E-04	8.32E-04	6.20E-04	1.69E-02	1.41E-05	
1-CPR-93-250	11/03/93 11/03/93	1248 1304	3.20E-03	1.70E-01	2.79E-04	1.17E-03	8.76E-04	2.39E-02	1.99E-05	
1-CPR-93-251	11/04/93 11/04/93	1202 1217	2.16E-03	1.14E-01	1.88E-04	7.91E-04	5.90E-04	1.61E-02	1.34E-05	
1-CPR-93-252	11/05/93 11/05/93	0317 0337	3.03E-03	1.60E-01	2.63E-04	1.11E-03	8.27E-04	2.26E-02	1.88E-05	
1-CPR-93-253	11/09/93 11/09/93	1715 1734	2.72E-03	1.44E-01	2.37E-04	9.97E-04	7.44E-04	2.03E-02	1.69E-05	
1-CPR-93-254	11/10/93 11/10/93	2319 2338	2.62E-03	1.39E-01	2.28E-04	9.62E-04	7.17E-04	1.96E-02	1.63E-05	
1-CPR-93-255	11/11/93 11/11/93	1602 1623	2.93E-03	1.55E-01	2.55E-04	1.07E-03	8.01E-04	2.19E-02	1.82E-05	

* Revised due to Condition Report 94-1909 from QA-94-06/NSDRC #214.

The following distances were used in the calculation of the maximum individual doses:

<u>Sector</u>	<u>Direction</u>	<u>Boundary (Meters)</u>	<u>Nearest Residence (Meters)</u>
A	N	651	659
B	NNE	617	660
C	NE	789	943
D	ENE	1497	1747
E	E	1274	1716
F	ESE	972	1643
G	SE	629	1136
H	SSE	594	1507
J	S	594	1026
K	SSW	629	942



APPENDIX 1.2

Summary of Maximum Individual Doses
First Quarter, 1994



SUMMARY OF MAXIMUM INDIVIDUAL DOSES

1st Quarter 1994

EFFLUENT	APPLICABLE ORGAN	ESTIMATED DOSE (mRem)	AGE GROUP	LOCATION DIST DIR (M) (Toward)	% OF APPLICABLE LIMIT	LIMIT (mRem) QTR
Liquid	Total Body	2.69E-2	Adult	Receptor 1	1.79E+0	1.5E+0
Liquid	GI-Tract	2.64E-1	Adult	Receptor 1	5.28E+0	5.0E+0
Noble Gas	Air Dose (Gamma-mrad)	2.04E-2		651 N	4.08E-1	5.0E+0
Noble Gas	Air dose (Beta-mrad)	5.02E-2		651 N	5.02E-1	1.0E+1
Iodines and Particulates	Thyroid	8.36E-2	Infant	659 N	1.11E+0	7.5E+0

LAST LIQUID DOSE ACCUMULATIONS(MREM)
 START DATE 94 1 1 1 END DATE 94 33124

	BONE	LIVER	T.BODY	THYRD	KIDNEY	LUNG	GI-LLI	SKIN
WATER								
ADULT	1.3E-03	6.7E-03	7.1E-03	6.7E-03	6.5E-03	6.4E-03	9.1E-03	0.0E+00
TEEN	1.0E-03	4.8E-03	5.0E-03	4.8E-03	4.6E-03	4.5E-03	6.2E-03	0.0E+00
CHILD	2.2E-03	9.2E-03	9.8E-03	9.2E-03	8.8E-03	8.7E-03	1.0E-02	0.0E+00
INFANT	1.7E-03	9.1E-03	9.5E-03	9.4E-03	8.6E-03	8.5E-03	9.3E-03	0.0E+00
SHORE								
ADULT	4.5E-04	4.5E-04	4.5E-04	4.5E-04	4.5E-04	4.5E-04	4.5E-04	5.3E-04
TEEN	2.5E-03	2.5E-03	2.5E-03	2.5E-03	2.5E-03	2.5E-03	2.5E-03	3.0E-03
CHILD	5.3E-04	5.3E-04	5.3E-04	5.3E-04	5.3E-04	5.3E-04	5.3E-04	6.2E-04
INFANT	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
FW SPT FISH								
ADULT	1.6E-02	2.6E-02	1.9E-02	7.3E-04	9.6E-03	2.8E-03	2.5E-01	0.0E+00
TEEN	1.6E-02	2.6E-02	1.2E-02	6.2E-04	9.5E-03	3.2E-03	1.8E-01	0.0E+00
CHILD	1.9E-02	2.2E-02	6.7E-03	5.7E-04	7.9E-03	2.5E-03	6.4E-02	0.0E+00
INFANT	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

LAST LIQUID DOSE ACCUMULATIONS(MREM)
 START DATE 94 1 1 1 END DATE 94 33124

	BONE	LIVER	T.BODY	THYRD	KIDNEY	LUNG	GI-LLI	SKIN
TOTAL								
ADULT	1.8E-02	3.3E-02	2.7E-02	7.9E-03	1.6E-02	9.7E-03	2.6E-01	5.3E-04
TEEN	2.0E-02	3.3E-02	2.0E-02	7.9E-03	1.7E-02	1.0E-02	1.9E-01	3.0E-03
CHILD	2.2E-02	3.2E-02	1.7E-02	1.0E-02	1.7E-02	1.2E-02	7.5E-02	6.2E-04
INFANT	1.7E-03	9.1E-03	9.5E-03	9.4E-03	8.6E-03	8.5E-03	9.3E-03	0.0E+00

DATES OF LAST AIR DOSE ACCUMULATION ARE FROM 94 1 1 1 0 TO 94 33124 0
DOSE ACCUMULATION FOR GAMMA MRAD

FOR RELEASE POINT 1

**DIRECTION FROM N

2.0564E-05	1.5187E-06	6.0204E-07	3.2631E-07	2.0929E-07
8.7311E-08	2.7265E-08	1.3935E-08	9.9537E-09	6.9632E-09

**DIRECTION FROM NNE

3.6677E-06	2.8075E-07	1.1152E-07	6.0175E-08	3.8379E-08
1.5756E-08	4.7627E-09	2.3969E-09	1.7121E-09	1.1977E-09

**DIRECTION FROM NE

1.6514E-05	1.6877E-06	7.2336E-07	4.0508E-07	2.6963E-07
1.2052E-07	3.9934E-08	1.8539E-08	1.1551E-08	6.9086E-09

**DIRECTION FROM ENE

1.5993E-05	1.8504E-06	8.1330E-07	4.6067E-07	3.1048E-07
1.4200E-07	4.8100E-08	2.1903E-08	1.3145E-08	7.4632E-09

**DIRECTION FROM E

0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00

**DIRECTION FROM ESE

1.4588E-05	1.6324E-06	7.2929E-07	4.1885E-07	2.8606E-07
1.3503E-07	4.8313E-08	2.3054E-08	1.4338E-08	8.5679E-09

**DIRECTION FROM SE

0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00

**DIRECTION FROM SSE

2.5821E-04	2.9865E-05	1.3126E-05	7.4343E-06	5.0104E-06
2.2914E-06	7.7613E-07	3.5344E-07	2.1214E-07	1.2046E-07

**DIRECTION FROM S

3.6545E-03	4.2283E-04	1.8585E-04	1.0527E-04	7.0947E-05
3.2447E-05	1.0991E-05	5.0050E-06	3.0037E-06	1.7054E-06

**DIRECTION FROM SSW

2.7777E-06	2.1263E-07	8.4461E-08	4.5574E-08	2.9066E-08
1.1933E-08	3.6071E-09	1.8153E-09	1.2967E-09	9.0710E-10

**DIRECTION FROM SW

2.9296E-05	9.7551E-07	3.5991E-07	2.2760E-07	1.7186E-07
1.0235E-07	5.0846E-08	3.0459E-08	2.1756E-08	1.5220E-08

**DIRECTION FROM WSW

6.2131E-04	2.9789E-05	1.7384E-05	1.2313E-05	9.5443E-06
5.7059E-06	2.8440E-06	1.7051E-06	1.2179E-06	8.5203E-07

**DIRECTION FROM W

1.1383E-02	1.2412E-03	5.4188E-04	3.0667E-04	2.0642E-04
9.4329E-05	3.2096E-05	1.4828E-05	9.0497E-06	5.2626E-06

**DIRECTION FROM WNW

1.8308E-03	2.1183E-04	9.3108E-05	5.2737E-05	3.5544E-05
1.6256E-05	5.5065E-06	2.5075E-06	1.5048E-06	8.5439E-07

**DIRECTION FROM NW

4.4477E-03	5.1486E-04	2.2632E-04	1.2820E-04	8.6413E-05
3.9535E-05	1.3399E-05	6.1032E-06	3.6638E-06	2.0811E-06

**DIRECTION FROM NNW

3.2375E-03	3.7393E-04	1.6432E-04	9.3074E-05	6.2729E-05
2.8690E-05	9.7202E-06	4.4279E-06	2.6584E-06	1.5102E-06

DISTANCES USED IN CALCULATIONS

594.0	2416.0	4020.0	5630.0	7240.0
12067.0	24135.0	40225.0	56315.0	80500.0

GAMMA FOR RELEASE POINT 2

**DIRECTION FROM N

5.3918E-03	5.7923E-04	2.5534E-04	1.4573E-04	9.8846E-05
4.5962E-05	1.6106E-05	7.6022E-06	4.7017E-06	2.7853E-06

**DIRECTION FROM NNE

3.6103E-03	3.5263E-04	1.5150E-04	8.5409E-05	5.7767E-05
2.7004E-05	9.6036E-06	4.6987E-06	3.0409E-06	1.9176E-06

**DIRECTION FROM NE

5.4201E-03	6.1436E-04	2.7765E-04	1.6102E-04	1.1104E-04
5.3786E-05	2.0101E-05	9.8920E-06	6.3370E-06	3.9517E-06

**DIRECTION FROM ENE

1.4664E-02	1.5962E-03	7.0966E-04	4.0707E-04	2.7732E-04
1.3054E-04	4.6782E-05	2.2495E-05	1.4187E-05	8.6638E-06

**DIRECTION FROM E

2.0380E-02	1.9901E-03	9.0371E-04	5.3104E-04	3.6622E-04
1.7703E-04	6.6911E-05	3.3435E-05	2.1714E-05	1.3845E-05

**DIRECTION FROM ESE

1.0748E-02	1.1464E-03	5.4520E-04	3.2799E-04	2.3046E-04
1.1544E-04	4.5451E-05	2.2817E-05	1.4765E-05	9.4631E-06

**DIRECTION FROM SE

1.3330E-02	1.4834E-03	7.4480E-04	4.6236E-04	3.3064E-04
1.7058E-04	6.9652E-05	3.5123E-05	2.2641E-05	1.4557E-05

**DIRECTION FROM SSE

1.2519E-02	1.5128E-03	7.3149E-04	4.4279E-04	3.1297E-04
1.5848E-04	6.3143E-05	3.1714E-05	2.0437E-05	1.2961E-05

**DIRECTION FROM S

1.9858E-02	2.3520E-03	1.0912E-03	6.4234E-04	4.4617E-04
2.1818E-04	8.2361E-05	4.0086E-05	2.5279E-05	1.5565E-05

**DIRECTION FROM SSW

1.0433E-02	1.1653E-03	5.2928E-04	3.0814E-04	2.1132E-04
1.0061E-04	3.6816E-05	1.7783E-05	1.1215E-05	6.8716E-06

**DIRECTION FROM SW

5.2212E-03	5.6225E-04	2.5866E-04	1.5202E-04	1.0560E-04
5.1672E-05	1.9479E-05	9.4791E-06	5.9768E-06	3.7017E-06

**DIRECTION FROM WSW

8.1666E-03	9.0781E-04	4.0326E-04	2.3110E-04	1.5721E-04
7.3570E-05	2.6041E-05	1.2318E-05	7.6292E-06	4.5347E-06

**DIRECTION FROM W

8.9002E-03	9.3600E-04	4.0990E-04	2.3310E-04	1.5801E-04
7.3692E-05	2.6025E-05	1.2470E-05	7.8675E-06	4.7960E-06

**DIRECTION FROM WNW

7.7076E-03	7.9547E-04	3.5485E-04	2.0512E-04	1.3971E-04
6.5610E-05	2.3663E-05	1.1477E-05	7.2850E-06	4.4792E-06

**DIRECTION FROM NW

4.3310E-03	4.4203E-04	1.9428E-04	1.1107E-04	7.5830E-05
3.5993E-05	1.3037E-05	6.3392E-06	4.0358E-06	2.4981E-06

**DIRECTION FROM NNW

8.3539E-03	8.9375E-04	3.9043E-04	2.2137E-04	1.4923E-04
6.8474E-05	2.3502E-05	1.0960E-05	6.7422E-06	3.9640E-06

DISTANCES USED IN CALCULATIONS

594.0	2416.0	4020.0	5630.0	7240.0
12067.0	24135.0	40225.0	56315.0	80500.0

DATES OF LAST AIR DOSE ACCUMULATION ARE FROM 94 1 1 1 0 TO 94 33124 0
DOSE ACCUMULATION FOR BETA MRAD

FOR RELEASE POINT 1.

**DIRECTION FROM N

1.8881E-04	1.3944E-05	5.5276E-06	2.9960E-06	1.9216E-06
8.0165E-07	2.5033E-07	1.2794E-07	9.1389E-08	6.3933E-08

**DIRECTION FROM NNE

3.6210E-04	2.7718E-05	1.1010E-05	5.9409E-06	3.7891E-06
1.5555E-06	4.7021E-07	2.3664E-07	1.6903E-07	1.1825E-07

**DIRECTION FROM NE

1.2144E-03	1.1849E-04	5.0261E-05	2.8010E-05	1.8544E-05
8.2055E-06	2.6915E-06	1.2606E-06	7.9848E-07	4.8794E-07

**DIRECTION FROM ENE

9.6397E-04	1.1153E-04	4.9023E-05	2.7767E-05	1.8714E-05
8.5590E-06	2.8993E-06	1.3202E-06	7.9232E-07	4.4985E-07

**DIRECTION FROM E

0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00

**DIRECTION FROM ESE

2.0321E-04	1.4999E-05	7.6205E-06	4.8772E-06	3.5731E-06
1.9412E-06	8.6423E-07	4.8569E-07	3.3513E-07	2.2635E-07

**DIRECTION FROM SE

0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00

**DIRECTION FROM SSE

2.3528E-03	2.7217E-04	1.1962E-04	6.7754E-05	4.5664E-05
2.0884E-05	7.0738E-06	3.2213E-06	1.9333E-06	1.0978E-06

**DIRECTION FROM S

1.1614E-02	1.3438E-03	5.9064E-04	3.3455E-04	2.2548E-04
1.0312E-04	3.4931E-05	1.5906E-05	9.5461E-06	5.4199E-06

**DIRECTION FROM SSW

2.5503E-05	1.9522E-06	7.7548E-07	4.1843E-07	2.6687E-07
1.0956E-07	3.3118E-08	1.6667E-08	1.1905E-08	8.3284E-09

**DIRECTION FROM SW

6.0017E-05	3.7885E-06	1.4873E-06	8.2377E-07	5.4237E-07
2.4288E-07	8.6077E-08	4.6417E-08	3.3155E-08	2.3194E-08

**DIRECTION FROM WSW

2.4812E-03	1.3868E-04	7.2842E-05	4.8488E-05	3.6190E-05
2.0407E-05	9.6437E-06	5.7035E-06	4.0739E-06	2.8500E-06

**DIRECTION FROM W

3.8087E-02	4.1631E-03	1.8181E-03	1.0290E-03	6.9268E-04
3.1656E-04	1.0769E-04	4.9723E-05	3.0325E-05	1.7617E-05

**DIRECTION FROM WNW

6.0356E-03	6.9833E-04	3.0694E-04	1.7385E-04	1.1717E-04
5.3589E-05	1.8153E-05	8.2661E-06	4.9609E-06	2.8166E-06

**DIRECTION FROM NW

1.4269E-02	1.6533E-03	7.2689E-04	4.1177E-04	2.7763E-04
1.2710E-04	4.3114E-05	1.9651E-05	1.1802E-05	6.7094E-06

**DIRECTION FROM NNW

1.0415E-02	1.1991E-03	5.2674E-04	2.9834E-04	2.0107E-04
9.1969E-05	3.1170E-05	1.4209E-05	8.5371E-06	4.8550E-06

DISTANCES USED IN CALCULATIONS

594.0	2416.0	4020.0	5630.0	7240.0
12067.0	24135.0	40225.0	56315.0	80500.0

BETA FOR RELEASE POINT 2

**DIRECTION FROM N				
1.1894E-02	1.2770E-03	5.6275E-04	3.2113E-04	2.1771E-04
1.0109E-04	3.5353E-05	1.6661E-05	1.0290E-05	6.0831E-06
**DIRECTION FROM NNE				
8.5862E-03	8.3606E-04	3.5903E-04	2.0239E-04	1.3690E-04
6.4022E-05	2.2784E-05	1.1155E-05	7.2229E-06	4.5578E-06
**DIRECTION FROM NE				
1.2469E-02	1.4054E-03	6.3539E-04	3.6875E-04	2.5420E-04
1.2302E-04	4.5980E-05	2.2648E-05	1.4524E-05	9.0681E-06
**DIRECTION FROM ENE				
3.3805E-02	3.6716E-03	1.6313E-03	9.3538E-04	6.3719E-04
2.9992E-04	1.0746E-04	5.1675E-05	3.2602E-05	1.9922E-05
**DIRECTION FROM E				
4.7652E-02	4.6601E-03	2.1227E-03	1.2500E-03	8.6290E-04
4.1782E-04	1.5836E-04	7.9178E-05	5.1418E-05	3.2799E-05
**DIRECTION FROM ESE				
2.5066E-02	2.6737E-03	1.2740E-03	7.6729E-04	5.3967E-04
2.7086E-04	1.0685E-04	5.3644E-05	3.4704E-05	2.2254E-05
**DIRECTION FROM SE				
3.0430E-02	3.3871E-03	1.7030E-03	1.0582E-03	7.5698E-04
3.9076E-04	1.5973E-04	8.0587E-05	5.1965E-05	3.3422E-05
**DIRECTION FROM SSE				
2.9452E-02	3.5525E-03	1.7216E-03	1.0437E-03	7.3818E-04
3.7417E-04	1.4931E-04	7.5018E-05	4.8348E-05	3.0681E-05
**DIRECTION FROM S				
4.6083E-02	5.4642E-03	2.5320E-03	1.4893E-03	1.0341E-03
5.0535E-04	1.9056E-04	9.2720E-05	5.8460E-05	3.5972E-05
**DIRECTION FROM SSW				
2.3342E-02	2.6064E-03	1.1800E-03	6.8539E-04	4.6941E-04
2.2289E-04	8.1211E-05	3.9156E-05	2.4669E-05	1.5083E-05
**DIRECTION FROM SW				
1.1732E-02	1.2491E-03	5.7658E-04	3.3983E-04	2.3624E-04
1.1569E-04	4.3705E-05	2.1274E-05	1.3413E-05	8.3196E-06
**DIRECTION FROM WSW				
1.8652E-02	2.0757E-03	9.2226E-04	5.2857E-04	3.5957E-04
1.6825E-04	5.9549E-05	2.8163E-05	1.7441E-05	1.0365E-05
**DIRECTION FROM W				
2.0348E-02	2.1375E-03	9.3386E-04	5.3008E-04	3.5900E-04
1.6716E-04	5.8824E-05	2.8128E-05	1.7723E-05	1.0786E-05
**DIRECTION FROM WNW				
1.7162E-02	1.7644E-03	7.8615E-04	4.5432E-04	3.0901E-04
1.4465E-04	5.2029E-05	2.5242E-05	1.6040E-05	9.8620E-06
**DIRECTION FROM NW				
9.2392E-03	9.3371E-04	4.0721E-04	2.3166E-04	1.5749E-04
7.4085E-05	2.6505E-05	1.2835E-05	8.1632E-06	5.0368E-06
**DIRECTION FROM NNW				
1.9099E-02	2.0491E-03	8.9458E-04	5.0688E-04	3.4149E-04
1.5645E-04	5.3548E-05	2.4912E-05	1.5298E-05	8.9715E-06

DISTANCES USED IN CALCULATIONS

594.0 2416.0 4020.0 5630.0 7240.0
12067.0 24135.0 40225.0 56315.0 80500.0

INDIVIDUAL DOSES (MREM) DUE TO GASEOUS EFFLUENT
FOR DATES 94 1 1 1 THRU 94 33124

	T.BODY	GI-TRCT	BONE	LIVER	KIDNEY	THYRD	LUNG	SKIN
PLUME	PATHWAY, DIST GP= 1, 659. METERS WINDS TOWARD N							
ADULT	1.2E-02	1.2E-02	1.2E-02	1.2E-02	1.2E-02	1.2E-02	1.2E-02	3.3E-02
TEEN	1.2E-02	1.2E-02	1.2E-02	1.2E-02	1.2E-02	1.2E-02	1.2E-02	3.3E-02
CHILD	1.2E-02	1.2E-02	1.2E-02	1.2E-02	1.2E-02	1.2E-02	1.2E-02	3.3E-02
INFNT	1.2E-02	1.2E-02	1.2E-02	1.2E-02	1.2E-02	1.2E-02	1.2E-02	3.3E-02
GROUND	PATHWAY, DIST GP= 1, 659. METERS WINDS TOWARD N							
ADULT	1.5E-03	1.5E-03	1.5E-03	1.5E-03	1.5E-03	1.5E-03	1.5E-03	1.8E-03
TEEN	1.5E-03	1.5E-03	1.5E-03	1.5E-03	1.5E-03	1.5E-03	1.5E-03	1.8E-03
CHILD	1.5E-03	1.5E-03	1.5E-03	1.5E-03	1.5E-03	1.5E-03	1.5E-03	1.8E-03
INFNT	1.5E-03	1.5E-03	1.5E-03	1.5E-03	1.5E-03	1.5E-03	1.5E-03	1.8E-03
VEGET	PATHWAY, DIST GP= 1, 8045. METERS WINDS TOWARD N							
ADULT	7.0E-05	6.8E-05	5.8E-06	7.3E-05	7.1E-05	7.2E-04	6.6E-05	0.0E+00
TEEN	7.9E-05	7.8E-05	8.3E-06	8.6E-05	8.1E-05	6.2E-04	7.6E-05	0.0E+00
CHILD	1.2E-04	1.2E-04	1.9E-05	1.3E-04	1.2E-04	9.4E-04	1.2E-04	0.0E+00
INFNT	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
MEAT	PATHWAY, DIST GP= 1, 8045. METERS WINDS TOWARD N							
ADULT	1.0E-05	1.0E-05	6.0E-07	1.0E-05	1.0E-05	9.0E-05	9.4E-06	0.0E+00
TEEN	5.9E-06	6.1E-06	5.0E-07	6.3E-06	6.1E-06	6.4E-05	5.6E-06	0.0E+00
CHILD	7.1E-06	7.0E-06	9.1E-07	7.7E-06	7.4E-06	9.5E-05	6.8E-06	0.0E+00
INFNT	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
COW	PATHWAY, DIST GP= 1, 4091. METERS WINDS TOWARD N							
ADULT	8.6E-05	6.8E-05	2.9E-05	1.0E-04	1.1E-04	7.7E-03	6.3E-05	0.0E+00
TEEN	1.1E-04	8.9E-05	5.2E-05	1.5E-04	1.6E-04	1.2E-02	8.4E-05	0.0E+00
CHILD	1.7E-04	1.3E-04	1.3E-04	2.5E-04	2.6E-04	2.4E-02	1.3E-04	0.0E+00
INFNT	2.8E-04	2.0E-04	2.4E-04	4.7E-04	4.2E-04	5.8E-02	2.0E-04	0.0E+00
GOAT	PATHWAY, DIST GP= 1, 4091. METERS WINDS TOWARD N							
ADULT	1.7E-04	1.3E-04	5.7E-05	2.0E-04	1.9E-04	9.3E-03	1.3E-04	0.0E+00
TEEN	2.2E-04	1.7E-04	1.0E-04	3.0E-04	2.8E-04	1.5E-02	1.7E-04	0.0E+00
CHILD	3.3E-04	2.6E-04	2.5E-04	5.0E-04	4.5E-04	2.9E-02	2.7E-04	0.0E+00
INFNT	5.1E-04	4.0E-04	4.4E-04	9.1E-04	7.2E-04	7.0E-02	4.2E-04	0.0E+00
INHAL	PATHWAY, DIST GP= 1, 659. METERS WINDS TOWARD N							
ADULT	1.6E-03	1.6E-03	1.5E-05	1.6E-03	1.6E-03	6.3E-03	1.7E-03	0.0E+00
TEEN	1.6E-03	1.6E-03	2.1E-05	1.6E-03	1.7E-03	7.4E-03	1.7E-03	0.0E+00
CHILD	1.4E-03	1.4E-03	2.9E-05	1.5E-03	1.5E-03	7.9E-03	1.5E-03	0.0E+00
INFNT	8.3E-04	8.3E-04	2.1E-05	8.5E-04	8.5E-04	6.7E-03	8.6E-04	0.0E+00
SUBTOTALS (NO PLUME)								
ADULT	3.5E-03	3.4E-03	1.6E-03	3.6E-03	3.6E-03	2.6E-02	3.5E-03	1.8E-03
TEEN	3.6E-03	3.5E-03	1.7E-03	3.7E-03	3.7E-03	3.7E-02	3.6E-03	1.8E-03
CHILD	3.6E-03	3.5E-03	2.0E-03	3.9E-03	3.9E-03	6.4E-02	3.6E-03	1.8E-03
INFNT	3.2E-03	3.0E-03	2.2E-03	3.8E-03	3.5E-03	1.4E-01	3.0E-03	1.8E-03
TOTALS								
ADULT	1.5E-02	1.5E-02	1.4E-02	1.5E-02	1.5E-02	3.8E-02	1.6E-02	3.5E-02
TEEN	1.5E-02	1.5E-02	1.4E-02	1.6E-02	1.6E-02	4.8E-02	1.6E-02	3.5E-02
CHILD	1.6E-02	1.5E-02	1.4E-02	1.6E-02	1.6E-02	7.5E-02	1.6E-02	3.5E-02
INFNT	1.5E-02	1.5E-02	1.4E-02	1.6E-02	1.5E-02	1.5E-01	1.5E-02	3.5E-02

INDIVIDUAL DOSES (MREM) DUE TO GASEOUS EFFLUENT
FOR DATES 94 1 1 1 THRU 94 33124

	T.BODY	GI-TRCT	BONE	LIVER	KIDNEY	THYRD	LUNG	SKIN
PLUME	PATHWAY, DIST GP= 1, 660. METERS WINDS TOWARD NNE							
ADULT	5.3E-03	5.3E-03	5.3E-03	5.3E-03	5.3E-03	5.3E-03	5.5E-03	1.4E-02
TEEN	5.3E-03	5.3E-03	5.3E-03	5.3E-03	5.3E-03	5.3E-03	5.5E-03	1.4E-02
CHILD	5.3E-03	5.3E-03	5.3E-03	5.3E-03	5.3E-03	5.3E-03	5.5E-03	1.4E-02
INFNT	5.3E-03	5.3E-03	5.3E-03	5.3E-03	5.3E-03	5.3E-03	5.5E-03	1.4E-02
GROUND	PATHWAY, DIST GP= 1, 660. METERS WINDS TOWARD NNE							
ADULT	5.1E-04	5.1E-04	5.1E-04	5.1E-04	5.1E-04	5.1E-04	5.1E-04	6.0E-04
TEEN	5.1E-04	5.1E-04	5.1E-04	5.1E-04	5.1E-04	5.1E-04	5.1E-04	6.0E-04
CHILD	5.1E-04	5.1E-04	5.1E-04	5.1E-04	5.1E-04	5.1E-04	5.1E-04	6.0E-04
INFNT	5.1E-04	5.1E-04	5.1E-04	5.1E-04	5.1E-04	5.1E-04	5.1E-04	6.0E-04
VEGET	PATHWAY, DIST GP= 1, 814. METERS WINDS TOWARD NNE							
ADULT	1.0E-03	9.2E-04	1.4E-04	1.1E-03	1.0E-03	1.6E-02	8.9E-04	0.0E+00
TEEN	1.1E-03	1.0E-03	2.0E-04	1.3E-03	1.2E-03	1.3E-02	1.0E-03	0.0E+00
CHILD	1.6E-03	1.6E-03	4.6E-04	2.0E-03	1.8E-03	2.0E-02	1.6E-03	0.0E+00
INFNT	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
MEAT	PATHWAY, DIST GP= 1, 7725. METERS WINDS TOWARD NNE							
ADULT	4.1E-06	4.1E-06	3.1E-07	4.3E-06	4.1E-06	4.4E-05	3.8E-06	0.0E+00
TEEN	2.4E-06	2.4E-06	2.6E-07	2.6E-06	2.5E-06	3.1E-05	2.3E-06	0.0E+00
CHILD	2.9E-06	2.8E-06	4.8E-07	3.2E-06	3.1E-06	4.7E-05	2.8E-06	0.0E+00
INFNT	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
COW	PATHWAY, DIST GP= 1, 4091. METERS WINDS TOWARD NNE							
ADULT	3.6E-05	2.7E-05	1.4E-05	4.3E-05	4.6E-05	3.6E-03	2.5E-05	0.0E+00
TEEN	4.7E-05	3.5E-05	2.5E-05	6.6E-05	7.0E-05	5.7E-03	3.3E-05	0.0E+00
CHILD	7.2E-05	5.3E-05	6.1E-05	1.1E-04	1.1E-04	1.1E-02	5.2E-05	0.0E+00
INFNT	1.1E-04	7.8E-05	1.1E-04	2.1E-04	1.8E-04	2.7E-02	8.0E-05	0.0E+00
GOAT	PATHWAY, DIST GP= 1, 4091. METERS WINDS TOWARD NNE							
ADULT	7.3E-05	5.3E-05	2.8E-05	8.7E-05	8.0E-05	4.3E-03	5.2E-05	0.0E+00
TEEN	9.2E-05	6.9E-05	5.1E-05	1.3E-04	1.2E-04	6.8E-03	7.0E-05	0.0E+00
CHILD	1.3E-04	1.0E-04	1.2E-04	2.2E-04	1.9E-04	1.3E-02	1.1E-04	0.0E+00
INFNT	2.1E-04	1.6E-04	2.1E-04	4.0E-04	3.1E-04	3.3E-02	1.7E-04	0.0E+00
INHAL	PATHWAY, DIST GP= 1, 660. METERS WINDS TOWARD NNE							
ADULT	6.8E-04	6.8E-04	7.7E-06	6.9E-04	6.9E-04	3.1E-03	6.8E-04	0.0E+00
TEEN	6.9E-04	6.8E-04	1.1E-05	6.9E-04	7.0E-04	3.7E-03	6.9E-04	0.0E+00
CHILD	6.1E-04	6.0E-04	1.5E-05	6.2E-04	6.2E-04	3.9E-03	6.1E-04	0.0E+00
INFNT	3.5E-04	3.5E-04	1.1E-05	3.6E-04	3.6E-04	3.4E-03	3.5E-04	0.0E+00
SUBTOTALS (NO PLUME)								
ADULT	2.3E-03	2.2E-03	7.0E-04	2.4E-03	2.3E-03	2.7E-02	2.2E-03	6.0E-04
TEEN	2.4E-03	2.3E-03	7.9E-04	2.7E-03	2.5E-03	3.0E-02	2.3E-03	6.0E-04
CHILD	3.0E-03	2.9E-03	1.2E-03	3.4E-03	3.2E-03	4.9E-02	2.9E-03	6.0E-04
INFNT	1.2E-03	1.1E-03	8.5E-04	1.5E-03	1.4E-03	6.4E-02	1.1E-03	6.0E-04
TOTALS								
ADULT	7.6E-03	7.5E-03	6.0E-03	7.7E-03	7.6E-03	3.3E-02	7.6E-03	1.5E-02
TEEN	7.7E-03	7.6E-03	6.1E-03	7.9E-03	7.8E-03	3.5E-02	7.8E-03	1.5E-02
CHILD	8.3E-03	8.1E-03	6.4E-03	8.7E-03	8.5E-03	5.5E-02	8.3E-03	1.5E-02
INFNT	6.5E-03	6.4E-03	6.1E-03	6.8E-03	6.6E-03	6.9E-02	6.6E-03	1.5E-02

INDIVIDUAL DOSES (MREM) DUE TO GASEOUS EFFLUENT
FOR DATES 94 1 1 1 THRU 94 33124

	T.BODY	GI-TRCT	BONE	LIVER	KIDNEY	THYRD	LUNG	SKIN
PLUME	PATHWAY, DIST GP= 1, 943. METERS WINDS TOWARD NE							
ADULT	1.5E-03	1.5E-03	1.5E-03	1.5E-03	1.5E-03	1.5E-03	1.5E-03	3.8E-03
TEEN	1.5E-03	1.5E-03	1.5E-03	1.5E-03	1.5E-03	1.5E-03	1.5E-03	3.8E-03
CHILD	1.5E-03	1.5E-03	1.5E-03	1.5E-03	1.5E-03	1.5E-03	1.5E-03	3.8E-03
INFNT	1.5E-03	1.5E-03	1.5E-03	1.5E-03	1.5E-03	1.5E-03	1.5E-03	3.8E-03
GROUND	PATHWAY, DIST GP= 1, 943. METERS WINDS TOWARD NE							
ADULT	4.6E-04	4.6E-04	4.6E-04	4.6E-04	4.6E-04	4.6E-04	4.6E-04	5.4E-04
TEEN	4.6E-04	4.6E-04	4.6E-04	4.6E-04	4.6E-04	4.6E-04	4.6E-04	5.4E-04
CHILD	4.6E-04	4.6E-04	4.6E-04	4.6E-04	4.6E-04	4.6E-04	4.6E-04	5.4E-04
INFNT	4.6E-04	4.6E-04	4.6E-04	4.6E-04	4.6E-04	4.6E-04	4.6E-04	5.4E-04
VEGET	PATHWAY, DIST GP= 1, 1052. METERS WINDS TOWARD NE							
ADULT	4.5E-04	3.9E-04	1.3E-04	5.1E-04	4.7E-04	1.8E-02	3.4E-04	0.0E+00
TEEN	4.8E-04	4.3E-04	1.8E-04	6.2E-04	5.3E-04	1.5E-02	4.0E-04	0.0E+00
CHILD	6.8E-04	6.2E-04	4.2E-04	9.8E-04	8.0E-04	2.3E-02	6.2E-04	0.0E+00
INFNT	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
MEAT	PATHWAY, DIST GP= 1, 7725. METERS WINDS TOWARD NE							
ADULT	2.7E-06	2.8E-06	4.7E-07	2.9E-06	2.7E-06	7.7E-05	2.3E-06	0.0E+00
TEEN	1.6E-06	1.6E-06	3.9E-07	1.9E-06	1.8E-06	5.5E-05	1.4E-06	0.0E+00
CHILD	1.9E-06	1.7E-06	7.1E-07	2.3E-06	2.1E-06	8.3E-05	1.6E-06	0.0E+00
INFNT	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
COW	PATHWAY, DIST GP= 1, 4091. METERS WINDS TOWARD NE							
ADULT	3.3E-05	1.9E-05	2.3E-05	4.5E-05	5.2E-05	6.7E-03	1.5E-05	0.0E+00
TEEN	4.4E-05	2.5E-05	4.1E-05	7.4E-05	8.6E-05	1.1E-02	2.0E-05	0.0E+00
CHILD	6.9E-05	3.4E-05	9.9E-05	1.3E-04	1.4E-04	2.1E-02	3.2E-05	0.0E+00
INFNT	1.1E-04	4.8E-05	1.9E-04	2.6E-04	2.4E-04	5.0E-02	4.9E-05	0.0E+00
GOAT	PATHWAY, DIST GP= 1, 4091. METERS WINDS TOWARD NE							
ADULT	6.4E-05	3.5E-05	4.2E-05	8.6E-05	8.1E-05	8.0E-03	3.1E-05	0.0E+00
TEEN	8.0E-05	4.5E-05	7.6E-05	1.4E-04	1.3E-04	1.3E-02	4.4E-05	0.0E+00
CHILD	1.1E-04	6.4E-05	1.8E-04	2.4E-04	2.1E-04	2.5E-02	6.8E-05	0.0E+00
INFNT	1.8E-04	9.3E-05	3.3E-04	4.7E-04	3.6E-04	6.1E-02	1.1E-04	0.0E+00
INHAL	PATHWAY, DIST GP= 1, 943. METERS WINDS TOWARD NE							
ADULT	2.2E-04	2.2E-04	5.1E-06	2.2E-04	2.3E-04	2.2E-03	2.3E-04	0.0E+00
TEEN	2.2E-04	2.2E-04	7.1E-06	2.3E-04	2.3E-04	2.6E-03	2.3E-04	0.0E+00
CHILD	2.0E-04	1.9E-04	9.6E-06	2.0E-04	2.1E-04	2.9E-03	2.1E-04	0.0E+00
INFNT	1.1E-04	1.1E-04	7.3E-06	1.2E-04	1.2E-04	2.6E-03	1.2E-04	0.0E+00
SUBTOTALS (NO PLUME)								
ADULT	1.2E-03	1.1E-03	6.6E-04	1.3E-03	1.3E-03	3.6E-02	1.1E-03	5.4E-04
TEEN	1.3E-03	1.2E-03	7.7E-04	1.5E-03	1.4E-03	4.2E-02	1.2E-03	5.4E-04
CHILD	1.5E-03	1.4E-03	1.2E-03	2.0E-03	1.8E-03	7.2E-02	1.4E-03	5.4E-04
INFNT	8.7E-04	7.1E-04	9.8E-04	1.3E-03	1.2E-03	1.1E-01	7.3E-04	5.4E-04
TOTALS								
ADULT	2.7E-03	2.6E-03	2.1E-03	2.8E-03	2.8E-03	3.7E-02	2.6E-03	4.3E-03
TEEN	2.8E-03	2.7E-03	2.2E-03	3.0E-03	2.9E-03	4.3E-02	2.7E-03	4.3E-03
CHILD	3.0E-03	2.8E-03	2.6E-03	3.5E-03	3.3E-03	7.4E-02	2.9E-03	4.3E-03
INFNT	2.3E-03	2.2E-03	2.5E-03	2.8E-03	2.6E-03	1.2E-01	2.3E-03	4.3E-03

INDIVIDUAL DOSES (MREM) DUE TO GASEOUS EFFLUENT
FOR DATES 94 1 1 1 THRU 94 33124

	T.BODY	GI-TRCT	BONE	LIVER	KIDNEY	THYRD	LUNG	SKIN
PLUME	PATHWAY, DIST GP= 1, 1747. METERS WINDS TOWARD ENE							
ADULT	9.1E-04	9.1E-04	9.1E-04	9.1E-04	9.1E-04	9.1E-04	9.4E-04	2.5E-03
TEEN	9.1E-04	9.1E-04	9.1E-04	9.1E-04	9.1E-04	9.1E-04	9.4E-04	2.5E-03
CHILD	9.1E-04	9.1E-04	9.1E-04	9.1E-04	9.1E-04	9.1E-04	9.4E-04	2.5E-03
INFNT	9.1E-04	9.1E-04	9.1E-04	9.1E-04	9.1E-04	9.1E-04	9.4E-04	2.5E-03
GROUND	PATHWAY, DIST GP= 1, 1747. METERS WINDS TOWARD ENE							
ADULT	2.4E-04	2.4E-04	2.4E-04	2.4E-04	2.4E-04	2.4E-04	2.4E-04	2.8E-04
TEEN	2.4E-04	2.4E-04	2.4E-04	2.4E-04	2.4E-04	2.4E-04	2.4E-04	2.8E-04
CHILD	2.4E-04	2.4E-04	2.4E-04	2.4E-04	2.4E-04	2.4E-04	2.4E-04	2.8E-04
INFNT	2.4E-04	2.4E-04	2.4E-04	2.4E-04	2.4E-04	2.4E-04	2.4E-04	2.8E-04
VEGET	PATHWAY, DIST GP= 1, 1852. METERS WINDS TOWARD ENE							
ADULT	2.9E-04	2.3E-04	9.1E-05	3.3E-04	2.8E-04	7.4E-03	2.2E-04	0.0E+00
TEEN	3.0E-04	2.6E-04	1.3E-04	4.1E-04	3.2E-04	6.2E-03	2.6E-04	0.0E+00
CHILD	4.2E-04	3.8E-04	3.1E-04	6.6E-04	5.0E-04	9.3E-03	4.0E-04	0.0E+00
INFNT	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
MEAT	PATHWAY, DIST GP= 1, 3862. METERS WINDS TOWARD ENE							
ADULT	1.2E-05	1.1E-05	2.9E-06	1.3E-05	1.2E-05	2.8E-04	9.7E-06	0.0E+00
TEEN	7.0E-06	6.7E-06	2.4E-06	8.8E-06	7.6E-06	2.0E-04	5.9E-06	0.0E+00
CHILD	8.0E-06	7.3E-06	4.4E-06	1.1E-05	9.3E-06	3.0E-04	7.1E-06	0.0E+00
INFNT	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
COW	PATHWAY, DIST GP= 1, 4091. METERS WINDS TOWARD ENE							
ADULT	4.8E-05	2.6E-05	3.2E-05	6.5E-05	6.4E-05	6.8E-03	2.3E-05	0.0E+00
TEEN	6.1E-05	3.4E-05	5.8E-05	1.1E-04	1.0E-04	1.1E-02	3.2E-05	0.0E+00
CHILD	8.8E-05	4.8E-05	1.4E-04	1.8E-04	1.7E-04	2.1E-02	5.0E-05	0.0E+00
INFNT	1.4E-04	6.9E-05	2.6E-04	3.6E-04	2.8E-04	5.1E-02	7.8E-05	0.0E+00
GOAT	PATHWAY, DIST GP= 1, 4091. METERS WINDS TOWARD ENE							
ADULT	1.0E-04	4.9E-05	7.0E-05	1.4E-04	1.1E-04	8.2E-03	4.9E-05	0.0E+00
TEEN	1.2E-04	6.4E-05	1.3E-04	2.2E-04	1.7E-04	1.3E-02	7.0E-05	0.0E+00
CHILD	1.6E-04	9.2E-05	3.1E-04	3.8E-04	2.8E-04	2.5E-02	1.1E-04	0.0E+00
INFNT	2.4E-04	1.4E-04	5.3E-04	7.5E-04	4.6E-04	6.2E-02	1.7E-04	0.0E+00
INHAL	PATHWAY, DIST GP= 1, 1747. METERS WINDS TOWARD ENE							
ADULT	1.3E-04	1.3E-04	1.3E-06	1.3E-04	1.3E-04	5.3E-04	1.3E-04	0.0E+00
TEEN	1.3E-04	1.3E-04	1.8E-06	1.3E-04	1.3E-04	6.2E-04	1.3E-04	0.0E+00
CHILD	1.1E-04	1.1E-04	2.4E-06	1.1E-04	1.1E-04	6.6E-04	1.1E-04	0.0E+00
INFNT	6.5E-05	6.4E-05	1.7E-06	6.6E-05	6.6E-05	5.7E-04	6.6E-05	0.0E+00
SUBTOTALS (NO PLUME)								
ADULT	8.1E-04	6.8E-04	4.3E-04	9.1E-04	8.2E-04	2.3E-02	6.6E-04	2.8E-04
TEEN	8.6E-04	7.3E-04	5.6E-04	1.1E-03	9.7E-04	3.1E-02	7.3E-04	2.8E-04
CHILD	1.0E-03	8.7E-04	1.0E-03	1.6E-03	1.3E-03	5.7E-02	9.1E-04	2.8E-04
INFNT	6.8E-04	5.0E-04	1.0E-03	1.4E-03	1.0E-03	1.1E-01	5.5E-04	2.8E-04
TOTALS								
ADULT	1.7E-03	1.6E-03	1.3E-03	1.8E-03	1.7E-03	2.4E-02	1.6E-03	2.8E-03
TEEN	1.8E-03	1.6E-03	1.5E-03	2.0E-03	1.9E-03	3.2E-02	1.7E-03	2.8E-03
CHILD	1.9E-03	1.8E-03	1.9E-03	2.5E-03	2.2E-03	5.8E-02	1.9E-03	2.8E-03
INFNT	1.6E-03	1.4E-03	1.9E-03	2.3E-03	2.0E-03	1.2E-01	1.5E-03	2.8E-03

INDIVIDUAL DOSES (MREM) DUE TO GASEOUS EFFLUENT
FOR DATES 94 1 1 1 THRU 94 33124

	T.BODY	GI-TRCT	BONE	LIVER	KIDNEY	THYRD	LUNG	SKIN
PLUME	PATHWAY, DIST GP= 1, 1716. METERS WINDS TOWARD E							
ADULT	2.2E-03	2.2E-03	2.2E-03	2.2E-03	2.2E-03	2.2E-03	2.3E-03	6.8E-03
TEEN	2.2E-03	2.2E-03	2.2E-03	2.2E-03	2.2E-03	2.2E-03	2.3E-03	6.8E-03
CHILD	2.2E-03	2.2E-03	2.2E-03	2.2E-03	2.2E-03	2.2E-03	2.3E-03	6.8E-03
INFNT	2.2E-03	2.2E-03	2.2E-03	2.2E-03	2.2E-03	2.2E-03	2.3E-03	6.8E-03
GROUND	PATHWAY, DIST GP= 1, 1716. METERS WINDS TOWARD E							
ADULT	5.2E-04	5.2E-04	5.2E-04	5.2E-04	5.2E-04	5.2E-04	5.2E-04	6.1E-04
TEEN	5.2E-04	5.2E-04	5.2E-04	5.2E-04	5.2E-04	5.2E-04	5.2E-04	6.1E-04
CHILD	5.2E-04	5.2E-04	5.2E-04	5.2E-04	5.2E-04	5.2E-04	5.2E-04	6.1E-04
INFNT	5.2E-04	5.2E-04	5.2E-04	5.2E-04	5.2E-04	5.2E-04	5.2E-04	6.1E-04
VEGET	PATHWAY, DIST GP= 1, 1705. METERS WINDS TOWARD E							
ADULT	6.4E-04	5.2E-04	1.9E-04	7.2E-04	5.8E-04	9.4E-03	4.8E-04	0.0E+00
TEEN	6.8E-04	5.8E-04	2.8E-04	9.1E-04	6.9E-04	8.0E-03	5.7E-04	0.0E+00
CHILD	9.4E-04	8.5E-04	6.5E-04	1.5E-03	1.1E-03	1.2E-02	8.8E-04	0.0E+00
INFNT	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
MEAT	PATHWAY, DIST GP= 1, 6810. METERS WINDS TOWARD E							
ADULT	8.9E-06	8.8E-06	1.8E-06	9.6E-06	8.3E-06	1.1E-04	7.3E-06	0.0E+00
TEEN	5.1E-06	5.1E-06	1.5E-06	6.3E-06	5.2E-06	7.9E-05	4.4E-06	0.0E+00
CHILD	5.8E-06	5.5E-06	2.7E-06	7.8E-06	6.4E-06	1.2E-04	5.3E-06	0.0E+00
INFNT	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
COW	PATHWAY, DIST GP= 1, 4091. METERS WINDS TOWARD E							
ADULT	8.3E-05	4.6E-05	5.0E-05	1.1E-04	9.3E-05	7.5E-03	4.3E-05	0.0E+00
TEEN	1.0E-04	6.0E-05	9.0E-05	1.7E-04	1.5E-04	1.2E-02	6.1E-05	0.0E+00
CHILD	1.4E-04	8.6E-05	2.2E-04	2.9E-04	2.4E-04	2.3E-02	9.5E-05	0.0E+00
INFNT	2.2E-04	1.3E-04	3.8E-04	5.7E-04	3.9E-04	5.6E-02	1.5E-04	0.0E+00
GOAT	PATHWAY, DIST GP= 1, 4091. METERS WINDS TOWARD E							
ADULT	1.9E-04	8.7E-05	1.2E-04	2.5E-04	1.7E-04	9.0E-03	9.4E-05	0.0E+00
TEEN	2.2E-04	1.1E-04	2.2E-04	4.0E-04	2.7E-04	1.4E-02	1.3E-04	0.0E+00
CHILD	2.7E-04	1.7E-04	5.3E-04	6.8E-04	4.4E-04	2.8E-02	2.1E-04	0.0E+00
INFNT	4.0E-04	2.5E-04	8.8E-04	1.3E-03	7.1E-04	6.8E-02	3.3E-04	0.0E+00
INHAL	PATHWAY, DIST GP= 1, 1716. METERS WINDS TOWARD E							
ADULT	2.5E-04	2.5E-04	2.5E-06	2.5E-04	2.6E-04	9.2E-04	2.6E-04	0.0E+00
TEEN	2.5E-04	2.5E-04	3.6E-06	2.6E-04	2.6E-04	1.1E-03	2.7E-04	0.0E+00
CHILD	2.3E-04	2.2E-04	4.8E-06	2.3E-04	2.3E-04	1.1E-03	2.3E-04	0.0E+00
INFNT	1.3E-04	1.3E-04	3.4E-06	1.3E-04	1.3E-04	9.7E-04	1.4E-04	0.0E+00
SUBTOTALS (NO PLUME)								
ADULT	1.7E-03	1.4E-03	8.8E-04	1.9E-03	1.6E-03	2.7E-02	1.4E-03	6.1E-04
TEEN	1.8E-03	1.5E-03	1.1E-03	2.3E-03	1.9E-03	3.6E-02	1.6E-03	6.1E-04
CHILD	2.1E-03	1.9E-03	1.9E-03	3.2E-03	2.5E-03	6.5E-02	1.9E-03	6.1E-04
INFNT	1.3E-03	1.0E-03	1.8E-03	2.5E-03	1.8E-03	1.3E-01	1.1E-03	6.1E-04
TOTALS								
ADULT	3.8E-03	3.6E-03	3.0E-03	4.0E-03	3.8E-03	3.0E-02	3.7E-03	7.5E-03
TEEN	3.9E-03	3.7E-03	3.3E-03	4.4E-03	4.0E-03	3.8E-02	3.8E-03	7.5E-03
CHILD	4.3E-03	4.0E-03	4.1E-03	5.3E-03	4.7E-03	6.7E-02	4.2E-03	7.5E-03
INFNT	3.4E-03	3.2E-03	3.9E-03	4.7E-03	3.9E-03	1.3E-01	3.4E-03	7.5E-03

INDIVIDUAL DOSES (MREM) DUE TO GASEOUS EFFLUENT
FOR DATES 94 1 1 1 THRU 94 33124

	T.BODY	GI-TRCT	BONE	LIVER	KIDNEY	THYRD	LUNG	SKIN
PLUME	PATHWAY, DIST GP= 1, 1643. METERS WINDS TOWARD ESE							
ADULT	1.1E-03	1.1E-03	1.1E-03	1.1E-03	1.1E-03	1.1E-03	1.1E-03	3.1E-03
TEEN	1.1E-03	1.1E-03	1.1E-03	1.1E-03	1.1E-03	1.1E-03	1.1E-03	3.1E-03
CHILD	1.1E-03	1.1E-03	1.1E-03	1.1E-03	1.1E-03	1.1E-03	1.1E-03	3.1E-03
INFNT	1.1E-03	1.1E-03	1.1E-03	1.1E-03	1.1E-03	1.1E-03	1.1E-03	3.1E-03
GROUND	PATHWAY, DIST GP= 1, 1643. METERS WINDS TOWARD ESE							
ADULT	2.4E-04	2.4E-04	2.4E-04	2.4E-04	2.4E-04	2.4E-04	2.4E-04	2.8E-04
TEEN	2.4E-04	2.4E-04	2.4E-04	2.4E-04	2.4E-04	2.4E-04	2.4E-04	2.8E-04
CHILD	2.4E-04	2.4E-04	2.4E-04	2.4E-04	2.4E-04	2.4E-04	2.4E-04	2.8E-04
INFNT	2.4E-04	2.4E-04	2.4E-04	2.4E-04	2.4E-04	2.4E-04	2.4E-04	2.8E-04
VEGET	PATHWAY, DIST GP= 1, 1628. METERS WINDS TOWARD ESE							
ADULT	3.5E-04	3.0E-04	1.0E-04	4.0E-04	3.6E-04	1.1E-02	2.8E-04	0.0E+00
TEEN	3.8E-04	3.3E-04	1.5E-04	5.0E-04	4.1E-04	9.3E-03	3.2E-04	0.0E+00
CHILD	5.4E-04	4.9E-04	3.3E-04	7.9E-04	6.3E-04	1.4E-02	5.0E-04	0.0E+00
INFNT	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
MEAT	PATHWAY, DIST GP= 1, 2434. METERS WINDS TOWARD ESE							
ADULT	2.5E-05	2.4E-05	5.3E-06	2.8E-05	2.5E-05	6.9E-04	2.1E-05	0.0E+00
TEEN	1.5E-05	1.4E-05	4.4E-06	1.8E-05	1.6E-05	5.0E-04	1.3E-05	0.0E+00
CHILD	1.7E-05	1.6E-05	8.2E-06	2.3E-05	2.0E-05	7.5E-04	1.5E-05	0.0E+00
INFNT	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
COW	PATHWAY, DIST GP= 1, 4091. METERS WINDS TOWARD ESE							
ADULT	4.8E-05	2.8E-05	3.2E-05	6.6E-05	7.1E-05	8.3E-03	2.3E-05	0.0E+00
TEEN	6.3E-05	3.7E-05	5.9E-05	1.1E-04	1.2E-04	1.3E-02	3.2E-05	0.0E+00
CHILD	9.6E-05	5.0E-05	1.4E-04	1.8E-04	1.9E-04	2.6E-02	5.0E-05	0.0E+00
INFNT	1.6E-04	7.2E-05	2.6E-04	3.7E-04	3.2E-04	6.3E-02	7.8E-05	0.0E+00
GOAT	PATHWAY, DIST GP= 1, 4091. METERS WINDS TOWARD ESE							
ADULT	9.9E-05	5.1E-05	6.5E-05	1.3E-04	1.1E-04	9.9E-03	4.9E-05	0.0E+00
TEEN	1.2E-04	6.7E-05	1.2E-04	2.1E-04	1.8E-04	1.6E-02	6.9E-05	0.0E+00
CHILD	1.7E-04	9.6E-05	2.8E-04	3.6E-04	3.0E-04	3.1E-02	1.1E-04	0.0E+00
INFNT	2.6E-04	1.4E-04	5.0E-04	7.2E-04	5.0E-04	7.5E-02	1.7E-04	0.0E+00
INHAL	PATHWAY, DIST GP= 1, 1643. METERS WINDS TOWARD ESE							
ADULT	1.5E-04	1.5E-04	2.3E-06	1.5E-04	1.5E-04	9.7E-04	1.5E-04	0.0E+00
TEEN	1.5E-04	1.5E-04	3.2E-06	1.5E-04	1.5E-04	1.2E-03	1.5E-04	0.0E+00
CHILD	1.3E-04	1.3E-04	4.4E-06	1.3E-04	1.3E-04	1.3E-03	1.3E-04	0.0E+00
INFNT	7.5E-05	7.4E-05	3.3E-06	7.8E-05	7.8E-05	1.1E-03	7.7E-05	0.0E+00
SUBTOTALS (NO PLUME)								
ADULT	9.1E-04	7.8E-04	4.4E-04	1.0E-03	9.5E-04	3.1E-02	7.5E-04	2.8E-04
TEEN	9.6E-04	8.3E-04	5.7E-04	1.2E-03	1.1E-03	4.0E-02	8.2E-04	2.8E-04
CHILD	1.2E-03	1.0E-03	1.0E-03	1.7E-03	1.5E-03	7.3E-02	1.0E-03	2.8E-04
INFNT	7.3E-04	5.2E-04	1.0E-03	1.4E-03	1.1E-03	1.4E-01	5.6E-04	2.8E-04
TOTALS								
ADULT	2.0E-03	1.9E-03	1.5E-03	2.1E-03	2.0E-03	3.2E-02	1.9E-03	3.3E-03
TEEN	2.0E-03	1.9E-03	1.6E-03	2.3E-03	2.2E-03	4.1E-02	1.9E-03	3.3E-03
CHILD	2.3E-03	2.1E-03	2.1E-03	2.8E-03	2.6E-03	7.4E-02	2.2E-03	3.3E-03
INFNT	1.8E-03	1.6E-03	2.1E-03	2.5E-03	2.2E-03	1.4E-01	1.7E-03	3.3E-03

INDIVIDUAL DOSES (MREM) DUE TO GASEOUS EFFLUENT
FOR DATES 94 1 1 1 THRU 94 33124

	T.BODY	GI-TRCT	BONE	LIVER	KIDNEY	THYRD	LUNG	SKIN
PLUME	PATHWAY, DIST GP= 1, 1136. METERS WINDS TOWARD SE							
ADULT	1.8E-03	1.8E-03	1.8E-03	1.8E-03	1.8E-03	1.8E-03	1.9E-03	5.6E-03
TEEN	1.8E-03	1.8E-03	1.8E-03	1.8E-03	1.8E-03	1.8E-03	1.9E-03	5.6E-03
CHILD	1.8E-03	1.8E-03	1.8E-03	1.8E-03	1.8E-03	1.8E-03	1.9E-03	5.6E-03
INFNT	1.8E-03	1.8E-03	1.8E-03	1.8E-03	1.8E-03	1.8E-03	1.9E-03	5.6E-03
GROUND	PATHWAY, DIST GP= 1, 1136. METERS WINDS TOWARD SE							
ADULT	2.5E-04	2.5E-04	2.5E-04	2.5E-04	2.5E-04	2.5E-04	2.5E-04	2.9E-04
TEEN	2.5E-04	2.5E-04	2.5E-04	2.5E-04	2.5E-04	2.5E-04	2.5E-04	2.9E-04
CHILD	2.5E-04	2.5E-04	2.5E-04	2.5E-04	2.5E-04	2.5E-04	2.5E-04	2.9E-04
INFNT	2.5E-04	2.5E-04	2.5E-04	2.5E-04	2.5E-04	2.5E-04	2.5E-04	2.9E-04
VEGET	PATHWAY, DIST GP= 1, 914. METERS WINDS TOWARD SE							
ADULT	7.3E-04	6.1E-04	1.8E-04	8.2E-04	7.3E-04	1.8E-02	5.9E-04	0.0E+00
TEEN	7.9E-04	6.9E-04	2.6E-04	1.0E-03	8.4E-04	1.5E-02	6.9E-04	0.0E+00
CHILD	1.1E-03	1.0E-03	6.0E-04	1.6E-03	1.3E-03	2.3E-02	1.1E-03	0.0E+00
INFNT	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
MEAT	PATHWAY, DIST GP= 1, 4354. METERS WINDS TOWARD SE							
ADULT	8.1E-06	7.5E-06	1.4E-06	8.7E-06	8.1E-06	1.7E-04	6.9E-06	0.0E+00
TEEN	4.7E-06	4.4E-06	1.2E-06	5.6E-06	5.1E-06	1.3E-04	4.2E-06	0.0E+00
CHILD	5.5E-06	5.1E-06	2.2E-06	7.0E-06	6.3E-06	1.9E-04	5.0E-06	0.0E+00
INFNT	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
COW	PATHWAY, DIST GP= 1, 4091. METERS WINDS TOWARD SE							
ADULT	3.6E-05	2.2E-05	2.1E-05	4.7E-05	5.0E-05	5.2E-03	1.9E-05	0.0E+00
TEEN	4.7E-05	2.9E-05	3.9E-05	7.5E-05	8.0E-05	8.2E-03	2.6E-05	0.0E+00
CHILD	7.0E-05	4.1E-05	9.3E-05	1.3E-04	1.3E-04	1.6E-02	4.1E-05	0.0E+00
INFNT	1.1E-04	5.9E-05	1.7E-04	2.6E-04	2.2E-04	3.9E-02	6.4E-05	0.0E+00
GOAT	PATHWAY, DIST GP= 1, 4091. METERS WINDS TOWARD SE							
ADULT	7.4E-05	4.2E-05	4.4E-05	9.7E-05	8.3E-05	6.3E-03	4.1E-05	0.0E+00
TEEN	9.1E-05	5.4E-05	8.0E-05	1.5E-04	1.3E-04	9.9E-03	5.6E-05	0.0E+00
CHILD	1.3E-04	7.9E-05	1.9E-04	2.6E-04	2.1E-04	2.0E-02	8.8E-05	0.0E+00
INFNT	1.9E-04	1.2E-04	3.4E-04	5.1E-04	3.5E-04	4.7E-02	1.4E-04	0.0E+00
INHAL	PATHWAY, DIST GP= 1, 1136. METERS WINDS TOWARD SE							
ADULT	2.3E-04	2.2E-04	3.6E-06	2.3E-04	2.3E-04	1.5E-03	2.3E-04	0.0E+00
TEEN	2.3E-04	2.3E-04	5.0E-06	2.3E-04	2.3E-04	1.7E-03	2.3E-04	0.0E+00
CHILD	2.0E-04	2.0E-04	6.8E-06	2.1E-04	2.1E-04	1.9E-03	2.0E-04	0.0E+00
INFNT	1.2E-04	1.1E-04	5.0E-06	1.2E-04	1.2E-04	1.6E-03	1.2E-04	0.0E+00
SUBTOTALS (NO PLUME)								
ADULT	1.3E-03	1.2E-03	5.0E-04	1.4E-03	1.3E-03	3.2E-02	1.1E-03	2.9E-04
TEEN	1.4E-03	1.2E-03	6.3E-04	1.7E-03	1.5E-03	3.6E-02	1.3E-03	2.9E-04
CHILD	1.8E-03	1.6E-03	1.1E-03	2.4E-03	2.1E-03	6.1E-02	1.6E-03	2.9E-04
INFNT	6.7E-04	5.4E-04	7.6E-04	1.1E-03	9.3E-04	8.9E-02	5.7E-04	2.9E-04
TOTALS								
ADULT	3.1E-03	3.0E-03	2.3E-03	3.3E-03	3.2E-03	3.4E-02	3.0E-03	5.9E-03
TEEN	3.2E-03	3.1E-03	2.4E-03	3.5E-03	3.3E-03	3.7E-02	3.1E-03	5.9E-03
CHILD	3.6E-03	3.4E-03	3.0E-03	4.2E-03	3.9E-03	6.3E-02	3.5E-03	5.9E-03
INFNT	2.5E-03	2.3E-03	2.6E-03	2.9E-03	2.7E-03	9.1E-02	2.5E-03	5.9E-03

INDIVIDUAL DOSES (MREM) DUE TO GASEOUS EFFLUENT
FOR DATES 94 1 1 1 THRU 94 33124

	T.BODY	GI-TRCT	BONE	LIVER	KIDNEY	THYRD	LUNG	SKIN
PLUME	PATHWAY, DIST GP= 1, 1507. METERS WINDS TOWARD SSE							
ADULT	1.5E-03	1.5E-03	1.5E-03	1.5E-03	1.5E-03	1.5E-03	1.6E-03	4.5E-03
TEEN	1.5E-03	1.5E-03	1.5E-03	1.5E-03	1.5E-03	1.5E-03	1.6E-03	4.5E-03
CHILD	1.5E-03	1.5E-03	1.5E-03	1.5E-03	1.5E-03	1.5E-03	1.6E-03	4.5E-03
INFNT	1.5E-03	1.5E-03	1.5E-03	1.5E-03	1.5E-03	1.5E-03	1.6E-03	4.5E-03
GROUND	PATHWAY, DIST GP= 1, 1507. METERS WINDS TOWARD SSE							
ADULT	2.3E-04	2.3E-04	2.3E-04	2.3E-04	2.3E-04	2.3E-04	2.3E-04	2.7E-04
TEEN	2.3E-04	2.3E-04	2.3E-04	2.3E-04	2.3E-04	2.3E-04	2.3E-04	2.7E-04
CHILD	2.3E-04	2.3E-04	2.3E-04	2.3E-04	2.3E-04	2.3E-04	2.3E-04	2.7E-04
INFNT	2.3E-04	2.3E-04	2.3E-04	2.3E-04	2.3E-04	2.3E-04	2.3E-04	2.7E-04
VEGET	PATHWAY, DIST GP= 1, 1093. METERS WINDS TOWARD SSE							
ADULT	7.5E-04	6.6E-04	1.6E-04	8.3E-04	7.6E-04	2.0E-02	6.3E-04	0.0E+00
TEEN	8.2E-04	7.4E-04	2.4E-04	1.0E-03	8.8E-04	1.6E-02	7.3E-04	0.0E+00
CHILD	1.2E-03	1.1E-03	5.4E-04	1.6E-03	1.3E-03	2.5E-02	1.1E-03	0.0E+00
INFNT	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
MEAT	PATHWAY, DIST GP= 1, 1093. METERS WINDS TOWARD SSE							
ADULT	1.0E-04	1.0E-04	1.7E-05	1.1E-04	1.1E-04	2.4E-03	8.9E-05	0.0E+00
TEEN	6.1E-05	6.0E-05	1.4E-05	7.2E-05	6.7E-05	1.7E-03	5.4E-05	0.0E+00
CHILD	7.2E-05	6.7E-05	2.6E-05	8.9E-05	8.1E-05	2.6E-03	6.5E-05	0.0E+00
INFNT	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
COW	PATHWAY, DIST GP= 1, 4091. METERS WINDS TOWARD SSE							
ADULT	4.9E-05	3.2E-05	2.8E-05	6.4E-05	7.0E-05	7.5E-03	2.7E-05	0.0E+00
TEEN	6.4E-05	4.1E-05	5.1E-05	1.0E-04	1.1E-04	1.2E-02	3.6E-05	0.0E+00
CHILD	9.9E-05	5.8E-05	1.2E-04	1.7E-04	1.8E-04	2.3E-02	5.7E-05	0.0E+00
INFNT	1.6E-04	8.5E-05	2.3E-04	3.5E-04	3.1E-04	5.7E-02	8.9E-05	0.0E+00
GOAT	PATHWAY, DIST GP= 1, 4091. METERS WINDS TOWARD SSE							
ADULT	9.9E-05	5.9E-05	5.5E-05	1.3E-04	1.1E-04	9.0E-03	5.7E-05	0.0E+00
TEEN	1.2E-04	7.7E-05	1.0E-04	2.0E-04	1.8E-04	1.4E-02	7.8E-05	0.0E+00
CHILD	1.7E-04	1.1E-04	2.4E-04	3.4E-04	2.9E-04	2.8E-02	1.2E-04	0.0E+00
INFNT	2.7E-04	1.7E-04	4.3E-04	6.6E-04	4.8E-04	6.8E-02	1.9E-04	0.0E+00
INHAL	PATHWAY, DIST GP= 1, 1507. METERS WINDS TOWARD SSE							
ADULT	2.0E-04	2.0E-04	1.8E-06	2.1E-04	2.1E-04	7.5E-04	2.1E-04	0.0E+00
TEEN	2.1E-04	2.0E-04	2.5E-06	2.1E-04	2.1E-04	8.7E-04	2.1E-04	0.0E+00
CHILD	1.8E-04	1.8E-04	3.4E-06	1.8E-04	1.8E-04	9.2E-04	1.9E-04	0.0E+00
INFNT	1.0E-04	1.0E-04	2.5E-06	1.1E-04	1.1E-04	7.8E-04	1.1E-04	0.0E+00
SUBTOTALS (NO PLUME)								
ADULT	1.4E-03	1.3E-03	4.9E-04	1.6E-03	1.5E-03	4.0E-02	1.2E-03	2.7E-04
TEEN	1.5E-03	1.4E-03	6.3E-04	1.8E-03	1.7E-03	4.5E-02	1.3E-03	2.7E-04
CHILD	1.9E-03	1.8E-03	1.2E-03	2.6E-03	2.3E-03	8.0E-02	1.8E-03	2.7E-04
INFNT	7.7E-04	5.8E-04	8.8E-04	1.3E-03	1.1E-03	1.3E-01	6.1E-04	2.7E-04
TOTALS								
ADULT	3.0E-03	2.8E-03	2.0E-03	3.1E-03	3.0E-03	4.1E-02	2.8E-03	4.7E-03
TEEN	3.0E-03	2.9E-03	2.2E-03	3.3E-03	3.2E-03	4.7E-02	2.9E-03	4.7E-03
CHILD	3.5E-03	3.3E-03	2.7E-03	4.1E-03	3.8E-03	8.2E-02	3.4E-03	4.7E-03
INFNT	2.3E-03	2.1E-03	2.4E-03	2.9E-03	2.6E-03	1.3E-01	2.2E-03	4.7E-03

INDIVIDUAL DOSES (MREM) DUE TO GASEOUS EFFLUENT
FOR DATES 94 1 1 1 THRU 94 33124

T.BODY GI-TRCT BONE LIVER KIDNEY THYRD LUNG SKIN

PLUME PATHWAY, DIST GP= 1, 1026. METERS WINDS TOWARD S

ADULT	1.3E-03	1.3E-03	1.3E-03	1.3E-03	1.3E-03	1.3E-03	1.4E-03	3.5E-03
TEEN	1.3E-03	1.3E-03	1.3E-03	1.3E-03	1.3E-03	1.3E-03	1.4E-03	3.5E-03
CHILD	1.3E-03	1.3E-03	1.3E-03	1.3E-03	1.3E-03	1.3E-03	1.4E-03	3.5E-03
INFNT	1.3E-03	1.3E-03	1.3E-03	1.3E-03	1.3E-03	1.3E-03	1.4E-03	3.5E-03

GROUND PATHWAY, DIST GP= 1, 1026. METERS WINDS TOWARD S

ADULT	3.1E-04	3.1E-04	3.1E-04	3.1E-04	3.1E-04	3.1E-04	3.1E-04	3.6E-04
TEEN	3.1E-04	3.1E-04	3.1E-04	3.1E-04	3.1E-04	3.1E-04	3.1E-04	3.6E-04
CHILD	3.1E-04	3.1E-04	3.1E-04	3.1E-04	3.1E-04	3.1E-04	3.1E-04	3.6E-04
INFNT	3.1E-04	3.1E-04	3.1E-04	3.1E-04	3.1E-04	3.1E-04	3.1E-04	3.6E-04

VEGET PATHWAY, DIST GP= 1, 863. METERS WINDS TOWARD S

ADULT	5.6E-04	4.8E-04	1.6E-04	6.4E-04	6.1E-04	2.9E-02	4.3E-04	0.0E+00
TEEN	6.0E-04	5.4E-04	2.2E-04	7.7E-04	6.9E-04	2.4E-02	5.0E-04	0.0E+00
CHILD	8.7E-04	7.8E-04	4.9E-04	1.2E-03	1.0E-03	3.7E-02	7.8E-04	0.0E+00
INFNT	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

MEAT PATHWAY, DIST GP= 1, 6115. METERS WINDS TOWARD S

ADULT	3.2E-06	3.2E-06	6.4E-07	3.5E-06	3.4E-06	1.3E-04	2.6E-06	0.0E+00
TEEN	1.9E-06	1.9E-06	5.3E-07	2.3E-06	2.2E-06	9.5E-05	1.6E-06	0.0E+00
CHILD	2.3E-06	2.1E-06	9.9E-07	2.9E-06	2.7E-06	1.4E-04	1.9E-06	0.0E+00
INFNT	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

COW PATHWAY, DIST GP= 1, 4091. METERS WINDS TOWARD S

ADULT	3.1E-05	1.8E-05	2.3E-05	4.4E-05	5.5E-05	7.7E-03	1.3E-05	0.0E+00
TEEN	4.3E-05	2.4E-05	4.2E-05	7.2E-05	9.2E-05	1.2E-02	1.7E-05	0.0E+00
CHILD	6.9E-05	3.1E-05	1.0E-04	1.2E-04	1.5E-04	2.4E-02	2.7E-05	0.0E+00
INFNT	1.2E-04	4.3E-05	2.0E-04	2.7E-04	2.6E-04	5.8E-02	4.2E-05	0.0E+00

GOAT PATHWAY, DIST GP= 1, 4091. METERS WINDS TOWARD S

ADULT	5.8E-05	3.2E-05	3.9E-05	7.9E-05	8.1E-05	9.2E-03	2.7E-05	0.0E+00
TEEN	7.4E-05	4.2E-05	7.1E-05	1.3E-04	1.3E-04	1.5E-02	3.7E-05	0.0E+00
CHILD	1.1E-04	5.7E-05	1.7E-04	2.2E-04	2.2E-04	2.9E-02	5.9E-05	0.0E+00
INFNT	1.8E-04	8.3E-05	3.2E-04	4.5E-04	3.7E-04	7.0E-02	9.2E-05	0.0E+00

INHAL PATHWAY, DIST GP= 1, 1026. METERS WINDS TOWARD S

ADULT	1.8E-04	1.8E-04	2.8E-06	1.8E-04	1.8E-04	1.2E-03	1.8E-04	0.0E+00
TEEN	1.8E-04	1.8E-04	4.0E-06	1.8E-04	1.8E-04	1.4E-03	1.8E-04	0.0E+00
CHILD	1.6E-04	1.6E-04	5.4E-06	1.6E-04	1.6E-04	1.5E-03	1.6E-04	0.0E+00
INFNT	9.1E-05	9.0E-05	4.0E-06	9.4E-05	9.4E-05	1.4E-03	9.2E-05	0.0E+00

SUBTOTALS (NO PLUME)

ADULT	1.1E-03	1.0E-03	5.4E-04	1.3E-03	1.2E-03	4.8E-02	9.6E-04	3.6E-04
TEEN	1.2E-03	1.1E-03	6.5E-04	1.5E-03	1.4E-03	5.3E-02	1.1E-03	3.6E-04
CHILD	1.5E-03	1.3E-03	1.1E-03	2.0E-03	1.9E-03	9.1E-02	1.3E-03	3.6E-04
INFNT	7.0E-04	5.2E-04	8.3E-04	1.1E-03	1.0E-03	1.3E-01	5.4E-04	3.6E-04

TOTALS

ADULT	2.4E-03	2.3E-03	1.8E-03	2.6E-03	2.5E-03	4.9E-02	2.3E-03	3.8E-03
TEEN	2.5E-03	2.4E-03	1.9E-03	2.8E-03	2.7E-03	5.4E-02	2.4E-03	3.8E-03
CHILD	2.8E-03	2.6E-03	2.4E-03	3.3E-03	3.2E-03	9.3E-02	2.7E-03	3.8E-03
INFNT	2.0E-03	1.8E-03	2.1E-03	2.4E-03	2.3E-03	1.3E-01	1.9E-03	3.8E-03

INDIVIDUAL DOSES (MREM) DUE TO GASEOUS EFFLUENT
FOR DATES 94 1 1 1 THRU 94 33124

	T.BODY	GI-TRCT	BONE	LIVER	KIDNEY	THYRD	LUNG	SKIN
PLUME	PATHWAY, DIST GP= 1, 942. METERS WINDS TOWARD SSW							
ADULT	9.9E-04	9.9E-04	9.9E-04	9.9E-04	9.9E-04	9.9E-04	1.0E-03	2.7E-03
TEEN	9.9E-04	9.9E-04	9.9E-04	9.9E-04	9.9E-04	9.9E-04	1.0E-03	2.7E-03
CHILD	9.9E-04	9.9E-04	9.9E-04	9.9E-04	9.9E-04	9.9E-04	1.0E-03	2.7E-03
INFNT	9.9E-04	9.9E-04	9.9E-04	9.9E-04	9.9E-04	9.9E-04	1.0E-03	2.7E-03
GROUND	PATHWAY, DIST GP= 1, 942. METERS WINDS TOWARD SSW							
ADULT	2.5E-04	2.5E-04	2.5E-04	2.5E-04	2.5E-04	2.5E-04	2.5E-04	3.0E-04
TEEN	2.5E-04	2.5E-04	2.5E-04	2.5E-04	2.5E-04	2.5E-04	2.5E-04	3.0E-04
CHILD	2.5E-04	2.5E-04	2.5E-04	2.5E-04	2.5E-04	2.5E-04	2.5E-04	3.0E-04
INFNT	2.5E-04	2.5E-04	2.5E-04	2.5E-04	2.5E-04	2.5E-04	2.5E-04	3.0E-04
VEGET	PATHWAY, DIST GP= 1, 770. METERS WINDS TOWARD SSW							
ADULT	4.4E-04	4.2E-04	8.1E-05	4.8E-04	4.4E-04	9.7E-03	3.8E-04	0.0E+00
TEEN	4.9E-04	4.7E-04	1.2E-04	5.8E-04	5.1E-04	8.2E-03	4.4E-04	0.0E+00
CHILD	7.2E-04	6.9E-04	2.6E-04	9.1E-04	7.8E-04	1.2E-02	6.8E-04	0.0E+00
INFNT	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
MEAT	PATHWAY, DIST GP= 1, 8045. METERS WINDS TOWARD SSW							
ADULT	1.3E-06	1.4E-06	1.6E-07	1.4E-06	1.3E-06	2.3E-05	1.1E-06	0.0E+00
TEEN	7.7E-07	8.4E-07	1.3E-07	8.6E-07	8.0E-07	1.6E-05	6.8E-07	0.0E+00
CHILD	9.1E-07	8.9E-07	2.4E-07	1.1E-06	9.8E-07	2.4E-05	8.3E-07	0.0E+00
INFNT	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
COW	PATHWAY, DIST GP= 1, 4091. METERS WINDS TOWARD SSW							
ADULT	1.4E-05	9.8E-06	7.6E-06	1.9E-05	2.0E-05	2.1E-03	8.3E-06	0.0E+00
TEEN	1.9E-05	1.3E-05	1.4E-05	2.9E-05	3.2E-05	3.2E-03	1.1E-05	0.0E+00
CHILD	2.9E-05	1.8E-05	3.3E-05	4.9E-05	5.2E-05	6.4E-03	1.8E-05	0.0E+00
INFNT	4.7E-05	2.6E-05	6.3E-05	9.8E-05	8.7E-05	1.6E-02	2.7E-05	0.0E+00
GOAT	PATHWAY, DIST GP= 1, 4091. METERS WINDS TOWARD SSW							
ADULT	2.9E-05	1.8E-05	1.5E-05	3.7E-05	3.3E-05	2.5E-03	1.7E-05	0.0E+00
TEEN	3.6E-05	2.4E-05	2.7E-05	5.7E-05	5.2E-05	3.9E-03	2.4E-05	0.0E+00
CHILD	5.2E-05	3.5E-05	6.5E-05	9.6E-05	8.4E-05	7.7E-03	3.7E-05	0.0E+00
INFNT	8.1E-05	5.2E-05	1.2E-04	1.9E-04	1.4E-04	1.9E-02	5.9E-05	0.0E+00
INHAL	PATHWAY, DIST GP= 1, 942. METERS WINDS TOWARD SSW							
ADULT	1.5E-04	1.5E-04	1.4E-06	1.5E-04	1.5E-04	6.1E-04	1.5E-04	0.0E+00
TEEN	1.5E-04	1.5E-04	1.9E-06	1.5E-04	1.5E-04	7.2E-04	1.6E-04	0.0E+00
CHILD	1.3E-04	1.3E-04	2.6E-06	1.3E-04	1.3E-04	7.7E-04	1.4E-04	0.0E+00
INFNT	7.5E-05	7.5E-05	1.9E-06	7.7E-05	7.7E-05	6.6E-04	7.9E-05	0.0E+00
SUBTOTALS (NO PLUME)								
ADULT	8.9E-04	8.5E-04	3.6E-04	9.4E-04	9.0E-04	1.5E-02	8.1E-04	3.0E-04
TEEN	9.4E-04	9.1E-04	4.1E-04	1.1E-03	1.0E-03	1.6E-02	8.8E-04	3.0E-04
CHILD	1.2E-03	1.1E-03	6.2E-04	1.4E-03	1.3E-03	2.8E-02	1.1E-03	3.0E-04
INFNT	4.6E-04	4.1E-04	4.3E-04	6.1E-04	5.5E-04	3.5E-02	4.2E-04	3.0E-04
TOTALS								
ADULT	1.9E-03	1.8E-03	1.3E-03	1.9E-03	1.9E-03	1.6E-02	1.8E-03	3.0E-03
TEEN	1.9E-03	1.9E-03	1.4E-03	2.1E-03	2.0E-03	1.7E-02	1.9E-03	3.0E-03
CHILD	2.2E-03	2.1E-03	1.6E-03	2.4E-03	2.3E-03	2.9E-02	2.1E-03	3.0E-03
INFNT	1.4E-03	1.4E-03	1.4E-03	1.6E-03	1.5E-03	3.6E-02	1.4E-03	3.0E-03

APPENDIX 1.3

Summary of Maximum Individual Doses
Second Quarter, 1994



SUMMARY OF MAXIMUM INDIVIDUAL DOSES

2nd Quarter 1994

EFFLUENT	APPLICABLE ORGAN	ESTIMATED DOSE (mRem)	AGE GROUP	LOCATION DIST DIR (M) (Toward)	% OF APPLICABLE LIMIT	LIMIT (mRem) QTR
Liquid	Total Body	6.72E-2	Adult	Receptor 1	4.48E+0	1.5E+0
Liquid	GI Tract	2.57E-1	Adult	Receptor 1	5.14E+0	5.0E+0
Noble Gas	Air Dose (Gamma-mrad)	1.95E-3		651 N	3.90E-2	5.0E+0
Noble Gas	Air dose (Beta-mrad)	2.76E-3		594 S	2.76E-2	1.0E+1
Iodines and Particulates	Liver	1.71E-2	Child	659 N	2.28E-1	7.5E+0

LAST LIQUID DOSE ACCUMULATIONS(MREM)									
START	DATE	94	4	1	1	END	DATE	94	63024
	BONE	LIVER	T.BODY	THYRD	KIDNEY	LUNG	GI-LLI	SKIN	
WATER									
ADULT	2.9E-04	8.6E-03	8.6E-03	8.2E-03	8.2E-03	8.1E-03	1.0E-02	0.0E+00	
TEEN	2.8E-04	6.2E-03	6.0E-03	5.8E-03	5.8E-03	5.7E-03	6.9E-03	0.0E+00	
CHILD	8.1E-04	1.2E-02	1.1E-02	1.1E-02	1.1E-02	1.1E-02	1.2E-02	0.0E+00	
INFANT	8.5E-04	1.2E-02	1.1E-02	1.1E-02	1.1E-02	1.1E-02	1.1E-02	0.0E+00	
SHORE									
ADULT	2.9E-04	2.9E-04	2.9E-04	2.9E-04	2.9E-04	2.9E-04	2.9E-04	3.4E-04	
TEEN	1.6E-03	1.6E-03	1.6E-03	1.6E-03	1.6E-03	1.6E-03	1.6E-03	1.9E-03	
CHILD	3.4E-04	3.4E-04	3.4E-04	3.4E-04	3.4E-04	3.4E-04	3.4E-04	3.9E-04	
INFANT	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	
FW SPT FISH									
ADULT	4.3E-02	7.8E-02	5.8E-02	7.0E-04	2.7E-02	8.8E-03	2.5E-01	0.0E+00	
TEEN	4.5E-02	8.0E-02	3.4E-02	5.7E-04	2.7E-02	1.0E-02	1.7E-01	0.0E+00	
CHILD	5.5E-02	6.9E-02	1.4E-02	5.0E-04	2.3E-02	8.0E-03	6.3E-02	0.0E+00	
INFANT	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	

