Exelon Nuclear

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April 30, 2009
TMI-09-047

U. S. Nuclear Regulatory Commission
Washington, DC 20555

Attn: Document Control Desk

SUBJECT: THREE MILE ISLAND NUCLEAR STATION UNIT 1 AND UNIT 2
OPERATING LICENSE NO. DPR-50 AND POSSESSION ONLY LICENSE NO. DPR 73
DOCKET NOS. 50-289 AND 50-320
COMBINED 2008 ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT

The 2008 Annual Radioactive Effluent Release Reports required by TMI-1 Technical Specification 6.9.4.1, TMI-2 Technical Specifications 6.8.1.2, and 6.12, and the Off-Site Dose Calculation Manual Part 4, Section 2.1, is enclosed.

Attachment 1 contains a summary of the quantities of radioactive liquid and gaseous effluents released from the site as outlined in Reg. Guide 1.21, Rev. 1, with data summarized on a quarterly basis following the format of Appendix B thereof.

Attachment 2 contains information for each type of solid waste shipped offsite during the report period including the container volume, total curie quantity (specified as determined by measurement or estimate), principal radionuclides (specified as determined by measurement or estimate), type of waste, type of shipment and solidification agent(s).

Attachment 3 includes a summary of unplanned releases from the site to unrestricted areas of radioactive materials in gaseous and liquid effluents made during the reporting period.

Attachment 4 describes any changes made during 2008 to the Process Control Program (PCP) documents or to the Offsite Dose Calculation Manual (ODCM) and a listing of new locations for dose calculations and/or environmental monitoring identified by the land use census pursuant to Part 3, Section 8.2, of the ODCM.

Attachment 5 reports all instrumentation not returned to operable status within 30 days per the TMI ODCM Part 1, Sections 2.1.1.b and 2.1.2.b, and Part 2, Section 2.1.2.b.

Attachment 6 is quarterly summaries of hourly meteorological data collected for 2008 in the form of joint frequency distribution of wind speed, wind direction and atmospheric stability.

IE48
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Attachment 7 is an assessment of the radiation doses due to the radioactive liquid and gaseous effluents released from the respective unit during 2008.

Attachment 8 is an assessment of the radiation doses from the radioactive liquid and gaseous effluents to members of the public due to their activities inside the site boundary during 2008.

Attachment 9 is an assessment of the radiation doses to the most likely exposed real individual from reactor releases and other nearby uranium fuel cycle sources including doses from primary effluent pathways and direct radiation for 2008.

Attachment 10 is a summation of deviations from the sampling and analysis regime specified in the ODCM for TMI-1 and TMI-2.

Enclosure 1 is a copy of the ODCM change for TMI's Offsite Dose Calculation Manual (ODCM), CY-TM-170-300, Revision 1, which was issued on November 12, 2008, and current as of December 31, 2008. There was one revision made to the ODCM during 2008.

Please contact Laura Weber at (717) 948-8947 if you have any questions concerning this report.

Sincerely,

Thomas J. Dougherty
Plant Manager

TJD/lkw

Attachments/Enclosures

cc: Region 1 Administrator
TMI Senior Resident Inspector
TMI-1 Senior Project Manager
TMI-2 Project Manager
GPU Nuclear Cognizant Officer

Attachment 1
2008 Annual Radioactive Effluent Release Report for TMI
TMI-09-047

Summary of Radioactive Liquid and Gaseous Effluents Released from TMI during 2008

TABLE 1A
EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT (2008)
GASEOUS EFFLUENTS - SUMMATION OF ALL RELEASES

TMI - 1

	UNIT	2008 QUARTER 1	2008 QUARTER 2	2008 QUARTER 3	2008 QUARTER 4	EST TOTAL ERROR %
A. FISSION AND ACTIVATION GASES						
1. Total Release	Ci	1.78E-01	5.67E-02	6.74E-02	6.91E-02	25%
2. Avg release rate for period	uCi/S	2.28E-02	7.21E-03	8.47E-03	8.69E-03	
3. Percent of tech spec. limit	%	*	*	*	*	
B. IODINES						
1. Total Iodine I131	Ci	7.16E-07	8.46E-07	2.03E-06	2.26E-06	25%
2. Avg release rate for period	uCi/S	9.21E-08	1.08E-07	2.55E-07	2.85E-07	
3. Percent of tech spec. limit	%	*	*	*	*	
C. PARTICULATES						
1. Part. with half-life > 8 days	Ci	<1.00E-11	<1.00E-11	<1.00E-11	<1.00E-11	25%
2. Avg. release date for period	uCi/S	N/A	N/A	N/A	N/A	
3. Percent of tech spec. limit	%	*	*	*	*	
4. Gross alpha radioactivity	Ci	<1.00E-11	<1.00E-11	<1.00E-11	<1.00E-11	
D. TRITIUM						
1. Total Release	Ci	1.65E+01	1.48E+01	2.71E+01	1.36E+01	15%
2. Avg release rate for period	uCi/S	2.13E+00	1.88E+00	3.41E+00	1.71E+00	
3. Percent of tech spec. limit	%	*	*	*	*	

Note: All less than values (<) are in uCi/mL.

* ODCM Limits - Listed on Dose Summary Table

TABLE 1C
EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT (2008)
GASEOUS EFFLUENTS - GROUND-LEVEL RELEASES

TMI - 1

		CONTINUOUS		BATCH		CONTINUOUS		BATCH	
NUCLIDES RELEASED	UNIT	QUARTER 1	QUARTER 2	QUARTER 1	QUARTER 2	QUARTER 3	QUARTER 4	QUARTER 3	QUARTER 4
A. FISSION GASES									
KR85	Ci	<1.00E-04	<1.00E-04	1.56E-01	4.36E-02	<1.00E-04	<1.00E-04	8.62E-03	<1.00E-04
XE131M	Ci	<1.00E-04	<1.00E-04	<1.00E-04	<1.00E-04	<1.00E-04	<1.00E-04	3.01E-04	7.48E-04
XE133	Ci	<1.00E-04	<1.00E-04	2.12E-02	1.31E-02	<1.00E-04	<1.00E-04	5.74E-02	6.68E-02
XE133M	Ci	<1.00E-04	<1.00E-04	<1.00E-04	<1.00E-04	<1.00E-04	<1.00E-04	6.42E-05	1.53E-04
XE135	Ci	<1.00E-04	<1.00E-04	<1.00E-04	<1.00E-04	9.67E-04	1.44E-03	1.78E-05	3.36E-06
TOTAL FOR PERIOD	Ci	**0.00E+00**	**0.00E+00**	**1.78E-01**	**5.67E-02**	**9.67E-04**	**1.44E-03**	**6.64E-02**	**6.77E-02**
B. IODINES									
I131	Ci	7.16E-07	8.46E-07	<1.00E-12	<1.00E-12	2.03E-06	2.26E-06	<1.00E-12	<1.00E-12
I133	Ci	4.40E-06	6.21E-06	<1.00E-12	<1.00E-12	2.39E-05	2.70E-05	<1.00E-12	<1.00E-12
TOTAL FOR PERIOD	Ci	**5.12E-06**	**7.06E-06**	**0.00E+00**	**0.00E+00**	**2.59E-05**	**2.93E-05**	**0.00E+00**	**0.00E+00**
C. PARTICULATES									
CS137	Ci	<1.00E-11	<1.00E-11	<1.00E-11	<1.00E-11	<1.00E-11	<1.00E-11	<1.00E-11	<1.00E-11
SR89	Ci	<1.00E-11	<1.00E-11	<1.00E-11	<1.00E-11	<1.00E-11	<1.00E-11	<1.00E-11	<1.00E-11
SR90	Ci	<1.00E-11	<1.00E-11	<1.00E-11	<1.00E-11	<1.00E-11	<1.00E-11	<1.00E-11	<1.00E-11
TOTAL FOR PERIOD	Ci	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**

Note: All less than values (<) are in uCi/mL.

TABLE 2A
EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT (2008)
LIQUID EFFLUENTS - SUMMATION OF ALL RELEASES

TMI - 1

A. FISSION AND ACTIVATION PRODUCTS	UNIT	2008 QUARTER 1	2008 QUARTER 2	2008 QUARTER 3	2008 QUARTER 4	EST TOTAL ERROR %
1.Total Release (Not incl. Tritium, gases, alpha)	Ci	<5.00E-08	1.36E-04	2.56E-06	5.09E-05	25%
2. Avg diluted concentration during period	uCi/ML	N/A	2.32E-11	3.68E-13	6.91E-12	
3. Percent of applicable limit		*	*	*	*	
B. TRITIUM						
1. Total Release	Ci	1.14E-01	9.35E+01	5.35E+01	2.03E+01	25%
2. Avg diluted concentration during period	uCi/ML	1.86E-08	1.59E-05	7.68E-06	2.76E-06	
3. Percent of applicable limit		*	*	*	*	
C. DISSOLVED AND ENTRAINED GASES						
1. Total Release	Ci	<1.00E-05	6.98E-05	<1.00E-05	<1.00E-05	25%
2. Avg diluted concentration during period	uCi/ML	N/A	1.19E-11	N/A	N/A	
3. Percent of applicable limit		*	*	*	*	
D. GROSS ALPHA RADIOACTIVITY						
1. Total Release	Ci	<1.00E-7	<1.00E-7	<1.00E-7	<1.00E-7	25%
E. VOLUME OF WASTE RELEASED (PRIOR TO DILUTION)						
	LITERS	1.12E+08	1.11E+08	1.10E+08	1.13E+08	10%
F. VOLUME OF DILUTION WATER USED						
	LITERS	6.15E+09	5.89E+09	6.96E+09	7.36E+09	10%

Note: All less than values (<) are in uCi/mL.

