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April 26, 2006
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U. S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, DC 20555

THREE MILE ISLAND NUCLEAR STATION Units 1 and 2
OPERATING LICENSE NO. DPR-50 AND POSSESSION ONLY LICENSE NO. DPR-73
DOCKET NOS. 50-289 AND 50-320

SUBJECT: 2005 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM REPORT

In accordance with TMI-1 Technical Specification 6.9.3.1 and TMI-2 Technical Specification 6.8.1.1, enclosed is the Annual Radiological Environmental Operating Report covering the time-period of January 1 through December 31, 2005, for the Three Mile Island Nuclear Station.

Please contact Steven Acker of TMI-1 Chemistry at (717) 948-8183 if you have any questions regarding this submittal.

Sincerely,

Glen E. Chick
Plant Manager

GEC/avm

Enclosure

cc: Region I Administrator
TMI-1 Senior Project Manager
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File 06024

IE25

Docket No: 50-289
50-320

THREE MILE ISLAND NUCLEAR STATION
UNITS 1 and 2

Annual Radiological
Environmental Operating Report

1 January Through 31 December 2005

Prepared By

Teledyne Brown Engineering
Environmental Services

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An Exelon Company

Three Mile Island Nuclear Station
Middletown, PA 17057

April 2006

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I. Summary and Conclusions

This report on the Radiological Environmental Monitoring Program conducted for the Three Mile Island Nuclear Station (TMINS) by AmerGen covers the period 1 January 2005 through 31 December 2005. During that time period, 1,730 analyses were performed on 1334 samples. In assessing all the data gathered for this report and comparing these results with preoperational data and operational REMP data, it was concluded that the operation of TMINS had no adverse radiological impact on the environment.

Surface, drinking, effluent, storm, and ground water samples were analyzed for concentrations of tritium and gamma emitting nuclides. Surface, drinking, and effluent water samples were also analyzed for concentrations of I-131. Drinking and effluent water samples were also analyzed for concentrations of gross beta. Effluent water samples were also analyzed for concentrations of Sr-89 and Sr-90. Ground water samples were also analyzed for concentrations of Sr-90. No Sr-89 and Sr-90 activities were detected. Gross beta and I-131 concentrations detected were consistent with those detected in previous years. Tritium results in groundwater and several monthly results in surface, drinking and effluent water samples were due to TMINS activities or releases. These results will be discussed later in the report. Iodine-131 detected in effluent water was from upstream medical users. No other fission or activation products attributed to TMI release were detected.

Fish (predator and bottom feeder) and sediment samples were analyzed for concentrations of gamma emitting nuclides. Fish samples were also analyzed for concentrations of Sr-89 and Sr-90. No Sr-89 and Sr-90 activity was detected. No fission or activation products were detected in fish. Cesium-137 levels detected in sediment were consistent with levels detected in previous years and were due to plant releases and fallout from nuclear weapons testing. No other TMINS-produced fission or activation products were detected in sediment.

Air particulate samples were analyzed for concentrations of gross beta and gamma emitting nuclides. Cosmogenic Be-7 was detected at levels consistent with those detected in previous years. No fission or activation products were detected.

High sensitivity I-131 analyses were performed on weekly air samples. All results were less than the minimum detectable activity.

Cow milk samples were analyzed for concentrations of I-131, gamma emitting nuclides, Sr-89 and Sr-90. No I-131 and Sr-89 activities were detected. Concentrations of naturally occurring K-40 were consistent with those detected in previous years. Sr-90 activities detected were consistent with those detected in previous years and were attributed to fallout from nuclear weapons testing. No other fission or activation products were found.

Food Product samples were analyzed for concentrations of gamma emitting nuclides (including I-131) and Sr-90. Sr-90 activities were detected in both the indicator and control samples. This was a result of plant uptake of Sr-90 in soil as a result of past nuclear weapons testing. Concentrations of naturally

occurring K-40 were consistent with those detected in previous years. No fission or activation products were detected.

Environmental gamma radiation measurements were performed quarterly using thermoluminescent dosimeters. Levels detected were consistent with those observed in previous years.

A practice of the TMI site is to analyze rodents for radioactivity as a part of the Non-routine REMP. This program is to determine the transport of radioactive materials to unrestricted areas by rodents. Analyses are performed by TMI personnel when samples are available. These results are presented in this report. A pest control program is in place at TMI. This program minimizes the potential for rodents to transport radioactive material to unrestricted areas.

II. Introduction

The Three Mile Island Nuclear Station (TMINS), consisting of two pressurized water reactors (PWR), is located on the northern one-half of Three Mile Island in the Susquehanna River approximately 2.5 miles south of Middletown in Londonderry Township, Dauphin County, Pennsylvania. TMI-1 is owned and operated by AmerGen and became operational in 1974. TMI-2 is operated by GPU Nuclear, Inc. and owned by Metropolitan Edison (50%), Pennsylvania Electric (25%) and Jersey Central Power & Light (25%). TMI-2 became operational in 1978 and was shut down following the 1979 accident. At the end of 1993, TMI-2 was placed in a condition called Post-Defueling Monitored Storage. TMI-2 is maintained by Amergen under contract with GPU Nuclear.

A Radiological Environmental Monitoring Program (REMP) for TMINS was initiated in 1974. This report covers those analyses performed by Teledyne Brown Engineering (TBE), Global Dosimetry Solutions, Inc., and Environmental Inc. (Midwest Labs) on samples collected during the period 1 January 2005 through 31 December 2005.

A. Objective of the REMP

The objectives of the REMP are to:

1. Evaluate the relationship between quantities of radioactive material released from the plant and resultant radiation doses to individuals from principal pathways of exposure.

2. Provide data on measurable levels of radiation and radioactive materials in the site environs.

3. To verify inplant controls for the containment of radioactive materials.

4. To determine buildup of long-lived radionuclides in the environment and changes in background radiation levels.

5. To provide reassurance to the public that the program is capable of adequately assessing impacts and identifying noteworthy changes in the radiological status of the environment.

6. To fulfill the requirements of the TMI-1 and TMI-2 Technical Specifications.

B. Implementation of the Objectives

The implementation of the objectives is accomplished by:

1. Identifying significant exposure pathways.

2. Establishing baseline radiological data of media within those pathways.

3. Continuously monitoring those media before and during Station operation to assess Station radiological effects (if any) on man and the environment.

III. Program Description

A. Sample Collection

Samples for the TMINS REMP were collected for AmerGen by Normandeau Associates, RMC Environmental Services Division (RMC). This section describes the general collection methods used by RMC to obtain environmental samples for the TMINS REMP in 2005. Sample locations and descriptions can be found in Tables B–1 and B–2, and Figures B–1 through B–3, Appendix B. The collection procedures used by RMC are listed in Table B–3.

Aquatic Environment

The aquatic environment was evaluated by performing radiological analyses on samples of surface water, drinking water, effluent water, storm water, ground water, fish, and sediment. Two gallon water samples were collected monthly from continuous samplers located at three surface water locations (A3-2, J1-2 and Q9-1), three drinking water locations (G15-2, G15-3 and Q9-1), and one effluent water location (K1-1). Control locations were A3-2 and Q9-1. Monthly grab water samples were taken from one storm water runoff location (EDCB). Grab ground water samples were collected quarterly at eight locations (48S, GP-1, GP-6, GP-8, GP-9, MS-22, OSF and OS-18), semiannually at 12 locations (GP-12, MS-2, MS-5, MS-8, MS-20, NW-A, NW-B, NW-C, NW-CW, OS-14, RW-1 and RW-2) and annually at seven locations (E1-2, MS-1, MS-4, MS-7, MS-19, MS-21 and N2-1). In response to a special investigation, selected wells were sampled more frequently. All water samples were collected in new unused plastic bottles, which were rinsed at least twice with source water prior to collection. Fish samples comprising the flesh of two groups, bottom feeders and predators, were collected semiannually at an

upstream control (BKG) and a downstream Indicator (IND) location. Location IND could be affected by TMINS' effluent releases. Sediment samples composed of recently deposited substrate were collected semiannually at three locations (J2-1, K1-3 and A1-3). In addition, one sediment sample was collected annually at the EDCB. Location A1-3 was the control.

Atmospheric Environment

The atmospheric environment was evaluated by performing radiological analyses on samples of air particulates, airborne iodine, milk, and food product. Airborne iodine and particulate samples were collected and analyzed weekly at seven locations (A3-1, E1-2, F1-3, G2-1, H3-1, M2-1, and Q15-1). The control location was Q15-1. Airborne iodine and particulate samples were obtained at each location, using a vacuum pump with charcoal and glass fiber filters attached. The pumps were run continuously and sampled air at the rate of approximately one cubic foot per minute. The filters were replaced weekly and sent to the laboratory for analysis.

Milk samples were collected biweekly at four locations (K15-3, D2-1, E2-2, and G2-1) from March through November, and monthly from December through February. Milk was also collected at station F4-1 quarterly (March, June, September, and December). The control location was K15-3. All samples were collected in new unused two gallon plastic bottles from the bulk tank at each location, preserved with sodium bisulfite, and shipped promptly to the laboratory.

Food products were collected annually at two locations (B10-2 and E1-2). The control location was B10-2. Four different kinds of vegetation samples were collected and placed in new unused plastic bags, and sent to the laboratory for analysis.

Ambient Gamma Radiation

Direct radiation measurements were made using Panasonic 814 calcium sulfate ($CaSO_4$) thermoluminescent dosimeters (TLD). The TLD locations were placed on and around the TMINS site as follows:

A site boundary ring consisting of 21 locations (A1-4, B1-1, B1-2, C1-2, D1-1, E1-4, F1-2, F1-4, G1-3, G1-5, G1-6, H1-1, J1-1, J1-3, K1-4, L1-1, M1-1, N1-3, P1-2, Q1-2, and R1-1) near and within the site perimeter representing fence post doses (i.e., at locations where the doses will be potentially greater than maximum annual off–site doses) from TMINS release.

