



Commonwealth Edison

Dresden Nuclear Power Station

R.R. #1

Morris, Illinois 60450

Telephone 815/942-2920

February 13, 1989

EDE LTR: #89-139

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

Subject: Dresden Nuclear Power Station Units 1, 2, and 3
Corrected Operating Report
NRC Dockets 50-10, 50-237, 50-249

To Whom it May Concern:

Enclosed is the corrected radioactive effluent report for January through June 1988 for Dresden Nuclear Power Station as outlined in the November 1986 Federal Register. The final data for Sr89, Sr90, Fe55, Tritium and gross alpha have been included in the report.

A copy of this report will be furnished to the NRC Resident Inspector.

Sincerely Yours,

E. D. Eenigenburg
Station Manager
Dresden Nuclear Power Station

EDE:JW:ade

Enclosure

cc: J. Wallace
J. C. Golden
File/NRC
File/Numerical

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MEASUREMENTS AND APPROXIMATIONS

- A. Fission and activation gases: The D-1 chimney and D2/3 chimney are sampled daily via a grab sample. The D-2 and D-3 Reactor Vents are sampled weekly via a grab sample. The samples are analyzed for specific isotopes present in the release using a Ge(Li) spectrometry system. Tritium is collected via a continuous sample on the D-2/3 chimney and via a grab sample on the D2/3 Reactor Vent and analyzed using a Liquid Scintillation Counter. Kr-85 is estimated in the D2/3 chimney using a recoil or non-recoil calculation using fission/sec. plot and the sum of Xe-138, Kr-87, Kr-88, Kr-85m, Xe-133 and Xe-135 activities.
- B. Iodine and Particulate: Iodine and particulate samples from the D-1 and D2/3 Chimney and the D-2 and D-3 Reactor Vents are collected for a seven day period. These samples are analyzed for specific nuclides present in the release using a Ge(Li) spectrometry system. When 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 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. Rad-waste batch discharges are also analyzed for specific isotopes present in the release using a Ge(Li) 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, and Gross Alpha. One of the LPCI samples for each month is analyzed for specific isotopes present in the releases using a Ge(Li) spectrometry system. This sample is sent to a vendor to be analyzed for Sr-89, Sr-90, Fe-55, and Gross Alpha activity.

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DRESDEN NUCLEAR POWER STATION

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT

January Through June 1988

GASEOUS EFFLUENTS

SUMMATION OF ALL RELEASES

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

	UNIT	<u>1st</u> QUARTER	<u>2nd</u> QUARTER
A. FISSION AND ACTIVATION GASES			
1. Total Release	Ci	8.33 E01	5.00 E01
2. Average Release Rate for Period	uCi/sec	1.06 E01	6.36 E00
3. Percent of Technical Specification Limit	%	*	*
B. IODINES			
1. Total Iodine-131	Ci	1.40 E-01	9.16 E-03
2. Average Release Rate for Period	uCi/sec	1.78 E-02	1.17 E-03
3. Percent of Technical Specification Limit	%	*	*
C. PARTICULATES			
1. Particulates with half-lives > 8 days	Ci	1.23 E-02	3.01 E-02
2. Average Release Rate for Period	uCi/sec	1.56 E-03	3.83 E-03
3. Percent of Technical Specification Limit	%	*	*
4. Gross Alpha Radioactivity	Ci	2.20 E-10	<MDL
D. TRITIUM			
1. Total Release	Ci	9.82 E00	3.04 E00
2. Average Release Rate for Period	uCi/sec	1.25 E00	3.87 E-01
3. Percent of Technical Specification Limit	%	*	*

* Will be included in the Annual Report on Environmental Radioactivity Data

DRESDEN NUCLEAR POWER STATION
EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT
January Through June 1988

D1 Chimney GASEOUS EFFLUENTS

GROUND LEVEL RELEASES

SEMI-ELEVATED RELEASES

xx ELEVATED RELEASES

Docket Number 50-10

NUCLIDES RELEASED	UNIT	CONTINUOUS MODE		BATCH MODE	
		1st QUARTER	2nd QUARTER	1st QUARTER	2nd QUARTER
FISSION GASES	Ci				
Xe-138	Ci	*	*		
Xe-135m	Ci	*	*		
Kr-87	Ci	*	*		
Kr-88	Ci	*	*		
Kr-85m	Ci	*	*		
Kr-85	Ci	*	*		
Xe-135	Ci	*	*		
Xe-133	Ci	*	*		
Others: Xe-133m	Ci	*	*		
	Ci				
TOTAL	Ci	*	*	None	None
IODINES					
I-131	Ci	*	*		
I-133	Ci	*	*		
I-135	Ci	*	*		
TOTAL	Ci	*	*	None	None
PARTICULATES					
Sr-89	Ci	*	*		
Sr-90	Ci	*	*		
Cr-51	Ci	*	*		
Mn-54	Ci	*	*		
Co-58	Ci	*	*		
Fe-59	Ci	*	*		
Co-60	Ci	6.68 E-06	3.07 E-06		
Zr-95	Ci	*	*		
Nb-95	Ci	*	*		
Ru-103	Ci	*	*		
Ag-110m	Ci	*	*		
Sb-124	Ci	*	*		
I-131	Ci	*	*		
Cs-134	Ci	*	3.29 E-07		
Cs-136	Ci	*	*		
Cs-137	Ci	3.90 E-06	2.81 E-05		
Ba-140	Ci	*	*		
Ce-141	Ci	*	*		
Ce-144	Ci	*	*		
Zn-65	Ci	*	*		
Ba-133	Ci	*	*		
Sb-125	Ci	*	*		
Others: Mo-99	Ci	*	*		
La-140	Ci	*	*		
	Ci				
	Ci				
	Ci				
TOTAL	Ci	1.06 E-05	3.15 E-05	None	None

