



GPU Nuclear, Inc.
U.S. Route #9 South
Post Office Box 388
Forked River, NJ 08731-0388
Tel 609-971-4000

February 29, 2000
1940-00-20050

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

Dear Sir:

Subject: Oyster Creek Nuclear Generating Station
Docket No. 50-219
1999 Effluent Release Report

Attached is a copy of the Oyster Creek Annual Radioactive Effluent Release Report for the period covering January through December 31, 1999. This submittal is made in accordance with 10 CFR 50.36(a)(2) and our Operating License and Technical Specifications.

If you should have any questions or require further information, please contact Ms. Brenda DeMerchant, OC Licensing Engineer, at 609-971-4642.

Very truly yours,

A handwritten signature in black ink, appearing to read "Sander Levin".

Sander Levin
Acting Director-OC
Oyster Creek

SL/BDeM/

Enclosure

cc: Administrator, Region I
NRC Project Manager
NRC Sr. Resident Inspector
Chief, Bureau of Nuclear Engrg., NJ Dept. of Env. Protection

Handwritten initials "JLE48" in black ink.

EXECUTIVE SUMMARY

Oyster Creek Nuclear Station
Effluent and Off Site Dose Report
January 1, 1999 through December 31, 1999

This report summarizes the radioactive liquid and gaseous releases (effluents) from Oyster Creek and the calculated maximum hypothetical radiation exposure to the public resulting from these releases. This report covers the period of operation from January 1, 1999 through December 31, 1999.

Radiological releases from the plant are monitored by installed plant radiation monitors which survey the plant stack for gaseous releases to the atmosphere and outfall pipes for liquid discharges to the cooling water discharge canal. These monitors and associated sample analyses provide a means to accurately determine the type and quantities of radioactive materials being released to the environment.

Utilizing gaseous effluent data, the maximum hypothetical dose to any individual in the vicinity of the plant is calculated. Similarly, liquid effluent data are used to calculate a maximum hypothetical dose to an individual from liquid effluents for any shoreline exposure. Doses to the public from consumption of shellfish and fish withdrawn from the canal are also calculated.

Calculations of the maximum hypothetical dose to an individual from liquid and gaseous effluents are performed using a mathematical model which is based on the methods defined by the U.S. Nuclear Regulatory Commission.

The maximum hypothetical doses are conservative overestimates of the actual off site doses which are likely to occur. For example, the dose does not take into consideration the removal of radioactive material from the salt water by precipitation of insoluble salts, absorption onto sediment, or biological removal.

Regarding solid, low level radioactive waste, Oyster Creek made 14 shipments totaling approximately 4125 cu. ft. This material went to either licensed burial or to a waste processor for volume reduction. The SEG Rapid Dewatering System is currently being used in lieu of solidification for dewatering resins and filter sludge.

Liquid discharges made during 1999 consisted of 0.0061 curies of Cesium 137 from intake and subsequent discharge of silt, contaminated with radioactive fallout, through the Turbine Building Closed Cooling Water System. There were no releases of tritium to the canal from the fire service system in 1999.

EXECUTIVE SUMMARY

Oyster Creek Nuclear Station
Effluent and Off Site Dose Report
January 1, 1999 through December 31, 1999
Page 2

Airborne discharges made during this same period consisted of 132 curies of tritium, 0.00314 curies of particulates, 0.0091 curies of Iodines, and 23.0 curies of noble gases.

Releases from the Isolation Condensers are included in the ground level releases. Of the 0.89 curies of Tritium released from ground level sources in 1999, 0.032 curies were released from the Isolation Condensers.

The maximum hypothetical calculated organ dose to any individual due to gaseous effluents was about 0.0065 mrem to the thyroid. The maximum hypothetical calculated whole body dose to any individual due to gaseous effluents was 0.00206 mrem.

The maximum hypothetical calculated organ dose to any individual due to liquid effluents was about 0.00194 mrem to the liver. The maximum hypothetical calculated whole body dose to any individual due to liquid effluents was 0.00116 mrem.

The total maximum hypothetical whole body dose of 0.00266 mrem received by any individual from effluents from the Oyster Creek Nuclear Station for the reporting period is over 100,000 times lower than the dose the average individual in the Oyster Creek area received from natural background radiation including that from radon (300 mrem) during the same time period. Natural background radiation dose averages about 100 mrem whole body per year in the central New Jersey area. In addition, the average equivalent dose to the whole body from naturally occurring radon is about 200 millirem per year.

The maximum dose that could be received by a hypothetical individual from any effluent stream is about 0.05 percent of the annual guidelines established by the Nuclear Regulatory Commission.

Maximum Offsite Dose Due to Radionuclides in Effluents January -December 1999

<u>ODCM</u>	<u>4.6.1.1.4.A</u>	<u>4.6.1.1.4.A</u>	<u>4.6.1.1.6.A</u>	<u>4.6.1.1.6.A</u>	<u>4.6.1.1.7.A</u>	<u>4.6.1.1.8.A</u>	<u>4.6.1.1.8.A</u>	<u>4.6.1.1.8.A</u>
	Liquid Dose WB mrem	(Liver) Organ mrem	Air Dose Beta mrad	(GAS) Gamma mrad	(Thyroid) Organ mrem	(Liver) Organ mrem	Whole Body mrem	(Thyroid) Organ mrem
1998 Total	1.16E-03	1.94E-03	2.09E-04	6.25E-04	6.52E-03	3.61E-03	2.66E-03	6.52E-03
ODCM Limit	3	10	20	10	15	25	25	75
Fraction of Annual Limit	3.9E-04	1.9E-04	1.0E-05	6.3E-05	4.3E-04	1.4E-04	1.0E-04	8.7E-05

OYSTER CREEK NUCLEAR GENERATING STATION

LIQUID EFFLUENT RELEASES

Oyster Creek Nuclear Generating Station Policy is to strive for a zero liquid discharge of radioactive material. However, in 1999, silt contaminated with radioactive Cesium was discovered in the seawater-cooled portion of the Turbine Building Closed Cooling Water Heat Exchangers. The heat exchangers take in seawater and occasionally some silt from the environment via the canal. A portion of the silt may settle in the heat exchangers, while the majority of the silt and the cooling water are subsequently discharged back to the environment. It is theorized that the silt was contaminated with radioactive Cesium due to historic atmospheric nuclear weapons testing and the Chernobyl incident. Lacking conclusive proof of this theory, Oyster Creek decided to include the Cesium in the plant effluents, because the radioactive silt flows through the heat exchangers and is returned to the environment.

OFFSITE DOSE CALCULATION MANUAL (ODCM)

During the calendar year, a revision to the ODCM was made. The change corrected some dose conversion factors listed on the procedure attachments and implemented SEEDS (the Simplified Effluent Environmental Dosimetry System) for calculation of doses due to effluents from the Oyster Creek site. In addition, editorial changes were made.

