



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

UNCLASSIFIED DOCUMENT FILE COPY

February 14, 1978

BBS Ltr: 78-161

Mr. James G. Keppler, Regional Director
Office of Inspection and Enforcement
Region III
U.S. Nuclear Regulatory Commission
799 Roosevelt Road
Glen Ellyn, IL 60137

SUBJECT: Dresden Station Operating Report, NRC Dockets 50-10,
50-237, and 50-249

Dear Mr. Keppler:

Enclosed is Part 2 of the Dresden Station Operating Report containing radioactive effluents and occupational radiation exposures. Part 1 of the Operating Report covering operating experience of this facility is being submitted under separate cover. Part 3 of the Operating Report on environmental radiological monitoring data will be submitted in March.

One copy of this report is provided for your use and 39 copies are being submitted directly to Mr. Edson G. Case, Deputy Director of the Office of Nuclear Reactor Regulation.

Sincerely,

B. D. Shelton for 2/14

B.B. Stephenson
Station Superintendent
Dresden Nuclear Power Station

BBS : GWB : av

Enclosure

cc: G. Bergan
File/NRC

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I. Gaseous Effluents	UNITS	JULY	AUG	SEP	OCT	NOV	DEC	6 MO. TOTAL	TECH. SP/C. REF.
1. Gross Radioactivity Releases									
a) Total Release	curies	*	*	4.9E+03	4.8E+04	6.1E+04	6.6E04	1.8E+05	
b) Maximum Release Rate	uCi/sec	*	*	1.4E+04	3.9E+04	2.9E+04	3.4E04	3.9E+04	
c) Isotopes Released									
Kr-85m	curies			8.3E01	7.7E02	1.0E03	1.2E03	3.1E03	
Kr-87	curies			4.2E02	3.4E03	4.7E03	5.6E03	1.4E04	
Kr-88	curies			3.2E02	2.7E03	3.6E03	4.2E03	1.1E04	
Xe-133	curies			2.8E01	8.0E02	1.1E03	1.2E03	3.1E03	
Xe-135	curies			6.0E02	4.8E03	6.7E03	7.5E03	2.0E04	
Xe-135m	curies			6.7E02	6.4E03	8.2E03	9.0E03	2.4E04	
Xe-138	curies			2.8E03	2.9E04	3.6E04	3.7E04	1.0E05	
d) Percent of Chimney Limit	%	*	*	0.34	3.23	4.21	4.40	2.02	
e) Average Release Rate	uCi/sec	*	*	1.9E+03	1.8E+04	2.4E+04	2.5E+04	1.1E+04	
2. Iodine Releases									
a) Isotopes Released									
I-131	curies	1.8E-03	2.7E-04	2.4E-03	2.4E-02	1.8E-02	7.1E-02	1.2E-01	
I-133	curies	---	---	---	1.2E-01	8.6E-02	3.6E-01	5.7E-01	
I-135	curies	---	----	---	1.3E-01	1.0E-01	5.0E-01	7.3E-01	
b) Percent of Chimney Limit	%	0.03	0.01	0.04	0.37	0.29	1.10	0.31	
c) Average Release Rate	uCi/sec	6.7E-04	1.0E-04	9.4E-04	8.9E-03	7.0E-03	2.6E-02	7.5E-03	

