

RECEIVED MAR 07 1985

DUKE POWER COMPANY

P.O. BOX 33189
CHARLOTTE, N.C. 28242

HAL B. TUCKER
VICE PRESIDENT
NUCLEAR PRODUCTION

TELEPHONE
(704) 373-4531

March 1, 1985

Dr. J. Nelson Grace, Regional Administrator
U. S. Nuclear Regulatory Commission - Region II
101 Marietta Street NW, Suite 2900
Atlanta, Georgia 30323

Subject: McGuire Nuclear Station
Docket Nos. 50-369/370
Semi-Annual Radioactive Effluent
Release Report

Dear Sir:

Pursuant McGuire Nuclear Station's Technical Specification 6.9.1.7, attached is the Semi-Annual Radioactive Effluent Release Report for McGuire Nuclear Station, covering the period of July to December, 1984. The Report consists of five parts. Attachment I contains a summary of the solid, liquid, and gaseous wastes which were released from McGuire during the period, including dose assessments. Attachment II presents meteorological data for the calendar year 1984, in terms of a summary of joint frequency distributions of wind direction, wind speed, and atmospheric stability. Attachment III lists other reportable events that occurred during the period, which fall within the scope of this report. Attachment IV is Revision 5 of the Off-Site Dose Calculation Manual (ODCM), copy number 29. Also enclosed is copy number 22 of Duke Power Company's revised Process Control Program (PCP). This program manual is applicable to McGuire, Catawba (Docket Nos. 50-413/414) and Oconee (Docket Nos. 50-269/270/287, and replaces entirely existing control copies of the PCP. By copy of this letter, the resident inspectors at Catawba, McGuire, and Oconee will also receive copies (numbers 23, 24, and 25 respectively) of the Manual, as will the Office of Nuclear Reactor Regulation (Nos. 26-31).

If any additional information is desired, please call Scott Gewehr at (704)373-7581.

Please note also that Revision 4 of the Off-Site Dose Calculation Manual was transmitted to ONRR during this period, by letter of August 16, 1984 (H. B. Tucker to H. R. Denton).

As a result of radiation releases from McGuire Nuclear Station, no member of the public received an annual calculated dose exceeding those set forth in 40 CFR Part 190. This determination was made considering that there are no other fuel cycle facilities nearby which would significantly increase the dose to any member of the public.

Very truly yours,

H.B. Tucker

Hal B. Tucker

SAG/mjf

XA

*" 2nd Dist" Revid 10/2/85
IE25
" Original Dist omitted Attachment 5*

8503200025 850301
PDR ADOCK 05000369
PDR

Dr. J. Nelson Grace, Regional Administrator
March 1, 1985
Page -2-

cc: (w/Attachments I, II, III, Copies 1-10 of Attachment IV, and
Copies 26-31 of Enclosure):

Mr. Harold R. Denton
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

(w/Attachments I, II, III, Copy No. 30 of Attachment IV, Copy No. 24 of Encl.)

Mr. W. T. Orders
Senior Resident Inspector
McGuire Nuclear Station

(w/Attachments I, II, III, Copy No. 33 of Attachment IV, Copy No. 23 of Encl.)

P. H. Skinner
Resident Inspector
Catawba Nuclear Station

(w/Attachments I, II, III, Copy No. 41 of Attachment IV, Copy 25 of Enc)

J. C. Bryant
Resident Inspector
Oconee Nuclear Station

Dr. J. Nelson Grace, Regional Administrator
March 1, 1985
Page -3-

bcc: K. S. Canady
N. A. Rutherford
R. O. Sharpe
R. L. Gill
P. F. Guill
P. B. Nardoci
W. H. McDowell
J. B. Day
E. O. McCraw (MNS)
M. L. Birch
L. Lewis
J. M. Stewart
S. T. Apple
File: MC-801.02
File: MC-818.02

ATTACHMENT I

SUMMARY OF SOLID, LIQUID,
AND GASEOUS EFFLUENTS RELEASED

~~8503200035~~ 850301
PDR ADOCK 05000369
R PDR

MCCUIRE NUCLEAR STATION
EFFLUENT AND WASTE DISPOSAL SUPPLEMENTAL INFORMATION
REPORT DATE: 02/28/85
PERIOD COVERED: START DAY = 001 STOP DAY = 366

I. REGULATORY LIMITS

A. NOBLE GASES - AIR DOSE

1. CALENDAR QUARTER - GAMMA DOSE = 5 MRAD
2. CALENDAR QUARTER - BETA DOSE = 10 MRAD
3. CALENDAR YEAR - GAMMA DOSE = 10 MRAD
4. CALENDAR YEAR - BETA DOSE = 20 MRAD

B. LIQUID EFFLUENTS - DOSE

1. CALENDAR QUARTER - TOTAL BODY DOSE = 1.5 MREM
2. CALENDAR QUARTER - ORGAN DOSE = 5 MREM
3. CALENDAR YEAR - TOTAL BODY DOSE = 3 MREM
4. CALENDAR YEAR - ORGAN DOSE = 10 MREM

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

1. CALENDAR QUARTER = 7.5 MREM
2. CALENDAR YEAR = 15 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. $1.05E+03$ = TOTAL NUMBER OF BATCH RELEASES
2. $9.08E+04$ = TOTAL TIME(MIN.) FOR BATCH RELEASES.
3. $2.31E+03$ = MAXIMUM TIME(MIN.) FOR A BATCH RELEASE.
4. $7.71E+01$ = AVERAGE TIME(MIN.) FOR A BATCH RELEASE.
5. $1.00E+00$ = MINIMUM TIME(MIN.) FOR A BATCH RELEASE.
6. $1.16E+08$ = AVERAGE DILUTION WATER FLOW DURING RELEASES(GPM).

B. GASEOUS EFFLUENT

1. $6.63E+02$ = TOTAL NUMBER OF BATCH RELEASES.
2. $1.06E+06$ = TOTAL TIME(MIN.) FOR BATCH RELEASES.
3. $4.46E+04$ = MAXIMUM TIME(MIN.) FOR A BATCH RELEASE.
4. $1.60E+03$ = AVERAGE TIME(MIN.) FOR A BATCH RELEASE.
5. $1.00E+00$ = MINIMUM TIME(MIN.) FOR A BATCH RELEASE.

VI. ABNORMAL RELEASES

A. LIQUID

1. NUMBER OF RELEASES 0
2. TOTAL ACTIVITY RELEASED(CURIES) 0.0

B. GASEOUS

1. NUMBER OF RELEASES 2
2. TOTAL ACTIVITY RELEASED(CURIES) 26.52

Summary of Major Radionuclide Composition

Type of Wastes

<u>Type of Wastes</u>	<u>Radionuclide</u>	<u>% Abundance</u>
1. Wastes from Liquid Systems		
(A) Dewatered Powdex Resins	(none shipped this period)	
(B) Dewatered Bead Resins	Mn-54	3.9
	Co-57	0.15
	Co-58	38.3
	Co-60	21.8
	Nb-95	< .01
	Cs-134	1.7
	Cs-137	2.7
	C-14	< .01
	H-3	0.3
	Ni-63	30.8
	Sr-90	< .01
	Pn-241	< .01
	TRU	< .01
	Cm-242	< .01
(C) Evaporator Concentrates	(none shipped this period)	
(D) Dewatered Mechanical Filters	Cr-51	6.9
	Mn-54	20.0
	Co-58	22.9
	Co-60	24.8
	Nb-95	2.2
	Fe-59	1.0
	Ag-110m	1.9
	Zr-95	1.8
	C-14	< .01
	H-3	< .01
	Ni-63	18.5

Summary of Major Radionuclide Composition (Continued)

	<u>Radionuclide</u>	<u>% Abundance</u>
(E) Dewatered Mineralizers	(none shipped this period)	
2. Dry Solid Waste		
(A) Dry Active Waste	Zr-95	1.0
(compacted & non-compacted)	Ni-63	0.7
	Sr-90	.08
	Co-60	32.0
	Mn-54	5.0
	Co-58	13.5
	Nb-95	2.0
	C-14	45.8
(B) Irradiated Components	(none shipped this period)	

