Duke Power Company
Oconee Nuclear Station

Attachment 1

Radioactive Effluent Release and
Solid Waste Disposal Reports

OCONEE NUCLEAR STATION
EFFLUENT AND WASTE DISPOSAL SUPPLEMENTAL INFORMATION
REPORT DATE: 08/27/87
PERIOD COVERED: START DAY = 001 STOP DAY = 181

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

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. 3.50E+02 = TOTAL NUMBER OF BATCH RELEASES
2. 4.28E+04 = TOTAL TIME(MIN.) FOR BATCH RELEASES.
3. 1.65E+03 = MAXIMUM TIME(MIN.) FOR A BATCH RELEASE.
4. 1.22E+02 = AVERAGE TIME(MIN.) FOR A BATCH RELEASE.
5. 5.00E+00 = MINIMUM TIME(MIN.) FOR A BATCH RELEASE.
6. 6.13E+05 = AVERAGE DILUTION WATER FLOW DURING RELEASES(GPM).

B. GASEOUS EFFLUENT
1. 1.18E+02 = TOTAL NUMBER OF BATCH RELEASES.
2. 6.52E+05 = TOTAL TIME(MIN.) FOR BATCH RELEASES.
3. 4.46E+04 = MAXIMUM TIME(MIN.) FOR A BATCH RELEASE.
4. 5.52E+03 = AVERAGE TIME(MIN.) FOR A BATCH RELEASE.
5. 1.50E+01 = MINIMUM TIME(MIN.) FOR A BATCH RELEASE.

VI. ABNORMAL RELEASES

A. LIQUID
1. NUMBER OF RELEASES 1
2. TOTAL ACTIVITY RELEASED(CURIES) 7.91E-4 Ci

B. GASEOUS
1. NUMBER OF RELEASES 1
2. TOTAL ACTIVITY RELEASED(CURIES) 3.33E1 Ci

SUPPLEMENTAL REPORT PAGE 2
OCONEE NUCLEAR STATION

VALUES REPRESENTED BY "0.00E+00" WITHIN THE BODY OF THE SEMI-ANNUAL AND/OR ANNUAL REPORT ARE BELOW THE MINIMUM DETECTABLE LIMITS OF THE OCONEE COUNTING SYSTEMS. TYPICAL MDA'S FOR THE OCONEE COUNTING SYSTEM'S ARE LISTED BELOW:

ISOTOPE	ENERGY(Kev)	AVERAGE MDA
XE-133	80	1.32E-06
CE-144	133	1.42E-06
KR-88	196	1.82E-06
XE-135	249	5.04E-07
KR-87	402	9.99E-07
CS-137	661	3.17E-07
MO-99	778	1.22E-06
MN-54	834	2.18E-07
ZN-65	1115	4.27E-07
CO-60	1332	2.24E-07

OCONEE NUCLEAR STATION

The estimated percentage of error for both Liquid and Gaseous effluent release data at Oconee Nuclear Station has been determined to be ±23%. This number was derived by summing the following individual estimates of errors:

1) Flow rate determining devices = ± 5%

2) Counting error = ±15%

3) Sample preparation error = ± 3%

JMS/pja.002

Do You Wish To Run Another Program?(Y/

OCONEE NUCLEAR STATION
RADIOACTIVE EFFLUENT RELEASES
DATE : 08/26/87

I. LIQUID RELEASES

YEAR : 1987

	UNITS	1ST QTR	2ND QTR	SUBTOTAL
1. GROSS RADIOACTIVITY				
A. TOTAL RELEASE	CURIES	6.51E-01	4.36E-01	1.09E+00
B. AVERAGE CONCENTRATION RELEASED	UCI/ML	6.47E-09	3.17E-09	4.57E-09
C. MAXIMUM CONCENTRATION RELEASED	UCI/ML	9.60E-08	7.32E-08	9.60E-08
2. TRITIUM				
A. TOTAL RELEASE	CURIES	2.35E+02	1.72E+02	4.07E+02
B. AVERAGE CONCENTRATION RELEASED	UCI/ML	2.34E-06	1.25E-06	1.71E-06
3. DISSOLVED NOBLE GASES				
A. TOTAL RELEASE	CURIES	2.15E-01	1.33E+00	1.55E+00
B. AVERAGE CONCENTRATION RELEASED	UCI/ML	2.14E-09	9.68E-09	6.50E-09
4. GROSS ALPHA ACTIVITY				
A. TOTAL RELEASE	CURIES	0.00E+00	0.00E+00	0.00E+00
B. AVERAGE CONCENTRATION RELEASED	UCI/ML	0.00E+00	0.00E+00	0.00E+00
5. VOLUME OF LIQUID WASTE TO DISCHARGE CANAL	LITERS	1.47E+07	1.20E+07	2.67E+07
6. VOLUME OF DILUTION WATER	LITERS	1.01E+11	1.38E+11	2.38E+11
7. RADIONUCLIDES RELEASED	CURIES			
NA-24		3.13E-05	2.01E-05	5.15E-05
CR-51		1.66E-02	6.62E-03	2.32E-02
MN-54		1.68E-03	4.38E-03	6.06E-03
FE-55		1.77E-02	1.11E-02	2.88E-02
FE-59		6.50E-04	0.00E+00	6.50E-04
CO-57		3.23E-04	3.47E-04	6.70E-04
CO-58		2.33E-01	7.71E-02	3.10E-01
CO-60		5.25E-02	5.13E-02	1.04E-01
SR-89		0.00E+00	6.73E-05	6.73E-05
SR-92		3.10E-05	1.68E-04	1.99E-04
ZR-95		4.20E-04	1.12E-03	1.54E-03
NB-95		2.61E-03	2.40E-03	5.00E-03
NB-97		3.57E-04	0.00E+00	3.57E-04
TC-99M		9.11E-05	1.55E-04	2.46E-04
AG-110M		4.52E-02	6.28E-02	1.08E-01
I-131		3.47E-02	1.07E-02	4.54E-02
I-132		0.00E+00	4.96E-05	4.96E-05
I-133		4.41E-04	2.93E-05	4.71E-04
SB-122		1.24E-04	3.27E-04	4.51E-04
SB-124		8.53E-03	2.21E-03	1.07E-02
SB-125		2.08E-01	1.63E-01	3.71E-01
CS-134		8.17E-03	6.03E-03	1.42E-02
CS-137		1.89E-02	1.30E-02	3.19E-02
BA-139		0.00E+00	1.86E-02	1.86E-02
BA-140		0.00E+00	9.37E-04	9.37E-04
LA-140		1.59E-03	3.68E-03	5.27E-03
XE-131M		0.00E+00	1.08E-02	1.08E-02
XE-133		2.05E-01	1.30E+00	1.51E+00
XE-133M		1.56E-03	1.14E-02	1.30E-02
XE-135		8.43E-03	4.47E-03	1.29E-02