* Unit Off

REPORT OF RADIOACTIVE EFFLUENTS

FACILITY: DRESDEN NUCLEAR POWER STATION - UNIT 1

DOCKET NOS.: 50-10

YEAR: 77

1. Gaseous Effluents (continued)	UNITS	JULY	AUG	SEPT	OCT	NOV	DEC	6 MO. TOTAL	TECH. SPEC. NO.
3. Particulate Releases									
a) Gross Radioactivity (β - γ)	m Ci	13.25	2.10	123.08	75.40	63.05	70.01	346.89	
b) Gross Alpha Radioactivity	m Ci	—	—	—	—	—	—	—	
c) Isotopes Released	m Ci								
Zr-95	m Ci	0.12	---	---	---	0.15	---	0.27	
NB-95	m Ci	0.15	---	---	0.32	0.10	---	0.57	
	m Ci								
Co-60	m Ci	10.11	---	---	5.05	4.56	1.67	21.39	
Sr-89	m Ci	.01	0.24	111.55	46.30	40.22	50.39	248.71	
Sr-90	m Ci	.01	0.03	2.33	0.32	0.12	0.15	2.96	
I-131	m Ci	---	---	---	0.27	1.05	2.35	3.67	
Cs-134	m Ci	0.06	.13	---	0.15	0.31	---	0.65	
Cs-137	m Ci	0.12	1.14	---	3.58	2.68	2.02	9.54	
Ba-140	m Ci	---	---	---	14.31	12.20	13.43	39.94	
Ce-141	m Ci	0.08	.21	---	0.29	0.13	---	0.71	
Ce-144	m Ci	0.10	---	---	1.67	---	---	1.77	
Ru-103	m Ci	0.05	---	---	---	---	---	0.05	
Co-58	m Ci	2.27	0.35	9.20	2.95	1.20	---	15.97	
Mn-54	m Ci	0.17	---	---	0.19	0.33	---	0.69	
d) Percent of Chimney Limit	%	0.21	0.03	1.98	1.17	1.01	1.09	0.91	
e) Average Release	uCi/sec	4.9E-03	7.8E-04	4.7E-02	2.8E-02	2.4E-02	2.6E-02	2.2E-02	
4. Sum of Iodines & Particulates									
a) Percent of Chimney Limit	%	0.23	0.04	2.02	1.55	1.30	2.19	1.22	
5. Gaseous Tritium									
a) Total Release	curies	1.6E+00	1.1E+00	1.9E+00	4.1E+00	1.4E+00	2.9E+00	1.3E+01	
b) Average Release Rate	uCi/sec	5.9E-01	3.9E-01	7.4E-01	1.5E+00	5.4E-01	1.1E+00	8.2E-01	

REPORT OF RADIOACTIVE EFFLUENTS

FACILITY: DRESDEN NUCLEAR POWER STATION - UNIT 1

DOCKET NOS.: 50-10

YEAR: 77

II. Liquid Effluents	UNITS	JULY	AUG	SEPT.	OCT.	NOV	DEC	6 MO. TOTAL	TECH. SPEC. REF.
1. Gross Radioactivity ($\beta\gamma$)									
a) Total Release	Curies	4.4E-02	2.5E-02	7.7E-02	9.8E-02	4.1E-02	3.6E-02	3.2E-01	
b) Average Concentration Released	uci/ml	1.6E-09	9.3E-10	3.0E-09	3.6E-09	8.7E-10	1.6E-09	1.8E-09	6.6D.1.e.(1)
c) Maximum Concentration Released	uci/ml	2.4E-08	2.2E-08	1.2E-07	3.7E-08	4.1E-08	3.6E-08	1.2E-07	6.6D.1.e.(4)
d) Percent of Tech Spec Limit	%	1.6	0.9	3.0	3.6	0.9	1.6	1.8	6.6D.1.e.(5)
Based on Average Conc. Released									6.6D.1.e.(6)
2. Tritium									
a) Total Release	Curies	2.5E-03	7.3E-03	5.9E-02	2.4E-03	2.7E-03	1.2E-03	7.5E-02	6.6D.1.e.(8)
b) Average Concentration Released	uci/ml	9.3E-11	2.7E-10	2.3E-09	8.9E-11	1.1E-10	5.5E-11	5.0E-10	
c) Percent of Tech Spec Limit	%	NA	NA	NA	NA	NA	NA	NA	
3. Dissolved Noble Gases									
a) Total Release	Curies	NONE	NONE	NONE	NONE	NONE	NONE	NONE	
b) Average Concentration Released	uci/ml	---	---	---	---	---	---	---	
c) Percent of Tech Spec Limit	%	---	---	---	---	---	---	---	
4. Gross Alpha Radioactivity									
a) Total Release	Curies	2.1E-04	2.2E-05	5.1E-05	6.8E-05	4.3E-05	2.2E-05	4.2E-04	
b) Average Concentration Released	uci/ml	7.6E-12	8.3E-13	1.9E-12	2.5E-12	9.0E-13	1.0E-12	2.3E-12	
5. Volume of Liquid Waste to Discharge Canal	Liters	1.9E+05	1.7E+05	2.8E+05	3.6E+05	3.1E+05	1.4E+05	1.5E+06	6.6D.1.e.(2)
6. Volume of Dilution Water	Liters	2.7E+10	2.7E+10	2.6E+10	2.4E+10	4.7E+10	2.2E+10	1.5E+11	6.6D.1.e.(3)