* See Table for MDL of Each Nuclide

DRESDEN NUCLEAR POWER STATION
EFFLUENT AND WASTE DISPOSAL SEMI-ANNUAL REPORT
January Through June 1988

Docket Number
50-10

TABLE OF MINIMUM DETECTABLE LEVELS
FOR GASEOUS EFFLUENTS

<u>D1 Chimney</u> GASEOUS EFFLUENTS		AVERAGE FLOW <u>50,000 cfm</u>
	<u>MDL (uCi/cc)</u>	<u>% OF TIME < MDL</u>
1. FISSION GASES		
Xe-138	4.16 E-08	100.0
Xe-135m	1.29 E-07	100.0
Kr-87	3.03 E-08	100.0
Kr-88	5.21 E-08	100.0
Kr-85m	1.78 E-08	100.0
Kr-85	4.43 E-06	100.0
Xe-135	1.52 E-08	100.0
Xe-133	4.32 E-08	100.0
Others:		
2. IODINES		
I-131	5.34 E-14	100.0
I-133	5.57 E-14	100.0
I-135	1.19 E-13	100.0
3. PARTICULATES		
Sr-89	2.5 E-14	100.0
Sr-90	1.5 E-14	100.0
Cr-51	4.20 E-13	100.0
Mn-54	5.27 E-14	100.0
Co-58	4.83 E-14	100.0
Fe-59	7.58 E-14	100.0
Co-60	1.26 E-13	18.7
Zr-95	9.09 E-14	100.0
Nb-95	4.96 E-14	100.0
Ru-103	4.95 E-14	100.0
Ag-110m	5.12 E-14	100.0
Sb-124	5.86 E-14	100.0
I-131	5.15 E-14	100.0
Cs-134	5.73 E-14	92.6
Cs-136	5.49 E-14	100.0
Cs-137	6.21 E-14	7.7
Ba-140	1.91 E-13	100.0
Ce-141	7.64 E-14	100.0
Ce-144	3.27 E-13	100.0
Zn-65	9.03 E-14	100.0
Ba-133	6.93 E-14	100.0
Sb-125	1.39 E-13	100.0
Others:		

DRESDEN NUCLEAR POWER STATION
EFFLUENT AND WASTE DISPOSAL SEMI-ANNUAL REPORT
January Through June 1988

D2/3 Chimney GASEOUS EFFLUENTS

GROUND LEVEL RELEASES

SEMI-ELEVATED RELEASES

xx ELEVATED RELEASES

Docket Numbers: 50-237
50-249

CONTINUOUS MODE				BATCH MODE	
NUCLIDES RELEASED	UNIT	1st QUARTER	2nd QUARTER	1st QUARTER	2nd QUARTER
FISSION GASES	Ci				
Xe-138	Ci	2.09 E01	*		
Xe-135m	Ci	5.80 E00	*		
Kr-87	Ci	*	8.59 E-06		
Kr-88	Ci	*	1.64 E00		
Kr-85m	Ci	*	8.64 E-01		
Kr-85	Ci	6.60 E-03	1.59 E-03		
Xe-135	Ci	3.87 E01	1.38 E01		
Xe-133	Ci	1.11 E01	4.23 E00		
Others:	Ci				
	Ci				
TOTAL	Ci	7.65 E01	2.05 E01	None	None
IODINES					
I-131	Ci	3.25 E-03	4.99 E-04		
I-133	Ci	1.16 E-02	2.93 E-03		
I-135	Ci	2.31 E-02	5.47 E-03		
TOTAL	Ci	3.80 E-02	8.90 E-03	None	None
PARTICULATES					
Sr-89	Ci	1.22 E-07	2.25 E-05		
Sr-90	Ci	6.82 E-10	3.14 E-07		
Cr-51	Ci	*	*		
Mn-54	Ci	2.62 E-05	2.21 E-05		
Co-58	Ci	*	*		
Fe-59	Ci	*	*		
Co-60	Ci	4.51 E-04	1.13 E-04		
Zr-95	Ci	*	*		
Nb-95	Ci	*	*		
Ru-103	Ci	*	*		
Ag-110m	Ci	*	*		
Sb-124	Ci	*	*		
I-131	Ci	8.04 E-04	2.81 E-02		
Cs-134	Ci	*	*		
Cs-136	Ci	*	*		
Cs-137	Ci	7.95 E-05	5.48 E-05		
Ba-140	Ci	2.89 E-03	3.13 E-04		
Ce-141	Ci	3.09 E-06	4.20 E-05		
Ce-144	Ci	*	*		
Zn-65	Ci	*	*		
Ba-133	Ci	*	*		
Sb-125	Ci	*	*		
Others: Mo-99	Ci	*	*		
La-140	Ci	*	*		
	Ci				
	Ci				
	Ci				
TOTAL	Ci	4.25 E-03	2.87 E-02	None	None

TABLE OF MINIMUM DETECTABLE LEVELS
FOR GASEOUS EFFLUENTS

<u>D2/3 Chimney</u>	GASEOUS EFFLUENTS	AVERAGE FLOW	<u>1st qtr 283</u>	Kcfm
			<u>2nd qtr 305</u>	Kcfm
	<u>MDL</u> (uCi/cc)		<u>% OF TIME < MDL</u>	
1. FISSION GASES				
Xe-138	4.16 E-08		92.3	
Xe-135m	1.29 E-07		96.7	
Kr-87	3.03 E-08		99.5	
Kr-88	5.21 E-08		99.5	
Kr-85m	1.78 E-08		99.5	
Kr-85	4.43 E-06		0.0	
Xe-135	1.52 E-08		50.0	
Xe-133	4.32 E-08		95.1	
Others:				
2. IODINES				
I-131	5.34 E-14		0.0	
I-133	5.57 E-14		38.5	
I-135	1.19 E-13		33.5	
3. PARTICULATES				
Sr-89	2.5 E-14		0.0	
Sr-90	1.5 E-14		33.5	
Cr-51	4.20 E-13		100.0	
Mn-54	5.27 E-14		35.2	
Co-58	4.83 E-14		100.0	
Fe-59	7.58 E-14		100.0	
Co-60	1.26 E-13		3.9	
Zr-95	9.09 E-14		100.0	
Nb-95	4.96 E-14		100.0	
Ru-103	4.95 E-14		100.0	
Ag-110m	5.12 E-14		100.0	
Sb-124	5.86 E-14		100.0	
I-131	5.15 E-14		17.6	
Cs-134	5.73 E-14		100.0	
Cs-136	5.49 E-14		100.0	
Cs-137	6.21 E-14		52.7	
Ba-140	1.91 E-13		9.3	
Ce-141	7.64 E-14		94.0	
Ce-144	3.27 E-13		100.0	
Zn-65	9.03 E-14		100.0	
Ba-133	6.93 E-14		100.0	
Sb-125	1.39 E-13		100.0	
Others:				

DRESDEN NUCLEAR POWER STATION
EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT
January Through June 1988

