EXECUTIVE SUMMARY

Three Mile Island Nuclear Station Unit 1

Effluent and Off Site Dose Report
for the Period of July 1, 1992 through December 31, 1992

This report summarizes the radioactive liquid and gaseous releases (effluents) from Three Mile Island Unit 1 and the calculated maximum hypothetical radiation exposure to the public resulting from these releases. This report covers the period of operation from July 1, through December 31, 1992.

Radiological releases from the plant are monitored by installed plant radiation monitors which survey the plant stack for gaseous releases and liquid discharges to the Susquehanna River for liquid releases. These monitors and associated sample analyses provide a means to accurately determine the type and quantities of radioactive materials being released to the environment.

Calculations of the maximum hypothetical dose to an individual and the total population around Three Mile Island due to radioactive releases from the plant are made utilizing environmental conditions existing at the time of the release. Susquehanna River flow data are used to calculate the maximum hypothetical doses to an individual and the population downstream of TMI due to liquid releases. Actual or "real-time" meteorological data from an onsite tower is used to determine the doses resulting from gaseous releases from the plant. The use of real-time meteorological information permits the determination of both the direction in which the release traveled and the dispersion of radioactive material in the environment.

Utilizing gaseous effluent data and real-time meteorology, the maximum hypothetical dose to any individual and to the total population within 50 miles of the plant is calculated. Similarly, Susquehanna River flow and liquid effluent data are used to calculate a maximum hypothetical dose to an individual and a population dose from liquid effluents for any shoreline exposure down to the Chesapeake Bay. Exposure to the public from consumption of water and fish withdrawn from the Susquehanna River downstream of the plant is also calculated.

Executive Summary (cont.)

Dose calculations for liquid and gaseous effluents are performed using a mathematical model which is based on the methods defined by the U.S. Nuclear Regulatory Commission.

The maximum hypothetical doses are conservative overestimates of the actual off site doses which are likely to occur. For example, the dose does not take into consideration the removal of radioactive material from the river water by precipitation of insoluble salts, absorption onto river sediment, biological removal, or removal during processing by water companies prior to distribution and consumption.

Liquid discharges made during the reporting period July 1 through December 31, 1992 consisted of 494 curies of tritium, and 0.006 curies of other beta and gamma emitters, predominately Co-58, Cs-134 and Cs-137. The quantities of effluents are similar to average semiannual releases from Unit 1 operations.

During the reporting period July 1 through December 31, 1992, the maximum hypothetical calculated whole body dose to an individual due to liquid effluents from Three Mile Island Unit 1 was about 0.034 millirem. The maximum hypothetical calculated dose to any organ of an individual was 0.044 millirem to the liver.

Airborne discharges made during this same time period consisted of 0.08 curies of tritium, 542 curies of noble gases, and 0.01 curies of iodines and particulates. These quantities of effluents are also similar to semiannual releases from previous Unit 1 operation, since 1985 restart.

The maximum hypothetical calculated dose to any individual from noble gases was 0.139 mrem to the skin and 0.068 mrem to the whole body. Airborne radioiodine, tritium and particulates are calculated to produce 0.306 mrem to the thyroid of the maximum hypothetical individual.

The total maximum hypothetical whole body dose of 0.102 mrem, received by any individual from effluents from the Three Mile Island Nuclear Station Unit 1 during the reporting period is more than 1,000 times lower than the dose the average individual in the Three Mile Island area receives from natural background, including natural radon, during the same time period. Natural background averages about 50 millirem whole body semiannually in the Three Mile Island area. In addition, the average equivalent semiannual dose to the total body from natural radon is about 100 millirem.

The calculated whole body population dose from all plant releases is 4.78 person-rem. This is approximately 70,000 times lower than the dose attributed to natural background radiation for the reporting period. The doses which could have been received by the maximum hypothetical individual are each 10.3 percent or less of the annual limits established by the Nuclear Regulatory Commission in Appendix I of 10 CFR 50.

EFFLUENT & WASTE DISPOSAL SEMIANNUAL REPORT
SUPPLEMENTAL INFORMATION

FACILITY: TMI UNIT 1 LICENSE: DPR 50-289

1. REGULATORY LIMITS - - - REFER TO TMI UNIT 1 TECHNICAL SPECIFICATIONS

   A. FISSION AND ACTIVATION GASES:
   B. IODINES:
   C. PARTICULATES, HALF-LIVES > 8 DAYS:
   D. LIQUID EFFLUENTS:

2. MAXIMUM PERMISSIBLE CONCENTRATIONS - - - 10 CFR 20, APPENDIX B TABLE II

   PROVIDE THE MPCS USED IN DETERMINING ALLOWABLE RELEASE RATES OR CONCENTRATIONS.