EFFLUENT MONITORS OUT OF SERVICE GREATER THAN 30 DAYS:

The following effluent monitors were out of service for more than thirty days:

- Main Stack Low range Monitor Channel 1; from September 10, 1998 to May 6, 1999; due to detector failing to meet calibration criteria.
- Turbine Building Stack Low Range Monitor; from February 18, 1999 to October 22, 1999; due to the detector being damaged during testing and various problems experienced with the replacement detector.
- 1-5 Sump Discharge Radiation Monitor; from July 27, 1999 to present; due to detector failure to meet calibration criteria and detector dry tube leak.

CHANGES TO THE PROCESS CONTROL PLAN:

There were no changes to the PCP in 1999.

Effluent and Waste Disposal Supplemental Information

FACILITY

Oyster Creek Nuclear Generating Station

LICENSEE

Owner: GPU, Inc.

Operator: GPU Nuclear

1.) Regulatory Limits

a. Fission and Activation Gases

Technical Specification 3.6.E

The gross radioactivity in noble gases discharged from the main condenser air ejector shall not exceed a $0.21/E$ Ci/sec after the holdup line, where E is the average gamma energy (Mev per atomic transformation).

ODCM 4.6.1.1.5.A

The dose equivalent rate outside of the EXCLUSION AREA due to radioactive noble gas in gaseous effluent shall not exceed 500 mrem/year to the total body or 3000 mrem/year to the skin. A value of 100 millirem total body is used due to the January 1, 1994 revision of 10 CFR 20.

ODCM 4.6.1.1.6.A

The air dose outside of the EXCLUSION AREA due to noble gas released in gaseous effluent shall not exceed:

5 mrad/calendar quarter due to gamma radiation,
10 mrad/calendar quarter due to beta radiation,
10 mrad/calendar year due to gamma radiation, or
20 mrad/calendar year due to beta radiation

ODCM 4.6.1.1.8.A

The annual dose to a MEMBER OF THE PUBLIC due to radiation and radioactive material in effluents from the OCNCS outside of the EXCLUSION AREA shall not exceed 75 mrem to his thyroid or 25 mrem to his total body or to any other organ.

b. Iodines and Particulates

ODCM 4.6.1.1.5.B

The dose equivalent rate outside of the EXCLUSION AREA due to H-3, I-131, I-133, and to radioactive material in particulates having half-lives of 8 days or more in gaseous effluents shall not exceed 1500 mrem/year to any body organ when the dose rate due to H-3, Sr-89, Sr-90, and alpha-emitting radionuclides is averaged over no more than 3 months and the dose rate due to other radionuclides is averaged over no more than 31 days.

ODCM 4.6.1.1.7.A

The dose to a MEMBER OF THE PUBLIC from iodine-131, iodine-133, and from radionuclides in particulate form having half-lives of 8 days or more in gaseous effluents, outside of the EXCLUSION AREA shall not exceed 7.5 mrem to any body organ per calendar quarter or 15 mrem to any body organ per calendar year.

c. Liquid Effluents

ODCM 4.6.1.1.3.A

The concentration of radioactive material, other than noble gases, in liquid effluent in the discharge canal at the Route 9 bridge shall not exceed the concentrations specified in 10 CFR Part 20, Appendix B, Table II, Column 2.

ODCM 4.6.1.1.3.B

The concentration of noble gases dissolved or entrained in liquid effluent in the discharge canal at the Route 9 bridge shall not exceed 2×10^{-4} microcuries/milliliter.

ODCM 4.6.1.1.4.A

The dose to a MEMBER OF THE PUBLIC due to radioactive material in liquid effluents beyond the outside of the EXCLUSION AREA shall not exceed:

- 1.5 mrem to the total body during any calendar quarter,
- 5 mrem to any body organ during any calendar quarter,
- 3 mrem to the total body during any calendar year, or
- 10 mrem to any body organ during any calendar year.

2. Derived Air Concentrations (DAC)

a. Fission and Activation Gases:

Appendix B, Table II, Column 1 of 10 CFR 20

b. Iodines and Particulates:

Appendix B, Table II, Column 1 of 10 CFR 20

c. Liquid Effluents:

Appendix B, Table II, Column 2 of 10 CFR 20, except for dissolved or entrained noble gases where the limit is 2×10^{-4} uCi/ml

3. Measurements and Approximation of Total Radioactivity

a. Fission and Activation Gases:

1. Stack

The continuous recording of gross activity and the incorporation of isotopic data obtained from a weekly grab sample analyzed using gamma spectroscopy.

2. Augmented Offgas (AOG) Vent

The continuous recording of gross activity and the incorporation of isotopic data obtained from a monthly grab sample analyzed using gamma spectroscopy.

3. Turbine Building Stack and Feedpump Room Vent

The continuous recording of gross activity and the incorporation of isotopic data obtained from a monthly grab sample analyzed using gamma spectroscopy.

b. Iodines

1. Stack

Filters are changed weekly and analyzed using gamma spectroscopy.

2. AOG Vent

Filters are changed weekly and analyzed using gamma spectroscopy.

3. Turbine Building Stack and Feedpump Room Vent

Filters are changed weekly and analyzed using gamma spectroscopy.

- c. Particulates

1. Stack

Filters are changed weekly and analyzed using a low background beta counter and gamma spectroscopy.

2. AOG Vent

Filters are changed weekly and analyzed using gamma spectroscopy.

3. Turbine Building Stack and Feedpump Room Vent

Filters are changed weekly and analyzed using gamma spectroscopy.

- d. Liquid Effluents

Analysis per batch release using gamma spectrometry with a germanium detector, a low background beta counter, and a liquid scintillation counter.

OYSTER CREEK NUCLEAR GENERATING STATION
1999 TOTAL
GASEOUS EFFLUENT ELEVATED RELEASES

FISSION GASES

Isotope	Curies
AR41	4.46E+00
KR87	4.41E+00
XE135	1.41E+01

Gamma Ebar:	5.534E-01
Beta Ebar:	5.298E-01

Total Fission Gases Released:	2.30E+01 Ci
Avg. Rate of Release:	7.29E-01 uCi/sec

IODINES

Isotope	Curies
I131	1.30E-03
I132	5.07E-04
I133	7.28E-03

Total Iodines Released:	9.08E-03 Ci
Avg. Rate of Release:	2.88E-04 uCi/sec

PARTICULATES

Isotope	Curies
CR51	2.60E-04
MN54	2.01E-05
CO58	3.16E-05
CO60	6.11E-04
SR89	1.12E-03
SR90	8.44E-06
CS137	2.14E-06
BA140	1.09E-03
GROSSA	2.67E-06

Total Particulates Released:	3.14E-03 Ci
Avg. Rate of Release:	9.96E-05 uCi/sec

TRITIUM

Isotope	Curies
H3	1.32E+02

Avg. Rate of Release for H3:	4.19E+00 uCi/sec
------------------------------	------------------

OYSTER CREEK NUCLEAR GENERATING STATION
1999 TOTAL
GASEOUS EFFLUENT GROUND-LEVEL RELEASES

FISSION GASES

Isotope	Curies
Total Fission Gases Released:	0.00E+00 Ci
Avg. Rate of Release:	0.00E+00 uCi/sec