LAST LIQUID DOSE ACCUMULATIONS(MREM)									
START	DATE	94	4	1	1	END	DATE	94	63024
	BONE	LIVER	T.BODY	THYRD	KIDNEY	LUNG	GI-LLI	SKIN	
TOTAL									
ADULT	4.3E-02	8.7E-02	6.7E-02	9.2E-03	3.5E-02	1.7E-02	2.6E-01	3.4E-04	
TEEN	4.7E-02	8.8E-02	4.2E-02	8.0E-03	3.4E-02	1.8E-02	1.8E-01	1.9E-03	
CHILD	5.6E-02	8.2E-02	2.6E-02	1.2E-02	3.4E-02	1.9E-02	7.5E-02	3.9E-04	
INFANT	8.5E-04	1.2E-02	1.1E-02	1.1E-02	1.1E-02	1.1E-02	1.1E-02	0.0E+00	

DATES OF LAST AIR DOSE ACCUMULATION ARE FROM 94 4 1 1 0 TO 94 63024 0
DOSE ACCUMULATION FOR GAMMA MRAD

FOR RELEASE POINT 1

**DIRECTION FROM N

1.6220E-05	2.2716E-06	1.0338E-06	5.9399E-07	4.1804E-07
2.1279E-07	8.2442E-08	4.0652E-08	2.5920E-08	1.6169E-08

**DIRECTION FROM NNE

0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00

**DIRECTION FROM NE

1.3894E-04	1.4876E-05	7.6847E-06	4.8398E-06	3.5106E-06
1.8589E-06	7.7486E-07	3.8962E-07	2.4996E-07	1.6222E-07

**DIRECTION FROM ENE

2.3111E-08	1.1252E-09	6.7623E-10	4.8285E-10	3.7548E-10
2.2528E-10	1.1263E-10	6.7581E-11	4.8272E-11	3.3769E-11

**DIRECTION FROM E

2.9991E-07	1.4602E-08	8.7755E-09	6.2660E-09	4.8726E-09
2.9235E-09	1.4617E-09	8.7701E-10	6.2643E-10	4.3823E-10

**DIRECTION FROM ESE

2.2618E-04	2.2038E-05	1.1952E-05	7.7594E-06	5.6805E-06
3.0429E-06	1.2938E-06	6.5386E-07	4.2016E-07	2.7532E-07

**DIRECTION FROM SE

0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00

**DIRECTION FROM SSE

0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00

**DIRECTION FROM S

0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00

**DIRECTION FROM SSW

2.2890E-08	1.1144E-09	6.6978E-10	4.7824E-10	3.7189E-10
2.2313E-10	1.1156E-10	6.6936E-11	4.7812E-11	3.3447E-11

**DIRECTION FROM SW

1.9506E-06	9.4965E-08	5.7074E-08	4.0752E-08	3.1690E-08
1.9014E-08	9.5064E-09	5.7038E-09	4.0742E-09	2.8501E-09

**DIRECTION FROM WSW

6.1229E-07	2.9810E-08	1.7916E-08	1.2792E-08	9.9476E-09
5.9684E-09	2.9841E-09	1.7904E-09	1.2789E-09	8.9467E-10

**DIRECTION FROM W

4.2914E-06	2.0893E-07	1.2557E-07	8.9658E-08	6.9721E-08
4.1831E-08	2.0915E-08	1.2549E-08	8.9635E-09	6.2705E-09

**DIRECTION FROM WNW

5.0511E-07	2.4592E-08	1.4779E-08	1.0553E-08	8.2063E-09
4.9236E-09	2.4617E-09	1.4770E-09	1.0550E-09	7.3806E-10

**DIRECTION FROM NW

0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00

**DIRECTION FROM NNW

0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00

DISTANCES USED IN CALCULATIONS

594.0	2416.0	4020.0	5630.0	7240.0
12067.0	24135.0	40225.0	56315.0	80500.0

GAMMA FOR RELEASE POINT 2

**DIRECTION FROM N

9.1940E-04	1.0297E-04	4.8185E-05	2.8620E-05	2.0106E-05
1.0099E-05	3.9690E-06	2.0076E-06	1.3016E-06	8.2559E-07

**DIRECTION FROM NNE

5.8910E-04	6.9785E-05	3.3547E-05	2.0216E-05	1.4311E-05
7.2828E-06	2.9061E-06	1.4620E-06	9.4374E-07	6.0117E-07

**DIRECTION FROM NE

1.0705E-03	1.2345E-04	6.1032E-05	3.7563E-05	2.6633E-05
1.3518E-05	5.4452E-06	2.7495E-06	1.7769E-06	1.1340E-06

**DIRECTION FROM ENE

1.4833E-03	1.6122E-04	8.2828E-05	5.2136E-05	3.7507E-05
1.9524E-05	8.0654E-06	4.0713E-06	2.6220E-06	1.6928E-06

**DIRECTION FROM E

1.9793E-03	2.0994E-04	1.0936E-04	6.9377E-05	5.0166E-05
2.6345E-05	1.0975E-05	5.5398E-06	3.5645E-06	2.3112E-06

**DIRECTION FROM ESE

1.5255E-03	1.6149E-04	8.4418E-05	5.3705E-05	3.8807E-05
2.0339E-05	8.4823E-06	4.2919E-06	2.7669E-06	1.7949E-06

**DIRECTION FROM SE

1.8731E-03	1.9826E-04	1.0386E-04	6.6095E-05	4.7884E-05
2.5233E-05	1.0558E-05	5.3424E-06	3.4429E-06	2.2370E-06

**DIRECTION FROM SSE

2.0504E-03	2.1777E-04	1.1382E-04	7.2348E-05	5.2367E-05
2.7552E-05	1.1512E-05	5.8242E-06	3.7536E-06	2.4371E-06

**DIRECTION FROM S

2.2458E-03	2.4958E-04	1.2654E-04	7.8903E-05	5.6714E-05
2.9544E-05	1.2157E-05	6.1268E-06	3.9436E-06	2.5428E-06

**DIRECTION FROM SSW

1.0860E-03	1.1862E-04	5.9839E-05	3.7229E-05	2.6701E-05
1.3851E-05	5.6743E-06	2.8565E-06	1.8381E-06	1.1847E-06

**DIRECTION FROM SW

7.2029E-04	8.2999E-05	4.0766E-05	2.4997E-05	1.7728E-05
9.0189E-06	3.6425E-06	1.8514E-06	1.2020E-06	7.6833E-07

**DIRECTION FROM WSW

5.2573E-04	5.2639E-05	2.6337E-05	1.6362E-05	1.1752E-05
6.1186E-06	2.5156E-06	1.2759E-06	8.2444E-07	5.3371E-07

**DIRECTION FROM W

8.7182E-04	9.0620E-05	4.6712E-05	2.9488E-05	2.1289E-05
1.1162E-05	4.6446E-06	2.3556E-06	1.5219E-06	9.8859E-07

**DIRECTION FROM WNW

8.5993E-04	9.1254E-05	4.6659E-05	2.9330E-05	2.1098E-05
1.0989E-05	4.5490E-06	2.3103E-06	1.4942E-06	9.6642E-07

**DIRECTION FROM NW

6.1665E-04	7.1756E-05	3.4563E-05	2.0898E-05	1.4788E-05
7.5124E-06	3.0081E-06	1.5266E-06	9.9029E-07	6.3069E-07

**DIRECTION FROM NNW

8.9957E-04	9.6562E-05	4.6620E-05	2.8327E-05	2.0046E-05
1.0168E-05	4.0749E-06	2.0718E-06	1.3449E-06	8.5987E-07

DISTANCES USED IN CALCULATIONS

594.0	2416.0	4020.0	5630.0	7240.0
12067.0	24135.0	40225.0	56315.0	80500.0

DATES OF LAST AIR DOSE ACCUMULATION ARE FROM 94 4 1 1 0 TO 94 63024 0
DOSE ACCUMULATION FOR BETA MRAD

FOR RELEASE POINT 1

**DIRECTION FROM N

1.8261E-03	2.5574E-04	1.1639E-04	6.6871E-05	4.7063E-05
2.3956E-05	9.2814E-06	4.5766E-06	2.9181E-06	1.8203E-06

**DIRECTION FROM NNE

0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00

**DIRECTION FROM NE

1.5637E-02	1.6742E-03	8.6487E-04	5.4469E-04	3.9510E-04
2.0921E-04	8.7205E-05	4.3849E-05	2.8131E-05	1.8256E-05

**DIRECTION FROM ENE

1.7603E-06	8.5702E-08	5.1506E-08	3.6777E-08	2.8599E-08
1.7159E-08	8.5790E-09	5.1474E-09	3.6767E-09	2.5721E-09

**DIRECTION FROM E

2.2844E-05	1.1122E-06	6.6841E-07	4.7726E-07	3.7113E-07
2.2267E-07	1.1133E-07	6.6799E-08	4.7714E-08	3.3379E-08

**DIRECTION FROM ESE

2.5449E-02	2.4798E-03	1.3449E-03	8.7311E-04	6.3919E-04
3.4239E-04	1.4558E-04	7.3571E-05	4.7275E-05	3.0978E-05

**DIRECTION FROM SE

0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00

**DIRECTION FROM SSE

0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00

**DIRECTION FROM S

0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00

**DIRECTION FROM SSW

2.3498E-06	1.1440E-07	6.8756E-08	4.9094E-08	3.8176E-08
2.2905E-08	1.1452E-08	6.8713E-09	4.9081E-09	3.4335E-09

**DIRECTION FROM SW

2.1237E-04	1.0340E-05	6.2140E-06	4.4370E-06	3.4503E-06
2.0701E-06	1.0350E-06	6.2101E-07	4.4358E-07	3.1031E-07

**DIRECTION FROM WSW

6.7954E-05	3.3084E-06	1.9883E-06	1.4197E-06	1.1040E-06
6.6239E-07	3.3118E-07	1.9871E-07	1.4194E-07	9.9293E-08

**DIRECTION FROM W

4.6539E-04	2.2658E-05	1.3617E-05	9.7233E-06	7.5610E-06
4.5365E-06	2.2682E-06	1.3609E-06	9.7207E-07	6.8002E-07

**DIRECTION FROM WNW

5.4778E-05	2.6669E-06	1.6028E-06	1.1445E-06	8.8995E-07
5.3396E-07	2.6697E-07	1.6018E-07	1.1441E-07	8.0041E-08

**DIRECTION FROM NW

0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00

**DIRECTION FROM NNW

0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00

DISTANCES USED IN CALCULATIONS

594.0	2416.0	4020.0	5630.0	7240.0
12067.0	24135.0	40225.0	56315.0	80500.0

BETA FOR RELEASE POINT 2

**DIRECTION FROM N				
9.3553E-04	1.0653E-04	4.9912E-05	2.9646E-05	2.0811E-05
1.0432E-05	4.0877E-06	2.0594E-06	1.3315E-06	8.4213E-07
**DIRECTION FROM NNE				
5.5368E-04	6.5210E-05	3.1445E-05	1.8997E-05	1.3440E-05
6.8254E-06	2.7220E-06	1.3683E-06	8.8291E-07	5.6245E-07
**DIRECTION FROM NE				
1.0856E-03	1.2585E-04	6.2819E-05	3.8880E-05	2.7636E-05
1.4084E-05	5.7059E-06	2.8840E-06	1.8640E-06	1.1917E-06
**DIRECTION FROM ENE				
1.4956E-03	1.6227E-04	8.3465E-05	5.2569E-05	3.7832E-05
1.9706E-05	8.1447E-06	4.1101E-06	2.6461E-06	1.7087E-06
**DIRECTION FROM E				
1.9105E-03	2.0306E-04	1.0567E-04	6.6984E-05	4.8423E-05
2.5420E-05	1.0582E-05	5.3389E-06	3.4341E-06	2.2259E-06
**DIRECTION FROM ESE				
1.5446E-03	1.6329E-04	8.5533E-05	5.4469E-05	3.9387E-05
2.0668E-05	8.6273E-06	4.3634E-06	2.8117E-06	1.8245E-06
**DIRECTION FROM SE				
1.6878E-03	1.7736E-04	9.3296E-05	5.9520E-05	4.3163E-05
2.2777E-05	9.5478E-06	4.8314E-06	3.1130E-06	2.0243E-06
**DIRECTION FROM SSE				
1.9057E-03	2.0234E-04	1.0581E-04	6.7263E-05	4.8700E-05
2.5636E-05	1.0714E-05	5.4183E-06	3.4909E-06	2.2668E-06
**DIRECTION FROM S				
2.1893E-03	2.4360E-04	1.2352E-04	7.7028E-05	5.5360E-05
2.8831E-05	1.1861E-05	5.9763E-06	3.8463E-06	2.4798E-06
**DIRECTION FROM SSW				
1.1259E-03	1.2215E-04	6.1904E-05	3.8616E-05	2.7742E-05
1.4431E-05	5.9290E-06	2.9841E-06	1.9194E-06	1.2388E-06
**DIRECTION FROM SW				
7.3515E-04	8.5260E-05	4.2032E-05	2.5825E-05	1.8325E-05
9.3268E-06	3.7690E-06	1.9123E-06	1.2399E-06	7.9229E-07
**DIRECTION FROM WSW				
5.5623E-04	5.6266E-05	2.8321E-05	1.7642E-05	1.2691E-05
6.6235E-06	2.7276E-06	1.3791E-06	8.8901E-07	5.7552E-07
**DIRECTION FROM W				
8.9763E-04	9.3040E-05	4.8069E-05	3.0378E-05	2.1945E-05
1.1516E-05	4.7926E-06	2.4263E-06	1.5653E-06	1.0168E-06
**DIRECTION FROM WNW				
8.2778E-04	8.7651E-05	4.5022E-05	2.8372E-05	2.0434E-05
1.0663E-05	4.4226E-06	2.2448E-06	1.4509E-06	9.3918E-07
**DIRECTION FROM NW				
6.1340E-04	7.1984E-05	3.4643E-05	2.0919E-05	1.4808E-05
7.5318E-06	3.0139E-06	1.5259E-06	9.8823E-07	6.2903E-07
**DIRECTION FROM NNW				
9.1952E-04	9.9893E-05	4.8250E-05	2.9305E-05	2.0739E-05
1.0521E-05	4.2130E-06	2.1377E-06	1.3858E-06	8.8507E-07

DISTANCES USED IN CALCULATIONS

594.0 2416.0 4020.0 5630.0 7240.0
 12067.0 24135.0 40225.0 56315.0 80500.0

INDIVIDUAL DOSES (MREM) DUE TO GASEOUS EFFLUENT
FOR DATES 94 4 1 1 THRU 94 63024

	T.BODY	GI-TRCT	BONE	LIVER	KIDNEY	THYRD	LUNG	SKIN
PLUME	PATHWAY, DIST GP= 1, 659. METERS WINDS TOWARD N							
ADULT	1.2E-03	1.2E-03	1.2E-03	1.2E-03	1.2E-03	1.2E-03	1.2E-03	2.3E-03
TEEN	1.2E-03	1.2E-03	1.2E-03	1.2E-03	1.2E-03	1.2E-03	1.2E-03	2.3E-03
CHILD	1.2E-03	1.2E-03	1.2E-03	1.2E-03	1.2E-03	1.2E-03	1.2E-03	2.3E-03
INFNT	1.2E-03	1.2E-03	1.2E-03	1.2E-03	1.2E-03	1.2E-03	1.2E-03	2.3E-03
GROUND	PATHWAY, DIST GP= 1, 659. METERS WINDS TOWARD N							
ADULT	3.4E-03	3.4E-03	3.4E-03	3.4E-03	3.4E-03	3.4E-03	3.4E-03	4.0E-03
TEEN	3.4E-03	3.4E-03	3.4E-03	3.4E-03	3.4E-03	3.4E-03	3.4E-03	4.0E-03
CHILD	3.4E-03	3.4E-03	3.4E-03	3.4E-03	3.4E-03	3.4E-03	3.4E-03	4.0E-03
INFNT	3.4E-03	3.4E-03	3.4E-03	3.4E-03	3.4E-03	3.4E-03	3.4E-03	4.0E-03
VEGET	PATHWAY, DIST GP= 1, 8045. METERS WINDS TOWARD N							
ADULT	7.6E-05	4.7E-05	3.1E-05	9.1E-05	6.0E-05	1.2E-04	5.0E-05	0.0E+00
TEEN	7.7E-05	5.3E-05	4.9E-05	1.2E-04	7.5E-05	1.2E-04	6.0E-05	0.0E+00
CHILD	9.8E-05	8.1E-05	1.1E-04	2.0E-04	1.2E-04	1.8E-04	9.3E-05	0.0E+00
INFNT	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
MEAT	PATHWAY, DIST GP= 1, 8045. METERS WINDS TOWARD N							
ADULT	9.6E-06	6.9E-06	3.1E-06	1.1E-05	8.0E-06	1.6E-05	6.9E-06	0.0E+00
TEEN	5.2E-06	4.1E-06	2.5E-06	7.6E-06	5.1E-06	1.1E-05	4.3E-06	0.0E+00
CHILD	5.5E-06	4.8E-06	4.7E-06	9.5E-06	6.2E-06	1.5E-05	5.2E-06	0.0E+00
INFNT	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
COW	PATHWAY, DIST GP= 1, 4091. METERS WINDS TOWARD N							
ADULT	1.3E-04	4.1E-05	9.2E-05	1.8E-04	8.8E-05	9.6E-04	5.2E-05	0.0E+00
TEEN	1.4E-04	5.4E-05	1.7E-04	2.9E-04	1.4E-04	1.5E-03	8.0E-05	0.0E+00
CHILD	1.5E-04	8.1E-05	4.0E-04	4.9E-04	2.2E-04	3.0E-03	1.2E-04	0.0E+00
INFNT	1.9E-04	1.2E-04	6.4E-04	9.2E-04	3.5E-04	7.1E-03	2.0E-04	0.0E+00
GOAT	PATHWAY, DIST GP= 1, 4091. METERS WINDS TOWARD N							
ADULT	3.6E-04	8.5E-05	2.7E-04	4.8E-04	2.2E-04	1.2E-03	1.2E-04	0.0E+00
TEEN	3.7E-04	1.1E-04	4.9E-04	8.1E-04	3.5E-04	1.9E-03	1.9E-04	0.0E+00
CHILD	3.6E-04	1.6E-04	1.2E-03	1.4E-03	5.6E-04	3.6E-03	3.0E-04	0.0E+00
INFNT	4.3E-04	2.5E-04	1.9E-03	2.6E-03	8.9E-04	8.7E-03	4.9E-04	0.0E+00
INHAL	PATHWAY, DIST GP= 1, 659. METERS WINDS TOWARD N							
ADULT	1.0E-03	9.7E-04	5.4E-05	1.0E-03	1.0E-03	1.9E-03	1.0E-03	0.0E+00
TEEN	1.0E-03	9.7E-04	7.6E-05	1.1E-03	1.0E-03	2.1E-03	1.0E-03	0.0E+00
CHILD	8.8E-04	8.6E-04	1.0E-04	9.6E-04	9.0E-04	2.2E-03	9.1E-04	0.0E+00
INFNT	5.0E-04	4.9E-04	6.3E-05	5.7E-04	5.2E-04	1.7E-03	5.3E-04	0.0E+00
SUBTOTALS (NO PLUME)								
ADULT	5.0E-03	4.6E-03	3.9E-03	5.2E-03	4.8E-03	7.6E-03	4.7E-03	4.0E-03
TEEN	5.0E-03	4.6E-03	4.2E-03	5.7E-03	5.0E-03	9.1E-03	4.8E-03	4.0E-03
CHILD	4.9E-03	4.6E-03	5.2E-03	6.5E-03	5.3E-03	1.2E-02	4.9E-03	4.0E-03
INFNT	4.6E-03	4.3E-03	6.0E-03	7.5E-03	5.2E-03	2.1E-02	4.7E-03	4.0E-03
TOTALS								
ADULT	6.2E-03	5.8E-03	5.1E-03	6.4E-03	6.0E-03	8.8E-03	5.9E-03	6.3E-03
TEEN	6.2E-03	5.8E-03	5.4E-03	6.9E-03	6.2E-03	1.0E-02	6.0E-03	6.3E-03
CHILD	6.1E-03	5.8E-03	6.4E-03	7.6E-03	6.4E-03	1.4E-02	6.0E-03	6.3E-03
INFNT	5.7E-03	5.5E-03	7.2E-03	8.7E-03	6.4E-03	2.2E-02	5.8E-03	6.3E-03

INDIVIDUAL DOSES (MREM) DUE TO GASEOUS EFFLUENT
FOR DATES 94 4 1 1 THRU 94 63024

	T.BODY	GI-TRCT	BONE	LIVER	KIDNEY	THYRD	LUNG	SKIN
PLUME	PATHWAY, DIST GP= 1, 660. METERS WINDS TOWARD NNE							
ADULT	5.5E-04	5.5E-04	5.5E-04	5.5E-04	5.5E-04	5.5E-04	5.6E-04	1.1E-03
TEEN	5.5E-04	5.5E-04	5.5E-04	5.5E-04	5.5E-04	5.5E-04	5.6E-04	1.1E-03
CHILD	5.5E-04	5.5E-04	5.5E-04	5.5E-04	5.5E-04	5.5E-04	5.6E-04	1.1E-03
INFNT	5.5E-04	5.5E-04	5.5E-04	5.5E-04	5.5E-04	5.5E-04	5.6E-04	1.1E-03
GROUND	PATHWAY, DIST GP= 1, 660. METERS WINDS TOWARD NNE							
ADULT	2.2E-03	2.2E-03	2.2E-03	2.2E-03	2.2E-03	2.2E-03	2.2E-03	2.6E-03
TEEN	2.2E-03	2.2E-03	2.2E-03	2.2E-03	2.2E-03	2.2E-03	2.2E-03	2.6E-03
CHILD	2.2E-03	2.2E-03	2.2E-03	2.2E-03	2.2E-03	2.2E-03	2.2E-03	2.6E-03
INFNT	2.2E-03	2.2E-03	2.2E-03	2.2E-03	2.2E-03	2.2E-03	2.2E-03	2.6E-03
VEGET	PATHWAY, DIST GP= 1, 814. METERS WINDS TOWARD NNE							
ADULT	1.2E-03	3.0E-04	9.7E-04	1.7E-03	7.4E-04	2.5E-03	4.1E-04	0.0E+00
TEEN	1.1E-03	3.4E-04	1.5E-03	2.5E-03	1.0E-03	2.2E-03	5.7E-04	0.0E+00
CHILD	1.0E-03	4.8E-04	3.6E-03	4.2E-03	1.7E-03	3.3E-03	8.7E-04	0.0E+00
INFNT	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
MEAT	PATHWAY, DIST GP= 1, 7725. METERS WINDS TOWARD NNE							
ADULT	3.5E-06	1.5E-06	2.2E-06	4.4E-06	2.3E-06	7.3E-06	1.6E-06	0.0E+00
TEEN	1.7E-06	8.9E-07	1.8E-06	3.3E-06	1.6E-06	5.2E-06	1.1E-06	0.0E+00
CHILD	1.5E-06	9.6E-07	3.3E-06	4.3E-06	2.0E-06	7.6E-06	1.3E-06	0.0E+00
INFNT	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
COW	PATHWAY, DIST GP= 1, 4091. METERS WINDS TOWARD NNE							
ADULT	6.8E-05	9.1E-06	6.0E-05	9.7E-05	3.9E-05	5.6E-04	1.7E-05	0.0E+00
TEEN	6.8E-05	1.2E-05	1.1E-04	1.7E-04	6.6E-05	8.8E-04	2.9E-05	0.0E+00
CHILD	5.9E-05	1.6E-05	2.6E-04	2.8E-04	1.1E-04	1.7E-03	4.5E-05	0.0E+00
INFNT	6.6E-05	2.3E-05	4.2E-04	5.4E-04	1.7E-04	4.2E-03	7.6E-05	0.0E+00
GOAT	PATHWAY, DIST GP= 1, 4091. METERS WINDS TOWARD NNE							
ADULT	2.0E-04	1.9E-05	1.8E-04	2.8E-04	1.1E-04	6.7E-04	4.3E-05	0.0E+00
TEEN	1.9E-04	2.5E-05	3.2E-04	4.9E-04	1.8E-04	1.1E-03	7.8E-05	0.0E+00
CHILD	1.6E-04	3.4E-05	7.7E-04	8.3E-04	2.9E-04	2.1E-03	1.2E-04	0.0E+00
INFNT	1.7E-04	4.8E-05	1.2E-03	1.6E-03	4.7E-04	5.1E-03	2.1E-04	0.0E+00
INHAL	PATHWAY, DIST GP= 1, 660. METERS WINDS TOWARD NNE							
ADULT	2.2E-04	2.0E-04	2.4E-05	2.3E-04	2.1E-04	6.5E-04	2.1E-04	0.0E+00
TEEN	2.1E-04	2.0E-04	3.3E-05	2.4E-04	2.1E-04	7.6E-04	2.2E-04	0.0E+00
CHILD	1.8E-04	1.7E-04	4.4E-05	2.2E-04	1.9E-04	8.3E-04	2.0E-04	0.0E+00
INFNT	1.0E-04	1.0E-04	2.7E-05	1.3E-04	1.1E-04	7.0E-04	1.1E-04	0.0E+00
SUBTOTALS (NO PLUME)								
ADULT	4.0E-03	2.8E-03	3.5E-03	4.5E-03	3.3E-03	6.7E-03	2.9E-03	2.6E-03
TEEN	3.8E-03	2.8E-03	4.2E-03	5.6E-03	3.7E-03	7.1E-03	3.1E-03	2.6E-03
CHILD	3.7E-03	2.9E-03	6.9E-03	7.7E-03	4.5E-03	1.0E-02	3.5E-03	2.6E-03
INFNT	2.6E-03	2.4E-03	3.9E-03	4.5E-03	3.0E-03	1.2E-02	2.6E-03	2.6E-03
TOTALS								
ADULT	4.5E-03	3.3E-03	4.0E-03	5.1E-03	3.9E-03	7.2E-03	3.5E-03	3.7E-03
TEEN	4.4E-03	3.4E-03	4.8E-03	6.2E-03	4.3E-03	7.7E-03	3.7E-03	3.7E-03
CHILD	4.2E-03	3.5E-03	7.5E-03	8.3E-03	5.0E-03	1.1E-02	4.0E-03	3.7E-03
INFNT	3.1E-03	3.0E-03	4.5E-03	5.0E-03	3.5E-03	1.3E-02	3.2E-03	3.7E-03

INDIVIDUAL DOSES (MREM) DUE TO GASEOUS EFFLUENT
FOR DATES 94 4 1 1 THRU 94 63024

	T.BODY	GI-TRCT	BONE	LIVER	KIDNEY	THYRD	LUNG	SKIN
PLUME	PATHWAY, DIST GP= 1, 943. METERS WINDS TOWARD NE							
ADULT	2.1E-04	2.1E-04	2.1E-04	2.1E-04	2.1E-04	2.1E-04	2.1E-04	4.7E-04
TEEN	2.1E-04	2.1E-04	2.1E-04	2.1E-04	2.1E-04	2.1E-04	2.1E-04	4.7E-04
CHILD	2.1E-04	2.1E-04	2.1E-04	2.1E-04	2.1E-04	2.1E-04	2.1E-04	4.7E-04
INFNT	2.1E-04	2.1E-04	2.1E-04	2.1E-04	2.1E-04	2.1E-04	2.1E-04	4.7E-04
GROUND	PATHWAY, DIST GP= 1, 943. METERS WINDS TOWARD NE							
ADULT	1.7E-03	1.7E-03	1.7E-03	1.7E-03	1.7E-03	1.7E-03	1.7E-03	2.0E-03
TEEN	1.7E-03	1.7E-03	1.7E-03	1.7E-03	1.7E-03	1.7E-03	1.7E-03	2.0E-03
CHILD	1.7E-03	1.7E-03	1.7E-03	1.7E-03	1.7E-03	1.7E-03	1.7E-03	2.0E-03
INFNT	1.7E-03	1.7E-03	1.7E-03	1.7E-03	1.7E-03	1.7E-03	1.7E-03	2.0E-03
VEGET	PATHWAY, DIST GP= 1, 1052. METERS WINDS TOWARD NE							
ADULT	1.1E-03	2.1E-04	8.8E-04	1.5E-03	6.1E-04	2.5E-03	3.0E-04	0.0E+00
TEEN	9.3E-04	2.3E-04	1.4E-03	2.2E-03	8.7E-04	2.1E-03	4.4E-04	0.0E+00
CHILD	8.2E-04	3.1E-04	3.3E-03	3.7E-03	1.4E-03	3.2E-03	6.7E-04	0.0E+00
INFNT	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
MEAT	PATHWAY, DIST GP= 1, 7725. METERS WINDS TOWARD NE							
ADULT	4.3E-06	1.6E-06	3.0E-06	5.7E-06	2.7E-06	1.1E-05	1.7E-06	0.0E+00
TEEN	2.1E-06	9.5E-07	2.5E-06	4.3E-06	2.0E-06	7.6E-06	1.2E-06	0.0E+00
CHILD	1.7E-06	9.8E-07	4.5E-06	5.6E-06	2.4E-06	1.1E-05	1.4E-06	0.0E+00
INFNT	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
COW	PATHWAY, DIST GP= 1, 4091. METERS WINDS TOWARD NE							
ADULT	9.2E-05	9.6E-06	8.4E-05	1.3E-04	5.2E-05	8.6E-04	2.0E-05	0.0E+00
TEEN	9.1E-05	1.2E-05	1.5E-04	2.3E-04	8.8E-05	1.4E-03	3.6E-05	0.0E+00
CHILD	7.6E-05	1.6E-05	3.6E-04	3.9E-04	1.4E-04	2.7E-03	5.6E-05	0.0E+00
INFNT	8.2E-05	2.3E-05	5.8E-04	7.5E-04	2.3E-04	6.5E-03	9.6E-05	0.0E+00
GOAT	PATHWAY, DIST GP= 1, 4091. METERS WINDS TOWARD NE							
ADULT	2.7E-04	2.1E-05	2.5E-04	3.8E-04	1.4E-04	1.0E-03	5.4E-05	0.0E+00
TEEN	2.6E-04	2.7E-05	4.5E-04	6.7E-04	2.4E-04	1.6E-03	1.0E-04	0.0E+00
CHILD	2.1E-04	3.4E-05	1.1E-03	1.1E-03	4.0E-04	3.2E-03	1.5E-04	0.0E+00
INFNT	2.1E-04	4.8E-05	1.7E-03	2.2E-03	6.3E-04	7.8E-03	2.7E-04	0.0E+00
INHAL	PATHWAY, DIST GP= 1, 943. METERS WINDS TOWARD NE							
ADULT	1.1E-04	1.1E-04	8.9E-06	1.2E-04	1.1E-04	2.7E-04	1.1E-04	0.0E+00
TEEN	1.1E-04	1.1E-04	1.2E-05	1.2E-04	1.1E-04	3.2E-04	1.1E-04	0.0E+00
CHILD	9.6E-05	9.3E-05	1.7E-05	1.1E-04	1.0E-04	3.4E-04	1.0E-04	0.0E+00
INFNT	5.5E-05	5.4E-05	1.0E-05	6.6E-05	5.8E-05	2.8E-04	5.9E-05	0.0E+00
SUBTOTALS (NO PLUME)								
ADULT	3.3E-03	2.1E-03	3.0E-03	3.8E-03	2.6E-03	6.4E-03	2.2E-03	2.0E-03
TEEN	3.1E-03	2.1E-03	3.7E-03	5.0E-03	3.0E-03	7.1E-03	2.4E-03	2.0E-03
CHILD	2.9E-03	2.2E-03	6.5E-03	7.0E-03	3.8E-03	1.1E-02	2.7E-03	2.0E-03
INFNT	2.1E-03	1.9E-03	4.0E-03	4.7E-03	2.7E-03	1.6E-02	2.2E-03	2.0E-03
TOTALS								
ADULT	3.5E-03	2.3E-03	3.2E-03	4.0E-03	2.9E-03	6.6E-03	2.4E-03	2.5E-03
TEEN	3.3E-03	2.3E-03	3.9E-03	5.2E-03	3.3E-03	7.3E-03	2.6E-03	2.5E-03
CHILD	3.1E-03	2.4E-03	6.7E-03	7.2E-03	4.0E-03	1.1E-02	2.9E-03	2.5E-03
INFNT	2.3E-03	2.1E-03	4.2E-03	4.9E-03	2.9E-03	1.7E-02	2.4E-03	2.5E-03

INDIVIDUAL DOSES (MREM) DUE TO GASEOUS EFFLUENT
FOR DATES 94 4 1 1 THRU 94 63024

	T.BODY	GI-TRCT	BONE	LIVER	KIDNEY	THYRD	LUNG	SKIN
PLUME	PATHWAY, DIST GP= 1, 1747. METERS WINDS TOWARD ENE							
ADULT	5.0E-05	5.0E-05	5.0E-05	5.0E-05	5.0E-05	5.0E-05	5.1E-05	1.1E-04
TEEN	5.0E-05	5.0E-05	5.0E-05	5.0E-05	5.0E-05	5.0E-05	5.1E-05	1.1E-04
CHILD	5.0E-05	5.0E-05	5.0E-05	5.0E-05	5.0E-05	5.0E-05	5.1E-05	1.1E-04
INFNT	5.0E-05	5.0E-05	5.0E-05	5.0E-05	5.0E-05	5.0E-05	5.1E-05	1.1E-04
GROUND	PATHWAY, DIST GP= 1, 1747. METERS WINDS TOWARD ENE							
ADULT	6.2E-04	6.2E-04	6.2E-04	6.2E-04	6.2E-04	6.2E-04	6.2E-04	7.2E-04
TEEN	6.2E-04	6.2E-04	6.2E-04	6.2E-04	6.2E-04	6.2E-04	6.2E-04	7.2E-04
CHILD	6.2E-04	6.2E-04	6.2E-04	6.2E-04	6.2E-04	6.2E-04	6.2E-04	7.2E-04
INFNT	6.2E-04	6.2E-04	6.2E-04	6.2E-04	6.2E-04	6.2E-04	6.2E-04	7.2E-04
VEGET	PATHWAY, DIST GP= 1, 1852. METERS WINDS TOWARD ENE							
ADULT	4.2E-04	8.8E-05	3.5E-04	5.9E-04	2.4E-04	8.1E-04	1.3E-04	0.0E+00
TEEN	3.7E-04	9.9E-05	5.5E-04	8.7E-04	3.5E-04	7.0E-04	1.8E-04	0.0E+00
CHILD	3.4E-04	1.3E-04	1.3E-03	1.5E-03	5.5E-04	1.1E-03	2.7E-04	0.0E+00
INFNT	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
MEAT	PATHWAY, DIST GP= 1, 3862. METERS WINDS TOWARD ENE							
ADULT	1.4E-05	4.7E-06	1.1E-05	1.9E-05	8.8E-06	3.1E-05	5.0E-06	0.0E+00
TEEN	6.9E-06	2.7E-06	8.8E-06	1.5E-05	6.4E-06	2.2E-05	3.6E-06	0.0E+00
CHILD	5.2E-06	2.7E-06	1.6E-05	1.9E-05	7.9E-06	3.3E-05	4.3E-06	0.0E+00
INFNT	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
COW	PATHWAY, DIST GP= 1, 4091. METERS WINDS TOWARD ENE							
ADULT	9.3E-05	1.0E-05	8.4E-05	1.3E-04	5.2E-05	7.1E-04	2.1E-05	0.0E+00
TEEN	9.2E-05	1.3E-05	1.5E-04	2.3E-04	8.8E-05	1.1E-03	3.7E-05	0.0E+00
CHILD	7.8E-05	1.7E-05	3.6E-04	3.9E-04	1.4E-04	2.2E-03	5.7E-05	0.0E+00
INFNT	8.4E-05	2.5E-05	5.8E-04	7.5E-04	2.3E-04	5.4E-03	9.9E-05	0.0E+00
GOAT	PATHWAY, DIST GP= 1, 4091. METERS WINDS TOWARD ENE							
ADULT	2.7E-04	2.2E-05	2.5E-04	3.9E-04	1.4E-04	8.6E-04	5.6E-05	0.0E+00
TEEN	2.6E-04	2.8E-05	4.5E-04	6.8E-04	2.4E-04	1.4E-03	1.0E-04	0.0E+00
CHILD	2.1E-04	3.7E-05	1.1E-03	1.2E-03	4.0E-04	2.7E-03	1.6E-04	0.0E+00
INFNT	2.2E-04	5.2E-05	1.7E-03	2.2E-03	6.4E-04	6.5E-03	2.8E-04	0.0E+00
INHAL	PATHWAY, DIST GP= 1, 1747. METERS WINDS TOWARD ENE							
ADULT	4.3E-05	4.2E-05	1.5E-06	4.4E-05	4.3E-05	9.4E-05	4.3E-05	0.0E+00
TEEN	4.3E-05	4.2E-05	2.2E-06	4.5E-05	4.3E-05	1.1E-04	4.4E-05	0.0E+00
CHILD	3.8E-05	3.7E-05	2.9E-06	4.0E-05	3.8E-05	1.1E-04	3.9E-05	0.0E+00
INFNT	2.1E-05	2.1E-05	1.8E-06	2.3E-05	2.2E-05	9.0E-05	2.3E-05	0.0E+00
SUBTOTALS (NO PLUME)								
ADULT	1.5E-03	7.8E-04	1.3E-03	1.8E-03	1.1E-03	3.1E-03	8.7E-04	7.2E-04
TEEN	1.4E-03	8.0E-04	1.8E-03	2.5E-03	1.3E-03	3.9E-03	9.9E-04	7.2E-04
CHILD	1.3E-03	8.5E-04	3.4E-03	3.7E-03	1.8E-03	6.7E-03	1.2E-03	7.2E-04
INFNT	9.4E-04	7.2E-04	2.9E-03	3.6E-03	1.5E-03	1.3E-02	1.0E-03	7.2E-04
TOTALS								
ADULT	1.5E-03	8.3E-04	1.4E-03	1.8E-03	1.2E-03	3.2E-03	9.2E-04	8.3E-04
TEEN	1.4E-03	8.5E-04	1.8E-03	2.5E-03	1.4E-03	4.0E-03	1.0E-03	8.3E-04
CHILD	1.3E-03	9.0E-04	3.4E-03	3.7E-03	1.8E-03	6.8E-03	1.2E-03	8.3E-04
INFNT	9.9E-04	7.7E-04	3.0E-03	3.7E-03	1.6E-03	1.3E-02	1.1E-03	8.3E-04

INDIVIDUAL DOSES (MREM) DUE TO GASEOUS EFFLUENT
FOR DATES 94 4 1 1 THRU 94 63024

	T.BODY	GI-TRCT	BONE	LIVER	KIDNEY	THYRD	LUNG	SKIN
PLUME	PATHWAY, DIST GP= 1, 1716. METERS WINDS TOWARD E							
ADULT	8.8E-05	8.8E-05	8.8E-05	8.8E-05	8.8E-05	8.8E-05	9.0E-05	2.1E-04
TEEN	8.8E-05	8.8E-05	8.8E-05	8.8E-05	8.8E-05	8.8E-05	9.0E-05	2.1E-04
CHILD	8.8E-05	8.8E-05	8.8E-05	8.8E-05	8.8E-05	8.8E-05	9.0E-05	2.1E-04
INFNT	8.8E-05	8.8E-05	8.8E-05	8.8E-05	8.8E-05	8.8E-05	9.0E-05	2.1E-04
GROUND	PATHWAY, DIST GP= 1, 1716. METERS WINDS TOWARD E							
ADULT	4.3E-04	4.3E-04	4.3E-04	4.3E-04	4.3E-04	4.3E-04	4.3E-04	5.0E-04
TEEN	4.3E-04	4.3E-04	4.3E-04	4.3E-04	4.3E-04	4.3E-04	4.3E-04	5.0E-04
CHILD	4.3E-04	4.3E-04	4.3E-04	4.3E-04	4.3E-04	4.3E-04	4.3E-04	5.0E-04
INFNT	4.3E-04	4.3E-04	4.3E-04	4.3E-04	4.3E-04	4.3E-04	4.3E-04	5.0E-04
VEGET	PATHWAY, DIST GP= 1, 1705. METERS WINDS TOWARD E							
ADULT	3.1E-04	5.1E-05	2.7E-04	4.4E-04	1.7E-04	5.6E-04	8.1E-05	0.0E+00
TEEN	2.7E-04	5.7E-05	4.3E-04	6.6E-04	2.5E-04	4.8E-04	1.2E-04	0.0E+00
CHILD	2.3E-04	7.4E-05	1.0E-03	1.1E-03	4.0E-04	7.2E-04	1.8E-04	0.0E+00
INFNT	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
MEAT	PATHWAY, DIST GP= 1, 6810. METERS WINDS TOWARD E							
ADULT	3.5E-06	1.1E-06	2.6E-06	4.6E-06	2.1E-06	6.8E-06	1.2E-06	0.0E+00
TEEN	1.6E-06	6.6E-07	2.1E-06	3.6E-06	1.5E-06	4.8E-06	8.7E-07	0.0E+00
CHILD	1.3E-06	6.7E-07	3.9E-06	4.6E-06	1.9E-06	7.1E-06	1.0E-06	0.0E+00
INFNT	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
COW	PATHWAY, DIST GP= 1, 4091. METERS WINDS TOWARD E							
ADULT	6.2E-05	5.6E-06	5.7E-05	8.9E-05	3.4E-05	4.3E-04	1.3E-05	0.0E+00
TEEN	6.1E-05	7.2E-06	1.0E-04	1.5E-04	5.8E-05	6.9E-04	2.4E-05	0.0E+00
CHILD	5.0E-05	9.1E-06	2.5E-04	2.6E-04	9.5E-05	1.4E-03	3.6E-05	0.0E+00
INFNT	5.2E-05	1.3E-05	3.9E-04	5.1E-04	1.5E-04	3.3E-03	6.3E-05	0.0E+00
GOAT	PATHWAY, DIST GP= 1, 4091. METERS WINDS TOWARD E							
ADULT	1.8E-04	1.2E-05	1.7E-04	2.6E-04	9.4E-05	5.2E-04	3.5E-05	0.0E+00
TEEN	1.8E-04	1.6E-05	3.0E-04	4.5E-04	1.6E-04	8.3E-04	6.7E-05	0.0E+00
CHILD	1.4E-04	1.9E-05	7.3E-04	7.8E-04	2.7E-04	1.6E-03	1.0E-04	0.0E+00
INFNT	1.4E-04	2.7E-05	1.2E-03	1.5E-03	4.2E-04	4.0E-03	1.8E-04	0.0E+00
INHAL	PATHWAY, DIST GP= 1, 1716. METERS WINDS TOWARD E							
ADULT	2.4E-05	2.0E-05	4.1E-06	2.5E-05	2.2E-05	8.6E-05	2.2E-05	0.0E+00
TEEN	2.3E-05	2.0E-05	5.7E-06	2.8E-05	2.3E-05	1.0E-04	2.4E-05	0.0E+00
CHILD	1.9E-05	1.8E-05	7.7E-06	2.5E-05	2.0E-05	1.1E-04	2.1E-05	0.0E+00
INFNT	1.1E-05	1.0E-05	4.7E-06	1.6E-05	1.2E-05	9.8E-05	1.2E-05	0.0E+00
SUBTOTALS (NO PLUME)								
ADULT	1.0E-03	5.2E-04	9.3E-04	1.2E-03	7.5E-04	2.0E-03	5.8E-04	5.0E-04
TEEN	9.6E-04	5.3E-04	1.3E-03	1.7E-03	9.3E-04	2.5E-03	6.7E-04	5.0E-04
CHILD	8.7E-04	5.5E-04	2.4E-03	2.6E-03	1.2E-03	4.3E-03	7.7E-04	5.0E-04
INFNT	6.3E-04	4.8E-04	2.0E-03	2.4E-03	1.0E-03	7.8E-03	6.8E-04	5.0E-04
TOTALS								
ADULT	1.1E-03	6.1E-04	1.0E-03	1.3E-03	8.4E-04	2.1E-03	6.7E-04	7.1E-04
TEEN	1.0E-03	6.2E-04	1.4E-03	1.8E-03	1.0E-03	2.6E-03	7.5E-04	7.1E-04
CHILD	9.6E-04	6.4E-04	2.5E-03	2.7E-03	1.3E-03	4.3E-03	8.6E-04	7.1E-04
INFNT	7.2E-04	5.7E-04	2.1E-03	2.5E-03	1.1E-03	7.9E-03	7.7E-04	7.1E-04

INDIVIDUAL DOSES (MREM) DUE TO GASEOUS EFFLUENT
FOR DATES 94 4 1 1 THRU 94 63024

	T.BODY	GI-TRCT	BONE	LIVER	KIDNEY	THYRD	LUNG	SKIN
PLUME	PATHWAY, DIST GP= 1, 1643. METERS WINDS TOWARD ESE							
ADULT	9.0E-05	9.0E-05	9.0E-05	9.0E-05	9.0E-05	9.0E-05	9.1E-05	1.8E-04
TEEN	9.0E-05	9.0E-05	9.0E-05	9.0E-05	9.0E-05	9.0E-05	9.1E-05	1.8E-04
CHILD	9.0E-05	9.0E-05	9.0E-05	9.0E-05	9.0E-05	9.0E-05	9.1E-05	1.8E-04
INFNT	9.0E-05	9.0E-05	9.0E-05	9.0E-05	9.0E-05	9.0E-05	9.1E-05	1.8E-04
GROUND	PATHWAY, DIST GP= 1, 1643. METERS WINDS TOWARD ESE							
ADULT	4.8E-04	4.8E-04	4.8E-04	4.8E-04	4.8E-04	4.8E-04	4.8E-04	5.6E-04
TEEN	4.8E-04	4.8E-04	4.8E-04	4.8E-04	4.8E-04	4.8E-04	4.8E-04	5.6E-04
CHILD	4.8E-04	4.8E-04	4.8E-04	4.8E-04	4.8E-04	4.8E-04	4.8E-04	5.6E-04
INFNT	4.8E-04	4.8E-04	4.8E-04	4.8E-04	4.8E-04	4.8E-04	4.8E-04	5.6E-04
VEGET	PATHWAY, DIST GP= 1, 1628. METERS WINDS TOWARD ESE							
ADULT	4.2E-04	1.2E-04	3.0E-04	5.6E-04	2.6E-04	5.8E-04	1.6E-04	0.0E+00
TEEN	3.9E-04	1.4E-04	4.8E-04	8.3E-04	3.6E-04	5.2E-04	2.1E-04	0.0E+00
CHILD	3.8E-04	2.0E-04	1.1E-03	1.4E-03	5.7E-04	7.9E-04	3.3E-04	0.0E+00
INFNT	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
MEAT	PATHWAY, DIST GP= 1, 2434. METERS WINDS TOWARD ESE							
ADULT	2.5E-05	1.0E-05	1.6E-05	3.2E-05	1.6E-05	3.8E-05	1.1E-05	0.0E+00
TEEN	1.2E-05	5.9E-06	1.3E-05	2.4E-05	1.1E-05	2.6E-05	7.3E-06	0.0E+00
CHILD	1.0E-05	6.4E-06	2.4E-05	3.1E-05	1.4E-05	3.8E-05	8.7E-06	0.0E+00
INFNT	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
COW	PATHWAY, DIST GP= 1, 4091. METERS WINDS TOWARD ESE							
ADULT	7.0E-05	1.1E-05	5.9E-05	9.8E-05	4.0E-05	3.7E-04	1.9E-05	0.0E+00
TEEN	7.1E-05	1.4E-05	1.1E-04	1.7E-04	6.7E-05	5.9E-04	3.2E-05	0.0E+00
CHILD	6.3E-05	2.0E-05	2.6E-04	2.9E-04	1.1E-04	1.2E-03	4.9E-05	0.0E+00
INFNT	7.0E-05	3.0E-05	4.1E-04	5.5E-04	1.7E-04	2.8E-03	8.3E-05	0.0E+00
GOAT	PATHWAY, DIST GP= 1, 4091. METERS WINDS TOWARD ESE							
ADULT	2.0E-04	2.3E-05	1.8E-04	2.8E-04	1.1E-04	4.5E-04	4.8E-05	0.0E+00
TEEN	2.0E-04	3.0E-05	3.2E-04	4.9E-04	1.8E-04	7.1E-04	8.4E-05	0.0E+00
CHILD	1.7E-04	4.2E-05	7.6E-04	8.4E-04	3.0E-04	1.4E-03	1.3E-04	0.0E+00
INFNT	1.8E-04	6.2E-05	1.2E-03	1.6E-03	4.7E-04	3.4E-03	2.2E-04	0.0E+00
INHAL	PATHWAY, DIST GP= 1, 1643. METERS WINDS TOWARD ESE							
ADULT	6.4E-05	5.9E-05	5.1E-06	6.6E-05	6.2E-05	1.2E-04	6.2E-05	0.0E+00
TEEN	6.3E-05	5.9E-05	7.1E-06	6.9E-05	6.3E-05	1.4E-04	6.4E-05	0.0E+00
CHILD	5.4E-05	5.3E-05	9.6E-06	6.2E-05	5.6E-05	1.5E-04	5.6E-05	0.0E+00
INFNT	3.1E-05	3.0E-05	5.9E-06	3.7E-05	3.2E-05	1.2E-04	3.3E-05	0.0E+00
SUBTOTALS (NO PLUME)								
ADULT	1.3E-03	7.1E-04	1.0E-03	1.5E-03	9.7E-04	2.1E-03	7.8E-04	5.6E-04
TEEN	1.2E-03	7.3E-04	1.4E-03	2.1E-03	1.2E-03	2.5E-03	8.8E-04	5.6E-04
CHILD	1.2E-03	8.0E-04	2.7E-03	3.1E-03	1.5E-03	4.0E-03	1.0E-03	5.6E-04
INFNT	7.6E-04	6.0E-04	2.1E-03	2.7E-03	1.2E-03	6.7E-03	8.2E-04	5.6E-04
TOTALS								
ADULT	1.4E-03	8.0E-04	1.1E-03	1.6E-03	1.1E-03	2.1E-03	8.7E-04	7.4E-04
TEEN	1.3E-03	8.2E-04	1.5E-03	2.1E-03	1.3E-03	2.6E-03	9.7E-04	7.4E-04
CHILD	1.2E-03	8.9E-04	2.8E-03	3.1E-03	1.6E-03	4.1E-03	1.1E-03	7.4E-04
INFNT	8.5E-04	6.9E-04	2.2E-03	2.7E-03	1.2E-03	6.8E-03	9.1E-04	7.4E-04

INDIVIDUAL DOSES (MREM) DUE TO GASEOUS EFFLUENT
FOR DATES 94 4 1 1 THRU 94 63024

	T.BODY	GI-TRCT	BONE	LIVER	KIDNEY	THYRD	LUNG	SKIN
PLUME	PATHWAY, DIST GP= 1, 1136. METERS WINDS TOWARD SE							
ADULT	1.3E-04	1.3E-04	1.3E-04	1.3E-04	1.3E-04	1.3E-04	1.3E-04	2.6E-04
TEEN	1.3E-04	1.3E-04	1.3E-04	1.3E-04	1.3E-04	1.3E-04	1.3E-04	2.6E-04
CHILD	1.3E-04	1.3E-04	1.3E-04	1.3E-04	1.3E-04	1.3E-04	1.3E-04	2.6E-04
INFNT	1.3E-04	1.3E-04	1.3E-04	1.3E-04	1.3E-04	1.3E-04	1.3E-04	2.6E-04
GROUND	PATHWAY, DIST GP= 1, 1136. METERS WINDS TOWARD SE							
ADULT	9.6E-04	9.6E-04	9.6E-04	9.6E-04	9.6E-04	9.6E-04	9.6E-04	1.1E-03
TEEN	9.6E-04	9.6E-04	9.6E-04	9.6E-04	9.6E-04	9.6E-04	9.6E-04	1.1E-03
CHILD	9.6E-04	9.6E-04	9.6E-04	9.6E-04	9.6E-04	9.6E-04	9.6E-04	1.1E-03
INFNT	9.6E-04	9.6E-04	9.6E-04	9.6E-04	9.6E-04	9.6E-04	9.6E-04	1.1E-03
VEGET	PATHWAY, DIST GP= 1, 914. METERS WINDS TOWARD SE							
ADULT	1.0E-03	1.9E-04	8.7E-04	1.4E-03	5.8E-04	1.4E-03	2.8E-04	0.0E+00
TEEN	9.1E-04	2.1E-04	1.4E-03	2.2E-03	8.4E-04	1.2E-03	4.2E-04	0.0E+00
CHILD	7.9E-04	2.8E-04	3.2E-03	3.6E-03	1.3E-03	1.9E-03	6.4E-04	0.0E+00
INFNT	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
MEAT	PATHWAY, DIST GP= 1, 4354. METERS WINDS TOWARD SE							
ADULT	8.7E-06	2.6E-06	6.7E-06	1.2E-05	5.1E-06	1.4E-05	2.8E-06	0.0E+00
TEEN	4.1E-06	1.5E-06	5.5E-06	9.1E-06	3.8E-06	9.8E-06	2.1E-06	0.0E+00
CHILD	3.0E-06	1.5E-06	1.0E-05	1.2E-05	4.7E-06	1.5E-05	2.4E-06	0.0E+00
INFNT	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
COW	PATHWAY, DIST GP= 1, 4091. METERS WINDS TOWARD SE							
ADULT	7.1E-05	6.7E-06	6.5E-05	1.0E-04	3.9E-05	3.8E-04	1.5E-05	0.0E+00
TEEN	7.0E-05	8.6E-06	1.2E-04	1.8E-04	6.6E-05	6.1E-04	2.8E-05	0.0E+00
CHILD	5.7E-05	1.1E-05	2.8E-04	3.0E-04	1.1E-04	1.2E-03	4.2E-05	0.0E+00
INFNT	6.0E-05	1.6E-05	4.5E-04	5.8E-04	1.7E-04	2.9E-03	7.4E-05	0.0E+00
GOAT	PATHWAY, DIST GP= 1, 4091. METERS WINDS TOWARD SE							
ADULT	2.1E-04	1.5E-05	1.9E-04	3.0E-04	1.1E-04	4.6E-04	4.1E-05	0.0E+00
TEEN	2.0E-04	1.9E-05	3.5E-04	5.2E-04	1.9E-04	7.3E-04	7.7E-05	0.0E+00
CHILD	1.6E-04	2.4E-05	8.3E-04	8.9E-04	3.0E-04	1.4E-03	1.2E-04	0.0E+00
INFNT	1.6E-04	3.3E-05	1.3E-03	1.7E-03	4.8E-04	3.5E-03	2.1E-04	0.0E+00
INHAL	PATHWAY, DIST GP= 1, 1136. METERS WINDS TOWARD SE							
ADULT	6.0E-05	5.4E-05	6.4E-06	6.3E-05	5.7E-05	1.5E-04	5.8E-05	0.0E+00
TEEN	5.9E-05	5.4E-05	9.0E-06	6.6E-05	5.9E-05	1.7E-04	6.0E-05	0.0E+00
CHILD	5.0E-05	4.8E-05	1.2E-05	6.0E-05	5.2E-05	1.9E-04	5.3E-05	0.0E+00
INFNT	2.8E-05	2.7E-05	7.4E-06	3.6E-05	3.0E-05	1.5E-04	3.1E-05	0.0E+00
SUBTOTALS (NO PLUME)								
ADULT	2.3E-03	1.2E-03	2.1E-03	2.9E-03	1.8E-03	3.4E-03	1.4E-03	1.1E-03
TEEN	2.2E-03	1.3E-03	2.8E-03	3.9E-03	2.1E-03	3.7E-03	1.5E-03	1.1E-03
CHILD	2.0E-03	1.3E-03	5.3E-03	5.8E-03	2.8E-03	5.7E-03	1.8E-03	1.1E-03
INFNT	1.2E-03	1.0E-03	2.7E-03	3.3E-03	1.6E-03	7.5E-03	1.3E-03	1.1E-03
TOTALS								
ADULT	2.5E-03	1.4E-03	2.2E-03	3.0E-03	1.9E-03	3.6E-03	1.5E-03	1.4E-03
TEEN	2.3E-03	1.4E-03	2.9E-03	4.0E-03	2.2E-03	3.9E-03	1.7E-03	1.4E-03
CHILD	2.1E-03	1.5E-03	5.4E-03	5.9E-03	2.9E-03	5.8E-03	1.9E-03	1.4E-03
INFNT	1.3E-03	1.2E-03	2.9E-03	3.4E-03	1.8E-03	7.6E-03	1.4E-03	1.4E-03

INDIVIDUAL DOSES (MREM) DUE TO GASEOUS EFFLUENT
FOR DATES 94 4 1 1 THRU 94 63024

	T.BODY	GI-TRCT	BONE	LIVER	KIDNEY	THYRD	LUNG	SKIN
PLUME	PATHWAY, DIST GP= 1, 1507. METERS WINDS TOWARD SSE							
ADULT	1.2E-04	1.2E-04	1.2E-04	1.2E-04	1.2E-04	1.2E-04	1.2E-04	2.3E-04
TEEN	1.2E-04	1.2E-04	1.2E-04	1.2E-04	1.2E-04	1.2E-04	1.2E-04	2.3E-04
CHILD	1.2E-04	1.2E-04	1.2E-04	1.2E-04	1.2E-04	1.2E-04	1.2E-04	2.3E-04
INFNT	1.2E-04	1.2E-04	1.2E-04	1.2E-04	1.2E-04	1.2E-04	1.2E-04	2.3E-04
GROUND	PATHWAY, DIST GP= 1, 1507. METERS WINDS TOWARD SSE							
ADULT	1.2E-03	1.2E-03	1.2E-03	1.2E-03	1.2E-03	1.2E-03	1.2E-03	1.4E-03
TEEN	1.2E-03	1.2E-03	1.2E-03	1.2E-03	1.2E-03	1.2E-03	1.2E-03	1.4E-03
CHILD	1.2E-03	1.2E-03	1.2E-03	1.2E-03	1.2E-03	1.2E-03	1.2E-03	1.4E-03
INFNT	1.2E-03	1.2E-03	1.2E-03	1.2E-03	1.2E-03	1.2E-03	1.2E-03	1.4E-03
VEGET	PATHWAY, DIST GP= 1, 1093. METERS WINDS TOWARD SSE							
ADULT	1.5E-03	2.2E-04	1.3E-03	2.1E-03	8.2E-04	1.9E-03	3.7E-04	0.0E+00
TEEN	1.3E-03	2.4E-04	2.1E-03	3.2E-03	1.2E-03	1.6E-03	5.7E-04	0.0E+00
CHILD	1.1E-03	3.1E-04	4.9E-03	5.4E-03	1.9E-03	2.5E-03	8.5E-04	0.0E+00
INFNT	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
MEAT	PATHWAY, DIST GP= 1, 1093. METERS WINDS TOWARD SSE							
ADULT	1.6E-04	3.8E-05	1.3E-04	2.2E-04	8.9E-05	2.4E-04	4.3E-05	0.0E+00
TEEN	7.4E-05	2.2E-05	1.1E-04	1.7E-04	6.7E-05	1.7E-04	3.3E-05	0.0E+00
CHILD	5.1E-05	2.0E-05	2.0E-04	2.3E-04	8.4E-05	2.5E-04	3.9E-05	0.0E+00
INFNT	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
COW	PATHWAY, DIST GP= 1, 4091. METERS WINDS TOWARD SSE							
ADULT	1.4E-04	1.1E-05	1.3E-04	2.1E-04	7.7E-05	7.0E-04	2.9E-05	0.0E+00
TEEN	1.4E-04	1.4E-05	2.4E-04	3.6E-04	1.3E-04	1.1E-03	5.3E-05	0.0E+00
CHILD	1.1E-04	1.8E-05	5.7E-04	6.1E-04	2.2E-04	2.2E-03	8.2E-05	0.0E+00
INFNT	1.1E-04	2.4E-05	9.2E-04	1.2E-03	3.4E-04	5.3E-03	1.4E-04	0.0E+00
GOAT	PATHWAY, DIST GP= 1, 4091. METERS WINDS TOWARD SSE							
ADULT	4.3E-04	2.5E-05	4.0E-04	6.1E-04	2.2E-04	8.5E-04	7.9E-05	0.0E+00
TEEN	4.1E-04	3.2E-05	7.1E-04	1.1E-03	3.7E-04	1.3E-03	1.5E-04	0.0E+00
CHILD	3.2E-04	3.8E-05	1.7E-03	1.8E-03	6.1E-04	2.6E-03	2.3E-04	0.0E+00
INFNT	3.1E-04	5.2E-05	2.7E-03	3.5E-03	9.8E-04	6.4E-03	4.1E-04	0.0E+00
INHAL	PATHWAY, DIST GP= 1, 1507. METERS WINDS TOWARD SSE							
ADULT	5.3E-05	4.9E-05	5.0E-06	5.5E-05	5.1E-05	1.4E-04	5.2E-05	0.0E+00
TEEN	5.2E-05	4.9E-05	6.9E-06	5.8E-05	5.2E-05	1.7E-04	5.4E-05	0.0E+00
CHILD	4.4E-05	4.3E-05	9.3E-06	5.2E-05	4.7E-05	1.8E-04	4.7E-05	0.0E+00
INFNT	2.5E-05	2.5E-05	5.7E-06	3.1E-05	2.7E-05	1.5E-04	2.8E-05	0.0E+00
SUBTOTALS (NO PLUME)								
ADULT	3.5E-03	1.6E-03	3.2E-03	4.5E-03	2.5E-03	5.1E-03	1.8E-03	1.4E-03
TEEN	3.2E-03	1.6E-03	4.4E-03	6.1E-03	3.1E-03	5.7E-03	2.1E-03	1.4E-03
CHILD	2.8E-03	1.7E-03	8.7E-03	9.3E-03	4.1E-03	9.0E-03	2.5E-03	1.4E-03
INFNT	1.7E-03	1.3E-03	4.9E-03	5.9E-03	2.6E-03	1.3E-02	1.8E-03	1.4E-03
TOTALS								
ADULT	3.6E-03	1.7E-03	3.3E-03	4.6E-03	2.6E-03	5.2E-03	1.9E-03	1.7E-03
TEEN	3.3E-03	1.7E-03	4.5E-03	6.2E-03	3.2E-03	5.8E-03	2.2E-03	1.7E-03
CHILD	3.0E-03	1.8E-03	8.8E-03	9.4E-03	4.2E-03	9.1E-03	2.6E-03	1.7E-03
INFNT	1.8E-03	1.4E-03	5.0E-03	6.0E-03	2.7E-03	1.3E-02	1.9E-03	1.7E-03

INDIVIDUAL DOSES (MREM) DUE TO GASEOUS EFFLUENT
FOR DATES 94 4 1 1 THRU 94 63024

	T.BODY	GI-TRCT	BONE	LIVER	KIDNEY	THYRD	LUNG	SKIN
PLUME	PATHWAY, DIST GP= 1, 1026. METERS WINDS TOWARD S							
ADULT	2.4E-04	2.4E-04	2.4E-04	2.4E-04	2.4E-04	2.4E-04	2.5E-04	1.0E-03
TEEN	2.4E-04	2.4E-04	2.4E-04	2.4E-04	2.4E-04	2.4E-04	2.5E-04	1.0E-03
CHILD	2.4E-04	2.4E-04	2.4E-04	2.4E-04	2.4E-04	2.4E-04	2.5E-04	1.0E-03
INFNT	2.4E-04	2.4E-04	2.4E-04	2.4E-04	2.4E-04	2.4E-04	2.5E-04	1.0E-03
GROUND	PATHWAY, DIST GP= 1, 1026. METERS WINDS TOWARD S							
ADULT	3.0E-03	3.0E-03	3.0E-03	3.0E-03	3.0E-03	3.0E-03	3.0E-03	3.5E-03
TEEN	3.0E-03	3.0E-03	3.0E-03	3.0E-03	3.0E-03	3.0E-03	3.0E-03	3.5E-03
CHILD	3.0E-03	3.0E-03	3.0E-03	3.0E-03	3.0E-03	3.0E-03	3.0E-03	3.5E-03
INFNT	3.0E-03	3.0E-03	3.0E-03	3.0E-03	3.0E-03	3.0E-03	3.0E-03	3.5E-03
VEGET	PATHWAY, DIST GP= 1, 863. METERS WINDS TOWARD S							
ADULT	2.8E-03	3.4E-04	2.5E-03	4.0E-03	1.5E-03	4.4E-03	6.3E-04	0.0E+00
TEEN	2.4E-03	3.8E-04	4.0E-03	6.1E-03	2.2E-03	3.7E-03	9.9E-04	0.0E+00
CHILD	1.9E-03	4.7E-04	9.4E-03	1.0E-02	3.5E-03	5.7E-03	1.5E-03	0.0E+00
INFNT	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
MEAT	PATHWAY, DIST GP= 1, 6115. METERS WINDS TOWARD S							
ADULT	1.1E-05	2.6E-06	9.3E-06	1.5E-05	6.2E-06	2.0E-05	2.9E-06	0.0E+00
TEEN	5.1E-06	1.5E-06	7.7E-06	1.2E-05	4.7E-06	1.4E-05	2.3E-06	0.0E+00
CHILD	3.5E-06	1.3E-06	1.4E-05	1.6E-05	5.8E-06	2.2E-05	2.7E-06	0.0E+00
INFNT	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
COW	PATHWAY, DIST GP= 1, 4091. METERS WINDS TOWARD S							
ADULT	1.8E-04	1.1E-05	1.7E-04	2.6E-04	9.6E-05	1.1E-03	3.4E-05	0.0E+00
TEEN	1.8E-04	1.5E-05	3.1E-04	4.6E-04	1.7E-04	1.8E-03	6.5E-05	0.0E+00
CHILD	1.4E-04	1.7E-05	7.4E-04	7.8E-04	2.7E-04	3.5E-03	9.9E-05	0.0E+00
INFNT	1.4E-04	2.2E-05	1.2E-03	1.5E-03	4.4E-04	8.5E-03	1.7E-04	0.0E+00
GOAT	PATHWAY, DIST GP= 1, 4091. METERS WINDS TOWARD S							
ADULT	5.4E-04	2.6E-05	5.1E-04	7.8E-04	2.7E-04	1.3E-03	9.6E-05	0.0E+00
TEEN	5.2E-04	3.4E-05	9.2E-04	1.4E-03	4.7E-04	2.1E-03	1.9E-04	0.0E+00
CHILD	3.9E-04	3.7E-05	2.2E-03	2.3E-03	7.8E-04	4.2E-03	2.9E-04	0.0E+00
INFNT	3.8E-04	4.8E-05	3.5E-03	4.5E-03	1.2E-03	1.0E-02	5.1E-04	0.0E+00
INHAL	PATHWAY, DIST GP= 1, 1026. METERS WINDS TOWARD S							
ADULT	9.3E-05	8.4E-05	9.8E-06	9.7E-05	8.8E-05	2.6E-04	9.0E-05	0.0E+00
TEEN	9.0E-05	8.4E-05	1.4E-05	1.0E-04	9.1E-05	3.1E-04	9.4E-05	0.0E+00
CHILD	7.7E-05	7.4E-05	1.8E-05	9.2E-05	8.1E-05	3.3E-04	8.2E-05	0.0E+00
INFNT	4.4E-05	4.2E-05	1.1E-05	5.6E-05	4.7E-05	2.8E-04	4.8E-05	0.0E+00
SUBTOTALS (NO PLUME)								
ADULT	6.7E-03	3.5E-03	6.3E-03	8.2E-03	5.0E-03	1.0E-02	3.9E-03	3.5E-03
TEEN	6.2E-03	3.5E-03	8.3E-03	1.1E-02	6.0E-03	1.1E-02	4.4E-03	3.5E-03
CHILD	5.6E-03	3.6E-03	1.5E-02	1.6E-02	7.7E-03	1.7E-02	5.0E-03	3.5E-03
INFNT	3.6E-03	3.1E-03	7.7E-03	9.1E-03	4.7E-03	2.2E-02	3.8E-03	3.5E-03
TOTALS								
ADULT	6.9E-03	3.7E-03	6.5E-03	8.4E-03	5.2E-03	1.0E-02	4.1E-03	4.6E-03
TEEN	6.5E-03	3.8E-03	8.5E-03	1.1E-02	6.2E-03	1.1E-02	4.6E-03	4.6E-03
CHILD	5.8E-03	3.9E-03	1.6E-02	1.7E-02	7.9E-03	1.7E-02	5.2E-03	4.6E-03
INFNT	3.8E-03	3.4E-03	8.0E-03	9.3E-03	5.0E-03	2.2E-02	4.0E-03	4.6E-03

INDIVIDUAL DOSES (MREM) DUE TO GASEOUS EFFLUENT
FOR DATES 94 4 1 1 THRU 94 63024

T.BODY GI-TRCT BONE LIVER KIDNEY THYRD LUNG SKIN

PLUME PATHWAY, DIST GP= 1, 942. METERS WINDS TOWARD SSW

ADULT	1.7E-04	1.7E-04	1.7E-04	1.7E-04	1.7E-04	1.7E-04	1.7E-04	3.4E-04
TEEN	1.7E-04	1.7E-04	1.7E-04	1.7E-04	1.7E-04	1.7E-04	1.7E-04	3.4E-04
CHILD	1.7E-04	1.7E-04	1.7E-04	1.7E-04	1.7E-04	1.7E-04	1.7E-04	3.4E-04
INFNT	1.7E-04	1.7E-04	1.7E-04	1.7E-04	1.7E-04	1.7E-04	1.7E-04	3.4E-04

GROUND PATHWAY, DIST GP= 1, 942. METERS WINDS TOWARD SSW

ADULT	8.5E-04	8.5E-04	8.5E-04	8.5E-04	8.5E-04	8.5E-04	8.5E-04	9.9E-04
TEEN	8.5E-04	8.5E-04	8.5E-04	8.5E-04	8.5E-04	8.5E-04	8.5E-04	9.9E-04
CHILD	8.5E-04	8.5E-04	8.5E-04	8.5E-04	8.5E-04	8.5E-04	8.5E-04	9.9E-04
INFNT	8.5E-04	8.5E-04	8.5E-04	8.5E-04	8.5E-04	8.5E-04	8.5E-04	9.9E-04

VEGET PATHWAY, DIST GP= 1, 770. METERS WINDS TOWARD SSW

ADULT	9.7E-04	2.6E-04	7.3E-04	1.3E-03	5.9E-04	1.7E-03	3.4E-04	0.0E+00
TEEN	8.8E-04	2.9E-04	1.2E-03	1.9E-03	8.2E-04	1.5E-03	4.7E-04	0.0E+00
CHILD	8.4E-04	4.2E-04	2.7E-03	3.2E-03	1.3E-03	2.3E-03	7.1E-04	0.0E+00
INFNT	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

MEAT PATHWAY, DIST GP= 1, 8045. METERS WINDS TOWARD SSW

ADULT	2.3E-06	1.0E-06	1.4E-06	2.9E-06	1.5E-06	4.3E-06	1.1E-06	0.0E+00
TEEN	1.1E-06	6.0E-07	1.1E-06	2.2E-06	1.1E-06	3.0E-06	7.1E-07	0.0E+00
CHILD	9.7E-07	6.5E-07	2.1E-06	2.8E-06	1.3E-06	4.4E-06	8.5E-07	0.0E+00
INFNT	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

COW PATHWAY, DIST GP= 1, 4091. METERS WINDS TOWARD SSW

ADULT	4.7E-05	6.6E-06	4.1E-05	6.7E-05	2.7E-05	3.4E-04	1.2E-05	0.0E+00
TEEN	4.7E-05	8.6E-06	7.4E-05	1.1E-04	4.5E-05	5.3E-04	2.0E-05	0.0E+00
CHILD	4.1E-05	1.2E-05	1.8E-04	2.0E-04	7.4E-05	1.0E-03	3.2E-05	0.0E+00
INFNT	4.6E-05	1.7E-05	2.8E-04	3.7E-04	1.2E-04	2.5E-03	5.4E-05	0.0E+00

GOAT PATHWAY, DIST GP= 1, 4091. METERS WINDS TOWARD SSW

ADULT	1.4E-04	1.4E-05	1.2E-04	1.9E-04	7.4E-05	4.1E-04	3.1E-05	0.0E+00
TEEN	1.3E-04	1.8E-05	2.2E-04	3.4E-04	1.2E-04	6.4E-04	5.5E-05	0.0E+00
CHILD	1.1E-04	2.5E-05	5.3E-04	5.7E-04	2.0E-04	1.3E-03	8.4E-05	0.0E+00
INFNT	1.2E-04	3.6E-05	8.4E-04	1.1E-03	3.2E-04	3.1E-03	1.5E-04	0.0E+00

INHAL PATHWAY, DIST GP= 1, 942. METERS WINDS TOWARD SSW

ADULT	9.6E-05	8.7E-05	1.0E-05	1.0E-04	9.1E-05	1.9E-04	9.2E-05	0.0E+00
TEEN	9.4E-05	8.7E-05	1.4E-05	1.1E-04	9.4E-05	2.1E-04	9.5E-05	0.0E+00
CHILD	8.0E-05	7.7E-05	1.9E-05	9.5E-05	8.4E-05	2.2E-04	8.4E-05	0.0E+00
INFNT	4.5E-05	4.4E-05	1.2E-05	5.8E-05	4.8E-05	1.8E-04	4.9E-05	0.0E+00

SUBTOTALS (NO PLUME)

ADULT	2.1E-03	1.2E-03	1.8E-03	2.5E-03	1.6E-03	3.5E-03	1.3E-03	9.9E-04
TEEN	2.0E-03	1.3E-03	2.3E-03	3.3E-03	1.9E-03	3.7E-03	1.5E-03	9.9E-04
CHILD	1.9E-03	1.4E-03	4.3E-03	4.9E-03	2.5E-03	5.7E-03	1.8E-03	9.9E-04
INFNT	1.1E-03	9.4E-04	2.0E-03	2.4E-03	1.3E-03	6.6E-03	1.1E-03	9.9E-04

TOTALS

ADULT	2.3E-03	1.4E-03	1.9E-03	2.7E-03	1.8E-03	3.7E-03	1.5E-03	1.3E-03
TEEN	2.2E-03	1.4E-03	2.5E-03	3.5E-03	2.1E-03	3.9E-03	1.7E-03	1.3E-03
CHILD	2.1E-03	1.5E-03	4.4E-03	5.1E-03	2.7E-03	5.9E-03	1.9E-03	1.3E-03
INFNT	1.2E-03	1.1E-03	2.2E-03	2.5E-03	1.5E-03	6.8E-03	1.3E-03	1.3E-03

APPENDIX 1.4

Summary of Maximum Individual Doses
Third Quarter, 1994

SUMMARY OF MAXIMUM INDIVIDUAL DOSES

3rd Quarter 1994

EFFLUENT	APPLICABLE ORGAN	ESTIMATED DOSE (mRem)	AGE GROUP	LOCATION DIST DIR (M) (Toward)	% OF APPLICABLE LIMIT	LIMIT (mRem) QTR
Liquid	Total Body	8.53E-3	Adult	Receptor 1	5.68E-1	1.5E+0
Liquid	GI-Tract	3.63E-2	Adult	Receptor 1	7.26E-1	5.0E+0
Noble Gas	Air Dose (Gamma-mrad)	5.94E-3		651 N	1.19E-1	5.0E+0
Noble Gas	Air dose (Beta-mrad)	1.19E-2		651 N	1.19E-1	1.0E+1
Iodines and Particulates	Thyroid	2.55E-2	Child	659 N	3.40E-1	7.5E+0

LAST LIQUID DOSE ACCUMULATIONS(MREM)

START DATE 94 7 1 1 END DATE 94 93024

	BONE	LIVER	T.BODY	THYRD	KIDNEY	LUNG	GI-LLI	SKIN
WATER								
ADULT	7.5E-05	3.4E-03	3.4E-03	3.8E-03	3.2E-03	3.2E-03	5.2E-03	0.0E+00
TEEN	7.2E-05	2.4E-03	2.5E-03	2.8E-03	2.3E-03	2.3E-03	3.5E-03	0.0E+00
CHILD	2.2E-04	4.6E-03	4.8E-03	5.7E-03	4.4E-03	4.4E-03	5.3E-03	0.0E+00
INFANT	1.9E-04	4.6E-03	4.8E-03	6.3E-03	4.3E-03	4.3E-03	4.8E-03	0.0E+00
SHORE								
ADULT	1.6E-04	1.6E-04	1.6E-04	1.6E-04	1.6E-04	1.6E-04	1.6E-04	1.9E-04
TEEN	8.9E-04	8.9E-04	8.9E-04	8.9E-04	8.9E-04	8.9E-04	8.9E-04	1.0E-03
CHILD	1.9E-04	1.9E-04	1.9E-04	1.9E-04	1.9E-04	1.9E-04	1.9E-04	2.2E-04
INFANT	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
FW SPT FISH								
ADULT	3.9E-03	6.6E-03	4.9E-03	8.7E-04	2.3E-03	9.4E-04	3.1E-02	0.0E+00
TEEN	4.1E-03	6.8E-03	3.3E-03	7.8E-04	2.3E-03	1.0E-03	2.2E-02	0.0E+00
CHILD	5.2E-03	6.0E-03	2.0E-03	7.8E-04	1.9E-03	8.4E-04	7.8E-03	0.0E+00
INFANT	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

LAST LIQUID DOSE ACCUMULATIONS(MREM)

START DATE 94 7 1 1 END DATE 94 93024

	BONE	LIVER	T.BODY	THYRD	KIDNEY	LUNG	GI-LLI	SKIN
TOTAL								
ADULT	4.1E-03	1.0E-02	8.5E-03	4.9E-03	5.7E-03	4.3E-03	3.6E-02	1.9E-04
TEEN	5.1E-03	1.0E-02	6.6E-03	4.5E-03	5.5E-03	4.2E-03	2.6E-02	1.0E-03
CHILD	5.6E-03	1.1E-02	7.1E-03	6.6E-03	6.5E-03	5.4E-03	1.3E-02	2.2E-04
INFANT	1.9E-04	4.6E-03	4.8E-03	6.3E-03	4.3E-03	4.3E-03	4.8E-03	0.0E+00

DATES OF LAST AIR DOSE ACCUMULATION ARE FROM 94 7 1 1 0 TO 94 93024 0
DOSE ACCUMULATION FOR GAMMA MRAD

FOR RELEASE POINT 1

**DIRECTION FROM N

0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00

**DIRECTION FROM NNE

1.6856E-06	8.2066E-08	4.9321E-08	3.5217E-08	2.7386E-08
1.6431E-08	8.2151E-09	4.9291E-09	3.5208E-09	2.4630E-09

**DIRECTION FROM NE

2.4043E-04	3.3211E-05	1.5150E-05	8.7252E-06	6.1485E-06
3.1372E-06	1.2210E-06	6.0470E-07	3.8669E-07	2.4203E-07

**DIRECTION FROM ENE

2.4181E-04	3.1848E-05	1.4353E-05	8.2128E-06	5.7457E-06
2.8919E-06	1.1088E-06	5.4717E-07	3.5047E-07	2.1975E-07

**DIRECTION FROM E

5.6043E-05	5.4617E-06	2.9620E-06	1.9229E-06	1.4077E-06
7.5405E-07	3.2060E-07	1.6201E-07	1.0410E-07	6.8214E-08

**DIRECTION FROM ESE

1.0972E-04	1.4292E-05	6.7019E-06	3.9434E-06	2.7962E-06
1.4367E-06	5.6760E-07	2.8126E-07	1.7954E-07	1.1327E-07

**DIRECTION FROM SE

2.0938E-02	2.0408E-03	1.1067E-03	7.1845E-04	5.2595E-04
2.8172E-04	1.1978E-04	6.0528E-05	3.8892E-05	2.5484E-05

**DIRECTION FROM SSE

0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00

**DIRECTION FROM S

5.6574E-06	2.7544E-07	1.6554E-07	1.1820E-07	9.1914E-08
5.5147E-08	2.7572E-08	1.6543E-08	1.1817E-08	8.2666E-09

**DIRECTION FROM SSW

0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00

**DIRECTION FROM SW

0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00

**DIRECTION FROM WSW

6.3976E-05	3.1148E-06	1.8720E-06	1.3366E-06	1.0394E-06
6.2362E-07	3.1180E-07	1.8708E-07	1.3363E-07	9.3482E-08

**DIRECTION FROM W

0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00

**DIRECTION FROM WNW

0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00

**DIRECTION FROM NW

3.9355E-05	1.9161E-06	1.1515E-06	8.2224E-07	6.3939E-07
3.8362E-07	1.9180E-07	1.1508E-07	8.2202E-08	5.7505E-08

**DIRECTION FROM NNW

1.5192E-04	7.3966E-06	4.4453E-06	3.1741E-06	2.4682E-06
1.4809E-06	7.4042E-07	4.4425E-07	3.1732E-07	2.2199E-07

DISTANCES USED IN CALCULATIONS

594.0	2416.0	4020.0	5630.0	7240.0
12067.0	24135.0	40225.0	56315.0	80500.0

GAMMA FOR RELEASE POINT 2

**DIRECTION FROM N				
1.3679E-03	1.6598E-04	7.5437E-05	4.3706E-05	3.0326E-05
1.4883E-05	5.6035E-06	2.7435E-06	1.7414E-06	1.0745E-06
**DIRECTION FROM NNE				
9.7836E-04	1.1364E-04	5.5056E-05	3.3362E-05	2.3600E-05
1.1950E-05	4.7385E-06	2.3570E-06	1.5059E-06	9.5232E-07
**DIRECTION FROM NE				
9.2267E-04	1.0729E-04	5.2259E-05	3.1764E-05	2.2520E-05
1.1456E-05	4.5682E-06	2.2768E-06	1.4571E-06	9.2502E-07
**DIRECTION FROM ENE				
1.5711E-03	1.8199E-04	9.1851E-05	5.7176E-05	4.0810E-05
2.0952E-05	8.5453E-06	4.3126E-06	2.7818E-06	1.7828E-06
**DIRECTION FROM E				
4.3156E-03	4.7007E-04	2.4295E-04	1.5339E-04	1.1053E-04
5.7688E-05	2.3896E-05	1.2055E-05	7.7579E-06	5.0129E-06
**DIRECTION FROM ESE				
5.2937E-03	5.7750E-04	2.9781E-04	1.8767E-04	1.3535E-04
7.0813E-05	2.9350E-05	1.4801E-05	9.5233E-06	6.1581E-06
**DIRECTION FROM SE				
5.6371E-03	5.8754E-04	3.0775E-04	1.9589E-04	1.4198E-04
7.4877E-05	3.1322E-05	1.5820E-05	1.0182E-05	6.6188E-06
**DIRECTION FROM SSE				
6.8850E-03	7.2432E-04	3.8065E-04	2.4275E-04	1.7589E-04
9.2659E-05	3.8779E-05	1.9601E-05	1.2620E-05	8.1985E-06
**DIRECTION FROM S				
6.8601E-03	7.4912E-04	3.8402E-04	2.4120E-04	1.7369E-04
9.0653E-05	3.7458E-05	1.8882E-05	1.2148E-05	7.8461E-06
**DIRECTION FROM SSW				
3.2566E-03	3.6782E-04	1.8470E-04	1.1449E-04	8.1956E-05
4.2374E-05	1.7284E-05	8.6801E-06	5.5756E-06	3.5777E-06
**DIRECTION FROM SW				
2.3215E-03	2.6690E-04	1.2977E-04	7.8832E-05	5.5928E-05
2.8508E-05	1.1395E-05	5.6953E-06	3.6538E-06	2.3262E-06
**DIRECTION FROM WSW				
9.8756E-04	1.0983E-04	5.3791E-05	3.2939E-05	2.3351E-05
1.1862E-05	4.7657E-06	2.4042E-06	1.5525E-06	9.9144E-07
**DIRECTION FROM W				
8.6612E-04	9.9061E-05	4.7439E-05	2.8581E-05	2.0147E-05
1.0145E-05	4.0033E-06	1.9987E-06	1.2821E-06	8.1091E-07
**DIRECTION FROM WNW				
9.8729E-04	1.1729E-04	5.5388E-05	3.2998E-05	2.3244E-05
1.1731E-05	4.6152E-06	2.3043E-06	1.4803E-06	9.3551E-07
**DIRECTION FROM NW				
4.8152E-04	5.6373E-05	2.6447E-05	1.5725E-05	1.0992E-05
5.4522E-06	2.1172E-06	1.0610E-06	6.8347E-07	4.2874E-07
**DIRECTION FROM NNW				
6.3599E-04	7.2487E-05	3.2743E-05	1.8970E-05	1.3124E-05
6.3942E-06	2.3922E-06	1.1709E-06	7.4259E-07	4.5696E-07

DISTANCES USED IN CALCULATIONS

594.0 2416.0 4020.0 5630.0 7240.0
 12067.0 24135.0 40225.0 56315.0 80500.0

DATES OF LAST AIR DOSE ACCUMULATION ARE FROM 94 7 1 1 0 TO 94 93024 0
DOSE ACCUMULATION FOR BETA MRAD

FOR RELEASE POINT 1.

