



April 29, 2008

Richard D. Flannigan
Manager Regulatory Affairs

RA 08-0038

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555

Subject: Docket No. 50-482: Wolf Creek Generating Station Annual Radioactive
Effluent Release Report – Report 31

Gentlemen:

This letter transmits the enclosed Wolf Creek Generating Station (WCGS) Annual Radioactive Effluent Release Report. The report covers the period from January 1, 2007, through December 31, 2007. It is being submitted pursuant to Section 5.6.3 of the WCGS Technical Specifications. The report provides corrected pages from the 2006 Annual Radioactive Effluent Report – Report 30, and, Procedures AP 07B-003, "Offsite Dose Calculation Manual," AP 07B-004, "Offsite Dose Calculation Manual (Radiological Environmental Monitoring Program)," and AP 31A-100, "Solid Radwaste Process Control Program" that are included as part of the report in accordance with Section 5.5.1 of the WCGS Technical Specifications. These procedures have the changes made during the reporting period marked as required.

No commitments are identified in this correspondence. If you have any questions concerning this matter, please contact me at (620) 364-4117, or Ms. Diane Hooper at (620) 364-4041.

Sincerely,

Diane M. Hooper for

Richard D. Flannigan

RDF/rlt

Enclosures

cc: E. E. Collins (NRC), w/e
V. G. Gaddy (NRC), we
B. K. Singal (NRC), w/e
Senior Resident Inspector (NRC), w/e

TE48
A009
NRR

Wolf Creek Nuclear Operating Corporation

Wolf Creek Generating Station

Docket No: **50-482**

Facility Operating License No: **NPF-42**

Annual Radioactive Effluent Release Report

Report No. 31

Reporting Period: January 1, 2007 - December 31, 2007

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Enclosure III - WCGS Procedure AP 31A-100, Revision 6, "Solid Radwaste Process Control Program"	

EXECUTIVE SUMMARY

This Annual Radioactive Effluent Release Report (Report # **31**) documents the quantities of liquid and gaseous effluents and solid waste released by Wolf Creek Generating Station (WCGS) from January 1, 2007 through December 31, 2007. The format and content of this report are in accordance with Regulatory Guide 1.21, Revision 1, "Measuring, Evaluation, and Reporting Radioactivity in Solid Wastes and Releases of Radioactive Materials in Liquid and Gaseous Effluents from Light-Water-Cooled Nuclear Power Plants." Sections I, II, III, and IV of this report provide information required by NRC Regulatory Guide 1.21 and Section 7.2 of AP 07B-003, "Offsite Dose Calculation Manual" (ODCM).

Section I --- Section I contains, in detail, the quantities of radioactive liquid and gaseous effluents and cumulative dose summaries for 2007, tabulated for each quarter and for yearly totals. Specific ODCM effluent limits and dose limits are also listed in Section I, along with the percentage of the effluent limits actually released and the percentages of the dose limit actually received. No effluent or dose limits were exceeded during 2007.

An elevated release pathway does not exist at WCGS. All airborne releases are considered to be ground level releases. The gaseous pathway dose determination is met by the WCGS ODCM methodology of assigning all gaseous pathways to a hypothetical individual residing at the highest annual X/Q and D/Q location, as specified in the ODCM. This results in a conservative estimate of dose to a member of the public, rather than determining each pathway dose for each release condition. A conservative error of thirty percent has been estimated in the effluent data. As stated above, no ODCM dose limits were exceeded in 2007.

Section II --- Section II includes supplemental information on continuous and batch releases, calculated doses, and solid waste disposal. There were 56 gaseous batch releases in 2007 versus 68 in 2006. There were 35 liquid batch releases in 2007 versus 50 in 2006. WCGS released 0.005 curies in liquid releases during 2007 versus 0.010 curies in 2006, excluding gas and tritium. Continuous release pathways remained the same as previous years and all continuous releases were monitored.

Section III --- Section III documents WCGS meteorological data for wind speed, wind direction, and atmospheric stability.

Section IV --- Section IV documents unplanned and abnormal releases, changes to radwaste treatment systems, land use census, monitoring instruments, radwaste shipments, and storage tank quantities. There were no unplanned, unmonitored releases in 2007.

Changes to the land use census are noted. No changes or events occurred with monitoring instruments, radwaste shipments, and storage units.

Included in this section are corrected pages 6 through 9 of the 2006 Annual Report. There was a software problem where the gross alpha values did not update properly. Curies were listed in the 1st, 3rd and 4th quarters. There were gross alpha curies in only the 2nd and the 4th quarters.

SECTION I

REPORT OF 2007 RADIOACTIVE EFFLUENTS: LIQUID

		Unit	Quarter 1	Quarter 2
A.	Fission and Activation Products			
1.	Total Release (not including tritium, gases, alpha)	Ci	1.45E-03	1.66E-03
2.	Average Diluted Concentration During Period	μCi/ml	8.47E-12	6.18E-12
3.	Percent of Applicable Limit (1)	%	2.89E-02	3.31E-02
B.	Tritium			
1.	Total Release	Ci	2.72E+01	8.99E+01
2.	Average Diluted Concentration During Period	μCi/ml	1.60E-07	3.36E-07
3.	Percent of Applicable Limit (2) (ECL)	%	1.60E-02	3.36E-02
C.	Dissolved and Entrained Gases			
1.	Total Release	Ci	1.32E-05	1.89E-05
2.	Average Diluted Concentration During Period	μCi/ml	7.71E-14	7.05E-14
3.	Percent of Applicable Limit (3)	%	3.85E-08	3.53E-08
D.	Gross Alpha Radioactivity			
1.	Total Release	Ci	0.00E+00	0.00E+00
E.	Volume of Waste Released (prior to dilution)	Liters	8.62E+07	1.18E+08
F.	Volume of Dilution Water Used	Liters	1.70E+11	2.68E+11

NOTES:

- 1) The applicable limit for the WCGS is 5 Curies per year. (Reference 10 CFR 50, Appendix I, "Guides On Design Objectives For Light-Water Cooled Nuclear Power Reactors," Paragraph A.2.) The value is derived by dividing the total release Curies by 5 Curies and then multiplying the result by 100.
- 2) This value is derived by the following formula:

$$\% \text{ of Applicable Limit} = \frac{(\text{Average Diluted Concentration}) (100)}{(\text{MPC or ECL, Appendix B, Table 2 10CFR20})}$$

- 3) This value is derived by the following formula:

$$\% \text{ of Applicable Limit} = \frac{(\text{Average Diluted Concentration}) (100)}{(2E - 04 \text{ from ODCM Section 2.1})}$$

REPORT OF 2007 RADIOACTIVE EFFLUENTS: LIQUID

		Unit	Quarter 3	Quarter 4
A.	Fission and Activation Products			
1.	Total Release (not including tritium, gases, alpha)	Ci	1.16E-03	1.05E-03
2.	Average Diluted Concentration During Period	μCi/ml	4.27E-12	4.34E-12
3.	Percent of Applicable Limit (1)	%	2.31E-02	2.10E-02
B.	Tritium			
1.	Total Release	Ci	2.93E+02	4.13E+02
2.	Average Diluted Concentration During Period	μCi/ml	1.08E-06	1.71E-06
3.	Percent of Applicable Limit (2) (ECL)	%	1.08E-01	1.71E-01
C.	Dissolved and Entrained Gases			
1.	Total Release	Ci	3.98E-04	2.33E-03
2.	Average Diluted Concentration During Period	μCi/ml	1.47E-12	9.62E-12
3.	Percent of Applicable Limit (3)	%	7.35E-07	4.81E-06
D.	Gross Alpha Radioactivity			
1.	Total Release	Ci	0.00E+00	0.00E+00
E.	Volume of Waste Released (prior to dilution)	liters	8.98E+07	8.18E+07
F.	Volume of Dilution Water Used	liters	2.71E+11	2.42E+11

NOTES:

1) The applicable limit for the WCGS is 5 Curies per year. (Reference 10 CFR 50, Appendix I, "Guides On Design Objectives For Light-Water Cooled Nuclear Power Reactors," Paragraph A.2.) The value is derived by dividing the total release Curies by 5 Curies and then multiplying the result by 100.

2) This value is derived by the following formula:

$$\% \text{ of Applicable Limit} = \frac{(\text{Average Diluted Concentration}) (100)}{(\text{MPC or ECL, Appendix B, Table 2, 10CFR20})}$$

3) This value is derived by the following formula:

$$\% \text{ of Applicable Limit} = \frac{(\text{Average Diluted Concentration}) (100)}{(2\text{E} - 04 \text{ from ODCM Section 2.1})}$$

2007 LIQUID EFFLUENTS

Nuclides Released	Unit	Continuous Mode		Batch Mode	
		Quarter 1	Quarter 2	Quarter 1	Quarter 2
H-3	Ci	1.37E+00	1.53E+00	2.59E+01	8.84E+01
Cr-51	Ci	N/A	N/A	N/A	N/A
Mn-54	Ci	<4.30E-02	<5.87E-02	<9.53E-05	7.59E-06
Fe-55	Ci	<8.60E-02	<1.17E-01	<1.91E-04	<4.22E-04
Fe-59	Ci	<4.30E-02	<5.87E-02	<9.53E-05	<2.11E-04
Co-57	Ci	N/A	N/A	2.25E-06	7.37E-06
Co-58	Ci	<4.30E-02	<5.87E-02	1.15E-03	1.16E-03
Co-60	Ci	<4.30E-02	<5.87E-02	3.53E-05	6.75E-05
Zn-65	Ci	<4.30E-02	<5.87E-02	<9.53E-05	1.66E-06
Sr-89	Ci	<4.30E-03	<5.87E-03	<9.53E-06	<2.11E-05
Sr-90	Ci	<4.30E-03	<5.87E-03	<9.53E-06	<2.11E-05
Sr-91	Ci	N/A	N/A	N/A	N/A
Mo-99	Ci	<4.30E-02	<5.87E-02	<9.53E-05	<2.11E-04
Sb-124	Ci	N/A	N/A	3.72E-06	1.89E-06
Sb-125	Ci	N/A	N/A	2.49E-04	3.91E-04
I-131	Ci	<8.60E-02	<1.17E-01	<1.91E-04	<4.22E-04
I-133	Ci	N/A	N/A	N/A	N/A
Cs-134	Ci	<4.30E-02	<5.87E-02	<9.53E-05	<2.11E-04
Cs-136	Ci	N/A	N/A	N/A	N/A
Cs-137	Ci	<4.30E-02	<5.87E-02	4.05E-06	2.08E-05
Ce-141	Ci	<4.30E-02	<5.87E-02	<9.53E-05	<2.11E-04
Ce-144	Ci	<4.30E-02	<5.87E-02	<9.53E-05	<2.11E-04
Na-24	Ci	N/A	N/A	N/A	N/A
Rb-88	Ci	N/A	N/A	N/A	N/A
Nb-95	Ci	N/A	N/A	N/A	N/A
Tc-99M	Ci	N/A	N/A	N/A	N/A
Sn-117M	Ci	N/A	N/A	1.42E-06	N/A
Sb-122	Ci	N/A	N/A	N/A	N/A
Sb-126	Ci	N/A	N/A	N/A	N/A
I-135	Ci	N/A	N/A	N/A	N/A
Gross Alpha	Ci	<8.60E-03	<1.17E-02	<1.91E-05	<4.22E-05
Ar-41	Ci	<8.60E-01	<1.17E+00	<1.91E-03	<4.22E-03
Kr-85M	Ci	<8.60E-01	<1.17E+00	<1.91E-03	<4.22E-03
Kr-85	Ci	<8.60E-01	<1.17E+00	<1.91E-03	<4.22E-03
Kr-87	Ci	<8.60E-01	<1.17E+00	<1.91E-03	<4.22E-03
Kr-88	Ci	<8.60E-01	<1.17E+00	<1.91E-03	<4.22E-03
Xe-131M	Ci	<8.60E-01	<1.17E+00	<1.91E-03	<4.22E-03
Xe-133M	Ci	<8.60E-01	<1.17E+00	<1.91E-03	<4.22E-03
Xe-133	Ci	<8.60E-01	<1.17E+00	1.31E-05	1.89E-05
Xe-135M	Ci	<8.60E-01	<1.17E+00	<1.91E-03	<4.22E-03
Xe-135	Ci	<8.60E-01	<1.17E+00	<1.91E-03	<4.22E-03

NOTE

"Less than" values are calculated using the Lower Limit of Detection (LLD) values listed in Table 2-1 of the ODCM multiplied by the volume of waste discharged during the respective quarter. The "less than" values are not included in the summation for the total release values.

