Dominion®

2005 Annual Radioactive Effluent Release Report

Kewaunee Power Station

Dominion Energy Kewaunee, Inc.

DOCKET 50-305

KEWAUNEE POWER STATION

ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT

January 1 - December 31, 2005

Dominion Energy Kewaunee, Inc.
Kewaunee, Wisconsin

Table of Contents

0.0 SUMMARY

During 2005 all solid, liquid, and gaseous radioactive effluents from the Kewaunee Power Station were well below regulatory limits. For individual effluent streams , the quarterly limit most closely approached was:

GASEOUS:	Ingestion Pathway-Organ	Liver	
	Quarterly Limit (mRems)	7.5	
	Actual Dose (mRems)	0.0002849	(4^{th} Quarter)
	% of Specification	0.003799	
LIQUID:	Ingestion Pathway-Organ	GI-LLI	
	Quarterly Limit (mRems)	5	
	Actual Dose (mRems)	0.007404	(2^{nd} Quarter)
	% of Limit	0.15	
SOLID:	No upper limit for solid radioactive waste applies.		
	Cubic Meters Shipped	6.23 m^3 (220 ft^3)	

1.0 INTRODUCTION

This report is being submitted in accordance with the requirements of Kewaunee Technical Specifications, Section 6.9.b.2 and the Offsite Dose Calculation Manual, Section 3/4.6. It includes data from all effluent releases made from January 1 - December 31, 2005. The report contains summaries of the gaseous and liquid releases made to the environment including the quantity, characterization, time duration and calculated radiation dose at the site boundary resulting from these releases. The report also includes a summation of solid waste disposal, revisions to the Process Control Program and the Offsite Dose Calculation Manual, and addresses the cumulative meteorological data. Values indicated as 0 (zero) in this report refer to actual values less than the detection limits. A table of these less than (LLD) values is identified in sections 2.1 and 3.1.

1.1 Effluent Dose Limits

Specifications are set to ensure that offsite doses are maintained as low as reasonably achievable while still allowing for practical and dependable operation of the Kewaunee Power Station.

The Kewaunee Offsite Dose Calculation Manual (ODCM) describes the methodology and parameters used in:

1.) The calculation of radioactive liquid and gaseous effluent monitoring instrumentation alarm/trip setpoints.

2.) The calculation of radioactive liquid and gaseous concentrations, dose rates and cumulative quarterly and annual doses. The ODCM methodology is acceptable for use in demonstrating compliance with 10CFR20.1302; 10CFR50, Appendix I; and 40CFR190.

2.0 GASEOUS EFFLUENTS

2.1 Lower Limits of Detection (LLD) for Gaseous Effluents

Gaseous radioactive effluents are released in both the continuous mode and the batch mode. The auxiliary building stack is sampled continuously for particulates, halogens and Strontium by an "off-line" sample train. This stack is also grab-sampled daily for gaseous gamma emitters. Batch releases are sampled prior to release for principal gaseous and particulate gamma emitters, halogens and Tritium.

The LLD's for gaseous radioanalyses, as listed in Table 4.4 of the Kewaunee ODCM are:

Analysis	LLD (μCi/ml)
Gaseous Gamma Emitters	1.00 E-04
Iodine 131	3.00 E-12
Particulate Gamma Emitters	1.00 E-11
Particulate Gross Alpha	1.00 E-11
Strontium 89, 90	1.00 E-11
Noble Gases, Gross Beta or Gamma	1.00 E-06

The nominal "a priori" LLD values are shown below.

Isotope	a priori LLD (μCi/ml)
a. Gaseous emissions:	
Kr-87	5.61E-08
Kr-88	1.02E-07
Xe-133	6.68E-08
Xe-133m	2.75E-07
Xe-135	2.99E-08
Xe-138	1.13E-07

b. Particulate emissions:

Mn-54	1.11E-13
Fe-59	2.27E-13
Co-58	2.28E-13
Co-60	3.57E-13
Zn-65	1.68E-13
Mo-99	2.73E-13
Cs-134	4.69E-13
Cs-137	1.68E-13
Ce-141	2.08E-13
Ce-144	1.24E-12

c. Other identifiable gamma emitters:

Ar-41	3.97E-10
Kr-85	8.63E-05
Kr-85m	4.62E-08
Kr-89	2.04E-06
Xe-127	4.20E-08
Xe-131m	1.82E-06
Xe-135m	1.90E-08
Xe-137	2.88E-07
I-131	1.32E-13

d. Composite particulate samples:

Sr-89	1 E-14
Sr-90	1 E-14
Gross Alpha	1.00 E-14

2.2 **Gaseous Batch Release Statistics**

The following is a summation of all gaseous batch releases made during 2005.

Number of batch releases.....67

Total time for all batch releases (min)..... 21155.0

Maximum time for a batch release (min)..... 1633.0

Average time for a batch release (min)..... 315.7

Minimum time for a batch release (min)..... 7.0

2.3 **Gaseous Effluent Data**

Table 2.1 presents a quarterly summation of the total activity released and average release rates of four categories of gaseous effluents. Table 2.2 lists the quarterly sums of individual gaseous radionuclides released by continuous and batch modes. Table 2.3 is essentially the same data, but is presented as monthly summations. Table 2.4 presents the dose limits for gaseous effluents, and the calculated doses this year from gaseous effluents.

Table 2.1
Annual Radioactive Effluent Release Report 2005
Gaseous Effluents - Summation of all Releases

Fission and Activation Gases	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
Total Activity Released (Ci)	5.506E-003	0.000E+000	1.758E-002	2.418E-002
Average Release Rate (μCi/sec)	7.002E-004	0.000E+000	2.236E-003	3.076E-003
Iodines				
Total Activity Released (Ci)	0.000E+000	0.000E+000	0.000E+000	0.000E+000
Average Release Rate (μCi/sec)	0.000E+000	0.000E+000	0.000E+000	0.000E+000
Particulates				
Total Activity Released (Ci)	0.000E+000	1.013E-011	0.000E+000	0.000E+000
Average Release Rate (μCi/sec)	0.000E+000	1.288E-012	0.000E+000	0.000E+000
Gross Alpha Released (Ci)	0.000E+000	0.000E+000	0.000E+000	0.000E+000
Tritium				
Total Activity Released (Ci)	7.656E+000	6.005E+000	3.105E+000	1.349E+001
Average Release Rate (μCi/sec)	9.738E-001	7.637E-001	3.949E-001	1.715E+000

Table 2.2
Annual Radioactive Effluent Release Report 2005
Gaseous Effluents – Elevated Releases

Nuclides Released (Ci)
Continuous Mode

	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
Fission Gases				
Total	0.000E+000	0.000E+000	0.000E+000	0.000E+000
Iodines				
Total	0.000E+000	0.000E+000	0.000E+000	0.000E+000
Particulates				
Mn-54	0.000E+000	1.120E-013	0.000E+000	0.000E+000
Co-58	0.000E+000	9.700E-014	0.000E+000	0.000E+000
Co-60	0.000E+000	1.370E-012	0.000E+000	0.000E+000
Cs-137	0.000E+000	8.550E-012	0.000E+000	0.000E+000
Total	0.000E+000	1.013E-011	0.000E+000	0.000E+000

Table 2.2(cont)
Annual Radioactive Effluent Release Report 2005
Gaseous Effluents – Elevated Releases

Nuclides Released (Ci)
Batch Mode

	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
Fission Gases				
Ar-41	0.000E+000	0.000E+000	2.058E-003	0.000E+000
Kr-85m	0.000E+000	0.000E+000	3.952E-004	0.000E+000
Kr-87	0.000E+000	0.000E+000	1.337E-004	0.000E+000
Kr-88	0.000E+000	0.000E+000	6.068E-004	0.000E+000
Xe-133	5.506E-003	0.000E+000	9.190E-003	2.362E-002
Xe-133m	0.000E+000	0.000E+000	2.957E-005	2.747E-004
Xe-135	0.000E+000	0.000E+000	5.168E-003	2.852E-004
Total	5.506E-003	0.000E+000	1.758E-002	2.418E-002
Iodines				
Total	0.000E+000	0.000E+000	0.000E+000	0.000E+000
Particulates				
Total	0.000E+000	0.000E+000	0.000E+000	0.000E+000

Table 2.3A
Annual Radioactive Effluent Release Report 2005
1st Quarter Gaseous Release
Total of All Releases

Noble Gasses (Curies)

Isotope	January	February	March	Total
Xe-133	0.000E+000	1.981E-003	3.524E-003	5.506E-003
Total	0.000E+000	1.981E-003	3.524E-003	5.506E-003

Particulates (Curies)

Isotope	January	February	March	Total
Total	0.000E+000	0.000E+000	0.000E+000	0.000E+000

Halogens (Curies)

Isotope	January	February	March	Total
Total	0.000E+000	0.000E+000	0.000E+000	0.000E+000

Table 2.3A (Con't)
Annual Radioactive Effluent Release Report 2005
1st Quarter Gaseous Release
Total of All Releases

Summary	January	February	March	Total
Total Noble Gases (Ci)	0.000E+000	1.981E-003	3.524E-003	5.506E-003
Total Halogens (Ci)	0.000E+000	0.000E+000	0.000E+000	0.000E+000
Total Particulate Gross Beta-Gamma Half-Lives>8 Days (Ci)	0.000E+000	0.000E+000	0.000E+000	0.000E+000
Total Tritium (Ci)	2.448E-005	5.103E-001	7.146E+000	7.656E+000
Total Particulate Gross Alpha (Ci)	0.000E+000	0.000E+000	0.000E+000	0.000E+000

Table 2.3A (Con't)
Annual Radioactive Effluent Release Report 2005
2nd Quarter Gaseous Release
Total of All Releases

Noble Gasses (Curies)

Isotope	April	May	June	Total
Total	0.000E+000	0.000E+000	0.000E+000	0.000E+000

Particulates (Curies)

Isotope	April	May	June	Total
Mn-54	0.000E+000	0.000E+000	1.120E-013	1.120E-013
Co-58	0.000E+000	0.000E+000	9.700E-014	9.700E-014
Co-60	0.000E+000	0.000E+000	1.370E-012	1.370E-012
Cs-137	0.000E+000	0.000E+000	8.550E-012	8.550E-012
Total	0.000E+000	0.000E+000	1.013E-011	1.013E-011

Halogens (Curies)

Isotope	April	May	June	Total
Total	0.000E+000	0.000E+000	0.000E+000	0.000E+000

Table 2.3A (Con't)
Annual Radioactive Effluent Release Report 2005
2nd Quarter Gaseous Release
Total of All Releases

Summary	April	May	June	Total
Total Noble Gases (Ci)	0.000E+000	0.000E+000	0.000E+000	0.000E+000
Total Halogens (Ci)	0.000E+000	0.000E+000	0.000E+000	0.000E+000
Total Particulate Gross Beta-Gamma Half-Lives>8 Days (Ci)	0.000E+000	0.000E+000	1.013E-011	1.013E-011
Total Tritium (Ci)	4.100E+000	1.482E+000	4.221E-001	6.005E+000
Total Particulate Gross Alpha (Ci)	0.000E+000	0.000E+000	0.000E+000	0.000E+000

Table 2.3A (con't)
Annual Radioactive Effluent Release Report 2005
3rd Quarter Gaseous Release
Total of All Releases

Noble Gasses (Curies)

Isotope	July	August	September	Total
Ar-41	2.058E-003	0.000E+000	0.000E+000	2.058E-003
Kr-85m	3.952E-004	0.000E+000	0.000E+000	3.952E-004
Kr-87	1.337E-004	0.000E+000	0.000E+000	1.337E-004
Kr-88	6.068E-004	0.000E+000	0.000E+000	6.068E-004
Xe-133	3.257E-003	5.933E-003	0.000E+000	9.190E-003
Xe-133m	0.000E+000	2.957E-005	0.000E+000	2.957E-005
Xe-135	5.148E-003	2.020E-005	0.000E+000	5.168E-003
Total	1.160E-002	5.982E-003	0.000E+000	1.758E-002

Particulates (Curies)

Isotope	July	August	September	Total
Total	0.000E+000	0.000E+000	0.000E+000	0.000E+000

Halogens (Curies)

Isotope	July	August	September	Total
Total	0.000E+000	0.000E+000	0.000E+000	0.000E+000

Table 2.3A (Con't)
Annual Radioactive Effluent Release Report 2005
3rd Quarter Gaseous Release
Total of All Releases

Summary	July	August	September	Total
Total Noble Gases (Ci)	1.160E-002	5.982E-003	0.000E+000	1.758E-002
Total Halogens (Ci)	0.000E+000	0.000E+000	0.000E+000	0.000E+000
Total Particulate Gross Beta-Gamma Half-Lives>8 Days (Ci)	0.000E+000	0.000E+000	0.000E+000	0.000E+000
Total Tritium (Ci)	1.306E+000	9.390E-001	8.603E-001	3.105E+000
Total Particulate Gross Alpha (Ci)	0.000E+000	0.000E+000	0.000E+000	0.000E+000

Table 2.3A (Con't)
Annual Radioactive Effluent Release Report 2005
4th Quarter Gaseous Release
Total of All Releases

Noble Gasses (Curies)

Isotope	October	November	December	Total
Xe-133	2.206E-003	1.353E-002	7.892E-003	2.362E-002
Xe-133m	0.000E+000	2.394E-004	3.533E-005	2.747E-004
Xe-135	0.000E+000	2.852E-004	0.000E+000	2.852E-004
Total	2.206E-003	1.405E-002	7.927E-003	2.418E-002

Particulates (Curies)

Isotope	October	November	December	Total
Total	0.000E+000	0.000E+000	0.000E+000	0.000E+000

Halogens (Curies)

Isotope	October	November	December	Total
Total	0.000E+000	0.000E+000	0.000E+000	0.000E+000

Table 2.3A (Con't)
Annual Radioactive Effluent Release Report 2005
4th Quarter Gaseous Release
Total of All Releases