* ODCM Limits - Listed on Dose Summary Table

TABLE 2B
EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT (2008)
LIQUID EFFLUENTS

TMI - 1

		CONTINUOUS		BATCH		CONTINUOUS		BATCH	
NUCLIDES RELEASES	UNIT	QUARTER 1	QUARTER 2	QUARTER 1	QUARTER 2	QUARTER 3	QUARTER 4	QUARTER 3	QUARTER 4
CR51	Ci	<5.00E-07	<5.00E-07	<5.00E-07	<5.00E-07	<5.00E-07	<5.00E-07	<5.00E-07	<5.00E-07
MN54	Ci	<5.00E-07	<5.00E-07	<5.00E-07	<5.00E-07	<5.00E-07	<5.00E-07	<5.00E-07	<5.00E-07
Fe59	Ci	<5.00E-07	<5.00E-07	<5.00E-07	<5.00E-07	<5.00E-07	<5.00E-07	<5.00E-07	<5.00E-07
CO58	Ci	<5.00E-07	<5.00E-07	<5.00E-07	<5.00E-07	<5.00E-07	<5.00E-07	<5.00E-07	<5.00E-07
CO60	Ci	<5.00E-07	<5.00E-07	<5.00E-07	<5.00E-07	<5.00E-07	<5.00E-07	<5.00E-07	<5.00E-07
ZN65	Ci	<5.00E-07	<5.00E-07	<5.00E-07	<5.00E-07	<5.00E-07	<5.00E-07	<5.00E-07	<5.00E-07
SR89	Ci	<5.00E-08	<5.00E-08	<5.00E-08	<5.00E-08	<5.00E-08	<5.00E-08	<5.00E-08	<5.00E-08
SR90	Ci	<5.00E-08	<5.00E-08	<5.00E-08	<5.00E-08	<5.00E-08	<5.00E-08	<5.00E-08	<5.00E-08
ZR95	Ci	<5.00E-07	<5.00E-07	<5.00E-07	<5.00E-07	<5.00E-07	<5.00E-07	<5.00E-07	<5.00E-07
NB95	Ci	<5.00E-07	<5.00E-07	<5.00E-07	<5.00E-07	<5.00E-07	<5.00E-07	<5.00E-07	<5.00E-07
MO99	Ci	<5.00E-07	<5.00E-07	<5.00E-07	<5.00E-07	<5.00E-07	<5.00E-07	<5.00E-07	<5.00E-07
TC99M	Ci	<5.00E-07	<5.00E-07	<5.00E-07	<5.00E-07	<5.00E-07	<5.00E-07	<5.00E-07	<5.00E-07
I131	Ci	<1.00E-06	<1.00E-06	<1.00E-06	<1.00E-06	<1.00E-06	<1.00E-06	<1.00E-06	<1.00E-06
CS134	Ci	<5.00E-07	<5.00E-07	<5.00E-07	<5.00E-07	<5.00E-07	<5.00E-07	<5.00E-07	<5.00E-07
CS137	Ci	<5.00E-07	1.36E-04	<5.00E-07	8.03E-07	8.33E-08	5.09E-05	2.48E-06	<5.00E-07
BA140	Ci	<5.00E-07	<5.00E-07	<5.00E-07	<5.00E-07	<5.00E-07	<5.00E-07	<5.00E-07	<5.00E-07
LA140	Ci	<5.00E-07	<5.00E-07	<5.00E-07	<5.00E-07	<5.00E-07	<5.00E-07	<5.00E-07	<5.00E-07
CE141	Ci	<5.00E-07	<5.00E-07	<5.00E-07	<5.00E-07	<5.00E-07	<5.00E-07	<5.00E-07	<5.00E-07
FE55	Ci	<1.00E-06	<1.00E-06	<1.00E-06	<1.00E-06	<1.00E-06	<1.00E-06	<1.00E-06	<1.00E-06
H3	Ci	1.14E-01	1.83E-01	<1.00E-05	9.33E+01	2.08E-01	3.73E-01	5.33E+01	1.99E+01
TOTAL FOR PERIOD	Ci	**1.14E-01**	**1.83E-01**	**N/A**	**9.33E+01**	**2.08E-01**	**3.74E-01**	**5.33E+01**	**1.99E+01**
XE133	Ci	<1.00E-05	<1.00E-05	<1.00E-04	6.98E-05	<1.00E-05	<1.00E-05	<1.00E-04	<1.00E-04
XE135	Ci	<1.00E-05	<1.00E-05	<1.00E-04	<1.00E-04	<1.00E-05	<1.00E-05	<1.00E-04	<1.00E-04

Note: All less than values (<) are in uCi/mL.

Attachment 1

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT (2008)
SUPPLEMENTAL INFORMATION
FACILITY: TMI UNIT 1 LICENSE: DPR 50-289

1. Regulatory Limits -- Please refer to TMI Offsite Dose Calculation Manual

   A. Fission and Activation Gases:
   B. Iodines:
   C. Particulates, Half-Lives > 8 Days:
   D. Liquid Effluents:

2. Maximum Effluent Concentrations -- 10 Times CFR 20, Appendix B Table II

   Provide the maximum effluent concentrations 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 = 1.76E-01
   E-BAR GAMMA = 3.08E-02
   E-BAR BETA and GAMMA = 2.07E-01

4. Measurements and Approximations of Total Radioactivity

   Provide the methods to measure or approximate the total radioactivity in effluents and the methods used to determine radionuclide composition:

   A. Fission and Activ. 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 radioactive materials in liquid and gaseous effluents.

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
A. LIQUID (ALL TIMES IN MINUTES)				
1. Number of batch releases	0	18	11	5
2. Total time period for batch releases (min)	0	4034	2555	955
3. Maximum time period for a batch release (min)	0	245	262	250
4. Average time period for a batch release (min)	0	224	232	191
5. Minimum time period for a batch release (min)	0	105	215	60
6. Average stream flow during periods of release of effluent into a flowing stream (cfm)	4.83E+06	2.23E+06	4.70E+05	1.43E+06
B. GASEOUS				
1. Number of batch releases	6	5	8	7
2. Total time period for batch releases (min)	3845	4075	5610	4965
3. Maximum time period for a batch release (min)	800	860	855	810
4. Average time period for a batch release (min)	640	815	701	709
5. Minimum time period for a batch release (min)	100	765	300	475

6. Abnormal Releases

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
A. LIQUID				
1. Number of releases	3	3	3	3
2. Total activity released (curies)	1.33E-02	1.33E-02	1.34E-02	1.34E-02
B. GASEOUS				
1. Number of releases	0	0	0	1
2. Total activity released (curies)	0	0	0	4.18E-1

TABLE 1A
EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT
GASEOUS EFFLUENTS-SUMMATION OF ALL RELEASES
TMI-2

	UNITS	2008 1ST QUARTER	2008 2ND QUARTER	2008 3RD QUARTER	2008 4TH QUARTER	EST. TOTAL ERROR %
A. FISSION AND ACTIVATION GASES						
1. TOTAL RELEASE	Ci	<LLD	<LLD	<LLD	<LLD	25%
2. AVERAGE RELEASE RATE FOR PERIOD	uCi/sec	N/A	N/A	N/A	N/A	
3. PERCENT OF TECH SPEC LIMIT	%	*	*	*	*	
B. IODINES		NOT APPLICABLE FOR TMI-2				
C. PARTICULATES						
1. PARTICULATES WITH HALF-LIVES > 8 DAYS	Ci	<LLD	<LLD	<LLD	<LLD	25%
2. AVERAGE RELEASE RATE FOR PERIOD	uCi/sec	N/A	<N/A	<N/A	<N/A	
3. PERCENT OF TECH SPEC LIMIT	%	*	*	*	*	
4. GROSS ALPHA RADIOACTIVITY	Ci	<LLD	<LLD	<LLD	<LLD	
D. TRITIUM						
1. TOTAL RELEASE	Ci	6.24E-01	8.25E-01	7.74E-01	6.28E-01	25%
2. AVERAGE RELEASE RATE FOR PERIOD	uCi/sec	7.93E-02	1.05E-01	9.74E-02	7.90E-02	
3. PERCENT OF TECH SPEC LIMIT	%	*	*	*	*	
# BATCH RELEASES		0	0	0	0	