D2/3 Vent GASEOUS EFFLUENTS

GROUND LEVEL RELEASES

xx SEMI-ELEVATED RELEASES

ELEVATED RELEASES

Docket Numbers: 50-237
50-249

NUCLIDES RELEASED	UNIT	CONTINUOUS MODE		BATCH MODE	
		1st QUARTER	2nd QUARTER	1st QUARTER	2nd QUARTER
FISSION GASES	Ci				
Xe-138	Ci	*	*		
Xe-135m	Ci	*	*		
Kr-87	Ci	*	*		
Kr-88	Ci	*	*		
Kr-85m	Ci	*	*		
Kr-85	Ci	*	*		
Xe-135	Ci	6.75 E00	2.24 E01		
Xe-133	Ci	*	7.14 E00		
Others:	Ci	*	*		
TOTAL	Ci	6.75 E00	2.95 E01	None	None
IODINES					
I-131	Ci	7.39 E-02	6.67 E-05		
I-133	Ci	9.66 E-03	1.91 E-04		
I-135	Ci	1.87 E-02	1.33 E-06		
TOTAL	Ci	1.02 E-01	2.59 E-04	None	None
PARTICULATES					
Sr-89	Ci	1.40 E-08	2.56 E-06		
Sr-90	Ci	1.29 E-10	1.15 E-06		
Cr-51	Ci	7.17 E-04	7.20 E-06		
Mn-54	Ci	2.69 E-04	2.07 E-04		
Co-58	Ci	2.81 E-04	2.65 E-05		
Fe-59	Ci	5.29 E-05	3.72 E-05		
Co-60	Ci	2.27 E-03	1.06 E-03		
Zr-95	Ci	7.80 E-05	*		
Nb-95	Ci	*	*		
Ru-103	Ci	*	*		
Ag-110m	Ci	1.57 E-05	1.19 E-06		
Sb-124	Ci	1.30 E-06	*		
I-131	Ci	3.47 E-05	2.35 E-06		
Cs-134	Ci	*	*		
Cs-136	Ci	5.58 E-06	*		
Cs-137	Ci	7.36 E-06	2.45 E-05		
Ba-140	Ci	4.68 E-04	*		
Ce-141	Ci	*	*		
Ce-144	Ci	*	3.14 E-06		
Zn-65	Ci	1.40 E-04	4.76 E-06		
Ba-133	Ci	*	*		
Sb-125	Ci	*	*		
Others:	Ci				
Mo-99	Ci	3.66 E-03	*		
TOTAL	Ci	8.00 E-03	1.38 E-03	None	None

* See Table for MDL of Each Nuclide

TABLE OF MINIMUM DETECTABLE LEVELS
FOR GASEOUS EFFLUENTS

<u>D2/3 Vent</u> GASEOUS EFFLUENTS		AVERAGE FLOW	D2: <u>110</u> Kcfm	D3: <u>110</u> Kcfm
	MDL (uCi/cc)		<u>% OF TIME < MDL</u>	
1. FISSION GASES				
Xe-138	4.16 E-08		100	
Xe-135m	1.29 E-07		100	
Kr-87	3.03 E-08		100	
Kr-88	5.21 E-08		100	
Kr-85m	1.78 E-08		100	
Kr-85	4.43 E-06		100	
Xe-135	1.52 E-08		50.5	
Xe-133	4.32 E-08		96.2	
Others:				
2. IODINES				
I-131	5.34 E-14		3.9	
I-133	5.57 E-14		17.5	
I-135	1.19 E-14		40.4	
3. PARTICULATES				
Sr-89	2.5 E-14		16.9	
Sr-90	1.5 E-14		50.8	
Cr-51	4.20 E-13		33.9	
Mn-54	5.27 E-14		0.0	
Co-58	4.83 E-14		7.1	
Fe-59	7.58 E-14		9.3	
Co-60	1.26 E-13		0.0	
Zr-95	9.09 E-14		96.2	
Nb-95	4.96 E-14		100.0	
Ru-103	4.95 E-14		100.0	
Ag-110m	5.12 E-14		61.7	
Sb-124	5.86 E-14		95.6	
I-131	5.15 E-14		34.6	
Cs-134	5.73 E-14		100.0	
Cs-136	5.49 E-14		88.5	
Cs-137	6.21 E-14		34.4	
Ba-140	1.91 E-13		50.0	
Ce-141	7.64 E-14		100.0	
Ce-144	3.27 E-13		96.2	
Zn-65	9.03 E-14		54.1	
Ba-133	6.93 E-14		100.0	
Sb-125	1.39 E-13		100.0	
Others: Mo-99	3.95 E-13		50.8	

DRESDEN NUCLEAR POWER STATION

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT

January Through June 1988

LIQUID EFFLUENTS

SUMMATION OF ALL RELEASES

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

	UNIT	<u>1st</u> QUARTER	<u>2nd</u> QUARTER
A. FISSION AND ACTIVATION PRODUCTS			
1. Total Release (not incl. tritium,gases,alpha)	Ci	7.78 E-03	5.23 E-02
2. Average Diluted Conc. During Period	uCi/mL	6.54 E-08	6.70 E-07
3. Percent of Applicable Limit	%	*	*
B. TRITIUM			
1. Total Release	Ci	2.62 E00	8.81 E00
2. Average Diluted Conc. During Period	uCi/mL	2.20 E-05	1.13 E-04
3. Percent of Applicable Limit	%	*	*
C. DISSOLVED AND ENTRAINED GASES			
1. Total Release	Ci	3.02 E-04	2.05 E-04
2. Average Diluted Conc. During Period	uCi/mL	2.54 E-09	2.62 E-09
3. Percent of Applicable Limit	%	*	*
D. GROSS ALPHA RADIOACTIVITY			
1. Total Release	Ci	<MDL	<MDL
E. VOLUME OF WASTE RELEASED (prior to dilution)			
	liters	3.42 E06	1.38 E07
F. VOLUME OF DILUTION WATER USED DURING PERIOD			
	liters	1.16 E08	6.43 E07

* Will be included in the Annual Report on Environmental Radioactivity Data

DRESDEN NUCLEAR POWER STATION

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT

January Through June 1988

Radwaste LIQUID EFFLUENTS

Docket Numbers: 50-10
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1. Number of Batch Releases: 183
2. Total Time Period for Batch Releases: 58,633 min
3. Maximum Time Period for a Batch Release: 447 min
4. Average Time Period for Batch Releases: 320 min
5. Minimum Time Period for a Batch Release: 11 min
6. Average Stream Flow During Periods of
Release of Effluent into a Flowing Stream: 8.57 E04 L/min