MCUIRE NUCLEAR STATION
 RADIOACTIVE EFFLUENT RELEASES
 DATE : 02/29/85

I. LIQUID RELEASES

	UNITS	1ST QTR	2ND QTR	3RD QTR	4TH QTR	YEAR : 1984 TOTAL
1. GROSS RADIOACTIVITY						
A. TOTAL RELEASE	CURIES	2.22E+00	3.39E-01	3.09E-01	1.54E-01	3.02E+00
B. AVERAGE CONCENTRATION RELEASED	UCI/ML	4.01E-09	4.26E-10	3.28E-10	1.74E-10	9.50E-10
C. MAXIMUM CONCENTRATION RELEASED	UCI/ML	2.81E-08	4.84E-09	3.57E-09	2.08E-09	2.81E-08
2. TRITIUM						
A. TOTAL RELEASE	CURIES	1.14E+02	1.05E+02	1.59E+02	2.70E+02	6.47E+02
B. AVERAGE CONCENTRATION RELEASED	UCI/ML	2.06E-07	1.31E-07	1.69E-07	3.04E-07	2.04E-07
3. DISSOLVED NOBLE GASES						
A. TOTAL RELEASE	CURIES	1.63E-01	1.19E-02	1.43E-02	1.10E-02	2.00E-01
B. AVERAGE CONCENTRATION RELEASED	UCI/ML	2.95E-10	1.49E-11	1.52E-11	1.24E-11	6.30E-11
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	4.78E+06	4.39E+06	4.88E+06	6.52E+06	2.06E+07
6. VOLUME OF DILUTION WATER	LITERS	5.52E+11	7.96E+11	9.41E+11	8.86E+11	3.18E+12
7. RADIONUCLIDES RELEASED	CURIES					
NA-24		1.36E-03	1.34E-02	7.10E-05	7.78E-03	2.26E-02
CR-51		6.26E-02	1.43E-02	1.63E-02	3.41E-04	9.36E-02
MN-54		2.21E-02	5.14E-03	3.75E-03	2.16E-03	3.32E-02
FE-55		1.38E+00	1.19E-01	6.31E-02	8.77E-03	1.57E+00
FE-59		1.84E-02	3.65E-03	2.25E-03	1.35E-05	2.43E-02
CO-58		3.47E-01	1.23E-01	1.50E-01	8.57E-02	7.13E-01
CO-60		1.41E-01	3.41E-02	3.89E-02	2.49E-02	2.39E-01
NI-65		0.00E+00	2.00E-05	0.00E+00	5.45E-07	2.05E-05
CU-64		0.00E+00	0.00E+00	0.00E+00	2.61E-06	2.61E-06
ZN-65		2.28E-03	2.34E-04	5.05E-05	1.03E-06	2.56E-03
BR-84		0.00E+00	0.00E+00	0.00E+00	2.19E-06	2.19E-06
RB-88		1.35E-02	0.00E+00	1.45E-04	2.48E-04	1.39E-02
SR-89		1.37E-04	7.01E-06	7.24E-06	2.63E-05	1.78E-04
SR-90		7.75E-08	0.00E+00	0.00E+00	0.00E+00	7.75E-08
SR-92		2.20E-02	1.62E-03	1.08E-03	4.21E-07	2.47E-02
Y-91M		0.00E+00	4.69E-06	1.05E-05	0.00E+00	1.52E-05
Y-92		0.00E+00	3.72E-05	0.00E+00	0.00E+00	3.72E-05
ZR-95		2.65E-03	9.72E-04	9.47E-04	1.37E-05	4.58E-03
NB-95		1.15E-02	3.61E-03	2.41E-03	1.35E-04	1.77E-02
MO-99		0.00E+00	0.00E+00	0.00E+00	1.10E-04	1.10E-04
TC-99M		7.15E-04	5.39E-06	3.69E-06	1.04E-04	8.28E-04
RU-103		4.64E-05	0.00E+00	0.00E+00	0.00E+00	4.64E-05
RU-106		4.72E-03	0.00E+00	2.24E-04	0.00E+00	5.70E-03
AG-110M		4.54E-02	4.19E-03	2.73E-03	0.00E+00	5.23E-02
TE-129M		0.00E+00	0.00E+00	0.00E+00	4.25E-06	4.25E-06
TE-132		2.97E-04	0.00E+00	0.00E+00	0.00E+00	2.97E-04
I-131		7.04E-02	3.43E-03	1.16E-02	1.41E-02	9.95E-02
I-132		1.77E-03	0.00E+00	5.29E-05	8.80E-05	1.91E-03
I-133		3.23E-02	1.41E-03	3.46E-03	3.84E-03	4.10E-02
I-135		1.01E-02	6.38E-05	3.23E-04	1.11E-03	1.16E-02
CS-134		1.08E-02	4.24E-03	1.04E-03	2.02E-03	1.81E-02
CS-136		1.17E-04	0.00E+00	0.00E+00	9.10E-05	2.08E-04
CS-137		1.49E-02	5.93E-03	1.97E-03	3.01E-03	2.58E-02
CS-138		1.26E-04	0.00E+00	0.00E+00	0.00E+00	1.26E-04
BA-139		0.00E+00	8.75E-04	0.00E+00	0.00E+00	8.75E-04
LA-140		3.04E-03	5.62E-05	1.90E-04	4.27E-04	3.71E-03
CE-141		7.32E-06	5.24E-06	4.29E-06	7.95E-06	2.48E-05
CE-144		2.32E-05	0.00E+00	0.00E+00	0.00E+00	2.32E-05
PR-144		4.19E-04	0.00E+00	0.00E+00	0.00E+00	4.19E-04
NP-239		1.25E-03	0.00E+00	0.00E+00	0.00E+00	1.25E-03
AR-41		2.81E-04	1.05E-04	8.28E-05	1.40E-05	4.82E-04
KR-85M		0.00E+00	9.24E-06	0.00E+00	0.00E+00	9.24E-06
KR-85		0.00E+00	4.09E-05	5.75E-04	0.00E+00	6.15E-04
KR-87		0.00E+00	1.13E-06	0.00E+00	3.52E-06	4.65E-06
XE-131M		0.00E+00	0.00E+00	4.03E-05	1.20E-04	1.61E-04
XE-133M		7.01E-04	0.00E+00	0.00E+00	2.52E-05	7.26E-04
XE-133		1.21E-01	1.11E-02	1.32E-02	1.02E-02	1.56E-01
XE-135		4.02E-02	6.10E-04	4.21E-04	6.06E-04	4.19E-02

MCGUIRE NUCLEAR STATION
UNIT 1
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	1.11E+00	1.70E-01	1.54E-01	7.71E-02	1.51E+00
B. AVERAGE CONCENTRATION RELEASED	UCI/ML	2.01E-09	2.13E-10	1.64E-10	8.70E-11	4.75E-10
C. MAXIMUM CONCENTRATION RELEASED	UCI/ML	2.81E-08	4.84E-09	3.57E-09	2.08E-09	2.81E-08
2. TRITIUM						
A. TOTAL RELEASE	CURIES	5.68E+01	5.23E+01	7.95E+01	1.35E+02	3.23E+02
B. AVERAGE CONCENTRATION RELEASED	UCI/ML	1.03E-07	6.57E-08	8.45E-08	1.52E-07	1.02E-07
3. DISSOLVED NOBLE GASES						
A. TOTAL RELEASE	CURIES	8.14E-02	5.95E-03	7.17E-03	5.50E-03	1.00E-01
B. AVERAGE CONCENTRATION RELEASED	UCI/ML	1.47E-10	7.47E-12	7.62E-12	6.21E-12	3.15E-11
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	2.39E+06	2.20E+06	2.44E+06	3.26E+06	1.03E+07
6. VOLUME OF DILUTION WATER	LITERS	5.52E+11	7.96E+11	9.41E+11	8.86E+11	3.18E+12
7. RADIONUCLIDES RELEASED	CURIES					
NA-24		6.78E-04	6.68E-03	3.55E-05	3.89E-03	1.13E-02
CR-51		3.13E-02	7.16E-03	8.16E-03	1.70E-04	4.68E-02
MN-54		1.11E-02	2.57E-03	1.87E-03	1.09E-03	1.66E-02
FE-55		6.88E-01	5.96E-02	3.15E-02	4.39E-03	7.83E-01
FE-59		9.18E-03	1.83E-03	1.12E-03	6.75E-06	1.21E-02
CO-58		1.73E-01	6.14E-02	7.92E-02	4.28E-02	3.57E-01
CO-60		7.04E-02	1.71E-02	1.94E-02	1.24E-02	1.19E-01
NI-65		0.00E+00	9.99E-06	0.00E+00	2.72E-07	1.03E-05
CU-64		0.00E+00	0.00E+00	0.00E+00	1.31E-06	1.31E-06
ZN-65		1.14E-03	1.17E-04	2.52E-05	5.15E-07	1.28E-03
BR-84		0.00E+00	0.00E+00	0.00E+00	1.09E-06	1.09E-06
RB-88		6.76E-03	0.00E+00	7.26E-05	1.24E-04	6.96E-03
SR-89		6.87E-05	3.50E-06	3.62E-06	1.32E-05	8.89E-05
SR-90		3.88E-08	0.00E+00	0.00E+00	0.00E+00	3.88E-08
SR-92		1.10E-02	8.12E-04	5.40E-04	2.11E-07	1.24E-02
Y-91M		0.00E+00	2.35E-06	5.25E-06	0.00E+00	7.59E-06
Y-92		0.00E+00	1.86E-05	0.00E+00	0.00E+00	1.86E-05
ZR-95		1.33E-03	4.86E-04	4.73E-04	6.87E-06	2.29E-03
NB-95		5.76E-03	1.80E-03	1.20E-03	6.77E-05	8.83E-03
MO-99		0.00E+00	0.00E+00	0.00E+00	5.51E-05	5.51E-05
TC-99M		3.57E-04	2.69E-06	1.85E-06	5.22E-05	4.14E-04
RU-103		2.32E-05	0.00E+00	0.00E+00	0.00E+00	2.32E-05
RU-106		2.36E-03	0.00E+00	1.12E-04	3.76E-04	2.85E-03
AG-110M		2.27E-02	2.10E-03	1.36E-03	0.00E+00	2.62E-02
TE-129M		0.00E+00	0.00E+00	0.00E+00	2.12E-06	2.12E-06
TE-132		1.48E-04	0.00E+00	0.00E+00	0.00E+00	1.48E-04
I-131		3.52E-02	1.71E-03	5.79E-03	7.04E-03	4.98E-02
I-132		8.85E-04	0.00E+00	2.64E-05	4.40E-05	9.56E-04
I-133		1.61E-02	7.03E-04	1.73E-03	1.92E-03	2.05E-02
I-135		5.04E-03	3.19E-05	1.62E-04	5.57E-04	5.79E-03
CS-134		5.40E-03	2.12E-03	5.21E-04	1.01E-03	9.05E-03
CS-136		5.83E-05	0.00E+00	0.00E+00	4.55E-05	1.04E-04
CS-137		7.45E-03	2.96E-03	9.87E-04	1.50E-03	1.29E-02
CS-138		6.28E-05	0.00E+00	0.00E+00	0.00E+00	6.28E-05
BA-139		0.00E+00	4.37E-04	0.00E+00	0.00E+00	4.37E-04
LA-140		1.52E-03	2.81E-05	9.51E-05	2.13E-04	1.86E-03
CE-141		3.66E-06	2.62E-06	2.14E-06	3.97E-06	1.24E-05
CE-144		1.16E-05	0.00E+00	0.00E+00	0.00E+00	1.16E-05
PR-144		2.10E-04	0.00E+00	0.00E+00	0.00E+00	2.10E-04
NP-239		6.24E-04	0.00E+00	0.00E+00	0.00E+00	6.24E-04
AR-41		1.40E-04	5.23E-05	4.14E-05	7.01E-06	2.41E-04
KR-85M		0.00E+00	4.62E-06	0.00E+00	0.00E+00	4.62E-06
KR-85		0.00E+00	2.05E-05	2.87E-04	0.00E+00	3.08E-04
KR-87		0.00E+00	5.67E-07	0.00E+00	1.76E-06	2.32E-06
XE-131M		0.00E+00	0.00E+00	2.01E-05	6.02E-05	8.03E-05
XE-133M		3.51E-04	0.00E+00	0.00E+00	1.26E-05	3.63E-04
XE-139		6.07E-02	5.57E-03	6.61E-03	5.12E-03	7.80E-02
XE-135		2.01E-02	3.05E-04	2.10E-04	3.03E-04	2.09E-02