IODINES

Isotope	Curies
I131	3.00E-08
I133	1.22E-06
Total Iodines Released:	1.25E-06 Ci
Avg. Rate of Release:	3.97E-08 uCi/sec

PARTICULATES

Isotope	Curies
CR51	2.11E-07
CS137	1.19E-06
GROSSA	3.87E-06
Total Particulates Released:	5.27E-06 Ci
Avg. Rate of Release:	1.67E-07 uCi/sec

TRITIUM

Isotope	Curies
H3	8.91E-01
Avg. Rate of Release for H3:	2.82E-02 uCi/sec

OYSTER CREEK NUCLEAR GENERATING STATION
FIRST QUARTER 1999
GASEOUS EFFLUENT ELEVATED RELEASES

FISSION GASES

Isotope	Curies
XE135	2.87E+00
Gamma Ebar:	2.479E-01
Beta Ebar:	3.028E-01
Total Fission Gases Released:	2.87E+00 Ci
Avg. Rate of Release:	3.69E-01 uCi/sec

IODINES

Isotope	Curies
I131	3.19E-04
I133	1.39E-03
Total Iodines Released:	1.71E-03 Ci
Avg. Rate of Release:	2.20E-04 uCi/sec

PARTICULATES

Isotope	Curies
CR51	2.17E-04
MN54	1.85E-05
CO58	1.71E-05
CO60	3.56E-04
SR89	2.89E-04
SR90	3.14E-06
BA140	1.81E-04
GROSSA	1.59E-06
Total Particulates Released:	1.08E-03 Ci
Avg. Rate of Release:	1.39E-04 uCi/sec

TRITIUM

Isotope	Curies
H3	6.38E+01
Avg. Rate of Release for H3:	8.20E+00 uCi/sec

OYSTER CREEK NUCLEAR GENERATING STATION
FIRST QUARTER 1999
GASEOUS EFFLUENT GROUND-LEVEL RELEASES

FISSION GASES

Isotope	Curies
Total Fission Gases Released:	0.00E+00 Ci
Avg. Rate of Release:	0.00E+00 uCi/sec

IODINES

Isotope	Curies
I133	1.04E-06
Total Iodines Released:	1.04E-06 Ci
Avg. Rate of Release:	1.34E-07 uCi/sec

PARTICULATES

Isotope	Curies
CS137	2.54E-07
GROSSA	2.79E-06
Total Particulates Released:	3.04E-06 Ci
Avg. Rate of Release:	3.91E-07 uCi/sec

TRITIUM

Isotope	Curies
H3	2.01E-01
Avg. Rate of Release for H3:	2.59E-02 uCi/sec

OYSTER CREEK NUCLEAR GENERATING STATION
SECOND QUARTER 1999
GASEOUS EFFLUENT ELEVATED RELEASES

FISSION GASES

Isotope	Curies
AR41	2.93E+00
KR87	4.41E+00
XE135	7.71E+00

Gamma Ebar:	6.091E-01
Beta Ebar:	6.330E-01

Total Fission Gases Released:	1.50E+01 Ci
Avg. Rate of Release:	1.91E+00 uCi/sec

IODINES

Isotope	Curies
I131	4.56E-04
I132	5.07E-04
I133	2.44E-03

Total Iodines Released:	3.40E-03 Ci
Avg. Rate of Release:	4.33E-04 uCi/sec

PARTICULATES

Isotope	Curies
CR51	4.29E-05
MN54	1.52E-06
CO58	7.07E-06
CO60	1.02E-04
SR89	6.18E-05
SR90	1.10E-06
BA140	3.92E-04
GROSSA	1.08E-06

Total Particulates Released:	6.09E-04 Ci
Avg. Rate of Release:	7.74E-05 uCi/sec

TRITIUM

Isotope	Curies
H3	2.20E+01

Avg. Rate of Release for H3:	2.80E+00 uCi/sec
------------------------------	------------------

OYSTER CREEK NUCLEAR GENERATING STATION
SECOND QUARTER 1999
GASEOUS EFFLUENT GROUND-LEVEL RELEASES

FISSION GASES

Isotope Curies

Total Fission Gases Released: 0.00E+00 Ci
Avg. Rate of Release: 0.00E+00 uCi/sec

IODINES

Isotope Curies
I131 3.00E-08
I133 1.78E-07

Total Iodines Released: 2.08E-07 Ci
Avg. Rate of Release: 2.64E-08 uCi/sec

PARTICULATES

Isotope Curies
GROSSA 9.52E-07

Total Particulates Released: 9.52E-07 Ci
Avg. Rate of Release: 1.21E-07 uCi/sec

TRITIUM

Isotope Curies
H3 2.17E-01

Avg. Rate of Release for H3: 2.77E-02 uCi/sec

OYSTER CREEK NUCLEAR GENERATING STATION
THIRD QUARTER 1999
GASEOUS EFFLUENT ELEVATED RELEASES

FISSION GASES

Isotope	Curies
AR41	1.21E+00
XE135	2.79E+00

Gamma Ebar:	5.608E-01
Beta Ebar:	3.515E-01

Total Fission Gases Released:	4.00E+00 Ci
Avg. Rate of Release:	5.03E-01 uCi/sec

IODINES

Isotope	Curies
I131	3.61E-04
I133	2.44E-03

Total Iodines Released:	2.80E-03 Ci
Avg. Rate of Release:	3.53E-04 uCi/sec

PARTICULATES

Isotope	Curies
CO58	7.42E-06
CO60	8.23E-05
SR89	4.29E-04
SR90	4.20E-06
CS137	2.14E-06
BA140	4.18E-04

Total Particulates Released:	9.43E-04 Ci
Avg. Rate of Release:	1.19E-04 uCi/sec

TRITIUM

Isotope	Curies
H3	2.69E+01

Avg. Rate of Release for H3:	3.38E+00 uCi/sec
------------------------------	------------------

OYSTER CREEK NUCLEAR GENERATING STATION
THIRD QUARTER 1999
GASEOUS EFFLUENT GROUND-LEVEL RELEASES

FISSION GASES

Isotope	Curies
Total Fission Gases Released:	0.00E+00 Ci
Avg. Rate of Release:	0.00E+00 uCi/sec

IODINES

Isotope	Curies
Total Iodines Released:	0.00E+00 Ci
Avg. Rate of Release:	0.00E+00 uCi/sec

PARTICULATES

Isotope	Curies
CR51	2.11E-07
Total Particulates Released:	2.11E-07 Ci
Avg. Rate of Release:	2.65E-08 uCi/sec

TRITIUM

Isotope	Curies
H3	2.31E-01
Avg. Rate of Release for H3:	2.90E-02 uCi/sec

OYSTER CREEK NUCLEAR GENERATING STATION
FOURTH QUARTER 1999
GASEOUS EFFLUENT ELEVATED RELEASES

FISSION GASES

Isotope	Curies
AR41	3.22E-01
XE135	7.43E-01
Gamma Ebar:	5.608E-01
Beta Ebar:	3.515E-01
Total Fission Gases Released:	1.06E+00 Ci
Avg. Rate of Release:	1.34E-01 uCi/sec