Summary	October	November	December	Total
Total Noble Gases (Ci)	2.206E-003	1.405E-002	7.927E-003	2.418E-002
Total Halogens (Ci)	0.000E+000	0.000E+000	0.000E+000	0.000E+000
Total Particulate Gross Beta-Gamma Half-Lives>8 Days (Ci)	0.000E+000	0.000E+000	0.000E+000	0.000E+000
Total Tritium (Ci)	1.086E+000	1.237E+001	3.141E-002	1.349E+001
Total Particulate Gross Alpha (Ci)	0.000E+000	0.000E+000	0.000E+000	0.000E+000

Table 2.3B
Annual Radioactive Effluent Release Report 2005
1st Quarter Gaseous Release
Continuous Mode Only

Noble Gasses (Curies)

Isotope	January	February	March	Total
Total	0.000E+000	0.000E+000	0.000E+000	0.000E+000

Particulates (Curies)

Isotope	January	February	March	Total
Total	0.000E+000	0.000E+000	0.000E+000	0.000E+000

Halogens (Curies)

Isotope	January	February	March	Total
Total	0.000E+000	0.000E+000	0.000E+000	0.000E+000

Table 2.3B (Con't)
Annual Radioactive Effluent Release Report 2005
1st Quarter Gaseous Release
Continuous Mode Only

Summary

	January	February	March	Total
Total Noble Gases (Ci)	0.000E+000	0.000E+000	0.000E+000	0.000E+000
Total Halogens (Ci)	0.000E+000	0.000E+000	0.000E+000	0.000E+000
Total Particulate Gross Beta-Gamma Half-Lives>8 Days (Ci)	0.000E+000	0.000E+000	0.000E+000	0.000E+000
Total Tritium (Ci)	0.000E+000	2.308E-001	6.984E+000	7.215E+000
Total Particulate Gross Alpha (Ci)	0.000E+000	0.000E+000	0.000E+000	0.000E+000

Table 2.3B (Con't)
Annual Radioactive Effluent Release Report 2005
2nd Quarter Gaseous Release
Continuous Mode Only

Noble Gasses (Curies)

Isotope	April	May	June	Total
Total	0.000E+000	0.000E+000	0.000E+000	0.000E+000

Particulates (Curies)

Isotope	April	May	June	Total
Mn-54	0.000E+000	0.000E+000	1.120E-013	1.120E-013
Co-58	0.000E+000	0.000E+000	9.700E-014	9.700E-014
Co-60	0.000E+000	0.000E+000	1.370E-012	1.370E-012
Cs-137	0.000E+000	0.000E+000	8.550E-012	8.550E-012
Total	0.000E+000	0.000E+000	1.013E-011	1.013E-011

Halogens (Curies)

Isotope	April	May	June	Total
Total	0.000E+000	0.000E+000	0.000E+000	0.000E+000

Table 2.3B (Con't)
Annual Radioactive Effluent Release Report 2005
2nd Quarter Gaseous Release
Continuous Mode Only

Summary	April	May	June	Total
Total Noble Gases (Ci)	0.000E+000	0.000E+000	0.000E+000	0.000E+000
Total Halogens (Ci)	0.000E+000	0.000E+000	0.000E+000	0.000E+000
Total Particulate Gross Beta-Gamma Half-Lives>8 Days (Ci)	0.000E+000	0.000E+000	1.013E-011	1.013E-011
Total Tritium (Ci)	4.100E+000	1.482E+000	4.216E-001	6.004E+000
Total Particulate Gross Alpha (Ci)	0.000E+000	0.000E+000	0.000E+000	0.000E+000

Table 2.3B (con't)
Annual Radioactive Effluent Release Report 2005
3rd Quarter Gaseous Release
Continuous Mode Only

Noble Gasses (Curies)

Isotope	July	August	September	Total
Total	0.000E+000	0.000E+000	0.000E+000	0.000E+000

Particulates (Curies)

Isotope	July	August	September	Total
Total	0.000E+000	0.000E+000	0.000E+000	0.000E+000

Halogens (Curies)

Isotope	July	August	September	Total
Total	0.000E+000	0.000E+000	0.000E+000	0.000E+000

Table 2.3B (Con't)
Annual Radioactive Effluent Release Report 2005
3rd Quarter Gaseous Release
Continuous Mode Only

Summary

	July	August	September	Total
Total Noble Gases (Ci)	0.000E+000	0.000E+000	0.000E+000	0.000E+000
Total Halogens (Ci)	0.000E+000	0.000E+000	0.000E+000	0.000E+000
Total Particulate Gross Beta-Gamma Half-Lives>8 Days (Ci)	0.000E+000	0.000E+000	0.000E+000	0.000E+000
Total Tritium (Ci)	1.301E+000	8.748E-001	8.443E-001	3.020E+000
Total Particulate Gross Alpha (Ci)	0.000E+000	0.000E+000	0.000E+000	0.000E+000

Table 2.3B (Con't)
Annual Radioactive Effluent Release Report 2005
4th Quarter Gaseous Release
Continuous Mode Only

Noble Gasses (Curies)

Isotope	October	November	December	Total
Total	0.000E+000	0.000E+000	0.000E+000	0.000E+000

Particulates (Curies)

Isotope	October	November	December	Total
Total	0.000E+000	0.000E+000	0.000E+000	0.000E+000

Halogens (Curies)

Isotope	October	November	December	Total
Total	0.000E+000	0.000E+000	0.000E+000	0.000E+000

Table 2.3B (Con't)
Annual Radioactive Effluent Release Report 2005
4th Quarter Gaseous Release
Continuous Mode Only

Summary

	October	November	December	Total
Total Noble Gases (Ci)	0.000E+000	0.000E+000	0.000E+000	0.000E+000
Total Halogens (Ci)	0.000E+000	0.000E+000	0.000E+000	0.000E+000
Total Particulate Gross Beta-Gamma Half-Lives>8 Days (Ci)	0.000E+000	0.000E+000	0.000E+000	0.000E+000
Total Tritium (Ci)	1.086E+000	1.237E+001	0.000E+000	1.345E+001
Total Particulate Gross Alpha (Ci)	0.000E+000	0.000E+000	0.000E+000	0.000E+000

Table 2.3C
Annual Radioactive Effluent Release Report 2005
1st Quarter Gaseous Release
Batch Mode Only

Noble Gasses (Curies)

Isotope	January	February	March	Total
Xe-133	0.000E+000	1.981E-003	3.524E-003	5.506E-003
Total	0.000E+000	1.981E-003	3.524E-003	5.506E-003

Particulates (Curies)

Isotope	January	February	March	Total
Total	0.000E+000	0.000E+000	0.000E+000	0.000E+000

Halogens (Curies)

Isotope	January	February	March	Total
Total	0.000E+000	0.000E+000	0.000E+000	0.000E+000

Table 2.3C (Con't)
Annual Radioactive Effluent Release Report 2005
1st Quarter Gaseous Release
Batch Mode Only

Summary

	January	February	March	Total
Total Noble Gases (Ci)	0.000E+000	1.981E-003	3.524E-003	5.506E-003
Total Halogens (Ci)	0.000E+000	0.000E+000	0.000E+000	0.000E+000
Total Particulate Gross Beta-Gamma Half-Lives>8 Days (Ci)	0.000E+000	0.000E+000	0.000E+000	0.000E+000
Total Tritium (Ci)	2.448E-005	2.795E-001	1.616E-001	4.412E-001
Total Particulate Gross Alpha (Ci)	0.000E+000	0.000E+000	0.000E+000	0.000E+000

Table 2.3C (Con't)
Annual Radioactive Effluent Release Report 2005
2nd Quarter Gaseous Release
Batch Mode Only

Noble Gasses (Curies)

Isotope	April	May	June	Total
Total	0.000E+000	0.000E+000	0.000E+000	0.000E+000

Particulates (Curies)

Isotope	April	May	June	Total
Total	0.000E+000	0.000E+000	0.000E+000	0.000E+000

Halogens (Curies)

Isotope	April	May	June	Total
Total	0.000E+000	0.000E+000	0.000E+000	0.000E+000

Table 2.3C (Con't)
Annual Radioactive Effluent Release Report 2005
2nd Quarter Gaseous Release
Batch Mode Only

Summary

	April	May	June	Total
Total Noble Gases (Ci)	0.000E+000	0.000E+000	0.000E+000	0.000E+000
Total Halogens (Ci)	0.000E+000	0.000E+000	0.000E+000	0.000E+000
Total Particulate Gross Beta-Gamma Half-Lives>8 Days (Ci)	0.000E+000	0.000E+000	0.000E+000	0.000E+000
Total Tritium (Ci)	1.303E-005	4.995E-004	5.319E-004	1.044E-003
Total Particulate Gross Alpha (Ci)	0.000E+000	0.000E+000	0.000E+000	0.000E+000

Table 2.3C (con't)
Annual Radioactive Effluent Release Report 2005
3rd Quarter Gaseous Release
Batch Mode Only

Noble Gasses (Curies)

Isotope	July	August	September	Total
Ar-41	2.058E-003	0.000E+000	0.000E+000	2.058E-003
Kr-85m	3.952E-004	0.000E+000	0.000E+000	3.952E-004
Kr-87	1.337E-004	0.000E+000	0.000E+000	1.337E-004
Kr-88	6.068E-004	0.000E+000	0.000E+000	6.068E-004
Xe-133	3.257E-003	5.933E-003	0.000E+000	9.190E-003
Xe-133m	0.000E+000	2.957E-005	0.000E+000	2.957E-005
Xe-135	5.148E-003	2.020E-005	0.000E+000	5.168E-003
Total	1.160E-002	5.982E-003	0.000E+000	1.758E-002

Particulates (Curies)

Isotope	July	August	September	Total
Total	0.000E+000	0.000E+000	0.000E+000	0.000E+000

Halogens (Curies)

Isotope	July	August	September	Total
Total	0.000E+000	0.000E+000	0.000E+000	0.000E+000

Table 2.3C (Con't)
Annual Radioactive Effluent Release Report 2005
3rd Quarter Gaseous Release
Batch Mode Only

Summary	July	August	September	Total
Total Noble Gases (Ci)	1.160E-002	5.982E-003	0.000E+000	1.758E-002
Total Halogens (Ci)	0.000E+000	0.000E+000	0.000E+000	0.000E+000
Total Particulate Gross Beta-Gamma Half-Lives>8 Days (Ci)	0.000E+000	0.000E+000	0.000E+000	0.000E+000
Total Tritium (Ci)	4.926E-003	6.416E-002	1.591E-002	8.499E-002
Total Particulate Gross Alpha (Ci)	0.000E+000	0.000E+000	0.000E+000	0.000E+000

Table 2.3C (Con't)
Annual Radioactive Effluent Release Report 2005
4th Quarter Gaseous Release
Batch Mode Only

Noble Gasses (Curies)

Isotope	October	November	December	Total
Xe-133	2.206E-003	1.353E-002	7.892E-003	2.362E-002
Xe-133m	0.000E+000	2.394E-004	3.533E-005	2.747E-004
Xe-135	0.000E+000	2.852E-004	0.000E+000	2.852E-004
Total	2.206E-003	1.405E-002	7.927E-003	2.418E-002

Particulates (Curies)

Isotope	October	November	December	Total
Total	0.000E+000	0.000E+000	0.000E+000	0.000E+000

Halogens (Curies)

Isotope	October	November	December	Total
Total	0.000E+000	0.000E+000	0.000E+000	0.000E+000

Table 2.3C (Con't)
Annual Radioactive Effluent Release Report 2005
4th Quarter Gaseous Release
Batch Mode Only

Summary

	October	November	December	Total
Total Noble Gases (Ci)	2.206E-003	1.405E-002	7.927E-003	2.418E-002
Total Halogens (Ci)	0.000E+000	0.000E+000	0.000E+000	0.000E+000
Total Particulate Gross Beta-Gamma Half-Lives>8 Days (Ci)	0.000E+000	0.000E+000	0.000E+000	0.000E+000
Total Tritium (Ci)	4.029E-004	1.108E-003	3.141E-002	3.292E-002
Total Particulate Gross Alpha (Ci)	0.000E+000	0.000E+000	0.000E+000	0.000E+000

Table 2.4
Annual Radioactive Effluent Release Report 2005
Dose From Gaseous Effluents

The offsite dose limits from radioactive materials in gaseous effluents are specified in Section 3/4.4 of the Kewaunee ODCM and can be summarized as follows:

Limit	Whole Body Gamma	Skin Beta	Organ
Quarterly	5.0 mRad	10.0 mRad	7.5 mRem
Annual	10.0 mRad	20.0 mRad	15.0 mRem

The total release of gaseous effluents during each quarter of 2005 was within limits. The following offsite doses were calculated using equations 2.7, 2.8, and 2.11 from the Kewaunee ODCM. Calculated offsite doses versus quarterly limits are shown below:

	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr
1. Gamma-Whole Body				
Specification (mRads)	5.000E+000	5.000E+000	5.000E+000	5.000E+000
Actual Dose (mRads)	2.218E-007	0.000E+000	4.890E-006	1.024E-006
% of Specification	4.436E-006	0.000E+000	9.780E-005	2.049E-005
2. Beta-Skin				
Specification (mRads)	1.000E+001	1.000E+001	1.000E+001	1.000E+001
Actual Dose (mRads)	6.597E-007	0.000E+000	3.776E-006	2.957E-006
% of Specification	6.597E-006	0.000E+000	3.776E-005	2.957E-005
3. Ingestion Pathway-Organ				
Specification (mRems)	7.500E+000	7.500E+000	7.500E+000	7.500E+000
Actual Dose (mRems)	1.617E-004	1.268E-004	6.559E-005	2.849E-004
% of Specification	2.157E-003	1.691E-003	8.746E-004	3.799E-003
	Liver	Liver	Liver	Liver

Table 2.4 (Con't)
Annual Radioactive Effluent Release Report 2005
Dose From Gaseous Effluents

In addition, the cumulative annual offsite doses for the period January 1 - December 31, 2005 versus the ODCM annual limits were:

	Annual
1. Gamma-Whole Body	
Specification (mRads)	1.000E+001
Actual Dose (mRads)	6.136E-006
% of Specification	6.136E-005
2. Beta-Skin	
Specification (mRads)	2.000E+001
Actual Dose (mRads)	7.393E-006
% of Specification	3.697E-005
3. Ingestion Pathway-Organ	
Specification (mRems)	1.500E+001
Actual Dose (mRems)	6.391E-004
% of Specification	4.261E-003
Liver	

3.0 LIQUID EFFLUENTS

3.1 Lower Limits of Detection (LLD) for Liquid Effluents

Liquid radioactive effluents are released as both batch releases and continuous releases. Each batch is sampled prior to release and analyzed for gamma emitters and tritium. A fraction of each sample is retained for a monthly proportional composite which is then analyzed for Gross Alpha, Strontium 89, Strontium 90 and Iron 55.

