

Duke Power Company  
Oconee Nuclear Station

Attachment 1

1984 Radioactive Effluent Release and  
Solid Waste Disposal Reports

8509240040 850301  
PDR ADOCK 05000269  
R PDR

OCONEE NUCLEAR STATION  
EFFLUENT AND WASTE DISPOSAL SUPPLEMENTAL INFORMATION

REPORT DATE: 02/28/85

PERIOD COVERED: START DAY = 001 STOP DAY = 366

I. REGULATORY LIMITS - STATION

A. NOBLE GASES - AIR DOSE

1. CALENDAR QUARTER - GAMMA DOSE = 15 MRAD
2. CALENDAR QUARTER - BETA DOSE = 30 MRAD
3. CALENDAR YEAR - GAMMA DOSE = 30 MRAD
4. CALENDAR YEAR - BETA DOSE = 60 MRAD

B. LIQUID EFFLUENTS - DOSE

1. CALENDAR QUARTER - TOTAL BODY DOSE = 4.5 MREM
2. CALENDAR QUARTER - ORGAN DOSE = 15 MREM
3. CALENDAR YEAR - TOTAL BODY DOSE = 9 MREM
4. CALENDAR YEAR - ORGAN DOSE = 30 MREM

*Limits*

C. IODINE - 131 AND 133, TRITIUM, PARTICULATES W/T 1/2 > 8 DAYS - ORGAN DOSE

1. CALENDAR QUARTER = 22.5 MREM
2. CALENDAR YEAR = 45 MREM

II. MAXIMUM PERMISSIBLE CONCENTRATIONS

- A. GASEOUS EFFLUENTS - INFORMATION FOUND IN OFFSITE DOSE CALCULATION MANUAL
- B. LIQUID EFFLUENTS - INFORMATION FOUND IN 10CFR20, APPENDIX B, TABLE II, COLUMN 2

III. AVERAGE ENERGY - NOT APPLICABLE

IV. MEASUREMENTS AND APPROXIMATIONS OF TOTAL RADIOACTIVITY  
INFORMATION FOUND IN OFFSITE DOSE CALCULATION MANUAL

V. BATCH RELEASES

A. LIQUID EFFLUENT

1.  $6.83E+02$  = TOTAL NUMBER OF BATCH RELEASES
2.  $7.31E+04$  = TOTAL TIME(MIN.) FOR BATCH RELEASES.
3.  $1.54E+03$  = MAXIMUM TIME(MIN.) FOR A BATCH RELEASE.
4.  $1.07E+02$  = AVERAGE TIME(MIN.) FOR A BATCH RELEASE.
5.  $1.00E+00$  = MINIMUM TIME(MIN.) FOR A BATCH RELEASE.
6.  $1.16E+06$  = AVERAGE DILUTION WATER FLOW DURING RELEASES(GPM).

B. GASEOUS EFFLUENT

1.  $2.28E+02$  = TOTAL NUMBER OF BATCH RELEASES.
2.  $2.31E+05$  = TOTAL TIME(MIN.) FOR BATCH RELEASES.
3.  $1.53E+04$  = MAXIMUM TIME(MIN.) FOR A BATCH RELEASE.
4.  $1.01E+03$  = AVERAGE TIME(MIN.) FOR A BATCH RELEASE.
5.  $1.60E+01$  = MINIMUM TIME(MIN.) FOR A BATCH RELEASE.

VI. ABNORMAL RELEASES

A. LIQUID

1. NUMBER OF RELEASES 1
2. TOTAL ACTIVITY RELEASED(CURIES) 0.175

B. GASEOUS

1. NUMBER OF RELEASES 2
2. TOTAL ACTIVITY RELEASED(CURIES) 128.1

(see details-attached)

OCONEE NUCLEAR STATION  
RADIOACTIVE EFFLUENT RELEASES  
DATE : 02/28/85

I. LIQUID RELEASES

	UNITS	1ST QTR	2ND QTR	3RD QTR	4TH QTR	YEAR : 1984 TOTAL
1. GROSS RADIOACTIVITY						
A. TOTAL RELEASE	CURIES	6.29E-01	3.07E-01	9.78E-02	5.50E-01	1.58E+00
B. AVERAGE CONCENTRATION RELEASED	UCI/ML	2.61E-09	2.86E-10	4.38E-10	2.89E-09	9.16E-10
C. MAXIMUM CONCENTRATION RELEASED	UCI/ML	1.21E-08	5.69E-08	1.17E-08	9.96E-08	9.96E-08
2. TRITIUM						
A. TOTAL RELEASE	CURIES	3.17E+02	3.09E+02	3.50E+02	3.04E+02	1.28E+03
B. AVERAGE CONCENTRATION RELEASED	UCI/ML	1.32E-06	2.87E-07	1.57E-06	1.60E-06	7.40E-07
3. DISSOLVED NOBLE GASES						
A. TOTAL RELEASE	CURIES	3.62E+00	2.69E+00	3.00E+00	7.81E+00	1.71E+01
B. AVERAGE CONCENTRATION RELEASED	UCI/ML	1.51E-08	2.50E-09	1.34E-08	4.11E-08	9.90E-09
4. GROSS ALPHA ACTIVITY						
A. TOTAL RELEASE	CURIES	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
B. AVERAGE CONCENTRATION RELEASED	UCI/ML	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
5. VOLUME OF LIQUID WASTE TO DISCHARGE CANAL	LITERS	1.41E+07	1.35E+07	1.74E+07	2.32E+07	6.81E+07
6. VOLUME OF DILUTION WATER	LITERS	2.41E+11	1.08E+12	2.23E+11	1.90E+11	1.73E+12
7. RADIONUCLIDES RELEASED	CURIES					
NA-24		7.54E-06	9.15E-06	0.00E+00	7.30E-05	8.97E-05
CR-51		2.11E-02	1.45E-02	1.43E-04	1.11E-02	4.69E-02
MN-54		7.80E-03	5.25E-03	6.80E-04	3.20E-03	1.69E-02
FE-55		1.18E-01	2.90E-02	5.37E-02	1.46E-01	3.46E-01
FE-59		3.86E-04	3.57E-04	0.00E+00	4.75E-04	1.22E-03
CO-58		2.31E-01	1.47E-01	5.24E-03	2.86E-01	6.69E-01
CO-60		2.89E-02	3.24E-02	4.24E-03	1.47E-02	8.03E-02
SR-89		0.00E+00	0.00E+00	0.00E+00	2.06E-03	2.06E-03
SR-90		0.00E+00	0.00E+00	0.00E+00	1.49E-04	1.49E-04
SR-92		9.78E-03	4.51E-05	1.49E-04	1.17E-03	1.11E-02
ZR-95		7.40E-04	1.07E-03	0.00E+00	3.27E-04	2.14E-03
ZR-97		2.87E-03	1.79E-03	4.37E-05	0.00E+00	4.70E-03
NB-95		1.18E-02	5.07E-03	4.49E-04	1.12E-03	1.84E-02
TC-99M		1.75E-05	2.94E-05	0.00E+00	1.10E-05	5.79E-05
RU-103		0.00E+00	4.25E-05	0.00E+00	5.14E-05	9.39E-05
RU-106		1.21E-02	5.90E-03	0.00E+00	0.00E+00	1.80E-02
AG-110M		5.75E-02	3.80E-02	4.08E-03	1.65E-02	1.16E-01
I-131		2.05E-02	1.65E-03	7.94E-03	2.33E-02	5.34E-02
I-132		0.00E+00	0.00E+00	2.19E-03	5.19E-04	2.71E-03
I-133		1.45E-03	3.31E-05	2.97E-04	3.33E-04	2.12E-03
I-134		8.41E-06	7.09E-05	3.44E-04	8.09E-05	5.04E-04
CS-134		8.23E-03	7.34E-03	4.60E-03	9.30E-03	2.95E-02
CS-136		2.09E-06	0.00E+00	1.78E-05	2.67E-05	4.66E-05
CS-137		2.19E-02	1.70E-02	1.26E-02	2.30E-02	7.45E-02
CS-138		0.00E+00	0.00E+00	7.76E-04	9.21E-04	1.70E-03
BA-139		0.00E+00	0.00E+00	0.00E+00	6.92E-03	6.92E-03
LA-140		1.55E-03	1.05E-04	2.00E-04	3.05E-03	4.91E-03
CE-144		5.80E-04	0.00E+00	0.00E+00	4.78E-06	5.85E-04
W-187		5.59E-05	0.00E+00	0.00E+00	0.00E+00	5.59E-05
NP-239		0.00E+00	8.25E-05	0.00E+00	0.00E+00	8.25E-05
AR-41		8.46E-05	0.00E+00	0.00E+00	3.08E-05	1.15E-04
KR-85M		1.98E-05	0.00E+00	3.46E-05	0.00E+00	5.44E-05
KR-85		8.52E-03	0.00E+00	3.48E-03	0.00E+00	1.20E-02
XE-131M		5.67E-02	2.86E-02	4.04E-02	1.34E-01	2.60E-01
XE-133M		3.67E-02	2.36E-02	3.06E-02	8.79E-02	1.79E-01
XE-133		3.57E+00	2.62E+00	2.90E+00	7.53E+00	1.66E+01
XE-135		3.05E-02	1.34E-02	2.74E-02	5.42E-02	1.26E-01