   A. FISSION AND ACTIVATION GASES:
   B. IODINES:
   C. PARTICULATES, HALF-LIVES > 8 DAYS:
   D. LIQUID EFFLUENTS:

3. AVERAGE ENERGY

   PROVIDE THE AVERAGE ENERGY (E-BAR) OF THE RADIONUCLIDE MIXTURE IN RELEASES OF FISSION AND ACTIVATION GASES, IF APPLICABLE

   E-BAR BETA = 6.13E-01
   E-BAR GAMMA = 5.98E-01
   E-BAR BETA AND GAMMA = 1.21E+00

4. MEASUREMENTS AND APPROXIMATIONS OF TOTAL RADIOACTIVITY

   PROVIDE THE METHODS USED TO MEASURE OR APPROXIMATE THE TOTAL RADIOACTIVITY IN EFFLUENTS AND THE METHODS USED TO DETERMINE RADIONUCLIDE COMPOSITION:

   A. FISSION AND ACTIVATION GASES: HPGE SPECTROMETRY, LIQUID SCINTILLATION
   B. IODINES: HPGE SPECTROMETRY
   C. PARTICULATES HPGE SPECTROMETRY, GAS FLOW PROPORTIONAL, BETA SPECTROMETRY
   D. LIQUID EFFLUENTS: HPGE SPECTROMETRY, LIQUID SCINTILLATION

5. BATCH RELEASES

   PROVIDE THE FOLLOWING INFORMATION RELATING TO BATCH RELEASES OF RADIOACTIVITY MATERIALS IN LIQUID AND GASEOUS EFFLUENTS.

A. LIQUID (ALL TIMES IN MINUTES)	QUARTER 3	QUARTER 4
1. NUMBER OF BATCH RELEASES:	21	19
2. TOTAL TIME PERIOD FOR BATCH RELEASES:	11075.	8183.
3. MAXIMUM TIME PERIOD FOR A BATCH RELEASE:	1220.	960.
4. AVERAGE TIME PERIOD FOR BATCH RELEASES:	527.	431.
5. MINIMUM TIME PERIOD FOR A BATCH RELEASE:	80.	222.
6. AVERAGE STREAM FLOW DURING PERIODS OF RELEASE OF EFFLUENT INTO A FLOWING STREAM: (CFM)	1.17E+06	2.09E+06
B. GASEOUS (ALL TIMES IN MINUTES)		
1. NUMBER OF BATCH RELEASES:	18	11
2. TOTAL TIME PERIOD FOR BATCH RELEASES:	9753.	7037.
3. MAXIMUM TIME PERIOD FOR A BATCH RELEASE:	830.	900.
4. AVERAGE TIME PERIOD FOR BATCH RELEASES:	542.	640.
5. MINIMUM TIME PERIOD FOR A BATCH RELEASE:	0.	10.

6. ABNORMAL RELEASES

A. LIQUID		
1. NUMBER OF RELEASES:	-0-	-0-
2. TOTAL ACTIVITY RELEASED: (CURIES)	N/A	N/A
B. GASEOUS		
1. NUMBER OF RELEASES:	-0-	-0-
2. TOTAL ACTIVITY RELEASED: (CURIES)	N/A	N/A

TABLE 1A

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (1992)
GASEOUS EFFLUENTS-SUMMATION OF ALL RELEASES

	UNIT	QUARTER 3	QUARTER 4	EST. TOTAL ERROR, %
A. FISSION AND ACTIVATION GASES				
1. TOTAL RELEASE	Ci	2.04E+02	3.38E+02	2.50E+01
2. AVG. RELEASE RATE FOR PERIOD	uCi/sec	2.57E+01	4.25E+01	
3. PERCENT OF TECH. SPECIFICATION LIMIT	%	*	*	
B. IODINES				
1. TOTAL IODINE I-131	Ci	2.97E-03	1.94E-03	2.50E+01
2. AVG. RELEASE RATE FOR PERIOD	uCi/sec	3.74E-04	2.44E-04	
3. PERCENT OF TECH. SPECIFICATION LIMIT	%	*	*	
C. PARTICULATES				
1. PART. WITH HALF-LIVES > 8 DAYS	Ci	<1.00E-04	1.66E-05	2.50E+01
2. AVG. RELEASE RATE FOR PERIOD	uCi/sec	NA	2.09E-06	
3. PERCENT OF TECH. SPECIFICATION LIMIT	%	NA	*	
4. GROSS ALPHA RADIOACTIVITY	Ci	<1.00E-11	<1.00E-11	
D. TRITIUM				
1. TOTAL RELEASE	Ci	8.17E-02	1.56E-03	2.50E+01
2. AVG. RELEASE RATE FOR PERIOD	uCi/sec	1.03E-02	1.96E-04	
3. PERCENT OF TECH. SPECIFICATION LIMIT	%	*	*	

NOTE: ALL LESS THAN VALUES (<) ARE IN uCi/ml.

* % TECH. SPEC. LIMITS: LISTED ON DOSE SUMMARY TABLE.