The LLD's for liquid batch release radioanalyses, as listed in Table 4.3 of the Kewaunee Power Station Off-Site Dose Calculation Manual, are:

Analysis	LLD (μCi/ml)
Principal Gamma Emitters	1.00 E-06
Iodine 131	1.00 E-06
Tritium	1.00 E-05
Gross Alpha	5.00 E-07
Strontium 89, 90	5.00 E-08
Iron 55	1.00 E-06

The actual obtained "a priori" LLD values for batch releases are shown below.

Isotope	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Average a priori LLD (μCi/ml)
Mn-54	7.75E-10	7.64E-10	7.75E-10	7.75E-10	7.72E-10
Fe-59	1.72E-09	1.70E-09	1.72E-07	1.72E-09	4.43E-08
Co-58	7.61E-10	7.50E-10	8.41E-08	7.61E-10	2.16E-08
Co-60	1.15E-09	1.12E-07	1.03E-09	1.15E-09	2.88E-08
Zn-65	1.94E-09	1.91E-09	1.94E-07	1.94E-09	4.99E-08
Mo-99	5.47E-09	5.40E-09	5.47E-09	5.47E-09	5.45E-09
Cs-134	6.03E-10	5.95E-10	1.34E-07	6.03E-10	3.40E-08
Cs-137	7.47E-10	7.38E-10	1.24E-07	7.47E-10	3.16E-08
Ce-141	4.11E-08	4.07E-08	1.16E-07	5.81E-08	6.40E-08
Ce-144	6.42E-07	5.47E-07	3.81E-07	4.73E-07	5.11E-07
I-131	7.92E-08	7.21E-08	9.15E-08	4.57E-08	7.21E-08
H-3	3.28E-06	3.10E-06	3.33E-06	3.61E-06	3.33E-06
Sr-89	1.30E-08	1.70E-08	1.50E-08	2.30E-08	1.70E-08
Sr-90	8.00E-09	1.20E-08	8.70E-09	1.20E-08	1.02E-08
Gross Alpha	6.20E-08	5.50E-09	5.30E-09	5.50E-09	1.96E-08
Fe-55	8.10E-07	8.90E-07	8.70E-07	9.00E-07	8.68E-07

Continuous liquid releases, when available, are grab sampled weekly and analyzed for principal gamma emitters. A fraction of each weekly sample is retained for a monthly proportional composite. A quarterly proportional composite is made and then analyzed for Tritium, Gross Alpha, Strontium 89, Strontium 90 and Iron 55.

The LLD's for liquid continuous release radioanalyses, as listed in Table 4.3 of the Kewaunee Power Station Off-Site Dose Calculation Manual, are:

Analysis	LLD (μCi/ml)
Principal Gamma Emitters	5.00 E-07
Iodine 131	1.00 E-06
Tritium	1.00 E-05
Gross Alpha	5.00 E-07
Strontium 89, 90	5.00 E-08
Iron 55	1.00 E-06

The actual obtained "a priori" LLD values for continuous releases are shown below.

Isotope	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Average a priori LLD (μCi/ml)
Mn-54	1.29E-10	1.27E-08	1.29E-08	5.33E-08	1.98E-08
Fe-59	2.87E-10	3.99E-08	4.07E-08	2.87E-10	2.03E-08
Co-58	1.40E-08	2.50E-08	4.37E-08	6.52E-08	3.70E-08
Co-60	2.70E-08	1.68E-08	3.31E-08	1.91E-08	2.40E-08
Zn-65	3.24E-10	3.52E-08	3.24E-10	3.24E-10	9.04E-09
Mo-99	1.98E-07	2.67E-07	9.16E-10	9.16E-10	1.17E-07
Cs-134	1.00E-10	3.56E-08	2.63E-08	3.43E-08	2.41E-08
Cs-137	2.92E-08	4.73E-08	1.25E-10	3.02E-08	2.67E-08
Ce-141	2.32E-08	3.28E-08	3.34E-08	4.79E-08	3.43E-08
Ce-144	1.23E-07	8.07E-08	1.20E-07	2.26E-07	1.37E-07
I-131	1.08E-08	1.06E-08	2.16E-08	8.42E-09	1.28E-08
H-3	3.28E-06	3.10E-06	3.33E-06	3.61E-06	3.33E-06
Sr-89	1.23E-08	1.25E-08	1.15E-08	2.10E-08	1.43E-08
Sr-90	7.65E-09	7.50E-09	7.75E-09	8.50E-09	7.85E-09
Gross Alpha	6.00E-09	5.30E-09	6.30E-09	5.50E-09	5.78E-09
Fe-55	8.25E-07	8.80E-07	8.50E-07	8.85E-07	8.60E-07

3.2 **Liquid Batch Release Statistics**

The following is a summation of all liquid batch releases made during 2005.

Release Type	Number	Gallons Released
A SGBT Monitor Tk.	5	44547.0
B SGBT Monitor Tk.	5	46082.0
A CVC Monitor	13	79275.0
B CVC Monitor	11	72940.0
Both WCTs	2	2800.0

Total time for all batch releases..... 18354.0 Min.

Maximum time for a batch release..... 1315.0 Min.

Minimum time for a batch release..... 51.0 Min.

Average time for a batch release..... 509.8 Min.

3.3 **Liquid Effluent Data**

Table 3.1 presents a quarterly summation of the total activity released and average concentration for all liquid effluents. It also presents the gross alpha activity released, volume of waste released and volume of dilution water used. Tables 3.2 and 3.3 are monthly summations of the same information in Table 3.1. Table 3.2 contains the quantity of the individual isotopes released to the unrestricted area for batch releases. Table 3.3 presents a monthly summation of gross radioactivity, tritium, gross alpha and isotopic activity for the secondary blowdown and leakage releases. It also presents the monthly total volume for these releases and dilution volumes. Table 3.4 presents the doses from liquid effluents for each quarter and the calculated doses this year from liquid effluents.

TABLE 3.1
Annual Radioactive Effluent Release Report 2005
Liquid Effluents - Summation of all Releases

	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr
Fission and Activation Products				
Total Release Excluding H3 and Dissolved Gases (Ci)	4.832E-003	6.210E-003	1.669E-003	3.430E-003
Average Concentration (µCi/ml)	6.636E-011	1.723E-010	8.280E-012	2.098E-011
Tritium				
Total Release (Ci)	6.324E+000	4.775E+001	2.034E+001	1.519E+002
Average Concentration (µCi/ml)	8.684E-008	1.325E-006	1.009E-007	9.291E-007
% of Tech. Spec. Limit(3.0E-3 µCi/ml)	2.895E-003	4.416E-002	3.363E-003	3.097E-002
Dissolved Gases				
Total Release (Ci)	0.000E+000	0.000E+000	0.000E+000	0.000E+000
Average Concentration (µCi/ml)	0.000E+000	0.000E+000	0.000E+000	0.000E+000
% of Tech. Spec. Limit(2.0E-4 µCi/ml)	0.000E+000	0.000E+000	0.000E+000	0.000E+000
Gross Alpha Activity				
Total Release (Ci)	0.000E+000	0.000E+000	0.000E+000	0.000E+000
Volume of Waste Released				
Batch (liters)	1.553E+005	2.216E+005	1.802E+005	3.727E+005
Continuous (liters)	1.811E+007	1.674E+007	3.523E+007	1.751E+007
Total (liters)	1.826E+007	1.696E+007	3.541E+007	1.788E+007
Volume of Dilution Water				
Batch (liters)	1.381E+009	1.616E+009	4.271E+009	6.488E+009
Continuous (liters)	7.144E+010	3.442E+010	1.973E+011	1.570E+011
Total (liters)	7.282E+010	3.604E+010	2.016E+011	1.635E+011

TABLE 3.2A
Annual Radioactive Effluent Release Report 2005
Liquid Effluents - Batch Releases

	January	February	March	Total
Gross Radioactivity				
Total Release Excluding H3 and Dissolved Gases (Ci)	9.879E-004	6.347E-004	2.895E-003	4.517E-003
Avg. Conc. (µCi/ml)	4.350E-009	5.718E-010	6.521E-008	
Tritium				
Total Release (Ci)	4.787E-001	4.924E+000	9.211E-001	6.324E+000
Avg. Conc. (µCi/ml)	2.108E-006	4.436E-006	2.075E-005	
Dissolved Gases				
Total Release (Ci)	0.000E+000	0.000E+000	0.000E+000	0.000E+000
Avg. Conc. (µCi/ml)	0.000E+000	0.000E+000	0.000E+000	
Gross Alpha Activity				
Total Release (Ci)	0.000E+000	0.000E+000	0.000E+000	0.000E+000
Avg. Conc. (µCi/ml)	0.000E+000	0.000E+000	0.000E+000	
Volume of Waste Released				
(liters)	3.371E+004	8.731E+004	3.433E+004	1.553E+005
Volume of Dilution Water				
(liters)	2.271E+008	1.110E+009	4.439E+007	1.381E+009

TABLE 3.2A (Con't)
Annual Radioactive Effluent Release Report 2005
Liquid Effluents - Batch Releases

Isotope (Ci)	January	February	March	Total
H-3	4.787E-001	4.924E+000	9.211E-001	6.324E+000
Mn-54	1.878E-005	0.000E+000	0.000E+000	1.878E-005
Fe-55	1.112E-004	2.881E-004	1.133E-004	5.127E-004
Co-58	5.832E-004	1.836E-004	1.111E-003	1.878E-003
Co-60	1.412E-004	0.000E+000	5.002E-005	1.913E-004
Ag-110m	1.335E-004	2.134E-005	4.394E-005	1.988E-004
Sb-125	0.000E+000	1.416E-004	1.550E-003	1.692E-003
Cs-137	0.000E+000	0.000E+000	2.622E-005	2.622E-005
Total	4.797E-001	4.925E+000	9.240E-001	6.328E+000

TABLE 3.2B
Annual Radioactive Effluent Release Report 2005
Liquid Effluents - Batch Releases

	April	May	June	Total
Gross Radioactivity				
Total Release Excluding H3 and Dissolved Gases (Ci)	0.000E+000	1.032E-003	5.178E-003	6.210E-003
Avg. Conc. (µCi/ml)	0.000E+000	8.160E-009	3.477E-009	
Tritium				
Total Release (Ci)	0.000E+000	4.575E+001	1.988E+000	4.774E+001
Avg. Conc. (µCi/ml)	0.000E+000	3.617E-004	1.335E-006	
Dissolved Gases				
Total Release (Ci)	0.000E+000	0.000E+000	0.000E+000	0.000E+000
Avg. Conc. (µCi/ml)	0.000E+000	0.000E+000	0.000E+000	
Gross Alpha Activity				
Total Release (Ci)	0.000E+000	0.000E+000	0.000E+000	0.000E+000
Avg. Conc. (µCi/ml)	0.000E+000	0.000E+000	0.000E+000	
Volume of Waste Released				
(liters)	0.000E+000	1.475E+005	7.415E+004	2.216E+005
Volume of Dilution Water				
(liters)	0.000E+000	1.265E+008	1.489E+009	1.616E+009

TABLE 3.2B (Con't)
Annual Radioactive Effluent Release Report 2005
Liquid Effluents - Batch Releases

Isotope (Ci)	April	May	June	Total
H-3	0.000E+000	4.575E+001	1.988E+000	4.774E+001
Mn-54	0.000E+000	0.000E+000	1.430E-004	1.430E-004
Fe-55	0.000E+000	1.032E-003	5.190E-004	1.551E-003
Co-58	0.000E+000	0.000E+000	1.455E-003	1.455E-003
Co-60	0.000E+000	0.000E+000	1.322E-003	1.322E-003
Ag-110m	0.000E+000	0.000E+000	1.555E-003	1.555E-003
Sb-125	0.000E+000	0.000E+000	1.844E-004	1.844E-004
Total	0.000E+000	4.575E+001	1.993E+000	4.775E+001

TABLE 3.2C
Annual Radioactive Effluent Release Report 2005
Liquid Effluents - Batch Releases

	July	August	September	Total
Gross Radioactivity				
Total Release Excluding H3 and Dissolved Gases (Ci)	6.292E-004	6.653E-004	3.747E-004	1.669E-003
Avg. Conc. (µCi/ml)	2.373E-010	1.292E-009	3.390E-010	
Tritium				
Total Release (Ci)	1.938E+001	4.979E-001	4.604E-001	2.034E+001
Avg. Conc. (µCi/ml)	7.311E-006	9.671E-007	4.165E-007	
Dissolved Gases				
Total Release (Ci)	0.000E+000	0.000E+000	0.000E+000	0.000E+000
Avg. Conc. (µCi/ml)	0.000E+000	0.000E+000	0.000E+000	
Gross Alpha Activity				
Total Release (Ci)	0.000E+000	0.000E+000	0.000E+000	0.000E+000
Avg. Conc. (µCi/ml)	0.000E+000	0.000E+000	0.000E+000	
Volume of Waste Released				
(liters)	1.107E+005	3.297E+004	3.654E+004	1.802E+005
Volume of Dilution Water				
(liters)	2.651E+009	5.148E+008	1.105E+009	4.271E+009