* % ODCM LIMITS: LISTED ON DOSE SUMMARY TABLE
NOTE: ALL LESS THAN (<) VALUES ARE IN uCi/ml

TABLE 1C
EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT
GASEOUS EFFLUENTS-GROUND LEVEL RELEASES
TMI-2
2008

NUCLIDES RELEASED	UNIT	CONTINUOUS MODE		BATCH MODE		CONTINUOUS MODE		BATCH MODE	
		1ST QUARTER	2ND QUARTER	1ST QUARTER	2ND QUARTER	3RD QUARTER	4TH QUARTER	3RD QUARTER	4TH QUARTER
1. FISSION GASES									
KRYPTON-85	Ci	<8.00E-6	<8.00E-6	<8.00E-6	<8.00E-6	<8.00E-6	<8.00E-6	<8.00E-6	<8.00E-6
KRYPTON-85M	Ci	<5.00E-8	<5.00E-8	<5.00E-8	<5.00E-8	<5.00E-8	<5.00E-8	<5.00E-8	<5.00E-8
KRYPTON-87	Ci	<8.00E-8	<8.00E-8	<8.00E-8	<8.00E-8	<8.00E-8	<8.00E-8	<8.00E-8	<8.00E-8
KRYPTON-88	Ci	<1.00E-7	<1.00E-7	<1.00E-7	<1.00E-7	<1.00E-7	<1.00E-7	<1.00E-7	<1.00E-7
XENON-133	Ci	<8.00E-8	<8.00E-8	<8.00E-8	<8.00E-8	<8.00E-8	<8.00E-8	<8.00E-8	<8.00E-8
XENON-135	Ci	<5.00E-8	<5.00E-8	<5.00E-8	<5.00E-8	<5.00E-8	<5.00E-8	<5.00E-8	<5.00E-8
XENON-135M	Ci	<5.00E-7	<5.00E-7	<5.00E-7	<5.00E-7	<5.00E-7	<5.00E-7	<5.00E-7	<5.00E-7
XENON-138	Ci	<3.00E-7	<3.00E-7	<3.00E-7	<3.00E-7	<3.00E-7	<3.00E-7	<3.00E-7	<3.00E-7
AR-41	Ci	<1.00E-4	<1.00E-4	<1.00E-4	<1.00E-4	<1.00E-4	<1.00E-4	<1.00E-4	<1.00E-4
TOTAL FOR PERIOD	Ci	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2. IODINES		NOT APPLICABLE TO TMI-2							
3. PARTICULATES									
STRONTIUM-90	Ci	<1.00E-11	<1.00E-11	N/A	N/A	<1.00E-11	<1.00E-11	N/A	N/A
COBALT 60	Ci	<1.00E-10	<1.00E-10	N/A	N/A	<1.00E-10	<1.00E-10	N/A	N/A
ANTIMONY 125	Ci	<1.00E-10	<1.00E-10	N/A	N/A	<1.00E-10	<1.00E-10	N/A	N/A
CESIUM-134	Ci	<1.00E-10	<1.00E-10	N/A	N/A	<1.00E-10	<1.00E-10	N/A	N/A
CESIUM-137	Ci	<1.00E-10	<1.00E-10	N/A	N/A	<1.00E-10	<1.00E-10	N/A	N/A
TOTAL FOR PERIOD	Ci	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4. TRITIUM									
TRITIUM	Ci	6.24E-01	8.25E-01	<1.00E-6	<1.00E-6	7.74E-01	6.28E-01	<1.00E-6	<1.00E-6

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

TABLE 2A
EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT
LIQUID EFFLUENTS-SUMMATION OF ALL RELEASES
TMI-2

	UNITS	2008 1ST QUARTER	2008 2ND QUARTER	2008 3RD QUARTER	2008 4TH QUARTER	EST. TOTAL ERROR %
A. FISSION AND ACTIVATION PRODUCTS						
1. TOTAL RELEASES (NOT INCLUDING TRITIUM, GASES, ALPHA)	Ci	2.90E-06	6.25E-06	4.77E-06	1.53E-06	25%
2. AVERAGE DILUTED CONCENTRATION DURING PERIOD	uCi/ml	4.72E-13	1.06E-12	6.85E-13	2.07E-13	
3. PERCENT OF APPLICABLE LIMIT	%	*	*	*	*	
B. TRITIUM						
1. TOTAL RELEASE	Ci	<LLD	1.55E-05	<LLD	5.17E-06	25%
2. AVERAGE DILUTED CONCENTRATION DURING PERIOD	uCi/ml	N/A	2.64E-12	N/A	7.03E-13	
3. PERCENT OF APPLICABLE LIMIT	%	*	*	*	*	
C. DISSOLVED AND ENTRAINED GASES						
1. TOTAL RELEASE	Ci	<LLD	<LLD	<LLD	<LLD	25%
2. AVERAGE DILUTED CONCENTRATION DURING PERIOD	uCi/ml	N/A	N/A	N/A	N/A	
3. PERCENT OF APPLICABLE LIMIT	%	*	*	*	*	
D. GROSS ALPHA ACTIVITY						
1. TOTAL RELEASE	Ci	<LLD	<LLD	<LLD	<LLD	25%
E. VOLUME OF WASTE RELEASED (PRIOR TO DILUTION)	liters	2.34E+03	7.76E+03	7.59E+03	1.89E+03	10%
F. VOLUME OF DILUTION WATER USED	liters	6.15E+09	5.88E+09	6.96E+09	7.36E+09	10%
NUMBER OF BATCH RELEASES		2	5	5	2	

* % ODCM LIMITS: LISTED ON DOSE SUMMARY TABLE
NOTE: ALL LESS THAN (<) VALUES ARE IN uCi/ml

TABLE 2B
EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT
LIQUID EFFLUENTS
TMI-2
2008

		CONTINUOUS MODE		BATCH MODE		CONTINUOUS MODE		BATCH MODE	
NUCLIDES RELEASED	UNIT	1ST QUARTER	2ND QUARTER	1ST QUARTER	2ND QUARTER	3RD QUARTER	4TH QUARTER	3RD QUARTER	4TH QUARTER
CO 60	Ci	<5.00E-7	<5.00E-7	<5.00E-7	<5.00E-7	<5.00E-7	<5.00E-7	<5.00E-7	<5.00E-7
SR 90	Ci	<5.00E-8	<5.00E-8	<5.00E-8	<5.00E-8	<5.00E-8	<5.00E-8	<5.00E-8	<5.00E-8
SB 125	Ci	<5.00E-7	<5.00E-7	<5.00E-7	<5.00E-7	<5.00E-7	<5.00E-7	<5.00E-7	<5.00E-7
CS 134	Ci	<5.00E-7	<5.00E-7	<5.00E-7	<5.00E-7	<5.00E-7	<5.00E-7	<5.00E-7	<5.00E-7
CS 137	Ci	<5.00E-7	<5.00E-7	2.90E-06	6.25E-06	<5.00E-7	<5.00E-7	4.77E-06	1.53E-06
H-3	Ci	<1.00E-5	<1.00E-5	<1.00E-5	1.55E-05	<1.00E-5	<1.00E-5	<1.00E-5	5.17E-06
TOTAL FOR PERIOD	Ci	0.00E+00	0.00E+00	2.90E-06	2.18E-05	0.00E+00	0.00E+00	4.77E-06	6.70E-06

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

Attachment 2
2008 Annual Radioactive Effluent Release Report for TMI
TMI-09-047

Solid Waste Shipped Offsite During 2008

Attachment 2

2008 TMI-1 TABLE 3 EFFLUENT AND WASTE DISPOSAL ANNUAL 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	12 Month Period	EST. Total Error %
a. Spent resins, filter sludges, Evaporator bottoms, etc.	m^3 Ci	89.2 m^3 6.26 Ci	25%
b. Dry compressible waste, contaminated equipment, etc.	m^3 Ci	326 m^3 0.39 Ci	25%
c. Irradiated components, control rods, etc.	m^3 Ci	N/A	N/A
d. Other (describe): N/A	m^3 Ci	N/A	N/A
2. Estimate of major nuclide composition (by type of waste)			
a. H3	20.2%		
Co58	58.7%		
Ni63	12.1%		
Co60	4.6%		
b. Ni63	33.8%		
Cs137	25.8%		
Fe55	20.7%		
Co60	10.4%		
c. N/A			
d. N/A			
3. Solid Waste Disposition			
Number of Shipments	Mode of Transportation		Destination
See attached for this information.			
B. Irradiated Fuel Shipments (Disposition)			
	None		
Number of Shipments			
N/A	Mode Transport	Destination	

Attachment 2

TMI-1 WASTE SHIPPED AS FOLLOWS

A.1.a

Four (4) – Poly HICs @ 150 ft3 each – Evaporator Bottoms

Seventeen (17) - Steel Liners @ 150ft3 each - dewatered resins

A.1.b

Six (6) - Steel Cargo Containers @ 1040 ft3 each - noncompacted DAW

Fifteen (15) - Steel Boxes @ 92 ft3 each - metal/noncompacted DAW

Eight (8) - Steel Intermodal Containers @ 640 ft3 each - soil/stone

A.3.a

Four Shipments	Hittman Transport/Cask	Energy Solutions, Oak Ridge, TN
Six Shipments	Hittman Transport/Flatbed	Energy Solutions, Oak Ridge, TN

A.3.b

Thirteen Shipments	Hittman Transport/Flatbed	Energy Solutions, Oak Ridge, TN

NOTE - All Shipments were TYPE-A LSA-II

There were minor editorial changes to the Process Control Program (PCP) for TMI-1 during 2008.