OCONEE LIQUID DOSE - 1ST QTR '84 RELEASES- 2/25/85

00000010

SKIN	MAXIMUM DOSE-	2.52D-03 MREM	CRITICAL AGE-	TEEN	CRITICAL PATHWAY-	SHORE
	CO 58	7.27 %				
	CO 60	51.67 %				
	AG 110M	16.36 %				
	CS 137	18.62 %				
BONE	MAXIMUM DOSE-	1.37D-01 MREM	CRITICAL AGE-	CHILD	CRITICAL PATHWAY-	FISH
	CS 134	20.80 %				
	CS 137	77.43 %				
LIVER	MAXIMUM DOSE-	1.87D-01 MREM	CRITICAL AGE-	ADULT	CRITICAL PATHWAY-	FISH
	H 3	13.78 %				
	CS 134	28.77 %				
	CS 137	56.44 %				
T. BODY	MAXIMUM DOSE-	1.41D-01 MREM	CRITICAL AGE-	ADULT	CRITICAL PATHWAY-	FISH
	H 3	18.35 %				
	CS 134	31.31 %				
	CS 137	49.23 %				
THYROID	MAXIMUM DOSE-	1.28D-01 MREM	CRITICAL AGE-	INFANT	CRITICAL PATHWAY-	DRINKING
	H 3	26.12 %				
	I 131	73.02 %				
KIDNEY	MAXIMUM DOSE-	8.31D-02 MREM	CRITICAL AGE-	CHILD	CRITICAL PATHWAY-	FISH
	H 3	41.42 %				
	CS 134	17.49 %				
	CS 137	39.96 %				
LUNG	MAXIMUM DOSE-	5.25D-02 MREM	CRITICAL AGE-	CHILD	CRITICAL PATHWAY-	DRINKING
	H 3	65.56 %				
	CS 134	9.96 %				
	CS 137	22.86 %				
GI-LLI	MAXIMUM DOSE-	2.03D-01 MREM	CRITICAL AGE-	ADULT	CRITICAL PATHWAY-	FISH
	H 3	12.70 %				
	NB 95	78.08 %				

OCONEE LIQUID DOSE - 2ND QTR '84 RELEASES- 2/25/85

00000010

SKIN	MAXIMUM DOSE-	5.22D-04 MREM	CRITICAL AGE-	TEEN	CRITICAL PATHWAY-	SHORE
	CO 60	62.40 %				
	AG 110M	11.65 %				
	CS 137	15.57 %				
BONE	MAXIMUM DOSE-	2.42D-02 MREM	CRITICAL AGE-	CHILD	CRITICAL PATHWAY-	FISH
	CS 134	23.40 %				
	CS 137	75.82 %				
LIVER	MAXIMUM DOSE-	3.48D-02 MREM	CRITICAL AGE-	ADULT	CRITICAL PATHWAY-	FISH
	H 3	16.10 %				
	CS 134	30.74 %				
	CS 137	52.50 %				
T. BODY	MAXIMUM DOSE-	2.66D-02 MREM	CRITICAL AGE-	ADULT	CRITICAL PATHWAY-	FISH
	H 3	21.09 %				
	CS 134	32.92 %				
	CS 137	45.06 %				
THYROID	MAXIMUM DOSE-	8.92D-03 MREM	CRITICAL AGE-	INFANT	CRITICAL PATHWAY-	DRINKING
	H 3	81.19 %				
	I 131	18.74 %				
KIDNEY	MAXIMUM DOSE-	1.62D-02 MREM	CRITICAL AGE-	CHILD	CRITICAL PATHWAY-	FISH
	H 3	46.10 %				
	CS 134	17.81 %				
	CS 137	35.42 %				
LUNG	MAXIMUM DOSE-	1.07D-02 MREM	CRITICAL AGE-	CHILD	CRITICAL PATHWAY-	DRINKING
	H 3	69.91 %				
	CS 134	9.71 %				
	CS 137	19.41 %				
GI-LLI	MAXIMUM DOSE-	2.37D-02 MREM	CRITICAL AGE-	ADULT	CRITICAL PATHWAY-	FISH
	H 3	23.63 %				
	NB 95	64.05 %				

OCONEE LIQUID DOSE - 3RD QTR '84 RELEASES- 2/25/85

00000010

SKIN	MAXIMUM DOSE-	2.49D-03 MREM	CRITICAL AGE-	TEEN	CRITICAL PATHWAY-	SHORE
	CO 60	83.73 %				
	CS 137	11.83 %				
BONE	MAXIMUM DOSE-	8.53D-02 MREM	CRITICAL AGE-	CHILD	CRITICAL PATHWAY-	FISH
	CS 134	20.38 %				
	CS 137	78.08 %				
LIVER	MAXIMUM DOSE-	1.35D-01 MREM	CRITICAL AGE-	CHILD	CRITICAL PATHWAY-	FISH
	H 3	30.70 %				
	CS 134	21.15 %				
	CS 137	47.28 %				
T. BODY	MAXIMUM DOSE-	1.02D-01 MREM	CRITICAL AGE-	ADULT	CRITICAL PATHWAY-	FISH
	H 3	30.39 %				
	CS 134	26.25 %				
	CS 137	42.50 %				
THYROID	MAXIMUM DOSE-	7.98D-02 MREM	CRITICAL AGE-	INFANT	CRITICAL PATHWAY-	DRINKING
	H 3	50.33 %				
	I 131	49.36 %				
KIDNEY	MAXIMUM DOSE-	7.16D-02 MREM	CRITICAL AGE-	CHILD	CRITICAL PATHWAY-	DRINKING
	H 3	57.82 %				
	CS 134	12.36 %				
	CS 137	29.07 %				
LUNG	MAXIMUM DOSE-	5.27D-02 MREM	CRITICAL AGE-	CHILD	CRITICAL PATHWAY-	DRINKING
	H 3	78.51 %				
	CS 134	6.04 %				
	CS 137	14.26 %				
GI-LLI	MAXIMUM DOSE-	4.56D-02 MREM	CRITICAL AGE-	CHILD	CRITICAL PATHWAY-	DRINKING
	H 3	90.89 %				