**DIRECTION FROM N

0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00

**DIRECTION FROM NNE

1.1092E-05	5.4001E-07	3.2454E-07	2.3173E-07	1.8020E-07
1.0812E-07	5.4056E-08	3.2434E-08	2.3167E-08	1.6207E-08

**DIRECTION FROM NE

1.5821E-03	2.1853E-04	9.9691E-05	5.7413E-05	4.0458E-05
2.0643E-05	8.0343E-06	3.9790E-06	2.5445E-06	1.5926E-06

**DIRECTION FROM ENE

1.5911E-03	2.0956E-04	9.4446E-05	5.4042E-05	3.7808E-05
1.9029E-05	7.2961E-06	3.6004E-06	2.3061E-06	1.4460E-06

**DIRECTION FROM E

2.0041E-03	1.9532E-04	1.0592E-04	6.8766E-05	5.0342E-05
2.6966E-05	1.1465E-05	5.7938E-06	3.7228E-06	2.4394E-06

**DIRECTION FROM ESE

8.4602E-03	1.1464E-03	5.2880E-04	3.0714E-04	2.1691E-04
1.1089E-04	4.3355E-05	2.1427E-05	1.3670E-05	8.5728E-06

**DIRECTION FROM SE

1.0572E-01	1.0312E-02	5.5900E-03	3.6281E-03	2.6558E-03
1.4224E-03	6.0467E-04	3.0555E-04	1.9633E-04	1.2864E-04

**DIRECTION FROM SSE

0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00

**DIRECTION FROM S

5.9771E-04	2.9100E-05	1.7489E-05	1.2488E-05	9.7107E-06
5.8263E-06	2.9130E-06	1.7478E-06	1.2484E-06	8.7336E-07

**DIRECTION FROM SSW

0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00

**DIRECTION FROM SW

0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00

**DIRECTION FROM WSW

1.9930E-04	9.7030E-06	5.8315E-06	4.1638E-06	3.2379E-06
1.9427E-06	9.7131E-07	5.8278E-07	4.1627E-07	2.9121E-07

**DIRECTION FROM W

0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00

**DIRECTION FROM WNW

0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00

**DIRECTION FROM NW

2.0623E-04	1.0040E-05	6.0343E-06	4.3086E-06	3.3505E-06
2.0103E-06	1.0051E-06	6.0305E-07	4.3075E-07	3.0134E-07

**DIRECTION FROM NNW

7.9610E-04	3.8759E-05	2.3294E-05	1.6633E-05	1.2934E-05
7.7602E-06	3.8799E-06	2.3280E-06	1.6628E-06	1.1633E-06

DISTANCES USED IN CALCULATIONS

594.0	2416.0	4020.0	5630.0	7240.0
12067.0	24135.0	40225.0	56315.0	80500.0

BETA FOR RELEASE POINT 2

**DIRECTION FROM N

1.9212E-03	2.3226E-04	1.0574E-04	6.1353E-05	4.2585E-05
2.0909E-05	7.8871E-06	3.8690E-06	2.4595E-06	1.5203E-06

**DIRECTION FROM NNE

1.5229E-03	1.7382E-04	8.4554E-05	5.1406E-05	3.6411E-05
1.8473E-05	7.3474E-06	3.6571E-06	2.3367E-06	1.4804E-06

**DIRECTION FROM NE

1.5300E-03	1.8172E-04	8.8205E-05	5.3464E-05	3.7866E-05
1.9233E-05	7.6554E-06	3.8174E-06	2.4445E-06	1.5491E-06

**DIRECTION FROM ENE

3.0564E-03	3.5401E-04	1.7834E-04	1.1087E-04	7.9138E-05
4.0647E-05	1.6571E-05	8.3605E-06	5.3923E-06	3.4559E-06

**DIRECTION FROM E

8.5972E-03	9.4534E-04	4.8637E-04	3.0623E-04	2.2034E-04
1.1472E-04	4.7388E-05	2.3894E-05	1.5375E-05	9.9202E-06

**DIRECTION FROM ESE

1.0891E-02	1.1837E-03	6.1113E-04	3.8539E-04	2.7807E-04
1.4559E-04	6.0382E-05	3.0446E-05	1.9586E-05	1.2670E-05

**DIRECTION FROM SE

1.0312E-02	1.0819E-03	5.6463E-04	3.5867E-04	2.5971E-04
1.3676E-04	5.7123E-05	2.8858E-05	1.8580E-05	1.2070E-05

**DIRECTION FROM SSE

1.3513E-02	1.4259E-03	7.4914E-04	4.7766E-04	3.4605E-04
1.8225E-04	7.6263E-05	3.8556E-05	2.4829E-05	1.6127E-05

**DIRECTION FROM S

1.3233E-02	1.4265E-03	7.3425E-04	4.6230E-04	3.3344E-04
1.7450E-04	7.2274E-05	3.6418E-05	2.3417E-05	1.5146E-05

**DIRECTION FROM SSW

6.0496E-03	6.8385E-04	3.4412E-04	2.1361E-04	1.5294E-04
7.9080E-05	3.2290E-05	1.6230E-05	1.0431E-05	6.6963E-06

**DIRECTION FROM SW

4.5175E-03	5.1878E-04	2.5237E-04	1.5335E-04	1.0880E-04
5.5465E-05	2.2170E-05	1.1077E-05	7.1048E-06	4.5241E-06

**DIRECTION FROM WSW

1.7557E-03	1.9352E-04	9.4643E-05	5.7905E-05	4.1048E-05
2.0854E-05	8.3714E-06	4.2215E-06	2.7250E-06	1.7405E-06

**DIRECTION FROM W

1.4009E-03	1.6164E-04	7.6750E-05	4.5978E-05	3.2323E-05
1.6201E-05	6.3501E-06	3.1651E-06	2.0286E-06	1.2779E-06

**DIRECTION FROM WNW

1.7674E-03	2.1190E-04	9.9249E-05	5.8803E-05	4.1276E-05
2.0697E-05	8.0750E-06	4.0218E-06	2.5804E-06	1.6230E-06

**DIRECTION FROM NW

8.5370E-04	9.8443E-05	4.6325E-05	2.7637E-05	1.9316E-05
9.5696E-06	3.7219E-06	1.8688E-06	1.2053E-06	7.5678E-07

**DIRECTION FROM NNW

1.0832E-03	1.2192E-04	5.4750E-05	3.1614E-05	2.1813E-05
1.0568E-05	3.9189E-06	1.9073E-06	1.2045E-06	7.3683E-07

DISTANCES USED IN CALCULATIONS

594.0	2416.0	4020.0	5630.0	7240.0
12067.0	24135.0	40225.0	56315.0	80500.0

INDIVIDUAL DOSES (MREM) DUE TO GASEOUS EFFLUENT
FOR DATES 94 7 1 1 THRU 94 93024

	T.BODY	GI-TRCT	BONE	LIVER	KIDNEY	THYRD	LUNG	SKIN
PLUME	PATHWAY, DIST GP= 1, 659. METERS WINDS TOWARD N							
ADULT	3.4E-03	3.4E-03	3.4E-03	3.4E-03	3.4E-03	3.4E-03	3.5E-03	8.8E-03
TEEN	3.4E-03	3.4E-03	3.4E-03	3.4E-03	3.4E-03	3.4E-03	3.5E-03	8.8E-03
CHILD	3.4E-03	3.4E-03	3.4E-03	3.4E-03	3.4E-03	3.4E-03	3.5E-03	8.8E-03
INFNT	3.4E-03	3.4E-03	3.4E-03	3.4E-03	3.4E-03	3.4E-03	3.5E-03	8.8E-03
GROUND	PATHWAY, DIST GP= 1, 659. METERS WINDS TOWARD N							
ADULT	1.3E-03	1.3E-03	1.3E-03	1.3E-03	1.3E-03	1.3E-03	1.3E-03	1.5E-03
TEEN	1.3E-03	1.3E-03	1.3E-03	1.3E-03	1.3E-03	1.3E-03	1.3E-03	1.5E-03
CHILD	1.3E-03	1.3E-03	1.3E-03	1.3E-03	1.3E-03	1.3E-03	1.3E-03	1.5E-03
INFNT	1.3E-03	1.3E-03	1.3E-03	1.3E-03	1.3E-03	1.3E-03	1.3E-03	1.5E-03
VEGET	PATHWAY, DIST GP= 1, 8045. METERS WINDS TOWARD N							
ADULT	1.3E-04	1.2E-04	1.2E-05	1.4E-04	1.3E-04	2.7E-04	1.2E-04	0.0E+00
TEEN	1.5E-04	1.4E-04	1.9E-05	1.7E-04	1.5E-04	2.6E-04	1.4E-04	0.0E+00
CHILD	2.2E-04	2.2E-04	4.4E-05	2.6E-04	2.3E-04	4.0E-04	2.2E-04	0.0E+00
INFNT	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
MEAT	PATHWAY, DIST GP= 1, 8045. METERS WINDS TOWARD N							
ADULT	1.9E-05	1.8E-05	1.2E-06	1.9E-05	1.8E-05	3.5E-05	1.8E-05	0.0E+00
TEEN	1.1E-05	1.1E-05	1.0E-06	1.2E-05	1.1E-05	2.3E-05	1.1E-05	0.0E+00
CHILD	1.3E-05	1.3E-05	1.8E-06	1.5E-05	1.3E-05	3.2E-05	1.3E-05	0.0E+00
INFNT	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
COW	PATHWAY, DIST GP= 1, 4091. METERS WINDS TOWARD N							
ADULT	1.4E-04	1.1E-04	3.8E-05	1.6E-04	1.3E-04	1.8E-03	1.1E-04	0.0E+00
TEEN	1.7E-04	1.4E-04	6.9E-05	2.4E-04	1.8E-04	2.8E-03	1.5E-04	0.0E+00
CHILD	2.5E-04	2.1E-04	1.6E-04	3.8E-04	2.9E-04	5.5E-03	2.3E-04	0.0E+00
INFNT	3.6E-04	3.2E-04	2.7E-04	6.6E-04	4.5E-04	1.3E-02	3.5E-04	0.0E+00
GOAT	PATHWAY, DIST GP= 1, 4091. METERS WINDS TOWARD N							
ADULT	3.2E-04	2.1E-04	1.1E-04	3.7E-04	2.7E-04	2.2E-03	2.3E-04	0.0E+00
TEEN	3.8E-04	2.8E-04	1.9E-04	5.6E-04	3.9E-04	3.5E-03	3.1E-04	0.0E+00
CHILD	5.2E-04	4.4E-04	4.7E-04	9.2E-04	6.1E-04	6.8E-03	4.9E-04	0.0E+00
INFNT	7.5E-04	6.6E-04	7.5E-04	1.6E-03	9.5E-04	1.6E-02	7.6E-04	0.0E+00
INHAL	PATHWAY, DIST GP= 1, 659. METERS WINDS TOWARD N							
ADULT	2.6E-03	2.6E-03	4.4E-05	2.6E-03	2.6E-03	6.6E-03	2.6E-03	0.0E+00
TEEN	2.6E-03	2.6E-03	6.2E-05	2.7E-03	2.6E-03	7.6E-03	2.6E-03	0.0E+00
CHILD	2.3E-03	2.3E-03	8.3E-05	2.4E-03	2.3E-03	7.9E-03	2.3E-03	0.0E+00
INFNT	1.3E-03	1.3E-03	5.4E-05	1.4E-03	1.3E-03	6.5E-03	1.3E-03	0.0E+00
SUBTOTALS (NO PLUME)								
ADULT	4.5E-03	4.3E-03	1.5E-03	4.6E-03	4.4E-03	1.2E-02	4.3E-03	1.5E-03
TEEN	4.6E-03	4.4E-03	1.6E-03	4.9E-03	4.6E-03	1.5E-02	4.5E-03	1.5E-03
CHILD	4.6E-03	4.5E-03	2.0E-03	5.2E-03	4.8E-03	2.2E-02	4.5E-03	1.5E-03
INFNT	3.7E-03	3.6E-03	2.4E-03	4.9E-03	4.0E-03	3.7E-02	3.7E-03	1.5E-03
TOTALS								
ADULT	8.0E-03	7.8E-03	4.9E-03	8.0E-03	7.9E-03	1.6E-02	7.9E-03	1.0E-02
TEEN	8.1E-03	7.9E-03	5.1E-03	8.4E-03	8.1E-03	1.9E-02	8.0E-03	1.0E-02
CHILD	8.0E-03	7.9E-03	5.5E-03	8.7E-03	8.2E-03	2.5E-02	8.1E-03	1.0E-02
INFNT	7.2E-03	7.0E-03	5.8E-03	8.4E-03	7.5E-03	4.0E-02	7.3E-03	1.0E-02

INDIVIDUAL DOSES (MREM) DUE TO GASEOUS EFFLUENT
FOR DATES 94 7 1 1 THRU 94 93024

	T.BODY	GI-TRCT	BONE	LIVER	KIDNEY	THYRD	LUNG	SKIN
PLUME	PATHWAY, DIST GP= 1, 660. METERS WINDS TOWARD NNE							
ADULT	1.6E-03	1.6E-03	1.6E-03	1.6E-03	1.6E-03	1.6E-03	1.7E-03	4.0E-03
TEEN	1.6E-03	1.6E-03	1.6E-03	1.6E-03	1.6E-03	1.6E-03	1.7E-03	4.0E-03
CHILD	1.6E-03	1.6E-03	1.6E-03	1.6E-03	1.6E-03	1.6E-03	1.7E-03	4.0E-03
INFNT	1.6E-03	1.6E-03	1.6E-03	1.6E-03	1.6E-03	1.6E-03	1.7E-03	4.0E-03
GROUND	PATHWAY, DIST GP= 1, 660. METERS WINDS TOWARD NNE							
ADULT	9.2E-04	9.2E-04	9.2E-04	9.2E-04	9.2E-04	9.2E-04	9.2E-04	1.1E-03
TEEN	9.2E-04	9.2E-04	9.2E-04	9.2E-04	9.2E-04	9.2E-04	9.2E-04	1.1E-03
CHILD	9.2E-04	9.2E-04	9.2E-04	9.2E-04	9.2E-04	9.2E-04	9.2E-04	1.1E-03
INFNT	9.2E-04	9.2E-04	9.2E-04	9.2E-04	9.2E-04	9.2E-04	9.2E-04	1.1E-03
VEGET	PATHWAY, DIST GP= 1, 814. METERS WINDS TOWARD NNE							
ADULT	2.1E-03	1.7E-03	4.2E-04	2.3E-03	1.9E-03	6.8E-03	1.8E-03	0.0E+00
TEEN	2.3E-03	2.0E-03	6.6E-04	2.9E-03	2.3E-03	6.1E-03	2.1E-03	0.0E+00
CHILD	3.2E-03	3.0E-03	1.5E-03	4.6E-03	3.5E-03	9.4E-03	3.2E-03	0.0E+00
INFNT	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
MEAT	PATHWAY, DIST GP= 1, 7725. METERS WINDS TOWARD NNE							
ADULT	1.0E-05	9.1E-06	9.4E-07	1.0E-05	9.6E-06	2.3E-05	9.2E-06	0.0E+00
TEEN	5.8E-06	5.4E-06	7.7E-07	6.5E-06	5.8E-06	1.5E-05	5.5E-06	0.0E+00
CHILD	6.8E-06	6.5E-06	1.4E-06	8.0E-06	7.1E-06	2.1E-05	6.7E-06	0.0E+00
INFNT	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
COW	PATHWAY, DIST GP= 1, 4091. METERS WINDS TOWARD NNE							
ADULT	7.9E-05	5.3E-05	2.7E-05	9.3E-05	7.0E-05	1.3E-03	5.5E-05	0.0E+00
TEEN	9.5E-05	6.9E-05	5.0E-05	1.4E-04	1.0E-04	2.0E-03	7.5E-05	0.0E+00
CHILD	1.3E-04	1.1E-04	1.2E-04	2.3E-04	1.6E-04	3.9E-03	1.2E-04	0.0E+00
INFNT	1.9E-04	1.6E-04	1.9E-04	4.1E-04	2.5E-04	9.4E-03	1.8E-04	0.0E+00
GOAT	PATHWAY, DIST GP= 1, 4091. METERS WINDS TOWARD NNE							
ADULT	1.9E-04	1.1E-04	7.8E-05	2.2E-04	1.5E-04	1.6E-03	1.2E-04	0.0E+00
TEEN	2.2E-04	1.4E-04	1.4E-04	3.4E-04	2.2E-04	2.5E-03	1.6E-04	0.0E+00
CHILD	2.8E-04	2.2E-04	3.4E-04	5.7E-04	3.5E-04	4.8E-03	2.5E-04	0.0E+00
INFNT	3.9E-04	3.3E-04	5.4E-04	1.0E-03	5.4E-04	1.1E-02	4.0E-04	0.0E+00
INHAL	PATHWAY, DIST GP= 1, 660. METERS WINDS TOWARD NNE							
ADULT	1.3E-03	1.3E-03	2.0E-05	1.3E-03	1.3E-03	3.1E-03	1.3E-03	0.0E+00
TEEN	1.3E-03	1.3E-03	2.8E-05	1.3E-03	1.3E-03	3.5E-03	1.3E-03	0.0E+00
CHILD	1.2E-03	1.2E-03	3.8E-05	1.2E-03	1.2E-03	3.7E-03	1.2E-03	0.0E+00
INFNT	6.7E-04	6.6E-04	2.4E-05	6.9E-04	6.8E-04	3.0E-03	6.7E-04	0.0E+00
SUBTOTALS (NO PLUME)								
ADULT	4.6E-03	4.1E-03	1.5E-03	4.9E-03	4.4E-03	1.4E-02	4.2E-03	1.1E-03
TEEN	4.8E-03	4.4E-03	1.8E-03	5.6E-03	4.8E-03	1.5E-02	4.5E-03	1.1E-03
CHILD	5.7E-03	5.4E-03	3.0E-03	7.5E-03	6.1E-03	2.3E-02	5.6E-03	1.1E-03
INFNT	2.2E-03	2.1E-03	1.7E-03	3.0E-03	2.4E-03	2.5E-02	2.2E-03	1.1E-03
TOTALS								
ADULT	6.3E-03	5.7E-03	3.1E-03	6.5E-03	6.0E-03	1.5E-02	5.8E-03	5.1E-03
TEEN	6.5E-03	6.0E-03	3.4E-03	7.3E-03	6.5E-03	1.7E-02	6.2E-03	5.1E-03
CHILD	7.4E-03	7.0E-03	4.6E-03	9.1E-03	7.8E-03	2.4E-02	7.3E-03	5.1E-03
INFNT	3.8E-03	3.7E-03	3.3E-03	4.7E-03	4.0E-03	2.6E-02	3.9E-03	5.1E-03

INDIVIDUAL DOSES (MREM) DUE TO GASEOUS EFFLUENT
FOR DATES 94 7 1 1 THRU 94 93024

	T.BODY	GI-TRCT	BONE	LIVER	KIDNEY	THYRD	LUNG	SKIN
PLUME	PATHWAY, DIST GP= 1, 943. METERS WINDS TOWARD NE							
ADULT	6.6E-04	6.6E-04	6.6E-04	6.6E-04	6.6E-04	6.6E-04	6.8E-04	1.7E-03
TEEN	6.6E-04	6.6E-04	6.6E-04	6.6E-04	6.6E-04	6.6E-04	6.8E-04	1.7E-03
CHILD	6.6E-04	6.6E-04	6.6E-04	6.6E-04	6.6E-04	6.6E-04	6.8E-04	1.7E-03
INFNT	6.6E-04	6.6E-04	6.6E-04	6.6E-04	6.6E-04	6.6E-04	6.8E-04	1.7E-03
GROUND	PATHWAY, DIST GP= 1, 943. METERS WINDS TOWARD NE							
ADULT	5.5E-04	5.5E-04	5.5E-04	5.5E-04	5.5E-04	5.5E-04	5.5E-04	6.4E-04
TEEN	5.5E-04	5.5E-04	5.5E-04	5.5E-04	5.5E-04	5.5E-04	5.5E-04	6.4E-04
CHILD	5.5E-04	5.5E-04	5.5E-04	5.5E-04	5.5E-04	5.5E-04	5.5E-04	6.4E-04
INFNT	5.5E-04	5.5E-04	5.5E-04	5.5E-04	5.5E-04	5.5E-04	5.5E-04	6.4E-04
VEGET	PATHWAY, DIST GP= 1, 1052. METERS WINDS TOWARD NE							
ADULT	1.0E-03	7.6E-04	3.0E-04	1.2E-03	9.1E-04	4.4E-03	7.9E-04	0.0E+00
TEEN	1.1E-03	8.6E-04	4.6E-04	1.5E-03	1.1E-03	3.9E-03	9.3E-04	0.0E+00
CHILD	1.5E-03	1.3E-03	1.1E-03	2.4E-03	1.7E-03	5.9E-03	1.4E-03	0.0E+00
INFNT	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
MEAT	PATHWAY, DIST GP= 1, 7725. METERS WINDS TOWARD NE							
ADULT	6.8E-06	5.8E-06	1.0E-06	7.2E-06	6.3E-06	2.1E-05	5.8E-06	0.0E+00
TEEN	3.9E-06	3.4E-06	8.3E-07	4.6E-06	3.9E-06	1.4E-05	3.5E-06	0.0E+00
CHILD	4.4E-06	4.1E-06	1.5E-06	5.7E-06	4.7E-06	2.0E-05	4.3E-06	0.0E+00
INFNT	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
COW	PATHWAY, DIST GP= 1, 4091. METERS WINDS TOWARD NE							
ADULT	6.4E-05	3.5E-05	3.0E-05	7.8E-05	5.4E-05	1.4E-03	3.8E-05	0.0E+00
TEEN	7.4E-05	4.6E-05	5.4E-05	1.2E-04	8.0E-05	2.2E-03	5.2E-05	0.0E+00
CHILD	9.5E-05	7.0E-05	1.3E-04	2.0E-04	1.3E-04	4.2E-03	8.2E-05	0.0E+00
INFNT	1.3E-04	1.0E-04	2.1E-04	3.7E-04	2.0E-04	1.0E-02	1.3E-04	0.0E+00
GOAT	PATHWAY, DIST GP= 1, 4091. METERS WINDS TOWARD NE							
ADULT	1.6E-04	7.1E-05	8.4E-05	2.0E-04	1.2E-04	1.7E-03	8.1E-05	0.0E+00
TEEN	1.7E-04	9.3E-05	1.5E-04	3.1E-04	1.7E-04	2.6E-03	1.2E-04	0.0E+00
CHILD	2.1E-04	1.4E-04	3.6E-04	5.2E-04	2.8E-04	5.1E-03	1.8E-04	0.0E+00
INFNT	2.8E-04	2.1E-04	5.9E-04	9.6E-04	4.4E-04	1.2E-02	2.9E-04	0.0E+00
INHAL	PATHWAY, DIST GP= 1, 943. METERS WINDS TOWARD NE							
ADULT	4.9E-04	4.9E-04	8.6E-06	5.0E-04	4.9E-04	1.3E-03	4.9E-04	0.0E+00
TEEN	5.0E-04	4.9E-04	1.2E-05	5.1E-04	5.0E-04	1.5E-03	4.9E-04	0.0E+00
CHILD	4.4E-04	4.3E-04	1.6E-05	4.5E-04	4.4E-04	1.5E-03	4.4E-04	0.0E+00
INFNT	2.5E-04	2.5E-04	1.0E-05	2.6E-04	2.5E-04	1.2E-03	2.5E-04	0.0E+00
SUBTOTALS (NO PLUME)								
ADULT	2.3E-03	1.9E-03	9.7E-04	2.5E-03	2.1E-03	9.3E-03	2.0E-03	6.4E-04
TEEN	2.4E-03	2.0E-03	1.2E-03	3.0E-03	2.4E-03	1.1E-02	2.1E-03	6.4E-04
CHILD	2.8E-03	2.5E-03	2.1E-03	4.2E-03	3.1E-03	1.7E-02	2.7E-03	6.4E-04
INFNT	1.2E-03	1.1E-03	1.4E-03	2.1E-03	1.4E-03	2.4E-02	1.2E-03	6.4E-04
TOTALS								
ADULT	3.0E-03	2.6E-03	1.6E-03	3.2E-03	2.8E-03	9.9E-03	2.6E-03	2.3E-03
TEEN	3.1E-03	2.7E-03	1.9E-03	3.7E-03	3.1E-03	1.1E-02	2.8E-03	2.3E-03
CHILD	3.5E-03	3.2E-03	2.8E-03	4.8E-03	3.8E-03	1.8E-02	3.4E-03	2.3E-03
INFNT	1.9E-03	1.8E-03	2.0E-03	2.8E-03	2.1E-03	2.5E-02	1.9E-03	2.3E-03

INDIVIDUAL DOSES (MREM) DUE TO GASEOUS EFFLUENT
FOR DATES 94 7 1 1 THRU 94 93024

T.BODY GI-TRCT BONE LIVER KIDNEY THYRD LUNG SKIN

PLUME PATHWAY, DIST GP= 1, 1747. METERS WINDS TOWARD ENE

ADULT	1.0E-04	1.0E-04	1.0E-04	1.0E-04	1.0E-04	1.0E-04	1.0E-04	2.6E-04
TEEN	1.0E-04	1.0E-04	1.0E-04	1.0E-04	1.0E-04	1.0E-04	1.0E-04	2.6E-04
CHILD	1.0E-04	1.0E-04	1.0E-04	1.0E-04	1.0E-04	1.0E-04	1.0E-04	2.6E-04
INFNT	1.0E-04	1.0E-04	1.0E-04	1.0E-04	1.0E-04	1.0E-04	1.0E-04	2.6E-04

GROUND PATHWAY, DIST GP= 1, 1747. METERS WINDS TOWARD ENE

ADULT	1.3E-04	1.3E-04	1.3E-04	1.3E-04	1.3E-04	1.3E-04	1.3E-04	1.5E-04
TEEN	1.3E-04	1.3E-04	1.3E-04	1.3E-04	1.3E-04	1.3E-04	1.3E-04	1.5E-04
CHILD	1.3E-04	1.3E-04	1.3E-04	1.3E-04	1.3E-04	1.3E-04	1.3E-04	1.5E-04
INFNT	1.3E-04	1.3E-04	1.3E-04	1.3E-04	1.3E-04	1.3E-04	1.3E-04	1.5E-04

VEGET PATHWAY, DIST GP= 1, 1852. METERS WINDS TOWARD ENE

ADULT	2.4E-04	1.7E-04	7.6E-05	2.8E-04	2.1E-04	1.2E-03	1.8E-04	0.0E+00
TEEN	2.5E-04	1.9E-04	1.2E-04	3.6E-04	2.5E-04	1.0E-03	2.1E-04	0.0E+00
CHILD	3.4E-04	2.9E-04	2.8E-04	5.8E-04	3.9E-04	1.6E-03	3.2E-04	0.0E+00
INFNT	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

MEAT PATHWAY, DIST GP= 1, 3862. METERS WINDS TOWARD ENE

ADULT	1.1E-05	8.3E-06	2.4E-06	1.2E-05	9.5E-06	4.7E-05	8.5E-06	0.0E+00
TEEN	6.0E-06	5.0E-06	2.0E-06	7.8E-06	5.9E-06	3.3E-05	5.2E-06	0.0E+00
CHILD	6.5E-06	5.9E-06	3.6E-06	9.7E-06	7.2E-06	4.8E-05	6.3E-06	0.0E+00
INFNT	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

COW PATHWAY, DIST GP= 1, 4091. METERS WINDS TOWARD ENE

ADULT	3.8E-05	1.9E-05	2.0E-05	4.8E-05	3.2E-05	9.9E-04	2.1E-05	0.0E+00
TEEN	4.4E-05	2.5E-05	3.6E-05	7.6E-05	4.8E-05	1.6E-03	2.9E-05	0.0E+00
CHILD	5.5E-05	3.7E-05	8.5E-05	1.3E-04	7.7E-05	3.1E-03	4.6E-05	0.0E+00
INFNT	7.7E-05	5.6E-05	1.4E-04	2.3E-04	1.2E-04	7.4E-03	7.2E-05	0.0E+00

GOAT PATHWAY, DIST GP= 1, 4091. METERS WINDS TOWARD ENE

ADULT	9.5E-05	3.8E-05	5.5E-05	1.2E-04	6.9E-05	1.2E-03	4.5E-05	0.0E+00
TEEN	1.0E-04	5.0E-05	1.0E-04	2.0E-04	1.1E-04	1.9E-03	6.5E-05	0.0E+00
CHILD	1.2E-04	7.6E-05	2.4E-04	3.3E-04	1.7E-04	3.7E-03	1.0E-04	0.0E+00
INFNT	1.6E-04	1.1E-04	3.9E-04	6.1E-04	2.7E-04	9.0E-03	1.6E-04	0.0E+00

INHAL PATHWAY, DIST GP= 1, 1747. METERS WINDS TOWARD ENE

ADULT	1.0E-04	9.9E-05	1.1E-06	1.0E-04	1.0E-04	2.0E-04	1.0E-04	0.0E+00
TEEN	1.0E-04	1.0E-04	1.6E-06	1.0E-04	1.0E-04	2.2E-04	1.0E-04	0.0E+00
CHILD	8.9E-05	8.8E-05	2.1E-06	9.0E-05	9.0E-05	2.3E-04	8.9E-05	0.0E+00
INFNT	5.1E-05	5.1E-05	1.3E-06	5.2E-05	5.2E-05	1.8E-04	5.1E-05	0.0E+00

SUBTOTALS (NO PLUME)

ADULT	6.2E-04	4.6E-04	2.8E-04	6.9E-04	5.5E-04	3.8E-03	4.8E-04	1.5E-04
TEEN	6.4E-04	5.0E-04	3.9E-04	8.7E-04	6.4E-04	4.9E-03	5.4E-04	1.5E-04
CHILD	7.4E-04	6.3E-04	7.4E-04	1.3E-03	8.6E-04	8.8E-03	6.9E-04	1.5E-04
INFNT	4.2E-04	3.5E-04	6.6E-04	1.0E-03	5.7E-04	1.7E-02	4.1E-04	1.5E-04

TOTALS

ADULT	7.2E-04	5.6E-04	3.8E-04	7.9E-04	6.5E-04	3.9E-03	5.8E-04	4.1E-04
TEEN	7.4E-04	6.0E-04	4.9E-04	9.7E-04	7.4E-04	5.0E-03	6.4E-04	4.1E-04
CHILD	8.4E-04	7.3E-04	8.4E-04	1.4E-03	9.6E-04	8.9E-03	8.0E-04	4.1E-04
INFNT	5.2E-04	4.5E-04	7.6E-04	1.1E-03	6.7E-04	1.7E-02	5.2E-04	4.1E-04

INDIVIDUAL DOSES (MREM) DUE TO GASEOUS EFFLUENT
FOR DATES 94 7 1 1 THRU 94 93024

	T.BODY	GI-TRCT	BONE	LIVER	KIDNEY	THYRD	LUNG	SKIN
PLUME	PATHWAY, DIST GP= 1, 1716. METERS WINDS TOWARD E							
ADULT	8.6E-05	8.6E-05	8.6E-05	8.6E-05	8.6E-05	8.6E-05	8.8E-05	2.1E-04
TEEN	8.6E-05	8.6E-05	8.6E-05	8.6E-05	8.6E-05	8.6E-05	8.8E-05	2.1E-04
CHILD	8.6E-05	8.6E-05	8.6E-05	8.6E-05	8.6E-05	8.6E-05	8.8E-05	2.1E-04
INFNT	8.6E-05	8.6E-05	8.6E-05	8.6E-05	8.6E-05	8.6E-05	8.8E-05	2.1E-04
GROUND	PATHWAY, DIST GP= 1, 1716. METERS WINDS TOWARD E							
ADULT	8.3E-05	8.3E-05	8.3E-05	8.3E-05	8.3E-05	8.3E-05	8.3E-05	9.7E-05
TEEN	8.3E-05	8.3E-05	8.3E-05	8.3E-05	8.3E-05	8.3E-05	8.3E-05	9.7E-05
CHILD	8.3E-05	8.3E-05	8.3E-05	8.3E-05	8.3E-05	8.3E-05	8.3E-05	9.7E-05
INFNT	8.3E-05	8.3E-05	8.3E-05	8.3E-05	8.3E-05	8.3E-05	8.3E-05	9.7E-05
VEGET	PATHWAY, DIST GP= 1, 1705. METERS WINDS TOWARD E							
ADULT	2.3E-04	1.8E-04	5.4E-05	2.5E-04	2.0E-04	8.2E-04	1.8E-04	0.0E+00
TEEN	2.4E-04	2.0E-04	8.4E-05	3.2E-04	2.4E-04	7.4E-04	2.1E-04	0.0E+00
CHILD	3.4E-04	3.1E-04	2.0E-04	5.1E-04	3.8E-04	1.1E-03	3.3E-04	0.0E+00
INFNT	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
MEAT	PATHWAY, DIST GP= 1, 6810. METERS WINDS TOWARD E							
ADULT	3.9E-06	3.4E-06	5.1E-07	4.1E-06	3.6E-06	1.1E-05	3.4E-06	0.0E+00
TEEN	2.2E-06	2.0E-06	4.2E-07	2.6E-06	2.2E-06	7.4E-06	2.1E-06	0.0E+00
CHILD	2.5E-06	2.4E-06	7.8E-07	3.2E-06	2.7E-06	1.1E-05	2.5E-06	0.0E+00
INFNT	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
COW	PATHWAY, DIST GP= 1, 4091. METERS WINDS TOWARD E							
ADULT	2.9E-05	1.7E-05	1.2E-05	3.5E-05	2.5E-05	5.5E-04	1.8E-05	0.0E+00
TEEN	3.4E-05	2.2E-05	2.2E-05	5.3E-05	3.6E-05	8.7E-04	2.5E-05	0.0E+00
CHILD	4.4E-05	3.4E-05	5.2E-05	8.8E-05	5.8E-05	1.7E-03	3.9E-05	0.0E+00
INFNT	6.4E-05	5.1E-05	8.6E-05	1.6E-04	9.1E-05	4.1E-03	6.1E-05	0.0E+00
GOAT	PATHWAY, DIST GP= 1, 4091. METERS WINDS TOWARD E							
ADULT	6.9E-05	3.5E-05	3.4E-05	8.5E-05	5.3E-05	6.7E-04	3.9E-05	0.0E+00
TEEN	7.8E-05	4.5E-05	6.2E-05	1.3E-04	7.9E-05	1.1E-03	5.5E-05	0.0E+00
CHILD	9.5E-05	6.9E-05	1.5E-04	2.2E-04	1.3E-04	2.1E-03	8.5E-05	0.0E+00
INFNT	1.3E-04	1.1E-04	2.4E-04	4.1E-04	2.0E-04	5.0E-03	1.3E-04	0.0E+00
INHAL	PATHWAY, DIST GP= 1, 1716. METERS WINDS TOWARD E							
ADULT	9.6E-05	9.5E-05	9.1E-07	9.6E-05	9.6E-05	1.7E-04	9.5E-05	0.0E+00
TEEN	9.6E-05	9.6E-05	1.3E-06	9.7E-05	9.6E-05	1.9E-04	9.6E-05	0.0E+00
CHILD	8.5E-05	8.5E-05	1.7E-06	8.6E-05	8.6E-05	1.9E-04	8.5E-05	0.0E+00
INFNT	4.9E-05	4.9E-05	1.1E-06	5.0E-05	4.9E-05	1.5E-04	4.9E-05	0.0E+00
SUBTOTALS (NO PLUME)								
ADULT	5.1E-04	4.1E-04	1.8E-04	5.6E-04	4.6E-04	2.3E-03	4.2E-04	9.7E-05
TEEN	5.4E-04	4.5E-04	2.5E-04	6.9E-04	5.4E-04	2.9E-03	4.7E-04	9.7E-05
CHILD	6.5E-04	5.8E-04	4.8E-04	1.0E-03	7.3E-04	5.2E-03	6.2E-04	9.7E-05
INFNT	3.3E-04	2.9E-04	4.1E-04	7.0E-04	4.2E-04	9.3E-03	3.3E-04	9.7E-05
TOTALS								
ADULT	6.0E-04	4.9E-04	2.7E-04	6.4E-04	5.5E-04	2.4E-03	5.1E-04	3.1E-04
TEEN	6.2E-04	5.3E-04	3.4E-04	7.8E-04	6.2E-04	3.0E-03	5.6E-04	3.1E-04
CHILD	7.4E-04	6.7E-04	5.7E-04	1.1E-03	8.2E-04	5.3E-03	7.1E-04	3.1E-04
INFNT	4.1E-04	3.7E-04	4.9E-04	7.8E-04	5.1E-04	9.4E-03	4.2E-04	3.1E-04

INDIVIDUAL DOSES (MREM) DUE TO GASEOUS EFFLUENT
FOR DATES 94 7 1 1 THRU 94 93024

	T.BODY	GI-TRCT	BONE	LIVER	KIDNEY	THYRD	LUNG	SKIN
PLUME	PATHWAY, DIST GP= 1, 1643. METERS WINDS TOWARD ESE							
ADULT	1.1E-04	1.1E-04	1.1E-04	1.1E-04	1.1E-04	1.1E-04	1.2E-04	2.8E-04
TEEN	1.1E-04	1.1E-04	1.1E-04	1.1E-04	1.1E-04	1.1E-04	1.2E-04	2.8E-04
CHILD	1.1E-04	1.1E-04	1.1E-04	1.1E-04	1.1E-04	1.1E-04	1.2E-04	2.8E-04
INFNT	1.1E-04	1.1E-04	1.1E-04	1.1E-04	1.1E-04	1.1E-04	1.2E-04	2.8E-04
GROUND	PATHWAY, DIST GP= 1, 1643. METERS WINDS TOWARD ESE							
ADULT	1.1E-04	1.1E-04	1.1E-04	1.1E-04	1.1E-04	1.1E-04	1.1E-04	1.2E-04
TEEN	1.1E-04	1.1E-04	1.1E-04	1.1E-04	1.1E-04	1.1E-04	1.1E-04	1.2E-04
CHILD	1.1E-04	1.1E-04	1.1E-04	1.1E-04	1.1E-04	1.1E-04	1.1E-04	1.2E-04
INFNT	1.1E-04	1.1E-04	1.1E-04	1.1E-04	1.1E-04	1.1E-04	1.1E-04	1.2E-04
VEGET	PATHWAY, DIST GP= 1, 1628. METERS WINDS TOWARD ESE							
ADULT	2.7E-04	2.0E-04	7.0E-05	3.0E-04	2.3E-04	1.1E-03	2.1E-04	0.0E+00
TEEN	2.8E-04	2.3E-04	1.1E-04	3.8E-04	2.8E-04	9.5E-04	2.4E-04	0.0E+00
CHILD	3.9E-04	3.5E-04	2.6E-04	6.1E-04	4.3E-04	1.4E-03	3.7E-04	0.0E+00
INFNT	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
MEAT	PATHWAY, DIST GP= 1, 2434. METERS WINDS TOWARD ESE							
ADULT	1.9E-05	1.5E-05	3.6E-06	2.1E-05	1.7E-05	6.9E-05	1.6E-05	0.0E+00
TEEN	1.1E-05	9.1E-06	3.0E-06	1.3E-05	1.1E-05	4.8E-05	9.5E-06	0.0E+00
CHILD	1.2E-05	1.1E-05	5.5E-06	1.7E-05	1.3E-05	7.0E-05	1.1E-05	0.0E+00
INFNT	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
COW	PATHWAY, DIST GP= 1, 4091. METERS WINDS TOWARD ESE							
ADULT	3.2E-05	1.8E-05	1.5E-05	3.9E-05	2.7E-05	6.8E-04	1.9E-05	0.0E+00
TEEN	3.8E-05	2.3E-05	2.6E-05	6.1E-05	4.0E-05	1.1E-03	2.7E-05	0.0E+00
CHILD	4.8E-05	3.6E-05	6.3E-05	1.0E-04	6.5E-05	2.1E-03	4.2E-05	0.0E+00
INFNT	6.9E-05	5.4E-05	1.0E-04	1.8E-04	1.0E-04	5.1E-03	6.6E-05	0.0E+00
GOAT	PATHWAY, DIST GP= 1, 4091. METERS WINDS TOWARD ESE							
ADULT	7.8E-05	3.7E-05	4.1E-05	9.8E-05	5.9E-05	8.3E-04	4.2E-05	0.0E+00
TEEN	8.8E-05	4.8E-05	7.4E-05	1.6E-04	8.8E-05	1.3E-03	5.9E-05	0.0E+00
CHILD	1.0E-04	7.3E-05	1.8E-04	2.6E-04	1.4E-04	2.6E-03	9.2E-05	0.0E+00
INFNT	1.4E-04	1.1E-04	2.9E-04	4.8E-04	2.2E-04	6.2E-03	1.5E-04	0.0E+00
INHAL	PATHWAY, DIST GP= 1, 1643. METERS WINDS TOWARD ESE							
ADULT	1.1E-04	1.1E-04	1.3E-06	1.1E-04	1.1E-04	2.3E-04	1.1E-04	0.0E+00
TEEN	1.1E-04	1.1E-04	1.8E-06	1.1E-04	1.1E-04	2.5E-04	1.1E-04	0.0E+00
CHILD	9.5E-05	9.4E-05	2.5E-06	9.7E-05	9.6E-05	2.6E-04	9.5E-05	0.0E+00
INFNT	5.4E-05	5.4E-05	1.6E-06	5.6E-05	5.5E-05	2.1E-04	5.5E-05	0.0E+00
SUBTOTALS (NO PLUME)								
ADULT	6.1E-04	4.8E-04	2.4E-04	6.7E-04	5.5E-04	3.0E-03	4.9E-04	1.2E-04
TEEN	6.3E-04	5.2E-04	3.2E-04	8.3E-04	6.3E-04	3.7E-03	5.5E-04	1.2E-04
CHILD	7.5E-04	6.7E-04	6.1E-04	1.2E-03	8.6E-04	6.6E-03	7.2E-04	1.2E-04
INFNT	3.7E-04	3.3E-04	5.0E-04	8.2E-04	4.9E-04	1.2E-02	3.7E-04	1.2E-04
TOTALS								
ADULT	7.3E-04	5.9E-04	3.5E-04	7.9E-04	6.7E-04	3.1E-03	6.1E-04	4.1E-04
TEEN	7.5E-04	6.3E-04	4.4E-04	9.5E-04	7.5E-04	3.9E-03	6.7E-04	4.1E-04
CHILD	8.7E-04	7.8E-04	7.3E-04	1.3E-03	9.7E-04	6.7E-03	8.4E-04	4.1E-04
INFNT	4.9E-04	4.4E-04	6.1E-04	9.4E-04	6.0E-04	1.2E-02	4.9E-04	4.1E-04

INDIVIDUAL DOSES (MREM) DUE TO GASEOUS EFFLUENT
FOR DATES 94 7 1 1 THRU 94 93024

	T.BODY	GI-TRCT	BONE	LIVER	KIDNEY	THYRD	LUNG	SKIN
PLUME	PATHWAY, DIST GP= 1, 1136. METERS WINDS TOWARD SE							
ADULT	1.0E-04	1.0E-04	1.0E-04	1.0E-04	1.0E-04	1.0E-04	1.0E-04	2.6E-04
TEEN	1.0E-04	1.0E-04	1.0E-04	1.0E-04	1.0E-04	1.0E-04	1.0E-04	2.6E-04
CHILD	1.0E-04	1.0E-04	1.0E-04	1.0E-04	1.0E-04	1.0E-04	1.0E-04	2.6E-04
INFNT	1.0E-04	1.0E-04	1.0E-04	1.0E-04	1.0E-04	1.0E-04	1.0E-04	2.6E-04
GROUND	PATHWAY, DIST GP= 1, 1136. METERS WINDS TOWARD SE							
ADULT	1.2E-04	1.2E-04	1.2E-04	1.2E-04	1.2E-04	1.2E-04	1.2E-04	1.4E-04
TEEN	1.2E-04	1.2E-04	1.2E-04	1.2E-04	1.2E-04	1.2E-04	1.2E-04	1.4E-04
CHILD	1.2E-04	1.2E-04	1.2E-04	1.2E-04	1.2E-04	1.2E-04	1.2E-04	1.4E-04
INFNT	1.2E-04	1.2E-04	1.2E-04	1.2E-04	1.2E-04	1.2E-04	1.2E-04	1.4E-04
VEGET	PATHWAY, DIST GP= 1, 914. METERS WINDS TOWARD SE							
ADULT	3.4E-04	2.3E-04	1.1E-04	3.9E-04	2.9E-04	1.6E-03	2.4E-04	0.0E+00
TEEN	3.5E-04	2.6E-04	1.7E-04	5.1E-04	3.5E-04	1.4E-03	2.9E-04	0.0E+00
CHILD	4.7E-04	4.0E-04	4.0E-04	8.2E-04	5.4E-04	2.1E-03	4.4E-04	0.0E+00
INFNT	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
MEAT	PATHWAY, DIST GP= 1, 4354. METERS WINDS TOWARD SE							
ADULT	4.1E-06	3.2E-06	8.5E-07	4.5E-06	3.6E-06	1.6E-05	3.3E-06	0.0E+00
TEEN	2.3E-06	1.9E-06	7.0E-07	2.9E-06	2.3E-06	1.1E-05	2.0E-06	0.0E+00
CHILD	2.5E-06	2.3E-06	1.3E-06	3.6E-06	2.8E-06	1.6E-05	2.4E-06	0.0E+00
INFNT	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
COW	PATHWAY, DIST GP= 1, 4091. METERS WINDS TOWARD SE							
ADULT	1.7E-05	8.7E-06	8.8E-06	2.2E-05	1.4E-05	4.1E-04	9.5E-06	0.0E+00
TEEN	2.0E-05	1.1E-05	1.6E-05	3.4E-05	2.2E-05	6.5E-04	1.3E-05	0.0E+00
CHILD	2.5E-05	1.7E-05	3.8E-05	5.7E-05	3.5E-05	1.3E-03	2.1E-05	0.0E+00
INFNT	3.5E-05	2.6E-05	6.2E-05	1.0E-04	5.5E-05	3.1E-03	3.3E-05	0.0E+00
GOAT	PATHWAY, DIST GP= 1, 4091. METERS WINDS TOWARD SE							
ADULT	4.3E-05	1.8E-05	2.5E-05	5.5E-05	3.1E-05	5.0E-04	2.1E-05	0.0E+00
TEEN	4.7E-05	2.3E-05	4.4E-05	8.8E-05	4.8E-05	7.9E-04	3.0E-05	0.0E+00
CHILD	5.4E-05	3.5E-05	1.1E-04	1.5E-04	7.7E-05	1.5E-03	4.7E-05	0.0E+00
INFNT	7.3E-05	5.3E-05	1.7E-04	2.7E-04	1.2E-04	3.7E-03	7.5E-05	0.0E+00
INHAL	PATHWAY, DIST GP= 1, 1136. METERS WINDS TOWARD SE							
ADULT	9.0E-05	8.9E-05	1.1E-06	9.1E-05	9.0E-05	1.9E-04	9.0E-05	0.0E+00
TEEN	9.1E-05	9.0E-05	1.5E-06	9.2E-05	9.1E-05	2.1E-04	9.0E-05	0.0E+00
CHILD	8.0E-05	7.9E-05	2.0E-06	8.1E-05	8.1E-05	2.1E-04	8.0E-05	0.0E+00
INFNT	4.6E-05	4.6E-05	1.3E-06	4.7E-05	4.6E-05	1.7E-04	4.6E-05	0.0E+00
SUBTOTALS (NO PLUME)								
ADULT	6.1E-04	4.7E-04	2.6E-04	6.8E-04	5.4E-04	2.8E-03	4.8E-04	1.4E-04
TEEN	6.3E-04	5.1E-04	3.5E-04	8.5E-04	6.3E-04	3.2E-03	5.4E-04	1.4E-04
CHILD	7.5E-04	6.5E-04	6.7E-04	1.2E-03	8.5E-04	5.3E-03	7.1E-04	1.4E-04
INFNT	2.7E-04	2.4E-04	3.5E-04	5.4E-04	3.4E-04	7.1E-03	2.7E-04	1.4E-04
TOTALS								
ADULT	7.1E-04	5.7E-04	3.6E-04	7.8E-04	6.4E-04	2.9E-03	5.9E-04	4.0E-04
TEEN	7.3E-04	6.1E-04	4.5E-04	9.5E-04	7.3E-04	3.3E-03	6.4E-04	4.0E-04
CHILD	8.5E-04	7.5E-04	7.7E-04	1.3E-03	9.5E-04	5.4E-03	8.1E-04	4.0E-04
INFNT	3.7E-04	3.4E-04	4.5E-04	6.4E-04	4.4E-04	7.2E-03	3.7E-04	4.0E-04

INDIVIDUAL DOSES (MREM) DUE TO GASEOUS EFFLUENT
FOR DATES 94 7 1 1 THRU 94 93024

	T.BODY	GI-TRCT	BONE	LIVER	KIDNEY	THYRD	LUNG	SKIN
PLUME	PATHWAY, DIST GP= 1, 1507. METERS WINDS TOWARD SSE							
ADULT	9.5E-05	9.5E-05	9.5E-05	9.5E-05	9.5E-05	9.5E-05	9.8E-05	2.7E-04
TEEN	9.5E-05	9.5E-05	9.5E-05	9.5E-05	9.5E-05	9.5E-05	9.8E-05	2.7E-04
CHILD	9.5E-05	9.5E-05	9.5E-05	9.5E-05	9.5E-05	9.5E-05	9.8E-05	2.7E-04
INFNT	9.5E-05	9.5E-05	9.5E-05	9.5E-05	9.5E-05	9.5E-05	9.8E-05	2.7E-04
GROUND	PATHWAY, DIST GP= 1, 1507. METERS WINDS TOWARD SSE							
ADULT	7.0E-05	7.0E-05	7.0E-05	7.0E-05	7.0E-05	7.0E-05	7.0E-05	8.2E-05
TEEN	7.0E-05	7.0E-05	7.0E-05	7.0E-05	7.0E-05	7.0E-05	7.0E-05	8.2E-05
CHILD	7.0E-05	7.0E-05	7.0E-05	7.0E-05	7.0E-05	7.0E-05	7.0E-05	8.2E-05
INFNT	7.0E-05	7.0E-05	7.0E-05	7.0E-05	7.0E-05	7.0E-05	7.0E-05	8.2E-05
VEGET	PATHWAY, DIST GP= 1, 1093. METERS WINDS TOWARD SSE							
ADULT	3.4E-04	2.6E-04	7.6E-05	3.7E-04	3.0E-04	1.2E-03	2.7E-04	0.0E+00
TEEN	3.6E-04	3.0E-04	1.2E-04	4.7E-04	3.6E-04	1.0E-03	3.2E-04	0.0E+00
CHILD	5.0E-04	4.6E-04	2.8E-04	7.5E-04	5.5E-04	1.6E-03	4.9E-04	0.0E+00
INFNT	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
MEAT	PATHWAY, DIST GP= 1, 1093. METERS WINDS TOWARD SSE							
ADULT	4.5E-05	3.8E-05	7.7E-06	4.8E-05	4.1E-05	1.5E-04	3.8E-05	0.0E+00
TEEN	2.6E-05	2.3E-05	6.3E-06	3.1E-05	2.5E-05	1.0E-04	2.3E-05	0.0E+00
CHILD	2.9E-05	2.7E-05	1.2E-05	3.9E-05	3.1E-05	1.5E-04	2.8E-05	0.0E+00
INFNT	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
COW	PATHWAY, DIST GP= 1, 4091. METERS WINDS TOWARD SSE							
ADULT	2.0E-05	1.2E-05	8.1E-06	2.4E-05	1.7E-05	3.7E-04	1.3E-05	0.0E+00
TEEN	2.3E-05	1.6E-05	1.5E-05	3.7E-05	2.5E-05	5.8E-04	1.8E-05	0.0E+00
CHILD	3.1E-05	2.4E-05	3.5E-05	6.1E-05	4.0E-05	1.1E-03	2.8E-05	0.0E+00
INFNT	4.4E-05	3.6E-05	5.8E-05	1.1E-04	6.3E-05	2.7E-03	4.3E-05	0.0E+00
GOAT	PATHWAY, DIST GP= 1, 4091. METERS WINDS TOWARD SSE							
ADULT	4.8E-05	2.4E-05	2.3E-05	5.8E-05	3.7E-05	4.5E-04	2.7E-05	0.0E+00
TEEN	5.4E-05	3.2E-05	4.1E-05	9.2E-05	5.4E-05	7.1E-04	3.8E-05	0.0E+00
CHILD	6.7E-05	4.9E-05	9.9E-05	1.5E-04	8.7E-05	1.4E-03	6.0E-05	0.0E+00
INFNT	9.3E-05	7.4E-05	1.6E-04	2.8E-04	1.4E-04	3.3E-03	9.4E-05	0.0E+00
INHAL	PATHWAY, DIST GP= 1, 1507. METERS WINDS TOWARD SSE							
ADULT	8.8E-05	8.7E-05	8.4E-07	8.8E-05	8.8E-05	1.6E-04	8.7E-05	0.0E+00
TEEN	8.8E-05	8.7E-05	1.2E-06	8.9E-05	8.8E-05	1.8E-04	8.8E-05	0.0E+00
CHILD	7.8E-05	7.7E-05	1.6E-06	7.9E-05	7.8E-05	1.8E-04	7.8E-05	0.0E+00
INFNT	4.5E-05	4.4E-05	1.0E-06	4.6E-05	4.5E-05	1.4E-04	4.5E-05	0.0E+00
SUBTOTALS (NO PLUME)								
ADULT	6.1E-04	4.9E-04	1.9E-04	6.6E-04	5.5E-04	2.4E-03	5.0E-04	8.2E-05
TEEN	6.2E-04	5.2E-04	2.5E-04	7.9E-04	6.2E-04	2.7E-03	5.5E-04	8.2E-05
CHILD	7.8E-04	7.0E-04	5.0E-04	1.1E-03	8.6E-04	4.5E-03	7.5E-04	8.2E-05
INFNT	2.5E-04	2.2E-04	2.9E-04	5.0E-04	3.1E-04	6.3E-03	2.5E-04	8.2E-05
TOTALS								
ADULT	7.0E-04	5.9E-04	2.8E-04	7.5E-04	6.5E-04	2.5E-03	6.0E-04	3.5E-04
TEEN	7.1E-04	6.2E-04	3.5E-04	8.8E-04	7.1E-04	2.8E-03	6.5E-04	3.5E-04
CHILD	8.7E-04	8.0E-04	5.9E-04	1.2E-03	9.5E-04	4.6E-03	8.5E-04	3.5E-04
INFNT	3.5E-04	3.2E-04	3.8E-04	6.0E-04	4.1E-04	6.4E-03	3.5E-04	3.5E-04

INDIVIDUAL DOSES (MREM) DUE TO GASEOUS EFFLUENT
FOR DATES 94 7 1 1 THRU 94 93024

	T.BODY	GI-TRCT	BONE	LIVER	KIDNEY	THYRD	LUNG	SKIN
PLUME	PATHWAY, DIST GP= 1, 1026. METERS WINDS TOWARD S							
ADULT	2.1E-04	2.1E-04	2.1E-04	2.1E-04	2.1E-04	2.1E-04	2.1E-04	4.8E-04
TEEN	2.1E-04	2.1E-04	2.1E-04	2.1E-04	2.1E-04	2.1E-04	2.1E-04	4.8E-04
CHILD	2.1E-04	2.1E-04	2.1E-04	2.1E-04	2.1E-04	2.1E-04	2.1E-04	4.8E-04
INFNT	2.1E-04	2.1E-04	2.1E-04	2.1E-04	2.1E-04	2.1E-04	2.1E-04	4.8E-04
GROUND	PATHWAY, DIST GP= 1, 1026. METERS WINDS TOWARD S							
ADULT	1.8E-04	1.8E-04	1.8E-04	1.8E-04	1.8E-04	1.8E-04	1.8E-04	2.2E-04
TEEN	1.8E-04	1.8E-04	1.8E-04	1.8E-04	1.8E-04	1.8E-04	1.8E-04	2.2E-04
CHILD	1.8E-04	1.8E-04	1.8E-04	1.8E-04	1.8E-04	1.8E-04	1.8E-04	2.2E-04
INFNT	1.8E-04	1.8E-04	1.8E-04	1.8E-04	1.8E-04	1.8E-04	1.8E-04	2.2E-04
VEGET	PATHWAY, DIST GP= 1, 863. METERS WINDS TOWARD S							
ADULT	8.1E-04	6.6E-04	1.5E-04	8.8E-04	7.3E-04	2.4E-03	6.7E-04	0.0E+00
TEEN	8.8E-04	7.5E-04	2.4E-04	1.1E-03	8.7E-04	2.2E-03	7.9E-04	0.0E+00
CHILD	1.2E-03	1.2E-03	5.7E-04	1.7E-03	1.3E-03	3.3E-03	1.2E-03	0.0E+00
INFNT	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
MEAT	PATHWAY, DIST GP= 1, 6115. METERS WINDS TOWARD S							
ADULT	5.1E-06	4.6E-06	5.7E-07	5.4E-06	4.9E-06	1.2E-05	4.6E-06	0.0E+00
TEEN	3.0E-06	2.8E-06	4.7E-07	3.4E-06	3.0E-06	8.4E-06	2.8E-06	0.0E+00
CHILD	3.4E-06	3.3E-06	8.7E-07	4.2E-06	3.6E-06	1.2E-05	3.4E-06	0.0E+00
INFNT	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
COW	PATHWAY, DIST GP= 1, 4091. METERS WINDS TOWARD S							
ADULT	3.1E-05	2.1E-05	1.1E-05	3.7E-05	2.7E-05	4.8E-04	2.2E-05	0.0E+00
TEEN	3.7E-05	2.7E-05	2.0E-05	5.5E-05	3.9E-05	7.6E-04	2.9E-05	0.0E+00
CHILD	5.1E-05	4.2E-05	4.8E-05	9.1E-05	6.3E-05	1.5E-03	4.6E-05	0.0E+00
INFNT	7.4E-05	6.3E-05	7.8E-05	1.6E-04	9.8E-05	3.6E-03	7.2E-05	0.0E+00
GOAT	PATHWAY, DIST GP= 1, 4091. METERS WINDS TOWARD S							
ADULT	7.3E-05	4.2E-05	3.1E-05	8.8E-05	5.9E-05	6.0E-04	4.6E-05	0.0E+00
TEEN	8.4E-05	5.5E-05	5.7E-05	1.4E-04	8.5E-05	9.3E-04	6.3E-05	0.0E+00
CHILD	1.1E-04	8.5E-05	1.4E-04	2.2E-04	1.4E-04	1.8E-03	9.9E-05	0.0E+00
INFNT	1.5E-04	1.3E-04	2.2E-04	4.0E-04	2.1E-04	4.4E-03	1.6E-04	0.0E+00
INHAL	PATHWAY, DIST GP= 1, 1026. METERS WINDS TOWARD S							
ADULT	2.8E-04	2.8E-04	1.6E-06	2.8E-04	2.8E-04	4.1E-04	2.8E-04	0.0E+00
TEEN	2.8E-04	2.8E-04	2.2E-06	2.8E-04	2.8E-04	4.4E-04	2.8E-04	0.0E+00
CHILD	2.5E-04	2.4E-04	2.9E-06	2.5E-04	2.5E-04	4.3E-04	2.5E-04	0.0E+00
INFNT	1.4E-04	1.4E-04	1.9E-06	1.4E-04	1.4E-04	3.1E-04	1.4E-04	0.0E+00
SUBTOTALS (NO PLUME)								
ADULT	1.4E-03	1.2E-03	3.8E-04	1.5E-03	1.3E-03	4.1E-03	1.2E-03	2.2E-04
TEEN	1.5E-03	1.3E-03	5.1E-04	1.8E-03	1.5E-03	4.5E-03	1.3E-03	2.2E-04
CHILD	1.8E-03	1.7E-03	9.4E-04	2.5E-03	2.0E-03	7.3E-03	1.8E-03	2.2E-04
INFNT	5.5E-04	5.2E-04	4.8E-04	8.9E-04	6.4E-04	8.4E-03	5.5E-04	2.2E-04
TOTALS								
ADULT	1.6E-03	1.4E-03	5.9E-04	1.7E-03	1.5E-03	4.3E-03	1.4E-03	7.0E-04
TEEN	1.7E-03	1.5E-03	7.1E-04	2.0E-03	1.7E-03	4.7E-03	1.6E-03	7.0E-04
CHILD	2.0E-03	1.9E-03	1.1E-03	2.7E-03	2.2E-03	7.5E-03	2.0E-03	7.0E-04
INFNT	7.6E-04	7.3E-04	6.9E-04	1.1E-03	8.5E-04	8.6E-03	7.7E-04	7.0E-04

INDIVIDUAL DOSES (MREM) DUE TO GASEOUS EFFLUENT
FOR DATES 94 7 1 1 THRU 94 93024

	T.BODY	GI-TRCT	BONE	LIVER	KIDNEY	THYRD	LUNG	SKIN
PLUME	PATHWAY, DIST GP= 1, 942. METERS WINDS TOWARD SSW							
ADULT	2.6E-04	2.6E-04	2.6E-04	2.6E-04	2.6E-04	2.6E-04	2.7E-04	6.2E-04
TEEN	2.6E-04	2.6E-04	2.6E-04	2.6E-04	2.6E-04	2.6E-04	2.7E-04	6.2E-04
CHILD	2.6E-04	2.6E-04	2.6E-04	2.6E-04	2.6E-04	2.6E-04	2.7E-04	6.2E-04
INFNT	2.6E-04	2.6E-04	2.6E-04	2.6E-04	2.6E-04	2.6E-04	2.7E-04	6.2E-04
GROUND	PATHWAY, DIST GP= 1, 942. METERS WINDS TOWARD SSW							
ADULT	1.1E-04	1.1E-04	1.1E-04	1.1E-04	1.1E-04	1.1E-04	1.1E-04	1.3E-04
TEEN	1.1E-04	1.1E-04	1.1E-04	1.1E-04	1.1E-04	1.1E-04	1.1E-04	1.3E-04
CHILD	1.1E-04	1.1E-04	1.1E-04	1.1E-04	1.1E-04	1.1E-04	1.1E-04	1.3E-04
INFNT	1.1E-04	1.1E-04	1.1E-04	1.1E-04	1.1E-04	1.1E-04	1.1E-04	1.3E-04
VEGET	PATHWAY, DIST GP= 1, 770. METERS WINDS TOWARD SSW							
ADULT	9.5E-04	8.5E-04	1.0E-04	1.0E-03	9.0E-04	2.0E-03	8.6E-04	0.0E+00
TEEN	1.1E-03	9.8E-04	1.6E-04	1.2E-03	1.1E-03	2.0E-03	1.0E-03	0.0E+00
CHILD	1.6E-03	1.5E-03	3.7E-04	1.9E-03	1.6E-03	3.0E-03	1.5E-03	0.0E+00
INFNT	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
MEAT	PATHWAY, DIST GP= 1, 8045. METERS WINDS TOWARD SSW							
ADULT	4.1E-06	3.9E-06	1.9E-07	4.2E-06	4.0E-06	6.6E-06	3.9E-06	0.0E+00
TEEN	2.4E-06	2.3E-06	1.6E-07	2.6E-06	2.4E-06	4.3E-06	2.3E-06	0.0E+00
CHILD	2.9E-06	2.8E-06	2.9E-07	3.1E-06	2.9E-06	5.8E-06	2.8E-06	0.0E+00
INFNT	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
COW	PATHWAY, DIST GP= 1, 4091. METERS WINDS TOWARD SSW							
ADULT	3.0E-05	2.4E-05	6.0E-06	3.3E-05	2.8E-05	2.8E-04	2.5E-05	0.0E+00
TEEN	3.7E-05	3.2E-05	1.1E-05	4.7E-05	3.9E-05	4.4E-04	3.3E-05	0.0E+00
CHILD	5.5E-05	5.0E-05	2.6E-05	7.7E-05	6.1E-05	8.6E-04	5.2E-05	0.0E+00
INFNT	8.1E-05	7.5E-05	4.3E-05	1.3E-04	9.5E-05	2.0E-03	8.0E-05	0.0E+00
GOAT	PATHWAY, DIST GP= 1, 4091. METERS WINDS TOWARD SSW							
ADULT	6.7E-05	5.0E-05	1.7E-05	7.5E-05	5.9E-05	3.6E-04	5.2E-05	0.0E+00
TEEN	8.1E-05	6.5E-05	3.1E-05	1.1E-04	8.1E-05	5.6E-04	6.9E-05	0.0E+00
CHILD	1.1E-04	1.0E-04	7.4E-05	1.8E-04	1.3E-04	1.1E-03	1.1E-04	0.0E+00
INFNT	1.7E-04	1.5E-04	1.2E-04	3.0E-04	2.0E-04	2.5E-03	1.7E-04	0.0E+00
INHAL	PATHWAY, DIST GP= 1, 942. METERS WINDS TOWARD SSW							
ADULT	3.5E-04	3.5E-04	2.2E-06	3.5E-04	3.5E-04	5.4E-04	3.5E-04	0.0E+00
TEEN	3.5E-04	3.5E-04	3.1E-06	3.5E-04	3.5E-04	5.8E-04	3.5E-04	0.0E+00
CHILD	3.1E-04	3.1E-04	4.1E-06	3.1E-04	3.1E-04	5.7E-04	3.1E-04	0.0E+00
INFNT	1.8E-04	1.8E-04	2.7E-06	1.8E-04	1.8E-04	4.2E-04	1.8E-04	0.0E+00
SUBTOTALS (NO PLUME)								
ADULT	1.5E-03	1.4E-03	2.4E-04	1.6E-03	1.5E-03	3.3E-03	1.4E-03	1.3E-04
TEEN	1.6E-03	1.5E-03	3.2E-04	1.8E-03	1.6E-03	3.7E-03	1.6E-03	1.3E-04
CHILD	2.2E-03	2.1E-03	5.9E-04	2.6E-03	2.2E-03	5.6E-03	2.1E-03	1.3E-04
INFNT	5.4E-04	5.2E-04	2.8E-04	7.3E-04	5.9E-04	5.1E-03	5.4E-04	1.3E-04
TOTALS								
ADULT	1.8E-03	1.7E-03	5.0E-04	1.8E-03	1.7E-03	3.6E-03	1.7E-03	7.5E-04
TEEN	1.9E-03	1.8E-03	5.8E-04	2.1E-03	1.9E-03	3.9E-03	1.8E-03	7.5E-04
CHILD	2.4E-03	2.3E-03	8.5E-04	2.8E-03	2.5E-03	5.9E-03	2.4E-03	7.5E-04
INFNT	8.0E-04	7.8E-04	5.4E-04	9.9E-04	8.5E-04	5.4E-03	8.1E-04	7.5E-04

APPENDIX 1.5

Summary of Maximum Individual Doses
Fourth Quarter, 1994



SUMMARY OF MAXIMUM INDIVIDUAL DOSES

4th Quarter 1994

EFFLUENT	APPLICABLE ORGAN	ESTIMATED DOSE (mRem)	AGE GROUP	LOCATION DIST DIR (M) (Toward)	% OF APPLICABLE LIMIT	LIMIT (mRem) QTR
Liquid	Total Body	4.97E-3	Adult	Receptor 1	3.31E-1	1.5E+0
Liquid	GI-Tract	1.59E-2	Adult	Receptor 1	3.18E-1	5.0E+0
Noble Gas	Air Dose (Gamma-mrad)	1.85E-3		651 N	3.70E-2	5.0E+0
Noble Gas	Air dose (Beta-mrad)	4.35E-3		651 N	4.35E-2	1.0E+1
Iodines and Particulates	Thyroid	7.03E-3	Infant	659 N	9.37E-2	7.5E+0

LAST LIQUID DOSE ACCUMULATIONS(MREM)
 START DATE 9410 1 1 END DATE 94123124

	BONE	LIVER	T.BODY	THYRD	KIDNEY	LUNG	GI-LLI	SKIN
WATER								
ADULT	1.5E-04	2.8E-03	2.8E-03	4.0E-03	2.8E-03	2.8E-03	3.3E-03	0.0E+00
TEEN	1.3E-04	2.0E-03	2.0E-03	3.0E-03	2.0E-03	2.0E-03	2.3E-03	0.0E+00
CHILD	3.3E-04	3.8E-03	3.9E-03	6.4E-03	3.7E-03	3.8E-03	4.0E-03	0.0E+00
INFANT	2.9E-04	3.8E-03	3.8E-03	7.8E-03	3.7E-03	3.7E-03	3.8E-03	0.0E+00
SHORE								
ADULT	5.1E-05	5.1E-05	5.1E-05	5.1E-05	5.1E-05	5.1E-05	5.1E-05	6.0E-05
TEEN	2.8E-04	2.8E-04	2.8E-04	2.8E-04	2.8E-04	2.8E-04	2.8E-04	3.3E-04
CHILD	5.9E-05	5.9E-05	5.9E-05	5.9E-05	5.9E-05	5.9E-05	5.9E-05	7.0E-05
INFANT	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
FW SPT FISH								
ADULT	2.2E-03	3.1E-03	2.1E-03	1.4E-03	1.1E-03	5.7E-04	1.3E-02	0.0E+00
TEEN	2.3E-03	3.2E-03	1.4E-03	1.3E-03	1.1E-03	6.1E-04	8.8E-03	0.0E+00
CHILD	2.8E-03	2.8E-03	8.2E-04	1.4E-03	9.4E-04	5.0E-04	3.2E-03	0.0E+00
INFANT	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

LAST LIQUID DOSE ACCUMULATIONS(MREM)
 START DATE 9410 1 1 END DATE 94123124

	BONE	LIVER	T.BODY	THYRD	KIDNEY	LUNG	GI-LLI	SKIN
TOTAL								
ADULT	2.4E-03	6.0E-03	5.0E-03	5.5E-03	3.9E-03	3.4E-03	1.6E-02	6.0E-05
TEEN	2.7E-03	5.4E-03	3.6E-03	4.6E-03	3.4E-03	2.9E-03	1.1E-02	3.3E-04
CHILD	3.2E-03	6.7E-03	4.7E-03	7.8E-03	4.7E-03	4.3E-03	7.3E-03	7.0E-05
INFANT	2.9E-04	3.8E-03	3.8E-03	7.8E-03	3.7E-03	3.7E-03	3.8E-03	0.0E+00

DATES OF LAST AIR DOSE ACCUMULATION ARE FROM 9410 1 1 0 TO 94123124 0
DOSE ACCUMULATION FOR GAMMA MRAD

FOR RELEASE POINT 1

**DIRECTION FROM N

0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00

**DIRECTION FROM NNE

0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00

**DIRECTION FROM NE

0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00

**DIRECTION FROM ENE

0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00

**DIRECTION FROM E

7.2838E-05	2.3834E-06	8.7726E-07	5.5749E-07	4.2283E-07
2.5369E-07	1.2684E-07	7.6104E-08	5.4360E-08	3.8028E-08

**DIRECTION FROM ESE

0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00

**DIRECTION FROM SE

9.1487E-05	2.9937E-06	1.1019E-06	7.0023E-07	5.3109E-07
3.1864E-07	1.5932E-07	9.5589E-08	6.8278E-08	4.7765E-08

**DIRECTION FROM SSE

1.9010E-04	2.4457E-05	1.2584E-05	7.9440E-06	5.6304E-06
2.8397E-06	1.1623E-06	5.9683E-07	3.9013E-07	2.4892E-07

**DIRECTION FROM S

9.7157E-06	1.3607E-06	6.1925E-07	3.5579E-07	2.5040E-07
1.2746E-07	4.9382E-08	2.4350E-08	1.5526E-08	9.6851E-09

**DIRECTION FROM SSW

9.2165E-06	1.2318E-06	5.5639E-07	3.1868E-07	2.2284E-07
1.1188E-07	4.2722E-08	2.0963E-08	1.3344E-08	8.2988E-09

**DIRECTION FROM SW

8.2489E-06	9.1381E-07	4.0157E-07	2.2826E-07	1.5434E-07
7.1171E-08	2.4505E-08	1.1337E-08	6.8881E-09	3.9803E-09

**DIRECTION FROM WSW

1.3511E-07	6.5780E-09	3.9533E-09	2.8228E-09	2.1951E-09
1.3170E-09	6.5848E-10	3.9509E-10	2.8221E-10	1.9742E-10

**DIRECTION FROM W

0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00

**DIRECTION FROM WNW

0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00

**DIRECTION FROM NW

0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00

**DIRECTION FROM NNW

0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00

DISTANCES USED IN CALCULATIONS

594.0	2416.0	4020.0	5630.0	7240.0
12067.0	24135.0	40225.0	56315.0	80500.0

GAMMA FOR RELEASE POINT 2

**DIRECTION FROM N				
5.5638E-04	6.5404E-05	2.8944E-05	1.6460E-05	1.1251E-05
5.3477E-06	1.9151E-06	9.0988E-07	5.6655E-07	3.4049E-07
**DIRECTION FROM NNE				
6.1173E-04	7.1738E-05	3.3489E-05	1.9804E-05	1.3764E-05
6.7307E-06	2.5472E-06	1.2409E-06	7.8315E-07	4.8363E-07
**DIRECTION FROM NE				
5.6872E-04	6.9381E-05	3.2174E-05	1.8923E-05	1.3155E-05
6.4562E-06	2.4541E-06	1.2055E-06	7.6669E-07	4.7502E-07
**DIRECTION FROM ENE				
1.2957E-03	1.5537E-04	7.4869E-05	4.5133E-05	3.1929E-05
1.6199E-05	6.4192E-06	3.1920E-06	2.0404E-06	1.2899E-06
**DIRECTION FROM E				
1.6784E-03	1.9641E-04	9.4852E-05	5.7299E-05	4.0598E-05
2.0656E-05	8.2079E-06	4.0820E-06	2.6088E-06	1.6533E-06
**DIRECTION FROM ESE				
1.9843E-03	2.3486E-04	1.1530E-04	7.0481E-05	4.9928E-05
2.5316E-05	1.0119E-05	5.0642E-06	3.2505E-06	2.0625E-06
**DIRECTION FROM SE				
2.2429E-03	2.5823E-04	1.2770E-04	7.8456E-05	5.5716E-05
2.8362E-05	1.1386E-05	5.6942E-06	3.6506E-06	2.3230E-06
**DIRECTION FROM SSE				
2.1952E-03	2.5693E-04	1.2635E-04	7.7299E-05	5.4920E-05
2.8028E-05	1.1258E-05	5.6368E-06	3.6177E-06	2.3023E-06
**DIRECTION FROM S				
2.1149E-03	2.4930E-04	1.2044E-04	7.2811E-05	5.1536E-05
2.6164E-05	1.0398E-05	5.1841E-06	3.3203E-06	2.1039E-06
**DIRECTION FROM SSW				
1.0150E-03	1.2462E-04	5.7660E-05	3.3748E-05	2.3629E-05
1.1800E-05	4.5247E-06	2.2126E-06	1.4000E-06	8.7038E-07
**DIRECTION FROM SW				
3.5503E-04	4.2087E-05	1.8753E-05	1.0718E-05	7.3224E-06
3.4659E-06	1.2372E-06	5.8475E-07	3.6159E-07	2.1500E-07
**DIRECTION FROM WSW				
4.8058E-04	5.7569E-05	2.7198E-05	1.6203E-05	1.1343E-05
5.6356E-06	2.1800E-06	1.0761E-06	6.8538E-07	4.2820E-07
**DIRECTION FROM W				
5.3116E-04	6.5472E-05	2.9752E-05	1.7225E-05	1.1899E-05
5.7750E-06	2.1443E-06	1.0386E-06	6.5414E-07	3.9939E-07
**DIRECTION FROM WNW				
6.4292E-04	7.9899E-05	3.6590E-05	2.1296E-05	1.4789E-05
7.2631E-06	2.7443E-06	1.3445E-06	8.5388E-07	5.2734E-07
**DIRECTION FROM NW				
7.8699E-04	9.5982E-05	4.3472E-05	2.5122E-05	1.7365E-05
8.4474E-06	3.1425E-06	1.5250E-06	9.6219E-07	5.8898E-07
**DIRECTION FROM NNW				
9.5365E-04	1.1294E-04	5.0926E-05	2.9343E-05	2.0275E-05
9.8542E-06	3.6420E-06	1.7523E-06	1.0975E-06	6.6909E-07

