

Attachment 1  
to  
OCAN020804

Annual Radioactive Effluent Release Report for 2007

**ARKANSAS NUCLEAR ONE**

**UNIT 1 AND UNIT 2**

**OPERATING LICENSE NOS. DPR-51, NPF-6, and 72-13 (ISFSI)**

**ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT**

**JANUARY 1 THROUGH DECEMBER 31, 2007**

**ANO-1 & 2 Annual Radioactive Effluent  
Release Report for 2007**

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# ANO-1 & 2 Annual Radioactive Effluent Release Report for 2007

## 1. INTRODUCTION

Arkansas Nuclear One (ANO) is a two unit site consisting of a Babcock & Wilcox (Unit 1) and a Combustion Engineering (Unit 2) nuclear steam supply system. Both liquid and gaseous effluents are released in accordance with the Offsite Dose Calculation Manual (ODCM). This report is a summary of the effluent data in accordance with Unit 1 TS 5.6.3 and Unit 2 TS 6.6.3. This report provides the following information:

- A. Routine radioactive effluent release reports covering the operation of the units and the independent spent fuel storage installation (ISFSI) during the reporting period.
- B. Description of unplanned releases to unrestricted areas.
- C. Description of changes to the Offsite Dose Calculation Manual (ODCM).
- D. Description of changes to the Process Control Program (PCP).
- E. Summary of radiation doses due to radiological effluents during the previous calendar year.
- F. Radiation dose to members of the public due to activities inside the site boundary.
- G. Description of licensee initiated major changes to the radioactive waste systems during the previous calendar year.
- H. Items to be reported in the annual Radioactive Effluent Release Report per other miscellaneous ODCM requirements.

This report covers the period from January 1 through December 31, 2007.

## 2. REGULATORY LIMITS

The ODCM contains the limits to which ANO must adhere. Because of the "as low as reasonably achievable" (ALARA) philosophy at ANO, an attempt is made to reduce the amount of radiation released to the environment. Liquid and gaseous release data show that the dose from both Unit 1 and Unit 2 is considerably below the ODCM limits. This data reveals that the radioactive effluents have an overall minimal dose contribution to the surrounding environment. The following are the limits required by the ODCM:

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A. Gaseous Effluents

1. Dose rate due to radioactive materials released in gaseous effluent to unrestricted areas shall be limited to the following:

a. Noble gases

Less than or equal to 500 mrem/year to the total body  
Less than or equal to 3000 mrem/year to the skin

b. Iodine-131, tritium, and for all radionuclides in particulate form with half lives greater than 8 days

Less than or equal to 1500 mrem/yr to any organ

2. Dose - Noble Gases

Quarterly

Less than or equal to 5 mrad gamma  
Less than or equal to 10 mrad beta

Yearly

Less than or equal to 10 mrad gamma  
Less than or equal to 20 mrad beta

3. Dose - Iodine-131, Tritium, and Radionuclides in Particulate Form

Quarterly

Less than or equal to 7.5 mrems to any organ

Yearly

Less than or equal to 15 mrems to any organ

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B. Liquid Effluents

1. Concentration

The concentration of radioactive material released to the discharge canal shall be limited to the concentration specified in 10 CFR 20, Appendix B, Table II, Column 2, for radionuclides other than dissolved or entrained noble gases. For dissolved or entrained noble gases, the total concentration released shall be limited to 2E-4 microcuries/ml.

2. Dose

Quarterly

Less than or equal to 1.5 mrem total body  
Less than or equal to 5 mrem critical organ

Yearly

Less than or equal to 3 mrem total body  
Less than or equal to 10 mrem critical organ

**ANO-1 & 2 Annual Radioactive Effluent  
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**3. SUMMARY OF LIQUID EFFLUENT DATA**

As required by Regulatory Guide 1.21, Rev. 1, *Radioactivity in Solid Wastes and Releases of Radioactive Materials in Liquid and Gaseous Effluents from Light-Water-Cooled Nuclear Power Plants*, a summary of data for liquid releases is provided in the annual Radioactive Effluent Release Report. This summary covers releases from January 1 through December 31, 2007. The summary of liquid effluents for both Unit 1 and Unit 2 is as follows:

	<u>Unit 1</u>	<u>Unit 2</u>
Number of releases:	176	74
Total time for all releases (minutes):	421696	459995
Maximum time for a release (minutes):	10450	10575
Average time for a release (minutes):	2396	6216
Minimum time for a release (minutes):	16	92

The Unit 1 liquid releases consisted of:

176 Planned Releases  
0 Unplanned Releases

The Unit 2 liquid releases consisted of:

74 Planned Releases  
0 Unplanned Releases

**ANO-1 & 2 Annual Radioactive Effluent  
Release Report for 2007**

**ANNUAL SUMMATION FOR ALL RELEASES BY QUARTER  
(ALL LIQUID EFFLUENTS)  
January 1 through June 30, 2007**

**Unit 1**

Type of Effluent	Units	Quarter 1	Quarter 2	Est. Total Error %
<u>A. Fission and Activation Products</u>				
1. Total Release (Not Including Tritium, Gases, Alpha)	Curies	4.303E-03	1.865E-02	25
2. Average Diluted Concentration During Period	μCi/ml	1.396E-11	5.282E-11	
3. Percent of Applicable Limit	%	4.653E-03	1.761E-02	
<u>B. Tritium</u>				
1. Total Release	Curies	2.805E+02	7.200E+01	25
2. Average Diluted Concentration During Period	μCi/ml	9.100E-07	2.039E-07	
3. Percent of Applicable Limit	%	3.033E-02	6.797E-03	
<u>C. Dissolved and Entrained Gases</u>				
1. Total Release	Curies	1.555E-01	1.787E-01	25
2. Average Diluted Concentration During Period	μCi/ml	5.045E-10	5.060E-10	
3. Percent of Applicable Limit	%	2.523E-04	2.530E-04	
<u>D. Gross Alpha Radioactivity</u>				
1. Total Release	Curies	1.835E-04	3.861E-04	25
<u>E. Waste Vol Released (Pre-Dilution)</u>				
	Liters	1.213E+07	2.688E+06	25
<u>F. Volume of Dilution Water Used</u>				
	Liters	3.082E+11	3.530E+11	25



**ANO-1 & 2 Annual Radioactive Effluent  
Release Report for 2007**

**ANNUAL SUMMATION FOR ALL RELEASES BY QUARTER  
(ALL LIQUID EFFLUENTS)  
July 1 through December 31, 2007**

**Unit 1**

Type of Effluent	Units	Quarter 3	Quarter 4	Est. Total Error %
<u>A. Fission and Activation Products</u>				
1. Total Release (Not Including Tritium, Gases, Alpha)	Curies	1.380E-02	9.423E-03	25
2. Average Diluted Concentration During Period	μCi/ml	3.569E-11	2.910E-11	
3. Percent of Applicable Limit	%	1.190E-02	9.701E-03	
<u>B. Tritium</u>				
1. Total Release	Curies	4.737E+01	5.592E+01	25
2. Average Diluted Concentration During Period	μCi/ml	1.225E-07	1.727E-07	
3. Percent of Applicable Limit	%	4.082E-03	5.757E-03	
<u>C. Dissolved and Entrained Gases</u>				
1. Total Release	Curies	0.000E+00	2.118E-04	25
2. Average Diluted Concentration During Period	μCi/ml	0.000E+00	6.543E-13	
3. Percent of Applicable Limit	%	0.000E+00	3.272E-07	
<u>D. Gross Alpha Radioactivity</u>				
1. Total Release	Curies	1.388E-03	3.005E-03	25
<u>E. Waste Vol Released (Pre-Dilution)</u>				
	Liters	1.488E+07	1.792E+07	25
<u>F. Volume of Dilution Water Used</u>				
	Liters	3.868E+11	3.237E+11	25

**ANO-1 & 2 Annual Radioactive Effluent  
Release Report for 2007**

**UNIT 1**

**REPORT CATEGORY : ANNUAL LIQUID CONTINUOUS AND BATCH  
RELEASES  
: TOTALS FOR EACH NUCLIDE RELEASED  
TYPE OF ACTIVITY : ALL RADIONUCLIDES  
REPORTING PERIOD : QUARTER # 1 AND QUARTER # 2 YEAR 2007**

NUCLIDE	UNIT	CONTINUOUS RELEASES		BATCH RELEASES	
		QUARTER 1	QUARTER 2	QUARTER 1	QUARTER 2
MN-54	CURIES	0.00E+00	0.00E+00	0.00E+00	7.39E-06
CS-134	CURIES	0.00E+00	0.00E+00	3.14E-05	2.04E-05
FE-59	CURIES	0.00E+00	0.00E+00	0.00E+00	2.57E-05
SB-124	CURIES	0.00E+00	0.00E+00	0.00E+00	5.82E-05
ZR-95	CURIES	0.00E+00	0.00E+00	2.55E-05	8.67E-05
I-133	CURIES	0.00E+00	0.00E+00	0.00E+00	1.10E-04
TC-99M	CURIES	0.00E+00	0.00E+00	0.00E+00	1.30E-04
CS-137	CURIES	0.00E+00	0.00E+00	1.21E-03	1.38E-04
NB-95	CURIES	0.00E+00	0.00E+00	9.91E-05	1.45E-04
XE-131M	CURIES	0.00E+00	0.00E+00	0.00E+00	2.02E-04
CR-51	CURIES	0.00E+00	0.00E+00	0.00E+00	2.91E-04
G-ALPHA	CURIES	1.21E-04	2.22E-04	6.30E-05	1.64E-04
I-131	CURIES	0.00E+00	0.00E+00	2.96E-05	5.28E-04
CO-60	CURIES	0.00E+00	0.00E+00	2.71E-04	5.80E-04
SB-125	CURIES	0.00E+00	0.00E+00	7.58E-05	1.26E-03
XE-133M	CURIES	0.00E+00	0.00E+00	6.86E-04	1.83E-03
XE-135	CURIES	0.00E+00	0.00E+00	3.93E-04	1.91E-03
KR-85	CURIES	0.00E+00	0.00E+00	3.97E-02	7.92E-03
CO-58	CURIES	0.00E+00	0.00E+00	2.56E-03	1.53E-02
XE-133	CURIES	0.00E+00	0.00E+00	1.15E-01	1.67E-01
H-3	CURIES	6.33E-02	2.57E-03	2.80E+02	7.20E+01
Total for Period	CURIES	6.34E-02	2.79E-03	2.81E+02	7.22E+01

**ANO-1 & 2 Annual Radioactive Effluent  
Release Report for 2007**

**UNIT 1**

**REPORT CATEGORY : ANNUAL LIQUID CONTINUOUS AND BATCH  
RELEASES**  
**: TOTALS FOR EACH NUCLIDE RELEASED**  
**TYPE OF ACTIVITY : ALL RADIONUCLIDES**  
**REPORTING PERIOD : QUARTER # 3 AND QUARTER # 4 YEAR 2007**

NUCLIDE	UNIT	CONTINUOUS RELEASES		BATCH RELEASES	
		QUARTER 3	QUARTER 4	QUARTER 3	QUARTER 4
FE-55	CURIES	0.00E+00	0.00E+00	3.47E-04	0.00E+00
I-135	CURIES	0.00E+00	0.00E+00	0.00E+00	3.28E-05
I-133	CURIES	0.00E+00	0.00E+00	0.00E+00	4.64E-05
I-131	CURIES	0.00E+00	0.00E+00	0.00E+00	5.27E-05
ZR-95	CURIES	0.00E+00	0.00E+00	0.00E+00	5.53E-05
CS-134	CURIES	0.00E+00	0.00E+00	7.68E-06	7.86E-05
NB-95	CURIES	0.00E+00	0.00E+00	5.94E-05	1.14E-04
MN-54	CURIES	0.00E+00	0.00E+00	3.01E-03	2.00E-04
XE-133	CURIES	0.00E+00	0.00E+00	0.00E+00	2.12E-04
CO-60	CURIES	0.00E+00	0.00E+00	8.21E-04	5.87E-04
SB-125	CURIES	0.00E+00	0.00E+00	1.96E-03	6.24E-04
G-ALPHA	CURIES	1.05E-03	2.20E-03	3.40E-04	8.00E-04
CO-58	CURIES	0.00E+00	0.00E+00	7.27E-03	3.27E-03
CS-137	CURIES	0.00E+00	0.00E+00	3.25E-04	4.36E-03
H-3	CURIES	8.64E-02	1.35E-01	4.73E+01	5.58E+01
Total for Period	CURIES	8.75E-02	1.37E-01	4.73E+01	5.58E+01

**ANO-1 & 2 Annual Radioactive Effluent  
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**ANNUAL SUMMATION FOR ALL RELEASES BY QUARTER  
(ALL LIQUID EFFLUENTS)  
January 1 through June 30, 2007**

Type of Effluent	Unit 2			
	Units	Quarter 1	Quarter 2	Est. Total Error %
<u>A. Fission and Activation Products</u>				
1. Total Release (Not Including Tritium, Gases, Alpha)	Curies	6.326E-03	1.482E-03	25
2. Average Diluted Concentration During Period	μCi/ml	2.052E-11	4.198E-12	
3. Percent of Applicable Limit	%	6.841E-03	1.399E-03	
<u>B. Tritium</u>				
1. Total Release	Curies	8.857E+01	7.703E+01	25
2. Average Diluted Concentration During Period	μCi/ml	2.874E-07	2.182E-07	
3. Percent of Applicable Limit	%	9.579E-03	7.272E-03	
<u>C. Dissolved and Entrained Gases</u>				
1. Total Release	Curies	7.948E-02	7.673E-04	25
2. Average Diluted Concentration During Period	μCi/ml	2.579E-10	2.173E-12	
3. Percent of Applicable Limit	%	1.289E-04	1.087E-06	
<u>D. Gross Alpha Radioactivity</u>				
1. Total Release	Curies	1.401E-03	1.320E-05	25
<u>E. Waste Vol Released (Pre-Dilution)</u>				
	Liters	8.218E+06	1.089E+07	25
<u>F. Volume of Dilution Water Used</u>				
	Liters	3.082E+11	3.530E+11	25

**ANO-1 & 2 Annual Radioactive Effluent  
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**ANNUAL SUMMATION FOR ALL RELEASES BY QUARTER  
(ALL LIQUID EFFLUENTS)  
July 1 through December 31, 2007**

**Unit 2**

Type of Effluent	Units	Quarter 3	Quarter 4	Est. Total Error %
<u>A. Fission and Activation Products</u>				
1. Total Release (Not Including Tritium, Gases, Alpha)	Curies	1.251E-02	4.733E-03	25
2. Average Diluted Concentration During Period	μCi/ml	3.234E-11	1.462E-11	
3. Percent of Applicable Limit	%	1.078E-02	4.873E-03	
<u>B. Tritium</u>				
1. Total Release	Curies	3.531E+01	2.009E+02	25
2. Average Diluted Concentration During Period	μCi/ml	9.129E-08	6.205E-07	
3. Percent of Applicable Limit	%	3.043E-03	2.068E-02	
<u>C. Dissolved and Entrained Gases</u>				
1. Total Release	Curies	4.076E-04	3.254E-03	25
2. Average Diluted Concentration During Period	μCi/ml	1.054E-12	1.005E-11	
3. Percent of Applicable Limit	%	5.268E-07	5.025E-06	
<u>D. Gross Alpha Radioactivity</u>				
1. Total Release	Curies	1.610E-04	0.000E+00	25
<u>E. Waste Vol Released (Pre-Dilution)</u>				
	Liters	1.439E+07	2.061E+07	25
<u>F. Volume of Dilution Water Used</u>				
	Liters	3.868E+11	3.237E+11	25

**ANO-1 & 2 Annual Radioactive Effluent  
Release Report for 2007**

**UNIT 2**

**REPORT CATEGORY : ANNUAL LIQUID CONTINUOUS AND BATCH  
RELEASES**  
**: TOTALS FOR EACH NUCLIDE RELEASED**  
**TYPE OF ACTIVITY : ALL RADIONUCLIDES**  
**REPORTING PERIOD : QUARTER # 1 AND QUARTER # 2 YEAR 2007**