OCONEE LIQUID DOSE - 4TH QTR '84 RELEASES- 2/25/85

00000010

SKIN	MAXIMUM DOSE-	2.11D-03 MREM	CRITICAL AGE-	TEEN	CRITICAL PATHWAY-	SHORE
	CO 58	13.80 %				
	CO 60	40.30 %				
	AG 110M	7.20 %				
	CS 134	8.04 %				
	CS 137	29.99 %				
BONE	MAXIMUM DOSE-	1.91D-01 MREM	CRITICAL AGE-	CHILD	CRITICAL PATHWAY-	FISH
	CS 134	21.56 %				
	CS 137	74.57 %				
LIVER	MAXIMUM DOSE-	2.54D-01 MREM	CRITICAL AGE-	ADULT	CRITICAL PATHWAY-	FISH
	H 3	12.48 %				
	CS 134	30.69 %				
	CS 137	55.96 %				
T. BODY	MAXIMUM DOSE-	1.91D-01 MREM	CRITICAL AGE-	ADULT	CRITICAL PATHWAY-	FISH
	H 3	16.61 %				
	CS 134	33.41 %				
	CS 137	48.82 %				
THYROID	MAXIMUM DOSE-	1.77D-01 MREM	CRITICAL AGE-	INFANT	CRITICAL PATHWAY-	DRINKING
	H 3	23.14 %				
	I 131	76.67 %				
KIDNEY	MAXIMUM DOSE-	1.09D-01 MREM	CRITICAL AGE-	CHILD	CRITICAL PATHWAY-	FISH
	H 3	38.86 %				
	CS 134	19.33 %				
	CS 137	41.06 %				
LUNG	MAXIMUM DOSE-	6.70D-02 MREM	CRITICAL AGE-	CHILD	CRITICAL PATHWAY-	DRINKING
	H 3	63.07 %				
	CS 134	11.29 %				
	CS 137	24.08 %				
GI-LLI	MAXIMUM DOSE-	6.99D-02 MREM	CRITICAL AGE-	ADULT	CRITICAL PATHWAY-	DRINKING
	H 3	45.37 %				
	CO 58	14.54 %				
	NB 95	27.61 %				

OCONEE LIQUID DOSE - TOTAL '84 RELEASES- 2/25/85

00000010

SKIN	MAXIMUM DOSE-	3.96D-03 MREM	CRITICAL AGE-	TEEN	CRITICAL PATHWAY-	SHORE
	CO 58	7.51 %				
	CO 60	51.19 %				
	AG 110M	11.77 %				
	CS 134	5.93 %				
	CS 137	22.59 %				
BONE	MAXIMUM DOSE-	2.65D-01 MREM	CRITICAL AGE-	CHILD	CRITICAL PATHWAY-	FISH
	CS 134	21.60 %				
	CS 137	76.30 %				
LIVER	MAXIMUM DOSE-	3.71D-01 MREM	CRITICAL AGE-	ADULT	CRITICAL PATHWAY-	FISH
	H 3	15.74 %				
	CS 134	29.17 %				
	CS 137	54.31 %				
T. BODY	MAXIMUM DOSE-	2.81D-01 MREM	CRITICAL AGE-	ADULT	CRITICAL PATHWAY-	FISH
	H 3	20.75 %				
	CS 134	31.43 %				
	CS 137	46.90 %				
THYROID	MAXIMUM DOSE-	2.12D-01 MREM	CRITICAL AGE-	INFANT	CRITICAL PATHWAY-	DRINKING
	H 3	35.52 %				
	I 131	64.06 %				
KIDNEY	MAXIMUM DOSE-	1.71D-01 MREM	CRITICAL AGE-	CHILD	CRITICAL PATHWAY-	FISH
	H 3	45.38 %				
	CS 134	17.00 %				
	CS 137	36.88 %				
LUNG	MAXIMUM DOSE-	1.12D-01 MREM	CRITICAL AGE-	CHILD	CRITICAL PATHWAY-	DRINKING
	H 3	69.16 %				
	CS 134	9.32 %				
	CS 137	20.32 %				
GI-LLI	MAXIMUM DOSE-	2.25D-01 MREM	CRITICAL AGE-	ADULT	CRITICAL PATHWAY-	FISH
	H 3	25.99 %				
	NB 95	61.71 %				



OCONEE NUCLEAR STATION  
RADIOACTIVE EFFLUENT RELEASES  
DATE : 02/28/85

II. AIRBORNE RELEASES

YEAR : 1984

	UNITS	1ST QTR	2ND QTR	3RD QTR	4TH QTR	TOTAL
1. TOTAL NOBLE GASES	CURIES	5.78E+03	5.14E+03	5.04E+03	6.84E+03	2.28E+04
2. TOTAL HALOGENS	CURIES	4.99E-02	1.41E-02	2.55E-02	4.39E-02	1.33E-01
3. TOTAL PARTICULATE GROSS BETA-GAMMA	CURIES	1.34E-03	9.36E-02	2.97E-04	1.12E-03	9.64E-02
4. TOTAL TRITIUM	CURIES	8.39E+00	3.77E+02	1.19E+01	1.92E+01	4.17E+02
5. TOTAL PARTICULATE GROSS ALPHA ACTIVITY	CURIES	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6. MAXIMUM NOBLE GAS RELEASE RATE	UCI/SEC	1.60E+03	1.60E+03	1.60E+03	1.60E+03	1.60E+03

7. RADIONUCLIDES RELEASED

CURIES

PARTICULATES

CR-51	3.19E-10	0.00E+00	0.00E+00	0.00E+00	3.19E-10
MN-54	4.61E-07	8.54E-08	0.00E+00	1.82E-08	5.65E-07
FE-55	0.00E+00	9.19E-04	0.00E+00	0.00E+00	9.19E-04
CO-58	1.80E-06	3.91E-06	5.57E-08	2.18E-06	7.95E-06
CO-60	3.25E-06	1.36E-06	2.92E-07	6.99E-07	5.59E-06
ZN-65	1.36E-08	0.00E+00	0.00E+00	0.00E+00	1.36E-08
SR-89	7.83E-11	0.00E+00	1.57E-10	4.05E-11	2.75E-10
SR-90	0.00E+00	0.00E+00	0.00E+00	3.12E-12	3.12E-12
ZR-95	0.00E+00	1.40E-07	7.60E-08	0.00E+00	2.16E-07
NB-95	7.32E-09	2.45E-07	0.00E+00	3.80E-09	2.57E-07
MO-99	2.67E-12	0.00E+00	0.00E+00	0.00E+00	2.67E-12
RU-103	0.00E+00	2.16E-08	0.00E+00	3.66E-09	2.52E-08
AG-110M	4.27E-07	0.00E+00	1.71E-07	2.57E-08	6.29E-07
CS-134	7.42E-07	1.57E-06	4.32E-07	3.16E-06	5.90E-06
CS-136	9.34E-07	0.00E+00	0.00E+00	0.00E+00	9.34E-07
CS-137	5.82E-06	5.13E-06	1.94E-06	5.11E-06	1.80E-05
BA-140	0.00E+00	1.27E-08	0.00E+00	0.00E+00	1.27E-08