DISTANCES USED IN CALCULATIONS

594.0 2416.0 4020.0 5630.0 7240.0
 12067.0 24135.0 40225.0 56315.0 80500.0

DATES OF LAST AIR DOSE ACCUMULATION ARE FROM 9410 1 1 0 TO 94123124 0
DOSE ACCUMULATION FOR BETA MRAD

FOR RELEASE POINT 1

**DIRECTION FROM N

0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00

**DIRECTION FROM NNE

0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00

**DIRECTION FROM NE

0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00

**DIRECTION FROM ENE

0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00

**DIRECTION FROM E

6.7411E-04	2.2058E-05	8.1189E-06	5.1595E-06	3.9132E-06
2.3479E-06	1.1739E-06	7.0433E-07	5.0309E-07	3.5195E-07

**DIRECTION FROM ESE

0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00

**DIRECTION FROM SE

8.4670E-04	2.7706E-05	1.0198E-05	6.4805E-06	4.9152E-06
2.9490E-06	1.4744E-06	8.8467E-07	6.3190E-07	4.4206E-07

**DIRECTION FROM SSE

1.4538E-02	1.8704E-03	9.6238E-04	6.0755E-04	4.3060E-04
2.1718E-04	8.8887E-05	4.5645E-05	2.9836E-05	1.9037E-05

**DIRECTION FROM S

3.8836E-04	5.4389E-05	2.4753E-05	1.4222E-05	1.0009E-05
5.0948E-06	1.9739E-06	9.7332E-07	6.2059E-07	3.8714E-07

**DIRECTION FROM SSW

8.6495E-04	1.1878E-04	5.3888E-05	3.0922E-05	2.1705E-05
1.0986E-05	4.2315E-06	2.0824E-06	1.3269E-06	8.2671E-07

**DIRECTION FROM SW

8.2961E-04	9.4365E-05	4.1473E-05	2.3523E-05	1.5874E-05
7.2833E-06	2.4830E-06	1.1378E-06	6.8621E-07	3.9238E-07

**DIRECTION FROM WSW

5.4006E-06	2.6294E-07	1.5802E-07	1.1283E-07	8.7742E-08
5.2644E-08	2.6321E-08	1.5792E-08	1.1280E-08	7.8913E-09

**DIRECTION FROM W

0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00

**DIRECTION FROM WNW

0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00

**DIRECTION FROM NW

0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00

**DIRECTION FROM NNW

0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00

DISTANCES USED IN CALCULATIONS

594.0	2416.0	4020.0	5630.0	7240.0
12067.0	24135.0	40225.0	56315.0	80500.0

BETA FOR RELEASE POINT 2

**DIRECTION FROM N

1.1795E-03	1.3904E-04	6.1568E-05	3.5022E-05	2.3954E-05
1.1405E-05	4.0929E-06	1.9469E-06	1.2133E-06	7.3011E-07

**DIRECTION FROM NNE

1.2926E-03	1.5152E-04	7.0754E-05	4.1848E-05	2.9095E-05
1.4238E-05	5.3923E-06	2.6275E-06	1.6585E-06	1.0246E-06

**DIRECTION FROM NE

1.2317E-03	1.5065E-04	6.9967E-05	4.1191E-05	2.8653E-05
1.4079E-05	5.3623E-06	2.6370E-06	1.6782E-06	1.0407E-06

**DIRECTION FROM ENE

2.8404E-03	3.4007E-04	1.6427E-04	9.9198E-05	7.0223E-05
3.5666E-05	1.4161E-05	7.0483E-06	4.5081E-06	2.8527E-06

**DIRECTION FROM E

3.7413E-03	4.3609E-04	2.1148E-04	1.2811E-04	9.0874E-05
4.6316E-05	1.8459E-05	9.1902E-06	5.8768E-06	3.7297E-06

**DIRECTION FROM ESE

4.3667E-03	5.1614E-04	2.5399E-04	1.5550E-04	1.1024E-04
5.5967E-05	2.2415E-05	1.1228E-05	7.2107E-06	4.5798E-06

**DIRECTION FROM SE

4.8062E-03	5.5202E-04	2.7337E-04	1.6811E-04	1.1946E-04
6.0878E-05	2.4471E-05	1.2242E-05	7.8492E-06	4.9980E-06

**DIRECTION FROM SSE

4.6866E-03	5.4784E-04	2.6986E-04	1.6528E-04	1.1748E-04
5.9987E-05	2.4123E-05	1.2084E-05	7.7575E-06	4.9394E-06

**DIRECTION FROM S

4.6148E-03	5.4246E-04	2.6272E-04	1.5910E-04	1.1270E-04
5.7292E-05	2.2812E-05	1.1380E-05	7.2905E-06	4.6241E-06

**DIRECTION FROM SSW

2.1921E-03	2.6929E-04	1.2462E-04	7.2947E-05	5.1081E-05
2.5518E-05	9.7882E-06	4.7875E-06	3.0298E-06	1.8840E-06

**DIRECTION FROM SW

7.6729E-04	9.0971E-05	4.0538E-05	2.3169E-05	1.5831E-05
7.4960E-06	2.6770E-06	1.2658E-06	7.8298E-07	4.6579E-07

**DIRECTION FROM WSW

1.0268E-03	1.2297E-04	5.8077E-05	3.4597E-05	2.4214E-05
1.2025E-05	4.6501E-06	2.2959E-06	1.4626E-06	9.1368E-07

**DIRECTION FROM W

1.1537E-03	1.4224E-04	6.4584E-05	3.7365E-05	2.5813E-05
1.2531E-05	4.6522E-06	2.2530E-06	1.4189E-06	8.6630E-07

**DIRECTION FROM WNW

1.3788E-03	1.7101E-04	7.8233E-05	4.5502E-05	3.1588E-05
1.5503E-05	5.8514E-06	2.8650E-06	1.8189E-06	1.1228E-06

**DIRECTION FROM NW

1.6645E-03	2.0259E-04	9.1705E-05	5.2977E-05	3.6610E-05
1.7800E-05	6.6168E-06	3.2101E-06	2.0250E-06	1.2392E-06

**DIRECTION FROM NNW

1.9959E-03	2.3664E-04	1.0670E-04	6.1470E-05	4.2476E-05
2.0648E-05	7.6324E-06	3.6726E-06	2.3004E-06	1.4026E-06

DISTANCES USED IN CALCULATIONS

594.0	2416.0	4020.0	5630.0	7240.0
12067.0	24135.0	40225.0	56315.0	80500.0

INDIVIDUAL DOSES (MREM) DUE TO GASEOUS EFFLUENT
FOR DATES 9410 1 1 THRU 94123124

	T.BODY	GI-TRCT	BONE	LIVER	KIDNEY	THYRD	LUNG	SKIN
PLUME	PATHWAY, DIST GP= 1, 659. METERS WINDS TOWARD N							
ADULT	1.1E-03	1.1E-03	1.1E-03	1.1E-03	1.1E-03	1.1E-03	1.1E-03	3.0E-03
TEEN	1.1E-03	1.1E-03	1.1E-03	1.1E-03	1.1E-03	1.1E-03	1.1E-03	3.0E-03
CHILD	1.1E-03	1.1E-03	1.1E-03	1.1E-03	1.1E-03	1.1E-03	1.1E-03	3.0E-03
INFNT	1.1E-03	1.1E-03	1.1E-03	1.1E-03	1.1E-03	1.1E-03	1.1E-03	3.0E-03
GROUND	PATHWAY, DIST GP= 1, 659. METERS WINDS TOWARD N							
ADULT	1.7E-03	1.7E-03	1.7E-03	1.7E-03	1.7E-03	1.7E-03	1.7E-03	2.0E-03
TEEN	1.7E-03	1.7E-03	1.7E-03	1.7E-03	1.7E-03	1.7E-03	1.7E-03	2.0E-03
CHILD	1.7E-03	1.7E-03	1.7E-03	1.7E-03	1.7E-03	1.7E-03	1.7E-03	2.0E-03
INFNT	1.7E-03	1.7E-03	1.7E-03	1.7E-03	1.7E-03	1.7E-03	1.7E-03	2.0E-03
VEGET	PATHWAY, DIST GP= 1, 8045. METERS WINDS TOWARD N							
ADULT	4.0E-05	2.5E-05	1.6E-05	4.8E-05	3.3E-05	6.5E-05	2.7E-05	0.0E+00
TEEN	4.1E-05	2.9E-05	2.6E-05	6.4E-05	4.0E-05	6.2E-05	3.3E-05	0.0E+00
CHILD	5.3E-05	4.4E-05	6.0E-05	1.0E-04	6.3E-05	9.4E-05	5.1E-05	0.0E+00
INFNT	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
MEAT	PATHWAY, DIST GP= 1, 8045. METERS WINDS TOWARD N							
ADULT	5.1E-06	3.6E-06	1.6E-06	5.9E-06	4.3E-06	8.4E-06	3.8E-06	0.0E+00
TEEN	2.8E-06	2.2E-06	1.3E-06	4.0E-06	2.8E-06	5.6E-06	2.4E-06	0.0E+00
CHILD	2.9E-06	2.6E-06	2.4E-06	5.0E-06	3.4E-06	7.9E-06	2.8E-06	0.0E+00
INFNT	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
COW	PATHWAY, DIST GP= 1, 4091. METERS WINDS TOWARD N							
ADULT	6.8E-05	2.3E-05	4.8E-05	9.1E-05	4.7E-05	4.9E-04	2.9E-05	0.0E+00
TEEN	7.3E-05	3.0E-05	8.7E-05	1.5E-04	7.2E-05	7.7E-04	4.3E-05	0.0E+00
CHILD	7.8E-05	4.6E-05	2.1E-04	2.5E-04	1.2E-04	1.5E-03	6.8E-05	0.0E+00
INFNT	1.0E-04	6.8E-05	3.3E-04	4.7E-04	1.9E-04	3.6E-03	1.1E-04	0.0E+00
GOAT	PATHWAY, DIST GP= 1, 4091. METERS WINDS TOWARD N							
ADULT	1.8E-04	4.8E-05	1.4E-04	2.5E-04	1.2E-04	6.0E-04	6.6E-05	0.0E+00
TEEN	1.9E-04	6.2E-05	2.6E-04	4.2E-04	1.8E-04	9.4E-04	1.0E-04	0.0E+00
CHILD	1.9E-04	9.4E-05	6.2E-04	7.1E-04	3.0E-04	1.8E-03	1.6E-04	0.0E+00
INFNT	2.3E-04	1.4E-04	9.9E-04	1.3E-03	4.7E-04	4.4E-03	2.7E-04	0.0E+00
INHAL	PATHWAY, DIST GP= 1, 659. METERS WINDS TOWARD N							
ADULT	5.6E-04	5.4E-04	1.7E-05	5.6E-04	5.5E-04	1.0E-03	5.4E-04	0.0E+00
TEEN	5.5E-04	5.4E-04	2.4E-05	5.7E-04	5.6E-04	1.1E-03	5.5E-04	0.0E+00
CHILD	4.9E-04	4.8E-04	3.2E-05	5.1E-04	4.9E-04	1.1E-03	4.9E-04	0.0E+00
INFNT	2.8E-04	2.8E-04	2.0E-05	3.0E-04	2.8E-04	8.8E-04	2.8E-04	0.0E+00
SUBTOTALS (NO PLUME)								
ADULT	2.6E-03	2.4E-03	2.0E-03	2.7E-03	2.5E-03	3.9E-03	2.4E-03	2.0E-03
TEEN	2.6E-03	2.4E-03	2.1E-03	3.0E-03	2.6E-03	4.7E-03	2.5E-03	2.0E-03
CHILD	2.6E-03	2.4E-03	2.7E-03	3.3E-03	2.7E-03	6.3E-03	2.5E-03	2.0E-03
INFNT	2.4E-03	2.2E-03	3.1E-03	3.9E-03	2.7E-03	1.1E-02	2.4E-03	2.0E-03
TOTALS								
ADULT	3.7E-03	3.4E-03	3.0E-03	3.8E-03	3.5E-03	5.0E-03	3.5E-03	5.0E-03
TEEN	3.7E-03	3.5E-03	3.2E-03	4.0E-03	3.7E-03	5.7E-03	3.6E-03	5.0E-03
CHILD	3.6E-03	3.5E-03	3.7E-03	4.4E-03	3.8E-03	7.4E-03	3.6E-03	5.0E-03
INFNT	3.4E-03	3.3E-03	4.1E-03	4.9E-03	3.7E-03	1.2E-02	3.5E-03	5.0E-03

INDIVIDUAL DOSES (MREM) DUE TO GASEOUS EFFLUENT
FOR DATES 9410 1 1 THRU 94123124

	T.BODY	GI-TRCT	BONE	LIVER	KIDNEY	THYRD	LUNG	SKIN
PLUME	PATHWAY, DIST GP= 1, 660. METERS WINDS TOWARD NNE							
ADULT	4.9E-04	4.9E-04	4.9E-04	4.9E-04	4.9E-04	4.9E-04	5.1E-04	1.8E-03
TEEN	4.9E-04	4.9E-04	4.9E-04	4.9E-04	4.9E-04	4.9E-04	5.1E-04	1.8E-03
CHILD	4.9E-04	4.9E-04	4.9E-04	4.9E-04	4.9E-04	4.9E-04	5.1E-04	1.8E-03
INFNT	4.9E-04	4.9E-04	4.9E-04	4.9E-04	4.9E-04	4.9E-04	5.1E-04	1.8E-03
GROUND	PATHWAY, DIST GP= 1, 660. METERS WINDS TOWARD NNE							
ADULT	9.9E-04	9.9E-04	9.9E-04	9.9E-04	9.9E-04	9.9E-04	9.9E-04	1.2E-03
TEEN	9.9E-04	9.9E-04	9.9E-04	9.9E-04	9.9E-04	9.9E-04	9.9E-04	1.2E-03
CHILD	9.9E-04	9.9E-04	9.9E-04	9.9E-04	9.9E-04	9.9E-04	9.9E-04	1.2E-03
INFNT	9.9E-04	9.9E-04	9.9E-04	9.9E-04	9.9E-04	9.9E-04	9.9E-04	1.2E-03
VEGET	PATHWAY, DIST GP= 1, 814. METERS WINDS TOWARD NNE							
ADULT	7.4E-04	3.3E-04	4.4E-04	9.5E-04	5.3E-04	1.6E-03	3.8E-04	0.0E+00
TEEN	7.1E-04	3.7E-04	7.0E-04	1.3E-03	6.9E-04	1.4E-03	4.8E-04	0.0E+00
CHILD	8.1E-04	5.6E-04	1.6E-03	2.2E-03	1.1E-03	2.1E-03	7.4E-04	0.0E+00
INFNT	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
MEAT	PATHWAY, DIST GP= 1, 7725. METERS WINDS TOWARD NNE							
ADULT	2.5E-06	1.6E-06	9.8E-07	3.0E-06	2.0E-06	4.9E-06	1.7E-06	0.0E+00
TEEN	1.3E-06	9.5E-07	8.1E-07	2.1E-06	1.3E-06	3.4E-06	1.1E-06	0.0E+00
CHILD	1.3E-06	1.1E-06	1.5E-06	2.6E-06	1.6E-06	4.8E-06	1.3E-06	0.0E+00
INFNT	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
COW	PATHWAY, DIST GP= 1, 4091. METERS WINDS TOWARD NNE							
ADULT	3.6E-05	1.0E-05	2.7E-05	4.9E-05	2.4E-05	3.1E-04	1.4E-05	0.0E+00
TEEN	3.8E-05	1.3E-05	4.9E-05	8.1E-05	3.8E-05	4.9E-04	2.1E-05	0.0E+00
CHILD	3.9E-05	2.0E-05	1.2E-04	1.4E-04	6.2E-05	9.6E-04	3.3E-05	0.0E+00
INFNT	4.9E-05	3.0E-05	1.9E-04	2.6E-04	9.7E-05	2.3E-03	5.4E-05	0.0E+00
GOAT	PATHWAY, DIST GP= 1, 4091. METERS WINDS TOWARD NNE							
ADULT	9.8E-05	2.2E-05	8.0E-05	1.4E-04	6.0E-05	3.8E-04	3.2E-05	0.0E+00
TEEN	9.9E-05	2.8E-05	1.5E-04	2.3E-04	9.7E-05	6.0E-04	5.1E-05	0.0E+00
CHILD	9.5E-05	4.1E-05	3.5E-04	3.9E-04	1.6E-04	1.2E-03	8.0E-05	0.0E+00
INFNT	1.1E-04	6.2E-05	5.6E-04	7.4E-04	2.5E-04	2.8E-03	1.3E-04	0.0E+00
INHAL	PATHWAY, DIST GP= 1, 660. METERS WINDS TOWARD NNE							
ADULT	2.4E-04	2.4E-04	7.8E-06	2.5E-04	2.4E-04	4.4E-04	2.4E-04	0.0E+00
TEEN	2.4E-04	2.4E-04	1.1E-05	2.5E-04	2.4E-04	4.9E-04	2.4E-04	0.0E+00
CHILD	2.1E-04	2.1E-04	1.5E-05	2.2E-04	2.2E-04	4.9E-04	2.1E-04	0.0E+00
INFNT	1.2E-04	1.2E-04	9.1E-06	1.3E-04	1.2E-04	3.8E-04	1.2E-04	0.0E+00
SUBTOTALS (NO PLUME)								
ADULT	2.1E-03	1.6E-03	1.6E-03	2.4E-03	1.9E-03	3.7E-03	1.7E-03	1.2E-03
TEEN	2.1E-03	1.6E-03	1.9E-03	2.9E-03	2.1E-03	4.0E-03	1.8E-03	1.2E-03
CHILD	2.1E-03	1.8E-03	3.1E-03	4.0E-03	2.5E-03	5.7E-03	2.1E-03	1.2E-03
INFNT	1.3E-03	1.2E-03	1.8E-03	2.1E-03	1.5E-03	6.5E-03	1.3E-03	1.2E-03
TOTALS								
ADULT	2.6E-03	2.1E-03	2.0E-03	2.9E-03	2.3E-03	4.2E-03	2.2E-03	2.9E-03
TEEN	2.6E-03	2.1E-03	2.4E-03	3.4E-03	2.6E-03	4.4E-03	2.3E-03	2.9E-03
CHILD	2.6E-03	2.3E-03	3.6E-03	4.4E-03	3.0E-03	6.2E-03	2.6E-03	2.9E-03
INFNT	1.8E-03	1.7E-03	2.2E-03	2.6E-03	1.9E-03	7.0E-03	1.8E-03	2.9E-03

INDIVIDUAL DOSES (MREM) DUE TO GASEOUS EFFLUENT
FOR DATES 9410 1 1 THRU 94123124

	T.BODY	GI-TRCT	BONE	LIVER	KIDNEY	THYRD	LUNG	SKIN
PLUME	PATHWAY, DIST GP= 1, 943. METERS WINDS TOWARD NE							
ADULT	1.0E-04	1.0E-04	1.0E-04	1.0E-04	1.0E-04	1.0E-04	1.1E-04	5.3E-04
TEEN	1.0E-04	1.0E-04	1.0E-04	1.0E-04	1.0E-04	1.0E-04	1.1E-04	5.3E-04
CHILD	1.0E-04	1.0E-04	1.0E-04	1.0E-04	1.0E-04	1.0E-04	1.1E-04	5.3E-04
INFNT	1.0E-04	1.0E-04	1.0E-04	1.0E-04	1.0E-04	1.0E-04	1.1E-04	5.3E-04
GROUND	PATHWAY, DIST GP= 1, 943. METERS WINDS TOWARD NE							
ADULT	2.2E-04	2.2E-04	2.2E-04	2.2E-04	2.2E-04	2.2E-04	2.2E-04	2.6E-04
TEEN	2.2E-04	2.2E-04	2.2E-04	2.2E-04	2.2E-04	2.2E-04	2.2E-04	2.6E-04
CHILD	2.2E-04	2.2E-04	2.2E-04	2.2E-04	2.2E-04	2.2E-04	2.2E-04	2.6E-04
INFNT	2.2E-04	2.2E-04	2.2E-04	2.2E-04	2.2E-04	2.2E-04	2.2E-04	2.6E-04
VEGET	PATHWAY, DIST GP= 1, 1052. METERS WINDS TOWARD NE							
ADULT	1.9E-04	8.0E-05	1.2E-04	2.4E-04	1.3E-04	4.3E-04	9.4E-05	0.0E+00
TEEN	1.8E-04	9.1E-05	1.8E-04	3.4E-04	1.7E-04	3.8E-04	1.2E-04	0.0E+00
CHILD	2.0E-04	1.4E-04	4.3E-04	5.6E-04	2.8E-04	5.8E-04	1.8E-04	0.0E+00
INFNT	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
MEAT	PATHWAY, DIST GP= 1, 7725. METERS WINDS TOWARD NE							
ADULT	8.7E-07	5.1E-07	3.9E-07	1.1E-06	6.9E-07	1.9E-06	5.5E-07	0.0E+00
TEEN	4.6E-07	3.1E-07	3.2E-07	7.5E-07	4.5E-07	1.3E-06	3.5E-07	0.0E+00
CHILD	4.5E-07	3.6E-07	6.0E-07	9.5E-07	5.5E-07	1.9E-06	4.2E-07	0.0E+00
INFNT	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
COW	PATHWAY, DIST GP= 1, 4091. METERS WINDS TOWARD NE							
ADULT	1.4E-05	3.5E-06	1.1E-05	1.9E-05	9.0E-06	1.3E-04	4.9E-06	0.0E+00
TEEN	1.4E-05	4.6E-06	2.0E-05	3.2E-05	1.4E-05	2.1E-04	7.6E-06	0.0E+00
CHILD	1.4E-05	6.9E-06	4.7E-05	5.4E-05	2.4E-05	4.1E-04	1.2E-05	0.0E+00
INFNT	1.8E-05	1.0E-05	7.6E-05	1.0E-04	3.7E-05	1.0E-03	2.0E-05	0.0E+00
GOAT	PATHWAY, DIST GP= 1, 4091. METERS WINDS TOWARD NE							
ADULT	3.8E-05	7.4E-06	3.2E-05	5.3E-05	2.3E-05	1.6E-04	1.2E-05	0.0E+00
TEEN	3.8E-05	9.7E-06	5.8E-05	9.0E-05	3.7E-05	2.6E-04	1.9E-05	0.0E+00
CHILD	3.6E-05	1.4E-05	1.4E-04	1.5E-04	6.1E-05	5.0E-04	2.9E-05	0.0E+00
INFNT	4.2E-05	2.1E-05	2.2E-04	2.9E-04	9.6E-05	1.2E-03	4.9E-05	0.0E+00
INHAL	PATHWAY, DIST GP= 1, 943. METERS WINDS TOWARD NE							
ADULT	5.1E-05	4.9E-05	1.3E-06	5.1E-05	5.0E-05	8.5E-05	5.0E-05	0.0E+00
TEEN	5.1E-05	5.0E-05	1.8E-06	5.2E-05	5.1E-05	9.4E-05	5.0E-05	0.0E+00
CHILD	4.4E-05	4.4E-05	2.5E-06	4.6E-05	4.5E-05	9.4E-05	4.5E-05	0.0E+00
INFNT	2.5E-05	2.5E-05	1.5E-06	2.7E-05	2.6E-05	7.1E-05	2.6E-05	0.0E+00
SUBTOTALS (NO PLUME)								
ADULT	5.1E-04	3.6E-04	3.8E-04	5.9E-04	4.4E-04	1.0E-03	3.8E-04	2.6E-04
TEEN	5.0E-04	3.7E-04	4.8E-04	7.4E-04	5.0E-04	1.2E-03	4.2E-04	2.6E-04
CHILD	5.2E-04	4.2E-04	8.4E-04	1.0E-03	6.2E-04	1.8E-03	4.9E-04	2.6E-04
INFNT	3.0E-04	2.8E-04	5.2E-04	6.4E-04	3.8E-04	2.5E-03	3.1E-04	2.6E-04
TOTALS								
ADULT	6.1E-04	4.6E-04	4.8E-04	6.9E-04	5.4E-04	1.1E-03	4.9E-04	7.9E-04
TEEN	6.0E-04	4.7E-04	5.8E-04	8.4E-04	6.0E-04	1.3E-03	5.2E-04	7.9E-04
CHILD	6.2E-04	5.2E-04	9.4E-04	1.1E-03	7.2E-04	1.9E-03	6.0E-04	7.9E-04
INFNT	4.0E-04	3.8E-04	6.2E-04	7.4E-04	4.8E-04	2.6E-03	4.2E-04	7.9E-04

INDIVIDUAL DOSES (MREM) DUE TO GASEOUS EFFLUENT
FOR DATES 9410 1 1 THRU 94123124

T.BODY GI-TRCT,BONE LIVER KIDNEY THYRD LUNG SKIN

PLUME PATHWAY, DIST GP= 1, 1747. METERS WINDS TOWARD ENE

ADULT	5.0E-05	5.0E-05	5.0E-05	5.0E-05	5.0E-05	5.0E-05	5.2E-05	1.3E-04
TEEN	5.0E-05	5.0E-05	5.0E-05	5.0E-05	5.0E-05	5.0E-05	5.2E-05	1.3E-04
CHILD	5.0E-05	5.0E-05	5.0E-05	5.0E-05	5.0E-05	5.0E-05	5.2E-05	1.3E-04
INFNT	5.0E-05	5.0E-05	5.0E-05	5.0E-05	5.0E-05	5.0E-05	5.2E-05	1.3E-04

GROUND PATHWAY, DIST GP= 1, 1747. METERS WINDS TOWARD ENE

ADULT	4.8E-05	4.8E-05	4.8E-05	4.8E-05	4.8E-05	4.8E-05	4.8E-05	5.7E-05
TEEN	4.8E-05	4.8E-05	4.8E-05	4.8E-05	4.8E-05	4.8E-05	4.8E-05	5.7E-05
CHILD	4.8E-05	4.8E-05	4.8E-05	4.8E-05	4.8E-05	4.8E-05	4.8E-05	5.7E-05
INFNT	4.8E-05	4.8E-05	4.8E-05	4.8E-05	4.8E-05	4.8E-05	4.8E-05	5.7E-05

VEGET PATHWAY, DIST GP= 1, 1852. METERS WINDS TOWARD ENE

ADULT	6.6E-05	4.1E-05	2.8E-05	7.9E-05	5.3E-05	1.4E-04	4.4E-05	0.0E+00
TEEN	6.8E-05	4.6E-05	4.4E-05	1.1E-04	6.6E-05	1.3E-04	5.3E-05	0.0E+00
CHILD	8.6E-05	7.1E-05	1.0E-04	1.7E-04	1.0E-04	2.0E-04	8.2E-05	0.0E+00
INFNT	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

MEAT PATHWAY, DIST GP= 1, 3862. METERS WINDS TOWARD ENE

ADULT	2.7E-06	2.0E-06	8.6E-07	3.1E-06	2.3E-06	5.7E-06	2.0E-06	0.0E+00
TEEN	1.5E-06	1.2E-06	7.1E-07	2.1E-06	1.5E-06	3.9E-06	1.3E-06	0.0E+00
CHILD	1.6E-06	1.4E-06	1.3E-06	2.7E-06	1.8E-06	5.5E-06	1.5E-06	0.0E+00
INFNT	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

COW PATHWAY, DIST GP= 1, 4091. METERS WINDS TOWARD ENE

ADULT	1.1E-05	4.4E-06	6.7E-06	1.4E-05	7.8E-06	9.9E-05	5.2E-06	0.0E+00
TEEN	1.2E-05	5.7E-06	1.2E-05	2.2E-05	1.2E-05	1.6E-04	7.5E-06	0.0E+00
CHILD	1.3E-05	8.7E-06	2.9E-05	3.8E-05	1.9E-05	3.1E-04	1.2E-05	0.0E+00
INFNT	1.8E-05	1.3E-05	4.7E-05	7.0E-05	3.0E-05	7.3E-04	1.9E-05	0.0E+00

GOAT PATHWAY, DIST GP= 1, 4091. METERS WINDS TOWARD ENE

ADULT	2.8E-05	9.0E-06	2.0E-05	3.7E-05	1.9E-05	1.2E-04	1.2E-05	0.0E+00
TEEN	2.9E-05	1.2E-05	3.6E-05	6.1E-05	2.9E-05	1.9E-04	1.7E-05	0.0E+00
CHILD	3.1E-05	1.8E-05	8.6E-05	1.0E-04	4.7E-05	3.7E-04	2.7E-05	0.0E+00
INFNT	4.0E-05	2.7E-05	1.4E-04	1.9E-04	7.4E-05	8.9E-04	4.4E-05	0.0E+00

INHAL PATHWAY, DIST GP= 1, 1747. METERS WINDS TOWARD ENE

ADULT	2.5E-05	2.4E-05	9.2E-07	2.5E-05	2.5E-05	4.5E-05	2.4E-05	0.0E+00
TEEN	2.5E-05	2.4E-05	1.3E-06	2.6E-05	2.5E-05	5.0E-05	2.5E-05	0.0E+00
CHILD	2.2E-05	2.1E-05	1.7E-06	2.3E-05	2.2E-05	5.1E-05	2.2E-05	0.0E+00
INFNT	1.2E-05	1.2E-05	1.1E-06	1.3E-05	1.3E-05	3.9E-05	1.2E-05	0.0E+00

SUBTOTALS (NO PLUME)

ADULT	1.8E-04	1.3E-04	1.0E-04	2.1E-04	1.6E-04	4.6E-04	1.4E-04	5.7E-05
TEEN	1.8E-04	1.4E-04	1.4E-04	2.7E-04	1.8E-04	5.8E-04	1.5E-04	5.7E-05
CHILD	2.0E-04	1.7E-04	2.7E-04	3.9E-04	2.4E-04	9.8E-04	1.9E-04	5.7E-05
INFNT	1.2E-04	1.0E-04	2.3E-04	3.3E-04	1.6E-04	1.7E-03	1.2E-04	5.7E-05

TOTALS

ADULT	2.3E-04	1.8E-04	1.5E-04	2.6E-04	2.0E-04	5.1E-04	1.9E-04	1.9E-04
TEEN	2.3E-04	1.9E-04	1.9E-04	3.2E-04	2.3E-04	6.3E-04	2.0E-04	1.9E-04
CHILD	2.5E-04	2.2E-04	3.2E-04	4.4E-04	2.9E-04	1.0E-03	2.4E-04	1.9E-04
INFNT	1.7E-04	1.5E-04	2.8E-04	3.8E-04	2.1E-04	1.8E-03	1.8E-04	1.9E-04

INDIVIDUAL DOSES (MREM) DUE TO GASEOUS EFFLUENT
FOR DATES 9410 1 1 THRU 94123124

	T.BODY	GI-TRCT	BONE	LIVER	KIDNEY	THYRD	LUNG	SKIN
PLUME	PATHWAY, DIST GP= 1, 1716. METERS WINDS TOWARD E							
ADULT	6.1E-05	6.1E-05	6.1E-05	6.1E-05	6.1E-05	6.1E-05	6.4E-05	1.6E-04
TEEN	6.1E-05	6.1E-05	6.1E-05	6.1E-05	6.1E-05	6.1E-05	6.4E-05	1.6E-04
CHILD	6.1E-05	6.1E-05	6.1E-05	6.1E-05	6.1E-05	6.1E-05	6.4E-05	1.6E-04
INFNT	6.1E-05	6.1E-05	6.1E-05	6.1E-05	6.1E-05	6.1E-05	6.4E-05	1.6E-04
GROUND	PATHWAY, DIST GP= 1, 1716. METERS WINDS TOWARD E							
ADULT	7.1E-05	7.1E-05	7.1E-05	7.1E-05	7.1E-05	7.1E-05	7.1E-05	8.3E-05
TEEN	7.1E-05	7.1E-05	7.1E-05	7.1E-05	7.1E-05	7.1E-05	7.1E-05	8.3E-05
CHILD	7.1E-05	7.1E-05	7.1E-05	7.1E-05	7.1E-05	7.1E-05	7.1E-05	8.3E-05
INFNT	7.1E-05	7.1E-05	7.1E-05	7.1E-05	7.1E-05	7.1E-05	7.1E-05	8.3E-05
VEGET	PATHWAY, DIST GP= 1, 1705. METERS WINDS TOWARD E							
ADULT	1.0E-04	6.1E-05	4.5E-05	1.2E-04	8.2E-05	2.6E-04	6.7E-05	0.0E+00
TEEN	1.0E-04	7.0E-05	7.2E-05	1.7E-04	1.0E-04	2.3E-04	8.1E-05	0.0E+00
CHILD	1.3E-04	1.1E-04	1.7E-04	2.7E-04	1.6E-04	3.5E-04	1.2E-04	0.0E+00
INFNT	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
MEAT	PATHWAY, DIST GP= 1, 6810. METERS WINDS TOWARD E							
ADULT	1.4E-06	1.0E-06	4.3E-07	1.6E-06	1.2E-06	3.3E-06	1.1E-06	0.0E+00
TEEN	7.8E-07	6.1E-07	3.5E-07	1.1E-06	7.7E-07	2.2E-06	6.6E-07	0.0E+00
CHILD	8.3E-07	7.3E-07	6.5E-07	1.4E-06	9.4E-07	3.2E-06	8.0E-07	0.0E+00
INFNT	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
COW	PATHWAY, DIST GP= 1, 4091. METERS WINDS TOWARD E							
ADULT	1.5E-05	5.6E-06	9.7E-06	1.9E-05	1.1E-05	1.7E-04	6.8E-06	0.0E+00
TEEN	1.6E-05	7.4E-06	1.7E-05	3.1E-05	1.6E-05	2.6E-04	9.9E-06	0.0E+00
CHILD	1.8E-05	1.1E-05	4.2E-05	5.3E-05	2.6E-05	5.2E-04	1.6E-05	0.0E+00
INFNT	2.4E-05	1.7E-05	6.8E-05	9.9E-05	4.2E-05	1.2E-03	2.5E-05	0.0E+00
GOAT	PATHWAY, DIST GP= 1, 4091. METERS WINDS TOWARD E							
ADULT	3.8E-05	1.2E-05	2.8E-05	5.2E-05	2.5E-05	2.1E-04	1.5E-05	0.0E+00
TEEN	4.0E-05	1.5E-05	5.1E-05	8.6E-05	4.0E-05	3.2E-04	2.3E-05	0.0E+00
CHILD	4.2E-05	2.3E-05	1.2E-04	1.5E-04	6.4E-05	6.3E-04	3.6E-05	0.0E+00
INFNT	5.3E-05	3.4E-05	2.0E-04	2.7E-04	1.0E-04	1.5E-03	5.9E-05	0.0E+00
INHAL	PATHWAY, DIST GP= 1, 1716. METERS WINDS TOWARD E							
ADULT	3.3E-05	3.3E-05	8.5E-07	3.4E-05	3.3E-05	5.6E-05	3.3E-05	0.0E+00
TEEN	3.3E-05	3.3E-05	1.2E-06	3.4E-05	3.4E-05	6.2E-05	3.3E-05	0.0E+00
CHILD	2.9E-05	2.9E-05	1.6E-06	3.1E-05	3.0E-05	6.2E-05	2.9E-05	0.0E+00
INFNT	1.7E-05	1.7E-05	9.9E-07	1.8E-05	1.7E-05	4.7E-05	1.7E-05	0.0E+00
SUBTOTALS (NO PLUME)								
ADULT	2.6E-04	1.8E-04	1.6E-04	3.0E-04	2.2E-04	7.6E-04	1.9E-04	8.3E-05
TEEN	2.7E-04	2.0E-04	2.1E-04	3.9E-04	2.6E-04	9.5E-04	2.2E-04	8.3E-05
CHILD	2.9E-04	2.4E-04	4.1E-04	5.8E-04	3.5E-04	1.6E-03	2.8E-04	8.3E-05
INFNT	1.7E-04	1.4E-04	3.4E-04	4.6E-04	2.3E-04	2.9E-03	1.7E-04	8.3E-05
TOTALS								
ADULT	3.2E-04	2.4E-04	2.2E-04	3.6E-04	2.9E-04	8.2E-04	2.6E-04	2.5E-04
TEEN	3.3E-04	2.6E-04	2.7E-04	4.5E-04	3.3E-04	1.0E-03	2.8E-04	2.5E-04
CHILD	3.5E-04	3.0E-04	4.7E-04	6.4E-04	4.2E-04	1.7E-03	3.4E-04	2.5E-04
INFNT	2.3E-04	2.0E-04	4.0E-04	5.2E-04	2.9E-04	2.9E-03	2.4E-04	2.5E-04

INDIVIDUAL DOSES (MREM) DUE TO GASEOUS EFFLUENT
FOR DATES 9410 1 1 THRU 94123124

	T.BODY	GI-TRCT	BONE	LIVER	KIDNEY	THYRD	LUNG	SKIN
PLUME	PATHWAY, DIST GP= 1, 1643. METERS WINDS TOWARD ESE							
ADULT	8.1E-05	8.1E-05	8.1E-05	8.1E-05	8.1E-05	8.1E-05	8.4E-05	2.1E-04
TEEN	8.1E-05	8.1E-05	8.1E-05	8.1E-05	8.1E-05	8.1E-05	8.4E-05	2.1E-04
CHILD	8.1E-05	8.1E-05	8.1E-05	8.1E-05	8.1E-05	8.1E-05	8.4E-05	2.1E-04
INFNT	8.1E-05	8.1E-05	8.1E-05	8.1E-05	8.1E-05	8.1E-05	8.4E-05	2.1E-04
GROUND	PATHWAY, DIST GP= 1, 1643. METERS WINDS TOWARD ESE							
ADULT	1.2E-04	1.2E-04	1.2E-04	1.2E-04	1.2E-04	1.2E-04	1.2E-04	1.4E-04
TEEN	1.2E-04	1.2E-04	1.2E-04	1.2E-04	1.2E-04	1.2E-04	1.2E-04	1.4E-04
CHILD	1.2E-04	1.2E-04	1.2E-04	1.2E-04	1.2E-04	1.2E-04	1.2E-04	1.4E-04
INFNT	1.2E-04	1.2E-04	1.2E-04	1.2E-04	1.2E-04	1.2E-04	1.2E-04	1.4E-04
VEGET	PATHWAY, DIST GP= 1, 1628. METERS WINDS TOWARD ESE							
ADULT	1.4E-04	7.3E-05	7.5E-05	1.8E-04	1.1E-04	3.2E-04	8.2E-05	0.0E+00
TEEN	1.4E-04	8.3E-05	1.2E-04	2.5E-04	1.4E-04	2.9E-04	1.0E-04	0.0E+00
CHILD	1.7E-04	1.3E-04	2.8E-04	4.0E-04	2.2E-04	4.4E-04	1.6E-04	0.0E+00
INFNT	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
MEAT	PATHWAY, DIST GP= 1, 2434. METERS WINDS TOWARD ESE							
ADULT	9.3E-06	5.8E-06	3.8E-06	1.1E-05	7.5E-06	2.1E-05	6.2E-06	0.0E+00
TEEN	4.9E-06	3.4E-06	3.2E-06	7.8E-06	4.9E-06	1.5E-05	3.9E-06	0.0E+00
CHILD	4.9E-06	4.1E-06	5.8E-06	9.9E-06	6.0E-06	2.1E-05	4.7E-06	0.0E+00
INFNT	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
COW	PATHWAY, DIST GP= 1, 4091. METERS WINDS TOWARD ESE							
ADULT	2.0E-05	6.4E-06	1.5E-05	2.7E-05	1.4E-05	2.0E-04	8.1E-06	0.0E+00
TEEN	2.1E-05	8.3E-06	2.7E-05	4.5E-05	2.2E-05	3.1E-04	1.2E-05	0.0E+00
CHILD	2.3E-05	1.3E-05	6.4E-05	7.6E-05	3.5E-05	6.1E-04	1.9E-05	0.0E+00
INFNT	2.9E-05	1.9E-05	1.0E-04	1.4E-04	5.6E-05	1.5E-03	3.1E-05	0.0E+00
GOAT	PATHWAY, DIST GP= 1, 4091. METERS WINDS TOWARD ESE							
ADULT	5.4E-05	1.3E-05	4.3E-05	7.5E-05	3.4E-05	2.4E-04	1.9E-05	0.0E+00
TEEN	5.6E-05	1.7E-05	7.9E-05	1.3E-04	5.4E-05	3.8E-04	3.0E-05	0.0E+00
CHILD	5.5E-05	2.6E-05	1.9E-04	2.1E-04	8.9E-05	7.4E-04	4.6E-05	0.0E+00
INFNT	6.6E-05	3.8E-05	3.0E-04	4.1E-04	1.4E-04	1.8E-03	7.7E-05	0.0E+00
INHAL	PATHWAY, DIST GP= 1, 1643. METERS WINDS TOWARD ESE							
ADULT	4.0E-05	3.8E-05	1.5E-06	4.0E-05	3.9E-05	7.3E-05	3.9E-05	0.0E+00
TEEN	4.0E-05	3.9E-05	2.1E-06	4.1E-05	4.0E-05	8.1E-05	3.9E-05	0.0E+00
CHILD	3.5E-05	3.4E-05	2.8E-06	3.7E-05	3.5E-05	8.2E-05	3.5E-05	0.0E+00
INFNT	2.0E-05	2.0E-05	1.7E-06	2.2E-05	2.0E-05	6.4E-05	2.0E-05	0.0E+00
SUBTOTALS (NO PLUME)								
ADULT	3.8E-04	2.5E-04	2.6E-04	4.5E-04	3.2E-04	9.7E-04	2.7E-04	1.4E-04
TEEN	3.8E-04	2.7E-04	3.5E-04	5.8E-04	3.8E-04	1.2E-03	3.0E-04	1.4E-04
CHILD	4.0E-04	3.2E-04	6.6E-04	8.6E-04	5.0E-04	2.0E-03	3.8E-04	1.4E-04
INFNT	2.3E-04	1.9E-04	5.3E-04	6.9E-04	3.3E-04	3.4E-03	2.5E-04	1.4E-04
TOTALS								
ADULT	4.7E-04	3.4E-04	3.4E-04	5.3E-04	4.0E-04	1.1E-03	3.6E-04	3.5E-04
TEEN	4.6E-04	3.5E-04	4.3E-04	6.7E-04	4.6E-04	1.3E-03	3.9E-04	3.5E-04
CHILD	4.8E-04	4.0E-04	7.4E-04	9.4E-04	5.8E-04	2.1E-03	4.6E-04	3.5E-04
INFNT	3.1E-04	2.8E-04	6.1E-04	7.7E-04	4.1E-04	3.5E-03	3.3E-04	3.5E-04

INDIVIDUAL DOSES (MREM) DUE TO GASEOUS EFFLUENT
FOR DATES 9410 1 1 THRU 94123124

	T.BODY	GI-TRCT	BONE	LIVER	KIDNEY	THYRD	LUNG	SKIN
PLUME	PATHWAY, DIST GP= 1, 1136. METERS WINDS TOWARD SE							
ADULT	1.7E-04	1.7E-04	1.7E-04	1.7E-04	1.7E-04	1.7E-04	1.7E-04	4.4E-04
TEEN	1.7E-04	1.7E-04	1.7E-04	1.7E-04	1.7E-04	1.7E-04	1.7E-04	4.4E-04
CHILD	1.7E-04	1.7E-04	1.7E-04	1.7E-04	1.7E-04	1.7E-04	1.7E-04	4.4E-04
INFNT	1.7E-04	1.7E-04	1.7E-04	1.7E-04	1.7E-04	1.7E-04	1.7E-04	4.4E-04
GROUND	PATHWAY, DIST GP= 1, 1136. METERS WINDS TOWARD SE							
ADULT	3.1E-04	3.1E-04	3.1E-04	3.1E-04	3.1E-04	3.1E-04	3.1E-04	3.6E-04
TEEN	3.1E-04	3.1E-04	3.1E-04	3.1E-04	3.1E-04	3.1E-04	3.1E-04	3.6E-04
CHILD	3.1E-04	3.1E-04	3.1E-04	3.1E-04	3.1E-04	3.1E-04	3.1E-04	3.6E-04
INFNT	3.1E-04	3.1E-04	3.1E-04	3.1E-04	3.1E-04	3.1E-04	3.1E-04	3.6E-04
VEGET	PATHWAY, DIST GP= 1, 914. METERS WINDS TOWARD SE							
ADULT	4.6E-04	1.9E-04	2.8E-04	5.9E-04	3.2E-04	8.5E-04	2.3E-04	0.0E+00
TEEN	4.4E-04	2.2E-04	4.5E-04	8.3E-04	4.2E-04	7.6E-04	2.9E-04	0.0E+00
CHILD	4.9E-04	3.3E-04	1.1E-03	1.4E-03	6.7E-04	1.2E-03	4.5E-04	0.0E+00
INFNT	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
MEAT	PATHWAY, DIST GP= 1, 4354. METERS WINDS TOWARD SE							
ADULT	4.5E-06	2.5E-06	2.2E-06	5.5E-06	3.5E-06	8.6E-06	2.7E-06	0.0E+00
TEEN	2.4E-06	1.5E-06	1.8E-06	4.0E-06	2.3E-06	5.9E-06	1.8E-06	0.0E+00
CHILD	2.3E-06	1.8E-06	3.3E-06	5.0E-06	2.8E-06	8.5E-06	2.1E-06	0.0E+00
INFNT	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
COW	PATHWAY, DIST GP= 1, 4091. METERS WINDS TOWARD SE							
ADULT	2.7E-05	7.0E-06	2.1E-05	3.7E-05	1.7E-05	2.0E-04	9.6E-06	0.0E+00
TEEN	2.8E-05	9.1E-06	3.8E-05	6.1E-05	2.8E-05	3.1E-04	1.5E-05	0.0E+00
CHILD	2.8E-05	1.4E-05	9.1E-05	1.0E-04	4.5E-05	6.2E-04	2.3E-05	0.0E+00
INFNT	3.4E-05	2.0E-05	1.5E-04	2.0E-04	7.1E-05	1.5E-03	3.8E-05	0.0E+00
GOAT	PATHWAY, DIST GP= 1, 4091. METERS WINDS TOWARD SE							
ADULT	7.4E-05	1.5E-05	6.2E-05	1.0E-04	4.4E-05	2.4E-04	2.3E-05	0.0E+00
TEEN	7.4E-05	1.9E-05	1.1E-04	1.8E-04	7.2E-05	3.8E-04	3.7E-05	0.0E+00
CHILD	6.9E-05	2.8E-05	2.7E-04	3.0E-04	1.2E-04	7.5E-04	5.7E-05	0.0E+00
INFNT	8.1E-05	4.2E-05	4.3E-04	5.7E-04	1.9E-04	1.8E-03	9.6E-05	0.0E+00
INHAL	PATHWAY, DIST GP= 1, 1136. METERS WINDS TOWARD SE							
ADULT	7.6E-05	7.3E-05	3.3E-06	7.7E-05	7.5E-05	1.4E-04	7.4E-05	0.0E+00
TEEN	7.5E-05	7.3E-05	4.5E-06	7.9E-05	7.6E-05	1.6E-04	7.5E-05	0.0E+00
CHILD	6.6E-05	6.5E-05	6.1E-06	7.1E-05	6.7E-05	1.6E-04	6.6E-05	0.0E+00
INFNT	3.8E-05	3.7E-05	3.8E-06	4.2E-05	3.9E-05	1.2E-04	3.8E-05	0.0E+00
SUBTOTALS (NO PLUME)								
ADULT	9.5E-04	6.0E-04	6.8E-04	1.1E-03	7.7E-04	1.7E-03	6.5E-04	3.6E-04
TEEN	9.2E-04	6.3E-04	9.1E-04	1.5E-03	9.1E-04	1.9E-03	7.3E-04	3.6E-04
CHILD	9.6E-04	7.5E-04	1.7E-03	2.2E-03	1.2E-03	3.0E-03	9.0E-04	3.6E-04
INFNT	4.6E-04	4.1E-04	8.9E-04	1.1E-03	6.1E-04	3.7E-03	4.8E-04	3.6E-04
TOTALS								
ADULT	1.1E-03	7.7E-04	8.5E-04	1.3E-03	9.4E-04	1.9E-03	8.2E-04	8.0E-04
TEEN	1.1E-03	8.0E-04	1.1E-03	1.6E-03	1.1E-03	2.1E-03	9.0E-04	8.0E-04
CHILD	1.1E-03	9.2E-04	1.9E-03	2.3E-03	1.4E-03	3.2E-03	1.1E-03	8.0E-04
INFNT	6.3E-04	5.8E-04	1.1E-03	1.3E-03	7.7E-04	3.9E-03	6.6E-04	8.0E-04

INDIVIDUAL DOSES (MREM) DUE TO GASEOUS EFFLUENT
FOR DATES 9410 1 1 THRU 94123124

	T.BODY	GI-TRCT	BONE	LIVER	KIDNEY	THYRD	LUNG	SKIN
PLUME	PATHWAY, DIST GP= 1, 1507. METERS WINDS TOWARD SSE							
ADULT	1.3E-04	1.3E-04	1.3E-04	1.3E-04	1.3E-04	1.3E-04	1.3E-04	3.3E-04
TEEN	1.3E-04	1.3E-04	1.3E-04	1.3E-04	1.3E-04	1.3E-04	1.3E-04	3.3E-04
CHILD	1.3E-04	1.3E-04	1.3E-04	1.3E-04	1.3E-04	1.3E-04	1.3E-04	3.3E-04
INFNT	1.3E-04	1.3E-04	1.3E-04	1.3E-04	1.3E-04	1.3E-04	1.3E-04	3.3E-04
GROUND	PATHWAY, DIST GP= 1, 1507. METERS WINDS TOWARD SSE							
ADULT	2.7E-04	2.7E-04	2.7E-04	2.7E-04	2.7E-04	2.7E-04	2.7E-04	3.2E-04
TEEN	2.7E-04	2.7E-04	2.7E-04	2.7E-04	2.7E-04	2.7E-04	2.7E-04	3.2E-04
CHILD	2.7E-04	2.7E-04	2.7E-04	2.7E-04	2.7E-04	2.7E-04	2.7E-04	3.2E-04
INFNT	2.7E-04	2.7E-04	2.7E-04	2.7E-04	2.7E-04	2.7E-04	2.7E-04	3.2E-04
VEGET	PATHWAY, DIST GP= 1, 1093. METERS WINDS TOWARD SSE							
ADULT	4.4E-04	1.7E-04	2.9E-04	5.8E-04	3.0E-04	7.3E-04	2.0E-04	0.0E+00
TEEN	4.1E-04	1.9E-04	4.6E-04	8.3E-04	4.0E-04	6.6E-04	2.6E-04	0.0E+00
CHILD	4.5E-04	2.8E-04	1.1E-03	1.4E-03	6.3E-04	1.0E-03	4.0E-04	0.0E+00
INFNT	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
MEAT	PATHWAY, DIST GP= 1, 1093. METERS WINDS TOWARD SSE							
ADULT	5.1E-05	2.4E-05	2.9E-05	6.5E-05	3.7E-05	9.2E-05	2.7E-05	0.0E+00
TEEN	2.6E-05	1.4E-05	2.4E-05	4.7E-05	2.5E-05	6.4E-05	1.8E-05	0.0E+00
CHILD	2.3E-05	1.7E-05	4.4E-05	6.1E-05	3.1E-05	9.2E-05	2.1E-05	0.0E+00
INFNT	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
COW	PATHWAY, DIST GP= 1, 4091. METERS WINDS TOWARD SSE							
ADULT	3.5E-05	7.9E-06	2.9E-05	4.9E-05	2.2E-05	2.3E-04	1.2E-05	0.0E+00
TEEN	3.6E-05	1.0E-05	5.3E-05	8.3E-05	3.6E-05	3.7E-04	1.9E-05	0.0E+00
CHILD	3.5E-05	1.5E-05	1.3E-04	1.4E-04	5.9E-05	7.2E-04	2.9E-05	0.0E+00
INFNT	4.2E-05	2.3E-05	2.0E-04	2.7E-04	9.3E-05	1.7E-03	4.8E-05	0.0E+00
GOAT	PATHWAY, DIST GP= 1, 4091. METERS WINDS TOWARD SSE							
ADULT	9.9E-05	1.7E-05	8.7E-05	1.4E-04	5.8E-05	2.8E-04	2.8E-05	0.0E+00
TEEN	9.9E-05	2.2E-05	1.6E-04	2.4E-04	9.5E-05	4.5E-04	4.7E-05	0.0E+00
CHILD	8.9E-05	3.2E-05	3.8E-04	4.1E-04	1.6E-04	8.8E-04	7.3E-05	0.0E+00
INFNT	1.0E-04	4.7E-05	6.0E-04	7.8E-04	2.5E-04	2.1E-03	1.2E-04	0.0E+00
INHAL	PATHWAY, DIST GP= 1, 1507. METERS WINDS TOWARD SSE							
ADULT	5.5E-05	5.3E-05	2.5E-06	5.6E-05	5.4E-05	1.0E-04	5.4E-05	0.0E+00
TEEN	5.5E-05	5.3E-05	3.5E-06	5.8E-05	5.5E-05	1.1E-04	5.4E-05	0.0E+00
CHILD	4.8E-05	4.7E-05	4.6E-06	5.2E-05	4.9E-05	1.2E-04	4.8E-05	0.0E+00
INFNT	2.7E-05	2.7E-05	2.9E-06	3.0E-05	2.8E-05	8.9E-05	2.8E-05	0.0E+00
SUBTOTALS (NO PLUME)								
ADULT	9.5E-04	5.4E-04	7.1E-04	1.2E-03	7.4E-04	1.7E-03	5.9E-04	3.2E-04
TEEN	9.0E-04	5.6E-04	9.7E-04	1.5E-03	8.8E-04	1.9E-03	6.7E-04	3.2E-04
CHILD	9.1E-04	6.6E-04	1.9E-03	2.3E-03	1.2E-03	3.1E-03	8.4E-04	3.2E-04
INFNT	4.4E-04	3.7E-04	1.1E-03	1.4E-03	6.4E-04	4.2E-03	4.7E-04	3.2E-04
TOTALS								
ADULT	1.1E-03	6.7E-04	8.4E-04	1.3E-03	8.7E-04	1.8E-03	7.3E-04	6.5E-04
TEEN	1.0E-03	6.9E-04	1.1E-03	1.7E-03	1.0E-03	2.0E-03	8.0E-04	6.5E-04
CHILD	1.0E-03	7.9E-04	2.0E-03	2.4E-03	1.3E-03	3.2E-03	9.8E-04	6.5E-04
INFNT	5.7E-04	5.0E-04	1.2E-03	1.5E-03	7.7E-04	4.3E-03	6.0E-04	6.5E-04

INDIVIDUAL DOSES (MREM) DUE TO GASEOUS EFFLUENT
FOR DATES 9410 1 1 THRU 94123124

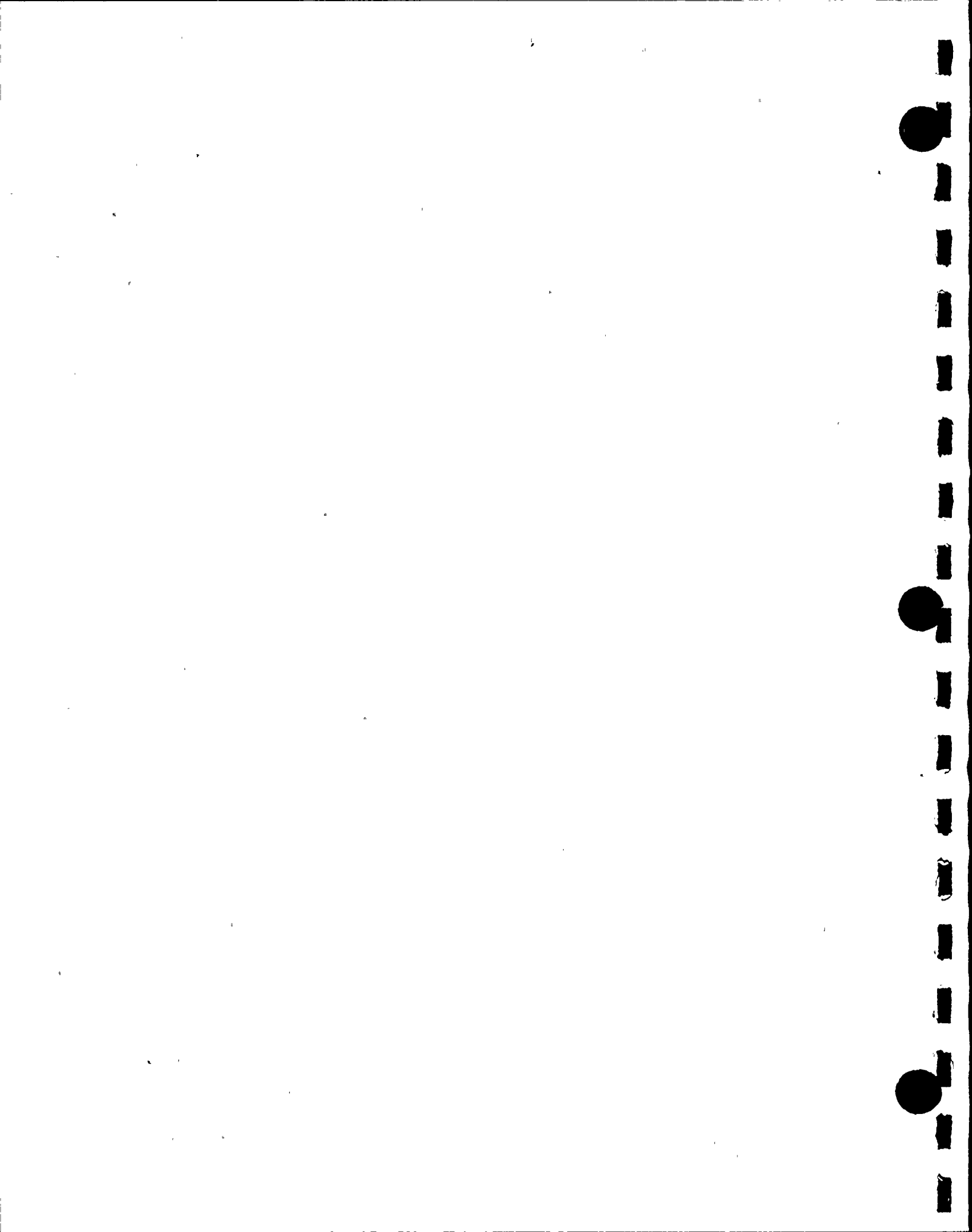
	T.BODY	GI-TRCT	BONE	LIVER	KIDNEY	THYRD	LUNG	SKIN
PLUME	PATHWAY, DIST GP= 1, 1026. METERS WINDS TOWARD S							
ADULT	1.4E-04	1.4E-04	1.4E-04	1.4E-04	1.4E-04	1.4E-04	1.4E-04	3.6E-04
TEEN	1.4E-04	1.4E-04	1.4E-04	1.4E-04	1.4E-04	1.4E-04	1.4E-04	3.6E-04
CHILD	1.4E-04	1.4E-04	1.4E-04	1.4E-04	1.4E-04	1.4E-04	1.4E-04	3.6E-04
INFNT	1.4E-04	1.4E-04	1.4E-04	1.4E-04	1.4E-04	1.4E-04	1.4E-04	3.6E-04
GROUND	PATHWAY, DIST GP= 1, 1026. METERS WINDS TOWARD S							
ADULT	3.3E-04	3.3E-04	3.3E-04	3.3E-04	3.3E-04	3.3E-04	3.3E-04	3.9E-04
TEEN	3.3E-04	3.3E-04	3.3E-04	3.3E-04	3.3E-04	3.3E-04	3.3E-04	3.9E-04
CHILD	3.3E-04	3.3E-04	3.3E-04	3.3E-04	3.3E-04	3.3E-04	3.3E-04	3.9E-04
INFNT	3.3E-04	3.3E-04	3.3E-04	3.3E-04	3.3E-04	3.3E-04	3.3E-04	3.9E-04
VEGET	PATHWAY, DIST GP= 1, 863. METERS WINDS TOWARD S							
ADULT	4.2E-04	1.5E-04	2.8E-04	5.5E-04	2.8E-04	7.6E-04	1.9E-04	0.0E+00
TEEN	3.9E-04	1.7E-04	4.5E-04	7.9E-04	3.8E-04	6.7E-04	2.4E-04	0.0E+00
CHILD	4.2E-04	2.6E-04	1.1E-03	1.3E-03	6.0E-04	1.0E-03	3.7E-04	0.0E+00
INFNT	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
MEAT	PATHWAY, DIST GP= 1, 6115. METERS WINDS TOWARD S							
ADULT	2.0E-06	1.0E-06	1.0E-06	2.5E-06	1.5E-06	3.7E-06	1.1E-06	0.0E+00
TEEN	1.0E-06	6.1E-07	8.6E-07	1.8E-06	1.0E-06	2.6E-06	7.3E-07	0.0E+00
CHILD	9.5E-07	7.1E-07	1.6E-06	2.3E-06	1.2E-06	3.7E-06	8.8E-07	0.0E+00
INFNT	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
COW	PATHWAY, DIST GP= 1, 4091. METERS WINDS TOWARD S							
ADULT	2.3E-05	5.0E-06	1.9E-05	3.2E-05	1.4E-05	1.7E-04	7.4E-06	0.0E+00
TEEN	2.4E-05	6.6E-06	3.5E-05	5.4E-05	2.3E-05	2.6E-04	1.2E-05	0.0E+00
CHILD	2.3E-05	9.7E-06	8.3E-05	9.3E-05	3.8E-05	5.2E-04	1.9E-05	0.0E+00
INFNT	2.7E-05	1.4E-05	1.3E-04	1.8E-04	6.1E-05	1.2E-03	3.1E-05	0.0E+00
GOAT	PATHWAY, DIST GP= 1, 4091. METERS WINDS TOWARD S							
ADULT	6.4E-05	1.1E-05	5.7E-05	9.1E-05	3.7E-05	2.0E-04	1.8E-05	0.0E+00
TEEN	6.4E-05	1.4E-05	1.0E-04	1.6E-04	6.2E-05	3.2E-04	3.0E-05	0.0E+00
CHILD	5.8E-05	2.0E-05	2.5E-04	2.7E-04	1.0E-04	6.3E-04	4.7E-05	0.0E+00
INFNT	6.5E-05	3.0E-05	3.9E-04	5.1E-04	1.6E-04	1.5E-03	8.0E-05	0.0E+00
INHAL	PATHWAY, DIST GP= 1, 1026. METERS WINDS TOWARD S							
ADULT	6.3E-05	6.1E-05	2.6E-06	6.4E-05	6.2E-05	1.2E-04	6.1E-05	0.0E+00
TEEN	6.3E-05	6.1E-05	3.7E-06	6.6E-05	6.3E-05	1.3E-04	6.2E-05	0.0E+00
CHILD	5.5E-05	5.4E-05	4.9E-06	5.9E-05	5.6E-05	1.3E-04	5.5E-05	0.0E+00
INFNT	3.1E-05	3.1E-05	3.0E-06	3.5E-05	3.2E-05	1.0E-04	3.2E-05	0.0E+00
SUBTOTALS (NO PLUME)								
ADULT	9.1E-04	5.6E-04	7.0E-04	1.1E-03	7.3E-04	1.6E-03	6.1E-04	3.9E-04
TEEN	8.8E-04	5.9E-04	9.2E-04	1.4E-03	8.6E-04	1.7E-03	6.8E-04	3.9E-04
CHILD	8.9E-04	6.8E-04	1.7E-03	2.1E-03	1.1E-03	2.6E-03	8.3E-04	3.9E-04
INFNT	4.6E-04	4.1E-04	8.7E-04	1.1E-03	5.9E-04	3.2E-03	4.8E-04	3.9E-04
TOTALS								
ADULT	1.0E-03	7.0E-04	8.4E-04	1.2E-03	8.7E-04	1.7E-03	7.5E-04	7.5E-04
TEEN	1.0E-03	7.3E-04	1.1E-03	1.5E-03	1.0E-03	1.9E-03	8.3E-04	7.5E-04
CHILD	1.0E-03	8.2E-04	1.9E-03	2.2E-03	1.3E-03	2.8E-03	9.7E-04	7.5E-04
INFNT	6.0E-04	5.5E-04	1.0E-03	1.2E-03	7.3E-04	3.3E-03	6.2E-04	7.5E-04

INDIVIDUAL DOSES (MREM) DUE TO GASEOUS EFFLUENT
FOR DATES 9410 1 1 THRU 94123124

	T.BODY	GI-TRCT	BONE	LIVER	KIDNEY	THYRD	LUNG	SKIN
PLUME	PATHWAY, DIST GP= 1, 942. METERS WINDS TOWARD SSW							
ADULT	1.6E-04	1.6E-04	1.6E-04	1.6E-04	1.6E-04	1.6E-04	1.7E-04	4.2E-04
TEEN	1.6E-04	1.6E-04	1.6E-04	1.6E-04	1.6E-04	1.6E-04	1.7E-04	4.2E-04
CHILD	1.6E-04	1.6E-04	1.6E-04	1.6E-04	1.6E-04	1.6E-04	1.7E-04	4.2E-04
INFNT	1.6E-04	1.6E-04	1.6E-04	1.6E-04	1.6E-04	1.6E-04	1.7E-04	4.2E-04
GROUND	PATHWAY, DIST GP= 1, 942. METERS WINDS TOWARD SSW							
ADULT	2.6E-04	2.6E-04	2.6E-04	2.6E-04	2.6E-04	2.6E-04	2.6E-04	3.0E-04
TEEN	2.6E-04	2.6E-04	2.6E-04	2.6E-04	2.6E-04	2.6E-04	2.6E-04	3.0E-04
CHILD	2.6E-04	2.6E-04	2.6E-04	2.6E-04	2.6E-04	2.6E-04	2.6E-04	3.0E-04
INFNT	2.6E-04	2.6E-04	2.6E-04	2.6E-04	2.6E-04	2.6E-04	2.6E-04	3.0E-04
VEGET	PATHWAY, DIST GP= 1, 770. METERS WINDS TOWARD SSW							
ADULT	3.9E-04	1.8E-04	2.3E-04	5.0E-04	2.8E-04	7.2E-04	2.1E-04	0.0E+00
TEEN	3.8E-04	2.1E-04	3.6E-04	7.0E-04	3.7E-04	6.5E-04	2.6E-04	0.0E+00
CHILD	4.4E-04	3.1E-04	8.5E-04	1.2E-03	5.8E-04	9.9E-04	4.0E-04	0.0E+00
INFNT	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
MEAT	PATHWAY, DIST GP= 1, 8045. METERS WINDS TOWARD SSW							
ADULT	1.1E-06	7.5E-07	4.3E-07	1.3E-06	9.4E-07	2.0E-06	8.0E-07	0.0E+00
TEEN	6.2E-07	4.5E-07	3.5E-07	9.3E-07	6.1E-07	1.3E-06	5.0E-07	0.0E+00
CHILD	6.3E-07	5.3E-07	6.5E-07	1.2E-06	7.4E-07	1.9E-06	6.0E-07	0.0E+00
INFNT	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
COW	PATHWAY, DIST GP= 1, 4091. METERS WINDS TOWARD SSW							
ADULT	1.7E-05	5.1E-06	1.3E-05	2.3E-05	1.1E-05	1.2E-04	6.7E-06	0.0E+00
TEEN	1.8E-05	6.6E-06	2.3E-05	3.8E-05	1.8E-05	2.0E-04	1.0E-05	0.0E+00
CHILD	1.9E-05	1.0E-05	5.5E-05	6.5E-05	2.9E-05	3.8E-04	1.6E-05	0.0E+00
INFNT	2.4E-05	1.5E-05	8.9E-05	1.2E-04	4.6E-05	9.3E-04	2.6E-05	0.0E+00
GOAT	PATHWAY, DIST GP= 1, 4091. METERS WINDS TOWARD SSW							
ADULT	4.6E-05	1.1E-05	3.8E-05	6.4E-05	2.8E-05	1.5E-04	1.6E-05	0.0E+00
TEEN	4.7E-05	1.4E-05	6.8E-05	1.1E-04	4.6E-05	2.4E-04	2.5E-05	0.0E+00
CHILD	4.5E-05	2.1E-05	1.6E-04	1.8E-04	7.5E-05	4.7E-04	3.8E-05	0.0E+00
INFNT	5.5E-05	3.1E-05	2.6E-04	3.5E-04	1.2E-04	1.1E-03	6.4E-05	0.0E+00
INHAL	PATHWAY, DIST GP= 1, 942. METERS WINDS TOWARD SSW							
ADULT	7.3E-05	7.0E-05	2.9E-06	7.4E-05	7.2E-05	1.3E-04	7.1E-05	0.0E+00
TEEN	7.2E-05	7.0E-05	4.1E-06	7.6E-05	7.3E-05	1.5E-04	7.2E-05	0.0E+00
CHILD	6.3E-05	6.2E-05	5.5E-06	6.8E-05	6.4E-05	1.5E-04	6.3E-05	0.0E+00
INFNT	3.6E-05	3.6E-05	3.4E-06	4.0E-05	3.7E-05	1.1E-04	3.7E-05	0.0E+00
SUBTOTALS (NO PLUME)								
ADULT	7.9E-04	5.2E-04	5.4E-04	9.2E-04	6.5E-04	1.4E-03	5.6E-04	3.0E-04
TEEN	7.7E-04	5.5E-04	7.1E-04	1.2E-03	7.6E-04	1.5E-03	6.3E-04	3.0E-04
CHILD	8.2E-04	6.6E-04	1.3E-03	1.7E-03	1.0E-03	2.3E-03	7.8E-04	3.0E-04
INFNT	3.7E-04	3.4E-04	6.1E-04	7.7E-04	4.6E-04	2.4E-03	3.8E-04	3.0E-04
TOTALS								
ADULT	9.5E-04	6.8E-04	7.0E-04	1.1E-03	8.2E-04	1.6E-03	7.3E-04	7.2E-04
TEEN	9.4E-04	7.2E-04	8.7E-04	1.3E-03	9.2E-04	1.7E-03	7.9E-04	7.2E-04
CHILD	9.8E-04	8.2E-04	1.5E-03	1.9E-03	1.2E-03	2.4E-03	9.5E-04	7.2E-04
INFNT	5.3E-04	5.0E-04	7.7E-04	9.3E-04	6.2E-04	2.6E-03	5.5E-04	7.2E-04

APPENDIX 1.6

Correction to "Summary of Maximum Individual Doses
First Quarter, 1993"



SUMMARY OF MAXIMUM INDIVIDUAL DOSES

1st Quarter 1993

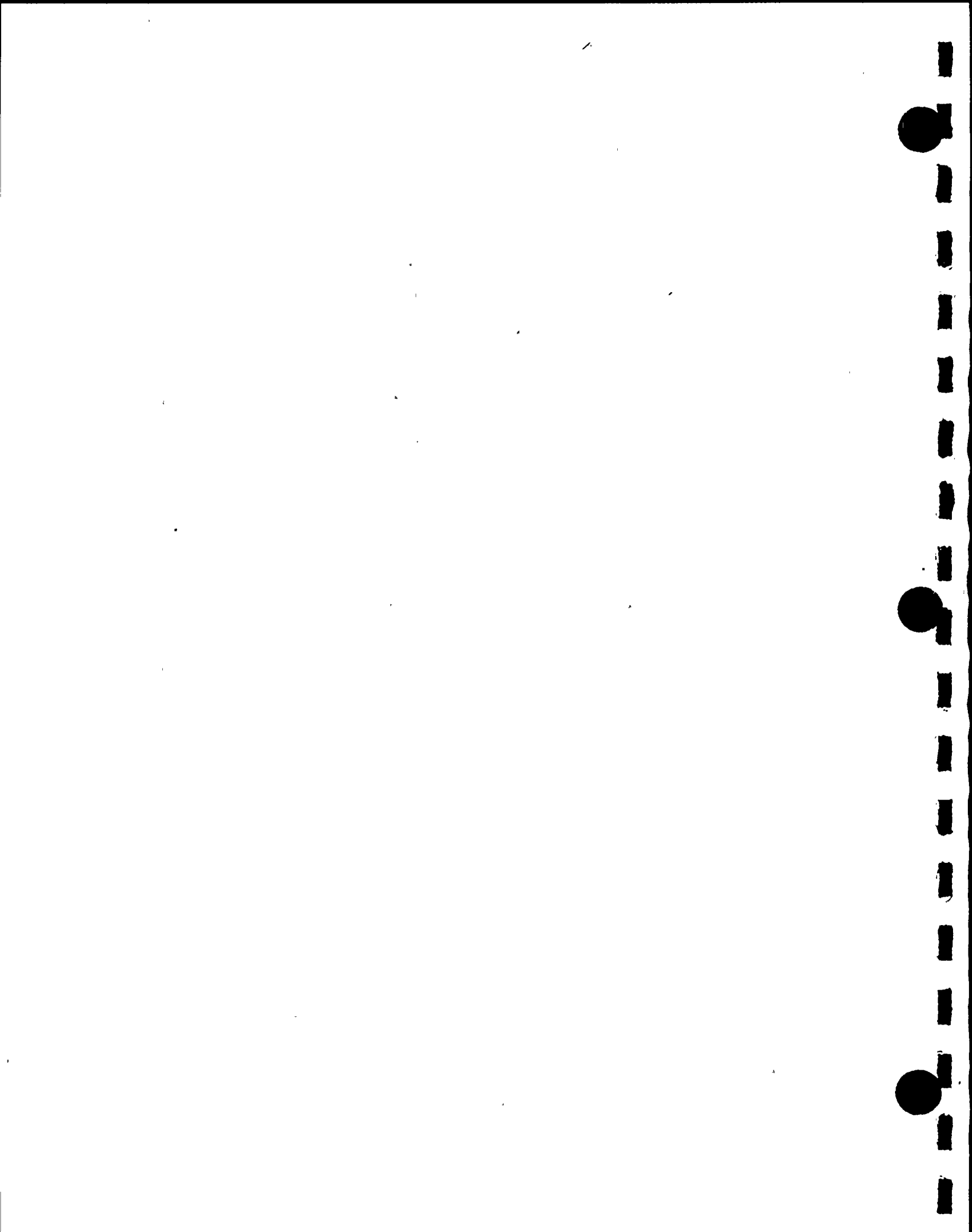
EFFLUENT	APPLICABLE ORGAN	ESTIMATED DOSE (mRem)	AGE GROUP	LOCATION DIST DIR (M) (Toward)	% OF APPLICABLE LIMIT	LIMIT (mRem) QTR
Liquid	Total Body	9.76E-2	Adult	Receptor 1	6.51E+0	1.5E+0
Liquid	Liver	1.38E-1	Teen	Receptor 1	2.76E+0	5.0E+0
Noble Gas	Air Dose (Gamma-mrad)	5.43E-2		651 N	1.09E+0 *	5.0E+0
Noble Gas	Air dose (Beta-mrad)	3.91E-2		651 N	3.91E-1	1.0E+1
Iodines and Particulates	Liver	2.76E-3	Child	659 N	3.68E-2	7.5E+0

* Revised due to transposition error.



APPENDIX 2.1

Summary of Hourly Meteorological Data
First Quarter, 1994



Joint Frequency Tables
1st Quarter 1994

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD = 94010101-94033123
 STABILITY CLASS: A DT/DZ
 ELEVATION: SPEED:SPD10M DIRECTION:DIR10M LAPSE:DT60M

WIND DIRECTION	WIND SPEED (MPH)						TOTAL
	1-3	4-7	8-12	13-18	19-24	>24	
N	5	27	32	0	0	0	64
NNE	2	3	1	0	0	0	6
NE	1	6	3	0	0	0	10
ENE	5	9	7	1	0	0	22
E	4	6	9	2	0	0	21
ESE	4	8	6	0	0	0	18
SE	2	15	18	0	0	0	35
SSE	1	23	7	0	0	0	31
S	1	5	16	8	0	0	30
SSW	0	2	11	5	0	0	18
SW	1	7	25	2	0	0	35
WSW	1	13	31	5	1	0	51
W	0	20	28	4	0	0	52
WNW	3	40	24	0	0	0	67
NW	5	29	5	0	0	0	39
NNW	11	22	19	2	0	0	54
TOTAL	46	235	242	29	1	0	553

PERIODS OF CALM (HOURS): 0
 VARIABLE DIRECTION 0
 HOURS OF MISSING DATA: 2

Joint Frequency Tables
1st Quarter 1994

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD = 94010101-94033123

STABILITY CLASS: B DT/DZ

ELEVATION: SPEED:SPD10M DIRECTION:DIR10M LAPSE:DT60M

WIND DIRECTION	WIND SPEED (MPH)						TOTAL
	1-3	4-7	8-12	13-18	19-24	>24	
N	1	6	7	0	0	0	14
NNE	2	4	2	0	0	0	8
NE	1	5	0	0	0	0	6
ENE	0	3	6	1	0	0	10
E	5	3	6	0	0	0	14
ESE	1	3	3	0	0	0	7
SE	0	6	4	0	0	0	10
SSE	1	3	4	0	0	0	8
S	0	4	9	1	1	0	15
SSW	0	2	6	1	0	0	9
SW	0	7	7	2	0	0	16
WSW	1	5	6	0	0	0	12
W	0	4	10	0	0	0	14
WNW	2	5	12	0	0	0	19
NW	4	4	0	0	0	0	8
NNW	1	8	5	0	0	0	14
<hr/>							
TOTAL	19	72	87	5	1	0	184
<hr/>							
PERIODS OF CALM (HOURS):	0						
VARIABLE DIRECTION	0						
HOURS OF MISSING DATA:	2						

Joint Frequency Tables
1st Quarter 1994

HOURS AT EACH WIND SPEED AND DIRECTION
 PERIOD OF RECORD = 94010101-94033123
 STABILITY CLASS: C DT/DZ
 ELEVATION: SPEED:SPD10M DIRECTION:DIR10M LAPSE:DT60M

WIND DIRECTION	WIND SPEED (MPH)						TOTAL
	1-3	4-7	8-12	13-18	19-24	>24	
N	2	6	3	0	0	0	11
NNE	5	10	3	0	0	0	18
NE	1	13	7	0	0	0	21
ENE	2	12	27	10	1	0	52
E	11	4	8	4	0	0	27
ESE	4	5	6	1	0	0	16
SE	1	7	3	0	0	0	11
SSE	1	6	2	0	0	0	9
S	0	6	1	0	0	0	7
SSW	4	1	3	2	0	0	10
SW	0	4	7	0	0	0	11
WSW	1	2	9	0	0	0	12
W	2	12	33	3	0	0	50
WNW	4	14	16	3	0	0	37
NW	5	8	4	0	0	0	17
NNW	8	9	3	0	0	0	20
TOTAL	51	119	135	23	1	0	329

PERIODS OF CALM (HOURS): 0
 VARIABLE DIRECTION 0
 HOURS OF MISSING DATA: 2

Joint Frequency Tables
1st Quarter 1994

HOURS AT EACH WIND SPEED AND DIRECTION
PERIOD OF RECORD = 94010101-94033123
STABILITY CLASS: D DT/DZ
ELEVATION: SPEED:SPD10M DIRECTION:DIR10M LAPSE:DT60M

WIND DIRECTION	WIND SPEED (MPH)						TOTAL
	1-3	4-7	8-12	13-18	19-24	>24	
N	8	20	4	0	0	0	32
NNE	0	8	10	0	0	0	18
NE	3	18	5	0	0	0	26
ENE	14	23	5	7	1	0	50
E	12	13	6	1	0	0	32
ESE	7	9	14	2	0	0	32
SE	8	7	6	0	0	0	21
SSE	3	18	5	0	0	0	26
S	13	34	16	8	0	0	71
SSW	6	13	14	2	0	0	35
SW	6	13	28	1	0	0	48
WSW	6	12	42	6	0	0	66
W	6	34	44	1	0	0	85
WNW	7	21	38	1	0	0	67
NW	5	15	8	0	0	0	28
NNW	11	26	9	0	0	0	46
TOTAL	115	284	254	29	1	0	683

PERIODS OF CALM (HOURS): 0
VARIABLE DIRECTION 0
HOURS OF MISSING DATA: 2

Joint Frequency Tables
1st Quarter 1994

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD = 94010101-94033123
 STABILITY CLASS: E DT/DZ
 ELEVATION: SPEED:SPD10M DIRECTION:DIR10M LAPSE:DT60M

WIND DIRECTION	WIND SPEED (MPH)						TOTAL
	1-3	4-7	8-12	13-18	19-24	>24	
N	2	0	0	0	0	0	2
NNE	3	2	0	0	0	0	5
NE	8	9	0	0	0	0	17
ENE	8	12	0	0	0	0	20
E	8	9	0	0	0	0	17
ESE	8	9	0	0	0	0	17
SE	5	10	0	0	0	0	15
SSE	16	27	9	0	0	0	52
S	11	31	4	1	0	0	47
SSW	2	10	0	0	0	0	12
SW	7	8	0	0	0	0	15
WSW	1	9	2	0	0	0	12
W	4	8	4	0	0	0	16
WNW	4	0	0	0	0	0	4
NW	6	0	0	0	0	0	6
NNW	1	0	0	0	0	0	1
TOTAL	94	144	19	1	0	0	258

PERIODS OF CALM (HOURS) : 0
 VARIABLE DIRECTION 0
 HOURS OF MISSING DATA: 2

Joint Frequency Tables
1st Quarter 1994

HOURS AT EACH WIND SPEED AND DIRECTION
 PERIOD OF RECORD = 94010101-94033123
 STABILITY CLASS: F DT/DZ
 ELEVATION: SPEED:SPD10M DIRECTION:DIR10M LAPSE:DT60M

WIND DIRECTION	WIND SPEED (MPH)						TOTAL
	1-3	4-7	8-12	13-18	19-24	>24	
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	2	5	0	0	0	0	7
ENE	3	6	0	0	0	0	9
E	4	5	0	0	0	0	9
ESE	8	1	0	0	0	0	9
SE	9	5	0	0	0	0	14
SSE	9	13	0	0	0	0	22
S	6	10	0	0	0	0	16
SSW	2	6	0	0	0	0	8
SW	1	0	0	0	0	0	1
WSW	2	1	0	0	0	0	3
W	3	0	0	0	0	0	3
WNW	2	0	0	0	0	0	2
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
TOTAL	51	52	0	0	0	0	103
PERIODS OF CALM (HOURS): 0							
VARIABLE DIRECTION 0							
HOURS OF MISSING DATA: 2							

Joint Frequency Tables
1st Quarter 1994

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD = 94010101-94033123
 STABILITY CLASS: G DT/DZ
 ELEVATION: SPEED:SPD10M DIRECTION:DIR10M LAPSE:DT60M

WIND DIRECTION	WIND SPEED (MPH)						TOTAL
	1-3	4-7	8-12	13-18	19-24	>24	
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	1	0	0	0	0	1
E	3	3	0	0	0	0	6
ESE	6	1	0	0	0	0	7
SE	12	1	0	0	0	0	13
SSE	4	2	0	0	0	0	6
S	3	4	0	0	0	0	7
SSW	2	1	0	0	0	0	3
SW	1	1	0	0	0	0	2
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	1	0	0	0	0	0	1
NW	1	0	0	0	0	0	1
NNW	0	0	0	0	0	0	0
TOTAL	33	14	0	0	0	0	47

PERIODS OF CALM (HOURS) : 0
 VARIABLE DIRECTION 0
 HOURS OF MISSING DATA: 2

Joint Frequency Tables
1st Quarter 1994

HOURS AT EACH WIND SPEED AND DIRECTION
 PERIOD OF RECORD = 94010101-94033123
 STABILITY CLASS: ALL DT/DZ
 ELEVATION: SPEED:SPD10M DIRECTION:DIR10M LAPSE:DT60M

		WIND SPEED (MPH)					
WIND DIRECTION		1-3	4-7	8-12	13-18	19-24	>24 TOTAL
N		18	59	46	0	0	123
NNE		12	27	16	0	0	55
NE		16	56	15	0	0	87
ENE		32	66	45	19	2	164
E		47	43	29	7	0	126
ESE		38	36	29	3	0	106
SE		37	51	31	0	0	119
SSE		35	92	27	0	0	154
S		34	94	46	18	1	193
SSW		16	35	34	10	0	95
SW		16	40	67	5	0	128
WSW		12	42	90	11	1	156
W		15	78	119	8	0	220
WNW		23	80	90	4	0	197
NW		26	56	17	0	0	99
NNW		32	65	36	2	0	135
TOTAL		409	920	737	87	4	2157

PERIODS OF CALM(HOURS): 0
 VARIABLE DIRECTION 0
 HOURS OF MISSING DATA: 2

APPENDIX 2.2

Summary of Hourly Data Meteorological Data
Second Quarter, 1994



Joint Frequency Tables
2nd Quarter 1994

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD = 94033124-94063023
 STABILITY CLASS: A DT/DZ
 ELEVATION: SPEED:SPD10M DIRECTION:DIR10M LAPSE:DT60M

WIND SPEED (MPH)							
WIND DIRECTION	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	6	101	93	2	0	0	202
NNE	3	27	13	1	0	0	44
NE	6	15	11	1	0	0	33
ENE	3	12	10	0	0	0	25
E	0	7	32	1	0	0	40
ESE	1	6	16	0	0	0	23
SE	3	18	6	1	0	0	28
SSE	4	15	24	4	0	0	47
S	1	28	31	7	0	0	67
SSW	0	14	33	11	0	0	58
SW	1	23	79	20	0	0	123
WSW	1	38	63	18	0	0	120
W	4	33	26	5	0	0	68
WNW	4	50	12	0	0	0	66
NW	5	68	4	0	0	0	77
NNW	11	107	28	0	0	0	146
TOTAL	53	562	481	71	0	0	1167

PERIODS OF CALM (HOURS) : 0
 VARIABLE DIRECTION 0
 HOURS OF MISSING DATA: 3

Joint Frequency Tables
2nd Quarter 1994

HOURS AT EACH WIND SPEED AND DIRECTION
PERIOD OF RECORD = 94033124-94063023
STABILITY CLASS: B DT/DZ
ELEVATION: SPEED:SPD10M DIRECTION:DIR10M LAPSE:DT60M

WIND DIRECTION	WIND SPEED (MPH)						TOTAL
	1-3	4-7	8-12	13-18	19-24	>24	
N	0	5	4	1	0	0	10
NNE	0	1	0	0	0	0	1
NE	2	1	0	0	0	0	3
ENE	1	1	2	0	0	0	4
E	1	0	0	0	0	0	1
ESE	2	0	0	0	0	0	2
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	2	2	0	0	0	4
SSW	0	0	1	1	0	0	2
SW	0	3	6	0	0	0	9
WSW	0	4	1	0	0	0	5
W	0	2	0	0	0	0	2
WNW	3	1	0	0	0	0	4
NW	0	2	0	0	0	0	2
NNW	0	5	1	0	0	0	6
TOTAL	9	27	17	2	0	0	55

PERIODS OF CALM(HOURS): 0
VARIABLE DIRECTION 0
HOURS OF MISSING DATA: 3

Joint Frequency Tables
2nd Quarter 1994

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD = 94033124-94063023
 STABILITY CLASS: C DT/DZ
 ELEVATION: SPEED:SPD10M DIRECTION:DIR10M LAPSE:DT60M

WIND DIRECTION	WIND SPEED (MPH)						TOTAL
	1-3	4-7	8-12	13-18	19-24	>24	
N	0	5	8	0	0	0	13
NNE	2	3	0	0	0	0	5
NE	3	3	0	0	0	0	6
ENE	1	1	0	0	0	0	2
E	1	1	0	0	0	0	2
ESE	2	0	0	0	0	0	2
SE	2	0	0	0	0	0	2
SSE	0	3	0	0	0	0	3
S	2	4	1	0	0	0	7
SSW	2	5	0	0	0	0	7
SW	0	3	3	1	0	0	7
WSW	0	0	2	0	0	0	2
W	1	3	1	0	0	0	5
WNW	0	0	0	0	0	0	0
NW	0	1	0	0	0	0	1
NNW	1	2	1	0	0	0	4
TOTAL	17	34	16	1	0	0	68

PERIODS OF CALM (HOURS): 0
 VARIABLE DIRECTION 0
 HOURS OF MISSING DATA: 3

Joint Frequency Tables
2nd Quarter 1994

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD = 94033124-94063023

STABILITY CLASS: D DT/DZ

ELEVATION: SPEED:SPD10M DIRECTION:DIR10M LAPSE:DT60M

WIND DIRECTION	WIND SPEED (MPH)						TOTAL
	1-3	4-7	8-12	13-18	19-24	>24	
N	10	16	22	1	0	0	49
NNE	2	5	0	0	0	0	7
NE	8	8	0	0	0	0	16
ENE	3	8	8	0	0	0	19
E	2	9	6	0	0	0	17
ESE	4	1	0	0	0	0	5
SE	0	6	0	0	0	0	6
SSE	4	1	0	0	0	0	5
S	1	15	8	0	0	0	24
SSW	2	8	9	0	0	0	19
SW	2	8	12	0	0	0	22
WSW	4	6	13	1	0	0	24
W	2	7	1	0	0	0	10
WNW	7	3	1	0	0	0	11
NW	9	2	0	0	0	0	11
NNW	9	22	5	0	0	0	36
<hr/>							
TOTAL	69	125	85	2	0	0	281