MCGUIRE NUCLEAR STATION
UNIT 2
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	1.11E+00	1.70E-01	1.54E-01	7.71E-02	1.51E+00
B. AVERAGE CONCENTRATION RELEASED	UCI/ML	2.01E-09	2.13E-10	1.64E-10	8.70E-11	4.75E-10
C. MAXIMUM CONCENTRATION RELEASED	UCI/ML	2.81E-08	4.84E-09	3.57E-09	2.08E-09	2.81E-08
2. TRITIUM						
A. TOTAL RELEASE	CURIES	5.68E+01	5.23E+01	7.95E+01	1.35E+02	3.23E+02
B. AVERAGE CONCENTRATION RELEASED	UCI/ML	1.03E-07	6.57E-08	8.45E-08	1.52E-07	1.02E-07
3. DISSOLVED NOBLE GASES						
A. TOTAL RELEASE	CURIES	8.14E-02	5.95E-03	7.17E-03	5.50E-03	1.00E-01
B. AVERAGE CONCENTRATION RELEASED	UCI/ML	1.47E-10	7.47E-12	7.62E-12	6.21E-12	3.15E-11
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	2.39E+06	2.20E+06	2.44E+06	3.26E+06	1.03E+07
6. VOLUME OF DILUTION WATER	LITERS	5.52E+11	7.96E+11	9.41E+11	8.86E+11	3.18E+12
7. RADIONUCLIDES RELEASED	CURIES					
NA-24		6.78E-04	6.68E-03	3.55E-05	3.89E-03	1.13E-02
CR-51		3.13E-02	7.16E-03	8.16E-03	1.70E-04	4.68E-02
MN-54		1.11E-02	2.57E-03	1.87E-03	1.08E-03	1.66E-02
FE-55		6.89E-01	5.96E-02	3.15E-02	4.39E-03	7.83E-01
FE-59		9.18E-03	1.83E-03	1.12E-03	6.75E-06	1.21E-02
CO-58		1.73E-01	6.14E-02	7.92E-02	4.28E-02	3.57E-01
CO-60		7.04E-02	1.71E-02	1.94E-02	1.24E-02	1.19E-01
NI-65		0.00E+00	9.99E-06	0.00E+00	2.72E-07	1.03E-05
CU-64		0.00E+00	0.00E+00	0.00E+00	1.31E-06	1.31E-06
ZN-65		1.14E-03	1.17E-04	2.52E-05	5.15E-07	1.28E-03
BR-84		0.00E+00	0.00E+00	0.00E+00	1.09E-06	1.09E-06
RB-88		6.76E-03	0.00E+00	7.26E-05	1.24E-04	6.96E-03
SR-89		6.87E-05	3.50E-06	3.62E-06	1.32E-05	8.89E-05
SR-90		3.88E-08	0.00E+00	0.00E+00	0.00E+00	3.88E-08
SR-92		1.10E-02	8.12E-04	5.40E-04	2.11E-07	1.24E-02
Y-91M		0.00E+00	2.35E-06	5.25E-06	0.00E+00	7.59E-06
Y-92		0.00E+00	1.86E-05	0.00E+00	0.00E+00	1.86E-05
ZR-95		1.33E-03	4.86E-04	4.73E-04	6.87E-06	2.29E-03
NB-95		5.76E-03	1.80E-03	1.20E-03	6.77E-05	8.83E-03
MO-99		0.00E+00	0.00E+00	0.00E+00	5.51E-05	5.51E-05
TC-99M		3.57E-04	2.69E-06	1.85E-06	5.22E-05	4.14E-04
RU-103		2.32E-05	0.00E+00	0.00E+00	0.00E+00	2.32E-05
RU-106		2.36E-03	0.00E+00	1.12E-04	3.76E-04	2.85E-03
AG-110M		2.27E-02	2.10E-03	1.36E-03	0.00E+00	2.62E-02
TE-129M		0.00E+00	0.00E+00	0.00E+00	2.12E-06	2.12E-06
TE-132		1.48E-04	0.00E+00	0.00E+00	0.00E+00	1.48E-04
I-131		3.52E-02	1.71E-03	5.79E-03	7.04E-03	4.98E-02
I-132		8.85E-04	0.00E+00	2.64E-05	4.40E-05	9.56E-04
I-133		1.61E-02	7.03E-04	1.73E-03	1.92E-03	2.05E-02
I-135		5.04E-03	3.19E-05	1.62E-04	5.57E-04	5.79E-03
CS-134		5.40E-03	2.12E-03	5.21E-04	1.01E-03	9.05E-03
CS-136		5.83E-05	0.00E+00	0.00E+00	4.55E-05	1.04E-04
CS-137		7.45E-03	2.96E-03	9.87E-04	1.50E-03	1.29E-02
CS-138		6.28E-05	0.00E+00	0.00E+00	0.00E+00	6.28E-05
BA-139		0.00E+00	4.37E-04	0.00E+00	0.00E+00	4.37E-04
LA-140		1.52E-03	2.81E-05	9.51E-05	2.13E-04	1.86E-03
CE-141		3.66E-06	2.62E-06	2.14E-06	3.97E-06	1.24E-05
CE-144		1.16E-05	0.00E+00	0.00E+00	0.00E+00	1.16E-05
PR-144		2.10E-04	0.00E+00	0.00E+00	0.00E+00	2.10E-04
NP-239		6.24E-04	0.00E+00	0.00E+00	0.00E+00	6.24E-04
AR-41		1.40E-04	5.23E-05	4.14E-05	7.01E-06	2.41E-04
KR-85M		0.00E+00	4.62E-06	0.00E+00	0.00E+00	4.62E-06
KR-85		0.00E+00	2.05E-05	2.87E-04	0.00E+00	3.08E-04
KR-87		0.00E+00	5.67E-07	0.00E+00	1.76E-06	2.32E-06
XE-131M		0.00E+00	0.00E+00	2.01E-05	6.02E-05	8.03E-05
XE-133M		3.51E-04	0.00E+00	0.00E+00	1.26E-05	3.63E-04
XE-133		6.07E-02	5.57E-03	6.61E-03	5.12E-03	7.80E-02
XE-135		2.01E-02	3.05E-04	2.10E-04	3.03E-04	2.09E-02

MCGUIRE LIQUID DOSE- 1ST QTR '84 RELEASES- 2/26/85 / Per Unit

00000010

SKIN	MAXIMUM DOSE-	3.85D-03 MREM	CRITICAL AGE-	TEEN	CRITICAL PATHWAY-	SHORE
	CO 60	85.43 %				
BONE	MAXIMUM DOSE-	6.82D-02 MREM	CRITICAL AGE-	CHILD	CRITICAL PATHWAY-	FISH
	FE 55	14.81 %				
	CS 134	28.06 %				
	CS 137	55.33 %				
LIVER	MAXIMUM DOSE-	8.84D-02 MREM	CRITICAL AGE-	TEEN	CRITICAL PATHWAY-	FISH
	CS 134	41.44 %				
	CS 137	44.30 %				
T. BODY	MAXIMUM DOSE-	6.21D-02 MREM	CRITICAL AGE-	ADULT	CRITICAL PATHWAY-	FISH
	H 3	7.76 %				
	CS 134	47.57 %				
	CS 137	39.63 %				
THYROID	MAXIMUM DOSE-	5.93D-02 MREM	CRITICAL AGE-	INFANT	CRITICAL PATHWAY-	DRINKING
	H 3	10.49 %				
	I 131	88.49 %				
KIDNEY	MAXIMUM DOSE-	3.24D-02 MREM	CRITICAL AGE-	TEEN	CRITICAL PATHWAY-	FISH
	H 3	10.52 %				
	CO 60	8.64 %				
	CS 134	36.11 %				
	CS 137	41.47 %				
LUNG	MAXIMUM DOSE-	1.90D-02 MREM	CRITICAL AGE-	TEEN	CRITICAL PATHWAY-	FISH
	H 3	17.95 %				
	FE 55	13.83 %				
	CO 60	14.74 %				
	CS 134	23.74 %				
	CS 137	27.95 %				
GI-LLI	MAXIMUM DOSE-	7.67D-02 MREM	CRITICAL AGE-	ADULT	CRITICAL PATHWAY-	FISH
	H 3	6.28 %				
	CO 58	5.25 %				
	CO 60	7.70 %				
	NB 95	70.43 %				

MCGUIRE LIQUID DOSE- 2ND QTR '84 RELEASES- 2/26/85/ Per Unit

00000010

SKIN	MAXIMUM DOSE-	6.69D-04 MREM	CRITICAL AGE-	TEEN	CRITICAL PATHWAY-	SHORE
	CO 60	82.92 %				
	CS 137	6.86 %				
BONE	MAXIMUM DOSE-	1.64D-02 MREM	CRITICAL AGE-	CHILD	CRITICAL PATHWAY-	FISH
	CS 134	31.96 %				
	CS 137	63.36 %				
LIVER	MAXIMUM DOSE-	2.40D-02 MREM	CRITICAL AGE-	TEEN	CRITICAL PATHWAY-	FISH
	H 3	9.06 %				
	CS 134	41.77 %				
	CS 137	44.90 %				
T. BODY	MAXIMUM DOSE-	1.84D-02 MREM	CRITICAL AGE-	ADULT	CRITICAL PATHWAY-	FISH
	H 3	16.75 %				
	CS 134	44.04 %				
	CS 137	36.89 %				
THYROID	MAXIMUM DOSE-	6.24D-03 MREM	CRITICAL AGE-	INFANT	CRITICAL PATHWAY-	DRINKING
	H 3	63.70 %				
	I 131	35.88 %				
KIDNEY	MAXIMUM DOSE-	1.02D-02 MREM	CRITICAL AGE-	CHILD	CRITICAL PATHWAY-	FISH
	H 3	40.29 %				
	CS 134	26.20 %				
	CS 137	31.89 %				
LUNG	MAXIMUM DOSE-	6.53D-03 MREM	CRITICAL AGE-	CHILD	CRITICAL PATHWAY-	DRINKING
	H 3	62.76 %				
	CS 134	14.68 %				
	CS 137	17.96 %				
GI-LLI	MAXIMUM DOSE-	1.91D-02 MREM	CRITICAL AGE-	ADULT	CRITICAL PATHWAY-	FISH
	H 3	16.08 %				
	CO 58	5.50 %				
	CO 60	5.21 %				
	NB 95	68.06 %				

MCGUIRE LIQUID DOSE- 3RD QTR '84 RELEASES- 2/26/85 / Per Unit

00000010

SKIN	MAXIMUM DOSE-	6.01D-04 MREM	CRITICAL AGE-	TEEN	CRITICAL PATHWAY-	SHORE
	CO 58	5.66 %				
	CO 60	89.78 %				
BONE	MAXIMUM DOSE-	4.49D-03 MREM	CRITICAL AGE-	CHILD	CRITICAL PATHWAY-	FISH
	FE 55	6.15 %				
	CS 134	24.63 %				
	CS 137	66.10 %				
LIVER	MAXIMUM DOSE-	1.05D-02 MREM	CRITICAL AGE-	CHILD	CRITICAL PATHWAY-	DRINKING
	H 3	51.09 %				
	CS 134	17.35 %				
	CS 137	27.17 %				
T. BODY	MAXIMUM DOSE-	8.02D-03 MREM	CRITICAL AGE-	ADULT	CRITICAL PATHWAY-	DRINKING
	H 3	49.94 %				
	CS 134	21.26 %				
	CS 137	24.11 %				
THYROID	MAXIMUM DOSE-	1.24D-02 MREM	CRITICAL AGE-	INFANT	CRITICAL PATHWAY-	DRINKING
	H 3	41.93 %				
	I 131	57.56 %				
KIDNEY	MAXIMUM DOSE-	6.98D-03 MREM	CRITICAL AGE-	CHILD	CRITICAL PATHWAY-	DRINKING
	H 3	76.52 %				
	CS 134	8.06 %				
	CS 137	13.28 %				
LUNG	MAXIMUM DOSE-	6.07D-03 MREM	CRITICAL AGE-	CHILD	CRITICAL PATHWAY-	DRINKING
	H 3	87.98 %				
	CS 137	5.52 %				
GI-LLI	MAXIMUM DOSE-	1.43D-02 MREM	CRITICAL AGE-	ADULT	CRITICAL PATHWAY-	FISH
	H 3	27.96 %				
	CO 58	8.29 %				
	CO 60	6.76 %				
	NB 95	53.89 %				

