

Attachment 1
2005 Annual Radioactive Effluent Releases Report for TMI
5928-06-20444

**Summary of Radioactive Liquid and Gaseous Effluents
Released from TMI during 2005**

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

| UNITS | 2005 1ST QUARTER | 2005 2ND QUARTER | 2005 3RD QUARTER | 2005 4TH QUARTER | EST. TOTAL ERROR % |
|-------|---------------------|---------------------|---------------------|---------------------|-----------------------|
|-------|---------------------|---------------------|---------------------|---------------------|-----------------------|

A. FISSION AND ACTIVATION GASES

| | | | | | | |
|------------------------------------|---------|----------|----------|----------|----------|-----|
| 1. TOTAL RELEASE | Ci | 3.49E-02 | 9.90E-02 | 1.56E-01 | 1.16E+00 | 25% |
| 2. AVERAGE RELEASE RATE FOR PERIOD | uCi/sec | 4.48E-03 | 1.26E-02 | 1.96E-02 | 1.46E-01 | |
| 3. PERCENT OF TECH SPEC LIMIT | % | * | * | * | * | |

B. IODINES

| | | | | | | |
|------------------------------------|---------|----------|----------|----------|----------|-----|
| 1. TOTAL IODINE I-131 | Ci | 7.55E-08 | 2.24E-07 | 3.28E-07 | 1.27E-07 | 25% |
| 2. AVERAGE RELEASE RATE FOR PERIOD | uCi/sec | 9.71E-09 | 2.85E-08 | 4.13E-08 | 1.60E-08 | |
| 3. PERCENT OF TECH SPEC LIMIT | % | * | * | * | * | |

C. PARTICULATES

| | | | | | | |
|--|---------|------|------|------|----------|-----|
| 1. PARTICULATES WITH HALF-LIVES > 8 DAYS | Ci | <LLD | <LLD | <LLD | 7.16E-06 | 25% |
| 2. AVERAGE RELEASE RATE FOR PERIOD | uCi/sec | NA | NA | NA | 9.00E-07 | |
| 3. PERCENT OF TECH SPEC LIMIT | % | * | * | * | * | |
| 4. GROSS ALPHA RADIOACTIVITY | Ci | <LLD | <LLD | <LLD | <LLD | |

D. TRITIUM

| | | | | | | |
|------------------------------------|---------|----------|----------|----------|----------|-----|
| 1. TOTAL RELEASE | Ci | 7.11E+01 | 4.54E+01 | 6.47E+01 | 3.44E+01 | 15% |
| 2. AVERAGE RELEASE RATE FOR PERIOD | uCi/sec | 9.15E+00 | 5.78E+00 | 8.15E+00 | 4.32E+00 | |
| 3. PERCENT OF TECH SPEC LIMIT | % | * | * | * | * | |

* % ODCM LIMITS: LISTED ON DOSE SUMMARY TABLE

TABLE 1C
EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT (2005)
GASEOUS EFFLUENTS - GROUND LEVEL RELEASES
TMI-1

| NUCLIDES RELEASED | UNIT | CONTINUOUS | | BATCH | | CONTINUOUS | | BATCH | |
|-------------------|------|------------|-----------|-----------|-----------|------------|-----------|-----------|-----------|
| | | QUARTER 1 | QUARTER 2 | QUARTER 1 | QUARTER 2 | QUARTER 3 | QUARTER 4 | QUARTER 3 | QUARTER 4 |

1. FISSION GASES

| | | | | | | | | | |
|------------------|----|----------|----------|----------|----------|------|----------|----------|----------|
| AR 41 | Ci | <LLD | <LLD | <LLD | 1.65E-02 | <LLD | <LLD | 4.88E-02 | 7.40E-02 |
| KR 85M | Ci | <LLD | <LLD | <LLD | <LLD | <LLD | <LLD | <LLD | <LLD |
| KR 85 | Ci | <LLD | <LLD | 1.52E-03 | <LLD | <LLD | <LLD | <LLD | <LLD |
| KR 87 | Ci | <LLD | <LLD | <LLD | <LLD | <LLD | <LLD | <LLD | <LLD |
| KR 88 | Ci | <LLD | <LLD | <LLD | <LLD | <LLD | <LLD | <LLD | <LLD |
| XE131M | Ci | <LLD | <LLD | 8.79E-04 | 1.25E-03 | <LLD | <LLD | 6.04E-04 | 9.29E-03 |
| XE 133 | Ci | <LLD | <LLD | 3.24E-02 | 8.11E-02 | <LLD | <LLD | 1.06E-01 | 1.07E+00 |
| XE133M | Ci | <LLD | <LLD | <LLD | <LLD | <LLD | <LLD | <LLD | 9.44E-03 |
| XE 135M | Ci | <LLD | <LLD | <LLD | <LLD | <LLD | <LLD | <LLD | <LLD |
| XE 135 | Ci | 6.23E-05 | 7.30E-05 | <LLD | <LLD | <LLD | 6.00E-05 | 5.45E-04 | 2.12E-03 |
| XE 138 | Ci | <LLD | <LLD | <LLD | <LLD | <LLD | <LLD | <LLD | <LLD |
| TOTAL FOR PERIOD | Ci | 6.23E-05 | 7.30E-05 | 3.48E-02 | 9.89E-02 | NA | 6.00E-05 | 1.56E-01 | 1.16E+00 |

2. IODINES

| | | | | | | | | | |
|------------------|----|----------|----------|------|------|----------|----------|------|------|
| I 131 | Ci | 7.55E-08 | 2.24E-07 | <LLD | <LLD | 3.28E-07 | 1.27E-07 | <LLD | <LLD |
| I 133 | Ci | 6.78E-07 | 2.45E-06 | <LLD | <LLD | 3.06E-06 | 8.10E-07 | <LLD | <LLD |
| I 135 | Ci | <LLD | <LLD | <LLD | <LLD | <LLD | <LLD | <LLD | <LLD |
| TOTAL FOR PERIOD | Ci | 7.54E-07 | 2.67E-06 | NA | NA | 3.39E-06 | 1.27E-07 | NA | NA |

3. PARTICULATES

| | | | | | | | | | |
|------------------|----|------|------|------|------|------|----------|------|------|
| CO 58 | Ci | <LLD | <LLD | <LLD | <LLD | <LLD | 7.16E-06 | <LLD | <LLD |
| TOTAL FOR PERIOD | Ci | NA | NA | NA | NA | NA | 7.16E-06 | NA | NA |

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

| UNITS | 2005 1ST QUARTER | 2005 2ND QUARTER | 2005 3RD QUARTER | 2005 4TH QUARTER | EST. TOTAL ERROR % |
|-------|---------------------|---------------------|---------------------|---------------------|-----------------------|
|-------|---------------------|---------------------|---------------------|---------------------|-----------------------|

A. FISSION AND ACTIVATION PRODUCTS

| | | | | | | |
|---|--------|------|------|----------|----------|-----|
| 1. TOTAL RELEASES (NOT INCLUDING TRITIUM, GASES, ALPHA) | Ci | <LLD | <LLD | 3.18E-05 | 1.51E-03 | 25% |
| 2. AVERAGE DILUTED CONCENTRATION DURING PERIOD | uCi/ml | NA | NA | 4.83E-12 | 1.93E-10 | |
| 3. PERCENT OF APPLICABLE LIMIT | % | * | * | * | * | |

B. TRITIUM

| | | | | | | |
|--|--------|----------|----------|----------|----------|-----|
| 1. TOTAL RELEASE | Ci | 4.38E+02 | 1.31E-01 | 3.10E+02 | 1.67E+01 | 25% |
| 2. AVERAGE DILUTED CONCENTRATION DURING PERIOD | uCi/ml | 6.94E-05 | 1.94E-08 | 4.70E-05 | 2.13E-06 | |
| 3. PERCENT OF APPLICABLE LIMIT | % | * | * | * | * | |

C. DISSOLVED AND ENTRAINED GASES

| | | | | | | |
|--|--------|----------|------|----------|------|-----|
| 1. TOTAL RELEASE | Ci | 7.83E-05 | <LLD | 5.29E-05 | <LLD | 25% |
| 2. AVERAGE DILUTED CONCENTRATION DURING PERIOD | uCi/ml | 1.24E-11 | NA | 8.02E-12 | NA | |
| 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 | 6.75E+06 | 6.96E+06 | 9.19E+06 | 1.29E+07 | 10% |
|--------|----------|----------|----------|----------|-----|

F. VOLUME OF DILUTION WATER USED

| | | | | | |
|--------|----------|----------|----------|----------|-----|
| liters | 6.30E+09 | 6.74E+09 | 6.60E+09 | 7.84E+09 | 10% |
|--------|----------|----------|----------|----------|-----|

* % ODCM LIMITS: LISTED ON DOSE SUMMARY TABLE

SUPPLEMENTAL INFORMATION

FACILITY: TMI UNIT 1 LICENSE: DPR 50-289

1. REGULATORY LIMITS --- 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 --- TEN TIMES 10 CFR 20, APPENDIX B TABLE 2

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 = | 2.84E-01 MeV |
| E-BAR GAMMA = | 5.34E-01 MeV |
| E-BAR BETA AND GAMMA = | 8.18E-01 MeV |

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 1 | QUARTER 2 | QUARTER 3 | QUARTER 4 |
|---|-----------|-----------|-----------|-----------|
| 1. NUMBER OF BATCH RELEASES: | 13 | 0 | 25 | 7 |
| 2. TOTAL TIME PERIOD FOR BATCH RELEASES: | 6460 | 0 | 8063 | 1621 |
| 3. MAXIMUM TIME PERIOD FOR A BATCH RELEASE: | 740 | 0 | 720 | 291 |
| 4. AVERAGE TIME PERIOD FOR BATCH RELEASES: | 496 | 0 | 322 | 231 |
| 5. MINIMUM TIME PERIOD FOR A BATCH RELEASE: | 100 | 0 | 215 | 192 |
| 6. AVERAGE STREAM FLOW DURING PERIODS OF RELEASE OF EFFLUENT INTO A FLOWING STREAM: (CFS) | 3.94E+06 | 2.60E+06 | 3.95E+05 | 2.35E+06 |

| B. GASEOUS (ALL TIMES IN MINUTES) | QUARTER 1 | QUARTER 2 | QUARTER 3 | QUARTER 4 |
|---|-----------|-----------|-----------|-----------|
| 1. NUMBER OF BATCH RELEASES: | 5 | 9 | 6 | 14 |
| 2. TOTAL TIME PERIOD FOR BATCH RELEASES: | 4180 | 5665 | 4581 | 39423 |
| 3. MAXIMUM TIME PERIOD FOR A BATCH RELEASE: | 1095 | 885 | 1380 | 27862 |
| 4. AVERAGE TIME PERIOD FOR BATCH RELEASES: | 836 | 629 | 763 | 2815 |
| 5. MINIMUM TIME PERIOD FOR A BATCH RELEASE: | 740 | 13 | 115 | 13 |