REPORT OF RADIOACTIVE EFFLUENTS

FACILITY: Dresden Nuclear Power Station - Unit 1

DOCKET NOS.: 50-10

YEAR: 77

II. Liquid Effluents (continued)

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REPORT OF RADIOACTIVE EFFLUENTS

FACILITY: Dresden Nuclear Power Station-Units 2/3

DOCKET NOS.: 50-237, 50-249

YEAR: 77

1. Gaseous Effluents	UNITS	JULY	AUG	SEPT	OCT	NOV	DEC	6 MO. TOTAL	TECH. SPEC. REF.
1. Gross Radioactivity Releases									
a) Total Release 2/3 chimney	curies	6.9E+03	4.0E+03	6.3E+03	4.6E+03	5.7E+03	2.4E04	5.2E04	6.6D.I.f. (1)
b) Maximum Release Rate	uCi/sec	4.9E+03	2.9E+03	7.2E+03	3.8E+04	8.9E+03	3.2E+05	3.2E+05	6.6D.I.f. (2)
c) Isotopes Released									6.6D.I.f. (4)
Kr-85m	curies	8.5E01	1.2E02	---	---	7.7E01	1.8E03	2.1E03	
Kr-87	curies	1.6E02	6.4E01	---	---	5.2E01	1.5E03	1.8E03	
Kr-88	curies	2.3E02	1.2E02	---	1.7E02	---	4.1E03	4.6E03	
Xe-133	curies	1.6E02	2.2E02	5.3E02	2.5E02	---	7.0E03	8.2E03	
Xe-135	curies	4.7E02	4.9E02	9.9E02	6.2E02	5.5E02	7.6E03	1.1E04	
Xe-135m	curies	6.3E02	---	5.1E02	---	7.0E02	---	1.8E03	
Xe-138	curies	5.2E03	3.0E03	4.3E03	3.6E03	4.3E03	2.0E03	2.2E04	
d) Percent of Chimney Limit	%	0.29	0.17	0.33	0.24	0.31	1.15	0.42	6.6D.I.f. (3)
e) Average Release Rate	uCi/sec	2.6E+03	1.5E+03	2.5E+03	1.7E+03	2.2E+03	9.1E+03	3.3E+03	
2. Chimney Iodine Releases									6.6D.I.f. (1)
a) Isotopes Released									
I-131	curies	8.2E-02	5.3E-02	5.0E-02	3.3E-02	3.2E-02	1.0E-01	3.5E-01	
I-133	curies	6.9E-01	4.8E-01	4.5E-01	5.1E-01	3.4E-01	3.1E-01	2.8E00	
I-135	curies	1.3E00	8.6E-01	7.2E-01	6.0E-01	5.7E-01	4.9E-01	4.5E00	
b) Percent of Chimney Limit	%	0.71	0.46	0.52	0.35	0.35	0.99	0.56	6.6D.I.f. (3)
c) Average Release Rate	uCi/sec	3.0E-02	2.0E-02	1.9E-02	1.2E-02	1.2E-02	3.9E-02	2.2E-02	

