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DUKE POWER

February 28, 1992

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

Subject: Catawba Nuclear Station
Docket Nos. 50-413 and 50-414
Semiannual Radioactive Effluent Release Report

Pursuant to Catawba Nuclear Station Technical Specification 6.9.1.7, find enclosed the Catawba Semiannual Radioactive Effluent Release Report for the period from July 1, 1991 to December 31, 1991.

Attachment I contains information regarding radioactive effluent releases.

Attachment II contains information regarding solid radioactive waste shipped offsite.

Attachment III contains information regarding the operability of certain effluent monitors during the reporting period.

Revision 7 to the Process Control Program (PCP) was submitted to the NRC on October 8, 1991. Revision 30 to Catawba's Offsite Dose Calculation Manual (ODCM) was submitted to the NRC on August 29, 1991.

Very truly yours,

M. S. Tuckman

CRI/SARERR.292

Attachments

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PDR ADDCK 05000413
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U. S. Nuclear Regulatory Commission
February 28, 1992
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xc: S. D. Ebner
Regional Administrator, Region II

W. T. Orders
Senior Resident Inspector

R. E. Martin, ONRR

ATTACHMENT I

Summary of Liquid and Gaseous Effluents Report

Supplemental Information to the Liquid and Gaseous Effluents Report

Fuel Cycle Calculations

Meteorological Survey

UNIT 1

CATAMBA NUCLEAR PLANT
UNIT 1
RADIOACTIVE EFFLUENT RELEASES
DATE 02/24/92

1. LIQUID RELEASES

	UNITS	1ST QTR	2ND QTR	3RD QTR	4TH QTR	YEAR 1991 TOTAL
1. GROSS RADIOACTIVITY						
A. TOTAL RELEASE	CURIES	2.27E-02	7.76E-02	9.55E-02	1.06E-01	3.81E-01
B. AVERAGE CONCENTRATION RELEASED	UCI/ML	1.02E-09	2.99E-09	3.55E-09	1.00E-08	4.14E-09
C. MAXIMUM CONCENTRATION RELEASED	UCI/ML	5.44E-09	1.89E-08	2.17E-08	2.02E-08	4.04E-08
2. TRITIUM						
A. TOTAL RELEASE	CURIES	8.54E+01	4.92E+01	6.86E+01	1.20E+02	3.23E+02
B. AVERAGE CONCENTRATION RELEASED	UCI/ML	3.83E-06	1.90E-06	2.55E-06	7.00E-06	3.50E-06
3. DISSOLVED MOBILE GASES						
A. TOTAL RELEASE	CURIES	2.18E-03	6.08E-04	2.21E-03	2.26E-02	2.76E-02
B. AVERAGE CONCENTRATION RELEASED	UCI/ML	9.76E-11	2.35E-11	8.22E-11	1.32E-09	2.99E-10
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	5.78E+07	1.01E+08	4.35E+07	4.35E+07	2.46E+08
6. VOLUME OF DILUTION WATER	LITERS	2.23E+10	2.59E+10	2.69E+10	1.71E+10	9.22E+10
7. RADIONUCLIDES RELEASED	CURIES					

BE-7	0.00E+00	0.00E+00	0.00E+00	9.22E-05	9.22E-05
F-18	2.17E-04	6.97E-04	1.44E-03	6.65E-04	3.02E-03
NA-24	0.00E+00	1.73E-05	1.67E-06	1.03E-05	2.92E-05
CR-51	7.73E-05	5.98E-03	1.59E-03	3.37E-02	4.13E-02
MN-54	3.07E-04	2.03E-03	7.12E-03	5.62E-03	1.51E-02
MN-56	0.00E+00	4.73E-07	0.00E+00	0.00E+00	4.73E-07
FE-55	1.16E-02	3.04E-03	1.24E-02	4.25E-02	6.95E-02
FE-59	6.45E-05	3.17E-04	2.12E-04	4.20E-03	4.80E-03
CO-57	1.87E-05	1.10E-04	2.19E-04	2.21E-04	5.69E-04
CO-58	3.53E-03	2.62E-02	1.94E-02	5.50E-02	9.82E-02
CO-60	1.10E-03	9.70E-03	4.60E-02	2.12E-02	7.00E-02
ZN-65	0.00E+00	2.55E-05	3.10E-04	2.00E-04	5.36E-04
ZN-69M	0.00E+00	0.00E+00	0.00E+00	6.35E-07	6.35E-07
BR-82	0.00E+00	5.49E-07	0.00E+00	3.31E-07	8.80E-07
RB-86	3.91E-06	0.00E+00	0.00E+00	0.00E+00	3.91E-06
RB-89	0.00E+00	2.00E-04	0.00E+00	0.00E+00	2.00E-04
SR-91	0.00E+00	0.00E+00	2.21E-05	0.00E+00	2.21E-05
SR-92	4.41E-06	3.22E-06	1.96E-04	1.67E-04	3.71E-04
Y-91M	7.64E-06	0.00E+00	0.00E+00	0.00E+00	7.64E-06
Y-93	0.00E+00	0.00E+00	4.42E-05	9.92E-06	5.41E-05
ZR-95	0.00E+00	5.30E-04	6.04E-04	1.47E-03	2.60E-03
ZR-97	0.00E+00	3.27E-05	0.00E+00	0.00E+00	3.27E-05
NB-95	3.55E-05	1.99E-03	1.35E-03	2.37E-03	5.75E-03
NB-97	2.44E-05	0.00E+00	1.07E-03	9.96E-04	2.09E-03
MO-99	1.27E-05	0.00E+00	0.00E+00	0.00E+00	1.27E-05
TC-99M	0.00E+00	5.87E-07	1.30E-05	3.30E-05	4.66E-05
RU-103	0.00E+00	7.14E-05	1.52E-05	0.00E+00	8.66E-05
RU-106	0.00E+00	3.40E-05	1.81E-03	0.00E+00	1.84E-03
AG-110M	0.00E+00	9.49E-06	4.02E-04	5.01E-04	9.13E-04
I-131	1.82E-05	1.23E-04	2.61E-04	5.69E-03	6.09E-03
I-132	2.42E-05	1.66E-04	0.00E+00	0.00E+00	1.90E-04
I-133	0.00E+00	0.00E+00	3.87E-05	1.42E-04	1.81E-04
SB-122	7.27E-06	1.67E-06	1.33E-06	6.17E-05	2.37E-04
SB-124	1.17E-04	7.49E-04	2.05E-05	8.96E-04	1.78E-03
SB-125	2.64E-03	2.00E-02	5.60E-03	7.47E-03	3.58E-02
SM-113	0.00E+00	1.63E-04	4.17E-04	1.63E-04	7.43E-04
TE-131M	0.00E+00	1.03E-04	0.00E+00	0.00E+00	1.03E-04
CS-134	1.87E-04	1.71E-03	2.78E-04	6.11E-04	2.81E-03
CS-136	0.00E+00	3.87E-07	0.00E+00	1.52E-06	1.91E-06
CS-137	3.63E-04	2.93E-03	5.49E-04	8.83E-04	4.73E-03
CS-138	2.35E-03	0.00E+00	0.00E+00	1.24E-05	2.36E-03
BA-140	3.04E-05	1.75E-06	1.41E-05	2.38E-04	2.84E-04
LA-140	2.65E-05	2.53E-05	6.57E-05	3.78E-04	4.95E-04
CE-141	0.00E+00	8.38E-06	0.00E+00	0.00E+00	8.38E-06
CE-143	0.00E+00	6.56E-07	0.00E+00	0.00E+00	6.56E-07
BI-214	0.00E+00	0.00E+00	5.03E-06	0.00E+00	5.03E-06
PO-214	0.00E+00	0.00E+00	2.07E-05	0.00E+00	2.07E-05
TL-208	5.70E-07	0.00E+00	0.00E+00	0.00E+00	5.70E-07
WP-239	0.00E+00	4.00E-04	0.00E+00	0.00E+00	4.00E-04
SB-126	1.25E-06	3.04E-05	0.00E+00	4.22E-06	3.59E-05
BR-80M	5.91E-06	0.00E+00	0.00E+00	0.00E+00	5.91E-06
ER-85	0.00E+00	2.94E-04	0.00E+00	1.91E-02	1.93E-02
ER-88	0.00E+00	0.00E+00	0.00E+00	3.51E-06	3.51E-06
XE-133	2.16E-03	3.13E-04	2.13E-03	3.44E-03	8.04E-03
XE-133M	0.00E+00	0.00E+00	0.00E+00	2.25E-06	2.25E-06
XE-135	1.38E-05	2.21E-07	8.99E-05	6.86E-05	1.67E-04
XE-135M	5.45E-07	0.00E+00	0.00E+00	0.00E+00	5.45E-07

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SKIN	MAXIMUM DOSE-	8.37E-04 MREM	CRITICAL AGE-	TEEN	CRITICAL PATHWAY-	SHORE
	CO 60	64.85 %				
	SB 125	16.33 %				
	CS 137	10.22 %				
BONE	MAXIMUM DOSE-	2.67E-02 MREM	CRITICAL AGE-	CHILD	CRITICAL PATHWAY-	FISH
	CS 134	25.65 %				
	CS 137	69.83 %				
LIVER	MAXIMUM DOSE-	3.75E-02 MREM	CRITICAL AGE-	TEEN	CRITICAL PATHWAY-	FISH
	H 3	7.68 %				
	CS 134	35.73 %				
	CS 137	52.75 %				
T. BODY	MAXIMUM DOSE-	2.75E-02 MREM	CRITICAL AGE-	ADULT	CRITICAL PATHWAY-	FISH
	H 3	14.21 %				
	CS 134	39.19 %				
	CS 137	45.08 %				
THYROID	MAXIMUM DOSE-	4.18E-03 MREM	CRITICAL AGE-	CHILD	CRITICAL PATHWAY-	DRINKING
	H 3	93.36 %				
KIDNEY	MAXIMUM DOSE-	1.48E-02 MREM	CRITICAL AGE-	ADULT	CRITICAL PATHWAY-	FISH
	H 3	26.47 %				
	CS 134	28.93 %				
	CS 137	43.57 %				
LUNG	MAXIMUM DOSE-	8.19E-03 MREM	CRITICAL AGE-	TEEN	CRITICAL PATHWAY-	FISH
	H 3	35.16 %				
	CO 60	5.63 %				
	CS 134	20.11 %				
	CS 137	32.64 %				
GI-LLI	MAXIMUM DOSE-	1.19E-02 MREM	CRITICAL AGE-	ADULT	CRITICAL PATHWAY-	FISH
	H 3	32.96 %				
	CO 58	5.45 %				
	CO 60	5.21 %				
	NO 95	44.11 %				