6. ABNORMAL RELEASES

A. LIQUID

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

B. GASEOUS

| | | | | |
|--------------------------------------|-----|-----|-----|----------|
| 1. NUMBER OF RELEASES: | -0- | -0- | -0- | 1 |
| 2. TOTAL ACTIVITY RELEASED: (CURIES) | N/A | N/A | N/A | 5.60E-02 |

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

| UNITS | 2005 1ST QUARTER | 2005 2ND QUARTER | 2005 3RD QUARTER | 2005 4TH QUARTER | EST. TOTAL ERROR % |
|-------|---------------------|---------------------|---------------------|---------------------|-----------------------|
|-------|---------------------|---------------------|---------------------|---------------------|-----------------------|

A. FISSION AND ACTIVATION GASES

| | | | | | | |
|------------------------------------|---------|------|------|------|------|-----|
| 1. TOTAL RELEASE | Ci | <LLD | <LLD | <LLD | <LLD | 27% |
| 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 | 27% |
| 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 | 6.71E-01 | 3.56E-01 | 2.55E-01 | 1.55E-01 | 27% |
| 2. AVERAGE RELEASE RATE FOR PERIOD | uCi/sec | 8.63E-02 | 4.53E-02 | 3.21E-02 | 1.95E-02 | |
| 3. PERCENT OF TECH SPEC LIMIT | % | * | * | * | * | |
| # BATCH RELEASES | | 0 | 0 | 0 | 0 | |

* % ODCM LIMITS: LISTED ON DOSE SUMMARY TABLE

TABLE 1C
EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT (2005)
GASEOUS EFFLUENTS - GROUND LEVEL RELEASES
TMI-2

| NUCLIDES RELEASED | UNIT | CONTINUOUS | | BATCH | | CONTINUOUS | | BATCH | |
|-------------------|------|------------|-----------|-----------|-----------|------------|-----------|-----------|-----------|
| | | QUARTER 1 | QUARTER 2 | QUARTER 1 | QUARTER 2 | QUARTER 3 | QUARTER 4 | QUARTER 3 | QUARTER 4 |

1. FISSION GASES

| | | | | | | | | | |
|------------------|----|------|------|------|------|------|------|------|------|
| AR 41 | Ci | <LLD | <LLD | <LLD | <LLD | <LLD | <LLD | <LLD | <LLD |
| KR 85M | Ci | <LLD | <LLD | <LLD | <LLD | <LLD | <LLD | <LLD | <LLD |
| KR 85 | Ci | <LLD | <LLD | <LLD | <LLD | <LLD | <LLD | <LLD | <LLD |
| KR 87 | Ci | <LLD | <LLD | <LLD | <LLD | <LLD | <LLD | <LLD | <LLD |
| KR 88 | Ci | <LLD | <LLD | <LLD | <LLD | <LLD | <LLD | <LLD | <LLD |
| XE131M | Ci | <LLD | <LLD | <LLD | <LLD | <LLD | <LLD | <LLD | <LLD |
| XE 133 | Ci | <LLD | <LLD | <LLD | <LLD | <LLD | <LLD | <LLD | <LLD |
| XE133M | Ci | <LLD | <LLD | <LLD | <LLD | <LLD | <LLD | <LLD | <LLD |
| XE 135M | Ci | <LLD | <LLD | <LLD | <LLD | <LLD | <LLD | <LLD | <LLD |
| XE 135 | Ci | <LLD | <LLD | <LLD | <LLD | <LLD | <LLD | <LLD | <LLD |
| XE 138 | Ci | <LLD | <LLD | <LLD | <LLD | <LLD | <LLD | <LLD | <LLD |
| 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

| | | | | | | | | | |
|------------------|----|------|------|------|------|------|------|------|------|
| CS 137 | Ci | <LLD | <LLD | <LLD | <LLD | <LLD | <LLD | <LLD | <LLD |
| TOTAL FOR PERIOD | Ci | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |

4. TRITIUM

| | | | | | | | | | |
|---------|----|----------|----------|------|------|----------|----------|------|------|
| TRITIUM | Ci | 6.71E-01 | 3.56E-01 | <LLD | <LLD | 2.55E-01 | 1.55E-01 | <LLD | <LLD |
|---------|----|----------|----------|------|------|----------|----------|------|------|

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

| UNITS | 2005 1ST QUARTER | 2005 2ND QUARTER | 2005 3RD QUARTER | 2005 4TH QUARTER | EST. TOTAL ERROR % |
|-------|---------------------|---------------------|---------------------|---------------------|-----------------------|
|-------|---------------------|---------------------|---------------------|---------------------|-----------------------|

A. FISSION AND ACTIVATION PRODUCTS

| | | | | | | |
|---|--------|----------|----------|----------|----------|-----|
| 1. TOTAL RELEASES (NOT INCLUDING TRITIUM, GASES, ALPHA) | Ci | 6.57E-07 | 4.60E-06 | 1.23E-05 | 1.82E-06 | 27% |
| 2. AVERAGE DILUTED CONCENTRATION DURING PERIOD | uCi/ml | 1.04E-13 | 6.82E-13 | 1.87E-12 | 2.32E-13 | |
| 3. PERCENT OF APPLICABLE LIMIT | % | * | * | * | * | |

B. TRITIUM

| | | | | | | |
|--|--------|----------|----------|----------|----------|-----|
| 1. TOTAL RELEASE | Ci | 3.29E-05 | 1.09E-04 | 5.83E-05 | 6.68E-05 | 27% |
| 2. AVERAGE DILUTED CONCENTRATION DURING PERIOD | uCi/ml | 5.22E-12 | 1.62E-11 | 8.85E-12 | 8.52E-12 | |
| 3. PERCENT OF APPLICABLE LIMIT | % | * | * | * | * | |

C. DISSOLVED AND ENTRAINED GASES

| | | | | | | |
|--|--------|------|------|------|------|-----|
| 1. TOTAL RELEASE | Ci | <LLD | <LLD | <LLD | <LLD | 27% |
| 2. AVERAGE DILUTED CONCENTRATION DURING PERIOD | uCi/ml | NA | NA | NA | NA | |
| 3. PERCENT OF APPLICABLE LIMIT | % | * | * | * | * | |

D. GROSS ALPHA ACTIVITY

| | | | | | | |
|------------------|----|------|------|------|------|-----|
| 1. TOTAL RELEASE | Ci | <LLD | <LLD | <LLD | <LLD | 10% |
|------------------|----|------|------|------|------|-----|

E. VOLUME OF WASTE RELEASED (PRIOR TO DILUTION)

| | | | | | |
|--------|----------|----------|----------|----------|----|
| liters | 2.79E+03 | 7.24E+03 | 6.04E+03 | 3.74E+03 | 3% |
|--------|----------|----------|----------|----------|----|

F. VOLUME OF DILUTION WATER USED

| | | | | | |
|--------|----------|----------|----------|----------|----|
| liters | 6.30E+09 | 6.74E+09 | 6.59E+09 | 7.84E+09 | 1% |
|--------|----------|----------|----------|----------|----|

| | | | | | | |
|------------------|--|---|---|---|---|--|
| # BATCH RELEASES | | 2 | 3 | 5 | 2 | |
|------------------|--|---|---|---|---|--|

* % ODCM LIMITS: LISTED ON DOSE SUMMARY TABLE

TABLE 2B
EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT (2005)
LIQUID EFFLUENTS
TMI-2

| NUCLIDES RELEASED | UNIT | CONTINUOUS | | BATCH | | CONTINUOUS | | BATCH | |
|-------------------|------|------------|-----------|-----------|-----------|------------|-----------|-----------|-----------|
| | | QUARTER 1 | QUARTER 2 | QUARTER 1 | QUARTER 2 | QUARTER 3 | QUARTER 4 | QUARTER 3 | QUARTER 4 |
| CO 60 | Ci | <LLD | <LLD | <LLD | <LLD | <LLD | <LLD | <LLD | <LLD |
| ZN 65 | Ci | <LLD | <LLD | <LLD | <LLD | <LLD | <LLD | <LLD | <LLD |
| SR 90 | Ci | <LLD | <LLD | <LLD | <LLD | <LLD | <LLD | <LLD | <LLD |
| SB 125 | Ci | <LLD | <LLD | <LLD | <LLD | <LLD | <LLD | <LLD | <LLD |
| NB 95 | Ci | <LLD | <LLD | <LLD | <LLD | <LLD | <LLD | <LLD | <LLD |
| CS 134 | Ci | <LLD | <LLD | <LLD | <LLD | <LLD | <LLD | <LLD | <LLD |
| CS 137 | Ci | <LLD | <LLD | 6.57E-07 | 4.60E-06 | <LLD | <LLD | 1.23E-05 | 1.82E-06 |
| H3 | Ci | <LLD | <LLD | 3.29E-05 | 1.09E-04 | <LLD | <LLD | 5.83E-05 | 6.68E-05 |
| TOTAL FOR PERIOD | Ci | NA | NA | 3.36E-05 | 1.14E-04 | NA | NA | 7.06E-05 | 6.86E-05 |

Attachment 2
2005 Annual Radioactive Effluent Releases Report for TMI
5928-06-20444

Solid Waste Shipped Offsite During 2005

**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 | 12.2 m3 71.0 Ci | 25% |
| b. Dry cornpressible waste, contaminated equipment, etc. | m ³ Ci | 650.8m3 1.50Ci | 25% |
| 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. Ni63 | 57.4% | | |
| Cs137 | 28.5% | | |
| Fe55 | 6.96% | | |
| Co60 | 4.46% | | |
| b. Cs137 | 49.6% | | |
| Co58 | 29.1% | | |
| Ni63 | 13.8% | | |
| Fe55 | 1.99% | | |

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

WASTE SHIPPED AS FOLLOWS

A.1.a

Two (2)- steel liners @ 215 ft³ each – Dewatered Resin

A.1.b

Fourteen(14)– Steel Cargo Container @ 1280 ft³ each- DAW-Metal

Five(5)- Steel Boxes @ 64 ft³ each – DAW-Metal

Seven(7) Steel Boxes @ 96 ft³ each –DAW/Metal

Five(5)- Poly Bags @ 200 ft³ each- Soil

Two(2) Poly Bags @ 1535 ft³ each- Feedwater Hearters

A.3.a

| | | |
|---------------|------------------------|---------------------|
| Two Shipments | Hittman Transport/Cask | Studsvik- Erwin, TN |
|---------------|------------------------|---------------------|

A.3.b

| | | |
|----------------|---------------------------|-----------------------|
| Nine Shipments | Hittman Transport/Flatbed | Duratek-Oak Ridge, Tn |
|----------------|---------------------------|-----------------------|

| | | |
|--------------|---------------------------|-------------------|
| One Shipment | Hittman Transport/Flatbed | ALARON-Wampum, Pa |
|--------------|---------------------------|-------------------|

| | | |
|--------------|------------------------|-------------------------|
| One Shipment | R & R Trucking/Flatbed | Duratek – Oak Ridge, TN |
|--------------|------------------------|-------------------------|

| | | |
|---------------|------------------------|------------------------------|
| Two Shipments | J Supor & Son Trucking | Envirocare Of Utah-Clive, UT |
|---------------|------------------------|------------------------------|

NOTE- All Shipments were TYPE-A LSA-II

There were no changes to the Process Control Program (PCP) for TMI-1 during 2005.