OCONEE LIQUID DOSE- 1ST QUARTER 1987 - 8/25/87 DAYS 001-090 0000000

SKIN MAXIMUM DOSE- 1.04D-02 MREM CRITICAL AGE- TEEN CRITICAL PATHWAY- SHORE

CO 60	53.85 %
AG 110M	7.38 %
SB 125	22.28 %
CS 137	9.22 %

BONE MAXIMUM DOSE- 2.90D-01 MREM CRITICAL AGE- CHILD CRITICAL PATHWAY- FISH

CS 134	23.18 %
CS 137	75.02 %

LIVER MAXIMUM DOSE- 3.96D-01 MREM CRITICAL AGE- TEEN CRITICAL PATHWAY- FISH

H 3	8.09 %
CS 134	32.44 %
CS 137	56.92 %

T. BODY MAXIMUM DOSE- 2.95D-01 MREM CRITICAL AGE- ADULT CRITICAL PATHWAY- FISH

H 3	15.35 %
CS 134	35.08 %
CS 137	47.95 %

THYROID MAXIMUM DOSE- 4.34D-01 MREM CRITICAL AGE- INFANT CRITICAL PATHWAY- DRINKING

H 3	13.52 %
I 131	86.30 %

KIDNEY MAXIMUM DOSE- 1.66D-01 MREM CRITICAL AGE- CHILD CRITICAL PATHWAY- FISH

H 3	36.49 %
CS 134	20.63 %
CS 137	40.98 %

LUNG MAXIMUM DOSE- 1.00D-01 MREM CRITICAL AGE- CHILD CRITICAL PATHWAY- DRINKING

H 3	60.30 %
CS 134	12.26 %
CS 137	24.48 %

GI-LLI MAXIMUM DOSE- 1.76D-01 MREM CRITICAL AGE- ADULT CRITICAL PATHWAY- FISH

H 3	25.70 %
CO 58	8.68 %
CO 60	5.71 %
NB 95	47.14 %

OCONEE LIQUID DOSE- 2ND QUARTER 1987 - 8/25/87 DAYS 091-181 0000000

SKIN MAXIMUM DOSE- 6.95D-03 MREM CRITICAL AGE- TEEN CRITICAL PATHWAY- SHORE

CO	60	58.23 %
AG	110M	11.35 %
SB	125	19.32 %
CS	137	7.02 %

BONE MAXIMUM DOSE- 1.50D-01 MREM CRITICAL AGE- CHILD CRITICAL PATHWAY- FISH

CS	134	24.41 %
CS	137	73.62 %

LIVER MAXIMUM DOSE- 2.08D-01 MREM CRITICAL AGE- TEEN CRITICAL PATHWAY- FISH

H	3	8.31 %
CS	134	33.81 %
CS	137	54.95 %

T. BODY MAXIMUM DOSE- 1.55D-01 MREM CRITICAL AGE- ADULT CRITICAL PATHWAY- FISH

H	3	15.78 %
CS	134	36.35 %
CS	137	46.31 %

THYROID MAXIMUM DOSE- 1.17D-01 MREM CRITICAL AGE- INFANT CRITICAL PATHWAY- DRINKING

H	3	27.10 %
I	131	72.87 %

KIDNEY MAXIMUM DOSE- 8.73D-02 MREM CRITICAL AGE- CHILD CRITICAL PATHWAY- FISH

H	3	37.40 %
CS	134	21.32 %
CS	137	39.47 %

LUNG MAXIMUM DOSE- 5.36D-02 MREM CRITICAL AGE- CHILD CRITICAL PATHWAY- DRINKING

H	3	60.88 %
CS	134	12.49 %
CS	137	23.23 %

GI-LLI MAXIMUM DOSE- 1.07D-01 MREM CRITICAL AGE- ADULT CRITICAL PATHWAY- FISH

H	3	22.83 %
CO	60	6.77 %
NB	95	52.61 %
AG	110M	5.09 %

SKIN MAXIMUM DOSE- 1.68D-02 MREM CRITICAL AGE- TEEN CRITICAL PATHWAY- SHORE

CO 60	55.96 %
AG 110M	9.25 %
SB 125	20.85 %
CS 137	8.16 %

BONE MAXIMUM DOSE- 4.17D-01 MREM CRITICAL AGE- CHILD CRITICAL PATHWAY- FISH

CS 134	23.69 %
CS 137	74.43 %

LIVER MAXIMUM DOSE- 5.75D-01 MREM CRITICAL AGE- TEEN CRITICAL PATHWAY- FISH

H 3	8.18 %
CS 134	32.93 %
CS 137	56.10 %

T. BODY MAXIMUM DOSE- 4.29D-01 MREM CRITICAL AGE- ADULT CRITICAL PATHWAY- FISH

H 3	15.53 %
CS 134	35.61 %
CS 137	47.27 %

THYROID MAXIMUM DOSE- 5.02D-01 MREM CRITICAL AGE- INFANT CRITICAL PATHWAY- DRINKING

H 3	17.15 %
I 131	82.70 %

KIDNEY MAXIMUM DOSE- 2.41D-01 MREM CRITICAL AGE- CHILD CRITICAL PATHWAY- FISH

H 3	36.87 %
CS 134	20.91 %
CS 137	40.35 %

LUNG MAXIMUM DOSE- 1.47D-01 MREM CRITICAL AGE- CHILD CRITICAL PATHWAY- DRINKING

H 3	60.54 %
CS 134	12.32 %
CS 137	23.95 %

GI-LLI MAXIMUM DOSE- 2.73D-01 MREM CRITICAL AGE- ADULT CRITICAL PATHWAY- FISH

H 3	24.40 %
CO 58	6.33 %
CO 60	6.20 %
NB 95	49.52 %

OCONEE NUCLEAR STATION
RADIOACTIVE EFFLUENT RELEASES
DATE : 08/25/87

II. AIRBORNE RELEASES — YEAR : 1987

	UNITS	1ST QTR	2ND QTR	SUBTOTAL
1. TOTAL NOBLE GASES	CURIES	2.68E+03	3.30E+03	5.98E+03
2. TOTAL HALOGENS	CURIES	2.66E-03	5.41E-03	8.07E-03
