REGULATORY LIMITS

Gaseous Effluents - Dose

This Specification is provided to ensure that the dose at the unrestricted area boundary from gaseous effluents from the units on site will be within the annual dose limits of 10 CFR Part 20 for unrestricted areas. The annual dose limits are the doses associated with the concentrations of 10 CFR Part 20, Appendix B, Table II. These limits provide reasonable assurance that radioactive material discharged in gaseous effluents will not result in the exposure of an individual in an unrestricted area to annual average concentrations exceeding the limits specified in Appendix B, Table II of 10 CFR Part 20 (10 CFR Part 20.106(b)). The specified release rate limits restrict, at all times, the corresponding gamma and beta dose rates above background to an individual at or beyond the unrestricted area boundary to less than or equal to 500 mrem/year to the total body or to not less than or equal to 3000 mrem/year to the skin. These release rate limits also restrict, at all times, the corresponding thyroid dose rate above background to an infant via the cow-milk-infant pathway to not less than or equal to 1500 mrem/year for the nearest cow to the plant. For purposes of calculating doses resulting from airborne releases, the main chimney is considered to be an elevated release point and the reactor building vent stack is considered to be a mixed mode release point.

Dose, Noble Gases

This Specification is provided to implement the requirements of Sections II.B, III.A and IV.A of Appendix I, 10 CFR Part 50. The Limiting Conditions For Operation implement the guides set forth in Section II.3 of Appendix I. The statements provide the required operating flexibility and at the same time implement the guides set forth in Section IV.A of Appendix I to assure that the releases of radioactive material in gaseous effluents will be kept "as low as is reasonably achievable." The Surveillance Requirements implement the requirements in Section III.A of Appendix I that conformance with the guides of Appendix I is to be shown by calculational procedures based on models and data such that the actual exposure of an individual through the appropriate pathways is unlikely to be substantially underestimated. The dose calculations established in the ODCM for calculating the doses due to the actual release rates of radioactive noble gases in gaseous effluents will be consistent with the methodology provided in Regulatory Guide 1.109, "Calculation of

Annual Doses to Man from Routine Releases of Reactor Effluents for the Purpose of Evaluating Compliance with 10 CFR Part 50, Appendix I," Revision 1, October 1977 and Regulatory Guide 1.111, "Methods for Estimating Atmospheric Transport and Dispersion of Gaseous Effluents in Routine Releases from Light-Water Cooled Reactors," Revision 1, July 1977. The ODCM equations provide for determining the air doses at the unrestricted boundary based upon the historical average atmospheric conditions. NUREG-0133 provides methods for dose calculations consistent with Regulatory Guides 1.109 and 1.111.

Dose, Radioiodines, Radioactive Material in Particulate Form and Radionuclides Other than Noble Gases

This specification is provided to implement the requirements of Sections II.C, III.A and IV.A of Appendix I, 10 CFR Part 50. The Limiting Conditions for Operation are the guides set forth in Section II.C of Appendix I. The statements provide the required operating flexibility and at the same time implement the guides set forth in Section IV.A of Appendix I to assure that the releases of radioactive materials in gaseous effluents will be kept "as low as reasonably achievable." The ODCM calculational methods specified in the surveillance requirements implement the requirements in Section III.A of Appendix I that conformance with the guides of Appendix I be shown by calculational procedures based on models and data such that the actual exposure of an individual through appropriate pathways is unlikely to be substantially underestimated. The ODCM calculational methods approved by NRC for calculating the doses due to the actual release rates of the subject materials are required to be consistent with the methodology provided in Regulatory Guide 1.109, "Calculation of Annual Doses to Man from Routine Releases of Reactor Effluents for the Purpose of Evaluating Compliance with 10 CFR Part 50, Appendix I", Revision 1, October 1977 and Regulatory Guide 1.111, "Methods for Estimating Atmospheric Transport and Dispersion of Gaseous Effluents in Routine Releases from Light-Water-Cooled Reactors," Revision 1, July 1977. These equations also provide for determining the actual doses based upon the historical average atmospheric conditions. The release rate specifications for radioiodines, radioactive material in particulate form and radionuclides other than noble gases are dependent on the existing radionuclide pathways to man, in the unrestricted area. The pathways which were examined in the development of these specifications were: 1) individual inhalation of airborne radionuclides, 2) deposition of radionuclides onto green leafy vegetation with subsequent consumption by man and 3) deposition onto grassy areas where milk animals graze with consumption of the milk by man.

Gaseous Waste Treatment

The OPERABILITY of the gaseous waste treatment which reduces amounts or concentrations of radioactive materials ensures that the system will be available for use whenever gaseous effluents require treatment prior to release to the environment. The requirement that the appropriate portions of this system be operable when specified provides reasonable assurance that the releases of radioactive materials in gaseous effluents will be kept "as low as reasonably achievable". This specification implements the requirements of 10 CFR Part 50.36a, General Design Criterion 60 of Appendix A to 10 CFR Part 50, and design objective Section II.D of Appendix I to 10 CFR Part 50.

LIQUID EFFLUENTS

Concentration

This specification is provided to ensure the concentration of radioactive materials released in liquid waste effluents from the site to unrestricted areas will be less than the concentration levels specified in 10 CFR Part 20, Appendix B, Table II, Column 2. The concentration limit for noble gases, MPC in air (submersion), was converted to an equivalent concentration in water using the International Commission on Radiological Protection (ICRP) Publication 2.

Dose

This specification is provided to implement the requirements of Sections II.A, III.A and IV.A of Appendix I, 10 CFR Part 50.

The Limiting Condition for Operation implements the guides set forth in Section II.A of Appendix I. The statements provide the required operating flexibility and at the same time implement the guides set forth in Section IV.A of Appendix I to assure that the releases of radioactive material in liquid effluents will be kept "as low as reasonably achievable". The dose calculations in the ODCM implement the requirements in Section III.A of Appendix I that conformance with the guides of Appendix I be shown by calculational procedures based on models and data such that the actual exposure of an individual through appropriate pathways is unlikely to be substantially underestimated. The equations specified in the ODCM for calculating the doses due to the actual release rates of radioactive materials in liquid effluents will be consistent with the methodology provided in Regulatory Guide 1.109, "Calculation of Annual Doses to Man from Routine Releases of Reactor Effluents for the Purpose of Evaluating Compliance with 10 CFR Part 50, Appendix I", Revision 1, October 1977 and Regulatory Guide 1.113, "Estimating Aquatic Dispersion of Effluents from Accidental and Routine Reactor Releases for the Purpose of Implementing Appendix I", April 1977. NUREG-0113 provides methods for dose calculations with Reg Guide 1.109 and 1.113.

Liquid Waste Treatment

The operability of the liquid radwaste treatment system ensures that this system will be available for use whenever liquid effluents require treatment prior to release to the environment. The requirement that the appropriate portions of this system be used when specified provides assurance that the releases of radioactive materials in liquid effluents will be kept "as low as reasonably achievable". This specification implements the requirements of 10 CFR Part 50 and design objective Section II.D of Appendix I to 10 CFR Part 50.

MAXIMUM PERMISSIBLE CONCENTRATIONS (MPC)

The concentration of radioactive materials released in gaseous and liquid effluents from the site to unrestricted areas will be less than the concentration levels specified in 10 CFR Part 20, Appendix B, Columns 1 and 2. The concentration limit for noble gases, MPC in air (submersion), was converted to an equivalent concentration in water using the International Commission on Radiological Protection (ICRP) Publication 2.

MAXIMUM PERMISSIBLE CONCENTRATION OF DISSOLVED OR ENTRAINED NOBLE GASES RELEASED FROM THE SITE TO UNRESTRICTED AREAS IN LIQUID WASTE

NUCLIDE	MPC(μCi/mL)*
Kr-85m	2.0E-04
Kr-85	5.0E-04
Kr-87	4.0E-05
Kr-88	9.0E-05
Ar-41	7.0E-05
Xe-131m	7.0E-04
Xe-133m	5.0E-04
Xe-133	6.0E-04
Xe-135m	2.0E-04
Xe-135	2.0E-04

* Computed from Equation 20 of ICRP Publication 2 (1959), adjusted for infinite cloud submersion in water, and R = 0.01 rem/week, density = 1.0 g/cc and Pw/Pt = 1.0.

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AVERAGE ENERGY

The average energy of fission and activation gases was calculated for the gaseous effluents released from the site. The average energy is based on the percentage of each fission gas nuclide present and its respective average energy per disintegration ($\bar{E}$ in MeV/dis) for gamma and beta emissions separately.

$\bar{E}_G$ = 2.72E-01 MeV/dis

$\bar{E}_B$ = 2.87E-01 MeV/dis

MEASUREMENTS AND APPROXIMATIONS

A. Fission and activation gases: The D-1 chimney, D2/3 chimney and D2/3 Reactor Building Vent are sampled weekly via a grab sample. The samples are analyzed for specific isotopes present in the release using a Hyper-Pure Germanium (HP Ge) Spectrometry System. Tritium is sampled monthly via a grab sample on the D-1 chimney, D2/3 Chimney, and D2/3 Reactor Building vent and analyzed using a Liquid Scintillation Counter. Krypton-85 is estimated in the D2/3 chimney using a recoil or non-recoil calculation using the fission per second plot and the sum of Kr-85m, Kr-87, Kr-88, Xe-133, Xe-135, and Xe 138 activities present in Reactor Off-Gas.

B. Iodine and Particulate: Iodine and particulate samples from the D-1 Chimney, D2/3 Chimney and the D2/3 Reactor Building Vents are collected for a maximum seven day period. These samples are analyzed for specific nuclides present in the release using a HP Ge spectrometry system. When iodine or particulate samples are not used for reporting the release rate due to management decision that the sample may not be representative, an average of the preceding sample and the following sample is used to calculate the release. A monthly composite of the particulate samples is sent to a vendor to be analyzed for Sr-89, Sr-90, and Gross Alpha activity.

C. Liquid Effluents: Prior to a release, duplicate grab samples are collected from each batch and analyzed for gross activity using a gas flow proportional counter. Radioactive waste batch discharges are also analyzed for specific isotopes present in the release using a HP Ge spectrometry system. A composite of all batches for the month is sent to a vendor to be analyzed for Sr-89, Sr-90, Fe-55, H-3, and Gross Alpha activity. A sample of each Containment Cooling Service Water (CCSW) system is analyzed each month for specific isotopes present in the release using a HP Ge spectrometry system. A sample of each CCSW system is sent each month to a vendor to be analyzed for Sr-89, Sr-90, Fe-55, H-3, and Gross Alpha activity.

D. Estimation of Overall Errors: The methods used for estimating overall errors associated with radioactivity measurements vary with discharge path and form of isotopes. Factors that contribute to the error include such items as calibration of counting equipment, counting statistics, sampling error, discharge volume, and flow rate monitors.

E. Estimation of Vendor Analyzed Information: The vendor analyzed data for Sr-89, Sr-90, Fe-55, H-3, and Gross Alpha was previously projected, where applicable, for the months of November and December using October data. The data in this corrected Effluent Report reflects final vendor analyzed information.

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UNITS 1,2, AND 3
EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT
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GASEOUS EFFLUENTS

SUMMATION OF ALL RELEASES

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TYPE OF RELEASE	UNITS	3rd QUARTER	4th QUARTER	EST.TOTAL ERROR,%
A. FISSION AND ACTIVATION GASES				
1. Total Release	Ci	2.25E+00	9.75E+00	7.31
2. Average Release Rate for Period	uCi/sec	2.83E-01	1.23E+00	
3. Percent of Technical Specification Limit	%	★	★	
B. IODINES				
1. Total Iodine-131	Ci	1.58E-03	9.15E-04	9.51
2. Average Release Rate of I-131 for Period	uCi/sec	1.99E-04	1.15E-04	
3. Percent of Technical Specification Limit	%	★	★	
4. Total Iodine-131,Iodine-133,and Iodine-135	Ci	2.32E-02	1.54E-02	
C. PARTICULATES				
1. Particulates with half-lives > 8 days	Ci	4.09E-02	4.24E-02	8.09
2. Average Release Rate for Period	uCi/sec	5.15E-03	5.33E-03	
3. Percent of Technical Specification Limit	%	★	★	
4. Gross Alpha Radioactivity	Ci	1.27E-05	4.07E-06	
D. TRITIUM				
1. Total Release	Ci	3.07E+00	4.45E+00	7.89
2. Average Release Rate for Period	uCi/sec	3.86E-01	5.60E-01	
3. Percent of Technical Specification Limit	%	★	★	

★ The information is contained in the Radiological Impact on Man section of the report. Total airborne release data is provided which includes fission and activation gases, iodines, particulates, and tritium.