NUCLIDE	UNIT	CONTINUOUS RELEASES		BATCH RELEASES	
		QUARTER 1	QUARTER 2	QUARTER 1	QUARTER 2
NB-97	CURIES	0.00E+00	0.00E+00	1.88E-05	0.00E+00
FE-59	CURIES	0.00E+00	0.00E+00	1.97E-05	0.00E+00
XE-133M	CURIES	0.00E+00	0.00E+00	5.74E-04	0.00E+00
XE-131M	CURIES	0.00E+00	0.00E+00	8.80E-04	0.00E+00
FE-55	CURIES	0.00E+00	0.00E+00	4.60E-03	0.00E+00
CS-134	CURIES	0.00E+00	0.00E+00	0.00E+00	8.59E-06
G-ALPHA	CURIES	1.300E-03	1.32E-05	1.00E-04	0.00E+00
AG-110M	CURIES	0.00E+00	0.00E+00	1.41E-05	1.33E-05
MN-54	CURIES	0.00E+00	0.00E+00	3.08E-05	2.58E-05
CS-137	CURIES	0.00E+00	0.00E+00	2.27E-05	5.90E-05
ZR-95	CURIES	0.00E+00	0.00E+00	2.06E-05	9.90E-05
CO-60	CURIES	0.00E+00	0.00E+00	9.00E-05	1.78E-04
NB-95	CURIES	0.00E+00	0.00E+00	8.31E-05	1.92E-04
SB-125	CURIES	0.00E+00	0.00E+00	6.62E-04	2.83E-04
CO-58	CURIES	0.00E+00	0.00E+00	7.59E-04	6.23E-04
XE-133	CURIES	0.00E+00	0.00E+00	7.80E-02	7.67E-04
H-3	CURIES	2.56E-02	4.35E-02	8.86E+01	7.70E+01
Total for Period	CURIES	2.69E-02	4.35E-02	8.87E+01	7.70E+01

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**UNIT 2**

**REPORT CATEGORY : ANNUAL LIQUID CONTINUOUS AND BATCH  
RELEASES**  
**: TOTALS FOR EACH NUCLIDE RELEASED**  
**TYPE OF ACTIVITY : ALL RADIONUCLIDES**  
**REPORTING PERIOD : QUARTER # 3 AND QUARTER # 4 YEAR 2007**

NUCLIDE	UNIT	CONTINUOUS RELEASES		BATCH RELEASES	
		QUARTER 3	QUARTER 4	QUARTER 3	QUARTER 4
G-ALPHA	CURIES	1.55E-04	0.00E+00	6.00E-06	0.00E+00
ZR-95	CURIES	0.00E+00	0.00E+00	0.00E+00	3.34E-05
CS-137	CURIES	0.00E+00	0.00E+00	1.53E-04	8.36E-05
NB-95	CURIES	0.00E+00	0.00E+00	5.98E-05	8.83E-05
BE-7	CURIES	0.00E+00	0.00E+00	9.39E-05	1.69E-04
AG-110M	CURIES	0.00E+00	0.00E+00	2.24E-05	2.71E-04
MN-54	CURIES	0.00E+00	0.00E+00	1.39E-04	2.94E-04
CO-58	CURIES	0.00E+00	0.00E+00	4.04E-04	5.86E-04
SB-125	CURIES	0.00E+00	0.00E+00	6.10E-05	7.74E-04
CO-60	CURIES	0.00E+00	0.00E+00	9.83E-04	9.69E-04
FE-55	CURIES	0.00E+00	0.00E+00	1.06E-02	1.46E-03
XE-133	CURIES	0.00E+00	0.00E+00	4.08E-04	3.25E-03
H-3	CURIES	8.32E-02	8.55E-02	3.52E+01	2.01E+02
Total for Period	CURIES	8.34E-02	8.55E-02	3.52E+01	2.01E+02

**ANO-1 & 2 Annual Radioactive Effluent  
Release Report for 2007**

**4. SUMMARY OF GASEOUS EFFLUENT DATA**

As required by Regulatory Guide 1.21, Rev. 1, a summary of data for gaseous releases is provided in the annual Radioactive Effluent Release Report. This summary covers releases from January 1 to December 31, 2007. The summary of gaseous effluents for both Unit 1 and Unit 2 is as follows:

	<u>Unit 1</u>	<u>Unit 2</u>
Number of releases:	168	133
Total time for all releases (minutes):	1339144	1004444
Maximum time for a release (minutes):	10650	10635
Average time for a release (minutes):	7971	7552
Minimum time for a release (minutes):	13	5

The Unit 1 gaseous releases consisted of:

- 168 Planned vent & tank releases
- 0 Unplanned releases

The Unit 2 gaseous releases consisted of:

- 133 Planned vent & tank releases
- 0 Unplanned releases



**ANO-1 & 2 Annual Radioactive Effluent  
Release Report for 2007**

**ANNUAL SUMMATION FOR ALL RELEASES BY QUARTER  
(ALL AIRBORNE EFFLUENTS)  
January 1 through June 30, 2007**

Type of Effluent	Unit 1				Est. Total Error %
	Units	Quarter 1	Quarter 2		
<u>A. Fission and Activation Products</u>					
1. Total Release	Curies	1.327E-03	8.574E+00		25
2. Average Release Rate for Period	μCi/Sec	1.707E-04	1.090E+00		
3. Percent of Applicable Limit	%	2.390E-06	1.527E-02		
<u>B. Radioiodines</u>					
1. Total Iodine-131	Curies	0.000E+00	1.981E-05		25
2. Average Release Rate for Period	μCi/Sec	0.000E+00	2.520E-06		
3. Percent of Applicable Limit	%	0.000E+00	7.056E-06		
<u>C. Particulates</u>					
1. Particulates (Half-Lives > 8 Days)	Curies	0.000E+00	0.000E+00		25
2. Average Release Rate for Period	μCi/Sec	0.000E+00	0.000E+00		
3. Percent of Applicable Limit	%	0.000E+00	0.000E+00		
4. Gross Alpha Radioactivity	Curies	3.341E-07	5.434E-07		
<u>D. Tritium</u>					
1. Total Release	Curies	6.408E+00	7.042E+00		25
2. Average Release Rate for Period	μCi/Sec	8.241E-01	8.957E-01		
3. Percent of Applicable Limit	%	1.154E-03	1.254E-03		

**ANO-1 & 2 Annual Radioactive Effluent  
Release Report for 2007**

**ANNUAL SUMMATION FOR ALL RELEASES BY QUARTER  
(ALL AIRBORNE EFFLUENTS)  
July 1 through December 31, 2007**

<b>Unit 1</b>				
Type of Effluent	Units	Quarter 3	Quarter 4	Est. Total Error %
<u>A. Fission and Activation Products</u>				
1. Total Release	Curies	0.000E+00	1.736E-03	25
2. Average Release Rate for Period	μCi/Sec	0.000E+00	2.184E-04	
3. Percent of Applicable Limit	%	0.000E+00	3.058E-06	
<u>B. Radioiodines</u>				
1. Total Iodine-131	Curies	0.000E+00	0.000E+00	25
2. Average Release Rate for Period	μCi/Sec	0.000E+00	0.000E+00	
3. Percent of Applicable Limit	%	0.000E+00	0.000E+00	
<u>C. Particulates</u>				
1. Particulates (Half-Lives > 8 Days)	Curies	0.000E+00	0.000E+00	25
2. Average Release Rate for Period	μCi/Sec	0.000E+00	0.000E+00	
3. Percent of Applicable Limit	%	0.000E+00	0.000E+00	
4. Gross Alpha Radioactivity	Curies	2.332E-07	2.656E-07	
<u>D. Tritium</u>				
1. Total Release	Curies	6.518E+00	6.034E+00	25
2. Average Release Rate for Period	μCi/Sec	8.200E-01	7.591E-01	
3. Percent of Applicable Limit	%	1.148E-03	1.063E-03	

**ANO-1 & 2 Annual Radioactive Effluent  
Release Report for 2007**

**UNIT 1**

**REPORT CATEGORY : ANNUAL AIRBORNE GROUND LEVEL  
CONTINUOUS AND BATCH RELEASES  
: TOTALS FOR EACH NUCLIDE RELEASED**  
**TYPE OF ACTIVITY : FISSION GASES, IODINES, AND PARTICULATES**  
**REPORTING PERIOD : QUARTER # 1 AND QUARTER # 2 YEAR 2007**

NUCLIDE	UNIT	CONTINUOUS RELEASES		BATCH RELEASES	
		QUARTER 1	QUARTER 2	QUARTER 1	QUARTER 2

Fission Gases

NUCLIDE	UNIT	CONTINUOUS RELEASES QUARTER 1	CONTINUOUS RELEASES QUARTER 2	BATCH RELEASES QUARTER 1	BATCH RELEASES QUARTER 2
XE-133M	CURIES	0.00E+00	0.00E+00	0.00E+00	1.12E-03
XE-131M	CURIES	0.00E+00	0.00E+00	0.00E+00	4.65E-03
KR-85	CURIES	0.00E+00	0.00E+00	1.33E-03	1.06E+00
XE-133	CURIES	0.00E+00	0.00E+00	0.00E+00	7.51E+00
Total for Period	CURIES	0.00E+00	0.00E+00	1.33E-03	8.57E+00

Iodines

NUCLIDE	UNIT	CONTINUOUS RELEASES QUARTER 1	CONTINUOUS RELEASES QUARTER 2	BATCH RELEASES QUARTER 1	BATCH RELEASES QUARTER 2
I-132	CURIES	0.00E+00	0.00E+00	0.00E+00	2.04E-06
I-133	CURIES	0.00E+00	0.00E+00	0.00E+00	2.17E-06
I-131	CURIES	0.00E+00	0.00E+00	0.00E+00	1.98E-05
Total for Period	CURIES	0.00E+00	0.00E+00	0.00E+00	2.40E-05

Particulates

NUCLIDE	UNIT	CONTINUOUS RELEASES QUARTER 1	CONTINUOUS RELEASES QUARTER 2	BATCH RELEASES QUARTER 1	BATCH RELEASES QUARTER 2
NONE	CURIES	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total for Period	CURIES	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Other

NUCLIDE	UNIT	CONTINUOUS RELEASES QUARTER 1	CONTINUOUS RELEASES QUARTER 2	BATCH RELEASES QUARTER 1	BATCH RELEASES QUARTER 2
G-ALPHA	CURIES	0.00E+00	0.00E+00	3.34E-07	5.43E-07
H-3	CURIES	0.00E+00	0.00E+00	6.41E+00	7.04E+00
Total for Period	CURIES	0.00E+00	0.00E+00	6.41E+00	7.04E+00

**ANO-1 & 2 Annual Radioactive Effluent  
Release Report for 2007**

**UNIT 1**

**REPORT CATEGORY : ANNUAL AIRBORNE GROUND LEVEL  
CONTINUOUS AND BATCH RELEASES  
: TOTALS FOR EACH NUCLIDE RELEASED**  
**TYPE OF ACTIVITY : FISSION GASES, IODINES, AND PARTICULATES**  
**REPORTING PERIOD : QUARTER # 3 AND QUARTER # 4 YEAR 2007**

		CONTINUOUS RELEASES		BATCH RELEASES	
NUCLIDE	UNIT	QUARTER 3	QUARTER 4	QUARTER 3	QUARTER 4

Fission Gases

KR-85	CURIES	0.00E+00	0.00E+00	0.00E+00	1.74E-03
Total for Period	CURIES	0.00E+00	0.00E+00	0.00E+00	1.74E-03

Iodines

NONE	CURIES	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total for Period	CURIES	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Particulates

NONE	CURIES	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total for Period	CURIES	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Other

G-ALPHA	CURIES	0.00E+00	0.00E+00	2.33E-07	2.66E-07
H-3	CURIES	0.00E+00	0.00E+00	6.52E+00	6.03E+00
Total for Period	CURIES	0.00E+00	0.00E+00	6.52E+00	6.03E+00

**ANO-1 & 2 Annual Radioactive Effluent  
Release Report for 2007**

**ANNUAL SUMMATION FOR ALL RELEASES BY QUARTER  
(ALL AIRBORNE EFFLUENTS)  
January 1 through June 30, 2007**

Type of Effluent	Unit 2			
	Units	Quarter 1	Quarter 2	Est. Total Error %
<u>A. Fission and Activation Products</u>				
1. Total Release	Curies	7.109E+00	2.467E-01	25
2. Average Release Rate for Period	μCi/Sec	9.142E-01	3.137E-02	
3. Percent of Applicable Limit	%	1.280E-02	4.392E-04	
<u>B. Radioiodines</u>				
1. Total Iodine-131	Curies	2.607E-05	6.120E-06	25
2. Average Release Rate for Period	μCi/Sec	3.353E-06	7.784E-07	
3. Percent of Applicable Limit	%	9.388E-06	2.179E-06	
<u>C. Particulates</u>				
1. Particulates (Half-Lives > 8 Days)	Curies	0.000E+00	0.00E+00	25
2. Average Release Rate for Period	μCi/Sec	0.000E+00	0.00E+00	
3. Percent of Applicable Limit	%	0.000E+00	0.00E+00	
4. Gross Alpha Radioactivity	Curies	2.087E-07	4.440E-07	
<u>D. Tritium</u>				
1. Total Release	Curies	4.707E+00	6.631E+00	25
2. Average Release Rate for Period	μCi/Sec	6.054E-01	8.433E-01	
3. Percent of Applicable Limit	%	8.475E-04	1.181E-03	

**ANO-1 & 2 Annual Radioactive Effluent  
Release Report for 2007**

**ANNUAL SUMMATION FOR ALL RELEASES BY QUARTER  
(ALL AIRBORNE EFFLUENTS)  
July 1 through December 31, 2007**

**Unit 2**

Type of Effluent	Units	Quarter 3	Quarter 4	Est. Total Error %
<u>A. Fission and Activation Products</u>				
1. Total Release	Curies	0.000E+00	0.000E+00	25
2. Average Release Rate for Period	μCi/Sec	0.000E+00	0.000E+00	
3. Percent of Applicable Limit	%	0.000E+00	0.000E+00	
<u>B. Radioiodines</u>				
1. Total Iodine-131	Curies	0.000E+00	0.000E+00	25
2. Average Release Rate for Period	μCi/Sec	0.000E+00	0.000E+00	
3. Percent of Applicable Limit	%	0.000E+00	0.000E+00	
<u>C. Particulates</u>				
1. Particulates (Half-Lives > 8 Days)	Curies	0.000E+00	0.000E+00	25
2. Average Release Rate for Period	μCi/Sec	0.000E+00	0.000E+00	
3. Percent of Applicable Limit	%	0.000E+00	0.000E+00	
4. Gross Alpha Radioactivity	Curies	2.578E-07	2.524E-07	
<u>D. Tritium</u>				
1. Total Release	Curies	7.759E+00	8.288E+00	25
2. Average Release Rate for Period	μCi/Sec	9.761E-01	1.043E+00	
3. Percent of Applicable Limit	%	1.367E-03	1.460E-03	

**ANO-1 & 2 Annual Radioactive Effluent  
Release Report for 2007**

**UNIT 2**

**REPORT CATEGORY : ANNUAL AIRBORNE GROUND LEVEL  
CONTINUOUS AND BATCH RELEASES  
: TOTALS FOR EACH NUCLIDE RELEASED  
TYPE OF ACTIVITY : FISSION GASES, IODINES, AND PARTICULATES  
REPORTING PERIOD : QUARTER # 1 AND QUARTER # 2 YEAR 2007**

NUCLIDE	UNIT	CONTINUOUS RELEASES		BATCH RELEASES	
		QUARTER 1	QUARTER 2	QUARTER 1	QUARTER 2

Fission Gases

NUCLIDE	UNIT	CONTINUOUS RELEASES QUARTER 1	CONTINUOUS RELEASES QUARTER 2	BATCH RELEASES QUARTER 1	BATCH RELEASES QUARTER 2
XE-133	CURIES	0.00E+00	0.00E+00	6.88E+00	0.00E+00
KR-85	CURIES	0.00E+00	0.00E+00	2.25E-01	2.47E-01
Total for Period	CURIES	0.00E+00	0.00E+00	7.11E+00	2.47E-01

Iodines

NUCLIDE	UNIT	CONTINUOUS RELEASES QUARTER 1	CONTINUOUS RELEASES QUARTER 2	BATCH RELEASES QUARTER 1	BATCH RELEASES QUARTER 2
I-131	CURIES	0.00E+00	0.00E+00	2.61E-05	6.12E-06
Total for Period	CURIES	0.00E+00	0.00E+00	2.61E-05	6.12E-06

Particulates

NUCLIDE	UNIT	CONTINUOUS RELEASES QUARTER 1	CONTINUOUS RELEASES QUARTER 2	BATCH RELEASES QUARTER 1	BATCH RELEASES QUARTER 2
NONE	CURIES	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total for Period	CURIES	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Other

NUCLIDE	UNIT	CONTINUOUS RELEASES QUARTER 1	CONTINUOUS RELEASES QUARTER 2	BATCH RELEASES QUARTER 1	BATCH RELEASES QUARTER 2
G-ALPHA	CURIES	0.00E+00	0.00E+00	2.09E-07	4.44E-07
H-3	CURIES	0.00E+00	0.00E+00	4.71E+00	6.63E+00
Total for Period	CURIES	0.00E+00	0.00E+00	4.71E+00	6.63E+00

**ANO-1 & 2 Annual Radioactive Effluent  
Release Report for 2007**

**UNIT 2**

**REPORT CATEGORY : ANNUAL AIRBORNE GROUND LEVEL  
CONTINUOUS AND BATCH RELEASES  
: TOTALS FOR EACH NUCLIDE RELEASED  
TYPE OF ACTIVITY : FISSION GASES, IODINES, AND PARTICULATES  
REPORTING PERIOD : QUARTER # 3 AND QUARTER # 4 YEAR 2007**

		CONTINUOUS RELEASES		BATCH RELEASES	
NUCLIDE	UNIT	QUARTER 3	QUARTER 4	QUARTER 3	QUARTER 4

Fission Gases

NONE	CURIES	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total for Period	CURIES	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Iodines

NONE	CURIES	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total for Period	CURIES	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Particulates

NONE	CURIES	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total for Period	CURIES	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Other

G-ALPHA	CURIES	0.00E+00	0.00E+00	2.58E-07	2.52E-07
H-3	CURIES	0.00E+00	0.00E+00	7.76E+00	8.29E+00
Total for Period	CURIES	0.00E+00	0.00E+00	7.76E+00	8.29E+00



**ANO-1 & 2 Annual Radioactive Effluent  
Release Report for 2007**

**5. SUMMARY OF RADIATION DOSES**

The following is a summary of the annual radiation doses due to radiological effluents during 2007 calculated in accordance with the Offsite Dose Calculation Manual.