TABLE 1C

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (1992)
GASEOUS EFFLUENTS-GROUND-LEVEL RELEASES

		CONTINUOUS MODE		BATCH MODE	
NUCLIDES RELEASED	UNIT	QUARTER 3	QUARTER 4	QUARTER 3	QUARTER 4
1. FISSION GASES					
AR 41	Ci	3.23E-03	4.10E-03	<3.00E-07	<3.00E-07
KR 85M	Ci	4.66E-01	1.63E+00	7.33E-06	<5.00E-08
KR 85	Ci	<8.00E-06	<8.00E-06	3.30E+00	1.09E+01
KR 87	Ci	4.44E-01	1.46E+00	5.61E-06	<8.00E-08
KR 88	Ci	9.30E-01	3.13E+00	1.41E-05	<1.00E-07
XE 131M	Ci	2.68E+01	7.03E-02	1.75E+00	2.69E+00
XE 133M	Ci	3.67E-01	1.23E+00	4.93E-01	7.99E-01
XE 133	Ci	6.09E+01	1.22E+02	1.05E+02	1.78E+02
XE 135M	Ci	3.94E-01	1.02E+00	5.22E-03	<5.00E-07
XE 135	Ci	2.95E+00	1.43E+01	1.00E-02	1.03E-02
XE 138	Ci	2.69E-01	7.92E-01	2.62E-06	<3.00E-07
TOTAL FOR PERIOD	Ci	9.35E+01	1.45E+02	1.11E+02	1.92E+02
2. IODINES					
I 131	Ci	2.97E-03	1.94E-03	5.08E-06	<1.00E-08
I 133	Ci	2.82E-03	3.36E-03	2.49E-06	<1.00E-08
I 135	Ci	<1.00E-10	<1.00E-10	<1.00E-10	<1.00E-10
TOTAL FOR PERIOD	Ci	5.79E-03	5.31E-03	7.57E-06	0.00E+00
3. PARTICULATES					
CO 58	Ci	<1.00E-12	1.66E-05	<1.00E-12	<1.00E-12
CS 134	Ci	<1.00E-11	<1.00E-11	<1.00E-08	<1.00E-08
CS 137	Ci	<1.00E-11	<1.00E-11	<1.00E-08	<1.00E-08

NOTE: ALL LESS THAN VALUES (<) ARE IN uCi/ml.

TABLE 2A

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (1992)
LIQUID EFFLUENTS-SUMMATION OF ALL RELEASES

	UNIT	QUARTER 3	QUARTER 4	EST. TOTAL ERROR, %
A. FISSION AND ACTIVATION PRODUCTS				
1. TOTAL RELEASE (EX. H-3, GASES, ALPHA)	Ci	5.11E-03	9.64E-04	2.50E+01
2. AVG. DILUTED CONC. DURING PERIOD	uCi/ml	3.77E-10	8.79E-11	
3. PERCENT OF APPLICABLE LIMIT	%	*	*	
B. TRITIUM				
1. TOTAL RELEASE	Ci	2.49E+02	2.45E+02	2.50E+01
2. AVG. DILUTED CONC. DURING PERIOD	uCi/ml	1.84E-05	2.23E-05	
3. PERCENT OF APPLICABLE LIMIT	%	*	*	
C. DISSOLVED AND ENTRAINED GASES				
1. TOTAL RELEASE	Ci	2.13E-02	3.09E-02	2.50E+01
2. AVG. DILUTED CONC. DURING PERIOD	uCi/ml	1.57E-09	2.82E-09	
3. PERCENT OF APPLICABLE LIMIT	%	*	*	
D. GROSS ALPHA RADIOACTIVITY				
1. TOTAL RELEASE	Ci	<1.00E-07	<1.00E-07	2.50E+01
E. VOL. OF WASTE RELEASED (NO DIL.)	LITERS	7.97E+06	6.94E+06	1.00E+01
F. VOL. OF DILUTION WATER IN PERIOD	LITERS	1.35E+10	1.10E+10	1.00E+01

NOTE: ALL LESS THAN VALUES (<) ARE IN uCi/ml.

* % TECH. SPEC. LIMITS: LISTED ON DOSE SUMMARY TABLE.