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SKIN	MAXIMUM DOSE-	6.19E-03 MREM	CRITICAL AGE-	TEEN	CRITICAL PATHWAY-	SHORE
	CO 60	67.55 %				
	SB 125	14.55 %				
	CS 137	1.70 %				
BONE	MAXIMUM DOSE-	1.87E-01 MREM	CRITICAL AGE-	CHILD	CRITICAL PATHWAY-	FISH
	CS 134	29.16 %				
	CS 137	70.08 %				
LIVER	MAXIMUM DOSE-	2.53E-01 MREM	CRITICAL AGE-	TEEN	CRITICAL PATHWAY-	FISH
	CS 134	42.11 %				
	CS 137	54.88 %				
T. BODY	MAXIMUM DOSE-	1.77E-01 MREM	CRITICAL AGE-	ADULT	CRITICAL PATHWAY-	FISH
	CS 134	48.48 %				
	CS 137	49.24 %				
THYROID	MAXIMUM DOSE-	7.45E-03 MREM	CRITICAL AGE-	TEEN	CRITICAL PATHWAY-	SHORE
	H 3	19.41 %				
	CO 60	47.84 %				
	I 131	9.13 %				
	SB 125	10.73 %				
	CS 137	6.93 %				
KIDNEY	MAXIMUM DOSE-	8.61E-02 MREM	CRITICAL AGE-	TEEN	CRITICAL PATHWAY-	FISH
	CS 134	38.61 %				
	CS 137	54.06 %				
LUNG	MAXIMUM DOSE-	3.61E-02 MREM	CRITICAL AGE-	TEEN	CRITICAL PATHWAY-	FISH
	CO 60	9.34 %				
	CS 134	34.42 %				
	CS 137	49.42 %				
GI-LLI	MAXIMUM DOSE-	2.75E-01 MREM	CRITICAL AGE-	ADULT	CRITICAL PATHWAY-	FISH
	NO 95	93.02 %				

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SKIN	MAXIMUM DOSE-	1.99E-02 MREM	CRITICAL AGE-	TEEN	CRITICAL PATHWAY-	SHORE
	CO 60	96.31 %				
BONE	MAXIMUM DOSE-	4.43E-02 MREM	CRITICAL AGE-	TEEN	CRITICAL PATHWAY-	FISH
	CO 60	36.77 %				
	CS 134	16.16 %				
	CS 137	42.84 %				
LIVER	MAXIMUM DOSE-	6.69E-02 MREM	CRITICAL AGE-	TEEN	CRITICAL PATHWAY-	FISH
	CO 60	25.84 %				
	CS 134	25.11 %				
	CS 137	37.68 %				
T. BODY	MAXIMUM DOSE-	3.94E-02 MREM	CRITICAL AGE-	TEEN	CRITICAL PATHWAY-	FISH
	CO 60	47.03 %				
	CS 134	19.80 %				
	CS 137	22.42 %				
THYROID	MAXIMUM DOSE-	2.03E-02 MREM	CRITICAL AGE-	TEEN	CRITICAL PATHWAY-	SHORE
	H 3	9.58 %				
	CO 60	80.31 %				
	I 131	6.85 %				
KIDNEY	MAXIMUM DOSE-	3.48E-02 MREM	CRITICAL AGE-	TEEN	CRITICAL PATHWAY-	SHORE
	H 3	5.58 %				
	CO 60	46.83 %				
	CS 134	15.41 %				
	CS 137	24.84 %				
LUNG	MAXIMUM DOSE-	2.46E-02 MREM	CRITICAL AGE-	TEEN	CRITICAL PATHWAY-	SHORE
	H 3	7.90 %				
	CO 60	66.29 %				
	CS 134	8.41 %				
	CS 137	13.90 %				
GI-ILI	MAXIMUM DOSE-	2.06E-01 MREM	CRITICAL AGE-	ADULT	CRITICAL PATHWAY-	FISH
	CO 60	10.59 %				
	MB 95	61.64 %				

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SKIN	MAXIMUM DOSE-	1.59E-02 MREM	CRITICAL AGE-	TEEN	CRITICAL PATHWAY-	SHORE
	CO 60	87.85 %				
BONE	MAXIMUM DOSE-	1.02E-01 MREM	CRITICAL AGE-	CHILD	CRITICAL PATHWAY-	FISH
	FE 55	5.12 %				
	CS 134	51.01 %				
	CS 137	59.52 %				
LIVER	MAXIMUM DOSE-	1.55E-01 MREM	CRITICAL AGE-	TEEN	CRITICAL PATHWAY-	FISH
	CO 60	8.14 %				
	CS 134	39.68 %				
	CS 137	41.29 %				
T. BODY	MAXIMUM DOSE-	1.05E-01 MREM	CRITICAL AGE-	ADULT	CRITICAL PATHWAY-	FISH
	H 3	6.90 %				
	CS 134	47.09 %				
	CS 137	38.18 %				
THYROID	MAXIMUM DOSE-	6.70E-02 MREM	CRITICAL AGE-	TEEN	CRITICAL PATHWAY-	FISH
	H 3	7.98 %				
	CO 60	17.74 %				
	I 131	71.61 %				
KIDNEY	MAXIMUM DOSE-	6.27E-02 MREM	CRITICAL AGE-	TEEN	CRITICAL PATHWAY-	FISH
	H 3	8.53 %				
	CO 60	18.96 %				
	CS 134	31.31 %				
	CS 137	35.00 %				
LUNG	MAXIMUM DOSE-	3.70E-02 MREM	CRITICAL AGE-	TEEN	CRITICAL PATHWAY-	FISH
	H 3	14.45 %				
	CO 60	32.12 %				
	CS 134	20.44 %				
	CS 137	23.43 %				
GI-LLI	MAXIMUM DOSE-	5.23E-01 MREM	CRITICAL AGE-	ADULT	CRITICAL PATHWAY-	FISH
	NO 95	88.89 %				

SKIN	MAXIMUM DOSE-	4.27E-02 MREM	CRITICAL AGE-	TEEN	CRITICAL PATHWAY-	SHORE
	CO 60	88.69 %				
BONE	MAXIMUM DOSE-	3.58E-01 MREM	CRITICAL AGE-	CHILD	CRITICAL PATHWAY-	FISH
	CS 134	28.54 %				
	CS 137	67.00 %				
LIVER	MAXIMUM DOSE-	5.14E-01 MREM	CRITICAL AGE-	TEEN	CRITICAL PATHWAY-	FISH
	CO 60	6.65 %				
	CS 134	38.55 %				
	CS 137	49.08 %				
T. BODY	MAXIMUM DOSE-	3.49E-01 MREM	CRITICAL AGE-	ADULT	CRITICAL PATHWAY-	FISH
	CS 134	45.69 %				
	CS 137	45.32 %				
THYROID	MAXIMUM DOSE-	6.51E-02 MREM	CRITICAL AGE-	TEEN	CRITICAL PATHWAY-	FISH
	H 3	12.53 %				
	CO 60	37.84 %				
	I 131	44.55 %				
KIDNEY	MAXIMUM DOSE-	2.40E-01 MREM	CRITICAL AGE-	TEEN	CRITICAL PATHWAY-	FISH
	H 3	5.33 %				
	CO 60	16.08 %				
	CS 134	31.58 %				
	CS 137	43.18 %				
LUNG	MAXIMUM DOSE-	1.07E-01 MREM	CRITICAL AGE-	TEEN	CRITICAL PATHWAY-	FISH
	H 3	9.98 %				
	CO 60	30.15 %				
	CS 134	22.81 %				
	CS 137	31.98 %				
GI-LLI	MAXIMUM DOSE-	9.47E-01 MREM	CRITICAL AGE-	ADULT	CRITICAL PATHWAY-	FISH
	NB 95	87.85 %				

CATARA NUCLEAR STATION
UNIT 1
RADIOACTIVE EFFLUENT RELEASES
DATE 02/24/92

11. AIRBORNE RELEASES

YEAR : 1991

	UNITS	1ST QTR	2ND QTR	3RD QTR	4TH QTR	TOTAL
1. TOTAL NOBLE GASES	CURIES	8.66E+01	6.95E+01	7.37E+01	1.72E+02	4.02E+02
2. TOTAL HALOGENS	CURIES	3.63E-03	7.15E-05	4.33E-04	3.72E-04	4.50E-03
3. TOTAL PARTICULATE GROSS BETA-GAMMA	CURIES	1.93E-02	3.54E-04	7.65E-06	1.46E-05	1.96E-02
4. TOTAL TRITIUM	CURIES	1.23E+01	1.69E+01	1.01E+01	2.31E+01	4.23E+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	6.00E+02

7. RADIONUCLIDES RELEASED

CURIES

PARTICULATES

F-18	1.91E-02	1.68E-06	4.61E-06	1.96E-06	1.91E-02
MN-56	2.41E-08	0.00E+00	0.00E+00	1.21E-07	1.46E-07
CO-57	8.35E-07	0.00E+00	0.00E+00	5.93E-07	1.43E-06
CO-58	1.02E-05	2.65E-04	0.00E+00	6.68E-06	2.82E-04
CO-60	9.54E-06	8.62E-05	0.00E+00	0.00E+00	9.58E-05
BR-82	7.31E-08	5.04E-08	7.48E-08	4.77E-08	2.46E-07
RO-88	4.03E-06	1.66E-06	2.75E-06	4.88E-06	1.33E-05
ZR-97	0.00E+00	0.00E+00	0.00E+00	8.38E-09	8.38E-09
NB-97	0.00E+00	0.00E+00	0.00E+00	1.67E-09	1.67E-09
TC-99M	0.00E+00	9.62E-08	0.00E+00	7.67E-10	9.70E-08
CD-115	0.00E+00	0.00E+00	0.00E+00	4.13E-09	4.13E-09
SB-122	0.00E+00	0.00E+00	0.00E+00	2.34E-10	2.34E-10
SB-125	0.56E-05	0.00E+00	0.00E+00	0.00E+00	8.56E-05
SN-113	1.05E-06	0.00E+00	0.00E+00	0.00E+00	1.05E-06
CS-136	0.00E+00	0.00E+00	4.90E-10	0.00E+00	4.90E-10
CS-137	4.53E-10	0.00E+00	0.00E+00	1.16E-09	1.61E-09
CS-138	2.67E-08	0.00E+00	8.51E-09	2.19E-07	2.54E-07
BA-139	0.00E+00	0.00E+00	0.00E+00	2.39E-09	2.39E-09
CE-144	0.00E+00	8.19E-09	0.00E+00	0.00E+00	8.19E-09
NP-239	2.90E-10	0.00E+00	0.00E+00	0.00E+00	2.90E-10
SB-126	1.59E-05	0.00E+00	0.00E+00	2.17E-09	1.59E-05
BR-80M	6.44E-08	7.85E-08	2.02E-07	4.56E-08	5.90E-07

HALOGENS

I-131	4.09E-04	6.21E-05	1.96E-04	2.43E-04	9.10E-04
I-132	6.91E-04	1.31E-06	9.24E-09	8.03E-07	6.92E-04
I-133	3.0E-03	8.14E-06	2.06E-04	1.28E-04	2.68E-03
I-134	2.53E-07	0.00E+00	0.00E+00	1.12E-07	3.65E-07
I-135	2.21E-04	0.00E+00	0.00E+00	6.32E-07	2.22E-04

GASES

AR-41	1.01E+00	4.52E+00	1.52E+00	1.05E+01	1.75E+01
KR-85	1.56E-01	3.49E-01	6.46E-02	8.85E-02	6.50E-01
KR-35M	2.28E-01	1.80E-01	6.01E-02	1.64E-01	6.32E-01
KR-87	3.18E-02	1.57E-02	8.72E-03	6.53E-03	6.27E-02
KR-88	2.44E-01	1.20E-01	3.90E-02	7.50E-02	4.76E-01
XE-131M	7.66E-01	1.30E+00	7.07E-01	1.20E+00	3.97E+00
XE-133	7.77E+01	6.03E+01	6.43E+01	1.55E+02	3.62E+02
XE-133M	1.40E+00	6.29E-01	7.11E-01	1.58E+00	4.33E+00
XE-135	5.10E+00	2.13E+00	1.34E+00	3.17E+00	1.17E+01
XE-135M	1.23E-03	0.00E+00	3.04E-05	0.00E+00	1.26E-03
XE-138	7.47E-04	0.00E+00	0.00E+00	0.00E+00	7.47E-04