PERIODS OF CALM(HOURS): 0

VARIABLE DIRECTION 0

HOURS OF MISSING DATA: 3

Joint Frequency Tables
2nd Quarter 1994

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD = 94033124-94063023
 STABILITY CLASS: E DT/DZ
 ELEVATION: SPEED:SPD10M DIRECTION:DIR10M LAPSE:DT60M

WIND DIRECTION	WIND SPEED (MPH)						TOTAL
	1-3	4-7	8-12	13-18	19-24	>24	
N	11	9	0	0	0	1	21
NNE	11	4	0	0	0	0	15
NE	6	11	0	0	0	0	17
ENE	7	6	2	0	0	0	15
E	9	5	0	0	0	0	14
ESE	4	3	0	0	0	0	7
SE	8	8	0	0	0	0	16
SSE	9	7	0	0	0	0	16
S	10	48	1	0	0	0	59
SSW	4	20	2	0	0	0	26
SW	5	8	4	0	0	0	17
WSW	0	4	9	0	0	0	13
W	4	3	1	0	0	0	8
WNW	4	3	0	0	0	0	7
NW	8	4	0	0	0	0	12
NNW	9	2	0	0	0	0	11
TOTAL	109	145	19	0	0	1	274

PERIODS OF CALM (HOURS): 0
 VARIABLE DIRECTION 0
 HOURS OF MISSING DATA: 3

Joint Frequency Tables
2nd Quarter 1994

HOURS AT EACH WIND SPEED AND DIRECTION
 PERIOD OF RECORD = 94033124-94063023
 STABILITY CLASS: F DT/DZ
 ELEVATION: SPEED:SPD10M DIRECTION:DIR10M LAPSE:DT60M

WIND DIRECTION	WIND SPEED (MPH)						TOTAL
	1-3	4-7	8-12	13-18	19-24	>24	
N	4	0	0	0	0	0	4
NNE	4	2	0	0	0	0	6
NE	10	6	0	0	0	0	16
ENE	7	6	0	0	0	0	13
E	9	2	0	0	0	0	11
ESE	12	2	0	0	0	0	14
SE	10	0	0	0	0	0	10
SSE	12	4	0	0	0	0	16
S	11	7	0	0	0	0	18
SSW	3	2	1	0	0	0	6
SW	6	1	0	0	0	0	7
WSW	0	0	0	0	0	0	0
W	4	0	0	0	0	0	4
WNW	6	0	0	0	0	0	6
NW	4	0	0	0	0	0	4
NNW	6	0	0	0	0	0	6
TOTAL	108	32	1	0	0	0	141

PERIODS OF CALM(HOURS): 0
 VARIABLE DIRECTION 0
 HOURS OF MISSING DATA: 3

Joint Frequency Tables
2nd Quarter 1994

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD = 94033124-94063023
 STABILITY CLASS: G DT/DZ
 ELEVATION: SPEED:SPD10M DIRECTION:DIR10M LAPSE:DT60M

WIND DIRECTION	WIND SPEED (MPH)						TOTAL
	1-3	4-7	8-12	13-18	19-24	>24	
N	1	0	0	0	0	0	1
NNE	2	0	0	0	0	0	2
NE	5	0	0	0	0	0	5
ENE	19	1	0	0	0	0	20
E	31	3	0	0	0	0	34
ESE	17	0	0	0	0	0	17
SE	22	0	0	0	0	0	22
SSE	28	0	0	0	0	0	28
S	24	5	0	0	0	0	29
SSW	10	0	0	0	0	0	10
SW	2	0	0	0	0	0	2
WSW	4	0	0	0	0	0	4
W	11	0	0	0	0	0	11
WNW	6	0	0	0	0	0	6
NW	1	0	0	0	0	0	1
NNW	3	0	0	0	0	0	3
TOTAL	186	9	0	0	0	0	195

PERIODS OF CALM (HOURS) : 0
 VARIABLE DIRECTION 0
 HOURS OF MISSING DATA: 3

Joint Frequency Tables
2nd Quarter 1994

HOURS AT EACH WIND SPEED AND DIRECTION
PERIOD OF RECORD = 94033124-94063023
STABILITY CLASS: ALL DT/DZ
ELEVATION: SPEED:SPD10M DIRECTION:DIR10M LAPSE:DT60M

		WIND SPEED (MPH)					
WIND DIRECTION	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	32	136	127	4	0	1	300
NNE	24	42	13	1	0	0	80
NE	40	44	11	1	0	0	96
ENE	41	35	22	0	0	0	98
E	53	27	38	1	0	0	119
ESE	42	12	16	0	0	0	70
SE	45	32	6	1	0	0	84
SSE	57	30	24	4	0	0	115
S	49	109	43	7	0	0	208
SSW	21	49	46	12	0	0	128
SW	16	46	104	21	0	0	187
WSW	9	52	88	19	0	0	168
W	26	48	29	5	0	0	108
WNW	30	57	13	0	0	0	100
NW	27	77	4	0	0	0	108
NNW	39	138	35	0	0	0	212
TOTAL	551	934	619	76	0	1	2181

PERIODS OF CALM(HOURS) : 0
VARIABLE DIRECTION 0
HOURS OF MISSING DATA: 3

APPENDIX 2.3

Summary of Hourly Meteorological Data
Third Quarter, 1994



Joint Frequency Tables
3rd Quarter 1994

HOURS AT EACH WIND SPEED AND DIRECTION
 PERIOD OF RECORD = 94063024-94093023
 STABILITY CLASS: A DT/DZ
 ELEVATION: SPEED:SPD10M DIRECTION:DIR10M LAPSE:DT60M

WIND DIRECTION	WIND SPEED (MPH)						TOTAL
	1-3	4-7	8-12	13-18	19-24	>24	
N	3	49	5	0	0	0	57
NNE	2	13	1	0	0	0	16
NE	1	3	2	0	0	0	6
ENE	0	0	0	0	0	0	0
E	0	3	0	0	0	0	3
ESE	1	9	0	0	0	0	10
SE	3	11	0	0	0	0	14
SSE	5	8	0	0	0	0	13
S	10	41	8	0	0	0	59
SSW	0	18	12	0	0	0	30
SW	0	23	24	0	0	0	47
WSW	2	36	9	1	0	0	48
W	3	24	0	0	0	0	27
WNW	3	16	1	0	0	0	20
NW	6	29	0	0	0	0	35
NNW	8	24	0	0	0	0	32
TOTAL	47	307	62	1	0	0	417

PERIODS OF CALM (HOURS): 0
 VARIABLE DIRECTION 0
 HOURS OF MISSING DATA: 95

Joint Frequency Tables
3rd Quarter 1994

HOURS AT EACH WIND SPEED AND DIRECTION
 PERIOD OF RECORD = 94063024-94093023
 STABILITY CLASS: B DT/DZ
 ELEVATION: SPEED:SPD10M DIRECTION:DIR10M LAPSE:DT60M

WIND DIRECTION	WIND SPEED (MPH)						TOTAL
	1-3	4-7	8-12	13-18	19-24	>24	
N	4	8	2	0	0	0	14
NNE	0	3	0	0	0	0	3
NE	1	2	0	0	0	0	3
ENE	1	0	0	0	0	0	1
E	1	2	0	0	0	0	3
ESE	1	1	0	0	0	0	2
SE	2	5	0	0	0	0	7
SSE	3	3	0	0	0	0	6
S	2	7	0	0	0	0	9
SSW	1	3	4	0	0	0	8
SW	1	11	5	0	0	0	17
WSW	0	11	3	0	0	0	14
W	2	6	0	0	0	0	8
WNW	4	6	1	0	0	0	11
NW	0	2	0	0	0	0	2
NNW	6	4	0	0	0	0	10
TOTAL	29	74	15	0	0	0	118

PERIODS OF CALM (HOURS): 0
 VARIABLE DIRECTION 0
 HOURS OF MISSING DATA: 95

Joint Frequency Tables
3rd Quarter 1994

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD = 94063024-94093023
 STABILITY CLASS: C DT/DZ
 ELEVATION: SPEED:SPD10M DIRECTION:DIR10M LAPSE:DT60M

WIND DIRECTION	WIND SPEED (MPH)						TOTAL
	1-3	4-7	8-12	13-18	19-24	>24	
N	2	11	1	0	0	0	14
NNE	0	1	0	0	0	0	1
NE	2	2	0	0	0	0	4
ENE	2	1	0	0	0	0	3
E	2	1	0	0	0	0	3
ESE	2	6	0	0	0	0	8
SE	6	0	0	0	0	0	6
SSE	2	2	0	0	0	0	4
S	3	8	0	0	0	0	11
SSW	1	5	1	0	0	0	7
SW	2	12	6	0	0	0	20
WSW	1	7	1	0	0	0	9
W	2	5	0	0	0	0	7
WNW	6	2	0	0	0	0	8
NW	1	1	0	0	0	0	2
NNW	2	2	0	0	0	0	4
TOTAL	36	66	9	0	0	0	111

PERIODS OF CALM (HOURS) : 0
 VARIABLE DIRECTION 0
 HOURS OF MISSING DATA: 95

Joint Frequency Tables
3rd Quarter 1994

HOURS AT EACH WIND SPEED AND DIRECTION
 PERIOD OF RECORD = 94063024-94093023
 STABILITY CLASS: D DT/DZ
 ELEVATION: SPEED:SPD10M DIRECTION:DIR10M LAPSE:DT60M

WIND DIRECTION	WIND SPEED (MPH)						TOTAL
	1-3	4-7	8-12	13-18	19-24	>24	
N	13	35	8	0	0	0	56
NNE	10	19	5	0	0	0	34
NE	7	9	3	0	0	0	19
ENE	7	3	0	0	0	0	10
E	5	8	2	0	0	0	15
ESE	8	11	0	0	0	0	19
SE	9	6	0	0	0	0	15
SSE	10	7	0	0	0	0	17
S	18	32	4	0	0	0	54
SSW	11	32	14	0	0	0	57
SW	10	30	21	0	0	0	61
WSW	6	12	14	0	0	0	32
W	10	7	12	1	0	0	30
WNW	4	8	8	0	0	0	20
NW	7	5	1	0	0	0	13
NNW	17	9	0	0	0	0	26
TOTAL	152	233	92	1	0	0	478
PERIODS OF CALM (HOURS): 0							
VARIABLE DIRECTION 0							
HOURS OF MISSING DATA: 95							

Joint Frequency Tables
3rd Quarter 1994

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD = 94063024-94093023
 STABILITY CLASS: E DT/DZ
 ELEVATION: SPEED:SPD10M DIRECTION:DIR10M LAPSE:DT60M

WIND DIRECTION	WIND SPEED (MPH)						TOTAL
	1-3	4-7	8-12	13-18	19-24	>24	
N	13	8	1	0	0	0	22
NNE	12	3	1	0	0	0	16
NE	8	7	0	0	0	0	15
ENE	6	5	0	0	0	0	11
E	15	9	0	0	0	0	24
ESE	27	11	0	0	0	0	38
SE	16	8	0	0	0	0	24
SSE	20	2	0	0	0	0	22
S	35	59	2	0	0	0	96
SSW	20	45	7	1	0	0	73
SW	14	38	9	0	0	0	61
WSW	2	17	5	0	0	0	24
W	6	6	4	0	0	0	16
WNW	20	7	1	0	0	0	28
NW	7	2	0	0	0	0	9
NNW	8	5	0	0	0	0	13
TOTAL	229	232	30	1	0	0	492

PERIODS OF CALM (HOURS) : 0
 VARIABLE DIRECTION 0
 HOURS OF MISSING DATA: 95

Joint Frequency Tables
3rd Quarter 1994

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD = 94063024-94093023
 STABILITY CLASS: F DT/DZ
 ELEVATION: SPEED:SPD10M DIRECTION:DIR10M LAPSE:DT60M

WIND DIRECTION	WIND SPEED (MPH)						TOTAL
	1-3	4-7	8-12	13-18	19-24	>24	
N	5	0	0	0	0	0	5
NNE	4	0	0	0	0	0	4
NE	4	0	0	0	0	0	4
ENE	12	1	0	0	0	0	13
E	19	0	0	0	0	0	19
ESE	20	2	0	0	0	0	22
SE	12	0	0	0	0	0	12
SSE	22	1	0	0	0	0	23
S	42	4	0	0	0	0	46
SSW	11	8	0	0	0	0	19
SW	10	4	0	0	0	0	14
WSW	5	0	0	0	0	0	5
W	4	0	0	0	0	0	4
WNW	4	0	0	0	0	0	4
NW	2	0	0	0	0	0	2
NNW	2	0	0	0	0	0	2
TOTAL	178	20	0	0	0	0	198

PERIODS OF CALM(HOURS): 0
 VARIABLE DIRECTION 0
 HOURS OF MISSING DATA: 95

Joint Frequency Tables
3rd Quarter 1994

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD = 94063024-94093023
 STABILITY CLASS: G DT/DZ
 ELEVATION: SPEED:SPD10M DIRECTION:DIR10M LAPSE:DT60M

WIND DIRECTION	WIND SPEED (MPH)						TOTAL
	1-3	4-7	8-12	13-18	19-24	>24	
N	0	0	0	0	0	0	0
NNE	4	0	0	0	0	0	4
NE	4	0	0	0	0	0	4
ENE	10	0	0	0	0	0	10
E	37	0	0	0	0	0	37
ESE	41	0	0	0	0	0	41
SE	48	0	0	0	0	0	48
SSE	54	0	0	0	0	0	54
S	52	0	0	0	0	0	52
SSW	30	1	0	0	0	0	31
SW	9	0	0	0	0	0	9
WSW	4	0	0	0	0	0	4
W	2	0	0	0	0	0	2
WNW	3	0	0	0	0	0	3
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
TOTAL	298	1	0	0	0	0	299

PERIODS OF CALM (HOURS): 0
 VARIABLE DIRECTION 0
 HOURS OF MISSING DATA: 95

Joint Frequency Tables
3rd Quarter 1994

HOURS AT EACH WIND SPEED AND DIRECTION
 PERIOD OF RECORD = 94063024-94093023
 STABILITY CLASS: ALL DT/DZ
 ELEVATION: SPEED:SPD10M DIRECTION:DIR10M LAPSE:DT60M

WIND DIRECTION	WIND SPEED (MPH)						TOTAL
	1-3	4-7	8-12	13-18	19-24	>24	
N	40	111	17	0	0	0	168
NNE	32	39	7	0	0	0	78
NE	27	23	5	0	0	0	55
ENE	38	10	0	0	0	0	48
E	79	23	2	0	0	0	104
ESE	100	40	0	0	0	0	140
SE	96	30	0	0	0	0	126
SSE	116	23	0	0	0	0	139
S	162	151	14	0	0	0	327
SSW	74	112	38	1	0	0	225
SW	46	118	65	0	0	0	229
WSW	20	83	32	1	0	0	136
W	29	48	16	1	0	0	94
WNW	44	39	11	0	0	0	94
NW	23	39	1	0	0	0	63
NNW	43	44	0	0	0	0	87
TOTAL	969	933	208	3	0	0	2113
PERIODS OF CALM(HOURS): 0							
VARIABLE DIRECTION 0							
HOURS OF MISSING DATA: 95							

APPENDIX 2.4

Summary of Hourly Data Meteorological Data
Fourth Quarter, 1994

Joint Frequency Tables
4th Quarter 1994

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD = 94093024-94123123
 STABILITY CLASS: A DT/DZ
 ELEVATION: SPEED:SPD10M DIRECTION:DIR10M LAPSE:DT60M

WIND DIRECTION	WIND SPEED (MPH)						TOTAL
	1-3	4-7	8-12	13-18	19-24	>24	
N	0	6	0	0	0	0	6
NNE	1	2	0	0	0	0	3
NE	0	6	0	0	0	0	6
ENE	0	10	3	0	0	0	13
E	0	13	7	0	0	0	20
ESE	1	15	3	0	0	0	19
SE	0	8	6	0	0	0	14
SSE	1	10	3	0	0	0	14
S	0	9	17	2	0	0	28
SSW	0	3	5	1	0	0	9
SW	0	6	3	1	0	0	10
WSW	0	5	6	1	0	0	12
W	0	4	7	0	0	0	11
WNW	0	12	5	0	0	0	17
NW	2	6	3	0	0	0	11
NNW	1	6	0	0	0	0	7
TOTAL	6	121	68	5	0	0	200

PERIODS OF CALM (HOURS) : 0
 VARIABLE DIRECTION 0
 HOURS OF MISSING DATA: 76

Joint Frequency Tables
4th Quarter 1994

HOURS AT EACH WIND SPEED AND DIRECTION
 PERIOD OF RECORD = 94093024-94123123
 STABILITY CLASS: B DT/DZ
 ELEVATION: SPEED:SPD10M DIRECTION:DIR10M LAPSE:DT60M

WIND DIRECTION	WIND SPEED (MPH)						TOTAL
	1-3	4-7	8-12	13-18	19-24	>24	
N	0	3	1	0	0	0	4
NNE	0	1	0	0	0	0	1
NE	0	3	0	0	0	0	3
ENE	0	4	2	0	0	0	6
E	0	9	1	0	0	0	10
ESE	1	4	0	0	0	0	5
SE	0	3	2	0	0	0	5
SSE	0	6	1	0	0	0	7
S	1	10	4	1	0	0	16
SSW	0	0	5	2	0	0	7
SW	0	0	2	1	0	0	3
WSW	0	2	1	1	0	0	4
W	0	1	2	0	0	0	3
WNW	0	3	2	0	0	0	5
NW	3	3	1	0	0	0	7
NNW	3	3	0	0	0	0	6
TOTAL	8	55	24	5	0	0	92

PERIODS OF CALM(HOURS): 0
 VARIABLE DIRECTION 0
 HOURS OF MISSING DATA: 76

Joint Frequency Tables
4th Quarter 1994

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD = 94093024-94123123
 STABILITY CLASS: C DT/DZ
 ELEVATION: SPEED:SPD10M DIRECTION:DIR10M LAPSE:DT60M

WIND DIRECTION	WIND SPEED (MPH)						TOTAL
	1-3	4-7	8-12	13-18	19-24	>24	
N	2	7	1	0	0	0	10
NNE	0	4	1	0	0	0	5
NE	0	4	5	0	0	0	9
ENE	0	3	1	0	0	0	4
E	0	6	0	0	0	0	6
ESE	1	4	0	0	0	0	5
SE	0	7	1	0	0	0	8
SSE	1	4	1	0	0	0	6
S	0	8	4	0	0	0	12
SSW	0	2	6	0	0	0	8
SW	0	1	2	1	1	0	5
WSW	1	2	4	0	0	0	7
W	0	5	4	0	0	0	9
WNW	2	2	4	0	0	0	8
NW	3	4	2	0	0	0	9
NNW	3	1	2	0	0	0	6
TOTAL	13	64	38	1	1	0	117

PERIODS OF CALM (HOURS): 0
 VARIABLE DIRECTION 0
 HOURS OF MISSING DATA: 76

Joint Frequency Tables
4th Quarter 1994

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD = 94093024-94123123
 STABILITY CLASS: D DT/DZ
 ELEVATION: SPEED:SPD10M DIRECTION:DIR10M LAPSE:DT60M

WIND DIRECTION	WIND SPEED (MPH)						TOTAL
	1-3	4-7	8-12	13-18	19-24	>24	
N	9	23	10	3	0	0	45
NNE	8	20	7	8	0	0	43
NE	6	17	15	2	0	0	40
ENE	7	19	8	0	0	0	34
E	10	26	7	1	0	0	44
ESE	10	22	11	7	0	0	50
SE	15	31	11	1	0	0	58
SSE	7	29	9	0	0	0	45
S	5	40	16	3	0	0	64
SSW	2	32	38	13	0	0	85
SW	3	25	18	15	2	0	63
WSW	3	8	19	13	5	0	48
W	3	21	42	22	1	0	89
WNW	3	32	26	5	0	0	66
NW	9	33	21	1	0	0	64
NNW	12	40	10	0	0	0	62
TOTAL	112	418	268	94	8	0	900

PERIODS OF CALM(HOURS): 0
 VARIABLE DIRECTION 0
 HOURS OF MISSING DATA: 76

Joint Frequency Tables
4th Quarter 1994

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD = 94093024-94123123
 STABILITY CLASS: E DT/DZ
 ELEVATION: SPEED:SPD10M DIRECTION:DIR10M LAPSE:DT60M

WIND DIRECTION	WIND SPEED (MPH)						TOTAL
	1-3	4-7	8-12	13-18	19-24	>24	
N	8	6	0	1	0	0	15
NNE	6	10	0	0	0	0	16
NE	5	19	0	0	0	0	24
ENE	15	25	2	0	0	0	42
E	24	22	1	0	0	0	47
ESE	15	25	3	0	0	0	43
SE	19	12	8	1	0	0	40
SSE	14	32	9	2	0	0	57
S	15	49	21	0	0	0	85
SSW	9	24	26	0	0	0	59
SW	3	7	2	1	0	0	13
WSW	3	5	2	0	0	0	10
W	7	15	3	0	0	0	25
WNW	7	16	0	0	0	0	23
NW	8	10	1	0	0	0	19
NNW	16	7	0	0	0	0	23
TOTAL	174	284	78	5	0	0	541

PERIODS OF CALM(HOURS): 0
 VARIABLE DIRECTION 0
 HOURS OF MISSING DATA: 76

Joint Frequency Tables
4th Quarter 1994

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD = 94093024-94123123

STABILITY CLASS: F DT/DZ

ELEVATION: SPEED:SPD10M DIRECTION:DIR10M LAPSE:DT60M

WIND DIRECTION	WIND SPEED (MPH)						TOTAL
	1-3	4-7	8-12	13-18	19-24	>24	
N	0	0	0	0	0	0	0
NNE	1	0	0	0	0	0	1
NE	4	3	0	0	0	0	7
ENE	10	8	0	0	0	0	18
E	13	7	0	0	0	0	20
ESE	23	8	0	0	0	0	31
SE	16	6	0	0	0	0	22
SSE	17	8	0	0	0	0	25
S	11	9	0	0	0	0	20
SSW	0	4	0	0	0	0	4
SW	0	1	0	0	0	0	1
WSW	2	0	0	0	0	0	2
W	1	0	0	0	0	0	1
WNW	2	0	0	0	0	0	2
NW	2	0	0	0	0	0	2
NNW	0	0	0	0	0	0	0
<hr/>							
TOTAL	102	54	0	0	0	0	156

PERIODS OF CALM (HOURS): 0

VARIABLE DIRECTION 0

HOURS OF MISSING DATA: 76

Joint Frequency Tables
4th Quarter 1994

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD = 94093024-94123123
 STABILITY CLASS: G DT/DZ
 ELEVATION: SPEED:SPD10M DIRECTION:DIR10M LAPSE:DT60M

WIND DIRECTION	WIND SPEED (MPH)						TOTAL
	1-3	4-7	8-12	13-18	19-24	>24	
N	0	0	0	0	0	0	0
NNE	2	0	0	0	0	0	2
NE	1	0	0	0	0	0	1
ENE	11	2	0	0	0	0	13
E	20	1	0	0	0	0	21
ESE	19	1	0	0	0	0	20
SE	20	0	0	0	0	0	20
SSE	18	1	0	0	0	0	19
S	20	2	0	0	0	0	22
SSW	4	2	0	0	0	0	6
SW	0	0	0	0	0	0	0
WSW	1	0	0	0	0	0	1
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	1	0	0	0	0	0	1
TOTAL	117	9	0	0	0	0	126

PERIODS OF CALM (HOURS): 0
 VARIABLE DIRECTION 0
 HOURS OF MISSING DATA: 76

Joint Frequency Tables
4th Quarter 1994

HOURS AT EACH WIND SPEED AND DIRECTION
 PERIOD OF RECORD = 94093024-94123123
 STABILITY CLASS: ALL DT/DZ
 ELEVATION: SPEED:SPD10M DIRECTION:DIR10M LAPSE:DT60M

WIND DIRECTION	WIND SPEED (MPH)						TOTAL
	1-3	4-7	8-12	13-18	19-24	>24	
N	19	45	12	4	0	0	80
NNE	18	37	8	8	0	0	71
NE	16	52	20	2	0	0	90
ENE	43	71	16	0	0	0	130
E	67	84	16	1	0	0	168
ESE	70	79	17	7	0	0	173
SE	70	67	28	2	0	0	167
SSE	58	90	23	2	0	0	173
S	52	127	62	6	0	0	247
SSW	15	67	80	16	0	0	178
SW	6	40	27	19	3	0	95
WSW	10	22	32	15	5	0	84
W	11	46	58	22	1	0	138
WNW	14	65	37	5	0	0	121
NW	27	56	28	1	0	0	112
NNW	36	57	12	0	0	0	105
<hr/>							
TOTAL	532	1005	476	110	9	0	2132

PERIODS OF CALM (HOURS): 0
 VARIABLE DIRECTION 0
 HOURS OF MISSING DATA: 76

APPENDIX 3.0

Process Control Program (PCP) Changes



Process Control Program (PCP) Changes

The Radioactive Waste Process Control Manual 12 PMP 3150 PCP.100 was revised during this report period. The procedure was renumbered to 12 PMP 6010 PCP.900. 12 PMP 3150 PCP.200 was revised during this report period. The procedure was renumbered to 12 PMP 6010 PCP.901. The reasons for the changes and the PNSRC approval are documented on the procedure cover sheet. It has been determined that the changes made did not reduce the overall conformance of the solidified waste product to existing criteria for solid wastes.

DONALD C. COOK NUCLEAR PLANT PLANT MANAGER PROCEDURE COVER SHEET

Instruction No. 12 PMP 6010 PCP.901

Revision No. 0

TITLE **SHIPMENT OF RADIOACTIVE MATERIALS AND WASTE**

SCOPE OF REVISION Replaces 12 PMP 3150 PCP.200. Biennial review.

SIGNATURES	REVISION NUMBER			
*****	Revision 0			
PREPARED BY	<i>[Signature]</i>			
QUALITY ASSURANCE SUPERINTENDENT APPROVAL	<i>[Signature]</i>			
PLANT NUCLEAR SAFETY COMMITTEE	2770 3-10-94			
PLANT MANAGER APPROVAL	<i>[Signature]</i>			
APPROVAL DATE	3/10/94			
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INDIANA MICHIGAN POWER COMPANY
DONALD C. COOK NUCLEAR PLANT

1.0 TITLE: SHIPMENT OF RADIOACTIVE MATERIALS AND WASTE

2.0 OBJECTIVE:

2.1 To give instructions and programmatic controls to ensure all radioactive shipments are done in accordance with applicable regulations, standards and licensee criteria.

3.0 REFERENCES:

3.1 Code of Federal Regulations, Title 10.

3.2 Code of Federal Regulations, Title 49.

3.3 I.E. Bulletin No. 79-19, Low Level Radioactive Waste Disposal.

3.4 PMI 6010, Radiation Protection Plan

3.5 Updated QA Program Description, July 1991.

3.6 Condition Report 93-0744.

4.0 DETAILED PROCEDURE

4.1 Responsibilities

4.1.1 Plant personnel requesting a radioactive material shipment are responsible for:

- Giving three days notice of a requested shipment.
- Arranging for transportation of the shipment.
- Arranging for loading, blocking, and bracing of the equipment being shipped.
- Arranging for decontamination of equipment, if necessary.

4.1.2 Radiation Protection personnel are responsible for performing radiological surveys associated with radioactive shipments.

- 4.1.3 Radioactive Material Control personnel are trained and responsible for the safe transfer, packaging and transport of low-level radioactive waste and radioactive materials.
- 4.1.4 Radiation Protection personnel are responsible for ensuring all radioactive shipments leaving the Cook Plant site under the Cook Plant license, are done in accordance with all applicable regulations, standards, and licensee criteria.

4.2 Limitations/Precautions

- 4.2.1 The Plant Security Group shall not release vehicles or packages marked "RADIOACTIVE" without verbal authorization from Radiation Protection personnel.
- 4.2.2 This procedure does not apply to the movement of radioactive materials or waste within the Cook Plant controlled area.
- 4.2.3 Prior to shipping radioactive material or waste, it must be determined that the recipient of the shipment is licensed to possess the type and amount of radioactive material or waste being shipped.

5.0 IMPLEMENTATION

5.1 Radiological Surveys and Sampling

- 5.1.1 Radiation and contamination surveys of transport vehicles and radioactive material/waste packages shall be done to:
 - Ensure compliance with applicable codes, regulations, and licensee site criteria,
 - Aid in determining package curie content, and
 - Assess potential ALARA concerns.
 - Limit the potential for the spread of contamination.

5.1.2 Sampling of radioactive material or waste shall be done to:

- Aid in determining package curie content,
- Aid in the proper classification of the radioactive material or waste,
- Aid in determining the proper shipping package, and
- Ensure compliance with applicable codes, regulations, and licensee site criteria.

5.1.3 Procedures shall be written and maintained for:

- Documentation of radiological surveys,
- Determination of package curie content,
- Determination of proper classification of radioactive materials and waste, and
- Determination of proper shipping package for radioactive materials and waste.

5.2 Packaging of Radioactive Material and Waste

5.2.1 Radioactive wastes shall be packaged for shipment in accordance with 12 PMP 6010 PCP.900 and its sub-tier procedures.

5.2.2 The determination of the proper packaging to be used for the shipment of radioactive material or waste shall take into consideration:

- Physical properties of the material/waste,
- Volume of material/waste,
- Total activity of material/waste, and
- Dose rates of material/waste.

5.2.3 The package used shall ensure compliance with applicable codes, regulations, and licensee site criteria.

5.3 Labeling and Marking of Radioactive Material/Waste Packages

- 5.3.1 Labeling and marking of radioactive material and waste packages shall be done in a manner to ensure compliance with the applicable codes, regulations, and licensee site criteria.
- 5.3.2 Procedures shall be written and maintained for the labeling and marking of radioactive material and waste packages.

5.4 Placarding of Transport Vehicles

- 5.4.1 Placarding of transport vehicles shall be done in a manner to ensure compliance with the applicable codes and regulations.
- 5.4.2 Procedures shall be written and maintained for the placarding of transport vehicles.

5.5 Loading of Transport Vehicles

- 5.5.1 Packages shall be loaded onto transport vehicles in such a manner as to prevent damage to the packages.
- 5.5.2 Packages shall be arranged within transport vehicles in such a manner as to ensure compliance with DOT regulations and receiving facility license criteria.
- 5.5.3 Packages shall be blocked and/or braced within the transport vehicle, as necessary to secure the packages against movement during conditions normally incident to transportation.
- 5.5.4 As a minimum, procedures shall be written and maintained for the handling, loading, and closure of Type B packages.

5.6 Prior Notification of Radioactive Shipments

- 5.6.1 Prior notifications of radioactive shipments shall be made in accordance with DOT and NRC regulations, applicable state regulations, and receiving facilities' license criteria.
- 5.6.2 Procedures shall be written and maintained for prior notification of radioactive shipments.

5.7 Radioactive Shipping Manifests

- 5.7.1 Radioactive Shipping Manifest (RSM) shall be prepared in such a manner as to ensure compliance with applicable codes, regulations, and licensee criteria.
- 5.7.2 RSMs shall be signed by qualified Radiation Protection personnel.
- 5.7.3 All completed RSMs shall be reviewed by a second qualified individual for completeness and accuracy against all source documents. This review will be documented by initialling or co-signing the RSM before the shipment leaves the site.
- 5.7.4 Procedures shall be written and maintained for the completion of radioactive shipping manifests.

5.8 Acknowledgement of Receipt

- 5.8.1 Procedures shall be written and maintained for actions to be taken if the "Acknowledgement of Receipt" for any waste shipment is not received within 20 days of transfer.

6.0 RECORDS

- 6.1 Radioactive shipping manifest and associated records for the shipment of radioactive material and waste shall be maintained as required by the applicable codes, regulations and plant procedures.

7.0 FINAL CONDITIONS

- 7.1 The radioactive shipment has been shipped to the appropriate destination in accordance with all applicable regulations.

DONALD C. COOK NUCLEAR PLANT PLANT MANAGER PROCEDURE COVER SHEET

Instruction No. 12 PMP 6010 PCP.900

Revision No. 0

TITLE **RADIOACTIVE WASTE PROCESS CONTROL PROGRAM**

SCOPE OF REVISION Replaces 12 PMP 3150 PCP.100 and 300. Biennial review.

SIGNATURES	REVISION NUMBER			
*****	Revision 0			
PREPARED BY	<i>[Signature]</i> D-C			
QUALITY ASSURANCE SUPERINTENDENT APPROVAL	<i>[Signature]</i>			
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INDIANA MICHIGAN POWER COMPANY
DONALD C. COOK NUCLEAR PLANT

1.0 TITLE: RADIOACTIVE WASTE PROCESS CONTROL PROGRAM

2.0 OBJECTIVE:

- 2.1 To give instructions for the processing of radioactive waste such that all plant generated radioactive wastes will be in compliance with applicable codes, standards and processing/burial site criteria prior to shipment.
- 2.2 To put in place guidelines and programmatic controls to ensure radioactive waste is stored in compliance with all codes, standards and regulations.
- 2.3 This procedure impacts and directs the activities of the Radiation Protection, Operations and Chemistry Departments only, therefore other interfacing Department reviews are not required for this or further revisions.

3.0 REFERENCES:

- 3.1 Code of Federal Regulations, Title 10.
- 3.2 Code of Federal Regulations, Title 49.
- 3.3 Code of Federal Regulations, Title 40.
- 3.4 State of South Carolina, Radioactive Materials License #97.
- 3.5 USNRC Technical Position on Waste Form, Revision 0.
- 3.6 Vendor Radwaste Handling Service Manuals.
- 3.7 PMI-6010, Radiation Protection Plan.
- 3.8 FSAR, Chapter 11, Waste Disposal and Radiation Protection Systems.
- 3.9 D.C. Cook Plant Technical Specifications.
- 3.10 I.E. Bulletin No. 79-19, Low Level Radioactive Waste Disposal.
- 3.11 USNRC Generic Letter 89-01.
- 3.12 NRC Information Notice NO. 90-09, "Extended Interim Storage of Low Level Radioactive Waste by Fuel Cycle and Materials Licensees" (2/90).
- 3.13 NRC Generic Letter 81-38, "Storage of Low Level Radioactive Wastes at Power Reactor Sites" (11/81).

4.0 DETAILED PROCEDURE

4.1 Responsibilities

- 4.1.1 Appendix A of this procedure, identifies departmental responsibilities as they pertain to radwaste processing.
- 4.1.2 Radiation Protection Technicians are responsible for maintaining postings and performing radiological surveys associated with the implementation of this procedure.

4.2 Limitations/Precautions

- 4.2.1 Cleaning solutions, oil and all other petroleum products shall not be allowed to enter the radioactive waste processing system (i.e., floor drains, open systems, . . .).
- 4.2.2 Consideration has been given to our waste management program to ensure that actions have been implemented to segregate hazardous wastes as defined by the EPA Regulations, from low level radioactive wastes. Appendix B of this procedure, outlines this mixed waste program.

5.0 IMPLEMENTATION

5.1 Liquid Processing

- 5.1.1 Plant liquid waste processing equipment is designed to process liquid wastes in the chemical and physical forms which exist in the plant's operating systems.
- 5.1.2 Administrative procedures shall dictate the plant's operating systems chemical parameters and sampling requirements to ensure that the systems are operated within these parameters.
- 5.1.3 Liquids which could be detrimental to the waste processing system shall be prevented from entering the liquid waste system.
- 5.1.4 Liquid wastes will be collected in waste holding tanks in the Auxiliary Building.

- 5.1.5 The liquid wastes will then be processed via an acceptable method, two of which are:
- Liquid Radwaste Demineralizer System or
 - Waste Evaporator System.
- 5.1.6 Procedures shall be written and maintained for the operation of these systems. Appendix C, gives operating parameters that will be complied with during operation of the Waste Evaporator System.
- 5.1.7 Both liquid processing systems are designed to reduce radioactivity to levels acceptable for release to the environment as defined by 10 CFR 20, Appendix B and D.C. Cook Plant Technical Specifications.
- 5.1.8 Spent radioactive resins produced from operation of the Liquid Radwaste Demineralizer System, shall be processed in accordance with Section 5.3 of this procedure.
- 5.1.9 Waste evaporator bottoms produced from operation of the Waste Evaporator System, shall be processed via one of two methods:
- Waste evaporator bottoms may be recycled back into the Liquid Waste Processing System, then processed again by the Liquid Radwaste Demineralizer System or
 - The waste evaporator bottoms may be solidified in accordance with Section 5.2 of this procedure.

5.2 Solidifications

- 5.2.1 The SOLIDIFICATION process is the process of converting radioactive liquids, resins, and other miscellaneous wastes (i.e. boric acid, sludge, etc.) into an acceptable form for shipping and burial as required by 10 CFR Parts 20, 61 and 71.
- 5.2.2 The waste to be solidified shall be transferred to a container suitable for shipping. The waste and container shall be in compliance with applicable codes and standards.

- 5.2.3 Prior to starting any solidification process, the waste shall be sampled. The sample results should be within the limits listed in Appendix C, Table 2 to insure proper solidification.
- 5.2.4 Using the sample results, a solidification method approved by the applicable regulatory authorities shall be chosen.
- 5.2.5 A test solidification specimen shall be prepared for each container prior to attempting solidification of the liner.
- 5.2.6 For high activity wastes, it is acceptable to prepare test solidification specimens with non-radioactive samples. These samples should be as close to the actual waste in their physical and chemical properties as possible.
- 5.2.7 The test solidification will be considered acceptable if:
- There is no free standing water;
 - Upon visual inspection, the waste appears that it would hold its shape if removed from the test vessel and
 - It resists penetration in accordance with the vendor topical or equivalent report.
- 5.2.8 An acceptable solidification will ensure < 0.5% free standing water and "stability" as defined by 10 CFR 61, when required.
- 5.2.9 If the test solidification fails any one of the criteria listed in Step 5.2.7, it is unacceptable.
- 5.2.10 If the test solidification specimen is unacceptable, prepare another specimen taking into consideration:
- Adjusting the pH of the waste and
 - Adjusting the waste to solidification agent ratio.
- 5.2.11 The waste container will be solidified using the solidification parameters as determined in the acceptable test solidification specimen.
- 5.2.12 Containers of solidified wastes shall be held a minimum of 24 hours prior to shipment.

- 5.2.13 The Radwaste Solidification System shall be demonstrated operable at least once per 92 days by one of the following methods:
- Operating the system or
 - Verifying the existence of a valid contract for solidification to be performed by a contractor.
- 5.2.14 If after repeated attempts a waste container cannot be solidified or if the radwaste solidification system cannot be demonstrated to be operable:
- Declare the system inoperable;
 - Suspend all shipments of defectively solidified waste and
 - Take action to return the system to operability.
- 5.2.15 With the solid radwaste system inoperable for more than 31 days, prepare and submit to the Commission within 30 days pursuant to Technical Specification 6.9.2 a Special Report which includes the following information:
- Identification of the inoperable equipment or subsystems and the reason for the inoperability;
 - Action(s) taken to restore the inoperable equipment to operable status;
 - A description of the alternative used for SOLIDIFICATION and packaging of radioactive wastes and
 - Summary description of action(s) taken to prevent a recurrence.

NOTE

SOLIDIFICATION PROCEDURES ARE ONLY NECESSARY IF SOLIDIFICATIONS ARE BEING PERFORMED.

- 5.2.16 Procedures shall be written and maintained to cover the following topics as a minimum:
- Test Solidifications;
 - Acceptability of Solidification Test Specimens and
 - Solidification of Containers containing Radioactive Waste.

5.3 Spent Resins and Sludges

- 5.3.1 Spent resins and sludges will be transferred to a container suitable for shipping. The waste and container must be in compliance with applicable codes and standards.
- 5.3.2 Normally the transfer is accomplished by sluicing the resin/sludge from the Spent Resin Storage Tank, directly from a demineralizer or holding tank to the shipping container.
- 5.3.3 The container will be selected by taking into consideration the volume of resin/sludge to be sluiced, dewatering or solidifying requirements, and stability requirements as defined by 10 CFR 61.
- 5.3.4 Solidification of spent resins/sludge is acceptable, however, resins will normally be dewatered and sludge will attempt to be dewatered prior to solidification.
- 5.3.5 Dewatering of spent resins/sludge may be accomplished via one of the following methods:
 - Pumping or draining water from the bottom of a high integrity container using an installed drain system or
 - Heat enhanced dewatering, where moisture is driven off by the introduction of warm air into a high integrity container.
- 5.3.6 High integrity containers shall be dewatered to < 1.0% free standing water by volume.
- 5.3.7 Procedures shall be written and maintained to cover the following topics as a minimum:
 - Transfer of resins to shipping containers.
 - Dewatering of resins/sludge in high integrity containers.
 - Verification of < 1.0% free standing water in high integrity containers.

5.4 Contaminated Oils

- 5.4.1 Contaminated oils are burned in the Plant Heating Boiler.
- 5.4.2 Prior to placing the oil in the Plant Heating Boiler Storage Tank, a quantitative and qualitative radionuclide analysis is required.

- 5.4.3 The nuclide analysis and volume of oil is used to determine the total activity to be released via the heating boiler's exhaust.
- 5.4.4 The activity released shall be within limits delineated in D. C. Cook Plant Technical Specifications.

5.5 Compressible Wastes

- 5.5.1 Contaminated and potentially contaminated compressible wastes are collected from various areas in the Auxiliary Building, and are normally taken to the Drumming Rooms.
- 5.5.2 The waste is segregated to remove reusable materials and materials which would be in non-compliance with Federal and Burial Site Regulations, (i.e., liquids, paint, etc. .)
- 5.5.3 The waste may be processed either of two ways:
- Compacted in qualified shipping containers for burial, or
 - Packaged and shipped to a contracted radwaste processor for further processing, volume reduction, packaging and eventual shipment to a burial site.
- 5.5.4 Procedures shall be written and maintained to cover the following topics as a minimum:
- Packaging of waste in shipping containers and
 - Documentation of container contents, radiological data, container qualification, and volume.

5.6 Non-Compressible Wastes

- 5.6.1 Contaminated and potentially contaminated non-compressible wastes are collected from various areas in the Auxiliary Building, and are normally taken to the Drumming Rooms.
- 5.6.2 The waste is segregated to remove reusable materials and materials which would be in non-compliance with Federal and Burial Site Regulations.

- 5.6.3 The waste may be handled either of two ways:
- Packaged in qualified shipping containers for burial, or
 - Packaged and shipped to a contracted radwaste processor for further processing, volume reduction, packaging, and eventual shipment to a burial site.
- 5.6.4 Procedures shall be written and maintained to cover the following topics as a minimum:
- Packaging of non-compressible waste in shipping containers.
 - Documentation of container contents, radiological data, container qualification, and volume.

5.7 Waste Filters

- 5.7.1 Absolute air filters and HEPA filters may be processed as compressible and/or non-compressible wastes.
- 5.7.2 Filters with an activity of $< 1.0 \mu\text{Ci/cc}$ of all radionuclides with a halflife of > 5 years may be handled as compressible or non-compressible wastes.
- 5.7.3 Filters with an activity of $> 1.0 \mu\text{Ci/cc}$ of all radionuclides with a halflife of > 5 years must be stabilized prior to shipment for disposal.
- 5.7.4 Once changed, the waste filters are normally placed in a drum and stored until they are packaged for shipment.
- 5.7.5 At the time of final packaging for shipment, the filter shall be verified free of water.
- 5.7.6 Liquid process filters shall be packaged for shipment only in qualified shipping containers.
- 5.7.7 The container selected to be used will be selected taking into consideration the volume of filters to be disposed of, dewatering or solidification requirements, and stability requirements as defined by 10CFR61.
- 5.7.8 Procedures shall be written and maintained to cover venting, draining and changing of liquid process filters.

5.8 Stabilization of Unstable Wastes

- 5.8.1 Class A waste with a total activity of ≥ 1.0 $\mu\text{Ci/cc}$, and all Class B and C waste must be stabilized in accordance with 10CFR61 and the applicable burial site criteria.
- 5.8.2 Stabilization shall be achieved by packaging the waste in approved high integrity containers or by using an approved solidification process.

5.9 Waste Processing Prior to Storage

- 5.9.1 Prior to selection of a process and packaging method, consideration should be given to the following items:
- The waste should be put into a form which is conducive to reprocessing at a later date (i.e. dewatering vs. solidification).
 - It may be beneficial to store the waste in an unprocessed form, rather than processing it into a form which may be unacceptable at a later date.
 - Some waste forms are capable of generating gas and/or heat.
 - Packaging and disposal containers should be conducive to future repackaging or overpacking.
 - Packaging and processing should be done in a manner which allows future inspection and/or verification of the acceptability of the waste form.

5.10 Storage of Waste

- 5.10.1 Storing processed waste shall not be a substitute for disposal providing disposal capability is available.
- 5.10.2 When disposal capacity becomes available, stored waste should be shipped for disposal as soon as practical.

5.10.3 Selection of storage areas and methods shall consider the following items:

- Keep doses to plant workers and the public ALARA;
- Area and/or method should provide shielding from the environment and extremes of temperature and humidity;
- Provide protection against theft, loss and inadvertent intrusion and
- Provide for accessibility for inspection and surveillances.

5.10.4 Stored waste packages/containers and waste storage areas shall be labeled, posted and surveyed in accordance with 10CFR20 and all applicable plant procedures.

5.10.5 An inventory of stored waste containers shall be maintained.

5.10.6 Surveillances of stored waste shall be conducted on periodic basis to monitor for:

- package/container deterioration
- package/container deformation
- indications of gas generation
- storage area integrity and cleanliness.

5.10.7 Surveillances of stored waste will occur and should be based on the following considerations:

- the type of package or container
- the waste form
- the potential for gas generation

5.11 Preparing Stored Waste for Shipment

- 5.11.1 Prior to shipping previously stored waste to a disposal facility, the waste form, disposal container, and packaging shall be evaluated to ensure:
- The waste is in a form acceptable for disposal
 - the disposal container/package is acceptable for disposal
 - the shipping package is acceptable for transport
- 5.11.3 It may be necessary to vent or drain waste packages/containers prior to shipment to verify the lack of free standing liquids or gas generation.
- 5.11.4 If waste requires additional processing, reprocessing or repackaging to make it an acceptable waste for disposal, it shall be done in accordance with an approved process control program.
- 5.11.5 All requirements of 12 PMP 6010 PCP.900 must be met for the shipment of radioactive waste.

6.0 REPORTING

6.1 Documentation

- 6.1.1 Documentation shall be maintained for the following topics:
- Radiological data associated with each waste package;
 - Package contents;
 - Processed waste effluents released to the environment, (i.e., liquid releases . . .);
 - Solidification data;
 - Dewatering data and
 - Weights and/or volumes of waste packaged.

6.2 A radioactive effluent release report shall be sent to the NRC annually. This report shall include the following information for each type of solid waste shipped off-site during the report period:

- 6.2.1 Volume (cubic meters);
- 6.2.2 Total curie quantity (specify whether determined by measurement or estimate);
- 6.2.3 Principle radionuclides (specify whether determined by measurement or estimate);
- 6.2.4 Type of waste (e.g., spent resin, compacted dry waste, evaporator bottoms);
- 6.2.5 Type of container (e.g., LSA, Type A, Type B, Large Quantity) and
- 6.2.6 Solidification agent (e.g., cement).

6.3 An Annual Operating Report shall be sent to the NRC and shall include the following information regarding major changes to the Solid Rad Waste Treatment Systems initiated by the Plant:

- 6.3.1 A summary of the evaluation that led to the determination that the change could be made in accordance with 10 CFR 50.59;
- 6.3.2 Sufficient detailed information to totally support the reason for the change without benefit of additional or supplemental information;
- 6.3.3 A detailed description of the equipment, components and processes involved and the interfaces with other plant systems;
- 6.3.4 An evaluation of the change which shows the predicted quantity of solid waste that differ from those previously predicted in the license application and amendments thereto;
- 6.3.5 An evaluation of the change which shows the expected maximum exposure to individuals in the unrestricted area and to the general population that differ from those previously estimated in the license application and amendments thereto;

- 6.3.6 A comparison of the predicted releases of radioactive materials in solid wastes to the actual releases for the period prior to when the changes are to be made;
- 6.3.7 An estimate of the exposure to plant operating personnel as a result of the change and
- 6.3.8 Documentation of the fact that the change was reviewed and found acceptable by the PNSRC.
- 6.4 For Commission initiated changes to the Solid Rad Waste Treatment System, the applicability of the change to the facility shall be determined by the PNSRC after consideration of the facility design, and the Plant shall provide the Commission with written notification of its determination of applicability, including any necessary revisions to reflect facility design.
- 6.5 Documentation shall be maintained for the following topics:
 - 6.5.1 Current inventory of stored waste;
 - 6.5.2 Results of surveillances and
 - 6.5.3 Radiological surveys done in association with this procedure.

7.0 FINAL CONDITIONS

- 7.1 None.

RESPONSIBILITIES FOR THE PROCESSING OF LIQUID
WASTES AND THEIR BY-PRODUCT WASTES

Process	Performed By	Procedures For Process Maintained By	Supervised And/Or Verified By
Operate Rad Waste Evaporator	Operations	Operations	SS/ASS - Operations
Transfer Evaporator Bottoms	Operations	Operations	SS/ASS - Operations
Monitor Chemical and Rad Activity Parameters of Rad Waste Demineralizers	Chemistry	Chemistry	Chemistry Supervisor/ Rad Material Control (RMC)
Operate Rad Waste Demineralizers	RMC	RMC	RMC
Monitor Rad Activity Parameters of Rad Waste Demineralizers	Chemistry/RP	Chemistry/RP	Chemistry/RP Supervisor
Sluice Rad Waste Demineralizer Resins	RMC	RMC	RMC
Packaging of Rad Waste Demineralizer Resins	RMC	RMC	RMC
Packaging of Waste Evaporator Bottoms	RMC	RMC	RMC
Solidification of Waste Evaporator Bottoms	RMC	RMC	RMC
Test Solidifications	RMC	RMC	RMC
Verification of Test Solidifications	RMC	RMC	RMC
Verifications of Solidifications	RMC	RMC	RMC
Determine Curie Content of Packages	RMC	RMC	RMC

RESPONSIBILITIES FOR THE TRANSFER
AND PROCESSING OF SPENT RESINS

Process	Performed By	Procedures For Process Maintained By	Supervised And/Or Verified By
Sluice Resin from Plant Demineralizer to SRST	Operations	Operations	S - Operations V - RP
Sluice Resin from Plant Demineralizer to a HIC	Operations	Operations	S - Operations V - RP/RMC
Sluice Resin from SRST to HIC	RMC	RMC	RMC
Dewatering	RMC	RMC	RMC
Dewatering Verifications	RMC	RMC	RMC
Sampling of Resin	RMC	RMC	RMC
Quantitative and Qualitative Nuclide Analysis of Waste Resin	Chemistry	Chemistry	Chemistry
Determine Curie Content of the Packages	RMC	RMC	RMC

RESPONSIBILITIES FOR THE PROCESSING OF DAW
AND CONTAMINATED WASTE OIL

Process	Performed By	Procedures For Process Maintained By	Supervised And/ Or Verified By
Collection and Transfer of Waste to processing Area	RP/RMC	RP/RMC	RP/RMC
Segregation of Non-Compliance Materials	RMC	RMC	RMC
Compaction of Compressible Waste	RMC	RMC	RMC
Packaging for Shipment to a Processor	RMC	RMC	RMC
Packaging for Shipment to Burial	RMC	RMC	RMC
Nuclide Analysis of Waste	Chemistry/RP	Chemistry/RP	Chemistry/RP
Determine Curie Content of Package	RMC	RMC	RMC
Transfer of Oil to Heating Boiler Fuel Oil Tank	RMC/Maintenance /Construction	RMC	RMC
Nuclide Analysis of Oil	Chemistry/RP	Chemistry/RP	Chemistry/RP
Activity Released Determination	RMC	RMC	RMC

RESPONSIBILITIES FOR THE PROCESSING
OF WASTE FILTERS

Process	Performed By	Procedures For Process Maintained By	Supervised And/Or Verified By
Venting and Draining of Filter Housing	Operations	Operations	Operations
Changeout and Transfer of Filter	RP	RP	RP
Packaging of Filters for Shipment	RMC	RMC	RMC
Nuclide Analysis of Filter	Chemistry/RP	Chemistry/RP	Chemistry/RP
Verification of Filter Drainage	RMC	RMC	RMC
Determine Curie Content of Package	RMC	RMC	RMC

MIXED WASTE PROGRAM

1.0 Purpose

1.1 This program is designed to establish guidelines and procedural requirements which will provide adequate assurance that the plant is in compliance with current restrictions on the burial of low-level radioactive waste mixed with hazardous materials. These requirements are applicable to all radioactive wastes packaged for burial.

2.0 Policy

2.1 All chemicals used within the controlled area of the plant will be utilized in accordance with PMI-2160, which includes restrictions on their disposal.

3.0 Definitions

3.1 Mixed Waste - Mixed low-level radioactive and hazardous waste (mixed waste) is waste that satisfies the definition of low-level radioactive waste (LLW) in the Low-Level Radioactive Waste Policy Amendments Act of 1985 (LLRWPA) and contains hazardous waste that either (1) is listed as a hazardous waste in Subpart D of 40 CFR Part 261 or (2) causes the LLW to exhibit any of the hazardous waste characteristics identified in Subpart C of 40 CFR Part 261.

3.2 Hazardous Characteristics - The four characteristics that a waste may exhibit that result in it being classified as a hazardous waste are: ignitability (Part 261.21); corrosivity (Part 261.22); reactivity (Part 261.23); and EPA toxicity (Part 261.24).

4.0 Identification of Mixed Waste

4.1 Determine which waste streams have the potential for containing mixed waste. This determination should be done by applying knowledge of the hazard characteristic of the waste in light of the materials or the processes used.

- 4.2 Determine whether the radioactive waste contains any hazardous wastes specifically listed in Subpart D of 40 CFR Part 261, from PMI-2160, Chemical Permits.
- 4.3 Determine whether the radioactive waste contains hazardous waste that causes the waste to exhibit any of the hazardous waste characteristics identified in Subpart C of 40 CFR 261 by collecting representative samples for testing.
- 4.4 Samples shall be processed into their normal form for transportation and burial. For example, sludges are solidified for burial so the sample should be solidified prior to testing. The parameters used to solidify the sample should be the same as would be used for full scale processing.
- 4.5 Have the final waste form samples analyzed for a particular hazardous chemical if one has been identified in 4.3, or for the hazardous characteristics of 4.4.
- 4.6 If the analysis results in the waste not being classified as a mixed waste, it may be disposed under normal plant procedures.
- 4.7 If the analysis results in the waste being classified as a mixed waste, it should be held on site until such time that an appropriate disposal facility is available, unless approved per Section 6.0.

5.0 Sampling Frequency

- 5.1 As a minimum, samples of radwaste resin, evaporator concentrates and sludges, if available, should be collected annually and sent offsite for RCRA Waste Characterization.

6.0 Exceptions

- 6.1 The Barnwell burial site (licensee: Chem. Nuclear) may receive waste that has been treated by acceptable methods to render it non-hazardous and therefore not subject to the jurisdiction of the Resources Conservation and Recovery Act (RCRA). Waste which may contain discreet quantities of hazardous or toxic materials may be evaluated for disposal by Chem-Nuclear and such evaluations provided to the South Carolina Department of Health and Environmental Control (DHEC) for consideration of approval.

PARAMETERS FOR THE OPERATION OF THE
WASTE EVAPORATOR SYSTEM

The limit of volume reduction for the Waste Evaporator System is dependent on the concentration of various chemical and radiochemical parameters.

The boron concentration should be kept within the limits listed in Table 1, to prevent crystallization of boron in the evaporator package. If the boron concentration increases above this limit, sodium hydroxide should be added to maintain an acceptable pH and to convert the boric acid to a more soluble form.

The concentration of chlorides should be kept below the limit listed in Table 1. Chlorides must be controlled to prevent corrosion of the evaporator's internal components.

The gross $\beta\gamma$ activity of the evaporator bottoms should be kept below the limit listed in Table 1. The activity is maintained, to insure that the evaporator bottoms may be solidified and shipped in compliance with applicable regulations.

Samples will be taken periodically by the Chemistry Section during waste evaporator operation to monitor these chemical and radiochemical parameters.

Prior to attempting solidification of waste evaporator bottoms, the bottoms should be sampled and found to be within the limits listed in Table 2.

TABLE 1

Boron Concentration	- 20,000 to 30,000 ppm
pH	- 7.4 - 9.2
Gross $\beta\gamma$ Total	- < 0.2 $\mu\text{Ci/cc}$
Chlorides	- \leq 10,000 ppm

TABLE 2

Boron Concentration	- 0 - 40,000 ppm
pH	- 7.4 - 9.2 or > 11.5
*Radionuclides with $A < 0.05$	- $1.0\text{E-}4 \mu\text{Ci/gm}$
*Radionuclides with $A > 0.05$ and < 1.0	- $5.0\text{E-}3 \mu\text{Ci/gm}$
*Radionuclides with $A > 1.0$	- $3.0\text{E-}1 \mu\text{Ci/gm}$
Chlorides	- 0 - 10,000 ppm

*A defined in 10 CFR 71, Appendix A.

APPENDIX 4.0

Offsite Dose Calculation Manual (ODCM) Changes



Offsite Dose Calculation Manual (ODCM)

The Offsite Dose Calculation Manual, PMP 6010.OSD.001, was changed during the report period. The reasons for the changes and the PNSRC approval are documented on the procedure cover sheet. These changes did not reduce the accuracy or reliability of dose calculations or setpoint determinations.

DONALD C. COOK NUCLEAR PLANT PLANT MANAGER PROCEDURE COVER SHEET

Instruction No. 12 PMP 6010 OSD.001


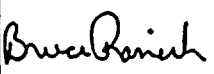
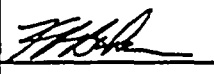
Revision No. 7

TITLE **OFF-SITE DOSE CALCULATION MANUAL**

SCOPE OF REVISION Marginal markings were not used. Biennial review. Incorporated new 10CFR20 requirements. Incorporated Change Sheet 1. Deleted redundant Attachment. Made grammatical and editorial changes to more accurately reflect wording in current technical specifications for Generic Letter 89-01. Updated setpoint calculation for continuous liquid monitor to more accurately reflect plant practices. Recalculated MRP's based on the fact that R-19 and R-24 are for the same release path. Changed Attachment 3.1 cow and goat milk pathway distance to reflect the latest survey data available.

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DOCUMENT # ROW.

7/6/94

SIGNATURES	REVISION NUMBER			
*****	Revision 7			
PREPARED BY				
QUALITY ASSURANCE SUPERINTENDENT APPROVAL				
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DONALD C. COOK NUCLEAR PLANT

OFF-SITE DOSE CALCULATION MANUAL

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INDIANA MICHIGAN POWER COMPANY
DONALD C. COOK NUCLEAR PLANT

OFF-SITE DOSE CALCULATION MANUAL

1.0 OBJECTIVE

The Off-Site Dose Calculation Manual (ODCM) is a supporting document to the Radiological Effluent Technical Specifications (RETS), as defined in NUREG-0472. The ODCM contains the methodology and parameters to be used in the calculation of off site doses due to radioactive liquid and gaseous effluents and in the calculation of liquid and gaseous monitoring instrumentation alarm/trip setpoints. The ODCM provides flow diagrams detailing the treatment path and the major components of the radioactive liquid and gaseous waste management systems. The ODCM is also a supporting document to the Radiological Environmental Monitoring Program (REMP) and presents a map of the sample locations and the meteorological model used to estimate the atmospheric dispersion and deposition parameters. The ODCM specifically addresses the design characteristics of the Donald C. Cook Nuclear Plant based on the flow diagrams contained on the "OP Drawings" and plant "System Description" documents.

2.0 REFERENCES

- 2.1 10CFR20, Standards for Protection Against Radiation.
- 2.2 10CFR50, Domestic Licensing of Production and Utilization Facilities.
- 2.3 PMI 6010, Radiation Protection Plan
- 2.4 NUREG-0472
- 2.5 NUREG-0133
- 2.6 Regulatory Guide 1.109.
- 2.7 Regulatory Guide 1.111.
- 2.8 Regulatory Guide 1.113.
- 2.9 Final Safety Analysis Report (FSAR).
- 2.10 Technical Specifications, Appendix A, Sections 6.8.1.e and 6.15, Offsite Dose Calculation Manual.

- 2.11 Final Environmental Statement D. C. Cook Nuclear Plant, August 1973.
- 2.12 NUREG-0017
- 2.13 Correspondence: D. Noble to W. MacRae, "Referenced Efficiencies for RRS-1001", July 21, 1989.
- 2.14 ODCM Setpoints for Liquid Effluent Monitors (Bases), ENGR 107-04 8112.1 Environs Rad Monitor. System.
- 2.15 Radiological Support Section Calculation RS-C-0202, July 31, 1989.
- 2.16 Radiological Support Section Calculation RS-C-0106, March 19, 1987.
- 2.17 "Implementation of Programmatic Controls for Radiological Effluent Technical Specifications in the Administrative Controls Section of the Technical Specifications and the Relocation of Procedural Details of RETS to the Offsite Dose Calculation Manual or to the Process Control Program (Generic Letter 89-01)", United States Nuclear Regulatory Commission, January 31, 1989.
- 2.18 12 THP 6010 RPP.601 Preparation of the Annual Radioactive Effluent Release Report.

3.0 LIST OF ATTACHMENTS

- 3.1 Site Specific Parameters for the MIDAS Program
- 3.2 Radioactive Liquid Effluent Monitoring Instrumentation (Table 3.3-12)
- 3.3 Radioactive Liquid Effluent Monitoring Instrumentation Surveillance Requirements (Table 4.3-8)
- 3.4 Radioactive Gaseous Effluent Monitoring Instrumentation (Table 3.3-13)
- 3.5 Radioactive Gaseous Effluent Monitoring Instrumentation Surveillance Requirements (Table 4.9-3)
- 3.6 Radioactive Liquid Waste Sampling and Analysis Program (Table 4.11-1)
- 3.7 Radioactive Gaseous Waste Sampling and Analysis Program (Table 4.11-2)

- 3.8 Multiple Release Point Factors for Liquid Release Points
- 3.9 Liquid Effluent System Diagram
- 3.10 Plant Liquid Effluent Parameters
- 3.11 Counting Efficiency Table for RRS-1001
- 3.12 Counting Efficiency Curve for R-19, R-24
- 3.13 Counting Efficiency Curve for R-20, R-28
- 3.14 Gaseous Effluent System Diagram
- 3.15 Plant Gaseous Effluent Parameters
- 3.16 Meteorological Parameters
- 3.17 Annual Evaluation/Update of χ/Q and D/Q Values for all Sectors
- 3.18 Dose Factors for Noble Gases and Daughters, Radioiodines and Radioactive Particulates, and Gaseous Effluents
- 3.19 Sample Locations and Requirements for the REMP
- 3.20 Maximum Values for the Lower Limits of Detection
- 3.21 Reporting Levels for Radioactive Concentrations in Environmental Samples
- 3.22 On Site Monitoring Locations
- 3.23 Off Site Monitoring Locations
- 3.24 Steam Generator Storage Building Monitoring Well Locations
- 3.25 Steam Generator Storage Facility Radiological Monitoring Program

4.0 DETAILS

4.1 Calculation of Offsite Doses

4.1.1 Gaseous Effluent Releases

The calculation of doses from effluent releases is performed by the program MIDAS (Meteorological Information and Dose Assessment System). The site specific parameters associated with MIDAS are shown in Attachment 3.1 for the following subprograms:

MIDER
MIDEX
MIDEL
MIDEG
MIDEN

The subprogram used to enter and edit gaseous release data is called MD1EQ (EQ). The data entered in EQ can be used to calculate the accumulation of dose to individual land based receptors based on hourly meteorology and release data. The air dose from this data is calculated via the XDAIR subprogram in MIDAS. It computes air dose results for use in Regulatory Guide 1.21 reports and Appendix I calculations based on routine releases.

The formula used for the calculation of the air dose is taken from Reg. Guide 1.109:

$$D_{\gamma}, D_{\beta} \text{ air} = \frac{\chi}{Q} \times \sum [(M_i \text{ or } N_i) \times Q_i \times 3.17E^{-8}]$$

$D_{\gamma}, D_{\beta}, \text{ air}$	=	the gamma or beta air dose in mRad/yr to an individual receptor.
χ/Q	=	the annual average or real time atmospheric dispersion factor over land, sec/m^3
M_i	=	the gamma air dose factor, $\frac{\text{mRad} - \text{m}^3}{\text{yr} - \mu\text{Ci}}$, from Attachment 3.18
N_i	=	the beta air dose factor, $\frac{\text{mRad} - \text{m}^3}{\text{yr} - \mu\text{Ci}}$ from Attachment 3.18
Q_i	=	the release of radionuclide, i, in $\mu\text{Ci}/\text{yr}$
$3.17E^{-8}$	=	inverse number of seconds/year, years/second.

The value for the ground average χ/Q is determined using equations shown below:

$$\chi/Q = \frac{2.03}{\bar{u}_g \times x \times \Sigma_g} \times T_f$$

where:

$$\Sigma_g = \text{minimum of } \sqrt{\sigma_z^2 + \frac{H_c^2}{2\pi}} \text{ or } \Sigma_g = \sqrt{3}\sigma_z$$

x = distance downwind of the source, meters.
This information is found in parameter 5 of MIDEEX.

\bar{u}_g = wind speed for ground release, meters/second.

σ_z is the vertical dispersion coefficients taken from RG 1.109

H_c = building height from parameter 28 of MIDER.

T_f = terrain factor (= 1 for Cook Nuclear Plant) because we consider all our releases to be ground level (see parameter #5 in MIDEEX).

$$2.03 = \sqrt{2 + \pi} + 0.393 \text{ (22.5° in radians)}$$

The dose due to gaseous releases (other than the air dose) is calculated by the MIDAS subprogram GASPRO. GASPRO computes the accumulation of dose to individual receptors based on hourly meteorology and release data. Calculations consider the effect of each important isotope for each pathway, organ, age group, distance, and direction.

Calculations are based on the environmental pathways-to-man models in RG 1.109. The program considers 7 pathways, 8 organs, and 4 age groups in 16 direction sectors. The distances used are taken from the MIDEG file.

The equation used to calculate the dose in mRem is:

Total Body Plume Pathway (mRem)

$$\text{Dose (mRem)} = 3.17E^4 \sum (\Omega_i \times \chi/Q \times S_i \times DFB_i \times t)$$

where:

- $3.17E^4$ = conversion factor, $\frac{\mu\text{Ci} - \text{year}}{\text{Ci} - \text{sec}}$
 S_f = shielding factor that accounts for the dose reduction due to shielding provided by residential structures during occupancy (maximum exposed individual = 0.7 per Table E-15 of RG 1.109)
 DFB_i = the whole body dose factor from Table B-1 of Regulatory Guide 1.109.
 Q_i = the release rate of radionuclide i, in Curies/second
 χ/Q = the annual average or real time atmospheric dispersion factor, sec/m^3 .
 t = duration of release, in seconds

Skin Plume Pathway (mRem)

$$\text{Dose (mRem)} = 3.17E^4 \times 1.11 \times S_f \times t \times \frac{\chi}{Q} \times [\sum(Q_i \times DF_i^Y) + \sum(Q_i \times DFS_i)]$$

Where:

- $3.17E^4$ = conversion factor, $\frac{\mu\text{Ci} - \text{year}}{\text{Ci} - \text{sec}}$
 1.11 = conversion factor, tissue to air, $\frac{\text{mRem}}{\text{mRad}}$
 Q_i = release rate of radionuclide i, in Curies/year.
 χ/Q = the annual average OR real time atmospheric dispersion factor, in sec/m^3 .
 S_f = shielding factor, that accounts for dose reduction due to shielding provided by residential structures during occupancy, 0.7 per Table E-15, RG 1.109.
 t = duration of release, seconds
 DF_i^Y = the gamma air dose factor for a uniform semi-infinite cloud of radionuclide i, in $\text{mRad}\cdot\text{m}^3/\mu\text{Ci}\cdot\text{yr}$ from Table B-1, RG 1.109.
 DFS_i = the beta skin dose factor for a semi-infinite cloud of radionuclide i, in $\text{mRem}\cdot\text{m}^3/\mu\text{Ci}\cdot\text{yr}$ from Table B-1, RG 1.109.

Radionuclide and Radioactive Particulate Doses

The dose, in D_{ip} , in mRem, to an individual from radionuclides, other than noble gases, with half-lives greater than 8 days in gaseous effluents released to unrestricted areas will be determined as follows:

$$D_{IP} = 3.17E^{-8} \sum (R_i \times W \times Q_{ic})$$

where:

R_i = the most restrictive dose factor for each identified radionuclide i , in m^2 mRem/yr per $\mu\text{Ci}/\text{sec}$ (for food and ground pathways) or mRem/yr per $\mu\text{Ci}/m^3$ (for inhalation pathway), for the appropriate pathway.

For sectors with existing pathways within 5 miles of the site, use the values of R_i for these real pathways, otherwise use pathways distance of 5 miles. See Attachment 3.1, page 22 of 27 for the maximum R_i values for the most controlling age group for selected radionuclides. R_i values were generated by computer code PARTS, see NUREG-0133, Appendix D.

W = the annual average or real time atmospheric dispersion parameters for estimating doses to an individual at the worst case location, and where W is further defined as:

$W_{in} = \bar{\chi}/Q$ for the inhalation pathway, in sec/m^3 .

$W_{fg} = D/Q$ for the food and ground pathways in $1/m^2$

Q_{ic} = the release rate of those radioiodines, radioactive materials in particulate form and radionuclides other than noble gas with half-lives greater than eight (8) days, in $\mu\text{Ci}/\text{yr}$.

$3.17E^{-8}$ = inverse number of seconds in a year, years/second.

In addition to the above routines, the QUICKG routine of the MIDAS system is used to provide data used in the monthly reports because of its simplicity compared to the process described above. The QUICKG routine is based on NUREG 0133 methodology instead of the RG 1.109 methodology.

The equations used are as follows:

Gamma Radiation Dose (GD) - ground release

$$GD = 3.17E^{-8} (M_i \times \chi/Q \times Q_i)$$

taken from NUREG 0133, Section 5.3.1(a)

Beta Radiation Dose (BD) - ground release

$$BD = 3.17E^{-8} (N_i \times \chi/Q \times Q_i)$$

$3.785E^{-3}$ is the factor to convert $\mu\text{Ci} - \text{gal}/\text{ml}$ to Ci.

This calculation is made for each pathway. The maximum computed dose at any receptor for each pathway is selected. These are summed together to get the dose to compare to the

limits. Only the maximum of the cow milk or goat milk pathway (not both) is included in the total.

where:

- M_i = air dose factor due to gamma emissions for each noble gas radionuclide, i . These factors are listed in Attachment 3.18, parameter 4 of MIDEN and are taken from Table B-1 of RG 1.109
- N_i = air dose factor due to beta emissions for each noble gas radionuclide, i . These factors are listed in Attachment 3.18, parameter 4 of MIDEN and are taken from Table B-1 of RG 1.109.
- χ/Q = the average annual or real time relative concentration, sec/m^3 for vent releases. These factors are taken from parameter 9 of MIDEN or Attachment 3.16.
- Q_i = The amount of noble gas radionuclide released, $\mu\text{Ci}/\text{sec}$. Calculated via the MD1EQ/MD1AG pathway from plant release data sheets.

STEAM GENERATOR BLOWDOWN SYSTEM (START UP FLASH TANK VENT)

The amount of radioiodine and other radionuclides that are released via the start up flash tank and it's vent are calculated through actual sample results while the start up flash tank is in service.

The following calculation is performed to determine the amount of curies released through this pathway.

$$\text{Curies} = \frac{\mu\text{Ci}}{\text{ml}} \times \text{GPM} \times \text{time on flash tank (min)} \times 3.785E^{-3}$$

The flow rate is determined from the blowdown valve position chart recorder and the time on the start up tank is determined from the control room logs. Chemistry department performs the sampling and analysis of the samples.

This data is provided to the MIDAS computer and a dose calculation is performed to ensure compliance with Technical Specification 3/4.11.2.3 dose limits. MIDAS uses the formulas given in section 4.1.2 to calculate these doses to the public.

NOTE

THIS SECTION PROVIDES THE MINIMUM REQUIREMENTS TO BE FOLLOWED AT COOK PLANT. THIS WOULD BE USED IF ACTUAL SAMPLE DATA WAS NOT AVAILABLE EACH TIME THE START UP FLASH TANK WAS IN SERVICE.

Release rate of radioiodine via the Start Up Flash Tank must comply with Technical Specification 3/4.11.2.3.

The radioiodine release rate must be determined in accordance with the following equation every 31 day period whenever the specific activity of the secondary coolant system is greater than 0.01 uCi/gram dose equivalent I-131.

If the specific activity of the secondary coolant system is less than 0.01 uCi/gram dose equivalent I-131, the release rate must be determined once every six months.

$$Q_y = (C_i) (IPF) (R_{sgb})$$

Where:

Q_y = The release rate of I-131 from the steam generator flash tank vent, in uCi/sec.

C_i = the concentration (uCi/cc) of I-131 in the secondary coolant averaged over a period not exceeding seven days.

IPF = the iodine partition factor for the Start Up Flash Tank, 0.05, in accordance with NUREG-0017.

R_{sgb} = the steam generator blowdown rate to the start up flash tank, in cc/sec.

The calculated release rate shall be assumed to be the release rate until the next determination and used in the monthly dose projections to ensure compliance with Technical Specification 3/4.11.2.3. The release rate calculations shall be reported in the annual effluent report.

Steam Generators are sparged, sampled and drained as batches early in outages to facilitate cooldown for entry into the steam generator. This is repeated prior to startup to improve steam generator chemistry for the startup.

4.1.2 Liquid Effluent Releases

The calculation of doses from liquid effluent releases is also performed by the MIDAS program. The subprogram used to enter and edit liquid release data is called MD1EB (EB).

To calculate the individual doses (in mRem), the program DS1LI (LD) is used. It computes the individual dose for up to 5 receptors for 14 liquid pathways due to release of radioactive liquid effluents. The pathways to be used can be selected using the MIDEI program by changing the values given in parameter 1. Cook Nuclear Plant uses 3 pathways: potable water, shoreline and aquatic foods (fresh water sport fishing).

The equations used are taken from RG 1.109 Appendix A. They are as follows:

Potable Water

$$R_{apj} = 1100 \frac{U_{ap}}{M_p F 2.23E^{-3}} \sum_i Q_i D_{aipj} e^{-\lambda_i t_p}$$

where:

R_{apj} = the total annual dose to organ j to individuals of age groups a from all of the nuclides i in pathway p, in mRem/year.

U_{ap} = a usage factor that specifies the exposure time or intake rate for an individual of age group "a" associated with pathway "p". Given in #29-84 of parameter 4 in MIDEI and R.G. 1.109 Table E-5.

M_p = the dilution factor at the point of exposure (or the point of withdrawal of drinking water or point of harvest of aquatic food). Given in parameter 5 of MIDEI as 2.6.

F = the dilution water flow rate in gpm

$2.23E^{-3}$ = conversion factor, $\frac{ft^3 - m}{sec - g}$

Q_i = the release rate of nuclide i for the time period of the run input via MIDEI, Curies/year

D_{aipj} = the dose factor, specific to a given age group a, radionuclide i, pathway p, and organ j, which can be used to calculate the radiation dose from an intake of a radionuclide, in mRem/pCi. The values are taken from tables E-11 through E-14 of RG 1.109 and are located within the MIDAS code

λ_i = the radioactive decay constant for radionuclide i, in hours

t_p = the average transit time required for nuclides to reach the point of exposure, 12 hours. For internal dose, t is the total elapsed time between release of the nuclides and ingestion of food or water, in hours. Given as #25 of parameter 4 in MIDEI.

Aquatic Foods

$$R_{apj} = 1100 \frac{U_{ap}}{M_p F 2.23E^{-3}} \sum_i Q_i B_{ip} D_{aipj} e^{-\lambda_i t_p}$$

where:

B_{ip} = the equilibrium bioaccumulation factor for nuclide i in pathway p , expressed as the ratio of the concentration in biota (in pCi/kg) to the radionuclide concentration in water (in pCi/liter) in liters/kg. The factors are located within the MIDAS code and are taken from Table A-1 of RG 1.109

t_p = the average transit time required for nuclides to reach the point of exposure, 24 hours. For internal dose, t_p is the total elapsed between release of the nuclides and ingestion of food or water, in hours. Given as #26 of parameter 4 in MDEL.

M_p = the dilution factor at the point of exposure, 1.0 for Aquatic Foods.

1100 = Factor to convert from Ci - Sec/yr - ft³ to pCi/l.

Shoreline Deposits

$$R_{apj} = 110,000 \frac{U_{ap} W}{M_p F 2.23E^{-3}} \sum_i Q_i T_i D_{aipj} [e^{-\lambda_i t_p}] * [1 - e^{-\lambda_i t_b}]$$

where:

W = the shoreline width factor. Given as an input when running the program as 0.3 based on Table A-2 in RG 1.109

T_i = the radioactive half-life of the nuclide, i , in days

t_b = the period of time for which sediment or soil is exposed to the contaminated water, $1.31E^5$ hours. Given in MDEL as item 6 of parameter 4.

t_p = the average transit time required for nuclides to reach the point of exposure, 0 hours. Given as #28 of parameter 4 in MDEL.

110000 = Factor to convert Ci - sec/yr - ft³ to pCi/l and account for proportionality constant in the sediment radioactivity model.

The program MIDAS uses the following plant specific parameters which are inputted by the operator.

Irrigation rate = 0.0
 Fraction of time on pasture = 0.0
 Fraction of feed on pasture = 0.0
 Shore width factor = 0.3
 (from Reg. Guide 1.109, Table A-2)

The results of DS1LI are printed in LDRPT (LP). These results are used in the monthly report on liquid releases.

In addition, the program DOSUM (DM) is used to search the results files of DS1LI to find the maximum liquid pathway individual doses. The highest exposures are then printed in a one page summary table. Each line is compared with the appropriate dose limit. The table printed provides a concise summary of off site environmental dose calculations for inclusion in Regulatory Guide 1.21 reports.

4.2 Limits of Operation and Surveillances of the Effluent Release Points

4.2.1 Radioactive Liquid Effluent Monitoring Instrumentation (3/4.3.3.9)

- 4.2.1.1 The radioactive liquid effluent monitoring instrumentation channels shown in Attachment 3.2 shall be operable with their alarm/trip setpoints set to ensure that the limits of section 4.2.3.1 are not exceeded.
- 4.2.1.2 The applicability of each channel is shown in Attachment 3.2.
- 4.2.1.3 With a radioactive liquid effluent monitoring instrumentation channel alarm/trip setpoint less conservative than a value which will ensure that the limits of section 4.2.3.1 are met, without delay suspend the release of radioactive liquid effluents monitored by the affected channel, and reset or declare the monitor inoperable.
- 4.2.1.4 With one or more radioactive liquid effluent monitoring instrumentation channels inoperable, take the applicable action shown in Attachment 3.2.
- 4.2.1.5 The provision of the Technical Specifications 3.0.3 and 3.0.4 are not applicable.
- 4.2.1.6 The setpoints shall be determined in accordance with the methodology as described in section 4.3.1. The setpoints shall be recorded.
- 4.2.1.7 Each radioactive liquid effluent monitoring instrumentation channel shall be demonstrated operable by performance of the channel check, source check, channel calibration and channel functional test at the frequencies shown in Attachment 3.3.

4.2.2 Radioactive Gaseous Effluent Monitoring Instrumentation (3/4.3.3.10)

- 4.2.2.1 The radioactive gaseous process and effluent monitoring instrumentation channels shown in Attachment 3.4 shall be operable with their alarm/trip setpoints set to ensure that the limits of section 4.2.4.1 are not exceeded.
- 4.2.2.2 The applicability of each channel is shown in Attachment 3.4.
- 4.2.2.3 With a radioactive gaseous process or effluent monitoring instrumentation channel alarm/trip setpoint less conservative than a value which will ensure that the limits of section 4.2.4.1 are met, without delay suspend the release of radioactive gaseous effluents monitored by the affected channel, and reset or declare the channel inoperable.
- 4.2.2.4 With less than the minimum number of radioactive gaseous effluent monitoring instrumentation channels operable, take the action shown in Attachment 3.4.
- 4.2.2.5 The provisions of the Technical Specifications 3.0.3 and 3.0.4 are not applicable.
- 4.2.2.6 The setpoints shall be determined in accordance with the methodology as described in section 4.3.2. The setpoint shall be recorded. This surveillance requirement does not apply to the Waste Gas Holdup System Hydrogen and Oxygen Monitors, as their setpoints are not addressed in this document.
- 4.2.2.7 Each radioactive gaseous process or effluent monitoring instrumentation channel shall be demonstrated operable by performance of the CHANNEL CHECK, SOURCE CHECK, CHANNEL CALIBRATION, and CHANNEL FUNCTIONAL TEST operations at the frequencies shown in Attachment 3.5.

4.2.3 Liquid Effluents

4.2.3.1 Concentration Excluding Releases via the Turbine Room Sump Discharge (3/4.11.1.1)

- 4.2.3.1.1 The concentration of radioactive material released at any time from the site via either the Batch Release Tanks or the Plant Continuous Releases excluding only the Turbine Room Sump discharge to the absorption pond to unrestricted areas (see Technical Specifications Figure 5.1-3) shall be limited to the concentrations specified in 10 CFR Part 20, Appendix B, Table II, Column 2, for radionuclides other than dissolved or entrained noble

gases. For dissolved or entrained noble gases, the concentration shall be limited to 2×10^{-4} $\mu\text{Ci/ml}$ total activity.

4.2.3.1.2 The applicability of this section is at all times.

4.2.3.1.3 With the concentration of radioactive material released from the site via either the Batch Waste Release Tanks or the Plant Continuous Releases other than the Turbine Room Sump to the absorption pond exceeding the above limits, without delay restore the concentration to within the above limits.

4.2.3.1.4 Radioactive liquid wastes shall be sampled and analyzed according to the sampling and analysis program of Attachment 3.6.

4.2.3.1.5 The results of radioactive analysis shall be used in accordance with the methods of this document to assure that all concentrations at the point of release are maintained within the limits as stated above.

4.2.3.2 Concentration of Releases from the Turbine Room Sump Discharge

4.2.3.2.1 Releases via the Turbine Room Sump discharge to the on site absorption pond(s) shall be limited to the concentrations specified in 10 CFR Part 20, Appendix B, Table II, Column 2. For dissolved or entrained noble gases, the concentration shall be limited to 2×10^{-4} $\mu\text{Ci/ml}$ total activity.

4.2.3.2.2 This section is applicable at all times.

4.2.3.2.3 With releases from the Turbine Room Sump exceeding the above limits, perform a dose projection due to liquid releases to UNRESTRICTED AREAS to determine if the limits of Section 4.2.3.3.1 of the ODCM have been exceeded. If the dose limits are exceeded, follow the direction of the action statements following Section 4.2.3.3.3.

4.2.3.2.4 The provisions of Technical Specifications 3.0.3 and 3.0.4 are not applicable.

4.2.3.2.5 Radioactive liquid wastes shall be sampled and analyzed according to the sampling and analysis program of Attachment 3.6.