**UNIT 1**

Liquid Radwaste Effluents

Dose Limits (mRem): Total Body = 1.5/Qtr 3/Yr, Other Organs = 5/Qtr 10/Yr

<u>Organ</u>	<u>Qtr 1</u>	<u>%</u>	<u>Qtr 2</u>	<u>%</u>	<u>Qtr 3</u>	<u>%</u>	<u>Qtr 4</u>	<u>%</u>	<u>Year</u>	<u>%</u>
TBody	0.0011	0.07	0.0002	0.01	0.0002	0.01	0.0022	0.14	0.0036	0.12
Bone	0.0007	0.01	0.0001	0.00	0.0001	0.00	0.0023	0.05	0.0032	0.03
Liver	0.0014	0.03	0.0002	0.00	0.0003	0.01	0.0032	0.06	0.0052	0.05
Thyroid	0.0005	0.01	0.0003	0.01	0.0001	0.00	0.0001	0.00	0.0010	0.01
Kidney	0.0008	0.02	0.0001	0.00	0.0002	0.00	0.0012	0.02	0.0022	0.02
Lung	0.0006	0.01	0.0001	0.00	0.0001	0.00	0.0004	0.01	0.0012	0.01
GI-LLI	0.0005	0.01	0.0003	0.01	0.0004	0.01	0.0002	0.00	0.0015	0.01

Gaseous Radwaste Effluents

Iodine, H-3, and Particulate (ITP) - Dose Limits (mRem) = 7.5/Qtr 15/Yr

<u>Organ</u>	<u>Qtr 1</u>	<u>%</u>	<u>Qtr 2</u>	<u>%</u>	<u>Qtr 3</u>	<u>%</u>	<u>Qtr 4</u>	<u>%</u>	<u>Year</u>	<u>%</u>
TBody	0.0039	0.05	0.0043	0.06	0.0040	0.05	0.0037	0.05	0.0160	0.11
Bone	0.0000	0.00	0.0000	0.00	0.0000	0.00	0.0000	0.00	0.0000	0.00
Liver	0.0039	0.05	0.0043	0.06	0.0040	0.05	0.0037	0.05	0.0160	0.11
Thyroid	0.0039	0.05	0.0086	0.11	0.0040	0.05	0.0037	0.05	0.0203	0.14
Kidney	0.0039	0.05	0.0044	0.06	0.0040	0.05	0.0037	0.05	0.0160	0.11
Lung	0.0039	0.05	0.0043	0.06	0.0040	0.05	0.0037	0.05	0.0160	0.11
GI-LLI	0.0039	0.05	0.0043	0.06	0.0040	0.05	0.0037	0.05	0.0160	0.11

Noble Gas Air Dose Limits (mRad) = Gamma 5/Qtr 10/Yr, Beta 10/Qtr 20/Yr

<u>Type</u>	<u>Qtr 1</u>	<u>%</u>	<u>Qtr 2</u>	<u>%</u>	<u>Qtr 3</u>	<u>%</u>	<u>Qtr 4</u>	<u>%</u>	<u>Year</u>	<u>%</u>
Gamma	0.0000	0.00	0.0002	0.00	0.0000	0.00	0.0000	0.00	0.0002	0.00
Beta	0.0000	0.00	0.0009	0.01	0.0000	0.00	0.0000	0.00	0.0009	0.00

**ANO-1 & 2 Annual Radioactive Effluent  
Release Report for 2007**

**UNIT 2**

Liquid Radwaste Effluents

Dose Limits (mRem): Total Body = 1.5/Qtr 3/Yr, Other Organs = 5 /Qtr 10/Yr

<u>Organ</u>	<u>Qtr 1</u>	<u>%</u>	<u>Qtr 2</u>	<u>%</u>	<u>Qtr 3</u>	<u>%</u>	<u>Qtr 4</u>	<u>%</u>	<u>Year</u>	<u>%</u>
TBody	0.0002	0.01	0.0001	0.01	0.0001	0.01	0.0003	0.02	0.0008	0.03
Bone	0.0000	0.00	0.0000	0.00	0.0001	0.00	0.0000	0.00	0.0002	0.00
Liver	0.0002	0.00	0.0002	0.00	0.0002	0.00	0.0004	0.01	0.0009	0.01
Thyroid	0.0001	0.00	0.0001	0.00	0.0001	0.00	0.0003	0.01	0.0006	0.01
Kidney	0.0001	0.00	0.0001	0.00	0.0001	0.00	0.0003	0.01	0.0007	0.01
Lung	0.0002	0.00	0.0001	0.00	0.0001	0.00	0.0003	0.01	0.0006	0.01
GI-LLI	0.0002	0.00	0.0001	0.00	0.0001	0.00	0.0004	0.01	0.0008	0.01

Gaseous Radwaste Effluents

Iodine, H-3, and Particulate - Dose Limits (mRem) = 7.5/Qtr 15/Yr

<u>Organ</u>	<u>Qtr 1</u>	<u>%</u>	<u>Qtr 2</u>	<u>%</u>	<u>Qtr 3</u>	<u>%</u>	<u>Qtr 4</u>	<u>%</u>	<u>Year</u>	<u>%</u>
Tbody	0.0029	0.04	0.0041	0.05	0.0048	0.06	0.0051	0.07	0.0169	0.11
Bone	0.0000	0.00	0.0000	0.00	0.0000	0.00	0.0000	0.00	0.0000	0.00
Liver	0.0029	0.04	0.0041	0.05	0.0048	0.06	0.0051	0.07	0.0169	0.11
Thyroid	0.0085	0.11	0.0054	0.07	0.0048	0.06	0.0051	0.07	0.0238	0.16
Kidney	0.0029	0.04	0.0041	0.05	0.0048	0.06	0.0051	0.07	0.0169	0.11
Lung	0.0029	0.04	0.0041	0.05	0.0048	0.06	0.0051	0.07	0.0169	0.11
GI-LLI	0.0029	0.04	0.0041	0.05	0.0048	0.06	0.0051	0.07	0.0169	0.11

Noble Gas Air Dose Limits (mRad) = Gamma 5/Qtr 10/Yr, Beta 10/Qtr 20/Yr

<u>Type</u>	<u>Qtr 1</u>	<u>%</u>	<u>Qtr 2</u>	<u>%</u>	<u>Qtr 3</u>	<u>%</u>	<u>Qtr 4</u>	<u>%</u>	<u>Year</u>	<u>%</u>
Gamma	0.0002	0.00	0.0000	0.00	0.0000	0.00	0.0000	0.00	0.0002	0.00
Beta	0.0007	0.01	0.0000	0.00	0.0000	0.00	0.0000	0.00	0.0007	0.00

**ANO-1 & 2 Annual Radioactive Effluent  
Release Report for 2007**

**6. SUMMARY OF DOSE TO MEMBERS OF THE PUBLIC**

The following is a summary of the annual radiation dose to members of the public (in mrem) due to activities inside the site boundary.

**UNIT 1**

	<u>BONE</u>	<u>LIVER</u>	<u>TBODY</u>	<u>THYROID</u>	<u>KIDNEY</u>	<u>GI-LLI</u>	<u>LUNG</u>	<u>SKIN</u>
<u>Gaseous Effluent</u>								
Iodine/Tritium Particulate	2.20E-06	2.69E-03	2.69E-03	3.40E-3	2.69E-03	2.69E-03	2.69E-03	
Noble Gas			6.05E-05					1.81E-04
<u>Liquid Effluent</u>								
Fish Sediment	3.16E-03	5.17E-03	3.64E-03 7.96E-05	9.62E-04	2.20E-03	1.19E-03	1.47E-03	9.32E-05
Unit 1 Total	3.16E-03	7.86E-03	6.47E-03	4.36E-03	4.89E-03	3.88E-03	4.16E-03	2.74E-04

**UNIT 2**

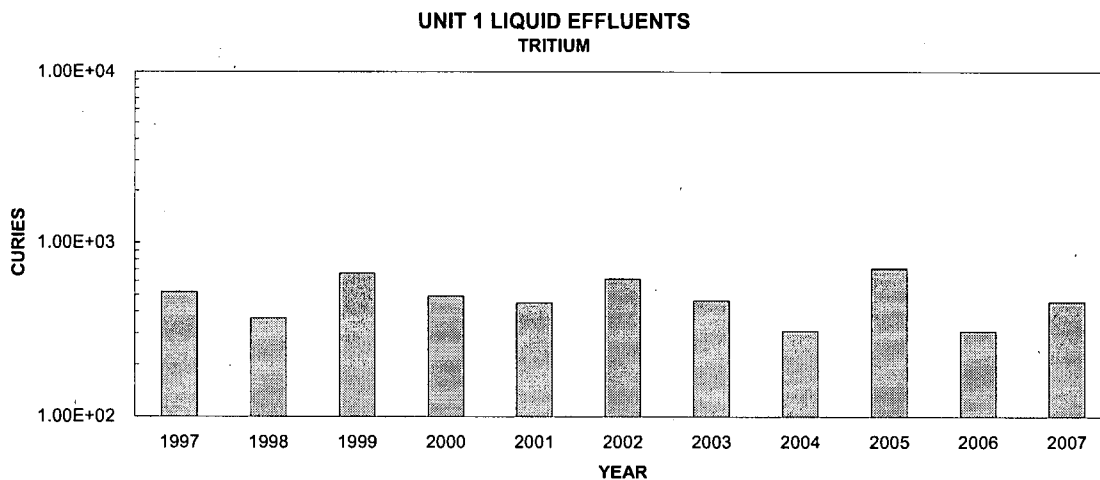
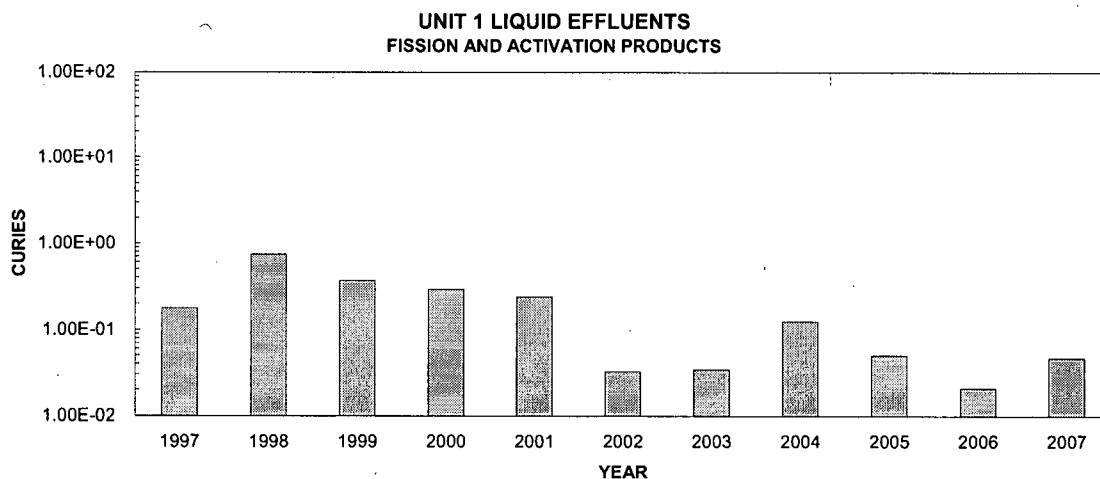
<u>Gaseous Effluent</u>								
Iodine/Tritium Particulate	3.71E-06	2.95E-03	2.95E-03	4.16E-03	2.95E-03	2.95E-03	2.95E-03	
Noble Gas			5.52E-05					1.47E-04
<u>Liquid Effluent</u>								
Fish Sediment	2.20E-04	8.74E-04	7.61E-04 3.38E-05	5.97E-04	6.72E-04	6.47E-04	8.06E-04	3.97E-05
Unit 2 Total	2.24E-04	3.82E-03	3.80E-03	4.76E-03	3.62E-03	3.60E-03	3.76E-03	1.87E-04

Site Total	3.38E-03	1.17E-02	1.03E-02	9.12E-03	8.51E-03	7.48E-03	7.92E-03	4.61E-04
Limit (40CFR190)	25	25	75	25	25	25	25	25
% Limit	1.35E-02	4.68E-02	1.37E-02	3.65E-02	3.40E-02	2.99E-02	3.17E-02	1.84E-03

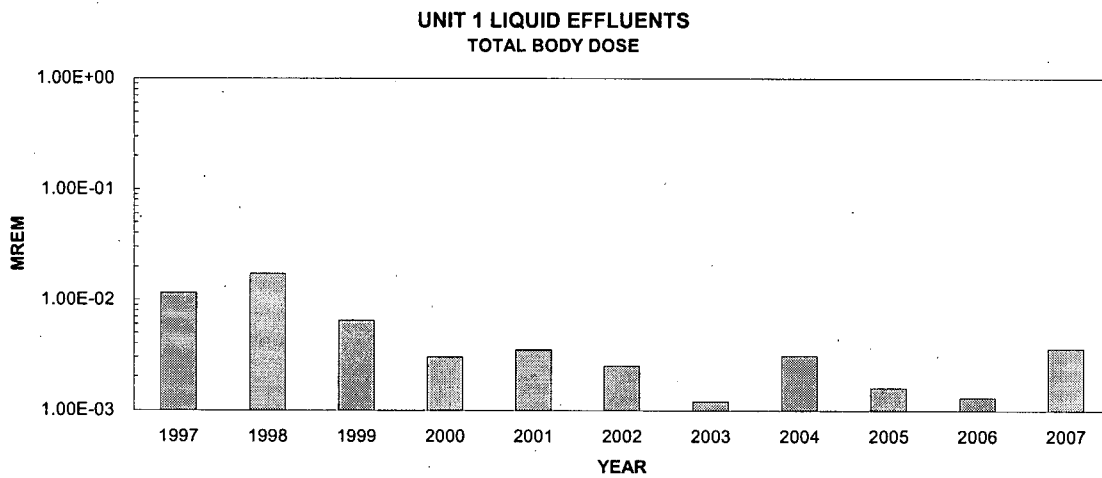
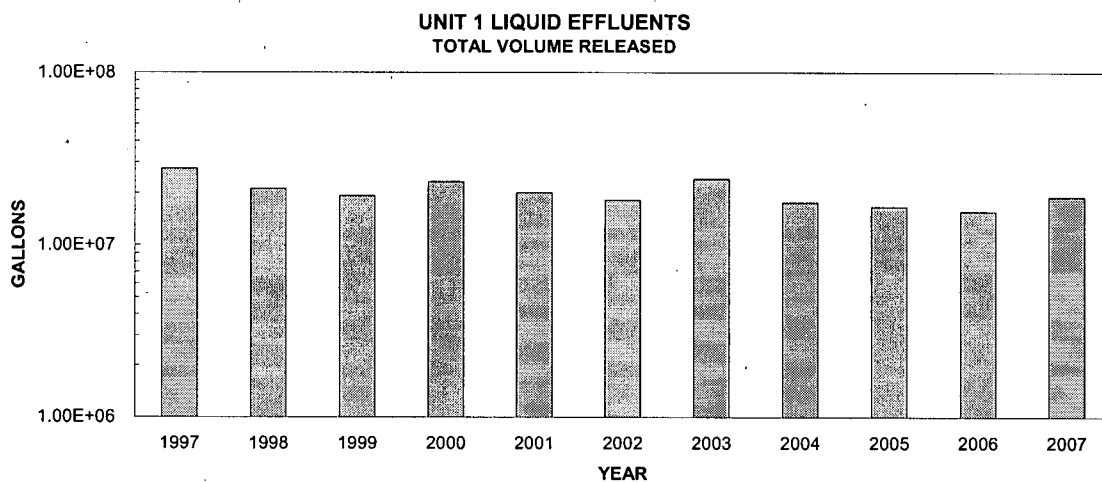
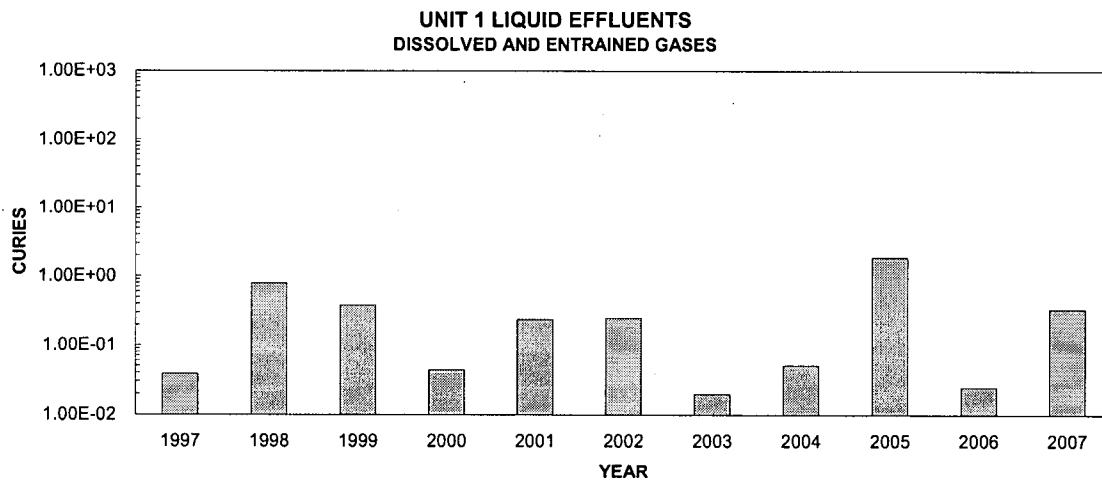
# ANO-1 & 2 Annual Radioactive Effluent Release Report for 2007

## 7. HISTORICAL EFFLUENT DATA

The following graphs show the historical release data for both units on a yearly basis. These graphs compare data from 1997 through 2007.