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TABLE OF LOWER LIMITS OF DETECTABILITY
FOR GASEOUS EFFLUENTS

	LLD (uCi/cc)
1. FISSION GASES	
Xe-138	1.62E-07
Xe-135m	7.18E-08
Kr-87	4.25E-08
Kr-88	6.09E-08
Kr-85m	2.08E-08
Kr-85	4.91E-06
Xe-135	1.66E-08
Xe-133	4.53E-08
Others:	
2. IODINES	
I-131	1.33E-13
I-133	7.00E-12
I-135	1.84E-07
3. PARTICULATES	
Sr-89	6.00E-16
Sr-90	6.00E-16
Cr-51	7.21E-13
Mn-54	8.76E-14
Co-58	7.52E-14
Fe-59	1.40E-13
Co-60	1.93E-13
Zr-95	1.38E-13
Nb-95	8.36E-14
Ru-103	8.09E-14
Ag-110m	7.42E-14
Sb-124	6.66E-14
I-131	1.25E-13
Cs-134	8.50E-14
Cs-136	1.21E-13
Cs-137	8.77E-14
Ba-140	3.68E-13
Ce-141	1.28E-13
Ce-144	4.85E-13
Zn-65	1.43E-13
Ba-133	9.89E-14
Sb-125	2.22E-13
Others:	
Gross Alpha	4.00E-15
Fe-55	1.20E-14

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D1 Chimney GASEOUS EFFLUENTS

_____ GROUND LEVEL RELEASES

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_____ SEMI-ELEVATED RELEASES

xx ELEVATED RELEASES

		CONTINUOUS MODE		BATCH MODE	
NUCLIDES RELEASED	UNIT	3rd QUARTER	4th QUARTER	3rd QUARTER	4th QUARTER
FISSION GASES					
Xe-138	Ci	*	*		
Xe-135m	Ci	*	*		
Kr-87	Ci	*	*		
Kr-88	Ci	*	*		
Kr-85m	Ci	*	*		
Kr-85	Ci	*	*		
Xe-135	Ci	*	*		
Xe-133	Ci	*	*		
TOTAL	Ci			None	None
IODINES					
I-131	Ci	*	*		
I-133	Ci	*	*		
I-135	Ci	*	*		
TOTAL	Ci			None	None
PARTICULATES					
Sr-89	Ci	1.76E-05	*		
Sr-90	Ci	8.75E-08	*		
Cr-51	Ci	*	*		
Mn-54	Ci	3.71E-07	*		
Co-58	Ci	*	*		
Fe-59	Ci	*	*		
Co-60	Ci	5.05E-06	5.78E-06		
Zr-95	Ci	*	*		
Nb-95	Ci	*	*		
Ru-103	Ci	*	*		
Ag-110m	Ci	*	*		
Sb-124	Ci	*	*		
I-131	Ci	*	*		
Cs-134	Ci	*	*		
Cs-136	Ci	*	*		
Cs-137	Ci	2.50E-06	2.07E-06		
Ba-140	Ci	*	*		
Ce-141	Ci	*	*		
Ce-144	Ci	*	*		
Zn-65	Ci	*	*		
Ba-133	Ci	*	*		
Sb-125	Ci	*	*		
Fe-55	Ci	5.08E-06	*		
TOTAL	Ci	3.07E-05	7.85E-06	None	None

* The activity of this nuclide is less than the LLD listed on the appropriate table.

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Unit 1
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July Through September 1989

D1 Chimney GASEOUS EFFLUENTS

_____ GROUND LEVEL RELEASES

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_____ SEMI-ELEVATED RELEASES

xx ELEVATED RELEASES

CONTINUOUS MODE

NUCLIDES RELEASED	UNIT	JULY	AUGUST	SEPTEMBER	3rd QUARTER TOTAL
FISSION GASES					
Xe-138	Ci	*	*	*	*
Xe-135m	Ci	*	*	*	*
Kr-87	Ci	*	*	*	*
Kr-88	Ci	*	*	*	*
Kr-85m	Ci	*	*	*	*
Kr-85	Ci	*	*	*	*
Xe-135	Ci	*	*	*	*
Xe-133	Ci	*	*	*	*
TOTAL	Ci				
IODINES					
I-131	Ci	*	*	*	*
I-133	Ci	*	*	*	*
I-135	Ci	*	*	*	*
TOTAL	Ci				
PARTICULATES					
Sr-89	Ci	*	*	1.76E-05	1.76E-05
Sr-90	Ci	*	*	8.75E-08	8.75E-08
Cr-51	Ci	*	*	*	*
Mn-54	Ci	3.71E-07	*	*	3.71E-07
Co-58	Ci	*	*	*	*
Fe-59	Ci	*	*	*	*
Co-60	Ci	2.92E-06	1.56E-06	5.71E-07	5.05E-06
Zr-95	Ci	*	*	*	*
Nb-95	Ci	*	*	*	*
Ru-103	Ci	*	*	*	*
Ag-110m	Ci	*	*	*	*
Sb-124	Ci	*	*	*	*
I-131	Ci	*	*	*	*
Cs-134	Ci	*	*	*	*
Cs-136	Ci	*	*	*	*
Cs-137	Ci	1.24E-06	1.09E-06	1.71E-07	2.50E-06
Ba-140	Ci	*	*	*	*
Ce-141	Ci	*	*	*	*
Ce-144	Ci	*	*	*	*
Zn-65	Ci	*	*	*	*
Ba-133	Ci	*	*	*	*
Sb-125	Ci	*	*	*	*
Fe-55	Ci	1.02E-06	*	4.06E-06	5.08E-06
TOTAL	Ci	5.55E-06	2.65E-06	2.25E-05	3.07E-05

* The activity of this nuclide is less than the LLD listed on the appropriate table.

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DRESDEN NUCLEAR POWER STATION
UNIT 1
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October Through December 1989

D1 Chimney GASEOUS EFFLUENTS

GROUND LEVEL RELEASES

Docket Number: 50-10

SEMI-ELEVATED RELEASES

XX ELEVATED RELEASES

CONTINUOUS MODE

NUCLIDES RELEASED	UNIT	OCTOBER	NOVEMBER	DECEMBER	4th QUARTER TOTAL
FISSION GASES		*	*	*	*
Xe-138	Ci	*	*	*	*
Xe-135m	Ci	*	*	*	*
Kr-87	Ci	*	*	*	*
Kr-88	Ci	*	*	*	*
Kr-85m	Ci	*	*	*	*
Kr-85	Ci	*	*	*	*
Xe-135	Ci	*	*	*	*
Xe-133	Ci	*	*	*	*
TOTAL	Ci				
IODINES					
I-131	Ci	*	*	*	*
I-133	Ci	*	*	*	*
I-135	Ci	*	*	*	*
TOTAL	Ci				
PARTICULATES					
Sr-89	Ci	*	*	*	*
Sr-90	Ci	*	*	*	*
Cr-51	Ci	*	*	*	*
Mn-54	Ci	*	*	*	*
Co-58	Ci	*	*	*	*
Fe-59	Ci	*	*	*	*
Co-60	Ci	1.85E-06	1.92E-07	3.74E-06	5.78E-06
Zr-95	Ci	*	*	*	*
Nb-95	Ci	*	*	*	*
Ru-103	Ci	*	*	*	*
Ag-110m	Ci	*	*	*	*
Sb-124	Ci	*	*	*	*
I-131	Ci	*	*	*	*
Cs-134	Ci	*	*	*	*
Cs-136	Ci	*	*	*	*
Cs-137	Ci	*	1.23E-07	1.95E-06	2.07E-06
Ba-140	Ci	*	*	*	*
Ce-141	Ci	*	*	*	*
Ce-144	Ci	*	*	*	*
Zn-65	Ci	*	*	*	*
Ba-133	Ci	*	*	*	*
Sb-125	Ci	*	*	*	*
Fe-55	Ci	*	*	*	*
TOTAL	Ci	1.85E-06	3.15E-07	5.69E-06	7.85E-06

* The activity of this nuclide is less than the LLD listed on the appropriate table.

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DRESDEN NUCLEAR POWER STATION
UNITS 2 AND 3
EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT
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D2/3 Chimney GASEOUS EFFLUENTS

_____ GROUND LEVEL RELEASES

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_____ SEMI-ELEVATED RELEASES

XX ELEVATED RELEASES

		CONTINUOUS MODE		BATCH MODE	
NUCLIDES RELEASED	UNIT	3rd QUARTER	4th QUARTER	3rd QUARTER	4th QUARTER
FISSION GASES					
Xe-138	Ci	*	*		
Xe-135m	Ci	*	1.88E+00		
Kr-87	Ci	*	*		
Kr-88	Ci	*	*		
Kr-85m	Ci	*	*		
Kr-85	Ci	2.81E-03	2.30E-03		
Xe-135	Ci	2.25E+00	9.75E+00		
Xe-133	Ci	*	*		
TOTAL	Ci	2.25E+00	1.16E+01	None	None
IODINES					
I-131	Ci	1.23E-03	6.66E-04		
I-133	Ci	6.15E-03	3.83E-03		
I-135	Ci	8.95E-03	5.27E-03		
TOTAL	Ci	1.63E-02	9.77E-03	None	None
PARTICULATES					
Sr-89	Ci	2.26E-04	1.83E-04		
Sr-90	Ci	1.53E-06	1.38E-06		
Cr-51	Ci	*	1.16E-04		
Mn-54	Ci	1.70E-05	2.16E-05		
Co-58	Ci	*	*		
Fe-59	Ci	*	*		
Co-60	Ci	1.47E-04	8.15E-05		
Zr-95	Ci	*	*		
Nb-95	Ci	*	*		
Ru-103	Ci	*	*		
Ag-110m	Ci	*	*		
Sb-124	Ci	*	*		
I-131	Ci	1.01E-04	3.18E-05		
Cs-134	Ci	*	*		
Cs-136	Ci	*	*		
Cs-137	Ci	5.83E-06	1.41E-05		
Ba-140	Ci	1.04E-03	5.81E-04		
Ce-141	Ci	*	*		
Ce-144	Ci	*	*		
Zn-65	Ci	*	*		
Ba-133	Ci	*	*		
Sb-125	Ci	*	*		
La-140	Ci	2.06E-03	1.17E-03		
Fe-55	Ci	2.33E-04	2.23E-04		
TOTAL	Ci	3.83E-03	2.42E-03	None	None

* The activity of this nuclide is less than the LLD listed on the appropriate table.

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D2/3 Chimney GASEOUS EFFLUENTS

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_____ SEMI-ELEVATED RELEASES

XX ELEVATED RELEASES

CONTINUOUS MODE

NUCLIDES RELEASED	UNIT	JULY	AUGUST	SEPTEMBER	3rd QUARTER TOTAL
FISSION GASES		*	*	*	*
Xe-138	Ci	*	*	*	*
Xe-135m	Ci	*	*	*	*
Kr-87	Ci	*	*	*	*
Kr-88	Ci	*	*	*	*
Kr-85m	Ci	*	*	*	*
Kr-85	Ci	1.03E-03	9.80E-04	8.02E-04	2.26E-03
Xe-135	Ci	2.64E-01	*	1.99E+00	2.25E+00
Xe-133	Ci	*	*	*	*
TOTAL	Ci	2.65E-01	9.80E-04	1.99E+00	2.25E+00
IODINES					
I-131	Ci	3.44E-04	5.07E-04	3.78E-04	1.23E-03
I-133	Ci	2.14E-03	1.97E-03	2.04E-03	6.15E-03
I-135	Ci	3.56E-03	2.36E-03	3.03E-03	8.95E-03
TOTAL	Ci	6.04E-03	4.84E-03	5.45E-03	1.63E-02
PARTICULATES					
Sr-89	Ci	8.92E-05	1.37E-04	*	2.26E-04
Sr-90	Ci	8.99E-07	6.28E-07	*	1.53E-06
Cr-51	Ci	*	*	*	*
Mn-54	Ci	1.70E-05	*	*	1.70E-05
Co-58	Ci	*	*	*	*
Fe-59	Ci	*	*	*	*
Co-60	Ci	6.84E-05	1.97E-05	5.88E-05	1.47E-04
Zr-95	Ci	*	*	*	*
Nb-95	Ci	*	*	*	*
Ru-103	Ci	*	*	*	*
Ag-110m	Ci	*	*	*	*
Sb-124	Ci	*	*	*	*
I-131	Ci	1.00E-05	3.63E-05	5.51E-05	1.01E-04
Cs-134	Ci	*	*	*	*
Cs-136	Ci	*	*	*	*
Cs-137	Ci	7.81E-07	*	5.05E-06	5.83E-06
Ba-140	Ci	3.63E-04	2.83E-04	3.91E-04	1.04E-03
Ce-141	Ci	*	*	*	*
Ce-144	Ci	*	*	*	*
Zn-65	Ci	*	*	*	*
Ba-133	Ci	*	*	*	*
Sb-125	Ci	*	*	*	*
La-140	Ci	4.87E-04	8.63E-04	7.13E-04	2.06E-03
Fe-55	Ci	1.44E-04	3.20E-05	5.70E-05	2.33E-04
TOTAL	Ci	1.18E-03	1.37E-03	1.28E-03	3.83E-03

* The activity of this nuclide is less than the LLD listed on the appropriate table.