Attachment 2

2008 TMI-2 TABLE 3 EFFLUENT AND WASTE DISPOSAL ANNUAL 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	12 Month Period	EST. Total Error %
a. Spent resins, filter sludges, Evaporator bottoms, etc.	m^3 Ci	N/A	N/A
b. Dry compressible waste, contaminated equipment, etc.	m^3 Ci	36.5 m^3 0.63 Ci	25%
c. Irradiated components, control rods, etc.	m^3 Ci	N/A	N/A
d. Other (describe): Mixed Waste	m^3 Ci	N/A	N/A
2. Estimate of major nuclide composition (by type of waste)			
a. Cs137	N/A		
Cs134			
Ni63			
Fe55			
b. Cs137	70.4%		
Sr90	27.7%		
Ni63	1.4%		
Pu241	0.3%		
c. Ni63	N/A		
Co58			
Fe55			
Co60			
d. N/A	N/A		
3. Solid Waste Disposition			
Number of Shipments	Mode of Transportation		Destination
See attached for this information.			
B. Irradiated Fuel Shipments (Disposition)			
	None		
Number of Shipments			
N/A	Mode Transport	Destination	

Attachment 2

TMI-2 WASTE SHIPPED AS FOLLOWS

A.1.a

None

A.1.b

Fourteen (14) - Steel Boxes @ 92 ft3 each - metal/noncompacted DAW

A.3.a

None

A.3.b

One Shipment	Hittman Transport/Flatbed	Energy Solutions, Oak Ridge, TN

NOTE - All Shipments were TYPE-A LSA-II

Summary of Unplanned Releases from the TMI Site During 2008

There were no unplanned releases from TMI-2 in 2008. The unplanned releases for TMI-1 are summarized in the supplemental information in Attachment 1. The information is reported separately for liquid and gaseous releases, and the number of releases is reported for each quarter with a total curies released. The activity for these releases is also included in Tables 1A, 1C, 2A and 2B.

The abnormal liquid releases are monthly releases to account for the tritium in groundwater released into the river. The abnormal gaseous release was secondary steam leakage from relief valves and Emergency Feed Water (EFW) exhaust.

Attachment 4
2008 Annual Radioactive Effluent Release Report for TMI
TMI-09-047

CHANGES TO THE PROCESS CONTROL PROGRAM AND THE OFFSITE DOSE CALCULATION MANUAL DURING 2008 AND A LISTING OF NEW LOCATIONS FOR DOSE CALCULATIONS AND/OR ENVIRONMENTAL MONITORING IDENTIFIED BY THE LAND USE CENSUS

1. Changes to the Process Control Program

There were minor editorial changes to the Process Control Program.

2. Changes to the Offsite Dose Calculation Manual

There was one change to the Offsite Dose Calculation Manual. The procedure change is attached as Enclosure 1.

3. A listing of new locations for dose calculations and/or environmental monitoring identified by the Land Use Census.

Based on the results of the 2008 land use census, no changes to the Radiological Environmental Monitoring Program are required. The garden census identified that five gardens from the 2007 census were not established in 2008. Therefore, five new gardens were identified. The locations where new gardens were identified include Sectors F (ESE), G (SE), K (SSW), M (WSW), and Q (NW). Of the five new gardens, none were located closer to TMINS than those identified in 2007.

Attachment 6
2008 Annual Radioactive Effluent Release Report for TMI
TMI-09-047

Annual Summary of Hourly Meteorological Data for 2008

The osprey did return and nest on the TMI meteorological tower. However, the station was able to calibrate the sensors and instrumentation before and after the osprey nested. The percent data recovery for meteorological information for 2008 was 98.3 percent. The data is presented by quarter.

Attachment 6

Three Mile Island Nuclear Station
Period of Record: **January - March 2008**
Stability Class - **Extremely Unstable** - 150Ft-33Ft Delta-T (F)
Winds Measured at 100 Feet
Wind Speed (in mph)

Wind Direction	1 - 3	4 - 7	8 - 12	13 - 18	19 - 24	> 24	Total
N	0	2	0	0	0	0	2
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	2	0	0	0	2
ESE	0	0	10	2	0	0	12
SE	0	1	0	0	0	0	1
SSE	0	0	4	0	0	0	4
S	0	1	7	1	0	0	9
SSW	0	6	5	5	0	0	16
SW	2	2	2	0	0	0	6
WSW	0	1	0	0	0	0	1
W	4	0	1	0	0	0	5
WNW	0	5	4	0	0	0	9
NW	1	10	1	0	0	0	12
NNW	1	4	1	1	0	0	7
Variable	0	0	0	0	0	0	0
Total	8	32	37	9	0	0	86

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 0

****

Three Mile Island Nuclear Station
Period of Record: **January - March 2008**
Stability Class - **Moderately Unstable** - 150Ft-33Ft Delta-T (F)
Winds Measured at 100 Feet
Wind Speed (in mph)

Wind Direction	1 - 3	4 - 7	8 - 12	13 - 18	19 - 24	> 24	Total
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	1	0	0	0	0	1
E	0	0	0	0	0	0	0
ESE	0	1	3	0	0	0	4
SE	1	1	2	0	0	0	4
SSE	1	2	1	0	0	0	4
S	0	1	2	0	0	0	3
SSW	0	1	0	0	0	0	1
SW	1	2	2	0	0	0	5
WSW	1	1	3	0	0	0	5
W	0	4	6	9	2	0	21
WNW	0	1	2	9	6	0	18
NW	2	1	10	12	2	0	27
NNW	0	5	9	6	0	2	22
Variable	0	0	0	0	0	0	0
Total	6	21	40	36	10	2	115

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 0

Attachment 6

Three Mile Island Nuclear Station
Period of Record: **January - March 2008**
Stability Class - **Slightly Unstable** - 150Ft-33Ft Delta-T (F)
Winds Measured at 100 Feet
Wind Speed (in mph)

Wind Direction	1 - 3	4 - 7	8 - 12	13 - 18	19 - 24	> 24	Total
N	2	0	0	0	0	0	2
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	2	1	0	0	0	3
E	0	2	1	0	0	0	3
ESE	0	1	5	0	0	0	6
SE	0	0	1	0	0	0	1
SSE	1	1	1	0	0	0	3
S	0	1	1	2	0	0	4
SSW	0	0	0	0	0	0	0
SW	0	2	0	1	0	0	3
WSW	1	1	0	1	2	0	5
W	0	0	4	10	7	0	21
WNW	0	1	5	8	2	4	20
NW	0	3	6	6	8	1	24
NNW	2	6	3	4	4	0	19
Variable	0	0	0	0	0	0	0
Total	6	20	28	32	23	5	114

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 0

****

Three Mile Island Nuclear Station
Period of Record: **January - March 2008**
Stability Class - **Neutral** - 150Ft-33Ft Delta-T (F)
Winds Measured at 100 Feet
Wind Speed (in mph)

Wind Direction	1 - 3	4 - 7	8 - 12	13 - 18	19 - 24	> 24	Total
N	8	19	8	2	0	0	37
NNE	11	12	1	0	0	0	24
NE	6	13	2	0	0	0	21
ENE	4	19	1	0	0	0	24
E	8	19	25	0	0	0	52
ESE	5	13	49	1	0	0	68
SE	8	15	12	0	0	0	35
SSE	1	10	7	0	0	0	18
S	2	14	10	1	2	0	29
SSW	0	7	6	1	0	0	14
SW	7	16	8	0	0	0	31
WSW	2	21	9	10	5	0	47
W	7	32	58	37	7	3	144
WNW	11	24	80	72	20	4	211
NW	3	34	55	54	22	1	169
NNW	13	34	25	22	4	0	98
Variable	0	0	0	0	0	0	0
Total	96	302	356	200	60	8	1022

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 1
Hours of missing stability measurements in all stability classes: 0

Attachment 6

Three Mile Island Nuclear Station
Period of Record: **January - March 2008**
Stability Class - **Slightly Stable** - 150Ft-33Ft Delta-T (F)
Winds Measured at 100 Feet
Wind Speed (in mph)

Wind Direction	1 - 3	4 - 7	8 - 12	13 - 18	19 - 24	> 24	Total
N	15	20	4	0	0	0	39
NNE	10	10	1	0	0	0	21
NE	10	10	0	0	0	0	20
ENE	8	14	1	0	0	0	23
E	10	23	4	0	0	0	37
ESE	12	11	5	0	0	0	28
SE	15	10	4	0	0	0	29
SSE	6	7	2	0	0	0	15
S	5	7	7	2	0	0	21
SSW	6	7	12	12	1	0	38
SW	4	10	2	4	2	0	22
WSW	12	13	7	2	2	0	36
W	13	16	6	4	3	0	42
WNW	16	30	8	3	2	0	59
NW	16	32	15	9	0	0	72
NNW	16	27	10	4	0	0	57
Variable	0	0	0	0	0	0	0
Total	174	247	88	40	10	0	559

Hours of calm in this stability class: 3
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 0

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Three Mile Island Nuclear Station
Period of Record: **January - March 2008**
Stability Class - **Moderately Stable** - 150Ft-33Ft Delta-T (F)
Winds Measured at 100 Feet
Wind Speed (in mph)