CATAWBA UNIT 1 GAS DOSE 001-090 91 RELEASE WEIGHTED MET REPORT SUMMARY
SPECIAL LOCATION
AT 0.50 MILES NNE

02/24/92

NOBLE GAS EXPOSURE:

BETA AIR DOSE = $9.75\text{E-}02$ MILLIRADS
GAMMA AIR DOSE = $4.75\text{E-}02$ MILLIRADS

TOTAL BODY DOSE = $2.96\text{E-}02$ MILLIREM
KR 88 7.13%
XE133 51.43%
XE135 21.99%
AR 41 17.42%

TOTAL SKIN DOSE = $7.46\text{E-}02$ MILLIREM
KR 88 3.89%
XE133 57.42%
XE135 23.05%
AR 41 11.12%

CATAMBA UNIT 1 GAS DOSE 001-090 91 RELEASE WEIGHTED NET REPORT SUMMARY
SPECIAL LOCATION
AT 0.50 MILES ENE

02/24/92

IODINE, PARTICULATE, AND TRITIUM EXPOSURE SUMMARY:

MAXIMUM ORGAN - THYROID
CRITICAL AGE - CHILD
CRITICAL PATHWAY - VEGET @ 72.11%

MAXIMUM ORGAN DOSE = 8.09E-02 MILLIREM

H 3	60.89%
I 131	27.89%
I 133	10.72%

CATAMBA UNIT 1 GAS DOSE 091-181 91 RELEASE WEIGHTED MET REPORT SUMMARY 02/24/92
SPECIAL LOCATION
AT 0.50 MILES NE

NOBLE GAS EXPOSURE:

BETA AIR DOSE = $8.95E-02$ MILLIRADS
GAMMA AIR DOSE = $7.75E-02$ MILLIRADS

TOTAL BODY DOSE = $4.97E-02$ MILLIREM
XE133 24.64%
XE135 6.23%
AR 41 65.47%

TOTAL SKIN DOSE = $9.92E-02$ MILLIREM
XE133 34.86%
XE135 8.24%
AR 41 52.39%

CATAMBA UNIT 1 GAS DOSE 091-181 91 RELEASE WEIGHTED NET REPORT SUMMARY
SPECIAL LOCATION
AT 0.50 MILES S

02/24/92

IOGINE, PARTICULATE, AND TRITIUM EXPOSURE SUMMARY:

MAXIMUM ORGAN - THYROID
CRITICAL AGE - CHILD
CRITICAL PATHWAY - VEGET @ 77.93%

MAXIMUM ORGAN DOSE = 5.46E-02 MILLIREM
H 3 93.11%
I 131 6.10%

CATAMBA UNIT 1 GAS DOSE 1A2-273 91 RELEASE WEIGHTED KEY REPORT SUMMARY
SPECIAL LOCATION
AT 0.50 MILES NE

02/24/92

NOBLE GAS EXPOSURE:

BETA AIR DOSE = 1.00E-01 MILLIRADS
GAMMA AIR DOSE = 5.10E-02 MILLIRADS

TOTAL BODY DOSE = 3.14E-02 MILLIREM
XE133 54.66%
XE135 5.91%
AR 41 37.45%

TOTAL SKIN DOSE = 7.46E-02 MILLIREM
XE133 64.89%
XE135 6.58%
AR 41 25.27%

CATANBA UNIT 1 GAS DOSE 182-273 91 RELEASE WEIGHTED NET REPORT SUMMARY
SPECIAL LOCATION
AT 0.50 MILES ENE

02/24/92

IODINE, PARTICULATE, AND TRITIUM EXPOSURE SUMMARY:

MAXIMUM ORGAN - THYROID
CRITICAL AGE - CHILD
CRITICAL PATHWAY - VEGET @ 75.33%

MAXIMUM ORGAN DOSE = 7.12E-02 MILLIREM
H 3 87.09%
I 131 11.37%

CATAMBA UNIT 1 GAS DOSE 274-105 91 RELEASE WEIGHED NET REPORT SUMMARY 02/18/92
 SPECIAL LOCATION
 AT 0.50 MILES N4E

NOBLE GAS EXPOSURE:

BETA AIR DOSE = 3.01E-01 MILLIRADS
 GAMMA AIR DOSE = 2.65E-01 MILLIRADS

TOTAL BODY DOSE = 1.70E-01 MILLIREM
 XE133 29.96%
 XE135 4.65%
 AR 41 65.39%

TOTAL SKIN DOSE = 3.36E-01 MILLIREM
 XE133 35.40%
 XE135 6.22%
 AR 41 58.37%

CATAWBA UNIT 1 GAS DOSE 274-365 91 RELEASE WEIGHTED NET REPORT SUMMARY
SPECIAL LOCATION
AT 0.50 MILES ENE

02/24/92

IODINE, PARTICULATE, AND TRITIUM EXPOSURE SUMMARY:

MAXIMUM ORGAN - THYROID
CRITICAL AGE - CHILD
CRITICAL PATHWAY - VEGET @ 77.37%

MAXIMUM ORGAN DOSE = 1.24E-01 MILLIREM
H 3 91.33%
I 131 8.27%

CATAMBA UNIT 1 GAS DOSE 001-365 91 RELEASE WEIGHTED MEY REPORT SUMMARY 02/24/92
SPECIAL LOCATION
AT 0.50 MILES NNE

NOBLE GAS EXPOSURE:

BETA AIR DOSE = 5.80E-01 MILLIRADS
GAMMA AIR DOSE = 6.27E-01 MILLIRADS

TOTAL BODY DOSE = 2.71E-01 MILLIREM
XE135 51.89%
XE135 6.84%
AR 41 58.63%

TOTAL SKIN DOSE = 5.68E-01 MILLIREM
XE135 43.02%
XE135 8.62%
AR 41 44.36%

CATAMBA UNIT 1 GAS DOSE 001-365 91 RELEASE WEIGHTED NET REPORT SUMMARY
SPECIAL LOCATION
AT 0.50 MILES ENE

02/24/92

IODINE, PARTICULATE, AND TRITIUM EXPOSURE SUMMARY:

MAXIMUM ORGAN - THYROID
CRITICAL AGE - CHILD
CRITICAL PATHWAY - VEGET @ 75.26%

MAXIMUM ORGAN DOSE = 5.26E-01 MILLIREM
H 3 83.06%
I 131 13.51%

UNIT 2

CATAMBA NUCLEAR STATION
UNIT 2
RADIOACTIVE EFFLUENT RELEASES
DATE : 02/24/92

1. LIQUID RELEASES

	UNITS	1ST QTR	2ND QTR	3RD QTR	4TH QTR	YEAR : 1991 TOTAL
1. GROSS RADIOACTIVITY						
A. TOTAL RELEASE	CURIES	2.27E-02	7.76E-02	9.55E-02	1.66E-01	3.81E-01
B. AVERAGE CONCENTRATION RELEASED	UCI/ML	1.02E-09	2.99E-09	3.55E-09	1.00E-08	4.14E-09
C. MAXIMUM CONCENTRATION RELEASED	UCI/ML	5.44E-09	1.09E-08	2.17E-08	2.02E-08	4.04E-08
2. TRITIUM						
A. TOTAL RELEASE	CURIES	8.54E+01	4.92E+01	6.86E+01	1.20E+02	3.23E+02
B. AVERAGE CONCENTRATION RELEASED	UCI/ML	3.83E-06	1.90E-06	2.55E-06	7.00E-06	3.50E-06
3. DISSOLVED NOBLE GASES						
A. TOTAL RELEASE	CURIES	2.18E-03	4.00E-04	2.21E-03	2.26E-02	2.76E-02
B. AVERAGE CONCENTRATION RELEASED	UCI/ML	9.76E-11	2.35E-11	0.22E-11	1.32E-09	2.99E-10
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	5.78E+07	1.01E+08	4.35E+07	4.35E+07	2.46E+08
6. VOLUME OF DILUTION WATER	LITERS	2.23E+10	2.59E+10	2.69E+10	1.71E+10	9.22E+10
7. RADIONUCLIDES RELEASED	CURIES					