**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 | N/A | N/A |
| c. Irradiated components, control rods, etc. | m ³ Ci | N/A | N/A |
| d. 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. Co58 | N/A | | |
| Cs137 | | | |
| Ni63 | | | |
| Sr90 | | | |
| c. Ni63 | N/A | | |
| Co58 | | | |
| Fe55 | | | |
| Co60 | | | |
| d. N/A | N/A | | |
| 3. Solid Waste Disposition | | Mode of Transportation | Destination |
| Number of Shipments | | | |
| No Shipment during this period | | | |
| B. Irradiated Fuel Shipments (Disposition) | | | |
| | | None | |
| Number of Shipments | | | |
| N/A | | Mode Transport | Destination |
| | | | |
| | | | |

Summary of Abnormal Releases from the TMI Site During 2005

There were no Abnormal releases from TMI-2 in 2005. There was one unplanned or uncontrolled release at TMI-1 in 2005. It was as a result of a steam leak for EF-P-1. This is the emergency steam driven feed water pump. A leaking valve allows steam to vent to the atmosphere through the normal exhaust pipe. This pathway was estimated to release 0.056 curies of tritium into the environment. This resulted in an estimated total body dose of $1.69\text{E-}4$ mrem to the maximally exposed individual. The source term was included in the annual dose calculations for 2005.

**Changes to the Process Control Program and the
Offsite Dose Calculation Manual during 2005
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 no changes to the Process Control Program.

2. Changes to the Offsite Dose Calculation Manual

There were no changes to the Offsite Dose Calculation Manual.

**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 2005 land use census, no changes to the Radiological Environmental Monitoring Program are required. The residential census identified a change in the nearest residence in the west sector. A summer home trailer was removed from Shelly Island. The distance of the nearest receptor went from 560 meters to 1120 meters. The receptor location files were changed in the dose calculation software.

Attachment 5
2005 Annual Radioactive Effluent Releases Report for TMI
5928-06-20444

Instrumentation not Returned to Operable Status within 30 Days During 2005

There was no 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 during 2005.

Attachment 6
2005 Annual Radioactive Effluent Releases Report for TMI
5928-06-20444

Annual Summary of Hourly Meteorological Data for 2005

The osprey did return and nest on the TMI meteorological tower. However, the station had adjusted the semi-annual calibration schedule and was able to calibrate the sensors and instrumentation before and after the osprey nested. The percent data recovery for meteorological information for 2005 was 98.5 percent. The data are presented by quarter.

Period of Record: January - March 2005
 Stability Class - Extremely Unstable - 150Ft-33Ft Delta-T (F)
 Winds Measured at 100 Feet
 Wind Speed (in mph)

| <u>Wind Direction</u> | <u>1-3</u> | <u>4-7</u> | <u>8-12</u> | <u>13-18</u> | <u>19-24</u> | <u>> 24</u> | <u>Total</u> |
|-----------------------|------------|------------|-------------|--------------|--------------|----------------|--------------|
| N | 0 | 3 | 0 | 0 | 0 | 0 | 3 |
| NNE | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| NE | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| ENE | 0 | 1 | 1 | 0 | 0 | 0 | 2 |
| E | 0 | 1 | 4 | 3 | 0 | 0 | 8 |
| ESE | 0 | 1 | 6 | 1 | 0 | 0 | 8 |
| SE | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| SSE | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| S | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| SSW | 1 | 6 | 3 | 1 | 1 | 0 | 12 |
| SW | 3 | 1 | 3 | 0 | 0 | 0 | 7 |
| WSW | 1 | 2 | 1 | 0 | 0 | 0 | 4 |
| W | 2 | 0 | 5 | 0 | 0 | 0 | 7 |
| WNW | 1 | 0 | 3 | 1 | 1 | 0 | 6 |
| NW | 4 | 5 | 8 | 2 | 2 | 0 | 21 |
| NNW | 5 | 7 | 6 | 9 | 6 | 1 | 34 |
| Variable | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total | 17 | 30 | 4 | 17 | 10 | 1 | 115 |

Hours of calm in this stability class: 0

Hours of missing wind or stability measurements in this stability class: 0

Stability Class - Moderately Unstable - 150Ft-33Ft Delta-T (F)
 Winds Measured at 100 Feet
 Wind Speed (in mph)

| <u>Wind Direction</u> | <u>1-3</u> | <u>4-7</u> | <u>8-12</u> | <u>13-18</u> | <u>19-24</u> | <u>> 24</u> | <u>Total</u> |
|-----------------------|------------|------------|-------------|--------------|--------------|----------------|--------------|
| N | 1 | 6 | 1 | 0 | 0 | 0 | 8 |
| NNE | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| NE | 0 | 5 | 4 | 0 | 0 | 0 | 9 |
| ENE | 0 | 3 | 3 | 0 | 0 | 0 | 6 |
| E | 0 | 5 | 10 | 0 | 0 | 0 | 15 |
| ESE | 1 | 3 | 3 | 1 | 0 | 0 | 8 |
| SE | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| SSE | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| S | 1 | 2 | 0 | 0 | 0 | 0 | 3 |
| SSW | 0 | 2 | 0 | 0 | 0 | 0 | 2 |
| SW | 2 | 3 | 0 | 1 | 0 | 0 | 6 |
| WSW | 0 | 1 | 1 | 0 | 0 | 0 | 2 |
| W | 1 | 3 | 6 | 3 | 0 | 0 | 13 |
| WNW | 2 | 0 | 6 | 18 | 4 | 0 | 30 |
| NW | 1 | 5 | 9 | 12 | 4 | 3 | 34 |
| NNW | 3 | 8 | 4 | 5 | 2 | 1 | 23 |
| Variable | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total | 12 | 48 | 47 | 40 | 10 | 4 | 161 |

Hours of calm in this stability class: 0

Hours of missing wind or stability measurements in this stability class: 0

Stability Class - Slightly Unstable - 150Ft-33Ft Delta-T (F)
Winds Measured at 100 Feet

| Wind Direction | Wind Speed (in mph) | | | | | | Total |
|----------------|---------------------|-----|------|-------|-------|------|-------|
| | 1-3 | 4-7 | 8-12 | 13-18 | 19-24 | > 24 | |
| N | 1 | 0 | 1 | 0 | 0 | 0 | 2 |
| NNE | 1 | 1 | 0 | 0 | 0 | 0 | 2 |
| NE | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| ENE | 0 | 1 | 4 | 0 | 0 | 0 | 5 |
| E | 0 | 5 | 10 | 0 | 0 | 0 | 15 |
| ESE | 0 | 3 | 6 | 0 | 0 | 0 | 9 |
| SE | 0 | 1 | 1 | 0 | 0 | 0 | 2 |
| SSE | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| S | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| SSW | 0 | 1 | 2 | 1 | 0 | 0 | 4 |
| SW | 1 | 2 | 1 | 1 | 0 | 0 | 5 |
| WSW | 0 | 0 | 1 | 0 | 0 | 0 | 1 |
| W | 0 | 0 | 1 | 2 | 0 | 0 | 3 |
| WNW | 0 | 1 | 4 | 10 | 3 | 1 | 19 |
| NW | 0 | 2 | 6 | 11 | 7 | 0 | 26 |
| NNW | 0 | 5 | 5 | 5 | 1 | 0 | 16 |
| Variable | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total | 5 | 23 | 42 | 30 | 11 | 1 | 112 |

Hours of calm in this stability class: 0

Hours of missing wind and stability measurements in this stability class: 0

Stability Class - Neutral - 150Ft-33Ft Delta-T (F)
Winds Measured at 100 Feet

| Wind Direction | Wind Speed (in mph) | | | | | | Total |
|----------------|---------------------|-----|------|-------|-------|------|-------|
| | 1-3 | 4-7 | 8-12 | 13-18 | 19-24 | > 24 | |
| N | 10 | 27 | 16 | 5 | 1 | 0 | 59 |
| NNE | 8 | 30 | 3 | 0 | 0 | 0 | 41 |
| NE | 8 | 36 | 1 | 0 | 0 | 0 | 45 |
| ENE | 12 | 36 | 8 | 0 | 0 | 0 | 56 |
| E | 4 | 46 | 15 | 0 | 0 | 0 | 65 |
| ESE | 4 | 29 | 48 | 3 | 0 | 0 | 84 |
| SE | 8 | 6 | 15 | 1 | 0 | 0 | 30 |
| SSE | 6 | 9 | 5 | 0 | 0 | 0 | 20 |
| S | 5 | 16 | 7 | 4 | 0 | 0 | 32 |
| SSW | 4 | 9 | 5 | 0 | 0 | 0 | 18 |
| SW | 6 | 10 | 1 | 3 | 0 | 0 | 20 |
| WSW | 2 | 19 | 4 | 1 | 0 | 0 | 26 |
| W | 3 | 27 | 37 | 13 | 0 | 0 | 80 |
| WNW | 10 | 31 | 67 | 68 | 9 | 1 | 186 |
| NW | 5 | 29 | 70 | 50 | 15 | 11 | 70 |
| NNW | 12 | 34 | 22 | 22 | 11 | 0 | 101 |
| Variable | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total | 107 | 394 | 324 | 170 | 36 | 2 | 1033 |

Hours of calm in this stability class: 0

Hours of missing wind and stability measurements in this stability class: 0

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 | 19 | 16 | 6 | 1 | 0 | 0 | 42 |
| NNE | 15 | 2 | 1 | 0 | 0 | 0 | 18 |
| NE | 4 | 5 | 0 | 0 | 0 | 0 | 9 |
| ENE | 6 | 12 | 0 | 0 | 0 | 0 | 18 |
| E | 6 | 15 | 3 | 0 | 0 | 0 | 24 |
| ESE | 4 | 7 | 4 | 0 | 0 | 0 | 15 |
| SE | 3 | 4 | 1 | 0 | 0 | 0 | 8 |
| SSE | 3 | 1 | 5 | 0 | 0 | 0 | 9 |
| S | 2 | 5 | 4 | 0 | 0 | 0 | 11 |
| SSW | 8 | 10 | 5 | 1 | 0 | 0 | 24 |
| SW | 9 | 11 | 2 | 0 | 0 | 0 | 22 |
| WSW | 12 | 9 | 1 | 0 | 0 | 0 | 22 |
| W | 4 | 24 | 2 | 0 | 0 | 0 | 30 |
| WNW | 7 | 15 | 18 | 3 | 0 | 0 | 43 |
| NW | 9 | 13 | 22 | 5 | 2 | 0 | 51 |
| NNW | 16 | 19 | 9 | 9 | 2 | 0 | 55 |
| Variable | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total | 127 | 168 | 83 | 19 | 4 | 0 | 401 |