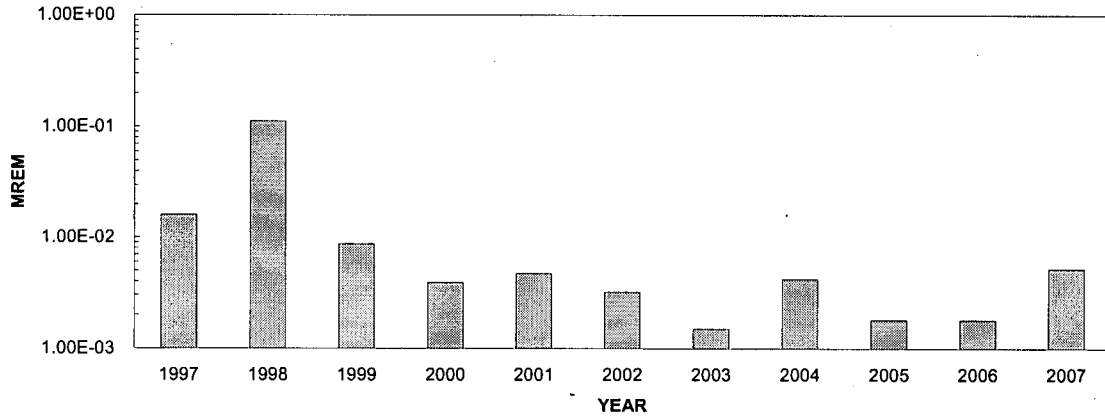


# ANO-1 & 2 Annual Radioactive Effluent Release Report for 2007

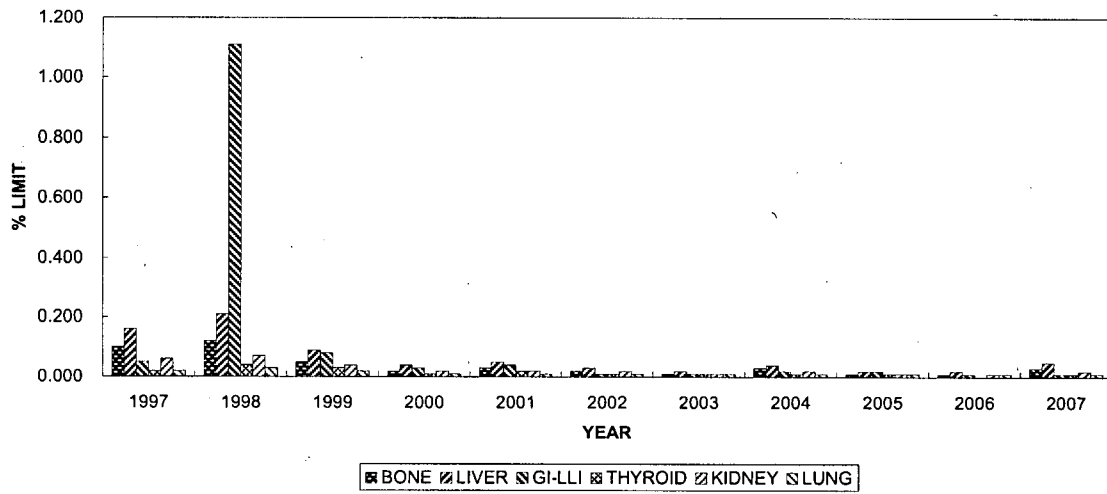


# ANO-1 & 2 Annual Radioactive Effluent Release Report for 2007

**UNIT 1 LIQUID EFFLUENTS  
CRITICAL ORGAN DOSE**

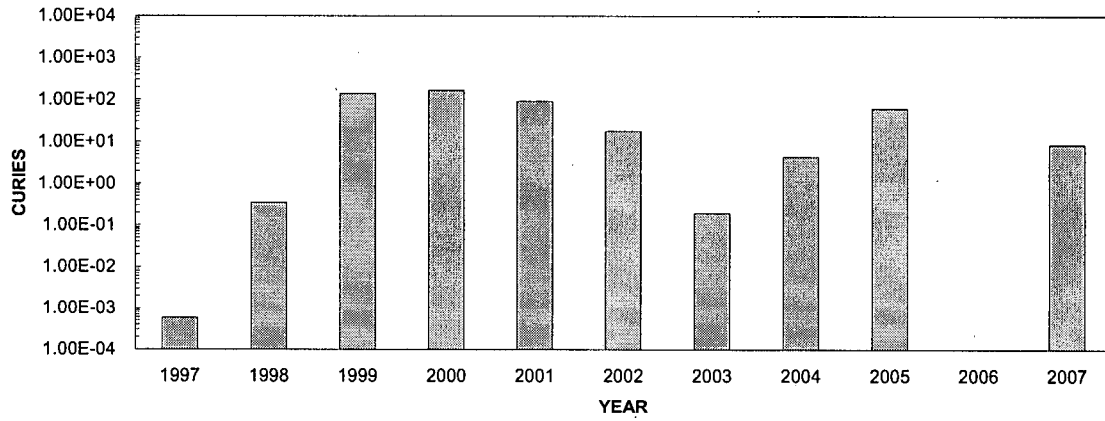


**UNIT 1 LIQUID EFFLUENTS  
COLLECTIVE DOSES**

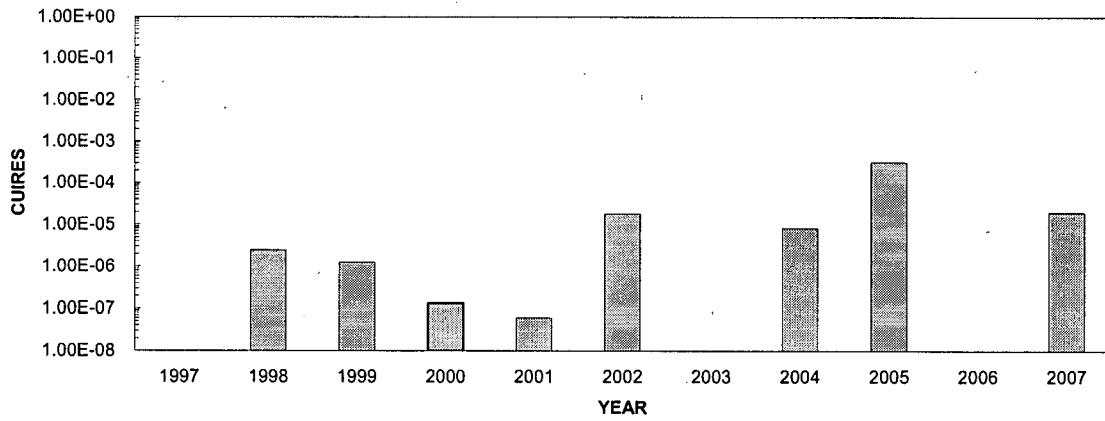


# ANO-1 & 2 Annual Radioactive Effluent Release Report for 2007

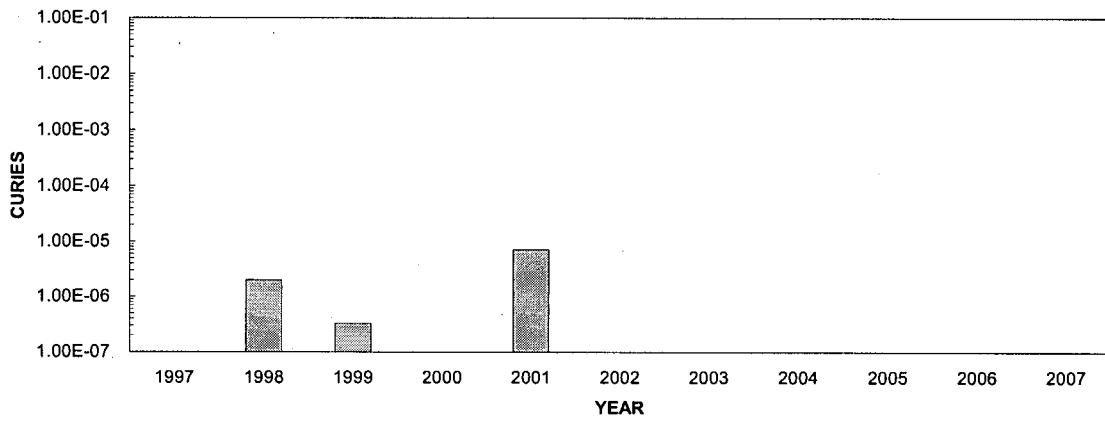
## UNIT 1 GASEOUS EFFLUENTS FISSION AND ACTIVATION PRODUCTS



## UNIT 1 GASEOUS EFFLUENTS RADIOIODINES

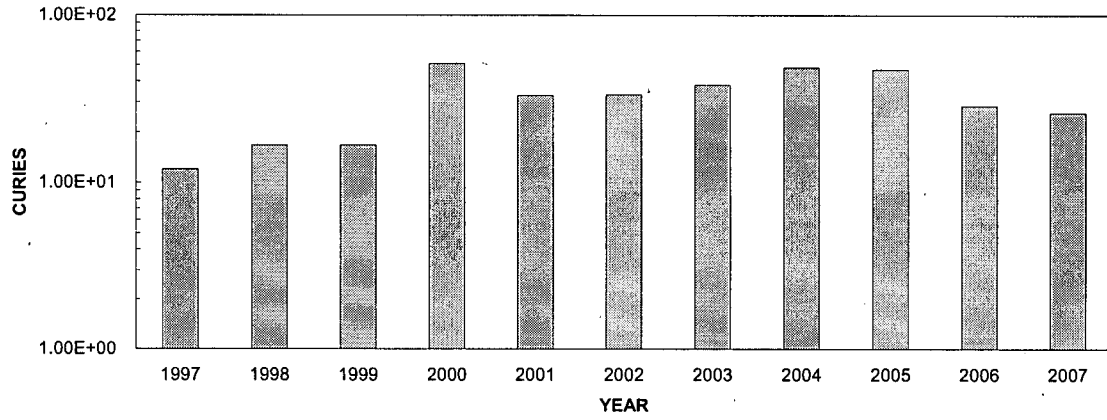


## UNIT 1 GASEOUS EFFLUENTS PARTICULATES

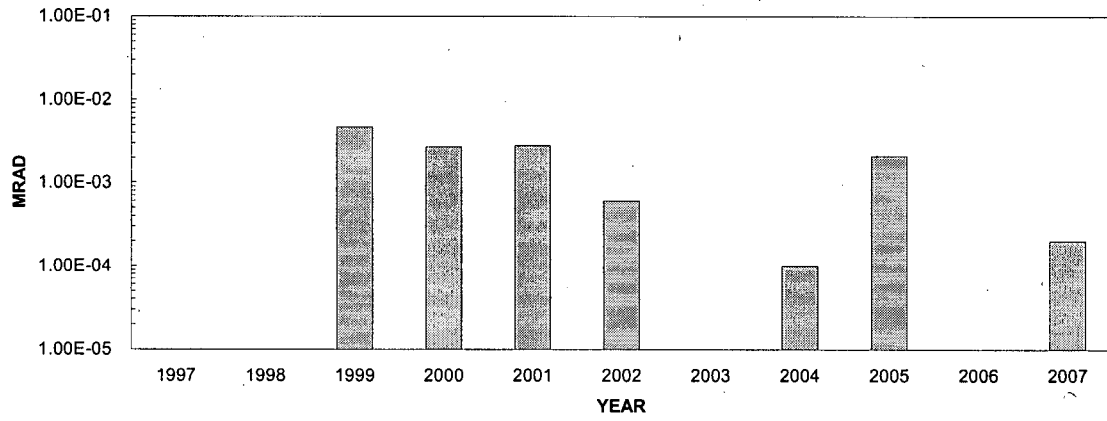


# ANO-1 & 2 Annual Radioactive Effluent Release Report for 2007

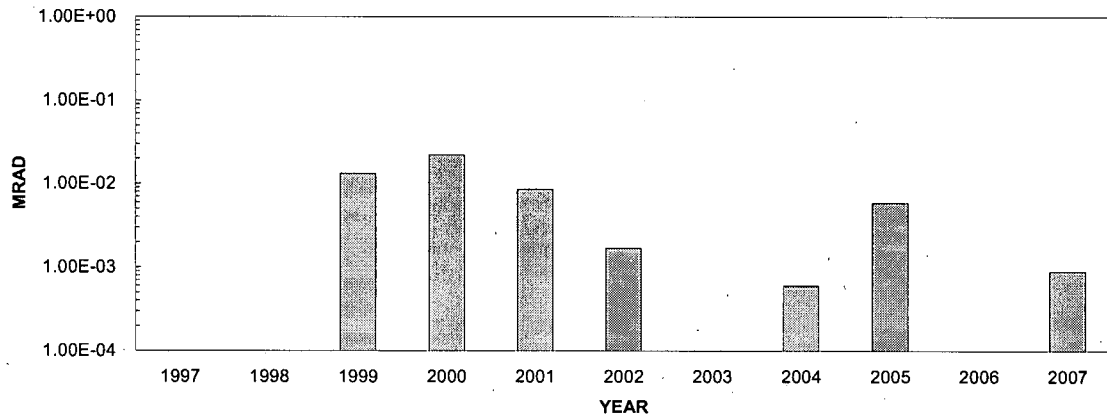
## UNIT 1 GASEOUS EFFLUENTS TRITIUM



## UNIT 1 GASEOUS EFFLUENTS GAMMA DOSE



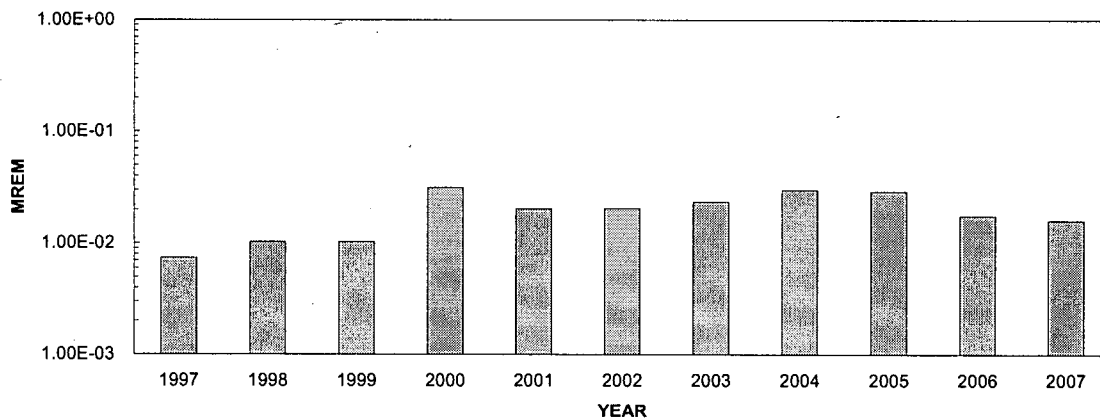
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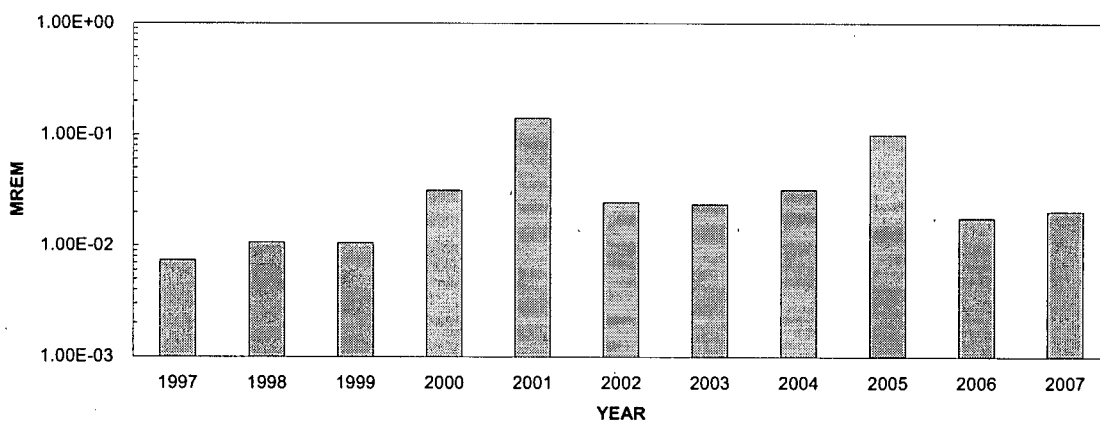