- 4.2.3.2.6 The results of radioactive analysis shall be used in accordance with the methods of this document to assure that all concentrations at the point of release are maintained within the limits as stated above.

4.2.3.3 Dose (3/4.11.1.2)

- 4.2.3.3.1 The dose or dose commitment to an individual from radioactive material in liquid effluents released to unrestricted areas (see Technical Specifications Figure 5.1-3) shall be limited during any calendar quarter to ≤ 1.5 mRem to the total body and to ≤ 5 mRem to any organ, and during any calendar year to ≤ 3 mRem to the total body and to ≤ 10 mRem to any organ.
- 4.2.3.3.2 These limits are applicable at all times.
- 4.2.3.3.3 With the calculated dose from the release of radioactive materials in liquid effluents exceeding any of the above limits, prepare and submit to the Commission within 30 days, pursuant to Technical Specification 6.9.2, a Special Report which identifies the cause(s) for exceeding the limit(s) and defines the corrective actions taken to reduce the releases and the proposed corrective actions taken to assure that subsequent releases will be within the above limits. This Special Report shall also include (1) the results of radiological analyses of the drinking water source, and (2) the radiological impacts on finished drinking water supplies with regard to the requirements of 40 CFR 141, Safe Drinking Water Act. (Applicable only if drinking water supply is taken from the receiving water body.)
- 4.2.3.3.4 The provisions of Technical Specifications 3.0.3 and 3.0.4 are not applicable.
- 4.2.3.3.5 Cumulative dose contributions from liquid effluents shall be determined in accordance with this document at least once per 31 days. Dose may be projected based on estimates from previous monthly projections and current or future plant conditions.

4.2.3.4 Liquid Radwaste Treatment System (3/4.11.1.3)

- 4.2.3.4.1 The liquid radwaste treatment system shall be used to reduce the radioactive materials in liquid wastes prior to their discharge when the projected doses due to the liquid effluent from the site (see Technical Specifications Figure 5.1-3) when averaged over 31 days, would exceed 0.06 mRem to the total body or 0.2 mRem to any organ.
- 4.2.3.4.2 This section is applicable at all times.
- 4.2.3.4.3 With radioactive liquid waste being discharged without treatment and in excess of the above limits, in lieu of any other report required by Technical Specification 6.9.1, prepare and submit to the Commission within 30 days pursuant to Technical Specification 6.9.2 a Special Report which includes the following information:
 - (1) Identification of the inoperable equipment or subsystems and the reason for inoperability,
 - (2) Action(s) taken to restore the inoperable equipment to operable status, and
 - (3) Summary description of action(s) taken to prevent recurrence.
- 4.2.3.4.4 The provisions of Technical Specifications 3.0.3 and 3.0.4 are not applicable.
- 4.2.3.4.5 Doses due to liquid releases to UNRESTRICTED AREAS shall be projected at least once per 31 days, in accordance with this document, whenever liquid releases are being made without being processed by the liquid radwaste treatment system.

4.2.4 Gaseous Effluents**4.2.4.1 Dose Rate (3.11.2.1)**

- 4.2.4.1.1 The dose rate due to radioactive materials released in gaseous effluents from the site (Technical Specification Figure 5.1-3) shall be limited to ≤ 500 mRem/yr to the total body and ≤ 3000 mRem/yr to the skin for noble gases. The dose rate due to all radioiodines and for all radioactive materials in particulate form and radionuclides (other than noble gases) with half-lives greater than 8 days shall be limited to ≤ 1500 mRem/yr to any organ.
- 4.2.4.1.2 This section is applicable at all times.
- 4.2.4.1.3 With the dose rate(s) exceeding the above limits, without delay decrease the release rate to within the above limit(s).
- 4.2.4.1.4 The dose rate due to noble gases in gaseous effluents shall be determined to be within the above limits in accordance with the methods and procedures described in this document.
- 4.2.4.1.5 The dose rate due to radioactive materials, other than noble gases, in gaseous effluents shall be determined to be within the above limits in accordance with the methods and procedures of this document by obtaining representative samples and performing analyses in accordance with the sampling and analysis program in Attachment 3.7.

4.2.4.2 Dose - Noble Gases (3/4.11.2.2)

- 4.2.4.2.1 The air dose in unrestricted areas due to noble gases released in gaseous effluents shall be limited during any calendar quarter, to ≤ 5 mRad for gamma radiation and ≤ 10 mRad for beta radiation and during any calendar year, to ≤ 10 mRad for gamma radiation and ≤ 20 mRad for beta radiation.
- 4.2.4.2.2 This section is applicable at all times.
- 4.2.4.2.3 With the calculated air dose from radioactive noble gases in gaseous effluents exceeding any of the above limits, prepare and submit to the Commission within 30 days, pursuant to Technical Specification 6.9.2, a Special report which identifies the cause(s) for exceeding the limit(s) and defines the

corrective actions to be taken to reduce the releases and the proposed corrective actions to be taken to assure that subsequent releases will be within the above limits.

4.2.4.2.4 The provisions of Technical Specification 3.0.3 and 3.0.4 are not applicable.

4.2.4.2.5 Cumulative dose contributions for the total time period shall be determined in accordance with this document at least once every 31 days.

4.2.4.3 Dose - Iodine-131, Iodine-133, Tritium, and Radioactive Material in Particulate Form (3/4.11.2.3)

4.2.4.3.1 The dose to a MEMBER OF THE PUBLIC from radioiodine, radioactive materials in particulate form, and radionuclides other than noble gases with half-lives greater than 8 days in gaseous effluents released to unrestricted areas (site boundary) shall be limited to the following:

(a) During any calendar quarter to less than or equal to 7.5 mRem to any organ,

(b) During any calendar year to less than or equal to 15 mRem to any organ, and

(c) Less than 0.1% of the limits of (a) and (b) above as a result of burning contaminated oil.

4.2.4.3.2 This section is applicable at all times.

4.2.4.3.3 With the calculated dose from the release of radioiodines, radioactive materials in particulate form, or radionuclides other than noble gases in gaseous effluents exceeding any of the above limits, prepare and submit to the Commission within 30 days, pursuant to Technical Specification 6.9.2, a Special Report which identifies the cause(s) for exceeding the limit and defines the corrective actions taken to assure that subsequent releases will be within the above limits.

4.2.4.3.4 The provisions of Technical Specification 3.0.3 and 3.0.4 are not applicable.

4.2.4.3.5 Cumulative dose contributions for the total time period shall be determined in accordance with this document at least once every 31 days.

4.2.4.4 Gaseous Radwaste Treatment (3/4.11.2.4)

- 4.2.4.4.1 The gaseous radwaste treatment system and the ventilation exhaust treatment system shall be used to reduce radioactive materials in gaseous wastes prior to their discharge when projected gaseous effluent air doses due to gaseous effluent releases to unrestricted areas (see Technical Specifications Figure 5.1-3) when averaged over 31 days, would exceed 0.2 mRad for gamma radiation and 0.4 mRad for beta radiation. The ventilation exhaust treatment system shall be used to reduce radioactive materials in gaseous waste prior to their discharge when the projected doses due to gaseous effluent releases to unrestricted areas (see Technical Specifications Figure 5.1-3) when averaged over 31 days would exceed 0.3 mRem to any organ.
- 4.2.4.4.2 This section is applicable at all times.
- 4.2.4.4.3 With gaseous waste being discharged without treatment and in excess of the above limits, prepare and submit to the Commission within 30 days, pursuant to Technical Specification 6.9.2, a Special Report which includes the following information:
- (a) Identification of the inoperable equipment or subsystems and the reasons for inoperability.
 - (b) Action(s) taken to restore the inoperable equipment to operable status.
- 4.2.4.4.4 The provisions of Technical Specification 3.0.3 and 3.0.4 are not applicable.
- 4.2.4.4.5 Doses due to gaseous releases to UNRESTRICTED AREAS shall be projected at least once per 31 days in accordance with this document, whenever the gaseous waste treatment system or ventilation exhaust treatment system is not operational.

4.2.5 Radioactive Effluents - Total Dose (3/4.11.4)

- 4.2.5.1 The dose or dose commitment to a real individual from all uranium fuel cycle sources is limited to ≤ 25 mRem to the total body or any organ (except the thyroid, which is limited to ≤ 75 mRem) over a period of 12 consecutive months.
- 4.2.5.2 This section is applicable at all times.

- 4.2.5.3 With the calculated doses from the release of radioactive materials in liquid or gaseous effluents exceeding twice the limits of sections 4.2.3.3, 4.2.4.2 or 4.2.4.3, in lieu of any other report required by Technical Specification 6.9.2, prepare and submit a Special Report to the Director, Nuclear Reactor Regulation, U. S. Nuclear Regulatory Commission, Washington D. C. 20555, within 30 days, which defines the corrective action to be taken to reduce subsequent releases to prevent recurrence of exceeding the limits above. This Special Report shall include an analyses which estimates the radiation exposure (dose) to a member of the public from uranium fuel cycle sources (including all effluent pathways and direct radiation) for a 12 consecutive month period that includes the release(s) covered by this report. If the estimated dose(s) exceeds the limits above, and if the release condition resulting in violation of 40 CFR 190 has not already been corrected, the special report shall include a request for a variance in accordance with the provisions of 40 CFR 190 and including the specified information of paragraph 190.11(b). Submittal of the report is considered a timely request, and a variance is granted until staff action on the request is complete. The variance only relates to the limits of 40 CFR 190, and does not apply in any way to the requirements for dose limitation of 10 CFR part 20, as addressed in other sections of this section.
- 4.2.5.4 The provisions of Technical Specification 3.0.3 and 3.0.4 are not applicable.
- 4.2.5.5 Cumulative dose contributions from liquid and gaseous effluents shall be determined in accordance with this document (including Sections 4.2.3.3, 4.2.4.2 and 4.2.4.3).

4.3 Calculation of Alarm/Trip Setpoints

The alarm and trip setpoints are to provide monitoring, indication and control of liquid and gaseous effluents. The setpoints are used in conjunction with sampling programs to assure that the releases are kept within the limits of 10CFR20 Appendix B Table II. Setpoints shall be established for liquid and gaseous monitors. Depending on the monitor function, it would be a continuous or batch monitor. The different types of monitors are subject to different setpoint methodologies.

One variable used in the setpoint calculations is the multiple release point factor (MRP). The MRP is a factor used such that when all the releases are integrated, the applicable LIMIT value will not be violated. The MRP is determined such that the sum of the MRP's for that effluent type (liquid or gaseous) is less than or equal to 1. The value of the MRP is arbitrary, and it should be assigned based on operational performance. The values of the MRP's for each liquid release point are given in Attachments 3.8.

4.3.1 Liquid Monitors

Liquid monitor setpoints shall be established for each monitor of the liquid effluent release systems. A schematic of the liquid effluent release systems is attached as Attachment 3.9. A list of the Plant Liquid Effluent Parameters is in Attachment 3.10. The exact details of each system design and operation can be found in the system descriptions. The setpoints are intended to help keep releases within the limits of 10CFR20 Appendix B, Table II, Column 2. Setpoints shall be determined using either the batch or the continuous methodology.

4.3.1.1 Liquid Batch Monitor Setpoint Methodology

There is only one monitor used on the Waste Disposal System for liquid batch releases. This monitor is identified as RRS-1000. R-19 and R-24 also can be used to monitor batch releases while draining steam generators. The function of these monitors is to act as a check on the sampling program. The sampling program determines the nuclides and concentrations of those nuclides prior to release. The discharge flow rates and dilution flow rates are then adjusted to keep the release within the limits of 10CFR20. Based on the concentrations of nuclides in the release the count rate on the monitor can be predicted. The high alarm setpoint can then be set at 1.5 times the predicted value up to the maximum setpoint of the system.

The radioactive concentration of each batch of radioactive liquid waste to be discharged is determined prior to each release by sampling and analysis in accordance with Attachment 3.6.

The flow rates are determined in order to keep the release within the requirements of 10CFR20 Appendix B, Table II, Column 2. The equation to calculate the flow rates is:

$$\left[\sum \frac{C_i}{LIMIT_i} \right] * \frac{f}{MRP} \leq F + f$$

Where:

C_i = the concentration of nuclide i.
 $LIMIT_i$ = the 10CFR20 Appendix B, Table II, Column 2 limit of nuclide i.
 f = the effluent flow rate in GPM (Attachment 3.10).

$F =$ the dilution water flow rate as estimated prior to release. The dilution flow rate is a multiple of 230,000 GPM depending on the number of circulation pumps in operation.

$MRP =$ the multiple release point factor. A factor such that when all the release points are operating at one time the limits of 10CFR20 will not be exceeded.

This equation shall be true during the batch release. Before the release is started, the maximum effluent flow rate and the minimum dilution flow rate should be substituted for f and F , respectively. If the equation is true, the release can proceed with those flow rates as the limits of operation. If the equation is not true, the effluent flow rate can be reduced or the dilution flow rate can be increased to make the equation true. This equation may be rearranged to solve for the maximum effluent release flow rate (f).

The setpoint is used as a quality check on the sampling program. The setpoint is used to stop the effluent flow when the monitor reading is greater than the predicted value from the sampling program. The predicted value is generated by converting the effluent concentration for each nuclide to counts per unit of time as per Attachment 3.11 or 3.12. The sum of all the counts per unit of time is the predicted count rate. The predicted count rate can then be multiplied by 1.5 to determine the high alarm setpoint.

4.3.1.2 Liquid Continuous Monitor Setpoint Methodology

There are eight monitors used as continuous liquid release monitors. These monitors are used in the steam generator blowdown, blowdown treatment and essential service water systems.

The monitors are identified as:

- o R-19 for the steam generator blowdown for both units.
- o R-24 for the blowdown treatment system for both units.
- o R-20 for the east ESW system for each unit.
- o R-28 for the west ESW system for each unit.

The function of the monitors is to assure that releases are kept within the limits of 10CFR20 Appendix B, Table II.

The monitors on the steam generator blowdown and blowdown treatment systems have trip functions associated with their setpoints. The essential service water monitors are equipped with an alarm function only and monitor effluent in the event the Containment Spray Heat Exchangers are used.

The setpoint for the continuous monitors is:

$$S_p \leq \frac{C \times F \times MRP \times Eff \times SF}{f}$$

where:

S_p = the setpoint of the monitor

C = 5×10^{-7} $\mu\text{Ci/ml}$, the maximum permissible limit from 10CFR20 Appendix B Table II, Column 2 of a known possible nuclide in the effluent stream.

OR

= if a mixture is to be specified,

$$\frac{\sum C_i}{\sum \frac{C_i}{LIMIT_i}}$$

F = the dilution water flow rate in GPM obtained from Attachment 3.10. For routine operation, the setpoint should be calculated using the minimum dilution flow rate of 230,000 GPM.

MRP = the multiple release point factor. A factor such that when all the release points are operating at one time the limits of 10CFR20 will not be exceeded (Attachment 3.8). The MRP for R-20 and R-28 is set to 1.

SF = Safety Factor, 0.9.

Eff = Efficiency
 R-19 - 4.2×10^6 cpm/ $\mu\text{Ci/ml}$
 R-24 - 7.5×10^6 cpm/ $\mu\text{Ci/ml}$
 R-20 - 4.3×10^6 cpm/ $\mu\text{Ci/ml}$
 R-28 - 4.3×10^6 cpm/ $\mu\text{Ci/ml}$

f = the applicable effluent release flow rate in GPM. For routine operation, the setpoint should be calculated using the maximum effluent flow rate (Attachment 3.10).

4.3.2 Gaseous Monitors

For the purpose of implementing sections 4.2.2 and 4.2.4.1, the alarm setpoints for gaseous effluents released into unrestricted areas will be established using the following methodology. In addition, the above sections do not apply to instantaneous alarm and trip setpoints for integrating radiation monitors sampling radioiodines, radioactive materials in particulate form and radionuclides other than noble gases. A schematic of the gaseous effluent release systems is presented in Attachment 3.14. Attachment 3.15 presents the effluent flow rate parameter.

4.3.2.1 Plant Unit Vent

The gaseous effluents discharged from the plant vent will be monitored by the plant vent radiation monitor low range noble gas channel [Tag No. VRS-1505 (Unit 1), VRS-2505 (Unit 2)] to assure that alarms and trip actions (isolation of gaseous release) will occur prior to exceeding the limits in section 4.2.4. The alarm setpoint values will be established using the following equation:

$$S_p = \frac{(SF) (MRP) (DL_j)}{F_p \bar{x}/Q \sum_i (W_i * DCF_{ij})}$$

where:

- S_p = the maximum setpoint of the monitor in $\mu\text{Ci/cc}$ for release point p , based on the most limiting organ.
- SF = an administrative operation safety factor, < 1.0 .
- MRP = a weighed multiple release point factor (≤ 1.0), such that when all site gaseous releases are integrated, the applicable dose will not be exceeded based on the release rate of each effluent point. The MRP will be based on the ratio of the release rate or the volumetric flow rate of each effluent point to the total respective flow rate value of the plant and will be consistent with past operational experience. The MRP is computed as follows:
- 1) compute the average release rate, Q_p , (or the volumetric flow rate, f_p) from each release point p .

- 2) compute ΣQ_p (or Σf_p) for all release points.
- 3) ratio $Q_p/\Sigma Q_p$ (or $f_p/\Sigma f_p$) for each release point. This ratio is the MRP for that specific release point.
- 4) repeat 1) through 3) for each of the site's eight gaseous release points.

F_p = the maximum volumetric flow rate of release point p, at the time of the release in cc/sec. The maximum Unit Vent flow rate, by design, is 139,600 cfm for Unit 1 and 103,500 for Unit 2.

DL_j = dose rate limit to organ j in an unrestricted area (mRem/yr).

Based on continuous releases, the dose rate limits, DL_j , from section 4.2.4.1, are as follows:

Total Body	\leq	500 mRem/year
Skin	\leq	3000 mRem/year
Any Organ	\leq	1500 mRem/year

$\overline{\chi/Q}$ = the annual average relative concentration in the applicable sector or area, in sec/m³ (see Attachment 3.16). The χ/Q values will be re-evaluated on an annual basis. The evaluation will include determination of the worst sector. If the new worst sector χ/Q value is less than the previous year worst χ/Q value, no change is required. Otherwise, the Offsite Dose Calculation Manual will be modified accordingly. (see Attachment 3.17)

W_i = weighted factor for the radionuclide:

$$W_i = \frac{C_i}{\sum C_k}$$

where:

C_i = concentration of the most abundant radionuclide i, and C_k is the total concentration of all identified radionuclides in that release pathway. For batch releases, this value may be set to one (1) for conservatism.

DCF_{ij} = dose conversion factor which is used to relate radiation dose to organ j, from exposure to radionuclide i in mRem/yr per $\mu\text{Ci}/\text{m}^3$. See equations below.

The dose conversion factor, DCF_{ij} , is dependent upon the organ of concern.

For the whole body:

$$DCF_{ij} = K_i$$

where:

K_i = whole body dose factor due to gamma emissions for each identified noble gas radionuclide in mRem/yr per $\mu\text{Ci}/\text{m}^3$. See Attachment 3.18

For the skin:

$$DCF_{ij} = L_i + 1.1M_i$$

where:

L_i = skin dose factor due to beta emissions for each identified noble gas radionuclide, in mRem/yr per $\mu\text{Ci}/\text{m}^3$. See Attachment 3.18

1.1 = the ratio of tissue to air absorption coefficient over the energy range of photons of interest. This ratio converts dose (mRad) to dose equivalent (mRem).

M_i = the air dose factor due to gamma emissions for each identified noble gas radionuclide in mRad/yr per $\mu\text{Ci}/\text{m}^3$. See Attachment 3.18.

For the thyroid, via inhalation:

$$DCF_{ij} = P_i$$

where:

P_i = the dose parameter, for radionuclides other than noble gas, for the inhalation pathway in mRem/yr per $\mu\text{Ci}/\text{m}^3$. See Attachment 3.18

The plant vent radiation monitor low range noble gas channel setpoint, S_p , will be set such that the dose rate in unrestricted areas to the whole body, skin and thyroid (or any other organ), whichever is most limiting, will be less than or equal to 500 mRem/yr, 3000 mRem/yr, and 1500 mRem/yr respectively. The thyroid dose is limited to the inhalation pathway only. The plant vent radiation monitor low range noble gas setpoint, S_p , will be recomputed whenever gaseous releases from the Containment and gas decay tanks are discharged through the plant vent to determine the most limiting organ. The setpoint, S_p , may be established at a lower value than the lowest computed value via the setpoint equation.

At certain times, it may be desirable to increase the setpoint, if the vent flow rate is decreased. This may be accomplished in one of two ways.

$$\frac{\text{Max Concentration } (\mu\text{Ci/cc}) \times \text{Max. Flowrate (cfm)}}{\text{New Max. Concentration } (\mu\text{Ci/cc})}$$

= New Max. Flow rate in cfm

or

$$\frac{\text{Max Concentration } (\mu\text{Ci/cc}) \times \text{Max. Flowrate (cfm)}}{\text{New Max. Flowrate (cfm)}}$$

= New Max. Concentration in $\mu\text{Ci/cc}$

4.3.2.2 Waste Gas System Decay Tanks

The gaseous effluents discharged from the Waste Gas System will be monitored by the vent stack monitors VRS-1505 and VRS-2505.

Due to a high radiation alarm, an automatic termination of the release from the waste gas system will be initiated from the plant vent radiation monitor low range noble gas channel (VRS-1505 or VRS-2505). Therefore, for any gaseous release configuration, which includes normal operation and waste gas system gaseous discharges, the alarm setpoint of the plant vent radiation monitor will be recomputed to determine the most limiting organ based on all gaseous effluent source terms.

4.3.2.3 Containment Purge and Exhaust System

The gaseous effluents discharged by the Containment Purge and Exhaust Systems and Instrumentation Room Purge and Exhaust System will be monitored by the plant vent radiation monitor noble gas channels (VRS-1505 for Unit 1, VRS-2505 for Unit 2); and alarms and trip actions will occur prior to exceeding the limits in sections 4.2.2 and 4.2.4.1.

For the Containment System, a continuous air sample from the Containment atmosphere is drawn through a closed, sealed system to the radiation monitors (Tag No. ERS-1300/1400 for Unit 1 and ERS-2300/2400 for Unit 2). The sample is then returned to Containment. Grab sample analysis is performed for a Containment purge before release.

The Upper Containment area is monitored by normal range area gamma monitors (Tag No. VRS-1101/1201 for Unit 1 and VRS-2101/2201 for Unit 2), which also give Purge and Exhaust Isolation Trip signals upon actuation of their high alarm.

For the Containment Pressure Relief System, no sample is routinely taken.

The Containment airborne and area monitors, upon actuation of their high alarm, will automatically initiate closure of the Containment and Instrument Room purge supply and exhaust duct valves and Containment pressure relief system valves. Complete trip of all isolation control devices requires high alarm of one of the two Train A monitors (ERS-1300/2300 or VRS-1101/2101) and one of the two Train B monitors (ERS-1400/2400 or VRS-1201/2201).

4.3.2.4 Steam Jet Air Ejector System (SJAE)

The gaseous effluents from the Steam Jet Air Ejector System discharged to the environment are continuously monitored by radiation monitor (Tag No. SRA-1900 for Unit 1 and SRA-2900 for Unit 2). The monitor will alarm prior to exceeding the limits of sections 4.2.2 and 4.2.4.1. The alarm setpoint for the Condenser Air Ejector System monitor will be based on the maximum air ejector exhaust flow rate, (Attachment 3.17). The alarm setpoint value will be established using the following equations:

$$S_{SJAE} = \frac{(SF)(MRP)(DL_1)}{F_p \bar{X}/Q \sum (W_1 * DCF_{1j})}$$

where:

S_{SJAE} = the maximum setpoint, based on the most limiting organ, in $\mu\text{Ci/cc}$

and where the other terms are as previously defined.

4.3.2.5 Gland Seal Condenser Exhaust

The gaseous effluents from the Gland Seal Condenser Exhaust discharged to the environment are continuously monitored by radiation monitor (Tag No. SRA-1800 for Unit 1 and SRA-2800 for Unit 2). The radiation monitor will alarm prior to exceeding the limits of sections 4.2.2. and 4.2.4.1. The alarm setpoint for the GSCE monitor will be based on the maximum condenser exhaust flow rate (1260 CFM Unit 1, 2754 CFM each for the two Unit 2 vents). The alarm setpoint value will be established using the following equation:

$$S_{GSCE} = \frac{(SF)(MRP)(DL_j)}{F_p \bar{\chi}/Q \sum (W_i * DCF_{ij})}$$

where:

S_{GSCE} = the maximum setpoint, based on the most limiting organ, in $\mu\text{Ci/cc}$

and where the other terms are as previously defined.

4.3.2.6

Emergency Gaseous Setpoint Methodology

Each of the routine gaseous release paths can also indicate off-normal release concentrations. If this would occur, the setpoint methodology for gaseous monitors would determine setpoints to alarm or trip and indicate an off-normal occurrence. The mid and high range setpoints should be used to indicate when the effluent concentrations are possibly exceeding limits that may contribute to a dose in excess of predetermined limits as outlined in the Emergency Plan. There are four classifications of accidents. They are Unusual Event, Alert, Site Area Emergency and General Emergency. The last two classifications have dose limits of 50 mRem/hr and 250 mRem/hr associated with them. The mid and high range setpoints should be set to respond at these levels. The high range setpoints for the Unit Vent monitors, VRS-1509 and VRS-2509, will use the setpoints calculated in the Radiological Support Section Calculation RS-C-0106. The PORV monitor is a single channel, and it is an emergency monitor. To show when an event with radioactive releases occurred the setpoint should be set to the value for a General Emergency, 250 mRem/hr.

The equation used to determine the setpoint is then:

$$S_p = \frac{DR}{F * \bar{\chi}/Q * DCF}$$

where:

S_p = the alarm/setpoint of the monitor, $\mu\text{Ci/cc}$.

DR = the dose rate associated with the setpoint either 50 mRem/hr or 250 mRem/hr.

F = the maximum flow rate for this effluent point in m^3/sec . To convert CFM to m^3/sec , multiply the flow rate in CFM by 4.71×10^{-4} .

- \bar{x}/Q = The historical annual average relative concentration (sec/m³) based on meteorological data summarized in Attachment 3.16 as recommended in Regulatory Guide 1.111
- DCF = the dose conversion factor to change mRem/hr to μ Ci/cc. The conversion factor for the PORV monitors is 64,000 (Ref. 2.15). The conversion factor for the other mid and high range monitors is 622,000 (Ref. 2.15).

4.4 Radioactive Effluents Total Dose

The cumulative dose contributions from liquid and gaseous effluents will be determined by summing the cumulative doses as derived in Sections 4.2.3.3, 4.2.4.2 and 4.2.4.3 of this procedure. Dose contribution from direct radiation exposure will be based on the results of the direct radiation monitoring devices located at the environmental monitoring stations. See NUREG-0133, Section 3.8.

4.5 Radiological Environmental Monitoring Program

4.5.1 Purpose of the Radiological Environmental Monitoring Program

The purpose of the REMP is to establish baseline radiation and radioactivity concentrations in the environs prior to reactor operations, to monitor critical environmental exposure pathways, and to determine the radiological impact, if any, caused by the operation of the Donald C. Cook Nuclear Plant upon the local environment.

The first purpose of the Radiological Environmental Monitoring Program was completed prior to the initial operation of either of the two nuclear units at the Cook Plant Site. The second and third purposes of the REMP are an on-going operation and as such various environmental media and exposure pathways are examined. The various pathways and sample media used are delineated in Attachment 3.19, Radiological Environmental Monitoring Program. Included is a list of the sample media, analysis required, collection locations, and frequency requirements for both collection and analysis. Attachment 3.19 defines the scope of the Radiological Environmental Monitoring Program for the Donald C. Cook Nuclear Plant.

4.5.2 Conduct of the Radiological Environmental Monitoring Program

Sample collection and analysis for the Radiological Environmental Monitoring Program shall be conducted in accordance with Attachment 3.19, Radiological Environmental Monitoring Program, Attachment 3.20, Maximum Values for Lower Limits of Detection, and Attachment 3.21, Reporting Levels for Radioactive Concentrations in Environmental Samples. These are applicable at all times. The on-site monitoring locations are shown on Attachment 3.22, while the off-site monitoring locations are shown on Attachment 3.23

- 4.5.2.1 Each surveillance requirement shall be performed within the specified time interval in Attachment 3.19 with a maximum allowable extension not to exceed 25% of the surveillance interval.
- 4.5.2.2 If an environmental sample cannot be collected in accordance with Attachment 3.19, a description of the reasons for deviation and the actions taken to prevent a reoccurrence shall be submitted as part of the Annual Environmental Operating Report.

Deviations from the required sampling schedule are permitted if specimens are unobtainable due to hazardous conditions, seasonal unavailability, or to malfunction of automatic sampling equipment. If the deviation from the required sampling schedule is due to the malfunction of automatic sampling equipment, every effort shall be made to complete the corrective action prior to the end of the next sampling period.

- 4.5.2.3 If a radionuclide is detected in any sample medium exceeding the limit established in Attachment 3.21, Reporting Levels for Radioactivity Concentrations, or if more than one radionuclide is detected in any sample medium and the Total Fractional Level (TFL), when averaged over the calendar quarter is greater than or equal to 1, based on the following formula:

$$TFL = \frac{C_{(1)}}{L_{(1)}} + \frac{C_{(2)}}{L_{(2)}} + \dots \geq 1$$

Where:

- $C_{(1)}$ = Concentration of 1st detected nuclide
- $C_{(2)}$ = Concentration of 2nd detected nuclide
- $L_{(1)}$ = Reporting Level of 1st nuclide from Attachment 3.21
- $L_{(2)}$ = Reporting Level of 2nd nuclide from Attachment 3.21

And, the activity is the result of plant effluents, then a special report shall be submitted to the Commission within 30 days following the receipt of the applicable analysis results, which includes an evaluation of any release conditions, environmental factors or other aspects which may have contributed to the identified levels. If the radioactivity was not a result of plant effluents, the results shall be described in the Annual Environmental Operating Report.

If radionuclides other than those specified in Attachment 3.21 are detected and are the result of plant effluents, this report shall be submitted if the potential annual dose to an individual is equal to or greater than the calendar year limits specified in Steps 4.2.3.3.1, 4.2.4.2.1 and 4.2.4.3.1.b.

4.5.2.4 If a currently sampled milk farm location becomes unavailable, a special milk farm survey, for that sector, shall be conducted within 15 days

4.5.2.4.1 If the unavailable location was an indicator farm, an alternate sample location may be established in the same sector within 8 miles of the Plant if one is available.

4.5.2.4.2 If the unavailable location was a background farm, an alternate sample location may be established within 20 miles of the plant in any sector if one is available.

4.5.2.4.3 If a replacement farm is unobtainable and the total number of indicator farms is less than three or the background farms is less than one, then a special report shall be prepared and submitted to the Commission within 30 days. Vegetation sampling shall be performed in lieu of milk sampling.

4.5.2.4.4 The provisions of Technical Specifications 3.03 and 3.04 are not applicable.

4.5.3 Annual Land Use Census

A land use census shall be conducted and shall identify the location of the nearest milk animal, the nearest residence and the nearest garden of greater than 500 square feet producing fresh leafy vegetables in each of the 10 land covering meteorological sectors within a distance of five miles.

In lieu of the garden census, broad leaf vegetation sampling may be performed at the site boundary in the direction sector having the highest average deposition factor (D/Q) value.

This land use census shall be conducted annually between the dates of June 1 and October 1 by door-to-door survey, aerial survey, or by consulting local agricultural authorities.

4.5.3.1 With a land use census identifying a location(s) which yields a calculated dose or dose commitment greater than the values currently being calculated in this document, prepare and submit to the Commission within 30 days, pursuant to Technical Specification 6.9.2, a Special Report which identifies the new location(s).

4.5.3.2 With a land use census identifying a location(s) which yields a calculated dose or dose commitment (via the same exposure pathway) 20 percent or greater than at a location from which samples are currently being obtained in accordance with section 4.5.2, prepare and submit to the Commission within 30 days, pursuant to Technical Specification 6.9.2, a special report which identifies the new location. This new location shall be added to the Radiological Environmental Monitoring Program within 30 days, if possible. The sampling location having the lowest calculated dose or dose commitment (via the same exposure pathway) may be deleted from this monitoring program after October 31 of the year in which this land use census was conducted.

4.5.3.3 The provisions of Technical Specifications 3.03 and 3.04 are not applicable.

4.5.4 Interlaboratory Comparison Program

In order to comply with Regulatory Guide 4.15, the analytical vendor shall participate in both an Interlaboratory Comparison Program, approved by the Commission for radioactive materials, and a plant controlled Quality Control Program. Program results and identified deficiencies shall be addressed in the Annual Environmental Operating Report.

4.5.4.1 With analyses not being performed as required above report the corrective actions taken to prevent a recurrence to the Commission in the Annual Radiological Environmental Operating Report.

4.5.4.2 The provisions of Technical Specifications 3.03 and 3.04 are not applicable.

4.6 Steam Generator Storage Facility Groundwater Monitoring Program

4.6.1 Purpose of the Steam Generator Storage Facility Groundwater Radiological Monitoring Program

The purpose of the temporary on-site Steam Generator Storage Facility Radiological Monitoring Program is to establish baseline radiological data for the groundwater surrounding the facility prior to the storage of the Unit 2 Steam Generator Lower Assemblies. Thereafter, the purpose is to monitor the ground water through observation wells with locations as shown in Attachment 3.24, to determine the radiological impact, if any, caused by the use of the Storage Facility.

4.6.2 Conduct of the Steam Generator Storage Facility Groundwater Radiological Monitoring Program

Groundwater samples shall be collected and analyzed in accordance with Attachment 3.25, Steam Generator Storage Facility Radiological Monitoring Program. The values from Attachment 3.20, Maximum Values for Lower Limits of

Detection (excluding I-131), and Attachment 3.21, Reporting Levels for Radioactive Concentrations in Environmental Samples (excluding I-131) shall apply.

4.7 Meteorological Model

Three towers are used to determine the meteorological conditions at Cook Nuclear Plant. One of the towers is located at the Lake Michigan shoreline to determine the meteorological parameters associated with unmodified shoreline air. The data is accumulated by microprocessors at the tower sites and transferred to the central computer every 15 minutes.

The central computer uses the MIDAS program to provide atmospheric dispersion and deposition parameters. The meteorological model used is based on guidance provided in Regulatory Guide 1.111 for routine releases. All calculations use the Gaussian plume model.

4.8 Reporting Requirements

4.8.1 Annual Radiological Environmental Operating Report

Routine radiological environmental operating reports covering the operation of the unit during the previous calendar year shall be submitted prior to May 1 of each year.

The annual radiological environmental operating reports shall include summaries, interpretations, and statistical evaluation of the results of the radiological environmental surveillance activities for the report period, including a comparison with preoperational studies, operational controls (as appropriate), and previous environmental surveillance reports and an assessment of the observed impacts of the plant operation on the environment. The reports shall also include the results of the land use censuses required by Section 4.5.3. If harmful effects or evidence of irreversible damage are detected by the monitoring, the report shall provide an analysis of the problem and a planned course of action to alleviate the problem.

The annual radiological environmental operating reports shall include summarized and tabulated results of all radiological environmental samples taken during the report period. In the event that some results are not available for inclusion with the report, the report shall be submitted noting and explaining the reasons for the missing results. The missing data shall be submitted as soon as possible in a supplementary report.

The reports shall include the following: a summary description of the radiological environmental monitoring program including sampling methods for each sample type, size and physical characteristics of each sample type, sample preparation methods, analytical methods, and measuring equipment used; a map of all sample locations keyed to a table giving distances and directions from one reactor; the result of the land use census required by Section 4.5.3; and the results of participation in the Interlaboratory Comparison Program required by section 4.5.4.

4.8.2 Annual Radiological Effluent Release Report

Routine radioactive effluent release reports covering the operation of the unit during the previous 12 months of operation shall be submitted within 90 days after January 1 of each year.

The radioactive effluent release reports shall include a summary of the quantities of radioactive liquid and gaseous effluents and solid waste released from the units as outlined in Regulatory Guide 1.21, "Measuring, Evaluating and Reporting in Solid Wastes and Releases of Radioactive Materials in Liquid and Gaseous Effluents from Light-Water Cooled Nuclear Power Plants," with data summarized on a quarterly basis following the format of Appendix B, thereof.

The radioactive effluent release report to be submitted 90 days after January 1 of each year shall include a quarterly summary of hourly meteorological data collected during the reporting period. This summary may be in the form of an hour-by-hour listing of wind speed, wind direction, atmospheric stability, and precipitation (if measured) on magnetic tape, or in the form of joint frequency distributions of wind speed, wind direction and atmospheric stability. The report submitted 90 days after January 1 shall include an assessment of the radiation doses due to the radioactive liquid and gaseous effluents released from the unit or station during the previous calendar year. These reports shall include an assessment of the radiation doses from radioactive liquid and gaseous effluents to members of the public due to their activities inside the site boundary during the reporting period. All assumptions used in making these assessments (i.e., specific activity, exposure time and location) shall be included in these reports. The meteorological conditions concurrent with the time of release of radioactive materials in gaseous effluents (as determined by sampling frequency and measurement) shall be used for determining the gaseous pathway doses. The assessment of radiation doses shall be performed in accordance with this procedure.

The radioactive effluent release report to be submitted 90 days after January 1 of each year shall also include an assessment of radiation doses to the likely most exposed member of the public from reactor releases and other nearby uranium fuel cycle sources (including doses from primary effluent pathways and direct radiation) for the previous 12 consecutive months to show conformance with 40 CFR 190, Environmental Radiation Protection Standards for Nuclear Power Operation. Acceptable Methods for calculating the dose contribution from liquid and gaseous effluents are given in Regulatory Guide 1.109, Rev. 1.

The radioactive effluent release report shall include the following information for each type of solid waste shipped offsite during the report period:

- a. Volume (cubic meters),
- b. Total curie quantity (specify whether determined by measurement or estimate),
- c. Principle radionuclides (specify whether determined by measurement or estimate),
- d. Type of waste (e.g., spent resin, compacted dry waste, evaporator bottoms),
- e. Type of container (e.g., LSA, type A, Type B, Large Quantity), and
- f. Solidification agent (e.g., cement).

The radioactive effluent release report shall include unplanned releases from the site to unrestricted areas of radioactive materials in gaseous and liquid effluent on a quarterly basis.

The radioactive effluent release reports shall include any change to this procedure made during the reporting period.

4.9 Reporting/Management Review

- 4.9.1 Any changes to this procedure must be incorporated in the annual effluent report.
- 4.9.2 This procedure must be updated when the Radiation Monitoring System, its instruments, or the specifications of instruments are changed.
- 4.9.3 This procedure must be reviewed or revised as appropriate based on the results of the land use census and Environmental Radiological Monitoring Program.
- 4.9.4 Any changes to this procedure must be evaluated for potential impact on other related Radiation Protection Section Procedures and changes to these procedures must be considered.

4.9.5 This procedure shall be reviewed during the first quarter of each year and updated if necessary. The part of this procedure that shall be reviewed is Attachment 3.16. The review will be documented using Attachment 3.17.

5.0 Effective Date

Sections 4.2 and 4.5 shall become effective when the Technical Specification submittal made per Generic Letter 89-01 is approved by the NRC, until then we are still governed by the appropriate Technical Specifications. All the other sections will be effective upon approval of the procedure.

VOID
NOT FOR PLANT USE
SEE
DOCUMENT # _____

12 PMP 6010.OSD.001
ATTACHMENT 3.1

MIDER

PARAMETER	REL GND	PT-1 ELEV	REL GND	PT-2 ELEV	REL GND	PT-3 ELEV	REL GND	PT-4 ELEV
1- ROUTINE REL PT SEL(0=NO,1=YES)		1		1		0		0
2- EMER. REL PT SEL (0=NO,1=YES)		1		1		1		1
3- WAKE SPLIT(0=G,1=E,2=SPLIT, 3=HALITSKY WAKE SPLIT--		0		0		0		0
4- SPEED SENSOR (PRI)	1	1	1	1	1	1	4	0
5- SPEED SENSOR (SEC)	3	3	3	3	3	3	1	0
6- SPEED SENSOR (FC)	2	2	2	2	2	2	3	3
7- DIRECTION SENSOR (PRI)	1	1	1	1	1	1	1	1
8- DIRECTION SENSOR (SEC)	2	2	2	2	2	2	2	2
9- DIRECTION SENSOR (FC)	3	3	3	3	3	3	3	3
10- DELTA TEMP SENSOR (PRI)	1	1	1	1	1	1	1	1
11- DELTA TEMP SENSOR (SEC)	0	0	0	0	0	0	0	0
12- DELTA TEMP SENSOR (FC)	0	0	0	0	0	0	0	0
13- Y STAB SEL (1=SIGTH,2=DT)	2	2	2	2	2	2	2	2
14- Z STAB SEL (1=SIGTH,2=DT)	2	2	2	2	2	2	2	2
15- SIGTH/DT FAILOVER(0=NO,1=YES)	1	1	1	1	1	1	1	1
16- AMBIENT TEMP SENSOR (PRI)	1	1	1	1	1	1	1	1
17- AMBIENT TEMP SENSOR (SEC)	3	3	3	3	3	3	3	3
18- AMBIENT TEMP SENSOR (FC)	4	4	4	4	4	4	4	4
19- DEW POINT SENSOR (PRI)	2	2	2	2	2	2	2	2
20- DEW POINT SENSOR (SEC)	5	5	5	5	5	5	5	5
21- DELTA HT,FEET, FOR DT(PRI)	164	164	164	164	164	164	164	164
22- DELTA HT,FEET, FOR DT(SEC)	0	0	0	0	0	0	0	0
23- DELTA HT,FEET, FOR DT (FC)	0	0	0	0	0	0	0	0
24- HT,FEET, OF SPD SENS (PRI)	33	33	33	33	33	33	33	33
25- HT,FEET, OF SPD SENS (SEC)	33	33	33	33	33	33	33	33
26- HT,FEET, OF SPD SENS (FC)	197	197	197	197	197	197	33	33
27- REFERENCE HEIGHT(FEET)	33	33	33	33	33	33	33	33
28- BUILDING HEIGHT (FEET)	162	0	162	0	162	0	162	0
29- BUILDING WAKE COEF. (CA)	1000	0	1000	0	1000	0	1000	0
30- BLDG AREA FOR VIRT SOURCE	2000	0	2000	0	2000	0	2000	0
31- STACK OR VENT HT (FEET)	0	0	0	0	0	0	0	0
32- TEMP CORR. COEF.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
33- STACK EXIT VELOCITY(M/S)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
34- STACK OR VENT DIA(METERS)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
35- RELEASE PT LOCATION	PLT	VENT	B					
	DX	DY	DX	DY	DX	DY	DX	DY
36- DX,DY(METERS) E,N SITE CENT	0	0	0	0	0	0	0	0
37- HEAT FLUX (CAL/SEC)		0.0		0.0		0.0		0.0
38- SAFETY VALVE EXIT VEL(M/S)		0.0		0.0		0.0		0.0
39- SAFETY VALVE EXIT DIA(M)		0.000		0.000		0.000		0.000
40- SAFETY VALVE EXIT TEMP(F)		0.0		0.0		0.0		0.0

MIDEX

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1- SPEED AT CALM(M/S)                                0.3
2- Y DIFFUSION 1=SIGMA THETA,2=PASQUILL              2
3- Z DIFFUSION 1=SIGMA THETA,2=PASQUILL              2
4- SPEED EXPONENTS FOR 7 STAB.
   (1)= 0.25 (2)= 0.25 (3)= 0.25 (4)= 0.33 (5)= 0.50
   (6)= 0.50 (7)= 0.50
5- DISTANCES FOR  $\chi/Q(10)$ 
   ( 1)= 594. ( 2)= 2416. ( 3)= 4020. ( 4)= 5630.
   ( 5)= 7240. ( 6)= 12067. ( 7)= 24135. ( 8)= 40225.
   ( 9)= 56315. (10)= 80500.
6- DISTANCE FROM PLANT TO SITE BOUNDARY
   ( 1)N = 651. ( 2)NNE= 617. ( 3)NE = 789. ( 4)ENE= 1497.
   ( 5)E = 1274. ( 6)ESE= 972. ( 7)SE = 629. ( 8)SSE= 594.
   ( 9)S = 594. (10)SSW= 629. (11)SW = 8045. (12)WSW= 8045.
   (13)W = 8045. (14)WNW= 8045. (15)NW = 8045. (16)NNW= 8045.
7- PLUME RISE SELECTOR (0=NO PLUME RISE, 1=BRIGGS JET PLUME RISE) 0
   USE NO PLUME RISE FOR HALITSKY WAKE PROCESSING
8- INDEX FOR STORING WAKE SPLIT (1,2,3, OR 4) 4
9- GRAZING START (MODYHRMN) 1 1 1 0
10- GRAZING END (MODYHRMN) 123124 0
11- LIMIT(MREM) FOR PLUME DOSES (ORGANS 1-8)
    5.00 5.00 5.00 5.00 5.00 5.00 5.00 15.00
12- LIMIT(MREM) FOR NON-PLUME DOSES (ORGANS 1-8)
    15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00
13- DEFAULT SPEED DAY VALUE (MPHX10) 80
14- DEFAULT SPEED NIGHT VALUE (MPHX10) 50
15- DEFAULT DIR DAY NOT USED 0
16- DEFAULT DIR NIGHT NOT USED 0
17- DEFAULT DT DAY VALUE (DEG F X10) -10
18- DEFAULT DT NIGHT VALUE (DEG F X 10) 0
19- DEFAULT AMB. TEMP DAY VALUE (DEG F X 10) 520
20- DEFAULT AMB. TEMP NIGHT VALUE (DEG F X 10) 380
21- PASQUILL TABLE SPEED GP. VS. LAPSE GP.
    LAPSE SPEED GROUP
    GROUP 1-5

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[illegible]

22- WIND ROSE PERCENTS, WINDS FROM 1-16 GPS, N-NNW

4.000	5.000	4.000	4.000	6.000	7.000	7.000	6.000
7.000	7.000	9.000	10.000	8.000	5.000	7.000	4.000

23- GASEOUS 10CFR20 LIMITS

H3	C14	AR41	KR83M	KR85M
1.0E-07	3.0E-09	1.0E-08	5.0E-05	1.0E-07
KR85	KR87	KR88	KR89	KR90
7.0E-07	2.0E-08	9.0E-09	3.0E-06	3.0E-06
XE131M	XE133M	XE133	XE135M	XE135
2.0E-06	6.0E-07	5.0E-07	4.0E-08	7.0E-08
XE137	XE138	CR51	MN54	FE59
3.0E-06	2.0E-08	3.0E-08	1.0E-09	5.0E-10
CO58	CO60	ZN65	SR89	SR90
1.0E-09	5.0E-11	4.0E-10	2.0E-10	6.0E-12
ZR95	SB124	CS134	CS136	CS137
4.0E-10	3.0E-10	2.0E-10	9.0E-10	2.0E-10
BA140	NB95	I135	I131	I133
2.0E-09	2.0E-09	6.0E-09	2.0E-10	1.0E-09

24- LIMIT (MREM) FOR DIFFERENT TYPES OF DOSES

1=LIQUID, TOTAL BODY	1.50
2=LIQUID, ANY OTHER ORGAN	5.00
3=NOBLE GAS AIR GAMMA	5.00
4=NOBLE GAS AIR BETA	10.00
5=NOBLE GAS SKIN	15.00
6=IODINE AND PARTICULATE ORGAN	7.50
7=NOBLE GAS TOTAL BODY	5.00

25- TEN DISTANCES USED FOR CLOSE-IN CALCULATIONS IN XDCALC

(1) =	0.	(2) =	0.	(3) =	0.	(4) =	0.
(5) =	0.	(6) =	0.	(7) =	0.	(8) =	0.
(9) =	0.	(10) =	0.				

26- THREE EAL LEVELS FOR WHOLE BODY GASEOUS EFFLUENTS (MREM/HR)

(1) NO EMERGENCY LE	2.00	(2) ALERT LE	50.00
(3) SITE EMERGENCY LE	250.00	(4) GENERAL EMERGENCY GT	250.00
ALL OVER GENERAL EMERGENCY			

27- THREE EAL LEVELS FOR THYROID GASEOUS EFFLUENTS (MREM/HR)

(1) NO EMERGENCY LE	2.00	(2) ALERT LE	250.00
(3) SITE EMERGENCY LE	1250.00	(4) GENERAL EMERGENCY GT	1250.00
ALL OVER GENERAL EMERGENCY			

28- SEVEN LAPSE GROUPS (DEG F/100 FT)

(1) =	-1.0424	(2) =	-0.9333	(3) =	-0.8230
(4) =	-0.2740	(5) =	0.8230	(6) =	2.1950
(7) =	99.9900				

29- SEVEN SIGMA THETA GROUPS (DEG.)

(1) =	2.1	(2) =	3.8	(3) =	7.5
(4) =	12.5	(5) =	17.5	(6) =	22.5
(7) =	60.0				

30- DOSE REPORT UNITS (0 = REM/HR , 1 = MREM/HR) 1

31- TEMPERATURE PROCESSING SWITCH (0=DEG F, 1=DEG C) 0

32- THYROID DOSE TYPE

0=ADULT DOSE FACTORS (TID 14844)

1=CHILD DOSE FACTORS (REG 1.109) 1

33- PROCESS MILK THYROID OR BONE DOSE(0= MILKTHY DOSE, 1= BONE DOSE) 0

34- INCLUDE I132,I134,I135 AS KR88 IN GAMMA CALCS(0=NO, 1=YES) 1

35- RAD MONITOR PROMPT (0=PROMPT ALL MON.1= SELECT MONITORS) 1

36- RAD MON. FLOW RATE PROMPT (0=USE DEFAULT,1=PROMPT FOR NEW RATE) 1

37- RAD MONITOR CORRECTION FACTOR (0=USE DEFAULT,1=PROMPT FOR NEW VALUE) 1

38- CONFIDENCE LEVEL PROCESSING (0=OFF,1=ON) 0

39- WIND SPEEDS FOR DETERMINING CONFIDENCE LEVEL

SENSOR	GROUND RELEASE CONFIDENCE LEVEL	VALUE
-----	-----	-----
WIND SPEED	LOW	LESS THAN 0.00 MPH
	MEDIUM	LESS THAN 0.00 MPH
	HIGH	ALL OTHER SPEEDS

SENSOR	ELEVATED RELEASE CONFIDENCE LEVEL	VALUE
-----	-----	-----
WIND SPEED	LOW	LESS THAN 0.00 MPH
	MEDIUM	LESS THAN 0.00 MPH
	HIGH	ALL OTHER SPEEDS

40- WIND DIRECTION (FROM) FOR DETERMINING CONFIDENCE LEVEL

GROUND RELEASE
SENSITIVE DIRECTIONS (=1)
CONFIDENCE LEVELS

	N	NNE	ENE	NE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
LOW	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MEDIUM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

ELEVATED RELEASE
SENSITIVE DIRECTIONS (=1)
CONFIDENCE LEVELS

	N	NNE	ENE	NE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
LOW	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MEDIUM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

41- THIS SITE USES THE LAKE BREEZE MODEL 1
(0=NONE,1=YES)

42- PROMPTED USER IN PLUME SEGMENT MODEL FOR OPTION
TO USE LAKE BREEZE MODEL(0=NO,1=YES) 1

43- WORKSPACE DRILL SCENARIO SWITCH
(0=NORMAL MET. DATA USED, 1=DRILL SITE(USE PERSISTENCE)) 0

44- POWER LEVEL (MWTH) 0.00

45- TIMES OF DOME MONITOR READINGS-HRS(1-10)
0.00E+00 0.00E+00 0.00E+00 0.00E+00 0.00E+00
0.00E+00 0.00E+00 0.00E+00 0.00E+00 0.00E+00

46- DOSE RATIO DOME MONITOR READINGS-REM/HR (1-10)
0.00E+00 0.00E+00 0.00E+00 0.00E+00 0.00E+00
0.00E+00 0.00E+00 0.00E+00 0.00E+00 0.00E+00

47- CONTAINMENT VOLUME (CU.FT) 0.00E+00

48- REACTOR COOLANT SYSTEM VOLUME (GAL) 0.00E+00

49- CONTAINMENT RELEASE POINT(1-4) 4

50- REACTOR COOLANT SYSTEM(RCS) RELEASE POINT(1-4) 0

51- NORMAL INVENTORY RELEASE VALUE-CI/MWTH (1-8)
KR88 XE133 XE135 I131
0.00E+00 0.00E+00 0.00E+00 0.00E+00
I133 CS134 CS137 CE144
0.00E+00 0.00E+00 0.00E+00 0.00E+00

52- NUMBER OF WIND SPIDER RINGS, 10 MILE MAP (MAX 15) 1

53- VALUE OF WIND SPIDER RINGS (MILES), 10 MILE MAP
(1)= 10 (2)= 0 (3)= 0 (4)= 0 (5)= 0
(6)= 0 (7)= 0 (8)= 0 (9)= 0 (10)= 0
(11)= 0 (12)= 0 (13)= 0 (14)= 0 (15)= 0

54- NUMBER OF WIND SPIDER RINGS, 50 MILE MAP (MAX 15) 1

55- VALUE OF WIND SPIDER RINGS (MILES), 50 MILE MAP
(1)= 5 (2)= 10 (3)= 15 (4)= 20 (5)= 25
(6)= 30 (7)= 35 (8)= 40 (9)= 45 (10)= 50
(11)= 55 (12)= 60 (13)= 65 (14)= 70 (15)= 75

56- LABEL MAP SECTORS (0=NO, 1=YES) 1

57- SIXTEEN MAP SECTOR LABELS (WINDS FROM)
(1)N = N (2)NNE= NNE (3)NE = NE (4)ENE= ENE
(5)E = E (6)ESE= ESE (7)SE = SE (8)SSE= SSE
(9)S = S (10)SSW= SSW (11)SW = SW (12)WSW= WSW
(13)W = W (14)WNW= WNW (15)NW = NW (16)NNW= NNW

58- ACCIDENT W.BODY AND THYROID ADJUSTMENT FACTOR SWITCH (0-1) 0

59- PROMPT FOR LINE PRINTER OR TERMINAL NON-STOP PRINT 1
(0=NO, 1=YES)

60- FINITE GAMMA PLUME DOSE SWITCH FOR MODEL 4 1
(0=SECTOR AVERAGE,1=CENTERLINE)

61- CONSIDER DURATION IN PAG CALCULATION (0=YES,1=NO) 0

62- ENVIRONMENTAL IODINE DOSE FACTORS FOR GASEOUS EFFLUENTS 0000
(0=REGULAR, 1=ORGANIC)

63- USE EDITTED SHORT RELEASE CLASS A CONTOUR VALUES(1=YES, 0=NO) 0

64- BETA AND GAMMA DOSE SHORT RELEASE CLASS A CONTOUR
VALUES (REM/HR)

0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00	0.00E+00			

THYROID DOSE SHORT RELEASE CLASS A CONTOUR VALUES (REM/HR)

0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00	0.00E+00			

BONE DOSE SHORT RELEASE CLASS A CONTOUR VALUES (REM/HR)

0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00	0.00E+00			

65 - # OF HRS. TO GO BACK FROM CURRENT TIME FOR AUTOMATIC EMERGENCY= 2
66- MULTI-PLUME PLOT SWITCH (0= FROM SOURCE OUT ,1= THE REVERSE) 0
67-RELEASE POINTS FOR UNMONITORED RELEASE OPTION 10 (GROUND/STACK) 1,1
68-RELEASE OPTION 10 "MONITOR" NAME FOR UNMONITORED RELEASE Field te

MIDEL

PARAMETER NUMBER 1

LIQUID PATHWAY SELECTORS BY RECEPTORS (1-5)

0= OFF

1= ON

RECEPTOR	PATHWAY													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	1	1	1	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0	0	0

PARAMETER NUMBER 2

LIQUID RELEASE POINT SELECTORS

0= OFF

1= ON

SELECTOR: 1 2 3 4

STATUS: 1 1 0 1

PARAMETER NUMBER 3

LIQUID ISOTOPE NAMES

1 H3
2 C14
3 NA24
4 P32
5 CR51
6 MN54
7 MN56
8 FE55
9 FE59
10 CO58
11 CO60
12 NI63
13 NI65
14 CU64
15 ZN65
16 ZN69
17 BR83
18 BR84
19 BR85

20 RB86
21 RB88
22 RB89
23 SR89
24 SR90
25 SR91
26 SR92
27 Y90
28 Y91M
29 Y91
30 Y92
31 Y93
32 ZR95
33 ZR97
34 NB95
35 MO99
36 TC99M
37 TC101
38 RU103
39 RU105
40 RU106
41 AG110M
42 TE125M
43 TE127M
44 CO57
45 TE129M
46 TE129
47 SB124
48 SB125
49 TE132
50 I130
51 I131
52 I132
53 I133
54 I134
55 I135
56 CS134
57 CS136
58 CS137
59 CS138
60 BA139
61 BA140
62 BA141
63 BA142
64 LA140
65 LA142
66 CE141
67 CE143

68 CE144
69 PR143
70 PR144
71 ND147
72 W187
73 NP239
74 UNIDEN
75 GALPHA

PARAMETER NUMBER 4

LIQUID INGESTION RATES, ETC.

1	FG FRACTION OF PRODUCE FROM LOCAL GARDEN	:
	7.600E-01	
2	FL FRACTION OF LEAFY VEG FROM LOCAL GARDEN	:
	1.000E+00	
3	P AREAL SOIL DENSITY IN PLOW LAYER (KG/M**2)	:
	2.400E+02	
4	RRET FRACTION OF ACTIVITY RETAINED ON SPRAYED VEGETATION	:
	2.500E-01	
5	SFMXI SHIELDING FACTOR FOR RESIDENTIAL STRUCTURES	:
	7.000E-01	
6	TB PERIOD OF BUILDUP OF ACTIVITY IN SOIL (HR)	:
	1.310E+05	
7	TEMLK PERIOD OF PASTURE GRASS EXPOSURE TO ACTIVITY (HR)	:
	7.200E+02	
8	TEVEG PERIOD OF CROP EXPOSURE TO ACTIVITY (HR)	:
	1.440E+03	
9	TWHLD HOLDING TIME IN ANIMAL DRINKING WATER POND (HR)	:
	0.000E+00	
10	THPA DELAY TIME FOR INGESTION OF GRASS BY ANIMALS (HR)	:
	0.000E+00	
11	THSA DELAY TIME FOR INGESTION OF STORED FEED BY ANIMALS (HR)	:
	2.160E+03	
12	THLM DELAY TIME FOR INGESTION OF LEAF VEG BY MAN (HR)	:
	2.400E+01	
13	THOM DELAY TIME FOR INGESTION OF OTHER VEG BY MAN (HR)	:
	1.440E+03	
14	TFMXI TRANSPORT TIME MILK-MAN (HR)	:
	4.800E+01	
15	TS TIME BETWEEN SLAUGHTER AND CONSUMPTION OF MEAT ANIMAL (HR)	:
	4.800E+02	
16	YVGRS GRASS YIELD, WET WT (KG/M**2)	:
	7.000E-01	
17	YVVEG OTHER VEGETATION YIELD, WET WT (KG/M**2)	:
	2.000E+00	

18	DKW WEATHERING RATE CONSTANT FOR ACTIVITY ON VEGETATION (1./HR)	:
	2.100E-03	
19	QFC MILK COW FEED CONSUMPTION RATE (KG/DAY WET)	:
	5.000E+01	
20	QFG GOAT FEED CONSUMPTION RATE (KG/DAY WET)	:
	6.000E+00	
21	QFB BEEF CATTLE FEED CONSUMPTION RATE (KG/DAY WET)	:
	5.000E+01	
22	QAC MILK COW WATER CONSUMPTION RATE (L/DAY)	:
	6.000E+01	
23	QAG GOAT WATER CONSUMPTION RATE (L/DAY)	:
	8.000E+00	
24	QAB BEEF CATTLE WATER CONSUMPTION RATE (L/DAY)	:
	5.000E+01	
25	TPMXIW ENVTL TRANSIT TIME FOR WATER INGESTION (HR)	:
	1.200E+01	
26	TPMXIF ENVTL TRANSIT TIME FOR FISH INGESTION (HR)	:
	2.400E+01	
27	TPMXII ENVTL TRANSIT TIME FOR INVERTEBRATE INGESTION (HR)	:
	2.400E+01	
28	TPMXIS ENVTL TRANSIT TIME FOR SHORE EXPOSURE (HR)	:
	0.000E+00	
29	USE(1,01) WATER INGESTION (L/YR) ADULT	:
	7.300E+02	
30	USE(2,01) WATER INGESTION (L/YR) TEEN	:
	5.100E+02	
31	USE(3,01) WATER INGESTION (L/YR) CHILD	:
	5.100E+02	
32	USE(4,01) WATER INGESTION (L/YR) INFANT	:
	3.300E+02	
33	USE(1,02) SHORE EXPOSURE (HR/YR) ADULT	:
	1.200E+01	
34	USE(2,02) SHORE EXPOSURE (HR/YR) TEEN	:
	6.700E+01	
35	USE(3,02) SHORE EXPOSURE (HR/YR) CHILD	:
	1.400E+01	
36	USE(4,02) SHORE EXPOSURE (HR/YR) INFANT	:
	0.000E+00	
37	USE(1,03) FRESH WATER SPORT FISH INGESTION (KG/YR) ADULT	:
	2.100E+01	
38	USE(2,03) FRESH WATER SPORT FISH INGESTION (KG/YR) TEEN	:
	1.600E+01	
39	USE(3,03) FRESH WATER SPORT FISH INGESTION (KG/YR) CHILD	:
	6.900E+00	
40	USE(4,03) FRESH WATER SPORT FISH INGESTION (KG/YR) INFANT	:
	0.000E+00	
41	USE(1,04) FRESH WATER COMMERCIAL FISH INGESTION (KG/YR) ADULT	:
	2.100E+01	

42 USE(2,04) FRESH WATER COMMERCIAL FISH INGESTION (KG/YR) TEEN :
1.600E+01
43 USE(3,04) FRESH WATER COMMERCIAL FISH INGESTION (KG/YR) CHILD :
6.900E+00
44 USE(4,04) FRESH WATER COMMERCIAL FISH INGESTION (KG/YR) INFANT :
0.000E+00
45 USE(1,05) FRESH WATER INVERTEBRATE INGESTION (KG/YR) ADULT :
5.000E+00
46 USE(2,05) FRESH WATER INVERTEBRATE INGESTION (KG/YR) TEEN :
3.800E+00
47 USE(3,05) FRESH WATER INVERTEBRATE INGESTION (KG/YR) CHILD :
1.700E+00
48 USE(4,05) FRESH WATER INVERTEBRATE INGESTION (KG/YR) INFANT :
0.000E+00
49 USE(1,06) SALT WATER SPORT FISH INGESTION (KG/YR) ADULT :
2.100E+01
50 USE(2,06) SALT WATER SPORT FISH INGESTION (KG/YR) TEEN :
1.600E+01
51 USE(3,06) SALT WATER SPORT FISH INGESTION (KG/YR) CHILD :
6.900E+00
52 USE(4,06) SALT WATER SPORT FISH INGESTION (KG/YR) INFANT :
0.000E+00
53 USE(1,07) SALT WATER COMMERCIAL FISH INGESTION (KG/YR) ADULT :
2.100E+01
54 USE(2,07) SALT WATER COMMERCIAL FISH INGESTION (KG/YR) TEEN :
1.600E+01
55 USE(3,07) SALT WATER COMMERCIAL FISH INGESTION (KG/YR) CHILD :
6.900E+00
56 USE(4,07) SALT WATER COMMERCIAL FISH INGESTION (KG/YR) INFANT :
0.000E+00
57 USE(1,08) SALT WATER INVERTEBRATE INGESTION (KG/YR) ADULT :
5.000E+00
58 USE(2,08) SALT WATER INVERTEBRATE INGESTION (KG/YR) TEEN :
3.800E+00
59 USE(3,08) SALT WATER INVERTEBRATE INGESTION (KG/YR) CHILD :
1.700E+00
60 USE(4,08) SALT WATER INVERTEBRATE INGESTION (KG/YR) INFANT :
0.000E+00
61 USE(1,09) IRRIGATED LEAFY VEGETABLE INGESTION (KG/YR) ADULT :
6.400E+01
62 USE(2,09) IRRIGATED LEAFY VEGETABLE INGESTION (KG/YR) TEEN :
4.200E+01
63 USE(3,09) IRRIGATED LEAFY VEGETABLE INGESTION (KG/YR) CHILD :
2.600E+01
64 USE(4,09) IRRIGATED LEAFY VEGETABLE INGESTION (KG/YR) INFANT :
0.000E+00
65 USE(1,10) IRRIGATED OTHER VEGETABLE INGESTION (KG/YR) ADULT :
5.200E+02

66	USE(2,10)	IRRIGATED OTHER VEGETABLE INGESTION (KG/YR)	TEEN	:
		6.300E+02		
67	USE(3,10)	IRRIGATED OTHER VEGETABLE INGESTION (KG/YR)	CHILD	:
		5.200E+02		
68	USE(4,10)	IRRIGATED OTHER VEGETABLE INGESTION (KG/YR)	INFANT	:
		0.000E+00		
69	USE(1,11)	IRRIGATED ROOT VEGETABLE INGESTION (KG/YR)	ADULT	:
		5.200E+02		
70	USE(2,11)	IRRIGATED ROOT VEGETABLE INGESTION (KG/YR)	TEEN	:
		6.300E+02		
71	USE(3,11)	IRRIGATED ROOT VEGETABLE INGESTION (KG/YR)	CHILD	:
		5.200E+02		
72	USE(4,11)	IRRIGATED ROOT VEGETABLE INGESTION (KG/YR)	INFANT	:
		0.000E+00		
73	USE(1,12)	IRRIGATED COW MILK INGESTION (L/YR)	ADULT	:
		3.100E+02		
74	USE(2,12)	IRRIGATED COW MILK INGESTION (L/YR)	TEEN	:
		4.000E+02		
75	USE(3,12)	IRRIGATED COW MILK INGESTION (L/YR)	CHILD	:
		3.300E+02		
76	USE(4,12)	IRRIGATED COW MILK INGESTION (L/YR)	INFANT	:
		3.300E+02		
77	USE(1,13)	IRRIGATED GOAT MILK INGESTION (L/YR)	ADULT	:
		3.100E+02		
78	USE(2,13)	IRRIGATED GOAT MILK INGESTION (L/YR)	TEEN	:
		4.000E+02		
79	USE(3,13)	IRRIGATED GOAT MILK INGESTION (L/YR)	CHILD	:
		3.300E+02		
80	USE(4,13)	IRRIGATED GOAT MILK INGESTION (L/YR)	INFANT	:
		3.300E+02		
81	USE(1,14)	IRRIGATED BEEF INGESTION (KG/YR)	ADULT	:
		1.100E+02		
82	USE(2,14)	IRRIGATED BEEF INGESTION (KG/YR)	TEEN	:
		6.500E+01		
83	USE(3,14)	IRRIGATED BEEF INGESTION (KG/YR)	CHILD	:
		4.100E+01		
84	USE(4,14)	IRRIGATED BEEF INGESTION (KG/YR)	INFANT	:
		0.000E+00		

PARAMETER NUMBER 5

MIXING RATIOS BY RELEASE POINT (1-4), AND RECEPTOR (1-5)

RECEPTOR 1

1	2.60E+00	2.60E+00	1.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2	2.60E+00	2.60E+00	1.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

[illegible][illegible]

RECEPTOR 2

[illegible]

2	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	0.00E+00	0.00E+00	0.00E+00	1.00E+00	0.00E+00	0.00E+00	0.00E+00

```
3  0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+00
   0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+00
```

[illegible]

RECEPTOR 3

```
1 0.00E+00 0.00E+00 0.00E+00 0.00E+00 0.00E+00 0.00E+00 0.00E+00  
0.00E+00 0.00E+00 0.00E+00 0.00E+00 0.00E+00 0.00E+00 0.00E+00
```

[illegible]

```
3  0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+00
   0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+00
```

```

4    0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+00
   0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+00

```

RECEPTOR 4

```
1  0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+00
   0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+00
```

[illegible]

```
3  0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+00
   0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+00
```

```
4  0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+00
   0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+00
```

RECEPTOR 5

```
1  0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+00
   0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+00
```

2	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

PARAMETER 6: LIQUID EFFLUENT 10CFR20 LIMITS (MICRO-CI/ML)

H3	1.00E-03	C14	3.00E-05	NA24	5.00E-05
P32	9.00E-06	CR51	5.00E-04	MN54	3.00E-05
MN56	7.00E-05	FE55	1.00E-04	FE59	1.00E-05
CO58	2.00E-05	CO60	3.00E-06	NI63	1.00E-04
NI65	1.00E-04	CU64	2.00E-04	ZN65	5.00E-06
ZN69	8.00E-04	BR83	9.00E-04	BR84	4.00E-04
BR85	9.99E+02	RB86	7.00E-06	RB88	4.00E-04
RB89	9.00E-04	SR89	8.00E-06	SR90	5.00E-07
SR91	2.00E-05	SR92	4.00E-05	Y90	7.00E-06
Y91M	2.00E-03	Y91	8.00E-06	Y92	4.00E-05
Y93	2.00E-05	ZR95	2.00E-05	ZR97	9.00E-06
NB95	3.00E-05	MO99	2.00E-05	TC99M	1.00E-03
TC101	2.00E-03	RU103	3.00E-05	RU105	7.00E-05
RU106	3.00E-06	AG110M	6.00E-06	TE125M	2.00E-05
TE127M	9.00E-06	CO57	6.00E-05	TE129M	7.00E-06
TE129	4.00E-04	SB124	7.00E-06	SB125	3.00E-05
TE132	9.00E-06	I130	2.00E-05	I131	1.00E-06
I132	1.00E-04	I133	7.00E-06	I134	4.00E-04
I135	3.00E-05	CS134	9.00E-07	CS136	6.00E-06
CS137	1.00E-06	CS138	4.00E-04	BA139	2.00E-04
BA140	8.00E-06	BA141	3.00E-04	BA142	7.00E-04
LA140	9.00E-06	LA142	1.00E-04	CE141	3.00E-05
CE143	2.00E-05	CE144	3.00E-06	PR143	2.00E-05
PR144	6.00E-04	ND147	2.00E-05	W187	3.00E-05
NP239	2.00E-05				

MIDEG

ALL DIRECTIONS ARE TOWARD RECEPTOR FROM RELEASE POINT

GAS DOSE RECEPTOR TABLE FOR DIRECTION TOWARD N

DIST(M) FOR PATH-1	PLUME/GR/I	659.	0.	0.	0.	0.
DIST(M) FOR PATH-3	VEGET	8045.	0.	0.	0.	0.
DIST(M) FOR PATH-4	MEAT	8045.	0.	0.	0.	0.
DIST(M) FOR PATH-5	COW	3556.	0.	0.	0.	0.
DIST(M) FOR PATH-6	GOAT	3556.	0.	0.	0.	0.

GAS DOSE RECEPTOR TABLE FOR DIRECTION TOWARD NNE

DIST(M) FOR PATH-1	PLUME/GR/I	660.	0.	0.	0.	0.
DIST(M) FOR PATH-3	VEGET	814.	0.	0.	0.	0.
DIST(M) FOR PATH-4	MEAT	7725.	0.	0.	0.	0.
DIST(M) FOR PATH-5	COW	3556.	0.	0.	0.	0.
DIST(M) FOR PATH-6	GOAT	3556.	0.	0.	0.	0.

GAS DOSE RECEPTOR TABLE FOR DIRECTION TOWARD NE

DIST(M) FOR PATH-1	PLUME/GR/I	943.	0.	0.	0.	0.
DIST(M) FOR PATH-3	VEGET	1052.	0.	0.	0.	0.
DIST(M) FOR PATH-4	MEAT	7725.	0.	0.	0.	0.
DIST(M) FOR PATH-5	COW	3556.	0.	0.	0.	0.
DIST(M) FOR PATH-6	GOAT	3556.	0.	0.	0.	0.

GAS DOSE RECEPTOR TABLE FOR DIRECTION TOWARD ENE

DIST(M) FOR PATH-1	PLUME/GR/I	1747.	0.	0.	0.	0.
DIST(M) FOR PATH-3	VEGET	1852.	0.	0.	0.	0.
DIST(M) FOR PATH-4	MEAT	3862.	0.	0.	0.	0.
DIST(M) FOR PATH-5	COW	3556.	0.	0.	0.	0.
DIST(M) FOR PATH-6	GOAT	3556.	0.	0.	0.	0.

GAS DOSE RECEPTOR TABLE FOR DIRECTION TOWARD E

DIST(M) FOR PATH-1	PLUME/GR/I	1716.	0.	0.	0.	0.
DIST(M) FOR PATH-3	VEGET	1705.	0.	0.	0.	0.
DIST(M) FOR PATH-4	MEAT	6810.	0.	0.	0.	0.
DIST(M) FOR PATH-5	COW	3556.	0.	0.	0.	0.
DIST(M) FOR PATH-6	GOAT	3556.	0.	0.	0.	0.

GAS DOSE RECEPTOR TABLE FOR DIRECTION TOWARD ESE

DIST(M) FOR PATH-1	PLUME/GR/I	1643.	0.	0.	0.	0.
DIST(M) FOR PATH-3	VEGET	1628.	0.	0.	0.	0.
DIST(M) FOR PATH-4	MEAT	2434.	0.	0.	0.	0.
DIST(M) FOR PATH-5	COW	3556.	0.	0.	0.	0.
DIST(M) FOR PATH-6	GOAT	3556.	0.	0.	0.	0.

GAS DOSE RECEPTOR TABLE FOR DIRECTION TOWARD SE

DIST(M) FOR PATH-1	PLUME/GR/I	1136.	0.	0.	0.	0.
DIST(M) FOR PATH-3	VEGET	914.	0.	0.	0.	0.
DIST(M) FOR PATH-4	MEAT	4354.	0.	0.	0.	0.
DIST(M) FOR PATH-5	COW	3556.	0.	0.	0.	0.
DIST(M) FOR PATH-6	GOAT	3556.	0.	0.	0.	0.

GAS DOSE RECEPTOR TABLE FOR DIRECTION TOWARD SSE

DIST(M) FOR PATH-1	PLUME/GR/I	1507.	0.	0.	0.	0.
DIST(M) FOR PATH-3	VEGET	1093.	0.	0.	0.	0.
DIST(M) FOR PATH-4	MEAT	1093.	0.	0.	0.	0.
DIST(M) FOR PATH-5	COW	3556.	0.	0.	0.	0.
DIST(M) FOR PATH-6	GOAT	3556.	0.	0.	0.	0.

GAS DOSE RECEPTOR TABLE FOR DIRECTION TOWARD S

DIST(M) FOR PATH-1	PLUME/GR/I	1026.	0.	0.	0.	0.
DIST(M) FOR PATH-3	VEGET	863.	0.	0.	0.	0.
DIST(M) FOR PATH-4	MEAT	6115.	0.	0.	0.	0.
DIST(M) FOR PATH-5	COW	3556.	0.	0.	0.	0.
DIST(M) FOR PATH-6	GOAT	3556.	0.	0.	0.	0.

GAS DOSE RECEPTOR TABLE FOR DIRECTION TOWARD SSW

DIST(M) FOR PATH-1	PLUME/GR/I	942.	0.	0.	0.	0.
DIST(M) FOR PATH-3	VEGET	770.	0.	0.	0.	0.
DIST(M) FOR PATH-4	MEAT	8045.	0.	0.	0.	0.
DIST(M) FOR PATH-5	COW	3556.	0.	0.	0.	0.
DIST(M) FOR PATH-6	GOAT	3556.	0.	0.	0.	0.

GAS DOSE RECEPTOR TABLE FOR DIRECTION TOWARD SW

DIST(M) FOR PATH-1	PLUME/GR/I	8045.	0.	0.	0.	0.
DIST(M) FOR PATH-3	VEGET	8045.	0.	0.	0.	0.
DIST(M) FOR PATH-4	MEAT	8045.	0.	0.	0.	0.
DIST(M) FOR PATH-5	COW	8045.	0.	0.	0.	0.
DIST(M) FOR PATH-6	GOAT	8045.	0.	0.	0.	0.

GAS DOSE RECEPTOR TABLE FOR DIRECTION TOWARD WSW

DIST(M) FOR PATH-1	PLUME/GR/I	8045.	0.	0.	0.	0.
DIST(M) FOR PATH-3	VEGET	8045.	0.	0.	0.	0.
DIST(M) FOR PATH-4	MEAT	8045.	0.	0.	0.	0.
DIST(M) FOR PATH-5	COW	8045.	0.	0.	0.	0.
DIST(M) FOR PATH-6	GOAT	8045.	0.	0.	0.	0.

GAS DOSE RECEPTOR TABLE FOR DIRECTION TOWARD W

DIST(M) FOR PATH-1	PLUME/GR/I	8045.	0.	0.	0.	0.
DIST(M) FOR PATH-3	VEGET	8045.	0.	0.	0.	0.
DIST(M) FOR PATH-4	MEAT	8045.	0.	0.	0.	0.
DIST(M) FOR PATH-5	COW	8045.	0.	0.	0.	0.
DIST(M) FOR PATH-6	GOAT	8045.	0.	0.	0.	0.

GAS DOSE RECEPTOR TABLE FOR DIRECTION TOWARD WNW

DIST(M)	FOR PATH-1	PLUME/GR/I	8045.	0.	0.	0.	0.
DIST(M)	FOR PATH-3	VEGET	8045.	0.	0.	0.	0.
DIST(M)	FOR PATH-4	MEAT	8045.	0.	0.	0.	0.
DIST(M)	FOR PATH-5	COW	8045.	0.	0.	0.	0.
DIST(M)	FOR PATH-6	GOAT	8045.	0.	0.	0.	0.

GAS DOSE RECEPTOR TABLE FOR DIRECTION TOWARD NW

DIST(M)	FOR PATH-1	PLUME/GR/I	8045.	0.	0.	0.	0.
DIST(M)	FOR PATH-3	VEGET	8045.	0.	0.	0.	0.
DIST(M)	FOR PATH-4	MEAT	8045.	0.	0.	0.	0.
DIST(M)	FOR PATH-5	COW	8045.	0.	0.	0.	0.
DIST(M)	FOR PATH-6	GOAT	8045.	0.	0.	0.	0.

GAS DOSE RECEPTOR TABLE FOR DIRECTION TOWARD NNW

DIST(M)	FOR PATH-1	PLUME/GR/I	8045.	0.	0.	0.	0.
DIST(M)	FOR PATH-3	VEGET	8045.	0.	0.	0.	0.
DIST(M)	FOR PATH-4	MEAT	8045.	0.	0.	0.	0.
DIST(M)	FOR PATH-5	COW	8045.	0.	0.	0.	0.
DIST(M)	FOR PATH-6	GOAT	8045.	0.	0.	0.	0.