MCGUIRE LIQUID DOSE- 4TH QTR '84 RELEASES- 2/26/85/Per Unit

00000010

SKIN	MAXIMUM DOSE-	4.18D-04 MREM	CRITICAL AGE-	TEEN	CRITICAL PATHWAY-	SHORE
	CO 60	87.54 %				
	CS 137	5.06 %				
BONE	MAXIMUM DOSE-	7.20D-03 MREM	CRITICAL AGE-	CHILD	CRITICAL PATHWAY-	FISH
	CS 134	31.55 %				
	CS 137	66.44 %				
LIVER	MAXIMUM DOSE-	1.81D-02 MREM	CRITICAL AGE-	CHILD	CRITICAL PATHWAY-	DRINKING
	H 3	52.99 %				
	CS 134	20.53 %				
	CS 137	25.22 %				
T. BODY	MAXIMUM DOSE-	1.41D-02 MREM	CRITICAL AGE-	ADULT	CRITICAL PATHWAY-	DRINKING
	H 3	51.28 %				
	CS 134	24.91 %				
	CS 137	22.16 %				
THYROID	MAXIMUM DOSE-	1.83D-02 MREM	CRITICAL AGE-	INFANT	CRITICAL PATHWAY-	DRINKING
	H 3	51.08 %				
	I 131	48.54 %				
KIDNEY	MAXIMUM DOSE-	1.24D-02 MREM	CRITICAL AGE-	CHILD	CRITICAL PATHWAY-	DRINKING
	H 3	77.63 %				
	CS 134	9.33 %				
	CS 137	12.06 %				
LUNG	MAXIMUM DOSE-	1.07D-02 MREM	CRITICAL AGE-	CHILD	CRITICAL PATHWAY-	DRINKING
	H 3	90.25 %				
	CS 137	5.07 %				
GI-LLI	MAXIMUM DOSE-	1.03D-02 MREM	CRITICAL AGE-	CHILD	CRITICAL PATHWAY-	DRINKING
	H 3	92.95 %				

MCGUIRE LIQUID DOSE- TOTAL 1984 RELEASES PER UNIT- 2/26/85

00000010

SKIN	MAXIMUM DOSE-	4.54D-03 MREM	CRITICAL AGE-	TEEN	CRITICAL PATHWAY-	SHORE
	CO 60	85.79 %				
BONE	MAXIMUM DOSE-	7.76D-02 MREM	CRITICAL AGE-	CHILD	CRITICAL PATHWAY-	FISH
	FE 55	10.40 %				
	CS 134	29.06 %				
	CS 137	58.82 %				
LIVER	MAXIMUM DOSE-	1.13D-01 MREM	CRITICAL AGE-	CHILD	CRITICAL PATHWAY-	FISH
	H 3	22.53 %				
	CS 134	32.64 %				
	CS 137	38.55 %				
T. BODY	MAXIMUM DOSE-	8.71D-02 MREM	CRITICAL AGE-	ADULT	CRITICAL PATHWAY-	FISH
	H 3	22.00 %				
	CS 134	39.97 %				
	CS 137	34.18 %				
THYROID	MAXIMUM DOSE-	9.10D-02 MREM	CRITICAL AGE-	INFANT	CRITICAL PATHWAY-	DRINKING
	H 3	27.23 %				
	I 131	71.94 %				
KIDNEY	MAXIMUM DOSE-	5.28D-02 MREM	CRITICAL AGE-	CHILD	CRITICAL PATHWAY-	DRINKING
	H 3	48.40 %				
	CS 134	21.75 %				
	CS 137	27.04 %				
LUNG	MAXIMUM DOSE-	3.81D-02 MREM	CRITICAL AGE-	CHILD	CRITICAL PATHWAY-	DRINKING
	H 3	67.08 %				
	FE 55	6.36 %				
	CS 134	10.85 %				
	CS 137	13.54 %				
GI-LLI	MAXIMUM DOSE-	1.04D-01 MREM	CRITICAL AGE-	ADULT	CRITICAL PATHWAY-	FISH
	H 3	18.40 %				
	CO 58	5.92 %				
	CO 60	6.71 %				
	NB 95	61.74 %				

MCGUIRE 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	1.76E+03	8.13E+02	7.07E+02	1.28E+03	4.56E+03
2. TOTAL HALOGENS	CURIES	2.71E-03	3.27E-03	8.73E-03	9.61E-03	2.43E-02
3. TOTAL PARTICULATE GROSS BETA-GAMMA	CURIES	5.69E-06	1.10E-05	3.41E-04	1.96E-04	5.53E-04
4. TOTAL TRITIUM	CURIES	3.13E+00	1.01E+01	6.09E+00	1.03E+01	2.95E+01
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	7.40E-09	0.00E+00	2.04E-09	3.51E-08	4.45E-08
MN-54	5.54E-06	0.00E+00	6.41E-06	6.83E-06	1.88E-05
CO-58	1.19E-07	6.37E-06	2.46E-04	4.30E-05	2.95E-04
CO-60	0.00E+00	0.00E+00	6.20E-05	8.32E-09	6.20E-05
SR-89	0.00E+00	0.00E+00	3.11E-09	2.84E-08	3.15E-08
NB-95	0.00E+00	0.00E+00	0.00E+00	4.90E-10	4.90E-10
MO-99	0.00E+00	0.00E+00	0.00E+00	7.25E-09	7.25E-09
RU-106	0.00E+00	0.00E+00	0.00E+00	4.39E-08	4.39E-08
CS-134	3.04E-09	2.23E-09	5.25E-06	3.31E-05	3.84E-05
CS-136	5.62E-10	0.00E+00	0.00E+00	9.62E-09	1.02E-08
CS-137	1.59E-08	4.65E-06	1.42E-05	1.02E-04	1.21E-04
CE-141	0.00E+00	0.00E+00	1.34E-06	2.03E-08	1.34E-06
CE-144	2.11E-09	0.00E+00	5.33E-06	9.85E-06	1.52E-05

HALOGENS

I-131	2.26E-03	1.79E-03	6.25E-03	6.97E-03	1.73E-02
I-133	4.49E-04	1.49E-03	2.49E-03	2.63E-03	7.05E-03

GASES

KR-85M	3.05E+00	7.80E-01	6.07E-01	1.21E+00	5.65E+00
KR-85	9.54E+00	2.36E+00	3.48E+00	8.73E+00	2.41E+01
KR-87	2.55E-01	2.18E-02	3.08E-02	1.80E-01	4.87E-01
KR-98	1.62E+00	5.60E-02	2.33E-01	7.06E-01	2.62E+00
XE-131M	6.85E+00	1.09E+00	4.10E+00	7.58E+00	1.96E+01
XE-133M	1.64E+01	1.56E+01	6.71E+00	1.10E+01	4.97E+01
XE-133	1.65E+03	7.61E+02	6.67E+02	1.21E+03	4.29E+03
XE-135M	2.53E-03	0.00E+00	6.00E-04	1.14E-04	3.24E-03
XE-135	4.71E+01	1.37E+01	1.28E+01	2.13E+01	9.49E+01
XE-137	1.53E-01	0.00E+00	0.00E+00	0.00E+00	1.53E-01
AR-41	2.64E+01	1.27E+01	1.15E+01	1.83E+01	6.90E+01

MCGUIRE NUCLEAR STATION
UNIT 1
RADIOACTIVE EFFLUENT RELEASES
DATE : 02/28/85

II. AIRBORNE RELEASES

YEAR : 1984
TOTAL

	UNITS	1ST QTR	2ND QTR	3RD QTR	4TH QTR	TOTAL
1. TOTAL NOBLE GASES	CURIES	8.79E+02	4.06E+02	3.53E+02	6.42E+02	2.28E+03
2. TOTAL HALOGENS	CURIES	1.35E-03	1.64E-03	4.37E-03	4.81E-03	1.22E-02
3. TOTAL PARTICULATE GROSS BETA-GAMMA	CURIES	2.84E-06	5.51E-06	1.71E-04	9.78E-05	2.77E-04
4. TOTAL TRITIUM	CURIES	1.57E+00	5.03E+00	3.05E+00	5.13E+00	1.48E+01
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		3.70E-09	0.00E+00	1.02E-09	1.75E-09	2.23E-08
MN-54		2.77E-06	0.00E+00	3.21E-06	3.42E-06	9.39E-06
CO-58		5.93E-08	3.19E-06	1.23E-04	2.15E-05	1.48E-04
CO-60		0.00E+00	0.00E+00	3.10E-05	4.16E-09	3.10E-05
SR-89		0.00E+00	0.00E+00	1.56E-09	1.42E-09	1.58E-08
NB-95		0.00E+00	0.00E+00	0.00E+00	2.45E-10	2.45E-10
MO-99		0.00E+00	0.00E+00	0.00E+00	3.63E-09	3.63E-09
RU-106		0.00E+00	0.00E+00	0.00E+00	2.19E-08	2.19E-08
CS-134		1.52E-09	1.11E-09	2.63E-06	1.66E-05	1.92E-05
CS-136		2.81E-10	0.00E+00	0.00E+00	4.81E-09	5.09E-09
CS-137		7.97E-09	2.33E-06	7.10E-06	5.12E-05	6.06E-05
CE-141		0.00E+00	0.00E+00	6.72E-07	1.02E-08	6.82E-07
CE-144		1.06E-09	0.00E+00	2.66E-06	4.93E-06	7.59E-06
HALOGENS						
I-131		1.13E-03	8.93E-04	3.13E-03	3.49E-03	8.64E-03
I-133		2.25E-04	7.43E-04	1.24E-03	1.32E-03	3.53E-03
GASES						
KR-85M		1.53E+00	3.90E-01	3.04E-01	6.05E-01	2.83E+00
KR-85		4.77E+00	1.18E+00	1.74E+00	4.37E+00	1.21E+01
KR-87		1.27E-01	1.09E-02	1.54E-02	9.01E-02	2.44E-01
KR-88		8.10E-01	2.80E-02	1.17E-01	3.53E-01	1.31E+00
XE-131M		3.42E+00	5.45E-01	2.05E+00	3.79E+00	9.81E+00
XE-133M		8.22E+00	7.78E+00	3.36E+00	5.50E+00	2.49E+01
XE-133		8.26E+02	3.81E+02	3.34E+02	6.07E+02	2.15E+03
XE-135M		1.26E-03	0.00E+00	3.00E-04	5.70E-05	1.62E-03
XE-135		2.36E+01	6.84E+00	6.38E+00	1.07E+01	4.75E+01
XE-137		7.67E-02	0.00E+00	0.00E+00	0.00E+00	7.67E-02
AR-41		1.32E+01	6.36E+00	5.77E+00	9.16E+00	3.45E+01