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DRESDEN NUCLEAR POWER STATION
UNITS 2 AND 3
EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT
October Through December 1989

D2/3 Chimney GASEOUS EFFLUENTS

_____ GROUND LEVEL RELEASES

Docket Numbers: 50-237
50-249

_____ SEMI-ELEVATED RELEASES

XX ELEVATED RELEASES

CONTINUOUS MODE

NUCLIDES RELEASED	UNIT	OCTOBER	NOVEMBER	DECEMBER	4th QUARTER TOTAL
FISSION GASES					
Xe-138	Ci	*	*	*	*
Xe-135m	Ci	1.88E+00	*	*	1.88E+00
Kr-87	Ci	*	*	*	*
Kr-88	Ci	*	*	*	*
Kr-85m	Ci	*	*	*	*
Kr-85	Ci	1.12E-03	9.85E-04	1.94E-04	2.30E-03
Xe-135	Ci	5.46E+00	4.29E+00	*	9.75E+00
Xe-133	Ci	*	*	*	*
TOTAL	Ci	7.34E+00	4.29E+00	1.94E-04	1.16E+01
IODINES					
I-131	Ci	3.95E-04	1.94E-04	7.71E-05	6.66E-04
I-133	Ci	2.60E-03	9.67E-04	2.58E-04	3.83E-03
I-135	Ci	3.97E-03	1.30E-03	*	5.27E-03
TOTAL	Ci	6.97E-03	2.46E-03	3.35E-04	9.77E-03
PARTICULATES					
Sr-89	Ci	5.99E-05	6.36E-05	5.94E-05	1.83E-04
Sr-90	Ci	5.35E-07	4.35E-07	4.06E-07	1.38E-06
Cr-51	Ci	*	*	1.16E-04	1.16E-04
Mn-54	Ci	4.33E-06	*	1.73E-05	2.16E-05
Co-58	Ci	*	*	*	*
Fe-59	Ci	*	*	*	*
Co-60	Ci	2.86E-05	1.68E-05	3.61E-05	8.15E-05
Zr-95	Ci	*	*	*	*
Nb-95	Ci	*	*	*	*
Ru-103	Ci	*	*	*	*
Ag-110m	Ci	*	*	*	*
Sb-124	Ci	*	*	*	*
I-131	Ci	*	2.88E-05	3.04E-06	3.18E-05
Cs-134	Ci	*	*	*	*
Cs-136	Ci	*	*	*	*
Cs-137	Ci	1.41E-05	*	*	1.41E-05
Ba-140	Ci	2.97E-04	2.53E-04	3.05E-05	5.81E-04
Ce-141	Ci	*	*	*	*
Ce-144	Ci	*	*	*	*
Zn-65	Ci	*	*	*	*
Ba-133	Ci	*	*	*	*
Sb-125	Ci	*	*	*	*
La-140	Ci	6.26E-04	4.68E-04	8.08E-05	1.17E-03
Fe-55	Ci	6.82E-05	8.01E-05	7.48E-05	2.23E-04
TOTAL	Ci	1.10E-03	9.11E-04	4.18E-04	2.42E-03

* The activity of this nuclide is less than the LLD listed on the appropriate table

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DRESDEN NUCLEAR POWER STATION
UNITS 2 AND 3
EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT
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D2/3 Reactor Building Vent GASEOUS EFFLUENTS

_____ GROUND LEVEL RELEASES

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XX SEMI-ELEVATED RELEASES

_____ ELEVATED RELEASES

		CONTINUOUS MODE		BATCH MODE	
NUCLIDES RELEASED	UNIT	3rd QUARTER	4th QUARTER	3rd QUARTER	4th QUARTER
FISSION GASES					
Xe-138	Ci	*	*		
Xe-135m	Ci	*	*		
Kr-87	Ci	*	*		
Kr-88	Ci	*	*		
Kr-85m	Ci	*	*		
Kr-85	Ci	1.05E-05	*		
Xe-135	Ci	*	*		
Xe-133	Ci	1.00E-08	*		
TOTAL	Ci	1.05E-05		None	None
IODINES					
I-131	Ci	3.53E-04	2.49E-04		
I-133	Ci	2.68E-03	2.16E-03		
I-135	Ci	3.79E-03	3.19E-03		
TOTAL	Ci	6.82E-03	5.60E-03		
PARTICULATES				None	None
Sr-89	Ci	3.64E-05	3.55E-05		
Sr-90	Ci	2.51E-07	9.24E-07		
Cr-51	Ci	5.43E-03	5.15E-03		
Mn-54	Ci	2.16E-03	2.42E-03		
Co-58	Ci	1.48E-03	9.17E-04		
Fe-59	Ci	1.37E-03	1.61E-03		
Co-60	Ci	8.33E-03	5.16E-03		
Zr-95	Ci	*	*		
Nb-95	Ci	*	*		
Ru-103	Ci	*	*		
Ag-110m	Ci	1.20E-04	1.19E-04		
Sb-124	Ci	2.57E-05	7.88E-05		
I-131	Ci	1.29E-04	3.98E-05		
Cs-134	Ci	*	*		
Cs-136	Ci	*	*		
Cs-137	Ci	*	*		
Ba-140	Ci	3.16E-04	1.23E-04		
Ce-141	Ci	*	*		
Ce-144	Ci	*	*		
Zn-65	Ci	2.67E-04	1.56E-04		
Ba-133	Ci	*	*		
Sb-125	Ci	*	*		
La-140	Ci	3.16E-04	1.23E-04		
Mo-99	Ci	2.16E-03	1.65E-03		
Fe-55	Ci	1.49E-02	2.24E-02		
TOTAL	Ci	3.70E-02	4.00E-02	None	None

* The activity of this nuclide is less than the LLD listed on the appropriate table.

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DRESDEN NUCLEAR POWER STATION
UNIT 2 AND 3
EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT
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D2/3 Reactor Building Vent GASEOUS EFFLUENTS

____ GROUND LEVEL RELEASES

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XX SEMI-ELEVATED RELEASES

____ ELEVATED RELEASES

CONTINUOUS MODE

NUCLIDES RELEASED	UNIT	JULY	AUGUST	SEPTEMBER	3rd QUARTER TOTAL
FISSION GASES					
Xe-138	Ci	*	*	*	*
Xe-135m	Ci	*	*	*	*
Kr-87	Ci	*	*	*	*
Kr-88	Ci	*	*	*	*
Kr-85m	Ci	*	*	*	*
Kr-85	Ci	*	*	1.05E-05•	1.05E-05
Xe-135	Ci	*	*	*	*
Xe-133	Ci	*	*	1.00E-08•	1.00E-08
TOTAL	Ci			1.05E-05	1.05E-05
IODINES					
I-131	Ci	1.34E-04	8.39E-05	1.35E-04	3.53E-04
I-133	Ci	1.03E-03	5.73E-04	1.08E-03	2.68E-03
I-135	Ci	2.68E-03	2.05E-04	9.01E-04	3.79E-03
TOTAL	Ci	3.84E-03	8.62E-04	2.12E-03	6.82E-03
PARTICULATES					
Sr-89	Ci	3.82E-06	1.27E-05	1.99E-05	3.64E-05
Sr-90	Ci	*	2.51E-07	*	2.51E-07
Cr-51	Ci	1.31E-03	1.92E-03	2.20E-03	5.43E-03
Mn-54	Ci	4.17E-04	5.95E-04	1.15E-03	2.16E-03
Co-58	Ci	3.03E-04	4.43E-04	7.29E-04	1.48E-03
Fe-59	Ci	2.24E-04	3.65E-04	7.84E-04	1.37E-03
Co-60	Ci	1.86E-03	2.67E-03	3.80E-03	8.33E-03
Zr-95	Ci	*	*	*	*
Nb-95	Ci	*	*	*	*
Ru-103	Ci	*	*	*	*
Ag-110m	Ci	1.98E-05	3.89E-05	6.10E-05	1.20E-04
Sb-124	Ci	1.76E-06	*	2.39E-05	2.57E-05
I-131	Ci	1.51E-05	2.86E-05	8.53E-05	1.29E-04
Cs-134	Ci	*	*	*	*
Cs-136	Ci	*	*	*	*
Cs-137	Ci	*	*	*	*
Ba-140	Ci	5.81E-05	6.67E-05	1.91E-04	3.16E-04
Ce-141	Ci	*	*	*	*
Ce-144	Ci	*	*	*	*
Zn-65	Ci	2.59E-05	8.04E-05	1.61E-04	2.67E-04
Ba-133	Ci	*	*	*	*
Sb-125	Ci	*	*	*	*
La-140	Ci	5.81E-05	6.67E-05	1.91E-04	3.16E-04
Mo-99	Ci	2.96E-04	6.03E-04	1.26E-03	2.16E-03
Fe-55	Ci	2.37E-03	4.95E-03	7.59E-03	1.49E-02
TOTAL	Ci	6.96E-03	1.18E-02	1.82E-02	3.70E-02

* The activity of this nuclide is less than the LLD listed on the appropriate table.
• See Supplemental Information

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DRESDEN NUCLEAR POWER STATION
UNITS 2 AND 3
EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT
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D2/3 Reactor Building Vent GASEOUS EFFLUENTS

_____ GROUND LEVEL RELEASES

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XX SEMI-ELEVATED RELEASES

_____ ELEVATED RELEASES

CONTINUOUS MODE

NUCLIDES RELEASED	UNIT	OCTOBER	NOVEMBER	DECEMBER	4th QUARTER TOTAL
FISSION GASES					
Xe-138	Ci	*	*	*	*
Xe-135m	Ci	*	*	*	*
Kr-87	Ci	*	*	*	*
Kr-88	Ci	*	*	*	*
Kr-85m	Ci	*	*	*	*
Kr-85	Ci	*	*	*	*
Xe-135	Ci	*	*	*	*
Xe-133	Ci	*	*	*	*
TOTAL	Ci				
IODINES					
I-131	Ci	1.34E-04	8.17E-05	3.35E-05	2.49E-04
I-133	Ci	1.17E-03	6.77E-04	3.14E-04	2.16E-03
I-135	Ci	1.74E-03	8.98E-04	5.50E-04	3.19E-03
TOTAL	Ci	3.04E-03	1.66E-03	8.98E-04	5.60E-03
PARTICULATES					
Sr-89	Ci	1.84E-05	6.35E-06	1.07E-05	3.55E-05
Sr-90	Ci	7.95E-07	*	1.29E-07	9.24E-07
Cr-51	Ci	1.56E-03	9.60E-04	2..63-03	5.15E-03
Mn-54	Ci	6.13E-04	3.50E-04	1.46E-03	2.42E-03
Co-58	Ci	3.62E-04	2.28E-04	3.27E-04	9.17E-04
Fe-59	Ci	3.90E-04	2.35E-04	9.81E-04	1.61E-03
Co-60	Ci	1.93E-03	1.16E-03	2.07E-03	5.16E-03
Zr-95	Ci	*	*	*	*
Nb-95	Ci	*	*	*	*
Ru-103	Ci	*	*	*	*
Ag-110m	Ci	4.92E-05	3.07E-05	3.86E-05	1.19E-04
Sb-124	Ci	1.49E-05	4.31E-06	5.96E-05	7.88E-05
I-131	Ci	3.98E-05	*	*	3.98E-05
Cs-134	Ci	*	*	*	*
Cs-136	Ci	*	*	*	*
Cs-137	Ci	*	*	*	*
Ba-140	Ci	6.99E-05	4.08E-05	1.26E-05	1.23E-04
Ce-141	Ci	*	*	*	*
Ce-144	Ci	*	*	*	*
Zn-65	Ci	3.80E-05	1.13E-05	1.07E-04	1.56E-04
Ba-133	Ci	*	*	*	*
Sb-125	Ci	*	*	*	*
La-140	Ci	6.99E-05	4.08E-05	1.26E-05	1.23E-04
Mo-99	Ci	8.99E-04	5.54E-04	1.94E-04	1.65E-03
Fe-55	Ci	6.99E-03	2.65E-03	1.28E-02	2.24E-02
TOTAL	Ci	1.30E-02	6.27E-03	2.07E-02	4.00E-02

* The activity of this nuclide is less than the LLD listed on the appropriate table.