Hours of calm in this stability class: 0

Hours of missing wind and stability measurements in this stability class: 0

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 | 5 | 9 | 1 | 0 | 0 | 0 | 15 |
| NNE | 4 | 0 | 0 | 0 | 0 | 0 | 4 |
| NE | 0 | 2 | 0 | 0 | 0 | 0 | 2 |
| ENE | 6 | 5 | 0 | 0 | 0 | 0 | 11 |
| E | 2 | 1 | 0 | 0 | 0 | 0 | 3 |
| ESE | 3 | 1 | 0 | 0 | 0 | 0 | 4 |
| SE | 3 | 0 | 0 | 0 | 0 | 0 | 3 |
| SSE | 6 | 0 | 0 | 0 | 0 | 0 | 6 |
| S | 4 | 3 | 0 | 0 | 0 | 0 | 7 |
| SSW | 8 | 4 | 0 | 0 | 0 | 0 | 12 |
| SW | 8 | 6 | 0 | 0 | 0 | 0 | 14 |
| WSW | 5 | 6 | 0 | 0 | 0 | 0 | 11 |
| W | 8 | 3 | 0 | 0 | 0 | 0 | 11 |
| WNW | 8 | 7 | 0 | 0 | 0 | 0 | 15 |
| NW | 10 | 8 | 2 | 0 | 0 | 0 | 20 |
| NNW | 10 | 14 | 6 | 1 | 0 | 0 | 31 |
| Variable | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total | 90 | 69 | 9 | 1 | 0 | 0 | 169 |

Hours of calm in this stability class: 0

Hours of missing wind and stability measurements in this stability class: 0

Stability Class - Extremely Stable - 150Ft-33Ft Delta-T (F)
Winds Measured at 100 Feet

| Wind Direction | Wind Speed (in mph) | | | | | | Total |
|----------------|---------------------|-----|------|-------|-------|------|-------|
| | 1-3 | 4-7 | 8-12 | 13-18 | 19-24 | > 24 | |
| N | 4 | 3 | 0 | 0 | 0 | 0 | 7 |
| NNE | 2 | 0 | 0 | 0 | 0 | 0 | 2 |
| NE | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| ENE | 3 | 0 | 0 | 0 | 0 | 0 | 3 |
| E | 2 | 0 | 0 | 0 | 0 | 0 | 2 |
| ESE | 3 | 0 | 0 | 0 | 0 | 0 | 3 |
| SE | 2 | 0 | 0 | 0 | 0 | 0 | 2 |
| SSE | 6 | 0 | 0 | 0 | 0 | 0 | 6 |
| S | 9 | 0 | 0 | 0 | 0 | 0 | 9 |
| SSW | 2 | 4 | 0 | 0 | 0 | 0 | 6 |
| SW | 11 | 3 | 0 | 0 | 0 | 0 | 14 |
| WSW | 9 | 4 | 1 | 0 | 0 | 0 | 14 |
| W | 8 | 0 | 1 | 0 | 0 | 0 | 9 |
| WNW | 7 | 0 | 0 | 0 | 0 | 0 | 7 |
| NW | 10 | 1 | 0 | 0 | 0 | 0 | 11 |
| NNW | 10 | 15 | 4 | 0 | 0 | 0 | 29 |
| Variable | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total | 89 | 30 | 6 | 0 | 0 | 0 | 125 |

Hours of calm in this stability class: 0

Hours of missing wind and stability measurements in this stability class: 0

Stability Class - Extremely Unstable - 150Ft-33Ft Delta-T (F)
Winds Measured at 150 Feet

| Wind Direction | Wind Speed (in mph) | | | | | | Total |
|----------------|---------------------|-----|------|-------|-------|------|-------|
| | 1-3 | 4-7 | 8-12 | 13-18 | 19-24 | > 24 | |
| 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 | 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 | 0 | 0 | 0 | 0 | 0 |
| SSW | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| SW | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| WSW | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| W | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| WNW | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| NW | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| NNW | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Variable | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Hours of calm in this stability class: 0

Hours of missing wind measurements in this stability class: 115

Hours of missing stability measurements in all stability classes: 11

Period of Record: April - June 2005
 Stability Class - Extremely Unstable - 150Ft-33Ft Delta-T (F)
 Winds Measured at 100 Feet

Wind Speed (in mph)

| <u>Wind Direction</u> | <u>1-3</u> | <u>4-7</u> | <u>8-12</u> | <u>13-18</u> | <u>19-24</u> | <u>> 24</u> | <u>Total</u> |
|-----------------------|------------|------------|-------------|--------------|--------------|----------------|--------------|
| N | 1 | 16 | 5 | 2 | 0 | 0 | 24 |
| NNE | 0 | 9 | 3 | 0 | 0 | 0 | 12 |
| NE | 0 | 14 | 5 | 0 | 0 | 0 | 19 |
| ENE | 0 | 11 | 16 | 1 | 0 | 0 | 28 |
| E | 0 | 9 | 6 | 0 | 0 | 0 | 15 |
| ESE | 0 | 5 | 6 | 0 | 0 | 0 | 11 |
| SE | 0 | 10 | 9 | 0 | 0 | 0 | 19 |
| SSE | 0 | 6 | 4 | 2 | 0 | 0 | 12 |
| S | 5 | 14 | 3 | 1 | 0 | 0 | 23 |
| SSW | 2 | 33 | 14 | 2 | 0 | 0 | 51 |
| SW | 6 | 31 | 16 | 2 | 0 | 0 | 55 |
| WSW | 5 | 13 | 7 | 1 | 0 | 0 | 26 |
| W | 11 | 11 | 18 | 5 | 0 | 0 | 45 |
| WNW | 11 | 13 | 16 | 0 | 1 | 0 | 41 |
| NW | 11 | 37 | 28 | 1 | 0 | 0 | 77 |
| NNW | 13 | 35 | 19 | 6 | 0 | 0 | 73 |
| Variable | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total | 65 | 267 | 175 | 23 | 1 | 0 | 531 |

Hours of calm in this stability class: 0

Hours of missing wind measurements in this stability class: 0

Stability Class - Moderately Unstable - 150Ft-33Ft Delta-T (F)
 Winds Measured at 100 Feet

Wind Speed (in mph)

| <u>Wind Direction</u> | <u>1-3</u> | <u>4-7</u> | <u>8-12</u> | <u>13-18</u> | <u>19-24</u> | <u>> 24</u> | <u>Total</u> |
|-----------------------|------------|------------|-------------|--------------|--------------|----------------|--------------|
| N | 0 | 3 | 3 | 0 | 0 | 0 | 6 |
| NNE | 0 | 3 | 0 | 0 | 0 | 0 | 3 |
| NE | 0 | 0 | 1 | 0 | 0 | 0 | 1 |
| ENE | 0 | 0 | 2 | 0 | 0 | 0 | 2 |
| E | 0 | 3 | 4 | 0 | 0 | 0 | 7 |
| ESE | 0 | 2 | 1 | 0 | 0 | 0 | 3 |
| SE | 1 | 2 | 4 | 2 | 0 | 0 | 9 |
| SSE | 1 | 1 | 0 | 1 | 0 | 0 | 3 |
| S | 0 | 2 | 1 | 0 | 0 | 0 | 3 |
| SSW | 1 | 6 | 4 | 1 | 0 | 0 | 12 |
| SW | 0 | 2 | 2 | 0 | 0 | 0 | 4 |
| WSW | 2 | 2 | 3 | 0 | 0 | 0 | 7 |
| W | 1 | 1 | 13 | 1 | 0 | 0 | 16 |
| WNW | 2 | 5 | 5 | 7 | 0 | 0 | 19 |
| NW | 3 | 4 | 12 | 2 | 0 | 0 | 21 |
| NNW | 1 | 2 | 12 | 0 | 0 | 0 | 15 |
| Variable | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total | 12 | 38 | 67 | 14 | 0 | 0 | 131 |

Hours of calm in this stability class: 0

Hours of missing wind measurements in this stability class: 0

Stability Class - Slightly Unstable - 150Ft-33Ft Delta-T (F)
Winds Measured at 100 Feet

| Wind Direction | Wind Speed (in mph) | | | | | | Total |
|----------------|---------------------|------------|-------------|--------------|--------------|----------------|-------|
| | <u>1-3</u> | <u>4-7</u> | <u>8-12</u> | <u>13-18</u> | <u>19-24</u> | <u>> 24</u> | |
| N | 2 | 1 | 1 | 0 | 0 | 0 | 4 |
| NNE | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| NE | 2 | 1 | 0 | 0 | 0 | 0 | 3 |
| ENE | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| E | 0 | 1 | 3 | 0 | 0 | 0 | 4 |
| ESE | 0 | 1 | 2 | 0 | 0 | 0 | 3 |
| SE | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| SSE | 0 | 0 | 1 | 0 | 0 | 0 | 1 |
| S | 0 | 4 | 2 | 0 | 0 | 0 | 6 |
| SSW | 2 | 6 | 0 | 1 | 0 | 0 | 9 |
| SW | 0 | 1 | 3 | 0 | 0 | 0 | 4 |
| WSW | 0 | 1 | 2 | 0 | 0 | 0 | 3 |
| W | 3 | 0 | 3 | 6 | 0 | 0 | 12 |
| WNW | 1 | 3 | 3 | 1 | 0 | 0 | 8 |
| NW | 2 | 3 | 6 | 1 | 0 | 0 | 12 |
| NNW | 0 | 4 | 4 | 2 | 0 | 0 | 10 |
| Variable | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total | 12 | 26 | 30 | 11 | 0 | 0 | 79 |

Hours of calm in this stability class: 0

Hours of missing wind measurements in this stability class: 0

Stability Class - Neutral - 150Ft-33Ft Delta-T (F)
Winds Measured at 100 Feet

| Wind Direction | Wind Speed (in mph) | | | | | | Total |
|----------------|---------------------|------------|-------------|--------------|--------------|----------------|-------|
| | <u>1-3</u> | <u>4-7</u> | <u>8-12</u> | <u>13-18</u> | <u>19-24</u> | <u>> 24</u> | |
| N | 6 | 20 | 9 | 0 | 0 | 0 | 35 |
| NNE | 1 | 9 | 3 | 0 | 0 | 0 | 13 |
| NE | 6 | 13 | 1 | 0 | 0 | 0 | 20 |
| ENE | 1 | 18 | 4 | 0 | 0 | 0 | 23 |
| E | 4 | 35 | 28 | 0 | 0 | 0 | 67 |
| ESE | 3 | 12 | 18 | 4 | 0 | 0 | 37 |
| SE | 3 | 8 | 11 | 3 | 0 | 0 | 25 |
| SSE | 5 | 20 | 6 | 1 | 0 | 0 | 32 |
| S | 1 | 46 | 15 | 0 | 0 | 0 | 62 |
| SSW | 2 | 27 | 6 | 3 | 0 | 0 | 38 |
| SW | 10 | 28 | 8 | 0 | 0 | 0 | 46 |
| WSW | 7 | 10 | 12 | 3 | 0 | 0 | 32 |
| W | 2 | 18 | 17 | 10 | 2 | 0 | 49 |
| WNW | 6 | 16 | 36 | 17 | 6 | 0 | 81 |
| NW | 6 | 19 | 34 | 8 | 1 | 0 | 68 |
| NNW | 5 | 33 | 19 | 6 | 5 | 0 | 68 |
| Variable | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total | 68 | 332 | 227 | 55 | 14 | 0 | 696 |