FE-7	0.00E+00	0.00E+00	0.00E+00	9.22E-05	9.22E-05
F-18	2.17E-04	6.97E-04	1.44E-03	6.65E-04	3.02E-03
HA-24	0.00E+00	1.73E-05	1.67E-06	1.03E-05	2.92E-05
CR-51	7.73E-05	5.98E-05	1.59E-03	3.37E-02	4.13E-02
MN-54	3.07E-04	2.03E-03	7.12E-03	5.62E-03	1.51E-02
MR-56	0.00E+00	4.73E-07	0.00E+00	0.00E+00	4.73E-07
FE-55	1.16E-02	3.04E-03	1.24E-02	4.25E-02	6.95E-02
FE-59	6.45E-05	3.17E-04	2.12E-04	4.20E-03	4.80E-03
CO-57	1.07E-05	1.10E-04	2.19E-04	2.21E-04	5.69E-04
CO-58	3.53E-03	2.62E-02	1.34E-02	5.50E-02	9.82E-02
CO-60	1.10E-03	9.70E-03	4.60E-02	2.12E-02	7.80E-02
ZN-65	0.00E+00	2.55E-05	3.10E-04	2.00E-04	5.56E-04
ZN-69M	0.00E+00	0.00E+00	0.00E+00	6.35E-07	6.35E-07
BR-82	0.00E+00	5.49E-07	0.00E+00	3.31E-07	8.80E-07
BR-86	3.91E-06	0.00E+00	0.00E+00	0.00E+00	3.91E-06
BR-89	0.00E+00	2.00E-04	0.00E+00	0.00E+00	2.00E-04
SR-91	0.00E+00	0.00E+00	2.21E-05	0.00E+00	2.21E-05
SR-92	4.41E-06	3.22E-06	1.96E-04	1.67E-04	3.71E-04
Y-91M	7.64E-06	0.00E+00	0.00E+00	0.00E+00	7.64E-06
Y-93	0.00E+00	0.00E+00	4.42E-05	9.92E-06	5.41E-05
ZR-95	0.00E+00	5.30E-04	6.04E-04	1.47E-03	2.60E-03
ZR-97	0.00E+00	3.27E-05	0.00E+00	0.00E+00	3.27E-05
MB-95	3.55E-05	1.99E-03	1.35E-03	2.37E-03	5.75E-03
MB-97	2.44E-05	0.00E+00	1.07E-03	9.96E-04	2.09E-03
MO-99	1.27E-05	0.00E+00	0.00E+00	0.00E+00	1.27E-05
TC-99M	0.00E+00	5.87E-07	1.30E-05	3.30E-05	4.66E-05
RU-103	0.00E+00	7.14E-05	1.52E-05	0.00E+00	8.66E-05
RU-106	0.00E+00	3.40E-05	1.81E-03	0.00E+00	1.84E-03
AG-110M	0.00E+00	9.49E-06	4.02E-04	3.01E-04	9.13E-04
I-131	1.82E-05	1.23E-04	2.61E-04	5.69E-03	6.09E-03
I-132	2.42E-05	1.66E-04	0.00E+00	0.00E+00	1.90E-04
I-133	0.00E+00	0.00E+00	3.87E-05	1.42E-04	1.81E-04
SB-122	7.27E-06	1.67E-04	1.33E-06	6.17E-05	2.37E-04
SB-124	1.17E-04	7.49E-04	2.05E-05	8.96E-04	1.78E-03
SB-125	2.64E-03	2.00E-02	5.68E-03	7.47E-03	3.58E-02
SN-113	0.00E+00	1.63E-04	4.17E-04	1.63E-04	7.43E-04
TE-131M	0.00E+00	1.03E-04	0.00E+00	0.00E+00	1.03E-04
CS-134	1.07E-04	1.71E-03	2.78E-04	6.44E-04	2.81E-03
CS-136	0.00E+00	3.87E-07	0.00E+00	1.52E-06	1.91E-06
CS-137	3.63E-04	2.93E-03	5.49E-04	8.83E-04	4.73E-03
CS-138	2.35E-03	0.00E+00	0.00E+00	1.24E-05	2.36E-03
BA-140	3.04E-05	1.75E-06	1.41E-05	2.38E-04	2.84E-04
LA-140	2.65E-05	2.53E-05	6.57E-05	3.78E-04	4.95E-04
CE-141	0.00E+00	0.38E-06	0.00E+00	0.00E+00	0.38E-06
CE-143	0.00E+00	6.56E-07	0.00E+00	0.00E+00	6.56E-07
BI-214	0.00E+00	0.00E+00	5.63E-06	0.00E+00	5.63E-06
PO-214	0.00E+00	0.00E+00	2.07E-05	0.00E+00	2.07E-05
TL-208	5.70E-07	0.00E+00	0.00E+00	0.00E+00	5.70E-07
WP-234	0.00E+00	4.00E-04	0.00E+00	0.00E+00	4.00E-04
SB-126	1.25E-06	3.04E-05	0.00E+00	4.22E-06	3.59E-05
BR-80M	5.91E-06	0.00E+00	0.00E+00	0.00E+00	5.91E-06
KR-85	0.00E+00	2.94E-04	0.00E+00	1.91E-02	1.93E-02
KR-88	0.00E+00	0.00E+00	0.00E+00	3.51E-06	3.51E-06
XE-133	2.16E-03	3.13E-04	2.13E-03	3.44E-03	8.84E-03
XE-133M	0.00E+00	0.00E+00	0.00E+00	2.25E-06	2.25E-06
XE-135	1.38E-05	2.21E-07	8.39E-05	6.86E-05	1.67E-04
XE-135H	5.45E-07	0.00E+00	0.00E+00	0.00E+00	5.45E-07

02/24/92

SKIN	MAXIMUM DOSE-	8.37E-04 MREM	CRITICAL AGE-	TEEN	CRITICAL PATHWAY-	SHORE
	CO 60	64.85 %				
	SB 125	16.33 %				
	CS 137	10.22 %				
BONE	MAXIMUM DOSE-	2.67E-02 MREM	CRITICAL AGE-	CHILD	CRITICAL PATHWAY-	FISH
	CS 134	25.65 %				
	CS 137	69.83 %				
LIVER	MAXIMUM DOSE-	3.75E-02 MREM	CRITICAL AGE-	TEEN	CRITICAL PATHWAY-	FISH
	H 3	7.68 %				
	CS 134	35.73 %				
	CS 137	52.75 %				
1. BODY	MAXIMUM DOSE-	2.75E-02 MREM	CRITICAL AGE-	ADULT	CRITICAL PATHWAY-	FISH
	H 3	14.21 %				
	CS 134	39.19 %				
	CS 137	45.08 %				
THYROID	MAXIMUM DOSE-	4.18E-03 MREM	CRITICAL AGE-	CHILD	CRITICAL PATHWAY-	DRINKING
	H 3	93.36 %				
KIDNEY	MAXIMUM DOSE-	1.48E-02 MREM	CRITICAL AGE-	ADULT	CRITICAL PATHWAY-	FISH
	H 3	26.47 %				
	CS 134	28.93 %				
	CS 137	43.57 %				
LUNG	MAXIMUM DOSE-	8.19E-03 MREM	CRITICAL AGE-	TEEN	CRITICAL PATHWAY-	FISH
	H 3	35.16 %				
	CO 60	5.63 %				
	CS 134	20.11 %				
	CS 137	32.69 %				
GI-LLI	MAXIMUM DOSE-	1.19E-02 MREM	CRITICAL AGE-	ADULT	CRITICAL PATHWAY-	FISH
	H 3	32.96 %				
	CO 58	5.45 %				
	CO 60	5.21 %				
	NB 95	44.11 %				

02/24/92

SKIN	MAXIMUM DOSE-	6.19E-03 MREM	CRITICAL AGE-	TEEN	CRITICAL PATHWAY-	SHORE
	CO 60	67.55 %				
	SB 125	14.55 %				
	CS 137	9.70 %				
BONE	MAXIMUM DOSE-	1.87E-01 MREM	CRITICAL AGE-	CHILD	CRITICAL PATHWAY-	FISH
	CS 134	29.16 %				
	CS 137	70.08 %				
LIVER	MAXIMUM DOSE-	2.53E-01 MREM	CRITICAL AGE-	TEEN	CRITICAL PATHWAY-	FISH
	CS 134	42.11 %				
	CS 137	54.98 %				
T. BODY	MAXIMUM DOSE-	1.77E-01 MREM	CRITICAL AGE-	ADULT	CRITICAL PATHWAY-	FISH
	CS 134	48.48 %				
	CS 137	49.24 %				
THYROID	MAXIMUM DOSE-	7.43E-03 MREM	CRITICAL AGE-	TEEN	CRITICAL PATHWAY-	SHORE
	H 3	19.41 %				
	CO 60	47.84 %				
	I 131	9.13 %				
	SB 125	10.73 %				
	CS 137	6.93 %				
KIDNEY	MAXIMUM DOSE-	8.81E-02 MREM	CRITICAL AGE-	TEEN	CRITICAL PATHWAY-	FISH
	CS 134	38.61 %				
	CS 137	54.06 %				
LUNG	MAXIMUM DOSE-	3.81E-02 MREM	CRITICAL AGE-	TEEN	CRITICAL PATHWAY-	FISH
	CO 60	9.34 %				
	CS 134	34.42 %				
	CS 137	49.42 %				
GI-LLI	MAXIMUM DOSE-	2.75E-01 MREM	CRITICAL AGE-	ADULT	CRITICAL PATHWAY-	FISH
	NE 95	93.02 %				

02/24/92

SKIN	MAXIMUM DOSE-	1.99E-02 MREM	CRITICAL AGE-	TEEN	CRITICAL PATHWAY-	SHORE
	CO 60	96.31 %				
BONE	MAXIMUM DOSE-	4.43E-02 MREM	CRITICAL AGE-	TEEN	CRITICAL PATHWAY-	FISH
	CO 60	36.77 %				
	CS 134	16.16 %				
	CS 137	42.84 %				
LIVER	MAXIMUM DOSE-	6.69E-02 MREM	CRITICAL AGE-	TEEN	CRITICAL PATHWAY-	FISH
	CO 60	25.84 %				
	CS 134	25.11 %				
	CS 137	37.68 %				
T. BODY	MAXIMUM DOSE-	3.94E-02 MREM	CRITICAL AGE-	TEEN	CRITICAL PATHWAY-	FISH
	CO 60	47.03 %				
	CS 134	19.80 %				
	CS 137	22.42 %				
THYROID	MAXIMUM DOSE-	2.03E-02 MREM	CRITICAL AGE-	TEEN	CRITICAL PATHWAY-	SHORE
	H 3	9.58 %				
	CU 60	80.31 %				
	I 131	6.85 %				
KIDNEY	MAXIMUM DOSE-	3.48E-02 MREM	CRITICAL AGE-	TEEN	CRITICAL PATHWAY-	SHORE
	H 3	5.58 %				
	CO 60	46.83 %				
	CS 134	15.41 %				
	CS 137	24.84 %				
LUNG	MAXIMUM DOSE-	2.46E-02 MREM	CRITICAL AGE-	TEEN	CRITICAL PATHWAY-	SHORE
	H 3	7.90 %				
	CO 60	66.29 %				
	CS 134	8.41 %				
	CS 137	13.90 %				
GI-LLI	MAXIMUM DOSE-	2.06E-01 MREM	CRITICAL AGE-	ADULT	CRITICAL PATHWAY-	FISH
	CO 60	10.59 %				
	SB 95	81.64 %				

02/29/92

SKIN	MAXIMUM DOSE-	1.59E-02 MREM	CRITICAL AGE-	TEEN	CRITICAL PATHWAY-	SHORE
	CO 60	87.85 %				
BONE	MAXIMUM DOSE-	1.02E-01 MREM	CRITICAL AGE-	CHILD	CRITICAL PATHWAY-	FISH
	FE 55	5.12 %				
	CS 134	51.01 %				
	CS 137	59.52 %				
LIVER	MAXIMUM DOSE-	1.55E-01 MREM	CRITICAL AGE-	TEEN	CRITICAL PATHWAY-	FISH
	CO 60	8.14 %				
	CS 134	39.68 %				
	CS 137	41.29 %				
T. BODY	MAXIMUM DOSE-	1.05E-01 MREM	CRITICAL AGE-	ADULT	CRITICAL PATHWAY-	FISH
	H 3	6.90 %				
	CS 134	47.09 %				
	CS 137	36.18 %				
THYROID	MAXIMUM DOSE-	6.70E-02 MREM	CRITICAL AGE-	TEEN	CRITICAL PATHWAY-	FISH
	H 3	7.98 %				
	CO 60	17.74 %				
	I 131	71.61 %				
KIDNEY	MAXIMUM DOSE-	6.27E-02 MREM	CRITICAL AGE-	TEEN	CRITICAL PATHWAY-	FISH
	H 3	8.53 %				
	CO 60	18.96 %				
	CS 134	31.31 %				
	CS 137	35.00 %				
LUNG	MAXIMUM DOSE-	3.70E-02 MREM	CRITICAL AGE-	TEEN	CRITICAL PATHWAY-	FISH
	H 3	14.45 %				
	CO 60	32.12 %				
	CS 134	20.44 %				
	CS 137	23.43 %				
GI-LLI	MAXIMUM DOSE-	5.23E-01 MREM	CRITICAL AGE-	ADULT	CRITICAL PATHWAY-	FISH
	NO 95	88.89 %				