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DRESDEN NUCLEAR POWER STATION
UNITS 1, 2, AND 3
EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT
July Through December 1989
LIQUID EFFLUENTS

SUMMATION OF ALL RELEASES

Docket Numbers: 50-10
50-237
50-249

	UNIT	3rd QUARTER	4th QUARTER	EST.TOTAL ERROR,%
A. FISSION AND ACTIVATION PRODUCTS				
1. Total Release (not incl. tritium, gases, alpha)	Ci	8.98E-02	1.23E-01	5.58
2. Average Diluted Conc. During Period	uCi/mL	1.43E-09	1.01E-08	
3. Percent of Applicable Limit	%	★	★	
B. TRITIUM				
1. Total Release	Ci	5.44E+00	4.11E+00	7.75
2. Average Diluted Conc. During Period	uCi/mL	8.66E-08	3.37E-07	
3. Percent of Applicable Limit	%	★	★	
C. DISSOLVED AND ENTRAINED GASES				
1. Total Release	Ci	7.64E-05	1.30E-05	5.58
2. Average Diluted Conc. During Period	uCi/mL	1.22E-12	1.07E-12	
3. Percent of Applicable Limit	%	★	★	
D. GROSS ALPHA RADIOACTIVITY				
1. Total Release	Ci	2.51E-03	LLD	15.1
E. VOLUME OF WASTE RELEASED (prior to dilution)	liters	5.87E+06	5.79E+06	5.00
F. VOLUME OF DILUTION WATER USED DURING PERIOD	liters	6.28E+10	1.22E+10	5.00

★ The information is contained in the Radiological Impact on Man section of this report. Total liquid release data is provided which includes fission and activation products, tritium, and dissolved and entrained gases.

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DRESDEN NUCLEAR POWER STATION
UNITS 1, 2, AND 3
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TABLE OF LOWER LIMITS OF DETECTABILITY FOR LIQUID EFFLUENTS

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	LLD (μCi/mL)
Sr-89	5.00 E-09
Sr-90	5.00 E-09
Ar-41	2.94 E-08
Mn-54	6.56 E-08
Co-58	5.62 E-08
Fe-59	8.04 E-08
Co-60	9.73 E-08
Zn-65	8.07 E-08
Ru-103	5.77 E-08
Sb-122	6.63 E-08
Sb-124	4.53 E-08
I-131	5.75 E-08
Cs-134	5.51 E-08
Cs-137	6.05 E-08
Ba-140	2.12 E-07
La-140	2.67 E-08
Ce-141	8.87 E-08
Xe-133	1.33 E-07
Xe-135	5.06 E-08
Cr-51	4.72 E-07
Fe-55	5.2 E-07
Kr-88	1.71 E-07
Cs-138	Not Determined
Tc-99m	4.63 E-08
Rb-88	Not Determined
H-3	8.00 E-07
Cu-64	Not Determined
Gross Alpha	5.00 E-08
Cs-136	Not Determined

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DRESDEN NUCLEAR POWER STATION
UNITS 1, 2, AND 3
EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT

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Radwaste LIQUID EFFLUENTS Docket Numbers: 50-10
50-237
50-249

1. Number of Batch Releases: 1.49E+02
2. Total Time Period for Batch Releases: 4.48E+04 min
3. Maximum Time Period for a Batch Release: 5.68E+02 min
4. Average Time Period for Batch Releases: 3.01E+02 min
5. Minimum Time Period for a Batch Release: 2.00E+00 min
6. Average Stream Flow During Periods of Release of Effluent into a Flowing Stream: 1.67 E+06 L/min

		CONTINUOUS MODE		BATCH MODE	
NUCLIDES RELEASED	UNIT	3rd QUARTER	4th QUARTER	3rd QUARTER	4th QUARTER
Sr-89	Ci			*	*
Sr-90	Ci			1.01E-04	1.11E-04
Ar-41	Ci			*	*
Mn-54	Ci			1.43E-02	1.58E-02
Co-58	Ci			3.48E-05	2.85E-04
Fe-59	Ci			9.82E-05	*
Co-60	Ci			4.87E-02	7.07E-02
Zn-65	Ci			*	*
Ru-103	Ci			*	*
Sb-122	Ci			*	*
Sb-124	Ci			*	*
I-131	Ci			*	*
I-133	Ci			*	*
I-135	Ci			*	*
Cs-134	Ci			*	*
Cs-137	Ci			9.47E-03	2.36E-02
Ba-140	Ci			*	*
La-140	Ci			3.72E-06	*
Ce-141	Ci			*	*
Cu-64	Ci			3.25E-06	*
Rb-88	Ci			1.05E-04	*
Cs-138	Ci			4.75E-06	*
Fe-55	Ci			1.67E-02	1.21E-02
	Ci				
	Ci				
	Ci				
	Ci				
(above) Total For Period	Ci	NONE	NONE	8.95E-02	1.23E-01
Xe-133	Ci			1.66E-05	*
Xe-135	Ci			5.98E-05	1.30 E-05

* The activity of this nuclide is less than the LLD listed on the appropriate table.

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DRESDEN NUCLEAR POWER STATION
UNITS 1, 2, AND 3
EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT

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Radwaste LIQUID EFFLUENTS

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BATCH MODE

NUCLIDES RELEASED	UNIT	July	August	September	3rd QUARTER TOTAL
Sr-89	Ci	*	*	*	*
Sr-90	Ci	1.52E-05	3.75E-05	4.81E-05	1.01E-04
Ar-41	Ci	*	*	*	*
Mn-54	Ci	6.87E-03	4.63E-03	2.75E-03	1.43E-02
Co-58	Ci	3.48E-05	*	*	3.48E-05
Fe-59	Ci	9.82E-05	*	*	9.82E-05
Co-60	Ci	1.76E-02	1.69E-02	1.42E-02	4.87E-02
Zn-65	Ci	*	*	*	*
Ru-103	Ci	*	*	*	*
Sb-122	Ci	*	*	*	*
Sb-124	Ci	*	*	*	*
I-131	Ci	*	*	*	*
I-133	Ci	*	*	*	*
I-135	Ci	*	*	*	*
Cs-134	Ci	*	*	*	*
Cs-137	Ci	4.02E-03	3.14E-03	2.31E-03	9.47E-03
Ba-140	Ci	*	*	*	*
La-140	Ci	*	*	3.72E-06	3.72E-06
Ce-141	Ci	*	*	*	*
Cu-64	Ci	3.25E-06	*	*	3.25E-06
Rb-88	Ci	1.05E-04	*	*	1.05E-04
Cs-138	Ci	*	4.75E-06	*	4.75E-06
Fe-55	Ci	1.39E-02	2.14E-03	6.74E-04	1.67E-02
	Ci				
	Ci				
	Ci				
(above) Total For Period	Ci	4.26E-02	2.69E-02	2.00E-02	8.95E-02
Xe-133	Ci	*	1.66E-05	*	1.66E-05
Xe-135	Ci	7.36E-06	2.25E-05	2.99E-05	5.98E-05

* The activity of this nuclide is less than the LLD listed on the appropriate table.

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DRESDEN NUCLEAR POWER STATION
UNITS 1, 2, AND 3
EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT

October Through December 1989

Radwaste LIQUID EFFLUENTS Docket Numbers: 50-10
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BATCH MODE

NUCLIDES RELEASED	UNIT	OCTOBER	NOVEMBER	DECEMBER	4th QUARTER TOTAL
Sr-89	Ci	*	*	*	*
Sr-90	Ci	2.75E-05	4.27E-05	4.09E-05	1.11E-04
Ar-41	Ci	*	*	*	*
Mn-54	Ci	1.53E-03	7.60E-03	6.62E-03	1.58E-02
Co-58	Ci	2.85E-04	*	*	2.85E-04
Fe-59	Ci	*	*	*	*
Co-60	Ci	7.82E-03	2.99E-02	3.30E-02	7.07E-02
Zn-65	Ci	*	*	*	*
Ru-103	Ci	*	*	*	*
Sb-122	Ci	*	*	*	*
Sb-124	Ci	*	*	*	*
I-131	Ci	*	*	*	*
I-133	Ci	*	*	*	*
I-135	Ci	*	*	*	*
Cs-134	Ci	*	*	*	*
Cs-137	Ci	2.62E-03	7.48E-03	1.35E-02	2.36E-02
Ba-140	Ci	*	*	*	*
La-140	Ci	*	*	*	*
Ce-141	Ci	*	*	*	*
Fe-55	Ci	3.03E-04	6.77E-03	4.99E-03	1.21E-02
(above) Total For Period	Ci	1.26E-02	5.18E-02	5.82E-02	1.23E-01
Xe-133	Ci	*	*	*	*
Xe-135	Ci	5.62E-06	*	7.36E-06	1.30E-05

* The activity of this nuclide is less than the LLD listed on the appropriate table.

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DRESDEN NUCLEAR POWER STATION
UNITS 2 AND 3
EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT

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CCSW LIQUID EFFLUENTS Docket Numbers: 50-237
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1. Number of Batch Releases: 8.50E+01
2. Total Time Period for Batch Releases: 1.05E+02 min
3. Maximum Time Period for a Batch Release: 1.24E+00 min
4. Average Time Period for Batch Releases: 1.24E+00 min
5. Minimum Time Period for a Batch Release: 1.24E+00 min
6. Average Stream Flow During Periods of Release of Effluent into a Flowing Stream: 1.67E+06 L/min

		CONTINUOUS MODE		BATCH MODE	
NUCLIDES RELEASED	UNIT	3rd QUARTER	4th QUARTER	3rd QUARTER	4th QUARTER
Sr-89	Ci			*	*
Sr-90	Ci			*	*
Ar-41	Ci			*	*
Mn-54	Ci			3.26E-05	1.78E-05
Co-58	Ci			*	*
Fe-59	Ci			3.44E-05	3.17E-05
Co-60	Ci			*	*
Zn-65	Ci			*	*
Ru-103	Ci			*	*
Sb-122	Ci			*	*
Sb-124	Ci			*	*
I-131	Ci			*	*
I-133	Ci			*	*
I-135	Ci			*	*
Cs-134	Ci			4.94E-05	1.42E-05
Cs-137	Ci			1.15E-04	4.37E-05
Ba-140	Ci			*	5.60E-07
La-140	Ci			*	5.60E-07
Ce-141	Ci			*	*
Cr-51	Ci			*	*
Fe-55	Ci			2.06E-05	1.34E-05
Cs-136	Ci			*	4.12E-07
	Ci				
	Ci				
	Ci				
	Ci				
	Ci				
(above) Total For Period	Ci	NONE	NONE	2.52E-04	1.22E-04
Xe-133	Ci			*	*
Xe-135	Ci			*	*

* The activity of this nuclide is less than the LLD listed on the appropriate table.

ZEDE/298

DRESDEN NUCLEAR POWER STATION
UNITS 2 AND 3
EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT

July Through September 1989

CCSW LIQUID EFFLUENTS Docket Numbers: 50-237
50-249

BATCH MODE

NUCLIDES RELEASED	UNIT	JULY	AUGUST	SEPTEMBER	3rd QUARTER TOTAL
Sr-89	Ci	*	*	*	*
Sr-90	Ci	*	*	*	*
Ar-41	Ci	*	*	*	*
Mn-54	Ci	2.08E-05	7.15E-06	4.61E-06	3.26E-05
Co-58	Ci	*	*	*	*
Fe-59	Ci	*	*	*	*
Co-60	Ci	1.74E-05	9.67E-06	7.34E-06	3.44E-05
Zn-65	Ci	*	*	*	*
Ru-103	Ci	*	*	*	*
Sb-122	Ci	*	*	*	*
Sb-124	Ci	*	*	*	*
I-131	Ci	*	*	*	*
I-133	Ci	*	*	*	*
I-135	Ci	*	*	*	*
Cs-134	Ci	3.35E-05	9.61E-06	6.25E-06	4.94E-05
Cs-137	Ci	5.87E-05	3.22E-05	2.40E-05	1.15E-04
Ba-140	Ci	*	*	*	*
La-140	Ci	*	*	*	*
Ce-141	Ci	*	*	*	*
Cr-51	Ci	*	*	*	*
Fe-55	Ci	2.06E-05	*	*	2.06E-05
	Ci				
	Ci				
(above) Total For Period	Ci	1.51E-04	5.86E-05	4.22E-05	2.52E-04
Xe-133	Ci	*	*	*	*
Xe-135	Ci	*	*	*	*

* The activity of this nuclide is less than the LLD on the appropriate table.

ZEDE/298

DRESDEN NUCLEAR POWER STATION
UNITS 2 AND 3
EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT

October Through December 1989

CCSW LIQUID EFFLUENTS Docket Numbers: 50-237
50-249

BATCH MODE

NUCLIDES RELEASED	UNIT	OCTOBER	NOVEMBER	DECEMBER	4th QUARTER TOTAL
Sr-89	Ci	*	*	*	*
Sr-90	Ci	*	*	*	*
Ar-41	Ci	*	*	*	*
Mn-54	Ci	1.66E-05	7.85E-07	3.93E-07	1.78E-05
Co-58	Ci	*	*	*	*
Fe-59	Ci	*	*	*	*
Co-60	Ci	1.86E-05	1.05E-05	2.64E-06	3.17E-05
Zn-65	Ci	*	*	*	*
Ru-103	Ci	*	*	*	*
Sb-122	Ci	*	*	*	*
Sb-124	Ci	*	*	*	*
I-131	Ci	*	*	*	*
I-133	Ci	*	*	*	*
I-135	Ci	*	*	*	*
Cs-134	Ci	1.34E-05	*	7.54E-07	1.42E-05
Cs-137	Ci	2.94E-05	9.09E-06	5.18E-06	4.37E-05
Ba-140	Ci	5.60E-07	*	*	5.60E-07
La-140	Ci	5.60E-07	*	*	5.60E-07
Ce-141	Ci	*	*	*	*
Cr-51	Ci	*	*	*	*
Fe-55	Ci	*	1.34E-05	*	1.34E-05
Cs-136	Ci	*	*	4.12E-07	4.12E-07
	Ci				
(above) Total For Period	Ci	7.91E-05	3.38E-05	9.38E-06	1.22E-04
Xe-133	Ci	*	*	*	*
Xe-135	Ci	*	*	*	*

* The activity of this nuclide is less than the LLD listed on the appropriate table.