HALOGENS

I-131	3.37E-03	8.38E-04	1.82E-03	4.14E-03	1.02E-02
I-133	1.62E-03	5.72E-04	7.29E-04	2.44E-04	3.16E-03

GASES

KR-85M	2.21E-01	0.00E+00	6.43E-01	1.08E+00	1.94E+00
KR-85	6.26E+01	2.66E+02	2.29E+02	4.46E+02	1.00E+03
KR-87	0.00E+00	0.00E+00	0.00E+00	8.17E-04	8.17E-04
KR-88	5.56E-02	0.00E+00	0.00E+00	3.77E-02	9.33E-02
XE-131M	1.01E+01	5.43E+01	8.21E+01	1.16E+02	2.62E+02
XE-133M	5.53E+01	6.72E+00	1.62E+01	4.62E+01	1.24E+02
XE-133	5.61E+03	4.81E+03	4.69E+03	6.20E+03	2.13E+04
XE-135	3.61E+01	7.06E-01	2.14E+01	4.45E+01	1.03E+02
AR-41	0.00E+00	0.00E+00	0.00E+00	1.62E-01	1.62E-01

OCONEE GAS DOSE- 1ST QUARTER '84 RELEASES- 2/25/85

00000020

DISPERSION FACTOR- 4.10E-07 SEC/CU-M DEPOSITION FACTOR- 3.00E-10 M(-2)

BETA AIR DOSE- 8.05E-02 MILLIRADS GAMMA AIR DOSE- 2.69E-02 MILLIRADS

T. BODY XE133	CRITICAL AGE- 90.77%	CHILD	CRITICAL PATHWAY- PLUME	MAXIMUM DOSE- 1.65D-02 MILLIREM	PLUME CONTRIBUTION- 95.29%
GI-TRACT XE133	CRITICAL AGE- 90.83%	CHILD	CRITICAL PATHWAY- PLUME	MAXIMUM DOSE- 1.65D-02 MILLIREM	PLUME CONTRIBUTION- 95.36%
BONE XE133	CRITICAL AGE- 94.97%	INFANT	CRITICAL PATHWAY- PLUME	MAXIMUM DOSE- 1.58D-02 MILLIREM	PLUME CONTRIBUTION- 99.71%
LIVER XE133	CRITICAL AGE- 90.69%	CHILD	CRITICAL PATHWAY- PLUME	MAXIMUM DOSE- 1.65D-02 MILLIREM	PLUME CONTRIBUTION- 95.21%
KIDNEY XE133	CRITICAL AGE- 90.62%	CHILD	CRITICAL PATHWAY- PLUME	MAXIMUM DOSE- 1.66D-02 MILLIREM	PLUME CONTRIBUTION- 97.14%
THYROID I 131 XE133	CRITICAL AGE- 49.84% 46.37%	INFANT	CRITICAL PATHWAY- COW MILK	MAXIMUM DOSE- 3.24D-02 MILLIREM	PLUME CONTRIBUTION- 48.68%
LUNG XE133	CRITICAL AGE- 91.04%	CHILD	CRITICAL PATHWAY- PLUME	MAXIMUM DOSE- 1.73D-02 MILLIREM	PLUME CONTRIBUTION- 95.59%
SKIN XE133	CRITICAL AGE- 90.52%	CHILD	CRITICAL PATHWAY- PLUME	MAXIMUM DOSE- 4.67D-02 MILLIREM	PLUME CONTRIBUTION- 98.36%
THYROID I 131 XE133	AGE- 16.58% 76.71%	ADULT	CRITICAL PATHWAY- PLUME	TOTAL DOSE- 1.96D-02 MILLIREM	PLUME CONTRIBUTION- 80.54%
THYROID I 131 XE133	AGE- 49.84% 46.37%	INFANT	CRITICAL PATHWAY- COW MILK	TOTAL DOSE- 3.24D-02 MILLIREM	PLUME CONTRIBUTION- 48.68%

OCONEE GAS DOSE- 2ND QTR '84 RELEASES- 2/25/85

00000020

DISPERSION FACTOR- 4.10E-07 SEC/CU-M DEPOSITION FACTOR- 3.00E-10 M(-2)

BETA AIR DOSE- 7.33E-02 MILLIRADS GAMMA AIR DOSE- 2.23E-02 MILLIRADS

T.BODY H 3 XE133	CRITICAL AGE- 72.52% 27.23%	CHILD	CRITICAL PATHWAY- VEGET	MAXIMUM DOSE- 4.72D-02 MILLIREM	PLUME CONTRIBUTION- 27.47%
GI-TRACT H 3 XE133	CRITICAL AGE- 72.52% 27.24%	CHILD	CRITICAL PATHWAY- VEGET	MAXIMUM DOSE- 4.72D-02 MILLIREM	PLUME CONTRIBUTION- 27.47%
BONE XE133	CRITICAL AGE- 98.98%	CHILD	CRITICAL PATHWAY- PLUME	MAXIMUM DOSE- 1.30D-02 MILLIREM	PLUME CONTRIBUTION- 99.84%
LIVER H 3 XE133	CRITICAL AGE- 72.50% 27.23%	CHILD	CRITICAL PATHWAY- VEGET	MAXIMUM DOSE- 4.73D-02 MILLIREM	PLUME CONTRIBUTION- 27.46%
KIDNEY H 3 XE133	CRITICAL AGE- 72.51% 27.23%	CHILD	CRITICAL PATHWAY- VEGET	MAXIMUM DOSE- 4.72D-02 MILLIREM	PLUME CONTRIBUTION- 27.47%
THYROID H 3 XE133	CRITICAL AGE- 69.56% 26.12%	CHILD	CRITICAL PATHWAY- VEGET	MAXIMUM DOSE- 4.92D-02 MILLIREM	PLUME CONTRIBUTION- 26.35%
LUNG H 3 XE133	CRITICAL AGE- 71.41% 28.19%	CHILD	CRITICAL PATHWAY- VEGET	MAXIMUM DOSE- 4.80D-02 MILLIREM	PLUME CONTRIBUTION- 28.57%
SKIN H 3 KR 85 XE133	CRITICAL AGE- 45.21% 6.17% 47.87%	CHILD	CRITICAL PATHWAY- PLUME	MAXIMUM DOSE- 7.58D-02 MILLIREM	PLUME CONTRIBUTION- 54.79%
THYROID H 3 XE133	AGE- 62.24% 35.19%	ADULT	CRITICAL PATHWAY- PLUME	TOTAL DOSE- 3.66D-02 MILLIREM	PLUME CONTRIBUTION- 35.50%
THYROID H 3 I 131 XE133	AGE- 46.74% 12.54% 40.22%	INFANT	CRITICAL PATHWAY- COW MILK	TOTAL DOSE- 3.20D-02 MILLIREM	PLUME CONTRIBUTION- 40.56%

OCONEE GAS DOSE- 3RD QTR '84 RELEASES- 2/25/85

00000020

DISPERSION FACTOR- 4.10E-07 SEC/CU-M DEPOSITION FACTOR- 3.00E-10 M(-2)