TABLE 2B

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (1992)
LIQUID EFFLUENTS

		CONTINUOUS MODE		BATCH MODE	
NUCLIDES RELEASED	UNIT	QUARTER 3	QUARTER 4	QUARTER 3	QUARTER 4
CR 51	Ci	<5.00E-07	<5.00E-07	<5.00E-07	<5.00E-07
MN 54	Ci	8.02E-08	<5.00E-07	8.85E-06	<5.00E-07
FE 55	Ci	<1.00E-06	<1.00E-06	3.14E-04	<1.00E-06
FE 59	Ci	<5.00E-07	<5.00E-07	<5.00E-07	<5.00E-07
CO 57	Ci	<5.00E-07	<5.00E-07	5.59E-06	<5.00E-07
CO 58	Ci	1.66E-06	<5.00E-07	9.80E-04	2.86E-05
CO 60	Ci	2.50E-07	<5.00E-07	1.11E-04	<5.00E-07
ZN 65	Ci	<5.00E-07	<5.00E-07	<5.00E-07	<5.00E-07
SR 89	Ci	<5.00E-08	<5.00E-08	<5.00E-08	<5.00E-08
SR 90	Ci	6.86E-06	2.61E-05	8.14E-06	<5.00E-08
ZR 95	Ci	<5.00E-07	<5.00E-07	<5.00E-07	<5.00E-07
NB 95	Ci	<5.00E-07	<5.00E-07	<5.00E-07	<5.00E-07
MO 99	Ci	<5.00E-07	<5.00E-07	<5.00E-07	<5.00E-07
TC 99M	Ci	<5.00E-07	<5.00E-07	<5.00E-07	<5.00E-07
AG 110M	Ci	<5.00E-07	<5.00E-07	1.46E-04	6.96E-07
SB 125	Ci	<5.00E-07	<5.00E-07	2.56E-05	<5.00E-07
I 131	Ci	2.17E-03	2.36E-04	2.51E-05	1.10E-05
CS 134	Ci	7.87E-05	1.94E-04	2.94E-04	1.19E-05
CS 137	Ci	2.92E-04	4.23E-04	6.40E-04	3.28E-05
BA 140	Ci	<5.00E-07	<5.00E-07	<5.00E-07	<5.00E-07
LA 140	Ci	<5.00E-07	<5.00E-07	<5.00E-07	<5.00E-07
CE 141	Ci	<5.00E-07	<5.00E-07	<5.00E-07	<5.00E-07
W 187	Ci	<5.00E-07	<5.00E-07	2.06E-06	<5.00E-07
TOTAL FOR PERIOD	Ci	2.55E-03	8.79E-04	2.56E-03	8.49E-05
XE 131M	Ci	<1.00E-04	<1.00E-04	1.04E-04	1.67E-04
XE 133M	Ci	<1.00E-04	<1.00E-04	1.39E-04	1.31E-04
XE 133	Ci	<1.00E-04	<1.00E-04	2.10E-02	3.06E-02
XE 135	Ci	<1.00E-04	<1.00E-04	7.16E-06	6.96E-05

NOTE: ALL LESS THAN VALUES (<) ARE IN uCi/ml.

TMI-1 7/1/92 to 12/31/92

TABLE 3A
EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT
SOLID WASTE AND IRRADIATED FUEL SHIPMENTS

A. Solid waste shipped off-site for burial or disposal (not irradiated fuel)

1. Type of waste	UNIT	6 month period	EST. TOTAL ERROR %
a. Spent resins, filter sludges, evaporator bottoms, etc.	m^3	83.4 m3	
	Ci	53.8 Ci	5%
b. Dry compressible waste, contaminated equipment, etc.	m^3	368.7 m3	
	Ci	2.35 Ci	5%
c. Irradiated components, control rods, etc.	m^3		
	Ci	N/A	N/A
d. Other (describe)	m^3		
	Ci	N/A	N/A

2. Estimate of major nuclide composition (by type of waste)		
a. Cs137	62.2 %	
Cs134	23.96 %	
Ni63	6.42 %	
Fe55	1.90 %	
b. Co58	29.03 %	
Cs137	25.97 %	
Cr51	14.4 %	
Ag110m	6.77 %	
Ce144	5.57 %	
c.	%	
	%	
	%	
	%	
	%	
	%	
d.	%	
	%	
	%	
	%	

3. Solid Waste Disposition Number of Shipments	Mode of Transportation	Destination
See Attached		

B. Irradiated Fuel Shipments (Disposition)

Number of Shipments	Mode of Transportation	Destination
N/A		

TMI-1 Semi-Annual Report

7/1/92 to 12/31/92

A.3.a

Number of Shipments	Mode	Destination
Two (2) Shipments	Tractor-Flatbed	U.S. Ecology - Richland, WA
Two (2) Shipments	Tractor-Flatbed	CNSI - Barnwell, SC
One (1) Shipment	Tractor-Cask (14/190m)	CNSI - Barnwell, SC
One (1) Shipment	Tractor-Cask (HN100 Series 3)	CNSI - Barnwell, SC
*Four (4) Shipments	Tractor-Flatbed	SEG - Oak Ridge, TN
One (1) Shipment	Tractor-Closed Van	U.S. Ecology - Richland, WA

A.3.b

Number of Shipments	Mode	Destination
*Seven (7) Shipments	Tractor-Flatbed	Alaron Corp. - Wampum, PA
*Four (4) Shipments	Tractor-Flatbed	SEG - Oak Ridge, TN
Two (2) Shipments	Tractor-Flatbed	U.S. Ecology - Richland, WA
Two (2) Shipments	Tractor-Flatbed	CNSI - Barnwell, SC
One (1) Shipment	Tractor-Cask (14/190m)	CNSI - Barnwell, SC

A.1.a - Waste Shipped as Follows:

Nine (9) - Steel Liners at 178 Ft^3 each - solidified with cement.
*Four (4) - Steel Liners at 170 Ft^3 each.
*Two (2) - Steel Liners at 196 Ft^3 each.
One (1) - High Integrity Containers at 135.8 Ft^3.
Eighteen (18) - Steel Drums at 7.5 Ft^3 each - solidified with Aquaset.