3. TOTAL PARTICULATE GROSS BETA-GAMMA	CURIES	3.25E-03	5.06E-03	8.31E-03
4. TOTAL TRITIUM	CURIES	1.53E+01	1.58E+01	3.11E+01
5. TOTAL PARTICULATE GROSS ALPHA ACTIVITY	CURIES	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
7. RADIONUCLIDES RELEASED	CURIES			
PARTICULATES				
CR-51		9.78E-05	1.92E-10	9.78E-05
MN-54		3.59E-05	4.34E-06	4.03E-05
FE-59		4.90E-06	0.00E+00	4.90E-06
CO-57		1.51E-06	8.51E-08	1.60E-06
CO-58		6.91E-04	9.84E-05	7.89E-04
CO-60		2.74E-04	1.10E-04	3.84E-04
RB-88		9.96E-04	4.74E-03	5.74E-03
SR-92		4.89E-06	3.90E-09	4.89E-06
ZR-95		1.06E-05	0.00E+00	1.06E-05
NB-95		3.98E-05	1.82E-07	4.00E-05
NB-97		1.15E-04	0.00E+00	1.15E-04
TC-99M		4.17E-06	0.00E+00	4.17E-06
RU-103		1.26E-06	0.00E+00	1.26E-06
AG-110M		1.59E-04	1.45E-05	1.74E-04
CD-115		4.80E-07	0.00E+00	4.80E-07
SB-122		1.85E-05	0.00E+00	1.85E-05
CS-134		1.88E-05	2.09E-09	1.88E-05
CS-137		6.50E-04	5.02E-05	7.00E-04
CS-138		2.79E-05	3.43E-05	6.22E-05
BA-139		1.00E-04	0.00E+00	1.00E-04
LA-140		1.03E-06	0.00E+00	1.03E-06
CE-143		4.87E-06	4.21E-06	9.08E-06
HALOGENS				
I-131		2.00E-03	3.23E-03	5.23E-03
I-132		7.00E-07	1.67E-04	1.67E-04
I-133		6.58E-04	1.95E-03	2.61E-03
I-134		0.00E+00	5.80E-07	5.80E-07
I-135		0.00E+00	6.24E-05	6.24E-05
GASES				
AR-41		0.00E+00	2.88E+00	2.88E+00
KR-85		4.16E+02	2.80E+02	6.96E+02
KR-85M		0.00E+00	1.27E+00	1.27E+00
KR-87		0.00E+00	1.48E-01	1.48E-01
KR-88		2.25E+01	7.13E-01	2.32E+01
XE-131M		3.53E+01	6.71E+00	4.20E+01
XE-133		2.21E+03	2.97E+03	5.18E+03
XE-133M		0.00E+00	2.31E+01	2.31E+01
XE-135		2.06E+00	1.15E+01	1.35E+01
XE-135M		0.00E+00	5.52E-02	5.52E-02
XE-138		0.00E+00	1.04E-02	1.04E-02

OCONEE GAS DOSE- 1ST QUARTER 1987 RELEASES- 8/26/87 DAYS 001/090 00000010
SPECIAL LOCATION # 1 WORST GAS LOC
AT 3.50 MILES

NOBLE GAS EXPOSURE SUMMARY:

DISPERSION FACTOR = 4.10E-07 SEC/CU-M

BETA AIR DOSE = 4.21E-02 MILLIRADS
GAMMA AIR DOSE = 1.48E-02 MILLIRADS

TOTAL BODY DOSE = 9.04D-03 MILLIREM

KR 85	0.67%
KR 88	33.27%
XE133	65.36%

SKIN DOSE = 2.85D-02 MILLIREM

KR 85	25.68%
KR 88	14.55%
XE133	58.49%

OCONEE GAS DOSE- 1ST QUARTER 1987 RELEASES- 8/26/87 DAYS 001/090 00000010
SPECIAL LOCATION # 2 WORST ORG LOC
AT 4.00 MILESNNE

IODINE, PARTICULATE, AND TRITIUM EXPOSURE SUMMARY:

DISPERSION FACTOR - 9.20E-08 SEC/CU-M DEPOSITION FACTOR - 5.70E-10 M(-2)

MAXIMUM ORGAN - THYROID
CRITICAL AGE - INFANT
CRITICAL PATHWAY - COW MILK @ 98.01%

MAXIMUM ORGAN DOSE = 1.80D-02 MILLIREM
I 131 97.60%

OCONEE GAS DOSE- 2ND QUARTER 1987 RELEASES- 8/26/87 DAYS 091/181 00000010
SPECIAL LOCATION # 1 WORST GAS LOC
AT 3.50 MILESS

NOBLE GAS EXPOSURE SUMMARY:

DISPERSION FACTOR = 4.10E-07 SEC/CU-M

BETA AIR DOSE = 4.87E-02 MILLIRADS
GAMMA AIR DOSE = 1.46E-02 MILLIRADS

TOTAL BODY DOSE = 8.58D-03 MILLIREM
KR 85 9.48%
XE133 92.56%

SKIN DOSE = 2.88D-02 MILLIREM
KR 85 17.09%
XE133 77.76%

OCONEE GAS DOSE- 2ND QUARTER 1987 RELEASES- 8/26/87 DAYS 091/181 00000010
SPECIAL LOCATION # 2 WORST ORG LOC
AT 4.00 MILESNNE

IODINE, PARTICULATE, AND TRITIUM EXPOSURE SUMMARY:

DISPERSION FACTOR - 9.20E-08 SEC/CU-M DEPOSITION FACTOR - 5.70E-10 M(-2)

MAXIMUM ORGAN - THYROID
CRITICAL AGE - INFANT
CRITICAL PATHWAY - COW MILK @ 98.76%

MAXIMUM ORGAN DOSE = 2.88D-02 MILLIREM
I 131 98.32%

OCONEE GAS DOSE- 1ST SEMI-ANNUAL REPORT 1987 8/26/87 DAYS 001/090 00000010
SPECIAL LOCATION # 1 WORST GAS LOC
AT 3.50 MILES

NOBLE GAS EXPOSURE SUMMARY:

DISPERSION FACTOR = 4.10E-07 SEC/CU-M

BETA AIR DOSE = 9.09E-02 MILLIRADS
GAMMA AIR DOSE = 2.94E-02 MILLIRADS

TOTAL BODY DOSE = 1.76D-02 MILLIREM

KR 85	0.58%
KR 88	17.60%
XE133	78.61%

SKIN DOSE = 5.73D-02 MILLIREM

KR 85	21.36%
KR 88	7.46%
XE133	68.16%

OCONEE GAS DOSE- 1ST SEMI-ANNUAL REPORT 1987 8/26/87 DAYS 001/090 00000010
SPECIAL LOCATION # 2 WORST ORG LOC
AT 4.00 MILESNNE

IODINE, PARTICULATE, AND TRITIUM EXPOSURE SUMMARY:

DISPERSION FACTOR - 9.20E-08 SEC/CU-M DEPOSITION FACTOR - 5.70E-10 M(-2)

MAXIMUM ORGAN - THYROID
CRITICAL AGE - INFANT
CRITICAL PATHWAY - COW MILK @ 98.71%

MAXIMUM ORGAN DOSE = 4.67D-02 MILLIREM
I 131 98.28%

OCONEE NUCLEAR STATION

SOLID RADIOACTIVE WASTE SHIPPED TO A DISPOSAL FACILITY

REPORT PERIOD 1/1/87 THROUGH 6/30/87

	TYPES OF WASTE SHIPPED	NUMBER OF SHIPMENTS	NUMBER OF CONTAINERS	WASTE CLASS	CONT. TYPE	BURIAL VOLUME (ft^3)	BURIAL VOLUME (m^3)	TOTAL ACT. Ci	EST. TOTAL ERROR %
1	WASTE FROM LIQUID SYSTEMS								
	(A) Dewatered Powdex Resins	2	6	6A-U	STC	1236	35.0	.057	10
	(B) Dewatered Bead Resins	6	6	2B/ 4C	B	714	20.22	1559.8	10
	(C) Evaporator Concentrates	0	0	N/A	N/A	N/A	N/A	N/A	N/A
	(D) Dewatered Mechanical Filters	0	0	N/A	N/A	N/A	N/A	N/A	N/A
	(E) Dewatered Demineralizers	4	12	1A-S, 11B	STC	456	12.91	80.0	10
	(F) Solidified (Cement) Oils Acids, Sludges	0	0	N/A	N/A	N/A	N/A	N/A	N/A
2	DRY SOLID WASTE								
	(A) Dry Active Waste (compacted)	11	88	88A-U	STC	8096	229.28	14.43	15
	(B) Dry Active Waste (non-compacted)	5	16	16A-U	STC	1472	41.69	.97	15
	(C) Irradiated Components	0	0	N/A	N/A	N/A	N/A	N/A	N/A
	TOTALS	28	128	1A-S,13B 110A-U,4C	--	11,974	339.10	1655.26	--

DUKE POWER COMPANY
OCONEE NUCLEAR STATION
SUMMARY OF MAJOR RADIONUCLIDE COMPOSITION

TYPE OF WASTE	RADIONUCLIDE	% ABUNDANCE
1. WASTE FROM LIQUID SYSTEM		
(A) DEWATERED POWDEX RESINS:	CO-58	.2
	CO-60	3.7
	NI-63	5.2
	SR-90	2.6
	CS-134	14.6
	CS-137	70.8
	FE-55	2.0
	I-131	.9
(B) DEWATERED BEAD RESINS:	CO-58	3.7
	CO-60	5.8
	NI-63	8.2
	SR-90	9.7
	CS-134	17.6
	CS-137	43.2
	FE-55	9.6
	MN-54	.8
	AG-110M	.5
	SB-125	.4
	PU-241	.3
(C) EVAPORATOR CONCENTRATES:	NONE FOR THIS PERIOD	
(D) DEWATERED MECHANICAL FILTERS:	NONE FOR THIS PERIOD	
(E) DEWATERED DEMINERALIZERS:	CO-57	.1
	CO-58	17.1
	CO-60	5.7
	NI-63	13.8
	CS-134	19.1
	CS-136	.1
	CS-137	27.5
	FE-55	8.1
	I-131	.5
	MN-54	1.2
	AG-110m	1.9
	SB-125	2.0
	NB-95	.8
	TE-125m	.2
	CR-51	1.1
	ZR-95	.2
(F) SOLIDIFIED ACIDS,OILS,SLUDGES:	NONE FOR THIS PERIOD	

DUKE POWER COMPANY
OCONEE NUCLEAR STATION
SUMMARY OF MAJOR RADIONUCLIDES COMPOSITION (CONTINUED)