IODINES

Isotope	Curies
I131	1.60E-04
I133	1.00E-03
Total Iodines Released:	1.16E-03 Ci
Avg. Rate of Release:	1.46E-04 uCi/sec

PARTICULATES

Isotope	Curies
CO60	7.04E-05
SR89	3.37E-04
BA140	9.96E-05
Total Particulates Released:	5.07E-04 Ci
Avg. Rate of Release:	6.37E-05 uCi/sec

TRITIUM

Isotope	Curies
H3	1.95E+01
Avg. Rate of Release for H3:	2.46E+00 uCi/sec

OYSTER CREEK NUCLEAR GENERATING STATION
FOURTH QUARTER 1999
GASEOUS EFFLUENT GROUND-LEVEL RELEASES

FISSION GASES

Isotope Curies

Total Fission Gases Released: 0.00E+00 Ci
Avg. Rate of Release: 0.00E+00 uCi/sec

IODINES

Isotope Curies

Total Iodines Released: 0.00E+00 Ci
Avg. Rate of Release: 0.00E+00 uCi/sec

PARTICULATES

Isotope Curies
CS137 9.34E-07
GROSSA 1.28E-07

Total Particulates Released: 1.06E-06 Ci
Avg. Rate of Release: 1.34E-07 uCi/sec

TRITIUM

Isotope Curies
H3 2.41E-01

Avg. Rate of Release for H3: 3.04E-02 uCi/sec

OYSTER CREEK 33 FOOT DATA
 JOINT FREQUENCY TABLES
 VERSION: 99.9a PRINTED 02-11-2000

HOURS AT EACH WIND SPEED AND DIRECTION
 PERIOD OF RECORD 99010100 TO 99123123
 STABILITY CLASS A

SECTOR	WINDS TO FROM	WIND SPEED						TOTAL
		1-3	4-7	8-12	13-18	19-24	>24	
N	S	4	28	73	42	0	0	147
NNE	SSW	6	14	32	22	1	0	75
NE	SW	3	24	22	6	0	0	55
ENE	WSW	2	29	40	14	0	0	85
E	W	3	21	45	21	3	0	93
ESE	WNW	8	12	67	23	2	0	112
SE	NW	7	20	51	50	0	0	128
SSE	NNW	3	17	50	12	0	0	82
S	N	1	10	18	0	0	0	29
SSW	NNE	1	18	3	0	0	0	22
SW	NE	1	22	46	13	0	0	82
WSW	ENE	1	20	94	8	0	0	123
W	E	0	21	58	3	0	0	82
WNW	ESE	0	27	29	0	0	0	56
NW	SE	0	24	68	0	0	0	92
NNW	SSE	2	7	45	9	0	0	63
TOTAL		42	314	741	223	6	0	1326

OYSTER CREEK 33 FOOT DATA
 JOINT FREQUENCY TABLES
 VERSION: 99.9a PRINTED 02-11-2000

HOURS AT EACH WIND SPEED AND DIRECTION
 PERIOD OF RECORD 99010100 TO 99123123
 STABILITY CLASS B

SECTOR	WINDS TO FROM	WIND SPEED						TOTAL
		1-3	4-7	8-12	13-18	19-24	>24	
N	S	0	1	9	3	0	0	13
NNE	SSW	0	4	7	6	0	0	17
NE	SW	1	2	6	1	0	0	10
ENE	WSW	0	7	10	2	0	0	19
E	W	0	6	13	7	0	0	26
ESE	WNW	0	10	14	7	0	0	31
SE	NW	0	6	14	10	0	0	30
SSE	NNW	0	9	16	4	0	0	29
S	N	1	6	4	0	0	0	11
SSW	NNE	1	6	2	0	0	0	9
SW	NE	0	6	12	1	0	0	19
WSW	ENE	1	8	12	1	0	0	22
W	E	1	6	7	0	0	0	14
WNW	ESE	0	9	5	0	0	0	14
NW	SE	1	8	13	2	0	0	24
NNW	SSE	0	8	14	2	0	0	24
TOTAL		6	102	158	46	0	0	312

OYSTER CREEK 33 FOOT DATA
 JOINT FREQUENCY TABLES
 VERSION: 99.9a PRINTED 02-11-2000

HOURS AT EACH WIND SPEED AND DIRECTION
 PERIOD OF RECORD 99010100 TO 99123123
 STABILITY CLASS C

SECTOR	WINDS TO FROM	WIND SPEED						TOTAL
		1-3	4-7	8-12	13-18	19-24	>24	
N	S	0	3	13	2	0	0	18
NNE	SSW	0	3	12	1	0	0	16
NE	SW	0	3	4	1	0	0	8
ENE	WSW	0	4	12	0	0	0	16
E	W	1	5	12	4	0	0	22
ESE	WNW	0	4	10	3	0	0	17
SE	NW	1	6	13	6	0	0	26
SSE	NNW	0	10	10	3	0	0	23
S	N	1	2	3	0	0	0	6
SSW	NNE	1	3	1	0	0	0	5
SW	NE	2	7	11	0	0	0	20
WSW	ENE	0	6	8	0	0	0	14
W	E	1	3	4	2	0	0	10
WNW	ESE	1	4	2	0	0	0	7
NW	SE	0	5	9	1	0	0	15
NNW	SSE	0	6	11	1	0	0	18
TOTAL		8	74	135	24	0	0	241

OYSTER CREEK 33 FOOT DATA
 JOINT FREQUENCY TABLES
 VERSION: 99.9a PRINTED 02-11-2000

HOURS AT EACH WIND SPEED AND DIRECTION
 PERIOD OF RECORD 99010100 TO 99123123
 STABILITY CLASS D

SECTOR	WINDS TO FROM	WIND SPEED						TOTAL
		1-3	4-7	8-12	13-18	19-24	>24	
N	S	5	40	48	11	1	0	105
NNE	SSW	10	30	53	29	5	1	128
NE	SW	10	26	25	7	0	0	68
ENE	WSW	6	40	44	10	0	0	100
E	W	9	41	55	15	2	0	122
ESE	WNW	12	43	74	16	2	0	147
SE	NW	9	63	66	24	4	0	166
SSE	NNW	6	47	58	14	0	0	125
S	N	13	39	18	2	0	0	72
SSW	NNE	13	43	29	0	0	0	85
SW	NE	11	81	75	6	0	0	173
WSW	ENE	4	71	67	16	0	0	158
W	E	8	49	36	6	0	0	99
WNW	ESE	6	40	19	0	0	0	65
NW	SE	12	42	39	8	1	0	102
NNW	SSE	5	38	44	8	0	0	95
TOTAL		139	733	750	172	15	1	1810