BETA AIR DOSE- 7.20E-02 MILLIRADS GAMMA AIR DOSE- 2.23E-02 MILLIRADS

T.BODY H 3 XE133	CRITICAL AGE- 7.65% 88.77%	CHILD	CRITICAL PATHWAY- PLUME	MAXIMUM DOSE- 1.41D-02 MILLIREM	PLUME CONTRIBUTION- 92.29%
GI-TRACT H 3 XE133	CRITICAL AGE- 7.66% 88.81%	CHILD	CRITICAL PATHWAY- PLUME	MAXIMUM DOSE- 1.41D-02 MILLIREM	PLUME CONTRIBUTION- 92.33%
BONE XE133	CRITICAL AGE- 96.00%	INFANT	CRITICAL PATHWAY- PLUME	MAXIMUM DOSE- 1.31D-02 MILLIREM	PLUME CONTRIBUTION- 99.82%
LIVER H 3 XE133	CRITICAL AGE- 7.65% 88.72%	CHILD	CRITICAL PATHWAY- PLUME	MAXIMUM DOSE- 1.41D-02 MILLIREM	PLUME CONTRIBUTION- 92.25%
KIDNEY H 3 XE133	CRITICAL AGE- 7.64% 88.68%	CHILD	CRITICAL PATHWAY- PLUME	MAXIMUM DOSE- 1.41D-02 MILLIREM	PLUME CONTRIBUTION- 92.20%
THYROID I 131 XE133	CRITICAL AGE- 39.08% 56.28%	INFANT	CRITICAL PATHWAY- PLUME	MAXIMUM DOSE- 2.23D-02 MILLIREM	PLUME CONTRIBUTION- 58.51%
LUNG H 3 XE133	CRITICAL AGE- 7.29% 88.83%	CHILD	CRITICAL PATHWAY- PLUME	MAXIMUM DOSE- 1.48D-02 MILLIREM	PLUME CONTRIBUTION- 92.71%
SKIN KR 85 XE133	CRITICAL AGE- 9.51% 83.55%	CHILD	CRITICAL PATHWAY- PLUME	MAXIMUM DOSE- 4.23D-02 MILLIREM	PLUME CONTRIBUTION- 97.44%
THYROID I 131 XE133	AGE- 11.27% 80.74%	ADULT	CRITICAL PATHWAY- PLUME	TOTAL DOSE- 1.55D-02 MILLIREM	PLUME CONTRIBUTION- 83.94%
THYROID I 131 XE133	AGE- 39.08% 56.28%	INFANT	CRITICAL PATHWAY- PLUME	TOTAL DOSE- 2.23D-02 MILLIREM	PLUME CONTRIBUTION- 58.51%

OCONEE GAS DOSE- 4TH QUARTER '84 RELEASES- 2/25/85

00000020

DISPERSION FACTOR- 4.10E-07 SEC/CU-M DEPOSITION FACTOR- 3.00E-10 M(-2)

BETA AIR DOSE- 9.99E-02 MILLIRADS GAMMA AIR DOSE- 3.01E-02 MILLIRADS

T.BODY H 3 XE133	CRITICAL AGE- 9.00% 85.58%	CHILD	CRITICAL PATHWAY- PLUME	MAXIMUM DOSE- 1.94D-02 MILLIREM	PLUME CONTRIBUTION- 90.90%
GI-TRACT H 3 XE133	CRITICAL AGE- 9.01% 85.65%	CHILD	CRITICAL PATHWAY- PLUME	MAXIMUM DOSE- 1.94D-02 MILLIREM	PLUME CONTRIBUTION- 90.97%
BONE XE133	CRITICAL AGE- 93.86%	INFANT	CRITICAL PATHWAY- PLUME	MAXIMUM DOSE- 1.77D-02 MILLIREM	PLUME CONTRIBUTION- 99.69%
LIVER H 3 XE133	CRITICAL AGE- 9.00% 85.51%	CHILD	CRITICAL PATHWAY- PLUME	MAXIMUM DOSE- 1.94D-02 MILLIREM	PLUME CONTRIBUTION- 90.82%
KIDNEY H 3 XE133	CRITICAL AGE- 8.99% 85.44%	CHILD	CRITICAL PATHWAY- PLUME	MAXIMUM DOSE- 1.94D-02 MILLIREM	PLUME CONTRIBUTION- 90.75%
THYROID I 131 XE133	CRITICAL AGE- 51.86% 43.40%	INFANT	CRITICAL PATHWAY- COW MILK	MAXIMUM DOSE- 3.82D-02 MILLIREM	PLUME CONTRIBUTION- 46.09%
LUNG H 3 XE133	CRITICAL AGE- 8.57% 85.63%	CHILD	CRITICAL PATHWAY- PLUME	MAXIMUM DOSE- 2.04D-02 MILLIREM	PLUME CONTRIBUTION- 91.42%
SKIN KR 85 XE133	CRITICAL AGE- 13.07% 77.93%	CHILD	CRITICAL PATHWAY- PLUME	MAXIMUM DOSE- 6.00D-02 MILLIREM	PLUME CONTRIBUTION- 97.09%
THYROID H 3 I 131 XE133	AGE- 5.09% 17.50% 72.85%	ADULT	CRITICAL PATHWAY- PLUME	TOTAL DOSE- 2.28D-02 MILLIREM	PLUME CONTRIBUTION- 77.37%
THYROID I 131 XE133	AGE- 51.86% 43.40%	INFANT	CRITICAL PATHWAY- COW MILK	TOTAL DOSE- 3.82D-02 MILLIREM	PLUME CONTRIBUTION- 46.09%

OCONEE GAS DOSE- TOTAL '84 RELEASES- 2/25/85

00000020

DISPERSION FACTOR- 4.10E-07 SEC/CU-M DEPOSITION FACTOR- 3.00E-10 M(-2)

BETA AIR DOSE- 3.26E-01 MILLIRADS GAMMA AIR DOSE- 1.02E-01 MILLIRADS

T.BODY H 3 XE133	CRITICAL AGE- 38.94% 58.55%	CHILD	CRITICAL PATHWAY- PLUME	MAXIMUM DOSE- 9.73D-02 MILLIREM	PLUME CONTRIBUTION- 61.01%
GI-TRACT H 3 XE133	CRITICAL AGE- 38.96% 58.57%	CHILD	CRITICAL PATHWAY- PLUME	MAXIMUM DOSE- 9.73D-02 MILLIREM	PLUME CONTRIBUTION- 61.03%
BONE XE133	CRITICAL AGE- 95.75%	INFANT	CRITICAL PATHWAY- PLUME	MAXIMUM DOSE- 5.95D-02 MILLIREM	PLUME CONTRIBUTION- 99.76%
LIVER H 3 XE133	CRITICAL AGE- 38.93% 58.52%	CHILD	CRITICAL PATHWAY- PLUME	MAXIMUM DOSE- 9.74D-02 MILLIREM	PLUME CONTRIBUTION- 60.98%
KIDNEY H 3 XE133	CRITICAL AGE- 38.91% 58.50%	CHILD	CRITICAL PATHWAY- PLUME	MAXIMUM DOSE- 9.74D-02 MILLIREM	PLUME CONTRIBUTION- 60.96%
THYROID H 3 I 131 XE133	CRITICAL AGE- 13.23% 39.05% 45.58%	INFANT	CRITICAL PATHWAY- COW MILK	MAXIMUM DOSE- 1.25D-01 MILLIREM	PLUME CONTRIBUTION- 47.49%
LUNG H 3 XE133	CRITICAL AGE- 37.70% 59.57%	CHILD	CRITICAL PATHWAY- PLUME	MAXIMUM DOSE- 1.01D-01 MILLIREM	PLUME CONTRIBUTION- 62.29%
SKIN H 3 KR 85 XE133	CRITICAL AGE- 16.86% 7.83% 71.47%	CHILD	CRITICAL PATHWAY- PLUME	MAXIMUM DOSE- 2.25D-01 MILLIREM	PLUME CONTRIBUTION- 83.14%
THYROID H 3 I 131 XE133	AGE- 26.64% 10.39% 60.32%	ADULT	CRITICAL PATHWAY- PLUME	TOTAL DOSE- 9.45D-02 MILLIREM	PLUME CONTRIBUTION- 62.85%
THYROID H 3 I 131 XE133	AGE- 13.23% 39.05% 45.58%	INFANT	CRITICAL PATHWAY- COW MILK	TOTAL DOSE- 1.25D-01 MILLIREM	PLUME CONTRIBUTION- 47.49%