2007 LIQUID EFFLUENTS

Nuclides Released	Unit	Continuous Mode		Batch Mode	
		Quarter 3	Quarter 4	Quarter 3	Quarter 4
H-3	Ci	1.41E+00	2.18E+01	2.92E+02	3.91E+02
Cr-51	Ci	N/A	N/A	N/A	N/A
Mn-54	Ci	<4.46E-02	<4.06E-02	1.47E-06	<2.93E-04
Fe-55	Ci	<8.92E-02	<8.12E-02	<6.43E-04	<5.85E-04
Fe-59	Ci	<4.46E-02	<4.06E-02	<3.21E-04	<2.93E-04
Co-57	Ci	N/A	N/A	3.37E-06	3.47E-06
Co-58	Ci	<4.46E-02	<4.06E-02	3.74E-04	1.98E-04
Co-60	Ci	<4.46E-02	<4.06E-02	1.11E-04	9.51E-05
Zn-65	Ci	<4.46E-02	<4.06E-02	<3.21E-04	<2.93E-04
Rb-88	Ci	N/A	N/A	N/A	N/A
Sr-89	Ci	<4.46E-03	<4.06E-03	<3.21E-05	<2.93E-05
Sr-90	Ci	<4.46E-03	<4.06E-03	<3.21E-05	<2.93E-05
Mo-99	Ci	<4.46E-02	<4.06E-02	<3.21E-04	<2.93E-04
Sn-117M	Ci	N/A	N/A	N/A	<2.93E-04
Sb-124	Ci	N/A	N/A	N/A	<2.93E-04
Sb-125	Ci	N/A	N/A	5.96E-04	7.26E-04
I-131	Ci	<8.92E-02	<8.12E-02	2.67E-05	5.93E-06
I-133	Ci	N/A	N/A	N/A	1.34E-06
I-135	Ci	N/A	N/A	N/A	N/A
Cs-134	Ci	<4.46E-02	<4.06E-02	<3.21E-04	<2.93E-04
Cs-136	Ci	N/A	N/A	<3.21E-04	N/A
Cs-137	Ci	<4.46E-02	<4.06E-02	4.26E-05	1.23E-05
Ba-140	Ci	N/A	N/A	N/A	6.62E-06
Ce-141	Ci	<4.46E-02	<4.06E-02	<3.21E-04	<2.93E-04
Ce-144	Ci	<4.46E-02	<4.06E-02	<3.21E-04	<2.93E-04
Sr-91	Ci	N/A	N/A	N/A	<2.93E-04
Nb-95	Ci	N/A	N/A	N/A	N/A
W-187	Ci	N/A	N/A	N/A	N/A
Gross Alpha	Ci	<8.92E-03	<8.12E-03	<6.43E-05	<5.85E-05
Ar-41	Ci	<8.92E-01	<8.12E-01	<6.43E-03	<5.85E-03
Kr-85M	Ci	<8.92E-01	<8.12E-01	<6.43E-03	<5.85E-03
Kr-85	Ci	<8.92E-01	<8.12E-01	<6.43E-03	<5.85E-03
Kr-87	Ci	<8.92E-01	<8.12E-01	<6.43E-03	<5.85E-03
Kr-88	Ci	<8.92E-01	<8.12E-01	<6.43E-03	<5.85E-03
Xe-131M	Ci	<8.92E-01	<8.12E-01	<6.43E-03	<5.85E-03
Xe-133M	Ci	<8.92E-01	<8.12E-01	<6.43E-03	<5.85E-03
Xe-133	Ci	<8.92E-01	<8.12E-01	3.98E-04	2.33E-03
Xe-135M	Ci	<8.92E-01	<8.12E-01	<6.43E-03	<5.85E-03
Xe-135	Ci	<8.92E-01	<8.12E-01	<6.43E-03	<5.85E-03

NOTE

"Less than" values are calculated using the Lower Limit of Detection (LLD) values listed in Table 2-1 of the ODCM multiplied by the volume of waste discharged during the respective quarter. The "less than" values are not included in the summation for the total release values.

LIQUID CUMULATIVE DOSE SUMMARY (2007) TABLE 1

QUARTER 1 OF 2007 (mrem)	ODCM CALCULATED DOSE	ODCM LIMIT(1)	% OF LIMIT
TOTAL DOSE FOR BONE	1.97E-05	5.00E+00	3.94E-04
TOTAL DOSE FOR LIVER	8.83E-03	5.00E+00	1.77E-01
TOTAL DOSE FOR TOTAL BODY	8.82E-03	1.50E+00	5.88E-01
TOTAL DOSE FOR THYROID	8.80E-03	5.00E+00	1.76E-01
TOTAL DOSE FOR KIDNEY	8.81E-03	5.00E+00	1.76E-01
TOTAL DOSE FOR LUNG	8.80E-03	5.00E+00	1.76E-01
TOTAL DOSE FOR GI-LLI	8.85E-03	5.00E+00	1.77E-01
QUARTER 2 OF 2007 (mrem)			
TOTAL DOSE FOR BONE	7.97E-05	5.00E+00	1.59E-03
TOTAL DOSE FOR LIVER	3.14E-02	5.00E+00	6.27E-01
TOTAL DOSE FOR TOTAL BODY	3.13E-02	1.50E+00	2.09E+00
TOTAL DOSE FOR THYROID	3.12E-02	5.00E+00	6.25E-01
TOTAL DOSE FOR KIDNEY	3.13E-02	5.00E+00	6.26E-01
TOTAL DOSE FOR LUNG	3.13E-02	5.00E+00	6.25E-01
TOTAL DOSE FOR GI-LLI	3.13E-02	5.00E+00	6.26E-01
QUARTER 3 OF 2007 (mrem)			
TOTAL DOSE FOR BONE	1.38E-04	5.00E+00	2.76E-03
TOTAL DOSE FOR LIVER	3.19E-02	5.00E+00	6.38E-01
TOTAL DOSE FOR TOTAL BODY	3.18E-02	1.50E+00	2.12E+00
TOTAL DOSE FOR THYROID	3.17E-02	5.00E+00	6.35E-01
TOTAL DOSE FOR KIDNEY	3.18E-02	5.00E+00	6.35E-01
TOTAL DOSE FOR LUNG	3.17E-02	5.00E+00	6.34E-01
TOTAL DOSE FOR GI-LLI	3.17E-02	5.00E+00	6.34E-01
QUARTER 4 OF 2007 (mrem)			
TOTAL DOSE FOR BONE	4.37E-05	5.00E+00	8.73E-04
TOTAL DOSE FOR LIVER	3.85E-02	5.00E+00	7.69E-01
TOTAL DOSE FOR TOTAL BODY	3.84E-02	1.50E+00	2.56E+00
TOTAL DOSE FOR THYROID	3.84E-02	5.00E+00	7.68E-01
TOTAL DOSE FOR KIDNEY	3.84E-02	5.00E+00	7.68E-01
TOTAL DOSE FOR LUNG	3.84E-02	5.00E+00	7.68E-01
TOTAL DOSE FOR GI-LLI	3.84E-02	5.00E+00	7.68E-01
TOTALS FOR 2007 (mrem)			
TOTAL DOSE FOR BONE	2.81E-04	1.00E+01	2.81E-03
TOTAL DOSE FOR LIVER	1.11E-01	1.00E+01	1.11E+00
TOTAL DOSE FOR TOTAL BODY	1.10E-01	3.00E+00	3.68E+00
TOTAL DOSE FOR THYROID	1.10E-01	1.00E+01	1.10E+00
TOTAL DOSE FOR KIDNEY	1.10E-01	1.00E+01	1.10E+00
TOTAL DOSE FOR LUNG	1.10E-01	1.00E+01	1.10E+00
TOTAL DOSE FOR GI-LLI	1.10E-01	1.00E+01	1.10E+00

1. Based on ODCM Section 2.2, which restricts dose to the whole body to ≤ 1.5 mRem per quarter and 3.0 mRem per year. Dose restriction of any organ is ≤ 5.0 mRem per quarter and 10.0 mRem per year.

LIQUID CUMULATIVE DOSE SUMMARY (2007) TABLE 2

A.	Fission and Activation Products (not including H-3, gases, alpha)	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Total
1.	Total Release - (Ci)	1.45E-03	1.65E-03	1.16E-03	1.05E-03	5.30E-03
2.	Maximum Organ Dose (mRem)	5.54E-05	1.12E-04	1.89E-04	5.88E-05	3.88E-04
3.	Organ Dose Limit (mRem)	5.00E+00	5.00E+00	5.00E+00	5.00E+00	1.00E+01
4.	Percent of Limit	1.11E-03	2.23E-03	3.78E-03	1.18E-03	3.88E-03
B.	Tritium					
1.	Total Release - (Ci)	2.72E+01	8.99E+01	2.93E+02	4.13E+02	8.24E+02
2.	Maximum Organ Dose (mRem)	8.80E-03	3.12E-02	3.17E-02	3.84E-02	1.10E-01
3.	Organ Dose Limit (mRem)	5.00E+00	5.00E+00	5.00E+00	5.00E+00	1.00E+01
4.	Percent of Limit	1.76E-01	6.25E-01	6.34E-01	7.68E-01	1.10E+00

This table is included to show the correlation between Curies released and the associated calculated maximum organ dose. Wolf Creek ODCM methodology is used to calculate the maximum organ dose that assumes that an individual drinks the water and eats the fish from the discharge point. ODCM Section 2.2 organ dose limits are used. The less than values are not included in the summation for the total release values.

REPORT OF 2007 RADIOACTIVE EFFLUENTS: AIRBORNE

	Unit	Quarter 1	Quarter 2
A. Fission and Activation Gases			
1. Total Release	Ci	2.69E-01	2.16E-01
2. Average Release Rate for Period	μCi/sec	3.46E-02	2.75E-02
3. Percent of ODCM Limit (1)	%	3.35E-03	2.81E-03
B. Iodine			
1. Total Release	Ci	0.00E+00	0.00E+00
2. Average Release Rate for Period	μCi/sec	0.00E+00	0.00E+00
3. Percent of Applicable Limit (2)	%	0.00E+00	0.00E+00
C. Particulates			
1. Particulates with Half-lives > 8 days	Ci	0.00E+00	0.00E+00
2. Average Release Rate for Period	μCi/sec	0.00E+00	0.00E+00
3. Percent of ODCM Limit (3)	%	0.00E+00	0.00E+00
4. Gross Alpha Radioactivity	Ci	0.00E+00	0.00E+00
D. Tritium			
1. Total Release	Ci	5.02E+00	1.69E+01
2. Average Release Rate for Period	μCi/sec	6.46E-01	2.15E+00
3. Percent of ODCM Limit (4)	%	5.05E-02	1.61E-01

NOTES:

- 1) The percent of ODCM limit for fission and activation gases is calculated using the following methodology:

$$\% \text{ of ODCM Limit} = \frac{(\text{Qtrly Total Beta Airdose})(100)}{10 \text{ mrad}} \text{ or } \frac{(\text{Qtrly Total Gamma Airdose})(100)}{5 \text{ mrad}}$$

The largest value calculated between Gamma and Beta air dose is listed as the % of ODCM Limit.

- 2) The percent of ODCM limit for iodine is calculated using the following methodology:

$$\% \text{ of ODCM Limit} = \frac{(\text{Total Curies of Iodine-131})(100)}{1 \text{ Curie}}$$

- 3) The percent of ODCM limit for particulates is calculated using the following methodology:

$$\% \text{ of ODCM Limit} = \frac{(\text{Highest Organ Dose Due to Particulates})(100)}{7.5 \text{ mrem}}$$

This type of methodology is used since the Wolf Creek ties release limits to doses rather than curie release rates.