OYSTER CREEK 33 FOOT DATA
 JOINT FREQUENCY TABLES
 VERSION: 99.9a PRINTED 02-11-2000

HOURS AT EACH WIND SPEED AND DIRECTION
 PERIOD OF RECORD 99010100 TO 99123123
 STABILITY CLASS E

SECTOR	WINDS TO FROM	WIND SPEED						TOTAL
		1-3	4-7	8-12	13-18	19-24	>24	
N	S	21	57	55	15	3	0	151
NNE	SSW	29	96	96	12	0	0	233
NE	SW	28	114	50	6	0	0	198
ENE	WSW	35	142	42	3	0	0	222
E	W	43	101	52	11	0	0	207
ESE	WNW	39	132	88	13	0	0	272
SE	NW	43	149	94	14	0	0	300
SSE	NNW	23	121	63	9	0	0	216
S	N	19	68	37	3	0	0	127
SSW	NNE	32	58	51	12	0	0	153
SW	NE	26	94	60	5	0	0	185
WSW	ENE	16	47	25	5	2	0	95
W	E	15	35	47	3	3	0	103
WNW	ESE	6	19	15	9	0	0	49
NW	SE	17	38	18	9	4	0	86
NNW	SSE	20	36	40	20	4	0	120
TOTAL		412	1307	833	149	16	0	2717

OYSTER CREEK 33 FOOT DATA
 JOINT FREQUENCY TABLES
 VERSION: 99.9a PRINTED 02-11-2000

HOURS AT EACH WIND SPEED AND DIRECTION
 PERIOD OF RECORD 99010100 TO 99123123
 STABILITY CLASS F

SECTOR	WINDS TO FROM	WIND SPEED						TOTAL
		1-3	4-7	8-12	13-18	19-24	>24	
N	S	17	24	9	2	1	0	53
NNE	SSW	18	34	7	0	0	0	59
NE	SW	31	72	11	0	0	0	114
ENE	WSW	39	157	6	1	0	0	203
E	W	40	64	6	4	0	0	114
ESE	WNW	23	58	9	2	0	0	92
SE	NW	35	101	8	0	0	0	144
SSE	NNW	19	34	3	0	0	0	56
S	N	14	15	0	0	0	0	29
SSW	NNE	11	6	1	0	0	0	18
SW	NE	6	11	3	0	0	0	20
WSW	ENE	5	2	1	0	0	0	8
W	E	8	2	0	0	0	0	10
WNW	ESE	8	4	1	1	0	0	14
NW	SE	12	10	0	1	0	0	23
NNW	SSE	9	10	1	0	0	0	20
TOTAL		295	604	66	11	1	0	977

OYSTER CREEK 33 FOOT DATA
 JOINT FREQUENCY TABLES
 VERSION: 99.9a PRINTED 02-11-2000

HOURS AT EACH WIND SPEED AND DIRECTION
 PERIOD OF RECORD 99010100 TO 99123123
 STABILITY CLASS G

SECTOR	WINDS TO FROM	WIND SPEED						TOTAL
		1-3	4-7	8-12	13-18	19-24	>24	
N	S	20	13	7	3	0	0	43
NNE	SSW	34	10	2	0	0	0	46
NE	SW	61	34	2	2	0	0	99
ENE	WSW	191	140	0	0	0	0	331
E	W	184	98	2	1	0	0	285
ESE	WNW	108	32	5	2	0	0	147
SE	NW	90	59	3	0	0	0	152
SSE	NNW	46	60	0	0	0	0	106
S	N	21	14	1	0	0	0	36
SSW	NNE	9	4	1	0	0	0	14
SW	NE	7	13	13	0	0	0	33
WSW	ENE	2	2	1	0	0	0	5
W	E	3	1	1	0	0	0	5
WNW	ESE	4	3	0	0	0	0	7
NW	SE	7	1	4	0	0	0	12
NNW	SSE	17	8	3	1	0	0	29
TOTAL		804	492	45	9	0	0	1350

OYSTER CREEK 33 FOOT DATA
 JOINT FREQUENCY TABLES
 VERSION: 99.9a PRINTED 02-11-2000

HOURS AT EACH WIND SPEED AND DIRECTION
 PERIOD OF RECORD 99010100 TO 99123123
 STABILITY CLASS ALL

SECTOR TO	WINDS FROM	WIND SPEED						TOTAL
		1-3	4-7	8-12	13-18	19-24	>24	
N	S	67	166	214	78	5	0	530
NNE	SSW	97	191	209	70	6	1	574
NE	SW	134	275	120	23	0	0	552
ENE	WSW	273	519	154	30	0	0	976
E	W	280	336	185	63	5	0	869
ESE	WNW	190	291	267	66	4	0	818
SE	NW	185	404	249	104	4	0	946
SSE	NNW	97	298	200	42	0	0	637
S	N	70	154	81	5	0	0	310
SSW	NNE	68	138	88	12	0	0	306
SW	NE	53	234	220	25	0	0	532
WSW	ENE	29	156	208	30	2	0	425
W	E	36	117	153	14	3	0	323
WNW	ESE	25	106	71	10	0	0	212
NW	SE	49	128	151	21	5	0	354
NNW	SSE	53	113	158	41	4	0	369
TOTAL		1706	3626	2728	634	38	1	8733

Hours of Missing/Invalid Data: 27

OYSTER CREEK 380 FOOT DATA
 JOINT FREQUENCY TABLES
 VERSION: 99.9a PRINTED 02-11-2000

HOURS AT EACH WIND SPEED AND DIRECTION
 PERIOD OF RECORD 99010100 TO 99123123
 STABILITY CLASS A

SECTOR	WINDS TO FROM	WIND SPEED						TOTAL
		1-3	4-7	8-12	13-18	19-24	>24	
N	S	0	0	1	22	4	1	28
NNE	SSW	0	2	2	7	5	1	17
NE	SW	0	1	7	5	1	0	14
ENE	WSW	0	1	4	5	1	4	15
E	W	0	0	4	10	8	2	24
ESE	WNW	0	0	3	15	13	8	39
SE	NW	0	0	2	9	11	14	36
SSE	NNW	0	0	0	3	1	0	4
S	N	0	0	2	1	0	0	3
SSW	NNE	0	0	3	0	0	0	3
SW	NE	0	0	3	12	7	2	24
WSW	ENE	0	0	4	14	3	0	21
W	E	0	0	6	5	1	0	12
WNW	ESE	0	0	9	1	0	0	10
NW	SE	0	1	6	7	0	0	14
NNW	SSE	0	1	3	9	0	0	13
TOTAL		0	6	59	125	55	32	277