An offsite ring consisting of 58 locations (A3-1, A5-1, A9-3, B2-1, B5-1, B10-1, C1-1, C2-1, C5-1, C8-1, D1-2, D2-2, D6-1, E1-2, E2-3, E5-1, E7-1, F1-1, F2-1, F5-1, F10-1, G1-2, G2-4, G5-1, H3-1, H5-1, H8-1, J3-1, J5-1, J7-1 K2-1, K3-1, K5-1, K8-1, L1-2, L2-1, L5-1, L8-1, M1-2, M2-1, M5-1, M9-1, N1-1, N2-1, N5-1, N8-1, P1-1, P2-1, P5-1, P8-1, Q1-1, Q2-1, Q5-1, Q9-1, R1-2, R3-1, R5-1, and R9-1) extending to approximately 5 miles from the site designed to measure possible exposures to close-in population.

The balance of 11 locations (D15-1, F25-1, G10-1, G15-1, H15-1, J15-1, K15-1, L15-1, N15-2, Q15-1, and R15-1) represent control areas.

The specific TLD locations were determined by the following criteria:

1. The presence of relatively dense population;

2. Site meteorological data taking into account distance and elevation for each of the sixteen–22 1/2 degree sectors around the site, where estimated annual dose from TMINS, if any, would be most significant;

3. On hills free from local obstructions and within sight of the vents (where practical);

4. And near the closest dwelling to the vents in the prevailing downwind direction.

Each TLD station consists of two primary program TLD badges, each of which has three $CaSO_4$ thermoluminescent phosphors enclosed in plastic, placed at each location in a frame located approximately three to six feet above ground level. Since each TLD responds to radiation independently, this provides six independent detectors at each station. The TLDs were exchanged quarterly and sent to Global Dosimetry for analysis.

B. Sample Analysis

This section describes the general analytical methods used by TBE and Midwest Labs to analyze the environmental samples for radioactivity for the TMINS REMP in 2005. The analytical procedures used by the laboratories are listed in Table B–3.

In order to achieve the stated objectives, the current program includes the following analyses:

1. Concentrations of beta emitters in drinking and effluent water, and air particulates.

2. Concentrations of gamma emitters in surface, drinking, effluent, storm, and ground water, air particulates, milk, fish, sediment, and food products.

3. Concentrations of tritium in surface, drinking, effluent, storm, and ground water.

4. Concentrations of I-131 in surface, drinking, and effluent water, air, milk and food products.

5. Concentrations of strontium in effluent and ground water, fish, milk, and food products.

6. Ambient gamma radiation levels at various site environs.

C. Data Interpretation

Data were compared to previous years' operational data for consistency and trending. In addition, comparison to pre-operational data is sometimes made. For the purpose of this report, TMINS was considered operational at initial criticality. Several factors were important in the interpretation of the data:

1. Lower Limit of Detection and Minimum Detectable Concentration

The lower limit of detection (LLD) was defined as the smallest concentration of radioactive material in a sample that would yield a net count (above background) that would be detected with only a 5% probability of falsely concluding that a blank observation represents a "real" signal. The LLD was intended as a before the fact estimate of a system (including instrumentation, procedure and sample type) and not as an after the fact criteria for the presence of activity. All analyses were designed to achieve the required TMINS detection capabilities for environmental sample analysis.

The minimum detectable concentration (MDC) is defined above with the exception that the measurement is an after the fact estimate of the presence of activity.

2. Net Activity Calculation and Reporting of Results

Net activity for a sample was calculated by subtracting background

activity from the sample activity. Since the REMP measures extremely small changes in radioactivity in the environment, background variations may result in sample activity being lower than the background activity effecting a negative number. An MDC was reported in all cases where positive activity was not detected.

Gamma spectroscopy results for each type of sample were grouped as follows:

For surface, drinking, effluent, storm, and ground water 11 nuclides, Mn-54, Co-58, Fe-59, Co-60, Zn-65, Zr-95, Nb-95, Cs-134, Cs-137, Ba-140 and La-140 were reported.

For fish eight nuclides, K-40, Mn-54, Co-58, Fe-59, Co-60, Zn-65, Cs-134 and Cs-137 were reported.

For sediment six nuclides, K-40, Mn-54, Co-58, Co-60, Cs-134 and Cs-137 were reported.

For air particulate six nuclides, Be-7, Mn-54, Co-58, Co-60, Cs-134 and Cs-137 were reported.

For milk five nuclides, K-40, Cs-134, Cs-137, Ba-140 and La-140 were reported.

For food products four nuclides, K-40, I-131, Cs-134 and Cs-137 were reported.

Means and standard deviations of the results were calculated. The standard deviations represent the variability of measured results for different samples rather than single analysis uncertainty.

D. Program Exceptions

For 2005 the TMINS REMP had a sample recovery rate in excess of 99%. Exceptions are listed below:

1. Surface water samples were collected as grab samples for the following periods and locations, due to frozen sample lines:
   12/28/2004 – 02/01/2005, Location J1-2
   11/30/2005 – 01/03/2006, Location J1-2

2. TLD – One of two badges was found on the ground for the following period and location:
   01/14/2005 – 04/15/2005, Location R9-1

3. Air particulate and air iodine samples lost approximately 58 hours for the following period and location, due to power failure/sampler malfunction:
03/23/2005 – 03/30/2005, Location G2-1

4. Air particulate and air iodine samples lost approximately 68 hours for the following period and location, due to sampler malfunction:
03/30/2005 – 04/06/2005, Location M2-1

5. Air particulate and air iodine samples lost approximately 23 hours for the following period and location, due to sampler malfunction and pump replacement:
04/06/2005 – 04/13/2005, Location M2-1

6. TLD hardware and both badges were found on the ground for the following period and location:
04/14/2005 – 07/14/2005, Location P5-1

7. TLDs were not sent and analyzed for the following periods and locations, due to hardware malfunction/failure:
04/15/2005 – 07/15/2005, Location B1-1
04/15/2005 – 07/15/2005, Location B1-1Q

8. Effluent water samples were collected as grab samples for the following period and location, due to sampler malfunction or workers installing new equipment that effected sampler operations:
06/28/2005 – 08/02/2005, Location K1-1

9. Air particulate and air iodine QC samples were sent to the primary laboratory for analysis for the following periods and locations, due to sampler malfunction:
06/22/2005 – 06/29/2005, Location E1-2Q
08/10/2005 – 08/17/2005, Location E1-2Q
09/21/2005 – 09/28/2005, Location E1-2Q

10. Air particulate and air iodine samples lost approximately six hours for the following period and location, due to sampler malfunction and pump replacement:
06/29/2005 – 07/06/2005, Location E1-2

11. Air particulate and air iodine samples lost approximately 69 hours for the following period and location, due to sampler malfunction:
08/02/2005 – 08/10/2005, Location M2-1

12. Air particulate and air iodine samples lost approximately 61 hours for the following periods and locations, due to sampler malfunction:
08/17/2005 – 08/24/2005, Location E1-2
09/14/2005 – 09/21/2005, Location E1-2

13. Air particulate and air iodine samples lost approximately four hours for the following period and location, due to sampler/timer malfunction:
09/14/2005 – 09/21/2005, Location G2-1

14. Air particulate and air iodine samples lost approximately 32 hours for the following period and location, due to timer malfunction:
09/14/2005 – 09/21/2005, Location E1-2Q

15. Air particulate and air iodine samples lost approximately 65 hours for the following period and location, due to sampler malfunction:
11/02/2005 – 11/09/2005, Location A3-1

16. Air particulate and air iodine samples lost approximately 67 hours for the following period and location, due to station being vandalized and sampler being unplugged:
11/02/2005 – 11/09/2005, Location Q15-1

17. Drinking water samples were collected as grab samples for the following periods and locations, due to sampler malfunction:
08/30/2005 – 09/27/2005, Location Q9-1
08/30/2005 – 09/27/2005, Location Q9-1Q

18. TLD primary badges were missing/stolen for the following period and location, due to station being vandalized:
10/13/2005 - 01/12/2006, Location Q15-1

19. Effluent water samples were collected as grab samples for the following periods and locations, due to sampler malfunction:
11/30/2005 - 01/03/2006, Location K1-1

Each program exception was reviewed to understand the causes of the program exception. Occasional equipment breakdowns and power outages were unavoidable.

The overall sample recovery rate indicates that the appropriate procedures and equipment are in place to assure reliable program implementation.

E. Program Changes

There were no changes to the program in 2005.

IV. Results and Discussion

A. Aquatic Environment

1. Surface Water

Samples were taken weekly from a continuous sampler at three locations (A3-2, J1-2, and Q9-1) and composited on a monthly schedule. Of these locations only J1-2 located downstream, could be affected by TMINS' effluent releases. The following analyses were performed.

Tritium

Monthly samples from J1-2 and Q9-1 were analyzed for tritium activity (Table C–I.1, Appendix C). Positive tritium activity was detected in six of 24 samples, primarily at location J1-2 which is located immediately downstream of the TMINS effluent outfall. All samples ranged from <156 to 33,500 pCi/l. The increased tritium concentrations detected in March, August and September samples were a result of TMINS releasing more waste water in preparation of the Unit 1 refueling outage. The indicator surface water sample is taken just downstream of the liquid discharge outfall where mixing of liquid effluents with the river water is incomplete. More complete mixing is not achieved until liquid effluents pass over the York Haven Dam. This water is normally not consumed by humans. The concentrations detected were well below any regulatory limits. (Figures C–1 and C–2, Appendix C).

Iodine

Monthly samples from location A3-2 were analyzed for iodine-131 activity (Table C–I.2, Appendix C). This is a control or background station sampled because of a known medical facility that has discharges into the surface water upstream of TMI. Iodine-131 activity was not detected.

Gamma Spectrometry

Samples from all locations were analyzed for gamma emitting

nuclides (Table C–I.3, Appendix C). All nuclides were less than the MDC.

2. Drinking Water

Monthly samples were collected from continuous water samplers at three locations (G15-2, G15-3, and Q9-1). Two locations (G15-2 and G15-3) could be affected by TMINS' effluent releases. The following analyses were performed:

Gross Beta

Monthly samples from all locations were analyzed for concentrations of gross beta. (Tables C–II.1, Appendix C). Gross beta activity was detected in 30 of 36 samples. The values ranged from <2.0 to 5.4 pCi/l. Concentrations detected were consistent with those detected in previous years (Figures C–3, Appendix C).

Tritium

Monthly samples from all locations were analyzed for tritium activity (Table C–II.3, Appendix C). Tritium activity was detected in one of 36 samples. Activity was detected in eight of 36 samples. All samples ranged from <153 to 600 pCi/l. The elevated results for September and October were a result of releasing more waste water in preparation of the Unit 1 refueling outage. Additionally, these releases occurred during abnormally low river flows. The concentrations were well below any regulatory limits. A dose estimate was performed by averaging the sample results for these two months. The hypothetical dose to the maximum exposed individual from consuming this water would have been 0.01 mrem/year to the liver of a child. (Figures C–4, Appendix C).