Wind Direction	1 - 3	4 - 7	8 - 12	13 - 18	19 - 24	> 24	Total
N	14	8	0	0	0	0	22
NNE	9	2	0	0	0	0	11
NE	6	0	0	0	0	0	6
ENE	9	3	0	0	0	0	12
E	11	4	0	0	0	0	15
ESE	13	2	0	0	0	0	15
SE	10	0	0	3	0	0	13
SSE	6	4	0	1	0	0	11
S	6	4	1	0	0	0	11
SSW	3	3	0	3	0	0	9
SW	12	1	2	0	1	0	16
WSW	9	4	1	1	0	0	15
W	8	5	2	0	0	0	15
WNW	11	3	3	0	0	0	17
NW	10	8	1	1	0	0	20
NNW	8	7	2	0	0	0	17
Variable	0	0	0	0	0	0	0
Total	145	58	12	9	1	0	225

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 0

Attachment 6

Three Mile Island Nuclear Station
Period of Record: **January - March 2008**
Stability Class - **Extremely Stable** - 150Ft-33Ft Delta-T (F)
Winds Measured at 100 Feet
Wind Speed (in mph)

Wind Direction	1 - 3	4 - 7	8 - 12	13 - 18	19 - 24	> 24	Total
N	1	1	0	0	0	0	2
NNE	1	0	0	0	0	0	1
NE	2	1	0	0	0	0	3
ENE	3	0	0	0	0	0	3
E	1	0	0	0	0	0	1
ESE	3	0	0	0	0	0	3
SE	3	1	0	0	0	0	4
SSE	1	0	0	0	0	0	1
S	1	1	4	0	0	0	6
SSW	3	0	1	0	0	0	4
SW	5	3	0	0	0	0	8
WSW	5	1	0	0	0	0	6
W	2	2	0	0	0	0	4
WNW	3	1	0	0	0	0	4
NW	4	1	0	0	0	0	5
NNW	0	2	0	0	0	0	2
Variable	0	0	0	0	0	0	0
Total	38	14	5	0	0	0	57

Hours of calm in this stability class: 2
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 0

Attachment 6

Three Mile Island Nuclear Station
Period of Record: **April - June 2008**
Stability Class - **Extremely Unstable** - 150Ft-33Ft Delta-T (F)
Winds Measured at 100 Feet
Wind Speed (in mph)

Wind Direction	1 - 3	4 - 7	8 - 12	13 - 18	19 - 24	> 24	Total
N	0	3	6	0	0	0	9
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	2	2	0	0	0	4
E	0	8	10	7	0	0	25
ESE	2	8	23	5	0	0	38
SE	0	8	6	6	0	0	20
SSE	0	6	2	0	0	0	8
S	0	6	11	1	0	0	18
SSW	0	21	17	11	0	0	49
SW	2	17	20	2	0	0	41
WSW	1	8	3	1	0	0	13
W	3	2	5	2	0	0	12
WNW	5	12	15	1	0	0	33
NW	7	25	19	7	0	0	58
NNW	4	24	29	4	0	0	61
Variable	0	0	0	0	0	0	0
Total	24	150	168	47	0	0	389

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 27

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Three Mile Island Nuclear Station
Period of Record: **April - June 2008**
Stability Class - **Moderately Unstable** - 150Ft-33Ft Delta-T (F)
Winds Measured at 100 Feet
Wind Speed (in mph)

Wind Direction	1 - 3	4 - 7	8 - 12	13 - 18	19 - 24	> 24	Total
N	1	2	3	3	0	0	9
NNE	1	1	0	0	0	0	2
NE	0	0	0	0	0	0	0
ENE	1	1	2	0	0	0	4
E	0	7	11	3	0	0	21
ESE	0	5	9	3	0	0	17
SE	0	2	2	1	0	0	5
SSE	1	0	1	0	0	0	2
S	0	3	3	2	0	0	8
SSW	0	7	4	2	0	0	13
SW	4	7	6	1	0	0	18
WSW	2	6	5	1	0	0	14
W	4	0	13	4	0	0	21
WNW	5	6	7	10	1	0	29
NW	4	9	27	14	1	0	55
NNW	1	5	15	8	0	0	29
Variable	0	0	0	0	0	0	0
Total	24	61	108	52	2	0	247

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 27

Attachment 6

Three Mile Island Nuclear Station
Period of Record: **April - June 2008**
Stability Class - **Slightly Unstable** - 150Ft-33Ft Delta-T (F)
Winds Measured at 100 Feet
Wind Speed (in mph)

Wind Direction	1 - 3	4 - 7	8 - 12	13 - 18	19 - 24	> 24	Total
N	1	2	1	1	0	0	5
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	1	0	0	0	0	1
E	1	4	10	0	0	0	15
ESE	1	0	5	0	0	0	6
SE	0	1	2	0	0	0	3
SSE	1	1	1	0	0	0	3
S	0	4	3	2	0	0	9
SSW	1	7	5	0	0	0	13
SW	2	3	4	4	0	0	13
WSW	1	2	2	1	0	0	6
W	0	1	6	1	1	0	9
WNW	2	0	6	4	0	0	12
NW	1	6	10	9	0	1	27
NNW	2	2	6	1	0	0	11
Variable	0	0	0	0	0	0	0
Total	13	34	61	23	1	1	133

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 27

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Three Mile Island Nuclear Station
Period of Record: **April - June 2008**
Stability Class - **Neutral** - 150Ft-33Ft Delta-T (F)
Winds Measured at 100 Feet
Wind Speed (in mph)

Wind Direction	1 - 3	4 - 7	8 - 12	13 - 18	19 - 24	> 24	Total
N	7	14	9	4	0	0	34
NNE	6	7	3	0	0	0	16
NE	9	12	1	0	0	0	22
ENE	4	22	6	0	0	0	32
E	8	17	33	5	0	0	63
ESE	3	6	28	0	0	0	37
SE	3	7	12	0	0	0	22
SSE	3	11	2	0	0	0	16
S	3	18	5	1	1	0	28
SSW	7	31	7	7	1	0	53
SW	5	28	17	3	0	0	53
WSW	8	21	8	2	0	0	39
W	9	25	11	3	1	0	49
WNW	4	18	36	8	3	0	69
NW	4	16	32	21	8	0	81
NNW	9	11	15	3	1	0	39
Variable	0	0	0	0	0	0	0
Total	92	264	225	57	15	0	653

Hours of calm in this stability class: 1
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 27

Attachment 6

Three Mile Island Nuclear Station
Period of Record: **April - June 2008**
Stability Class - **Slightly Stable** - 150Ft-33Ft Delta-T (F)
Winds Measured at 100 Feet
Wind Speed (in mph)

Wind Direction	1 - 3	4 - 7	8 - 12	13 - 18	19 - 24	> 24	Total
N	4	7	9	0	0	0	20
NNE	6	23	9	0	0	0	38
NE	4	16	9	0	0	0	29
ENE	6	12	2	0	0	0	20
E	5	15	7	0	0	0	27
ESE	11	9	2	2	0	0	24
SE	4	2	2	0	0	0	8
SSE	10	7	0	0	0	0	17
S	7	5	3	2	0	0	17
SSW	10	31	1	2	1	0	45
SW	16	22	4	1	0	0	43
WSW	19	14	3	0	0	0	36
W	13	21	2	1	0	0	37
WNW	8	15	3	2	0	0	28
NW	10	13	4	1	0	0	28
NNW	8	13	2	0	0	0	23
Variable	0	0	0	0	0	0	0
Total	141	225	62	11	1	0	440

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 27

****

Three Mile Island Nuclear Station
Period of Record: **April - June 2008**
Stability Class - **Moderately Stable** - 150Ft-33Ft Delta-T (F)
Winds Measured at 100 Feet
Wind Speed (in mph)

Wind Direction	1 - 3	4 - 7	8 - 12	13 - 18	19 - 24	> 24	Total
N	2	5	2	0	0	0	9
NNE	2	3	1	0	0	0	6
NE	6	2	0	0	0	0	8
ENE	6	1	0	0	0	0	7
E	3	3	1	0	0	0	7
ESE	9	3	0	0	0	0	12
SE	8	3	0	0	0	0	11
SSE	7	1	0	0	0	0	8
S	6	4	0	0	0	0	10
SSW	13	6	1	0	0	0	20
SW	20	5	1	0	0	0	26
WSW	13	12	0	0	0	0	25
W	16	7	1	0	0	0	24
WNW	13	0	1	0	0	0	14
NW	10	2	1	0	0	0	13
NNW	6	10	0	0	0	0	16
Variable	0	0	0	0	0	0	0
Total	140	67	9	0	0	0	216

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 27

Attachment 6

Three Mile Island Nuclear Station
Period of Record: **April - June 2008**
Stability Class - **Extremely Stable** - 150Ft-33Ft Delta-T (F)
Winds Measured at 100 Feet
Wind Speed (in mph)