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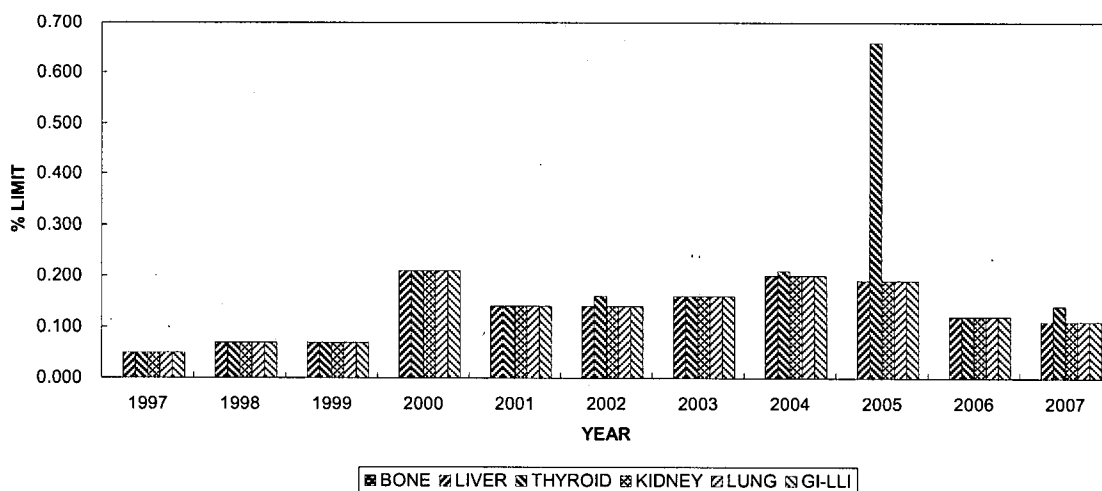
### UNIT 1 GASEOUS EFFLUENTS TOTAL BODY DOSE



### UNIT 1 GASEOUS EFFLUENTS CRITICAL ORGAN DOSE

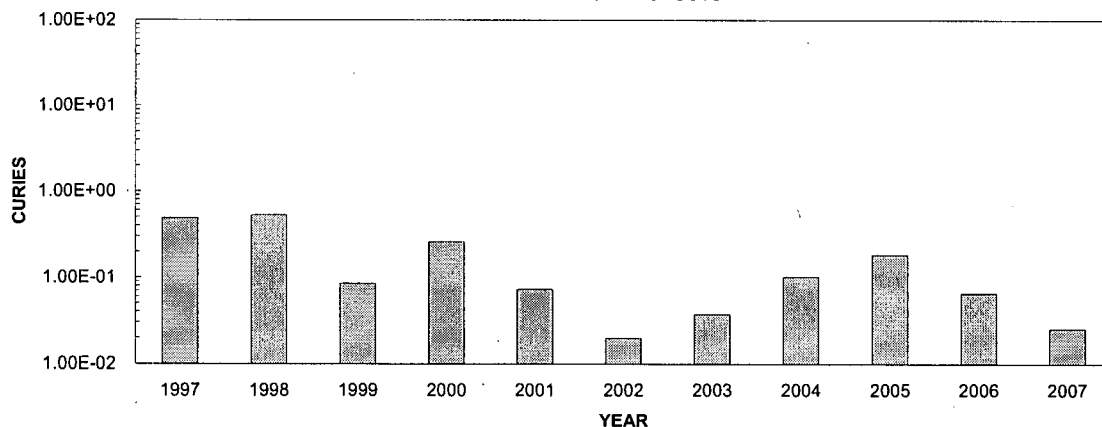


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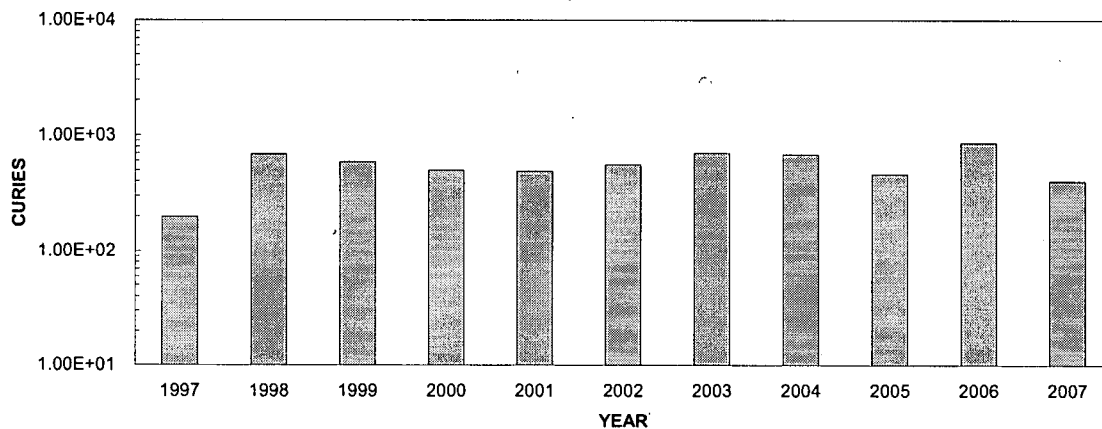


# ANO-1 & 2 Annual Radioactive Effluent Release Report for 2007

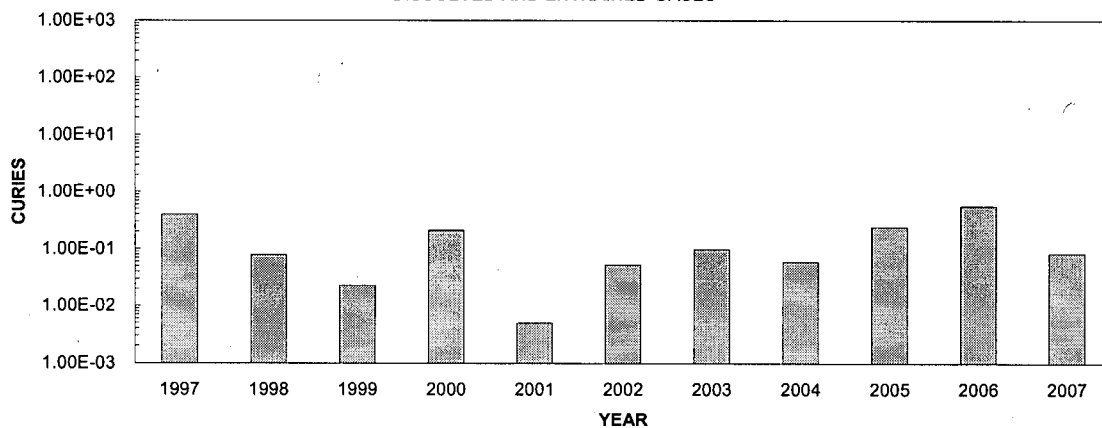
## UNIT 2 LIQUID EFFLUENTS FISSION AND ACTIVATION PRODUCTS



## UNIT 2 LIQUID EFFLUENTS TRITIUM

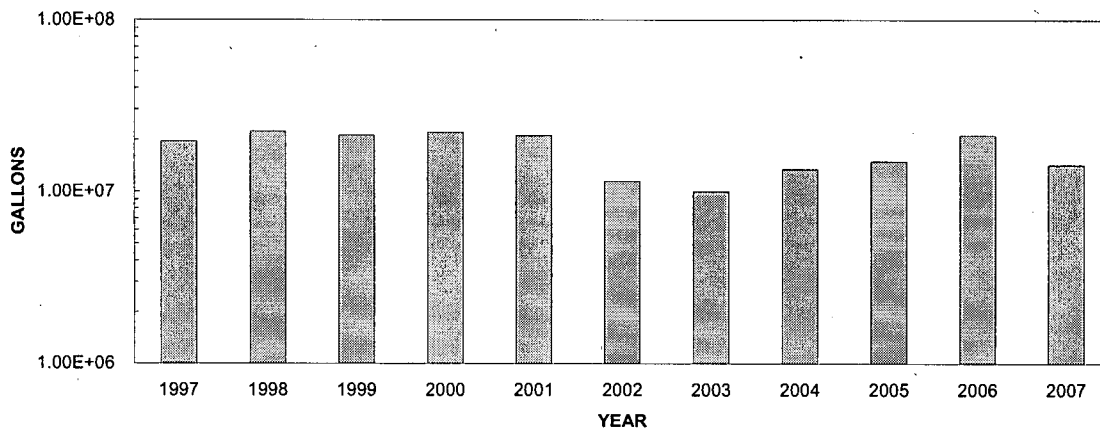


## UNIT 2 LIQUID EFFLUENTS DISSOLVED AND ENTRAINED GASES

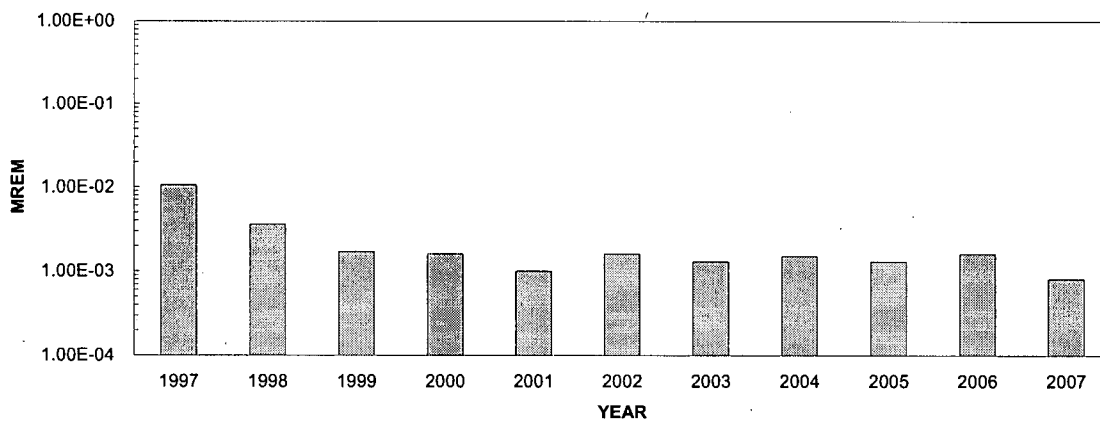


# ANO-1 & 2 Annual Radioactive Effluent Release Report for 2007

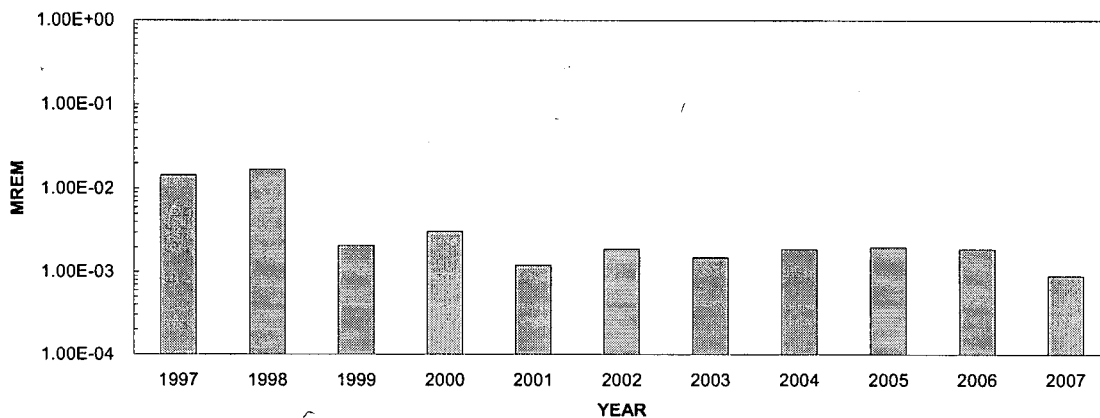
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### UNIT 2 LIQUID EFFLUENTS TOTAL BODY DOSE

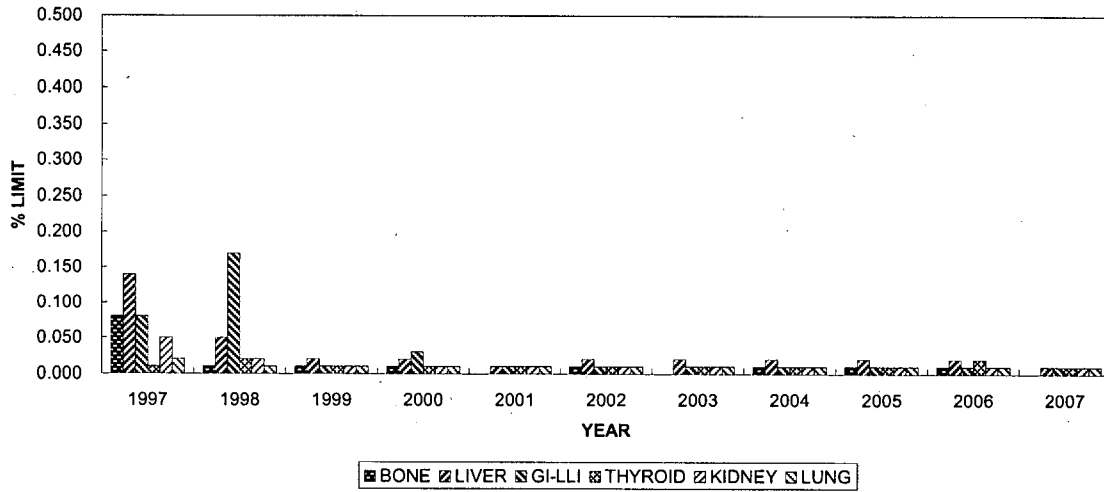


### UNIT 2 LIQUID EFFLUENTS CRITICAL ORGAN DOSE

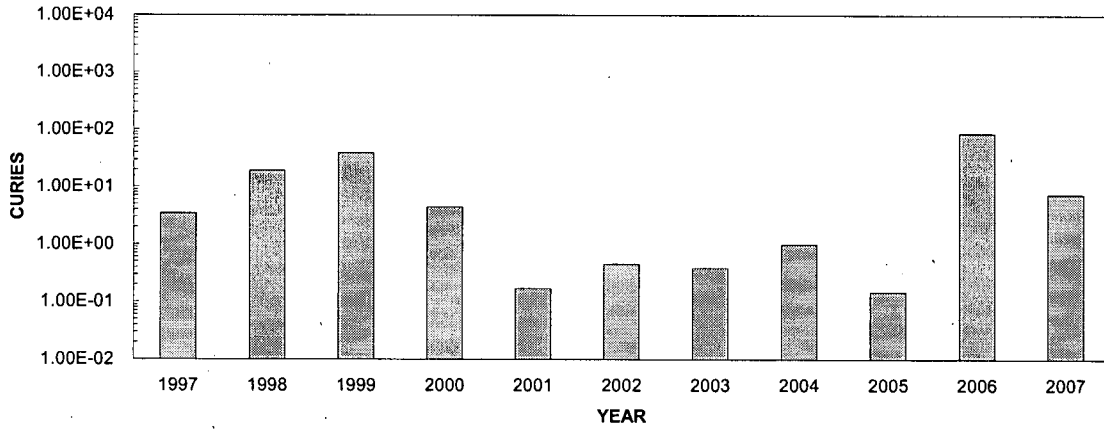


# ANO-1 & 2 Annual Radioactive Effluent Release Report for 2007

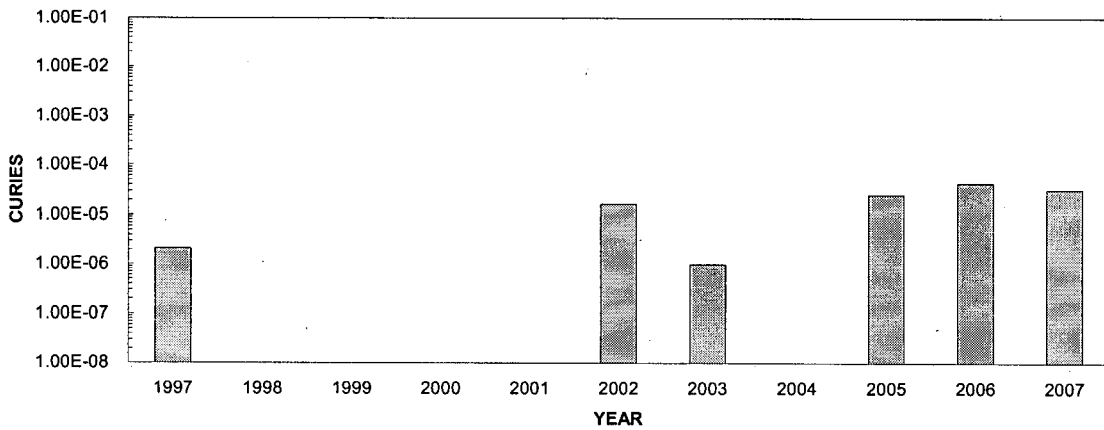
## UNIT 2 LIQUID EFFLUENTS COLLECTIVE DOSES