MCGUIRE NUCLEAR STATION
 UNIT 2
 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	8.79E+02	4.06E+02	3.53E+02	6.42E+02	2.28E+03
2. TOTAL HALOGENS	CURIES	1.35E-03	1.64E-03	4.37E-03	4.81E-03	1.22E-02
3. TOTAL PARTICULATE GROSS BETA-GAMMA	CURIES	2.84E-06	5.51E-06	1.71E-04	9.78E-05	2.77E-04
4. TOTAL TRITIUM	CURIES	1.57E+00	5.03E+00	3.05E+00	5.13E+00	1.48E+01
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		3.70E-09	0.00E+00	1.02E-09	1.75E-08	2.22E-08
MN-54		2.77E-06	0.00E+00	3.21E-06	3.42E-06	9.39E-06
CO-58		5.93E-08	3.19E-06	1.23E-04	2.15E-05	1.48E-04
CO-60		0.00E+00	0.00E+00	3.10E-05	4.16E-09	3.10E-05
SR-89		0.00E+00	0.00E+00	1.56E-09	1.42E-08	1.58E-08
NB-95		0.00E+00	0.00E+00	0.00E+00	2.45E-10	2.45E-10
MO-99		0.00E+00	0.00E+00	0.00E+00	3.63E-09	3.63E-09
RU-106		0.00E+00	0.00E+00	0.00E+00	2.19E-08	2.19E-08
CS-134		1.52E-09	1.11E-09	2.63E-06	1.66E-05	1.92E-05
CS-136		2.81E-10	0.00E+00	0.00E+00	4.81E-09	5.09E-09
CS-137		7.97E-09	2.33E-06	7.10E-06	5.12E-05	6.06E-05
CE-141		0.00E+00	0.00E+00	6.72E-07	1.02E-08	6.82E-07
CE-144		1.06E-09	0.00E+00	2.66E-06	4.93E-06	7.59E-06
HALOGENS						
I-131		1.13E-03	8.93E-04	3.13E-03	3.49E-03	8.64E-03
I-133		2.25E-04	7.43E-04	1.24E-03	1.32E-03	3.53E-03
GASES						
KR-85M		1.53E+00	3.90E-01	3.04E-01	6.05E-01	2.83E+00
KR-85		4.77E+00	1.18E+00	1.74E+00	4.37E+00	1.21E+01
KR-87		1.27E-01	1.09E-02	1.54E-02	9.01E-02	2.44E-01
KR-89		8.10E-01	2.80E-02	1.17E-01	3.53E-01	1.31E+00
XE-131M		3.42E+00	5.45E-01	2.05E+00	3.79E+00	9.81E+00
XE-133M		8.22E+00	7.78E+00	3.36E+00	5.50E+00	2.49E+01
XE-133		8.26E+02	3.81E+02	3.34E+02	6.07E+02	2.15E+03
XE-135M		1.26E-03	0.00E+00	3.00E-04	5.70E-05	1.62E-03
XE-135		2.36E+01	6.84E+00	6.38E+00	1.07E+01	4.75E+01
XE-137		7.67E-02	0.00E+00	0.00E+00	0.00E+00	7.67E-02
AR-41		1.32E+01	6.36E+00	5.77E+00	9.16E+00	3.45E+01

MCGUIRE GAS DOSE- 1ST QTR '84 RELEASES- 2/27/85 /Per unit

00000020

DISPERSION FACTOR- 7.20E-05 SEC/CU-M DEPOSITION FACTOR- 2.30E-09 M(-2)

BETA AIR DOSE- 2.29E+00 MILLIRADS GAMMA AIR DOSE- 1.09E+00 MILLIRADS

T. BODY	CRITICAL AGE-	CHILD	CRITICAL PATHWAY-	PLUME	MAXIMUM DOSE-	7.01D-01 MILLIREM	PLUME CONTRIBUTION-	95.57%
XE133	55.35%							
XE135	9.74%							
AR 41	26.60%							
GI-TRACT	CRITICAL AGE-	CHILD	CRITICAL PATHWAY-	PLUME	MAXIMUM DOSE-	7.01D-01 MILLIREM	PLUME CONTRIBUTION-	95.58%
XE133	55.36%							
XE135	9.74%							
AR 41	26.60%							
BONE	CRITICAL AGE-	INFANT	CRITICAL PATHWAY-	PLUME	MAXIMUM DOSE-	6.70D-01 MILLIREM	PLUME CONTRIBUTION-	99.97%
XE133	57.90%							
XE135	10.18%							
AR 41	27.82%							
LIVER	CRITICAL AGE-	CHILD	CRITICAL PATHWAY-	PLUME	MAXIMUM DOSE-	7.01D-01 MILLIREM	PLUME CONTRIBUTION-	95.55%
XE133	55.35%							
XE135	9.74%							
AR 41	26.59%							
KIDNEY	CRITICAL AGE-	CHILD	CRITICAL PATHWAY-	PLUME	MAXIMUM DOSE-	7.01D-01 MILLIREM	PLUME CONTRIBUTION-	95.54%
XE133	55.34%							
XE135	9.73%							
AR 41	26.59%							
THYROID	CRITICAL AGE-	INFANT	CRITICAL PATHWAY-	PLUME	MAXIMUM DOSE-	7.78D-01 MILLIREM	PLUME CONTRIBUTION-	86.13%
I 131	11.06%							
XE133	49.89%							
XE135	8.78%							
AR 41	23.97%							
LUNG	CRITICAL AGE-	CHILD	CRITICAL PATHWAY-	PLUME	MAXIMUM DOSE-	7.23D-01 MILLIREM	PLUME CONTRIBUTION-	95.71%
XE133	56.43%							
XE135	9.63%							
AR 41	25.80%							
SKIN	CRITICAL AGE-	CHILD	CRITICAL PATHWAY-	PLUME	MAXIMUM DOSE-	1.69D+00 MILLIREM	PLUME CONTRIBUTION-	98.17%
XE133	64.80%							
XE135	10.69%							
AR 41	17.70%							
THYROID	AGE-	ADULT	CRITICAL PATHWAY-	PLUME	TOTAL DOSE-	7.29D-01 MILLIREM	PLUME CONTRIBUTION-	91.85%
I 131	5.32%							
XE133	53.20%							
XE135	9.36%							
AR 41	25.56%							
THYROID	AGE-	INFANT	CRITICAL PATHWAY-	PLUME	TOTAL DOSE-	7.78D-01 MILLIREM	PLUME CONTRIBUTION-	86.13%
I 131	11.06%							
XE133	49.89%							
XE135	8.78%							
AR 41	23.97%							

MCGUIRE GAS DOSE- 2ND QTR '84 RELEASES- 2/27/85/ Per Unit

0000020

DISPERSION FACTOR- 7.20E-05 SEC/CM DEPOSITION FACTOR- 2.30E-09 M(-2)

BETA AIR DOSE- 1.03E+00 MILLIRADS GAMMA AIR DOSE- 4.80E-01 MILLIRADS

Y.BODY	CRITICAL AGE-	CHILD	CRITICAL PATHWAY-	PLUME	MAXIMUM DOSE-	3.93D-01 MILLIREM	PLUME CONTRIBUTION-	74.71%
H 3	25.27%							
XE133	45.59%							
XE135	5.04%							
AR 41	22.88%							
GI-TRACT	CRITICAL AGE-	CHILD	CRITICAL PATHWAY-	PLUME	MAXIMUM DOSE-	3.93D-01 MILLIREM	PLUME CONTRIBUTION-	74.72%
H 3	25.27%							
XE133	45.59%							
XE135	5.04%							
AR 41	22.89%							
BONE	CRITICAL AGE-	INFANT	CRITICAL PATHWAY-	PLUME	MAXIMUM DOSE-	2.94D-01 MILLIREM	PLUME CONTRIBUTION-	99.92%
XE133	60.97%							
XE135	6.74%							
AR 41	30.60%							
LIVER	CRITICAL AGE-	CHILD	CRITICAL PATHWAY-	PLUME	MAXIMUM DOSE-	3.93D-01 MILLIREM	PLUME CONTRIBUTION-	74.69%
H 3	25.26%							
XE133	45.57%							
XE135	5.04%							
AR 41	22.87%							
KIDNEY	CRITICAL AGE-	CHILD	CRITICAL PATHWAY-	PLUME	MAXIMUM DOSE-	3.93D-01 MILLIREM	PLUME CONTRIBUTION-	74.67%
H 3	25.25%							
XE133	45.56%							
XE135	5.04%							
AR 41	22.87%							
THYROID	CRITICAL AGE-	CHILD	CRITICAL PATHWAY-	PLUME	MAXIMUM DOSE-	4.49D-01 MILLIREM	PLUME CONTRIBUTION-	65.25%
H 3	22.07%							
I 131	11.20%							
XE133	39.81%							
AR 41	19.98%							
LUNG	CRITICAL AGE-	CHILD	CRITICAL PATHWAY-	PLUME	MAXIMUM DOSE-	4.02D-01 MILLIREM	PLUME CONTRIBUTION-	75.34%
H 3	24.65%							
XE133	46.75%							
XE135	5.01%							
AR 41	22.32%							
SKIN	CRITICAL AGE-	CHILD	CRITICAL PATHWAY-	PLUME	MAXIMUM DOSE-	8.30D-01 MILLIREM	PLUME CONTRIBUTION-	88.05%
H 3	11.95%							
XE133	60.79%							
XE135	6.30%							
AR 41	17.34%							
THYROID	AGE-	ADULT	CRITICAL PATHWAY-	PLUME	TOTAL DOSE-	3.90D-01 MILLIREM	PLUME CONTRIBUTION-	75.18%
H 3	16.02%							
I 131	7.86%							
XE133	45.87%							
XE135	5.07%							
AR 41	23.02%							
THYROID	AGE-	INFANT	CRITICAL PATHWAY-	PLUME	TOTAL DOSE-	4.31D-01 MILLIREM	PLUME CONTRIBUTION-	67.99%
H 3	14.78%							
I 131	15.76%							
XE133	41.49%							
AR 41	20.82%							

MCGUIRE GAS DOSE- 3RD QTR '84 RELEASES- 2/27/85 / per Unit

00000020

DISPERSION FACTOR- 7.20E-05 SEC/CU-M DEPOSITION FACTOR- 2.30E-09 M(-2)