- 4) The percent of ODCM limit for tritium is calculated using the following methodology:

$$\% \text{ of ODCM Limit} = \frac{(\text{Highest Organ Dose Due to H-3})(100)}{7.5 \text{ mrem}}$$

REPORT OF 2007 RADIOACTIVE EFFLUENTS: AIRBORNE

	Unit	Quarter 3	Quarter 4
A. Fission and Activation Gases			
1. Total Release	Ci	1.86E-01	2.61E-01
2. Average Release Rate for Period	μCi/sec	2.34E-02	3.28E-02
3. Percent of ODCM Limit (1)	%	2.39E-03	3.04E-03
B. Iodines			
1. Total Iodine-131	Ci	0.00E+00	0.00E+00
2. Average Release Rate for Period	μCi/sec	0.00E+00	0.00E+00
3. Percent of Applicable Limit (2)	%	0.00E+00	0.00E+00
C. Particulates			
1. Particulates with Half-lives > 8 days	Ci	0.00E+00	0.00E+00
2. Average Release Rate for Period	μCi/sec	0.00E+00	0.00E+00
3. Percent of ODCM Limit (3)	%	0.00E+00	0.00E+00
4. Gross Alpha Radioactivity	Ci	0.00E+00	0.00E+00
D. Tritium			
1. Total Release	Ci	1.51E+01	6.11E+00
2. Average Release Rate for Period	μCi/sec	1.91E+00	7.68E-01
3. Percent of ODCM Limit (4)	%	1.40E-01	5.56E-02

NOTES:

- 1) The percent of ODCM limit for fission and activation gases is calculated using the following methodology:

$$\% \text{ of ODCM Limit} = \frac{(\text{Qtrly Total Beta Airdose})(100)}{10 \text{ mrad}} \text{ or } \frac{(\text{Qtrly Total Gamma Airdose})(100)}{5 \text{ mrad}}$$

The largest value calculated between Gamma and Beta air dose is listed as the % of ODCM Limit.

- 2) The percent of ODCM limit for iodine is calculated using the following methodology:

$$\% \text{ of ODCM Limit} = \frac{(\text{Total Curies of Iodine-131})(100)}{1 \text{ Curie}}$$

- 3) The percent of ODCM limit for particulates is calculated using the following methodology:

$$\% \text{ of ODCM Limit} = \frac{(\text{Highest Organ Dose Due to Particulates})(100)}{7.5 \text{ mrem}}$$

This type of methodology is used since the Wolf Creek ODCM ties release limits to doses rather than curie release rates.

- 4) The percent of ODCM limit for tritium is calculated using the following methodology:

$$\% \text{ of ODCM Limit} = \frac{(\text{Highest Organ Dose Due to H-3})(100)}{7.5 \text{ mrem}}$$

2007 GASEOUS EFFLUENTS

Nuclides Released	Unit	Continuous Mode		Batch Mode	
		Quarter 1	Quarter 2	Quarter 1	Quarter 2
1. Fission and Activation Gases					
Ar-41	Ci	N/A	N/A	2.58E-01	2.16E-01
Kr-85	Ci	N/A	N/A	7.63E-03	N/A
Kr-85M	Ci	N/A	N/A	2.78E-05	N/A
Kr-87	Ci	<1.52E+01	<1.53E+01	5.19E-06	<1.27E-02
Kr-88	Ci	<1.31E+01	<1.32E+01	3.39E-05	<1.09E-02
Xe-131M	Ci	N/A	N/A	N/A	N/A
Xe-133	Ci	<1.11E+01	<1.12E+01	3.03E-03	<9.26E-03
Xe-133M	Ci	<2.26E+01	<2.28E+01	5.60E-05	<1.89E-02
Xe-135	Ci	<3.71E+00	<3.75E+00	6.06E-04	<3.11E-03
Xe-135M	Ci	N/A	N/A	N/A	N/A
Xe-138	Ci	<5.56E+02	<5.62E+02	<5.69E-01	<4.66E-01
Total	Ci	0.00E+00	0.00E+00	2.69E-01	2.16E-01
2. Halogens (Gaseous)					
I-131	Ci	<2.58E-04	<2.61E-04	<2.64E-07	<2.16E-07
I-133	Ci	<2.58E-02	<2.61E-02	<2.64E-05	<2.16E-05
Total	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3. Particulates and Tritium					
H-3	Ci	4.88E+00	1.62E+01	1.38E-01	6.94E-01
Mn-54	Ci	<2.58E-03	<2.61E-03	<2.64E-06	<2.16E-06
Fe-59	Ci	<2.58E-03	<2.61E-03	<2.64E-06	<2.16E-06
Co-58	Ci	<2.58E-03	<2.61E-03	<2.64E-06	<2.16E-06
Co-60	Ci	<2.58E-03	<2.61E-03	<2.64E-06	<2.16E-06
Zn-65	Ci	<2.58E-03	<2.61E-03	<2.64E-06	<2.16E-06
Mo-99	Ci	<2.58E-03	<2.61E-03	<2.64E-06	<2.16E-06
Cs-134	Ci	<2.58E-03	<2.61E-03	<2.64E-06	<2.16E-06
Cs-137	Ci	<2.58E-03	<2.61E-03	<2.64E-06	<2.16E-06
Ce-141	Ci	<2.58E-03	<2.61E-03	<2.64E-06	<2.16E-06
Ce-144	Ci	<2.58E-03	<2.61E-03	<2.64E-06	<2.16E-06
Sr-89	Ci	<2.58E-03	<2.61E-03	<2.64E-06	<2.16E-06
Sr-90	Ci	<2.58E-03	<2.61E-03	<2.64E-06	<2.16E-06
Gross Alpha	Ci	<2.58E-03	<2.61E-03	<2.64E-06	<2.16E-06
Total	Ci	4.88E+01	1.62E+01	1.38E-01	6.94E-01

NOTE

"Less than" values for Noble Gases are calculated using the Lower Limit of Detection (LLD) values obtained at Wolf Creek Generating Station multiplied by the volume of air discharged during the respective quarter. For the Halogens and Particulates the ODCM LLD values are used.

2007 GASEOUS EFFLUENTS

Nuclides Released	Unit	Continuous Mode		Batch Mode	
		Quarter 3	Quarter 4	Quarter 3	Quarter 4
1. Fission and Activation Gases					
Ar-41	Ci	N/A	N/A	1.84E-01	2.28E-01
Kr-85	Ci	N/A	N/A	7.02E-04	7.52E-04
Kr-85M	Ci	N/A	N/A	N/A	N/A
Kr-87	Ci	<1.54E+01	<1.54E+01	<1.09E-02	<1.16E-02
Kr-88	Ci	<1.32E+01	<1.33E+01	<9.39E-03	<1.00E-02
Xe-131M	Ci	N/A	N/A	N/A	N/A
Xe-133	Ci	<1.12E+01	<1.12E+01	7.10E-04	4.33E-04
Xe-133M	Ci	<2.29E+01	<2.29E+01	4.11E-06	4.49E-06
Xe-135	Ci	<3.76E+00	3.22E-02	<2.67E-03	<2.85E-03
Xe-135M	Ci	N/A	N/A	N/A	N/A
Xe-138	Ci	<5.64E+02	<5.64E+02	<4.00E-01	<4.27E-01
Total	Ci	0.00E+00	3.22E-02	1.86E-01	2.29E-01
2. Halogens (Gaseous)					
I-131	Ci	<2.62E-04	<2.62E-04	<1.85E-07	<1.98E-07
I-133	Ci	<2.62E-02	<2.62E-02	<1.85E-05	<1.98E-05
Total	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3. Particulates and Tritium					
H-3	Ci	1.42E+01	5.84E+00	9.14E-01	2.66E-01
Mn-54	Ci	<2.62E-03	<2.62E-03	<1.85E-06	<1.98E-06
Fe-59	Ci	<2.62E-03	<2.62E-03	<1.85E-06	<1.98E-06
Co-58	Ci	<2.62E-03	<2.62E-03	<1.85E-06	<1.98E-06
Co-60	Ci	<2.62E-03	<2.62E-03	<1.85E-06	<1.98E-06
Zn-65	Ci	<2.62E-03	<2.62E-03	<1.85E-06	<1.98E-06
Mo-99	Ci	<2.62E-03	<2.62E-03	<1.85E-06	<1.98E-06
Cs-134	Ci	<2.62E-03	<2.62E-03	<1.85E-06	<1.98E-06
Cs-137	Ci	<2.62E-03	<2.62E-03	<1.85E-06	<1.98E-06
Ce-141	Ci	<2.62E-03	<2.62E-03	<1.85E-06	<1.98E-06
Ce-144	Ci	<2.62E-03	<2.62E-03	<1.85E-06	<1.98E-06
Sr-89	Ci	<2.62E-03	<2.62E-03	<1.85E-06	<1.98E-06
Sr-90	Ci	<2.62E-03	<2.62E-03	<1.85E-06	<1.98E-06
Gross Alpha	Ci	<2.62E-03	<2.62E-03	<1.85E-06	<1.98E-06
Total	Ci	1.42E+01	5.84E+00	9.14E-01	2.66E-01

NOTE

"Less than" values for Noble Gases are calculated using the Lower Limit of Detection (LLD) values obtained at Wolf Creek Generating Station multiplied by the volume of air discharged during the respective quarter. For the Halogens and Particulates, the ODCM LLD values are used.

GASEOUS CUMULATIVE DOSE SUMMARY (2007) TABLE 1

QUARTER 1 OF 2007 (mRem)	ODCM CALCULATED DOSE	ODCM LIMIT (1)	% OF LIMIT
TOTAL DOSE FOR BONE	0.00E+00	7.50E+00	0.00E+00
TOTAL DOSE FOR LIVER	3.55E-03	7.50E+00	4.73E-02
TOTAL DOSE FOR TOTAL BODY	3.55E-03	7.50E+00	4.73E-02
TOTAL DOSE FOR THYROID	3.55E-03	7.50E+00	4.73E-02
TOTAL DOSE FOR KIDNEY	3.55E-03	7.50E+00	4.73E-02
TOTAL DOSE FOR LUNG	3.55E-03	7.50E+00	4.73E-02
TOTAL DOSE FOR GI-LLI	3.55E-03	7.50E+00	4.73E-02
QUARTER 2 OF 2007 (mRem)			
TOTAL DOSE FOR BONE	0.00E+00	7.50E+00	0.00E+00
TOTAL DOSE FOR LIVER	1.19E-02	7.50E+00	1.59E-01
TOTAL DOSE FOR TOTAL BODY	1.19E-02	7.50E+00	1.59E-01
TOTAL DOSE FOR THYROID	1.19E-02	7.50E+00	1.59E-01
TOTAL DOSE FOR KIDNEY	1.19E-02	7.50E+00	1.59E-01
TOTAL DOSE FOR LUNG	1.19E-02	7.50E+00	1.59E-01
TOTAL DOSE FOR GI-LLI	1.19E-02	7.50E+00	1.59E-01
QUARTER 3 OF 2007 (mRem)			
TOTAL DOSE FOR BONE	0.00E+00	7.50E+00	0.00E+00
TOTAL DOSE FOR LIVER	1.07E-02	7.50E+00	1.43E-01
TOTAL DOSE FOR TOTAL BODY	1.07E-02	7.50E+00	1.43E-01
TOTAL DOSE FOR THYROID	1.07E-02	7.50E+00	1.43E-01
TOTAL DOSE FOR KIDNEY	1.07E-02	7.50E+00	1.43E-01
TOTAL DOSE FOR LUNG	1.07E-02	7.50E+00	1.43E-01
TOTAL DOSE FOR GI-LLI	1.07E-02	7.50E+00	1.43E-01
QUARTER 4 OF 2007 (mRem)			
TOTAL DOSE FOR BONE	0.00E+00	7.50E+00	0.00E+00
TOTAL DOSE FOR LIVER	4.32E-03	7.50E+00	5.76E-02
TOTAL DOSE FOR TOTAL BODY	4.32E-03	7.50E+00	5.76E-02
TOTAL DOSE FOR THYROID	4.32E-03	7.50E+00	5.76E-02
TOTAL DOSE FOR KIDNEY	4.32E-03	7.50E+00	5.76E-02
TOTAL DOSE FOR LUNG	4.32E-03	7.50E+00	5.76E-02
TOTAL DOSE FOR GI-LLI	4.32E-03	7.50E+00	5.76E-02
TOTALS FOR 2007 (mRem)			
TOTAL DOSE FOR BONE	0.00E+00	1.50E+01	0.00E+00
TOTAL DOSE FOR LIVER	3.05E-02	1.50E+01	2.03E-01
TOTAL DOSE FOR TOTAL BODY	3.05E-02	1.50E+01	2.03E-01
TOTAL DOSE FOR THYROID	3.05E-02	1.50E+01	2.03E-01
TOTAL DOSE FOR KIDNEY	3.05E-02	1.50E+01	2.03E-01
TOTAL DOSE FOR LUNG	3.05E-02	1.50E+01	2.03E-01
TOTAL DOSE FOR GI-LLI	3.05E-02	1.50E+01	2.03E-01

1. Based on Wolf Creek ODCM Section 3.2.2 which restricts dose during any calendar quarter to less than or equal to 7.5 mRem to any organ and during any calendar year to less than or equal to 15 mRem to any organ.