02/24/92

SKIN	MAXIMUM DOSE-	4.27E-02 MREM	CRITICAL AGE-	TEEN	CRITICAL PATHWAY-	SHORE
	CO 60	88.69 %				
BONE	MAXIMUM DOSE-	3.56E-01 MREM	CRITICAL AGE-	CHILD	CRITICAL PATHWAY-	FISH
	CS 134	28.54 %				
	CS 137	67.00 %				
LIVER	MAXIMUM DOSE-	5.14E-01 MREM	CRITICAL AGE-	TEEN	CRITICAL PATHWAY-	FISH
	CO 60	6.65 %				
	CS 134	38.55 %				
	CS 137	49.06 %				
T. BODY	MAXIMUM DOSE-	3.49E-01 MREM	CRITICAL AGE-	ADULT	CRITICAL PATHWAY-	FISH
	CS 134	45.69 %				
	CS 137	45.32 %				
THYROID	MAXIMUM DOSE-	8.51E-02 MREM	CRITICAL AGE-	TEEN	CRITICAL PATHWAY-	FISH
	H 3	12.53 %				
	CO 60	37.84 %				
	I 131	44.55 %				
KIDNEY	MAXIMUM DOSE-	2.00E-01 MREM	CRITICAL AGE-	TEEN	CRITICAL PATHWAY-	FISH
	H 3	5.33 %				
	CO 60	16.02 %				
	CS 134	31.58 %				
	CS 137	43.18 %				
LUNG	MAXIMUM DOSE-	1.07E-01 MREM	CRITICAL AGE-	TEEN	CRITICAL PATHWAY-	FISH
	H 3	9.98 %				
	CO 60	30.15 %				
	CS 134	22.81 %				
	CS 137	31.98 %				
GI-LLI	MAXIMUM DOSE-	9.47E-01 MREM	CRITICAL AGE-	ADULT	CRITICAL PATHWAY-	FISH
	NO 95	87.85 %				

CATAWBA NUCLEAR STATION
UNIT 2
RADIOACTIVE EFFLUENT RELEASES
DATE : 02/24/92

II. AIRBORNE RELEASES

	UNITS	1ST QTR	2ND QTR	3RD QTR	4TH QTR	YEAR : 1991 TOTAL
1. TOTAL NOBLE GASES	CURIES	8.66E+01	6.95E+01	7.37E+01	1.72E+02	4.02E+02
2. TOTAL HALOGENS	CURIES	3.63E-03	7.15E-05	4.33E-04	3.72E-04	4.50E-03
3. TOTAL PARTICULATE GROSS BETA-GAMMA	CURIES	1.93E-02	3.54E-04	7.65E-06	1.46E-05	1.96E-02
4. TOTAL TRITIUM	CURIES	1.23E+01	1.68E+01	1.01E+01	2.31E+01	6.23E+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	8.00E+02
7. RADIONUCLIDES RELEASED	CURIES					

PARTICULATES

F-18	1.91E-02	1.68E-06	4.61E-06	1.96E-06	1.91E-02
NK-56	2.41E-08	0.00E+00	0.00E+00	1.21E-07	1.46E-07
CD-57	8.35E-07	0.00E+00	0.00E+00	5.93E-07	1.43E-06
CD-58	1.02E-05	2.65E-04	0.00E+00	6.68E-06	2.82E-04
BR-82	9.54E-06	8.62E-05	0.00E+00	0.00E+00	9.58E-05
AB-88	7.31E-08	5.04E-08	7.48E-08	4.77E-08	2.46E-07
IR-97	4.03E-06	1.66E-06	2.75E-06	4.88E-06	1.33E-05
NB-97	0.00E+00	0.00E+00	0.00E+00	8.38E-09	8.38E-09
TC-99M	0.00E+00	0.00E+00	0.00E+00	1.67E-09	1.67E-09
CD-115	0.00E+00	9.62E-08	0.00E+00	7.67E-10	9.70E-08
SB-122	0.00E+00	0.00E+00	0.00E+00	4.13E-09	4.13E-09
SB-125	0.00E+00	0.00E+00	0.00E+00	2.34E-10	2.34E-10
SN-113	8.56E-05	0.00E+00	0.00E+00	0.00E+00	8.56E-05
CS-136	1.05E-06	0.00E+00	0.00E+00	0.00E+00	1.05E-06
CS-137	0.00E+00	0.00E+00	4.90E-10	0.00E+00	4.90E-10
CS-138	4.53E-10	0.00E+00	0.00E+00	1.16E-09	1.61E-09
BA-139	2.67E-08	0.00E+00	8.51E-09	2.19E-07	2.54E-07
CE-144	0.00E+00	0.00E+00	0.00E+00	2.39E-09	2.39E-09
NP-239	0.00E+00	8.19E-09	0.00E+00	0.00E+00	8.19E-09
SB-126	2.90E-10	0.00E+00	0.00E+00	0.00E+00	2.90E-10
BR-80M	1.59E-05	0.00E+00	0.00E+00	2.17E-09	1.59E-05
	4.44E-08	7.85E-08	2.02E-07	4.56E-08	3.98E-07

HALOGENS

I-131	4.09E-04	6.21E-05	1.96E-04	2.43E-04	9.11E-04
I-132	6.91E-04	1.31E-06	9.24E-09	8.03E-07	6.93E-04
I-133	2.30E-03	8.14E-06	2.36E-04	1.28E-04	2.68E-03
I-134	2.53E-07	0.00E+00	0.00E+00	1.12E-07	3.65E-07
I-135	2.21E-04	0.00E+00	0.00E+00	6.32E-07	2.22E-04

GASES

AR-41	1.01E+00	4.52E+00	1.52E+00	1.05E+01	1.75E+01
KR-85	1.56E-01	3.49E-01	6.46E-02	8.85E-02	6.58E-01
KR-85M	2.29E-01	1.80E-01	6.01E-02	1.64E-01	6.32E-01
KR-87	3.18E-02	1.57E-02	8.72E-03	6.53E-03	6.27E-02
KR-88	2.44E-01	1.20E-01	3.90E-02	7.50E-02	4.78E-01
XE-131M	7.64E-01	1.30E+00	7.07E-01	1.20E+00	3.97E+00
XE-133	7.77E+01	6.03E+01	6.93E+01	1.55E+02	3.62E+02
XE-133M	1.40E+00	6.29E-01	7.11E-01	1.58E+00	4.32E+00
XE-135	5.10E+00	2.13E+00	1.34E+00	3.17E+00	1.17E+01
XE-135M	1.23E-03	0.00E+00	3.04E-05	0.00E+00	1.26E-03
XE-138	7.47E-04	0.00E+00	0.00E+00	0.00E+00	7.47E-04

CATAMBA UNIT 2 GAS DOSE 001-090 91 RELEASE WEIGHTED NET REPORT SUMMARY (1/24/92)
SPECIAL LOCATION
AT 0.50 MILES NNE

NOBLE GAS EXPOSURE:

BETA AIR DOSE = $9.75\text{E-}02$ MILLIRADS
GAMMA AIR DOSE = $4.79\text{E-}02$ MILLIRADS

TOTAL BODY DOSE = $2.96\text{E-}02$ MILLIREM
KR 88 7.13%
XE133 51.43%
XE135 21.99%
AR 4 17.42%

TOTAL SKIN DOSE = $7.46\text{E-}02$ MILLIREM
KR 88 3.89%
XE133 57.42%
XE135 23.05%
AR 41 11.12%

CATAWBA UNIT 2 GAS DOSE 001-090 91 RELEASE WEIGHTED NET REPORT SUMMARY
CRITICAL LOCATION
AT 0.50 MILES ENE

02/24/92

IODINE, PARTICULATE, AND TRITIUM EXPOSURE SUMMARY:

MAXIMUM ORGAN - TH/ROID
CRITICAL AGE - CHILD
CRITICAL PATHWAY - VEGET @ 71.11%

MAXIMUM ORGAN DOSE = 8.69E-02 MILLIREM
H 3 60.89%
I 131 27.89%
I 133 10.72%

CATANBA UNIT 2 GAS DOSE 091-181 91 RELEASE WEIGHTED MET REPORT SUMMARY
SPECIAL LOCATION
AT 0.50 MILES NE

02/24/92

NOBLE GAS EXPOSURE:

BETA AIR DOSE = $8.95E-02$ MILLIRADS
GAMMA AIR DOSE = $7.75E-02$ MILLIRADS

TOTAL BODY DOSE = $4.97E-02$ MILLIREM
XE133 24.64%
XE135 6.23%
AR 41 65.47%

TOTAL SKIN DOSE = $9.92E-02$ MILLIREM
XE133 34.86%
XE135 8.26%
AR 41 52.39%

CATAPULT UNIT 2 GAS DPMSE 091-181 91 RELEASE WEIGHTED MET REPORT SUMMARY
SOURCE LOCATION
AT 0.50 MILES S

02/24/92

IODINE, PARTICULATE, AND TRITIUM EXPOSURE SUMMARY:

MAXIMUM ORGAN - THYROID
CRITICAL AGE - CHILD
CRITICAL PATHWAY - VEGET @ 77.93%

MAXIMUM ORGAN DOSE = 5.46E-02 MILLIREM
H 3 93.11%
I 131 6.10%

CATAMBA UNIT 2 GAS DOSE 182-273 91 RELEASE WEIGHTED PET REPORT SUMMARY 02/24/92
SPECIAL LOCATION
AT 0.23 MILES NE

MOBILE GAS EXPOSURE:

BETA AIR DOSE = 1.00E-01 MILLIRADS
GAMMA AIR DOSE = 5.10E-02 MILLIRADS

TOTAL BODY DOSE = 3.14E-02 MILLIREM
XE133 54.66Z
XE135 5.91Z
AR 41 37.45Z

TOTAL SKIN DOSE = 7.46E-02 MILLIREM
XE133 64.89Z
XE135 6.56Z
AR 41 25.37Z

CATAMBA UNIT 2 GAS DOSE 102-273 91 RELEASE WEIGHTED NET REPORT SUMMARY 02/29/91
SPECIAL LOCATION
AT 0.50 MILES ENE

IODINE, PARTICULATE, AND TRITIUM EXPOSURE SUMMARY:

MAXIMUM ORGAN - THYROID
CRITICAL AGE - CHILD
CRITICAL PATHWAY - VEGET @ 75.53Z
MAXIMUM ORGAN DOSE = 7.12E-02 MILLIREM
H 3 87.08%
I 131 11.37%

CPTAMBA UNIT I GAS DOSE 274-365 91 RELEASE HEIGHTED MET REPORT SUMMARY 02/24/92
SPECIAL LOCATION
AT 0.50 MILES NRE

MOBILE GAS EXPOSURE:

BETA AIR DOSE = 3.01E-01 MILLIRADS
GAMMA AIR DOSE = 2.65E-01 MILLIRADS

TOTAL BODY DOSE = 1.70E-01 MILLIREM
XE133 24.96Z
XE135 4.65Z
AR 41 68.38Z

TOTAL SKIN DOSE = 3.36E-01 MILLIREM
XE133 35.60Z
XE135 6.22Z
AR 41 55.87Z

CATAHBA UNIT 2 GAS DOSE 274-365 91 RELEASE WEIGHTED NET REPORT SUMMARY
SPECIAL LOCATION
AT 0.50 MILES ENE

02/24/92

IODINE, PARTICULATE, AND TRITIUM EXPOSURE SUMMARY:

MAXIMUM ORGAN - THYROID
CRITICAL AGE - CHILD
CRITICAL PATHWAY - VEGET @ 77.37%

MAXIMUM ORGAN DOSE = 1.24E-01 MILLIREM
H 5 91.33%
I 131 8.27%

CATAMBA UNIT 1 GAS DOSE 001-365 91 RELEASE WEIGHTED NET REPORT SUMMARY 02/24/92
SPECIAL LOCATION
AT 0.50 MILES NWE

MOBILE GAS EXPOSURE:

BETA AIR DOSE = 5.80E-01 MILLIRADS
GAMMA AIR DOSE = 4.27E-01 MILLIR. 75

TOTAL BODY DOSE = 2.71E-01 MILLIREM
XE133 31.89%
XE135 6.84%
AR 41 58.65%

TOTAL SKIN DOSE = 5.68E-01 MILLIREM
XE133 43.02%
XE135 8.62%
AR 41 44.66%

CATAMBA UNIT 2 GAS DOSE 001-365 91 RELEASE WEIGHTED NET REPORT SUMMARY
SPECIAL LOCATION
AT 0.50 MILES ENE

02/24/92

IODINE, PARTICULATE, AND TRITIUM EXPOSURE SUMMARY:

MAXIMUM ORGAN - THYROID
CRITICAL AGE - CHILD
CRITICAL PATHWAY - VEGET @ 75.28%

MAXIMUM ORGAN DOSE = 3.26E-01 MILLIREM
H 3 63.08%
I 131 15.51%

SUPPLEMENTAL INFORMATION

I. REGULATORY LIMITS

A. GASEOUS - 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, ITRITIUM, 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. $3.35E+02$ = TOTAL NUMBER OF BATCH RELEASES
2. $3.98E+04$ = TOTAL TIME(MIN.) FOR BATCH RELEASES
3. $7.03E+03$ = MAXIMUM TIME(MIN.) FOR A BATCH RELEASE
4. $1.19E+02$ = AVERAGE TIME(MIN.) FOR A BATCH RELEASE
5. $3.00E+00$ = MINIMUM TIME(MIN.) FOR A BATCH RELEASE
6. $2.33E+04$ = AVERAGE DILUTION WATER FLOW DURING RELEASES(GPM)

B. GASEOUS EFFLUENT

1. $3.27E+02$ = TOTAL NUMBER OF BATCH RELEASES
2. $9.23E+05$ = TOTAL TIME(MIN.) FOR BATCH RELEASES
3. $2.16E+04$ = MAXIMUM TIME(MIN.) FOR A BATCH RELEASE
4. $2.42E+03$ = AVERAGE TIME(MIN.) FOR A BATCH RELEASE
5. $1.90E+01$ = MINIMUM TIME(MIN.) FOR A BATCH RELEASE

VI. ABNORMAL RELEASES

A. LIQUID

1. NUMBER OF RELEASES 1
2. TOTAL ACTIVITY RELEASED(CURIES) $1.33E-2$

B. GASEOUS

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

**Summary of Abnormal Radioactive Releases to
Unrestricted Areas for Catawba Nuclear Station**

Date: October 24, 1991

Event Description: An abnormal release occurred from the Waste Monitor Tank Building, Auxiliary Tank C, when the liquid radioactive effluent release flow rate was exceeded by a factor of five. The technician performing the release calculation incorrectly selected a higher release flow rate than was allowed for the selected dilution flow rate.

Liquid Waste Release Package 276 was used to account for the activity released. The tank was released at a rate greater than 1 maximum permissible concentration (MPC), but did not exceed the reportability limit of 2 MPCs as stated in 10CFR50.72.

SUPPLEMENTAL REPORT PAGE 2

CATAWBA 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 Catawba counting systems. Typical MDA's for the Catawba counting systems are listed below:

<u>ISOTOPE</u>	<u>ENERGY (Kev)</u>	AVERAGE
		<u>MDA</u>
XE-133	80	3.50E-08
CE-144	133	3.00E-07
KR-88	196	3.60E-08
XE-135	249	1.15E-08
KR-87	402	3.15E-08
CS-137	661	2.50E-08
MO-99	778	1.45E-07
MN-54	834	2.65E-08
ZN-65	1115	6.85E-08
CO-60	1332	2.95E-08

SUPPLEMENTAL REPORT PAGE 3
CATAWBA NUCLEAR STATION

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

- 1) Flow rate determining devices = $\pm 5\%$
- 2) Counting error = $\pm 15\%$
- 3) Sample preparation error = $\pm 3\%$

FUEL CYCLE CALCULATIONS

OFF SITE DOSE ASSESSMENT

FUEL CYCLE CALCULATIONS

STATION CODE : CNS
YEAR : 91
START DATE : 001
STOP DATE : 365

CNS DILUTION VOLUME: 9.22E+10 ltrs
MNS DILUTION VOLUME: 3.37E+12 ltrs

02/24/92

11:22

1991 CATANBA FUEL CYCLE SUMMARY DAYS 001-365 02/24/92 AT 11:22

MAXIMUM TOTAL BODY NRE 0.50 MILES 1.36E+00 ~~max~~ AGE : ADULT

MAXIMUM ORGAN ENE 0.50 MILES 2.48E+00 ~~max~~ AGE : ADULT ORGAN : SI-TRACK

METEROLOGICAL SURVEY

CATAMBA METEOROLOGICAL SURVEY TOWER DATA									
FOR PERIOD OF 01-01-91 THRU 12-31-91									
WIND OCCURRENCES BY SECTOR + SPEED CLASS(PERCENT)									
DATE OF REPORT 02-24-92									
		WIND SPEED CLASS							
		2.0-3.2	3.3-5.5	5.6-7.8	7.9-10.0	10.1-12.3	12.4-14.5	14.6-16.7	16.8-19.0
		45-1.49	1.5-2.49	2.5-3.49	3.5-4.49	4.5-5.49	5.5-6.49	6.5-7.49	7.5-8.49
		10.5-11.49	11.5-12.49	12.5-13.49	13.5-14.49	14.5-15.49	15.5-16.49	16.5-17.49	17.5-18.49
		18.5-19.49	19.5-20.49	20.5-21.49	21.5-22.49	22.5-23.49	23.5-24.49	24.5-25.49	25.5-26.49
		26.5-27.49	27.5-28.49	28.5-29.49	29.5-30.49	30.5-31.49	31.5-32.49	32.5-33.49	33.5-34.49
		34.5-35.49	35.5-36.49	36.5-37.49	37.5-38.49	38.5-39.49	39.5-40.49	40.5-41.49	41.5-42.49
		42.5-43.49	43.5-44.49	44.5-45.49	45.5-46.49	46.5-47.49	47.5-48.49	48.5-49.49	49.5-50.49
		50.5-51.49	51.5-52.49	52.5-53.49	53.5-54.49	54.5-55.49	55.5-56.49	56.5-57.49	57.5-58.49
		58.5-59.49	59.5-60.49	60.5-61.49	61.5-62.49	62.5-63.49	63.5-64.49	64.5-65.49	65.5-66.49
		66.5-67.49	67.5-68.49	68.5-69.49	69.5-70.49	70.5-71.49	71.5-72.49	72.5-73.49	73.5-74.49
		74.5-75.49	75.5-76.49	76.5-77.49	77.5-78.49	78.5-79.49	79.5-80.49	80.5-81.49	81.5-82.49
		82.5-83.49	83.5-84.49	84.5-85.49	85.5-86.49	86.5-87.49	87.5-88.49	88.5-89.49	89.5-90.49
		90.5-91.49	91.5-92.49	92.5-93.49	93.5-94.49	94.5-95.49	95.5-96.49	96.5-97.49	97.5-98.49
		98.5-99.49	99.5-100.49	100.5-101.49	101.5-102.49	102.5-103.49	103.5-104.49	104.5-105.49	105.5-106.49
		106.5-107.49	107.5-108.49	108.5-109.49	109.5-110.49	110.5-111.49	111.5-112.49	112.5-113.49	113.5-114.49
		114.5-115.49	115.5-116.49	116.5-117.49	117.5-118.49	118.5-119.49	119.5-120.49	120.5-121.49	121.5-122.49
		122.5-123.49	123.5-124.49	124.5-125.49	125.5-126.49	126.5-127.49	127.5-128.49	128.5-129.49	129.5-130.49
		130.5-131.49	131.5-132.49	132.5-133.49	133.5-134.49	134.5-135.49	135.5-136.49	136.5-137.49	137.5-138.49
		138.5-139.49	139.5-140.49	140.5-141.49	141.5-142.49	142.5-143.49	143.5-144.49	144.5-145.49	145.5-146.49
		146.5-147.49	147.5-148.49	148.5-149.49	149.5-150.49	150.5-151.49	151.5-152.49	152.5-153.49	153.5-154.49
		154.5-155.49	155.5-156.49	156.5-157.49	157.5-158.49	158.5-159.49	159.5-160.49	160.5-161.49	161.5-162.49
		162.5-163.49	163.5-164.49	164.5-165.49	165.5-166.49	166.5-167.49	167.5-168.49	168.5-169.49	169.5-170.49
		170.5-171.49	171.5-172.49	172.5-173.49	173.5-174.49	174.5-175.49	175.5-176.49	176.5-177.49	177.5-178.49
		178.5-179.49	179.5-180.49	180.5-181.49	181.5-182.49	182.5-183.49	183.5-184.49	184.5-185.49	185.5-186.49
		186.5-187.49	187.5-188.49	188.5-189.49	189.5-190.49	190.5-191.49	191.5-192.49	192.5-193.49	193.5-194.49
		194.5-195.49	195.5-196.49	196.5-197.49	197.5-198.49	198.5-199.49	199.5-200.49	200.5-201.49	201.5-202.49
		202.5-203.49	203.5-204.49	204.5-205.49	205.5-206.49	206.5-207.49	207.5-208.49	208.5-209.49	209.5-210.49
		210.5-211.49	211.5-212.49	212.5-213.49	213.5-214.49	214.5-215.49	215.5-216.49	216.5-217.49	217.5-218.49
		218.5-219.49	219.5-220.49	220.5-221.49	221.5-222.49	222.5-223.49	223.5-224.49	224.5-225.49	225.5-226.49
		226.5-227.49	227.5-228.49	228.5-229.49	229.5-230.49	230.5-231.49	231.5-232.49	232.5-233.49	233.5-234.49
		234.5-235.49	235.5-236.49	236.5-237.49	237.5-238.49	238.5-239.49	239.5-240.49	240.5-241.49	241.5-242.49
		242.5-243.49	243.5-244.49	244.5-245.49	245.5-246.49	246.5-247.49	247.5-248.49	248.5-249.49	249.5-250.49
		250.5-251.49	251.5-252.49	252.5-253.49	253.5-254.49	254.5-255.49	255.5-256.49	256.5-257.49	257.5-258.49
		258.5-259.49	259.5-260.49	260.5-261.49	261.5-262.49	262.5-263.49	263.5-264.49	264.5-265.49	265.5-266.49
		266.5-267.49	267.5-268.49	268.5-269.49	269.5-270.49	270.5-271.49	271.5-272.49	272.5-273.49	273.5-274.49
		274.5-275.49	275.5-276.49	276.5-277.49	277.5-278.49	278.5-279.49	279.5-280.49	280.5-281.49	281.5-282.49
		282.5-283.49	283.5-284.49	284.5-285.49	285.5-286.49	286.5-287.49	287.5-288.49	288.5-289.49	289.5-290.49
		290.5-291.49	291.5-292.49	292.5-293.49	293.5-294.49	294.5-295.49	295.5-296.49	296.5-297.49	297.5-298.49
		298.5-299.49	299.5-300.49	300.5-301.49	301.5-302.49	302.5-303.49	303.5-304.49	304.5-305.49	305.5-306.49
		306.5-307.49	307.5-308.49	308.5-309.49	309.5-310.49	310.5-311.49	311.5-312.49	312.5-313.49	313.5-314.49
		314.5-315.49	315.5-316.49	316.5-317.49	317.5-318.49	318.5-319.49	319.5-320.49	320.5-321.49	321.5-322.49
		322.5-323.49	323.5-324.49	324.5-325.49	325.5-326.49	326.5-327.49	327.5-328.49	328.5-329.49	329.5-330.49
		330.5-331.49	331.5-332.49	332.5-333.49	333.5-334.49	334.5-335.49	335.5-336.49	336.5-337.49	337.5-338.49
		338.5-339.49	339.5-340.49	340.5-341.49	341.5-342.49	342.5-343.49	343.5-344.49	344.5-345.49	345.5-346.49
		346.5-347.49	347.5-348.49	348.5-349.49	349.5-350.49	350.5-351.49	351.5-352.49	352.5-353.49	353.5-354.49
		354.5-355.49	355.5-356.49	356.5-357.49	357.5-358.49	358.5-359.49	359.5-360.49	360.5-361.49	361.5-362.49
		362.5-363.49	363.5-364.49	364.5-365.49	365.5-366.49	366.5-367.49	367.5-368.49	368.5-369.49	369.5-370.49
		370.5-371.49	371.5-372.49	372.5-373.49	373.5-374.49	374.5-375.49	375.5-376.49	376.5-377.49	377.5-378.49
		378.5-379.49	379.5-380.49	380.5-381.49	381.5-382.49	382.5-383.49	383.5-384.49	384.5-385.49	385.5-386.49
		386.5-387.49	387.5-388.49	388.5-389.49	389.5-390.49	390.5-391.49	391.5-392.49	392.5-393.49	393.5-394.49
		394.5-395.49	395.5-396.49	396.5-397.49	397.5-398.49	398.5-399.49	399.5-400.49	400.5-401.49	401.5-402.49
		402.5-403.49	403.5-404.49	404.5-405.49	405.5-406.49	406.5-407.49	407.5-408.49	408.5-409.49	409.5-410.49
		410.5-411.49	411.5-412.49	412.5-413.49	413.5-414.49	414.5-415.49	415.5-416.49	416.5-417.49	417.5-418.49
		418.5-419.49	419.5-420.49	420.5-421.49	421.5-422.49	422.5-423.49	423.5-424.49	424.5-425.49	425.5-426.49
		426.5-427.49	427.5-428.49	428.5-429.49	429.5-430.49	430.5-431.49	431.5-432.49	432.5-433.49	433.5-434.49
		434.5-435.49	435.5-436.49	436.5-437.49	437.5-438.49	438.5-439.49	439.5-440.49	440.5-441.49	441.5-442.49
		442.5-443.49	443.5-444.49	444.5-445.49	445.5-446.49	446.5-447.49	447.5-448.49	448.5-449.49	449.5-450.49
		450.5-451.49	451.5-452.49	452.5-453.49	453.5-454.49	454.5-455.49	455.5-456.49	456.5-457.49	457.5-458.49
		458.5-459.49	459.5-460.49	460.5-461.49	461.5-462.49	462.5-463.49	463.5-464.49	464.5-465.49	465.5-466.49
		466.5-467.49	467.5-468.49	468.5-469.49	469.5-470.49	470.5-471.49	471.5-472.49	472.5-473.49	473.5-474.49
		474.5-475.49	475.5-476.49	476.5-477.49	477.5-478.49	478.5-479.49	479.5-480.49	480.5-481.49	481.5-482.49
		482.5-483.49	483.5-484.49	484.5-485.49	485.5-486.49	486.5-487.49	487.5-488.49	488.5-489.49	489.5-490.49
		490.5-491.49	491.5-492.49	492.5-493.49	493.5-494.49	494.5-495.49	495.5-496.49	496.5-497.49	497.5-498.49
		498.5-499.49	499.5-500.49	500.5-501.49	501.5-502.49	502.5-503.49	503.5-504.49	504.5-505.49	505.5-506.49
		506.5-507.49	507.5-508.49	508.5-509.49	509.5-510.49	510.5-511.49	511.5-512.49	512.5-513.49	513.5-514.49
		514.5-515.49	515.5-516.49	516.5-517.49	517.5-518.49	518.5-519.49	519.5-520.49	520.5-521.49	521.5-522.49
		522.5-523.49	523.5-524.49	524.5-525.49	525.5-526.49	526.5-527.49	527.5-528.49	528.5-529.49	529.5-530.49
		530.5-531.49	531.5-532.49	532.5-533.49	533.5-534.49	534.5-535.49	535.5-536.49	536.5-537.49	537.5-538.49
		538.5-539.49	539.5-540.49	540.5-541.49	541.5-542.49	542.5-543.49	543.5-544.49	544.5-545.49	545.5-546.49
		546.5-547.49	547.5-548.49	548.5-549.49	549.5-550.49	550.5-551.49	551.5-552.49	552.5-553.49	553.5-554.49
		554.5-555.49	555.5-556.49	556.5-557.49	557.5-558.49	558.5-559.49	559.5-560.49	560.5-561.49	561.5-562.49
		562.5-563.49	563.5-564.49	564.5-565.49	565.5-566.49	566.5-567.49	567.5-568.49	568.5-569.49	569.5-570.49
		570.5-571.49	571.5-572.49	572.5-573.49	573.5-574.49	574.5-575.49	575.5-576.49	576.5-577.49	577.5-578.49
		578.5-579.49	579.5-580.49	580.5-581.49	581.5-582.49	582.5-583.49	583.5-584.49	584.5-585.49	585.5-586.49
		586.5-587.49	587.5-588.49	588.5-589.49	589.5-590.49	590.5-591.49	591.5-592.49	592.5-593.49	593.5-594.49
		594.5-595.49	595.5-596.49	596.5-597.49	597.5-598.49	598.5-599.49	599.5-600.49	600.5-601.49	601.5-602.49
		602.5-603.49	603.5-604.49	604.5-605.49	605.5-606.49	606.5-607.49	607.5-608.49	608.5-609.49	609.5-610.49
		610.5-611.49	611.5-612.49	612.5-613.49	613.5-614.41				