NUCLIDES RELEASED	UNIT	CONTINUOUS MODE		BATCH MODE	
		1st QUARTER	2nd QUARTER	1st QUARTER	2nd QUARTER
Sr-89	Ci			*	*
Sr-90	Ci			*	1.71 E-04
Ar-41	Ci			*	*
Mn-54	Ci			3.00 E-04	5.13 E-03
Co-58	Ci			*	*
Fe-59	Ci			*	7.20 E-05
Co-60	Ci			4.72 E-03	3.79 E-02
Zn-65	Ci			*	*
Ru-103	Ci			*	*
Sb-122	Ci			*	*
Sb-124	Ci			*	*
I-131	Ci			2.48 E-05	*
I-133	Ci			*	*
I-135	Ci			*	*
Cs-134	Ci			*	*
Cs-137	Ci			2.56 E-03	5.99 E-03
Ba-140	Ci			*	*
La-140	Ci			*	*
Ce-141	Ci			*	*
Others: Fe-55	Ci			*	2.51 E-03
Cr-51	Ci			1.09 E-04	*
Cs-138	Ci				3.38 E-04
(above)	Ci				
Total For Period	Ci	None	None	7.71 E-03	5.21 E-02
Xe-133	Ci			1.79 E-04	1.36 E-04
Xe-135	Ci			1.23 E-04	6.89 E-05

* See Table for MDL of Each Nuclide

DRESDEN NUCLEAR POWER STATION

January Through June 1988TABLE OF MINIMUM DETECTABLE LEVELS
FOR LIQUID EFFLUENTS

Docket Numbers:

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Radwaste LIQUID EFFLUENTS TOTAL GALLONS RELEASED 4,145,460

	<u>MDL (uCi/mL)</u>	<u>% OF GALLONS < MDL</u>
Sr-89	8.3 E-08	100.0
Sr-90	2.4 E-08	75.7
Ar-41	2.71 E-08	100.0
Mn-54	5.04 E-08	18.9
Co-58	4.98 E-08	100.0
Fe-59	8.11 E-08	99.0
Co-60	1.18 E-07	0.0
Zn-65	9.97 E-08	100.0
Ru-103	6.04 E-08	100.0
Sb-122	7.31 E-08	100.0
Sb-124	4.87 E-08	100.0
I-131	5.62 E-08	99.5
I-133	5.34 E-08	100.0
I-135	9.15 E-08	100.0
Cs-134	5.51 E-08	100.0
Cs-137	4.04 E-08	2.2
Ba-140	2.11 E-07	100.0
La-140	3.82 E-08	100.0
Ce-141	9.33 E-08	100.0
Xe-133	1.53 E-07	91.5
Xe-135	5.13 E-08	89.1
Cr-51	4.81 E-07	99.3
Fe-55	3.1 E-07	83.0

DRESDEN NUCLEAR POWER STATION

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT

January Through June 1988

LPCI LIQUID EFFLUENTS

Docket Numbers: 50-237
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1. Number of Batch Releases: 97
2. Total Time Period for Batch Releases: 120.3 min
3. Maximum Time Period for a Batch Release: 1.24 min
4. Average Time Period for Batch Releases: 1.24 min
5. Minimum Time Period for a Batch Release: 1.24 min
6. Average Stream Flow During Periods of
Release of Effluent into a Flowing Stream: 1.32 E04 L/min

NUCLIDES RELEASED	UNIT	CONTINUOUS MODE		BATCH MODE	
		1st QUARTER	2nd QUARTER	1st QUARTER	2nd QUARTER
Sr-89	Ci			2.10 E-06	*
Sr-90	Ci			3.20 E-07	*
Ar-41	Ci			*	*
Mn-54	Ci			9.81 E-07	1.50 E-05
Co-58	Ci			*	*
Fe-59	Ci			*	*
Co-60	Ci			6.10 E-05	1.48 E-04
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			9.77 E-06	2.13 E-05
Ba-140	Ci			*	*
La-140	Ci			*	*
Ce-141	Ci			*	*
Others: Cr-51	Ci			*	*
Fe-55	Ci			*	*
	Ci				
	Ci				
(above)					
Total For Period	Ci	None	None	7.42 E-05	1.84 E-04
Xe-133	Ci			*	*
Xe-135	Ci			*	*

* See Table for MDL of Each Nuclide

DRESDEN NUCLEAR POWER STATION

January Through June 1988TABLE OF MINIMUM DETECTABLE LEVELS
FOR LIQUID EFFLUENTSDocket Numbers:
50-237
50-249

<u>LPCI</u>	<u>LIQUID EFFLUENTS</u>	<u>TOTAL GALLONS RELEASED</u>	<u>4.21 E05</u>
	<u>MDL (uCi/mL)</u>	<u>% OF GALLONS < MDL</u>	
Sr-89	7.9 E-08	95.9	
Sr-90	2.7 E-08	95.9	
Ar-41	2.71 E-08	100.0	
Mn-54	5.04 E-08	63.9	
Co-58	4.98 E-08	100.0	
Fe-59	8.11 E-08	100.0	
Co-60	1.18 E-07	14.4	
Zn-65	9.97 E-08	100.0	
Ru-103	6.04 E-08	100.0	
Sb-122	7.31 E-08	100.0	
Sb-124	4.87 E-08	100.0	
I-131	5.62 E-08	100.0	
I-133	5.34 E-08	100.0	
I-135	9.15 E-08	100.0	
Cs-134	5.51 E-08	100.0	
Cs-137	4.04 E-08	40.2	
Ba-140	2.11 E-07	100.0	
La-140	3.82 E-08	100.0	
Ce-141	9.33 E-08	100.0	
Xe-133	1.53 E-07	100.0	
Xe-135	5.13 E-08	100.0	
Cr-51	4.81 E-07	100.0	
Fe-55	4.8 E-07	100.0	

DRESDEN NUCLEAR POWER STATION
EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT

January Through June 1988

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
a. Spent resins, filter sludges, evaporator bottoms, etc.	m ³	206.4
	Ci	7.18 E02
b. Dry compressible waste, contaminated equip., etc.	m ³	881.6
	Ci	1.09 E01
c. Irradiated components, control rods, etc.	m ³	2.3
	Ci	1.86 E00
d. Other (describe)	m ³	
	Ci	

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

		%	Ci
a.	Co-60	74.5 %	5.35 E02
	Fe-55	12.4 %	8.90 E01
	Mn-54	9.8 %	7.04 E01
	Cs-137	0.7 %	5.03 E00
	Other	2.6 %	1.87 E01
b.	Co-60	24.4 %	2.66 E00
	Fe-55	71.3 %	7.77 E00
	Mn-54	2.8 %	3.05 E-01
	Cs-137	1.4 %	1.53 E-01
	Other	0.2 %	2.18 E-02
c.	Co-60	29.41 %	5.47 E-01
	Fe-55	67.95 %	1.26 E00
	Mn-54	2.64 %	4.91 E-02
		%	
		%	
d.		%	