GASEOUS CUMULATIVE DOSE SUMMARY (2007) TABLE 2

Nuclides Released		Quarter 1	Quarter 2	Quarter 3	Quarter 4	Total
A. Fission and Activation Gases						
1.	Total Release - (Ci)	2.69E-01	2.16E-01	1.86E-01	2.61E-01	9.32E-01
2.	Total Gamma Air dose (mRad)	1.67E-04	1.40E-04	1.20E-04	1.52E-04	5.79E-04
3.	Gamma Air dose Limit (mRad)	5.00E+00	5.00E+00	5.00E+00	5.00E+00	1.00E+01
4.	Percent of Gamma Air dose Limit	3.35E-03	2.81E-03	2.39E-03	3.04E-03	5.79E-03
5.	Total Beta Air dose (mRad)	6.04E-05	4.95E-05	4.23E-05	5.77E-05	2.10E-04
6.	Beta Air dose Limit (mRad)	1.00E+01	1.00E+01	1.00E+01	1.00E+01	2.00E+01
7.	Percent of Beta Air dose Limit (mRad)	6.04E-04	4.95E-04	4.23E-04	5.77E-04	1.05E-03
B. Particulates						
1.	Total Particulates (Ci)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.	Maximum Organ Dose (mRem)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3.	Organ Dose Limit (mRem)	0.00E+00	7.50E+00	7.50E+00	7.50E+00	1.50E+01
4.	Percent of Limit	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
C. Tritium						
1.	Total Release (Ci)	5.02E+00	1.69E+01	1.51E+01	6.11E+00	4.32E+01
2.	Maximum Organ Dose (mRem)	3.79E-03	1.20E-02	1.05E-02	4.17E-03	3.05E-02
3.	Organ Dose Limit (mRem)	7.50E+00	7.50E+00	7.50E+00	7.50E+00	1.50E+01
4.	Percent of Limit	5.05E-02	1.61E-01	1.40E-01	5.56E-02	2.03E-01
D. Iodine						
1.	Total I-131, I-133 (Ci)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.	Maximum Organ Dose (mRem)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3.	Organ Dose Limit (mRem)	7.50E+00	7.50E+00	7.50E+00	7.50E+00	1.50E+01
4.	Percent of Limit	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

This table is included to show the correlation between Curies released and the associated calculated maximum organ dose. The maximum organ dose is calculated using Wolf Creek ODCM methodology which assumes that an individual actually resides at the release point. ODCM Section 3.2.2 organ dose limits are used.

SECTION II

SUPPLEMENTAL INFORMATION

1. Offsite Dose Calculation Manual Limits

A. For liquid waste effluents

- A.1 The concentration of radioactive material released in liquid effluents to UNRESTRICTED AREAS shall be limited to the concentrations 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 concentration shall be limited to 2×10^{-4} microCuries/ml total activity.
- A.2 The dose or dose commitment to a MEMBER OF THE PUBLIC from radioactive materials in liquid effluents released, from each unit, to UNRESTRICTED AREAS shall be limited:
 - a. During any calendar quarter to less than or equal to 1.5 mrem to the whole body and to less than or equal to 5 mrem to any organ, and
 - b. During any calendar year to less than or equal to 3 mrem, to the whole body and to less than or equal to 10 mrem to any organ.

B. For gaseous waste effluents

- B.1 The dose rate due to radioactive material released in gaseous effluents from the site to area at and beyond the SITE BOUNDARY shall be limited to the following:
 - a. For noble gases: Less than or equal to 500 mrem/yr to the whole body and less than or equal to 3000 mrem/yr to the skin, and
 - b. For Iodine-131, Iodine-133, tritium, and all radionuclides in particulate form with half-lives greater than 8 days: Less than or equal to 1500 mrem/yr to any organ.
- B.2 The air dose due to noble gases released in gaseous effluents, from each unit, to areas at and beyond the SITE BOUNDARY shall be limited to the following:
 - a. During any calendar quarter: Less than or equal to 5 mrad for gamma radiation and less than or equal to 10 mrad for beta radiation, and
 - b. During any calendar year: Less than or equal to 10 mrad for gamma radiation and less than or equal to 20 mrad for beta radiation.
- B.3 The dose from Iodine-131, Iodine-133, tritium, and a radionuclide in particulate form with half-lives greater than 8 days in gaseous effluents released to area at and beyond the SITE BOUNDARY shall be limited to the following:
 - a. During any calendar quarter: Less than or equal to 7.5 mrem to any organ, and
 - b. During any calendar year: Less than or equal to 15 mrem to any organ.

2. Effluent Concentration Limits (ECLs)

Water - covered in Section I.A.

Air - covered in Section I.B.

3. Average Energy

Average energy of fission and activation gaseous effluents is not applicable. See ODCM Section 3.1 for the methodology used in determining the release rate limits from noble gas releases.

4. Measurements and Approximations of Total Radioactivity

A. Liquid Effluents

Liquid Release Type	Sampling Frequency	Method of Analysis	Type of Activity Analysis
1. Batch Waste Release Tank	P Each Batch	P.H.A.	Principal Gamma Emitters
	P Each Batch	P.H.A.	I-131
	P One Batch/M	P.H.A.	Dissolved and Entrained Gases (Gamma Emitters)
	P Each Batch	L.S. S.A.C.	H-3 Gross Alpha
2. Continuous Releases	P Each Batch	O.S.L.	Sr-89, Sr-90
	Daily Grab Sample	P.H.A.	Principal Gamma Emitters
	M Grab Sample	P.H.A.	I-131
	Daily Grab Sample	P.H.A.	Dissolved and entrained Gases (Gamma Emitters)
a. Steam Generator Blowdown	Daily Grab Sample	L.S.	H-3
	Daily Grab Sample	S.A.C.	Gross Alpha
	Daily Grab Sample	O.S.L.	Sr-89, Sr-90
	Daily Grab Sample	O.S.L.	Fe-55
b. Turbine Building Sump/Waste Water Treatment	Daily Grab Sample	L.S.	H-3
	Daily Grab Sample	S.A.C.	Gross Alpha
	Daily Grab Sample	O.S.L.	Sr-89, Sr-90
	Daily Grab Sample	O.S.L.	Fe-55
c. Lime Sludge Pond	Daily Grab Sample	L.S.	H-3
	Daily Grab Sample	S.A.C.	Gross Alpha
	Daily Grab Sample	O.S.L.	Sr-89, Sr-90
	Daily Grab Sample	O.S.L.	Fe-55

P = prior to each batch

M = monthly

L. S. = Liquid scintillation detector

S.A.C. = scintillation alpha counter

O.S.L. = performed by an offsite laboratory

P.H.A. = gamma spectrum pulse height analysis using a High Purity Germanium detector

B. Gaseous Waste Effluents

Gaseous, Release Type	Sampling Frequency	Method of Analysis	Type of Activity Analysis
Waste Gas Decay Tank	P Each Tank Grab Sample	P.H.A.	Principal Gamma Emitters
Containment Purge or Vent	P Each Purge Grab Sample	P.H.A. Gas Bubbler and L.S.	Principal Gamma Emitters H-3 (oxide)
Unit Vent	M Grab Sample	P.H.A. Gas Bubbler and L.S.	Principal Gamma Emitters H-3 (oxide)
Radwaste Building Vent	M Grab Sample	P.H.A	Principal Gamma Emitters
For Unit Vent and Radwaste Building Vent release types listed above	Continuous	P.H.A.	I-131 I-133
	Continuous	P.H.A. Particulate Sample	Principal Gamma Emitters
	Continuous Composite	S.A.C. Particulate Sample	Gross Alpha
	Continuous	O.S.L. Composite Particulate Sample	Sr-89, Sr-90

P = prior to each batch**M = monthly****L.S. = Liquid scintillation detector****S.A.C. = scintillation alpha counter****O.S.L. = performed by an offsite laboratory****P.H.A. = gamma spectrum pulse height analysis using a High Purity Germanium detector**

5. Batch Releases

A batch release is the discontinuous release of gaseous or liquid effluents, which takes place over a finite period of time, usually hours or days.

There were 56 gaseous batch releases during the reporting period. The longest gaseous batch release lasted 856 minutes, while the shortest lasted 79 minutes. The average release lasted 157 minutes with a total gaseous batch release time of 8,876 minutes.

There were 35 liquid batch releases during the reporting period. The longest liquid batch release lasted 196 minutes, while the shortest lasted 78 minutes. The average release lasted 126 minutes with a total liquid batch release time of 4,394 minutes.

6. Continuous Releases

A continuous release is a release of gaseous or liquid effluent, which is essentially uninterrupted for extended periods during normal operation of the facility. Four liquid release pathways were designated as continuous releases during this reporting period: Steam Generator Blowdown, Turbine Building Sump, Waste Water Treatment, and Lime Sludge Pond. Two gas release pathways were designated as continuous releases: Unit Vent and Radwaste Building Vent.

7. Doses to a Member of the Public from Activities Inside the Site Boundary

Four activities by members of the public were considered in this evaluation: personnel making deliveries to the plant, workers at the William Allen White Building located outside of the protected area boundary, the use of the access road south of the Radwaste Building, and public use of the cooling lake during times when fishing was allowed. The dose calculated for the maximum exposed individual for these four activities was as follows:

Plant Deliveries	3.29E-01 mRem
William Allen White Building Workers	7.24E-03 mRem
Access Road Users	3.38E-03 mRem
Lake Use	4.37E-02 mRem

The plant delivery calculations were based on deliveries 3 hours per week for 50 weeks per year. The William Allen White Building occupancy was based on normal working hours of 2000 per year. The usage factor for the access road south of the Radwaste Building was 25 hours per year. The dose to fishermen on the lake was based upon 3,648 hours (12 hours a day for 304 days, based on the number of days that the lake was open to fisherman). Pathways used in the calculation were gaseous inhalation, submersion, and ground plane. All calculations were performed in accordance with the methodology and parameters in the ODCM.