Gamma Spectrometry

Samples from all locations were analyzed for gamma emitting nuclides (Table C–II.4, Appendix C). All nuclides were less than the MDC.

3. Effluent Water

Monthly samples were collected from a continuous water sampler at one location (K1-1). The following analyses were performed:

Gross Beta

Monthly samples from location K1-1 were analyzed for concentrations of gross beta. (Tables C–III.1, Appendix C). Gross beta was detected in 11 of 12 samples. The values ranged from <2.6 to 9.9 pCi/l. Concentrations detected were consistent with those detected in previous years.

Iodine-131

Monthly samples from location K1-1 were analyzed for concentrations of iodine-131. (Tables C–III.1, Appendix C). Iodine-131 activity was detected in one sample. The values ranged from <0.3 to 1.3 pCi/l. The positive result is not believed to be due to TMINS effluents. Historically, I-131 has been detected sporadically in effluent water and not in the control stations. No I-131 was identified in any tank effluent pre-release samples, and I-131 was not detected in any other downstream surface or drinking water samples. Effluent water is not consumed by humans.

Tritium

Monthly samples from location K1-1 were analyzed for tritium activity (Table C–III.1, Appendix C). Tritium activity was detected in four samples. The values ranged from <158 to 157,000 pCi/l. The elevated results for March, July, August and September were a result of releasing more waste water in preparation of the Unit 1 refueling outage. These results are from the liquid discharge mixing basin. The concentrations detected agree with those obtained from the TMINS Effluent Monitoring Program. The concentrations were well below any regulatory limits.

Strontium

Semiannual samples from location K1-1 were analyzed for Sr-89 and Sr-90 (Table C–III.1, Appendix C). No strontium activity was detected. The highest MDC was calculated at 2.3 pCi/l for Sr-89 and at 0.6 pCi/l for Sr-90.

Gamma Spectrometry

Samples from location K1-1 were analyzed for gamma emitting nuclides (Table C–III.2, Appendix C). All nuclides were less than the MDC.

4. Storm Water

Monthly grabs from the storm water collection basin (EDCB) were composited quarterly. The following analyses were performed:
Tritium

All samples from location EDCB were analyzed for tritium activity (Table C–IV.1, Appendix C). Tritium activity was detected in three samples. The values ranged from <167 to 393 pCi/l and were due to airborne releases of H-3 from TMI. Concentrations detected were consistent with those detected in previous years.

Gamma Spectrometry

Samples from location EDCB were analyzed for gamma emitting nuclides (Table C–IV.1, Appendix C). All nuclides were less than the MDC.

5. Ground Water

Quarterly, semiannual and annual grab samples were collected at 27 locations (48S, GP-1, GP-6, GP-8, MS-22, OSF, OS-18, GP-9, GP-12, MS-2, MS-5, MS-20, NW-A, NW-B, NW-C, NW-CW, OS-14, RW-1, RW-2, E1-2, MS-1, MS-4, MS-7, MS-8, MS-19, MS-21 and N2-1). The following analyses were performed:

Tritium

All samples from the locations were analyzed for tritium activity (Table C–V.1, Appendix C). Tritium activity was detected in 43 of 55 samples. The values ranged from <103 to 18,500 pCi/l. In July of 2005 TMINS responded to elevated results in well RW-2. The sampling frequency for selected wells was increased. The results are listed in Table F-1.1, Appendix F. Tritium activity was detected in 83 of 104 samples. The values ranged from <103 to 31,100 pCi/l. TMINS discovered and fixed a leaking pipe in September. The maximum concentration in RW-2 was detected in September. Tritium concentrations trended downward the remainder of the year. Offsite groundwater tritium concentrations were unaffected by this event.

Strontium

Annual samples from six locations (48S, OSF, MS-2, MS-5, MS-8 and OS-14) were analyzed for Sr-90 (Table C–V.2, Appendix C).

No Sr-90 activity was detected. The highest MDC was calculated at <0.4 pCi/l.

Gamma Spectrometry

Quarterly samples from two locations (48S and OSF) and annual composite samples from eight locations (MS-2, MS-5, MS-8, MS-20, MS-22, OS-14, RW-1 and RW-2) and annual grab samples from two locations (E1-2 and N2-1) were analyzed for gamma emitting nuclides (Table C–V.2, Appendix C). All nuclides were less than the MDC.

6. Fish

Fish samples comprised of bottom feeders and predators were collected at two locations (IND and BKG) semiannually. Location IND could be affected by TMINS' effluent releases. The following analyses were performed:

Strontium

The edible portions of fish samples from both locations were analyzed for Sr-89 and Sr-90. (Table C–VI.1, Appendix C). No strontium activity was detected. The highest MDC was calculated at <21 pCi/kg wet for Sr-89 and at <5 pCi/kg wet for Sr-90.

Gamma Spectrometry

The edible portions of fish samples from both locations were analyzed for gamma emitting nuclides (Table C–VI.2, Appendix C). Naturally occurring K-40 was found at all stations and ranged from 2,290 to 4,020 pCi/kg wet and was consistent with levels detected in previous years. No fission or activation products were found.

7. Sediment

Aquatic sediment samples were collected at three locations (A1-3, J2-1 and K1-3) semiannually. In addition, location EDCB was sampled annually. Of these locations two (J2-1 and K1-3) could be affected by TMINS' effluent releases. The following analysis was performed:

Gamma Spectrometry

Sediment samples from all four locations were analyzed for gamma

emitting nuclides (Table C–VII.1, Appendix C). Nuclides detected were naturally occurring K-40, and the fission product Cs-137. K-40 was found at all stations and ranged from 7,720 to 16,300 pCi/kg dry. Concentrations of the fission product Cs-137 were found in six of seven samples (Figure C–5, Appendix C). Location EDCB had the highest average concentration of 294 pCi/kg dry. The activity detected was consistent with those detected in the previous years. No other TMINS fission or activation products were found.

B. Atmospheric Environment

1. Airborne

a. Air Particulates

Continuous air particulate samples were collected from seven locations on a weekly basis. The seven locations were separated into three groups: Group I represents locations within the TMINS site boundary (E1-2 and F1-3), Group II represents the location at an intermediate distance from the TMINS site (A3-1, G2-1, M2-1, and H3-1), and Group III represents the control location at a remote distance from TMINS (Q15-1). The following analyses were performed:

Gross Beta

Weekly samples were analyzed for concentrations of beta emitters (Table C–VIII.1 and C–VIII.2, Appendix C).

Detectable gross beta activity was observed at all locations. Comparison of results among the three groups aid in determining the effects, if any, resulting from the operation of TMINS. The results from the On-Site locations (Group I) ranged from <7 to 32 E–3 pCi/m^3 with a mean of 17 E–3 pCi/m^3. The results from the Offsite location (Group II) ranged from <6 to 37 E–3 pCi/m^3 with a mean of 18 E–3 pCi/m^3. The results from the Control locations (Group III) ranged from <6 to 34 E–3 pCi/m^3 with a mean of 17 E–3 pCi/m^3. Comparison of the 2005 air particulate data with previous years data indicate no effects from the operation of TMINS (Figure C–6, Appendix C). In addition a comparison of the weekly mean values for 2005 indicate no notable

differences among the three groups (Figure C–7, Appendix C).

Gamma Spectrometry
Weekly samples were composited quarterly and analyzed for gamma emitting nuclides (Table C–VIII.3, Appendix C). Naturally occurring Be-7 due to cosmic ray activity was detected in 27 of 28 samples. These values ranged from <21 to 96 E–3 pCi/m^3. All other nuclides were less than the MDC.

b. Airborne Iodine

Continuous air samples were collected from seven (A3-1, E1-2, F1-3, G2-1, H3-1, M2-1, and Q15-1) locations and analyzed weekly for I-131 (Table C–IX.1, Appendix C). All results were less than the MDC.

2. Terrestrial

a. Milk

Samples were collected from four locations (K15-3, D2-1, E2-2, and G2-1) biweekly March through November and monthly December through February. Station F4-1 was sampled quarterly. The following analyses were performed:

Iodine–131

Milk samples from all locations were analyzed for concentrations of I-131 (Table C–X.1, Appendix C). All results were less than the MDC.

Strontium

Milk samples from all locations were composited quarterly and analyzed for Sr-89 and Sr-90 (Table C–X.2, Appendix C). No Sr-89 activity was detected. Sr-90 activity was detected. The values ranged from <0.3 to 2.5 pCi/l. The activity detected was consistent with those detected in the pre–operational years (Figure C–8, Appendix C).

Gamma Spectrometry

Milk samples from all locations were analyzed for

concentrations of gamma emitting nuclides (Table C–X.3, Appendix C).

Naturally occurring K-40 activity was found in all samples. The values ranged from 944 to 1,680 pCi/l. All other nuclides were less than the MDC.

b. Food Products

Samples were collected from two locations (B10-2 and E1-2) annually. The following analyses were performed:

Strontium

Each food product sample was analyzed for concentrations of Sr-90 (Table C–XI.1, Appendix C). Sr-90 activity was not detected.

Gamma Spectrometry

Each food product sample was analyzed for concentrations of gamma emitting nuclides (Table C–XI.1, Appendix C).

Naturally occurring K-40 activity was found in all samples. The values ranged from 1,790 to 4,030 pCi/l. All other nuclides were less than the MDC.

c. Rodents

No rodents were collected during 2005.

C. Ambient Gamma Radiation

Ambient gamma radiation levels were measured utilizing Panasonic 814 ($CaSO_4$) thermoluminescent dosimeters. Ninety TLD locations were established around the site. Results of TLD measurements are listed in Tables C–XII.1 to C–XII.3, Appendix C.