Wind Direction	1 - 3	4 - 7	8 - 12	13 - 18	19 - 24	> 24	Total
N	2	0	0	0	0	0	2
NNE	2	0	0	0	0	0	2
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	5	3	0	0	0	0	8
ESE	0	0	0	0	0	0	0
SE	2	1	0	0	0	0	3
SSE	4	0	0	0	0	0	4
S	3	1	1	0	0	0	5
SSW	8	5	0	0	0	0	13
SW	9	1	0	0	0	0	10
WSW	11	2	0	0	0	0	13
W	7	4	0	0	0	0	11
WNW	4	0	0	0	0	0	4
NW	2	0	0	0	0	0	2
NNW	0	1	0	0	0	0	1
Variable	0	0	0	0	0	0	0
Total	59	18	1	0	0	0	78

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 27

Attachment 6

Three Mile Island Nuclear Station
Period of Record: **July - September 2008**
Stability Class - **Extremely Unstable** - 150Ft-33Ft Delta-T (F)
Winds Measured at 100 Feet
Wind Speed (in mph)

Wind Direction	1 - 3	4 - 7	8 - 12	13 - 18	19 - 24	> 24	Total
N	1	4	7	1	0	0	13
NNE	0	3	0	0	0	0	3
NE	0	7	3	0	0	0	10
ENE	2	10	7	0	0	0	19
E	1	9	3	0	0	0	13
ESE	1	8	13	0	0	0	22
SE	1	5	8	0	0	0	14
SSE	0	3	5	0	0	0	8
S	0	1	13	1	0	0	15
SSW	3	18	15	2	0	0	38
SW	9	23	8	3	0	0	43
WSW	4	20	3	2	0	0	29
W	12	9	7	0	0	0	28
WNW	4	19	13	5	0	0	41
NW	21	42	47	5	1	0	116
NNW	17	28	17	1	0	0	63
Variable	0	0	0	0	0	0	0
Total	76	209	169	20	1	0	475

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 32
Hours of missing stability measurements in all stability classes: 4

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Three Mile Island Nuclear Station
Period of Record: **July - September 2008**
Stability Class - **Moderately Unstable** - 150Ft-33Ft Delta-T (F)
Winds Measured at 100 Feet
Wind Speed (in mph)

Wind Direction	1 - 3	4 - 7	8 - 12	13 - 18	19 - 24	> 24	Total
N	3	3	1	0	0	0	7
NNE	0	3	0	0	0	0	3
NE	2	2	0	0	0	0	4
ENE	0	2	4	0	0	0	6
E	1	1	1	0	0	0	3
ESE	0	0	0	0	0	0	0
SE	3	2	1	0	0	0	6
SSE	1	3	1	0	0	0	5
S	0	1	2	0	0	0	3
SSW	0	3	2	0	0	0	5
SW	2	2	3	0	0	0	7
WSW	3	4	1	1	0	0	9
W	5	5	3	0	0	0	13
WNW	4	9	6	2	0	0	21
NW	7	8	17	8	0	0	40
NNW	8	10	7	1	0	0	26
Variable	0	0	0	0	0	0	0
Total	39	58	49	12	0	0	158

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 6
Hours of missing stability measurements in all stability classes: 4

Attachment 6

Three Mile Island Nuclear Station
Period of Record: **July - September 2008**
Stability Class - **Slightly Unstable** - 150Ft-33Ft Delta-T (F)
Winds Measured at 100 Feet
Wind Speed (in mph)

Wind Direction	1 - 3	4 - 7	8 - 12	13 - 18	19 - 24	> 24	Total
N	0	1	0	0	0	0	1
NNE	0	1	0	0	0	0	1
NE	0	0	0	0	0	0	0
ENE	0	0	1	0	0	0	1
E	0	0	1	0	0	0	1
ESE	0	0	1	0	0	0	1
SE	0	4	1	0	0	0	5
SSE	0	1	0	0	0	0	1
S	1	2	1	0	0	0	4
SSW	0	6	3	0	0	0	9
SW	1	6	3	0	0	0	10
WSW	1	1	1	0	0	0	3
W	2	2	3	0	0	0	7
WNW	4	2	2	0	0	0	8
NW	2	5	7	3	0	0	17
NNW	3	6	3	0	0	0	12
Variable	0	0	0	0	0	0	0
Total	14	37	27	3	0	0	81

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 3
Hours of missing stability measurements in all stability classes: 4

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Three Mile Island Nuclear Station
Period of Record: **July - September 2008**
Stability Class - **Neutral** - 150Ft-33Ft Delta-T (F)
Winds Measured at 100 Feet
Wind Speed (in mph)

Wind Direction	1 - 3	4 - 7	8 - 12	13 - 18	19 - 24	> 24	Total
N	4	10	6	0	0	0	20
NNE	9	6	1	0	0	0	16
NE	6	21	2	0	0	0	29
ENE	7	14	1	0	0	0	22
E	6	20	6	0	0	0	32
ESE	7	9	12	0	0	0	28
SE	2	7	5	0	0	0	14
SSE	3	13	0	0	0	0	16
S	2	16	9	3	0	0	30
SSW	5	22	9	3	0	0	39
SW	11	23	4	0	0	0	38
WSW	10	22	2	0	0	0	34
W	10	36	6	0	0	0	52
WNW	5	31	13	0	0	0	49
NW	10	18	21	3	0	0	52
NNW	15	9	6	0	0	0	30
Variable	0	0	0	0	0	0	0
Total	112	277	103	9	0	0	501

Hours of calm in this stability class: 1
Hours of missing wind measurements in this stability class: 26
Hours of missing stability measurements in all stability classes: 4

Attachment 6

Three Mile Island Nuclear Station
Period of Record: **July - September 2008**
Stability Class - **Slightly Stable** - 150Ft-33Ft Delta-T (F)
Winds Measured at 100 Feet
Wind Speed (in mph)

Wind Direction	1 - 3	4 - 7	8 - 12	13 - 18	19 - 24	> 24	Total
N	17	37	12	1	0	0	67
NNE	8	19	1	0	0	0	28
NE	8	17	5	0	0	0	30
ENE	11	27	4	0	0	0	42
E	8	18	4	0	0	0	30
ESE	10	9	2	0	0	0	21
SE	11	5	1	0	0	0	17
SSE	10	5	0	0	0	0	15
S	6	7	1	0	0	0	14
SSW	13	15	2	0	0	0	30
SW	23	13	0	0	0	0	36
WSW	21	20	1	0	0	0	42
W	20	30	3	0	0	0	53
WNW	10	16	2	0	0	0	28
NW	15	12	4	5	0	0	36
NNW	4	22	7	0	0	0	33
Variable	0	0	0	0	0	0	0
Total	195	272	49	6	0	0	522

Hours of calm in this stability class: 1
Hours of missing wind measurements in this stability class: 31
Hours of missing stability measurements in all stability classes: 4

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Three Mile Island Nuclear Station
Period of Record: **July - September 2008**
Stability Class - **Moderately Stable** - 150Ft-33Ft Delta-T (F)
Winds Measured at 100 Feet
Wind Speed (in mph)

Wind Direction	1 - 3	4 - 7	8 - 12	13 - 18	19 - 24	> 24	Total
N	6	2	0	0	0	0	8
NNE	3	0	0	0	0	0	3
NE	5	4	0	0	0	0	9
ENE	5	3	0	0	0	0	8
E	11	5	1	0	0	0	17
ESE	18	3	0	0	0	0	21
SE	12	0	0	0	0	0	12
SSE	19	2	0	0	0	0	21
S	7	6	0	0	0	0	13
SSW	29	2	0	0	0	0	31
SW	31	1	0	0	0	0	32
WSW	42	3	1	0	0	0	46
W	35	4	0	0	0	0	39
WNW	18	1	1	0	0	0	20
NW	14	2	1	1	0	0	18
NNW	9	9	1	0	0	0	19
Variable	0	0	0	0	0	0	0
Total	264	47	5	1	0	0	317

Hours of calm in this stability class: 4
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 4

Attachment 6

Three Mile Island Nuclear Station
Period of Record: **July - September 2008**
Stability Class - **Extremely Stable** - 150Ft-33Ft Delta-T (F)
Winds Measured at 100 Feet
Wind Speed (in mph)

Wind Direction	1 - 3	4 - 7	8 - 12	13 - 18	19 - 24	> 24	Total
N	0	0	0	0	0	0	0
NNE	1	0	0	0	0	0	1
NE	0	0	0	0	0	0	0
ENE	3	1	0	0	0	0	4
E	1	0	0	0	0	0	1
ESE	6	1	0	0	0	0	7
SE	1	0	0	0	0	0	1
SSE	5	0	0	0	0	0	5
S	2	0	0	0	0	0	2
SSW	5	1	0	0	0	0	6
SW	3	0	0	0	0	0	3
WSW	8	0	0	0	0	0	8
W	5	0	0	0	0	0	5
WNW	2	0	0	0	0	0	2
NW	0	0	0	0	0	0	0
NNW	0	1	0	0	0	0	1
Variable	0	0	0	0	0	0	0
Total	42	4	0	0	0	0	46

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 4

Attachment 6

Three Mile Island Nuclear Station
Period of Record: **October - December 2008**
Stability Class - **Extremely Unstable** - 150Ft-33Ft Delta-T (F)
Winds Measured at 100 Feet
Wind Speed (in mph)