Hours of calm in this stability class: 0

Hours of missing wind measurements in this stability class: 0

Stability Class - Slightly Stable - 150Ft-33Ft Delta-T (F)
Winds Measured at 100 Feet

| Wind Direction | Wind Speed (in mph) | | | | | | Total |
|----------------|---------------------|-----|------|-------|-------|------|-------|
| | 1-3 | 4-7 | 8-12 | 13-18 | 19-24 | > 24 | |
| N | 7 | 27 | 16 | 1 | 0 | 0 | 51 |
| NNE | 1 | 26 | 4 | 0 | 0 | 0 | 31 |
| NE | 4 | 11 | 1 | 0 | 0 | 0 | 16 |
| ENE | 5 | 8 | 0 | 0 | 0 | 0 | 13 |
| E | 2 | 10 | 0 | 0 | 0 | 0 | 12 |
| ESE | 2 | 2 | 1 | 0 | 0 | 0 | 5 |
| SE | 9 | 10 | 0 | 0 | 0 | 0 | 19 |
| SSE | 7 | 7 | 1 | 0 | 0 | 0 | 15 |
| S | 10 | 12 | 0 | 0 | 0 | 0 | 22 |
| SSW | 9 | 13 | 3 | 0 | 0 | 0 | 25 |
| SW | 16 | 21 | 3 | 1 | 0 | 0 | 41 |
| WSW | 12 | 27 | 3 | 0 | 0 | 0 | 42 |
| W | 25 | 31 | 2 | 0 | 0 | 0 | 58 |
| WNW | 7 | 11 | 6 | 1 | 0 | 0 | 25 |
| NW | 14 | 14 | 7 | 2 | 0 | 0 | 37 |
| NNW | 7 | 17 | 11 | 2 | 3 | 0 | 40 |
| Variable | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total | 137 | 247 | 58 | 7 | 3 | 0 | 452 |

Hours of calm in this stability class: 0

Hours of missing wind measurements in this stability class: 0

Stability Class - Moderately Stable - 150Ft-33Ft Delta-T (F)
Winds Measured at 100 Feet

| Wind Direction | Wind Speed (in mph) | | | | | | Total |
|----------------|---------------------|-----|------|-------|-------|------|-------|
| | 1-3 | 4-7 | 8-12 | 13-18 | 19-24 | > 24 | |
| N | 4 | 8 | 0 | 0 | 0 | 0 | 12 |
| NNE | 7 | 3 | 0 | 0 | 0 | 0 | 10 |
| NE | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| ENE | 1 | 3 | 0 | 0 | 0 | 0 | 4 |
| E | 2 | 2 | 0 | 0 | 0 | 0 | 4 |
| ESE | 5 | 3 | 0 | 0 | 0 | 0 | 8 |
| SE | 7 | 2 | 0 | 0 | 0 | 0 | 9 |
| SSE | 4 | 0 | 0 | 0 | 0 | 0 | 4 |
| S | 7 | 6 | 4 | 0 | 0 | 0 | 17 |
| SSW | 14 | 2 | 0 | 0 | 0 | 0 | 16 |
| SW | 14 | 1 | 0 | 0 | 0 | 0 | 15 |
| WSW | 10 | 0 | 0 | 0 | 0 | 0 | 10 |
| W | 16 | 1 | 1 | 0 | 0 | 0 | 18 |
| WNW | 9 | 1 | 0 | 0 | 0 | 0 | 10 |
| NW | 12 | 3 | 0 | 0 | 0 | 0 | 15 |
| NNW | 12 | 16 | 1 | 0 | 0 | 0 | 29 |
| Variable | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total | 124 | 52 | 6 | 0 | 0 | 0 | 182 |

Hours of calm in this stability class: 0

Hours of missing wind measurements in this stability class: 0

Stability Class - Extremely Stable - 150Ft-33Ft Delta-T (F)
Winds Measured at 100 Feet

| Wind Direction | Wind Speed (in mph) | | | | | | Total |
|----------------|---------------------|-----|------|-------|-------|------|-------|
| | 1-3 | 4-7 | 8-12 | 13-18 | 19-24 | > 24 | |
| N | 3 | 7 | 0 | 0 | 0 | 0 | 10 |
| NNE | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| NE | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| ENE | 2 | 0 | 0 | 0 | 0 | 0 | 2 |
| E | 0 | 3 | 0 | 0 | 0 | 0 | 3 |
| ESE | 5 | 0 | 0 | 0 | 0 | 0 | 5 |
| SE | 4 | 0 | 0 | 0 | 0 | 0 | 4 |
| SSE | 4 | 0 | 0 | 0 | 0 | 0 | 4 |
| S | 9 | 6 | 1 | 0 | 0 | 0 | 16 |
| SSW | 5 | 4 | 0 | 0 | 0 | 0 | 9 |
| SW | 2 | 1 | 0 | 0 | 0 | 0 | 3 |
| WSW | 2 | 0 | 0 | 0 | 0 | 0 | 2 |
| W | 7 | 2 | 0 | 0 | 0 | 0 | 9 |
| WNW | 4 | 1 | 0 | 0 | 0 | 0 | 5 |
| NW | 5 | 0 | 0 | 0 | 0 | 0 | 5 |
| NNW | 5 | 2 | 1 | 0 | 0 | 0 | 8 |
| Variable | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total | 59 | 26 | 2 | 0 | 0 | 0 | 87 |

Hours of calm in this stability class: 0

Hours of missing wind measurements in this stability class: 0

Period of Record: July - September 2005
Stability Class - Extremely Unstable - 150Ft-33Ft Delta-T (F)
Winds Measured at 100 Feet

| Wind Direction | Wind Speed (in mph) | | | | | | Total |
|----------------|---------------------|-----|------|-------|-------|------|-------|
| | 1-3 | 4-7 | 8-12 | 13-18 | 19-24 | > 24 | |
| N | 1 | 14 | 3 | 0 | 0 | 0 | 18 |
| NNE | 0 | 4 | 1 | 0 | 0 | 0 | 5 |
| NE | 0 | 3 | 1 | 0 | 0 | 0 | 4 |
| ENE | 1 | 4 | 0 | 0 | 0 | 0 | 5 |
| E | 2 | 9 | 3 | 0 | 0 | 0 | 14 |
| ESE | 1 | 7 | 14 | 0 | 0 | 0 | 22 |
| SE | 1 | 14 | 8 | 0 | 0 | 0 | 23 |
| SSE | 1 | 3 | 2 | 0 | 0 | 0 | 6 |
| S | 0 | 10 | 2 | 0 | 0 | 0 | 12 |
| SSW | 2 | 12 | 12 | 0 | 0 | 0 | 26 |
| SW | 7 | 30 | 6 | 0 | 0 | 0 | 43 |
| WSW | 8 | 6 | 0 | 0 | 0 | 0 | 14 |
| W | 11 | 5 | 2 | 0 | 0 | 0 | 18 |
| WNW | 11 | 33 | 2 | 0 | 0 | 0 | 46 |
| NW | 30 | 51 | 18 | 0 | 0 | 0 | 99 |
| NNW | 8 | 40 | 26 | 2 | 0 | 0 | 76 |
| Variable | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total | 84 | 245 | 100 | 2 | 0 | 0 | 431 |

Hours of calm in this stability class: 0

Hours of missing wind and stability measurements in this stability class: 0

Stability Class - Moderately Unstable - 150Ft-33Ft Delta-T (F)
Winds Measured at 100 Feet

| Wind Direction | Wind Speed (in mph) | | | | | | Total |
|----------------|---------------------|-----|------|-------|-------|------|-------|
| | 1-3 | 4-7 | 8-12 | 13-18 | 19-24 | > 24 | |
| N | 1 | 4 | 0 | 0 | 0 | 0 | 5 |
| NNE | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| NE | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| ENE | 1 | 1 | 0 | 0 | 0 | 0 | 2 |
| E | 0 | 2 | 0 | 0 | 0 | 0 | 2 |
| ESE | 0 | 2 | 4 | 0 | 0 | 0 | 6 |
| SE | 0 | 4 | 4 | 0 | 0 | 0 | 8 |
| SSE | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| S | 0 | 1 | 3 | 0 | 0 | 0 | 4 |
| SSW | 3 | 9 | 5 | 1 | 0 | 0 | 18 |
| SW | 6 | 6 | 4 | 0 | 0 | 0 | 16 |
| WSW | 5 | 4 | 1 | 0 | 0 | 0 | 10 |
| W | 5 | 2 | 2 | 0 | 0 | 0 | 9 |
| WNW | 8 | 7 | 2 | 1 | 0 | 0 | 18 |
| NW | 11 | 13 | 13 | 2 | 0 | 0 | 39 |
| NNW | 4 | 7 | 4 | 1 | 0 | 0 | 16 |
| Variable | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total | 44 | 63 | 42 | 5 | 0 | 0 | 154 |

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

Stability Class - Slightly Unstable - 150Ft-33Ft Delta-T (F)
Winds Measured at 100 Feet

| Wind Direction | Wind Speed (in mph) | | | | | | Total |
|----------------|---------------------|-----|------|-------|-------|------|-------|
| | 1-3 | 4-7 | 8-12 | 13-18 | 19-24 | > 24 | |
| N | 3 | 2 | 0 | 0 | 0 | 0 | 5 |
| NNE | 1 | 1 | 0 | 0 | 0 | 0 | 2 |
| NE | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| ENE | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| E | 0 | 4 | 0 | 0 | 0 | 0 | 4 |
| ESE | 0 | 0 | 1 | 0 | 0 | 0 | 1 |
| SE | 1 | 1 | 1 | 0 | 0 | 0 | 3 |
| SSE | 0 | 2 | 0 | 0 | 0 | 0 | 2 |
| S | 1 | 4 | 3 | 0 | 0 | 0 | 8 |
| SSW | 0 | 0 | 2 | 0 | 0 | 0 | 2 |
| SW | 2 | 4 | 0 | 0 | 0 | 0 | 6 |
| WSW | 2 | 0 | 2 | 0 | 0 | 0 | 4 |
| W | 5 | 1 | 0 | 0 | 0 | 0 | 6 |
| WNW | 1 | 3 | 2 | 0 | 0 | 0 | 6 |
| NW | 3 | 8 | 3 | 0 | 0 | 0 | 14 |
| NNW | 1 | 3 | 0 | 0 | 0 | 0 | 4 |
| Variable | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total | 21 | 34 | 14 | 0 | 0 | 0 | 69 |