TLD measurements were below 10 mR/standard month, with a range of 2.0 to 7.7 mR/standard month. A comparison of the Site Boundary and Intermediate Distance data to the Control Location data, indicate that the ambient gamma radiation levels from the Control Locations D15-1, F25-1, G10-1, G15-1, H15-1, J15-1, K15-1, L15-1, N15-2, Q15-1, and R15-1 were consistently higher. The historical ambient gamma radiation data from Locations D15-1, F25-1, G10-1, G15-1, H15-1, J15-1, K15-1, L15-1,

N15-2, Q15-1, and R15-1 were plotted along with similar data from the Site, Intermediate Distance and Outer Ring Locations (Figure C–9, Appendix C). Locations D15-1, F25-1, G10-1, G15-1, H15-1, J15-1, K15-1, L15-1, N15-2, Q15-1, and R15-1 have a historical high bias, but tracked with the data from all three groups, this bias is most likely due to radon and other naturally occurring nuclides, e.g. K-40, emanating from the ground.

D. Land Use Survey

A Land Use Survey conducted in the September and October 2005 growing season around the Three Mile Island Nuclear Station (TMINS) was performed by Normandeau Associates, RMC Environmental Services Division for AmerGen to comply with Sections 2.15 and 3.4.2 of the Plant's Offsite Dose Calculation Manual (ODCM). The purpose of the survey was to document the nearest resident and milk-producing animal in each of the sixteen 22 ½ degree sectors around the site. There were no changes required to the TMINS REMP, as a result of this survey. The nearest residence in the West sector changed from 560 m to 1120 m based on the residence survey. The Receptor files in the dose calculation software were changed. The results of this survey are summarized below.

Distance in Miles from the TMINS Reactor Buildings		
Sector	Residence	Milk Farm
1 N	1.1	2.1
2 NNE	0.7	-
3 NE	0.5	4.1
4 ENE	0.5	1.1
5 E	0.4	1.1
6 ESE	1.1	3.2
7 SE	0.7	1.4
8 SSE	0.7	-
9 S	2.3	-
10 SSW	0.6	4.9
11 SW	0.5	-
12 WSW	0.5	-
13 W	0.7	-
14 WNW	0.4	3.7
15 NW	0.4	-
16 NNW	0.7	-

As permitted by the ODCM, in lieu of a garden survey, sampling of broadleaf vegetation was performed. The sampling locations were in east southeast (ESE) and southeast (SE) sectors. A control sample was taken in the north northeast (NNE). The results are presented below.

Exelon TMI 2005 Broad Leaf Vegetation Sampling Results[1]

Collection Date	Sample Location	Vegetation Type	Gamma Result (pCi/kg, wet)		Sr-90 Result (pCi/kg, wet)
09/12/05	TM-FPL-ESE1	Soybean Leaves	Be-7:	399 ± 75	35 ± 6
			K-40:	6510 ± 211	
09/12/05	TM-FPL-ESE2	Corn Leaves	Be-7:	1080 ± 79	27 ± 5
			K-40:	4860 ± 193	
09/12/05	TM-FPL-ESE3	Watermelon Leaves	Be-7:	884 ± 277	66 ± 5
			K-40:	2960 ± 564	
09/12/05	TM-FPL-NNE1[2]	Soybean Leaves	Be-7:	1010 ± 85	27 ± 4
			K-40:	4430 ± 202	
09/12/05	TM-FPL-NNE2[2]	Corn Leaves	Be-7:	1930 ± 106	15 ± 5
			K-40:	5740 ± 221	
09/12/05	TM-FPL-NNE3[2]	Pumpkin Leaves	Be-7:	654 ± 67	165 ± 8
			K-40:	4810 ± 172	
09/12/05	TM-FPL-SE1	Soybean Leaves	Be-7:	799 ± 344	61 ± 5
			K-40:	5280 ± 740	
09/12/05	TM-FPL-SE2	Corn Leaves	Be-7:	1020 ± 218	35 ± 5
			K-40:	4050 ± 464	
09/12/05	TM-FPL-SE2	Watermelon Leaves	Be-7:	832 ± 277	53 ± 4
			K-40:	4480 ± 652	

(1) Collection and analysis of broadleaf vegetation was performed in lieu of a garden census.
(2) Control Sample

No reactor produced gamma emitting radionuclides were detected. Strontium-90 was detected in these samples. The detection of Sr-90 in these samples is not due to TMINS effluents for the following reasons:

- Sr-90 was not detected in any in-plant effluent sample results
- I-131 was released into the atmosphere at low levels from TMINS consistently and it was not detected in these environmental samples
- Sr-90 is detectable in the soil from fallout from past nuclear weapon tests
- Plants uptake strontium as a soil nutrient via their roots
- Sr-90 was detected in the control samples

The Sr-90 detected in all these samples was a result of plant uptake of Sr-90 in the soil. The large variation in the concentrations is due to different bioaccumulation factors between plant species.

E. Summary of Results – Inter-Laboratory Comparison Program

The primary and secondary laboratories analyzed Performance Evaluation (PE) samples of air particulate, air iodine, milk, soil, vegetation and water matrices (Appendix E). The PE samples, supplied by Analytics Inc., Environmental Resource Associates (ERA) and DOE's MAPEP, were evaluated against the following pre-set acceptance criteria:

1. Analytics Evaluation Criteria

   Analytics' evaluation report provides a ratio of TBE's result and Analytics' known value. Since flag values are not assigned by Analytics, TBE-ES evaluates the reported ratios based on internal QC requirements, which are based on the DOE MAPEP criteria.

2. ERA Evaluation Criteria

   ERA's evaluation report provides an acceptance range for control and warning limits with associated flag values. ERA's acceptance limits are established per the USEPA, NELAC, state specific PT program requirements or ERA's SOP for the Generation of Performance Acceptance Limits, as applicable. The acceptance limits are either determined by a regression equation specific to each analyte or a fixed percentage limit promulgated under the appropriate regulatory document.

3. DOE Evaluation Criteria

   MAPEP's evaluation report provides an acceptance range with associated flag values.

   The MAPEP defines three levels of performance: Acceptable (flag = "A"), Acceptable with Warning (flag = "W"), and Not Acceptable (flag = "N"). Performance is considered acceptable when a mean result for the specified analyte is ± 20% of the reference value. Performance is acceptable with warning when a mean result falls in the range from ±20% to ±30% of the reference value (i.e., 20% < bias < 30%). If the bias is greater than 30%, the results are deemed not acceptable.

For the primary laboratory, 18 out of 19 analytes met the specified acceptance criteria. Two samples did not meet the specified acceptance criteria for the following reasons:

1. Teledyne Brown Engineering's Analytics' September 2005 air

particulate Fe-59 ratio of 1.35 exceeded the upper control limit of 1.30 due to a new technician not counting the air particulate in a petri dish.

For the secondary laboratory, 19 out of 23 analytes met the specified acceptance criteria. Four samples did not meet the specified acceptance criteria for the following reasons:

1. Environmental Inc.'s ERA's November 2005 water Gross Alpha result of 41.1 pCi/L exceeded the upper control limit of 33.4 pCi/L. This was due to using an Am-241 efficiency instead of a Th-232 efficiency when counting the sample. Using the correct efficiency gave a result of 27.0 pCi/L.

2. Environmental Inc.'s ERA's November 2005 water Ra-228 result of 5.5 pCi/L exceeded the upper control limit of 5.0 pCi/L due to presence of radium daughters. Delay in counting 100 minutes gave a result of 4.01 pci/L.

3. Environmental Inc.'s MAPEP's January 2005 air particulate Sr-90 result of 2.2 exceeded the upper control limit of 1.76 Bq/kg. Reanalysis result was 1.56 Bq/kg.

4. Environmental Inc.'s MAPEP's July 2005 soil Am-241 result of 48.4 exceeded the lower control limit of 56.77 Bq/kg due to incorrect sample weight being used in the calculation. When recalculated with the correct sample weight, the result was 97.0 Bq/kg.

The Inter-Laboratory Comparison Program provides evidence of "in control" counting systems and methods, and that the laboratories are producing accurate and reliable data.

V. References

1. Three Mile Island Nuclear Station, Unit 1, Technical Specifications, DPR 50.
2. Three Mile Island Nuclear Station, Unit 2, PDMS Technical Specifications, DPR 73.
3. Radiation Management Corporation. "Three Mile Island Nuclear Station, Preoperational Radiological Environmental Monitoring Program, January 1, 1974 - June5, 1974." RMC-TR-75-17, January 1975.
4. AmerGen. "Three Mile Island Nuclear Station Offsite Dose Calculation Manual (ODCM)."

APPENDIX A

RADIOLOGICAL ENVIRONMENTAL MONITORING REPORT SUMMARY

TABLE A-1 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM ANNUAL SUMMARY FOR THE THREE MILE ISLAND NUCLEAR STATION, 2005

Name of Facility: THREE MILE ISLAND NUCLEAR STATION — **DOCKET NUMBER:** 50-289 & 50-320

Location of Facility: MIDDLETOWN COUNTY, PA — **REPORTING PERIOD:** 2005

MEDIUM OR PATHWAY SAMPLED (UNIT OF MEASUREMENT)	TYPES OF ANALYSES PERFORMED	NUMBER OF ANALYSES PERFORMED	REQUIRED LOWER LIMIT OF DETECTION (LLD)	INDICATOR LOCATIONS MEAN (F) RANGE	CONTROL LOCATION MEAN (F) RANGE	LOCATION WITH HIGHEST ANNUAL MEAN: MEAN (F) RANGE	LOCATION WITH HIGHEST ANNUAL MEAN: STATION # NAME DISTANCE AND DIRECTION	NUMBER OF NONROUTINE REPORTED MEASUREMENTS
SURFACE WATER (PCI/LITER)	TRITIUM	24	2000	3744 (5/12) (<157/33500)	175 (1/12) (<156/<191)	3744 (5/12) (<157/33500)	J1-2 INDICATOR WEST SHORE, TMI 0.5 MILES S OF SITE	0
	I-131	12	1	N/A	0.4 (0/12) (< 0.2/< 0.6)	0.4 (0/12) (< 0.2/< 0.6)	A3-2 CONTROL SWATARA CREAK 2.5 MILES N OF SITE	0
	GAMMA	24						
	MN-54		15	5 (0/12) (<4/<7)	5 (0/12) (<4/<8)	5 (0/12) (<4/<8)	Q9-1 CONTROL STEELTON WATER COMPANY 8.5 MILES NW OF SITE	0
	CO-58		15	5 (0/12) (<4/<8)	5 (0/12) (<4/<9)	5 (0/12) (<4/<8)	J1-2 INDICATOR WEST SHORE, TMI 0.5 MILES S OF SITE	0
	FE-59		30	11 (0/12) (<8/<15)	11 (0/12) (<8/<16)	11 (0/12) (<8/<16)	Q9-1 CONTROL STEELTON WATER COMPANY 8.5 MILES NW OF SITE	0
	CO-60		15	5 (0/12) (<3/<9)	6 (0/12) (<4/<10)	6 (0/12) (<4/<10)	Q9-1 CONTROL STEELTON WATER COMPANY 8.5 MILES NW OF SITE	0
	ZN-65		30	12 (0/12) (<9/<16)	11 (0/12) (<8/<17)	12 (0/12) (<9/<16)	J1-2 INDICATOR WEST SHORE, TMI 0.5 MILES S OF SITE	0
	NB-95		15	6 (0/12) (<4/<8)	6 (0/12) (<4/<8)	6 (0/12) (<4/<8)	J1-2 INDICATOR WEST SHORE, TMI 0.5 MILES S OF SITE	0