REPORT OF RADIOACTIVE EFFLUENTS

FACILITY: Dresden Nuclear Power Station - Unit 2/3

DOCKET NOS.: 50-237,50-249

YEAR: 77

1. Gaseous Effluents (continued)	UNITS	JULY	AUG	SEPT	OCT	NOV	DEC	6 MO. TOTAL	TECH. SPEC. REF.
3. Chimney Particulate Release	mCi								
a) Gross Radioactivity (A-X)		291.96	271.57	229.58	224.66	198.61	217.37	1433.75	6.6D.1.f.(1)
b) Gross Alpha Radioactivity	curies	---	---	---	---	---	---	---	
c) Isotopes Released									
Co-58	mCi	---	0.68	---	0.58	---	---	1.26	
Cr-51	mCi	---	---	2.34	---	---	---	2.34	
Co-60	mCi	7.06	5.70	0.74	8.70	3.26	---	25.46	
Sr-89	mCi	94.27	103.82	109.95	108.60	112.91	145.07	674.62	
Sr-90	mCi	0.38	0.41	0.25	0.34	0.36	0.46	2.20	
I-131	mCi	18.86	23.11	22.91	12.06	14.79	6.76	98.49	
Cs-134	mCi	---	0.11	---	---	---	---	0.11	
Cs-137	mCi	1.61	---	1.15	2.00	1.53	0.61	6.90	
Ba-140	mCi	160.29	133.94	87.03	84.47	65.22	64.47	595.42	
Ce-141	mCi	2.01	3.34	0.55	1.62	---	---	7.52	
Ce-144	mCi	6.63	---	4.59	5.08	---	---	16.30	
Mn-54	mCi	0.85	0.46	0.07	1.21	0.54	---	3.13	
d) Percent of Chimney Limit	%	2.54	2.36	2.35	2.40	2.19	2.05	2.32	6.6D.1.f.(3)
e) Average Release Rate	uCi/sec	1.1E-01	1.0E-01	8.9E-02	8.4E-02	7.7E-02	8.1E-02	9.0E-02	
4. Vent Stack Iodine Release									6.6D.1.f.(1)
a) Isotopes Released									
I-131	curies	7.4E-03	1.7E-02	1.4E-02	8.2E-03	8.5E-03	2.5E-03	5.8E-02	
I-133	curies	3.7E-02	1.1E-01	5.1E-02	1.6E-02	3.0E-02	4.1E-03	2.5E-01	
I-135	curies	7.0E-02	8.1E-01	8.7E-02	3.5E-02	6.1E-02	1.9E-02	1.1E00	
b) Percent of Vent Stack Limit	%	2.29	5.44	4.48	2.56	2.74	0.78	3.05	6.6D.1.f.(3)
c) Average Release Rate	uCi/sec	2.8E-03	6.5E-03	5.4E-03	3.1E-03	3.3E-03	9.4E-04	3.6E-03	