BETA AIR DOSE- 9.06E-01 MILLIRADS GAMMA AIR DOSE- 4.28E-01 MILLIRADS

T. BODY	CRITICAL AGE-	CHILD	CRITICAL PATHWAY-	PLUME	MAXIMUM DOSE-	3.23D-01 MILLIREM	PLUME CONTRIBUTION-	81.23%
H 3	18.65%							
XE133	48.64%							
XE135	5.72%							
AR 41	25.27%							
GI-TRACT	CRITICAL AGE-	CHILD	CRITICAL PATHWAY-	PLUME	MAXIMUM DOSE-	3.22D-01 MILLIREM	PLUME CONTRIBUTION-	81.29%
H 3	18.66%							
XE133	48.68%							
XE135	5.72%							
AR 41	25.29%							
BONE	CRITICAL AGE-	INFANT	CRITICAL PATHWAY-	PLUME	MAXIMUM DOSE-	2.63D-01 MILLIREM	PLUME CONTRIBUTION-	99.69%
XE133	59.70%							
XE135	7.02%							
AR 41	31.01%							
LIVER	CRITICAL AGE-	CHILD	CRITICAL PATHWAY-	PLUME	MAXIMUM DOSE-	3.23D-01 MILLIREM	PLUME CONTRIBUTION-	81.14%
H 3	18.63%							
XE133	48.59%							
XE135	5.71%							
AR 41	25.24%							
KIDNEY	CRITICAL AGE-	CHILD	CRITICAL PATHWAY-	PLUME	MAXIMUM DOSE-	3.23D-01 MILLIREM	PLUME CONTRIBUTION-	81.06%
H 3	18.61%							
XE133	48.54%							
XE135	5.71%							
AR 41	25.22%							
THYROID	CRITICAL AGE-	INFANT	CRITICAL PATHWAY-	PLUME	MAXIMUM DOSE-	5.50D-01 MILLIREM	PLUME CONTRIBUTION-	47.67%
H 3	7.03%							
I 131	43.36%							
XE133	28.55%							
AR 41	14.83%							
LUNG	CRITICAL AGE-	CHILD	CRITICAL PATHWAY-	PLUME	MAXIMUM DOSE-	3.32D-01 MILLIREM	PLUME CONTRIBUTION-	81.58%
H 3	18.13%							
XE133	49.71%							
XE135	5.67%							
AR 41	24.57%							
SKIN	CRITICAL AGE-	CHILD	CRITICAL PATHWAY-	PLUME	MAXIMUM DOSE-	7.06D-01 MILLIREM	PLUME CONTRIBUTION-	91.47%
H 3	8.52%							
XE133	62.68%							
XE135	6.92%							
AR 41	18.51%							
THYROID	AGE-	ADULT	CRITICAL PATHWAY-	PLUME	TOTAL DOSE-	4.14D-01 MILLIREM	PLUME CONTRIBUTION-	63.35%
H 3	9.16%							
I 131	25.98%							
XE133	37.94%							
AR 41	19.71%							
THYROID	AGE-	INFANT	CRITICAL PATHWAY-	PLUME	TOTAL DOSE-	5.50D-01 MILLIREM	PLUME CONTRIBUTION-	47.67%
H 3	7.03%							
I 131	43.36%							
XE133	28.55%							
AR 41	14.83%							

MCGUIRE GAS DOSE- 4TH QTR '84 RELEASES- 2/27/85/ Per Unit

0000020

DISPERSION FACTOR- 7.20E-05 SEC/CU-M DEPOSITION FACTOR- 2.30E-09 M(-2)

BETA AIR DOSE- 1.64E+00 MILLIRADS GAMMA AIR DOSE- 7.51E-01 MILLIRADS

T. BODY	CRITICAL AGE-	CHILD	CRITICAL PATHWAY-	PLUME	MAXIMUM DOSE-	5.60D-01 MILLIREM	PLUME CONTRIBUTION-	81.85%
H 3	18.06%							
XE133	50.89%							
XE135	5.52%							
AR 41	23.09%							
GI-TRACT	CRITICAL AGE-	CHILD	CRITICAL PATHWAY-	PLUME	MAXIMUM DOSE-	5.60D-01 MILLIREM	PLUME CONTRIBUTION-	81.91%
H 3	18.07%							
XE133	50.93%							
XE135	5.53%							
AR 41	23.11%							
BONE	CRITICAL AGE-	INFANT	CRITICAL PATHWAY-	PLUME	MAXIMUM DOSE-	4.60D-01 MILLIREM	PLUME CONTRIBUTION-	99.69%
XE133	61.98%							
XE135	6.73%							
AR 41	28.12%							
LIVER	CRITICAL AGE-	CHILD	CRITICAL PATHWAY-	PLUME	MAXIMUM DOSE-	5.61D-01 MILLIREM	PLUME CONTRIBUTION-	81.73%
H 3	18.03%							
XE133	50.82%							
XE135	5.51%							
AR 41	23.06%							
KIDNEY	CRITICAL AGE-	CHILD	CRITICAL PATHWAY-	PLUME	MAXIMUM DOSE-	5.61D-01 MILLIREM	PLUME CONTRIBUTION-	81.73%
H 3	18.03%							
XE133	50.82%							
XE135	5.51%							
AR 41	23.06%							
THYROID	CRITICAL AGE-	INFANT	CRITICAL PATHWAY-	PLUME	MAXIMUM DOSE-	8.01D-01 MILLIREM	PLUME CONTRIBUTION-	57.28%
H 3	8.12%							
I 131	33.19%							
XE133	35.61%							
AR 41	16.16%							
LUNG	CRITICAL AGE-	CHILD	CRITICAL PATHWAY-	PLUME	MAXIMUM DOSE-	5.76D-01 MILLIREM	PLUME CONTRIBUTION-	82.37%
H 3	17.57%							
XE133	52.05%							
XE135	5.48%							
AR 41	22.47%							
SKIN	CRITICAL AGE-	CHILD	CRITICAL PATHWAY-	PLUME	MAXIMUM DOSE-	1.25D+00 MILLIREM	PLUME CONTRIBUTION-	91.88%
H 3	8.12%							
XE133	64.50%							
XE135	6.57%							
AR 41	16.63%							
THYROID	AGE-	ADULT	CRITICAL PATHWAY-	PLUME	TOTAL DOSE-	6.49D-01 MILLIREM	PLUME CONTRIBUTION-	70.69%
H 3	9.83%							
I 131	18.47%							
XE133	43.95%							
AR 41	19.94%							
THYROID	AGE-	INFANT	CRITICAL PATHWAY-	PLUME	TOTAL DOSE-	8.01D-01 MILLIREM	PLUME CONTRIBUTION-	57.28%
H 3	8.12%							
I 131	33.19%							
XE133	35.61%							
AR 41	16.16%							

MCGUIRE GAS DOSE- TOTAL '84 RELEASES PER UNIT- 2/27/85

0000020

DISPERSION FACTOR- 7.20E-05 SEC/CU-M DEPOSITION FACTOR- 2.30E-09 M(-2)

BETA AIR DOSE- 5.87E+00 MILLIRADS GAMMA AIR DOSE- 2.75E+00 MILLIRADS

T. BODY	CRITICAL AGE-	CHILD	CRITICAL PATHWAY-	PLUME	MAXIMUM DOSE-	1.98D+00 MILLIREM	PLUME CONTRIBUTION-	85.19%
H 3	14.76%							
XE133	51.06%							
XE135	6.95%							
AR 41	24.64%							
GI-TRACT	CRITICAL AGE-	CHILD	CRITICAL PATHWAY-	PLUME	MAXIMUM DOSE-	1.98D+00 MILLIREM	PLUME CONTRIBUTION-	85.22%
H 3	14.76%							
XE133	51.08%							
XE135	6.95%							
AR 41	24.65%							
BONE	CRITICAL AGE-	INFANT	CRITICAL PATHWAY-	PLUME	MAXIMUM DOSE-	1.69D+00 MILLIREM	PLUME CONTRIBUTION-	99.84%
XE133	59.85%							
XE135	8.14%							
AR 41	28.87%							
LIVER	CRITICAL AGE-	CHILD	CRITICAL PATHWAY-	PLUME	MAXIMUM DOSE-	1.98D+00 MILLIREM	PLUME CONTRIBUTION-	85.13%
H 3	14.75%							
XE133	51.03%							
XE135	6.94%							
AR 41	24.62%							
KIDNEY	CRITICAL AGE-	CHILD	CRITICAL PATHWAY-	PLUME	MAXIMUM DOSE-	1.98D+00 MILLIREM	PLUME CONTRIBUTION-	85.10%
H 3	14.74%							
XE133	51.01%							
XE135	6.94%							
AR 41	24.61%							
THYROID	CRITICAL AGE-	INFANT	CRITICAL PATHWAY-	PLUME	MAXIMUM DOSE-	2.56D+00 MILLIREM	PLUME CONTRIBUTION-	65.81%
H 3	7.33%							
I 131	25.69%							
XE133	39.44%							
XE135	5.37%							
AR 41	19.03%							
LUNG	CRITICAL AGE-	CHILD	CRITICAL PATHWAY-	PLUME	MAXIMUM DOSE-	2.03D+00 MILLIREM	PLUME CONTRIBUTION-	85.59%
H 3	14.35%							
XE133	52.18%							
XE135	6.88%							
AR 41	23.96%							
SKIN	CRITICAL AGE-	CHILD	CRITICAL PATHWAY-	PLUME	MAXIMUM DOSE-	4.47D+00 MILLIREM	PLUME CONTRIBUTION-	93.47%
H 3	6.52%							
XE133	63.65%							
XE135	8.12%							
AR 41	17.45%							
THYROID	AGE-	ADULT	CRITICAL PATHWAY-	PLUME	TOTAL DOSE-	2.18D+00 MILLIREM	PLUME CONTRIBUTION-	77.18%
H 3	8.43%							
I 131	13.59%							
XE133	46.26%							
XE135	6.29%							
AR 41	22.32%							
THYROID	AGE-	INFANT	CRITICAL PATHWAY-	PLUME	TOTAL DOSE-	2.56D+00 MILLIREM	PLUME CONTRIBUTION-	65.81%
H 3	7.33%							
I 131	25.69%							
XE133	39.44%							
XE135	5.37%							
AR 41	19.03%							

ESTIMATED TOTAL ERROR PERCENT

The estimated total error percent range for gaseous and liquid effluents at McGuire Nuclear Station was determined using intuitive experience. The error percent range was estimated to be 25-100 percent. A more accurate method of making this estimation is being evaluated.

Attachment II

METEOROLOGICAL DATA

1984 METEOROLOGY JOINT FREQUENCIES: JIRE NUCLEAR STATION

19:00 TUESDAY, FEBRUARY 12, 1985

PASQUILL STABILITY C

SECTOR	WIND SPEED CLASS																	TOTAL NO.
	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.	NO.	NO.	NO.	NO.	NO.	NO.		
-N-		34	18	10	2	1	1										67	
-NNE-	1	19	22	10	20	13	12	3									100	
-NE-	1	14	35	45	23	14	10	2	1								145	
-ENE-	1	6	11	5	3												26	
-E-		3	4	1													8	
-ESE-		6	5	3	1												15	
-SE-	3	15	4														22	
-SSE-	2	8	6			1											17	
-S-	1	2	18	27	16	8											72	
-SSW-	1	2	5	12	8	3											32	
-SW-			3	5	2	1	4		2	2							19	
-WSW-	1	2	1	3	5	1	2										15	
-W-	1	1			2	3	1	1									9	
-WNW-			3	4	2	1				1	1						12	
-NW-	1	1	1	1	2	2	1	1									10	
-NNW-		5	2	2	1	2	3										15	
TOTAL	13	118	138	128	87	50	34	7	5	4							584	