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

Stability Class - Neutral - 150Ft-33Ft Delta-T (F)
Winds Measured at 100 Feet

| Wind Direction | Wind Speed (in mph) | | | | | | Total |
|----------------|---------------------|-----|------|-------|-------|------|-------|
| | 1-3 | 4-7 | 8-12 | 13-18 | 19-24 | > 24 | |
| N | 8 | 12 | 10 | 0 | 0 | 0 | 30 |
| NNE | 10 | 5 | 0 | 0 | 0 | 0 | 15 |
| NE | 14 | 7 | 1 | 0 | 0 | 0 | 22 |
| ENE | 6 | 11 | 0 | 0 | 0 | 0 | 17 |
| E | 5 | 21 | 3 | 0 | 0 | 0 | 29 |
| ESE | 3 | 19 | 9 | 0 | 0 | 0 | 31 |
| SE | 1 | 16 | 11 | 1 | 0 | 0 | 29 |
| SSE | 6 | 22 | 2 | 0 | 0 | 0 | 30 |
| S | 5 | 21 | 16 | 5 | 1 | 0 | 48 |
| SSW | 5 | 7 | 8 | 6 | 0 | 0 | 26 |
| SW | 7 | 10 | 2 | 0 | 0 | 0 | 19 |
| WSW | 10 | 10 | 0 | 0 | 0 | 0 | 20 |
| W | 8 | 6 | 7 | 0 | 0 | 0 | 21 |
| WNW | 7 | 23 | 6 | 0 | 0 | 0 | 36 |
| NW | 10 | 22 | 19 | 7 | 0 | 0 | 58 |
| NNW | 7 | 12 | 6 | 1 | 0 | 0 | 26 |
| Variable | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total | 112 | 224 | 100 | 20 | 1 | 0 | 457 |

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

Stability Class - Slightly Stable - 150Ft-33Ft Delta-T (F)
Winds Measured at 100 Feet

| Wind Direction | Wind Speed (in mph) | | | | | | Total |
|----------------|---------------------|-----|------|-------|-------|------|-------|
| | 1-3 | 4-7 | 8-12 | 13-18 | 19-24 | > 24 | |
| N | 14 | 22 | 3 | 0 | 0 | 0 | 39 |
| NNE | 12 | 8 | 0 | 0 | 0 | 0 | 20 |
| NE | 7 | 6 | 0 | 0 | 0 | 0 | 13 |
| ENE | 11 | 8 | 3 | 0 | 0 | 0 | 22 |
| E | 11 | 18 | 1 | 0 | 0 | 0 | 30 |
| ESE | 10 | 11 | 4 | 0 | 0 | 0 | 25 |
| SE | 6 | 11 | 5 | 1 | 0 | 0 | 23 |
| SSE | 11 | 12 | 2 | 0 | 0 | 0 | 25 |
| S | 12 | 26 | 5 | 1 | 0 | 0 | 44 |
| SSW | 14 | 24 | 0 | 0 | 0 | 0 | 38 |
| SW | 27 | 21 | 1 | 0 | 0 | 0 | 49 |
| WSW | 29 | 18 | 1 | 0 | 0 | 0 | 48 |
| W | 23 | 18 | 0 | 0 | 0 | 0 | 41 |
| WNW | 19 | 18 | 3 | 0 | 0 | 0 | 40 |
| NW | 21 | 14 | 6 | 1 | 0 | 0 | 42 |
| NNW | 13 | 15 | 0 | 0 | 0 | 0 | 28 |
| Variable | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total | 240 | 250 | 34 | 3 | 0 | 0 | 527 |

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

Stability Class - Moderately Stable - 150Ft-33Ft Delta-T (F)
Winds Measured at 100 Feet

| Wind Direction | Wind Speed (in mph) | | | | | | Total |
|----------------|---------------------|-----|------|-------|-------|------|-------|
| | 1-3 | 4-7 | 8-12 | 13-18 | 19-24 | > 24 | |
| N | 9 | 11 | 0 | 0 | 0 | 0 | 20 |
| NNE | 2 | 3 | 0 | 0 | 0 | 0 | 5 |
| NE | 6 | 4 | 0 | 0 | 0 | 0 | 10 |
| ENE | 9 | 1 | 0 | 0 | 0 | 0 | 10 |
| E | 9 | 4 | 0 | 0 | 0 | 0 | 13 |
| ESE | 12 | 5 | 0 | 0 | 0 | 0 | 17 |
| SE | 12 | 0 | 0 | 0 | 0 | 0 | 12 |
| SSE | 10 | 0 | 0 | 0 | 0 | 0 | 10 |
| S | 10 | 6 | 0 | 0 | 0 | 0 | 16 |
| SSW | 14 | 3 | 0 | 0 | 0 | 0 | 17 |
| SW | 41 | 3 | 0 | 0 | 0 | 0 | 44 |
| WSW | 33 | 1 | 0 | 0 | 0 | 0 | 34 |
| W | 29 | 2 | 0 | 0 | 0 | 0 | 31 |
| WNW | 18 | 2 | 0 | 0 | 0 | 0 | 20 |
| NW | 20 | 4 | 0 | 0 | 0 | 0 | 24 |
| NNW | 16 | 27 | 0 | 0 | 0 | 0 | 43 |
| Variable | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total | 250 | 76 | 0 | 0 | 0 | 0 | 326 |

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

Stability Class - Extremely Stable - 150Ft-33Ft Delta-T (F)
Winds Measured at 100 Feet

| Wind Direction | Wind Speed (in mph) | | | | | | Total |
|----------------|---------------------|-----|------|-------|-------|------|-------|
| | 1-3 | 4-7 | 8-12 | 13-18 | 19-24 | > 24 | |
| N | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| NNE | 3 | 0 | 0 | 0 | 0 | 0 | 3 |
| NE | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| ENE | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| E | 1 | 1 | 0 | 0 | 0 | 0 | 2 |
| ESE | 2 | 1 | 0 | 0 | 0 | 0 | 3 |
| SE | 3 | 1 | 0 | 0 | 0 | 0 | 4 |
| SSE | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| S | 4 | 0 | 0 | 0 | 0 | 0 | 4 |
| SSW | 4 | 2 | 0 | 0 | 0 | 0 | 6 |
| SW | 10 | 0 | 0 | 0 | 0 | 0 | 10 |
| WSW | 7 | 0 | 0 | 0 | 0 | 0 | 7 |
| W | 4 | 2 | 0 | 0 | 0 | 0 | 6 |
| WNW | 5 | 0 | 0 | 0 | 0 | 0 | 5 |
| NW | 6 | 0 | 0 | 0 | 0 | 0 | 6 |
| NNW | 2 | 0 | 0 | 0 | 0 | 0 | 2 |
| Variable | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total | 52 | 9 | 0 | 0 | 0 | 0 | 61 |

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

Period of Record: October – December 2005
 Stability Class - Extremely Unstable - 150Ft-33Ft Delta-T (F)
 Winds Measured at 100 Feet

| Wind Direction | Wind Speed (in mph) | | | | | | Total |
|----------------|---------------------|-----|------|-------|-------|------|-------|
| | 1-3 | 4-7 | 8-12 | 13-18 | 19-24 | > 24 | |
| N | 0 | 3 | 1 | 0 | 0 | 0 | 4 |
| 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 | 1 | 0 | 0 | 0 | 0 | 1 |
| SE | 0 | 4 | 0 | 0 | 0 | 0 | 4 |
| SSE | 1 | 3 | 0 | 0 | 0 | 0 | 4 |
| S | 1 | 2 | 1 | 0 | 0 | 0 | 4 |
| SSW | 0 | 3 | 9 | 0 | 0 | 0 | 12 |
| SW | 2 | 5 | 4 | 0 | 0 | 0 | 11 |
| WSW | 0 | 0 | 1 | 1 | 0 | 0 | 2 |
| W | 0 | 3 | 5 | 1 | 0 | 0 | 9 |
| WNW | 5 | 1 | 3 | 1 | 0 | 0 | 10 |
| NW | 8 | 7 | 3 | 6 | 0 | 0 | 24 |
| NNW | 1 | 4 | 12 | 1 | 0 | 0 | 18 |
| Variable | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total | 18 | 36 | 41 | 10 | 0 | 0 | 105 |

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

Stability Class - Moderately Unstable - 150Ft-33Ft Delta-T (F)
 Winds Measured at 100 Feet

| Wind Direction | Wind Speed (in mph) | | | | | | Total |
|----------------|---------------------|-----|------|-------|-------|------|-------|
| | 1-3 | 4-7 | 8-12 | 13-18 | 19-24 | > 24 | |
| N | 0 | 10 | 5 | 0 | 0 | 0 | 15 |
| NNE | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| NE | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| ENE | 0 | 0 | 2 | 0 | 0 | 0 | 2 |
| E | 0 | 2 | 2 | 0 | 0 | 0 | 4 |
| ESE | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| SE | 0 | 3 | 0 | 0 | 0 | 0 | 3 |
| SSE | 2 | 1 | 0 | 0 | 0 | 0 | 3 |
| S | 1 | 2 | 1 | 0 | 0 | 0 | 4 |
| SSW | 0 | 1 | 1 | 0 | 0 | 0 | 2 |
| SW | 0 | 2 | 3 | 0 | 0 | 0 | 5 |
| WSW | 0 | 0 | 2 | 0 | 0 | 0 | 2 |
| W | 1 | 1 | 7 | 3 | 2 | 0 | 14 |
| WNW | 0 | 2 | 5 | 4 | 0 | 0 | 11 |
| NW | 3 | 2 | 15 | 11 | 0 | 0 | 31 |
| NNW | 2 | 7 | 6 | 1 | 0 | 0 | 16 |
| Variable | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total | 10 | 34 | 49 | 19 | 2 | 0 | 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

Stability Class - Slightly Unstable - 150Ft-33Ft Delta-T (F)
Winds Measured at 100 Feet

| Wind Direction | Wind Speed (in mph) | | | | | | Total |
|----------------|---------------------|-----|------|-------|-------|------|-------|
| | 1-3 | 4-7 | 8-12 | 13-18 | 19-24 | > 24 | |
| N | 0 | 3 | 3 | 0 | 0 | 0 | 6 |
| NNE | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| NE | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| ENE | 1 | 0 | 2 | 0 | 0 | 0 | 3 |
| E | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| ESE | 0 | 1 | 3 | 0 | 0 | 0 | 4 |
| SE | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| SSE | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| S | 2 | 2 | 2 | 0 | 0 | 0 | 6 |
| SSW | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| SW | 0 | 0 | 1 | 0 | 0 | 0 | 1 |
| WSW | 0 | 0 | 1 | 0 | 0 | 0 | 1 |
| W | 0 | 1 | 6 | 2 | 0 | 0 | 9 |
| WNW | 0 | 1 | 9 | 7 | 1 | 0 | 18 |
| NW | 1 | 4 | 11 | 8 | 0 | 0 | 24 |
| NNW | 0 | 5 | 11 | 0 | 0 | 0 | 16 |
| Variable | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total | 5 | 22 | 49 | 17 | 1 | 0 | 94 |