TABLE 3.2C (Con't)
Annual Radioactive Effluent Release Report 2005
Liquid Effluents - Batch Releases

Isotope (Ci)	July	August	September	Total
H-3	1.938E+001	4.979E-001	4.604E-001	2.034E+001
Fe-55	4.429E-004	1.319E-004	1.461E-004	7.209E-004
Co-58	4.043E-005	5.087E-005	3.499E-005	1.263E-004
Co-60	2.109E-005	1.017E-004	6.840E-005	1.912E-004
Ag-110m	8.521E-005	2.915E-004	5.722E-005	4.339E-004
Sb-125	3.960E-005	8.932E-005	6.792E-005	1.968E-004
Total	1.938E+001	4.985E-001	4.607E-001	2.034E+001

TABLE 3.2D
Annual Radioactive Effluent Release Report 2005
Liquid Effluents - Batch Releases

	October	November	December	Total
Gross Radioactivity				
Total Release Excluding H3 and Dissolved Gases (Ci)	0.000E+000	1.534E-003	1.896E-003	3.430E-003
Avg. Conc. (µCi/ml)	0.000E+000	4.349E-010	6.403E-010	
Tritium				
Total Release (Ci)	0.000E+000	5.080E+001	1.009E+002	1.517E+002
Avg. Conc. (µCi/ml)	0.000E+000	1.440E-005	3.408E-005	
Dissolved Gases				
Total Release (Ci)	0.000E+000	0.000E+000	0.000E+000	0.000E+000
Avg. Conc. (µCi/ml)	0.000E+000	0.000E+000	0.000E+000	
Gross Alpha Activity				
Total Release (Ci)	0.000E+000	0.000E+000	0.000E+000	0.000E+000
Avg. Conc. (µCi/ml)	0.000E+000	0.000E+000	0.000E+000	
Volume of Waste Released				
(liters)	0.000E+000	1.586E+005	2.141E+005	3.727E+005
Volume of Dilution Water				
(liters)	0.000E+000	3.527E+009	2.961E+009	6.488E+009

TABLE 3.2D (Con't)
Annual Radioactive Effluent Release Report 2005
Liquid Effluents - Batch Releases

Isotope (Ci)	October	November	December	Total
H-3	0.000E+000	5.080E+001	1.009E+002	1.517E+002
Mn-54	0.000E+000	0.000E+000	4.786E-005	4.786E-005
Fe-55	0.000E+000	4.123E-004	5.567E-004	9.690E-004
Co-58	0.000E+000	7.465E-005	8.243E-005	1.571E-004
Co-60	0.000E+000	2.214E-004	5.257E-004	7.471E-004
Ag-110m	0.000E+000	8.256E-004	5.780E-004	1.404E-003
Sb-125	0.000E+000	0.000E+000	1.052E-004	1.052E-004
Total	0.000E+000	5.080E+001	1.009E+002	1.517E+002

TABLE 3.3A
Annual Radioactive Effluent Release Report 2005
Liquid Effluents - Continuous Releases

	January	February	March	Total
Gross Radioactivity				
Total Release Excluding H3 and Dissolved Gases (Ci)	0.000E+000	3.146E-004	0.000E+000	3.146E-004
Avg. Conc. (µCi/ml)	0.000E+000	1.031E-011	0.000E+000	
Tritium				
Total Release (Ci)	0.000E+000	0.000E+000	0.000E+000	0.000E+000
Avg. Conc. (µCi/ml)	0.000E+000	0.000E+000	0.000E+000	
Dissolved Gases				
Total Release (Ci)	0.000E+000	0.000E+000	0.000E+000	0.000E+000
Avg. Conc. (µCi/ml)	0.000E+000	0.000E+000	0.000E+000	
Gross Alpha Activity				
Total Release (Ci)	0.000E+000	0.000E+000	0.000E+000	0.000E+000
Avg. Conc. (µCi/ml)	0.000E+000	0.000E+000	0.000E+000	
Volume of Waste Released				
(liters)	6.130E+006	6.267E+006	5.709E+006	1.811E+007
Volume of Dilution Water				
(liters)	3.380E+010	3.053E+010	7.114E+009	7.144E+010

TABLE 3.3A (Con't)
Annual Radioactive Effluent Release Report 2005
Liquid Effluents - Continuous Releases

Isotope (Ci)	January	February	March	Total
Mn-54	0.000E+000	6.080E-006	0.000E+000	6.080E-006
Co-58	0.000E+000	2.959E-004	0.000E+000	2.959E-004
Co-60	0.000E+000	1.255E-005	0.000E+000	1.255E-005
Total	0.000E+000	3.146E-004	0.000E+000	3.146E-004

TABLE 3.3B
Annual Radioactive Effluent Release Report 2005
Liquid Effluents - Continuous Releases

	April	May	June	Total
Gross Radioactivity				
Total Release Excluding H3 and Dissolved Gases (Ci)	0.000E+000	0.000E+000	0.000E+000	0.000E+000
Avg. Conc. (µCi/ml)	0.000E+000	0.000E+000	0.000E+000	
Tritium				
Total Release (Ci)	0.000E+000	4.279E-004	4.550E-003	4.978E-003
Avg. Conc. (µCi/ml)	0.000E+000	5.065E-010	1.389E-010	
Dissolved Gases				
Total Release (Ci)	0.000E+000	0.000E+000	0.000E+000	0.000E+000
Avg. Conc. (µCi/ml)	0.000E+000	0.000E+000	0.000E+000	
Gross Alpha Activity				
Total Release (Ci)	0.000E+000	0.000E+000	0.000E+000	0.000E+000
Avg. Conc. (µCi/ml)	0.000E+000	0.000E+000	0.000E+000	
Volume of Waste Released				
(liters)	2.733E+006	5.935E+006	8.073E+006	1.674E+007
Volume of Dilution Water				
(liters)	8.176E+008	8.449E+008	3.276E+010	3.442E+010

TABLE 3.3B (Con't)
Annual Radioactive Effluent Release Report 2005
Liquid Effluents - Continuous Releases

Isotope (Ci)	April	May	June	Total
H-3	0.000E+000	4.279E-004	4.550E-003	4.978E-003
Total	0.000E+000	4.279E-004	4.550E-003	4.978E-003

TABLE 3.3C
Annual Radioactive Effluent Release Report 2005
Liquid Effluents - Continuous Releases

	July	August	September	Total
Gross Radioactivity				
Total Release Excluding H3 and Dissolved Gases (Ci)	0.000E+000	0.000E+000	0.000E+000	0.000E+000
Avg. Conc. (µCi/ml)	0.000E+000	0.000E+000	0.000E+000	
Tritium				
Total Release (Ci)	0.000E+000	0.000E+000	0.000E+000	0.000E+000
Avg. Conc. (µCi/ml)	0.000E+000	0.000E+000	0.000E+000	
Dissolved Gases				
Total Release (Ci)	0.000E+000	0.000E+000	0.000E+000	0.000E+000
Avg. Conc. (µCi/ml)	0.000E+000	0.000E+000	0.000E+000	
Gross Alpha Activity				
Total Release (Ci)	0.000E+000	0.000E+000	0.000E+000	0.000E+000
Avg. Conc. (µCi/ml)	0.000E+000	0.000E+000	0.000E+000	
Volume of Waste Released				
(liters)	1.509E+007	1.640E+007	3.738E+006	3.523E+007
Volume of Dilution Water				
(liters)	6.432E+010	6.759E+010	6.541E+010	1.973E+011

TABLE 3.3C (Con't)
Annual Radioactive Effluent Release Report 2005
Liquid Effluents - Continuous Releases

Isotope (Ci)	July	August	September	Total
Total	0.000E+000	0.000E+000	0.000E+000	0.000E+000

TABLE 3.3D
Annual Radioactive Effluent Release Report 2005
Liquid Effluents - Continuous Releases

	October	November	December	Total
Gross Radioactivity				
Total Release Excluding H3 and Dissolved Gases (Ci)	0.000E+000	0.000E+000	0.000E+000	0.000E+000
Avg. Conc. (µCi/ml)	0.000E+000	0.000E+000	0.000E+000	
Tritium				
Total Release (Ci)	6.751E-002	5.937E-002	4.720E-002	1.741E-001
Avg. Conc. (µCi/ml)	9.988E-010	1.068E-009	1.397E-009	
Dissolved Gases				
Total Release (Ci)	0.000E+000	0.000E+000	0.000E+000	0.000E+000
Avg. Conc. (µCi/ml)	0.000E+000	0.000E+000	0.000E+000	
Gross Alpha Activity				
Total Release (Ci)	0.000E+000	0.000E+000	0.000E+000	0.000E+000
Avg. Conc. (µCi/ml)	0.000E+000	0.000E+000	0.000E+000	
Volume of Waste Released				
(liters)	5.271E+006	6.159E+006	6.078E+006	1.751E+007
Volume of Dilution Water				
(liters)	6.759E+010	5.560E+010	3.380E+010	1.570E+011

TABLE 3.3D (Con't)
Annual Radioactive Effluent Release Report 2005
Liquid Effluents - Continuous Releases

Isotope (Ci)	October	November	December	Total
H-3	6.751E-002	5.937E-002	4.720E-002	1.741E-001
Total	6.751E-002	5.937E-002	4.720E-002	1.741E-001

Table 3.4
Annual Radioactive Effluent Report 2005
Dose From Liquid Effluents

The dose to a member of the public from total liquid radioactive releases for each quarter was below the ODCM limits of 1.5 mrems to the total body and less than or equal to 5 mrems to any organ. Additionally, the dose to a member of the public from total liquid radioactive releases for the year was below the ODCM limits of 3 mrems to the total body and less than or equal to 10 mrems to any organ.

Instantaneous release concentrations are limited by the individual radionuclide concentrations established in 10 CFR 20, Appendix B, for unrestricted areas. During the report period, none of the isotopes released exceeded the concentrations specified in Appendix B. The following offsite doses were calculated using equation 1.7 from the Kewaunee ODCM.

Organ 1st Qtr Dose	Dose Total mRem	Quarterly Limit mRem	Percent of Limit
Total Body	4.710E-003	1.5	0.31
Bone	4.943E-003	5.0	0.10
Liver	6.968E-003	5.0	0.14
Thyroid	1.878E-004	5.0	0.00
Kidney	2.457E-003	5.0	0.05
Lung	9.626E-004	5.0	0.02
GI-LLI	1.568E-003	5.0	0.03

Organ 2nd Qtr Dose	Dose Total mRem	Quarterly Limit mRem	Percent of Limit
Total Body	7.097E-003	1.5	0.47
Bone	3.307E-004	5.0	0.01
Liver	7.271E-003	5.0	0.15
Thyroid	7.018E-003	5.0	0.14
Kidney	7.022E-003	5.0	0.14
Lung	7.145E-003	5.0	0.14
GI-LLI	7.404E-003	5.0	0.15

Table 3.4 (Con't)
Annual Radioactive Effluent Report 2005
Dose From Liquid Effluents

Organ 3rd Qtr Dose	Dose Total mRem	Quarterly Limit mRem	Percent of Limit
Total Body	7.621E-005	1.5	0.01
Bone	5.263E-006	5.0	0.00
Liver	7.818E-005	5.0	0.00
Thyroid	7.389E-005	5.0	0.00
Kidney	7.389E-005	5.0	0.00
Lung	7.592E-005	5.0	0.00
GI-LLI	9.072E-005	5.0	0.00

Organ 4th Qtr Dose	Dose Total mRem	Quarterly Limit mRem	Percent of Limit
Total Body	1.061E-003	1.5	0.07
Bone	1.258E-005	5.0	0.00
Liver	1.067E-003	5.0	0.02
Thyroid	1.050E-003	5.0	0.02
Kidney	1.051E-003	5.0	0.02
Lung	1.055E-003	5.0	0.02
GI-LLI	1.150E-003	5.0	0.02

Calculated Dose This Year

Organ	Dose Total mRem	Annual Limit mRem	Percent of Limit
Total Body	1.294E-002	3.0	0.43
Bone	5.291E-003	10.0	0.05
Liver	1.538E-002	10.0	0.15
Thyroid	8.329E-003	10.0	0.08
Kidney	1.060E-002	10.0	0.11
Lung	9.239E-003	10.0	0.09
GI-LLI	1.021E-002	10.0	0.10

4.0 UNPLANNED RELEASES

No unplanned releases were made from the Kewaunee Plant during the report period.

5.0 METEOROLOGICAL DATA

Meteorological data for 2005 is retained on file at the Kewaunee Power Station. The data on file includes a continuous strip chart recording and a 15-minute interval listing of wind speed, wind direction and atmospheric stability. This is more conservative than the requirements of ODCM Section 3/4.6. See Appendix A for missing meteorological data and the joint frequency distribution tables.

6.0 SOLID WASTE DISPOSAL

Table 6.1 is a summation of solid wastes shipped during 2005. Presented are the types of wastes, major nuclide composition, disposition of the wastes and shipping containers used.

The containers utilized at Kewaunee Power Station have the following volumes:

High Integrity Container (HIC)	158 ft^3
High Integrity Container (HIC)	120.3 ft^3
Box (B-25)	98 ft^3
Compactor Box (CPC 50)	50 ft^3
55 Gal Steel Drum	7.5 ft^3

Table 6.1 contains the radionuclide content (curies) and percent abundance for each type of waste.