Wind Direction	1 - 3	4 - 7	8 - 12	13 - 18	19 - 24	> 24	Total
N	0	3	6	0	0	0	9
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	4	0	0	0	4
SSW	1	3	5	1	0	0	10
SW	2	8	2	0	0	0	12
WSW	4	3	0	0	0	0	7
W	0	2	0	0	2	0	4
WNW	1	4	4	1	1	0	11
NW	3	12	5	0	0	0	20
NNW	2	15	5	2	0	0	24
Variable	0	0	0	0	0	0	0
Total	13	50	31	4	3	0	101

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 5

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Three Mile Island Nuclear Station
Period of Record: **October - December 2008**
Stability Class - **Moderately Unstable** - 150Ft-33Ft Delta-T (F)
Winds Measured at 100 Feet
Wind Speed (in mph)

Wind Direction	1 - 3	4 - 7	8 - 12	13 - 18	19 - 24	> 24	Total
N	0	1	3	1	0	0	5
NNE	0	1	0	0	0	0	1
NE	0	1	0	0	0	0	1
ENE	1	1	0	0	0	0	2
E	1	0	0	0	0	0	1
ESE	0	3	0	0	0	0	3
SE	0	2	0	0	0	0	2
SSE	0	2	1	0	0	0	3
S	1	0	1	1	0	0	3
SSW	0	9	0	0	0	0	9
SW	1	0	0	0	0	0	1
WSW	1	1	1	2	0	0	5
W	1	0	7	2	0	0	10
WNW	3	4	4	12	3	0	26
NW	2	3	9	5	1	0	20
NNW	0	11	2	4	0	0	17
Variable	0	0	0	0	0	0	0
Total	11	39	28	27	4	0	109

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 5

Attachment 6

Three Mile Island Nuclear Station
Period of Record: **October - December 2008**
Stability Class - **Slightly Unstable** - 150Ft-33Ft Delta-T (F)
Winds Measured at 100 Feet
Wind Speed (in mph)

Wind Direction	1 - 3	4 - 7	8 - 12	13 - 18	19 - 24	> 24	Total
N	0	1	3	1	0	0	5
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	2	0	0	0	0	2
E	0	3	1	0	0	0	4
ESE	0	0	3	0	0	0	3
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	2	2	1	0	0	5
SSW	0	3	2	1	0	0	6
SW	0	2	0	0	0	0	2
WSW	0	3	0	0	0	0	3
W	0	0	2	4	1	0	7
WNW	0	3	3	4	5	1	16
NW	2	2	6	2	4	3	19
NNW	0	2	3	7	1	0	13
Variable	0	0	0	0	0	0	0
Total	2	23	25	20	11	4	85

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 5

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Three Mile Island Nuclear Station
Period of Record: **October - December 2008**
Stability Class - **Neutral** - 150Ft-33Ft Delta-T (F)
Winds Measured at 100 Feet
Wind Speed (in mph)

Wind Direction	1 - 3	4 - 7	8 - 12	13 - 18	19 - 24	> 24	Total
N	3	19	18	4	0	0	44
NNE	3	14	1	0	0	0	18
NE	12	7	1	0	0	0	20
ENE	4	5	1	0	0	0	10
E	5	14	12	0	0	0	31
ESE	5	22	18	2	0	0	47
SE	11	15	7	0	0	0	33
SSE	7	14	3	0	0	0	24
S	3	17	10	2	1	0	33
SSW	6	14	11	1	5	0	37
SW	12	22	10	2	0	0	46
WSW	7	36	26	2	0	0	71
W	9	44	52	31	4	2	142
WNW	9	18	72	38	15	2	154
NW	5	9	51	42	8	5	120
NNW	10	22	14	17	2	0	65
Variable	0	0	0	0	0	0	0
Total	111	292	307	141	35	9	895

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 5

Attachment 6

Three Mile Island Nuclear Station
Period of Record: **October - December 2008**
Stability Class - **Slightly Stable** - 150Ft-33Ft Delta-T (F)
Winds Measured at 100 Feet
Wind Speed (in mph)

Wind Direction	1 - 3	4 - 7	8 - 12	13 - 18	19 - 24	> 24	Total
N	16	40	16	1	0	0	73
NNE	13	19	3	0	0	0	35
NE	4	9	0	0	0	0	13
ENE	4	8	2	0	0	0	14
E	6	19	8	0	0	0	33
ESE	9	3	6	1	0	0	19
SE	9	10	4	5	0	0	28
SSE	10	10	1	0	0	0	21
S	14	11	10	1	0	0	36
SSW	8	14	7	7	3	0	39
SW	12	19	10	3	0	0	44
WSW	17	22	3	2	0	0	44
W	14	25	12	7	0	0	58
WNW	6	22	14	10	4	1	57
NW	13	10	22	9	0	0	54
NNW	27	45	14	0	0	0	86
Variable	0	0	0	0	0	0	0
Total	182	286	132	46	7	1	654

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 5

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Three Mile Island Nuclear Station
Period of Record: **October - December 2008**
Stability Class - **Moderately Stable** - 150Ft-33Ft Delta-T (F)
Winds Measured at 100 Feet
Wind Speed (in mph)

Wind Direction	1 - 3	4 - 7	8 - 12	13 - 18	19 - 24	> 24	Total
N	7	10	0	0	0	0	17
NNE	5	2	0	0	0	0	7
NE	5	1	0	0	0	0	6
ENE	2	0	0	0	0	0	2
E	6	6	0	0	0	0	12
ESE	5	1	0	0	0	0	6
SE	8	1	0	0	0	0	9
SSE	9	2	0	0	0	0	11
S	7	5	3	0	0	0	15
SSW	12	10	5	1	0	0	28
SW	12	6	3	0	1	0	22
WSW	23	10	1	0	0	0	34
W	15	9	2	1	0	0	27
WNW	21	2	0	0	1	0	24
NW	9	4	2	2	0	0	17
NNW	12	10	9	1	0	0	32
Variable	0	0	0	0	0	0	0
Total	158	79	25	5	2	0	269

Hours of calm in this stability class: 2
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 5

Attachment 6

Three Mile Island Nuclear Station
Period of Record: **October - December 2008**
Stability Class - **Extremely Stable** - 150Ft-33Ft Delta-T (F)
Winds Measured at 100 Feet
Wind Speed (in mph)

Wind Direction	1 - 3	4 - 7	8 - 12	13 - 18	19 - 24	> 24	Total
N	3	1	0	0	0	0	4
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	2	0	0	0	0	0	2
E	5	3	0	0	0	0	8
ESE	4	1	0	0	0	0	5
SE	4	0	0	0	0	0	4
SSE	5	2	0	0	0	0	7
S	4	2	3	0	0	0	9
SSW	4	7	0	0	0	0	11
SW	10	2	0	0	0	0	12
WSW	3	3	0	0	0	0	6
W	5	1	0	0	0	0	6
WNW	2	0	0	0	0	0	2
NW	7	2	0	0	0	0	9
NNW	2	1	0	0	0	0	3
Variable	0	0	0	0	0	0	0
Total	60	25	3	0	0	0	88

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 5

Attachment 7
2008 Annual Radioactive Effluent Release Report for TMI
TMI-09-047

Assessment of Radiation Doses Due to Radioactive Liquid and Gaseous Effluents Released from TMI During 2008

TMI-1

The attached table presents the maximum hypothetical doses to an individual and the general population resulting from 2008 TMI-1 releases of gaseous and liquid effluents. Provided below is a brief explanation of the table.

A. Liquid (Individual)

Calculations were performed on the four age groups and seven organs recommended in Regulatory Guide 1.109. The pathways considered for TMI-1 were the consumption of drinking water and fish and standing on the shoreline influenced by TMI-1 effluents. The latter two pathways are considered to be the primary recreational activities associated with the Susquehanna River in the vicinity of TMI. The "critical receptor" or Receptor 1 was that individual who 1) consumed Susquehanna River water from the nearest downstream drinking water supplier (Wrightsville Water Supply), 2) consumed fish residing in the vicinity of the TMI-1 liquid discharge and 3) occupied an area of shoreline influenced by the TMI-1 liquid discharge.

For 2008 the calculated maximum whole body (or total body) dose from TMI-1 liquid effluents was 1.88E-2 mrem to an adult (line 1). The maximum organ dose was 2.12E-2 mrem to the liver of an adult (line 2).

B. Gaseous (Individual)

There were six major pathways considered in the dose calculations for TMI-1 gaseous effluents. These were: (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 is considered to be the maximum doses that would have occurred at or beyond the site boundary. The table presents the distance in meters to the location in the affected sector (compass point) where the theoretical maximum plume exposures occurred. The calculated maximum plume exposures were 4.71E-6 mrad and 4.06E-5 mrad for gamma and beta, respectively.

The maximum organ dose due to the release of iodines, particulates and tritium from TMI-1 in 2008 was 6.96E-3 mrem to the thyroid of a child residing 2150 meters from the site in the NNE sector (line 5). This dose again reflects the maximum exposed organ for the appropriate age group.

For 2008, TMI-1 liquid and gaseous effluents resulted in maximum hypothetical doses that were a small fraction of the quarterly and yearly ODCM dose limits.