3. Solid Waste Disposition

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
1	Motor freight (exclusive use only)	Chem-Nuclear, IL
42	Motor freight (exclusive use only)	Barnwell, SC
16	Motor freight (exclusive use only)	SEG, TN
1	Motor freight (exclusive use only)	Quadrex, TN
2	Motor freight (exclusive use only)	Westinghouse-DRR, PA

B. IRRADIATED FUEL SHIPMENTS (Disposition)

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
1	Motor freight (exclusive use only)	Barnwell, SC

DRESDEN NUCLEAR POWER STATION

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT

January Through June 1988

ABNORMAL RELEASES

Docket Numbers:

50-10

50-237

50-249

A. LIQUID

1. Number of Releases: None
2. Total Activity Released: None

B. GASEOUS

1. Number of Releases: None
2. Total Activity Released: None



Commonwealth Edison

Dresden Nuclear Power Station
R.R. #1
Morris, Illinois 60450
Telephone 815/942-2920

February 13, 1989

EDE LTR: #89-139

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

Subject: Dresden Nuclear Power Station Units 1, 2, and 3
Corrected Operating Report
NRC Dockets 50-10, 50-237, 50-249

To Whom it May Concern:

Enclosed is the corrected radioactive effluent report for January through June 1988 for Dresden Nuclear Power Station as outlined in the November 1986 Federal Register. The final data for Sr89, Sr90, Fe55, Tritium and gross alpha have been included in the report.

A copy of this report will be furnished to the NRC Resident Inspector.

Sincerely Yours,

E. D. Eenigenburg
Station Manager
Dresden Nuclear Power Station

EDE:JW:ade

Enclosure

cc: J. Wallace
J. C. Golden
File/NRC
File/Numerical

8903090160 (1p)

1981a

IE48
11

MEASUREMENTS AND APPROXIMATIONS

- A. Fission and activation gases: The D-1 chimney and D2/3 chimney are sampled daily via a grab sample. The D-2 and D-3 Reactor Vents are sampled weekly via a grab sample. The samples are analyzed for specific isotopes present in the release using a Ge(Li) spectrometry system. Tritium is collected via a continuous sample on the D-2/3 chimney and via a grab sample on the D2/3 Reactor Vent and analyzed using a Liquid Scintillation Counter. Kr-85 is estimated in the D2/3 chimney using a recoil or non-recoil calculation using fission/sec. plot and the sum of Xe-138, Kr-87, Kr-88, Kr-85m, Xe-133 and Xe-135 activities.
- B. Iodine and Particulate: Iodine and particulate samples from the D-1 and D2/3 Chimney and the D-2 and D-3 Reactor Vents are collected for a seven day period. These samples are analyzed for specific nuclides present in the release using a Ge(Li) spectrometry system. When 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 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. Rad-waste batch discharges are also analyzed for specific isotopes present in the release using a Ge(Li) 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, and Gross Alpha. One of the LPCI samples for each month is analyzed for specific isotopes present in the releases using a Ge(Li) spectrometry system. This sample is sent to a vendor to be analyzed for Sr-89, Sr-90, Fe-55, and Gross Alpha activity.

DRESDEN NUCLEAR POWER STATION
EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT

January Through June 1988

GASEOUS EFFLUENTS

SUMMATION OF ALL RELEASES

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

	UNIT	<u>1st</u> QUARTER	<u>2nd</u> QUARTER
A. FISSION AND ACTIVATION GASES			
1. Total Release	Ci	8.33 E01	5.00 E01
2. Average Release Rate for Period	uCi/sec	1.06 E01	6.36 E00
3. Percent of Technical Specification Limit	%	*	*
B. IODINES			
1. Total Iodine-131	Ci	1.40 E-01	9.16 E-03
2. Average Release Rate for Period	uCi/sec	1.78 E-02	1.17 E-03
3. Percent of Technical Specification Limit	%	*	*
C. PARTICULATES			
1. Particulates with half-lives > 8 days	Ci	1.23 E-02	3.01 E-02
2. Average Release Rate for Period	uCi/sec	1.56 E-03	3.83 E-03
3. Percent of Technical Specification Limit	%	*	*
4. Gross Alpha Radioactivity	Ci	2.20 E-10	<MDL
D. TRITIUM			
1. Total Release	Ci	9.82 E00	3.04 E00
2. Average Release Rate for Period	uCi/sec	1.25 E00	3.87 E-01
3. Percent of Technical Specification Limit	%	*	*

* Will be included in the Annual Report on Environmental Radioactivity Data

DRESDEN NUCLEAR POWER STATION
EFFLUENT AND WASTE DISPOSAL SEMI-ANNUAL REPORT
January Through June 1988

D1 Chimney GASEOUS EFFLUENTS

GROUND LEVEL RELEASES

SEMI-ELEVATED RELEASES

xx ELEVATED RELEASES

Docket Number 50-10

NUCLIDES RELEASED	UNIT	CONTINUOUS MODE		BATCH MODE	
		1st QUARTER	2nd QUARTER	1st QUARTER	2nd QUARTER
FISSION GASES	Ci				
Xe-138	Ci	*	*		
Xe-135m	Ci	*	*		
Kr-87	Ci	*	*		
Kr-88	Ci	*	*		
Kr-85m	Ci	*	*		
Kr-85	Ci	*	*		
Xe-135	Ci	*	*		
Xe-133	Ci	*	*		
Others: Xe-133m	Ci	*	*		
	Ci				
TOTAL	Ci	*	*	None	None
IODINES					
I-131	Ci	*	*		
I-133	Ci	*	*		
I-135	Ci	*	*		
TOTAL	Ci	*	*	None	None
PARTICULATES					
Sr-89	Ci	*	*		
Sr-90	Ci	*	*		
Cr-51	Ci	*	*		
Mn-54	Ci	*	*		
Co-58	Ci	*	*		
Fe-59	Ci	*	*		
Co-60	Ci	6.68 E-06	3.07 E-06		
Zr-95	Ci	*	*		
Nb-95	Ci	*	*		
Ru-103	Ci	*	*		
Ag-110m	Ci	*	*		
Sb-124	Ci	*	*		
I-131	Ci	*	*		
Cs-134	Ci	*	3.29 E-07		
Cs-136	Ci	*	*		
Cs-137	Ci	3.90 E-06	2.81 E-05		
Ba-140	Ci	*	*		
Ce-141	Ci	*	*		
Ce-144	Ci	*	*		
Zn-65	Ci	*	*		
Ba-133	Ci	*	*		
Sb-125	Ci	*	*		
Others: Mo-99	Ci	*	*		
La-140	Ci	*	*		
	Ci				
	Ci				
	Ci				
TOTAL	Ci	1.06 E-05	3.15 E-05	None	None