## UNIT 2 GASEOUS EFFLUENTS FISSION AND ACTIVATION PRODUCTS

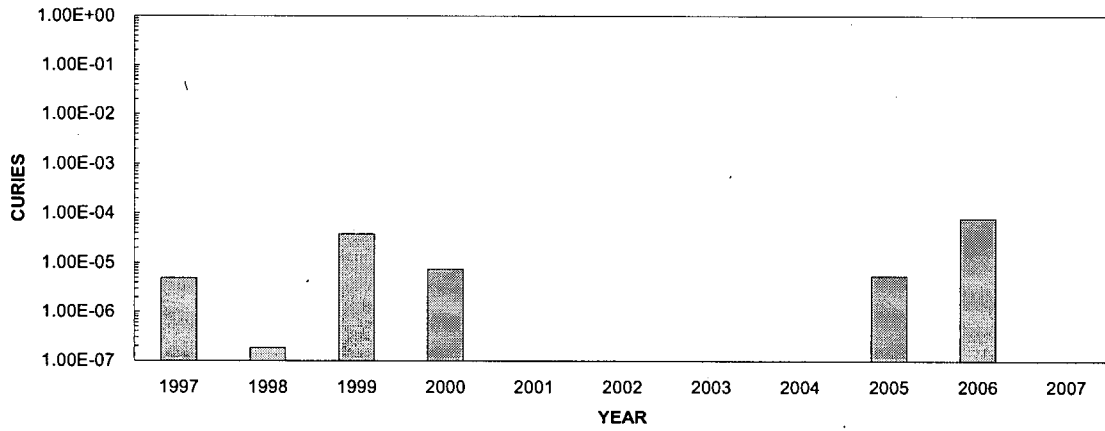


## UNIT 2 GASEOUS EFFLUENTS RADIOIODINES

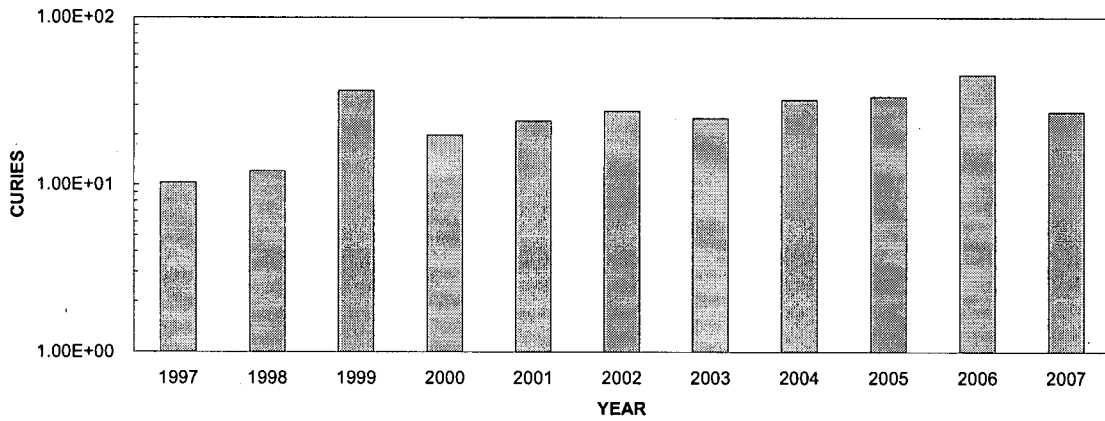


# ANO-1 & 2 Annual Radioactive Effluent Release Report for 2007

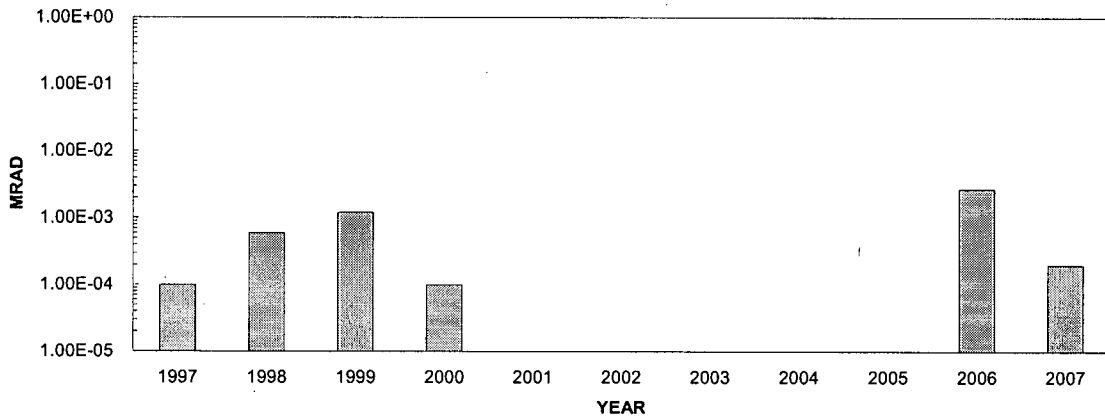
## UNIT 2 GASEOUS EFFLUENTS PARTICULATES



## UNIT 2 GASEOUS EFFLUENTS TRITIUM

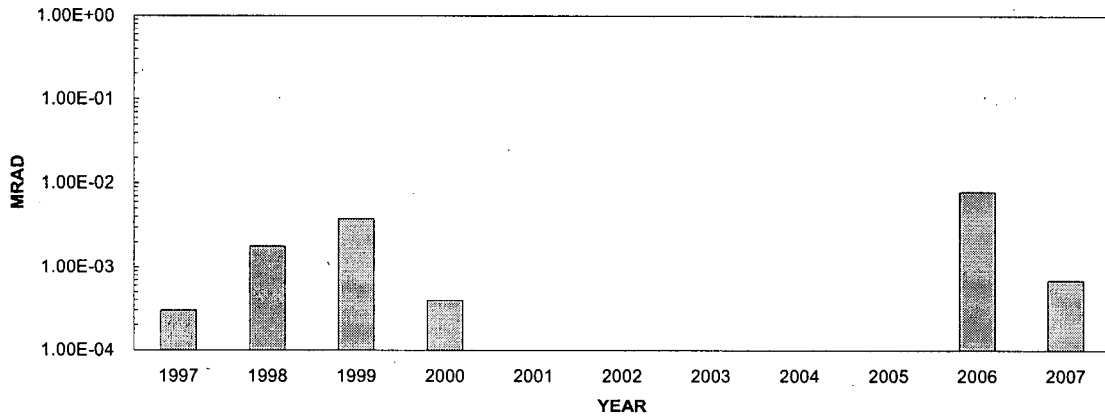


## UNIT 2 GASEOUS EFFLUENTS GAMMA DOSE

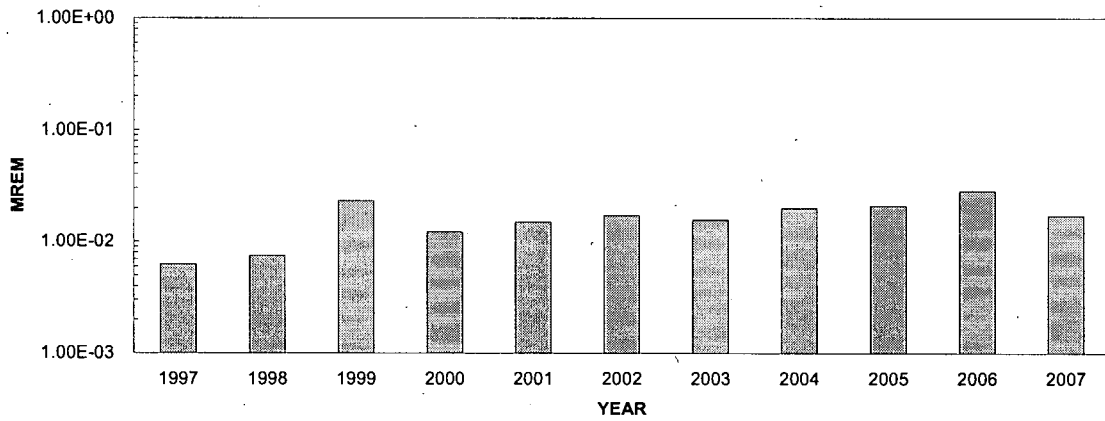


# ANO-1 & 2 Annual Radioactive Effluent Release Report for 2007

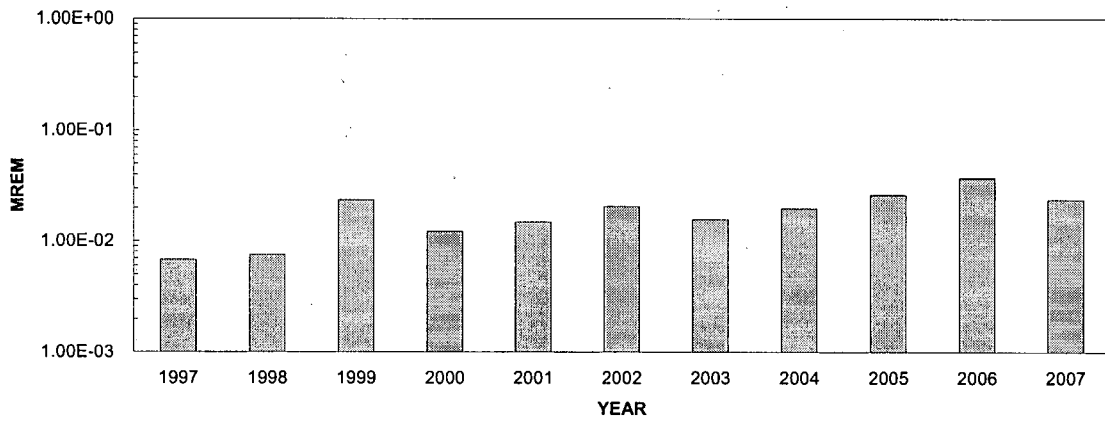
## UNIT 2 GASEOUS EFFLUENTS BETA DOSE



## UNIT 2 GASEOUS EFFLUENTS TOTAL BODY DOSE

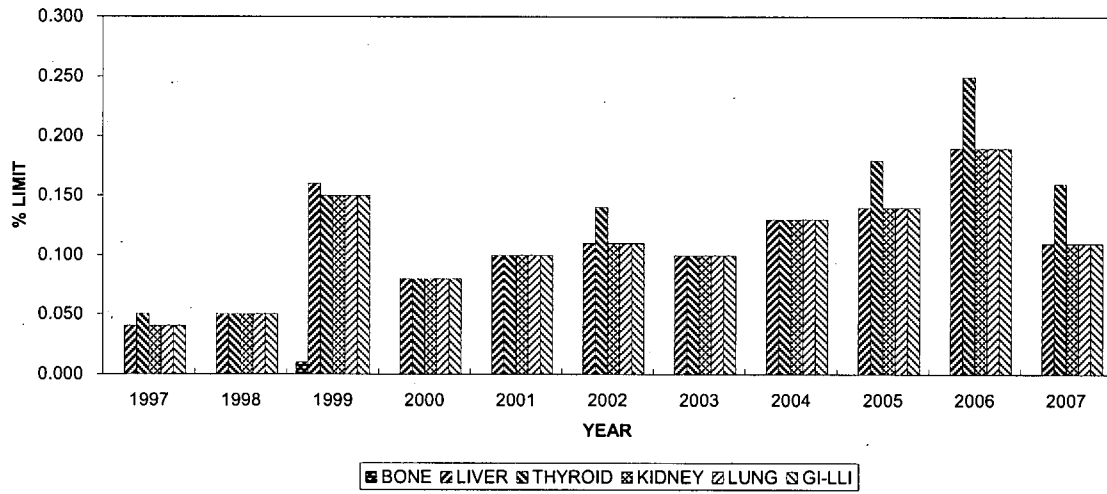


## UNIT 2 GASEOUS EFFLUENTS CRITICAL ORGAN DOSE



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## UNIT 2 GASEOUS EFFLUENTS COLLECTIVE DOSES



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**8. SOLID WASTE SUMMARY**

As required by Regulatory Guide 1.21, Rev. 1, a summary of data for solid wastes shipped offsite is provided in the annual Radioactive Effluent Release Report.

This summary covers shipments from January 1 through December 31, 2007. The summary for solid waste shipments is as follows:

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Solid Waste Shipped Offsite for Disposal and Estimates of Major Nuclides by Waste Class and Stream  
During Period From 01/01/2007 to 06/30/2007 Percent Cutoff: 0

Waste Stream : Resins, Filters, and Evap Bottoms  
U2 Secondary Resin

Waste Class	Volume		Curies Shipped	% Error (Ci)
	Ft <sup>3</sup>	M <sup>3</sup>		
A	5.70E+02	1.61E+01	1.52E-02	+/- 25%
B	0.00E+00	0.00E+00	0.00E+00	+/- 25%
C	0.00E+00	0.00E+00	0.00E+00	+/- 25%
All	5.70E+02	1.61E+01	1.52E-02	+/- 25%

Waste Stream : Dry Active Waste  
Comp Trash in SV    Metal Trash in SV    Metal/Comp Trash    Large Yellow Box  
Turbine Gland Seal    charcoal in Sv

Waste Class	Volume		Curies Shipped	%Error (Ci)
	Ft <sup>3</sup>	M <sup>3</sup>		
A	2.40E+04	6.78E+02	1.23E+00	+/-25%
B	0.00E+00	0.00E+00	0.00E+00	+/-25%
C	0.00E+00	0.00E+00	0.00E+00	+/-25%
All	2.40E+04	6.78E+02	1.23E+00	+/-25%

Waste Stream : Irradiated Components

Waste Class	Volume		Curies Shipped	% Error (Ci)
	Ft <sup>3</sup>	M <sup>3</sup>		
A	0.00E+00	0.00E+00	0.00E+00	+/-25%
B	0.00E+00	0.00E+00	0.00E+00	+/-25%
C	0.00E+00	0.00E+00	0.00E+00	+/-25%
All	0.00E+00	0.00E+00	0.00E+00	+/-25%



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Solid Waste Shipped Offsite for Disposal and Estimates of Major Nuclides by Waste Class and Stream  
During Period From 01/01/2007 to 06/30/2007 Percent Cutoff: 0

Waste Stream : Other Waste  
Oil in SV

Waste Class	Volume		Curies Shipped	% Error (Ci)
	Ft <sup>3</sup>	M <sup>3</sup>		
A	5.00E+02	1.42E+01	3.47E-01	+/-25%
B	0.00E+00	0.00E+00	0.00E+00	+/-25%
C	0.00E+00	0.00E+00	0.00E+00	+/-25%
All	5.00E+02	1.42E+01	3.47E-01	+/-25%

Waste Stream : Sum of All 4 Categories

Comp Trash in SV    Metal Trash in SV    Oil in SV    U2 Secondary Resin  
Metal/Comp Trash    Large Yellow Box    Turbine Gland Seal    charcoal in Sv

Waste Class	Volume		Curies Shipped	% Error (Ci)
	Ft <sup>3</sup>	M <sup>3</sup>		
A	2.50E+04	7.09E+02	1.59E+00	+/-25%
B	0.00E+00	0.00E+00	0.00E+00	+/-25%
C	0.00E+00	0.00E+00	0.00E+00	+/-25%
All	2.50E+04	7.09E+02	1.59E+00	+/-25%

-Combined Waste Type Shipment, Major Volume Waste Type Shown

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Solid Waste Shipped Offsite for Disposal and Estimates of Major Nuclides by Waste Class and Stream  
During Period From 01/01/2007 to 06/30/2007