A.3.a - Waste Shipped as Follows:

*Five (5) - Steel Boxes at 1356 Ft^3 each.
*One (1) - Steel Box at 1360 Ft^3.
*One (1) - Steel Box at 1274 Ft^3.
*One (1) - Steel Box at 77 Ft^3.
*One (1) - Steel Box at 46.5 Ft^3.
*Three (3) - Steel Boxes at 1040 Ft^3 each.
*One (1) - Steel Box at 92 Ft^3.
Five (5) - Steel Boxes at 44 Ft^3 each.
Seven (7) - Steel Drums at 7.5 Ft^3 each.

*Material Shipped to Waste Processor for Volume Reduction.

TABLE 1

UNIT 1
Second Half 1992 Dose Report

SUMMARY OF MAXIMUM INDIVIDUAL DOSES FOR UNIT 2 FROM
July 1, 1992 through December 31, 1992

Effluent	Applicable Organ	Estimated Dose (mrem)	Age Group	Location Dist (m)	Dir (toward)	% of Applicable Limit		Limits (mrem) 10 CFR 50 Appendix I	
						Quarterly	Annual	Quarterly	Annual
(1) Liquid	Total Body	3.35E-2	Adult	Receptor 1		2.23E0	1.12E0	1.5	3.0
(2) Liquid	Liver	4.44E-2	Adult	Receptor 1		8.88E-1	4.44E-1	5.0	10.0
(3) Noble Gas	Air Dose (gamma-mrad)	1.03E0	---	160	WNW	2.06E1	1.03E1	5.0	10.0
(4) Noble Gas	Air Dose (beta-mrad)	1.14E0	---	160	WNW	1.14E1	5.70E0	10.0	20.0
(5) Noble Gas	Total Body	6.83E-2	All	560	W	---	---	---	---
(6) Noble Gas	Skin	1.39E-1	All	560	W	---	---	---	---
(7) Iodine & Particulates	Thyroid	3.06E-1	Infant	580	WNW	4.08E0	2.04E0	7.5	15.0

SUMMARY OF MAXIMUM POPULATION DOSES FOR UNIT 1 FROM
July 1, 1992 through December 31, 1992

Effluent	Applicable Organ	Estimated Population Dose (person-rem)
(8) Liquid	Total Body	4.62E0
(9) Liquid	Thyroid	5.20E0
(10) Gaseous	Total Body	1.63E-1
(11) Gaseous	Thyroid	1.78E0

TABLE 2

UNIT 1
Annual 1992 Dose Report

SUMMARY OF MAXIMUM INDIVIDUAL DOSES FOR UNIT 2 FROM
January 1, 1992 through December 31, 1992

Effluent	Applicable Organ	Estimated Dose (mrem)	Age Group	Location Dist (m)	Dir (toward)	% of Applicable Limit		Limits (mrem) 10 CFR 50 Appendix I	
						Quarterly	Annual	Quarterly	Annual
(1) Liquid	Total Body	9.59E-2	Adult	Receptor 1		---	3.20E0	1.5	3.0
(2) Liquid	Liver	1.34E-1	Teen	Receptor 1		---	1.34E0	5.0	10.0
(3) Noble Gas	Air Dose (gamma-mrad)	1.03E0	---	160	WNW	---	1.03E1	5.0	10.0
(4) Noble Gas	Air Dose (beta-mrad)	1.14E0	---	160	WNW	---	5.70E0	10.0	20.0
(5) Noble Gas	Total Body	6.85E-2	All	560	W	---	---	---	---
(6) Noble Gas	Skin	1.39E-1	All	560	W	---	---	---	---
(7) Iodine & Particulates	Thyroid	3.06E-1	Infant	580	WNW	---	2.04E0	7.5	15.0

SUMMARY OF MAXIMUM POPULATION DOSES FOR UNIT 1 FROM
January 1, 1992 through December 31, 1992

Effluent	Applicable Organ	Estimated Population Dose (person-rem)
(8) Liquid	Total Body	5.21E0
(9) Liquid	Thyroid	5.76E0
(10) Gaseous	Total Body	1.74E-1
(11) Gaseous	Thyroid	1.80E0

Annual summations will not equal the sum of each periodic report due to receptor location changes and interpolation results.

INTERPRETATION OF DOSE SUMMARY TABLE

The Dose Summary Table presents the maximum hypothetical doses to an individual and the general population resulting from the release of gaseous and liquid effluents from TMI-1 during the second half reporting period of 1992.