Table 6.1
Annual Radioactive Effluent Report 2005
Solid Waste and Irradiated Fuel Shipments

A. Solid Waste Shipped Off-Site for Burial or Disposal
(Not Irradiated Fuel - m^3 is actual waste volume not burial volume)

1. Type of Waste		Unit	Quantity
a.	Resin	m^3	6.23E+00
	Container: HIC	Ci	2.00E+02
b.	Dewatered filter media	m^3	None
	Container: HIC	Ci	None
c.	DAW (Compactible)	m^3	None
	Container: Compactor Box	Ci	None
d.	DAW (Non-Compactible)	m^3	None
	Container: Compactor Box	Ci	None

Average Transuranics shipped (all shipments): 2.80E+01 nCi/g

2. Estimate of Major Nuclide by Composition (By Type of Waste)		%	Ci
a.	Resin	100%	2.00E+02
	Mn-54	3.46E-02	6.91E+00
	Co-58	1.33E-02	2.66E+00
	Co-60	1.09E-01	2.17E+01
	Ag-110m	1.76E-03	3.51E-01
	Cs-137	2.95E-03	5.88E-01
	Sb-125	1.87E-02	3.73E+00
	Fe-55	1.05E-01	2.09E+01
	C-14	5.07E-04	1.01E-01
	Ni-59	1.01E-02	2.02E+00
	TRU	5.73E-04	1.14E-01
	Pu-241	5.73E-04	1.14E-01
	Am-241	2.51E-07	5.02E-05
	Ni-63	7.03E-01	1.40E+02
	Sr-90	6.03E-05	1.20E-02
	Cm-243	9.85E-08	1.97E-05
	Pu-239	6.96E-8	1.39E-05
	W-187	5.75E-04	1.15E-01

b.	Dewatered filter media	None	None
c.	DAW (Compactible)	None	None
d.	DAW (Non-Compactible)	None	None

3. Solid Waste Disposition

a.	Date of Shipment	Mode of Transportation	Destination
	05/17/05	Chem-Nuclear Cask	Studsvik Processing Facility LLC Erwin, TN
	06/22/05	Chem-Nuclear Cask	Studsvik Processing Facility LLC Erwin, TN

B. Irradiated Fuel Shipments

None.

7.0 PROGRAM REVISIONS

In accordance with Technical Specifications 6.18.b.3 and 6.19.a, the revisions to the Process Control Program, Offsite Dose Calculation Manual and radioactive waste treatment systems are listed below.

7.1 Offsite Dose Calculation Manual

The Offsite Dose Calculation Manual (ODCM) was revised during this report period. A complete copy of Revision 9 of the ODCM is included as a part of this report.

7.2 Major Changes to the Radioactive Liquid, Gaseous and Solid Waste Treatment Systems

Major changes to the radioactive liquid, gaseous or solid waste systems are submitted in the annual Updated Final Safety Analysis Report consistent with Technical Specification 6.19.

8.0 REPORTABLE OCCURRENCES

8.1 Waste Gas Decay Tank Volume Calculation

A Corrective Actions Program (CAP) evaluation, CAP030430, was submitted to identify and track the correction of this condition.

In December 2005 it was identified that the Waste Gas Decay Tank (WGDT) volume calculation used in the RETSCode computer program does not account for a Nitrogen purge of the tank, a practice which started in January 2001. The calculation in RETSCode uses the difference in tank gauge pressure with the pressure values in absolute pressure (gauge pressure + 14.7 psia). The calculation works if the release stops at zero or greater on the gauge. However, when the tank is at zero gauge pressure (atmospheric pressure of 14.7 psia) and it is subsequently purged, there is one volume of the tank that is discharged that is not taken into account. Therefore, the activity released from any purged WGDT is under reported.

A check of 5 WGDT release permits generated since 2001 and prior to implementation of immediate corrective actions for this issue showed initial pressures between 87 and 12 psig. The 12-psig-tank release volume is more than doubled (2.2 times the original volume) by the addition of volume needed to correct for the tank purge. The average release volume of these 5 releases is 40% more than the originally calculated volumes. Off-site dose has a linear correlation to volume released. The off-site doses from gaseous releases from the plant have been in the E-3 percentage ranges for the past 5-years as noted in the annual Radioactive Effluent Release Reports. Using the worst-case release volume noted above of 2.2 times greater than the original calculations results in a dose of no more than E-2 percentage of the quarterly limits, so there is no significant effect on reported doses to the public. No limits were approached.

Regardless of the insignificant effect on the reported doses to the public, Dominion Energy Kewaunee will correct the previous data supplied for the affected time frame and submit the corrected information with the 2006 Annual Radiological Effluent Release Report.

8.2 Over Reporting of Beta-Emitting Isotope Activity for 2003 in Liquid Effluents

An over reporting of beta-emitting isotopes was identified in the 2003 liquid effluents section of the Annual Radioactive Effluent Release Report. This over reporting was traced to manual entry of vendor supplied data. A Corrective Actions Program (CAP) evaluation, CAP029990, was submitted to identify and track the correction of this condition. A copy of this CAP is on file in the plant quality assurance vault. Appendix C of this report includes the entire report for liquid effluents for 2003 and represents the corrected data. Due to the multiple changes to monthly totals, quarterly total, total curies discharged and to doses, the entire liquid report was generated. In this case, the vendor supplied results for Fe-55, Sr-89, and Sr-90 were over-reported by a factor of two. The net result is a reduction in total discharges and reduction of dose to public.

Appendix A

Kewaunee Power Station

2005 Meteorological Data

Missing Data

First Quarter: 746.00 hours
Second Quarter: 570.25 hours
Third Quarter: 19.75 hours
Fourth Quarter: 75.50 hours

Note: A total of 1411.50 hours of data is missing or otherwise unavailable. This represents the availability of 83.9 % of the data for the year. Continuous strip chart indication for 2005 data is available onsite.

FIRST QUARTER 2005
Total Hours Missing = 746.00 Total Hours = 2160

Stability Class A

Wind Direction

	CALM	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	0	0	10	22	30.75	1.25	0	64
NNE	0	0	1.75	10	9.25	0.5	0	21.5
NE	0	0.25	3.5	6	9.75	2	0	21.5
ENE	0	0.25	3.5	2.25	25.25	1.5	0	32.75
E	0	1	7.75	1.5	13.5	0	0	23.75
ESE	0	0.75	3.25	7.75	17.5	8	0.5	37.75
SE	0	0.5	2.5	5.5	10	9.25	0	27.75
SSE	0	0.25	4.5	7	7.5	8.25	5	32.5
S	0	0	7.5	12.25	4.25	2	0.75	26.75
SSW	0	0.25	7.5	5.75	0	0	0	13.5
SW	0	0.25	5	1	0	0	0	6.25
WSW	0	0.5	9.5	7	0	0	0	17
W	0	0.75	25.25	27.75	3.5	0	0	57.25
WNW	0	0	19.25	22.25	3.5	0	0	45
NW	0	1.25	27.75	21	3	0	0	53
NNW	0	0.25	26.25	39.75	8	0	0	74.25
TOTAL	0	6.25	164.75	198.75	145.75	32.75	6.25	554.5

Stability Class B

Wind Direction

	CALM	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	0	0	1	4	4	0	0	9
NNE	0	0	1.75	3	0.25	0	0	5
NE	0	0	0.5	1	0	0	0	1.5
ENE	0	0	0.5	0	0	0	0	0.5
E	0	0	1.5	0.5	0.75	0	0	2.75
ESE	0	0	1	1.75	1	1	0.25	5
SE	0	0	0.75	0	0	0.5	0	1.25
SSE	0	0	1.25	0	0.25	0.25	0	1.75
S	0	0	2	3	0.5	0	0	5.5
SSW	0	0	3	1.25	0	0	0	4.25
SW	0	0	1	0.25	0	0	0	1.25
WSW	0	0	2.25	0.75	0.5	0	0	3.5
W	0	0	2	5.75	0	0	0	7.75
WNW	0	0	3	3.5	1.5	0	0	8
NW	0	0.75	5.75	7	0	0	0	13.5
NNW	0	0	5.25	4.5	7.75	0	0	17.5
TOTAL	0	0.75	32.5	36.25	16.5	1.75	0.25	88

Stability Class C

Wind Direction

	CALM	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	0	0	2.75	2.25	3.5	0	0	8.5
NNE	0	0	0.5	1	2.75	0	0	4.25
NE	0	0	0	0	0	0	0	0
ENE	0	0	0.25	0.5	0.25	0	0	1
E	0	0	0	1	0	0	0	1
ESE	0	0	0	1.5	1.5	0	0	3
SE	0	0	0.25	0	0	0.75	0	1
SSE	0	0	0	0	0	0	0	0
S	0	0	2.75	2.25	1	0	0	6
SSW	0	0	5.25	2	0	0	0	7.25
SW	0	0	0.25	0.25	0	0	0	0.5
WSW	0	0	1.25	2.75	0.75	0	0	4.75
W	0	0.25	2.75	13.5	0	0	0	16.5
WNW	0	0	0.5	7	2.75	0	0	10.25
NW	0	0	2.75	2.5	0.25	0	0	5.5
NNW	0	0	3	4.5	4.75	0	0	12.25
TOTAL	0	0.25	22.25	41	17.5	0.75	0	81.75

Stability Class D

Wind Direction

	CALM	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	0	0	5	6.5	6.5	0	0	18
NNE	0	0	1.5	3.25	1.75	0	0	6.5
NE	0	0	1.25	2	0	0	0	3.25
ENE	0	0	1.5	2	0	0	0	3.5
E	0	0	0.5	0	0	0.75	0.25	1.5
ESE	0	0	2.75	0.75	0.5	0	0	4
SE	0	0	0.5	0	0.25	0.25	0	1
SSE	0	0	1.25	1	0.5	2.25	0	5
S	0	0	6.5	12.5	0.75	0	0	19.75
SSW	0	0.5	24	4.5	0	0	0	29
SW	0	1.25	6	0.75	0.5	0	0	8.5
WSW	0	0.25	8.5	7.25	2	0	0	18
W	0	0.5	4.5	11.5	3.75	0	0	20.25
WNW	0	0	4.5	8.25	1.75	0	0	14.5
NW	0	0	5	7.5	2.75	0	0	15.25
NNW	0	0	9.75	9.75	0	0	0	19.5
TOTAL	0	2.5	83	77.5	21	3.25	0.25	187.5

Stability Class E

Wind Direction

	CALM	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	0	0	17.5	9.25	1.25	0	0	28
NNE	0	0	1.25	2	0.25	0	0	3.5
NE	0	0	0.25	0.75	0	0	0	1
ENE	0	0.25	0	0	0	0	0	0.25
E	0	0	0	0	0	0.75	0	0.75
ESE	0	0	0.25	0	0	0	0	0.25
SE	0	0	1.75	0	0	0	0	1.75
SSE	0	0	0.75	1.25	2.25	0	0	4.25
S	0	1	16.75	4.25	0.75	0	0	22.75
SSW	0	0.5	26.75	1.5	0	0	0	28.75
SW	0	0.25	27	4.5	0.75	0	0	32.5
WSW	0	0.75	11.5	6.75	2	0	0	21
W	0	0.75	17.25	1.5	2	0	0	21.5
WNW	0	1	7.25	5.5	1.5	0	0	15.25
NW	0	1.25	5.25	8.75	2	0	0	17.25
NNW	0	0	15.75	9.75	0.25	0	0	25.75
TOTAL	0	5.75	149.25	55.75	13	0.75	0	224.5

Stability Class F

Wind Direction

	CALM	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	0	0.25	2	0	0	0	0	2.25
NNE	0	0.25	0.25	0	0	0	0	0.5
NE	0	1.25	0	0	0	0	0	1.25
ENE	0	1.25	0	0	0	0	0	1.25
E	0	0.5	0	0	0	1	0	1.5
ESE	0	0.5	0	0	0	0	0	0.5
SE	0	0.25	0.5	0	0	0	0	0.75
SSE	0	0.25	0.75	3.5	5	0	0	9.5
S	0	2.5	7	7	5.5	0.5	0	22.5
SSW	0	2	14.5	1.5	0	0	0	18
SW	0	0.25	11	2.75	0	0	0	14
WSW	0	1	8.25	3.5	0	0	0	12.75
W	0	0.5	5.5	0	0	0	0	6
WNW	0	0.5	5	1.75	0	0	0	7.25
NW	0	0.75	2.5	5.25	0	0	0	8.5
NNW	0	0.5	5.25	1.75	0	0	0	7.5
TOTAL	0	12.5	62.5	27	10.5	1.5	0	114

Stability Class G

Wind Direction

	CALM	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	0	0	1.5	0	0	0	0	1.5
NNE	0	0	0.5	0	0	0	0	0.5
NE	0	0	0.25	0	0	0	0	0.25
ENE	0	0.25	0.5	0	0	0	0	0.75
E	0	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0	0
SE	0	0	0.75	0.25	0	0	0	1
SSE	0	0	3.25	8	7.75	0.75	0	19.75
S	0	0.5	11	6	0	0	0	17.5
SSW	0	2.75	18.25	0	0	0	0	21
SW	0	0.25	15	3	0	0	0	18.25
WSW	0	0.25	20.25	0.25	0	0	0	20.75
W	0	0.5	10.5	1.25	0	0	0	12.25
WNW	0	0.25	23.5	1.25	0	0	0	25
NW	0	0.25	10.75	3.25	0	0	0	14.25
NNW	0	2.5	8.5	0	0	0	0	11
TOTAL	0	7.5	124.5	23.25	7.75	0.75	0	163.75

2nd QUARTER 2005
Total Hours Missing = 570.25 Total Hours = 2184
Stability Class A

Wind Direction

	CALM	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	0	0.25	1.25	10.5	29.5	13	0	54.5
NNE	0	0	3.5	34.25	37.5	12.25	0	87.5
NE	0	0	16.75	23.25	5	0.25	0	45.25
ENE	0	0	5	1.5	2	0	0	8.5
E	0	0	5.75	0	0	0	0	5.75
ESE	0	0.25	4.5	0.75	1	0	0	6.5
SE	0	0	5	3.25	1.25	0	0	9.5
SSE	0	0	5.25	4.25	3.75	0	0	13.25
S	0	0	1	6.5	0	0	0	7.5
SSW	0	0	0.75	0.25	0	0	0	1
SW	0	0	0.5	1.25	4.75	0	0	6.5
WSW	0	0	3.75	8.25	9.75	0	0	21.75
W	0	0	3.5	31.25	3.25	0	0	38
WNW	0	0	12	21.5	1.75	0	0	35.25
NW	0	0	5.5	4.75	0	0	0	10.25
NNW	0	0.25	3.5	2.75	1	4.5	0	12
TOTAL	0	0.75	77.5	154.25	100.5	30	0	363