ZEDE/298

DRESDEN NUCLEAR POWER STATION
UNITS 1, 2, AND 3
EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT

July Through December 1989

Docket Numbers: 50-10
50-237
50-249

SOLID WASTE AND IRRADIATED FUEL SHIPMENTS

A. SOLID WASTE SHIPPED OFFSITE FOR BURIAL OR DISPOSAL (NOT IRRADIATED FUEL)

1. Type of Waste	Unit	6-month period	Est Tot. Error,%
a. Spent resins, filter sludges, evaporator bottoms, etc.	m3	5.62E+01	
	Ci	9.00E+02	12.4
b. Dry compressible waste, contaminated equip., etc.	m^3	7.10E+02	
	Ci	9.92E+00	16.6
c. Irradiated components, control rods, etc.	m^3	1.42E+01	
	Ci	3.97E+00	16.6
d. Other (describe)	m^3	0	
	Ci	0	

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

		%	Ci
a.	Co-60	54.1 %	4.87E+02
	Fe-55	21.2 %	1.91E+02
	Mn-54	5.64 %	5.08E+01
	Cs-137	10.9 %	9.81E+01
	Ni-63	6.46 %	5.81E+01
b.	Co-60	25.3 %	2.51E+00
	Fe-55	59.9 %	5.94E+00
	Mn-54	1.14 %	1.13E-01
	Cs-137	11.8 %	1.17E+00
	Other		
c.	Co-60	20.2 %	8.02E-01
	Fe-55	68.0 %	2.70E+00
	Mn-54	1.72 %	6.83E-02
	Cs-137	9.38 %	3.72E-01
	Other		

3. Solid Waste Disposition

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
23	Motor freight (exclusive use only)	Barnwell, SC
4	Motor freight (exclusive use only)	SEG, Oak Ridge, TN
5	Motor freight (exclusive use only)	CNSI, Channahon, IL
5	Motor freight (exclusive use only)	Westinghouse DDR Madison, PA

B. IRRADIATED FUEL SHIPMENTS (Disposition)

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
None		

ZEDE/298

DRESDEN NUCLEAR POWER STATION
UNITS 1, 2, AND 3
EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT

July Through December 19 89 Docket Numbers: 50-10
50-237
50-249

ABNORMAL RELEASES

A. LIQUID

1. Number of Releases: 0

2. Total Activity Released: 0

B. GASEOUS

1. Number of Releases: 0

2. Total Activity Released: 0

TOTAL 0

SUPPLEMENTAL INFORMATION

At 1316 hours on September 12, 1989 a routine sample of the Unit 2/3 Reactor Building Ventilation System Effluent was being collected. Because the normal sample vessel was unavailable, another container was used. The beaker selected to obtain the sample had been previously used for a cross check program and thus contained approximately 1.0E-05 curies of Kr 85 and 1.0E-08 curies of Xe 133. The contents of the contaminated beaker resulted in a high radiation alarm in the main control room. The alarm was immediately reset.

No Technical Specification limits were exceeded during this event. The safety significance of this incident is minimal because the Reactor Building Ventilation radiation monitors were operable and automatic isolation would have occurred if necessary. Labeling of the sample vessels was changed to clearly state that they are to be used for sampling purposes or for calibration standards and cross checks.

ZEDE/298

RADIOLOGICAL IMPACT ON MAN

DRESDEN UNIT ONE

1989 ANNUAL REPORT
MAXIMUM DOSES RESULTING FROM AIRBORNE RELEASES
PERIOD OF RELEASE - 01/01/89 TO 12/31/89 CALCULATED 08/02/90
INFANT RECEPTOR

TYPE	1ST QUARTER JAN-MAR	2ND QUARTER APR-JUN	3RD QUARTER JUL-SEP	4TH QUARTER OCT-DEC	ANNUAL
GAMMA AIR (MRAD)	0.00E+00 ( )	0.00E+00 ( )	0.00E+00 ( )	0.00E+00 ( )	0.00E+00 ( )
BETA AIR (MRAD)	0.00E+00 ( )	0.00E+00 ( )	0.00E+00 ( )	0.00E+00 ( )	0.00E+00 ( )
TOT. BODY (MREM)	0.00E+00 ( )	0.00E+00 ( )	0.00E+00 ( )	0.00E+00 ( )	0.00E+00 ( )
SKIN (MREM)	0.00E+00 ( )	0.00E+00 ( )	0.00E+00 ( )	0.00E+00 ( )	0.00E+00 ( )
ORGAN (MREM)	3.93E-05 (SE)	2.58E-05 (SE)	1.04E-05 (SE)	1.19E-05 (SE)	8.73E-05 (SE)
	LIVER	LIVER	LIVER	LIVER	LIVER

THIS IS A REPORT FOR THE CALENDAR YEAR 1989

COMPLIANCE STATUS - 10 CFR 50 APP. I
INFANT RECEPTOR

	QTRLY OBJ	% OF APP I. 1ST QTR JAN-MAR	2ND QTR APR-JUN	3RD QTR JUL-SEP	4TH QTR OCT-NOV	YRLY OBJ	% OF APP.I
GAMMA AIR (MRAD)	5.0	0.00	0.00	0.00	0.00	10.0	0.00
BETA AIR (MRAD)	10.0	0.00	0.00	0.00	0.00	20.0	0.00
TOT. BODY (MREM)	2.5	0.00	0.00	0.00	0.00	5.0	0.00
SKIN (MREM)	7.5	0.00	0.00	0.00	0.00	15.0	0.00
ORGAN (MREM)	7.5	0.00	0.00	0.00	0.00	15.0	0.00
		LIVER	LIVER	LIVER	LIVER		LIVER

RESULTS BASED UPON
ODCM REVISION 11
UPDATE CS204
FEBRUARY 1986

DRESDEN UNIT ONE

1989 ANNUAL REPORT
MAXIMUM DOSES RESULTING FROM AIRBORNE RELEASES
PERIOD OF RELEASE - 01/01/89 TO 12/31/89 CALCULATED 08/02/90
ADULT RECEPTOR

TYPE	1ST QUARTER JAN-MAR	2ND QUARTER APR-JUN	3RD QUARTER JUL-SEP	4TH QUARTER OCT-DEC	ANNUAL
GAMMA AIR	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
(MRAD)	( )	( )	( )	( )	( )
BETA AIR	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
(MRAD)	( )	( )	( )	( )	( )
TOT. BODY	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
(MREM)	( )	( )	( )	( )	( )
SKIN	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
(MREM)	( )	( )	( )	( )	( )
ORGAN	3.60E-05	3.23E-05	2.25E-05	1.52E-05	1.01E-04
(MREM)	(SE)	(SE)	(SE)	(SE)	(SE)
	LIVER	LIVER	BONE	GI-LLI	LIVER

THIS IS A REPORT FOR THE CALENDAR YEAR 1989

COMPLIANCE STATUS - 10 CFR 50 APP. I
ADULT RECEPTOR

	QTRLY OBJ	1ST QTR JAN-MAR	2ND QTR APR-JUN	3RD QTR JUL-SEP	4TH QTR OCT-NOV	YRLY OBJ	% OF APP.I
		---------- % OF APP I. ----------					
GAMMA AIR (MRAD)	5.0	0.00	0.00	0.00	0.00	10.0	0.00
BETA AIR (MRAD)	10.0	0.00	0.00	0.00	0.00	20.0	0.00
TOT. BODY (MREM)	2.5	0.00	0.00	0.00	0.00	5.0	0.00
SKIN (MREM)	7.5	0.00	0.00	0.00	0.00	15.0	0.00
ORGAN (MREM)	7.5	0.00	0.00	0.00	0.00	15.0	0.00
		LIVER	LIVER	BONE	GI-LLI		LIVER

RESULTS BASED UPON
ODCM REVISION 11
UPDATE CS204
FEBRUARY 1986

DRESDEN UNIT TWO

1989 ANNUAL REPORT
MAXIMUM DOSES RESULTING FROM AIRBORNE RELEASES
PERIOD OF RELEASE - 01/01/89 TO 12/31/89 CALCULATED 08/02/90
INFANT RECEPTOR

TYPE	1ST QUARTER JAN-MAR	2ND QUARTER APR-JUN	3RD QUARTER JUL-SEP	4TH QUARTER OCT-DEC	ANNUAL
GAMMA AIR	1.18E-05	1.02E-04	1.85E-06	3.00E-05	1.45E-04
(MRAD)	(NE)	(NE)	(NE)	(NE)	(NE)
BETA AIR	1.97E-06	2.47E-04	3.91E-07	5.17E-06	2.55E-04
(MRAD)	(N)	(NNE)	(N)	(N)	(NNE)
TOT. BODY	5.12E-06	4.26E-05	7.79E-07	1.30E-05	6.14E-05
(MREM)	(NE)	(NE)	(NE)	(NE)	(NE)
SKIN	1.05E-05	2.65E-04	1.70E-06	2.68E-05	3.03E-04
(MREM)	(NE)	(NNE)	(NE)	(NE)	(NNE)
ORGAN	1.50E-02	3.19E-02	1.03E-02	2.44E-02	8.14E-02
(MREM)	(NNE)	(NNE)	(NNE)	(NNE)	(NNE)
	LUNG	LUNG	THYROID	LUNG	LUNG

THIS IS A REPORT FOR THE CALENDAR YEAR 1989

COMPLIANCE STATUS - 10 CFR 50 APP. I
INFANT RECEPTOR

	QTRLY OBJ	1ST QTR JAN-MAR (% OF APP I.)	2ND QTR APR-JUN (% OF APP I.)	3RD QTR JUL-SEP (% OF APP I.)	4TH QTR OCT-NOV (% OF APP I.)	YRLY OBJ	% OF APP.I
GAMMA AIR (MRAD)	5.0	0.00	0.00	0.00	0.00	10.0	0.00
BETA AIR (MRAD)	10.0	0.00	0.00	0.00	0.00	20.0	0.00
TOT. BODY (MREM)	2.5	0.00	0.00	0.00	0.00	5.0	0.00
SKIN (MREM)	7.5	0.00	0.00	0.00	0.00	15.0	0.00
ORGAN (MREM)	7.5	0.20	0.43	0.14	0.33	15.0	0.54
		LUNG	LUNG	THYROID	LUNG		LUNG

RESULTS BASED UPON
ODCM REVISION 11
UPDATE CS204
FEBRUARY 1986

DRESDEN UNIT TWO

1989 ANNUAL REPORT
MAXIMUM DOSES RESULTING FROM AIRBORNE RELEASES
PERIOD OF RELEASE - 01/01/89 TO 12/31/89 CALCULATED 08/02/90
ADULT RECEPTOR

TYPE	1ST QUARTER JAN-MAR	2ND QUARTER APR-JUN	3RD QUARTER JUL-SEP	4TH QUARTER OCT-DEC	ANNUAL
GAMMA AIR	1.18E-05	1.02E-04	1.85E-06	3.00E-05	1.45E-04
(MRAD)	(NE)	(NE)	(NE)	(NE)	(NE)
BETA AIR	1.97E-06	2.47E-04	3.91E-07	5.17E-06	2.55E-04
(MRAD)	(N)	(NNE)	(N)	(N)	(NNE)
TOT. BODY	5.12E-06	4.26E-05	7.79E-07	1.30E-05	6.14E-05
(MREM)	(NE)	(NE)	(NE)	(NE)	(NE)
SKIN	1.05E-05	2.65E-04	1.70E-06	2.68E-05	3.03E-04
(MREM)	(NE)	(NNE)	(NE)	(NE)	(NNE)
ORGAN	1.50E-02	1.64E-01	1.14E-02	2.52E-02	2.11E-01
(MREM)	(NNE)	(NNE)	(NNE)	(NNE)	(NNE)
	LUNG	BONE	GI-LLI	LUNG	BONE

THIS IS A REPORT FOR THE CALENDAR YEAR 1989

COMPLIANCE STATUS - 10 CFR 50 APP. I
ADULT RECEPTOR

	QTRLY OBJ	1ST QTR JAN-MAR	2ND QTR APR-JUN	3RD QTR JUL-SEP	4TH QTR OCT-NOV	YRLY OBJ	% OF APP.I
		---------- % OF APP I. ----------					
GAMMA AIR (MRAD)	5.0	0.00	0.00	0.00	0.00	10.0	0.00
BETA AIR (MRAD)	10.0	0.00	0.00	0.00	0.00	20.0	0.00
TOT. BODY (MREM)	2.5	0.00	0.00	0.00	0.00	5.0	0.00
SKIN (MREM)	7.5	0.00	0.00	0.00	0.00	15.0	0.00
ORGAN (MREM)	7.5	0.20	2.19	0.15	0.34	15.0	1.41
		LUNG	BONE	GI-LLI	LUNG		BONE