OYSTER CREEK 380 FOOT DATA
 JOINT FREQUENCY TABLES
 VERSION: 99.9a PRINTED 02-11-2000

HOURS AT EACH WIND SPEED AND DIRECTION
 PERIOD OF RECORD 99010100 TO 99123123
 STABILITY CLASS B

SECTOR	WINDS TO FROM	WIND SPEED						TOTAL
		1-3	4-7	8-12	13-18	19-24	>24	
N	S	0	0	7	19	6	0	32
NNE	SSW	0	2	5	13	5	0	25
NE	SW	0	2	1	3	0	0	6
ENE	WSW	0	1	8	8	3	5	25
E	W	0	1	10	7	10	6	34
ESE	WNW	0	0	6	11	15	6	38
SE	NW	1	0	5	13	15	11	45
SSE	NNW	0	1	3	6	5	1	16
S	N	0	1	4	5	0	0	10
SSW	NNE	0	1	1	0	0	0	2
SW	NE	0	1	10	16	6	4	37
WSW	ENE	0	1	15	28	5	0	49
W	E	0	0	16	5	2	1	24
WNW	ESE	0	1	12	4	0	0	17
NW	SE	0	0	15	7	0	0	22
NNW	SSE	1	1	15	12	0	0	29
TOTAL		2	13	133	157	72	34	411

OYSTER CREEK 380 FOOT DATA
 JOINT FREQUENCY TABLES
 VERSION: 99.9a PRINTED 02-11-2000

HOURS AT EACH WIND SPEED AND DIRECTION
 PERIOD OF RECORD 99010100 TO 99123123
 STABILITY CLASS C

SECTOR TO	WINDS FROM	WIND SPEED						TOTAL
		1-3	4-7	8-12	13-18	19-24	>24	
N	S	1	1	9	24	3	0	38
NNE	SSW	1	3	5	23	8	1	41
NE	SW	0	0	5	7	8	1	21
ENE	WSW	0	2	17	19	10	6	54
E	W	0	1	15	26	9	4	55
ESE	WNW	2	3	16	26	21	18	86
SE	NW	6	4	23	30	17	25	105
SSE	NNW	3	3	15	17	7	3	48
S	N	0	2	10	2	1	0	15
SSW	NNE	0	2	5	1	0	0	8
SW	NE	0	0	9	13	13	4	39
WSW	ENE	0	1	22	17	3	0	43
W	E	0	4	14	6	1	3	28
WNW	ESE	0	3	16	8	0	0	27
NW	SE	0	4	32	9	1	0	46
NNW	SSE	0	1	15	9	0	0	25
TOTAL		13	34	228	237	102	65	679

OYSTER CREEK 380 FOOT DATA
 JOINT FREQUENCY TABLES
 VERSION: 99.9a PRINTED 02-11-2000

HOURS AT EACH WIND SPEED AND DIRECTION
 PERIOD OF RECORD 99010100 TO 99123123
 STABILITY CLASS D

SECTOR	WINDS TO FROM	WIND SPEED						TOTAL
		1-3	4-7	8-12	13-18	19-24	>24	
N	S	10	9	66	89	23	12	209
NNE	SSW	9	16	40	132	60	29	286
NE	SW	2	15	22	40	17	7	103
ENE	WSW	5	8	28	73	26	6	146
E	W	8	15	42	66	55	25	211
ESE	WNW	3	15	46	74	60	44	242
SE	NW	13	17	69	88	50	57	294
SSE	NNW	14	14	49	89	50	17	233
S	N	7	20	41	47	13	1	129
SSW	NNE	8	18	36	57	20	10	149
SW	NE	2	21	95	133	100	48	399
WSW	ENE	4	22	94	102	54	21	297
W	E	1	24	50	41	24	20	160
WNW	ESE	7	37	57	23	10	14	148
NW	SE	8	26	57	36	4	25	156
NNW	SSE	2	14	64	36	14	20	150
TOTAL		103	291	856	1126	580	356	3312

OYSTER CREEK 380 FOOT DATA
 JOINT FREQUENCY TABLES
 VERSION: 99.9a PRINTED 02-11-2000

HOURS AT EACH WIND SPEED AND DIRECTION
 PERIOD OF RECORD 99010100 TO 99123123
 STABILITY CLASS E

SECTOR	WINDS TO FROM	WIND SPEED						TOTAL
		1-3	4-7	8-12	13-18	19-24	>24	
N	S	6	8	42	50	15	16	137
NNE	SSW	18	4	39	75	48	25	209
NE	SW	5	9	28	72	81	31	226
ENE	WSW	4	6	22	73	81	13	199
E	W	5	9	25	57	65	6	167
ESE	WNW	7	12	24	77	82	34	236
SE	NW	26	6	28	86	87	11	244
SSE	NNW	10	3	21	52	59	6	151
S	N	5	7	24	47	11	1	95
SSW	NNE	3	7	28	24	2	1	65
SW	NE	4	11	35	44	7	5	106
WSW	ENE	1	13	36	28	4	13	95
W	E	2	10	22	9	5	3	51
WNW	ESE	1	8	12	12	1	2	36
NW	SE	0	3	19	8	4	8	42
NNW	SSE	1	4	26	21	8	23	83
TOTAL		98	120	431	735	560	198	2142

OYSTER CREEK 380 FOOT DATA
 JOINT FREQUENCY TABLES
 VERSION: 99.9a PRINTED 02-11-2000

HOURS AT EACH WIND SPEED AND DIRECTION
 PERIOD OF RECORD 99010100 TO 99123123
 STABILITY CLASS F

SECTOR	WINDS TO FROM	WIND SPEED						TOTAL
		1-3	4-7	8-12	13-18	19-24	>24	
N	S	3	3	15	16	9	3	49
NNE	SSW	2	4	9	25	11	3	54
NE	SW	3	7	12	29	33	21	105
ENE	WSW	9	2	14	36	63	30	154
E	W	3	5	6	21	52	19	106
ESE	WNW	6	3	16	29	46	17	117
SE	NW	15	3	11	32	64	16	141
SSE	NNW	7	2	5	30	47	6	97
S	N	0	1	10	35	7	2	55
SSW	NNE	1	5	9	10	1	0	26
SW	NE	2	6	23	17	2	0	50
WSW	ENE	0	4	8	6	0	0	18
W	E	0	3	4	4	2	0	13
WNW	ESE	1	3	2	2	0	0	8
NW	SE	0	3	7	6	4	3	23
NNW	SSE	2	5	11	6	3	3	30
TOTAL		54	59	162	304	344	123	1046

OYSTER CREEK 380 FOOT DATA
 JOINT FREQUENCY TABLES
 VERSION: 99.9a PRINTED 02-11-2000

HOURS AT EACH WIND SPEED AND DIRECTION
 PERIOD OF RECORD 99010100 TO 99123123
 STABILITY CLASS G

SECTOR TO	WINDS FROM	WIND SPEED						TOTAL
		1-3	4-7	8-12	13-18	19-24	>24	
N	S	5	8	29	22	1	0	65
NNE	SSW	7	9	13	18	5	1	53
NE	SW	7	10	17	16	9	6	65
ENE	WSW	5	4	25	19	26	32	111
E	W	8	12	32	26	20	7	105
ESE	WNW	9	6	23	19	21	6	84
SE	NW	2	7	18	39	20	1	87
SSE	NNW	2	6	10	24	16	4	62
S	N	1	11	13	18	11	1	55
SSW	NNE	1	4	7	3	0	0	15
SW	NE	1	5	15	13	0	0	34
WSW	ENE	3	7	2	6	0	0	18
W	E	2	5	12	3	1	0	23
WNW	ESE	0	10	8	2	0	0	20
NW	SE	1	6	6	5	0	0	18
NNW	SSE	1	3	15	10	0	0	29
TOTAL		55	113	245	243	130	58	844