Stability Class B

Wind Direction

	CALM	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	0	0	0.5	1.5	0.25	0	0	2.25
NNE	0	0.25	1.25	3.25	2.5	0	0	7.25
NE	0	0.5	2.5	2.75	0	0	0	5.75
ENE	0	0.5	0	0.25	0	0	0	0.75
E	0	1.25	0	0	0	0	0	1.25
ESE	0	0	0.25	0.25	0	0	0	0.5
SE	0	1.25	1.25	0	0	0	0	2.5
SSE	0	0.25	0.25	0.25	1	0	0	1.75
S	0	0	0.75	1	0	0	0	1.75
SSW	0	0	0.75	0	0	0	0	0.75
SW	0	0	0	0.25	0.5	0	0	0.75
WSW	0	0	0	0.75	0.25	0	0	1
W	0	0	2	2	0	0	0	4
WNW	0	0	0.5	2.25	0	0	0	2.75
NW	0	0.25	1.25	0.75	0	0	0	2.25
NNW	0	0.5	0.75	1.75	0.25	0	0	3.25
TOTAL	0	4.75	12	17	4.75	0	0	38.5

Stability Class C

Wind Direction

	CALM	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	0	0	0.25	0.5	0	0	0	0.75
NNE	0	0	2	2.75	4.25	0	0	9
NE	0	0.25	2	0.75	2.75	0	0	5.75
ENE	0	0.5	0	1	0	0	0	1.5
E	0	0.25	0.25	0.25	0	0	0	0.75
ESE	0	0	0	0	0	0	0	0
SE	0	0	1.5	0	0	0	0	1.5
SSE	0	0	0.75	1	0.25	0	0	2
S	0	0	0.75	0.5	0	0	0	1.25
SSW	0	0	1	0.25	0	0	0	1.25
SW	0	0	0	0.5	0.25	0	0	0.75
WSW	0	0	0.5	0.5	1.25	0	0	2.25
W	0	0	2.25	1.75	2	0	0	6
WNW	0	0	2	0.75	0	0	0	2.75
NW	0	0	0.5	0.75	0	0	0	1.25
NNW	0	0	0.75	0.5	0.25	4	0	5.5
TOTAL	0	1	14.5	11.75	11	4	0	42.25

Stability Class D

Wind Direction

	CALM	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	0	0.25	2.75	2.25	0	0	0	5.25
NNE	0	0.25	8.25	18.25	19	2.25	0	48
NE	0	0	11	5	3	0	0	19
ENE	0	0.25	5.5	0.75	3.5	0	0	10
E	0	0.25	1	1.25	0	0	0	2.5
ESE	0	1.25	0.25	0.25	0	0	0	1.75
SE	0	0.75	5	0	0	0	0	5.75
SSE	0	1	5.5	9.75	2.25	0	0	18.5
S	0	0.25	8.75	9.5	0.25	0	0	18.75
SSW	0	0	3.75	3	0	0	0	6.75
SW	0	0.25	1.75	0.5	0.5	0.25	0	3.25
WSW	0	0.75	4.25	3.25	3.25	0.25	0	11.75
W	0	0	6.5	8.75	1	0	0	16.25
WNW	0	0	3.75	5.5	0.25	0	0	9.5
NW	0	0	1.5	2.5	0	0	0	4
NNW	0	0.5	1.75	1.25	1.5	1.75	0	6.75
TOTAL	0	5.75	71.25	71.75	34.5	4.5	0	187.75

Stability Class E

Wind Direction

	CALM	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	0	2.5	7	5.25	0	0	0	14.75
NNE	0	1.5	23	31	10.5	0	0	66
NE	0	6.25	10	16.5	0.25	0	0	33
ENE	0	6.25	14	2	0	0	0	22.25
E	0	4.25	5.5	0.75	0	0	0	10.5
ESE	0	4	4	2.25	1	0	0	11.25
SE	0	2.75	8	1.5	1.25	0	0.25	13.75
SSE	0	1.25	12	19.5	7.75	0	0	40.5
S	0	1.75	19.75	14.75	0.5	0	0	36.75
SSW	0	2	17	13.5	0	0	0	32.5
SW	0	3.75	4.75	2.5	1.25	0	0	12.25
WSW	0	2	3	5.25	1.5	0	0	11.75
W	0	1.5	7.5	11.75	0.25	0	0	21
WNW	0	0.25	4	3	0	0	0	7.25
NW	0	0.5	2.5	2.75	0	0	0	5.75
NNW	0	0.25	4.25	2	0	0	0	6.5
TOTAL	0	40.75	146.25	134.25	24.25	0	0.25	345.75

Stability Class F

Wind Direction

	CALM	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	0.25	3.5	6.75	2.5	0	0	0	13
NNE	0	2.25	12.75	6.25	1	0	0	22.25
NE	0	3	11	5.75	0	0	0	19.75
ENE	0	3.25	10.5	1.5	0	0	0	15.25
E	0	1.25	4.25	0	0	0	0	5.5
ESE	0	1.5	4.25	0.5	0	0	0	6.25
SE	0	1	10.5	0.5	0	0	0	12
SSE	0	2	11	15.25	4.75	0.25	0	33.25
S	0	1.75	15.75	15.5	0	0	0	33
SSW	0	1.5	13.25	3	0	0	0	17.75
SW	0	1.5	1.5	3.25	0	0	0	6.25
WSW	0	1	4.25	0.25	0	0	0	5.5
W	0	4.5	11.75	2	0	0	0	18.25
WNW	0	2.5	2.25	7.75	0	0	0	12.5
NW	0.25	4.5	2.25	1	0	0	0	8
NNW	0	5.25	5	1	0	0	0	11.25
TOTAL	0.5	40.25	127	66	5.75	0.25	0	239.75

Stability Class G

Wind Direction

	CALM	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	1	9.75	6.75	0	0	0	0	17.5
NNE	0	4.25	2.75	3	0.75	0	0	10.75
NE	0	4.25	9.75	4.25	0	0	0	18.25
ENE	0	4.25	8	0.75	0	0	0	13
E	0	4	4	0.5	0	0	0	8.5
ESE	0	3.75	8.25	0	0	0	0	12
SE	0	3.5	9.75	0.75	0	0	0	14
SSE	0	3.5	32.5	46.25	10	0	0	92.25
S	0	5	39.5	30	0	0	0	74.5
SSW	0	5.25	29.25	1.5	0	0	0	36
SW	0	2.75	14.25	0.25	0	0	0	17.25
WSW	0	3.75	12.5	3	0	0	0	19.25
W	0	2.5	8	15.5	0	0	0	26
WNW	0	8	3.5	0	0	0	0	11.5
NW	0	3.5	8.5	0	0	0	0	12
NNW	0	6	8	0	0	0	0	14
TOTAL	1	74	205.25	105.75	10.75	0	0	396.75

3rd QUARTER 2005
Total Hours Missing = 19.75 Total Hours = 2208
Stability Class A

Wind Direction

	CALM	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	0	1.5	6	7.5	0	0	0	15
NNE	0.5	1.5	12.25	24.75	1.5	0	0	40.5
NE	1.25	2	15.25	3.25	0	0	0	21.75
ENE	0.25	7.75	12.25	1.25	0	0	0	21.5
E	5	6.5	15.75	0.25	0	0	0	27.5
ESE	1.75	10.75	11.25	4.25	1	0.25	0	29.25
SE	2.5	13.25	15	4.75	0	0	0	35.5
SSE	1	3.75	13.25	12.5	0	0	0	30.5
S	0.5	4.75	13	3	0	0	0	21.25
SSW	0.75	4.5	4.5	2.5	4	0	0	16.25
SW	0.25	3	12.25	6.25	3.25	0	0	25
WSW	1	6.5	14.25	5.5	6.25	0	0	33.5
W	0.75	10	9.5	6.25	0	0	0	26.5
WNW	1.25	10	2.5	12.25	0.75	0	0	26.75
NW	1.25	3.25	8	19	0.5	0	0	32
NNW	0.5	6.75	12	15.75	0.5	0	0	35.5
TOTAL	18.5	95.75	177	129	17.75	0.25	0	438.25

Stability Class B

Wind Direction

	CALM	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	0.25	1.25	2.25	3	0	0	0	6.75
NNE	0.5	0	2.5	1.25	0	0	0	4.25
NE	0	0.25	1.5	0.5	0	0	0	2.25
ENE	0	0.75	0.25	0	0	0	0	1
E	0.25	1.75	0.25	0.25	0	0	0	2.5
ESE	0.75	1	2	0	0	0	0	3.75
SE	1.5	2	3.25	1.5	0.25	0	0	8.5
SSE	0	0.75	1.25	1.75	0	0	0	3.75
S	1	1	1.25	2	0.25	0	0	5.5
SSW	0.25	1.75	0.75	2	0	0	0	4.75
SW	0	1.25	1.75	1	0.25	0	0	4.25
WSW	0.25	1.25	5	2.75	0.75	0	0	10
W	0.25	4	3.75	4.75	0	0	0	12.75
WNW	0	0.5	0.75	2	0	0	0	3.25
NW	0	1.25	2.5	1.25	0.5	0	0	5.5
NNW	1.5	1.75	1.75	1.5	0	0	0	6.5
TOTAL	6.5	20.5	30.75	25.5	2	0	0	85.25

Stability Class C

Wind Direction

	CALM	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	0	1.5	0.75	1.75	0	0	0	4
NNE	0	0.25	6	8.25	0.5	0	0	15
NE	0.25	5	5.5	1.5	0	0	0	12.25
ENE	0	0.25	3.5	0	0	0	0	3.75
E	0.75	3.5	5.25	0	0	0	0	9.5
ESE	1.25	3.25	4.25	0	0	0	0	8.75
SE	2.75	7.25	16.75	1.25	0	0	0	28
SSE	0.5	0.5	1.25	1.25	0	0	0	3.5
S	0	7.25	2.25	2.25	0.5	0	0	12.25
SSW	0.5	3	0.75	0.75	0	0	0	5
SW	1	2.5	6.75	0.75	0	0.25	0	11.25
WSW	0.75	5.75	9.75	6.5	0.75	0	0	23.5
W	0.25	5.25	2.25	3	0.25	0	0	11
WNW	0	1.25	4.75	4.75	0	0	0	10.75
NW	0.25	0.75	3.25	1.5	0.5	0	0	6.25
NNW	1.5	1.25	3	1.75	0	0	0	7.5
TOTAL	9.75	48.5	76	35.25	2.5	0.25	0	172.25

Stability Class D

Wind Direction

	CALM	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	0	3	7	6.75	0	0	0	16.75
NNE	0	2.75	20.25	12.75	0	0	0	35.75
NE	0	3.5	12.5	2	0	0	0	18
ENE	0.75	8.75	14.5	0.75	0	0	0	24.75
E	1	3.25	6	0	0	0	0	10.25
ESE	1.25	5.5	5	0	0	0	0	11.75
SE	3	10.75	15.5	1.5	0	0	0	30.75
SSE	1	8.75	15.75	6.25	1	0	0	32.75
S	0	16.25	12	6.75	0.25	0	0	35.25
SSW	0.25	5.75	6	1	0	0	0	13
SW	0	4.25	4.5	3	0.5	0	0	12.25
WSW	1.25	4.5	3.5	3	1.25	0	0	13.5
W	0.25	4.25	2.75	3.25	1.75	0.25	0	12.5
WNW	0.5	4	3	4.25	0	0	0	11.75
NW	0.5	2	3.5	2.5	0.25	0	0	8.75
NNW	0	1.5	7.75	3.25	0	0	0	12.5
TOTAL	9.75	88.75	139.5	57	5	0.25	0	300.25

Stability Class E

Wind Direction

	CALM	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	0.5	4.75	16	4.75	0	0	0	26
NNE	0	2.5	10.75	15.5	2	0	0	30.75
NE	0	1.75	4.5	0.25	0	0	0.5	7
ENE	0	1.75	2	0	0	0	0	3.75
E	0	1.5	1	0	0	0	0	2.5
ESE	0	0.5	2.5	0	0	0	0	3
SE	0.25	7	12	2.25	0.25	0	0	21.75
SSE	1	9.25	16.75	6.25	2.25	0	0	35.5
S	2	19.25	34.5	11.25	0.25	0	0	67.25
SSW	0.5	10	28.5	3.5	0	0.25	0	42.75
SW	0.75	4.75	6	7	0	0	0	18.5
WSW	1.5	4	2.75	0.5	0	0	0	8.75
W	1.25	6.25	8	7.5	0.5	0	0	23.5
WNW	1.25	3.25	5.25	5	0	0	0	14.75
NW	2.25	2.5	9.75	2	0	0	0	16.5
NNW	1	4.5	13.5	0	0	0	0	19
TOTAL	12.25	83.5	173.75	65.75	5.25	0.25	0.5	341.25

Stability Class F

Wind Direction

	CALM	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	0	1.75	8.25	0	0	0	0	10
NNE	0.25	1.5	3	0.5	0	0	0	5.25
NE	1	1.75	3.25	0	0	0	0	6
ENE	0.75	1.75	1.75	1.5	0	0	0	5.75
E	0.75	1.25	0.25	0.75	0	0	0	3
ESE	0.75	2.75	1.5	0	0	0	0	5
SE	0.5	3.25	4.75	4	0	0	0	12.5
SSE	0	5	11.25	13	4.5	0	0	33.75
S	2.25	18.25	24.75	3.5	0	0	0	48.75
SSW	2.25	21	23.5	1.75	0	0	0	48.5
SW	0.25	6	5	1.25	0	0	0	12.5
WSW	0.5	10.25	12.75	0.25	0	0	0	23.75
W	0.5	7.75	14	1	0	0	0	23.25
WNW	1	5.5	4.25	0.5	0	0	0	11.25
NW	0.25	1	7.25	0	0	0	0	8.5
NNW	0.25	2.75	14.5	0	0	0	0	17.5
TOTAL	11.25	91.5	140	28	4.5	0	0	275.25