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

Stability Class - Neutral - 150Ft-33Ft Delta-T (F)
Winds Measured at 100 Feet

| Wind Direction | Wind Speed (in mph) | | | | | | Total |
|----------------|---------------------|-----|------|-------|-------|------|-------|
| | 1-3 | 4-7 | 8-12 | 13-18 | 19-24 | > 24 | |
| N | 10 | 35 | 4 | 0 | 0 | 0 | 49 |
| NNE | 7 | 18 | 0 | 0 | 0 | 0 | 25 |
| NE | 5 | 17 | 1 | 0 | 0 | 0 | 23 |
| ENE | 4 | 31 | 2 | 0 | 0 | 0 | 37 |
| E | 22 | 11 | 6 | 0 | 0 | 0 | 39 |
| ESE | 3 | 18 | 16 | 0 | 0 | 0 | 37 |
| SE | 9 | 17 | 7 | 0 | 0 | 0 | 33 |
| SSE | 6 | 16 | 5 | 3 | 0 | 0 | 30 |
| S | 6 | 6 | 9 | 4 | 1 | 0 | 26 |
| SSW | 9 | 10 | 12 | 3 | 0 | 0 | 34 |
| SW | 4 | 6 | 11 | 2 | 0 | 0 | 23 |
| WSW | 4 | 18 | 18 | 0 | 0 | 0 | 40 |
| W | 5 | 41 | 40 | 9 | 0 | 0 | 95 |
| WNW | 3 | 26 | 85 | 51 | 6 | 0 | 171 |
| NW | 7 | 29 | 70 | 42 | 17 | 0 | 165 |
| NNW | 11 | 36 | 19 | 6 | 1 | 0 | 73 |
| Variable | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total | 95 | 345 | 315 | 120 | 25 | 0 | 900 |

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

Stability Class - Slightly Stable - 150Ft-33Ft Delta-T (F)
Winds Measured at 100 Feet

| Wind Direction | Wind Speed (in mph) | | | | | | Total |
|----------------|---------------------|-----|------|-------|-------|------|-------|
| | 1-3 | 4-7 | 8-12 | 13-18 | 19-24 | > 24 | |
| N | 7 | 14 | 1 | 0 | 0 | 0 | 22 |
| NNE | 4 | 8 | 0 | 0 | 0 | 0 | 12 |
| NE | 7 | 9 | 0 | 0 | 0 | 0 | 16 |
| ENE | 5 | 7 | 0 | 0 | 0 | 0 | 12 |
| E | 6 | 7 | 2 | 0 | 0 | 0 | 15 |
| ESE | 10 | 5 | 3 | 0 | 0 | 0 | 18 |
| SE | 7 | 1 | 4 | 5 | 0 | 0 | 17 |
| SSE | 8 | 10 | 3 | 12 | 0 | 0 | 33 |
| S | 9 | 16 | 9 | 1 | 0 | 0 | 35 |
| SSW | 7 | 16 | 6 | 1 | 0 | 0 | 30 |
| SW | 17 | 20 | 4 | 0 | 0 | 0 | 41 |
| WSW | 13 | 39 | 3 | 1 | 0 | 0 | 56 |
| W | 16 | 36 | 9 | 3 | 0 | 0 | 64 |
| WNW | 10 | 15 | 27 | 13 | 1 | 0 | 66 |
| NW | 11 | 15 | 26 | 13 | 1 | 0 | 66 |
| NNW | 12 | 22 | 6 | 0 | 0 | 0 | 40 |
| Variable | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total | 149 | 240 | 103 | 49 | 2 | 0 | 543 |

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

Stability Class - Moderately Stable - 150Ft-33Ft Delta-T (F)
Winds Measured at 100 Feet

| Wind Direction | Wind Speed (in mph) | | | | | | Total |
|----------------|---------------------|-----|------|-------|-------|------|-------|
| | 1-3 | 4-7 | 8-12 | 13-18 | 19-24 | > 24 | |
| N | 6 | 6 | 0 | 0 | 0 | 0 | 12 |
| NNE | 5 | 1 | 0 | 0 | 0 | 0 | 6 |
| NE | 5 | 1 | 0 | 0 | 0 | 0 | 6 |
| ENE | 6 | 3 | 0 | 0 | 0 | 0 | 9 |
| E | 6 | 4 | 0 | 0 | 0 | 0 | 10 |
| ESE | 12 | 1 | 0 | 0 | 0 | 0 | 13 |
| SE | 12 | 2 | 0 | 0 | 0 | 0 | 14 |
| SSE | 11 | 1 | 0 | 0 | 0 | 0 | 12 |
| S | 16 | 2 | 0 | 0 | 0 | 0 | 18 |
| SSW | 9 | 8 | 0 | 0 | 0 | 0 | 17 |
| SW | 11 | 5 | 0 | 0 | 0 | 0 | 16 |
| WSW | 18 | 6 | 1 | 0 | 0 | 0 | 25 |
| W | 16 | 4 | 0 | 0 | 0 | 0 | 20 |
| WNW | 6 | 0 | 0 | 1 | 0 | 0 | 7 |
| NW | 12 | 2 | 3 | 0 | 0 | 0 | 17 |
| NNW | 7 | 6 | 0 | 0 | 0 | 0 | 13 |
| Variable | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total | 158 | 52 | 4 | 1 | 0 | 0 | 215 |

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

Stability Class - Extremely Stable - 150Ft-33Ft Delta-T (F)
Winds Measured at 100 Feet

| Wind Direction | Wind Speed (in mph) | | | | | | Total |
|----------------|---------------------|-----|------|-------|-------|------|-------|
| | 1-3 | 4-7 | 8-12 | 13-18 | 19-24 | > 24 | |
| N | 3 | 3 | 0 | 0 | 0 | 0 | 6 |
| NNE | 3 | 0 | 0 | 0 | 0 | 0 | 3 |
| NE | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| ENE | 1 | 1 | 0 | 0 | 0 | 0 | 2 |
| E | 4 | 3 | 0 | 0 | 0 | 0 | 7 |
| ESE | 7 | 4 | 0 | 0 | 0 | 0 | 11 |
| SE | 13 | 0 | 0 | 0 | 0 | 0 | 13 |
| SSE | 14 | 0 | 0 | 0 | 0 | 0 | 14 |
| S | 10 | 2 | 0 | 0 | 0 | 0 | 12 |
| SSW | 15 | 2 | 0 | 0 | 0 | 0 | 17 |
| SW | 12 | 0 | 0 | 0 | 0 | 0 | 12 |
| WSW | 9 | 3 | 0 | 0 | 0 | 0 | 12 |
| W | 9 | 1 | 0 | 0 | 0 | 0 | 10 |
| WNW | 2 | 0 | 0 | 0 | 0 | 0 | 2 |
| NW | 7 | 0 | 0 | 0 | 0 | 0 | 7 |
| NNW | 5 | 1 | 0 | 0 | 0 | 0 | 6 |
| Variable | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total | 115 | 20 | 0 | 0 | 0 | 0 | 135 |

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

Assessment of Radiation Doses Due to Radioactive Liquid and Gaseous Effluents Released from TMI during 2005

TMI-1

The attached table presents the maximum hypothetical doses to an individual and the general population resulting from 2005 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 outfall and 3) occupied an area of shoreline influenced by the TMI-1 liquid discharge.

For 2005 the calculated maximum whole body (or total body) dose from TMI-1 liquid effluents was $1.12\text{E-}2$ mrem to an adult (line 1). The maximum organ dose was $1.41\text{E-}2$ 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 are 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 $9.61\text{E-}5$ mrad and $1.95\text{E-}4$ mrad for gamma and beta, respectively.

The maximum organ dose due to the release of iodines, particulates and tritium from TMI-1 in 2005 was $1.58\text{E-}2$ mrem to the liver, total body, thyroid, kidney, lung and GI-LLI of an child residing 2150 meters from the site in the NNE sector (line 5). This dose again reflects the maximum exposed organs for the appropriate age group.

For 2005, TMI-1 liquid and gaseous effluents resulted in maximum hypothetical doses that were a small fraction of the quarterly and yearly ODCM dose limits.

TMI-1
 SUMMARY OF MAXIMUM INDIVIDUAL DOSES FOR TMI-1 FROM
January 1, 2005 through December 31, 2005

| Effluent | Applicable Organ | Estimated Dose (mrem) | Age Group | Location | | % of ODCM Dose Limit | | ODCM Dose Limit (mrem) | |
|------------------------------------|---|-----------------------|----------------|--------------------------|----------|----------------------|--------------------|------------------------|---------|
| | | | | Dist (m) | Dir (to) | Quarter | Annual | Quarter | Annual |
| (1) Liquid (2) Liquid | Total Body Liver | 1.12E-2 1.41E-2 | Adult Adult | Receptor 1 Receptor 1 | | 7.47E-1 2.82E-1 | 3.73E-1 1.41E-1 | 1.5 5 | 3 10 |
| (3) Noble Gas | Air Dose (gamma-mrad) | 9.61E-5 | --- | 610 | SE | 1.92E-3 | 9.61E-4 | 5 | 10 |
| (4) Noble Gas | Air Dose (beta-mrad) | 1.95E-4 | --- | 2000 | NNE | 1.95E-3 | 9.75E-4 | 10 | 20 |
| (5) Iodine, Tritium & Particulates | Liver, Total Body, Thyroid, Kidney, Lung & GI-LLI | 1.58E-2 | Child | 2150 | NNE | 2.11E-1 | 1.05E-1 | 7.5 | 15 |

TMI-2

The attached table presents the maximum hypothetical doses to an individual and the general population resulting from 2005 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 outfall and 3) occupied an area of shoreline influenced by the TMI-2 liquid discharge.

For 2005 the calculated maximum whole body (or total body) dose from TMI-2 liquid effluents was $4.32E-4$ mrem to an adult (line 1). The maximum organ dose was $6.87E-4$ 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 2005, 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 2005 was $5.48E-5$ mrem to the liver, total body, thyroid, kidney, lung and GI tract of a child residing 2000 meters from the site in the SE sector (line 5).

For 2005, TMI-2 liquid and gaseous effluents resulted in maximum hypothetical doses that were a small fraction of the quarterly and yearly ODCM dose limits.

TMI-2
 SUMMARY OF MAXIMUM INDIVIDUAL DOSES FOR TMI-2 FROM
 January 1, 2005 through December 31, 2005

| Effluent | Applicable Organ | Estimated Dose (mrem) | Age Group | Location | | % of ODCM Dose Limit | | ODCM Dose Limit (mrem) | |
|---------------------------|---|-----------------------|-----------|------------|----------|----------------------|---------|------------------------|--------|
| | | | | Dist (m) | Dir (to) | Quarter | Annual | Quarter | Annual |
| (1) Liquid | Total Body | 4.32E-4 | Adult | Receptor 1 | | 2.88E-2 | 1.44E-2 | 1.5 | 3 |
| (2) Liquid | Liver | 6.87E-4 | Teen | Receptor 1 | | 1.37E-2 | 6.87E-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 | 5.48E-5 | Child | 2000 | SE | 7.31E-4 | 3.65E-4 | 7.5 | 15 |

Assessment of Radiation Doses from Liquid and Gaseous Effluents Releases to Members of the Public within the TMI Site Boundaries during 2005

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 0.6 mrem for 2005.