PASQUILL STABILITY D

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-	23	69	37	27	18	4	.	.	.	.	178
-NNE-	12	83	45	47	26	13	12	4	2	.	244
-NE-	10	80	147	186	90	48	30	1	.	.	592
-ENE-	7	48	119	82	15	1	2	.	.	1	275
-E-	10	37	40	8	.	.	.	.	.	.	95
-ESE-	9	31	20	10	1	.	.	.	.	.	71
-SE-	35	32	9	3	1	.	.	.	.	.	80
-SSE-	43	39	5	5	2	.	.	.	.	.	94
-S-	35	135	149	85	30	7	3	3	1	.	448
-SSW-	37	126	131	63	34	12	4	2	.	1	410
-SW-	49	91	76	72	32	14	11	1	5	2	353
-WSW-	22	36	38	34	15	7	4	2	.	.	158
-W-	23	33	41	24	16	11	9	2	2	.	161
-WNW-	19	23	19	24	20	11	14	11	7	.	148
-NW-	13	16	20	28	14	11	2	2	1	.	107
-NNW-	15	22	26	24	14	7	.	.	.	.	108
-CALM-	1	.	.	.	.	.	.	.	.	.	1
TOTAL	363	901	922	722	328	146	91	28	18	4	3523

PASQUILL STABILITY E

SECTOR	WIND SPEED CLASS										TOTAL NO.
	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-	12	41	24	10	6	1	1	.	.	.	95
-NNE-	16	32	21	15	10	5	2	5	2	.	108
-NE-	18	36	25	16	17	16	1	3	.	.	132
-ENE-	7	20	27	19	9	4	1	.	.	.	87
-E-	9	16	9	.	.	.	.	.	.	.	34
-ESE-	9	19	25	9	1	.	.	.	.	.	63
-SE-	20	30	7	1	.	.	.	.	.	.	58
-SSE-	36	21	7	5	3	1	.	1	.	.	74
-S-	85	155	75	30	10	4	.	.	.	.	359
-SSW-	87	81	71	37	11	3	.	1	.	.	291
-SW-	74	36	25	13	5	1	.	1	.	.	155
-WSW-	57	22	12	8	4	.	.	.	.	.	103
-W-	57	38	21	12	5	2	.	1	.	.	136
-WNW-	23	24	28	17	7	2	1	.	.	.	102
-NW-	28	24	24	19	8	2	1	.	.	.	106
-NNW-	13	24	16	11	12	3	1	.	1	.	81
-CALM-	4	.	.	.	.	.	.	.	.	.	4
TOTAL	555	619	417	222	108	44	8	12	3	.	1988

ALL STABILITY CLASSES

SECTOR	WIND SPEED CLASS										TOTAL NO.
	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.		
-N-	69	181	114	58	40	13	6	3	2	.	486
-NNE-	50	171	130	117	74	45	33	21	4	1	646
-NE-	48	150	241	291	173	89	45	7	1	.	1045
-ENE-	22	79	160	112	32	6	3	.	.	1	415
-E-	34	62	54	9	.	.	.	.	.	.	159
-ESE-	30	61	61	22	3	.	.	.	.	.	177
-SE-	72	83	27	5	1	.	.	.	.	.	188
-SSE-	146	78	18	12	5	2	.	1	.	.	262
-S-	514	436	265	153	57	20	4	3	1	.	1453
-SSW-	462	258	227	121	57	19	4	3	.	2	1153
-SW-	335	149	106	93	39	18	16	2	7	4	769
-WSW-	186	66	51	46	24	8	6	2	.	.	389
-W-	190	85	66	39	23	16	10	4	2	.	435
-WNW-	90	55	58	46	31	14	15	11	8	1	329
-NW-	98	51	50	54	24	22	5	3	1	.	308
-NNW-	49	72	49	42	34	12	5	.	1	.	264
-CALM-	39	.	.	.	.	.	.	.	.	.	39
TOTAL	2434	2037	1677	1220	617	284	152	60	27	9	8517

ATTACHMENT III

OTHER REPORTABLE EVENTS

III. A. LEAKING SOURCE

A 2.12 mCi Technetium-99 (Tc-99) source was leak tested, per Technical Specification 3.7.9, on November 5, 1984, and was found to have .068 μ Ci of loose surface contamination. The source was manufactured by Isotope Products, Inc., of 1800 N. Keystone Street, Burbank, California 91504 and is source number 107-14-1. The source was subsequently decontaminated and repaired.

III. B. UNPLANNED RELEASES

1. On July 14, valve WG179 (auto-drain valve on H₂ Recombiner Phase Separator B) was inadvertently placed in the Manual/Open position during a Waste Drain Tank transfer to the Recycle Holdup Tank. The phase separator drained and allowed the release of gas from Waste Gas Decay Tank "E" to the WEFT sump.

A total of 17.03 curies of noble gases were released from Waste Gas Decay Tank "E". No Technical Specifications limits were exceeded.

2. On November 13, while changing a diaphragm on LWG233 gas from WGDT "B" leaked past LWG234 or LWG236 and into room 607 on elevation 716'. A total of 9.49 Curies were released from WGDT "B" into the atmosphere.

A functional test was performed on LWG234 and LWG236 on November 15, but it was not determined which valve leaked. No Technical Specification limits were exceeded and the release was not an NRC reportable event (see attachments for calculations).

III. C. INOPERABLE INSTRUMENTATION

1. Containment Ventilation Unit Condensate Line Continuous Composite Samplers (Units 1 and 2)

On June 1, 1984, Units 1 and 2 Containment Ventilation Unit Condensate Line Continuous Composite Samplers were declared inoperable. The samplers have remained inoperable since that date and have exceeded the thirty (30) day inoperable period limit identified in action 33 of Technical Specification 3.3.3.8.

The samplers were originally declared inoperable on June 1. Frequent inoperable periods had been experienced and an investigation identified that the effluent had a higher solids content than the instruments were designed to sample. An appropriate replacement has tentatively been identified and installation is scheduled for July 15, 1985.

2. On July 5, 1984 at 0911, the Containment Ventilation Unit Condensate Drain Tank (VUCDT) effluent monitor, 2WLFT5900, was removed from service. At 0905 on August 7, 1984, Planning identified the effluent monitor had exceeded the 30 day limit identified in Action 34 of Tech. Specs. section 3.3.3.8.

The effluent monitor was originally declared inoperable on July 5. A work request was written to break flanges and rotate the effluent monitor. On August 7, 1984, IAE technicians discovered the effluent monitor was still inoperable.

On August 22, the VUCDT effluent monitor was declared operable.

ATTACHMENT IV

REVISION 5 TO THE ODCM

~~8503200041~~ 850301
PDR ADOCK 05000369
R PDR

September 7, 1984

SUBJECT: OFFSITE DOES CALCULATION MANUAL - REVISION 5

The General Office Radwaste Engineering Staff is transmitting to you this date, Revision 5 of the Offsite Dose Calculation Manual. As this revision affects the manual's generic section, the approval of each station manager has been obtained. Please update your copy no. 1, and discard affected pages.

REMOVE THESE PAGES

Page 1-1
Page 1-2
Table 1.2-2 Revision 1
Page 3-2
Page 3-3
Page 3-9
Table 3.1-3 (3 of 3)

INSERT THESE PAGES

Page 1-1 Revision 5
Page 1-2 Revision 5
Table 1.2-2 Revision 5
Page 3-2 Revision 5
Page 3-3 Revision 5
Page 3-9 Revision 5
Table 3.1-3 (3 of 3) Revision 5

NOTE: As this letter contains "LOEP" information, please insert this letter in front of the August 7, 1984 letter.

Approval Date: 17 August 1984
Effective Date: 9-10-84

Approval Date: 8-29-84
Effective Date: 9-10-84

Mary L. Birch

Mary L. Birch
System Engineer
Radwaste Engineering

J. W. Hampton

J. W. Hampton, Manager
Catawba Nuclear Station

Approval Date: 8/24/84
Effective Date: 9-10-84

Approval Date: 8/21/84
Effective Date: 9-10-84

M. D. McIntosh

M. D. McIntosh, Manager
McGuire Nuclear Station

M. S. Tuckman

M. S. Tuckman, Manager
Oconee Nuclear Station

If you have any questions concerning Revision 5, please call Jim Stewart at (704) 373-5444.

James M. Stewart, Jr.

James M. Stewart, Jr.
Associate Health Physicist
Radwaste Engineering
WC-2339

JMS/nem

1.0 RELEASE RATE CALCULATIONS

The release rate calculations presented in the following sections are site release limits. Sites containing two or more units shall administratively control releases to assure that the release rate calculations limit releases as stated in the Technical Specifications. Administrative controls could limit the number of releases occurring at one time and/or apportion the release rate between the units.

1.1 LIQUID EFFLUENTS

To comply with Technical Specifications and to assure that the concentration of radioactive liquid effluents from the site to the unrestricted area is limited to the concentrations of 10CFR20, Appendix B, Table II, Column 2, the following release rate calculation shall be performed:

$$f \leq F \div \left(\sigma \sum_{i=1}^n \frac{C_i}{MPC_i} \right)$$

where:

C_i = The concentration of radionuclide, 'i', in undiluted liquid effluent, in $\mu\text{Ci/ml}$.

MPC_i = the concentration of radionuclide, 'i', from 10CFR20, Appendix B, Table II, Column 2, in $\mu\text{Ci/ml}$.

f = the undiluted effluent flow from the tank, in gpm.

F = the dilution flow from the site discharge structure to unrestricted area receiving waters, in gpm.

σ = recirculation factor at equilibrium; this factor accounts for the fraction of discharged water reused by the station; this factor is one for stations on rivers or lakes where discharged water cannot be reused, and varies for sites where water is recirculated and is specified in the appropriate Appendix.

1.2 GASEOUS EFFLUENTS

In order to comply with the Technical Specifications and to assure that the dose rate, at any time, in the unrestricted area due to radioactive materials released in gaseous effluents from the site is limited to ≤ 500 mrem/yr to the total body and ≤ 3000 mrem/yr to the skin for the noble gases and is limited to ≤ 1500 mrem/yr to any organ for all radioiodine and for all radioactive materials in particulates form and radionuclides other than noble gases with half lives greater than 8 days, the following release rate calculations shall be performed. These calculations, when solved for 'f', i.e. flowrate, are the release rates for noble gases and for radioiodines, particulates and other radionuclides with half-lives greater than 8 days. The most conservative of release rates calculated shall control the release rate.

1.2.1 Noble Gases

$$\sum_i K_i \times [(\overline{X/Q}) Q_i] < 500 \text{ mrem/yr, and}$$

$$\sum_i (L_i + 1.1 M_i) [(\overline{X/Q}) Q_i] < 3000 \text{ mrem/yr}$$

where:

K_i = The total body dose factor due to gamma emissions for each identified noble gas radionuclide, in mrem/yr per $\mu\text{Ci}/\text{m}^3$ from Table 1.2-1.

L_i = The skin dose factor due to beta emissions for each identified noble gas radionuclide, in mrem/yr per $\mu\text{Ci}/\text{m}^3$ from Table 1.2-1.

M_i = The air dose factor due to gamma emissions for each identified noble gas radionuclide, in mrad/yr per $\mu\text{Ci}/\text{m}^3$ from Table 1.2-1 (unit conversion constant of 1.1 mrem/mrad converts air dose to skin dose).