2007 EFFLUENT CONCENTRATION LIMITS

<u>Nuclides</u>	<u>Curies</u>	<u>Average Diluted Concentration ($\mu\text{Ci/ml}$)</u>	<u>10 CFR 20 ECL ($\mu\text{Ci/ml}$)</u>	<u>% of ECL</u>
H-3	8.23E+02	8.66E-07	1.00E-03	8.66E-02
Cr-51	N/A	N/A	5.00E-04	N/A
Mn-54	9.06E-06	9.53E-15	3.00E-05	3.18E-08
Mn-56	N/A	N/A	7.00E-05	N/A
Co-57	1.65E-05	1.74E-14	6.00E-05	2.90E-08
Co-58	2.88E-03	3.03E-12	2.00E-05	1.52E-05
Fe-59	N/A	N/A	1.00E-05	N/A
Co-60	3.09E-04	3.25E-13	3.00E-06	1.08E-05
Sb-124	5.61E-06	5.90E-15	7.00E-06	8.43E-08
Sb-125	1.96E-03	2.06E-12	3.00E-05	6.87E-06
I-131	3.26E-05	3.43E-14	1.00E-06	3.43E-06
I-133	1.34E-06	1.41E-15	7.00E-06	2.01E-08
I-135	N/A	N/A	3.00E-05	N/A
Ce-141	N/A	N/A	3.00E-05	N/A
Cs-134	N/A	N/A	9.00E-07	N/A
Cs-136	N/A	N/A	6.00E-06	N/A
Cs-137	7.98E-05	8.39E-14	1.00E-06	8.39E-06
Nb-97	N/A	N/A	3.00E-04	N/A
Ba-139	N/A	N/A	2.00E-04	N/A
Ba-140	6.62E-06	6.96E-15	8.00E-06	8.70E-08
Rb-88	N/A	N/A	4.00E-04	N/A
Sn-117M	1.42E-06	1.49E-15	1.00E-08	1.49E-05
Sb-122	N/A	N/A	1.00E-05	N/A
Sb-126	N/A	N/A	7.00E-06	N/A
Na-24	N/A	N/A	5.00E-05	N/A
Nb-95	N/A	N/A	3.00E-05	N/A
Tc-99M	N/A	N/A	1.00E-03	N/A
Sr-91	N/A	N/A	2.00E-05	N/A
Zn-65	1.66E-06	1.75E-15	5.00E-06	3.50E-08
W-187	N/A	N/A	3.00E-05	N/A
Ar-41	N/A	N/A	2.00E-04	N/A
Kr-85	N/A	N/A	2.00E-04	N/A
Kr-85M	N/A	N/A	2.00E-04	N/A
Kr-88	N/A	N/A	2.00E-04	N/A
Xe-131M	N/A	N/A	2.00E-04	N/A
Xe-133M	N/A	N/A	2.00E-04	N/A
Xe-133	2.76E-03	2.90E-12	2.00E-04	1.45E-06
Xe-135	N/A	N/A	2.00E-04	N/A
Xe-138	N/A	N/A	2.00E-04	N/A

**EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT
2007 SOLID WASTE SHIPMENTS**

A. SOLID RADWASTE SHIPPED OFFSITE FOR BURIAL OR DISPOSAL (Not irradiated fuel)

1. Type of Waste	Unit	1- Year Period	Est. Total Error %
a. Spent resins, filter sludges evaporator bottoms, etc.	m3* Ci	1.32E+01** 1.63E+02	2.50E+01
b. Dry compressible waste, contaminated equip. etc.	m3* Ci	2.11E+02** 1.37E+00	2.50E+01
c. Irradiated components, control rods, etc.	m3* Ci	0.00E+00 0.00E+00	2.50E+01
d. Other	m3* Ci	0.00E+00 0.00E+00	2.50E+01

*m3 = cubic meters ** This is the volume sent offsite for volume reduction, prior to disposal.

2. Estimate of Major Nuclide Composition (by type of waste).

[Nuclides listed with % abundance greater than 10 %]

a. Spent resin, filter sludges, evaporator bottoms, etc.

Nuclide Name	Percent Abundance	Curies
Fe-55	30	4.90E+01
Ni-63	39	6.35E+01
Co-58	17	2.77E+01

b. Dry compressible waste, contaminated equipment, etc.

Nuclide Name	Percent Abundance	Curies
Fe-55	24	3.28E-01
Ni-63	20	2.70E-01
H-3	44	6.00E-01

Steam Generator Blowdown resin shipped for DAW.

c. Irradiated components, control rods, etc. - None

d. Other - None

3. Solid Waste Disposition

<u>Number of Shipments</u>	<u>Mode of Transportation</u>	<u>Destination</u>
3	Truck (Hittman Transport Services)	Energy Solutions, Oak Ridge, TN
4	Truck (Hittman Transport Services)	Studsvik Processing Facility, LLC; Erwin, TN
1	Truck (Studsvik Logistics)	RACE, LLC; Memphis, TN

4. Class of Solid Waste

- a. Class A, Class B, Class C- Corresponding to 2a
- b. Class A - Corresponding to 2b
- c. Not applicable
- d. Not applicable

5. Type of Container

- a. LSA (General Design), Type A, Type B - corresponding to 2a
- b. LSA (General Design) - corresponding to 2b
- c. Not applicable
- d. Not applicable

6. Solidification Agent

- a. Not applicable
- b. Not applicable
- c. Not applicable
- d. Not applicable

B. IRRADIATED FUEL SHIPMENTS (Disposition)

No irradiated fuel shipments occurred during the 2007 period.

SECTION III

HOURS AT EACH WIND SPEED AND DIRECTION

This section documents WCGS meteorological data for wind speed, wind direction, and atmospheric stability.

The meteorological data supplied in the following tables covers the period from January 1, 2007, through December 31, 2007, and indicates the number of hours at each wind speed and direction for each stability class. All gaseous releases at the WCGS are ground level releases.

Wolf Creek Station did meet Regulatory Guide 1.23 requirement for data recovery and had a 90.90% meteorological data recovery for 2007.

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD: JANUARY 1 THROUGH DECEMBER 31, 2007

STABILITY CLASS: A

ELEVATION: 10 METERS

WIND DIRECTION	WIND SPEED (mph)						TOTAL
	1-3	4-7	8-12	13-18	19-24	>24	
N	1.50	11.50	25.25	15.50	5.25	3.00	62.00
NNE	3.00	9.75	18.25	6.50	2.00	0.50	40.00
NE	3.25	14.25	16.50	0.25	0.00	0.00	34.25
ENE	1.50	14.25	9.50	1.50	0.00	0.00	26.75
E	0.25	11.00	18.75	1.50	0.00	0.00	31.50
ESE	1.25	8.50	17.00	1.75	0.00	0.00	28.50
SE	0.75	11.50	21.00	10.25	0.00	0.00	43.50
SSE	0.75	15.50	65.75	33.00	10.00	2.75	127.75
S	1.00	16.50	86.25	97.00	26.75	5.75	233.25
SSW	0.25	11.25	57.00	85.50	15.00	2.50	171.50
SW	1.25	10.75	38.50	13.50	0.75	0.25	65.00
WSW	2.00	11.00	22.25	6.25	0.00	0.75	42.25
W	0.75	15.75	14.50	18.75	0.25	0.00	50.00
WNW	1.00	13.50	17.75	10.50	4.50	8.25	55.50
NW	0.75	12.25	20.25	22.00	7.00	3.00	65.25
NNW	1.00	14.00	22.25	24.50	21.25	6.50	89.50
TOTAL	18.75	201.25	470.75	348.25	92.75	33.25	1166.50

PERIOD OF CALM
(HOURS): 0

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD: JANUARY 1 THROUGH DECEMBER 31, 2007

STABILITY CLASS: B

ELEVATION: 10 METERS

WIND DIRECTION	WIND SPEED (mph)						TOTAL
	1-3	4-7	8-12	13-18	19-24	>24	
N	0.00	6.25	13.00	7.50	4.25	0.50	31.50
NNE	2.00	8.75	10.75	2.25	1.00	0.00	24.75
NE	2.75	10.00	3.50	0.50	0.00	0.00	16.75
ENE	0.00	7.75	3.25	1.00	0.00	0.00	12.00
E	1.25	12.25	6.00	1.00	0.00	0.00	20.50
ESE	0.75	8.25	6.25	0.00	0.00	0.00	15.25
SE	1.00	6.25	8.75	1.00	0.00	0.25	17.25
SSE	0.25	14.50	17.00	6.50	2.50	0.50	41.25
S	1.00	16.75	34.75	19.75	6.75	2.00	81.00
SSW	0.75	6.25	19.75	17.75	4.00	0.50	49.00
SW	0.50	4.00	9.25	3.00	0.00	0.75	17.50
WSW	1.00	5.25	5.00	2.75	1.00	1.75	16.75
W	0.75	4.50	4.00	2.25	0.25	0.25	12.00
WNW	0.50	3.00	2.25	2.00	1.00	2.00	10.75
NW	0.50	2.50	9.50	2.25	3.00	0.50	18.25
NNW	1.25	4.00	10.50	5.00	4.75	0.00	25.50
TOTAL	14.25	120.25	163.50	74.50	28.50	9.00	410.00

PERIOD OF CALM
(HOURS): 0

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD: JANUARY 1 THROUGH DECEMBER 31, 2007

STABILITY CLASS: C

ELEVATION: 10 METERS

WIND DIRECTION	WIND SPEED (mph)						TOTAL
	1-3	4-7	8-12	13-18	19-24	>24	
N	1.25	6.75	10.75	6.75	4.00	1.25	30.75
NNE	2.50	8.50	10.25	6.25	0.50	0.00	28.00
NE	0.25	5.25	3.75	0.75	0.00	0.00	10.00
ENE	1.00	8.00	2.00	0.25	0.00	0.00	11.25
E	1.25	15.00	7.50	1.25	0.25	0.00	25.25
ESE	1.25	11.00	4.50	0.00	0.00	0.00	16.75
SE	1.50	8.50	7.00	1.25	0.00	0.00	18.25
SSE	1.50	22.25	15.50	7.75	3.25	0.50	50.75
S	0.50	16.00	26.75	15.00	6.75	2.25	67.25
SSW	0.25	6.25	21.25	14.50	7.50	0.75	50.50
SW	0.50	6.00	6.00	1.75	1.00	0.25	15.50
WSW	1.25	3.75	4.50	3.50	1.50	0.50	15.00
W	0.50	2.50	3.50	1.50	0.00	0.00	8.00
WNW	2.00	2.50	2.50	3.25	2.00	1.25	13.50
NW	1.50	2.25	6.25	1.75	3.00	1.50	16.25
NNW	1.50	5.75	11.75	4.25	4.75	0.50	28.50
TOTAL	17.25	130.25	143.75	69.75	34.50	8.75	405.50

PERIOD OF CALM
(HOURS): 0

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD: JANUARY 1 THROUGH DECEMBER 31, 2007

STABILITY CLASS: D

ELEVATION: 10 METERS

WIND DIRECTION	WIND SPEED (mph)						TOTAL
	1-3	4-7	8-12	13-18	19-24	>24	
N	8.00	47.25	78.50	76.75	22.25	5.50	238.25
NNE	10.00	47.75	38.50	19.75	2.25	0.75	119.00
NE	12.25	56.25	62.75	3.25	0.00	0.00	134.50
ENE	10.00	58.75	40.75	8.50	0.25	0.00	118.25
E	8.00	58.75	57.25	18.25	0.50	0.00	142.75
ESE	6.75	52.25	32.25	8.75	0.25	0.00	100.25
SE	9.25	48.00	74.00	21.50	1.00	0.00	153.75
SSE	9.25	62.50	126.75	64.75	29.50	2.75	295.50
S	7.50	57.25	183.00	149.50	39.25	12.00	448.50
SSW	5.00	34.25	97.75	69.50	16.25	3.75	226.50
SW	7.50	39.50	25.75	6.75	1.25	0.50	81.25
WSW	5.00	25.25	23.75	11.75	3.00	0.75	69.50
W	3.50	17.50	29.25	24.75	0.50	0.25	75.75
WNW	5.75	14.75	33.00	31.25	15.25	4.00	104.00
NW	5.50	21.00	76.75	41.75	7.50	5.00	157.50
NNW	8.75	40.75	76.75	92.75	17.75	5.00	241.75
TOTAL	114.00	681.75	1056.75	649.50	156.75	40.25	2707.00

PERIOD OF CALM
(HOURS): 0.25

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD: JANUARY 1 THROUGH DECEMBER 31, 2007

STABILITY CLASS: E

ELEVATION: 10 METERS

WIND DIRECTION	WIND SPEED (mph)						TOTAL
	1-3	4-7	8-12	13-18	19-24	>24	
N	14.25	29.50	37.50	18.50	0.25	0.00	100.00
NNE	12.75	34.25	19.75	7.75	1.00	0.00	75.50
NE	23.00	33.00	10.50	1.50	0.00	0.00	68.00
ENE	7.75	40.00	31.00	3.75	0.00	0.00	82.50
E	14.50	67.25	25.25	9.50	0.00	0.00	116.50
ESE	16.75	79.00	29.25	8.75	0.00	0.00	133.75
SE	15.25	80.50	69.25	22.75	4.75	0.75	193.25
SSE	9.25	97.25	170.50	61.00	18.50	3.25	359.75
S	7.50	68.50	138.50	69.50	24.75	4.50	313.25
SSW	8.25	48.50	73.75	35.00	11.50	1.25	178.25
SW	7.25	58.25	19.50	9.00	5.00	0.25	99.25
WSW	4.25	21.50	20.75	2.75	0.50	0.25	50.00
W	3.00	23.50	29.25	2.25	0.00	0.00	58.00
WNW	5.25	20.50	29.00	1.50	0.00	0.00	56.25
NW	3.50	48.25	43.00	11.50	0.50	0.00	106.75
NNW	9.00	37.25	39.25	13.25	0.75	0.00	99.50
TOTAL	147.25	787.00	786.00	278.25	67.50	10.25	2090.50

PERIOD OF CALM
(HOURS): 1.75

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD: JANUARY 1 THROUGH DECEMBER 31, 2007