# OCONEE NUCLEAR STATION

## SOLID RADIOACTIVE WASTE SHIPPED TO A DISPOSAL FACILITY

Reporting Period 01-84 thru 06-84

<u>Types of Wastes</u>	<u>Number of Shipments</u>	<u>Volume (Ft<sup>3</sup>)</u>	<u>Total Activity Ci</u>	<u>Container Type</u>
1. Wastes from Liquid Systems				
(A) Dewatered Powdex Resin	3	600	1.436	STC
(B) Dewatered Bead Resin	4	484	1216.2546	B
(C) Solidified Evaporator Concentrates (Cement)	16	3200	21.7786	STC
(D) Dewatered Mechanical Filters	5	919	16.2739	STC
(E) Dewatered Demineralizers	7	823	111.2179	STC
2. Dry Solid Waste				
(A) Dry Active Waste (Compacted)	14	8178	10.933	STC
(B) Dry Active Waste (Non-Compacted)	8	2895.7	1.272	STC
(C) Irradiated Components	(No Shipments Made In This Period)			

## SUMMARY OF MAJOR RADIONUCLIDE COMPOSITION

<u>Type of Wastes</u>	<u>RADIONUCLIDE</u>	<u>% ABUNDANCE</u>
1. Wastes from Liquid Systems		
(A) Dewatered Powdex Resin	Mn54	1.48 %
	Co60	12.07
	Cs134	7.62
	Cs137	28.37
	H3	50.39
(B) Dewatered Bead Resin	Mn54	.26
	Co58	.075
	Co60	1.11
	Ag110m	.07
	Cs134	24.99
	Cs137	71.68
	H3	.03
	Ni63	1.57
	Sr90	.16
	C14	.003
	ΣTRU	.002
	Pu241	.06
	Cm242	.001

	<u>RADIONUCLIDE</u>	<u>ABUNDANCE %</u>
(C) Solidified Evaporator Concentrates (Cement)	Mn54	2.84
	Co57	.37
	Co58	31.35
	Co60	.07
	Ag110m	7.19
	Tc99	.002
	C14	.04
	I131	1.95
	Nb95	1.81
	Zr97	.57
	Cs134	4.47
	Cs137	9.82
	H3	39.51
(D) Dewatered Mechanical Filters	Mn54	3.17
	Co60	47.26
	Ag110m	6.07
	Sb125	1.69
	Ru106	2.64
	Cs137	1.99
	C14	.10
	Tc99	.22
	ΣTRU	.03
	Pu241	1.2
	Cm242	.02
	H3	.03
	Ni63	35.16
	Sr90	.40
(E) Dewatered Demineralizers	Cr51	.09
	Mn54	3.12
	Co57	.31
	Co58	29.64
	Co60	7.2
	Nb95	.63
	Zr95	.03
	Ag110m	6.17
	Cs134	14.46
	Cs136	.01
	Cs137	26.93
	H3	1.03
	Ni63	10.16
	Sr90	.06
	C14	.09

## 2. Dry Solid Wastes

(A) Dry Active Waste (Compacted)	Mn54	.67
	Co58	1.86
	Co60	.88
	Cs134	32.07
	Cs137	63.3
	Sr90	.98
	C14	.24



(B) Dry Active Waste  
(Non-Compacted)

RADIONUCLIDE

% ABUNDANCE

Mn54	.67
Co58	1.86
Co60	.88
Cs134	32.07
Cs137	63.3
Sr90	.98
C14	.24

(C) Irradiated Components

(None Shipped This Period)

OCONEE NUCLEAR STATION

SOLID RADIOACTIVE WASTE SHIPPED TO A DISPOSAL FACILITY

REPORTING PERIOD 07-84 THRU 12-84

<u>Types of Waste</u>	<u>Number of Shipments</u>	<u>Volume Ft<sup>3</sup></u>	<u>Total Activity Ci</u>	<u>Container Type</u>
1. Waste from liquid Systems				
(A) Dewatered Powdex Resin	13	2600	8.732	STC
(B) Dewatered Bead Resin	No shipments made in this period			
(C) Solidified Evaporator Concentrates (Cement)	No shipments made in this period			
(D) Dewatered Mechanical Filters	4	616.2	25.572	STC
(E) Dewatered Demineralizers	7	844.2	71.271	STC
(F) Solidified Oil (Cement)	1	400	.009	STC
2. Dry Solid Waste				
(A) Dry Active Waste (Compacted)	13	7802	9.163	STC
(B) Dry Active Waste (Non-Compacted)	14	3701.8	1.632	STC
(C) Irradiated Components	3	3	4678.29	B

# SUMMARY OF MAJOR RADIONUCLIDE COMPOSITION

## Type of Wastes

1. Wastes from Liquid Systems	<u>Radionuclide</u>	<u>% Abundance</u>
(A) Dewatered Powdex Resin	Co58	2.10
	Co60	.60
	I131	52.00
	Cs134	10.00
	Cs137	17.10
	Pu241	6.20
	H3	8.00
	Xe133	3.00
(B) Dewatered Bead Resin	(None shipped this period)	
(C) Solidified Evaporator Concentrates (Cement)	(None shipped this period)	
(D) Dewatered Mechanical Filters	Mn54	3.17
	Co60	47.26
	Ag110m	6.07
	Sb125	1.69
	Ru106	2.64
	Cs137	1.99
	C14	.10
	Tc99	.22
	ΣTRU	.03
	Pu241	1.20
	Cm242	.02
	H3	.03
	Ni63	35.16
	Sr90	.40

	<u>Radionuclide</u>	<u>% Abundance</u>
(E) Dewatered Demineralizers	Cr51	.20
	Mn54	7.20
	Co57	.70
	Co58	31.10
	Co60	22.70
	Nb95	.40
	Zr95	.20
	Ag110m	5.10
	Cs134	.40
	Cs137	.30
	H3	.40
	Ni63	31.40
	Sb125	.50
(F) Solidified Oil (Cement)	Co60	7.30
	Cs134	5.80
	Cs137	46.20
	Pu241	4.10
	C14	36.60
2. Dry Solid Wastes		
(A) Dry Active Waste (Compacted)	Mn54	.60
	Co58	1.80
	Co60	.80
	Cs134	30.80
	Cs137	60.90
	C14	.30
	Sr90	.90
	Pu241	3.70
(B) Dry Active Waste (Non-Compacted)	Mn54	.60
	Co58	1.80
	Co60	.70
	Cs134	30.70
	Cs137	60.50
	C14	.80
	Sr90	.60
	Pu241	4.20

(C) Irradiated Components

Radionuclide

% Abundance

Co60

30.00

Ni63

53.10

Fe55

17.00

Duke Power Company  
Oconee Nuclear Station

Attachment 2

1984 Summary of Unplanned  
Radioactive Releases to Unrestricted Areas

1984 Summary of Unplanned  
Radioactive Releases to Unrestricted Areas

Date: January 28, 1984

Description and  
Equipment:

This unplanned offsite release occurred in the process of a planned Liquid Waste Release from the station. A valve was inadvertently left open, allowing flow from the Liquid Waste Disposal System to enter one of the Condensate Monitor Tanks (CMT). It was this particular CMT from which the liquid effluent was being released. The unintended introduction of higher activity liquid, via the open valve, was discovered when instruments indicated that a greater-than-intended volume had been released. The release was promptly terminated upon discovery of the problem.