REPORT OF RADIOACTIVE EFFLUENTS

FACILITY: Dresden Nuclear Power Station - Unit 2/3

DOCKET NOS.: 50-237, 50-249

YEAR: 77

I. Gaseous Effluents (Continued)	UNITS	JULY	AUG	SEPT	OCT	NOV	DEC	6 MO. TOTAL	TECH. SPEC. REF.
5. Vent Stack Particulate Release									
(a) Gross Radioactivity (B-Y)	mCi	53.84	87.11	90.87	86.39	35.52	34.77	388.50	
(b) Gross Alpha Radioactivity	curies	—	—	—	—	—	—	—	6.6D.1.f.(1)
(c) Isotopes Released									
Cr-51	mCi	1.45	11.01	0.63	0.90	1.27	2.58	17.84	6.6D.1.f.(1)
Co-60	mCi	25.18	7.29	5.97	46.62	13.24	8.76	107.06	
Sr-89	mCi	2.71	6.83	4.97	4.17	2.17	2.11	22.96	
Sr-90	mCi	0.07	0.17	0.22	0.14	0.07	0.06	0.73	
Mn-54	mCi	2.32	0.78	1.61	9.41	3.21	1.38	18.71	
I-131	mCi	3.91	19.56	19.10	11.03	2.97	2.78	59.35	
Cs-134	mCi	0.84	0.34	0.06	0.60	0.21	0.55	2.60	
Cs-137	mCi	2.01	0.67	1.67	0.82	0.36	1.06	6.59	
Ba-140	mCi	6.10	4.47	27.34	6.62	4.95	6.66	56.14	
La-140	mCi	6.39	31.05	25.93	---	5.44	6.77	75.58	
CO-58	mCi	0.39	1.53	---	2.48	0.58	0.32	5.30	
(Continued on next page)									
(d) Percent Vent Stack Limit	%	16.75	27.10	29.22	26.88	11.42	10.82	20.36	6.6D.1.f.(3)
(e) Average Release Rate	uCi/sec	2.0E-02	3.3E-02	3.5E-02	3.2E-02	1.4E-02	1.3E-02	2.4E-02	
6. Sum of Iodine and Particulate									
a) Percent of Chimney Limit	%	3.24	2.82	2.87	2.75	2.54	3.04	2.88	6.6D.1.f.(3)
b) Percent of Vent Stack Limit	%	19.04	32.54	33.70	29.44	14.16	11.60	23.41	
7. Gaseous Tritium									
a) Release	curies	2.7E+01	3.9E+01	5.0E+01	3.2E+01	2.7E+01	1.7E+00	1.8E+02	
b) Average Release Rate	uCi/sec	1.0E+01	1.5E+01	1.9E+01	1.2E+01	1.0E+01	6.3E-01	1.1E+01	
c) Percent Tech Spec Limit		NA	NA	NA	NA	NA	NA	NA	

REPORT OF RADIOACTIVE EFFLUENTS

FACILITY: Dresden Nuclear Power Station-Units 2/3

DOCKET NOS.: 50-237, 50-249

YEAR: 77

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REPORT OF RADIOACTIVE EFFLUENTS

FACILITY: DRESDEN NUCLEAR POWER STATION - UNIT 2/3

DOCKET NOS.: 50-237, 50-249

YEAR: 77

[illegible]

REPORT OF RADIOACTIVE EFFLUENTS

FACILITY: DRESDEN NUCLEAR POWER STATION - UNIT 2/3

DOCKET NOS.: 50-237, 50-249

YEAR: 77

II. Liquid Effluents

	UNITS	JULY	AUG	SEPT	OCT	NOV	DEC	6 MO. TOTAL	TECH. SPEC. REF.
1. Gross Radioactivity (β - γ)									
a) Total Release	Curies	*	*	*	*	*	4.4E-01	4.4E-01	
b) Average Concentration Released	uci/ml	*	*	*	*	*	5.2E-09	5.2E-09	
c) Maximum Concentration Released	uci/ml	*	*	*	*	*	5.3E-08	5.3E-08	
d) Percent of Tech Spec Limit based on Average Conc. Released	%	*	*	*	*	*	5.2	5.2	
2. Tritium									
a) Total Release	Curies	*	*	*	*	*	5.0E+00	5.0E+00	
b) Average Concentration Released	uci/ml	*	*	*	*	*	6.0E-08	6.0E-08	
c) Percent of Tech Spec Limit	%	NA	NA	NA	NA	NA	NA	NA	
3. Dissolved Noble Gases									
a) Total Release	Curies	None	None	None	None	None	None	None	
b) Average Concentration Released	uci/ml	----	----	----	----	----	----	----	
c) Percent of Tech Spec Limit	%	----	----	----	----	----	----	----	
4. Gross Alpha Radioactivity									
a) Total Release	Curies	*	*	*	*	*	6.3E-03	6.3E-03	
b) Average Concentration Released	uci/ml	*	*	*	*	*	7.5E-11	7.5E-11	
5. Volume of Liquid Waste to Discharge Canal	Liters	*	*	*	*	*	1.8E+06	1.8E+06	
6. Volume of Dilution Water	Liters	*	*	*	*	*	8.4E+10	8.4E+10	