Stability Class G

Wind Direction

	CALM	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	0.25	3.75	4.5	0.25	0	0	0	8.75
NNE	0	1.5	2	0	0	0	0	3.5
NE	0	4.5	0.75	0	0	0	0	5.25
ENE	0	5.75	0.25	0	0	0	0	6
E	0.25	3	0.5	0.5	0	0	0	4.25
ESE	0.25	9	1	0.75	0	0	0	11
SE	0	5.75	4.25	2.25	0	0	0	12.25
SSE	2	17.5	29.5	30	6.5	0	0	85.5
S	7.75	14.75	35.75	11	0.25	0	0	69.5
SSW	15.25	26.5	22.5	0.25	0	0	0	64.5
SW	7.75	39	14.25	0	0	0	0	61
WSW	6.25	43.25	31.25	0	0	0	0	80.75
W	5.5	24	32.5	0	0	0	0	62
WNW	0.5	14.5	25.5	0.25	0	0	0	40.75
NW	0.25	14.5	8.5	0	0	0	0	23.25
NNW	0.25	13.5	23.75	0	0	0	0	37.5
TOTAL	46.25	240.75	236.75	45.25	6.75	0	0	575.75

4th QUARTER 2005
Total Hours Missing = 75.50 Total Hours = 2208
Stability Class A

Wind Direction

	CALM	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	0	1	22.5	44.25	6.75	1	0	75.5
NNE	0	1.25	3	21.75	18.5	2.25	0	46.75
NE	0	0	5.5	10	5.5	0	0	21
ENE	0	0.25	5.75	15.75	6.5	0.75	0	29
E	0	0.75	7.5	2.75	6.75	7.5	0	25.25
ESE	0	0.75	6.25	5.25	1.5	0	0	13.75
SE	0	0	2.5	12.25	18.25	17.5	0	50.5
SSE	0	0	5	9	5.25	1.75	0	21
S	0	0.25	4	15.25	8.75	0.5	0	28.75
SSW	0	2.5	16.25	17.5	1	0	0	37.25
SW	0	2.75	11	20.75	10.5	1	3	49
WSW	0	5.25	22	37.75	41	2.25	1.5	109.75
W	0	6.25	25.25	64.25	23.25	6.5	0.75	126.25
WNW	0	2.25	14	53.25	24	4.5	0	98
NW	0	2.5	26	18.5	6.75	1.75	0.25	55.75
NNW	0	0.75	25.5	49.75	3.25	2.25	0	81.5
TOTAL	0	26.5	202	398	187.5	49.5	5.5	869

Stability Class B

Wind Direction	CALM	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	0	0	0.25	13.75	2	0	0	16
NNE	0	0	0.5	1.25	0.75	0	0	2.5
NE	0	0	0	0	0	0	0	0
ENE	0	0	0.75	0.5	0	0	0	1.25
E	0	0	1.5	3.25	0	0	0	4.75
ESE	0	0	0.25	0.25	0	0	0	0.5
SE	0	0	1.25	2.75	0.25	1	0	5.25
SSE	0	0	0.5	0	1.25	1.25	0.25	3.25
S	0	0	3.5	2.25	1.25	0	0	7
SSW	0	0	6.5	4	0.25	0	0	10.75
SW	0	0.75	3.25	3.5	10	0	1.5	19
WSW	0	1.25	3.5	3.25	5	0.5	0	13.5
W	0	0	2.75	6	0.75	1.5	0	11
WNW	0	0	2.75	5	3.5	0	0	11.25
NW	0	0	3.5	0	1.25	1.75	0	6.5
NNW	0	0	2	8	2.25	2.25	0	14.5
TOTAL	0	2	32.75	53.75	28.5	8.25	1.75	127

Stability Class C

Wind Direction	CALM	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	0	0	0.75	4.5	0	0	0	5.25
NNE	0	0	0.5	1.25	1	0	0	2.75
NE	0	0	1.25	1	0	0	0	2.25
ENE	0	0	0.5	2.25	0	0	0	2.75
E	0	0.75	0.5	1.25	0	0	0	2.5
ESE	0	2	1	0.75	0.25	0	0	4
SE	0	0.25	2	2.25	0	0	0	4.5
SSE	0	0.25	5.25	1.25	0.75	0.5	0.5	8.5
S	0	0.5	6	1.5	1.25	0	0	9.25
SSW	0	2	7.25	7.25	0.5	0	0	17
SW	0	2.75	7.25	3.5	3.25	0	2.5	19.25
WSW	0	1.75	6.25	6.5	4.25	0	0	18.75
W	0	0.5	4.25	6	3	1	0	14.75
WNW	0	0.25	2.5	1.5	2	0	0	6.25
NW	0	1	3	0.25	0.5	0	0	4.75
NNW	0	0.25	2.75	4.25	1.75	0	0	9
TOTAL	0	12.25	51	45.25	18.5	1.5	3	131.5

Stability Class D

Wind Direction

	CALM	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	0	0	4.75	3.5	1.25	0	0	9.5
NNE	0	0	3.75	9.25	1.75	0	0	14.75
NE	0	0	2	4.5	0	0	0	6.5
ENE	0	0	5	2	0	0	0	7
E	0	1.25	2	0	0	0	0	3.25
ESE	0	0	1	3.75	0.5	0	0	5.25
SE	0	1.25	2	1.5	1.25	0.5	0	6.5
SSE	0	3.75	4	9.75	5.25	0.25	0	23
S	0	1.5	10.5	10.25	0.75	0	0	23
SSW	0	5	16	13.75	0	0	0	34.75
SW	0	3.75	5.25	9.75	0.75	0.25	1.75	21.5
WSW	0	5	11.25	9.75	1.5	0.75	0	28.25
W	0	3.75	16.75	30.75	6	1.75	0	59
WNW	0	1.25	7.25	6.75	9	0	0	24.25
NW	0	0	8	4.25	1.5	0	0	13.75
NNW	0	0	10	22.25	0.75	0	0	33
TOTAL	0	26.5	109.5	141.75	30.25	3.5	1.75	313.25

Stability Class E

Wind Direction

	CALM	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	0	0	8.25	2.25	0	0	0	10.5
NNE	0	0.5	4.5	11	0	0	0	16
NE	0	0.5	5.25	1.5	0	0	0	7.25
ENE	0	0.25	4	1	0	0	0	5.25
E	0	0.5	3	0.25	0	0	0	3.75
ESE	0	0.5	2.25	4.25	0.5	0	0	7.5
SE	0	0.75	1.75	4.5	0	0	0	7
SSE	0	0.5	3.75	4.5	1.75	0.25	0	10.75
S	0	2.75	22.75	22.25	1.5	0	0	49.25
SSW	0	2.5	21	15.25	0	0	0	38.75
SW	0	1.5	6.25	7.75	1	1.25	0	17.75
WSW	0	2.5	17.75	15.75	2.25	0.25	0	38.5
W	0	1.75	16.75	9.25	2	0	0	29.75
WNW	0	1.25	20.25	5.5	2	0	0	29
NW	0	1	13.75	2	0.5	0	0	17.25
NNW	0	1.5	18.5	2.75	0	0	0	22.75
TOTAL	0	18.25	169.75	109.75	11.5	1.75	0	311

Stability Class F

Wind Direction

	CALM	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	0	0.75	2.5	0.5	0	0	0	3.75
NNE	0	0.75	1.25	0	0	0	0	2
NE	0	0.5	1	0	0	0	0	1.5
ENE	0	0.25	0.25	3.25	0	0	0	3.75
E	0	0.75	2	4	0	0	0	6.75
ESE	0	0	1.75	3.5	1	3.25	0.5	10
SE	0	0.25	0.25	1.25	0.5	3.25	0	5.5
SSE	0	0.75	1.5	0.75	0.5	0	0	3.5
S	0	1.75	19.25	3.25	0	0	0	24.25
SSW	0	4	17.5	0.25	0.5	0	0	22.25
SW	0	1.75	4.75	2.25	0.75	0.25	0	9.75
WSW	0	0.5	11.5	2.5	0.5	0	0	15
W	0	2.25	17	2.25	0	0	0	21.5
WNW	0	0.75	6.5	0.25	0	0	0	7.5
NW	0	0.75	10	0	0	0	0	10.75
NNW	0	1.25	3.5	0	0	0	0	4.75
TOTAL	0	17	100.5	24	3.75	6.75	0.5	152.5

Stability Class G

Wind Direction

	CALM	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	1.5	3	4.5	0	0	0	0	9
NNE	0	1.5	0.25	0	0	0	0	1.75
NE	0	0.5	0	0	0	0	0	0.5
ENE	0	0.25	0.25	0	0	0	0	0.5
E	0	0	0	8	0	0	0	8
ESE	0	0.5	0	2	0	0	0	2.5
SE	0	0	0	0	0	0	0	0
SSE	0	3	4	14.25	1.5	0	0	22.75
S	0	3.5	11.5	4.75	0	0	0	19.75
SSW	0	1.5	10.25	0	0	0	0	11.75
SW	0.25	1.25	21.5	1.5	0.25	0	0	24.75
WSW	0	1.25	21	0.5	0	0	0	22.75
W	0	4	24	2.25	0	0	0	30.25
WNW	0	1.75	34.75	0	0	0	0	36.5
NW	0	3.5	17.5	0	0	0	0	21
NNW	0	3.5	13	0	0	0	0	16.5
TOTAL	1.75	29	162.5	33.25	1.75	0	0	228.25

Appendix B

Kewaunee Power Station

Offsite Dose Calculation Manual (ODCM)

Revision 9
December 2, 2005

TRACKING AND PROCESSING RECORD

A

Initiated By: Darryl Holschbach Date: 11/9/2005 Dept: Chem Ext. 8146

Document No.: ODCM Current Rev. No.: 8 New Rev. No.: 9

Title: Offsite Dose Calculation Manual

Requested Due /Required Date → 12/2/2005

B

Activity: ☐ Admin Hold ☐ Temp Change ☐ One Time Only | ☒ Revision ☐ New ☐ Deletion

C

Temp Change Signatures

☒ N/A	Print	Sign	Date
☐ Technical Review			
☐ Staff Approval			
☐ SRO Approval			

D

TTRACK / CAP # Date

E

Priority: ☒ Immediate Action ☐ Non-Urgent - Perform Later ☐ Rejected - See Comments

Safety Related ☐ Yes ☐ No | PORC Review ☐ Yes ☐ No | SRO Approval - Temp Changes ☐ Yes ☐ No | ☒ NA

Level of Use: ☐ Continuous Use ☐ Reference Use ☐ Information Use ☒ NA

Is Formal Training (Initial/Continuing) Likely Affected? (See Section 6.2.8.6) ☑ Yes ☐ No

(If yes, forward a copy of Form GNP-03.01.01-4, "Notification of Document Modification," and the new or revised document, or procedure to the Training Department Supervisor for training assessment.) [CAP019053]

F

Reviewers Required Signatures

	Print	Sign	Date
☒ Technical	Richard W. Adams	Richard W Adams	11/14/05
☐ Minor			
☒ Editorial	Amy Kudick	Amy Kudick	11/15/05
☐ Validation			
☐ Cross Discipline			
☐ Oversight (QC)			
☒ Other CHEM	ED HINSHAW	Ed. Hinshaw	11/15/05

G

50.59 Applicability Form Attached? ☒ Yes

50.59 Screen Form Attached? ☒ Yes ☐ No

50.59 Pre-Screen Form Attached? ☒ Yes ☐ No

50.59 Evaluation Attached? ☐ Yes ☒ No

H

1) ☒ ⇒ Process Owner Review Recommendation

☑ Approval ☐ Disapproval

Waive Validation Review ☑ Yes ☐ No

Process Owner Signature (print/sign): Wally Eckert Date: 11/16/05

2) ☒ ⇒ PORC Review Recommendation

☒ Approval ☐ Disapproval

Meeting No. 05-141

Plant Manager Signature (print/sign): Tom Webb for Wal at Occ 2000 Date:

I

Effective Date: DEC 2005 02

02 11-30-05 N/A

Responsible Manager Review - Directives (print/sign) Date

Clears Temp Change/Admin Hold dated: N/A

DESCRIPTION OF CHANGE SHEET

Document No.: ODCM **Current Rev. No.:** 8 **New Rev. No.:** 9

Describe Change	Describe Reason
All references to MPC have been changed to EC. Under current guidelines, liquid effluents can be released at ten times the EC values of 10 CFR 20 Appendix A, Table 2, Column 2. This has been incorporated into the text and into the equations to determine the liquid monitor setpoints.	New version of 10 CFR 20. Method is consistent with NRC's guidance on release rate limits for liquid effluents.
Abstract Changed WPSC to current owner/operator of Kewaunee Power Station. Removed Abstract date.	Administrative. Transition to Dominion Date became obsolete when abstract changed.
Updated table of contents to match document	Administrative.
Introduction Changed 10CFR20.106 to 10CFR20.1302	The 1994 revision of 10CFR20 replaced 10CFR20.106 with 10CFR20.1302
Introduction Removed wording which justified continued use of the old version 10CFR20 until the ODCM is revised.	This revision implements the new revision of 10CFR20.
ODCM Section 1.1 Added isotope Fe-55	Fe-55 results are already included on quarterly composites.
ODCM Sections 1.2 References to Appendix A, Table 2, Column 2 have been updated to the current standard.	The current revision to the ODCM references the new 10 CFR 20.
ODCM Equation 1.1 Changed C to 10 X C in equation and following variable definition.	Equation adapted to include the application of 10 times the effluent concentration of 10CFR20, Appendix B, Table 2 column 2. NRC LAR for TS Amendment No. 186.