	RADIONUCLIDE	% ABUNDANCE
2. DRY SOLID WASTE		
(A) DRY ACTIVE WASTE (COMPACTED)	CO-58	23.0
	CO-60	12.7
	NI-63	5.6
	CS-134	9.0
	CS-137	18.6
	FE-55	22.7
	MN-54	2.0
	AG-110M	3.0
	C-14	.3
	NB-95	.6
	CR-51	2.0
	PU-241	.5
(B) DRY ACTIVE WASTE (NON-COMPACTED)	CO-58	29.0
	CO-60	10.2
	NI-63	6.9
	CS-134	6.3
	CS-137	17.4
	FE-55	18.2
	MN-54	1.5
	AG-110M	4.4
	C-14	.6
	NB-95	1.1
	PU-241	.6
	CR-51	3.7
(C) IRRADIATED COMPONENTS	NONE FOR THIS PERIOD	

Duke Power Company
Oconee Nuclear Station

Attachment 2

Summary of Unplanned Radioactive
Releases to Unrestricted Areas

Date:	January 28, 1987
Description and Equipment:	Flushing of a Waste Monitor Tank, WMT, which is part of the liquid waste system, using clean Low Pressure Service Water, was taking place when an inadvertent release of radioactivity from WMT-B occurred. It is noted that the waste was released through the liquid waste effluent monitor which was not exposed to enough activity to require the termination of the release.
Cause:	The cause of the release was the failure of an isolation valve to seat properly.
Corrective Action To Prevent Recurrence:	Valve seats associated with the subject waste water storage tanks were replaced. A procedural limitation is also in effect which does not permit the transfer of waste water between tanks while a release is occurring.
Consequences:	1100 Gallons of waste water, containing 7.91E-4 Curies were released. The majority of the activity was comprised of Co-58 and Co-60, with Ag-110M, I-131, and Xe-133 also present. The release rate was approximately 15.7 gpm. It is noted that based upon the concentration of activity, the water could have been released at 399 gpm and remain within the regulations. The total dose to the public was estimated to have been 5.6E-6 mrem to the total body, 4.9E-5 mrem to the GI-LLI, and 4.1E-5 mrem to the thyroid.

Date:	April 26, 1987
Description and Equipment:	Unit 3 was shut down to repair a Steam Generator tube leak. The Steam Generator manways were opened and temporary ventilation systems (TVS) installed to control airborne contamination from the Steam Generator. The Equipment Hatch to the Reactor Building was open.
Cause:	The apparent cause for this release was the failure of the main purge, operating at 9,000 cfm, to maintain a negative pressure and air flow into the Reactor Building.
Corrective Action To Prevent Recurrence:	Immediate corrective action was to close the equipment hatch. Evaluations and tests of the Reactor Building purge system will be made to determine a minimum allowable purge flow rate during the time that the Equipment Hatch is open.
Consequences:	A conservative value of 1.68E7 cubic feet of air containing approximately 1.29E-6 Ci of particulate activity, 1.28E-4 Ci of radioiodine, and 3.33E1 Ci of Noble Gas were released. The gamma whole body dose to the public was estimated to have been 3.81E-3 mrem, the beta skin dose to the public was estimated to have been 1.13E-2 mrem, and the thyroid dose due to radioiodine was estimated to have been 4.93E-2 mrem.

Duke Power Company
Oconee Nuclear Station

Attachment 3

Meteorological Data

1987 METEOROLOGY JOINT FREQUENCIES: OCONEE NUCLEAR STATION(1ST HALF)

15:06 WEDNESDAY, AUGUST 12, 1987

PASQUILL STABILITY A

	WIND SPEED CLASS										
	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	TOTAL
	NO.	NO.	NO.	NO.	NO.	NO.	NO.	NO.	NO.	NO.	NO.
SECTOR											
-N-	5	28	14	18	8	1	.	.	.	.	74
-NNE-	2	13	3	1	.	7	4	1	.	.	31
-NE-	3	12	6	5	3	.	.	.	.	.	29
-ENE-	.	5	13	7	5	6	2	.	.	.	38
-E-	2	7	8	4	5	1	.	.	.	.	27
-ESE-	.	7	4	2	.	.	.	.	.	.	13
-SE-	2	9	7	2	3	.	1	.	.	.	24
-SSE-	.	12	18	11	4	.	.	.	.	.	45
-S-	4	14	24	27	11	1	.	1	.	.	82
-SSW-	7	48	51	49	8	6	4	.	1	.	174
-SW-	7	37	26	12	13	10	2	3	1	.	111
-WSW-	6	26	11	6	3	3	.	1	1	.	57
-W-	9	12	4	1	.	.	.	.	2	2	30
-WNW-	5	4	.	2	4	.	1	4	6	8	34
-NW-	3	6	2	1	2	1	1	.	6	2	24
-NNW-	2	10	2	.	3	.	.	.	.	.	17
TOTAL	57	250	193	148	72	36	15	10	17	12	810