* NO DISCHARGE

REPORT OF RADIOACTIVE EFFLUENTS

FACILITY: Dresden Nuclear Power Station - Units 2/3

DOCKET NOS.: 50-237, 50-249

YEAR: 1977

II. Liquid Effluents (continued)

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REPORT OF RADIOACTIVE EFFLUENTS

FACILITY: Dresden Nuclear Power Station

DOCKET NOS.: 50-10, 50-237, 50-549

YEAR: 77

I. Solid Waste Shipped Offsite For Burial or Disposal									
	UNITS	JULY	AUG	SEPT	OCT	NOV	DEC	6 MO. TOTAL	TECH. SPEC. REF.
1. Spent Resins, Filter Sludges, Evaporator Bottoms, etc.									
a) Quantity Shipped	cubic meters	1.2E+02	6.0E+01	4.6E+01	2.7E+01	4.9E+01	3.8E+01	3.4E+02	6.5.D.g.(1)
b) Radioactivity	curies	8.1E+01	5.1E+01	1.8E+01	4.4E+01	7.1E+01	1.3E+02	4.0E+02	6.5.D.g.(2)
2. Dry compressible waste, contaminated equipment, etc.									
a) Quantity Shipped	cubic meters	8.0E+01	1.6E+02	2.2E+02	1.1E+02	4.9E+01	1.3E+02	7.5E+02	6.5.D.g.(1)
b) Radioactivity	curies	4.0E+03	2.8E+03	1.9E+00	4.0E+00	4.0E+00	2.7E+00	6.8E+03	6.5.D.g.(2)
(I. Solid Waste Shipped Offsite For Burial or Disposal (Processed by contractor))									
1. Spent Resins, Filter Sludges, evaporator bottoms, etc.									
a) Quantity Shipped	cubic meters	*	*	*	*	*	*	*	6.5.D.g.(1)
b) Radioactivity	curies	*	*	*	*	*	*	*	6.5.D.g.(2)
2. Dry Compressible Waste, contaminated equipment, etc.									
a) Quantity	cubic meters	*	*	*	*	*	*	*	6.5.D.g.(1)
b) Radioactivity	curies	*	*	*	*	*	*	*	6.5.D.g.(2)

* NONE

DRESDEN NUCLEAR POWER STATION

SOLID WASTE DISPOSITION

YEAR 1977

MONTH	NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
JULY	31	Motor Freight (Exclusive use only)	Sheffield Nuclear Center
JULY	3	Motor Freight (Exclusive use only)	Moorehead, KY
AUG	20	Motor Freight (Exclusive use only)	Sheffield Nuclear Center
AUG	3	Motor Freight (Exclusive use only)	Moorehead, KY
SEPT	13	Motor Freight (Exclusive use only)	Sheffield Nuclear Center
OCT	14	Motor Freight (Exclusive use only)	Sheffield Nuclear Center
NOV	16	Motor Freight (Exclusive use only)	Sheffield Nuclear Center
DEC	18	Motor Freight (Exclusive use only)	Sheffield Nuclear Center

Dresden Station

1977 Report of Occupational Personnel Radiation Doses

Commonwealth Edison Employees

Job Function	Work Function			
	Reactor Operations & Surveillance # of people/man-rem	Routine Maint. & Inservice Inspection # of people/man-rem	Waste Processing # of people/man-rem	Refueling # of people/man-rem
Maintenance	12/9.7	211/321	-	-
Operating	186/207	18/24.7	35/48.2	18/38.8
Health Physics	12/26.3	19/49.4	1/6.6	-
Supervisory	37/16.4	189/121.2	-	5/4.2
Engineering	284/46.2	-	-	-

Contract Workers

Routine Maintenance	-	1830/669.2	-	-
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Special Maintenance

Company employees other than station employees - 119/46.0 Special maintenance on installation of CAD CAM system during refueling outage.