STABILITY CLASS: F

ELEVATION: 10 METERS

WIND DIRECTION	WIND SPEED (mph)						TOTAL
	1-3	4-7	8-12	13-18	19-24	>24	
N	12.75	30.50	16.00	0.00	0.00	0.00	59.25
NNE	22.25	26.75	5.25	0.00	0.00	0.00	54.25
NE	18.25	18.00	0.50	0.00	0.00	0.00	36.75
ENE	9.75	21.00	2.25	0.75	0.00	0.00	33.75
E	15.00	45.00	4.50	0.25	0.00	0.00	64.75
ESE	12.75	55.00	7.50	1.00	0.00	0.00	76.25
SE	13.00	85.50	8.50	1.25	0.00	0.00	108.25
SSE	6.00	57.50	27.50	3.00	0.00	0.00	94.00
S	5.75	23.00	28.50	2.75	0.25	0.00	60.25
SSW	5.25	14.75	9.25	1.75	0.25	0.00	31.25
SW	7.75	16.50	1.50	2.25	0.25	0.00	28.25
WSW	1.50	5.75	0.00	0.25	0.00	0.00	7.50
W	3.00	5.50	2.00	0.00	0.00	0.00	10.50
WNW	4.25	5.75	0.75	0.00	0.00	0.00	10.75
NW	4.25	21.00	2.75	0.00	0.00	0.00	28.00
NNW	6.50	30.25	10.50	0.00	0.00	0.00	47.25
TOTAL	135.25	461.75	127.25	13.25	0.75	0.00	751.00

PERIOD OF CALM

(HOURS): 2.25

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD: JANUARY 1 THROUGH DECEMBER 31, 2007

STABILITY CLASS: G

ELEVATION: 10 METERS

WIND DIRECTION	WIND SPEED (mph)						TOTAL
	1-3	4-7	8-12	13-18	19-24	>24	
N	9.00	26.75	3.75	0.00	0.00	0.00	39.50
NNE	14.25	37.25	4.75	0.00	0.00	0.00	56.25
NE	16.00	24.75	0.00	0.00	0.00	0.00	40.75
ENE	7.25	23.75	0.50	0.00	0.00	0.00	31.50
E	8.50	37.25	0.25	0.00	0.00	0.00	46.00
ESE	9.25	44.50	4.75	0.00	0.00	0.00	58.50
SE	3.75	31.25	1.00	0.00	0.25	0.00	36.25
SSE	4.00	14.75	7.75	3.00	0.50	0.00	30.00
S	1.00	3.50	4.25	1.25	1.00	0.00	11.00
SSW	1.75	1.50	1.00	0.00	0.00	0.00	4.25
SW	3.50	4.25	3.00	0.00	0.00	0.00	10.75
WSW	2.00	2.25	0.00	0.00	0.00	0.00	4.25
W	1.75	0.50	0.25	0.00	0.00	0.00	2.50
WNW	2.75	2.00	0.75	0.00	0.00	0.00	5.50
NW	7.25	15.25	0.50	0.00	0.00	0.00	23.00
NNW	7.25	16.75	1.75	0.00	0.00	0.00	25.75
TOTAL	90.25	286.25	34.25	4.25	1.75	0.00	425.75

PERIOD OF CALM
(HOURS): 2.00

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD: JANUARY 1 THROUGH DECEMBER 31, 2007

STABILITY CLASS: ALL

ELEVATION: 10 METERS

WIND DIRECTION	WIND SPEED (mph)						TOTAL
	1-3	4-7	8-12	13-18	19-24	>24	
N	46.75	158.50	184.75	125.00	36.00	10.25	561.25
NNE	66.75	173.00	107.50	42.50	6.75	1.25	397.75
NE	75.75	161.50	97.50	6.25	0.00	0.00	341.00
ENE	37.25	173.50	89.25	15.75	0.25	0.00	316.00
E	48.75	246.50	119.50	31.75	0.75	0.00	447.25
ESE	48.75	258.50	101.50	20.25	0.25	0.00	429.25
SE	44.50	271.50	189.50	58.00	6.00	1.00	570.50
SSE	31.00	284.25	430.75	179.00	64.25	9.75	999.00
S	24.25	201.50	502.00	354.75	105.50	26.50	1214.50
SSW	21.50	122.75	279.75	224.00	54.50	8.75	711.25
SW	28.25	139.25	103.50	36.25	8.25	2.00	317.50
WSW	17.00	74.75	76.25	27.25	6.00	4.00	205.25
W	13.25	69.75	82.75	49.50	1.00	0.50	216.75
WNW	21.50	62.00	86.00	48.50	22.75	15.50	256.25
NW	23.25	122.50	159.00	79.25	21.00	10.00	415.00
NNW	35.25	148.75	172.75	139.75	49.25	12.00	557.75
TOTAL	583.75	2668.50	2782.25	1437.75	382.50	101.50	7956.25
PERIOD OF CALM				Hours of			
(HOURS): 6.25				Missing			
				Data:	796.75		

SECTION IV

ADDITIONAL INFORMATION

1. **Unplanned or Abnormal Releases**

No unplanned, unmonitored release occurred in 2007. See Section II, Additional Information.

2. **Offsite Dose Calculation Manual (ODCM)**

The ODCM is in the form of two separate Wolf Creek Nuclear Operating Corporation (WCNOC) administrative procedures. One of these procedures, the WCNOC "Offsite Dose Calculation Manual", AP 07B-003, Revision 6, is included with this report as Attachment I. The other procedure, "Offsite Dose Calculation Manual (Radiological Environmental Monitoring Program)", AP 07B-004, Revision 14, is included with this report as Attachment II.

3. **Major Changes to Liquid, Solid, or Gaseous Radioactive Waste Treatment Systems**

Change Package #10399, to replace the Waste Gas Hydrogen and Oxygen Analyzers in the Gaseous Radwaste System, was completed in 2007. One train of the new Hydrogen and Oxygen Analyzer Rack was installed in September 2006. The other train was installed in February 2007. The previous analyzers were not designed to compensate for the presence of Helium, which caused erroneously high readings. It was necessary for Radwaste Treatment Systems personnel to be in constant attendance during multiple evolutions. In addition the previous analyzers were obsolete to the point that vendor assistance was minimal and there were no parts available for repair. The new analyzers are able to discriminate between Helium and Hydrogen, making operation of the system easier and more efficient.

Change Package #12092, issued 2/23/2007, allowed removal of the internal bladder from the Waste Evaporator Condensate Tank. The modification is scheduled for implementation in 2008. The bladder was found to be torn during an inspection and Engineering determined it was more cost effective to remove the bladder rather than replace it. The Waste Evaporator Condensate Tank previously stored recyclable water (Reactor Makeup Water grade) and the bladder was necessary to prevent oxygen intrusion into the water. The function of the Waste Evaporator Condensate Tank was later changed to store non-recyclable water (floor drain, waste hold-up tank, etc.). Thus the modification does not affect the capacity or handling of radioactive wastes of the Radwaste systems.

Two revisions to Change Package #9337, Liquid Radwaste Zero Filtration System, were issued in 2007. This change package previously installed the new filtration system for Liquid Radwaste. Nothing has been changed with the method by which Liquid Radwaste is handled by these revisions, the two revisions were issued to provide guidance for a replacement obsolete valve and to eliminate an electrical circuit in an abandoned circuit panel.

No other modifications were made to the Solid, Liquid or Gaseous Radwaste Systems in 2007 that alter the capacity or handling of Radioactive Wastes or differ in the method of treatment.

4. **Land Use Census**

There was 1 change to the nearest occupied residence in sector B and 5 changes for the nearest garden producing broadleaf vegetation (per AP 07B-004, Offsite Dose Calculation Manual [Radiological Environmental monitoring Program]).

5. Radwaste Shipments

Seven shipments of radioactive waste occurred during this report period. Section II, Subsection 3, of this report contains specific details regarding each shipment's mode of transportation and destination.

6. Inoperability of Effluent Monitoring Instrumentation

No events occurred that violated ODCM Requirements Tables 2-2 and 3-2, liquid or gaseous effluent monitoring instrumentation.

7. Storage Tanks

At no time during the year 2007 was there an event that led to liquid holdup tanks or gas storage tanks exceeding the limits of Technical Requirements Manual Sections 3.10.1 or 3.10.3. Technical Specification requirements for the program are now covered by Technical Requirements Manual Section 3.10, "Explosive Gas and Storage Tank Radioactivity Monitoring."

8. NEI Groundwater Protection Industry Initiative

See attached 6 pages

See attached 4 pages with corrected gross alpha information for the 2006 Annual report.

ONSITE GROUNDWATER MONITORING

Basis

The onsite groundwater monitoring sample results are being reported in the Radioactive Effluent Release Report per guidance received in association with the Nuclear Energy Institute (NEI) Groundwater Protection Industry Initiative.

Program Description

In March of 2006, Wolf Creek Generating Station (WCGS) established an onsite groundwater monitoring program. This program was implemented via procedure AI 07-007, *Onsite Groundwater Monitoring Program*. The onsite groundwater samples were collected by the WCGS Environmental Management group and were analyzed by Environmental, Inc., Midwest Laboratory. The vendor lab participated in an interlaboratory comparison program. Onsite groundwater samples were analyzed by gamma isotopic analysis, radiochemical analysis for I-131 and tritium analysis. Quarterly grab samples were obtained from three wells: ESW-W-NE, ESW-W-NW and AUX. The following tables describe the sample locations, the program required lower limits of detection and the reporting levels for radioactivity detected.

Sample Location	Sample Location Description
ESW-W-NE	Essential Service Water Dewatering Well, West Group, Northeast, located south of the reactor
ESW-W-NW	Essential Service Water Dewatering Well, West Group, Northwest, located south of the reactor
AUX	Dewatering Well located near the Auxiliary Building, on West Side

Onsite Groundwater Lower Limits of Detection

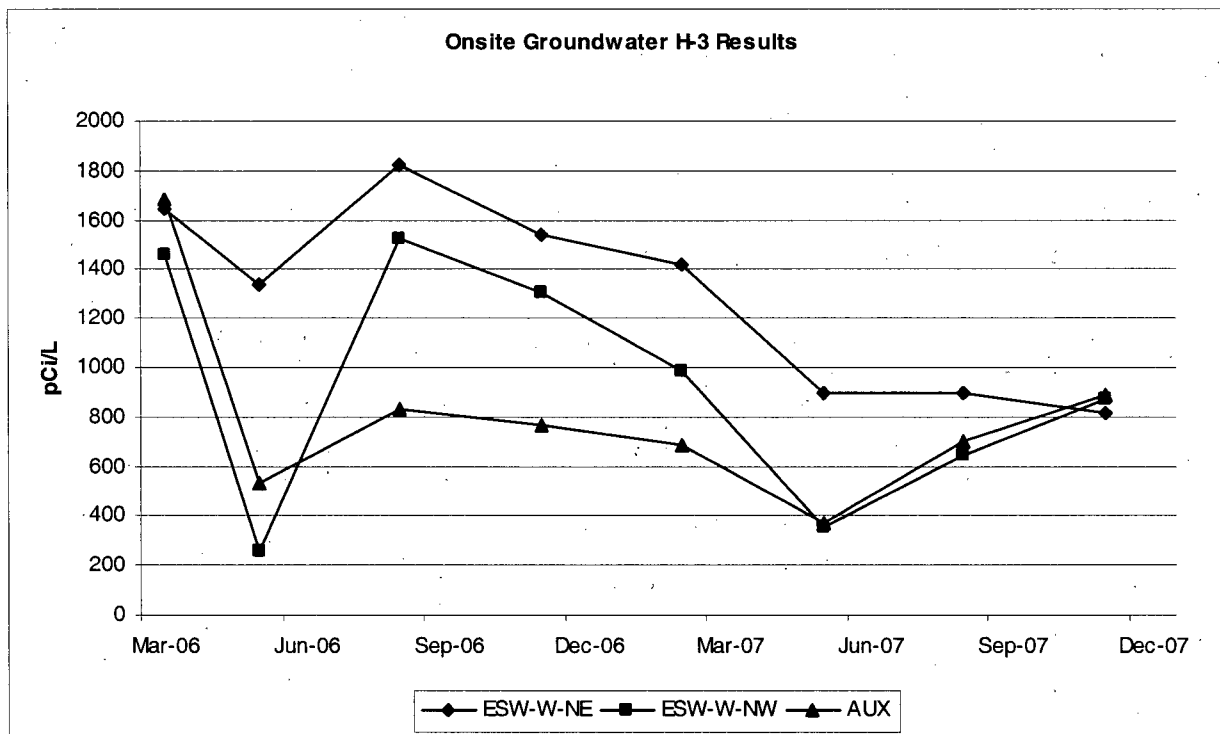
Analysis	(pCi/l)	Analysis	(pCi/l)
H-3	2,000	Zr-Nb-95	15
Mn-54	15	I-131	1
Co-58	15	Cs-134	15
Fe-59	30	Cs-137	18
Co-60	15	Ba-La-140	15
Zn-65	30		

Reporting Levels for Radioactivity Detected in Onsite Groundwater

Analysis	(pCi/l)	Analysis	(pCi/l)
H-3	20,000	Zr-Nb-95	400
Mn-54	1,000	I-131	2
Co-58	1,000	Cs-134	30
Fe-59	400	Cs-137	50
Co-60	300	Ba-La-140	200
Zn-65	300		

Discussion of Results

As expected, low levels of tritium were detected in all of the onsite groundwater samples. The location with the highest level of tritium detected was ESW-W-NE (1,418 +/- 123 pCi/L). The measured level is significantly lower than the tritium levels routinely detected in surface water collected from Coffey County Lake (2007 range was 8,262 to 12,910 pCi/L). The location with the lowest level of tritium detected was location ESW-W-NW (355 +/- 87 pCi/L). The tritium activity was the only activity detected in the onsite groundwater samples. Required lower limits of detection were met. The individual sample results follow.