* THE MEAN AND 2 STANDARD DEVIATION VALUES ARE CALCULATED USING BOTH THE MDAs AND THE POSITIVE VALUES
FRACTION OF DETECTABLE MEASUREMENTS AT SPECIFIED LOCATIONS IS INDICATED IN PARENTHESES (F)

TABLE A-1 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM ANNUAL SUMMARY FOR THE THREE MILE ISLAND NUCLEAR STATION, 2005

Name of Facility: THREE MILE ISLAND NUCLEAR STATION — **DOCKET NUMBER:** 50-289 & 50-320

Location of Facility: MIDDLETOWN COUNTY, PA — **REPORTING PERIOD:** 2005

MEDIUM OR PATHWAY SAMPLED (UNIT OF MEASUREMENT)	TYPES OF ANALYSES PERFORMED	NUMBER OF ANALYSES PERFORMED	REQUIRED LOWER LIMIT OF DETECTION (LLD)	INDICATOR LOCATIONS MEAN (F) RANGE	CONTROL LOCATION MEAN (F) RANGE	LOCATION WITH HIGHEST ANNUAL MEAN: MEAN (F) RANGE	LOCATION WITH HIGHEST ANNUAL MEAN: STATION # NAME DISTANCE AND DIRECTION	NUMBER OF NONROUTINE REPORTED MEASUREMENTS
SURFACE WATER (PCI/LITER)	ZR-95		30	10 (0/12) (<6/<16)	9 (0/12) (<7/<14)	10 (0/12) (<6/<16)	J1-2 INDICATOR WEST SHORE, TMI 0.5 MILES S OF SITE	0
	CS-134		15	5 (0/12) (<2/<8)	5 (0/12) (<4/<8)	5 (0/12) (<2/<8)	J1-2 INDICATOR WEST SHORE, TMI 0.5 MILES S OF SITE	0
	CS-137		18	6 (0/12) (<4/<7)	6 (0/12) (<4/<8)	6 (0/12) (<4/<7)	J1-2 INDICATOR WEST SHORE, TMI 0.5 MILES S OF SITE	0
	BA-140		60	28 (0/12) (<15/<40)	27 (0/12) (<21/<37)	28 (0/12) (<15/<40)	J1-2 INDICATOR WEST SHORE, TMI 0.5 MILES S OF SITE	0
	LA-140		15	8 (0/12) (<5/<12)	8 (0/12) (<6/<11)	8 (0/12) (<6/<11)	Q9-1 CONTROL STEELTON WATER COMPANY 8.5 MILES NW OF SITE	0
DRINKING WATER (PCI/LITER)	GROSS BETA	36	4	3.3 (21/24) (< 2.0/ 5.4)	2.6 (9/12) (< 1.7/ 4.3)	3.5 (11/12) (2.2/ 5.4)	G15-2 INDICATOR WRIGHTSVILLE WATER SUPPLY 13.6 MILES SE OF SITE	0
	I-131	36	1	0.5 (0/24) (< 0.2/< 0.9)	0.4 (0/12) (< 0.2/< 0.8)	0.5 (0/12) (< 0.3/< 0.9)	G15-3 INDICATOR LANCASTER WATER AUTHORITY 14.8 MILES SE OF SITE	0
	TRITIUM	36	2000	240 (6/24) (<153/601)	180 (2/12) (<154/263)	286 (4/12) (<154/601)	G15-3 INDICATOR LANCASTER WATER AUTHORITY 14.8 MILES SE OF SITE	0

* THE MEAN AND 2 STANDARD DEVIATION VALUES ARE CALCULATED USING BOTH THE MDAs AND THE POSITIVE VALUES
FRACTION OF DETECTABLE MEASUREMENTS AT SPECIFIED LOCATIONS IS INDICATED IN PARENTHESES (F)

TABLE A-1 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM ANNUAL SUMMARY FOR THE THREE MILE ISLAND NUCLEAR STATION, 2005

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Location of Facility: MIDDLETOWN COUNTY, PA — **REPORTING PERIOD:** 2005

MEDIUM OR PATHWAY SAMPLED (UNIT OF MEASUREMENT)	TYPES OF ANALYSES PERFORMED	NUMBER OF ANALYSES PERFORMED	REQUIRED LOWER LIMIT OF DETECTION (LLD)	INDICATOR LOCATIONS MEAN (F) RANGE	CONTROL LOCATION MEAN (F) RANGE	LOCATION WITH HIGHEST ANNUAL MEAN: MEAN (F) RANGE	LOCATION WITH HIGHEST ANNUAL MEAN: STATION # NAME DISTANCE AND DIRECTION	NUMBER OF NONROUTINE REPORTED MEASUREMENTS
DRINKING WATER (PCI/LITER)	GAMMA	36						
	MN-54		15	5 (0/24) (<3/<9)	4 (0/12) (<3/<6)	5 (0/12) (<3/<9)	G15-2 INDICATOR WRIGHTSVILLE WATER SUPPLY 13.6 MILES SE OF SITE	0
	CO-58		15	5 (0/24) (<2/<9)	4 (0/12) (<3/<6)	5 (0/12) (<3/<9)	G15-2 INDICATOR WRIGHTSVILLE WATER SUPPLY 13.6 MILES SE OF SITE	0
	FE-59		30	10 (0/24) (<6/<14)	9 (0/12) (<4/<13)	10 (0/12) (<8/<14)	G15-2 INDICATOR WRIGHTSVILLE WATER SUPPLY 13.6 MILES SE OF SITE	0
	CO-60		15	5 (0/24) (<4/<10)	5 (0/12) (<3/<7)	6 (0/12) (<4/<10)	G15-2 INDICATOR WRIGHTSVILLE WATER SUPPLY 13.6 MILES SE OF SITE	0
	ZN-65		30	10 (0/24) (<5/<21)	8 (0/12) (<6/<13)	11 (0/12) (<5/<21)	G15-2 INDICATOR WRIGHTSVILLE WATER SUPPLY 13.6 MILES SE OF SITE	0
	NB-95		15	5 (0/24) (<3/<9)	5 (0/12) (<3/<8)	6 (0/12) (<4/<9)	G15-2 INDICATOR WRIGHTSVILLE WATER SUPPLY 13.6 MILES SE OF SITE	0
	ZR-95		30	9 (0/24) (<5/<15)	8 (0/12) (<5/<11)	9 (0/12) (<7/<13)	G15-2 INDICATOR WRIGHTSVILLE WATER SUPPLY 13.6 MILES SE OF SITE	0
	CS-134		15	4 (0/24) (<3/<7)	4 (0/12) (<3/<6)	5 (0/12) (<3/<7)	G15-2 INDICATOR WRIGHTSVILLE WATER SUPPLY 13.6 MILES SE OF SITE	0

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FRACTION OF DETECTABLE MEASUREMENTS AT SPECIFIED LOCATIONS IS INDICATED IN PARENTHESES (F)

TABLE A-1 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM ANNUAL SUMMARY FOR THE THREE MILE ISLAND NUCLEAR STATION, 2005

Name of Facility: THREE MILE ISLAND NUCLEAR STATION — DOCKET NUMBER: 50-289 & 50-320
Location of Facility: MIDDLETOWN COUNTY, PA — REPORTING PERIOD: 2005

MEDIUM OR PATHWAY SAMPLED (UNIT OF MEASUREMENT)	TYPES OF ANALYSES PERFORMED	NUMBER OF ANALYSES PERFORMED	REQUIRED LOWER LIMIT OF DETECTION (LLD)	INDICATOR LOCATIONS MEAN (F) RANGE	CONTROL LOCATION MEAN (F) RANGE	LOCATION WITH HIGHEST ANNUAL MEAN: MEAN (F) RANGE	LOCATION WITH HIGHEST ANNUAL MEAN: STATION # NAME DISTANCE AND DIRECTION	NUMBER OF NONROUTINE REPORTED MEASUREMENTS
DRINKING WATER (PCI/LITER)	CS-137		18	5 (0/24) (<4/<8)	5 (0/12) (<3/<7)	6 (0/12) (<4/<8)	G15-2 INDICATOR WRIGHTSVILLE WATER SUPPLY 13.6 MILES SE OF SITE	0
	BA-140		60	25 (0/24) (<15/<41)	22 (0/12) (<18/<30)	27 (0/12) (<17/<41)	G15-2 INDICATOR WRIGHTSVILLE WATER SUPPLY 13.6 MILES SE OF SITE	0
	LA-140		15	8 (0/24) (<3/<13)	7 (0/12) (<4/<12)	8 (0/12) (<4/<12)	G15-2 INDICATOR WRIGHTSVILLE WATER SUPPLY 13.6 MILES SE OF SITE	0
EFFLUENT WATER (PCI/LITER)	GROSS BETA	12	N/A	5.4 (11/12) (2.4/ 9.9)	N/A	5.4 (11/12) (2.4/ 9.9)	K1-1 INDICATOR MAIN STATION LIQ. DISCHARGE 0.2 MILES SSW ON SITE	0
	I-131	12	N/A	0.6 (1/12) (< 0.3/ 1.3)	N/A	0.6 (1/12) (< 0.3/ 1.3)	K1-1 INDICATOR MAIN STATION LIQ. DISCHARGE 0.2 MILES SSW ON SITE	0
	H-3	12	N/A	21324 (7/12) (<158/157000)	N/A	21324 (7/12) (<158/157000)	K1-1 INDICATOR MAIN STATION LIQ. DISCHARGE 0.2 MILES SSW ON SITE	0
	SR-89	2	N/A	1.9 (0/2) (< 1.5/< 2.3)	N/A	1.9 (0/2) (< 1.5/< 2.3)	K1-1 INDICATOR MAIN STATION LIQ. DISCHARGE 0.2 MILES SSW ON SITE	0
	SR-90	2	N/A	0.6 (0/2) (< 0.6/< 0.6)	N/A	0.6 (0/2) (< 0.6/< 0.6)	K1-1 INDICATOR MAIN STATION LIQ. DISCHARGE 0.2 MILES SSW ON SITE	0