RESULTS BASED UPON
ODCM REVISION 11
UPDATE CS204
FEBRUARY 1986

DRESDEN UNIT TWO
INFANT RECEPTOR

1989 ANNUAL REPORT
MAXIMUM DOSES (MREM) RESULTING FROM LIQUID EFFLUENTS
PERIOD OF RELEASE - 01/01/89 TO 12/31/89 CALCULATED 08/02/90

DOSE TYPE	1ST QUARTER JAN-MAR	2ND QUARTER APR-JUN	3RD QUARTER JUL-SEP	4TH QUARTER OCT-DEC	ANNUAL
TOTAL BODY	1.30E-04	5.65E-05	5.78E-05	6.04E-05	3.04E-04
INTERNAL ORGAN	2.09E-04	1.33E-04	1.25E-04	2.08E-04	6.49E-04
	BONE	LIVER	LIVER	LIVER	LIVER

THIS IS A REPORT FOR THE CALENDAR YEAR 1989
COMPLIANCE STATUS - 10 CFR 50 APP. I

	QTRLY OBJ	% OF APP I. 1ST QTR JAN-MAR	2ND QTR APR-JUN	3RD QTR JUL-SEP	4TH QTR OCT-NOV	YRLY OBJ	% OF APP.I
TOTAL BODY (MREM)	1.5	0.01	0.00	0.00	0.00	3.0	0.01
CRIT. ORGAN(MREM)	5.0	0.00	0.00	0.00	0.00	10.0	0.01
		BONE	LIVER	LIVER	LIVER		LIVER

RESULTS BASED UPON
ODCM REVISION 11
UPDATE CS204
FEBRUARY 1986

DRESDEN UNIT TWO
INFANT RECEPTOR

1989 ANNUAL REPORT
PROJECTED DOSE AT NEAREST COMMUNITY WATER SYSTEM *
PERIOD OF RELEASE - 01/01/89 TO 12/31/89 CALCULATED 08/02/90

DOSE TYPE	1ST QUARTER JAN-MAR	2ND QUARTER APR-JUN	3RD QUARTER JUL-SEP	4TH QUARTER OCT-DEC	ANNUAL
TOTAL BODY	1.30E-04	5.65E-05	5.78E-05	6.04E-05	3.04E-04
INTERNAL ORGAN	2.09E-04	1.33E-04	1.25E-04	2.08E-04	6.49E-04
	BONE	LIVER	LIVER	LIVER	LIVER

THIS IS A REPORT FOR THE CALENDAR YEAR 1989

COMPLIANCE STATUS - 40 CFR 141

TYPE	ANNUAL LIMIT	% OF LIMIT
TOTAL BODY	4.0 (MREM)	0.008
INTERNAL ORGAN	4.0 (MREM)	0.016
		LIVER

* THIS CALCULATION OF DOSE IS BASED ON TECHNIQUES DESCRIBED IN THE COMMONWEALTH EDISON OFFSITE DOSE CALCULATION MANUAL. THESE TECHNIQUES DIFFER FROM THOSE DESCRIBED IN 40 CFR 141.

RESULTS BASED UPON
ODCM REVISION 11
UPDATE CS204
FEBRUARY 1986

DRESDEN UNIT TWO
ADULT RECEPTOR

1989 ANNUAL REPORT
MAXIMUM DOSES (MREM) RESULTING FROM LIQUID EFFLUENTS
PERIOD OF RELEASE - 01/01/89 TO 12/31/89 CALCULATED 08/02/90

DOSE TYPE	1ST QUARTER JAN-MAR	2ND QUARTER APR-JUN	3RD QUARTER JUL-SEP	4TH QUARTER OCT-DEC	ANNUAL
TOTAL BODY	2.41E-04	1.84E-04	1.73E-04	3.36E-04	9.33E-04
INTERNAL ORGAN	3.37E-04	2.74E-04	2.52E-04	5.01E-04	1.36E-03
	LIVER	LIVER	LIVER	LIVER	LIVER

THIS IS A REPORT FOR THE CALENDAR YEAR 1989

COMPLIANCE STATUS - 10 CFR 50 APP. I

		% OF APP I.					
	QTRLY OBJ	1ST QTR JAN-MAR	2ND QTR APR-JUN	3RD QTR JUL-SEP	4TH QTR OCT-NOV	YRLY OBJ	% OF APP.I
TOTAL BODY (MREM)	1.5	0.02	0.01	0.01	0.02	3.0	0.03
CRIT. ORGAN(MREM)	5.0	0.01	0.01	0.01	0.01	10.0	0.01
		LIVER	LIVER	LIVER	LIVER		LIVER

RESULTS BASED UPON
ODCM REVISION 11
UPDATE CS204
FEBRUARY 1986

DRESDEN UNIT TWO
ADULT RECEPTOR

1989 ANNUAL REPORT
PROJECTED DOSE AT NEAREST COMMUNITY WATER SYSTEM *
PERIOD OF RELEASE - 01/01/89 TO 12/31/89 CALCULATED 08/02/90

DOSE TYPE	1ST QUARTER JAN-MAR	2ND QUARTER APR-JUN	3RD QUARTER JUL-SEP	4TH QUARTER OCT-DEC	ANNUAL
TOTAL BODY	4.44E-05	2.40E-05	2.49E-05	3.36E-05	1.27E-04
INTERNAL ORGAN	1.31E-04	5.14E-05	4.12E-05	4.59E-05	2.70E-04
	GI-LLI	GI-LLI	GI-LLI	GI-LLI	GI-LLI

THIS IS A REPORT FOR THE CALENDAR YEAR 1989

COMPLIANCE STATUS - 40 CFR 141

TYPE	ANNUAL LIMIT	% OF LIMIT
TOTAL BODY	4.0 (MREM)	0.003
INTERNAL ORGAN	4.0 (MREM)	0.007
		GI-LLI

* THIS CALCULATION OF DOSE IS BASED ON TECHNIQUES DESCRIBED IN THE COMMONWEALTH EDISON OFFSITE DOSE CALCULATION MANUAL. THESE TECHNIQUES DIFFER FROM THOSE DESCRIBED IN 40 CFR 141.

RESULTS BASED UPON
ODCM REVISION 11
UPDATE CS204
FEBRUARY 1986

DRESDEN UNIT THREE

1989 ANNUAL REPORT
MAXIMUM DOSES RESULTING FROM AIRBORNE RELEASES
PERIOD OF RELEASE - 01/01/89 TO 12/31/89 CALCULATED 08/02/90
INFANT RECEPTOR

TYPE	1ST QUARTER JAN-MAR	2ND QUARTER APR-JUN	3RD QUARTER JUL-SEP	4TH QUARTER OCT-DEC	ANNUAL
GAMMA AIR	2.20E-04	7.00E-05	3.02E-05	1.44E-04	4.65E-04
(MRAD)	(NE)	(NE)	(NE)	(NE)	(NE)
BETA AIR	6.13E-05	4.13E-05	6.37E-06	2.54E-05	1.33E-04
(MRAD)	(NNE)	(NNE)	(N)	(N)	(NNE)
TOT. BODY	9.39E-05	2.94E-05	1.27E-05	6.24E-05	1.98E-04
(MREM)	(NE)	(NE)	(NE)	(NE)	(NE)
SKIN	2.15E-04	8.46E-05	2.78E-05	1.29E-04	4.57E-04
(MREM)	(NE)	(NE)	(NE)	(NE)	(NE)
ORGAN	2.07E-02	3.88E-02	7.57E-02	2.98E-02	1.55E-01
(MREM)	(NNE)	(NNE)	(NNE)	(NNE)	(NNE)
	LUNG	BONE	THYROID	THYROID	LUNG

THIS IS A REPORT FOR THE CALENDAR YEAR 1989

COMPLIANCE STATUS - 10 CFR 50 APP. I
INFANT RECEPTOR

	QTRLY OBJ	1ST QTR JAN-MAR	2ND QTR APR-JUN	3RD QTR JUL-SEP	4TH QTR OCT-NOV	YRLY OBJ	% OF APP.I
		---------- % OF APP I. ----------					
GAMMA AIR (MRAD)	5.0	0.00	0.00	0.00	0.00	10.0	0.00
BETA AIR (MRAD)	10.0	0.00	0.00	0.00	0.00	20.0	0.00
TOT. BODY (MREM)	2.5	0.00	0.00	0.00	0.00	5.0	0.00
SKIN (MREM)	7.5	0.00	0.00	0.00	0.00	15.0	0.00
ORGAN (MREM)	7.5	0.28	0.52	1.01	0.40	15.0	1.03
		LUNG	BONE	THYROID	THYROID		LUNG

RESULTS BASED UPON
ODCM REVISION 11
UPDATE CS204
FEBRUARY 1986

DRESDEN UNIT THREE

1989 ANNUAL REPORT
MAXIMUM DOSES RESULTING FROM AIRBORNE RELEASES
PERIOD OF RELEASE - 01/01/89 TO 12/31/89 CALCULATED 08/02/90
ADULT RECEPTOR

TYPE	1ST QUARTER JAN-MAR	2ND QUARTER APR-JUN	3RD QUARTER JUL-SEP	4TH QUARTER OCT-DEC	ANNUAL
GAMMA AIR	2.20E-04	7.00E-05	3.02E-05	1.44E-04	4.65E-04
(MRAD)	(NE)	(NE)	(NE)	(NE)	(NE)
BETA AIR	6.13E-05	4.13E-05	6.37E-06	2.54E-05	1.33E-04
(MRAD)	(NNE)	(NNE)	(N)	(N)	(NNE)
TOT. BODY	9.39E-05	2.94E-05	1.27E-05	6.24E-05	1.98E-04
(MREM)	(NE)	(NE)	(NE)	(NE)	(NE)
SKIN	2.15E-04	8.46E-05	2.78E-05	1.29E-04	4.57E-04
(MREM)	(NE)	(NE)	(NE)	(NE)	(NE)
ORGAN	1.60E-02	4.97E-01	8.38E-02	3.32E-02	6.11E-01
(MREM)	(NE)	(NNE)	(NNE)	(NNE)	(NNE)
	BONE	BONE	GI-LLI	THYROID	BONE

THIS IS A REPORT FOR THE CALENDAR YEAR 1989

COMPLIANCE STATUS - 10 CFR 50 APP. I
ADULT RECEPTOR

	QTRLY OBJ	% OF APP I. 1ST QTR JAN-MAR	2ND QTR APR-JUN	3RD QTR JUL-SEP	4TH QTR OCT-NOV	YRLY OBJ	% OF APP.I
GAMMA AIR (MRAD)	5.0	0.00	0.00	0.00	0.00	10.0	0.00
BETA AIR (MRAD)	10.0	0.00	0.00	0.00	0.00	20.0	0.00
TOT. BODY (MREM)	2.5	0.00	0.00	0.00	0.00	5.0	0.00
SKIN (MREM)	7.5	0.00	0.00	0.00	0.00	15.0	0.00
ORGAN (MREM)	7.5	0.21	6.63	1.12	0.44	15.0	4.07
		BONE	BONE	GI-LLI	THYROID		BONE

RESULTS BASED UPON
ODCM REVISION 11
UPDATE CS204
FEBRUARY 1986

DRESDEN UNIT THREE
INFANT RECEPTOR

1989 ANNUAL REPORT
MAXIMUM DOSES (MREM) RESULTING FROM LIQUID EFFLUENTS
PERIOD OF RELEASE - 01/01/89 TO 12/31/89 CALCULATED 08/02/90

DOSE TYPE	1ST QUARTER JAN-MAR	2ND QUARTER APR-JUN	3RD QUARTER JUL-SEP	4TH QUARTER OCT-DEC	ANNUAL
TOTAL BODY	1.13E-04	6.40E-05	5.79E-05	6.65E-05	3.02E-04
INTERNAL ORGAN	1.77E-04	1.49E-04	1.26E-04	2.81E-04	7.18E-04
	BONE	LIVER	LIVER	LIVER	LIVER

THIS IS A REPORT FOR THE CALENDAR YEAR 1989
COMPLIANCE STATUS - 10 CFR 50 APP. I

		% OF APP I.					
	QTRLY OBJ	1ST QTR JAN-MAR	2ND QTR APR-JUN	3RD QTR JUL-SEP	4TH QTR OCT-NOV	YRLY OBJ	% OF APP.I
TOTAL BODY (MREM)	1.5	0.01	0.00	0.00	0.00	3.0	0.01
CRIT. ORGAN(MREM)	5.0	0.00	0.00	0.00	0.01	10.0	0.01
		BONE	LIVER	LIVER	LIVER		LIVER

RESULTS BASED UPON
ODCM REVISION 11
UPDATE CS204
FEBRUARY 1986

DRESDEN UNIT THREE
INFANT RECEPTOR

1989 ANNUAL REPORT
PROJECTED DOSE AT NEAREST COMMUNITY WATER SYSTEM *
PERIOD OF RELEASE - 01/01/89 TO 12/31/89 CALCULATED 08/02/90

DOSE TYPE	1ST QUARTER JAN-MAR	2ND QUARTER APR-JUN	3RD QUARTER JUL-SEP	4TH QUARTER OCT-DEC	ANNUAL
TOTAL BODY	1.13E-04	6.40E-05	5.79E-05	6.65E-05	3.02E-04
INTERNAL ORGAN	1.77E-04	1.49E-04	1.26E-04	2.81E-04	7.18E-04
	BONE	LIVER	LIVER	LIVER	LIVER

THIS IS A REPORT FOR THE CALENDAR YEAR 1989

COMPLIANCE STATUS - 40 CFR 141

TYPE	ANNUAL LIMIT	% OF LIMIT
TOTAL BODY	4.0 (MREM)	0.008
INTERNAL ORGAN	4.0 (MREM)	0.018
		LIVER

* THIS CALCULATION OF DOSE IS BASED ON TECHNIQUES DESCRIBED IN THE COMMONWEALTH EDISON OFFSITE DOSE CALCULATION MANUAL. THESE TECHNIQUES DIFFER FROM THOSE DESCRIBED IN 40 CFR 141.