The following are the assumptions made in this assessment:

Access to the TMI Owner Controlled Area is limited by Site Security 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 dose from liquid effluents were included in this scenario. The highest activity contained in releases from TMI are from batch releases from the Waste Evaporator Condensate Tanks. The maximum time period for a single release was 12 hours. Since the time of a single release is less than the 67 hours of recreational use of the river, the highest quarterly cumulative dose from liquid effluents will be used in this calculation. The highest quarterly cumulative dose was $2.19\text{E}-2$ mrem, total body. This cumulative dose included both batch and continuous liquid releases. Assuming that the total dose from a quarter was received in the 67 hours is conservative.

The highest dose from a single airborne release is characterized by release G200501542. This release contained the highest concentration of tritium of any gaseous release. In 2005, tritium released in gaseous effluents comprised 99 percent of the total curies released to the environment. No other releases would yield a higher dose than the release with the highest tritium concentration. This release occurred over 169 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 dose from release G200501542 was 2.31E-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 2005 was from Station P1-2 and was 6.4 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:

$6.4 \text{ mrem/std mo.} * 1/30.44 \text{ d/std mo.} * 1/24 \text{ hr/day} * 67 \text{ hr} = 0.59 \text{ mrem}$

The dose from gas release G200501542 was 0.0023 mrem.

The quarterly cumulative dose from liquid effluents was 0.0219 mrem.

Total Dose Calculation

$0.59 \text{ mrem} + 0.0023 \text{ mrem} + 0.022 = 0.61 \text{ mrem}$

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 2005 resulted in maximum individual doses (regardless of age group) of 0.035 mrem to the thyroid and 0.077 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 6.4 mR/standard month, a person residing at the fence-line for 67 hours (shoreline exposure from Reg. Guide 1.109) received an exposure of 0.59 mR. Based on the lowest exposure rate of 2.0 mR/standard month and converting it by the same method yielded a background exposure of 0.18 mR. Therefore, the net exposure from direct radiation from TMINS was 0.41 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 0.45 mrem to the thyroid and 0.49 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 2005

There was one deviation from the ODCM sampling program in 2005.

The Unit 1 Turbine Building Sump Compositor was declared out of service from 8 November 2005 until 19 November 2005. This is a flow proportional composite sampler for continuous releases from the Turbine Building Sump. This is a requirement of the ODCM, Part 1, Table 3.2-1-A.2. Compensatory samples were taken while the compositor was OOS, IAW Station procedure 6610-ADM-4250.09, Tracking Continuous Releases from the Turbine Building Sump.

Attachment 11
2005 Annual Radioactive Effluent Releases Report for TMI
5928-06-20444

Errata report for the 2004 Annual Radioactive Effluent Releases Report

An errata report was required due to the omission of several continuous releases of tritium from the Unit 1 Spent Fuel Pool for the second half of the year. Only the affected pages are attached. Most changes are annotated in bold font. An exception to this is for Table 1A, the curies of tritium released by quarter are not annotated in bold.

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

| UNITS | 2004 1ST QUARTER | 2004 2ND QUARTER | 2004 3RD QUARTER | 2004 4TH QUARTER | EST. TOTAL ERROR % |
|-------|---------------------|---------------------|---------------------|---------------------|-----------------------|
|-------|---------------------|---------------------|---------------------|---------------------|-----------------------|

A. FISSION AND ACTIVATION GASES

| | | | | | | |
|------------------------------------|---------|----------|----------|----------|----------|-----|
| 1. TOTAL RELEASE | Ci | 9.27E-01 | 1.59E-01 | 7.07E-02 | 7.81E-02 | 26% |
| 2. AVERAGE RELEASE RATE FOR PERIOD | uCi/sec | 1.19E-01 | 2.02E-02 | 8.90E-03 | 9.83E-03 | |
| 3. PERCENT OF TECH SPEC LIMIT | % | * | * | * | * | |

B. IODINES

| | | | | | | |
|------------------------------------|---------|----------|----------|----------|----------|-----|
| 1. TOTAL IODINE I-131 | Ci | 3.14E-08 | 1.85E-08 | 5.91E-08 | 1.17E-07 | 27% |
| 2. AVERAGE RELEASE RATE FOR PERIOD | uCi/sec | 4.03E-09 | 2.35E-09 | 7.44E-09 | 1.47E-08 | |
| 3. PERCENT OF TECH SPEC LIMIT | % | * | * | * | * | |

C. PARTICULATES

| | | | | | | |
|--|---------|------|----------|------|------|-----|
| 1. PARTICULATES WITH HALF-LIVES > 8 DAYS | Ci | <LLD | 4.51E-06 | <LLD | <LLD | 27% |
| 2. AVERAGE RELEASE RATE FOR PERIOD | uCi/sec | NA | 5.74E-07 | NA | NA | |
| 3. PERCENT OF TECH SPEC LIMIT | % | * | * | * | * | |
| 4. GROSS ALPHA RADIOACTIVITY | Ci | <LLD | <LLD | <LLD | <LLD | |

D. TRITIUM

| | | | | | | |
|------------------------------------|---------|----------|----------|----------|----------|-----|
| 1. TOTAL RELEASE | Ci | 2.48E+01 | 2.50E+01 | 7.69E+01 | 4.86E+01 | 15% |
| 2. AVERAGE RELEASE RATE FOR PERIOD | uCi/sec | 3.19E+00 | 3.18E+00 | 9.67E+00 | 6.15E+00 | |
| 3. PERCENT OF TECH SPEC LIMIT | % | * | * | * | * | |

* % ODCM LIMITS: LISTED ON DOSE SUMMARY TABLE

Assessment of Radiation Doses Due to Radioactive Liquid and Gaseous Effluents Released from TMI during 2004

TMI-1

The attached table presents the maximum hypothetical doses to an individual and the general population resulting from 2004 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 outfall and 3) occupied an area of shoreline influenced by the TMI-1 liquid discharge.

For 2004, the calculated maximum whole body (or total body) dose from TMI-1 liquid effluents was $1.12\text{E-}2$ mrem to an adult (line 1). The maximum organ dose was $1.41\text{E-}2$ 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 are 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 $9.61\text{E-}5$ mrad and $1.95\text{E-}4$ mrad for gamma and beta, respectively.

The maximum organ dose due to the release of iodines, particulates and tritium from TMI-1 in 2004 was $2.43\text{E-}2$ mrem to the liver, total body, thyroid, kidney, lung and GI-LLI of a child residing 2150 meters from the site in the

NNE sector (line 5). This dose again reflects the maximum exposed organs for the appropriate age group.

For 2004, TMI-1 liquid and gaseous effluents resulted in maximum hypothetical doses that were a small fraction of the quarterly and yearly ODCM dose limits.

TMI-1
 SUMMARY OF MAXIMUM INDIVIDUAL DOSES FOR TMI-1 FROM
 January 1, 2004 through December 31, 2004

| Effluent | Applicable Organ | Estimated Dose (mrem) | Age Group | Location | | % of ODCM Dose Limit | | ODCM Dose Limit (mrem) | |
|------------------------------------|---|-----------------------|----------------|--------------------------|----------|----------------------|--------------------|------------------------|---------|
| | | | | Dist (m) | Dir (to) | Quarter | Annual | Quarter | Annual |
| (1) Liquid (2) Liquid | Total Body Liver | 1.12E-2 1.41E-2 | Adult Adult | Receptor 1 Receptor 1 | | 7.47E-1 2.82E-1 | 3.73E-1 1.41E-1 | 1.5 5 | 3 10 |
| (3) Noble Gas | Air Dose (gamma-mrad) | 9.61E-5 | -- | 610 | SE | 1.92E-3 | 9.61E-4 | 5 | 10 |
| (4) Noble Gas | Air Dose (beta-mrad) | 1.95E-4 | -- | 2000 | NNE | 1.95E-3 | 9.75E-4 | 10 | 20 |
| (5) Iodine, Tritium & Particulates | Liver, Total Body, Thyroid, Kidney, Lung & GI-LLI | 2.43E-2 | Child | 2150 | NNE | 3.24E-1 | 1.62E-1 | 7.5 | 15 |

Assessment of Radiation Doses from Liquid and Gaseous Effluents Releases to Members of the Public within the TMI Site Boundaries during 2004

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 0.5 mrem for 2004.

The following are the assumptions made in this assessment:

Access to the TMI Owner Controlled Area is limited by Site Security 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 dose from liquid effluents were included in this scenario. The highest activity contained in releases from TMI are from batch releases from the Waste Evaporator Condensate Tanks. The maximum time period for a single release was 11 hours. Since the time of a single release is less than the 67 hours of recreational use of the river, the highest quarterly cumulative dose from liquid effluents will be used in this calculation. The highest quarterly cumulative dose was $8.66E-3$ mrem, total body. This cumulative dose included both batch and continuous liquid releases. Assuming that the total dose from a quarter was received in the 67 hours is conservative.

The highest dose from a single airborne release is characterized by release **G200407588**. This release contained the highest concentration of tritium of any gaseous release. In 2004, tritium released in gaseous effluents comprised 99 percent of the total curies released to the environment. No other releases would yield a higher dose than the release with the highest tritium concentration. This release occurred over 167 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 dose from release **G200407588** was $4.55E-3$ mrem to the critical receptor.

The highest fenceline TLD result 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 2004 was from Station G1-6 and was 5.1 mrem per standard month.

Calculations:

$5.1 \text{ mrem/std mo.} * 1/30.44 \text{ d/std mo.} * 1/24 \text{ hr/day} * 67 \text{ hr} = 0.47 \text{ mrem}$

The dose from gas release **G200407588** was **0.005** mrem.

The quarterly cumulative dose from liquid effluents was 0.00866 mrem.

Total Dose Calculation

$0.47 \text{ mrem} + 0.005 \text{ mrem} + 0.009 = 0.484 \text{ mrem}$

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 2004 resulted in maximum individual doses (regardless of age group) of 0.022 mrem to the thyroid and 0.031 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 1.6 mR/standard month and converting it by the same method yielded a background exposure of 0.15 mR. Therefore, the net exposure from direct radiation from TMINS was 0.32 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 **0.35** mrem to the thyroid and **0.36** mrem to any other organ. Both doses were well below the limits specified in 40 CFR 190.

Enclosure 1
2005 Annual Radioactive Effluent Releases Report for TMI
5928-06-20444

**TMI Offsite Dose Calculation Manual, Revision 24
6610-PLN-4200.01**

**(Revision 24 was issued on
July 1, 2003)**