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TABLE A-1 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM ANNUAL SUMMARY FOR THE THREE MILE ISLAND NUCLEAR STATION, 2005

Name of Facility: THREE MILE ISLAND NUCLEAR STATION — **DOCKET NUMBER:** 50-289 & 50-320

Location of Facility: MIDDLETOWN COUNTY, PA — **REPORTING PERIOD:** 2005

MEDIUM OR PATHWAY SAMPLED (UNIT OF MEASUREMENT)	TYPES OF ANALYSES PERFORMED	NUMBER OF ANALYSES PERFORMED	REQUIRED LOWER LIMIT OF DETECTION (LLD)	INDICATOR LOCATIONS MEAN (F) RANGE	CONTROL LOCATION MEAN (F) RANGE	LOCATION WITH HIGHEST ANNUAL MEAN: MEAN (F) RANGE	LOCATION WITH HIGHEST ANNUAL MEAN: STATION # NAME DISTANCE AND DIRECTION	NUMBER OF NONROUTINE REPORTED MEASUREMENTS
EFFLUENT WATER (PCI/LITER)	GAMMA	12						
	MN-54		N/A	5 (0/12) (<3/<6)	N/A	5 (0/12) (<3/<6)	K1-1 INDICATOR MAIN STATION LIQ. DISCHARGE 0.2 MILES SSW ON SITE	0
	CO-58		N/A	4 (0/12) (<3/<5)	N/A	4 (0/12) (<3/<5)	K1-1 INDICATOR MAIN STATION LIQ. DISCHARGE 0.2 MILES SSW ON SITE	0
	FE-59		N/A	9 (0/12) (<6/<11)	N/A	9 (0/12) (<6/<11)	K1-1 INDICATOR MAIN STATION LIQ. DISCHARGE 0.2 MILES SSW ON SITE	0
	CO-60		N/A	4 (0/12) (<3/<6)	N/A	4 (0/12) (<3/<6)	K1-1 INDICATOR MAIN STATION LIQ. DISCHARGE 0.2 MILES SSW ON SITE	0
	ZN-65		N/A	9 (0/12) (<6/<11)	N/A	9 (0/12) (<6/<11)	K1-1 INDICATOR MAIN STATION LIQ. DISCHARGE 0.2 MILES SSW ON SITE	0
	NB-95		N/A	5 (0/12) (<4/<7)	N/A	5 (0/12) (<4/<7)	K1-1 INDICATOR MAIN STATION LIQ. DISCHARGE 0.2 MILES SSW ON SITE	0
	ZR-95		N/A	8 (0/12) (<6/<12)	N/A	8 (0/12) (<6/<12)	K1-1 INDICATOR MAIN STATION LIQ. DISCHARGE 0.2 MILES SSW ON SITE	0
	CS-134		N/A	4 (0/12) (<3/<5)	N/A	4 (0/12) (<3/<5)	K1-1 INDICATOR MAIN STATION LIQ. DISCHARGE 0.2 MILES SSW ON SITE	0

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Name of Facility:	THREE MILE ISLAND NUCLEAR STATION				DOCKET NUMBER:		50-289 & 50-320	
Location of Facility:	MIDDLETOWN COUNTY, PA				REPORTING PERIOD:		2005	
				INDICATOR LOCATIONS	CONTROL LOCATION	LOCATION WITH HIGHEST ANNUAL MEAN		
MEDIUM OR PATHWAY SAMPLED (UNIT OF MEASUREMENT)	TYPES OF ANALYSES PERFORMED	NUMBER OF ANALYSES PERFORMED	REQUIRED LOWER LIMIT OF DETECTION (LLD)	MEAN (F) RANGE	MEAN (F) RANGE	MEAN (F) RANGE	STATION # NAME DISTANCE AND DIRECTION	NUMBER OF NONROUTINE REPORTED MEASUREMENTS
EFFLUENT WATER (PCI/LITER)	CS-137		N/A	5 (0/12) (<3/<6)	N/A	5 (0/12) (<3/<6)	K1-1 INDICATOR MAIN STATION LIQ. DISCHARGE 0.2 MILES SSW ON SITE	0
	BA-140		N/A	23 (0/12) (<17/<29)	N/A	23 (0/12) (<17/<29)	K1-1 INDICATOR MAIN STATION LIQ. DISCHARGE 0.2 MILES SSW ON SITE	0
	LA-140		N/A	7 (0/12) (<5/<10)	N/A	7 (0/12) (<5/<10)	K1-1 INDICATOR MAIN STATION LIQ. DISCHARGE 0.2 MILES SSW ON SITE	0
STORM WATER (PCI/LITER)	TRITIUM	4	N/A	287 (3/4) (<167/393)	N/A	287 (3/4) (<167/393)	EDCB INDICATOR STORM WATER BASIN 0.2 MILES SE ON SITE	0
	GAMMA	4						
	MN-54		N/A	4 (0/4) (<3/<5)	N/A	5 (0/2) (<4/<5)	EDCB INDICATOR STORM WATER BASIN 0.2 MILES SE ON SITE	0
	CO-58		N/A	4 (0/4) (<3/<6)	N/A	5 (0/2) (<3/<6)	EDCB INDICATOR STORM WATER BASIN 0.2 MILES SE ON SITE	0
	FE-59		N/A	8 (0/4) (<6/<11)	N/A	10 (0/2) (<9/<11)	EDCB INDICATOR STORM WATER BASIN 0.2 MILES SE ON SITE	0

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Location of Facility:	MIDDLETOWN COUNTY, PA				REPORTING PERIOD:	2005		
				INDICATOR LOCATIONS	CONTROL LOCATION	LOCATION WITH HIGHEST ANNUAL MEAN		
MEDIUM OR PATHWAY SAMPLED (UNIT OF MEASUREMENT)	TYPES OF ANALYSES PERFORMED	NUMBER OF ANALYSES PERFORMED	REQUIRED LOWER LIMIT OF DETECTION (LLD)	MEAN (F) RANGE	MEAN (F) RANGE	MEAN (F) RANGE	STATION # NAME DISTANCE AND DIRECTION	NUMBER OF NONROUTINE REPORTED MEASUREMENTS
STORM WATER (PCI/LITER)	CO-60		N/A	5 (0/4) (<3/<7)	N/A	7 (0/2) (<6/<7)	EDCB INDICATOR STORM WATER BASIN 0.2 MILES SE ON SITE	0
	ZN-65		N/A	9 (0/4) (<7/<11)	N/A	10 (0/2) (<9/<11)	EDCB INDICATOR STORM WATER BASIN 0.2 MILES SE ON SITE	0
	NB-95		N/A	4 (0/4) (<3/<5)	N/A	5 (0/2) (<4/<5)	EDCB INDICATOR STORM WATER BASIN 0.2 MILES SE ON SITE	0
	ZR-95		N/A	7 (0/4) (<6/<9)	N/A	7 (0/2) (<7/<8)	EDCB INDICATOR STORM WATER BASIN 0.2 MILES SE ON SITE	0
	CS-134		N/A	4 (0/4) (<3/<4)	N/A	4 (0/2) (<4/<4)	EDCB INDICATOR STORM WATER BASIN 0.2 MILES SE ON SITE	0
	CS-137		N/A	5 (0/4) (<3/<7)	N/A	6 (0/2) (<5/<7)	EDCB INDICATOR STORM WATER BASIN 0.2 MILES SE ON SITE	0
	BA-140		N/A	19 (0/4) (<16/<24)	N/A	21 (0/2) (<19/<24)	EDCB INDICATOR STORM WATER BASIN 0.2 MILES SE ON SITE	0
	LA-140		N/A	5 (0/4) (<4/<6)	N/A	6 (0/2) (<5/<6)	EDCB INDICATOR STORM WATER BASIN 0.2 MILES SE ON SITE	0

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Location of Facility: MIDDLETOWN COUNTY, PA — **REPORTING PERIOD:** 2005

MEDIUM OR PATHWAY SAMPLED (UNIT OF MEASUREMENT)	TYPES OF ANALYSES PERFORMED	NUMBER OF ANALYSES PERFORMED	REQUIRED LOWER LIMIT OF DETECTION (LLD)	INDICATOR LOCATIONS MEAN (F) RANGE	CONTROL LOCATION MEAN (F) RANGE	LOCATION WITH HIGHEST ANNUAL MEAN: MEAN (F) RANGE	LOCATION WITH HIGHEST ANNUAL MEAN: STATION # NAME DISTANCE AND DIRECTION	NUMBER OF NONROUTINE REPORTED MEASUREMENTS
GROUND WATER (PCI/LITER)	H-3	55	N/A	955 (43/55) (<103/18500)	N/A	9613 (2/2) (725/18500)	RW-2 INDICATOR ONSITE WELL	0
	SR-90	6	N/A	0.3 (0/6) (< 0.3/< 0.4)	N/A	0.4 (0/1) (< 0.4)	MS-5 INDICATOR ONSITE WELL	0
	GAMMA	18						
	MN-54		N/A	3 (0/18) (<1/<8)	N/A	7 (0/1) (<7)	N2-1 INDICATOR GOLDSBORO MARINA 1.2 MILES W OF SITE	0
	CO-58		N/A	4 (0/18) (<1/<7)	N/A	7 (0/1) (<7)	N2-1 INDICATOR GOLDSBORO MARINA 1.2 MILES W OF SITE	0
	FE-59		N/A	8 (0/18) (<4/<18)	N/A	14 (0/1) (<14)	N2-1 INDICATOR GOLDSBORO MARINA 1.2 MILES W OF SITE	0
	CO-60		N/A	4 (0/18) (<1/<9)	N/A	7 (0/1) (<7)	N2-1 INDICATOR GOLDSBORO MARINA 1.2 MILES W OF SITE	0
	ZN-65		N/A	7 (0/18) (<2/<15)	N/A	13 (0/1) (<13)	N2-1 INDICATOR GOLDSBORO MARINA 1.2 MILES W OF SITE	0