RESULTS BASED UPON
ODCM REVISION 11
UPDATE CS204
FEBRUARY 1986

DRESDEN UNIT THREE
ADULT RECEPTOR

1989 ANNUAL REPORT
MAXIMUM DOSES (MREM) RESULTING FROM LIQUID EFFLUENTS
PERIOD OF RELEASE - 01/01/89 TO 12/31/89 CALCULATED 08/02/90

DOSE TYPE	1ST QUARTER JAN-MAR	2ND QUARTER APR-JUN	3RD QUARTER JUL-SEP	4TH QUARTER OCT-DEC	ANNUAL
TOTAL BODY	2.12E-04	2.05E-04	1.76E-04	4.69E-04	1.06E-03
INTERNAL ORGAN	2.98E-04	3.05E-04	2.56E-04	7.05E-04	1.56E-03
	LIVER	LIVER	LIVER	LIVER	LIVER

THIS IS A REPORT FOR THE CALENDAR YEAR 1989

COMPLIANCE STATUS - 10 CFR 50 APP. I

		% OF APP I.					
	QTRLY OBJ	1ST QTR JAN-MAR	2ND QTR APR-JUN	3RD QTR JUL-SEP	4TH QTR OCT-NOV	YRLY OBJ	% OF APP.I
TOTAL BODY (MREM)	1.5	0.01	0.01	0.01	0.03	3.0	0.04
CRIT. ORGAN(MREM)	5.0	0.01	0.01	0.01	0.01	10.0	0.02
		LIVER	LIVER	LIVER	LIVER		LIVER

RESULTS BASED UPON
ODCM REVISION 11
UPDATE CS204
FEBRUARY 1986

DRESDEN UNIT THREE
ADULT RECEPTOR

1989 ANNUAL REPORT
PROJECTED DOSE AT NEAREST COMMUNITY WATER SYSTEM *
PERIOD OF RELEASE - 01/01/89 TO 12/31/89 CALCULATED 08/02/90

DOSE TYPE	1ST QUARTER JAN-MAR	2ND QUARTER APR-JUN	3RD QUARTER JUL-SEP	4TH QUARTER OCT-DEC	ANNUAL
TOTAL BODY	3.86E-05	2.71E-05	2.51E-05	4.12E-05	1.32E-04
INTERNAL ORGAN	1.17E-04	5.80E-05	4.12E-05	5.69E-05	2.74E-04
	GI-LLI	GI-LLI	GI-LLI	GI-LLI	GI-LLI

THIS IS A REPORT FOR THE CALENDAR YEAR 1989

COMPLIANCE STATUS - 40 CFR 141

TYPE	ANNUAL LIMIT	% OF LIMIT
TOTAL BODY	4.0 (MREM)	0.003
INTERNAL ORGAN	4.0 (MREM)	0.007
		GI-LLI

* THIS CALCULATION OF DOSE IS BASED ON TECHNIQUES DESCRIBED IN THE COMMONWEALTH EDISON OFFSITE DOSE CALCULATION MANUAL. THESE TECHNIQUES DIFFER FROM THOSE DESCRIBED IN 40 CFR 141.

RESULTS BASED UPON
ODCM REVISION 11
UPDATE CS204
FEBRUARY 1986

CECo DRESDEN STATION — July-December 1989

35 ft. WIND SPEED and WIND DIRECTION — 150-35 ft. DIFFERENTIAL TEMPERATURE

NUMBER OF OBSERVATIONS = 4414

SPEED CLASS	DIRECTION CLASS N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
EU	.05	.00	.00	.00	.00	.00	.00	.00	.00	.00	.02	.02	.05	.09	.07	.11	.41
MU	.00	.02	.02	.00	.00	.00	.02	.00	.00	.00	.00	.05	.07	.00	.02	.02	.23
SU	.05	.02	.00	.00	.02	.02	.00	.05	.05	.07	.05	.02	.00	.00	.02	.07	.43
N	.25	.23	.32	.25	.27	.41	.27	.11	.14	.20	.20	.09	.25	.11	.16	.16	3.42
SS	.50	.75	.45	.61	.45	.36	.36	.45	.32	.45	.23	.29	.25	.20	.27	.39	6.34
MS	.29	.39	.14	.29	.50	.45	.57	.23	.48	.27	.36	.25	.27	.18	.18	.34	5.19
ES	.25	.16	.16	.09	.16	.16	.07	.07	.11	.07	.25	.14	.07	.16	.27	.27	2.45

18.46

STABILITY CLASS							
	EU	MU	SU	N	SS	MS	ES
EU	.41						
MU		.23					
SU			.43				
N				3.42			
SS					6.34		
MS						5.19	
ES							2.45

SPEED CLASS	DIRECTION CLASS N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
EU	.57	.36	.20	.07	.16	.25	.25	.20	.29	.20	.29	.16	.48	.48	.41	.79	5.17
MU	.07	.23	.18	.09	.11	.09	.39	.25	.11	.18	.09	.07	.14	.07	.09	.07	2.22
SU	.07	.11	.20	.18	.07	.18	.16	.32	.14	.09	.18	.14	.14	.07	.09	.02	2.15
N	.77	.72	2.63	1.31	.72	1.16	.82	.39	.63	.59	.57	.45	.70	.41	.25	.61	12.73
SS	.63	.61	1.02	.59	1.20	1.43	1.04	1.59	1.31	1.20	.77	.29	1.38	1.04	.79	.97	15.88
MS	.14	.07	.02	.00	.43	1.11	.66	.75	.61	.54	.45	.16	.14	.59	.48	.20	6.34
ES	.00	.00	.00	.00	.16	.77	.07	.02	.02	.07	.61	.09	.00	.05	.18	.05	2.08

46.58

STABILITY CLASS							
	EU	MU	SU	N	SS	MS	ES
EU	5.17						
MU		2.22					
SU			2.15				
N				12.73			
SS					15.88		
MS						6.34	
ES							2.08

SPEED CLASS	DIRECTION CLASS N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
EU	.09	.29	.18	.05	.05	.09	.09	.41	.43	.39	.23	.50	.84	.91	.84	.63	6.00
MU	.07	.00	.07	.05	.07	.02	.11	.11	.27	.02	.14	.18	.14	.14	.00	.05	1.43
SU	.00	.02	.00	.02	.05	.02	.05	.05	.14	.18	.27	.20	.20	.09	.02	.11	1.43
N	.86	.82	.66	.07	.27	.27	.11	.68	.88	.68	.63	.36	.77	1.00	.93	.91	9.90
SS	.34	.18	.18	.02	.02	.16	.16	.41	1.00	.79	.66	.34	.57	.52	.29	.32	5.96
MS	.00	.00	.00	.00	.00	.05	.00	.05	.07	.02	.02	.05	.00	.00	.00	.00	.25
ES	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00

24.97

STABILITY CLASS							
	EU	MU	SU	N	SS	MS	ES
EU	6.00						
MU		1.43					
SU			1.43				
N				9.90			
SS					5.96		
MS						.25	
ES							.00

SPEED CLASS	DIRECTION CLASS N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
EU	.05	.07	.00	.00	.00	.00	.00	.07	.32	.20	.11	.14	.07	.05	.39	.11	1.56
MU	.02	.00	.00	.00	.00	.00	.00	.00	.07	.20	.16	.02	.05	.05	.02	.02	.61
SU	.00	.02	.00	.00	.00	.00	.00	.00	.09	.05	.11	.02	.07	.07	.02	.05	.50
N	.25	.02	.00	.00	.00	.02	.02	.27	.61	.34	.32	.14	.88	.32	.95	.68	4.83
SS	.05	.00	.00	.00	.00	.02	.02	.02	.32	.36	.23	.07	.20	.00	.07	.02	1.38
MS	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
ES	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00

8.88

STABILITY CLASS							
	EU	MU	SU	N	SS	MS	ES
EU	1.56						
MU		.61					
SU			.50				
N				4.83			
SS					1.38		
MS						.00	
ES							.00

SPEED CLASS	DIRECTION CLASS N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
EU	.00	.00	.00	.00	.00	.00	.00	.00	.02	.05	.02	.00	.00	.07	.05	.00	.20
MU	.00	.00	.00	.00	.00	.00	.00	.00	.02	.00	.02	.00	.00	.05	.05	.00	.14
SU	.00	.00	.00	.00	.00	.00	.00	.00	.02	.05	.05	.00	.00	.02	.02	.00	.16
N	.02	.00	.00	.00	.00	.00	.00	.00	.18	.18	.02	.02	.00	.00	.07	.02	.52
SS	.00	.00	.00	.00	.00	.00	.00	.00	.02	.00	.02	.05	.00	.00	.00	.00	.09
MS	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
ES	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00

1.11

STABILITY CLASS							
	EU	MU	SU	N	SS	MS	ES
EU	.20						
MU		.14					
SU			.16				
N				.52			
SS					.09		
MS						.00	
ES							.00

SPEED CLASS	DIRECTION CLASS N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
EU	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
MU	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
SU	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
N	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
SS	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
MS	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
ES	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00

.00

STABILITY CLASS							
	EU	MU	SU	N	SS	MS	ES
EU	.00						
MU		.00					
SU			.00				
N				.00			
SS					.00		
MS						.00	
ES							.00

CECo DRESDEN STATION
35 ft. WIND SPEED and WIND DIRECTION

July-December 1989
150-35 ft. DIFFERENTIAL TEMPERATURE

SPEED CLASS	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	EU	MU	SU	N	SS	MS	ES	TOTAL
	DIRECTION CLASS																	STABILITY CLASS							
EU	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00							
3 MU	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00		.00						
2 SU	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00			.00					
- N	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00				.00				
3 SS	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00					.00			
8 MS	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00						.00		
ES	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00							.00	
																									.00
EU	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00							
3 MU	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00		.00						
9 SU	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00			.00					
- N	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00				.00				
4 SS	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00					.00			
6 MS	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00						.00		
ES	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00							.00	
																									.00
EU	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00							
G MU	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00		.00						
T SU	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00			.00					
N	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00				.00				
4 SS	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00					.00			
6 MS	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00						.00		
ES	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00							.00	
																									.00
EU	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00							
MU	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00		.00						
C SU	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00			.00					
A N	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00				.00				
L SS	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00					.00			
M MS	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00						.00		
ES	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00							.00	
																									.00
TOT	5.37	5.10	6.43	3.69	4.71	7.05	5.23	6.48	8.68	7.45	7.09	4.30	7.70	6.71	7.00	7.00	100.00	13.34	4.62	4.67	31.40	29.66	11.78	4.53	100.00
S EU	.75	.72	.39	.11	.20	.34	.34	.68	1.06	.84	.68	.82	1.43	1.59	1.74	1.65	13.34								
U MU	.16	.25	.27	.14	.18	.11	.52	.36	.48	.41	.41	.32	.39	.29	.18	.16	4.62								
B SU	.11	.18	.20	.20	.14	.23	.20	.41	.43	.43	.66	.39	.41	.25	.18	.25	4.67								
- N	2.15	1.79	3.60	1.63	1.27	1.86	1.22	1.45	2.45	1.99	1.74	1.06	2.61	1.84	2.36	2.38	31.40								
T SS	1.52	1.54	1.65	1.22	1.68	1.97	1.59	2.47	2.97	2.81	1.90	1.04	2.40	1.77	1.43	1.70	29.66								
O MS	.43	.45	.16	.29	.93	1.61	1.22	1.02	1.16	.84	.84	.45	.41	.77	.66	.54	11.78								
T ES	.25	.16	.16	.09	.32	.93	.14	.09	.14	.14	.86	.23	.07	.20	.45	.32	4.53								