Number of Shipments	Mode of Transportation	Destination
9	Hittman Transport	Bear Creek Operations
4	Hittman Transport	Gallaher Road Operations
3	Studsvik	STUDSVIK / RACE

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Solid Waste Shipped Offsite for Disposal and Estimates of Major Nuclides by Waste Class and Stream  
During Period From 01/01/2007 to 06/30/2007 Percent Cutoff: 0

Resins, Filters, and Evap Bottom		
Waste Class A		
Nuclide Name	Percent Abundance	Curies
Mn-54	22.013%	3.34E-03
Co-58	5.704%	8.65E-04
Co-60	2.210%	3.35E-04
I-125	40.297%	6.11E-03
Cs-134	13.703%	2.08E-03
Cs-137	16.073%	2.44E-03
Resins, Filters, and Evap Bottom		
Waste Class All		
Nuclide Name	Percent Abundance	Curies
Mn-54	22.013%	3.34E-03
Co-58	5.704%	8.65E-04
Co-60	2.210%	3.35E-04
I-125	40.297%	6.11E-03
Cs-134	13.703%	2.08E-03
Cs-137	16.073%	2.44E-03
Dry Active Waste		
Waste Class A		
Nuclide Name	Percent Abundance	Curies
H-3	0.873%	1.07E-02
C-14	0.882%	1.08E-02
Cr-51	1.171%	1.44E-02
Mn-54	1.494%	1.83E-02
Fe-55	21.394%	2.63E-01
Fe-59	0.181%	2.22E-03
Co-57	0.256%	3.14E-03
Co-58	27.139%	3.33E-01
Co-60	7.884%	9.68E-02
Ni-63	21.251%	2.61E-01
Zn-65	0.034%	4.13E-04
Sr-89	0.006%	7.93E-05
Sr-90	0.018%	2.18E-04
Zr-95	1.443%	1.77E-02
Nb-95	2.514%	3.09E-02
Sn-113	0.060%	7.36E-04
Sb-125	1.091%	1.34E-02
I-125	0.030%	3.74E-04
Cs-134	0.784%	9.62E-03
Cs-137	11.366%	1.40E-01
Ce-144	0.120%	1.48E-03
Am-241	0.006%	6.91E-05
Cm-243	0.002%	2.56E-05
Cm-244	0.002%	2.56E-05
Dry Active Waste		
Waste Class All		

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Solid Waste Shipped Offsite for Disposal and Estimates of Major Nuclides by Waste Class and Stream  
During Period From 01/01/2007 to 06/30/2007 Percent Cutoff: 0

Nuclide Name	Percent Abundance	Curies
H-3	0.873%	1.07E-02
C-14	0.882%	1.08E-02
Cr-51	1.171%	1.44E-02
Mn-54	1.494%	1.83E-02
Fe-55	21.394%	2.63E-01
Fe-59	0.181%	2.22E-03
Co-57	0.256%	3.14E-03
Co-58	27.139%	3.33E-01
Co-60	7.884%	9.68E-02
Ni-63	21.251%	2.61E-01
Zn-65	0.034%	4.13E-04
Sr-89	0.006%	7.93E-05
Sr-90	0.018%	2.18E-04
Zr-95	1.443%	1.77E-02
Nb-95	2.514%	3.09E-02
Sn-113	0.060%	7.36E-04
Sb-125	1.091%	1.34E-02
I-125	0.030%	3.74E-04
Cs-134	0.784%	9.62E-03
Cs-137	11.366%	1.40E-01
Ce-144	0.120%	1.48E-03
Am-241	0.008%	6.91E-05
Cm-243	0.002%	2.56E-05
Cm-244	0.002%	2.56E-05
Other Waste		
Waste Class A		
Nuclide Name	Percent Abundance	Curies
Co-60	1.260%	4.37E-03
Ni-63	96.001%	3.33E-01
Sb-125	0.225%	7.78E-04
Cs-137	2.514%	8.72E-03
Other Waste		
Waste Class All		
Nuclide Name	Percent Abundance	Curies
Co-60	1.260%	4.37E-03
Ni-63	96.001%	3.33E-01
Sb-125	0.225%	7.78E-04
Cs-137	2.514%	8.72E-03
Sum of All 4 Categories		
Waste Class A		
Nuclide Name	Percent Abundance	Curies
H-3	0.674%	1.07E-02
C-14	0.681%	1.08E-02
Cr-51	0.905%	1.44E-02
Mn-54	1.364%	2.17E-02
Fe-55	16.522%	2.63E-01
Fe-59	0.140%	2.22E-03

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Solid Waste Shipped Offsite for Disposal and Estimates of Major Nuclides by Waste Class and Stream  
During Period From 01/01/2007 to 06/30/2007 Percent Cutoff: 0

Co-57	0.198%	3.14E-03
Co-58	21.014%	3.34E-01
Co-60	6.385%	1.01E-01
Ni-63	37.355%	5.94E-01
Zn-65	0.026%	4.13E-04
Sr-89	0.005%	7.93E-05
Sr-90	0.014%	2.18E-04
Zr-95	1.115%	1.77E-02
Nb-95	1.942%	3.09E-02
Sn-113	0.046%	7.36E-04
Sb-125	0.891%	1.42E-02
I-125	0.408%	6.49E-03
Cs-134	0.736%	1.17E-02
Cs-137	9.480%	1.51E-01
Ce-144	0.093%	1.48E-03
Am-241	0.004%	6.91E-05
Cm-243	0.002%	2.56E-05
Cm-244	0.002%	2.56E-05
Sum of All 4 Categories		
Waste Class All		
Nuclide Name	Percent Abundance	Curies
H-3	0.674%	1.07E-02
C-14	0.681%	1.08E-02
Cr-51	0.905%	1.44E-02
Mn-54	1.364%	2.17E-02
Fe-55	16.522%	2.63E-01
Fe-59	0.140%	2.22E-03
Co-57	0.198%	3.14E-03
Co-58	21.014%	3.34E-01
Co-60	6.385%	1.01E-01
Ni-63	37.355%	5.94E-01
Zn-65	0.026%	4.13E-04
Sr-89	0.005%	7.93E-05
Sr-90	0.014%	2.18E-04
Zr-95	1.115%	1.77E-02
Nb-95	1.942%	3.09E-02
Sn-113	0.046%	7.36E-04
Sb-125	0.891%	1.42E-02
I-125	0.408%	6.49E-03
Cs-134	0.736%	1.17E-02
Cs-137	9.480%	1.51E-01
Ce-144	0.093%	1.48E-03
Am-241	0.004%	6.91E-05
Cm-243	0.002%	2.56E-05
Cm-244	0.002%	2.56E-05

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Solid Waste Shipped Offsite for Disposal and Estimates of Major Nuclides by Waste Class and Stream  
During Period From 01/01/2007 to 06/30/2007

Manifest Number	Date Shipped	Waste Volume Used	Burial volume Used
RSR 07-031	5/24/2007	Yes	
RSR 07-028	5/22/2007	Yes	
RSR 07-026	5/17/2007	Yes	
RSR 07-024	5/15/2007	Yes	
RSR 07-021	5/4/2007	Yes	
RSR 07-020	5/3/2007	Yes	
RSR 07-019	5/1/2007	Yes	
RSR 07-017	4/20/2007	Yes	
RSR 07-013	3/14/2007	Yes	
RSR 07-008	2/28/2007	Yes	
RSR 07-009	2/28/2007	Yes	
RSR 07-006	2/14/2007	Yes	
RSR 07-005	1/29/2007	Yes	
RSR 07-003	1/17/2007	Yes	
RSR 07-002	1/16/2007	Yes	
RSR 07-001	1/9/2007	Yes	

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Solid Waste Shipped Offsite for Disposal and Estimates of Major Nuclides by Waste Class and Stream  
During Period From 07/01/2007 to 12/31/2007 Percent Cutoff: 0

Waste Stream : Resins, Filters, and Evap Bottoms

Cartridge Filters U1 Primary Resin (RWU2 Primary Resin (RWU1 Secondary Resin  
U2 Secondary Resin U1 Secondary Resin U1 Secondary Resin U2 Secondary Resin

Waste Class	Volume		Curies Shipped	% Error (CI)
	Ft^3	M^3		
A	2.75E+03	7.80E+01	1.26E+01	+/- 25%
B	2.00E+02	5.66E+00	5.61E+01	+/- 25%
C	0.00E+00	0.00E+00	0.00E+00	+/- 25%
All	2.95E+03	8.36E+01	6.87E+01	+/- 25%

Waste Stream : Dry Active Waste

Comp Trash in SV Metal Trash in SV Metal/Comp Trash BSFR

Waste Class	Volume		Curies Shipped	%Error (CI)
	Ft^3	M^3		
A	8.36E+03	2.37E+02	6.20E-01	+/-25%
B	0.00E+00	0.00E+00	0.00E+00	+/-25%
C	0.00E+00	0.00E+00	0.00E+00	+/-25%
All	8.36E+03	2.37E+02	6.20E-01	+/-25%

Waste Stream : Irradiated Components

Waste Class	Volume		Curies Shipped	% Error (CI)
	Ft^3	M^3		
A	0.00E+00	0.00E+00	0.00E+00	+/-25%
B	0.00E+00	0.00E+00	0.00E+00	+/-25%
C	0.00E+00	0.00E+00	0.00E+00	+/-25%
All	0.00E+00	0.00E+00	0.00E+00	+/-25%

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Solid Waste Shipped Offsite for Disposal and Estimates of Major Nuclides by Waste Class and Stream  
During Period From 07/01/2007 to 12/31/2007 Percent Cutoff: 0

Waste Stream : Other Waste  
Combined Packages U2 Spentfuel Rack U2 Spent Fuel Rack

Waste Class	Volume		Curies Shipped	% Error (Ci)
	Ft^3	M^3		
A	1.48E+03	4.19E+01	1.03E+01	+/-25%
B	0.00E+00	0.00E+00	0.00E+00	+/-25%
C	6.87E+00	1.95E-01	4.62E+01	+/-25%
All	1.49E+03	4.21E+01	5.64E+01	+/-25%

Waste Stream : Sum of All 4 Categories  
 Combined Packages Cartridge Filters U1 Primary Resin (RWU2 Primary Resin (RWI  
 Comp Trash in SV Metal Trash in SV U1 Secondary Resin U2 Secondary Resin  
 Metal/Comp Trash BSFR U1 Secondary Resin U1 Secondary Resin

Waste Class	Volume		Curies Shipped	% Error (Ci)
	Ft^3	M^3		
A	1.26E+04	3.57E+02	2.35E+01	+/-25%
B	2.00E+02	5.66E+00	5.61E+01	+/-25%
C	6.87E+00	1.95E-01	4.62E+01	+/-25%
All	1.28E+04	3.62E+02	1.26E+02	+/-25%

-Combined Waste Type Shipment, Major Volume Waste Type Shown



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Solid Waste Shipped Offsite for Disposal and Estimates of Major Nuclides by Waste Class and Stream  
During Period From 07/01/2007 to 12/31/2007

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Number of Shipments	Mode of Transportation	Destination
3	R&R Trucking Inc	Alaron Corporation
5	Hittman Transport	Bear Creek Operations
1	Hittman Transport	Gallaher Road Operations
5	Studsvik	STUDSVIK / RACE
8	Hittman Transport	Studsvik Processing Facility

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Solid Waste Shipped Offsite for Disposal and Estimates of Major Nuclides by Waste Class and Stream  
During Period From 07/01/2007 to 12/31/2007 Percent Cutoff: 0

Resins, Filters, and Evap Bottom		
Waste Class A		
Nuclide Name	Percent Abundance	Curies
H-3	2.563%	3.23E-01
C-14	2.838%	3.58E-01
Cr-51	0.000%	3.38E-07
Mn-54	0.279%	3.52E-02
Fe-55	6.976%	8.79E-01
Fe-59	0.000%	1.70E-06
Co-57	0.207%	2.61E-02
Co-58	0.395%	4.98E-02
Co-60	7.733%	9.74E-01
Ni-59	0.361%	4.54E-02
Ni-63	62.557%	7.88E+00
Zn-65	0.000%	4.80E-05
Sr-89	0.000%	7.15E-07
Sr-90	0.164%	2.07E-02
Zr-95	0.008%	9.54E-04
Nb-95	0.000%	1.53E-05
Tc-99	0.027%	3.38E-03
Ru-103	0.000%	2.03E-09
Ag-110m	0.184%	2.32E-02
Cd-109	0.000%	1.38E-05
Sn-113	0.004%	5.04E-04
Sb-124	0.000%	2.21E-06
Sb-125	7.725%	9.73E-01
I-125	0.000%	1.35E-06
Cs-134	1.703%	2.15E-01
Cs-137	6.180%	7.79E-01
Ce-141	0.000%	1.19E-08
Ce-144	0.090%	1.13E-02
Pu-238	0.000%	3.74E-05
Pu-239	0.000%	7.16E-08
Pu-240	0.000%	7.16E-08
Am-241	0.002%	2.68E-04
Cm-242	0.000%	5.66E-05
Cm-243	0.001%	1.74E-04
Cm-244	0.001%	1.71E-04
Resins, Filters, and Evap Bottom		
Waste Class B		
Nuclide Name	Percent Abundance	Curies
H-3	0.010%	5.48E-03
C-14	2.374%	1.33E+00
Mn-54	1.089%	6.11E-01
Fe-55	14.684%	8.24E+00
Co-57	0.139%	7.82E-02
Co-58	0.091%	5.08E-02
Co-60	3.031%	1.70E+00
Ni-59	0.276%	1.55E-01

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Ni-63	74.405%	4.17E+01
Sr-90	0.033%	1.84E-02
Tc-99	0.005%	3.03E-03
Sb-125	1.323%	7.42E-01
Cs-134	0.628%	3.52E-01
Cs-137	1.900%	1.07E+00
Ce-144	0.012%	6.71E-03
Am-241	0.000%	9.84E-05
Cm-243	0.000%	3.07E-05
Cm-244	0.000%	3.06E-05
Resins, Filters, and Evap Bottom		
Waste Class All		
Nuclide Name	Percent Abundance	Curies
H-3	0.478%	3.28E-01
C-14	2.459%	1.69E+00
Cr-51	0.000%	3.38E-07
Mn-54	0.941%	6.46E-01
Fe-55	13.271%	9.12E+00
Fe-59	0.000%	1.70E-06
Co-57	0.152%	1.04E-01
Co-58	0.146%	1.01E-01
Co-60	3.893%	2.67E+00
Ni-59	0.291%	2.00E-01
Ni-63	72.232%	4.96E+01
Zn-65	0.000%	4.80E-05
Sr-89	0.000%	7.15E-07
Sr-90	0.057%	3.91E-02
Zr-95	0.001%	9.54E-04
Nb-95	0.000%	1.53E-05
Tc-99	0.009%	6.41E-03
Ru-103	0.000%	2.03E-09
Ag-110m	0.034%	2.32E-02
Cd-109	0.000%	1.38E-05
Sn-113	0.001%	5.04E-04
Sb-124	0.000%	2.21E-06
Sb-125	2.497%	1.72E+00
I-125	0.000%	1.35E-06
Cs-134	0.825%	5.67E-01
Cs-137	2.685%	1.84E+00
Ce-141	0.000%	1.19E-08
Ce-144	0.026%	1.80E-02
Pu-238	0.000%	3.74E-05
Pu-239	0.000%	7.16E-08
Pu-240	0.000%	7.16E-08
Am-241	0.001%	3.66E-04
Cm-242	0.000%	5.66E-05
Cm-243	0.000%	2.05E-04
Cm-244	0.000%	2.02E-04
Dry Active Waste		

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Waste Class A		
Nuclide Name	Percent Abundance	Curies
H-3	0.490%	3.04E-03
C-14	0.216%	1.34E-03
Cr-51	2.331%	1.45E-02
Mn-54	2.258%	1.40E-02
Fe-55	29.308%	1.82E-01
Fe-59	0.260%	1.61E-03
Co-57	0.192%	1.19E-03
Co-58	30.605%	1.90E-01
Co-60	5.748%	3.56E-02
Ni-63	20.770%	1.29E-01
Zn-65	0.067%	4.17E-04
Sr-89	0.013%	8.00E-05
Sr-90	0.005%	3.15E-05
Zr-95	1.845%	1.14E-02
Nb-95	3.062%	1.90E-02
Sn-113	0.120%	7.43E-04
Sb-125	0.589%	3.65E-03
Cs-134	0.533%	3.31E-03
Cs-137	1.460%	9.05E-03
Ce-144	0.111%	6.87E-04
Am-241	0.008%	5.04E-05
Cm-243	0.004%	2.58E-05
Cm-244	0.004%	2.58E-05
Dry Active Waste		
Waste Class All		
Nuclide Name	Percent Abundance	Curies
H-3	0.490%	3.04E-03
C-14	0.216%	1.34E-03
Cr-51	2.331%	1.45E-02
Mn-54	2.258%	1.40E-02
Fe-55	29.308%	1.82E-01
Fe-59	0.260%	1.61E-03
Co-57	0.192%	1.19E-03
Co-58	30.605%	1.90E-01
Co-60	5.748%	3.56E-02
Ni-63	20.770%	1.29E-01
Zn-65	0.067%	4.17E-04
Sr-89	0.013%	8.00E-05
Sr-90	0.005%	3.15E-05
Zr-95	1.845%	1.14E-02
Nb-95	3.062%	1.90E-02
Sn-113	0.120%	7.43E-04
Sb-125	0.589%	3.65E-03
Cs-134	0.533%	3.31E-03
Cs-137	1.460%	9.05E-03
Ce-144	0.111%	6.87E-04
Am-241	0.008%	5.04E-05
Cm-243	0.004%	2.58E-05