OYSTER CREEK 380 FOOT DATA
 JOINT FREQUENCY TABLES
 VERSION: 99.9a PRINTED 02-11-2000

HOURS AT EACH WIND SPEED AND DIRECTION
 PERIOD OF RECORD 99010100 TO 99123123
 STABILITY CLASS ALL

SECTOR TO	WINDS FROM	WIND SPEED						TOTAL
		1-3	4-7	8-12	13-18	19-24	>24	
N	S	25	29	169	242	61	32	558
NNE	SSW	37	40	113	293	142	60	685
NE	SW	17	44	92	172	149	66	540
ENE	WSW	23	24	118	233	210	96	704
E	W	24	43	134	213	219	69	702
ESE	WNW	27	39	134	251	258	133	842
SE	NW	63	37	156	297	264	135	952
SSE	NNW	36	29	103	221	185	37	611
S	N	13	42	104	155	43	5	362
SSW	NNE	13	37	89	95	23	11	268
SW	NE	9	44	190	248	135	63	689
WSW	ENE	8	48	181	201	69	34	541
W	E	5	46	124	73	36	27	311
WNW	ESE	9	62	116	52	11	16	266
NW	SE	9	43	142	78	13	36	321
NNW	SSE	7	29	149	103	25	46	359
TOTAL		325	636	2114	2927	1843	866	8711

Hours of Missing/Invalid Data: 49

Solid Waste Shipped Offsite for Disposal and Estimates of Major Nuclides by Waste Class and Stream during period from 01/01/99 to 12/31/99.

Percent Cutoff - 1%

Waste Stream: Resins, Filters, Filter Media and Evaporator Bottoms

Waste Class	Volume		Curies Shipped	% Error (Ci)
	Ft ³	M ³		
A	717.4	20.3	7.43E1	± 25%
B	358.8	10.15	5.70E1	± 25%
C	120.3	3.40	1.57E1	± 25%
All	1196.5	33.86	1.47E2	± 25%

Solid Waste Shipped Offsite for Disposal and Estimates of Major Nuclides by Waste Class and Stream during period from 01/01/99 to 12/31/99.

Percent Cutoff - 1%

Waste Stream: Dry Active Waste

Waste Class	Volume		Curies Shipped	% Error (Ci)
	Ft ³	M ³		
A	2.583	73.1	3.75	± 25%
B	0	0	0	± 25%
C	0	0	0	± 25%
All	2.583	73.1	3.75	± 25%

Solid Waste Shipped Offsite for Disposal and Estimates of Major Nuclides by Waste Class and Stream during period from 01/01/99 to 12/31/99.

Percent Cutoff - 1%

Waste Stream: Irradiated Components

Waste Class	Volume		Curies Shipped	% Error (Ci)
	Ft ³	M ³		
A	120.3	3.40	1.62	± 25%
B	0	0	0	± 25%
C	120.3	3.40	4.89	± 25%
All	240.6	6.81	6.51	± 25%

Solid Waste Shipped Offsite for Disposal and Estimates of Major Nuclides by Waste Class and Stream during period from 01/01/99 to 12/31/99.

Percent Cutoff - 1%

Waste Stream: Other Waste (Mixed Waste)

Waste Class	Volume		Curies Shipped	% Error (Ci)
	Ft ³	M ³		
A	104.7	2.96	7.61E-4	± 25%
B	0	0	0	± 25%
C	0	0	0	± 25%
All	104.7	2.96	7.61E-4	± 25%

Solid Waste Shipped Offsite for Disposal and Estimates of Major Nuclides by Waste Class and Stream during period from 01/01/99 to 12/31/99.

Percent Cutoff - 1%

Waste Stream: Sum of All 4 Categories

Waste Class	Volume		Curies Shipped	% Error (Ci)
	Ft ³	M ³		
A	3525	99.76	79.67	± 25%
B	358.8	10.15	57.0	± 25%
C	240.6	6.81	20.6	± 25%
All	4124	116.71	157.3	± 25%

Solid Waste Shipped Offsite for Disposal and Estimates of Major Nuclides by Waste Class and Stream during period from 01/01/99 to 12/31/99.

Percent Cutoff - 1%

Waste Stream: Resins, Filters and Filter Media
Waste Class A

Nuclide Name	Percent Abundance	Curies
Co-60	54.1	4.02E1
Mn-54	20.19	1.5E1
Fe-55	15.21	1.13E1
Cs-137	3.77	2.80
Cr-51	1.94	1.44
Co-58	1.37	1.02
Zn-65	1.02	7.59E-1
Ni-63	.83	6.14E-1
H-3	.14	1.05E-1
Sr-90	.052	3.89E-2
Pu-241	.038	2.83E-2

Solid Waste Shipped Offsite for Disposal and Estimates of Major Nuclides by Waste Class and Stream during period from 01/01/99 to 12/31/99.

Percent Cutoff - 1%

Waste Stream: Resins, Filters and Filter Media
Waste Class B

Nuclide Name	Percent Abundance	Curies
Co-60	44.74	2.64E1
Cs-137	18.98	1.12E1
Mn-54	13.5	7.98
Fe-55	12	7.06
H-3	4.1	2.39
Cr-51	2.76	1.63
Ag-110m	1.01	5.95E-1
Ni-63	.59	3.4E-1
Sr-90	.28	1.6E-1
Pu-241	.2	1.16E-1

Solid Waste Shipped Offsite for Disposal and Estimates of Major Nuclides by Waste Class and Stream during period from 01/01/99 to 12/31/99.

Percent Cutoff - 1%

Waste Stream: Resins, Filters and Filter Media
Waste Class C

Nuclide Name	Percent Abundance	Curies
Cs-137	42.23	6.63
Co-60	40.13	6.30
Fe-55	12.87	2.02
Sr-89	2.71	4.26E-1
Mn-54	2.34	3.76E-1
Ni-63	1.28	2.01E-1
Sr-90	.02	3.34E-3
Ni-59	.01	1.56E-3
H-3	.068	1.06E-2
Pu-241	.095	1.49E-2
Tc-99	.006	9.26E-4

Solid Waste Shipped Offsite for Disposal and Estimates of Major Nuclides by Waste Class and Stream during period from 01/01/99 to 12/31/99.

Percent Cutoff - 1%

Waste Stream: Resins, Filters and Filter Media
Waste Class All

Nuclide Name	Percent Abundance	Curies
Co-60	49.59	7.29E1
Mn-54	15.92	2.34E1
Cs-137	14.01	2.06E1
Fe-55	13.88	2.04E1
Cr-51	2.08	3.06
Ni-63	.79	1.16
H-3	.37	5.42E-1
Sr-90	.14	2.02E-1
Pu-241	.11	1.59E-1
Ni-59	.006	9.04E-3
Cm-242	.0009	1.35E-3
Tc-99	.0006	9.26E-4

Solid Waste Shipped Offsite for Disposal and Estimates of Major Nuclides by Waste Class and Stream during period from 01/01/99 to 12/31/99.