PASQUILL STABILITY C

	WIND SPEED CLASS										
	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	TOTAL
SECTOR	NO.	NO.	NO.	NO.	NO.	NO.	NO.	NO.	NO.	NO.	NO.
-N-	5	8	1	2	1	1	1	.	.	.	19
-NNE-	.	8	4	1	1	.	2	.	1	.	17
-NE-	.	6	4	1	1	.	.	.	.	.	12
-ENE-	.	3	5	5	5	2	4	.	.	.	24
-E-	1	1	.	2	5	6	1	.	.	.	16
-ESE-	1	1	.	.	.	.	.	.	.	.	2
-SE-	2	3	2	.	.	.	.	1	.	.	8
-SSE-	3	5	1	2	2	.	.	.	.	.	13
-S-	3	12	3	3	.	.	.	.	.	.	21
-SSW-	4	7	8	6	.	.	.	.	.	.	25
-SW-	4	15	9	6	2	.	2	1	.	.	39
-WSW-	8	7	2	1	.	1	4	1	1	2	27
-W-	4	7	1	.	.	.	.	1	1	3	17
-WNW-	3	5	.	2	.	.	1	4	2	.	17
-NW-	5	4	1	1	.	.	.	2	.	.	13
-NNW-	6	1	1	1	1	.	.	.	.	.	10
-CALM-	1	.	.	.	.	.	.	.	.	.	1
TOTAL	50	93	42	33	18	10	15	10	5	5	281

PASQUILL STABILITY D

	WIND SPEED CLASS										
	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	TOTAL
	NO.	NO.	NO.	NO.	NO.	NO.	NO.	NO.	NO.	NO.	NO.
SECTOR											
-N-	17	16	13	8	8	1	2	.	.	.	65
-NNE-	9	24	19	11	7	1	4	3	.	.	78
-NE-	5	12	26	27	18	5	9	2	.	.	104
-ENE-	1	22	22	40	43	27	17	5	8	5	190
-E-	2	5	6	13	15	5	.	1	.	.	47
-ESE-	3	9	6	8	2	.	1	.	.	.	29
-SE-	7	19	4	1	.	.	.	.	.	.	31
-SSE-	11	17	10	5	.	.	.	.	.	.	43
-S-	12	6	18	3	2	.	.	.	.	.	41
-SSW-	10	13	11	9	12	3	1	.	.	.	59
-SW-	16	15	15	12	4	4	2	1	.	.	69
-WSW-	10	15	13	7	7	7	2	2	1	.	64
-W-	11	3	3	2	2	6	5	1	1	.	34
-WNW-	3	6	3	1	3	3	5	4	4	3	35
-NW-	14	2	3	6	2	7	.	4	2	7	47
-NNW-	10	4	8	1	.	3	1	2	.	.	29
-CALM-	4	.	.	.	.	.	.	.	.	.	4
TOTAL	145	188	180	154	125	72	49	25	16	15	969

PASQUILL STABILITY E

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.	NO.
-N-	28	82	57	27	8	1	.	.	.	.	203
-NNE-	24	35	31	7	3	8	.	1	.	.	109
-NE-	6	24	27	27	21	4	1	.	.	.	110
-ENE-	2	21	27	40	14	10	1	2	.	.	117
-E-	3	15	16	11	4	.	.	.	.	.	49
-ESE-	5	11	8	3	.	.	.	.	.	.	27
-SE-	12	16	6	3	1	.	1	.	.	.	39
-SSE-	15	19	24	10	3	3	.	.	.	.	74
-S-	10	15	17	9	3	.	1	.	.	.	55
-SSW-	14	20	14	10	8	2	2	.	.	.	70
-SW-	12	11	51	23	18	4	.	.	.	.	119
-WSW-	13	25	27	29	17	13	2	.	.	.	126
-W-	13	18	4	7	11	7	1	2	1	.	64
-WNW-	15	18	5	8	11	4	3	3	.	.	67
-NW-	24	19	7	8	5	3	1	.	.	1	68
-NNW-	22	34	19	3	5	2	1	.	.	.	86
-CALM-	3	.	.	.	.	.	.	.	.	.	3
TOTAL	221	383	340	225	132	61	14	8	1	1	1386

PASQUILL STABILITY F

	WIND SPEED CLASS						
	0.45-1.49	1.50-2.49	2.50-3.49	3.50-4.49	4.50-5.49	5.50-6.49	TOTAL
SECTOR	NO.	NO.	NO.	NO.	NO.	NO.	NO.
-N-	36	55	52	12	3	.	158
-NNE-	13	37	16	5	.	.	71
-NE-	11	7	6	2	.	.	26
-ENE-	6	4	2	2	1	.	15
-E-	3	9	1	.	.	.	13
-ESE-	3	7	2	.	.	.	12
-SE-	1	5	3	.	.	.	9
-SSE-	4	5	.	2	.	.	11
-S-	5	2	6	8	.	.	21
-SSW-	6	4	1	4	1	.	16
-SW-	8	16	4	2	.	1	31
-WSW-	9	7	4	1	1	.	22
-W-	8	8	.	3	2	1	22
-WNW-	15	16	3	1	.	.	35
-NW-	23	14	4	4	.	.	45
-NNW-	31	26	9	2	1	.	69
-CALM-	2	.	.	.	.	.	2
TOTAL	184	222	113	48	9	2	578