Onsite Ground Water Results

LOCATION	DUPLICATE	COLLECTION DATE	NUCLIDE	CONCENTRATION (pCi/L)		
AUX		16-Feb-07	MN-54		<	2.6
AUX		16-Feb-07	CO-58		<	3.1
AUX		16-Feb-07	FE-59		<	5.8
AUX		16-Feb-07	CO-60		<	2.7
AUX		16-Feb-07	ZN-65		<	5.9
AUX		16-Feb-07	ZR-NB-95		<	1.7
AUX		16-Feb-07	CS-134		<	3.3
AUX		16-Feb-07	CS-137		<	3.6
AUX		16-Feb-07	BA-LA-140		<	2.3
AUX		16-Feb-07	H-3	682	+/-	99
AUX		16-Feb-07	I-131 (CHEM)		<	0.337
AUX		18-May-07	MN-54		<	4.4
AUX		18-May-07	CO-58		<	3.9
AUX		18-May-07	FE-59		<	7.8
AUX		18-May-07	CO-60		<	5.5
AUX		18-May-07	ZN-65		<	7.0
AUX		18-May-07	ZR-NB-95		<	6.5
AUX		18-May-07	CS-134		<	4.3
AUX		18-May-07	CS-137		<	4.1
AUX		18-May-07	BA-LA-140		<	8.9
AUX		18-May-07	H-3	373	+/-	87
AUX		18-May-07	I-131 (CHEM)		<	0.343
AUX		09-Aug-07	MN-54		<	3.4
AUX		09-Aug-07	CO-58		<	3.0
AUX		09-Aug-07	FE-59		<	4.6
AUX		09-Aug-07	CO-60		<	5.7
AUX		09-Aug-07	ZN-65		<	3.9
AUX		09-Aug-07	ZR-NB-95		<	4.4
AUX		09-Aug-07	CS-134		<	4.0
AUX		09-Aug-07	CS-137		<	2.0
AUX		09-Aug-07	BA-LA-140		<	8.1
AUX		09-Aug-07	H-3	703	+/-	108
AUX		09-Aug-07	I-131 (CHEM)		<	0.43
AUX		14-Nov-07	MN-54		<	2.7
AUX		14-Nov-07	CO-58		<	2.5
AUX		14-Nov-07	FE-59		<	3.8
AUX		14-Nov-07	CO-60		<	1.9
AUX		14-Nov-07	ZN-65		<	3.3
AUX		14-Nov-07	ZR-NB-95		<	3.6
AUX		14-Nov-07	CS-134		<	3.8

LOCATION	DUPLICATE	COLLECTION DATE	NUCLIDE	CONCENTRATION (pCi/L)		
AUX		14-Nov-07	CS-137		<	2.7
AUX		14-Nov-07	BA-LA-140		<	1.6
AUX		14-Nov-07	H-3	885	+/-	122
AUX		14-Nov-07	I-131 (CHEM)		<	0.418
ESW-W-NE		16-Feb-07	MN-54		<	3.1
ESW-W-NE		16-Feb-07	CO-58		<	2.9
ESW-W-NE		16-Feb-07	FE-59		<	6.3
ESW-W-NE		16-Feb-07	CO-60		<	2.7
ESW-W-NE		16-Feb-07	ZN-65		<	7.9
ESW-W-NE		16-Feb-07	ZR-NB-95		<	3.1
ESW-W-NE		16-Feb-07	CS-134		<	4.0
ESW-W-NE		16-Feb-07	CS-137		<	3.9
ESW-W-NE		16-Feb-07	BA-LA-140		<	3.4
ESW-W-NE		16-Feb-07	H-3	1418	+/-	123
ESW-W-NE		16-Feb-07	I-131 (CHEM)		<	0.371
ESW-W-NE		18-May-07	MN-54		<	3.7
ESW-W-NE		18-May-07	CO-58		<	2.0
ESW-W-NE		18-May-07	FE-59		<	5.6
ESW-W-NE		18-May-07	CO-60		<	2.6
ESW-W-NE		18-May-07	ZN-65		<	5.3
ESW-W-NE		18-May-07	ZR-NB-95		<	4.0
ESW-W-NE		18-May-07	CS-134		<	3.6
ESW-W-NE		18-May-07	CS-137		<	2.5
ESW-W-NE		18-May-07	BA-LA-140		<	2.7
ESW-W-NE		18-May-07	H-3	897	+/-	108
ESW-W-NE		18-May-07	I-131 (CHEM)		<	0.476
ESW-W-NE		09-Aug-07	MN-54		<	2.8
ESW-W-NE		09-Aug-07	CO-58		<	3.4
ESW-W-NE		09-Aug-07	FE-59		<	4.7
ESW-W-NE		09-Aug-07	CO-60		<	2.0
ESW-W-NE		09-Aug-07	ZN-65		<	2.8
ESW-W-NE		09-Aug-07	ZR-NB-95		<	2.3
ESW-W-NE		09-Aug-07	CS-134		<	2.4
ESW-W-NE		09-Aug-07	CS-137		<	2.4
ESW-W-NE		09-Aug-07	BA-LA-140		<	3.6
ESW-W-NE		09-Aug-07	H-3	894	+/-	115
ESW-W-NE		09-Aug-07	I-131 (CHEM)		<	0.458
ESW-W-NE		14-Nov-07	MN-54		<	4.0
ESW-W-NE		14-Nov-07	CO-58		<	2.7
ESW-W-NE		14-Nov-07	FE-59		<	5.1

LOCATION	DUPLICATE	COLLECTION DATE	NUCLIDE	CONCENTRATION (pCi/L)		
ESW-W-NE		14-Nov-07	CO-60		<	3.6
ESW-W-NE		14-Nov-07	ZN-65		<	3.4
ESW-W-NE		14-Nov-07	ZR-NB-95		<	3.8
ESW-W-NE		14-Nov-07	CS-134		<	3.5
ESW-W-NE		14-Nov-07	CS-137		<	4.1
ESW-W-NE		14-Nov-07	BA-LA-140		<	4.7
ESW-W-NE		14-Nov-07	H-3	816	+/-	120
ESW-W-NE		14-Nov-07	I-131 (CHEM)		<	0.443
ESW-W-NW		16-Feb-07	MN-54		<	3.4
ESW-W-NW		16-Feb-07	CO-58		<	4.2
ESW-W-NW		16-Feb-07	FE-59		<	7.0
ESW-W-NW		16-Feb-07	CO-60		<	4.3
ESW-W-NW		16-Feb-07	ZN-65		<	4.0
ESW-W-NW		16-Feb-07	ZR-NB-95		<	4.8
ESW-W-NW		16-Feb-07	CS-134		<	5.3
ESW-W-NW		16-Feb-07	CS-137		<	3.7
ESW-W-NW		16-Feb-07	BA-LA-140		<	2.9
ESW-W-NW		16-Feb-07	H-3	985	+/-	110
ESW-W-NW		16-Feb-07	I-131 (CHEM)		<	0.346
ESW-W-NW		18-May-07	MN-54		<	2.0
ESW-W-NW		18-May-07	CO-58		<	2.5
ESW-W-NW		18-May-07	FE-59		<	3.4
ESW-W-NW		18-May-07	CO-60		<	2.5
ESW-W-NW		18-May-07	ZN-65		<	3.8
ESW-W-NW		18-May-07	ZR-NB-95		<	2.6
ESW-W-NW		18-May-07	CS-134		<	2.7
ESW-W-NW		18-May-07	CS-137		<	2.9
ESW-W-NW		18-May-07	BA-LA-140		<	2.2
ESW-W-NW		18-May-07	H-3	355	+/-	87
ESW-W-NW		18-May-07	I-131 (CHEM)		<	0.318
ESW-W-NW	Duplicate	09-Aug-07	MN-54		<	1.8
ESW-W-NW		09-Aug-07	MN-54		<	5.4
ESW-W-NW	Duplicate	09-Aug-07	CO-58		<	2.5
ESW-W-NW		09-Aug-07	CO-58		<	4.0
ESW-W-NW	Duplicate	09-Aug-07	FE-59		<	5.5
ESW-W-NW		09-Aug-07	FE-59		<	7.5
ESW-W-NW	Duplicate	09-Aug-07	CO-60		<	1.8
ESW-W-NW		09-Aug-07	CO-60		<	3.6
ESW-W-NW	Duplicate	09-Aug-07	ZN-65		<	3.6
ESW-W-NW		09-Aug-07	ZN-65		<	6.6

LOCATION	DUPLICATE	COLLECTION DATE	NUCLIDE	CONCENTRATION (pCi/L)		
ESW-W-NW	Duplicate	09-Aug-07	ZR-NB-95		<	3.0
ESW-W-NW		09-Aug-07	ZR-NB-95		<	3.4
ESW-W-NW	Duplicate	09-Aug-07	CS-134		<	2.6
ESW-W-NW		09-Aug-07	CS-134		<	4.7
ESW-W-NW	Duplicate	09-Aug-07	CS-137		<	2.2
ESW-W-NW		09-Aug-07	CS-137		<	4.3
ESW-W-NW	Duplicate	09-Aug-07	BA-LA-140		<	2.0
ESW-W-NW		09-Aug-07	BA-LA-140		<	7.2
ESW-W-NW	Duplicate	09-Aug-07	H-3	831	+/-	113
ESW-W-NW		09-Aug-07	H-3	644	+/-	106
ESW-W-NW	Duplicate	09-Aug-07	I-131 (CHEM)		<	0.472
ESW-W-NW		09-Aug-07	I-131 (CHEM)		<	0.483
ESW-W-NW		14-Nov-07	MN-54		<	2.8
ESW-W-NW		14-Nov-07	CO-58		<	1.5
ESW-W-NW		14-Nov-07	FE-59		<	4.9
ESW-W-NW		14-Nov-07	CO-60		<	1.2
ESW-W-NW		14-Nov-07	ZN-65		<	3.9
ESW-W-NW		14-Nov-07	ZR-NB-95		<	2.3
ESW-W-NW		14-Nov-07	CS-134		<	2.4
ESW-W-NW		14-Nov-07	CS-137		<	3.4
ESW-W-NW		14-Nov-07	BA-LA-140		<	1.4
ESW-W-NW		14-Nov-07	H-3	872	+/-	121
ESW-W-NW		14-Nov-07	I-131 (CHEM)		<	0.402

SECTION I

REPORT OF 2006 RADIOACTIVE EFFLUENTS: LIQUID

	Unit	Quarter 1	Quarter 2
A. Fission and Activation Products			
1. Total Release (not including tritium, gases, alpha)	Ci	3.03E-04	5.44E-04
2. Average Diluted Concentration During Period	μCi/ml	3.99E-12	2.55E-12
3. Percent of Applicable Limit (1)	%	6.05E-03	1.09E-02
B. Tritium			
1. Total Release	Ci	1.99E+02	5.53E+02
2. Average Diluted Concentration During Period	μCi/ml	2.62E-06	2.59E-06
3. Percent of Applicable Limit (2) (ECL)	%	2.62E-01	2.59E-01
C. Dissolved and Entrained Gases			
1. Total Release	Ci	2.85E-04	1.86E-03
2. Average Diluted Concentration During Period	μCi/ml	3.76E-12	8.70E-12
3. Percent of Applicable Limit (3)	%	1.88E-06	4.35E-06
D. Gross Alpha Radioactivity			
1. Total Release	Ci	0.00E+00	3.40E-06
E. Volume of Waste Released (prior to dilution)	Liters	8.46E+07	1.21E+08
F. Volume of Dilution Water Used	Liters	7.58E+10	2.13E+11

NOTES:

4) The applicable limit for the WCGS is 5 Curies per year. (Reference 10 CFR 50, Appendix I, "Guides On Design Objectives For Light-Water Cooled Nuclear Power Reactors," Paragraph A.2.) The value is derived by dividing the total release Curies by 5 Curies and then multiplying the result by 100.