Percent Cutoff - 1%

Waste Stream: Dry Active Waste
Waste Class A, All

Nuclide Name	Percent Abundance	Curies
Co-60	54.9	2.06
Cs-137	14.68	5.52E-1
Fe-55	12.39	4.66E-1
Mn-54	6.32	2.34E-1
H-3	3.78	1.42E-1
U-234	2.05	7.72E-2
Cr-51	1.11	4.16E-2
Ni-63	.87	3.26E-2
Sr-90	.13	4.89E-3
Pu-241	.12	4.38E-3
Nb-94	.07	2.63E-3
Ni-59	.015	5.71E-4
Cm-242	.0012	4.54E-5

Solid Waste Shipped Offsite for Disposal and Estimates of Major Nuclides by Waste Class and Stream during period from 01/01/99 to 12/31/99.

Percent Cutoff - 1%

Waste Stream: Irradiated Hardware
Waste Class A

Nuclide Name	Percent Abundance	Curies
Co-60	55.98	9.07E-1
Fe-55	39.75	6.44E-1
Ni-63	3.62	5.87E-2
Cs-137	.09	1.49E-3
Ni-59	.023	3.75E-4
Pu-241	.01	1.66E-4
C-14	.005	8.14E-5

Solid Waste Shipped Offsite for Disposal and Estimates of Major Nuclides by Waste Class and Stream during period from 01/01/99 to 12/31/99.

Percent Cutoff - 1%

Waste Stream: Irradiated Hardware
Waste Class C

Nuclide Name	Percent Abundance	Curies
Co-60	40.5	1.98
Fe-55	31.1	1.52
Cs-137	22.5	1.1
Ni-63	4.15	2.03E-1
Mn-54	1.31	6.39E-2
Pu-241	.08	3.87E-3
Ni-59	.02	1.07E-3
Sr-90	.01	5.87E-4
C-14	.0063	3.07E-4
Tc-99	.004	1.72E-4

Solid Waste Shipped Offsite for Disposal and Estimates of Major Nuclides by Waste Class and Stream during period from 01/01/99 to 12/31/99.

Percent Cutoff - 1%

Waste Stream: Irradiated Hardware
Waste Class All

Nuclide Name	Percent Abundance	Curies
Co-60	44.39	2.89
Fe-55	33.2	2.16
Cs-137	16.9	1.10
Ni-63	4.03	2.62E-1
Mn-54	1.05	6.86E-2
Pu-241	.062	4.04E-3
Ni-59	.022	1.43E-3
Sr-90	.009	5.83E-4
H-3	.008	5.34E-4
C-14	.006	3.88E-4
Tc-99	.003	1.73E-4

Solid Waste Shipped Offsite for Disposal and Estimates of Major Nuclides by Waste Class and Stream during period from 01/01/99 to 12/31/99.

Percent Cutoff - 1%

Waste Stream: Other Waste
Waste Class A, All

Nuclide Name	Percent Abundance	Curies
Co-60	54.8	4.17E-4
Fe-55	14.72	1.12E-4
Cs-137	13.93	1.06E-4
Cr-51	5.66	4.31E-5
Mn-54	4.02	3.06E-5
Co-58	2.01	1.53E-5
Ag-110m	1.30	9.9E-6
Zn-65	1.15	8.75E-6
Ni-63	.7	5.34E-6
H-3	.53	4.05E-6
Sr-90	.2	1.51E-6
Pu-241	.15	1.1E-6
Cm-242	.001	6.90E-8

Solid Waste Shipped Offsite for Disposal and Estimates of Major Nuclides by Waste Class and Stream during period from 01/01/99 to 12/31/99.

Percent Cutoff - 1%

Waste Stream: Sum of All 4
Waste Class A

Nuclide Name	Percent Abundance	Curies
Co-60	55.5	43.17
Mn-54	19.6	15.2
Fe-55	15.9	12.4
Cs-137	4.2	3.35
Cr-51	1.86	1.48
Co-58	1.4	1.02
Ni-63	.91	7.05E-1
H-3	.31	2.47E-1
Sr-90	.06	4.38E-2
Pu-241	.04	3.28E-2
Ni-59	.007	5.51E-3
Nb-94	1.17E-6	9.13E-7

Solid Waste Shipped Offsite for Disposal and Estimates of Major Nuclides by Waste Class and Stream during period from 01/01/99 to 12/31/99.

Percent Cutoff - 1%

Waste Stream: Sum of All 4
Waste Class B

Nuclide Name	Percent Abundance	Curies
Co-60	47.2	2.64E1
Cs137	20.0	1.12E1
Mn-54	14.2	7.98
Fe-55	12.6	7.06
Cr-51	2.9	1.63
Ag-110m	1.06	5.95E-1
H-3	.76	4.27E-1
Ni-63	.61	3.4E-1
Sr-90	.28	1.6E-1
Pu-241	.21	1.16E-1

Solid Waste Shipped Offsite for Disposal and Estimates of Major Nuclides by Waste Class and Stream during period from 01/01/99 to 12/31/99.

Percent Cutoff - 1%

Waste Stream: Sum of All 4
Waste Class C

Nuclide Name	Percent Abundance	Curies
Co-60	40.5	8.28
Cs-137	37.8	7.73
Fe-55	17.2	3.54
Mn-54	2.14	4.4E-1
Ni-63	1.98	4.04E-1
Pu-241	.09	1.88E-2
H-3	.05	1.06E-2
Sr-90	.02	3.93E-3
Ni-59	.013	2.63E-3
Tc-99	.005	1.1E-3
Sr-89	.003	5.62E-4
C-14	.002	3.07E-4

Solid Waste Shipped Offsite for Disposal and Estimates of Major Nuclides by Waste Class and Stream during period from 01/01/99 to 12/31/99.

Percent Cutoff - 1%

Waste Stream: Sum of All 4
Waste Class All

Nuclide Name	Percent Abundance	Curies
Co-60	50.5	77.85
Mn-54	15.4	23.7
Fe-55	14.9	23.03
Cs-137	14.5	22.25
Cr-51	1.97	3.1
Ni-63	.92	1.45
H-3	.43	.68
Sr-90	.13	.27
Pu-241	.13	.20
Ni-59	.007	8.4E-3
Nb-94	5.93E7	9.13E-7
Cm-242	.0009	1.4E-3
Tc-99	.0006	1.0E-3
C-14	.00025	3.88E-4

Solid Waste Shipped Offsite for Disposal and Estimates of Major Nuclides by Waste Class and Stream during period from 01/01/99 to 12/31/99.

Number of Shipments	Mode of Transportation	Destination
1	Truck	Houston, Tx
1	Truck	Memphis, Tn
3	Truck	Richland, Wa
9	Truck	Barnwell, S.C.