A. Liquid (Individual)

The first two lines present the maximum hypothetical dose to an individual. Presented are the whole body and critical organ doses. Calculations are performed on the four age groups and eight organs recommended in Regulatory Guide 1.109. The pathways considered for TMI are the consumption of drinking water and fish and standing on the shoreline influenced by TMI effluents. The latter two pathways are considered to be the primary recreational activities associated with the Susquehanna River in the vicinity of TMI. The "receptor" would be that individual who consumes water from the Susquehanna River and fish residing in the plant discharge, while occupying an area of shoreline influenced by the plant discharge.

After calculating the doses to all age groups for all eight organs resulting from the three pathways described above, the Dose Summary Table presents the maximum whole body dose and affected age group along with the organ and associated age group that received the largest dose.

For the second half of 1992 the calculated maximum whole body dose received by anyone would have been 3.35E-2 mrem to an adult. Similarly, the maximum organ dose would have been 4.44E-2 mrem to the liver of an adult.

B. Gaseous (Individual)

There are six major pathways considered in the dose calculations for gaseous effluents. These are: (1) plume exposure (2) inhalation, consumption of (3) cow milk, (4) vegetables and fruits, (5) meat, and (6) standing on contaminated ground. Real-time meteorology was used in all dose calculations for gaseous effluents.

Lines 3 and 4 present the maximum plume exposure at or beyond the site boundary. The notation of "air dose" is interpreted to mean that these doses are not to an individual, but are considered to be the maximum doses that would have occurred at or beyond the site boundary. The Dose Summary Table presents the distance in meters to the location in the affected sector (compass point) where the theoretical maximum plume exposures occurred.

Lines 5 and 6 present the doses which could actually be received by an individual from the noble gas effluents for the second half of 1992. The calculated maximum whole body dose received by anyone from noble gases would have been 6.83E-2 mrem and the maximum dose to the skin would have been 1.39E-1 mrem.

The iodines and particulates section described in line 7 represents the maximum exposed organ due to iodines, particulates and tritium. The dose presented in this section again reflects the maximum exposed organ for the appropriate age group.

The second half 1992 iodines and particulates would have resulted in a maximum dose of 3.06E-1 mrem to the thyroid of an infant residing 580 meters from the site in the WNW sector. No other organ of any age group would have received a greater dose.

C. Liquid and Gaseous (Population)

Lines 8 - 11 present the person-rem doses resulting from the liquid and gaseous effluents. These doses are summed over all pathways and the affected populations. The person-rem doses from liquid effluents are based upon the population encompassed within the region from the TMI outfall extending down to the Chesapeake Bay. The person-rem doses from gaseous effluents are based upon the 1980 population and consider the population out to a distance of 50 miles around TMI. Population doses are summed over all distances and sectors to give an aggregate dose.

Based upon the calculations performed for the second half of 1992, liquid effluents resulted in a whole body population dose of 4.62E0 person-rem. The maximum critical organ population dose was 5.20E0 person-rem to the thyroid. Gaseous effluents resulted in a whole body population dose of 1.63E-1 person-rem. The maximum organ population dose was 1.78E0 person-rem to the thyroid.

THREE MILE ISLAND METEROLOGICAL DATA
JOINT FREQUENCY TABLES
VERSION: 93.1 PRINTED 01-27-1993

HOURS AT EACH WIND SPEED AND DIRECTION
PERIOD OF RECORD 92010100 TO 92123123
STABILITY CLASS A

SECTOR WINDS TO	FROM	WIND SPEED 1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	S	2	11	11	0	0	0	24
NNE	SSW	9	56	46	5	1	0	117
NE	SW	17	72	18	3	2	0	112
ENE	WSW	32	23	6	3	0	0	64
E	W	22	25	21	15	1	0	84
ESE	WNW	23	43	29	18	2	0	115
SE	NW	57	102	94	46	7	4	310
SSE	NNW	39	101	50	8	4	1	203
S	N	18	33	15	1	1	0	68
SSW	NNE	4	5	2	0	0	0	11
SW	NE	4	10	0	0	0	0	14
WSW	ENE	4	13	3	0	0	0	20
W	E	7	19	6	2	0	0	34
WNW	ESE	4	22	26	1	0	0	53
NW	SE	4	17	12	0	0	0	33
NNW	SSE	2	12	7	0	0	0	21
TOTAL		248	564	346	102	18	5	1283