DIST. FOR PATHWAYS 1,2, AND 7 ARE THE SAME-(RESIDENCE LOC)

MIDEN

DOSE FACTOR AND DISPERSION PARAMETER EDIT OPTIONS:

NUREG 0133
NOTATION

- | | | |
|------|--|-------------|
| [1] | NOBLE GAS TOTAL BODY DOSE FACTORS FOR GAMMA RADIATION
- GROUND RELEASE. (MREM/YR PER UCI/M3) | K |
| [2] | NOBLE GAS IMMERSION SKIN DOSE FACTORS FOR
BETA RADIATION (MREM/YR PER UCI/M3) | L |
| [3] | NOBLE GAS DOSE FACTORS FOR GAMMA RADIATION -
ELEVATED PLUME (MRAD/YR PER UCI/SEC) | B |
| [4] | NOBLE GAS AIR DOSE FACTORS FOR GAMMA RADIATION
(MRAD/YR PER UCI/M3) | M |
| [5] | INHALATION DOSE FACTORS FOR RADIONUCLIDES OTHER
THAN NOBLE GASES (MREM/YR PER UCI/M3) AND
FOR FOOD AND GROUND PLANE PATHWAYS (M2*MREM/YR
PER UCI/SEC) FOR THE CRITICAL
ORGAN AND MOST RESTRICTIVE AGE GROUP | P |
| [6] | NOBLE GAS AIR DOSE FACTORS FOR BETA RADIATION
(MRAD/YR PER UCI/M3) | N |
| [7] | INGESTION DOSE FACTORS FROM RADIOIODINES, RADIO-
ACTIVE PARTICULATES AND RADIONUCLIDES
(OTHER THAN NOBLE GASES) WITH HALF-LIVES GREATER THAN
8 DAYS (M2*MREM/YR PER UCI/SEC) FOR THE CRITICAL
ORGAN AND MOST RESTRICTIVE AGE GROUP | R |
| [8] | ANNUAL AVERAGED RELATIVE CONCENTRATION (SEC/M3)
(ELEVATED) | $\chi/Q(S)$ |
| [9] | ANNUAL AVERAGED RELATIVE CONCENTRATION (SEC/M3)
(GROUND) | $\chi/Q(V)$ |
| [10] | ANNUAL AVERAGED DEPOSITION PARAMETER
(1/M2) (ELEVATED) | W(S) |
| [11] | ANNUAL AVERAGED DEPOSITION PARAMETER (1/M2)
(GROUND) | W(V) |

LISTING FOR K

ISOTOPE	VALUE
AR41	8.840E+03
KR83M	7.560E-02
KR85M	1.170E+03
KR85	1.610E+01
KR87	5.920E+03
KR88	1.470E+04
KR89	1.660E+04
KR90	1.560E+04
XE131M	9.150E+01
XE133M	2.510E+02
XE133	2.940E+02
XE135M	3.120E+03
XE135	1.810E+03
XE137	1.420E+03
XE138	8.830E+03

LISTING FOR L

ISOTOPE	VALUE
AR41	2.690E+03
KR83M	0.000E+00
KR85M	1.460E+03
KR85	1.340E+03
KR87	9.730E+03
KR88	2.370E+03
KR89	1.010E+04
KR90	7.290E+03
XE131M	4.760E+02
XE133M	9.940E+02
XE133	3.060E+02
XE135M	7.110E+02
XE135	1.860E+03
XE137	1.220E+04
XE138	4.130E+03

LISTING FOR L

(NOTE: ELEVATED RELEASES ARE NOT CONSIDERED AT COOK NUCLEAR PLANT)

DISTANCE

DIRECTION (WIND FROM)	594.	2416.	4020.	5630.	7240.
N	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NNE	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NE	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ENE	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
E	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ESE	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
SE	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
SSE	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
S	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
SSW	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
SW	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
WSW	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
W	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
WNW	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NW	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NNW	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

DISTANCE

DIRECTION (WIND FROM)	12067.	24135.	40225.	56315.	80500.
N	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NNE	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NE	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ENE	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
E	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ESE	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
SE	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
SSE	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
S	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
SSW	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
SW	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
WSW	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
W	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
WNW	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NW	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NNW	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

LISTING FOR M

ISOTOPE	VALUE
AR41	9.300E+03
KR83M	1.930E+01
KR85M	1.230E+03
KR85	1.720E+01
KR87	6.170E+03
KR88	1.520E+04
KR89	1.730E+04
KR90	1.630E+04
XE131M	1.560E+02
XE133M	3.270E+02
XE133	3.530E+02
XE135M	3.360E+03
XE135	1.920E+03
XE137	1.510E+03
XE138	9.210E+03

LISTING FOR P

PATHWAY

ISOTOPE	GROUND AND FOOD	INHALATION
H3	2.4E+03	6.5E+02
C14	2.4E+09	2.7E+04
CR51	1.2E+07	1.3E+04
MN54	1.1E+09	1.0E+06
FE59	7.9E+08	1.0E+06
CO58	5.9E+08	7.8E+05
CO60	4.6E+09	4.5E+06
ZN65	2.0E+10	6.5E+05
SR89	1.3E+10	2.0E+06
SR90	1.2E+11	4.1E+07
ZR95	3.5E+08	1.8E+06
SB124	0.0E+00	0.0E+00
CS134	7.2E+10	7.0E+05
CS136	6.1E+09	1.4E+05
CS137	6.3E+10	6.1E+05
BA140	2.4E+08	1.6E+06
CE141	3.4E+07	5.2E+05
CE144	2.0E+08	9.8E+06
I131	1.1E+12	1.5E+07
I133	9.8E+09	3.6E+06
I132	1.8E+06	1.7E+05

I134	6.4E+05	4.5E+04
I135	2.4E+07	7.0E+05
MO99	3.2E+08	1.4E+05
NB95	4.1E+08	4.8E+05
SR85	0.0E+00	0.0E+00

LISTING FOR N

ISOTOPE	VALUE
AR41	3.280E+03
KR83M	2.880E+02
KR85M	1.970E+03
KR85	1.950E+03
KR87	1.030E+04
KR88	2.930E+03
KR89	1.060E+04
KR90	7.830E+03
XE131M	1.110E+03
XE133M	1.480E+03
XE133	1.050E+03
XE135M	7.390E+02
XE135	2.460E+03
XE137	1.270E+04
XE138	4.750E+03

LISTING FOR R

ISOTOPE	PATHWAY					
	GROUND	VEGETABLE	MEAT	COW MILK	GOAT MILK	INHALATION
H3	0.0E+00	4.0E+03	3.2E+02	2.4E+03	4.9E+03	1.3E+03
C14	0.0E+00	3.5E+06	5.8E+05	3.2E+06	3.2E+06	3.6E+04
CR51	4.7E+06	1.2E+07	1.6E+06	7.5E+06	9.0E+05	3.3E+03
MN54	1.4E+09	9.4E+08	2.2E+07	3.1E+07	3.7E+06	7.7E+04
FE59	2.7E+08	9.7E+08	1.8E+09	3.4E+08	4.4E+06	1.9E+05
CO58	3.8E+08	6.1E+08	3.1E+08	9.1E+07	1.1E+07	1.1E+05
CO60	2.2E+10	3.2E+09	1.1E+09	2.9E+08	3.4E+07	2.8E+05
ZN65	7.5E+08	2.7E+09	1.0E+09	1.7E+10	2.1E+09	1.3E+05
SR89	2.2E+04	3.5E+10	2.6E+08	1.1E+10	2.2E+10	6.0E+05
SR90	0.0E+00	1.4E+12	1.0E+10	1.0E+11	2.1E+11	1.1E+08
ZR95	2.5E+08	1.2E+09	1.6E+09	1.0E+06	1.2E+05	1.5E+05
SB124	6.0E+08	3.0E+09	4.7E+08	7.8E+08	9.3E+07	4.1E+05
CS134	6.8E+09	2.6E+10	1.2E+09	5.4E+10	1.6E+11	1.1E+06
CS136	1.5E+08	2.2E+08	4.5E+07	5.5E+09	1.7E+10	1.9E+05

CS137	1.0E+10	2.4E+10	1.0E+09	4.9E+10	1.5E+11	8.5E+05
BA140	2.1E+07	2.8E+08	5.7E+07	2.3E+08	2.8E+07	2.3E+05
CE141	1.4E+07	5.3E+08	3.2E+07	1.5E+07	1.8E+06	1.3E+05
CE144	7.0E+07	1.3E+10	3.9E+08	1.3E+08	1.6E+07	8.6E+05
I131	1.7E+07	4.8E+10	5.4E+09	1.0E+12	1.2E+12	1.6E+07
I133	2.4E+06	8.1E+08	1.3E+02	9.6E+09	1.2E+10	3.8E+06
I132	1.2E+06	7.6E+03	0.0E+00	1.4E+02	1.6E+02	1.1E+06
I134	4.5E+05	6.4E-03	0.0E+00	9.4E-10	1.1E-01	5.1E+04
I135	2.5E+06	1.4E+12	6.7E-15	2.0E+07	2.4E+07	7.9E+05
MO99	4.0E+06	1.7E+07	2.4E+05	3.1E+08	3.7E+07	4.1E+02
NB95	1.4E+08	4.7E+08	6.8E+09	2.9E+08	3.5E+07	1.0E+05
SR85	1.2E+05	3.5E+10	4.1E+08	1.1E+10	2.2E+10	6.0E+05

LISTING FOR $\chi/Q(S)$

DISTANCE

DIRECTION (WIND FROM)	594.	2416.	4020.	5630.	7240.
N	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NNE	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NE	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ENE	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
E	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ESE	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
SE	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
SSE	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
S	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
SSW	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
SW	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
WSW	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
W	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
WNW	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NW	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NNW	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

DISTANCE

DIRECTION (WIND FROM)	12067.	24135.	40225.	56315.	80500.
N	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NNE	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NE	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ENE	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
E	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

ESE	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
SE	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
SSE	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
S	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
SSW	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
SW	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
WSW	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
W	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
WNW	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NW	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NNW	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

LISTING FOR $\chi/Q(V)$

DISTANCE

DIRECTION (WIND FROM)	594.	2416.	4020.	5630.	7240.
N	3.66E-06	4.26E-07	2.02E-07	1.21E-07	8.47E-08
NNE	2.51E-06	3.03E-07	1.46E-07	8.78E-08	6.19E-08
NE	3.19E-06	3.78E-07	1.84E-07	1.11E-07	7.90E-08
ENE	4.26E-06	4.83E-07	2.44E-07	1.52E-07	1.08E-07
E	5.66E-06	6.18E-07	3.17E-07	1.99E-07	1.43E-07
ESE	6.39E-06	6.94E-07	3.59E-07	2.27E-07	1.64E-07
SE	8.43E-06	9.15E-07	4.71E-07	2.96E-07	2.13E-07
SSE	9.66E-06	1.06E-06	5.45E-07	3.42E-07	2.46E-07
S	1.09E-05	1.26E-06	6.27E-07	3.87E-07	2.76E-07
SSW	5.17E-06	6.10E-07	2.97E-07	1.80E-07	1.28E-07
SW	3.66E-06	4.26E-07	2.03E-07	1.22E-07	8.61E-08
WSW	2.54E-06	2.75E-07	1.32E-07	7.93E-08	5.61E-08
W	3.15E-06	3.57E-07	1.71E-07	1.03E-07	7.28E-08
WNW	3.26E-06	3.86E-07	1.82E-07	1.08E-07	7.57E-08
NW	2.64E-06	3.03E-07	1.42E-07	8.44E-08	5.91E-08
NNW	3.66E-06	4.20E-07	1.98E-07	1.18E-07	8.24E-08

DISTANCE

DIRECTION (WIND FROM)	12067.	24135.	40225.	56315.	80500.
N	4.24E-08	1.65E-08	8.22E-09	5.26E-09	3.31E-09
NNE	3.13E-08	1.24E-08	6.17E-09	3.96E-09	2.50E-09
NE	4.04E-08	1.62E-08	8.07E-09	5.18E-09	3.29E-09
ENE	5.59E-08	2.28E-08	1.15E-08	7.39E-09	4.75E-09
E	7.46E-08	3.08E-08	1.55E-08	9.98E-09	6.45E-09
ESE	8.54E-08	3.54E-08	1.79E-08	1.15E-08	7.44E-09

SE	1.11E-07	4.61E-08	2.32E-08	1.50E-08	9.66E-09
SSE	1.28E-07	5.28E-08	2.66E-08	1.71E-08	1.11E-08
S	1.42E-07	5.77E-08	2.90E-08	1.87E-08	1.19E-08
SSW	6.49E-08	2.59E-08	1.29E-08	8.28E-09	5.25E-09
SW	4.33E-08	1.71E-08	8.49E-09	5.44E-09	3.44E-09
WSW	2.84E-08	1.13E-08	5.64E-09	3.62E-09	2.31E-09
W	3.68E-08	1.46E-08	7.26E-09	4.66E-09	2.95E-09
WNW	3.79E-08	1.47E-08	7.29E-09	4.66E-09	2.92E-09
NW	2.94E-08	1.14E-08	5.64E-09	3.60E-09	2.25E-09
NNW	4.10E-08	1.59E-08	7.86E-09	5.02E-09	3.15E-09

LISTING FOR W(S)

DISTANCE

DIRECTION (WIND FROM)	594.	2416.	4020.	5630.	7240.
N	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NNE	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NE	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ENE	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
E	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ESE	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
SE	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
SSE	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
S	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
SSW	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
SW	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
WSW	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
W	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
WNW	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NW	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NNW	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

DISTANCE

DIRECTION (WIND FROM)	12067.	24135.	40225.	56315.	80500.
N	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NNE	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NE	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ENE	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
E	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ESE	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

SE	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
SSE	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
S	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
SSW	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
SW	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
WSW	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
W	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
WNW	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NW	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NNW	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

LISTING FOR W(V)

DISTANCE

DIRECTION (WIND FROM)	594.	2416.	4020.	5630.	7240.
N	2.25E-08	2.18E-09	9.87E-10	5.18E-10	3.30E-10
NNE	9.87E-09	9.53E-09	4.32E-10	2.27E-10	1.45E-10
NE	1.26E-08	1.22E-09	5.53E-10	2.90E-10	1.85E-10
ENE	1.27E-08	1.22E-09	5.55E-10	2.91E-10	1.86E-10
E	1.39E-08	1.34E-09	6.07E-10	3.18E-10	2.03E-10
ESE	1.22E-08	1.18E-09	5.36E-10	2.81E-10	1.79E-10
SE	1.67E-08	1.62E-09	7.33E-10	3.85E-10	2.45E-10
SSE	2.42E-08	2.33E-09	1.06E-09	5.55E-10	3.54E-10
S	4.41E-08	4.26E-09	1.93E-09	1.01E-09	6.46E-10
SSW	2.97E-08	2.87E-09	1.30E-09	6.83E-10	4.35E-10
SW	2.51E-08	2.42E-09	1.10E-09	5.76E-10	3.68E-10
WSW	2.00E-08	1.93E-09	8.74E-09	4.58E-10	2.92E-10
W	1.98E-08	1.92E-09	8.69E-10	4.56E-10	2.91E-10
WNW	1.83E-08	1.77E-09	8.01E-10	4.20E-10	2.68E-10
NW	1.74E-08	1.68E-09	7.60E-10	3.99E-10	2.55E-10
NNW	2.30E-08	2.22E-09	1.01E-09	5.28E-10	3.37E-10

DISTANCE

DIRECTION (WIND FROM)	12067.	24135.	40225.	56315.	80500.
N	1.38E-10	4.49E-11	1.65E-11	8.83E-12	4.43E-12
NNE	6.04E-11	1.97E-11	7.24E-12	3.86E-12	1.94E-12
NE	7.74E-11	2.52E-11	9.27E-12	4.95E-12	2.48E-12
ENE	7.76E-11	2.53E-11	9.30E-12	4.96E-12	2.49E-12
E	8.48E-11	2.76E-11	1.02E-11	5.43E-12	2.72E-12
ESE	7.49E-11	2.44E-11	8.98E-12	4.79E-12	2.40E-12
SE	1.02E-10	3.34E-11	1.23E-11	6.56E-12	3.29E-12

12 PMP 6010.OSD.001
ATTACHMENT 3.1

SSE	1.48E-10	4.82E-11	1.77E-11	9.47E-12	4.75E-12
S	2.70E-10	8.79E-11	3.24E-11	1.73E-11	8.66E-12
SSW	1.82E-10	5.92E-11	2.18E-11	1.16E-11	5.84E-12
SW	1.54E-10	5.00E-11	1.84E-11	9.83E-12	4.93E-12
WSW	1.22E-10	3.98E-11	1.46E-11	7.82E-12	3.92E-12
W	1.21E-10	3.96E-11	1.46E-11	7.77E-12	3.90E-12
WNW	1.12E-10	3.65E-11	1.34E-11	7.16E-12	3.59E-12
NW	1.06E-10	3.46E-11	1.27E-11	6.80E-12	3.41E-12
NNW	1.41E-10	4.58E-11	1.69E-11	9.00E-12	4.52E-12

RADIOACTIVE LIQUID EFFLUENT MONITORING INSTRUMENTATION

<u>Instrument</u>	<u>Minimum Channels Operable</u>	<u>Applicability</u>	<u>Action</u>
1. Gross Radioactivity Monitors Providing Automatic Release Termination			
a. Liquid Radwaste Effluent Line (RRS-1001)	(1)#	At times of release	1
b. Steam Generator Blowdown Line (R-19)	(1)	At times of release	2
c. Steam Generator Blowdown Treatment Effluent (R-24)	(1)	At times of release	2
2. Gross Radioactivity Monitors Not Providing Automatic Release Termination			
a. Service Water System Effluent Line (R-20, R-28)	(1) per train	At all times	3
3. Continuous Composite Sampler Flow Monitor			
a. Turbine Building Sump Effluent Line	(1)	At all times	3
4. Flow Rate Measurement Devices			
a. Liquid Radwaste Line (RFI-285)	(1)	At times of release	4
b. Discharge Pipes*	(1)	At all times	NA
c. Steam Generator Blowdown Treatment Effluent (DFI-352)	(1)	At times of release	4

* Pump curves and valve settings may be utilized to estimate flow; in such cases, Action Statement 4 is not applicable.

OPERABILITY of RSS-1001 includes OPERABILITY of flow switch RFS-1010, which is an attendant instrument as defined by Specification 1.6.

TABLE NOTATION

- Action 1 With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, effluent releases may be resumed for up to 30 days, provided that prior to initiating a release:
1. At least two independent samples are analyzed in accordance with Section 4.2.3.1 and;
 2. At least two technically qualified members of the Facility Staff independently verify the discharge valving. Otherwise, suspend release of radioactive effluents via this pathway.
- Action 2 With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, effluent releases via this pathway may continue for up to 30 days provided grab samples are analyzed for gross radioactivity (beta or gamma) at a limit of detection of at least 10^{-7} $\mu\text{ci}/\text{gram}$:
1. At least once per 8 hours when the specific activity of the secondary coolant is >0.01 $\mu\text{ci}/\text{gram}$ DOSE EQUIVALENT I-131.
 2. At least once per 24 hours when the specific activity of the secondary coolant is <0.01 $\mu\text{ci}/\text{gram}$ DOSE EQUIVALENT I-131.
- Action 3 With the number of channels OPERABLE less than the required by the Minimum Channels OPERABLE requirement, effluent releases via this pathway may continue for up to 30 days provided that at least once per 8 hours, grab samples are collected and analyzed for gross radioactivity (beta or gamma) at a lower limit of detection of at least 10^{-7} $\mu\text{ci}/\text{ml}$.
- Action 4 With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, effluent releases via this pathway may continue for up to 30 days provided the flow rate is estimated at least once per 4 hours during actual releases.

RADIOACTIVE LIQUID EFFLUENT MONITORING INSTRUMENTATION
SURVEILLANCE REQUIREMENTS

<u>Instrument</u>	<u>CHANNEL CHECK</u>	<u>SOURCE CHECK</u>	<u>CHANNEL CALIBRATION</u>	<u>CHANNEL FUNCTIONAL TEST</u>
1. Gross Beta or Gamma Radioactivity Monitors Providing Alarm and Automatic Isolation				
a. Liquid Radwaste Effluent Line (RRS-1001)	D*	P	R(3)	Q(5)
b. Steam Generator Blowdown Effluent Line	D*	M	R(3)	Q(1)
c. Steam Generator Blowdown Treatment Effluent Line	D*	M	R(3)	Q(1)
2. Gross Beta or Gamma Radioactivity Monitors Providing Alarm But Not Isolation				
a. Service Water System Effluent Line	D	M	R(3)	Q(2)
3. Continuous Composite Samplers				
a. Turbine Building Sump Effluent Line	D	N/A	N/A	N/A
4. Flow Rate Monitors				
a. Liquid Radwaste Effluent	D(4)*	N/A	R	Q
b. Steam Generator Blowdown Treatment Line	D(4)*	N/A	N/A	N/A

* During releases via this pathway

TABLE NOTATION

- (1) The CHANNEL FUNCTIONAL TEST shall also demonstrate that automatic isolation of this pathway and control room alarm annunciation occurs if any of the following conditions exists:
 1. Instrument indicates measured levels above the alarm/trip setpoint.
 - ** 2. Circuit failure.*
 - ** 3. Instrument indicates a downscale failure.*
 - ** 4. Instrument control not set in operating mode.*
- (2) The CHANNEL FUNCTIONAL TEST shall also demonstrate that control room alarm annunciation occurs if any of the following conditions exists:
 1. Instrument indicates measured levels above the alarm setpoint.
 - ** 2. Circuit failure.
 - ** 3. Instrument indicate a downscale failure.
 - ** 4. Instrument controls not set in operating mode.
- (3) The initial CHANNEL CALIBRATION shall be performed using one or more sources with traceability back to the National Bureau of Standards. These sources shall permit calibrating the system over its intended range of energy and measurement range. For subsequent CHANNEL CALIBRATION, sources that have been related to the initial calibration may be used.
- (4) CHANNEL CHECK shall consist of verifying indication of flow during periods of release. CHANNEL CHECK shall be made at least once per 24 hours on days on which continuous, periodic or batch releases are made.
- (5) The CHANNEL FUNCTIONAL TEST shall also demonstrate that automatic isolation of this pathway and control room alarm annunciation occurs if any of the following conditions exists:
 1. Instrument indicates measured levels above the alarm/trip setpoint.
 - ** 2. Circuit failure.***
 - ** 3. Instrument indicates a downscale failure.***
 - ** 4. Instrument control not set in operating mode.***
 - ** 5. Loss of sample flow.

* Instrument indicates, but does not provide for automatic isolation.
** As equipment becomes operational.
*** Instrument indicates, but does not necessarily cause automatic isolation, no credit is taken for the automatic isolation on such occurrences.

RADIOACTIVE GASEOUS EFFLUENT MONITORING INSTRUMENTATION

<u>Instrument (Instrument #)</u>	<u>Minimum Channels Operable</u>	<u>Applicability</u>	<u>Action</u>
1. Condenser Evacuation System			
a. Noble Gas Activity Monitor (SRA-1905/2905)	(1)	****	6
b. Flow Rate Monitor (SFR-401, 2-MR-054 and/or SFR-1910/2910)	(1)	****	5
2. Unit Vent. Auxiliary Building Ventilation System			
a. Noble Gas Activity Monitor (VRS-1505/2505)	(1)	*	6
b. Iodine Sampler Cartridge for VRA-1503/2503	(1)	*	8
c. Particulate Sampler Filter for VRA-1501/2501	(1)	*	8
d. Effluent System Flow Rate Measuring Device (VFR-315, MR-054 and/or VFR-1510/2510)	(1)	*	5
e. Sampler Flow Rate Measuring Device (VFS-1521/2521)	(1)	*	5
3. Containment Purge System			
a. Aux. Building Vent. System Noble Gas Activity Monitor (VRS-1505/2505)	(1)	**** ¹	7
b. Aux. Building Vent. System Particulate Sampler for VRA-1501/2501	(1)	**** ¹	8
4. Waste Gas Holdup System			
a. Noble Gas Activity Alarm and Termination of Gas Decay Tank Releases (VRS-1505/2505)	(1)	**** ²	9
5. Gland Seal Exhaust			
a. Noble Gas Activity Monitor (SRA-1805/2805)	(1)	****	6
b. Flow Rate Monitor (SFR-201, MR-054 or SFR-1810/2810)	(1)	****	5

* At all times

**** During releases via this pathway

- 1 For purge purposes only. See Attachment 3.4 (Items 2a, 4a) and Attachment 3.5 (Items 2a, 4a) for other requirements associated with this instrument.
- 2 For gas decay tank releases only, see Item 2 (Unit Vent, Auxiliary Building Ventilation System) for additional requirements.

TABLE NOTATIONS

- Action 5 With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, effluent releases via this pathway may continue for up to 30 days provided the flow rate is estimated at least once per 4 hours.
- Action 6 With the number of channels OPERABLE less required by the Minimum Channels OPERABLE requirement, effluent releases via this pathway may continue for up to 30 days provided grab samples are taken at least once per 8 hours and these samples are analyzed for gross activity within 24 hours.
- Action 7 With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirements, immediately suspend PURGING of radioactive effluents via this pathway.
- Action 8 With the number of channels OPERABLE less than require by the Minimum Channels OPERABLE requirement, effluent releases via the affected pathway may continue for up to 30 days provided samples required for weekly analysis are continuously collected with auxiliary sampling equipment as required in Attachment 3.7.
- Action 9 With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, the contents of the tank(s) may be released to the environment for up to 14 days provided that prior to initiating the release:
- a. At least two independent samples of the tank's contents are analyzed and,
 - b. At least two technically qualified members of the Facility Staff independently verify the release rate calculations and discharge valve lineups; otherwise, suspend release of radioactive effluents via this pathway.

RADIOACTIVE GASEOUS EFFLUENT MONITORING INSTRUMENTATION
SURVEILLANCE REQUIREMENTS

<u>Instrument</u>	<u>CHANNEL CHECK</u>	<u>SOURCE CHECK</u>	<u>CHANNEL CALIBRATION</u>	<u>CHANNEL FUNCTIONAL TEST</u>
1. Condenser Evacuation System				
a. Noble Gas Activity Monitor (SRA-1905/2905)	D**	M	R(2)	Q(1)
b. System Effluent Flow Rate (SFR-401, MR-054, SRA-1910/2910)	D**	NA	R	Q
2. Auxiliary Building Ventilation System				
a. Noble Gas Activity Monitor (VRS-1505/2505)	D*	M	R(2)	Q(1)
b. Iodine Sampler (For VRS-1503/2503)	W*	NA	NA	NA
c. Particulate Sampler (For VRS-1501/2501)	W*	NA	NA	NA
d. System Effluent Flow Rate Measurement Device (VFR-315, (MR-054, VRS-1510/2510)	D*	NA	R	Q
e. Sampler Flow Rate Measuring Device (VFS-1521/2521)	D*	NA	R	Q
3. Containment Purge System				
a. Aux. Building Vent. System Noble Gas Activity Monitor (VRS-1505/2505)	D**	P	R(2)	Q(1)
b. Aux. Building Vent. System Particulate Sampler (For VRS-1501/2501)	W**	NA	NA	NA

RADIOACTIVE GASEOUS EFFLUENT MONITORING INSTRUMENTATION
SURVEILLANCE REQUIREMENTS

<u>Instrument</u>	<u>CHANNEL CHECK</u>	<u>SOURCE CHECK</u>	<u>CHANNEL CALIBRATION</u>	<u>CHANNEL FUNCTIONAL TEST</u>
4. Waste Gas Holdup System				
a. Noble Gas Activity Monitor Providing Alarm & Termination of Gas Decay Tank Releases (VRS-1505/2505)	P**	P	R(2)	Q(5)
5. Gland Seal Exhaust				
a. Noble Gas Activity (SRA-1805/2805)	D**	M	R(2)	Q(1)
b. System Effluent Flow Rate (SFR-201, MR-054, SRA-1810/2810)	D**	NA	R	Q

* At all times

** During releases via this pathway

TABLE NOTATIONS

- 1) The CHANNEL FUNCTIONAL TEST shall also demonstrate that control room alarm annunciation occurs if any of the following conditions exists:
 1. Instrument indicates measured levels above the alarm setpoint.
 - **2. Circuit failure.
 - **3. Instrument indicates a downscale failure.
 - **4. Instrument controls not set in operate mode.
- 2) The initial CHANNEL CALIBRATION shall be performed using one or more sources with traceability back to the National Bureau of Standards. These sources shall permit calibrating the system over its intended range of energy and measurement range. For subsequent CHANNEL CALIBRATION, sources that have been related to the initial calibration may be used.
- 3) The CHANNEL CALIBRATION shall include the use of standard gas samples containing a nominal:
 1. One volume percent hydrogen, balance nitrogen, and
 2. Four volume percent hydrogen, balance nitrogen.
- 4) The CHANNEL CALIBRATION shall include the use of standard gas samples containing a nominal:
 1. One volume percent oxygen, balance nitrogen, and
 2. Four volume percent oxygen, balance nitrogen.
- 5) The CHANNEL CALIBRATION TEST shall also demonstrate that automatic isolation of this pathway and control room alarm annunciation occurs if any of the following conditions exists:
 1. Instrument indicates measured levels above the alarm/trip setpoint.
 - **2. Circuit failure.*
 - **3. Instrument indicates a downscale failure.*
 - **4. Instrument controls not set in operate mode.*

* Instrument indicates, but does not provide automatic isolation.

** As equipment becomes operational.

RADIOACTIVE LIQUID WASTE SAMPLING AND ANALYSIS PROGRAM

LIQUID RELEASE TYPE	SAMPLING FREQUENCY	MINIMUM ANALYSIS FREQUENCY	TYPE OF ACTIVITY ANALYSIS	LOWER LIMIT OF DETECTION (LLD) ($\mu\text{ci/ml}$) ^a
A. Batch Waste Release Tanks ^c	P Each Batch	P Each Batch	Principal Gamma Emitters ^e	5×10^{-7}
			I-131	1×10^{-6}
	P One Batch/M	M	Dissolved and Entrained Gases (Gamma Emitters)	1×10^{-5}
	P Each Batch	M Composite ^b	H-3	1×10^{-5}
			Gross Alpha	1×10^{-7}
	P Each Batch	Q Composite	Sr-89, Sr-90	5×10^{-8}
			Fe-55	1×10^{-6}
B. Plant Continuous Releases ^d	Daily	W Composite ^b	Principal Gamma Emitters ^e	5×10^{-7}
			I-131	1×10^{-6}
	M Grab Sample	M	Dissolved and Entrained Gases (Gamma Emitters)	1×10^{-5}
	Daily	M Composite ^b	H-3	1×10^{-5}
			Gross Alpha	1×10^{-7}
	Daily	Q Composite ^b	Sr-89, Sr-90	5×10^{-8}
			Fe-55	1×10^{-6}

TABLE NOTATION

- a. The lower limit of detection (LLD) is defined in Table Notation a. of Attachment 3.20.
- b. A composite sample is one in which the quantity of liquid sampled is proportional to the quantity of liquid waste discharged and in which the method of sampling employed results in a specimen which is representative of the liquids released.
- c. A batch release is the discharge of liquid wastes of a discrete volume. Prior to sampling for analysis, each batch shall be isolated and recirculated or sparged to ensure thorough mixing.
- d. A continuous release is the discharge of liquid of a non-discrete volume; e.g. from a volume of system that has an input flow during the continuous release.
- e. The principal gamma emitters for which the LLD specification applies exclusively are the following radionuclides: Mn-54, Fe-59, Co-58, Co-60, Zn-65, Mo-99, Cs-134, Cs-137, Ce-141 and Ce-144. This list does not mean that only these nuclides are to be detected and reported. Other peaks which are measurable and identifiable, together with the above nuclides, shall also be identified and reported.

RADIOACTIVE GASEOUS WASTE SAMPLING AND ANALYSIS PROGRAM

Gaseous Release Type	Frequency	Minimum Analysis Frequency	Type of Activity Analysis	Lower Limit of Detection ($\mu\text{Ci/ml}$) ^a
a. Waste Gas Storage Tank	P Each Tank Grab Sample	P Each Tank	Principal Gamma Emitters ^o	1×10^{-4}
b. Containment Purge	P Each Purge Grab Sample ^b	P Each Purge ^b	Principal Gamma Emitters ^o	1×10^{-4}
			H-3	1×10^{-6}
c. Condenser Evacuation System and Gland Seal Exhaust*	W Grab Sample ^b	M ^b Particulate Sample	Principle Gamma Emitters ^o	1×10^{-4}
		M ^b	H-3	1×10^{-6}
		M ^b Iodine Adsorbing/Media	I-131	1×10^{-12}
	Continuous ^d	Noble Gas Monitor	Noble Gases	1×10^{-6}
d. Auxiliary Building Vent	Continuous ^d	W ^c Iodine Adsorbing/Media	I-131	1×10^{-12}
	Continuous ^d	W ^c Particulate Sample	Principal Gamma Emitters ^o	1×10^{-11}
	Continuous ^d	M Composite Particulate Sample	Gross Alpha	1×10^{-11}
	Continuous ^d	M Composite	H-3	1×10^{-6}
	Continuous ^d	Q Composite Particulate Sample	Sr-89, Sr-90	1×10^{-11}
	Continuous ^d	Noble Gas Monitor	Noble Gases	1×10^{-6}

RADIOACTIVE GASEOUS WASTE SAMPLING AND ANALYSIS PROGRAM

Gaseous Release Type	Frequency	Minimum Analysis Frequency	Type of Activity Analysis	Lower Limit of Detection ($\mu\text{Ci/ml}$) ^a
e. Incinerated Oil ^f	P Each Batch ^g	P Each Batch ^g	Principle Gamma Emitters	5×10^{-7}

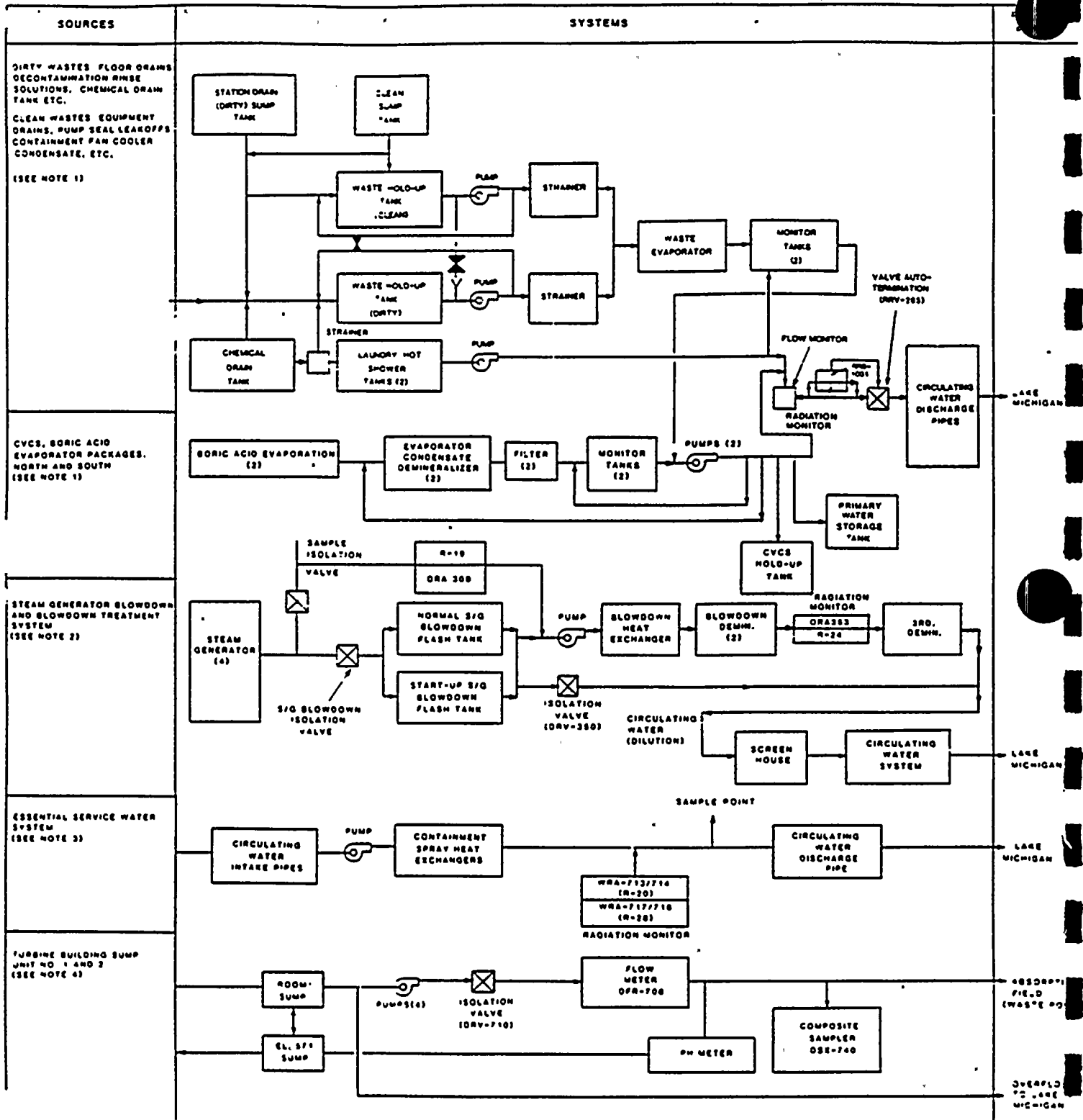
Table Notation

- a. The lower limit of detection (LLD) is defined in Table Notation a. of Attachment 3.20.
- b. Analyses shall be also be performed following any operational occurrence which has altered the mixture of radionuclides as indicated by RCS analysis. (i.e., start-up)
- c. Samples shall be changed at lease once per 7 days and analyses shall be completed within 48 hours after changing. Analyses shall also be performed at least once per 24 hours for 7 days following each shutdown, startup or similar operational occurrence which lead to significant increases or decreases in radioiodine in the Reactor Coolant System. When samples collected for 24 hours and analyzed, the corresponding LLD's may be increased by a factor of 10.
- d. The ratio of the sample flow rate to the sampled stream flow rate shall be known for the time period covered by each dose or dose rate calculation made in accordance with Sections 4.2.4.1, 4.2.4.2, and 4.2.4.3 of this document.
- e. The principal gamma emitters for which the LLD specification applies exclusively are the following radionuclides: Kr-87, Kr-88, Xe-133, Xe-133M, Xe-135 and Xe-138 for gaseous emissions and Mn-54, Fe-59, Co-58, Co-60, Zn-65, Mo-99, Cs-134, Cs-137, Cd-141 and Ce-144 for particulate emissions. This list does not mean that only these nuclides are to be detected and reported. Other peaks which are measurable and identifiable, together with the above nuclides, shall also be identified and reported.
- f. Releases from incinerated oil are discharged through the Auxiliary Boiler System. Releases shall be accounted for based on pre-release grab sample data.
- g. Samples of waste oil to be incinerated shall be collected from the container in which the waste oil is stored (e.g., waste oil storage tanks, 55 gal. drums) prior to transfer to the Auxiliary Boiler System and shall be representative of container contents.

Multiple Release Point Factors for Liquid Release Points

<u>Monitor Description</u>	<u>Monitor Number</u>	<u>MRP</u>
SG Blowdown U1	1R-19/24*	0.35
SG Blowdown U2	2R-19/24*	0.35
Liquid Waste Discharge Both Units	RRS-1001	0.30

* Either R-19 or R-24 can be used for blowdown monitoring.



Liquid Effluent System

NOTES

- NOTE 1: Drawings: OP-12-5119, -5123B, -5133, -5134, -5138, -5138A, -1-5661, -2-5661, -5104F.
System Descriptions: SD-DCC-CH113, -NE101, -HP119. Engineering Control Procedure ECP-12-R2-08.
- NOTE 2: Drawings: OP-12-5105, -5105B, -5141, -5141A, -5119, -5125, -1-5661, -2-5661, -5104F.
System Descriptions: SD-DCC-CH114, -NE101, -HP119.
- NOTE 3: Drawings: OP-12-5113, -5119, -1-5661, -2-5661.
System Descriptions: SD-DCC-HP102, -HP119, NE101.
- NOTE 4: Drawings: OP-12-5125, -5125A, -12-5160.
System Descriptions: SD-DCC-CH117.

USE THE MOST CURRENT DRAWING AND SYSTEM DESCRIPTIONS

PLANT LIQUID EFFLUENT PARAMETERS

SYSTEM	COMPONENTS		CAPACITY (EACH)	FLOW RATE (EACH)
	TANKS	PUMPS		
I <u>Waste Disposal System</u>				
+ Chemical Drain Tank	1	1	600 GAL.	20 GPM
+ Laundry & Hot Shower Tanks	2	1	600 GAL.	20 GPM
+ Monitor Tanks	4	2	21,600 GAL.	150 GPM
+ Waste Holdup Tanks	2		25,000 GAL.	
+ Waste Evaporators	3			30 GPM
+ Waste Evaporator Condensate Tanks	2	2	6,450 GAL.	150 GPM
II <u>Steam Generator Blowdown and Blowdown Treatment Systems</u>				
+ Start-up Flash Tank (Vented)	1		1,800 GAL.	350 GPM
+ Normal Flash Tank (Not Vented)	1		525 GAL.	100 GPM
+ Blowdown Treatment System	1			60 GPM
III <u>Essential Service Water System</u>				
+ Water Pumps	4			10,000 GPM
+ Containment Spray Heat Exchanger Outlet	4			3,300 GPM
IV <u>Circulating Water Pumps</u>	3 (Unit 1) 4 (Unit 2)			230,000 GPM*

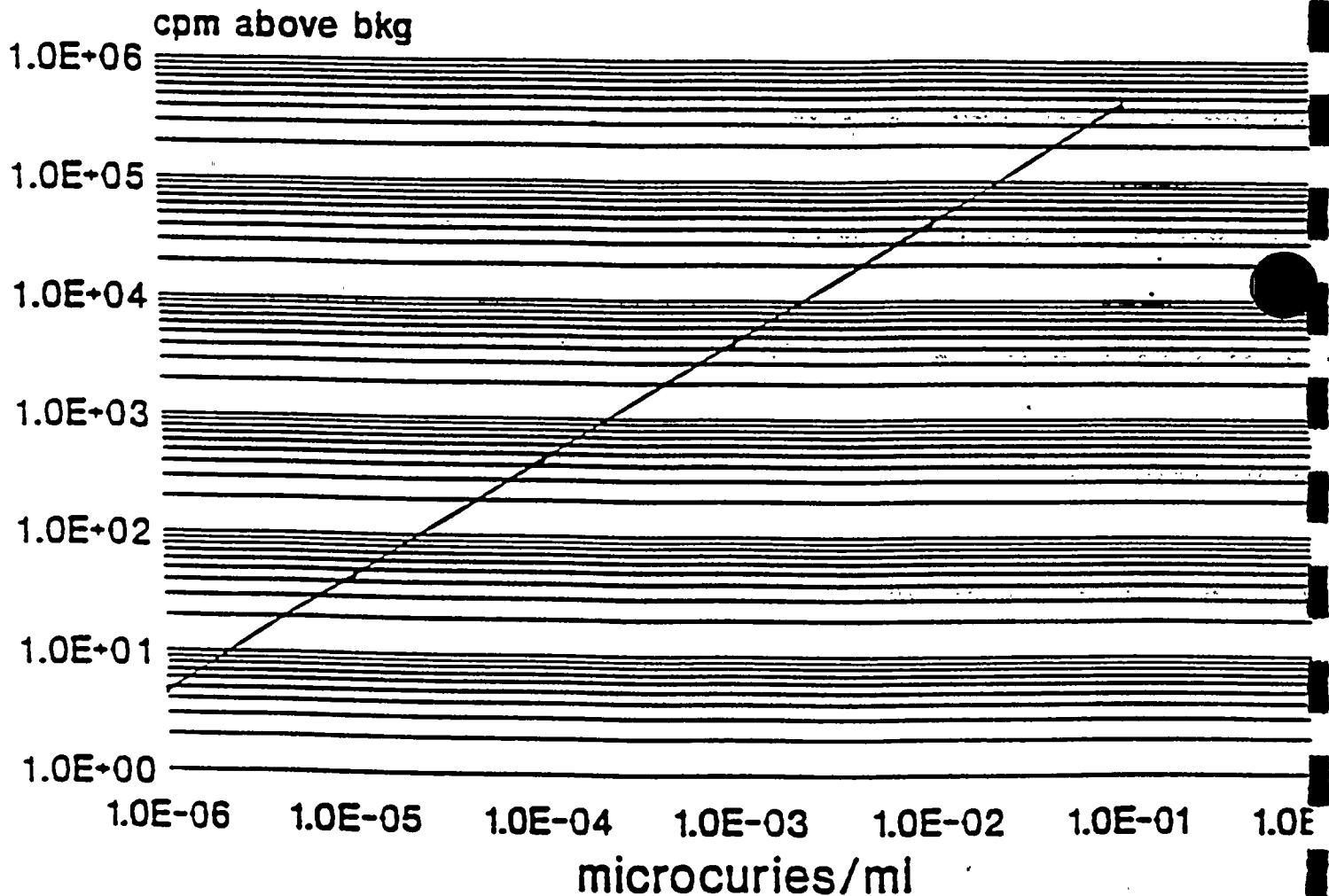
*Nominal Values

VOLUMETRIC DETECTION EFFICIENCIES OF PRINCIPLE
GAMMA EMITTING RADIONUCLIDES FOR RRS-1000

<u>NUCLIDE</u>	<u>EFFICIENCY</u> <u>(cpm/μCi/cc).</u>
I-131	3.78E7
Cs-137	3.0 E7
Cs-134	7.9 E7
Co-60	5.75E7
Co-58	4.60E7
Cr-51	3.60E6
Mn-54	3.30E7
Zn-65	1.58E7
Ag-110M	9.92E7
Ba-133	4.85E7
Ba-140	1.92E7
Cd-109	9.60E5
Ce-139	3.27E7
Ce-141	1.92E8
Ce-144	4.82E6
Co-57	3.80E7
Cs-136	1.07E8
Fe-59	2.82E7
Sb-124	5.92E7
I-133	3.40E7
I-134	7.22E7
I-135	3.95E7
Mo-99	8.67E6
Na-24	4.45E7
Nb-95	3.27E7
Nb-97	3.50E8
Rb-89	5.00E7
Ru-103	3.47E7
Ru-106	1.22E7
Sb-122	2.55E7
Sb-125	3.15E7
Sn-113	7.32E5
Sr-85	3.70E7
Sr-89	2.87E3
Sr-92	3.67E7
Tc-99M	3.60E7
Y-88	5.25E7
Zr-95	3.37E7
Zr-97	3.10E7
Kr-85	1.56E5
Kr-85M	3.52E7
Kr-88	4.10E7
Xe-131M	8.15E5
Xe-133	7.77E6
Xe-133M	5.75E6
Xe-135	3.82E7

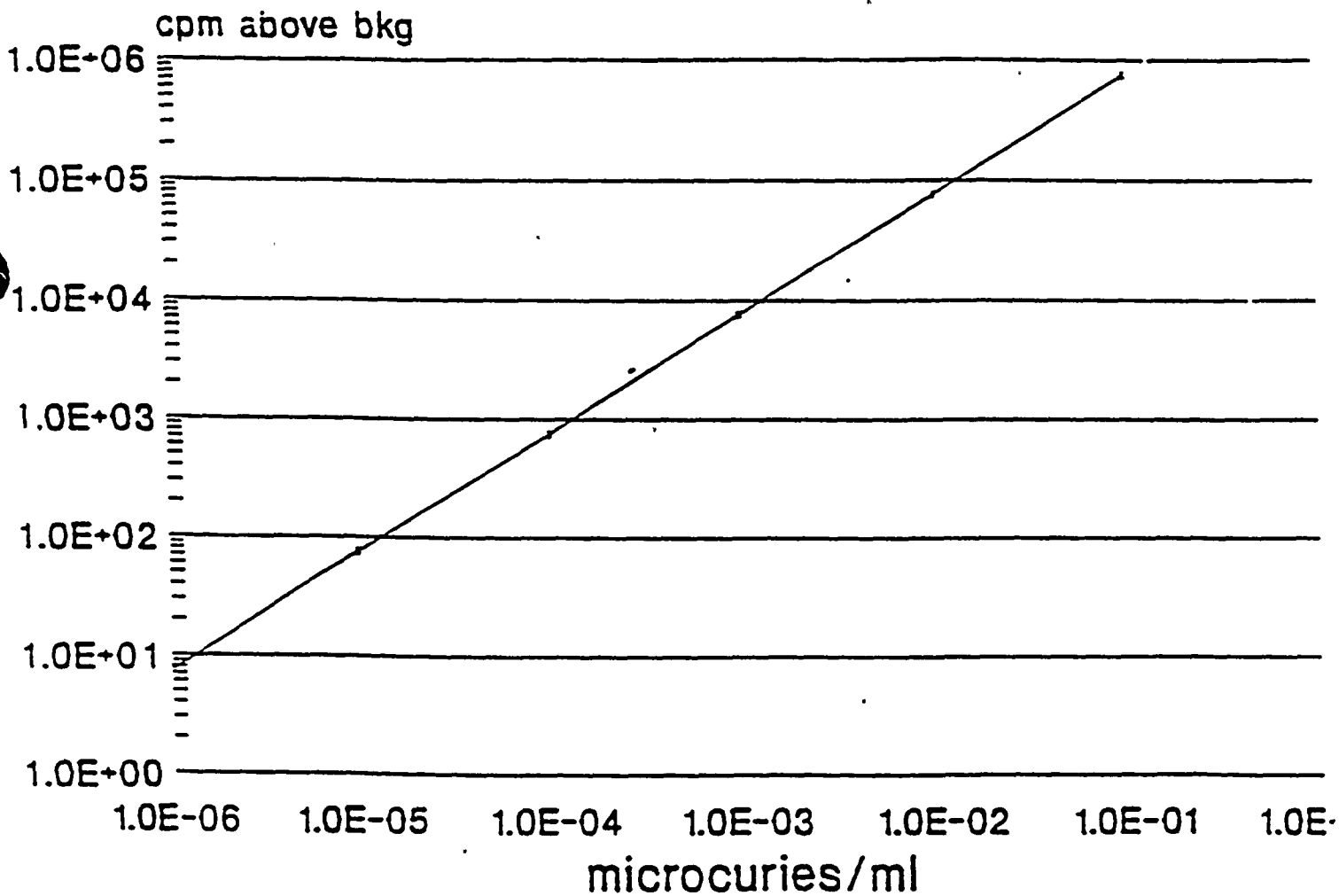
The efficiency factor is 4.2×10^6 cpm/ μ Ci/ml.

Steam Generator Blowdown R-19



The efficiency factor is 7.5×10^6 cpm/ μ Ci/ml.

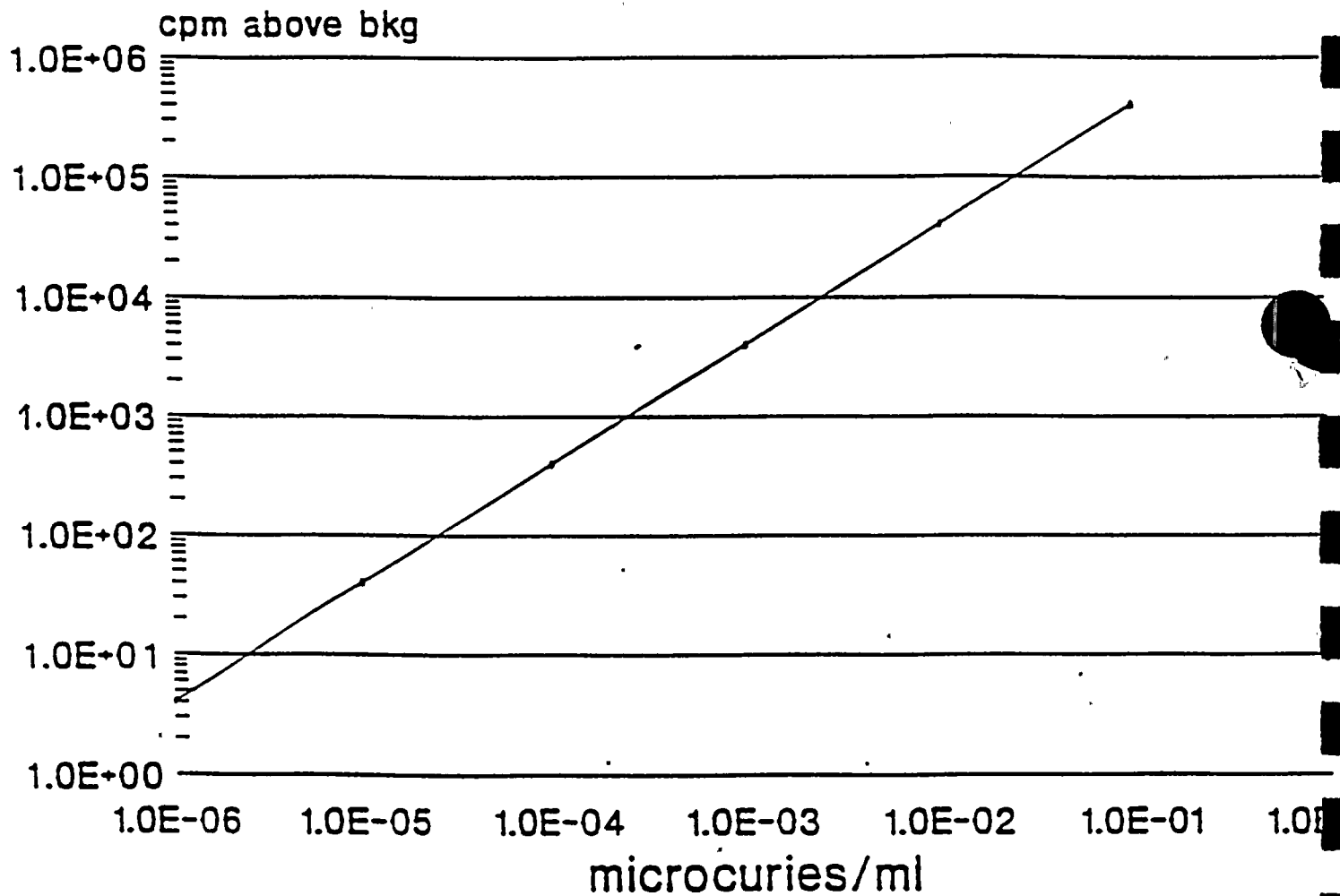
S/G Blowdown Treatment R-24



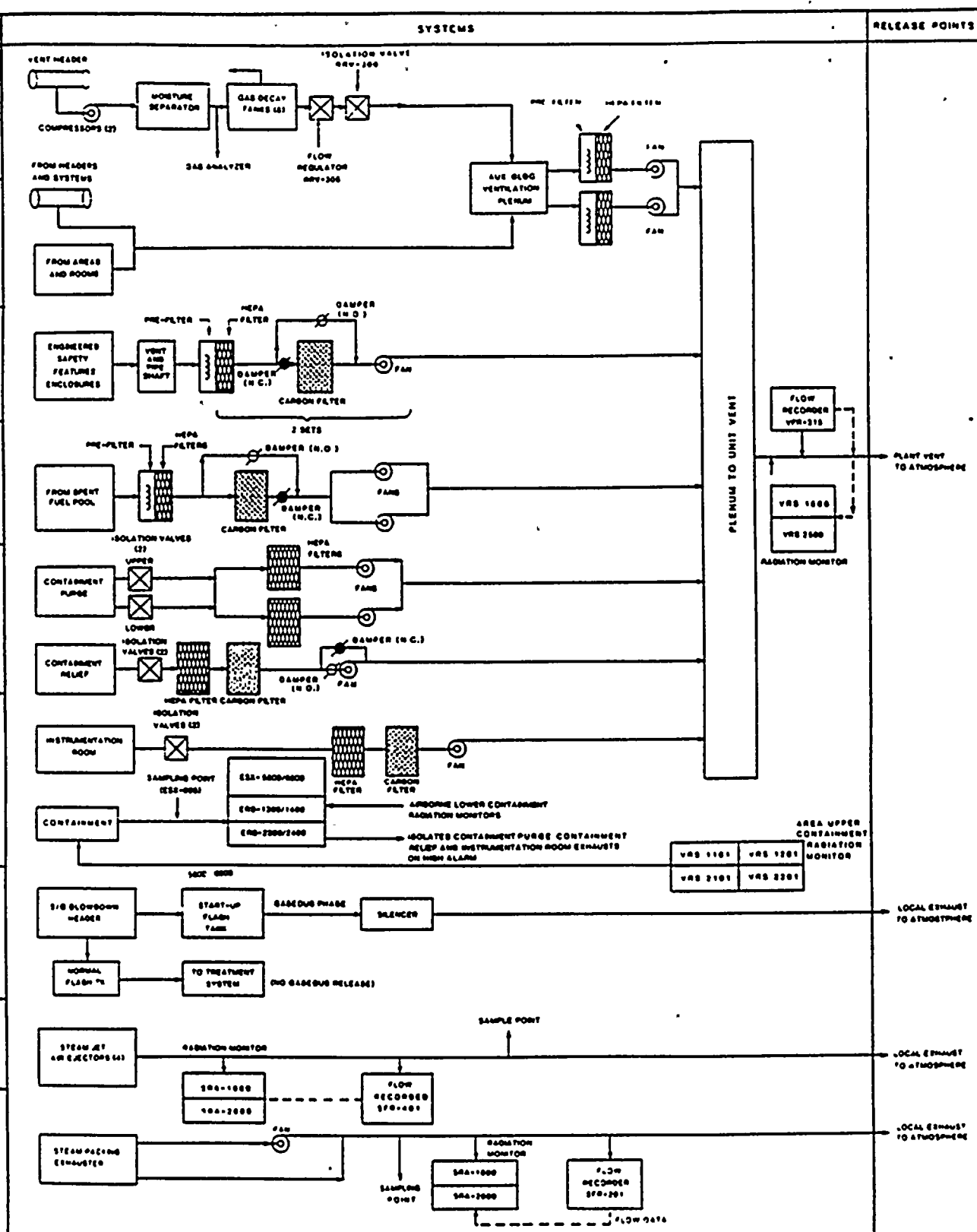
The efficiency factor is 4.3×10^6 cpm/ μ Ci/ml.

ESW Monitors

R-20, R-28



RMS



NOTES

NOTE 1: Drawings: OP-12-5119, -5123B, -5133, -5134, -5138, -5138A, 1-5661, -2-5661.

System Descriptions: SD-DCC-CH113, -NE101, -HP119.

NOTE 2: Drawings: OP-12-5105, -5105B, -5141, -5141A, -5119, -5125, -1-5661, -2-5661.

System Descriptions: SD-DCC-CH114, -NE101, -HP119.

NOTE 3: Drawings: OP-12-5113, -5119, -1-5661, -2-5661.

System Descriptions: SD-DCC-HP102, -HP119, NE101.

NOTE 4: Drawings: OP-12-5125, -5125A, -12-5160.

System Descriptions: SD-DCC-CH117.

USE THE MOST CURRENT DRAWING AND SYSTEM DESCRIPTIONS

PLANT GASEOUS EFFLUENT PARAMETERS

SYSTEM	UNIT	EXHAUST FLOW RATE (CFM)	CAPACITY
I	<u>PLANT UNIT VENT:</u>	UNIT 1 UNIT 2	139,600 103,500
	WASTE GAS DECAY TANKS	UNIT 1	125
			4082 FT ³ @100 psig (8 tanks total)
	+AUXILIARY BUILDING EXHAUST	UNIT 1 UNIT 2	72,600 64,500
	+ENG. SAFETY FEATURES VENT	UNIT 1&2	25,000
	+FUEL HANDLING AREA VENT SYSTEM	UNIT 1	30,000
	+CONTAINMENT PURGE SYSTEM	UNIT 1&2	12,000
	+CONTAINMENT PRESSURE RELIEF SYSTEM	UNIT 1&2	1,000
	+INSTRUMENT ROOM PURGE SYSTEM	UNIT 1&2	1,000
II	<u>CONDENSER AIR EJECTOR SYSTEM</u>		2 Release Points - One for Each Unit
	NORMAL STEAM JET AIR EJECTORS	UNIT 1&2	230
	START UP STEAM JET AIR EJECTORS	UNIT 1&2	3,600
III	<u>TURBINE SEALS SYSTEM</u>	UNIT 1 UNIT 2	1,260 5,508
			2 Release Points for Unit 2
IV	<u>START UP FLASH TANK VENT</u>	UNIT 1 UNIT 2	1,536 1,536

$\overline{\chi/Q}$ GROUND AVERAGE (sec/m³)

DIRECTION (WIND TO)	01JAN92 - 31DEC92 DISTANCE (METERS)				
	594.	2416.	4020.	5630.	7240.
S	3.75e-6	4.41e-7	2.06e-7	1.21e-7	8.48e-8
SSW	2.54e-6	3.06e-7	1.46e-7	8.79e-8	6.19e-8
SW	4.56e-6	5.31e-7	2.65e-7	1.64e-7	1.16e-7
WSW	7.42e-6	8.14e-7	4.17e-7	2.62e-7	1.88e-7
W	7.33e-6	8.16e-7	4.14e-7	2.59e-7	1.86e-7
WNW	6.36e-6	7.16e-7	3.60e-7	2.24e-7	1.60e-7
NW	9.10e-6	9.75e-7	5.03e-7	3.17e-7	2.29e-7
NNW	1.13e-5	1.24e-6	6.40e-7	4.04e-7	2.91e-7
N	1.04e-5	1.19e-6	5.97e-7	3.70e-7	2.65e-7
NNE	4.52e-6	5.40e-7	2.61e-7	1.58e-7	1.11e-7
NE	3.14e-6	3.55e-7	1.70e-7	1.02e-7	7.18e-8
ENE	3.16e-6	3.46e-7	1.68e-7	1.02e-7	7.25e-8
E	2.44e-6	2.69e-7	1.27e-7	7.61e-8	5.34e-8
ESE	2.38e-6	2.72e-7	1.27e-7	7.55e-8	5.27e-8
SE	2.29e-6	2.53e-7	1.20e-7	7.25e-8	5.08e-8
SSE	2.73e-6	2.99e-7	1.39e-7	8.19e-8	5.73e-8

DIRECTION (WIND TO)	DISTANCE				
	12067	24135	40225	56315	80500
S	4.22e-8	1.63e-8	8.06e-9	5.14e-9	3.22e-9
SSW	3.11e-8	1.22e-8	6.06e-9	3.88e-9	2.44e-9
SW	5.94e-8	2.40e-8	1.21e-8	7.78e-9	4.97e-9
WSW	9.78e-8	4.03e-8	2.03e-8	1.31e-8	8.44e-9
W	9.61e-8	3.94e-8	1.99e-8	1.28e-8	8.25e-9
WNW	8.29e-8	3.39e-8	1.70e-8	1.10e-8	7.04e-9
NW	1.20e-7	4.95e-8	2.50e-8	1.60e-8	1.04e-8
NNW	1.52e-7	6.30e-8	3.19e-8	2.06e-8	1.33e-8
N	1.37e-7	5.56e-8	2.80e-8	1.80e-8	1.15e-8
NNE	5.66e-8	2.25e-8	1.12e-8	7.19e-9	4.56e-9
NE	3.61e-8	1.42e-8	7.10e-9	4.55e-9	2.88e-9
ENE	3.69e-8	1.47e-8	7.38e-9	4.74e-9	3.02e-9
E	2.67e-8	1.04e-8	5.16e-9	3.29e-9	2.07e-9
ESE	2.60e-8	1.00e-8	4.93e-9	3.14e-9	1.96e-9
SE	2.53e-8	9.87e-9	4.92e-9	3.16e-9	1.99e-9
SSE	2.84e-8	1.09e-8	5.40e-9	3.45e-9	2.16e-9

DIRECTION - SECTOR

N = A	E = E	S = J	W = N
NNE = B	ESE = F	SSW = K	WNW = P
E = C	E = G	SW = L	NW = Q
ENE = D	SSE = H	WSW = M	NNW = R

Current $\overline{\chi/Q}$ = 1.13e-5 sec/m² in Sector R

D/Q DEPOSITION (1/m²)

01JAN92 - 31DEC92 DISTANCE (METERS)						
DIRECTION (WIND TO)		594.	2416.	4020.	5630.	7240.
S	2.54e-8	2.45e-9	1.11e-9	5.83e-10	3.72e-10	
SSW	1.06e-8	1.02e-9	4.62e-10	2.42e-10	1.55e-10	
SW	1.41e-8	1.36e-9	6.16e-10	3.23e-10	2.06e-10	
WSW	1.74e-8	1.68e-9	7.62e-10	4.00e-10	2.55e-10	
W	2.01e-8	1.94e-9	8.82e-10	4.63e-10	2.95e-10	
WNW	1.78e-8	1.72e-9	7.78e-10	4.08e-10	2.60e-10	
NW	1.69e-8	1.63e-9	7.39e-10	3.88e-10	2.47e-10	
NNW	2.25e-8	2.17e-9	9.86e-10	5.17e-10	3.30e-10	
N	3.70e-8	3.57e-9	1.62e-9	8.50e-10	5.42e-10	
NNE	2.45e-8	2.37e-9	1.07e-9	5.64e-10	3.60e-10	
NE	2.37e-8	2.29e-9	1.04e-9	5.45e-10	3.48e-10	
ENE	2.25e-8	2.17e-9	9.86e-10	5.17e-10	3.30e-10	
E	1.87e-8	1.80e-9	8.17e-10	4.29e-10	2.73e-10	
ESE	1.59e-8	1.53e-9	6.95e-10	3.65e-10	2.33e-10	
SE	1.46e-8	1.41e-9	6.39e-10	3.35e-10	2.14e-10	
SSE	2.05e-8	1.98e-9	8.96e-10	4.70e-10	3.00e-10	

DISTANCE						
DIRECTION (WIND TO)		12067	24135	40225	56315	80500
S	1.55e-10	5.05e-11	1.86e-11	9.93e-12	4.98e-12	
SSW	6.46e-11	2.10e-11	7.74e-12	4.13e-12	2.07e-12	
SW	8.61e-11	2.80e-11	1.03e-11	5.51e-12	2.76e-12	
WSW	1.07e-10	3.47e-11	1.28e-11	6.82e-12	3.42e-12	
W	1.23e-10	4.01e-11	1.48e-11	7.89e-12	3.96e-12	
WNW	1.09e-10	3.54e-11	1.30e-11	6.96e-12	3.49e-12	
NW	1.03e-10	3.36e-11	1.24e-11	6.61e-12	3.32e-12	
NNW	1.38e-10	4.49e-11	1.65e-11	8.82e-12	4.42e-12	
N	2.26e-10	7.37e-11	2.71e-11	1.45e-11	7.27e-12	
NNE	1.50e-10	4.89e-11	1.80e-11	9.61e-12	4.82e-12	
NE	1.45e-10	4.73e-11	1.74e-11	9.29e-12	4.66e-12	
ENE	1.38e-10	4.49e-11	1.65e-11	8.82e-12	4.42e-12	
E	1.14e-10	3.72e-11	1.37e-11	7.31e-12	3.67e-12	
ESE	9.72e-11	3.17e-11	1.17e-11	6.22e-12	3.12e-12	
SE	8.93e-11	2.91e-11	1.07e-11	5.71e-12	2.87e-12	
SSE	1.25e-10	4.08e-11	1.50e-11	8.02e-12	4.02e-12	

DIRECTION - SECTOR

N = A	E = E	S = J	W = N
NNE = B	ESE = F	SSW = K	WNW = P
E = C	E = G	SW = L	NW = Q
ENE = D	SSE = H	WSW = M	NNW = R

Current D/Q = 3.70E-08 1/m² in Sector A

ANNUAL EVALUATION OF $\overline{\chi/Q}$ AND $\overline{D/Q}$ VALUES FOR ALL SECTORS

1. Received annual update of $\overline{\chi/Q}$ and $\overline{D/Q}$ values.

Signature

R.P. Department
(print name, title)

2. Worst $\overline{\chi/Q}$ and $\overline{D/Q}$ value and sector determined. PMP 6010
OSD.001 has been updated.

Signature

R.P. Department
(print name, title)

3. Approved and verified by:

Signature

R.P. Department
(print name, title)

DOSE FACTORS FOR NOBLE GASES AND DAUGHTERS*

<u>RADIONUCLIDE</u>	TOTAL BODY DOSE FACTOR K_i	SKIN DOSE FACTOR L_i	GAMMA AIR DOSE FACTOR M_i	BETA AIR DOSE FACTOR N_i
	(mRem/yr per $\mu\text{Ci}/\text{m}^3$)	(mRem/yr per $\mu\text{Ci}/\text{m}^3$)	(mRad/yr per $\mu\text{Ci}/\text{m}^3$)	(mRad/yr per $\mu\text{Ci}/\text{m}^3$)
Kr-83m	7.56E-02	--	1.93E+01	2.88E+02
Kr-85m	1.17E+03	1.46E+03	1.23E+03	1.97E+03
Kr-85	1.61E+01	1.34E+03	1.72E+01	1.95E+03
Kr-87	5.92E+03	9.73E+03	6.17E+03	1.03E+04
Kr-88	1.47E+04	2.37E+03	1.52E+04	2.93E+03
Kr-89	1.66E+04	1.01E+04	1.73E+04	1.06E+04
Kr-90	1.56E+04	7.29E+03	1.63E+04	7.83E+03
Xe-131m	9.15E+01	4.76E+02	1.56E+02	1.11E+03
Xe-133m	2.51E+02	9.94E+02	3.27E+02	1.48E+03
Xe-133	2.94E+02	3.06E+02	3.53E+02	1.05E+03
Xe-135m	3.12E+03	7.11E+02	3.36E+03	7.39E+02
Xe-135	1.81E+03	1.86E+03	1.92E+03	2.46E+03
Xe-137	1.42E+03	1.22E+04	1.51E+03	1.27E+04
Xe-138	8.83E+03	4.13E+03	9.21E+03	4.75E+03
Ar-41	8.84E+03	2.69E+03	9.30E+03	3.28E+03

*The listed dose factors are for radionuclides that may be detected in gaseous effluents, from R.G. 1.109, Table B.1.

DOSE PARAMETERS FOR RADIOIODINES AND
RADIOACTIVE PARTICULATE, GASEOUS EFFLUENTS*

RADIONUCLIDE	P_i INHALATION PATHWAY (mRem/yr per $\mu\text{Ci}/\text{m}^3$)	P_i FOOD & GROUND PATHWAYS ($\text{m}^2 \cdot \text{mRem}/\text{yr}$ per $\mu\text{Ci}/\text{sec}$)	RADIONUCLIDE	P_i INHALATION PATHWAY (mRem/yr per $\mu\text{Ci}/\text{m}^3$)	P_i FOOD & GROUND PATHWAYS ($\text{m}^2 \cdot \text{mRem}/\text{yr}$ per $\mu\text{Ci}/\text{sec}$)
H-3	6.47E+02	2.40E+03	Rb-88	5.57E+02	4.74E+04
C-14	2.65E+04	2.38E+09	Rb-89	3.21E+02	1.76E+05
Na-24	1.06E+04	3.28E+07	Sr-89	2.03E+06	1.28E+10
P-32	2.03E+06	1.63E+11	Sr-90	4.09E+07	1.24E+11
Cr-51	1.28E+04	1.15E+07	Sr-91	7.34E+04	3.41E+06
Mn-54	1.00E+06	1.14E+09	Sr-92	1.40E+05	1.11E+06
Mn-56	7.17E+04	1.29E+06	Y-90	2.69E+05	9.64E+05
Fe-55	8.69E+04	1.38E+08	Y-91m	2.79E+03	1.44E+05
Fe-59	1.02E+06	7.89E+08	Y-91	2.45E+06	6.86E+06
Co-58	7.77E+05	5.89E+08	Y-92	1.27E+05	2.59E+05
Co-60	4.51E+06	4.62E+09	Y-93	1.67E+05	2.80E+05
Ni-63	3.39E+05	3.56E+10	Zr-95	1.75E+06	3.45E+08
Ni-65	5.01E+04	4.43E+05	Zr-97	1.40E+05	4.29E+06
Cu-64	1.50E+04	4.75E+06	Nb-95	4.79E+05	4.06E+08
Zn-65	6.47E+05	2.01E+10	Mo-99	1.35E+05	3.23E+08
Zn-69	1.32E+04	3.01E-09	Tc-99m	2.03E+03	2.81E+05
Rb-86	1.90E+05	2.27E+10	Tc-101	8.44E+02	2.92E+04
Te-131m	1.99E+05	3.48E+07	Ru-103	5.52E+05	1.55E+08
Te-131	8.22E+03	4.18E+04	Ru-105	4.84E+04	9.12E+05
Te-132	3.40E+05	7.26E+07	Ru-106	1.16E+07	3.02E+08
I-130	1.60E+06	8.99E+08	Ag-110m	3.67E+06	1.80E+10
I-131	1.48E+07	1.07E+12	Te-125m	4.47E+05	1.56E+08
I-132	1.69E+05	1.79E+06	Te-127m	1.31E+06	1.06E+09
I-133	3.56E+06	9.78E+09	Te-127	2.44E+04	1.53E+05
I-134	4.45E+04	6.40E+05	Te-129m	1.68E+06	1.45E+09
I-135	6.96E+05	2.40E+07	Te-129	2.63E+04	3.76E+04
Cs-134	7.03E+05	7.21E+10	Ce-143	1.16E+05	4.88E+06
Cs-136	1.35E+05	6.13E+09	Ce-144	9.84E+06	1.95E+08
Cs-137	6.12E+05	6.25E+10	Pr-143	4.33E+05	7.98E+05
Cs-138	8.76E+02	5.15E+05	Pr-144	4.28E+03	2.63E+03
Ba-139	5.10E+04	1.52E+05	Nd-147	3.22E+05	1.26E+07
Ba-140	1.60E+06	2.75E+08	W-187	3.96E+04	5.90E+06
Ba-141	4.75E+03	5.98E+04	Np-239	5.95E+04	2.55E+06
Ba-142	1.55E+03	6.43E+04			
La-140	1.68E+05	2.77E+07			
La-142	5.95E+04	1.09E+06			
Ce-141	5.17E+05	3.35E+07			

*If Sr-90 analysis is performed, use P_i given in Ru-106 for unidentified components.

If Sr-90 and Ru-106 analyses are performed, use P_i given in I-131 for unidentified components.

If Sr-90, Ru-106 and I-131 analyses are performed, use P_i given in P-32 for unidentified components.

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM
SAMPLE STATIONS, SAMPLE TYPES, AND SAMPLE FREQUENCIES

<u>SAMPLE STATION</u>	<u>DESCRIPTION/LOCATION</u>	<u>SAMPLE TYPE</u>	<u>SAMPLE FREQUENCY</u>	<u>ANALYSIS TYPE</u>	<u>ANALYSIS FREQUENCY</u>
ON-SITE AIRBORNE AND DIRECT RADIATION (TLD) STATIONS					
ONS-1 (A-1)	1945 ft @ 18° from Plant Axis	Airborne Particulate	Weekly	Gross beta	Weekly
			Weekly	Gamma Isotopic	Quart. Comp.
		Airborne Radioiodine	Weekly	I-131	Weekly
		TLD	Quarterly	Direct Radiation	Quarterly
ONS-2 (A-2)	2338 ft @ 48° from Plant Axis	Airborne Particulate	Weekly	Gross Beta	Weekly
			Weekly	Gamma Isotopic	Quart. Comp.
		Airborne Radioiodine	Weekly	I-131	Weekly
		TLD	Quarterly	Direct Radiation	Quarterly
ONS-3 (A-3)	2407 ft @ 90° from Plant Axis	Airborne Particulate	Weekly	Gross Beta	Weekly
			Weekly	Gamma Isotopic	Quart. Comp.
		Airborne Radioiodine	Weekly	I-131	Weekly
		TLD	Quarterly	Direct Radiation	Quarterly
ONS-4 (A-4)	1852 ft. @ 118° from Plant Axis	Airborne Particulate	Weekly	Gross Beta	Weekly
			Weekly	Gamma Isotopic	Quart. Comp.
		Airborne Radioiodine	Weekly	I-131	Weekly
		TLD	Quarterly	Direct Radiation	Quarterly
ONS-5 (A-5)	1895 ft @ 189° from Plant Axis	Airborne Particulate	Weekly	Gross Beta	Weekly
			Weekly	Gamma Isotopic	Quart. Comp.
		Airborne Radioiodine	Weekly	I-131	Weekly
		TLD	Quarterly	Direct Radiation	Quarterly
ONS-6 (A-6)	1917 ft @ 210° from Plant Axis	Airborne Particulate	Weekly	Gross Beta	Weekly
			Weekly	Gamma Isotopic	Quart. Comp.
		Airborne Radioiodine	Weekly	I-131	Weekly
		TLD	Quarterly	Direct Radiation	Quarterly
ONS-7 (A-7)	2103 ft @ 36° from Plant Axis	TLD	Quarterly	Direct Radiation	Quarterly
ONS-8 (A-8)	2208 ft @ 82° from Plant Axis	TLD	Quarterly	Direct Radiation	Quarterly
ONS-9 (A-9)	1368 ft @ 149° from Plant Axis	TLD	Quarterly	Direct Radiation	Quarterly
ONS-10 (A-10)	1390 ft @ 127° from Plant Axis	TLD	Quarterly	Direct Radiation	Quarterly
ONS-11 (A-11)	1969 ft @ 11° from Plant Axis	TLD	Quarterly	Direct Radiation	Quarterly
ONS-12 (A-12)	2292 ft @ 63° from Plant Axis	TLD	Quarterly	Direct Radiation	Quarterly
CONTROL AIRBORNE AND DIRECT RADIATION (TLD) STATIONS					
NBF	15.6 miles SSW New Buffalo, MI	Airborne Particulate	Weekly	Gross Beta	Weekly
			Weekly	Gamma Isotopic	Quart. Comp.
		Airborne Radioiodine	Weekly	I-131	Weekly
		TLD	Quarterly	Direct Radiation	Quarterly
SBN	26.2 miles SE South Bend, IN	Airborne Particulate	Weekly	Gross Beta	Weekly
			Weekly	Gamma Isotopic	Quart. Comp.
		Airborne Radioiodine	Weekly	I-131	Weekly
		TLD	Quarterly	Direct Radiation	Quarterly
DOW	24.3 miles ENE Dowagiac, MI	Airborne Particulate	Weekly	Gross Beta	Weekly
			Weekly	Gamma Isotopic	Quart. Comp.
		Airborne Radioiodine	Weekly	I-131	Weekly
		TLD	Quarterly	Direct Radiation	Quarterly
COL	18.9 miles NNE Coloma, MI	Airborne Particulate	Weekly	Gross Beta	Weekly
			Weekly	Gamma Isotopic	Quart. Comp.
		Airborne Radioiodine	Weekly	I-131	Weekly
		TLD	Quarterly	Direct Radiation	Quarterly

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM
SAMPLE STATIONS, SAMPLE TYPES, AND SAMPLE FREQUENCIES

<u>SAMPLE STATION</u>	<u>DESCRIPTION/LOCATION</u>	<u>SAMPLE TYPE</u>	<u>SAMPLE FREQUENCY</u>	<u>ANALYSIS TYPE</u>	<u>ANALYSIS FREQUENCY</u>
OFFSITE AIRBORNE AND DIRECT RADIATION (TLD) STATIONS					
OFS-1	4.5 miles NE, Pole #B294-44	TLD	Quarterly	Direct Radiation	Quarterly
OFS-2	3.6 miles, NE, Stevensville Substation	TLD	Quarterly	Direct Radiation	Quarterly
OFS-3	5.1 miles NE, Pole #B296-13	TLD	Quarterly	Direct Radiation	Quarterly
OFS-4	4.1 miles, E, Pole #B350-72	TLD	Quarterly	Direct Radiation	Quarterly
OFS-5	4.2 miles ESE, Pole #B387-32	TLD	Quarterly	Direct Radiation	Quarterly
OFS-6	4.9 miles SE, Pole #B426-1	TLD	Quarterly	Direct Radiation	Quarterly
OFS-7	2.5 miles S, Bridgman Substation	TLD	Quarterly	Direct Radiation	Quarterly
OFS-8	4.0 miles S, Pole #B424-20	TLD	Quarterly	Direct Radiation	Quarterly
OFS-9	4.4 miles ESE, Pole #B369-214	TLD	Quarterly	Direct Radiation	Quarterly
OFS-10	3.8 miles S, Pole #B422-152	TLD	Quarterly	Direct Radiation	Quarterly
OFS-11	3.8 miles S, Pole #B424-12	TLD	Quarterly	Direct Radiation	Quarterly
GROUNDWATER (WELL WATER) SAMPLE STATIONS					
W-1	1969 ft @ 11° from Plant Axis	Groundwater	Quarterly	Gamma Isotopic Tritium	Quarterly Quarterly
W-2	2292 ft @ 63° from Plant Axis	Groundwater	Quarterly	Gamma Isotopic Tritium	Quarterly Quarterly
W-3	3279 ft @ 107° from Plant Axis	Groundwater	Quarterly	Gamma Isotopic Tritium	Quarterly Quarterly
W-4	418 ft @ 301° from Plant Axis	Groundwater	Quarterly	Gamma Isotopic Tritium	Quarterly Quarterly
W-5	404 ft @ 290° from Plant Axis	Groundwater	Quarterly	Gamma Isotopic Tritium	Quarterly Quarterly
W-6	424 ft @ 273° from Plant Axis	Groundwater	Quarterly	Gamma Isotopic Tritium	Quarterly Quarterly
W-7	1895 ft @ 189° from Plant Axis	Groundwater	Quarterly	Gamma Isotopic Tritium	Quarterly Quarterly
W-8	1279 ft @ 53° from Plant Axis	Groundwater	Quarterly	Gamma Isotopic Tritium	Quarterly Quarterly
W-9	1447 ft @ 22° from Plant Axis	Groundwater	Quarterly	Gamma Isotopic Tritium	Quarterly Quarterly
W-10	4216 ft @ 129° from Plant Axis	Groundwater	Quarterly	Gamma Isotopic Tritium	Quarterly Quarterly
W-11	3206 ft @ 153° from Plant Axis	Groundwater	Quarterly	Gamma Isotopic Tritium	Quarterly Quarterly
W-12	2631 ft @ 162° from Plant Axis	Groundwater	Quarterly	Gamma Isotopic Tritium	Quarterly Quarterly
W-13	2152 ft @ 182° from Plant Axis	Groundwater	Quarterly	Gamma Isotopic Tritium	Quarterly Quarterly
W-14	1780 ft @ 164° from Plant Axis	Groundwater	Quarterly	Gamma Isotopic Tritium	Quarterly Quarterly
DRINKING WATER					
STJ	St. Joseph Public Intake Sta. 9 mi.NE	Drinking water	Daily	Gross Beta Gamma Isotopic I-131 Tritium	14 day Comp. 14 day Comp. 14 day Comp. Quart. Comp.
LTW	Lake Twp. Public Intake Sta. 0.4 mi.S	Drinking water	Daily	Gross Beta Gamma Isotopic I-131 Tritium	14 day Comp. 14 day Comp. 14 day Comp. Quart. Comp.

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM
SAMPLE STATIONS, SAMPLE TYPES, AND SAMPLE FREQUENCIES

<u>SAMPLE STATION</u>	<u>DESCRIPTION/LOCATION</u>	<u>SAMPLE TYPE</u>	<u>SAMPLE FREQUENCY</u>	<u>ANALYSIS TYPE</u>	<u>ANALYSIS FREQUENCY</u>
SURFACE WATER					
L1	Condenser Circulating Water Intake	Surface Water	Daily	Gamma Isotopic Tritium	Month. Comp.
L2	Plant Site Boundary - South 500 ft. south of Plant Centerline	Surface Water	Daily	Gamma Isotopic Tritium	Month. Comp.
L3	Plant Site Boundary - North 500 ft. north of Plant Centerline	Surface Water	Daily	Gamma Isotopic Tritium	Month. Comp.
SEDIMENT					
L2	Plant Site Boundary - South 500 ft. south of Plant Centerline	Sediment	Semi-Ann.	Gamma Isotopic	Semi-Annual.
L3	Plant Site Boundary - North 500 ft. north of Plant Centerline	Sediment	Semi-Ann.	Gamma Isotopic	Semi-Annual.
INGESTION - MILK Indicator Farms					
Totzke Farm	5.1 miles ENE, Baroda	Milk	Once every 15 days	I-131 Gamma Isotopic	per sample
Schuler Farm	4.1 miles SE, Baroda	Milk	Once every 15 days	I-131 Gamma Isotopic	per sample
Warmbein Farm	7.7 mi. S, Three Oaks	Milk	Once every 15 days	I-131 Gamma Isotopic	per sample
Freehling Farm	7.0 mi. SE, Buchanan	Milk	Once every 15 days	I-131 Gamma Isotopic	per sample
INGESTION - MILK Background Farms					
Livinghouse Farm	20 miles S, La Porte, IN	Milk	Once every 15 days	I-131 Gamma Isotopic	per sample
Wyant Farm	20.7 miles E, Dowagiac	Milk	Once every 15 days	I-131 Gamma Isotopic	per sample
INGESTION - FISH					
ONS-N	0.3 mile N, Lake Michigan	Fish	2/year.	Gamma Isotopic	per sample
ONS-S	0.4 mile S, Lake Michigan	Fish	2/year.	Gamma Isotopic	per sample
OFS-N	3.5 mile N, Lake Michigan	Fish	2/year.	Gamma Isotopic	per sample
OFS-S	5.0 mile S, Lake Michigan	Fish	2/year.	Gamma Isotopic	per sample

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM
SAMPLE STATIONS, SAMPLE TYPES, AND SAMPLE FREQUENCIES

<u>SAMPLE STATION</u>	<u>DESCRIPTION/LOCATION</u>	<u>SAMPLE TYPE</u>	<u>SAMPLE FREQUENCY</u>	<u>ANALYSIS TYPE</u>	<u>ANALYSIS FREQUENCY</u>
INGESTION - FOOD PRODUCTS					
On Site	Nearest sample to Plant in the highest D/Q land sector.	Grapes	At time of harvest	Gamma Isotopic	At time of harvest
		Broad leaf vegetation	At time of harvest	Gamma Isotopic	At time of harvest
Off Site	In a land sector containing grapes, approximately 20 miles from the plant, and 180 degrees from the sector with the highest D/Q.	Grapes	At time of harvest	Gamma Isotopic	At time of harvest

Composite samples of Drinking and Surface water shall be collected at least daily. Particulate sample filters should be analyzed for gross beta activity 24 or more hours following filter removal. This will allow for radon and thoron daughter decay. If gross beta activity in air or water is greater than 10 times the yearly mean of control samples for any medium, gamma isotopic analysis should be performed on the individual samples.

If at least three indicator milk samples and one background milk sample cannot be obtained, then three indicator broad leaf samples will be collected at different locations, within eight miles of the plant, in the land sector with the highest D/Q (refers to the highest annual average D/Q). Also one background broad leaf sample will be collected approximately twenty miles from the plant in a land sector 180 degrees from the land sector with the highest D/Q.

Please note the following definitions: Weekly --> at least once per every seven (7) days
Monthly --> at least once per every thirty-one (31) days
Quarterly --> at least once per every ninety-two (92) days
Semi-annually --> at least once every one hundred eight-four (184) days

MAXIMUM VALUES FOR THE LOWER LIMITS OF DETECTION

	Food Product	Water	Milk	Air Filter	Fish	Sediment
<u>Radionuclide</u>	<u>pCi/Kg wet</u>	<u>pCi/l</u>	<u>pCi/l</u>	<u>pCi/m³</u>	<u>pCi/Kg wet</u>	<u>pCi/Kg dry</u>
Gross Beta		4*		0.01		
H-3		2000	60			
Ba-140		60	60			
La-140		15	15			
Cs-134	60	15	15	0.06	130	150
Cs-137	60	18	18	0.06	150	180
Zr-95		30				
Nb-95		15				
Mn-54		15			130	
Fe-59		30			260	
Zn-65		30			260	
Co-58		15			130	
Co-60		15			130	
I-131	60	1	1	0.07		

* LLD for drinking water

NOTES

- A. The Lower Limit of Detection (LLD) is defined as the smallest concentration of radioactive material in sample that will be detected with 95% probability and 5% probability of falsely concluding that a blank observation represents a "real" signal.