DESCRIPTION OF CHANGE SHEET

Document No.: ODCM **Current Rev. No.:** 8 **New Rev. No.:** 9

Describe Change	Describe Reason
ODCM Section 1.2.1 Old Equation 1.2 and 1.3 are combined into a single equation 1.2. MPC was changed to 10XEC in equation 1.2 as well as the following variable definition for equation 1.2.	The two equations were combined to support the use of nuclide specific sensitivities as addressed below. The change from MPC to 10XEC per 10CFR20 was discussed previously. The simplified version of this equation is addressed again in section 1.2.2 as Equation 1.5.
ODCM Section 1.2.1 The setpoint equation 1.2 and following variable definition for senistivity has been revised to allow use of nuclide specific sensitivities, if available. Use of default sensitivity has been retained as an alternative approach.	Nuclide specific sensitivities for effluent monitors can be used to provide a more accurate assessment of monitor response to effluent concentrations. However, these values are typically not available. The alternative approach of using the calibration sensitivity has been retained.
ODCM Section 1.2.1 The following has been added to the concentration description for Equation 1.2: to include gamma emitters only.	The concentration should be limited to gamma emitters for the setpoint determination. The bases for the setpoint method, as dicussed in the revised Appendix C, addresses the issue with non-gammas. Including this statement provides consistency between the ODCM and operating procedures
ODCM Section 1.2.1 Equation 1.3 is equation 1.2 simplified for when CW = RR. This equation was revised to allow use of nuclide specific sensitivities as in equation 1.2. MPC was changed to 10XEC.	These changes were discussed previously for equation 1.2.
ODCM Section 1.2.2 Changed the default from effective MPC value of 1E-05 to effective EC value of 1E-06.	The change from MPC's to EC's for limiting liquid effluent concentrations is addressed in Appendix C. As shown in Appendix C, the effective EC is a factor of 10 lower than the effective MPC. This approach essentially results in no change in limiting liquid effluents, since the revised limit is based on 10X the EC values.
ODCM Section 1.2.2 Incorporated the effective EC equation 1.4 into section 1.2.2.a.	This section provides default values for computing conservative alarm setpoints. The text has been changed to provide a logical flow in setpoint calculations.
ODCM Section 1.2.2 Added subsection d to this section to include the default sensitivity value.	The previous reference to monitor sensitivity in Section 1.2.1 incorporated nuclide specific sensitivities. For the conservative setpoint determination, the default sensitivity is included in this section.
ODCM Section 1.2.2 Added the default setpoint equation at the end of this section.Equation 1.5	Since the effective EC was removed from the setpoint equation 1.2, the simplified equation needed to be addressed elsewhere.

DESCRIPTION OF CHANGE SHEET

Document No.: ODCM **Current Rev. No.:** 8 **New Rev. No.:** 9

Describe Change	Describe Reason
ODCM Section 1.3 Reference to Appendix A, Table 2, Column 2 have been updated to the current standard.	The current revision to the ODCM references the new 10 CFR 20.
ODCM Section 1.3 MPCi was changed to 10XECi in Equation 1.6 and the following variable definition.	The change from MPC's to EC's was discussed previously.
ODCM Section 1.4 Changed radionuclide i to radionuclide "i".	Administrative This distinguishes the variable from the text.
ODCM Section 1.4 Added the following to the statement to the numerical constants of Equations 1.9 and 1.10. Starts: "product of the hour-to-minute..."	Clarifies the definition of the constants, showing how the value is achieved.
ODCM Section 1.5 Updated equation numbers referenced in variable definitions.	Administrative. Equation numbers changed previously.
ODCM Table 1.1 Changed the default MPCe value of 1E-05 to default ECe value of 1E-06.	The change from MPC's to EC's for limiting liquid effluent concentrations is addressed in Appendix C. As shown in Appendix C, the effective EC is a factor of 10 lower than the effective MPC. This approach essentially results in no change in limiting liquid effluents, since the revised limit is based on 10X the EC values. Discussed previously
ODCM Table 1.1 Changed parameter MPCi to ECi and updated reference to Appendix B, Table 2, column 2	Theses changes are consistent with new 10CFR20 and were discussed previously.
ODCM Table 1.1 Changed SW default value from 10,000 to 5,000 gpm	N-SW 02 Operating Parameters and Sevice Water pump flow curves allow SW pump operation at lower than 10,000 gpm To remain conservative throughout the setpoint and dose equations, the default value needs to be established at the lowest possible flow rate. [CAP 25888]

DESCRIPTION OF CHANGE SHEET

Document No.: ODCM **Current Rev. No.:** 8 **New Rev. No.:** 9

Describe Change	Describe Reason
ODCM Table 1-1 New default setpoints for no Circulating water flow have been computed and entered into the table based on the updated default value.	Change reflects lower minimum SW flow.
ODCM Table 1-1 Added footnote regarding SW flow based on N-SW-02	Clarification from CAP 25888 Footnote refers to the conservative default SW flow rate of 5,000 gpm.
ODCM Section 2.1.3 Items a thru c are changed to bulleted format.	Administrative clarification
ODCM Section 2.1.4 Items a thru c are changed to bulleted format.	Administrative clarification
ODCM Section 2.2.1 FRAC changed to FRACtb and FRACskin for equations 2.1 and 2.2, respectively. The variable definitions following equations 2.1 and 2.2 were changed also.	While the dose rate limits shown in the equations imply the total body and skin dose rates, adding the subscripts further clarifies the equation.
ODCM Section 2.2.1 Changed the description of χ/Q for equations 2.1 & 2.2 to the following: annual average meteorological dispersion for direct exposure to noble gas at the controlling site boundary location (sec/m^3, from Table 2.3).	Further clarifies the description of χ/Q and provides the location of the data in the ODCM.
ODCM Section 2.2.1 Changed the description of VF for equations 2.1 & 2.2 to include ...from Table 2.3.	Provides the location of the data in the ODCM.
ODCM Section 2.2.1 Nuclide specific sensitivity was added in place of the default sensitivity for setpoint equation 2.3 and the following variable definition for sensitivity.	Nuclide specific sensitivities for effluent monitors can be used to provide a more accurate assessment of monitor response to effluent concentrations. However, these values are typically not available. The alternative approach of using the calibration sensitivity has been retained.

DESCRIPTION OF CHANGE SHEET

Document No.: ODCM **Current Rev. No.:** 8 **New Rev. No.:** 9

Describe Change	Describe Reason
ODCM Section 2.2.2 Modified the layout of the conservative default values, to show subsections a, b, and c	This is consistent with the layout of Chapter 1
ODCM Section 2.3.1 Changed the description of χ/Q for the site boundary dose rate – noble gas equations to the following: atmospheric dispersion for direct exposure to noble gas at the controlling site boundary (sec/m^3, from Table 2.3).	Further clarifies the description of χ/Q and provides the location of the data in the ODCM.
ODCM Section 2.3.2 Added "from Table 2.3" at the end of the description for χ/Q.	Provides the location of the data in the ODCM.
ODCM Section 2.4.1 Added "from Table 2.3" at the end of the description for χ/Q.	Provides the location of the data in the ODCM.
ODCM Section 2.5 Items are changed to bulleted format.	Administrative to maintain consistency.
ODCM Section 2.8 Added Section 2.8, covering the calculation of Total Dose.	No method was outlined in the ODCM. The discussion provided in this section gives the approach to be taken for determining a Total Dose for 40 CFR 190 compliance.
ODCM Table 2.3 Added inhalation pathway to the residence/dairy location of Table 2.3. Under Specification 3.4.3.	For the resident/dairy pathway, the inhalation pathway is not controlling; the radioiodine-cow-milk pathway represents the limiting pathway. However, for conservatism and consistency in including all key pathways of exposure, the inhalation pathway has been included in the dose evaluation to the critical receptor.
ODCM 3/4.1 Basis Section Changed the second sentence to the following: The alarm/trip setpoints for these instruments shall be calculated and adjusted in accordance with the methodology and parameters in the ODCM to ensure that the alarm/trip will occur prior to exceeding ten (10) times the values of 10 CFR Part 20, Appendix B, Table 2, Column 2.	Discussed previously. The change from MPC's to EC's for limiting liquid effluent concentrations is addressed in Appendix C. As shown in Appendix C, the effective EC is a factor of 10 lower than the effective MPC. This approach essentially results in no change in limiting liquid effluents. The revised limit is based on 10X the EC values.

DESCRIPTION OF CHANGE SHEET

Document No.: ODCM **Current Rev. No.:** 8 **New Rev. No.:** 9

Describe Change	Describe Reason
ODCM 3/4.2 Basis Section Changed the second sentence to the following: The alarm/trip will occur prior to exceeding the dose rate limits of Specification 3.4.1.	Basis section should discuss dose rate limits (associated with gaseous effluents) rather than dose limits (associated with liquid effluents).
ODCM 3/4.3 Spec. 3.3.1 Changed the text to read ...limited to ten times the concentrations specified in 10 CFR Part 20, Appendix B, Table 2, Column 2..."	Discussed previously. Consistent with NRC's guidance on release rate limits for liquid effluents incorporating the new 10CFR20 limits
ODCM 3/4.3 Basis section Changed the text to read ...will be less than ten times the concentration levels specified in 10 CFR Part 20, Appendix B, Table 2, Column 2..."	Discussed previously. Consistent with NRC's guidance on release rate limits for liquid effluents incorporating the new 10CFR20 limits
ODCM 3/4.3 Basis section Changed MPC to concentration limit.	Clarification. MPC are no longer used.
ODCM 3/4.4 Basis section Changed references and discussion of dose limits of 10 CFR20 to dose rate limits as given in Specification 3.4.1 and TS 6.16.1.G. Added "to a MEMBER OF THE PUBLIC" at or beyond the SITE BOUNDRY.	Basis section should discuss dose rate limits (associated with gaseous effluents) rather than dose limits associated with (liquid effluents). Dose rates are associated with a person.
ODCM 3/4.4 Basis section Changed "concentrations exceeding the limits specified in Appendix B, Table II of 10 CFR Part 20 (10 CFR Part 20.106(b))" to "concentrations specified in Appendix B, Table 2, Column 1 of 10 CFR 20	Updated reference to the new 10CFR 20 for clarity and accuracy.
ODCM Appendix A Discussion was updated to regarding evaluation of the effective dose factors performed using data from 2000-2002 Annual Effluent Reports.	Current data was used to verify that the current methodology remained conservative. Previous data was from 1981 through 1983
ODCM Appendix A Table A-1 was updated using data from 2000-2002 Annual Effluent Reports..	Current data was used to verify that the current methodology remained conservative. Previous data was from 1981 through 1983

DESCRIPTION OF CHANGE SHEET

Document No.: ODCM **Current Rev. No.:** 8 **New Rev. No.:** 9

Describe Change	Describe Reason
ODCM Appendix A Added Table A-2 with current data from 2000-2002.	Table A-2 was added to support the discussion/justification of the continued use of the Cs-134 dose conversion factor to evaluate maximum organ dose. This discussion found previously in appendix A previously used data from 1981-1983.
ODCM Appendix B Release information for noble gases was updated from1981-1983 to data from 2000-2002 Annual Effluent Reports. This information was used in evaluation of the noble gas dose factors.	Current data was used to verify that the current methodology remained conservative. Previous data was from 1981 through 1983
ODCM Appendix C MPC changed to EC in Appendix C title.	Administrative
ODCM Appendix Changed "MPC value of 10CFR20, Appendix B, Table II, column 2" to 10 times the value of 10CFR20, Appendix B, Table 2, column 2 for all radionuclides other than noble gases and a value of 2Xe-4 uCi/ml for noble gases.	The effective EC is a factor of 10 lower than the effective MPC. This approach essentially results in no change in limiting liquid effluents, since the revised limit is based on 10X the EC values. Discussed previously. Noble gas value stated here for clarity.
ODCM Appendix C EC values have been used in place of MPC to provide the default effective EC value for determining the default monitor setpoints.	Update to Appendix C reflects use of EC values for the current 10 CFR 20, Appendix B, Table 2, Column 2. Use is consistent with current NRC guidance for limiting liquid effluent concentrations and monitor setpoints.
ODCM Appendix C References to Appendix B, Table 2, Column 2 have been updated to the current standard.	The current revision to the ODCM references the new 10 CFR 20.
ODCM Appendix C Justification for derived default EC value (1E-06) was updated with current data from 2001 (Table C-1). Previous data used was from 1981.	More recent effluent release data was evaluated in the Appendix C and new effective EC value was calculated, to show that the default values for the effective were still valid. This evaluation demonstrates that the default effective EC remains conservative.
ODCM Appendix C Updated Table C-1 using EC evaluation rather than MPC and calculated using 2000-2002 data effluent reports.	The justification for using EC values from the current 10 CFR 20, replacing the "old" MPC values has been discussed. More recent effluent data from 2000-2003 was used. EC values were calculated, to show that the default values for the effective were still valid as discussed in Appendix C.

DESCRIPTION OF CHANGE SHEET

Document No.: ODCM **Current Rev. No.:** 8 **New Rev. No.:** 9

Describe Change	Describe Reason
ODCM Appendix D Deleted discussion about access site use by public such as the school forest and fishing access. Added statement that members of the public are restricted from access to all areas of the Owner Controlled Area OCA.	Security and site response to 9/11 security issues. Public is now restricted from access to Owner Controlled Area OCA.
ODCM Appendix D Update site map (Figure D-1) to reflect change to plant access road due to changes in plant security.	Security and site response to 9/11 security issues.
ODCM Appendix E Replaced reference to incorrect letter K92-114 with correct letter K92-119 on page E-1.	Administrative error.
ODCM Appendix E Replaced incorrect letter K92-114 with correct letter K92-119.	Administrative error.
ODCM Step 2.1.2 Inserted the word normally	Clarity. Not lined up to Aux Building vent for a brief time when initially drawing a vacuum on the condenser.
Placed "ODCM" to precede "Specification" where appropriate throughout the document.	For clarification and differentiation between the ODCM Specifications and others such as Technical Specifications.