Cause:

Personnel error caused the release, in that the isolation valve was not closed per procedure.

Corrective Action to  
Prevent Recurrence:

The incident was reviewed and procedures revised to include more specific instructions for CMT isolation and to require certain actions to be taken for observations of unexplained CMT level changes. Personnel were counselled and commensurate disciplinary action was taken.

Consequences:

Approximately 1000 gallons of liquid effluent were released over and above the planned volume release. The total activity associated with the unplanned part of the release was calculated to be 0.170 curies of tritium and 0.0046 curies of corrosion and fission products.

---

Date:

August 14, 1984

Description and  
Equipment:

Oconee 3 experienced an anticipatory reactor trip from 100% full power, due to an accident which occurred in the course of maintenance activities. LER 287/84-05, dated September 14, 1984, provided details of this

event. A small tube leak was present in one of the steam generators at the time of the reactor trip. The lifting of Main Steam Relief Valves (MSRVs), which is normally associated with trips from full power, allowed a very small quantity of radioactive effluents to escape to the atmosphere.

Cause:

The release occurred due to an existing primary-to-secondary leak in one of the steam generators. The tube leak allowed effluents from the primary to enter and circulate in the secondary system. Upon the normal functioning of the MSRVs following the trip, the effluents combined with the secondary steam passed through the relief valves and into the atmosphere.

Corrective Action to Prevent Recurrence:

Repair of the steam generator tube leak would have prevented a recurrence of this event; however, the size of the leak (approximately 0.025 gallons per minute) was such that the particular leaking tube could not be identified, and so repair could not be accomplished.

Consequences:

The analysis performed as a result of this event indicates that a gaseous release of 0.0107 curies occurred, accompanied by an overall halogen release of 0.0483 curies.

---

Date:

November 6, 1984

Description and Equipment:

Oconee 3 was at 100% full power when existing tube leaks in the 3A steam generator increased to a rate in excess of 1 gallon per minute. Details concerning the incident were provided in LER 287/84-06, dated December 6, 1984. The unit was brought to cold shutdown within 4½ hours in order to repair the leaking tubes.

Cause:

The release occurred due to a primary-to-secondary leak in two tubes of the 3A steam generator. The radioactive effluents passed through the secondary system, through the Condensate Steam Air Ejectors (CSAEs) and out the unit vent.



Corrective Action to  
Prevent Recurrence:

The leaking 3A steam generator was isolated and the two leaking tubes were identified and plugged.

Consequences:

An analysis of the event indicated a total gaseous release of 128 curies and a total radioiodine release of 0.005 curies.

Duke Power Company  
Oconee Nuclear Station

Attachment 3

1984 Meteorological Data Concurrent  
With Gaseous Effluent Releases

## PASQUILL STABILITY A

SECTOR	WIND SPEED CLASS										TOTAL
	0.45- 1.49	1.50- 2.49	2.50- 3.49	3.50- 4.49	4.50- 5.49	5.50- 6.49	6.50- 7.49	7.50- 8.49	8.50- 9.49	>9.50 M/S	
	NO.	NO.	NO.	NO.	NO.	NO.	NO.	NO.	NO.	NO.	
-N-	.	5	4	1	.	.	.	.	.	.	10
-NNE-	2	7	1	1	.	.	.	.	.	.	11
-NE-	3	5	7	2	2	.	.	.	.	.	19
-ENE-	2	7	11	19	14	8	7	2	1	.	71
-E-	5	10	23	17	27	6	2	2	.	.	92
-ESE-	4	13	10	8	2	1	.	.	.	.	38
-SE-	2	15	14	3	.	1	1	.	.	.	36
-SSE-	5	18	10	5	.	1	.	.	.	.	39
-S-	10	32	31	35	10	6	.	.	.	.	124
-SSW-	11	34	65	53	19	5	6	.	.	.	193
-SW-	16	42	59	43	20	8	6	2	.	1	197
-WSW-	6	20	20	7	7	8	4	2	1	.	75
-W-	8	21	5	1	1	6	5	2	1	4	54
-WNW-	4	4	3	2	.	3	2	3	1	5	27
-NW-	3	1	3	2	3	3	1	.	.	2	18
-NNW-	.	5	.	1	.	1	.	.	.	.	7
-CALM-	1	.	.	.	.	.	.	.	.	.	1
TOTAL	82	239	266	200	105	57	34	13	4	12	1012

## PASQUILL STABILITY C

	WIND SPEED CLASS										TOTAL
	0.45- 1.49	1.50- 2.49	2.50- 3.49	3.50- 4.49	4.50- 5.49	5.50- 6.49	6.50- 7.49	7.50- 8.49	8.50- 9.49	>9.50 M/S	
	NO.	NO.	NO.	NO.	NO.	NO.	NO.	NO.	NO.	NO.	
SECTOR											
-N-	2	5	2	2	1	.	.	.	.	.	12
-NNE-	5	4	1	2	.	.	.	.	.	.	12
-NE-	3	6	2	.	1	.	.	.	.	.	12
-ENE-	1	3	1	7	4	5	.	.	.	.	21
-E-	6	10	6	5	2	1	1	.	.	.	31
-ESE-	1	4	2	1	.	.	.	.	.	.	8
-SE-	2	8	3	.	.	.	.	.	.	.	13
-SSE-	9	11	9	2	.	.	.	.	.	.	31
-S-	6	11	9	9	1	1	.	.	.	.	37
-SSW-	1	7	11	9	6	4	.	.	.	.	38
-SW-	3	13	15	14	5	.	1	2	.	2	55
-WSW-	10	10	10	6	5	3	3	2	.	1	50
-W-	7	4	4	4	2	2	2	2	.	.	27
-WNW-	3	1	.	2	2	2	.	4	2	1	17
-NW-	6	4	.	.	.	2	1	2	.	2	17
-NNW-	1	1	2	.	.	.	1	.	1	.	6
-CALM-	1	.	.	.	.	.	.	.	.	.	1
TOTAL	67	102	77	63	29	20	9	12	3	6	388