THREE MILE ISLAND METEROLOGICAL DATA
JOINT FREQUENCY TABLES
VERSION: 93.1 PRINTED 01-27-1993

HOURS AT EACH WIND SPEED AND DIRECTION
PERIOD OF RECORD 92010100 TO 92123123
STABILITY CLASS B

SECTOR WINDS TO	FROM	WIND SPEED 1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	S	3	6	10	0	0	0	19
NNE	SSW	4	16	13	4	0	0	37
NE	SW	7	11	10	1	0	0	29
ENE	WSW	6	4	1	2	0	0	13
E	W	6	5	9	12	0	0	32
ESE	WNW	6	7	13	11	9	2	48
SE	NW	8	10	24	27	12	7	88
SSE	NNW	9	18	14	10	0	0	51
S	N	9	7	6	0	1	0	23
SSW	NNE	5	5	0	0	0	0	10
SW	NE	0	2	2	1	0	0	5
WSW	ENE	2	7	9	1	0	0	19
W	E	1	15	12	5	0	0	33
WNW	ESE	4	21	20	3	0	0	48
NW	SE	2	11	5	0	0	0	18
NNW	SSE	1	6	7	0	0	0	14
TOTAL		73	151	155	77	22	9	487

THREE MILE ISLAND METEROLOGICAL DATA
JOINT FREQUENCY TABLES
VERSION: 93.1 PRINTED 01-27-1993

HOURS AT EACH WIND SPEED AND DIRECTION
PERIOD OF RECORD 92010100 TO 92123123
STABILITY CLASS C

SECTOR TO	WINDS FROM	WIND SPEED 1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	S	2	6	2	0	0	0	10
NNE	SSW	0	11	15	0	0	0	26
NE	SW	3	6	0	0	0	0	9
ENE	WSW	1	3	4	0	0	0	8
E	W	8	4	13	5	0	0	30
ESE	WNW	6	7	9	9	2	1	34
SE	NW	6	7	16	19	7	0	55
SSE	NNW	4	8	4	2	2	0	20
S	N	4	3	2	3	0	0	12
SSW	NNE	2	6	0	1	0	0	9
SW	NE	2	10	0	0	0	0	12
WSW	ENE	3	12	3	0	0	0	18
W	E	1	13	19	0	0	0	33
WNW	ESE	2	10	17	3	0	0	32
NW	SE	2	4	10	2	0	0	18
NNW	SSE	1	5	4	1	0	0	11
TOTAL		47	115	118	45	11	1	337

THREE MILE ISLAND METEROLOGICAL DATA
JOINT FREQUENCY TABLES
VERSION: 93.1 PRINTED 01-27-1993

HOURS AT EACH WIND SPEED AND DIRECTION
PERIOD OF RECORD 92010100 TO 92123123
STABILITY CLASS D

SECTOR TO	WINDS FROM	WIND SPEED 1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	S	22	136	41	5	0	0	204
NNE	SSW	21	106	48	8	0	0	183
NE	SW	33	71	19	4	2	0	129
ENE	WSW	30	56	14	4	1	0	105
E	W	39	86	64	36	9	1	235
ESE	WNW	29	64	187	93	19	2	394
SE	NW	34	57	160	143	31	1	426
SSE	NNW	22	71	39	44	6	0	182
S	N	27	55	19	6	0	0	107
SSW	NNE	34	54	8	2	0	0	98
SW	NE	35	100	12	9	1	0	157
WSW	ENE	37	75	21	5	3	0	141
W	E	25	127	126	11	5	1	295
WNW	ESE	30	103	111	6	0	0	250
NW	SE	31	80	37	4	1	0	153
NNW	SSE	24	67	26	7	0	0	124
TOTAL		473	1308	932	387	78	5	3183

THREE MILE ISLAND METEROLOGICAL DATA
JOINT FREQUENCY TABLES
VERSION: 93.1 PRINTED 01-27-1993

HOURS AT EACH WIND SPEED AND DIRECTION
PERIOD OF RECORD 92010100 TO 92123123
STABILITY CLASS E

SECTOR TO	WINDS FROM	WIND SPEED 1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	S	34	46	7	0	0	0	87
NNE	SSW	47	97	17	0	0	0	161
NE	SW	50	62	13	3	1	0	129
ENE	WSW	43	66	17	4	0	0	130
E	W	58	70	25	3	1	1	158
ESE	WNW	59	80	46	6	0	0	191
SE	NW	70	48	65	29	11	2	225
SSE	NNW	76	90	25	30	10	1	232
S	N	60	142	18	4	0	0	224
SSW	NNE	32	45	5	0	0	0	82
SW	NE	38	29	4	0	0	0	71
WSW	ENE	28	38	2	0	0	0	68
W	E	52	66	21	1	0	2	142
WNW	ESE	58	52	26	0	0	0	136
NW	SE	41	20	4	0	0	0	65
NNW	SSE	23	33	8	1	0	0	65
TOTAL		769	984	303	81	23	6	2166