For a particular measurement system (which may include radiochemical separation), the LLD is given by the equation:

$$LLD = \frac{4.66 \times S}{E \times V \times 2.22 \times Y \times e^{(-\lambda \times \Delta t)}}$$

where LLD is the a priori lower limit of detection as defined above as pCi per unit mass or volume.

S is the standard deviation of the background counting rate or of the counting of a blank sample as appropriate as counts per minute. The value of S used in the calculation of the LLD for the detection system shall be based on the actual observed variance of the background counting rate of the blank samples (as appropriate) rather than on an unverified theoretically predicted variance. In calculating the LLD for a radionuclide determined by gamma-ray spectroscopy, the background shall include the typical contributions of other radionuclides normally present in the samples (i. e. K-40 in milk samples). Analysis performed in such a manner that the stated LLDs will be achieved under routine conditions. Occasionally background fluctuations, unavoidably small sample sizes, the presence of interfering radionuclides, or other uncontrollable circumstances may render these LLDs unachievable. In such cases, the contributing factors will be identified and described in the Annual Radiological Environmental Operating Report.

E is the counting efficiency of the detection equipment as counts per transformation (i. e. disintegration)

V is the sample size in appropriate mass or volume units

2.22 is the conversion factor from picoCuries (pCi) to transformations (disintegrations) per minute

Y is the fractional radiochemical yield as appropriate

λ is the radioactive decay constant for the particular radionuclide

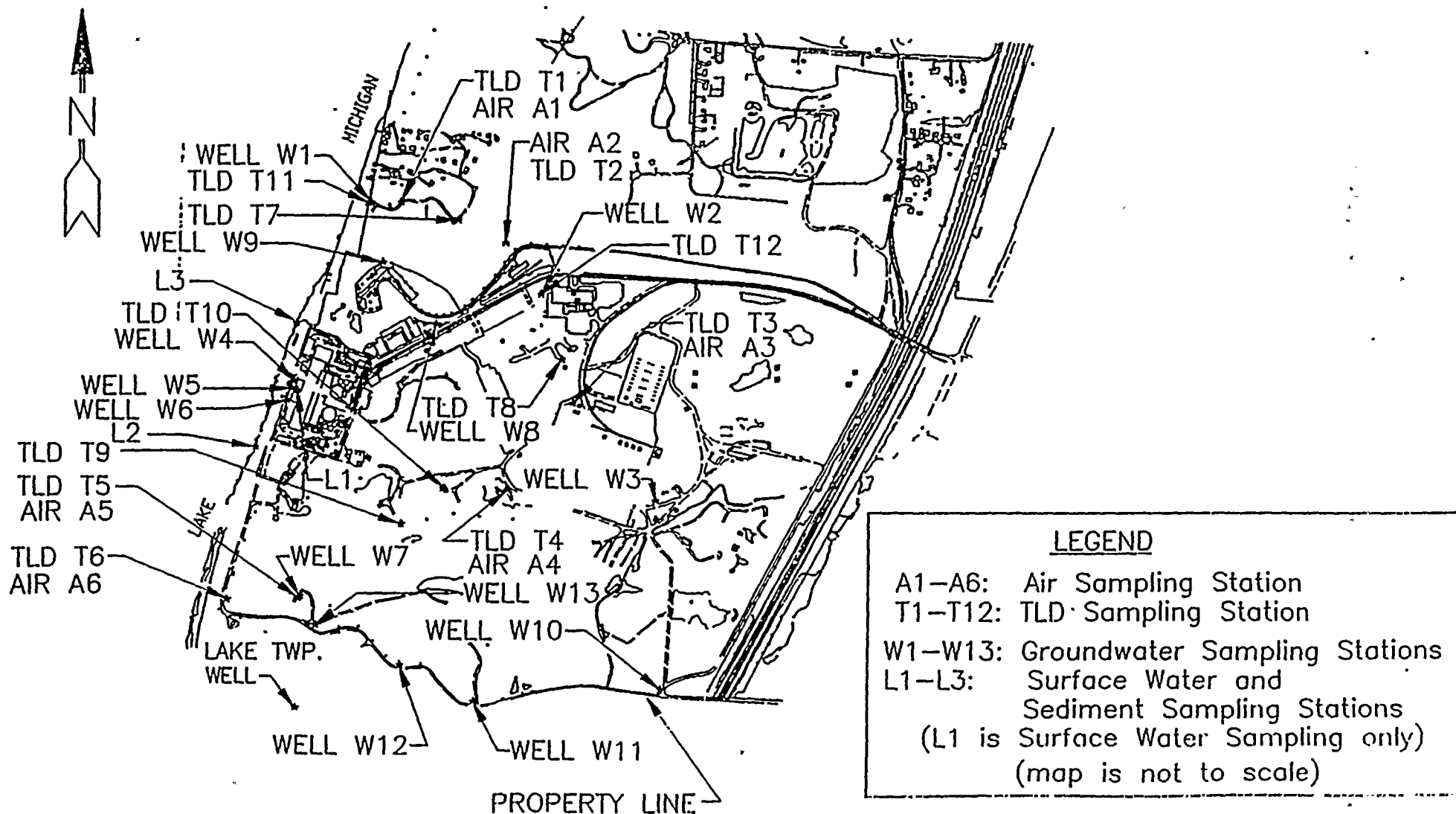
Δt is the elapsed time between sample collection (or end of sample collection period) and time of counting.

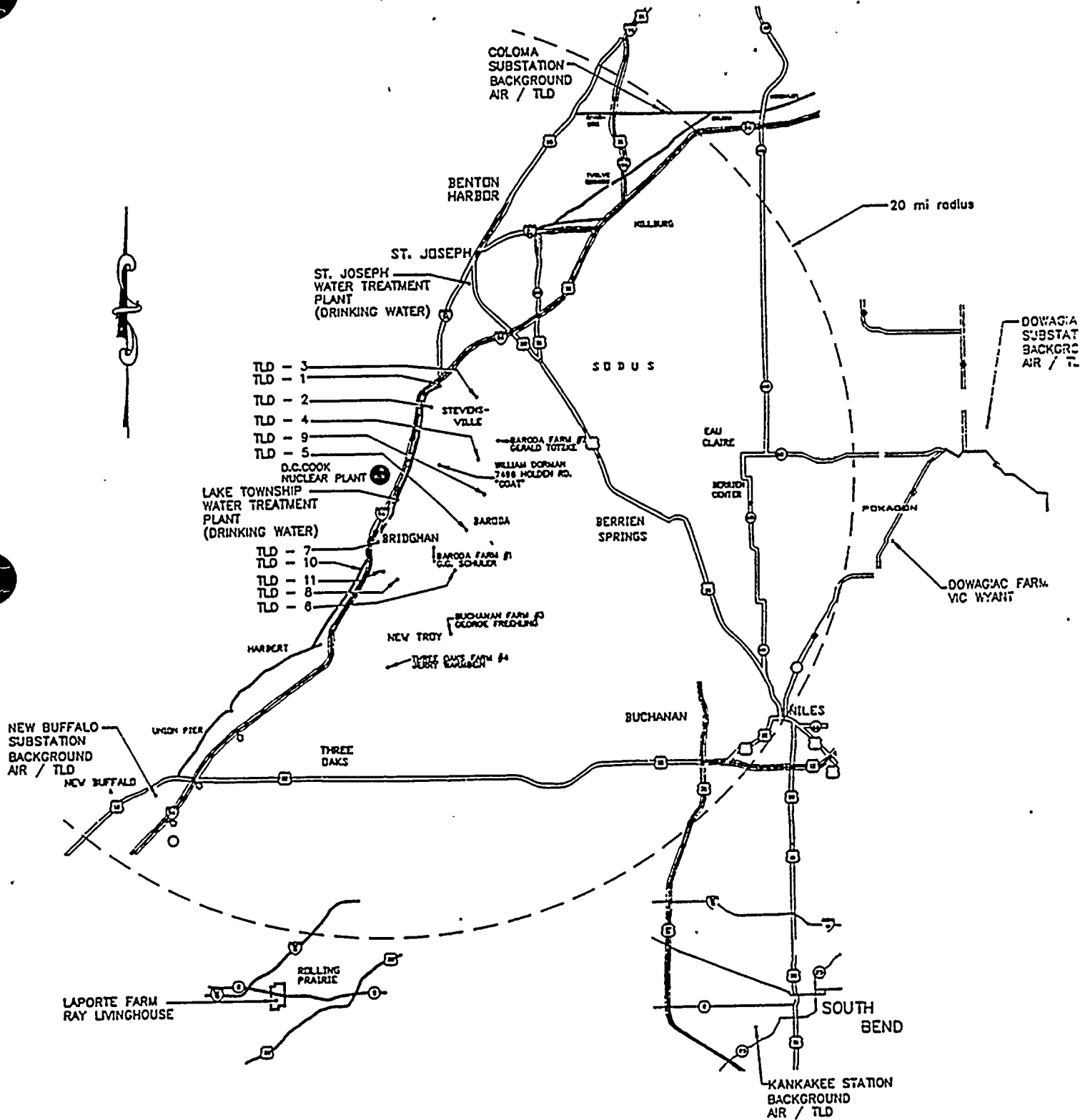
- B. Other peaks which are measurable and identifiable, together with the radionuclides listed here, shall be identified and reported.

REPORTING LEVELS FOR RADIOACTIVITY CONCENTRATION
IN ENVIRONMENTAL SAMPLES

	Food Product	Water	Milk	Air Filter	Fish
<u>Radionuclide</u>	<u>pCi/Kg wet</u>	<u>pCi/l</u>	<u>pCi/l</u>	<u>pCi/m³</u>	<u>pCi/Kg wet</u>
H-3		20000			
Ba-140		200	300		
La-140		200	300		
Cs-134	1000	30	60	10	1000
Cs-137	2000	50	70	20	2000
Zr-95		400			
Nb-95		400			
Mn-54		1000			30000
Fe-59		400			10000
Zn-65		300			20000
Co-58		300			10000
Co-60		1000			30000
I-131	100	2	3	0.90	

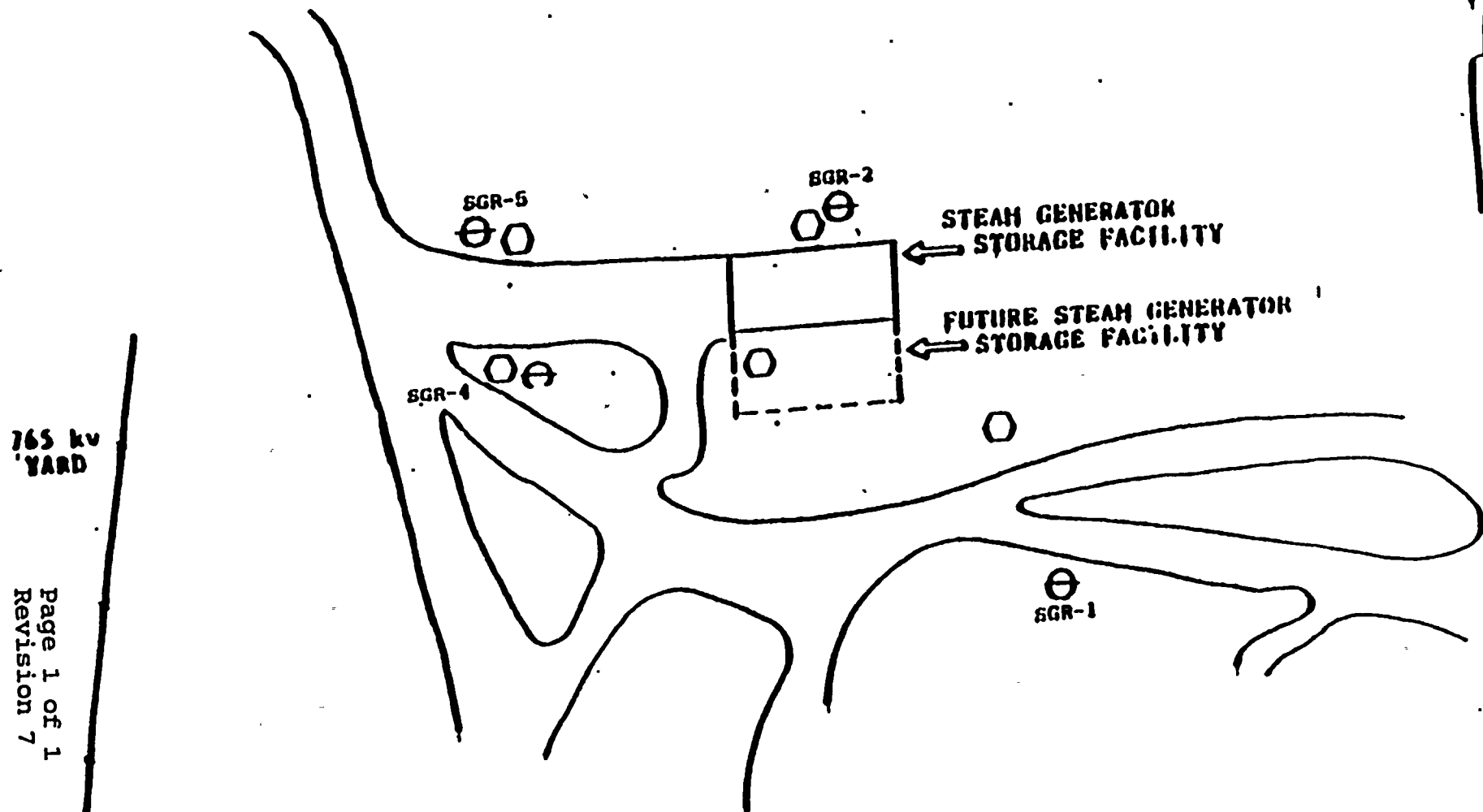
PLANT SITE TLD, AIR, SEDIMENT AND WATER SAMPLING
STATIONS





STEAM GENERATOR STORAGE FACILITY

MONITORING WELLS



12 PMP 6010 OSD.001
ATTACHMENT 3.24

765 kv
YARD

Page 1 of 1
Revision 7

**DONALD C. COOK NUCLEAR PLANT
PLANT MANAGER PROCEDURE COVER SHEET**

Instruction No. 12 PMP 6010 OSD.001

Revision No. 8

TITLE OFF-SITE DOSE CALCULATION MANUAL

SCOPE OF REVISION

Marginal markings used. Changed Attachment 3.1 to reflect only the R_i values and deleted all MIDAS subprogram printouts due to changes that can be made to subprograms that would not be reflected here. Updated body of procedure to reflect this. Made editorial changes and corrected typos to improve clarity. Added units to various equations to increase clarity. Revised Attachment 3.16 with 1993 γ/Q and D/Q data to allow use of most recent available data. Updated Attachment 3.11 to reflect Change sheet 1 to revision 6 that did not get incorporated in Revision 7. Incorporated Attachment 3.25 into Attachment 3.19 to provide better continuity. Incorporated Attachment 3.24 into Attachment 3.22 to provide better continuity.

SIGNATURES	REVISION NUMBER			
* * * * *	Revision 8			
PREPARED BY	<i>[Signature]</i>			
QUALITY ASSURANCE SUPERINTENDENT APPROVAL	<i>[Signature]</i>			
PLANT NUCLEAR SAFETY COMMITTEE	MEETING NO 2799			
PLANT MANAGER APPROVAL	<i>[Signature]</i>			
APPROVAL DATE	6/30/94			
EFFECTIVE DATE	7/6/94			

INDIANA MICHIGAN POWER COMPANY
DONALD C. COOK NUCLEAR PLANT

OFF-SITE DOSE CALCULATION MANUAL

Section Number	INDEX	Page
1.0	OBJECTIVE	1
2.0	REFERENCES	1
3.0	LIST OF ATTACHMENTS	2
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- 2.11 Final Environmental Statement D. C. Cook Nuclear Plant, August 1973.
- 2.12 NUREG-0017
- 2.13 Correspondence: D. Noble to W. MacRae, "Referenced Efficiencies for RRS-1001", July 21, 1989.
- 2.14 ODCM Setpoints for Liquid Effluent Monitors (Bases), ENGR 107-04 8112.1 Environs Rad Monitor System.
- 2.15 Radiological Support Section Calculation RS-C-0202, July 31, 1989.
- 2.16 Radiological Support Section Calculation RS-C-0106, March 19, 1987.
- 2.17 "Implementation of Programmatic Controls for Radiological Effluent Technical Specifications in the Administrative Controls Section of the Technical Specifications and the Relocation of Procedural Details of RETS to the Offsite Dose Calculation Manual or to the Process Control Program (Generic Letter 89-01)", United States Nuclear Regulatory Commission, January 31, 1989.
- 2.18 12 THP 6010 RPP.601, Preparation of the Annual Radioactive Effluent Release Report.

3.0 LIST OF ATTACHMENTS

- 3.1 R_i Dose Factors for Various Pathways.
- 3.2 Radioactive Liquid Effluent Monitoring Instrumentation (Table 3.3-12)
- 3.3 Radioactive Liquid Effluent Monitoring Instrumentation Surveillance Requirements (Table 4.3-8)
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- 3.19 Sample Locations and Requirements for the REMP
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- 3.22 On Site Monitoring Locations
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4.0 DETAILS

4.1 Calculation of Offsite Doses

4.1.1 Gaseous Effluent Releases

The calculation of doses from effluent releases is performed by the program MIDAS (Meteorological Information and Dose Assessment System). The site specific parameters associated with MIDAS reside in the following subprograms:

MIDER
MIDEX
MIDEL
MIDEG
MIDEN

The subprogram used to enter and edit gaseous release data is called MD1EQ (EQ). The data entered in EQ can be used to calculate the accumulation of dose to individual land based receptors based on hourly meteorology and release data. The air dose from this data is calculated via the XDAIR subprogram in MIDAS. It computes air dose results for use in Regulatory Guide 1.21 reports and 10CFR50 Appendix I calculations based on routine releases.

The formula used for the calculation of the air dose is taken from Reg. Guide 1.109:

$$D_{\gamma} \text{ or } D_{\beta} = \frac{\chi}{Q} \times \sum [(M_i \text{ or } N_i) \times Q_i \times 3.17E^{-8}]$$

$D_{\gamma} \text{ or } D_{\beta}$	=	the gamma or beta air dose in mRad/yr to an individual receptor.
χ/Q	=	the annual average or real time atmospheric dispersion factor over land, sec/m ³
M_i	=	the gamma air dose factor, $\frac{\text{mRad} - \text{m}^3}{\text{yr} - \mu\text{Ci}}$, from Attachment 3.18
N_i	=	the beta air dose factor, $\frac{\text{mRad} - \text{m}^3}{\text{yr} - \mu\text{Ci}}$ from Attachment 3.18
Q_i	=	the release rate of radionuclide, i, in $\mu\text{Ci/yr}$
$3.17E^{-8}$	=	inverse number of seconds/year, years/second.

The value for the ground average χ/Q is determined using equations shown below:

$$\chi/Q = \frac{2.03}{\bar{u}_{m_g} \times x \times \Sigma_g} \times T_f$$

where:

$$\Sigma_g = \text{minimum of } \sqrt{\sigma_z^2 + \frac{H_c^2}{2\pi}} \text{ or } \Sigma_g = \sqrt{3}\sigma_z$$

x = distance downwind of the source, meters.
This information is found in parameter 5 of MIDER.

\bar{u}_{m_g} = wind speed for ground release, meters/second.

σ_z is the vertical dispersion coefficients taken from RG 1.111

H_c = building height from parameter 28 of MIDER.

T_f = terrain factor (= 1 for Cook Nuclear Plant) because we consider all our releases to be ground level (see parameter #5 in MIDER).

$$2.03 = \sqrt{2 + \pi} + 0.393 \text{ (22.5° in radians)}$$

The dose due to gaseous releases (other than the air dose) is calculated by the MIDAS subprogram GASPRO. GASPRO computes the accumulation of dose to individual receptors based on hourly meteorology and release data. Calculations consider the effect of each important isotope for each pathway, organ, age group, distance, and direction.

Calculations are based on the environmental pathways-to-man models in RG 1.109. The program considers 7 pathways, 8 organs, and 4 age groups in 16 direction sectors. The distances used are taken from the MIDEF file.

The equation used to calculate the dose in mRem is:

Total Body Plume Pathway (mRem)

$$\text{Dose (mRem)} = 3.17E^4 \sum (Q_i \times \chi/Q \times S_i \times DFB_i \times t)$$

where:

$3.17E^4$ = conversion factor, $\frac{\mu\text{Ci} - \text{year}}{\text{Ci} - \text{sec}}$

S_f = shielding factor that accounts for the dose reduction due to shielding provided by residential structures during occupancy (maximum exposed individual = 0.7 per Table E-15 of RG 1.109)

DFB_i = the whole body dose factor from Table B-1 of Regulatory Guide 1.109.

Q_i = the release rate of radionuclide i, in Curies/second

χ/Q = the annual average or real time atmospheric dispersion factor, sec/m^3 .

t = duration of release, in seconds

Skin Plume Pathway (mRem)

$$\text{Dose (mRem)} = 3.17E^4 \times 1.11 \times S_f \times t \times \frac{\chi}{Q} \times [\sum(Q_i \times DF_i) + \sum(Q_i \times DFS_i)]$$

Where:

$3.17E^4$ = conversion factor, $\frac{\mu\text{Ci} - \text{year}}{\text{Ci} - \text{sec}}$

1.11 = conversion factor, tissue to air, $\frac{\text{mRem}}{\text{mRad}}$

Q_i = release rate of radionuclide i, in Curies/second.

χ/Q = the annual average OR real time atmospheric dispersion factor, in sec/m^3 .

S_f = shielding factor, that accounts for dose reduction due to shielding provided by residential structures during occupancy, 0.7 per Table E-15, RG 1.109.

t = duration of release, seconds

DF_i^Y = the gamma air dose factor for a uniform semi-infinite cloud of radionuclide i, in $\text{mRad}\cdot\text{m}^3/\mu\text{Ci}\cdot\text{yr}$ from Table B-1, RG 1.109.

DFS_i = the beta skin dose factor for a semi-infinite cloud of radionuclide i, in $\text{mRem}\cdot\text{m}^3/\mu\text{Ci}\cdot\text{yr}$ from Table B-1, RG 1.109.

Radionuclide and Radioactive Particulate Doses

The dose, in D_{ip} in mRem, to an individual from radionuclides, other than noble gases, with half-lives greater than 8 days in gaseous effluents released to unrestricted areas will be determined as follows:

$$D_{TP} \text{ (mRem/year)} = 3.17E^{-8} \sum (R_i \times W \times Q_{ic})$$

where:

R_i = the most restrictive dose factor for each identified radionuclide i , in m^2 mRem/yr per $\mu\text{Ci/sec}$ (for food and ground pathways) or mRem/yr per $\mu\text{Ci}/m^3$ (for inhalation pathway), for the appropriate pathway.

For sectors with existing pathways within 5 miles of the site, use the values of R_i for these real pathways, otherwise use pathways distance of 5 miles. See Attachment 3.1 for the maximum R_i values for the most controlling age group for selected radionuclides. R_i values were generated by computer code PARTS, see NUREG-0133, Appendix D.

W = the annual average or real time atmospheric dispersion parameters for estimating doses to an individual at the worst case location, and where W is further defined as:

$W_{in} = \bar{\chi}/\bar{Q}$ for the inhalation pathway, in sec/m^3 .

$W_{fg} = \bar{D}/\bar{Q}$ for the food and ground pathways in $1/m^2$

Q_{ic} = the release rate of those radioiodines, radioactive materials in particulate form and radionuclides other than noble gases with half-lives greater than eight (8) days, in $\mu\text{Ci/yr}$.

$3.17E^{-8}$ = inverse number of seconds in a year, years/second.

This calculation is made for each pathway. The maximum computed dose at any receptor for each pathway is selected. These are summed together to get the dose to compare to the limits. Only the maximum of the cow milk or goat milk pathway (not both) is included in the total.

In addition to the above routines, the QUICKG routine of the MIDAS system is used to provide data used in the monthly reports because of its simplicity compared to the process described above. The QUICKG routine is based on NUREG 0133 Section 5.3.1(a) methodology instead of RG 1.109 methodology.

The equations used are as follows:

Gamma Radiation Dose (GD) - ground release

$$GD \text{ (mRad/year)} = 3.17E^{-8} (M_i \times \chi/Q \times Q_i)$$

Beta Radiation Dose (BD) - ground release

$$BD \text{ (mRad/year)} = 3.17E^{-8} (N_i \times \chi/Q \times Q_i)$$

where:

- M_i = air dose factor due to gamma emissions for each noble gas radionuclide, i. These factors are listed in Attachment 3.18, parameter 4 of MIDEN and are taken from Table B-1 of RG 1.109
- N_i = air dose factor due to beta emissions for each noble gas radionuclide, i. These factors are listed in Attachment 3.18, parameter 4 of MIDEN and are taken from Table B-1 of RG 1.109.
- χ/Q = the average annual or real time relative concentration, sec/m^3 for vent releases. These factors are taken from parameter 9 of MIDEN or Attachment 3.16.
- Q_i = The amount of noble gas radionuclide released, $\mu\text{Ci/year}$. Calculated via the MD1EQ/MD1AG pathway from plant release data sheets.

STEAM GENERATOR BLOWDOWN SYSTEM (START UP FLASH TANK VENT)

The amount of radioiodine and other radionuclides that are released via the start up flash tank and it's vent are calculated through actual sample results while the start up flash tank is in service.

The following calculation is performed to determine the amount of curies released through this pathway.

$$\text{Curies} = \frac{\mu\text{Ci}}{\text{ml}} \times \text{GPM} \times \text{time on flash tank (min)} \times 3.785\text{E}^{-3}$$

3.785E^{-3} is the factor to convert $\mu\text{Ci} - \text{gal/ml}$ to Ci.

The flow rate is determined from the blowdown valve position chart recorder and the time on the start up tank is determined from the control room logs. Chemistry department performs the sampling and analysis of the samples.

This data is provided to the MIDAS computer and a dose calculation is performed to ensure compliance with Technical Specification 3/4.11.2.3 dose limits. MIDAS uses the formulas given in section 4.1.2 to calculate doses to members of the public.

NOTE

THIS SECTION PROVIDES THE MINIMUM REQUIREMENTS TO BE FOLLOWED AT COOK PLANT. THIS WOULD BE USED IF ACTUAL SAMPLE DATA WAS NOT AVAILABLE EACH TIME THE START UP FLASH TANK WAS IN SERVICE.

Release rate of radioiodine via the Start Up Flash Tank must comply with Technical Specification 3/4.11.2.3.

4.2.2 Radioactive Gaseous Effluent Monitoring Instrumentation (3/4.3.3.10)

- 4.2.2.1 The radioactive gaseous process and effluent monitoring instrumentation channels shown in Attachment 3.4 shall be operable with their alarm/trip setpoints set to ensure that the limits of section 4.2.4.1 are not exceeded.
- 4.2.2.2 The applicability of each channel is shown in Attachment 3.4.
- 4.2.2.3 With a radioactive gaseous process or effluent monitoring instrumentation channel alarm/trip setpoint less conservative than a value which will ensure that the limits of section 4.2.4.1 are met, without delay suspend the release of radioactive gaseous effluents monitored by the affected channel, and reset or declare the channel inoperable.
- 4.2.2.4 With less than the minimum number of radioactive gaseous effluent monitoring instrumentation channels operable, take the action shown in Attachment 3.4.
- 4.2.2.5 The provisions of the Technical Specifications 3.0.3 and 3.0.4 are not applicable.

NOTE

THIS SURVEILLANCE REQUIREMENT DOES NOT APPLY TO THE WASTE GAS HOLDUP SYSTEM HYDROGEN AND OXYGEN MONITORS, AS THEIR SETPOINTS ARE NOT ADDRESSED IN THIS DOCUMENT.

- 4.2.2.6 The setpoints shall be determined in accordance with the methodology as described in section 4.3.2. The setpoint shall be recorded.
- 4.2.2.7 Each radioactive gaseous process or effluent monitoring instrumentation channel shall be demonstrated operable by performance of the CHANNEL CHECK, SOURCE CHECK, CHANNEL CALIBRATION, and CHANNEL FUNCTIONAL TEST operations at the frequencies shown in Attachment 3.5.

4.2.3 Liquid Effluents

4.2.3.1 Concentration Excluding Releases via the Turbine Room Sump Discharge (3/4.11.1.1)

- 4.2.3.1.1 The concentration of radioactive material released at any time from the site via either the Batch Release Tanks or the Plant Continuous Releases excluding only the Turbine Room Sump discharge to the absorption pond to unrestricted areas (see Technical Specifications Figure 5.1-3) shall be limited to the concentrations

- 4.2.5.3 With the calculated doses from the release of radioactive materials in liquid or gaseous effluents exceeding twice the limits of sections 4.2.3.3, 4.2.4.2 or 4.2.4.3, in lieu of any other report required by Technical Specification 6.9.2, prepare and submit a Special Report to the Director, Nuclear Reactor Regulation, U. S. Nuclear Regulatory Commission, Washington D. C. 20555, within 30 days, which defines the corrective action to be taken to reduce subsequent releases to prevent recurrence of exceeding the limits above. This Special Report shall include an analyses which estimates the radiation exposure (dose) to a member of the public from uranium fuel cycle sources (including all effluent pathways and direct radiation) for a 12 consecutive month period that includes the release(s) covered by this report. If the estimated dose(s) exceeds the limits above, and if the release condition resulting in violation of 40 CFR 190 has not already been corrected, the special report shall include a request for a variance in accordance with the provisions of 40 CFR 190 and including the specified information of paragraph 190.11(b). Submittal of the report is considered a timely request, and a variance is granted until staff action on the request is complete. The variance only relates to the limits of 40 CFR 190, and does not apply in any way to the requirements for dose limitation of 10 CFR part 20, as addressed in other sections of this procedure.
- 4.2.5.4 The provisions of Technical Specification 3.0.3 and 3.0.4 are not applicable.
- 4.2.5.5 Cumulative dose contributions from liquid and gaseous effluents shall be determined in accordance with this document (including Sections 4.2.3.3, 4.2.4.2 and 4.2.4.3).

4.3 Calculation of Alarm/Trip Setpoints

The alarm and trip setpoints are to provide monitoring, indication and control of liquid and gaseous effluents. The setpoints are used in conjunction with sampling programs to assure that the releases are kept within the limits of 10CFR20 Appendix B Table 2. Setpoints shall be established for liquid and gaseous monitors. Depending on the monitor function, it would be a continuous or batch monitor. The different types of monitors are subject to different setpoint methodologies.

One variable used in the setpoint calculations is the multiple release point factor (MRP). The MRP is a factor used such that when all the releases are integrated, the applicable LIMIT value will not be violated. The MRP is determined such that the sum of the MRP's for that effluent type (liquid or gaseous) is less than or equal to 1. The value of the MRP is arbitrary, and it should be assigned based on operational performance. The values of the MRP's for each liquid release point are given in Attachment 3.8.

4.3.1 Liquid Monitors

Liquid monitor setpoints shall be established for each monitor of the liquid effluent release systems. A schematic of the liquid effluent release systems is shown as Attachment 3.9. A list of the Plant Liquid Effluent Parameters is in Attachment 3.10. The exact details of each system design and operation can be found in the system descriptions. The setpoints are intended to help keep releases within the limits of 10CFR20 Appendix B, Table 2, Column 2. Setpoints shall be determined using either the batch or the continuous methodology.

4.3.1.1 Liquid Batch Monitor Setpoint Methodology

There is only one monitor used on the Waste Disposal System for liquid batch releases. This monitor is identified as RRS-1000. R-19 and R-24 can also be used to monitor batch releases while draining steam generators. The function of these monitors is to act as a check on the sampling program. The sampling program determines the nuclides and concentrations of those nuclides prior to release. The discharge flow rates and dilution flow rates are then adjusted to keep the release within the limits of 10CFR20. Based on the concentrations of nuclides in the release the count rate on the monitor can be predicted. The high alarm setpoint can then be set at 1.5 times the predicted value up to the maximum setpoint of the system.

The radioactive concentration of each batch of radioactive liquid waste to be discharged is determined prior to each release by sampling and analysis in accordance with Attachment 3.6.

The flow rates are determined in order to keep the release within the requirements of 10CFR20 Appendix B, Table 2, Column 2. The equation to calculate the flow rates is:

$$\left[\sum \frac{C_i}{LIMIT_i} \right] * \frac{f}{MRP} \leq F + f$$

Where:

C_i = the concentration of nuclide i.

$LIMIT_i$ = the 10CFR20 Appendix B, Table 2, Column 2 limit of nuclide i.

f = the effluent flow rate in GPM (Attachment 3.10).

F = the dilution water flow rate as estimated prior to release. The dilution flow rate is a multiple of 230,000 GPM depending on the number of circulation pumps in operation.

MRP = the multiple release point factor. A factor such that when all the release points are operating at one time the limits of 10CFR20 will not be exceeded.

This equation shall be true during the batch release. Before the release is started, the maximum effluent flow rate and the minimum dilution flow rate should be substituted for f and F , respectively. If the equation is true, then the release can proceed with those flow rates as the limits of operation. If the equation is not true, then the effluent flow rate can be reduced or the dilution flow rate can be increased to make the equation true. This equation may be rearranged to solve for the maximum effluent release flow rate (f).

The setpoint is used as a quality check on the sampling program. The setpoint is used to stop the effluent flow when the monitor reading is greater than the predicted value from the sampling program. The predicted value is generated by converting the effluent concentration for each nuclide to counts per unit of time as per Attachment 3.11 or 3.12. The sum of all the counts per unit of time is the predicted count rate. The predicted count rate can then be multiplied by 1.5 to determine the high alarm setpoint.

4.3.1.2 Liquid Continuous Monitor Setpoint Methodology

There are eight monitors used as continuous liquid release monitors. These monitors are used in the steam generator blowdown, blowdown treatment and essential service water systems.

The monitors are identified as:

- o R-19 for the steam generator blowdown for both units.
- o R-24 for the blowdown treatment system for both units.
- o R-20 for the east ESW system for each unit.
- o R-28 for the west ESW system for each unit.

The function of the monitors is to assure that releases are kept within the limits of 10CFR20 Appendix B, Table 2.

The monitors on the steam generator blowdown and blowdown treatment systems have trip functions associated with their setpoints. The essential service water monitors are equipped with an alarm function only and monitor effluent in the event the Containment Spray Heat Exchangers are used.

The setpoint for the continuous monitors is:

$$S_p \leq \frac{C \times F \times MRP \times Eff \times SF}{f}$$

where:

S_p = the setpoint of the monitor in cpm
 C = $5E^{-7}$ μ Ci/ml, the maximum permissible limit from 10CFR20 Appendix B Table 2, Column 2 of a known possible nuclide in the effluent stream.

OR

= if a mixture is to be specified,

$$\frac{\sum C_i}{\sum \frac{C_i}{LIMIT_i}}$$

F = the dilution water (circ water) flow rate in GPM obtained from Attachment 3.10. For routine operation, the setpoint should be calculated using the minimum dilution flow rate of 230,000 GPM.

MRP = the multiple release point factor. A factor such that when all the release points are operating at one time the limits of 10CFR20 will not be exceeded (Attachment 3.8). The MRP for R-20 and R-28 is set to 1.

SF = Safety Factor, 0.9.

Eff = Efficiency
 R-19 - $4.2 E^6$ cpm/ μ Ci/ml
 R-24 - $7.5 E^6$ cpm/ μ Ci/ml
 R-20 - $4.3 E^6$ cpm/ μ Ci/ml
 R-28 - $4.3 E^6$ cpm/ μ Ci/ml

f = the applicable effluent release flow rate in GPM. For routine operation, the setpoint should be calculated using the maximum effluent flow rate (Attachment 3.10).

- 2) compute ΣQ_p (or Σf_p) for all release points.
- 3) ratio $Q_p/\Sigma Q_p$ (or $f_p/\Sigma f_p$) for each release point. This ratio is the MRP for that specific release point.
- 4) repeat 1) through 3) for each of the site's eight gaseous release points.

F_p = the maximum volumetric flow rate of release point p, at the time of the release in cc/sec. The maximum Unit Vent flow rate, by design, is 139,600 cfm for Unit 1 and 103,500 for Unit 2.

DL_j = dose rate limit to organ j in an unrestricted area (mRem/yr).

Based on continuous releases, the dose rate limits, DL_j , from section 4.2.4.1, are as follows:

Total Body	\leq	500 mRem/year
Skin	\leq	3000 mRem/year
Any Organ	\leq	1500 mRem/year

$\overline{\chi/Q}$ = the annual average relative concentration in the applicable sector or area, in sec/m³ (see Attachment 3.16). The χ/Q values will be re-evaluated on an annual basis. The re-evaluation will include determination of the worst sector. If the new worst sector χ/Q value is less than the previous year worst χ/Q value, no change is required. Otherwise, the Offsite Dose Calculation Manual will be modified accordingly. (see Attachment 3.17)

W_i = weighted factor for the radionuclide:

$$W_i = \frac{C_i}{\sum C_k}$$

where:

C_i is the concentration of the most abundant radionuclide i, and C_k is the total concentration of all identified radionuclides in that release pathway. For batch releases, this value may be set to one (1) for conservatism.

DCF_{ij} = dose conversion factor which is used to relate radiation dose to organ j, from exposure to radionuclide i in mRem/yr per $\mu\text{Ci}/\text{m}^3$. See equations below.

At certain times, it may be desirable to increase the setpoint, if the vent flow rate is decreased. This may be accomplished in one of two ways.

$$\frac{\text{Max Concentration } (\mu\text{Ci/cc}) \times \text{Max. Flowrate (cfm)}}{\text{New Max. Concentration } (\mu\text{Ci/cc})}$$

= New Max. Flow rate in cfm

or

$$\frac{\text{Max Concentration } (\mu\text{Ci/cc}) \times \text{Max. Flowrate (cfm)}}{\text{New Max. Flowrate (cfm)}}$$

= New Max. Concentration in $\mu\text{Ci/cc}$

4.3.2.2

Waste Gas System Decay Tanks

The gaseous effluents discharged from the Waste Gas System will be monitored by the vent stack monitors VRS-1505 and VRS-2505.

Due to a high radiation alarm, an automatic termination of the release from the waste gas system will be initiated from the plant vent radiation monitor low range noble gas channel (VRS-1505 or VRS-2505). Therefore, for any gaseous release configuration, which includes normal operation and waste gas system gaseous discharges, the alarm setpoint of the plant vent radiation monitor will be recomputed to determine the most limiting organ based on all gaseous effluent source terms.

4.3.2.3

Containment Purge and Exhaust System

The gaseous effluents discharged by the Containment Purge and Exhaust Systems and Instrumentation Room Purge and Exhaust System will be monitored by the plant vent radiation monitor noble gas channels (VRS-1505 for Unit 1, VRS-2505 for Unit 2); and alarms and trip actions will occur prior to exceeding the limits in section 4.2.4.1.

For the Containment System, a continuous air sample from the Containment atmosphere is drawn through a closed, sealed system to the radiation monitors (Tag No. ERS-1300/1400 for Unit 1 and ERS-2300/2400 for Unit 2). The sample is then returned to Containment. Grab sample analysis is performed for a Containment purge before release.

The Upper Containment area is monitored by normal range area gamma monitors (Tag No. VRS-1101/1201 for Unit 1 and VRS-2101/2201 for Unit 2), which also give Purge and Exhaust Isolation Trip signals upon actuation of their high alarm.

For the Containment Pressure Relief System, no sample is routinely taken.

The Containment airborne and area monitors, upon actuation of their high alarm, will automatically initiate closure of the Containment and Instrument Room purge supply and exhaust duct valves and Containment pressure relief system valves. Complete trip of all isolation control devices requires high alarm of one of the two Train A monitors (ERS-1300/2300 or VRS-1101/2101) and one of the two Train B monitors (ERS-1400/2400 or VRS-1201/2201).

4.3.2.4 Steam Jet Air Ejector System (SJAE)

The gaseous effluents from the Steam Jet Air Ejector System discharged to the environment are continuously monitored by radiation monitor (Tag No. SRA-1900 for Unit 1 and SRA-2900 for Unit 2). The monitor will alarm prior to exceeding the limits of section 4.2.4.1. The alarm setpoint for the Condenser Air Ejector System monitor will be based on the maximum air ejector exhaust flow rate, (Attachment 3.15). The alarm setpoint value will be established using the following equations:

$$S_{SJAE} = \frac{(SF) (MRP) (DL_j)}{F_p \bar{X}/Q \sum_i (W_i * DCF_{ij})}$$

where:

S_{SJAE} = the maximum setpoint, based on the most limiting organ, in $\mu\text{Ci/cc}$

and where the other terms are as previously defined.

4.3.2.5 Gland Seal Condenser Exhaust

The gaseous effluents from the Gland Seal Condenser Exhaust discharged to the environment are continuously monitored by radiation monitor (Tag No. SRA-1800 for Unit 1 and SRA-2800 for Unit 2). The radiation monitor will alarm prior to exceeding the limits of section 4.2.4.1. The alarm setpoint for the GSCE monitor will be based on the maximum condenser exhaust flow rate (1260 CFM Unit 1, 2754 CFM each for the two Unit 2 vents). The alarm setpoint value will be established using the following equation:

$$S_{GSCE} = \frac{(SF)(MRP)(DL_j)}{F_p \bar{\chi/Q} \sum_i (W_i * DCF_{ij})}$$

where:

S_{GSCE} = the maximum setpoint, based on the most limiting organ, in $\mu\text{Ci/cc}$

and where the other terms are as previously defined.

4.3.2.6

Emergency Gaseous Setpoint Methodology

Each of the routine gaseous release paths can also indicate off-normal release concentrations. If this would occur, the setpoint methodology for gaseous monitors would determine setpoints to alarm or trip and indicate an off-normal occurrence. The mid and high range setpoints should be used to indicate when the effluent concentrations are possibly exceeding limits that may contribute to a dose in excess of predetermined limits as outlined in the Emergency Plan. There are four classifications of accidents. They are Unusual Event, Alert, Site Area Emergency and General Emergency. The last two classifications have dose limits of 50 mRem/hr and 250 mRem/hr associated with them. The mid and high range setpoints should be set to respond at these levels. The high range setpoints for the Unit Vent monitors, VRS-1509 and VRS-2509, will use the setpoints calculated in the Radiological Support Section Calculation RS-C-0106. The PORV monitor is a single channel emergency monitor. To show when an event with radioactive releases occurred the setpoint should be set to the value for a General Emergency, 250 mRem/hr.

The equation used to determine the setpoint is then:

$$S_p = \frac{DR}{F * \bar{\chi/Q} * DCF}$$

where:

S_p = the alarm/setpoint of the monitor, $\mu\text{Ci/cc}$.

DR = the dose rate associated with the setpoint either 50 mRem/hr or 250 mRem/hr.

F = the maximum flow rate for this effluent point in m^3/sec . To convert CFM to m^3/sec , multiply the flow rate in CFM by 4.71×10^{-4} .

$\overline{x/Q}$ = The historical annual average relative concentration (sec/m³) based on meteorological data summarized in Attachment 3.16 as recommended in Regulatory Guide 1.111

DCF = the dose conversion factor to change mRem/hr to μ Ci/cc. The conversion factor for the PORV monitors is 64,000 (Ref. 2.15). The conversion factor for the other mid and high range monitors is 622,000 (Ref. 2.15).

4.4 Radioactive Effluents Total Dose

The cumulative dose contributions from liquid and gaseous effluents will be determined by summing the cumulative doses as derived in Sections 4.2.3.3, 4.2.4.2 and 4.2.4.3 of this procedure. Dose contribution from direct radiation exposure will be based on the results of the direct radiation monitoring devices located at the REMP monitoring stations. See NUREG-0133, Section 3.8.

4.5 Radiological Environmental Monitoring Program

4.5.1 Purpose of the Radiological Environmental Monitoring Program

The purpose of the REMP is to establish baseline radiation and radioactivity concentrations in the environs prior to reactor operations, to monitor critical environmental exposure pathways, and to determine the radiological impact, if any, caused by the operation of the Donald C. Cook Nuclear Plant upon the local environment.

The first purpose of the Radiological Environmental Monitoring Program was completed prior to the initial operation of either of the two nuclear units at the Cook Plant Site. The second and third purposes of the REMP are an on-going operation and as such various environmental media and exposure pathways are examined. The various pathways and sample media used are delineated in Attachment 3.19, Radiological Environmental Monitoring Program. Included is a list of the sample media, analysis required, collection locations, and frequency requirements for both collection and analysis. Attachment 3.19 defines the scope of the Radiological Environmental Monitoring Program for the Donald C. Cook Nuclear Plant.

4.5.2 Conduct of the Radiological Environmental Monitoring Program

Sample collection and analysis for the Radiological Environmental Monitoring Program shall be conducted in accordance with Attachment 3.19, Radiological Environmental Monitoring Program, Attachment 3.20, Maximum Values for Lower Limits of Detection, and Attachment 3.21, Reporting Levels for Radioactive Concentrations in Environmental Samples. These are applicable at all times. The on-site monitoring locations are shown on Attachment 3.22, while the off-site monitoring locations are shown on Attachment 3.23

- 4.5.2.1 Each surveillance requirement shall be performed within the specified time interval in Attachment 3.19 with a maximum allowable extension not to exceed 25% of the surveillance interval.
- 4.5.2.2 If an environmental sample cannot be collected in accordance with Attachment 3.19, a description of the reasons for deviation and the actions taken to prevent a reoccurrence shall be submitted as part of the Annual Radiological Environmental Operating Report.

Deviations from the required sampling schedule are permitted if specimens are unobtainable due to hazardous conditions, seasonal unavailability, or malfunction of automatic sampling equipment. If the deviation from the required sampling schedule is due to malfunction of automatic sampling equipment, then every effort shall be made to complete the corrective action prior to the end of the next sampling period.

- 4.5.2.3 If a radionuclide is detected in any sample medium exceeding the limit established in Attachment 3.21, Reporting Levels for Radioactivity Concentrations, or if more than one radionuclide is detected in any sample medium and the Total Fractional Level (TFL), when averaged over the calendar quarter is greater than or equal to 1, based on the following formula:

$$TFL = \frac{C_{(1)}}{L_{(1)}} + \frac{C_{(2)}}{L_{(2)}} + \dots \geq 1$$

Where:

- $C_{(1)}$ = Concentration of 1st detected nuclide
- $C_{(2)}$ = Concentration of 2nd detected nuclide
- $L_{(1)}$ = Reporting Level of 1st nuclide from Attachment 3.21
- $L_{(2)}$ = Reporting Level of 2nd nuclide from Attachment 3.21

And, the activity is the result of plant effluents, then a Special Report shall be submitted to the Commission within 30 days following the receipt of the applicable analysis results, which includes an evaluation of any release conditions, environmental factors or other aspects which may have contributed to the identified levels. If the radioactivity was not a result of plant effluents, the results shall be described in the Annual Radiological Environmental Operating Report.

If radionuclides other than those specified in Attachment 3.21 are detected and are the result of plant effluents, this report shall be submitted if the potential annual dose to an individual is equal to or greater than the calendar year limits specified in Steps 4.2.3.3.1, 4.2.4.2.1 and 4.2.4.3.1.b.

4.5.2.4 If a currently sampled milk farm location becomes unavailable, a special milk farm survey, for that sector, shall be conducted within 15 days

4.5.2.4.1 If the unavailable location was an indicator farm, an alternate sample location may be established in the same sector within 8 miles of the Plant if one is available.

4.5.2.4.2 If the unavailable location was a background farm, an alternate sample location may be established > 15 but < 25 miles of the plant in one of the less prevalent wind direction sectors if one is available.

4.5.2.4.3 If a replacement farm is unobtainable and the total number of indicator farms is less than three or the background farms is less than one, then a Special Report shall be prepared and submitted to the Commission within 30 days. Vegetation sampling shall be performed in lieu of milk sampling.

4.5.2.4.4 The provisions of Technical Specifications 3.03 and 3.04 are not applicable.

4.5.3 Annual Land Use Census

A land use census shall be conducted and shall identify the location of the nearest milk animal, the nearest residence and the nearest garden of greater than 500 square feet producing fresh leafy vegetables in each of the 10 land covering meteorological sectors within a distance of five miles.

In lieu of the garden census, broad leaf vegetation sampling may be performed at the site boundary in the direction sector having the highest average deposition factor (\bar{D}/Q) value.

This land use census shall be conducted annually between the dates of June 1 and October 1 by door-to-door survey, aerial survey, or by consulting local agricultural authorities.

4.5.3.1 With a land use census identifying a location(s) which yields a calculated dose or dose commitment greater than the values currently being calculated in this document, prepare and submit to the Commission within 30 days, pursuant to Technical Specification

The radioactive effluent release report to be submitted 90 days after January 1 of each year shall also include an assessment of radiation doses to the likely most exposed member of the public from reactor releases and other nearby uranium fuel cycle sources (including doses from primary effluent pathways and direct radiation) for the previous 12 consecutive months to show conformance with 40 CFR 190, Environmental Radiation Protection Standards for Nuclear Power Operation. Acceptable Methods for calculating the dose contribution from liquid and gaseous effluents are given in Regulatory Guide 1.109, Rev. 1.

The radioactive effluent release report shall include the following information for each type of solid waste shipped offsite during the report period:

- a. Volume (cubic meters),
- b. Total curie quantity (specify whether determined by measurement or estimate),
- c. Principle radionuclides (specify whether determined by measurement or estimate),
- d. Type of waste (e.g., spent resin, compacted dry waste, evaporator bottoms),
- e. Type of container (e.g., LSA, type A, Type B, Large Quantity), and
- f. Solidification agent (e.g., cement).

The radioactive effluent release report shall include unplanned releases of radioactive materials in gaseous and liquid effluent from the site to unrestricted areas on a quarterly basis.

The radioactive effluent release reports shall include any change to this procedure made during the reporting period.

4.9 Reporting/Management Review

- 4.9.1 Any changes to this procedure must be incorporated in the annual radiological effluent release report.
- 4.9.2 This procedure must be updated when the Radiation Monitoring System, its instruments, or the specifications of instruments are changed.
- 4.9.3 This procedure must be reviewed or revised as appropriate based on the results of the land use census and Radiological Environmental Monitoring Program.
- 4.9.4 Any changes to this procedure must be evaluated for potential impact on other related Radiation Protection Department Procedures and changes to these procedures must be considered.

R_i Dose Factors for Various Pathways

NUCLIDE	PATHWAY					
	GROUND	VEGETABLE	MEAT	COW MILK	GOAT MILK	INHALATION
H3	0.0E+00	4.0E+03	3.2E+02	2.4E+03	4.9E+03	1.3E+03
C14	0.0E+00	3.5E+06	5.8E+05	3.2E+06	3.2E+06	3.6E+04
CR51	4.7E+06	1.2E+07	1.6E+06	7.5E+06	9.0E+05	3.3E+03
MN54	1.4E+09	9.4E+08	2.2E+07	3.1E+07	3.7E+06	7.7E+04
FE59	2.7E+08	9.7E+08	1.8E+09	3.4E+08	4.4E+06	1.9E+05
CO58	3.8E+08	6.1E+08	3.1E+08	9.1E+07	1.1E+07	1.1E+05
CO60	2.2E+10	3.2E+09	1.1E+09	2.9E+08	3.4E+07	2.8E+05
ZN65	7.5E+08	2.7E+09	1.0E+09	1.7E+10	2.1E+09	1.3E+05
SR89	2.2E+04	3.5E+10	2.6E+08	1.1E+10	2.2E+10	6.0E+05
SR90	0.0E+00	1.4E+12	1.0E+10	1.0E+11	2.1E+11	1.1E+08
ZR95	2.5E+08	1.2E+09	1.6E+09	1.0E+06	1.2E+05	1.5E+05
SB124	6.0E+08	3.0E+09	4.7E+08	7.8E+08	9.3E+07	4.1E+05
CS134	6.8E+09	2.6E+10	1.2E+09	5.4E+10	1.6E+11	1.1E+06
CS136	1.5E+08	2.2E+08	4.5E+07	5.5E+09	1.7E+10	1.9E+05
CS137	1.0E+10	2.4E+10	1.0E+09	4.9E+10	1.5E+11	8.5E+05
BA140	2.1E+07	2.8E+08	5.7E+07	2.3E+08	2.8E+07	2.3E+05
CE141	1.4E+07	5.3E+08	3.2E+07	1.5E+07	1.8E+06	1.3E+05
CE144	7.0E+07	1.3E+10	3.9E+08	1.3E+08	1.6E+07	8.6E+05
I131	1.7E+07	4.8E+10	5.4E+09	1.0E+12	1.2E+12	1.6E+07
I133	2.4E+06	8.1E+08	1.3E+02	9.6E+09	1.2E+10	3.8E+06
I132	1.2E+06	7.6E+03	0.0E+00	1.4E+02	1.6E+02	1.1E+06
I134	4.5E+05	6.4E-03	0.0E+00	9.4E-10	1.1E-01	5.1E+04
I135	2.5E+06	1.4E+12	6.7E-15	2.0E+07	2.4E+07	7.9E+05
MO99	4.0E+06	1.7E+07	2.4E+05	3.1E+08	3.7E+07	4.1E+02
NB95	1.4E+08	4.7E+08	6.8E+09	2.9E+08	3.5E+07	1.0E+05
SR85	1.2E+05	3.5E+10	4.1E+08	1.1E+10	2.2E+10	6.0E+05

TABLE NOTATION

- (1) The CHANNEL FUNCTIONAL TEST shall also demonstrate that automatic isolation of this pathway and control room alarm annunciation occurs if any of the following conditions exists:
 1. Instrument indicates measured levels above the alarm/trip setpoint.
 - ** 2. Circuit failure.*
 - ** 3. Instrument indicates a downscale failure.*
 - ** 4. Instrument control not set in operating mode.*
- (2) The CHANNEL FUNCTIONAL TEST shall also demonstrate that control room alarm annunciation occurs if any of the following conditions exists:
 1. Instrument indicates measured levels above the alarm setpoint.
 - ** 2. Circuit failure.
 - ** 3. Instrument indicate a downscale failure.
 - ** 4. Instrument controls not set in operating mode.
- (3) The initial CHANNEL CALIBRATION shall be performed using one or more sources with traceability back to the National Bureau of Standards. These sources shall permit calibrating the system over its intended range of energy and measurement range. For subsequent CHANNEL CALIBRATION, sources that have been related to the initial calibration may be used.
- (4) CHANNEL CHECK shall consist of verifying indication of flow during periods of release. CHANNEL CHECK shall be made at least once per 24 hours on days on which continuous, periodic or batch releases are made.
- (5) The CHANNEL FUNCTIONAL TEST shall also demonstrate that automatic isolation of this pathway and control room alarm annunciation occurs if any of the following conditions exists:
 1. Instrument indicates measured levels above the alarm/trip setpoint.
 - ** 2. Circuit failure.***
 - ** 3. Instrument indicates a downscale failure.***
 - ** 4. Instrument control not set in operating mode.*
 - ** 5. Loss of sample flow.

* Instrument indicates, but does not provide for automatic isolation.
** As equipment becomes operational.
*** Instrument indicates, but does not necessarily cause automatic isolation, no credit is taken for the automatic isolation on such occurrences.

RADIOACTIVE GASEOUS EFFLUENT MONITORING INSTRUMENTATION

<u>Instrument (Instrument #)</u>	<u>Minimum Channels Operable</u>	<u>Applicability</u>	<u>Action</u>
1. Condenser Evacuation System			
a. Noble Gas Activity Monitor (SRA-1905/2905)	(1)	****	6
b. Flow Rate Monitor (SFR-401, 1/2-MR-054 and/or SRA-1910/2910)	(1)	****	5
	(1)	****	5
2. Unit Vent. Auxiliary Building Ventilation System			
a. Noble Gas Activity Monitor (VRS-1505/2505)	(1)	*	6
b. Iodine Sampler Cartridge for VRA-1503/2503	(1)	*	8
c. Particulate Sampler Filter for VRA-1501/2501	(1)	*	8
d. Effluent System Flow Rate Measuring Device (VFR-315, MR-054 and/or VFR-1510/2510)	(1)	*	5
e. Sampler Flow Rate Measuring Device (VFS-1521/2521)	(1)	*	5
3. Containment Purge System			
a. Aux. Building Vent. System Noble Gas Activity Monitor (VRS-1505/2505)	(1)	**** ¹	7
b. Aux. Building Vent. System Particulate Sampler for VRA-1501/2501	(1)	****	8
4. Waste Gas Holdup System			
a. Noble Gas Activity Alarm and Termination of Gas Decay Tank Releases (VRS-1505/2505)	(1)	**** ²	9
5. Gland Seal Exhaust			
a. Noble Gas Activity Monitor (SRA-1805/2805)	(1)	****	6
b. Flow Rate Monitor (SFR-201, MR-054 or SFR-1810/2810)	(1)	****	5
	(1)	****	5

* At all times

**** During releases via this pathway

VOLUMETRIC DETECTION EFFICIENCIES OF PRINCIPLE
GAMMA EMITTING RADIONUCLIDES FOR RRS-1000

<u>NUCLIDE</u>	<u>EFFICIENCY (cpm/μCi/cc)</u>
I-131	3.78E7
Cs-137	3.00E7
Cs-134	7.93E7
Co-60	5.75E7
Co-58	4.58E7
Cr-51	3.60E6
Mn-54	3.30E7
Zn-65	1.58E7
Ag-110M	9.93E7
Ba-133	4.85E7
Ba-140	1.92E7
Cd-109	9.58E5
Ce-139	3.28E7
Ce-141	1.92E8
Ce-144	4.83E6
Co-57	3.80E7
Cs-136	1.07E8
Fe-59	2.83E7
Sb-124	5.93E7
I-133	3.40E7
I-134	7.23E7
I-135	3.95E7
Mo-99	8.68E6
Na-24	4.45E7
Nb-95	3.28E7
Nb-97	3.50E7
Rb-89	5.00E7
Ru-103	3.48E7
Ru-106	1.23E7
Sb-122	2.55E7
Sb-125	3.15E7
Sn-113	7.33E5
Sr-85	3.70E7
Sr-89	2.88E3
Sr-92	3.67E7
Tc-99M	3.60E7
Y-88	5.25E7
Zr-95	3.38E7
Zr-97	3.10E7
Kr-85	1.56E5
Kr-85M	3.53E7
Kr-88	4.10E7
Xe-131M	8.15E5
Xe-133	7.78E6
Xe-133M	5.75E6
Xe-135	3.83E7

$\overline{\chi/Q}$ GROUND AVERAGE (sec/m³)

01JAN93 - 31DEC93
DISTANCE (METERS)

DIRECTION (WIND TO)	594.	2416.	4020.	5630.	7240.
S	3.57e-6	3.99e-7	1.83e-7	1.07e-7	7.47e-8
SSW	2.27e-6	2.71e-7	1.28e-7	7.61e-8	5.33e-8
SW	3.10e-6	3.65e-7	1.71e-7	1.01e-7	7.08e-8
WSW	4.63e-6	5.48e-7	2.63e-7	1.58e-7	1.12e-7
W	7.81e-6	8.88e-7	4.44e-7	2.74e-7	1.96e-7
WNW	7.54e-6	8.63e-7	4.27e-7	2.62e-7	1.86e-7
NW	8.37e-6	9.44e-7	4.69e-7	2.89e-7	2.06e-7
NNW	1.14e-5	1.26e-6	6.40e-7	3.99e-7	2.86e-7
N	1.21e-5	1.38e-6	6.83e-7	4.19e-7	2.98e-7
NNE	5.16e-6	6.04e-7	2.89e-7	1.73e-7	1.22e-7
NE	3.74e-6	4.35e-7	2.06e-7	1.23e-7	8.61e-8
ENE	2.58e-6	2.86e-7	1.32e-7	7.72e-7	5.38e-8
E	2.95e-6	3.20e-7	1.51e-7	9.00e-8	6.29e-8
ESE	2.66e-6	2.94e-7	1.34e-7	7.83e-8	5.42e-8
SE	2.74e-6	3.06e-7	1.42e-7	8.40e-8	5.85e-8
SSE	3.42e-6	3.84e-7	1.80e-7	1.07e-8	7.45e-8

DISTANCE

DIRECTION (WIND TO)	12067	24135	40225	56315	80500
S	3.67e-8	1.40e-8	6.87e-9	4.38e-9	2.73e-9
SSW	2.65e-8	1.03e-8	5.10e-9	3.26e-9	2.04e-9
SW	3.52e-8	1.36e-8	6.69e-9	4.26e-9	2.67e-9
WSW	5.60e-8	2.21e-8	1.10e-8	7.06e-9	4.46e-9
W	1.00e-7	4.07e-8	2.04e-8	1.31e-8	8.39e-9
WNW	9.56e-8	3.85e-8	1.93e-8	1.24e-8	7.90e-9
NW	1.06e-7	4.27e-8	2.14e-8	1.37e-8	8.76e-9
NNW	1.48e-7	6.06e-8	3.05e-8	1.96e-8	1.26e-8
N	1.53e-7	6.17e-8	3.09e-8	1.98e-8	1.26e-8
NNE	6.09e-8	2.38e-8	1.18e-8	7.50e-9	4.71e-9
NE	4.29e-8	1.66e-8	8.25e-9	5.27e-9	3.31e-9
ENE	2.65e-8	1.01e-8	4.98e-9	3.17e-9	1.98e-9
E	3.12e-8	1.20e-8	5.96e-9	3.80e-9	2.39e-9
ESE	2.65e-8	9.95e-9	4.87e-9	3.10e-9	1.92e-9
SE	2.88e-8	1.10e-8	5.46e-9	3.49e-9	2.19e-9
SSE	3.69e-8	1.42e-8	7.05e-9	4.51e-9	2.83e-9

DIRECTION - SECTOR

N = A	E = E	S = J	W = N
NNE = B	ESE = F	SSW = K	WNW = P
E = C	E = G	SW = L	NW = Q
ENE = D	SSE = H	WSW = M	NNW = R

Current $\overline{\chi/Q}$ = 1.21e-5 sec/m² in Sector A

D/Q DEPOSITION (1/m²)

01JAN93 - 31DEC93
DISTANCE (METERS)

DIRECTION (WIND TO)	594.	2416.	4020.	5630.	7240.
S	2.37e-8	2.29e-9	1.04e-9	5.44e-10	3.47e-10
SSW	1.01e-8	9.77e-10	4.43e-10	2.32e-10	1.48e-10
SW	1.26e-8	1.21e-9	5.51e-10	2.89e-10	1.84e-10
WSW	1.63e-8	1.58e-9	7.16e-10	3.76e-10	2.40e-10
W	1.84e-8	1.78e-9	8.06e-10	4.23e-10	2.70e-10
WNW	1.92e-8	1.86e-9	8.43e-10	4.42e-10	2.82e-10
NW	1.92e-8	1.85e-9	8.39e-10	4.40e-10	2.81e-10
NNW	2.25e-8	2.18e-9	9.87e-10	5.18e-10	3.30e-10
N	3.80e-8	3.67e-9	1.66e-9	8.72e-10	5.56e-10
NNE	2.49e-8	2.41e-9	1.09e-9	5.72e-10	3.65e-10
NE	2.09e-8	2.02e-9	9.14e-10	4.79e-10	3.06e-10
ENE	2.17e-8	2.09e-9	9.49e-10	4.98e-10	3.17e-10
E	1.95e-8	1.88e-9	8.55e-10	4.48e-10	2.86e-10
ESE	2.02e-8	1.95e-9	8.82e-10	4.63e-10	2.95e-10
SE	1.61e-8	1.56e-9	7.05e-10	3.70e-10	2.36e-10
SSE	1.87e-8	1.81e-9	8.22e-10	4.31e-10	2.75e-10

DISTANCE

DIRECTION (WIND TO)	12067	24135	40225	56315	80500
S	1.45e-10	4.72e-11	1.74e-11	9.28e-12	4.65e-12
SSW	6.19e-11	2.02e-11	7.42e-12	3.96e-12	1.99e-12
SW	7.70e-11	2.51e-11	9.23e-12	4.93e-12	2.47e-12
WSW	1.00e-10	3.26e-11	1.20e-11	6.40e-12	3.21e-12
W	1.13e-10	3.67e-11	1.35e-11	7.21e-12	3.62e-12
WNW	1.18e-10	3.84e-11	1.41e-11	7.54e-12	3.78e-12
NW	1.17e-10	3.82e-11	1.41e-11	7.51e-12	3.76e-12
NNW	1.38e-10	4.49e-11	1.65e-11	8.83e-12	4.43e-12
N	2.32e-10	7.57e-11	2.79e-11	1.49e-11	7.46e-12
NNE	1.53e-10	4.97e-11	1.83e-11	9.76e-12	4.89e-12
NE	1.28e-10	4.16e-11	1.53e-11	8.17e-12	4.10e-12
ENE	1.33e-10	4.32e-11	1.59e-11	8.48e-12	4.26e-12
E	1.19e-10	3.89e-11	1.43e-11	7.65e-12	3.83e-12
ESE	1.23e-11	4.02e-11	1.48e-11	7.89e-12	3.96e-12
SE	9.86e-11	3.21e-11	1.18e-11	6.31e-12	3.16e-12
SSE	1.15e-10	3.74e-11	1.38e-11	7.35e-12	3.69e-12

DIRECTION - SECTOR

N = A	E = E	S = J	W = N
NNE = B	ESE = F	SSW = K	WNW = P
E = C	E = G	SW = L	NW = Q
ENE = D	SSE = H	WSW = M	NNW = R

Current D/Q = 3.80E-08 1/m² in Sector A

DOSE FACTORS FOR NOBLE GASES AND DAUGHTERS*

<u>RADIONUCLIDE</u>	TOTAL BODY DOSE FACTOR K_i	SKIN DOSE FACTOR L_i	GAMMA AIR DOSE FACTOR M_i	BETA AIR DOSE FACTOR N_i
	(mRem/yr per $\mu\text{Ci}/\text{m}^3$)	(mRem/yr per $\mu\text{Ci}/\text{m}^3$)	(mRad/yr per $\mu\text{Ci}/\text{m}^3$)	(mRad/yr per $\mu\text{Ci}/\text{m}^3$)
Kr-83m	7.56E-02	--	1.93E+01	2.88E+02
Kr-85m	1.17E+03	1.46E+03	1.23E+03	1.97E+03
Kr-85	1.61E+01	1.34E+03	1.72E+01	1.95E+03
Kr-87	5.92E+03	9.73E+03	6.17E+03	1.03E+04
Kr-88	1.47E+04	2.37E+03	1.52E+04	2.93E+03
Kr-89	1.66E+04	1.01E+04	1.73E+04	1.06E+04
Kr-90	1.56E+04	7.29E+03	1.63E+04	7.83E+03
Xe-131m	9.15E+01	4.76E+02	1.56E+02	1.11E+03
Xe-133m	2.51E+02	9.94E+02	3.27E+02	1.48E+03
Xe-133	2.94E+02	3.06E+02	3.53E+02	1.05E+03
Xe-135m	3.12E+03	7.11E+02	3.36E+03	7.39E+02
Xe-135	1.81E+03	1.86E+03	1.92E+03	2.46E+03
Xe-137	1.42E+03	1.22E+04	1.51E+03	1.27E+04
Xe-138	8.83E+03	4.13E+03	9.21E+03	4.75E+03
Ar-41	8.84E+03	2.69E+03	9.30E+03	3.28E+03

*The listed dose factors are for radionuclides that may be detected in gaseous effluents, from R.G. 1.109, Table B-1.

DOSE FACTORS FOR RADIOIODINES AND
RADIOACTIVE PARTICULATE, GASEOUS EFFLUENTS*

RADIONUCLIDE	P_i INHALATION PATHWAY (mRem/yr per $\mu\text{Ci}/\text{m}^3$)	P_i FOOD & GROUND PATHWAYS ($\text{m}^2 \cdot \text{mRem}/\text{yr}$ per $\mu\text{Ci}/\text{sec}$)	RADIONUCLIDE	P_i INHALATION PATHWAY (mRem/yr per $\mu\text{Ci}/\text{m}^3$)	P_i FOOD & GROUND PATHWAYS ($\text{m}^2 \cdot \text{mRem}/\text{yr}$ per $\mu\text{Ci}/\text{sec}$)
H-3	6.47E+02	2.40E+03	Rb-88	5.57E+02	4.74E+04
C-14	2.65E+04	2.38E+09	Rb-89	3.21E+02	1.76E+05
Na-24	1.06E+04	3.28E+07	Sr-89	2.03E+06	1.28E+10
P-32	2.03E+06	1.63E+11	Sr-90	4.09E+07	1.24E+11
Cr-51	1.28E+04	1.15E+07	Sr-91	7.34E+04	3.41E+06
Mn-54	1.00E+06	1.14E+09	Sr-92	1.40E+05	1.11E+06
Mn-56	7.17E+04	1.29E+06	Y-90	2.69E+05	9.64E+05
Fe-55	8.69E+04	1.38E+08	Y-91m	2.79E+03	1.44E+05
Fe-59	1.02E+06	7.89E+08	Y-91	2.45E+06	6.86E+06
Co-58	7.77E+05	5.89E+08	Y-92	1.27E+05	2.59E+05
Co-60	4.51E+06	4.62E+09	Y-93	1.67E+05	2.80E+05
Ni-63	3.39E+05	3.56E+10	Zr-95	1.75E+06	3.45E+08
Ni-65	5.01E+04	4.43E+05	Zr-97	1.40E+05	4.29E+06
Cu-64	1.50E+04	4.75E+06	Nb-95	4.79E+05	4.06E+08
Zn-65	6.47E+05	2.01E+10	Mo-99	1.35E+05	3.23E+08
Zn-69	1.32E+04	3.01E-09	Tc-99m	2.03E+03	2.81E+05
Rb-86	1.90E+05	2.27E+10	Tc-101	8.44E+02	2.92E+04
Te-131m	1.99E+05	3.48E+07	Ru-103	5.52E+05	1.55E+08
Te-131	8.22E+03	4.18E+04	Ru-105	4.84E+04	9.12E+05
Te-132	3.40E+05	7.26E+07	Ru-106	1.16E+07	3.02E+08
I-130	1.60E+06	8.99E+08	Ag-110m	3.67E+06	1.80E+10
I-131	1.48E+07	1.07E+12	Te-125m	4.47E+05	1.56E+08
I-132	1.69E+05	1.79E+06	Te-127m	1.31E+06	1.06E+09
I-133	3.56E+06	9.78E+09	Te-127	2.44E+04	1.53E+06
I-134	4.45E+04	6.40E+05	Te-129m	1.68E+06	1.45E+06
I-135	6.96E+05	2.40E+07	Te-129	2.63E+04	3.76E+04
Cs-134	7.03E+05	7.21E+10	Ce-143	1.16E+05	4.88E+06
Cs-136	1.35E+05	6.13E+09	Ce-144	9.84E+06	1.95E+08
Cs-137	6.12E+05	6.25E+10	Pr-143	4.33E+05	7.98E+05
Cs-138	8.76E+02	5.15E+05	Pr-144	4.28E+03	2.63E+03
Ba-139	5.10E+04	1.52E+05	Nd-147	3.22E+05	1.26E+07
Ba-140	1.60E+06	2.75E+08	W-187	3.96E+04	5.90E+06
Ba-141	4.75E+03	5.98E+04	Np-239	5.95E+04	2.55E+06
Ba-142	1.55E+03	6.43E+04			
La-140	1.68E+05	2.77E+07			
La-142	5.95E+04	1.09E+06			
Ce-141	5.17E+05	3.35E+07			

*If Sr-90 analysis is performed, use P_i given in Ru-106 for unidentified components.

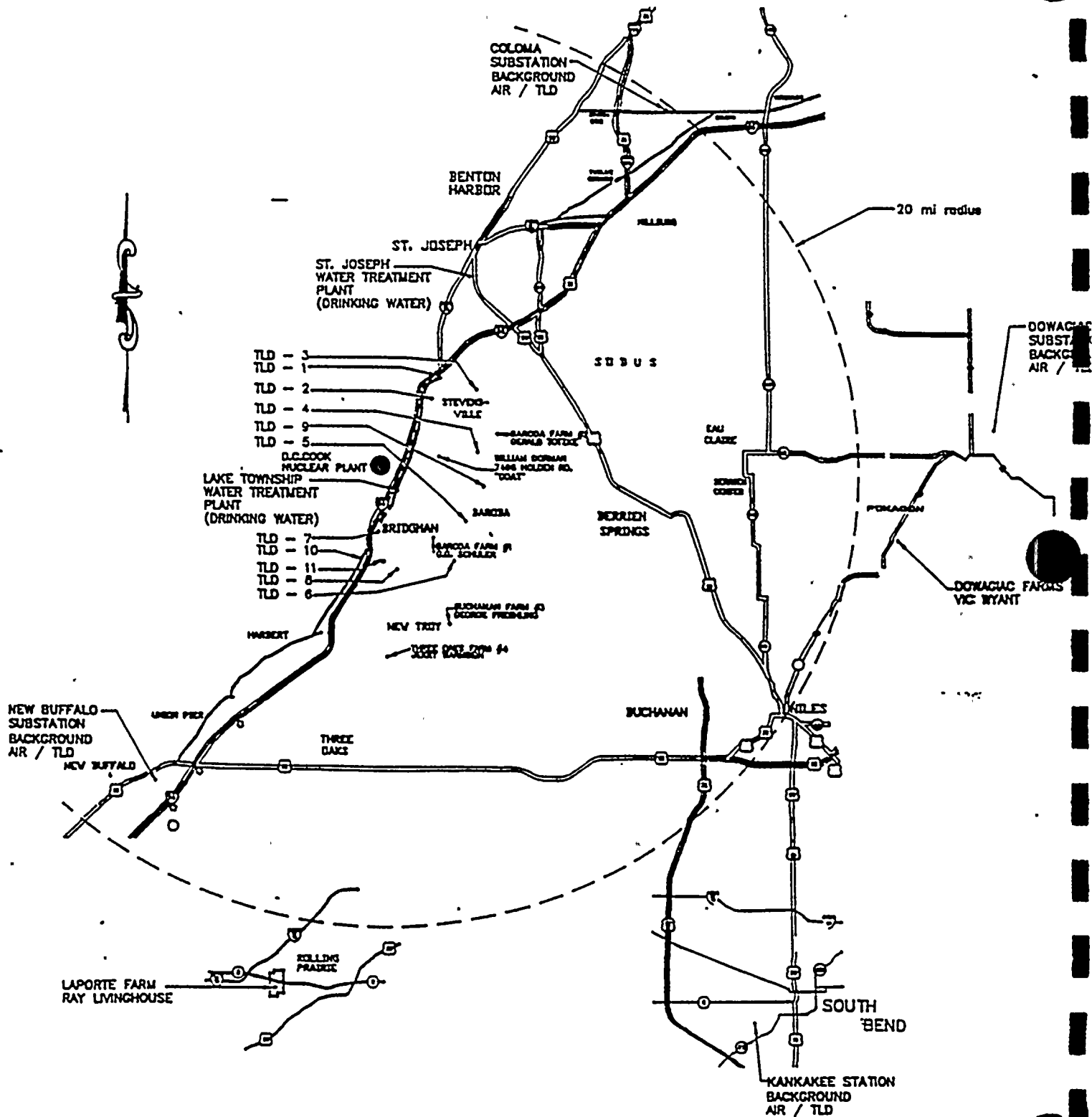
If Sr-90 and Ru-106 analyses are performed, use P_i given in I-131 for unidentified components.

If Sr-90, Ru-106 and I-131 analyses are performed, use P_i given in P-32 for unidentified components.

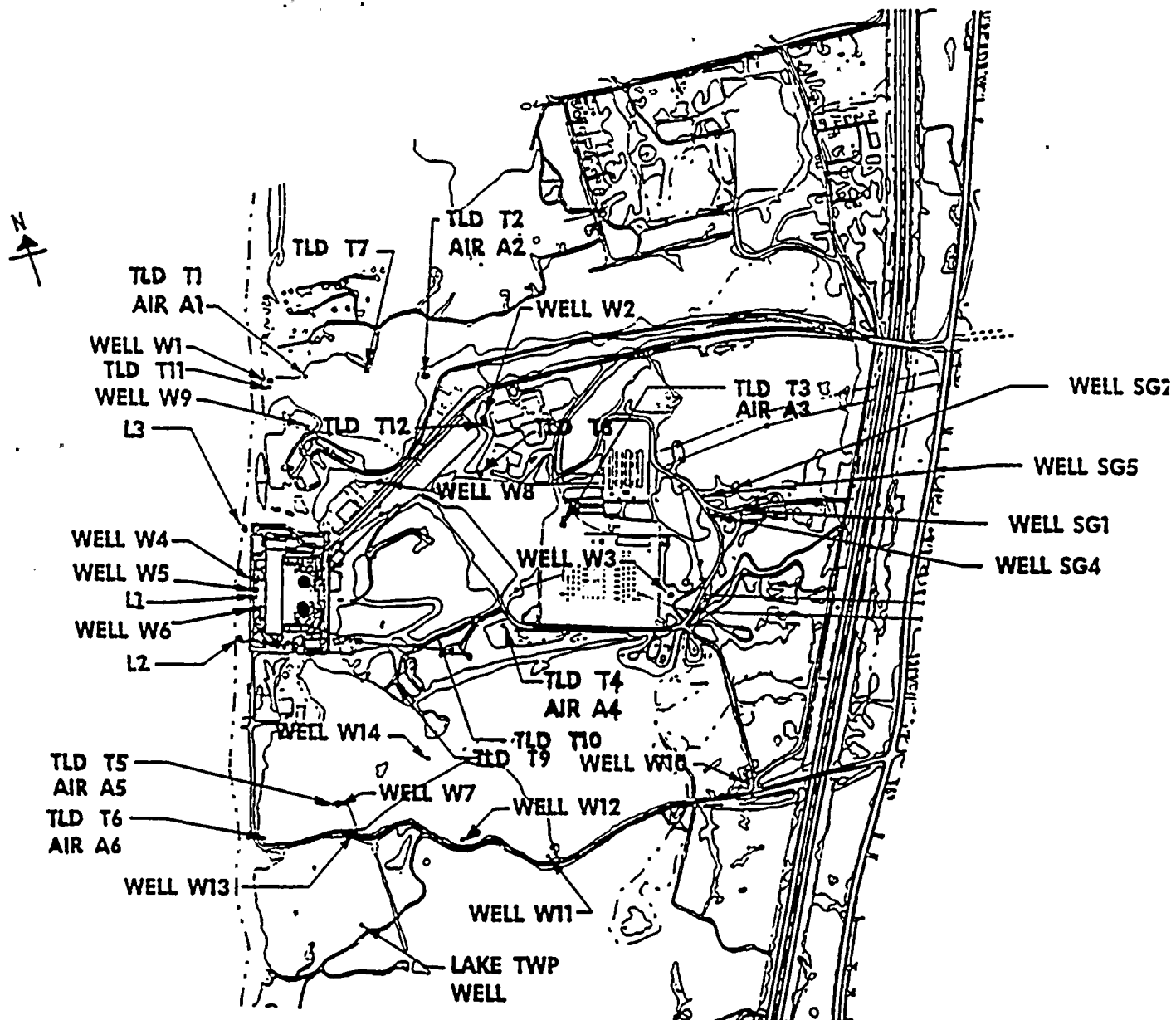
RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM
SAMPLE STATIONS, SAMPLE TYPES, AND SAMPLE FREQUENCIES

<u>SAMPLE STATION</u>	<u>DESCRIPTION/LOCATION</u>	<u>SAMPLE TYPE</u>	<u>SAMPLE FREQUENCY</u>	<u>ANALYSIS TYPE</u>	<u>ANALYSIS FREQUENCY</u>
SURFACE WATER					
L1	Condenser Circulating Water Intake	Surface Water	Daily	Gamma Isotopic Tritium	Month. Comp. Quart. Comp.
L2	Plant Site Boundary - South 500 ft. south of Plant Centerline	Surface Water	Daily	Gamma Isotopic Tritium	Month. Comp. Quart. Comp.
L3	Plant Site Boundary - North 500 ft. north of Plant Centerline	Surface Water	Daily	Gamma Isotopic Tritium	Month. Comp. Quart. Comp.
SEDIMENT					
L2	Plant Site Boundary - South 500 ft. south of Plant Centerline	Sediment	Semi-Ann.	Gamma Isotopic	Semi-Annual.
L3	Plant Site Boundary - North 500 ft. north of Plant Centerline	Sediment	Semi-Ann.	Gamma Isotopic	Semi-Annual.
GROUNDWATER (STEAM GENERATOR STORAGE FACILITY) SAMPLE STATIONS					
Well SG1	0.8 mi @ 95° from Plant Axis	Groundwater	Quarterly	Gross Alpha Gross Beta Gamma Isotopic	Quarterly Quarterly Quarterly
Well SG2	0.7 mi @ 92° from Plant Axis	Groundwater	Quarterly	Gross Alpha Gross Beta Gamma Isotopic	Quarterly Quarterly Quarterly
Well SG4	0.7 mi @ 93° from Plant Axis	Groundwater	Quarterly	Gross Alpha Gross Beta Gamma Isotopic	Quarterly Quarterly Quarterly
Well SG5	0.7 mi @ 92° from Plant Axis	Groundwater	Quarterly	Gross Alpha Gross Beta Gamma Isotopic	Quarterly Quarterly Quarterly
INGESTION - MILK Indicator Farms					
Totzke Farm	5.1 miles ENE, Baroda	Milk	Once every 15 days	I-131 Gamma Isotopic	per sample per sample
Schuler Farm	4.1 miles SE, Baroda	Milk	Once every 15 days	I-131 Gamma Isotopic	per sample per sample
Warmbein Farm	7.7 mi. S, Three Oaks	Milk	Once every 15 days	I-131 Gamma Isotopic	per sample per sample
Freehling Farm	7.0 mi. SE, Buchanan	Milk	Once every 15 days	I-131 Gamma Isotopic	per sample per sample
INGESTION - MILK Background Farms					
Livinghouse Farm	20 miles S, La Porte, IN	Milk	Once every 15 days	I-131 Gamma Isotopic	per sample per sample
Wyant Farm	20.7 miles E, Dowagiac	Milk	Once every 15 days	I-131 Gamma Isotopic	per sample per sample
INGESTION - FISH					
ONS-N	0.3 mile N, Lake Michigan	Fish	2/year.	Gamma Isotopic	per sample
ONS-S	0.4 mile S, Lake Michigan	Fish	2/year.	Gamma Isotopic	per sample
OFS-N	3.5 mile N, Lake Michigan	Fish	2/year.	Gamma Isotopic	per sample
OFS-S	5.0 mile S, Lake Michigan	Fish	2/year.	Gamma Isotopic	per sample

OFF SITE MONITORING LOCATIONS



ON SITE MONITORING LOCATIONS



LEGEND

A1-A6: Air Sampling Stations
T1-T12: TLD Sampling Stations
W1-W14: REMP TECH. SPEC.
SG1, SG2, SG4, SG5: REMP NON-TECH
SPEC GROUNDWATER WELLS
L1-L3 : Surface Water and Sediment
Sampling Stations
L1 is surface water sampling only