Attachment 7

TMI-1
SUMMARY OF MAXIMUM INDIVIDUAL DOSES FOR TMI-1 FROM
January 1, 2008 through December 31, 2008

Effluent	Applicable Organ	Estimated Dose (mrem)	Age Group	Location Dist (m)	Location Dir (to)	% of ODCM Dose Limit		ODCM Dose Limit (mrem)	
						Quarter	Annual	Quarter	Annual
(1) Liquid	Total Body	1.88E-2	Adult	Receptor 1		1.25E0	6.27E-1	1.5	3
(2) Liquid	Liver	2.12E-2	Adult	Receptor 1		4.24E-1	2.12E-1	5	10
(3) Noble Gas	Air Dose (gamma-mrad)	4.71E-6	-	610	ENE	9.42E-5	4.71E-5	5	10
(4) Noble Gas	Air Dose (beta-mrad)	4.06E-5	-	2000	NW	4.06E-4	2.03E-4	10	20
(5) Iodine, Tritium & Particulates	Thyroid	6.96E-3	Child	2150	NNE	9.28E-2	4.64E-2	7.5	15

TMI-2

The attached table presents the maximum hypothetical doses to an individual and the general population resulting from 2008 TMI-2 releases of gaseous and liquid effluents. Provided below is a brief explanation of the table.

A. Liquid (Individual)

Calculations were performed on the four age groups and seven organs recommended in Regulatory Guide 1.109. The pathways considered for TMI-2 were the consumption of drinking water and fish and standing on the shoreline influenced by TMI-2 effluents. The latter two pathways are considered to be the primary recreational activities associated with the Susquehanna River in the vicinity of TMI. The "critical receptor" or Receptor 1 was that individual who 1) consumed Susquehanna River water from the nearest downstream drinking water supplier (Wrightsville Water Supply), 2) consumed fish residing in the vicinity of the TMI-2 liquid discharge and 3) occupied an area of shoreline influenced by the TMI-2 liquid discharge.

For 2008 the calculated maximum whole body (or total body) dose from TMI-2 liquid effluents was 3.65E-4 mrem to an adult (line 1). The maximum organ dose was 5.81E-4 mrem to the liver of a teen (line 2).

B. Gaseous (Individual)

There were six major pathways considered in the dose calculations for TMI-2 gaseous effluents. These were: (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.

Since there were no noble gases released from TMI-2 during 2008, the gamma and beta air doses (lines 3 and 4, respectively) were zero.

The maximum organ dose due to the release of particulates and tritium from TMI-2 in 2008 was 1.72E-3 mrem to the liver, total body, thyroid, kidney, lung and GI tract of a child residing 701 meters from the site in the E sector (line 5).

For 2008, TMI-2 liquid and gaseous effluents resulted in maximum hypothetical doses that were a small fraction of the quarterly and yearly ODCM dose limits.

Attachment 7

TMI-2
SUMMARY OF MAXIMUM INDIVIDUAL DOSES FOR TMI-2 FROM
January 1, 2008 through December 31, 2008

Effluent	Applicable Organ	Estimated Dose (mrem)	Age Group	Location Dist (m)	Location Dir (to)	% of ODCM Dose Limit		ODCM Dose Limit (mrem)	
						Quarter	Annual	Quarter	Annual
(1) Liquid	Total Body	3.65E-4	Adult	Receptor 1		2.43E-2	1.22E-2	1.5	3
(2) Liquid	Liver	5.81E-4	Teen	Receptor 1		1.16E-2	5.81E-3	5	10
(3) Noble Gas	Air Dose (gamma-mrad)	0	-	-	-	0	0	5	10
(4) Noble Gas	Air Dose (beta-mrad)	0	-	-	-	0	0	10	20
(5) Tritium & Particulate	Liver, Total Body, Thyroid, Kidney, Lung & GI Tract	1.72E-3	Child	701	E	2.31E-2	1.15E-2	7.5	15

Assessment of Radiation Doses from Liquid and Gaseous Effluents Releases to Members of the Public within the TMI Site Boundaries During 2008

The Offsite Dose Calculation Manual requires an assessment of the radiation doses from radioactive liquid and gaseous effluents to members of the public due to their activities inside the site boundary during the reporting period. The estimated dose to a member of the public at or within the TMI Site Boundary was 0.48 mrem for 2008.

The following are the assumptions made in this assessment:

Access to the TMI Owner Controlled Area is limited to only those persons who have business related activities that support the operation of the facility. Therefore, based on the definition of a 'member of the public' in NUREG-1301, there is no credible scenario for this individual to receive non-occupational dose inside the TMI Owner Controlled Area. The scenario selected will be recreational use of the Susquehanna River and shoreline next to the Owner Controlled Area fence. Based on the two definitions of Site Boundary in the ODCM, this scenario is AT the Site Boundary for liquid releases but INSIDE the Site Boundary for gaseous releases.

A member of the public stays next to the owner controlled area for 67 hours. The 67 hours is based upon Reg. Guide 1.109 shoreline recreation period given in Table E-5. This is a table of recommended values to be used for the maximum exposed individual in lieu of site-specific data. Three Mile Island is co-located with other islands in the Lake Frederick area of the Susquehanna River. This area is used recreationally for boating and fishing over the summer months. The application of the 67 hours of recreational use from Reg. Guide 1.109 is appropriate.

The highest dose from liquid releases is characterized by the groundwater releases from the Island. These releases occur over a 31-day period. The entire dose from a monthly release will be applied to the 67-hour recreational use period. The application of the total dose from this release to 67 hours is conservative. The total body dose from release L200808612 was 9.00E-4 mrem.

The highest dose from a single airborne release is characterized by release G200807561. This release was from TMI's Auxiliary and Fuel Hanlding Buildings ventilation system. The release contained airborne tritium from spent fuel pool evaporation. This release occurred over 168 hours. The entire dose from this release will be applied to the 67 hour recreational use period. The application of the total dose from this release to 67 hours is conservative. The total body dose from release G200807561 was 1.67E-3 mrem to the critical receptor.

The highest fenceline TLD result (assumed to be equal to dose) will be added to the dose from the highest liquid and gaseous releases to yield the hypothetical maximum dose to a member of the public within the site boundaries.

The highest fenceline TLD result for 2008 was from Station L1-1 and was 5.1 mrem per standard month. The net TLD dose, obtained by subtracting the results from a control station TLD from the indicator results, was not used. This again is conservative.

Calculations:

5.1 mrem/std mo. * 1/30.44 d/std mo. * 1/24 hr/day * 67 hr = 0.47 mrem

The dose from liquid release L200808612 was 0.009 mrem.

The dose from gas release G200807561 was 0.00167 mrem.

Total Dose Calculation

0.47 mrem + 0.009 mrem + 0.00167 mrem = 0.48 mrem

Assessment of Radiation Dose to Most Likely Exposed Real Individual per 40 CFR 190

Dose calculations were performed to demonstrate compliance with 40 CFR 190 (ODCM Part IV Section 2.10). Gaseous and liquid effluents released from TMI-1 and TMI-2 in 2008 resulted in maximum individual doses (regardless of age group) of 0.0227 mrem to the thyroid and 0.0303 mrem to any other organ including the whole (total) body. The direct radiation component was determined using the highest quarterly fence-line exposure rate as measured by an environmental TLD, and subtracting from it, the lowest quarterly environmental TLD exposure rate.

Based on the maximum exposure rate of 5.1 mR/standard month, a person residing at the fence-line for 67 hours (shoreline exposure from Reg. Guide 1.109) received an exposure of 0.47 mR. Based on the lowest exposure rate of 3.0 mR/standard month and converting it by the same method yielded a background exposure of 0.28 mR. Therefore, the net exposure from direct radiation from TMINS was 0.19 mR. Combining the direct radiation exposure (assumed to be equal to dose) with the maximum organ doses from liquid and gaseous releases, the maximum potential (total) doses were 0.21 mrem to the thyroid and 0.22 mrem to any other organ. Both doses were well below the limits specified in 40 CFR 190.

Deviations from the ODCM Sampling and Analysis Regime During 2008

On 8/21/08, the ESF ventilation system was run with RM-A-14 out of service, and no compensatory continuous particulate and charcoal samples were taken. The ESF ventilation system was started up for the purpose of troubleshooting to repair RM-A-14, no spent fuel moves were in progress. IR 818460 describes the details of this issue. The normal fuel handling building ventilation system was in-service in parallel with the ESF system. The same air is drawn through both systems and the normal fuel handling ventilation system effluent rad monitor and sampling were operating. There was no positive activity measured by either the continuous monitor or the continuous particulate and charcoal samples.

The Unit 1 turbine building compositor integrator was found not working three separate times in 2008. In all cases, compensatory sampling was initiated as soon as the problem was discovered. In each case, the compositor was repaired and returned to service. Dose calculations were performed using the compensatory sample results and the Industrial Waste Treatment System flow integrator data. The three time periods are as follows: 2/11/08 through 2/19/08 - IR 735871, 10/13/08 through 10/20/08 - IR 830998 and 12/15/08 through 1/5/09 - IR 858241.

Enclosure 1
2008 Annual Radioactive Effluent Release Report for TMI
TMI-09-047

ODCM change for
TMI Offsite Dose Calculation Manual, Revision 1
CY-TM-170-300

(Revision 1 was issued on November 12, 2008)