THREE MILE ISLAND METEROLOGICAL DATA
JOINT FREQUENCY TABLES
VERSION: 93.1 PRINTED 01-27-1993

HOURS AT EACH WIND SPEED AND DIRECTION
PERIOD OF RECORD 92010100 TO 92123123
STABILITY CLASS F

SECTOR TO	WINDS FROM	WIND SPEED 1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	S	37	7	1	0	0	0	45
NNE	SSW	38	20	0	0	0	0	58
NE	SW	54	14	1	1	0	0	70
ENE	WSW	50	18	0	0	0	0	68
E	W	69	21	2	1	1	0	94
ESE	WNW	46	19	1	0	0	0	66
SE	NW	40	23	2	0	0	0	65
SSE	NNW	35	45	1	0	0	0	81
S	N	47	33	2	0	0	0	82
SSW	NNE	24	6	0	0	0	0	30
SW	NE	20	5	0	0	0	0	25
WSW	ENE	19	10	1	0	0	0	30
W	E	44	14	0	0	0	1	59
WNW	ESE	57	16	1	0	0	0	74
NW	SE	37	3	0	0	0	0	40
NNW	SSE	32	4	0	0	0	0	36
TOTAL		649	258	12	2	1	1	923

THREE MILE ISLAND METEROLOGICAL DATA
JOINT FREQUENCY TABLES
VERSION: 93.1 PRINTED 01-27-1993

HOURS AT EACH WIND SPEED AND DIRECTION
PERIOD OF RECORD 92010100 TO 92123123
STABILITY CLASS G

SECTOR TO	WINDS FROM	WIND SPEED 1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	S	18	5	0	0	0	0	23
NNE	SSW	31	16	0	0	0	0	47
NE	SW	27	6	0	0	0	0	33
ENE	WSW	14	6	0	0	0	0	20
E	W	18	13	1	1	0	0	33
ESE	WNW	16	9	0	0	0	0	25
SE	NW	10	9	0	0	0	0	19
SSE	NNW	7	13	2	0	0	0	22
S	N	10	4	0	0	0	0	14
SSW	NNE	7	1	0	0	0	0	8
SW	NE	8	2	0	0	0	0	10
WSW	ENE	10	10	0	0	0	0	20
W	E	16	15	0	0	0	0	31
WNW	ESE	26	3	0	0	0	0	29
NW	SE	19	0	0	0	0	0	19
NNW	SSE	15	0	0	0	0	0	15
TOTAL		252	112	3	1	0	0	368

THREE MILE ISLAND METEROLOGICAL DATA
JOINT FREQUENCY TABLES
VERSION: 93.1 PRINTED 01-27-1993

HOURS AT EACH WIND SPEED AND DIRECTION
PERIOD OF RECORD 92010100 TO 92123123
STABILITY CLASS ALL

SECTOR TO	WINDS FROM	WIND SPEED 1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	S	118	217	72	5	0	0	412
NNE	SSW	150	322	139	17	1	0	629
NE	SW	191	242	61	12	5	0	511
ENE	WSW	176	176	42	13	1	0	408
E	W	220	224	135	73	12	2	666
ESE	WNW	185	229	285	137	32	5	873
SE	NW	225	256	361	264	68	14	1188
SSE	NNW	192	346	135	94	22	2	791
S	N	175	277	62	14	2	0	530
SSW	NNE	108	122	15	3	0	0	248
SW	NE	107	158	18	10	1	0	294
WSW	ENE	103	165	39	6	3	0	316
W	E	146	269	184	19	5	4	627
WNW	ESE	181	227	201	13	0	0	622
NW	SE	136	135	68	6	1	0	346
NNW	SSE	98	127	52	9	0	0	286
TOTAL		2511	3492	1869	695	153	27	8747

Hours of Missing/Invalid Data: 37

THREE MILE ISLAND METEROLOGICAL DATA
WIND ROSE TABLE
VERSION: 93.1 PRINTED 01-27-1993

FOR THE PERIOD 92010100 TO 92123123

SECTOR	<3.5 MPH	3.5 TO 7.5	7.5 TO 12.5	>12.5 MPH	TOTAL
N	0.0134	0.0247	0.0082	0.0006	0.0469
NNE	0.0171	0.0367	0.0158	0.0020	0.0716
NE	0.0217	0.0276	0.0069	0.0019	0.0582
ENE	0.0200	0.0200	0.0048	0.0016	0.0464
E	0.0250	0.0255	0.0154	0.0099	0.0758
ESE	0.0211	0.0261	0.0324	0.0198	0.0994
SE	0.0256	0.0291	0.0411	0.0394	0.1352
SSE	0.0219	0.0394	0.0154	0.0134	0.0901
S	0.0199	0.0315	0.0071	0.0018	0.0603
SSW	0.0123	0.0139	0.0017	0.0003	0.0282
SW	0.0122	0.0180	0.0020	0.0013	0.0335
WSW	0.0117	0.0188	0.0044	0.0010	0.0360
W	0.0166	0.0306	0.0209	0.0032	0.0714
WNW	0.0206	0.0258	0.0229	0.0015	0.0708
NW	0.0155	0.0154	0.0077	0.0008	0.0394
NNW	0.0112	0.0145	0.0059	0.0010	0.0326

FRACTION OF MISSING / INVALID DATA : 0.0042