CECo DRESDEN STATION — July-December 1989

300 ft. WIND SPEED and WIND DIRECTION — 300-35 ft. DIFFERENTIAL TEMPERATURE

NUMBER OF OBSERVATIONS = 4362

SPEED CLASS	DIRECTION CLASS N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	STABILITY CLASS EU	MU	SU	N	SS	MS	ES	TOTAL
EU	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00							
MU	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00		.00						
9 SU	.00	.02	.00	.00	.02	.00	.00	.00	.00	.00	.00	.00	.00	.00	.02	.02	.09			.09					
- N	.07	.02	.02	.16	.09	.18	.14	.11	.00	.07	.09	.18	.16	.16	.07	.07	1.60				1.60				
3 SS	.05	.05	.05	.05	.09	.02	.00	.02	.09	.07	.05	.02	.02	.02	.09	.02	.71					.71			
MS	.00	.00	.02	.00	.09	.02	.00	.02	.05	.05	.02	.02	.05	.02	.02	.02	.41						.41		
ES	.00	.00	.00	.00	.02	.00	.00	.00	.00	.00	.02	.00	.00	.00	.02	.00	.07							.07	
																									2.89
EU	.05	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.02	.07	.07							
MU	.18	.07	.02	.00	.00	.02	.02	.00	.00	.00	.00	.02	.00	.00	.02	.07	.44		.44						
4 SU	.28	.16	.07	.09	.00	.14	.14	.00	.02	.11	.07	.07	.11	.11	.09	.21	1.67			1.67					
- N	.09	.32	.53	.73	.34	.69	1.03	.64	.69	.50	.30	.53	.48	.37	.23	.28	7.75				7.75				
7 SS	.14	.16	.25	.39	.23	.32	.34	.30	.16	.44	.25	.16	.14	.09	.14	.09	3.60					3.60			
MS	.05	.07	.23	.14	.18	.07	.09	.18	.11	.16	.16	.09	.11	.00	.18	.07	1.90						1.90		
ES	.00	.02	.02	.07	.00	.00	.07	.07	.00	.02	.02	.05	.02	.00	.02	.00	.39							.39	
																									15.82
EU	.09	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.02	.18	.30	.30							
MU	.11	.11	.09	.05	.00	.00	.00	.00	.00	.00	.00	.00	.00	.09	.14	.18	.78		.78						
8 SU	.09	.23	.30	.25	.16	.09	.14	.02	.11	.09	.05	.05	.21	.21	.32	.09	2.41			2.41					
- N	.41	.99	1.33	1.74	.55	.60	1.01	.60	.94	.76	1.22	.64	.73	.60	.50	.46	13.07				13.07				
1 SS	.41	.48	.64	.62	.55	.71	.96	.99	.53	.64	.46	.64	.46	.32	.37	.09	8.87					8.87			
2 MS	.11	.23	.07	.14	.48	.09	.80	.69	.37	.18	.21	.37	.16	.16	.37	.14	4.56						4.56		
ES	.00	.05	.02	.07	.09	.02	.09	.11	.14	.05	.05	.11	.07	.02	.00	.02	.92							.92	
																									30.90
EU	.11	.09	.00	.00	.00	.00	.00	.00	.00	.00	.00	.07	.00	.02	.05	.14	.48	.48							
1 MU	.05	.11	.02	.00	.00	.00	.00	.02	.00	.00	.05	.09	.05	.09	.16	.14	.78		.78						
3 SU	.02	.05	.09	.02	.00	.02	.00	.18	.14	.09	.07	.09	.25	.25	.21	.11	1.60			1.60					
- N	1.01	.66	1.01	.25	.18	.21	.07	.73	.92	1.17	.85	.69	.92	.85	.80	.69	11.00				11.00				
1 SS	.60	.21	.44	.23	.37	.53	.57	1.10	1.58	1.40	.80	.48	.57	1.10	1.15	.64	11.76					11.76			
8 MS	.18	.11	.14	.02	.09	.14	.32	.69	.50	.55	.57	.73	.32	.25	.48	.32	5.43						5.43		
ES	.07	.07	.05	.00	.00	.02	.11	.16	.00	.16	.02	.21	.02	.00	.05	.00	.94							.94	
																									32.00
EU	.02	.05	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.07	.07							
1 MU	.02	.00	.00	.00	.00	.00	.00	.02	.00	.02	.00	.02	.00	.00	.09	.11	.30		.30						
9 SU	.05	.07	.00	.00	.00	.00	.00	.00	.07	.07	.07	.02	.00	.02	.00	.02	.39			.39					
- N	.87	.78	.21	.00	.00	.00	.02	.18	.57	.64	.48	.34	.76	.66	1.26	.78	7.57				7.57				
2 SS	.28	.21	.07	.00	.02	.16	.07	.14	.53	.96	.55	.21	.34	.39	.18	.32	4.42					4.42			
4 MS	.07	.00	.00	.00	.00	.00	.11	.00	.48	.28	.02	.09	.05	.00	.02	.05	1.17						1.17		
ES	.07	.00	.00	.00	.00	.00	.02	.00	.00	.07	.00	.09	.02	.00	.00	.02	.30							.30	
																									14.21
EU	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00							
2 MU	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00		.00						
5 SU	.00	.05	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.05			.05					
- N	.23	.07	.00	.00	.00	.00	.00	.02	.48	.34	.16	.02	.23	.16	.30	.25	2.27				2.27				
3 SS	.00	.02	.00	.00	.00	.00	.00	.02	.23	.21	.30	.07	.28	.09	.02	.00	1.24					1.24			
1 MS	.02	.00	.00	.00	.00	.00	.00	.00	.00	.02	.00	.02	.00	.00	.00	.00	.07						.07		
ES	.00	.00	.00	.00	.00	.00	.00	.00	.00	.02	.00	.00	.00	.00	.00	.00	.02							.02	
																									3.65

CECo DRESDEN STATION
300 ft. WIND SPEED and WIND DIRECTION

July-December 1989
300-35 ft. DIFFERENTIAL TEMPERATURE

SPEED CLASS	DIRECTION CLASS N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
EU	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
3 MU	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
2 SU	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
- N	.05	.00	.00	.00	.00	.00	.00	.00	.05	.05	.00	.00	.00	.11	.07	.05	.37
3 SS	.02	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.09	.00	.00	.02	.00	.14
8 MS	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
ES	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
																	.50
EU	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
3 MU	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
9 SU	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
- N	.02	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.02
4 SS	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
6 MS	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
ES	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
																	.02
EU	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
G MU	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
T SU	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
N	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
4 SS	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
6 MS	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
ES	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
																	.00
EU	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
MU	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
C SU	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
A N	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
L SS	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
M MS	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
ES	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
																	.00
TOT	5.89	5.52	5.69	5.02	3.58	4.06	6.14	7.04	8.76	9.19	6.90	6.30	6.53	6.19	7.50	5.69	100.00

STABILITY CLASS	EU	MU	SU	N	SS	MS	ES	TOTAL
	.00							
		.00						
			.00					
				.37				
					.14			
						.00		
							.00	
								.50
	.00							
		.00						
			.00					
				.02				
					.00			
						.00		
							.00	
								.02
	.00							
		.00						
			.00					
				.00				
					.00			
						.00		
							.00	
								.00
	.00							
		.00						
			.00					
				.00				
					.00			
						.00		
							.00	
								.00
	1.28	2.29	6.21	43.65	30.74	13.55	2.64	100.00

STABILITY CLASS	EU	MU	SU	N	SS	MS	ES
S EU	.28	.14	.00	.00	.00	.00	.00
U MU	.37	.30	.14	.05	.00	.02	.02
B SU	.44	.57	.46	.37	.18	.25	.28
- N	2.75	2.84	3.09	2.89	1.17	1.67	2.27
T SS	1.49	1.12	1.44	1.28	1.26	1.74	1.95
O MS	.44	.41	.46	.30	.85	.32	1.33
T ES	.14	.14	.09	.14	.11	.05	.30

STABILITY CLASS	EU	MU	SU	N	SS	MS	ES
S EU	.00	.00	.00	.00	.00	.00	.00
U MU	.00	.00	.00	.00	.00	.00	.00
B SU	.00	.00	.00	.00	.00	.00	.00
- N	.00	.00	.00	.00	.00	.00	.00
T SS	.00	.00	.00	.00	.00	.00	.00
O MS	.00	.00	.00	.00	.00	.00	.00
T ES	.00	.00	.00	.00	.00	.00	.00

STABILITY CLASS	EU	MU	SU	N	SS	MS	ES
S EU	.07	.00	.02	.07	.34	.92	
U MU	.14	.05	.18	.41	.50	2.29	
B SU	.23	.57	.60	.64	.46	6.21	
- N	2.41	3.28	2.91	3.23	2.57	43.65	
T SS	1.67	1.81	2.02	1.97	1.17	30.74	
O MS	1.33	.69	.44	1.08	.60	13.55	
T ES	.46	.14	.02	.09	.05	2.64	

[redacted] DRESDEN NUCLEAR POWER STATION
[redacted]ROLOGICAL DATA

DATE		....WIND SPEED....			.WIND DIRECTION.			...WIND SIGMA...			TEMP	...DIFF T...		.....DEW POINT.....			PRECIP
MM-DD-YY	HH	35	150	300	35	150	300	35	150	300	35	150	300	35	150	300	10
9-12-89	1	6.5	13.1	17.8	342	346	347	8	7	5	60.0	-.2	-.5	55.5	54.3	54.5	.00
9-12-89	2	4.0	8.2	11.6	345	354	357	12	6	4	58.7	-.3	-.7	54.4	53.2	53.5	.00
9-12-89	3	4.3	9.0	13.5	337	350	357	9	6	3	57.1	.0	-.1	53.4	52.2	52.1	.00
9-12-89	4	3.7	8.1	12.4	333	350	358	7	5	3	55.4	.4	.5	53.0	51.7	51.8	.00
9-12-89	5	4.7	9.8	13.9	347	354	359	6	4	3	54.1	-.1	-.3	50.8	49.7	49.5	.00
9-12-89	6	5.4	11.1	14.9	352	360	4	8	5	3	53.5	-.3	-.8	47.6	46.3	45.6	.00
9-12-89	7	5.3	10.3	13.3	353	1	4	8	4	3	53.6	-.6	-1.3	46.4	44.9	44.7	.00
9-12-89	8	5.3	9.6	11.6	356	2	7	10	5	5	54.4	-.9	-1.8	46.3	44.5	44.3	.00
9-12-89	9	7.1	13.2	14.4	1	5	7	11	5	4	56.1	-1.2	-2.1	43.5	41.6	41.2	.00
9-12-89	10	5.9	10.7	11.7	20	19	18	13	9	6	58.4	-1.3	-2.4	41.0	39.1	38.8	.00
9-12-89	11	5.4	8.8	9.3	21	21	20	15	8	9	60.8	-1.1	-2.2	40.1	38.0	37.8	.00
9-12-89	12	5.7	8.5	9.4	11	10	9	20	16	15	64.3	-1.7	-2.9	38.9	36.7	36.2	.00
9-12-89	13	6.0	8.4	9.0	17	23	24	28	21	20	65.3	-1.3	-2.7	37.9	35.9	35.2	.00
9-12-89	14	4.9	7.4	8.2	21	21	20	21	13	12	65.4	-.9	-2.0	37.3	35.0	34.7	.00
9-12-89	15	4.4	7.9	8.8	9	11	13	19	11	10	65.2	-.7	-1.5	39.9	36.8	36.3	.00
9-12-89	16	2.6	5.8	7.4	349	1	7	9	7	5	64.1	-.2	-.7	43.0	38.4	36.3	.00
9-12-89	17	3.6	8.1	10.7	349	356	360	6	2	2	63.4	-.1	-.3	44.7	41.4	37.9	.00
9-12-89	18	2.9	6.4	8.4	33	42	43	26	29	28	62.1	.2	-.2	46.3	43.4	42.0	.00
[redacted]-89	19	3.9	6.9	8.6	48	56	59	15	10	8	60.9	.0	-.6	45.8	43.6	42.2	.00
[redacted]12-89	20	2.9	5.3	7.5	57	65	66	9	5	4	60.3	.1	-.5	43.8	41.5	40.2	.00
9-12-89	21	2.7	6.8	9.3	26	35	41	13	14	9	59.3	.4	.2	46.3	43.2	41.2	.00
9-12-89	22	3.7	8.3	11.2	350	359	5	14	11	13	58.5	-.1	-.3	48.9	46.6	45.6	.00
9-12-89	23	4.6	10.5	13.9	13	17	20	12	7	6	57.5	-.3	-.8	49.4	47.8	47.8	.00
9-12-89	24	5.1	11.2	14.4	9	14	20	9	4	3	56.0	-.1	-.6	50.8	48.7	48.7	.00
																TOTAL	.00