* See Table for MDL of Each Nuclide

DRESDEN NUCLEAR POWER STATION
EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT
January Through June 1988

Docket Number
50-10

TABLE OF MINIMUM DETECTABLE LEVELS
FOR GASEOUS EFFLUENTS

D1 Chimney GASEOUS EFFLUENTS AVERAGE FLOW 50,000 cfm

	<u>MDL (uCi/cc)</u>	<u>% OF TIME < MDL</u>
1. FISSION GASES		
Xe-138	4.16 E-08	100.0
Xe-135m	1.29 E-07	100.0
Kr-87	3.03 E-08	100.0
Kr-88	5.21 E-08	100.0
Kr-85m	1.78 E-08	100.0
Kr-85	4.43 E-06	100.0
Xe-135	1.52 E-08	100.0
Xe-133	4.32 E-08	100.0
Others:		
2. IODINES		
I-131	5.34 E-14	100.0
I-133	5.57 E-14	100.0
I-135	1.19 E-13	100.0
3. PARTICULATES		
Sr-89	2.5 E-14	100.0
Sr-90	1.5 E-14	100.0
Cr-51	4.20 E-13	100.0
Mn-54	5.27 E-14	100.0
Co-58	4.83 E-14	100.0
Fe-59	7.58 E-14	100.0
Co-60	1.26 E-13	18.7
Zr-95	9.09 E-14	100.0
Nb-95	4.96 E-14	100.0
Ru-103	4.95 E-14	100.0
Ag-110m	5.12 E-14	100.0
Sb-124	5.86 E-14	100.0
I-131	5.15 E-14	100.0
Cs-134	5.73 E-14	92.6
Cs-136	5.49 E-14	100.0
Cs-137	6.21 E-14	7.7
Ba-140	1.91 E-13	100.0
Ce-141	7.64 E-14	100.0
Ce-144	3.27 E-13	100.0
Zn-65	9.03 E-14	100.0
Ba-133	6.93 E-14	100.0
Sb-125	1.39 E-13	100.0
Others:		

DRESDEN NUCLEAR POWER STATION
EFFLUENT AND WASTE DISPOSAL SEMI-ANNUAL REPORT
January Through June 1988

D2/3 Chimney GASEOUS EFFLUENTS

GROUND LEVEL RELEASES

SEMI-ELEVATED RELEASES

xx ELEVATED RELEASES

Docket Numbers: 50-237
50-249

NUCLIDES RELEASED	UNIT	CONTINUOUS MODE		BATCH MODE	
		1st QUARTER	2nd QUARTER	1st QUARTER	2nd QUARTER
FISSION GASES	Ci				
Xe-138	Ci	2.09 E01	*		
Xe-135m	Ci	5.80 E00	*		
Kr-87	Ci	*	8.59 E-06		
Kr-88	Ci	*	1.64 E00		
Kr-85m	Ci	*	8.64 E-01		
Kr-85	Ci	6.60 E-03	1.59 E-03		
Xe-135	Ci	3.87 E01	1.38 E01		
Xe-133	Ci	1.11 E01	4.23 E00		
Others:	Ci				
	Ci				
TOTAL	Ci	7.65 E01	2.05 E01	None	None
IODINES					
I-131	Ci	3.25 E-03	4.99 E-04		
I-133	Ci	1.16 E-02	2.93 E-03		
I-135	Ci	2.31 E-02	5.47 E-03		
TOTAL	Ci	3.80 E-02	8.90 E-03	None	None
PARTICULATES					
Sr-89	Ci	1.22 E-07	2.25 E-05		
Sr-90	Ci	6.82 E-10	3.14 E-07		
Cr-51	Ci	*	*		
Mn-54	Ci	2.62 E-05	2.21 E-05		
Co-58	Ci	*	*		
Fe-59	Ci	*	*		
Co-60	Ci	4.51 E-04	1.13 E-04		
Zr-95	Ci	*	*		
Nb-95	Ci	*	*		
Ru-103	Ci	*	*		
Ag-110m	Ci	*	*		
Sb-124	Ci	*	*		
I-131	Ci	8.04 E-04	2.81 E-02		
Cs-134	Ci	*	*		
Cs-136	Ci	*	*		
Cs-137	Ci	7.95 E-05	5.48 E-05		
Ba-140	Ci	2.89 E-03	3.13 E-04		
Ce-141	Ci	3.09 E-06	4.20 E-05		
Ce-144	Ci	*	*		
Zn-65	Ci	*	*		
Ba-133	Ci	*	*		
Sb-125	Ci	*	*		
Others: Mo-99	Ci	*	*		
La-140	Ci	*	*		
	Ci				
	Ci				
	Ci				
TOTAL	Ci	4.25 E-03	2.87 E-02	None	None

* See Table for MDL of Each Nuclide

TABLE OF MINIMUM DETECTABLE LEVELS FOR GASEOUS EFFLUENTS

50-249

% OF TIME < MDL

DRESDEN NUCLEAR POWER STATION
EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT
January Through June 1988

D2/3 Vent GASEOUS EFFLUENTS

 GROUND LEVEL RELEASES

xx SEMI-ELEVATED RELEASES

 ELEVATED RELEASES

Docket Numbers: 50-237
50-249

NUCLIDES RELEASED	UNIT	CONTINUOUS MODE		BATCH MODE	
		1st QUARTER	2nd QUARTER	1st QUARTER	2nd QUARTER
FISSION GASES	Ci				
Xe-138	Ci	*	*		
Xe-135m	Ci	*	*		
Kr-87	Ci	*	*		
Kr-88	Ci	*	*		
Kr-85m	Ci	*	*		
Kr-85	Ci	*	*		
Xe-135	Ci	6.75 E00	2.24 E01		
Xe-133	Ci	*	7.14 E00		
Others:	Ci	*	*		
	Ci				
TOTAL	Ci	6.75 E00	2.95 E01	None	None
IODINES					
I-131	Ci	7.39 E-02	6.67 E-05		
I-133	Ci	9.66 E-03	1.91 E-04		
I-135	Ci	1.87 E-02	1.33 E-06		
TOTAL	Ci	1.02 E-01	2.59 E-04	None	None
PARTICULATES					
Sr-89	Ci	1.40 E-08	2.56 E-06		
Sr-90	Ci	1.29 E-10	1.15 E-06		
Cr-51	Ci	7.17 E-04	7.20 E-06		
Mn-54	Ci	2.69 E-04	2.07 E-04		
Co-58	Ci	2.81 E-04	2.65 E-05		
Fe-59	Ci	5.29 E-05	3.72 E-05		
Co-60	Ci	2.27 E-03	1.06 E-03		
Zr-95	Ci	7.80 E-05	*		
Nb-95	Ci	*	*		
Ru-103	Ci	*	*		
Ag-110m	Ci	1.57 E-05	1.19 E-06		
Sb-124	Ci	1.30 E-06	*		
I-131	Ci	3.47 E-05	2.35 E-06		
Cs-134	Ci	*	*		
Cs-136	Ci	5.58 E-06	*		
Cs-137	Ci	7.36 E-06	2.45 E-05		
Ba-140	Ci	4.68 E-04	*		
Ce-141	Ci	*	*		
Ce-144	Ci	*	3.14 E-06		
Zn-65	Ci	1.40 E-04	4.76 E-06		
Ba-133	Ci	*	*		
Sb-125	Ci	*	*		
Others:	Ci				
Mo-99	Ci	3.66 E-03	*		
	Ci				
TOTAL	Ci	8.00 E-03	1.38 E-03	None	None