5) This value is derived by the following formula:

$$\% \text{ of Applicable Limit} = \frac{(\text{Average Diluted Concentration}) (100)}{(\text{MPC or ECL, Appendix B, Table 2 10CFR20})}$$

6) This value is derived by the following formula:

$$\% \text{ of Applicable Limit} = \frac{(\text{Average Diluted Concentration}) (100)}{(2\text{E} - 04 \text{ from ODCM Section 2.1})}$$

REPORT OF 2006 RADIOACTIVE EFFLUENTS: LIQUID

		Unit	Quarter 3	Quarter 4
A.	Fission and Activation Products			
1.	Total Release (not including tritium, gases, alpha)	Ci	4.92E-04	8.64E-03
2.	Average Diluted Concentration During Period	μCi/ml	1.83E-12	4.44E-11
3.	Percent of Applicable Limit (1)	%	9.84E-03	1.73E-01
B.	Tritium			
1.	Total Release	Ci	4.42E+02	1.88E+02
2.	Average Diluted Concentration During Period	μCi/ml	1.64E-06	9.65E-07
3.	Percent of Applicable Limit (2) (ECL)	%	1.64E-01	9.65E-02
C.	Dissolved and Entrained Gases			
1.	Total Release	Ci	6.68E-03	9.73E-03
2.	Average Diluted Concentration During Period	μCi/ml	2.48E-11	5.00E-11
3.	Percent of Applicable Limit (3)	%	1.24E-05	2.50E-05
D.	Gross Alpha Radioactivity			
1.	Total Release	Ci	0.00E+00	1.74E06
E.	Volume of Waste Released (prior to dilution)	liters	8.62E+07	8.41E+07
F.	Volume of Dilution Water Used	liters	2.69E+11	1.94E+11

NOTES:

4) The applicable limit for the WCGS is 5 Curies per year. (Reference 10 CFR 50, Appendix I, "Guides On Design Objectives For Light-Water Cooled Nuclear Power Reactors," Paragraph A.2.) The value is derived by dividing the total release Curies by 5 Curies and then multiplying the result by 100.

5) This value is derived by the following formula:

$$\% \text{ of Applicable Limit} = \frac{(\text{Average Diluted Concentration}) (100)}{(\text{MPC or ECL, Appendix B, Table 2, 10CFR20})}$$

6) This value is derived by the following formula:

$$\% \text{ of Applicable Limit} = \frac{(\text{Average Diluted Concentration}) (100)}{(2\text{E} - 04 \text{ from ODCM Section 2.1})}$$

2006 LIQUID EFFLUENTS

Nuclides Released	Unit	Continuous Mode		Batch Mode	
		Quarter 1	Quarter 2	Quarter 1	Quarter 2
H-3	Ci	1.34E+00	1.21E+00	1.97E+02	5.52E+02
Cr-51	Ci	N/A	N/A	N/A	N/A
Mn-54	Ci	<4.21E-02	<6.04E-02	2.49E-06	8.57E-07
Fe-55	Ci	<8.42E-02	<1.21E-01	<3.34E-04	<6.19E-04
Fe-59	Ci	<4.21E-02	<6.04E-02	2.17E-06	<3.09E-04
Co-57	Ci	N/A	N/A	N/A	N/A
Co-58	Ci	<4.21E-02	<6.04E-02	2.20E-05	8.92E-05
Co-60	Ci	<4.21E-02	<6.04E-02	2.66E-05	4.37E-05
Zn-65	Ci	<4.21E-02	<6.04E-02	<1.67E-04	<3.09E-04
Sr-89	Ci	<4.21E-03	<6.04E-03	<1.67E-05	<3.09E-05
Sr-90	Ci	<4.21E-03	<6.04E-03	<1.67E-05	<3.09E-05
Sr-91	Ci	N/A	N/A	N/A	2.42E-06
Mo-99	Ci	<4.21E-02	<6.04E-02	<1.67E-04	<3.09E-04
Sb-124	Ci	N/A	N/A	N/A	N/A
Sb-125	Ci	N/A	N/A	2.32E-04	3.88E-04
I-131	Ci	<8.42E-02	<1.21E-01	<3.34E-04	<6.19E-04
I-133	Ci	N/A	N/A	N/A	N/A
Cs-134	Ci	<4.21E-02	<6.04E-02	<1.67E-04	<3.09E-04
Cs-136	Ci	N/A	N/A	1.18E-06	N/A
Cs-137	Ci	<4.21E-02	<6.04E-02	1.62E-05	1.92E-05
Ce-141	Ci	<4.21E-02	<6.04E-02	<1.67E-04	<3.09E-04
Ce-144	Ci	<4.21E-02	<6.04E-02	<1.67E-04	<3.09E-04
Na-24	Ci	N/A	N/A	N/A	N/A
Rb-88	Ci	N/A	N/A	N/A	N/A
Nb-95	Ci	N/A	N/A	N/A	6.47E-07
Tc-99M	Ci	N/A	N/A	N/A	N/A
Sb-122	Ci	N/A	N/A	N/A	N/A
Sb-126	Ci	N/A	N/A	N/A	N/A
I-135	Ci	N/A	N/A	N/A	N/A
Gross Alpha	Ci	<8.42E-03	<1.21E-02	<3.34E-05	3.40E-06
Ar-41	Ci	<8.42E-01	<1.21E+00	<3.34E-03	<6.19E-03
Kr-85M	Ci	<8.42E-01	<1.21E+00	<3.34E-03	<6.19E-03
Kr-85	Ci	<8.42E-01	<1.21E+00	<3.34E-03	<6.19E-03
Kr-87	Ci	<8.42E-01	<1.21E+00	<3.34E-03	<6.19E-03
Kr-88	Ci	<8.42E-01	<1.21E+00	<3.34E-03	<6.19E-03
Xe-131M	Ci	<8.42E-01	<1.21E+00	<3.34E-03	<6.19E-03
Xe-133M	Ci	<8.42E-01	<1.21E+00	<3.34E-03	7.90E-06
Xe-133	Ci	<8.42E-01	<1.21E+00	2.85E-04	1.85E-03
Xe-135M	Ci	<8.42E-01	<1.21E+00	<3.34E-03	<6.19E-03
Xe-135	Ci	<8.42E-01	<1.21E+00	<3.34E-03	8.87E-07

NOTE

"Less than" values are calculated using the Lower Limit of Detection (LLD) values listed in Table 2-1 of the ODCM multiplied by the volume of waste discharged during the respective quarter. The "less than" values are not included in the summation for the total release values.

2006 LIQUID EFFLUENTS

Nuclides Released	Unit	Continuous Mode		Batch Mode	
		Quarter 3	Quarter 4	Quarter 3	Quarter 4
H-3	Ci	1.55E+00	1.12E+00	4.40E+02	1.87E+02
Cr-51	Ci	N/A	N/A	N/A	N/A
Mn-54	Ci	<4.28E-02	<4.16E-02	2.51E-06	1.30E-05
Fe-55	Ci	<8.56E-02	<8.31E-02	<6.43E-04	<9.97E-04
Fe-59	Ci	<4.28E-02	<4.16E-02	1.94E-06	6.57E-06
Co-57	Ci	N/A	N/A	N/A	1.09E-05
Co-58	Ci	<4.28E-02	<4.16E-02	5.58E-05	7.47E-03
Co-60	Ci	<4.28E-02	<4.16E-02	6.35E-05	1.86E-04
Zn-65	Ci	<4.28E-02	<4.16E-02	<3.21E-04	<4.99E-04
Rb-88	Ci	N/A	N/A	N/A	7.34E-05
Sr-89	Ci	<4.28E-03	<4.16E-03	<3.21E-05	<4.99E-05
Sr-90	Ci	<4.28E-03	<4.16E-03	<3.21E-05	<4.99E-05
Mo-99	Ci	<4.28E-02	<4.16E-02	<3.21E-04	<4.99E-04
Sn-117M	Ci	N/A	N/A	N/A	4.61E-06
Sb-124	Ci	N/A	N/A	N/A	3.21E-06
Sb-125	Ci	N/A	N/A	3.46E-04	8.35E-04
I-131	Ci	<8.56E-02	<8.31E-02	<6.43E-04	<9.97E-04
I-135	Ci	N/A	N/A	N/A	N/A
Cs-134	Ci	<4.28E-02	<4.16E-02	<3.21E-04	<4.99E-04
Cs-136	Ci	N/A	N/A	7.53E-07	N/A
Cs-137	Ci	<4.28E-02	<4.16E-02	2.11E-05	3.21E-05
Ce-141	Ci	<4.28E-02	<4.16E-02	<3.21E-04	<4.99E-04
Ce-144	Ci	<4.28E-02	<4.16E-02	<3.21E-04	<4.99E-04
Sr-91	Ci	N/A	N/A	N/A	2.94E-06
Nb-95	Ci	N/A	N/A	N/A	N/A
W-187	Ci	N/A	N/A	N/A	N/A
Gross Alpha	Ci	<8.56E-03	<8.31E-03	<6.43E-05	1.74E-06
Ar-41	Ci	<8.56E-01	<8.31E-01	<6.43E-03	3.93E-06
Kr-85M	Ci	<8.56E-01	<8.31E-01	<6.43E-03	1.72E-05
Kr-85	Ci	<8.56E-01	<8.31E-01	<6.43E-03	<9.97E-03
Kr-87	Ci	<8.56E-01	<8.31E-01	<6.43E-03	<9.97E-03
Kr-88	Ci	<8.56E-01	<8.31E-01	<6.43E-03	<9.97E-03
Xe-131M	Ci	<8.56E-01	<8.31E-01	<6.43E-03	<9.97E-03
Xe-133M	Ci	<8.56E-01	<8.31E-01	7.27E-05	2.00E-04
Xe-133	Ci	<8.56E-01	<8.31E-01	6.54E-03	8.31E-03
Xe-135M	Ci	<8.56E-01	<8.31E-01	<6.43E-03	<9.97E-03
Xe-135	Ci	<8.56E-01	<8.31E-01	3.77E-05	1.21E-03
Xe-138	Ci	N/A	N/A	3.14E-05	N/A

NOTE

"Less than" values are calculated using the Lower Limit of Detection (LLD) values listed in Table 2-1 of the ODCM multiplied by the volume of waste discharged during the respective quarter. The "less than" values are not included in the summation for the total release values.

**ENCLOSURES TO WCGS
ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT –
REPORT 31**

Changes to the Wolf Creek Generating Station (WCGS) Offsite Dose Calculation Manual (ODCM) are submitted annually with the "Annual Radioactive Effluent Release Report". The WCGS ODCM is divided into two administrative procedures: WCNOG procedure AP 07B-003, "Offsite Dose Calculation Manual" and WCNOG procedure AP 07B-004, "Offsite Dose Calculation Manual (Radiological Environmental Monitoring Program)".

Enclosure I is AP 07B-003, Revision 6, "Offsite Dose Calculation Manual"

Enclosure II is AP 07B-004, Revision 13, "Offsite Dose Calculation Manual (Radiological Environmental Monitoring Program)"

Enclosure III is AP 31A-100, Revision 6, "Solid Radwaste Process Control Program"