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Name of Facility: THREE MILE ISLAND NUCLEAR STATION — **DOCKET NUMBER:** 50-289 & 50-320

Location of Facility: MIDDLETOWN COUNTY, PA — **REPORTING PERIOD:** 2005

MEDIUM OR PATHWAY SAMPLED (UNIT OF MEASUREMENT)	TYPES OF ANALYSES PERFORMED	NUMBER OF ANALYSES PERFORMED	REQUIRED LOWER LIMIT OF DETECTION (LLD)	INDICATOR LOCATIONS MEAN (F) RANGE	CONTROL LOCATION MEAN (F) RANGE	LOCATION WITH HIGHEST ANNUAL MEAN: MEAN (F) RANGE	LOCATION WITH HIGHEST ANNUAL MEAN: STATION # NAME DISTANCE AND DIRECTION	NUMBER OF NONROUTINE REPORTED MEASUREMENTS
GROUND WATER (PCI/LITER)	NB-95		N/A	4 (0/18) (<1/<11)	N/A	7 (0/4) (<3/<11)	OSF INDICATOR ONSITE WELL	0
	ZR-95		N/A	7 (0/18) (<3/<14)	N/A	14 (0/1) (<14)	N2-1 INDICATOR GOLDSBORO MARINA 1.2 MILES W OF SITE	0
	CS-134		N/A	3 (0/18) (<1/<8)	N/A	7 (0/1) (<7)	N2-1 INDICATOR GOLDSBORO MARINA 1.2 MILES W OF SITE	0
	CS-137		N/A	3 (0/18) (<1/<8)	N/A	7 (0/1) (<7)	N2-1 INDICATOR GOLDSBORO MARINA 1.2 MILES W OF SITE	0
	BA-140		N/A	34 (0/18) (<11/<46)	N/A	45 (0/1) (<45)	MS-5 INDICATOR ONSITE WELL	0
	LA-140		N/A	11 (0/18) (<3/<15)	N/A	15 (0/1) (<15)	OS-14 INDICATOR ONSITE WELL	0
BOTTOM FEEDER (FISH) (PCI/KG WET)	SR-89	4	N/A	18 (0/2) (<15/<21)	18 (0/2) (<16/<20)	18 (0/2) (<15/<21)	INDB INDICATOR YORK HAVEN DAM DOWNSTREAM OF DISCHARGE	0
	SR-90	4	10	2 (0/2) (<2/<3)	4 (0/2) (<4/<4)	4 (0/2) (<4/<4)	BKGB CONTROL CITY ISLAND UPSTREAM OF DISCHARGE	0

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MEDIUM OR PATHWAY SAMPLED (UNIT OF MEASUREMENT)	TYPES OF ANALYSES PERFORMED	NUMBER OF ANALYSES PERFORMED	REQUIRED LOWER LIMIT OF DETECTION (LLD)	INDICATOR LOCATIONS MEAN (F) RANGE	CONTROL LOCATION MEAN (F) RANGE	LOCATION WITH HIGHEST ANNUAL MEAN: MEAN (F) RANGE	LOCATION WITH HIGHEST ANNUAL MEAN: STATION # NAME DISTANCE AND DIRECTION	NUMBER OF NONROUTINE REPORTED MEASUREMENTS
BOTTOM FEEDER (FISH) (PCI/KG WET)	GAMMA	4						
	K-40		N/A	2925 (2/2) (2400/3450)	2320 (2/2) (2290/2350)	2925 (2/2) (2400/3450)	INDB INDICATOR YORK HAVEN DAM DOWNSTREAM OF DISCHARGE	0
	MN-54		130	35 (0/2) (<28/<42)	31 (0/2) (<26/<35)	35 (0/2) (<28/<42)	INDB INDICATOR YORK HAVEN DAM DOWNSTREAM OF DISCHARGE	0
	CO-58		130	39 (0/2) (<29/<48)	22 (0/2) (<15/<28)	39 (0/2) (<29/<48)	INDB INDICATOR YORK HAVEN DAM DOWNSTREAM OF DISCHARGE	0
	FE-59		260	70 (0/2) (<68/<72)	61 (0/2) (<39/<83)	70 (0/2) (<68/<72)	INDB INDICATOR YORK HAVEN DAM DOWNSTREAM OF DISCHARGE	0
	CO-60		130	35 (0/2) (<27/<44)	34 (0/2) (<33/<35)	35 (0/2) (<27/<44)	INDB INDICATOR YORK HAVEN DAM DOWNSTREAM OF DISCHARGE	0
	ZN-65		260	81 (0/2) (<73/<89)	54 (0/2) (<34/<74)	81 (0/2) (<73/<89)	INDB INDICATOR YORK HAVEN DAM DOWNSTREAM OF DISCHARGE	0
	CS-134		130	37 (0/2) (<33/<41)	26 (0/2) (<21/<30)	37 (0/2) (<33/<41)	INDB INDICATOR YORK HAVEN DAM DOWNSTREAM OF DISCHARGE	0
	CS-137		150	42 (0/2) (<36/<48)	32 (0/2) (<24/<41)	42 (0/2) (<36/<48)	INDB INDICATOR YORK HAVEN DAM DOWNSTREAM OF DISCHARGE	0

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Location of Facility: MIDDLETOWN COUNTY, PA — **REPORTING PERIOD:** 2005

MEDIUM OR PATHWAY SAMPLED (UNIT OF MEASUREMENT)	TYPES OF ANALYSES PERFORMED	NUMBER OF ANALYSES PERFORMED	REQUIRED LOWER LIMIT OF DETECTION (LLD)	INDICATOR LOCATIONS MEAN (F) RANGE	CONTROL LOCATION MEAN (F) RANGE	LOCATION WITH HIGHEST ANNUAL MEAN: MEAN (F) RANGE	LOCATION WITH HIGHEST ANNUAL MEAN: STATION # NAME DISTANCE AND DIRECTION	NUMBER OF NONROUTINE REPORTED MEASUREMENTS
PREDATOR (FISH) (PCI/KG WET)	SR-89	4	N/A	18 (0/2) (<16/<19)	18 (0/2) (<17/<19)	18 (0/2) (<17/<19)	BKGP CONTROL CITY ISLAND UPSTREAM OF DISCHARGE	0
	SR-90	4	10	4 (0/2) (<4/<5)	3 (0/2) (<2/<3)	4 (0/2) (<4/<5)	INDP INDICATOR YORK HAVEN DAM DOWNSTREAM OF DISCHARGE	0
	GAMMA K-40	4	N/A	2985 (2/2) (2890/3080)	3640 (2/2) (3260/4020)	3640 (2/2) (3260/4020)	BKGP CONTROL CITY ISLAND UPSTREAM OF DISCHARGE	0
	MN-54		130	38 (0/2) (<20/<55)	30 (0/2) (<21/<38)	38 (0/2) (<20/<55)	INDP INDICATOR YORK HAVEN DAM DOWNSTREAM OF DISCHARGE	0
	CO-58		130	38 (0/2) (<14/<63)	33 (0/2) (<24/<41)	38 (0/2) (<14/<63)	INDP INDICATOR YORK HAVEN DAM DOWNSTREAM OF DISCHARGE	0
	FE-59		260	75 (0/2) (<51/<99)	78 (0/2) (<45/<112)	78 (0/2) (<45/<112)	BKGP CONTROL CITY ISLAND UPSTREAM OF DISCHARGE	0
	CO-60		130	46 (0/2) (<38/<55)	39 (0/2) (<29/<48)	46 (0/2) (<38/<55)	INDP INDICATOR YORK HAVEN DAM DOWNSTREAM OF DISCHARGE	0
	ZN-65		260	89 (0/2) (<56/<123)	74 (0/2) (<52/<97)	89 (0/2) (<56/<123)	INDP INDICATOR YORK HAVEN DAM DOWNSTREAM OF DISCHARGE	

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Name of Facility:	THREE MILE ISLAND NUCLEAR STATION				DOCKET NUMBER:		50-289 & 50-320	
Location of Facility:	MIDDLETOWN COUNTY, PA				REPORTING PERIOD:		2005	
				INDICATOR LOCATIONS	CONTROL LOCATION	LOCATION WITH HIGHEST ANNUAL MEAN		
MEDIUM OR PATHWAY SAMPLED (UNIT OF MEASUREMENT)	TYPES OF ANALYSES PERFORMED	NUMBER OF ANALYSES PERFORMED	REQUIRED LOWER LIMIT OF DETECTION (LLD)	MEAN (F) RANGE	MEAN (F) RANGE	MEAN (F) RANGE	STATION # NAME DISTANCE AND DIRECTION	NUMBER OF NONROUTINE REPORTED MEASUREMENTS
PREDATOR (FISH) (PCI/KG WET)	CS-134		130	43 (0/2) (<23/<63)	30 (0/2) (<23/<38)	43 (0/2) (<23/<63)	INDP INDICATOR YORK HAVEN DAM DOWNSTREAM OF DISCHARGE	0
	CS-137		150	44 (0/2) (<28/<60)	32 (0/2) (<24/<39)	44 (0/2) (<28/<60)	INDP INDICATOR YORK HAVEN DAM DOWNSTREAM OF DISCHARGE	0
SEDIMENT (PCI/KG DRY)	GAMMA	7						
	K-40		N/A	9844 (4/5) (<4470/16300)	8215 (2/2) (7720/8710)	16300 (1/1) (16300)	J2-1 INDICATOR YORK HAVEN DAM 1.5 MILES S OF SITE	0
	MN-54		N/A	57 (0/5) (<36/<95)	36 (0/2) (<31/<41)	95 (0/1) (<95)	EDCB INDICATOR STORM WATER BASIN 0.2 MILES SE ON SITE	0
	CO-58		N/A	54 (0/5) (<41/<85)	33 (0/2) (<27/<38)	85 (0/1) (<85)	EDCB INDICATOR STORM WATER BASIN 0.2 MILES SE ON SITE	0
	CO-60		N/A	57 (0/5) (<34/<112)	39 (0/2) (<35/<43)	112 (0/1) (<112)	EDCB INDICATOR STORM WATER BASIN 0.2 MILES SE ON SITE	0
	CS-134		150	51 (0/5) (<33/<80)	32 (0/2) (<31/<32)	80 (0/1) (<80)	EDCB INDICATOR STORM WATER BASIN 0.2 MILES SE ON SITE	0
	CS-137		180	162 (5/5) (98/294)	42 (1/2) (<41/42)	294 (1/1) (294)	EDCB INDICATOR STORM WATER BASIN 0.2 MILES SE ON SITE	0