PASQUILL STABILITY G

	WIND SPEED CLASS								
	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	TOTAL
	NO.	NO.	NO.	NO.	NO.	NO.	NO.	NO.	NO.
SECTOR									
-N-	19	29	21	2	1	.	.	.	72
-NNE-	9	9	5	3	.	.	.	.	26
-NE-	5	6	1	.	.	.	2	.	14
-ENE-	1	3	.	.	6	4	7	2	23
-E-	4	1	1	2	1	.	.	.	9
-ESE-	2	.	.	.	.	.	.	.	2
-SE-	3	1	.	.	.	.	.	.	4
-SSE-	2	1	1	.	.	.	.	.	4
-S-	1	1	2	.	.	.	.	.	4
-SSW-	5	2	1	1	.	.	.	.	9
-SW-	.	2	2	2	.	.	.	.	6
-WSW-	8	6	3	1	.	.	.	.	18
-W-	3	5	.	.	2	.	.	.	10
-WNW-	8	8	1	.	.	.	.	.	17
-NW-	9	4	2	1	.	.	.	.	16
-NNW-	6	11	7	1	1	.	.	.	26
TOTAL	85	89	47	13	11	4	9	2	260

ALL STABILITY CLASSES

	WIND SPEED CLASS										
	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	TOTAL
	NO.	NO.	NO.	NO.	NO.	NO.	NO.	NO.	NO.	NO.	NO.
SECTOR											
-N-	110	218	158	69	29	4	3	.	.	.	591
-NNE-	57	126	78	28	11	16	10	5	1	.	332
-NE-	30	67	70	62	43	9	12	2	.	.	295
-ENE-	10	58	69	94	74	49	31	9	8	5	407
-E-	15	38	32	32	30	12	1	1	.	.	161
-ESE-	14	35	20	13	2	.	1	.	.	.	85
-SE-	27	53	22	6	4	.	2	1	.	.	115
-SSE-	35	59	54	30	9	3	.	.	.	.	190
-S-	35	50	70	50	16	1	1	1	.	.	224
-SSW-	46	94	86	79	29	11	7	.	1	.	353
-SW-	47	96	107	57	37	19	6	5	1	.	375
-WSW-	54	86	60	45	28	24	8	4	3	2	314
-W-	48	53	12	13	17	14	6	4	5	5	177
-WNW-	49	57	12	14	18	7	10	15	12	11	205
-NW-	78	49	19	21	9	11	2	6	8	10	213
-NNW-	77	86	46	8	11	5	2	2	.	.	237
-CALM-	10	.	.	.	.	.	.	.	.	.	10
TOTAL	742	1225	915	621	367	185	102	55	39	33	4284

Duke Power Company
Oconee Nuclear Station

Attachment 4

Radioactive Gas and Liquid Monitors
Inoperable for Greater Than 30 Days

Radioactive Gas and Liquid Monitors Inoperable Greater Than 30 Days

1, 2, 3 RIA-35

RIA-35 for each unit has been inoperable during the entire reporting period, January 1, 1987 to June 30, 1987. These RIAs which monitor Low Pressure Service Water (LPSW) have been out of service for an extended period due to system design inadequacies. As presently configured, these monitors do not receive a sufficiently representative composite sample for all portions of the LPSW system. These monitors will be returned to service following implementation of a Nuclear Station Modification which will identify and resolve LPSW design difficulties.

Hot Machine Shop Ventilation Particulate and Iodine Samplers

The Particulate and Iodine Samplers for the Hot Machine Shop Ventilation System were out of service for the entire reporting period, January 1, 1987 to June 30, 1987. These Samplers have never operated reliably since initial attempts to place them in service, apparently due to design problems. Resolution is being pursued with site and corporate design engineers to determine the problems and provide corrective actions.

Radwaste Facility Ventilation Monitoring System

The Radwaste Facility Noble Gas Activity Monitor (4 RIA-45), the Iodine Sampler, the Particulate Sampler, the Effluent Flow Rate Monitor, and the Sampler Flow Rate Monitor were all out of service for the entire reporting period, January 1, to June 30, 1987. These instruments are all integrated into one system which has not operated satisfactorily since initial employment of the Radwaste Facility for radwaste processing. The design problems in this system will be resolved by a Nuclear Station Modification and the system will be put into service.