CATAMBA METEOROLOGICAL SURVEY TOWER DATA											
SUMMARY OF PASQUILL D											
WIND SECTOR		WIND OCCURRENCES BY SECTOR + SPEED CLASS									
TOTAL		DATE OF REPORT 02-24-92									
MIND		MIND SPEED CLASS									
SECTOR		FOR PERIOD OF 01-01-91 THRU 12-31-91									
TOTAL		DATE OF REPORT 02-24-92									
MIND		MIND SPEED CLASS									
SECTOR		FOR PERIOD OF 01-01-91 THRU 12-31-91									
TOTAL		DATE OF REPORT 02-24-92									
MIND		MIND SPEED CLASS									
SECTOR		FOR PERIOD OF 01-01-91 THRU 12-31-91									
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TOTAL		DATE OF REPORT 02-24-92									
MIND		MIND SPEED CLASS									
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SECTOR		FOR PERIOD OF 01-01-91 THRU 12-31-91									
TOTAL		DATE OF REPORT 02-24-92									
MIND		MIND SPEED CLASS									
SECTOR		FOR PERIOD OF 01-01-91 THRU 12-31-91									
TOTAL		DATE OF REPORT 02-24-92									

CATANBA METEOROLOGICAL SURVEY TOWER DATA											
SUMMARY OF PASQUILL E											
FOR PERIOD OF 01-01-91 THRU 12-31-91											
WIND OCCURRENCES BY SECTOR + SPEED CLASS (PERCENT)											
		DATE OF REPORT 02-24-92									
		WIND SPEED CLASS									
WIND	SECTOR	1.0-3.2	3.3-5.5	5.6-7.8	7.9-10.0	10.1-12.3	12.4-14.5	14.6-16.7	16.8-19.0	19.1-21.2	>21.2 MPH
SECTOR	TOTAL	.45-1.49	1.5-2.49	2.5-3.49	3.5-4.49	4.5-5.49	5.5-6.49	6.5-7.49	7.5-8.49	8.5-9.49	>9.5 :/S
360.0	002.66	00.26	01.04	00.90	00.30	00.08	00.03	00.05	00.00	00.00	00.00
-N-											
22.5	002.34	00.16	00.56	00.66	00.61	00.31	00.02	00.02	00.00	00.00	00.00
-NE-											
45.0	001.64	00.10	00.31	00.47	00.56	00.37	00.03	00.00	00.00	00.00	00.00
-NE-											
67.5	001.09	00.15	00.26	00.13	00.22	00.17	00.11	00.05	00.00	00.00	00.00
-ENE-											
90.0	000.73	00.21	00.27	00.17	00.07	00.01	00.00	00.00	00.00	00.00	00.00
-E-											
112.5	001.08	00.40	00.39	00.27	00.02	00.00	00.00	00.00	00.00	00.00	00.00
-ESE-											
135.0	001.11	00.47	00.55	00.49	00.15	00.02	00.00	00.00	00.00	00.00	00.00
-SE-											
157.5	001.77	00.58	00.68	00.37	00.11	00.02	00.00	00.01	00.00	00.00	00.00
-SSE-											
180.0	003.38	00.58	01.53	00.78	00.36	00.10	00.00	00.01	00.00	00.00	00.00
-S-											
202.5	004.32	01.11	01.83	00.92	00.33	00.11	00.01	00.01	00.00	00.00	00.00
-SSW-											
225.0	004.02	01.40	01.59	00.67	00.23	00.09	00.03	00.01	00.00	00.00	00.00
-SW-											
247.5	001.98	01.07	00.65	00.21	00.03	00.02	00.00	00.00	00.00	00.00	00.00
-WSW-											
270.0	001.22	00.66	00.42	00.11	00.03	00.00	00.00	00.00	00.00	00.00	00.00
-W-											
292.5	001.19	00.49	00.36	00.19	00.08	00.03	00.02	00.00	00.00	00.00	00.00
-WWM-											
315.0	000.97	00.30	00.40	00.15	00.06	00.06	00.00	00.00	00.00	00.00	00.00
-NW-											
337.5	001.66	00.27	00.66	00.41	00.23	00.08	00.01	00.00	00.00	00.00	00.00
-NNW-											
CALM	00.55										
TOTAL	051.95	008.21	011.52	006.90	003.41	001.47	000.26	000.16	000.00	000.00	000.00