* See Table for MDL of Each Nuclide

TABLE OF MINIMUM DETECTABLE LEVELS
 FOR GASEOUS EFFLUENTS

<u>D2/3 Vent</u> GASEOUS EFFLUENTS		AVERAGE FLOW	D2: <u>110</u> Kcfm	D3: <u>110</u> Kcfm
	<u>MDL (uCi/cc)</u>		<u>% OF TIME < MDL</u>	
1. FISSION GASES				
Xe-138	4.16 E-08		100	
Xe-135m	1.29 E-07		100	
Kr-87	3.03 E-08		100	
Kr-88	5.21 E-08		100	
Kr-85m	1.78 E-08		100	
Kr-85	4.43 E-06		100	
Xe-135	1.52 E-08		50.5	
Xe-133	4.32 E-08		96.2	
Others:				
2. IODINES				
I-131	5.34 E-14		3.9	
I-133	5.57 E-14		17.5	
I-135	1.19 E-14		40.4	
3. PARTICULATES				
Sr-89	2.5 E-14		16.9	
Sr-90	1.5 E-14		50.8	
Cr-51	4.20 E-13		33.9	
Mn-54	5.27 E-14		0.0	
Co-58	4.83 E-14		7.1	
Fe-59	7.58 E-14		9.3	
Co-60	1.26 E-13		0.0	
Zr-95	9.09 E-14		96.2	
Nb-95	4.96 E-14		100.0	
Ru-103	4.95 E-14		100.0	
Ag-110m	5.12 E-14		61.7	
Sb-124	5.86 E-14		95.6	
I-131	5.15 E-14		34.6	
Cs-134	5.73 E-14		100.0	
Cs-136	5.49 E-14		88.5	
Cs-137	6.21 E-14		34.4	
Ba-140	1.91 E-13		50.0	
Ce-141	7.64 E-14		100.0	
Ce-144	3.27 E-13		96.2	
Zn-65	9.03 E-14		54.1	
Ba-133	6.93 E-14		100.0	
Sb-125	1.39 E-13		100.0	
Others: Mo-99	3.95 E-13		50.8	

DRESDEN NUCLEAR POWER STATION
EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT

January Through June 1988

LIQUID EFFLUENTS

SUMMATION OF ALL RELEASES

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

UNIT 1st QUARTER 2nd QUARTER

A. FISSION AND ACTIVATION PRODUCTS

1. Total Release (not incl. tritium,gases,alpha)	Ci	7.78 E-03	5.23 E-02
2. Average Diluted Conc. During Period	uCi/mL	6.54 E-08	6.70 E-07
3. Percent of Applicable Limit	%	*	*

B. TRITIUM

1. Total Release	Ci	2.62 E00	8.81 E00
2. Average Diluted Conc. During Period	uCi/mL	2.20 E-05	1.13 E-04
3. Percent of Applicable Limit	%	*	*

C. DISSOLVED AND ENTRAINED GASES

1. Total Release	Ci	3.02 E-04	2.05 E-04
2. Average Diluted Conc. During Period	uCi/mL	2.54 E-09	2.62 E-09
3. Percent of Applicable Limit	%	*	*

D. GROSS ALPHA RADIOACTIVITY

1. Total Release	Ci	<MDL	<MDL
------------------	----	------	------

E. VOLUME OF WASTE RELEASED (prior to dilution)	liters	3.42 E06	1.38 E07
---	--------	----------	----------

F. VOLUME OF DILUTION WATER USED DURING PERIOD	liters	1.16 E08	6.43 E07
--	--------	----------	----------

* Will be included in the Annual Report on Environmental Radioactivity Data

DRESDEN NUCLEAR POWER STATION

EFFLUENT AND WASTE DISPOSAL SEMI-ANNUAL REPORT

January Through June 1988

Radwaste LIQUID EFFLUENTS

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

1. Number of Batch Releases: 183
2. Total Time Period for Batch Releases: 58,633 min
3. Maximum Time Period for a Batch Release: 447 min
4. Average Time Period for Batch Releases: 320 min
5. Minimum Time Period for a Batch Release: 11 min
6. Average Stream Flow During Periods of
Release of Effluent into a Flowing Stream: 8.57 E04 L/min

NUCLIDES RELEASED	UNIT	CONTINUOUS MODE		BATCH MODE	
		1st QUARTER	2nd QUARTER	1st QUARTER	2nd QUARTER
Sr-89	Ci			*	*
Sr-90	Ci			*	1.71 E-04
Ar-41	Ci			*	*
Mn-54	Ci			3.00 E-04	5.13 E-03
Co-58	Ci			*	*
Fe-59	Ci			*	7.20 E-05
Co-60	Ci			4.72 E-03	3.79 E-02
Zn-65	Ci			*	*
Ru-103	Ci			*	*
Sb-122	Ci			*	*
Sb-124	Ci			*	*
I-131	Ci			2.48 E-05	*
I-133	Ci			*	*
I-135	Ci			*	*
Cs-134	Ci			*	*
Cs-137	Ci			2.56 E-03	5.99 E-03
Ba-140	Ci			*	*
La-140	Ci			*	*
Ce-141	Ci			*	*
Others: Fe-55	Ci			*	2.51 E-03
Cr-51	Ci			1.09 E-04	*
Cs-138	Ci				3.38 E-04
	Ci				
(above)					
Total For Period	Ci	None	None	7.71 E-03	5.21 E-02
Xe-133	Ci			1.79 E-04	1.36 E-04
Xe-135	Ci			1.23 E-04	6.89 E-05