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Cm-244	0.004%	2.58E-05
Other Waste		
Waste Class A		
Nuclide Name	Percent Abundance	Curies
H-3	0.008%	8.33E-04
C-14	0.029%	3.02E-03
K-40	0.000%	1.49E-07
Sc-46	0.002%	2.35E-04
Cr-51	1.599%	1.64E-01
Mn-54	0.200%	2.05E-02
Fe-55	86.664%	8.91E+00
Fe-59	0.083%	8.55E-03
Co-57	0.025%	2.61E-03
Co-58	5.973%	6.14E-01
Co-60	0.587%	6.03E-02
Ni-59	0.014%	1.40E-03
Ni-63	0.975%	1.00E-01
Zn-65	0.005%	5.58E-04
Sr-89	0.001%	1.08E-04
Sr-90	0.000%	2.84E-05
Zr-95	0.754%	7.74E-02
Nb-94	0.005%	5.54E-04
Nb-95	1.203%	1.24E-01
Tc-99	0.017%	1.74E-03
Ru-103	0.003%	2.69E-04
Sn-113	0.344%	3.53E-02
Sb-125	1.416%	1.45E-01
Cs-134	0.002%	1.67E-04
Cs-137	0.020%	2.01E-03
Ce-143	0.000%	6.44E-19
Ce-144	0.007%	7.67E-04
Hf-181	0.007%	6.76E-04
Pb-214	0.000%	2.98E-64
Bi-214	0.000%	1.24E-69
Ra-226	0.000%	1.42E-06
Ac-228	0.000%	3.16E-50
Th-228	0.000%	4.21E-06
Pu-238	0.001%	1.22E-04
Pu-239	0.000%	3.04E-05
Pu-240	0.000%	3.04E-05
Pu-241	0.052%	5.34E-03
Am-241	0.002%	1.85E-04
Cm-242	0.000%	1.61E-05
Cm-243	0.000%	2.47E-05
Cm-244	0.000%	2.47E-05
Other Waste		
Waste Class C		
Nuclide Name	Percent Abundance	Curies
Cr-51	0.000%	2.69E-13

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Mn-54	0.333%	1.54E-01
Fe-55	51.084%	2.36E+01
Fe-59	0.000%	3.52E-09
Co-57	0.028%	1.30E-02
Co-58	0.001%	2.93E-04
Co-60	7.157%	3.30E+00
Ni-63	32.465%	1.50E+01
Zr-95	0.000%	4.95E-06
Nb-95	0.000%	3.29E-09
Sn-113	0.000%	1.89E-04
Sb-125	0.600%	2.77E-01
Cs-134	1.124%	5.19E-01
Cs-137	7.208%	3.33E+00
Other Waste		
Waste Class All		
Nuclide Name	Percent Abundance	Curies
H-3	0.001%	8.33E-04
C-14	0.005%	3.02E-03
K-40	0.000%	1.49E-07
Sc-46	0.000%	2.35E-04
Cr-51	0.291%	1.64E-01
Mn-54	0.309%	1.74E-01
Fe-55	57.562%	3.25E+01
Fe-59	0.015%	8.55E-03
Co-57	0.028%	1.56E-02
Co-58	1.088%	6.14E-01
Co-60	5.961%	3.36E+00
Ni-59	0.002%	1.40E-03
Ni-63	26.732%	1.51E+01
Zn-65	0.001%	5.58E-04
Sr-89	0.000%	1.08E-04
Sr-90	0.000%	2.84E-05
Zr-95	0.137%	7.74E-02
Nb-94	0.001%	5.54E-04
Nb-95	0.219%	1.24E-01
Tc-99	0.003%	1.74E-03
Ru-103	0.000%	2.69E-04
Sn-113	0.063%	3.55E-02
Sb-125	0.748%	4.22E-01
Cs-134	0.920%	5.19E-01
Cs-137	5.899%	3.33E+00
Ce-143	0.000%	6.44E-19
Ce-144	0.001%	7.67E-04
Hf-181	0.001%	6.76E-04
Pb-214	0.000%	2.98E-64
Bi-214	0.000%	1.24E-69
Ra-226	0.000%	1.42E-06
Ac-228	0.000%	3.16E-50
Th-228	0.000%	4.21E-06
Pu-238	0.000%	1.22E-04

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Pu-239	0.000%	3.04E-05
Pu-240	0.000%	3.04E-05
Pu-241	0.009%	5.34E-03
Am-241	0.000%	1.85E-04
Cm-242	0.000%	1.61E-05
Cm-243	0.000%	2.47E-05
Cm-244	0.000%	2.47E-05
Sum of All 4 Categories		
Waste Class A		
Nuclide Name	Percent Abundance	Curies
H-3	1.391%	3.27E-01
C-14	1.541%	3.62E-01
K-40	0.000%	1.49E-07
Sc-46	0.001%	2.35E-04
Cr-51	0.761%	1.79E-01
Mn-54	0.297%	6.97E-02
Fe-55	42.414%	9.97E+00
Fe-59	0.043%	1.02E-02
Co-57	0.127%	2.99E-02
Co-58	3.632%	8.53E-01
Co-60	4.555%	1.07E+00
Ni-59	0.199%	4.68E-02
Ni-63	34.524%	8.11E+00
Zn-65	0.004%	1.02E-03
Sr-89	0.001%	1.89E-04
Sr-90	0.088%	2.08E-02
Zr-95	0.382%	8.98E-02
Nb-94	0.002%	5.54E-04
Nb-95	0.607%	1.43E-01
Tc-99	0.022%	5.11E-03
Ru-103	0.001%	2.69E-04
Ag-110m	0.099%	2.32E-02
Cd-109	0.000%	1.38E-05
Sn-113	0.156%	3.66E-02
Sb-124	0.000%	2.21E-06
Sb-125	4.777%	1.12E+00
I-125	0.000%	1.35E-06
Cs-134	0.928%	2.18E-01
Cs-137	3.362%	7.90E-01
Ce-141	0.000%	1.19E-08
Ce-143	0.000%	6.44E-19
Ce-144	0.054%	1.28E-02
Hf-181	0.003%	6.76E-04
Pb-214	0.000%	2.98E-64
Bi-214	0.000%	1.24E-69
Ra-226	0.000%	1.42E-06
Ac-228	0.000%	3.16E-50
Th-228	0.000%	4.21E-06
Pu-238	0.001%	1.60E-04
Pu-239	0.000%	3.05E-05

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Pu-240	0.000%	3.05E-05
Pu-241	0.023%	5.34E-03
Am-241	0.002%	5.03E-04
Cm-242	0.000%	7.27E-05
Cm-243	0.001%	2.24E-04
Cm-244	0.001%	2.22E-04
Sum of All 4 Categories		
Waste Class B		
Nuclide Name	Percent Abundance	Curies
H-3	0.010%	5.48E-03
C-14	2.374%	1.33E+00
Mn-54	1.089%	6.11E-01
Fe-55	14.684%	8.24E+00
Co-57	0.139%	7.82E-02
Co-58	0.091%	5.08E-02
Co-60	3.031%	1.70E+00
Ni-59	0.276%	1.55E-01
Ni-63	74.405%	4.17E+01
Sr-90	0.033%	1.84E-02
Tc-99	0.005%	3.03E-03
Sb-125	1.323%	7.42E-01
Cs-134	0.628%	3.52E-01
Cs-137	1.900%	1.07E+00
Ce-144	0.012%	6.71E-03
Am-241	0.000%	9.84E-05
Cm-243	0.000%	3.07E-05
Cm-244	0.000%	3.06E-05
Sum of All 4 Categories		
Waste Class C		
Nuclide Name	Percent Abundance	Curies
Cr-51	0.000%	2.69E-13
Mn-54	0.333%	1.54E-01
Fe-55	51.084%	2.36E+01
Fe-59	0.000%	3.52E-09
Co-57	0.028%	1.30E-02
Co-58	0.001%	2.93E-04
Co-60	7.157%	3.30E+00
Ni-63	32.465%	1.50E+01
Zr-95	0.000%	4.95E-06
Nb-95	0.000%	3.29E-09
Sn-113	0.000%	1.89E-04
Sb-125	0.600%	2.77E-01
Cs-134	1.124%	5.19E-01
Cs-137	7.208%	3.33E+00
Sum of All 4 Categories		
Waste Class All		
Nuclide Name	Percent Abundance	Curies
H-3	0.264%	3.32E-01



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C-14	1.347%	1.69E+00
K-40	0.000%	1.49E-07
Sc-46	0.000%	2.35E-04
Cr-51	0.142%	1.79E-01
Mn-54	0.664%	8.35E-01
Fe-55	33.227%	4.18E+01
Fe-59	0.008%	1.02E-02
Co-57	0.096%	1.21E-01
Co-58	0.719%	9.05E-01
Co-60	4.830%	6.07E+00
Ni-59	0.160%	2.02E-01
Ni-63	51.559%	6.48E+01
Zn-65	0.001%	1.02E-03
Sr-89	0.000%	1.89E-04
Sr-90	0.031%	3.91E-02
Zr-95	0.071%	8.98E-02
Nb-94	0.000%	5.54E-04
Nb-95	0.113%	1.43E-01
Tc-99	0.006%	8.14E-03
Ru-103	0.000%	2.69E-04
Ag-110m	0.018%	2.32E-02
Cd-109	0.000%	1.38E-05
Sn-113	0.029%	3.68E-02
Sb-124	0.000%	2.21E-06
Sb-125	1.703%	2.14E+00
I-125	0.000%	1.35E-06
Cs-134	0.866%	1.09E+00
Cs-137	4.121%	5.18E+00
Ce-141	0.000%	1.19E-08
Ce-143	0.000%	6.44E-19
Ce-144	0.016%	1.95E-02
Hf-181	0.001%	6.76E-04
Pb-214	0.000%	2.98E-64
Bi-214	0.000%	1.24E-69
Ra-226	0.000%	1.42E-06
Ac-228	0.000%	3.16E-50
Th-228	0.000%	4.21E-06
Pu-238	0.000%	1.60E-04
Pu-239	0.000%	3.05E-05
Pu-240	0.000%	3.05E-05
Pu-241	0.004%	5.34E-03
Am-241	0.000%	6.02E-04
Cm-242	0.000%	7.27E-05
Cm-243	0.000%	2.55E-04
Cm-244	0.000%	2.52E-04

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Manifest Number	Date Shipped	Waste Volume Used	Burial volume Used
RSR 07-067	12/3/2007	Yes	
RSR 07-068	12/3/2007	Yes	
RSR 07-066	11/29/2007	Yes	
RSR 07-065	11/27/2007	Yes	
RSR 07-063	11/6/2007	Yes	
RSR 07-062	11/1/2007	Yes	
RSR 07-061	10/30/2007	Yes	
RSR 07-060	10/26/2007	Yes	
RSR 07-059	10/25/2007	Yes	
RSR 07-058	10/24/2007	Yes	
RSR 07-057	10/11/2007	Yes	
RSR 07-056	10/9/2007	Yes	
RSR 07-055	10/3/2007	Yes	
RSR 07-053	9/25/2007	Yes	
RSR 07-049	8/29/2007	Yes	
RSR 07-046	8/22/2007	Yes	
RSR 07-043	7/26/2007	Yes	
RSR 07-042	7/24/2007	Yes	
RSR 07-041	7/19/2007	Yes	
RSR 07-040	7/17/2007	Yes	
RSR 07-039	7/17/2007	Yes	
RSR 07-038	7/12/2007	Yes	

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**9. UNPLANNED RELEASES**

An unplanned release is defined as any release of radioactive material to the environment that does not meet the following criteria:

- A. Sample analysis prior to release, and
- B. Release calculations performed prior to release.

During 2007, there were no unplanned releases to an unrestricted area.

**10. RADIATION INSTRUMENTATION**

As required by ODCM Appendices 1 and 2, any radioactive effluent instrumentation inoperable for more than 30 days shall be reported in the annual Radioactive Effluent Release Report.

During 2007, there were no instances of radioactive effluent instrumentation inoperable for longer than 30 days.

**11. CHANGES TO THE PROCESS CONTROL PROGRAM**

As required by ODCM Appendices 1 and 2, a description of changes made to the Process Control Program (EN-RW-105) shall be included in the annual Radioactive Effluent Release Report for the period in which the change was made effective.

There were no changes made to the Process Control Program in 2007.

**12. CHANGES TO THE OFFSITE DOSE CALCULATION MANUAL**

In accordance with Unit 1 and Unit 2 TS, changes to the ODCM shall be included in the annual Radioactive Effluent Release Report for the period in which the change(s) was made effective.

The following changes were made to the ODCM during 2007:

Revision 16 (Implemented 09/26/2007):

- ODCM Table of Contents, Figures (pg 2 of 175): "Figure 4-1 Radiological Sample Station (Near Field)" was changed to "Figure 4-1A Radiological Sample Station (Near Field)" and "Figure 4-1B Radiological Sample Stations (Site Map)" was added to list of figures in the ODCM. The change was made to improve clarity when using the figures.
- ODCM Section 4.0, "Environmental Sampling Stations – Radiological" (pg 36 of 175): The second sentence of the first paragraph was revised to state, "The approximate locations of selected sample sites are shown on Figures 4-1, 4-1A and 4-1B for illustrative purposes." This change was made as a result of renaming of Figures 4-1, 4-1A and 4-1B.

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- ODCM Figure 4-1 [Near Field] (pg 39 of 175): The title of the figure was changed to Figure 4-1A [Near Field] for clarification purposes. Also, the figure was revised to reflect the change in location of Sample Station 152.
- ODCM Figure 4-1B [Site Map] (pg 40 of 175): This figure was added to illustrate Groundwater and Storm Water well sample locations at the site.
- ODCM Table 4-1, "Environmental Sampling Stations – Radiological" (pg 46 of 175): The table was revised to include sample station numbers for Groundwater Monitoring Well sample locations.
- ODCM Table 4-1 Sample Station 152 [TLD] (pg 50 of 175): The location description in the previous ODCM revision stated that the degree from ANO to Sample Station Number 152 was 340. In Revision 16, the 340 was changed to 338 to more accurately reflect the degree location of the sample station. Also, the previous ODCM revision stated, "The TLD is located on the north side of State Highway 333 on a London City limit sign post". In Revision 16, the description was changed to "The TLD is located on the south side of State Highway 333 on a road sign post." The change was a result of the London City limit sign being discovered in the ditch. The sign was no longer available for replacement of the TLD. Therefore, the TLD location was moved to the road sign post on the south side of State Highway 333. Figure 4-1A "Radiological Sample Stations" (Near Field) was revised to reflect the change in location of Sample Station 152. Additionally, the table was revised to include Sample Station numbers for Storm Water Runoff sample locations.

### 13. LLD LEVELS

In accordance with ODCM Appendices 1 and 2, lower limits of detection (LLDs) higher than required shall be documented in the annual Radioactive Effluent Release Report.

During 2007, there were no LLDs higher than required.

### 14. RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM

In accordance with ODCM Appendices 1 and 2 Limitations L2.6.1.A and L2.6.2.A, unavailability of milk or fresh, leafy vegetable samples, or an increase in an environmental sample location's calculated dose commitment must be identified in the annual Radioactive Effluent Release Report.

#### A. Changes in Sample Locations

During 2007, there were no changes to milk or fresh leafy vegetable sample locations or instances where milk or fresh leafy vegetable samples were unavailable.

#### B. Increase in Calculated Dose Commitment

There were no environmental sampling locations identified during 2007 that would yield a calculated dose commitment greater than the values currently being calculated.

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**15. SUMMARY OF HOURLY METEOROLOGICAL DATA**

In accordance with ODCM Appendices 1 and 2 Limitations L3.2.1.D.1, in lieu of including a summary of the meteorological data in this report, the 2007 data is retained at ANO. This data is available for NRC review.

**16. DESCRIPTION OF MAJOR CHANGES TO RADIOACTIVE WASTE SYSTEMS**

There were no major changes made to the Unit 1 liquid and gaseous or Unit 2 liquid and gaseous radwaste systems during 2007.

**17. INDEPENDENT SPENT FUEL STORAGE INSTALLATION (ISFSI) EFFLUENT  
RELEASES**

No effluent releases occurred from the ISFSI during 2007.