CATAMBA METEOROLOGICAL SURVEY TOWER DATA									
SUMMARY OF PISQUILL F									
FOR PERIOD OF 01-01-91 THRU 12-31-91									
WIND OCCURRENCES BY SECTOR & SPEED CLASS (PERCENT)									
DATE OF REPORT 02-24-92									
WIND SECTOR	1.0-3.2	3.3-5.5	5.6-7.8	7.9-10.0	10.1-12.3	12.4-14.5	14.6-16.7	16.8-19.0	19.1-21.2
SECTOR TOTAL	1.0-3.2	3.3-5.5	5.6-7.8	7.9-10.0	10.1-12.3	12.4-14.5	14.6-16.7	16.8-19.0	19.1-21.2
360.0	00.33	00.65	00.10	00.01	00.03	00.00	00.00	00.00	00.00
045.0	00.23	00.46	00.24	00.07	00.00	00.02	00.00	00.00	00.00
090.0	00.10	00.11	00.15	00.02	00.00	00.01	00.00	00.00	00.00
135.0	00.06	00.03	00.01	00.05	00.06	00.08	00.01	00.00	00.00
180.0	00.11	00.00	00.01	00.00	00.01	00.00	00.00	00.00	00.00
225.0	00.21	00.09	00.02	00.03	00.00	00.00	00.00	00.00	00.00
270.0	00.25	00.17	00.09	00.06	00.00	00.00	00.00	00.00	00.00
315.0	00.33	00.22	00.01	00.00	00.00	00.00	00.00	00.00	00.00
360.0	00.34	00.30	00.05	00.00	00.01	00.00	00.00	00.00	00.00
045.0	00.64	00.55	00.01	00.00	00.00	00.00	00.00	00.00	00.00
090.0	00.66	00.21	00.06	00.05	00.05	00.00	00.00	00.00	00.00
135.0	00.66	00.30	00.03	00.00	00.00	00.00	00.00	00.00	00.00
180.0	00.32	00.35	00.03	00.00	00.00	00.00	00.00	00.00	00.00
225.0	00.33	00.29	00.05	00.00	00.00	00.00	00.00	00.00	00.00
270.0	00.23	00.25	00.15	00.01	00.00	00.00	00.00	00.00	00.00
315.0	00.23	00.40	00.07	00.06	00.00	00.00	00.00	00.00	00.00
360.0	00.59								
TOTAL	005.03	004.38	001.08	000.56	000.16	000.11	000.01	000.00	000.00

CATAMBA METEOROLOGICAL SURVEY TOWER DATA											
FOR PERIOD OF 01-01-91 THRU 12-31-91											
WIND OCCURRENCES BY SECTOR + SPEED CLASS (PERCENT)											
DATE OF REPORT 02-24-92											
		WIND SPEED CLASS									
		1.0-3.2	3.3-5.5	5.6-7.8	7.9-10.0	10.1-12.3	12.4-14.5	14.6-16.7	16.8-19.0	19.1-21.2	>21.2 MPH
		.45-1.40	1.5-2.40	2.5-3.40	3.5-4.40	4.5-5.40	5.5-6.40	6.5-7.40	7.5-8.40	8.5-9.40	>9.5 M/S
MIND	SECTOR										
SECTOR	TOTAL										
360.0	001.02	00.45	00.51	00.06	00.00	00.00	00.00	00.00	00.00	00.00	00.00
-N-											
22.5	000.84	00.41	00.25	00.16	00.02	00.00	00.00	00.00	00.00	00.00	00.00
-NNE-											
45.0	000.41	00.22	00.13	00.05	00.00	00.01	00.00	00.00	00.00	00.00	00.00
-NE-											
67.5	000.23	00.15	00.05	00.03	00.00	00.00	00.00	00.00	00.00	00.00	00.00
-ENE-											
90.0	000.22	00.16	00.06	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00
-E-											
112.5	000.27	00.23	00.03	00.00	00.01	00.00	00.00	00.00	00.00	00.00	00.00
-ESE-											
135.0	000.44	00.27	00.16	00.00	00.00	00.01	00.00	00.00	00.00	00.00	00.00
-SE-											
157.5	000.58	00.41	00.16	00.01	00.00	00.00	00.00	00.00	00.00	00.00	00.00
-SSE-											
180.0	000.90	00.64	00.26	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00
-S-											
202.5	001.00	00.66	00.33	00.01	00.00	00.00	00.00	00.00	00.00	00.00	00.00
-SSW-											
225.0	000.83	00.72	00.11	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00
-SW-											
247.5	000.57	00.42	00.14	00.00	00.01	00.00	00.00	00.00	00.00	00.00	00.00
-WSW-											
270.0	000.90	00.56	00.33	00.01	00.00	00.00	00.00	00.00	00.00	00.00	00.00
-W-											
292.5	000.57	00.24	00.31	00.02	00.00	00.00	00.00	00.00	00.00	00.00	00.00
-WNW-											
315.0	000.52	00.26	00.24	00.02	00.00	00.00	00.00	00.00	00.00	00.00	00.00
-NW-											
337.5	000.55	00.23	00.29	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00
-NNW-											
CALM	06.78										
TOTAL	009.85	004.06	003.36	000.37	000.04	000.02	000.00	000.00	000.00	000.00	000.00

ATTACHMENT II

The Solid Waste Report

CATAWBA NUCLEAR STATION - SOLID RADIOACTIVE WASTE SHIPPED TO A DISPOSAL FACILITY

REPORT PERIOD 7/1/91 THROUGH 12/31/91

Type of Waste Shipped	Number of		Waste Class	Container Type	Burial Volume		Total Activity (Curies)
	Shipments	Containers			(ft. ³)	(m. ³)	
1. Waste from Liquid Systems							
(A) Dewatered Secondary Resins	0	0	N/A	N/A	0	0	0
(B) Dewatered Primary Resins	3	3	3B	HIC	446.4	12.64	257.0
(C) Evaporator Concentrates	0	0	N/A	N/A	0	0	0
(D) Dewatered Mechanical Filters	1	1	AS	HIC	120.3	3.41	39.94
(E) Dewatered Demineralizers	0	0	N/A	N/A	0	0	0
(F) Solidified (Cement) Acids, Oils, Sludges	0	0	N/A	N/A	0	0	0
2. Dry Solid Waste							
(A) Dry Active Waste (compacted)	0	0	N/A	N/A	0	0	0
(B) Dry Active Waste (non-compacted)	1	1	AS	HIC	120.3	3.41	2.911
(C) Dry Active Waste (brokered)	---	---	---	---	849.1	24.05	2.613
(D) Irradiated Components	0	0	N/A	N/A	0	0	0
Total	5 ^a	5 ^a	---	---	1536.1	43.50	302.464

^aDoes not include brokered totals

CATAWBA NUCLEAR STATION - SOLID RADIOACTIVE WASTE

SUMMARY OF PRINCIPAL RADIONUCLIDE COMPOSITION

REPORT PERIOD 7/1/91 THROUGH 12/31/91

<u>Type of Waste</u>	<u>Radionuclide</u>	<u>% Abundance</u> *
1. Waste from Liquid Systems		
(A) Dewatered Secondary Resins	(none shipped this period)	
(B) Dewatered Primary Resins	Mn-54	13.6
	Co-58	3.0
	Co-60	20.2
	Cs-134	7.2
	Cs-137	13.3
	C-14	1.1
	Fe-55	26.5
	Ni-63	13.3
(C) Evaporator Concentrates	(none shipped this period)	
(D) Dewatered Mechanical Filters	Cr-51	3.8
	Mn-54	4.0
	Co-58	28.7
	Co-60	3.9
	Nb-95	1.3
	Fe-55	52.1
	Ni-63	5.7
(E) Dewatered Demineralizers	(none shipped this period)	
(F) Solidified Acids, Oils, Sludges	(none shipped this period)	

* Average percent abundance for all shipments during period (not listed if <1%)

CATAWBA NUCLEAR STATION - SOLID RADIOACTIVE WASTE

SUMMARY OF PRINCIPAL RADIONUCLIDE COMPOSITION

REPORT PERIOD 7/1/91 THROUGH 12/31/91

<u>Type of Waste</u>	<u>Radionuclide</u>	<u>% Abundance</u> [*]
2. Dry Solid Waste		
(A) Dry Active Waste (compacted)	(none shipped this period)	
(B) Dry Active Waste (non-compacted)	H-3	1.6
	Mn-54	3.8
	Co-58	60.3
	Co-60	7.3
	Fe-55	16.9
	Ni-63	7.7
(C) Dry Active Waste (brokered)	H-3	1.9
	Mn-54	4.1
	Co-58	57.2
	Co-60	8.2
	Fe-55	19.1
	Ni-63	7.3
(D) Irradiated Components	(none shipped this period)	

^{*} Average percent abundance for all shipments during period (not listed if <1%)

ATTACHMENT III

Inoperable Effluent Monitors

Monitor Tank Building Liquid Discharge Monitor (0EMF57) Inoperability in Excess of 14 Days

The Monitor Tank Building Liquid Discharge Monitor (0EMF57) was declared inoperable on November 6, 1991 due to a computer alarm indicating a problem with data flow from the monitor to the computer controller. Instrument and Electrical (IAE) Technicians began repair work on November 7, 1991. Trouble shooting of the failed monitor identified that a power isolation board in the RM-80 had failed. This board was replaced and the monitor appeared to be functional. While performing the required checks prior to returning the monitor to service, further problems were discovered. It appeared that while the detector was uncoupled from the monitor, the monitor continued to act as if the detector was attached and functioning. IAE continued trouble shooting and diagnostics for this problem. On November 14, 1991, it was decided that the efforts to find the problem had failed. The vendor was contacted and requested to provide on site support on November 18, 1991 with the intent of returning the monitor to service by the required date (November 20, 1991).

The vendor technician was on site from November 18th to November 21st. Trouble shooting by the vendor failed to identify the source of the problem. On November 22, 1991, it was determined that whatever had caused the failure of the power isolation board also "burned out" the preamplifier circuits. Troubleshooting efforts had not centered on the preamp boards because it was believed that the problem was located elsewhere. The preamp boards are designed with three separate preamp circuits on each board. Each circuit processes the detector signal differently. The port in use (and found bad) utilized an upper and lower discriminator and a gain control circuit that compensated the detector for temperature. New boards were ordered with a 6 month delivery time.

The monitor was calibrated and returned to service by utilizing one of the other circuits on the preamp board. The new circuit has an upper and lower discriminator but no gain control. A comprehensive review of the monitor design and software database was performed. An operability notification was made allowing the monitor to operate without the gain control. The monitor was returned to service on December 18, 1991. Work request will be issued upon receipt of the new preamp boards to have them installed.

**Conventional Waste Water Treatment Line
Flow Measurement Device Inoperable for More Than 30 Days
Conventional Waste Water System Compositor Inoperable for More Than 30 Days**

On July 9, 1991, the Conventional Waste Water System (WC) Treatment Line flow rate measurement device was declared inoperable. This also made the WC compositor inoperable. The flow measuring device was inoperable for more than 30 days because the repair parts were ordered and did not arrive within 30 days.

The flow measurement device was repaired and declared operable on August 20, 1991. The WC compositor was also declared operable at that time.

**Conventional Waste Water Treatment Line
Flow Measurement Device Inoperable for More Than 30 Days
Conventional Waste Water System Compositor Inoperable for More Than 30 Days**

On September 17, 1991, the Conventional Waste Water System (WC) Treatment Line flow rate measurement device was declared inoperable. This also made the WC compositor inoperable. The flow measuring device was inoperable for more than 30 days. Instrumentation and Electrical Section personnel, working together with the manufacturer representative, were unable to solve the problem and continued to experience electrical short problems on the flow rate circuit board each time the board was replaced.

To finally resolve the problem, a station modification was implemented which replaced the ultrasonic flow rate detector and associated parts with a system designed by the manufacturer of the composite sampler. The WC flow rate measurement device was declared operable on November 25, 1991. The WC compositor was also declared operable at that time.