* See Table for MDL of Each Nuclide

RESDEN NUCLEAR POWER STATION

January Through June 1988

TABLE OF MINIMUM DETECTABLE LEVELS
FOR LIQUID EFFLUENTS

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

Radwaste LIQUID EFFLUENTS TOTAL GALLONS RELEASED 4,145,460

	<u>MDL (uCi/mL)</u>	<u>% OF GALLONS < MDL</u>
Sr-89	8.3 E-08	100.0
Sr-90	2.4 E-08	75.7
Ar-41	2.71 E-08	100.0
Mn-54	5.04 E-08	18.9
Co-58	4.98 E-08	100.0
Fe-59	8.11 E-08	99.0
Co-60	1.18 E-07	0.0
Zn-65	9.97 E-08	100.0
Ru-103	6.04 E-08	100.0
Sb-122	7.31 E-08	100.0
Sb-124	4.87 E-08	100.0
I-131	5.62 E-08	99.5
I-133	5.34 E-08	100.0
I-135	9.15 E-08	100.0
Cs-134	5.51 E-08	100.0
Cs-137	4.04 E-08	2.2
Ba-140	2.11 E-07	100.0
La-140	3.82 E-08	100.0
Ce-141	9.33 E-08	100.0
Xe-133	1.53 E-07	91.5
Xe-135	5.13 E-08	89.1
Cr-51	4.81 E-07	99.3
Fe-55	3.1 E-07	83.0

DRESDEN NUCLEAR POWER STATION

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT

January Through June 1988

LPCI LIQUID EFFLUENTS

Docket Numbers: 50-237
50-249

1. Number of Batch Releases: 97
2. Total Time Period for Batch Releases: 120.3 min
3. Maximum Time Period for a Batch Release: 1.24 min
4. Average Time Period for Batch Releases: 1.24 min
5. Minimum Time Period for a Batch Release: 1.24 min
6. Average Stream Flow During Periods of
Release of Effluent into a Flowing Stream: 1.32 E04 L/min

NUCLIDES RELEASED	UNIT	CONTINUOUS MODE		BATCH MODE	
		1st QUARTER	2nd QUARTER	1st QUARTER	2nd QUARTER
Sr-89	Ci			2.10 E-06	*
Sr-90	Ci			3.20 E-07	*
Ar-41	Ci			*	*
Mn-54	Ci			9.81 E-07	1.50 E-05
Co-58	Ci			*	*
Fe-59	Ci			*	*
Co-60	Ci			6.10 E-05	1.48 E-04
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			9.77 E-06	2.13 E-05
Ba-140	Ci			*	*
La-140	Ci			*	*
Ce-141	Ci			*	*
Others: Cr-51	Ci			*	*
Fe-55	Ci			*	*
	Ci				
	Ci				
(above)					
Total For Period	Ci	None	None	7.42 E-05	1.84 E-04
Xe-133	Ci			*	*
Xe-135	Ci			*	*

* See Table for MDL of Each Nuclide

RESDEN NUCLEAR POWER STATION

January Through June 1988TABLE OF MINIMUM DETECTABLE LEVELS
FOR LIQUID EFFLUENTS

Docket Numbers:

50-237

50-249

LPCI LIQUID EFFLUENTS TOTAL GALLONS RELEASED 4.21 E05

	<u>MDL (uCi/mL)</u>	<u>% OF GALLONS < MDL</u>
Sr-89	7.9 E-08	95.9
Sr-90	2.7 E-08	95.9
Ar-41	2.71 E-08	100.0
Mn-54	5.04 E-08	63.9
Co-58	4.98 E-08	100.0
Fe-59	8.11 E-08	100.0
Co-60	1.18 E-07	14.4
Zn-65	9.97 E-08	100.0
Ru-103	6.04 E-08	100.0
Sb-122	7.31 E-08	100.0
Sb-124	4.87 E-08	100.0
I-131	5.62 E-08	100.0
I-133	5.34 E-08	100.0
I-135	9.15 E-08	100.0
Cs-134	5.51 E-08	100.0
Cs-137	4.04 E-08	40.2
Ba-140	2.11 E-07	100.0
La-140	3.82 E-08	100.0
Ce-141	9.33 E-08	100.0
Xe-133	1.53 E-07	100.0
Xe-135	5.13 E-08	100.0
Cr-51	4.81 E-07	100.0
Fe-55	4.8 E-07	100.0

RESDEN NUCLEAR POWER STATION

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT

January Through June 1988

Docket Numbers:

SOLID WASTE AND IRRADIATED FUEL SHIPMENTS

50-10

50-237

50-249

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

1. Type of Waste	Unit	6-month period
a. Spent resins, filter sludges, evaporator bottoms, etc.	m ³	206.4
	Ci	7.18 E02
b. Dry compressible waste, contaminated equip., etc.	m ³	881.6
	Ci	1.09 E01
c. Irradiated components, control rods, etc.	m ³	2.3
	Ci	1.86 E00
d. Other (describe)	m ³	
	Ci	

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

	%	Ci
a. Co-60	74.5 %	5.35 E02
Fe-55	12.4 %	8.90 E01
Mn-54	9.8 %	7.04 E01
Cs-137	0.7 %	5.03 E00
Other	2.6 %	1.87 E01
b. Co-60	24.4 %	2.66 E00
Fe-55	71.3 %	7.77 E00
Mn-54	2.8 %	3.05 E-01
Cs-137	1.4 %	1.53 E-01
Other	0.2 %	2.18 E-02
c. Co-60	29.41 %	5.47 E-01
Fe-55	67.95 %	1.26 E00
Mn-54	2.64 %	4.91 E-02
	%	
	%	
d.	%	

3. Solid Waste Disposition

NUMBER OF SHIPMENTS

MODE OF TRANSPORTATION

DESTINATION

1	Motor freight (exclusive use only)	Chem-Nuclear, IL
42	Motor freight (exclusive use only)	Barnwell, SC
16	Motor freight (exclusive use only)	SEG, TN
1	Motor freight (exclusive use only)	Quadrex, TN
2	Motor freight (exclusive use only)	Westinghouse-DRR, PA

B. IRRADIATED FUEL SHIPMENTS (Disposition)

NUMBER OF SHIPMENTS

MODE OF TRANSPORTATION

DESTINATION

1	Motor freight (exclusive use only)	Barnwell, SC
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DRESDEN NUCLEAR POWER STATION

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT

January Through June 1988

Docket Numbers:

ABNORMAL RELEASES

50-10
50-237
50-249

A. LIQUID

1. Number of Releases: None
2. Total Activity Released: None

B. GASEOUS

1. Number of Releases: None
2. Total Activity Released: None