## PASQUILL STABILITY D

	WIND SPEED CLASS										TOTAL
	0.45- 1.49	1.50- 2.49	2.50- 3.49	3.50- 4.49	4.50- 5.49	5.50- 6.49	6.50- 7.49	7.50- 8.49	8.50- 9.49	>9.50 M/S	
	NO.	NO.	NO.	NO.	NO.	NO.	NO.	NO.	NO.	NO.	
SECTOR											
-N-	20	32	25	6	10	4	4	.	1	.	102
-NNE-	14	39	17	11	3	.	1	.	.	.	85
-NE-	20	28	34	37	26	14	4	.	.	.	163
-ENE-	6	24	43	48	40	28	14	6	.	.	209
-E-	16	38	39	37	12	7	2	.	.	.	151
-ESE-	16	22	10	7	4	1	.	.	.	.	60
-SE-	26	22	17	7	2	3	.	.	.	.	77
-SSE-	16	23	13	5	1	.	.	.	.	1	59
-S-	16	34	29	24	8	2	.	.	.	.	113
-SSW-	13	35	40	22	16	3	1	.	1	.	131
-SW-	17	35	48	37	20	3	3	.	1	1	165
-WSW-	11	34	24	18	14	7	3	2	2	1	116
-W-	17	35	18	11	9	14	7	4	2	.	117
-WNW-	28	20	3	3	3	5	3	6	4	8	83
-NW-	28	20	7	5	4	2	5	2	.	.	73
-NNW-	19	21	17	8	5	4	.	1	.	.	75
-CALM-	6	.	.	.	.	.	.	.	.	.	6
TOTAL	289	462	384	286	177	97	47	21	11	11	1785

## PASQUILL STABILITY E

	WIND SPEED CLASS										TOTAL
	0.45- 1.49	1.50- 2.49	2.50- 3.49	3.50- 4.49	4.50- 5.49	5.50- 6.49	6.50- 7.49	7.50- 8.49	8.50- 9.49	>9.50 M/S	
	NO.	NO.	NO.	NO.	NO.	NO.	NO.	NO.	NO.	NO.	
SECTOR											
-N-	56	124	92	14	2	2	.	.	.	.	290
-NNE-	31	75	31	13	5	.	1	.	.	.	156
-NE-	37	51	90	50	24	14	9	8	3	1	287
-ENE-	19	53	66	66	38	29	9	5	5	2	292
-E-	39	53	47	36	12	3	.	.	.	.	190
-ESE-	23	31	10	5	.	.	.	.	.	.	69
-SE-	27	39	32	12	3	.	.	1	.	.	114
-SSE-	23	36	31	18	3	.	.	.	.	.	111
-S-	48	29	33	29	8	.	.	.	.	.	147
-SSW-	19	31	21	28	13	1	1	.	.	.	114
-SW-	29	48	68	76	35	10	1	3	1	.	271
-WSW-	32	43	47	43	19	14	3	1	.	1	203
-W-	40	47	33	29	33	23	10	8	3	5	231
-WNW-	49	34	20	17	24	21	13	7	5	4	194
-NW-	49	58	18	14	15	15	3	3	2	1	178
-NNW-	34	63	43	13	3	2	1	.	.	.	159
-CALM-	15	.	.	.	.	.	.	.	.	.	15
TOTAL	570	815	682	463	237	134	51	36	19	14	3021

## PASQUILL STABILITY F

	WIND SPEED CLASS										TOTAL
	0.45- 1.49	1.50- 2.49	2.50- 3.49	3.50- 4.49	4.50- 5.49	5.50- 6.49	6.50- 7.49	7.50- 8.49	8.50- 9.49	>9.50 M/S	
	NO.	NO.	NO.	NO.	NO.	NO.	NO.	NO.	NO.	NO.	
SECTOR											
-N-	60	96	62	5	.	.	.	.	.	.	223
-NNE-	32	61	30	3	.	.	.	.	.	.	126
-NE-	33	26	11	4	.	.	1	.	.	.	75
-ENE-	13	12	12	2	1	.	.	.	.	.	40
-E-	16	13	14	5	1	.	.	.	.	.	49
-ESE-	13	5	8	1	.	.	.	.	.	.	27
-SE-	16	10	9	1	.	.	.	.	.	.	36
-SSE-	8	11	8	4	.	.	.	.	.	.	31
-S-	14	8	7	7	1	.	1	.	.	.	38
-SSW-	7	11	8	6	.	.	.	.	.	.	32
-SW-	10	11	5	10	4	.	.	.	.	.	40
-WSW-	12	16	18	8	1	.	.	.	.	.	55
-W-	24	19	6	9	3	2	3	.	.	.	66
-WNW-	24	33	10	3	2	2	.	.	.	.	74
-NW-	43	37	15	2	1	.	.	.	.	.	98
-NNW-	40	81	24	2	.	.	.	.	.	.	147
-CALM-	10	.	.	.	.	.	.	.	.	.	10
TOTAL	375	450	247	72	14	4	5	.	.	.	1167

## PASQUILL STABILITY G

	WIND SPEED CLASS										TOTAL
	0.45- 1.49	1.50- 2.49	2.50- 3.49	3.50- 4.49	4.50- 5.49	5.50- 6.49	6.50- 7.49	7.50- 8.49	8.50- 9.49	>9.50 M/S	
	NO.	NO.	NO.	NO.	NO.	NO.	NO.	NO.	NO.	NO.	
SECTOR											
-N-	30	47	48	6	.	.	.	.	.	.	131
-NNE-	10	25	18	2	.	.	.	.	.	.	55
-NE-	16	10	.	.	.	.	1	.	.	.	27
-ENE-	8	3	.	.	.	.	.	.	.	.	11
-E-	12	3	1	.	.	.	.	.	.	.	16
-ESE-	2	6	.	.	.	.	.	.	.	.	8
-SE-	7	2	1	.	.	.	.	.	.	.	10
-SSE-	3	8	3	.	.	.	.	.	.	.	14
-S-	10	4	2	.	.	.	.	.	.	.	16
-SSW-	2	2	1	1	.	.	.	.	.	.	6
-SW-	6	5	4	2	1	.	.	.	.	.	18
-WSW-	6	1	8	.	.	.	.	.	.	.	15
-W-	9	6	1	1	.	.	.	.	.	.	17
-WNW-	7	7	.	1	.	.	.	.	.	.	15
-NW-	19	14	3	1	.	.	.	.	.	.	37
-NNW-	12	19	10	1	.	.	.	.	.	.	42
-CALM-	5	.	.	.	.	.	.	.	.	.	5
TOTAL	164	162	100	15	1	.	1	.	.	.	443



## ALL STABILITY CLASSES

SECTOR	WIND SPEED CLASS										TOTAL
	0.45- 1.49	1.50- 2.49	2.50- 3.49	3.50- 4.49	4.50- 5.49	5.50- 6.49	6.50- 7.49	7.50- 8.49	8.50- 9.49	>9.50 M/S	
	NO.	NO.	NO.	NO.	NO.	NO.	NO.	NO.	NO.	NO.	
-N-	168	309	233	34	13	6	4	.	1	.	768
-NNE-	94	211	98	32	8	.	2	.	.	.	445
-NE-	112	126	144	93	53	28	15	8	3	1	583
-ENE-	49	102	133	142	97	70	30	13	6	2	644
-E-	94	127	130	100	54	17	5	2	.	.	529
-ESE-	59	81	40	22	6	2	.	.	.	.	210
-SE-	80	96	76	23	5	4	1	1	.	.	286
-SSE-	64	107	74	34	4	1	.	.	.	1	285
-S-	104	118	111	104	28	9	1	.	.	.	475
-SSW-	53	120	146	119	54	13	8	.	1	.	514
-SW-	81	154	199	182	85	21	11	7	2	4	746
-WSW-	77	124	127	82	46	32	13	7	3	3	514
-W-	105	132	67	55	48	47	27	16	6	9	512
-WNW-	115	99	36	28	31	33	18	20	12	18	410
-NW-	148	134	46	24	23	22	10	7	2	5	421
-NNW-	106	190	96	25	8	7	2	1	1	.	436
-CALM-	38	.	.	.	.	.	.	.	.	.	38
TOTAL	1547	2230	1756	1099	563	312	147	82	37	43	7816