P_i = The dose parameter for radionuclides other than noble gases for the inhalation pathway, in mrem/yr per $\mu\text{Ci}/\text{m}^3$ and for the food and ground plane pathways in m^2 . (mrem/yr per $\mu\text{Ci}/\text{sec}$) from Table 1.2-2. The dose factors are based on the critical individual organ and most restrictive age group (child or infant).

Q_i = The release rate of radionuclides, 'i', in gaseous effluent from all release points at the site, in $\mu\text{Ci}/\text{sec}$.

$\overline{X/Q}$ = The highest calculated annual average dispersion parameter for any area at or beyond the unrestricted area boundary

W = The highest calculated annual average dispersion parameter for estimating the dose to an individual at the controlling location.

$$Q_i = k_1 C_i f \div k_2 = 4.72\text{E}+2 C_i f$$

where:

C_i = the concentration of radionuclide, 'i', in undiluted gaseous effluent, in $\mu\text{Ci}/\text{ml}$.

f = the undiluted effluent flow, in cfm.

k_1 = conversion factor, $2.83\text{E}+04 \text{ ml}/\text{ft}^3$.

k_2 = conversion factor, $6.0\text{E}+01 \text{ sec}/\text{min}$.

1.2.2 Radioiodines, Particulates, and Others

$$\sum_i P_i [W Q_i] < 1500 \text{ mrem/yr}$$

where the terms are as defined above.

TABLE 1.2-2

(1 of 1)

DOSE PARAMETERS FOR RADIOIODINES AND RADIOACTIVE
PARTICULATE, GASEOUS EFFLUENTS*

P(I), DOSE PARAMETERS FOR RADIOIODINES AND RADIOACTIVE PARTICULATES IN GASEOUS EFFLUENTS

Radionuclide	Pathways		Radionuclide	Pathways	
	Inhalation (mrem/yr per $\mu\text{Ci}/\text{m}^3$)	Food and Ground (m^2 .mrem/yr per $\mu\text{Ci}/\text{sec}$)		Inhalation (mrem/yr per $\mu\text{Ci}/\text{m}^3$)	Food and Ground (m^2 .mrem/yr per $\mu\text{Ci}/\text{sec}$)
H 3	1.125 E+03	2.4E+03	RU 103	6.625 E+05	1.6E+08
Alpha Act	1.100 E+08	1.8E+10	RU 106	1.432 E+07	2.0E+08
CR 51	1.698 E+04	1.1E+07	AG 110M	5.476 E+06	1.5E+10
MN 54	1.576 E+06	1.1E+09	CD 115M	2.920 E+05	5.2E+07
FE 55	1.110 E+05	1.1E+08	SN 123	3.550 E+06	3.7E+09
FE 59	1.269 E+06	7.2E+08	SN 126	1.120 E+07	1.1E+10
CO 58	1.106 E+06	5.8E+08	SB 124	3.240 E+06	1.4E+09
CO 60	7.067 E+06	4.6E+09	SB 125	2.320 E+06	9.1E+08
NI 63	8.214 E+05	3.0E+10	TE 127M	1.408 E+06	1.0E+09
ZN 65	8.399 E+04	1.8E+10	TE 129M	1.761 E+06	1.3E+09
RB 86	1.983 E+05	2.1E+10	CS 134	1.014 E+06	5.6E+10
SR 89	2.157 E+06	1.1E+10	CS 136	1.709 E+05	5.7E+09
SR 90	1.010 E+08	1.0E+11	CS 137	9.065 E+05	5.0E+10
Y 91	2.627 E+06	5.9E+06	BA 140	1.743 E+06	2.6E+08
ZR 95	2.231 E+06	3.5E+08	CE 141	5.439 E+05	3.2E+07
NB 95	6.142 E+05	3.8E+08	CE 144	1.195 E+07	1.6E+08
MO 99	1.354 E+05	3.2E+08	I 131	1.624 E+07	1.0E+12
			I 133	3.848 E+06	9.6E+09

*If SR-90 analysis is performed, use P(I) given in I-131 for unidentified components. If SR-90 and I-131 analyses are performed, use P(I) given in CS-137 for unidentified components. If SR-90, I-131, and CS-137 analyses are performed, use P(I) given in Zn-65 for unidentified components.

where:

$$1.14E5 = 10^6 \text{pCi}/\mu\text{Ci} \times 10^3 \text{ml}/\text{kg} \div 8760 \text{ hr}/\text{yr}.$$

U_{aw} = Water consumption by age group, ℓ/yr .

infant	330
child	510
teen	510
adult	730

D_w = Dilution factor from the near field area to the potable water intake.

U_{af} = fish consumption by age group, kg/yr .

infant	--
child	6.9
teen	16
adult	21

BF_i = Bioaccumulation factor for radionuclide, 'i', in fish, pCi/kg per pCi/l , from Table 3.1-1.

DF_{ait} = Dose conversion factor for radionuclide, 'i', by age group in pre-selected organ, t , in mrem/pCi , from Tables 3.1-2, 3.1-3, 3.1-4, and 3.1-5, respectively.

Using the above information, A_{ait} values for the adult have been calculated for each site. This information is provided in the Table "X" 4.0-3 where "X" is the appendix for the site in question.

3.1.2 Gaseous Effluents

The dose contributions from measured quantities of radioactive materials identified in gaseous effluent released to unrestricted areas shall be calculated for the maximum exposed individual using the following equations:

3.1.2.1 Noble Gases

For gamma radiation:

$$D_{\gamma} = 3.17 \text{ E-}8 \sum_{i=1}^n [(\bar{X}/Q) Q_i]$$

For beta radiation:

$$D_{\beta} = 3.17 \text{ E-}8 \sum_{i=1}^n N_i [(\bar{X}/Q) Q_i]$$

where:

$3.17E-08$ = The inverse of the number of seconds in a year.

M_i = The air dose factor due to gamma emissions for each identified noble gas radionuclide, in mrad/yr per $\mu\text{Ci}/\text{m}^3$ from Table 1.2-1.

N_i = The air dose factor due to beta emissions for each identified noble gas radionuclide, in mrad/yr per $\mu\text{Ci}/\text{m}^3$ from Table 1.2-1.

$\overline{X/Q}$ = The highest calculated annual average relative concentration for any area at or beyond the unrestricted area boundary.

\sim
 Q_i = The release of noble gas radionuclides, 'i', in gaseous effluents, in μCi .

3.1.2.2 Radioiodines, Particulates, and Others

These calculations apply to all radioiodines, radioactive materials in particulate form and radionuclides other than noble gases with half-lives greater than 8 days:

$$D = 3.17 \text{ E-}8 \sum_i R_i [\sim W Q_i]$$

where:

3.17E-08 = The inverse of the number of seconds in a year.

\sim
 Q_i = The release of radioiodines, radioactive materials in particulate form and radionuclides other than noble gases in gaseous effluents, 'i', in μCi . Releases shall be cumulative over the calendar quarter or year as appropriate.

W = The annual average dispersion or deposition parameter for estimating the dose to an individual at the controlling location.

$W = (\overline{X/Q})$ for the inhalation pathway, in sec/m^3 .

$W = (\overline{D/Q})$ for the food and ground plane pathways, in meters^{-2} .

R_i = The dose factor for each identified radionuclide, 'i', in $\text{m}^2 \cdot (\text{mrem}/\text{yr})$ per $\mu\text{Ci}/\text{sec}$ or mrem/yr per $\mu\text{Ci}/\text{m}^3$, for each pathway. (Tables 3.1-12 + 3.1-30)

where:

Inhalation Pathway Factor, $R_i^I [X/Q]$

$$R_i^I [X/Q] = K' (\text{BR})_a (\text{DFA}_i)_a (\text{mrem}/\text{yr per } \mu\text{Ci}/\text{m}^3)$$

where:

K' = a constant of unit conversion, $10^6 \text{ pCi}/\mu\text{Ci}$.

$(\text{BR})_a$ = the breathing rate of the receptor of age group (a), in m^3/yr .

The breathing rates (BR) for the various age groups are tabulated below, as given in Regulatory Guide 1.109.

3.3.4 Fuel Fabrication

No fuel fabrication operations occur within fifty miles of any Duke Nuclear Station. The increment of dose from fabrication operations to any individual within fifty miles of any Duke Nuclear Station is negligible.

3.3.5 Nuclear Power Production

The production of electricity for public use using light-water-cooled nuclear power stations results in increments of dose to individuals within fifty miles of any station due to liquid and gaseous effluent releases and direct radiation or skyshine. The increments of dose resulting from liquid and gaseous effluent releases will be calculated using the methodology presented in Sections 3.1.1 and 3.1.2. The dose from direct radiation, skyshine, and radiation from the station storage facilities has been estimated using conservative assumptions (see Section 3.1.3).

In certain situations more than one nuclear power station site may contribute to the doses to be considered in making fuel cycle dose assessments in accordance with 40CFR190. Situations involving more than one station will be presented in the section on site specific information.

3.3.6 Fuel Reprocessing

No fuel reprocessing operations occur within fifty miles of any Duke Nuclear Station. The increment of dose from reprocessing operations to any individual within fifty miles of any Duke Nuclear Station is negligible.

To summarize, only dose increments from nuclear power production operations (Section 3.3.5) need be considered in calculations to demonstrate compliance with the requirements of 40CFR190.

TABLE 3.1-3
 (3 of 3)
 INGESTION DOSE FACTORS FOR TEENAGER
 (MREM PER PCI INGESTED)

NUCLIDE	BONE	LIVER	T. BODY	THYROID	KIDNEY	LUNG	GI-LLI
BA 140	2.84E-05	3.48E-08	1.83E-06	NO DATA	1.18E-08	2.34E-08	4.38E-05
BA 141	6.71E-08	5.01E-11	2.24E-08	NO DATA	4.65E-11	3.43E-11	1.43E-13
BA 142	2.99E-08	2.99E-11	1.84E-09	NO DATA	2.53E-11	1.99E-11	9.18E-20
LA 140	3.48E-09	1.71E-09	4.55E-10	NO DATA	NO DATA	NO DATA	9.82E-05
LA 142	1.79E-10	7.95E-11	1.98E-11	NO DATA	NO DATA	NO DATA	2.42E-06
CE 141	1.33E-08	8.88E-09	1.02E-09	NO DATA	4.18E-09	NO DATA	2.54E-05
CE 143	2.35E-09	1.71E-06	1.91E-10	NO DATA	7.67E-10	NO DATA	5.14E-05
CE 144	6.96E-07	2.88E-07	3.74E-08	NO DATA	1.72E-07	NO DATA	1.75E-04
PR 143	1.31E-08	5.23E-09	6.52E-10	NO DATA	3.04E-09	NO DATA	4.31E-05
PR 144	4.30E-11	1.76E-11	2.18E-12	NO DATA	1.01E-11	NO DATA	4.74E-14
ND 147	9.38E-09	1.02E-08	6.11E-10	NO DATA	5.99E-09	NO DATA	3.68E-05
W 187	1.46E-07	1.19E-07	4.17E-08	NO DATA	NO DATA	NO DATA	3.22E-05
NP 239	1.76E-09	1.66E-10	9.22E-11	NO DATA	5.21E-10	NO DATA	2.67E-05