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Name of Facility: THREE MILE ISLAND NUCLEAR STATION — **DOCKET NUMBER:** 50-289 & 50-320
Location of Facility: MIDDLETOWN COUNTY, PA — **REPORTING PERIOD:** 2005

MEDIUM OR PATHWAY SAMPLED (UNIT OF MEASUREMENT)	TYPES OF ANALYSES PERFORMED	NUMBER OF ANALYSES PERFORMED	REQUIRED LOWER LIMIT OF DETECTION (LLD)	INDICATOR LOCATIONS MEAN (F) RANGE	CONTROL LOCATION MEAN (F) RANGE	LOCATION WITH HIGHEST ANNUAL MEAN: MEAN (F) RANGE	LOCATION WITH HIGHEST ANNUAL MEAN: STATION # NAME DISTANCE AND DIRECTION	NUMBER OF NONROUTINE REPORTED MEASUREMENTS
AIR PARTICULATE (E-3 PCI/CU.METER)	GROSS BETA	364	10	17 (300/312) (<6/37)	17 (49/52) (<6/34)	18 (50/52) (<7/36)	A3-1 INDICATOR MIDDLETOWN 2.6 MILES N OF SITE	0
	GAMMA	28						
	BE-7		N/A	65 (23/24) (<21/88)	71 (4/4) (54/96)	71 (4/4) (63/82)	F1-3 INDICATOR 500 KV SUBSTATION 0.6 MLES ESE OF SITE	0
	MN-54		N/A	1.6 (0/24) (< 0.6/< 3.1)	1.8 (0/4) (< 1.1/< 2.5)	1.8 (0/4) (< 0.9/< 3.1)	H3-1 INDICATOR FALMOUTH-COLLINS SUBSTATION 2.3 MILES SSE OF SITE	0
	CO-58		N/A	2.0 (0/24) (< 0.6/< 4.0)	2.0 (0/4) (< 1.3/< 2.7)	2.3 (0/4) (< 1.0/< 4.0)	H3-1 INDICATOR FALMOUTH-COLLINS SUBSTATION 2.3 MILES SSE OF SITE	0
	CO-60		N/A	1.7 (0/24) (< 0.8/< 3.7)	1.9 (0/4) (< 1.1/< 2.9)	1.9 (0/4) (< 1.1/< 2.9)	Q15-1 CONTROL WEST FAIRVIEW 13.5 MILES NW OF SITE	0
	CS-134		50	1.5 (0/24) (< 0.5/< 3.5)	1.6 (0/4) (< 1.0/< 2.7)	1.7 (0/4) (< 0.7/< 3.0)	H3-1 INDICATOR FALMOUTH-COLLINS SUBSTATION 2.3 MILES SSE OF SITE	0
	CS-137		60	1.5 (0/24) (< 0.6/< 3.5)	1.7 (0/4) (< 1.2/< 2.4)	1.7 (0/4) (< 0.9/< 3.1)	H3-1 INDICATOR FALMOUTH-COLLINS SUBSTATION 2.3 MILES SSE OF SITE	0
AIR IODINE (E-3 PCI/CU.METER)	I-131	364	70	23 (0/312) (<7/<60)	23 (0/52) (<12/<50)	23 (0/52) (<12/<50)	Q15-1 CONTROL WEST FAIRVIEW 13.5 MILES NW OF SITE	0

* THE MEAN AND 2 STANDARD DEVIATION VALUES ARE CALCULATED USING BOTH THE MDAs AND THE POSITIVE VALUES
FRACTION OF DETECTABLE MEASUREMENTS AT SPECIFIED LOCATIONS IS INDICATED IN PARENTHESES (F)

TABLE A-1 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM ANNUAL SUMMARY FOR THE THREE MILE ISLAND NUCLEAR STATION, 2005

Name of Facility:	THREE MILE ISLAND NUCLEAR STATION				DOCKET NUMBER:		50-289 & 50-320	
Location of Facility:	MIDDLETOWN COUNTY, PA				REPORTING PERIOD:		2005	
				INDICATOR LOCATIONS	CONTROL LOCATION	LOCATION WITH HIGHEST ANNUAL MEAN		
MEDIUM OR PATHWAY SAMPLED (UNIT OF MEASUREMENT)	TYPES OF ANALYSES PERFORMED	NUMBER OF ANALYSES PERFORMED	REQUIRED LOWER LIMIT OF DETECTION (LLD)	MEAN (F) RANGE	MEAN (F) RANGE	MEAN (F) RANGE	STATION # NAME DISTANCE AND DIRECTION	NUMBER OF NONROUTINE REPORTED MEASUREMENTS
MILK (PCI/LITER)	I-131	96	1	0.5 (0/73) (< 0.2/< 1.0)	0.5 (0/23) (< 0.3/< 1.0)	0.5 (0/23) (< 0.2/< 1.0)	K15-3 CONTROL MEYER'S FARM 14.5 SSW OF SITE	0
	SR-89	20	N/A	2.1 (0/16) (< 0.9/< 4.2)	2.0 (0/4) (< 0.9/< 3.4)	2.4 (0/4) (< 0.9/< 4.2)	E2-2 INDICATOR NISSLEY FARM 1.1 MILES E OF SITE	0
	SR-90	20	2	0.8 (15/16) (0.3/ 2.5)	0.6 (3/4) (< 0.3/ 0.7)	1.2 (3/4) (0.4/ 2.5)	F4-1 CONTROL TURNPIKE ROAD FARM 3.0 MILES ESE OF SITE	0
	GAMMA	96						
	K-40		N/A	1284 (73/73) (944/1680)	1360 (23/23) (1210/1530)	1398 (4/4) (1360/1450)	F4-1 CONTROL TURNPIKE ROAD FARM 3.0 MILES ESE OF SITE	0
	CS-134		15	5 (0/73) (<1/<11)	5 (0/23) (<1/<9)	7 (0/4) (<5/<8)	F4-1 CONTROL TURNPIKE ROAD FARM 3.0 MILES ESE OF SITE	0
	CS-137		18	6 (0/73) (<2/<13)	6 (0/23) (<2/<10)	8 (0/4) (<7/<10)	F4-1 CONTROL TURNPIKE ROAD FARM 3.0 MILES ESE OF SITE	0
	BA-140		60	26 (0/73) (<7/<45)	24 (0/23) (<10/<45)	32 (0/4) (<26/<38)	F4-1 CONTROL TURNPIKE ROAD FARM 3.0 MILES ESE OF SITE	0
	LA-140		15	8 (0/73) (<2/<15)	7 (0/23) (<3/<11)	10 (0/4) (<6/<13)	F4-1 CONTROL TURNPIKE ROAD FARM 3.0 MILES ESE OF SITE	0

* THE MEAN AND 2 STANDARD DEVIATION VALUES ARE CALCULATED USING BOTH THE MDAs AND THE POSITIVE VALUES
FRACTION OF DETECTABLE MEASUREMENTS AT SPECIFIED LOCATIONS IS INDICATED IN PARENTHESES (F)

TABLE A-1 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM ANNUAL SUMMARY FOR THE THREE MILE ISLAND NUCLEAR STATION, 2005

Name of Facility: THREE MILE ISLAND NUCLEAR STATION — **DOCKET NUMBER:** 50-289 & 50-320
Location of Facility: MIDDLETOWN COUNTY, PA — **REPORTING PERIOD:** 2005

MEDIUM OR PATHWAY SAMPLED (UNIT OF MEASUREMENT)	TYPES OF ANALYSES PERFORMED	NUMBER OF ANALYSES PERFORMED	REQUIRED LOWER LIMIT OF DETECTION (LLD)	INDICATOR LOCATIONS MEAN (F) RANGE	CONTROL LOCATION MEAN (F) RANGE	LOCATION WITH HIGHEST ANNUAL MEAN: MEAN (F) RANGE	LOCATION WITH HIGHEST ANNUAL MEAN: STATION # NAME DISTANCE AND DIRECTION	NUMBER OF NONROUTINE REPORTED MEASUREMENTS
FOOD PRODUCT (PCI/KG WET)	SR-90	2	10	4 (0/1) (<4)	4 (0/1) (<4)	4 (0/1) (<4)	E1-2 INDICATOR TMI VISITOR'S CENTER 0.4 MILES E OF SITE	0
	GAMMA	8						
	K-40		N/A	2783 (4/4) (2190/4030)	2238 (4/4) (1790/2840)	4030 (1/1) (4030)	E1-2 INDICATOR TMI VISITOR'S CENTER 0.4 MILES E OF SITE	0
	I-131		60	30 (0/4) (<20/<42)	28 (0/4) (<22/<42)	42 (0/1) (<42)	E1-2 INDICATOR TMI VISITOR'S CENTER 0.4 MILES E OF SITE	0
	CS-134		60	15 (0/4) (<13/<17)	16 (0/4) (<12/<20)	20 (0/1) (<20)	B10-2 CONTROL MILTON HERSHEY SCHOOL 10.3 MILES NNE OF SITE	0
	CS-137		80	17 (0/4) (<12/<20)	19 (0/4) (<14/<23)	20 (0/1) (<23)	B10-2 CONTROL MILTON HERSHEY SCHOOL 10.3 MILES NNE OF SITE	0
DIRECT RADIATION (MILLI-ROENTGEN/STD.MO.	TLD-QUARTERLY	356	N/A	4.0 (315/315) (2.0/7.7)	4.6 (43/43) (3.3/7.0)	6.9 (4/4) (6.2/7.7)	H8-1 INDICATOR SAGINAW ROAD 7.4 MILES SSE OF SITE	0

* THE MEAN AND 2 STANDARD DEVIATION VALUES ARE CALCULATED USING BOTH THE MDAs AND THE POSITIVE VALUES
FRACTION OF DETECTABLE MEASUREMENTS AT SPECIFIED LOCATIONS IS INDICATED IN PARENTHESES (F)

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APPENDIX B

LOCATION DESIGNATION, DISTANCE & DIRECTION, AND SAMPLE COLLECTION & ANALYTICAL METHODS

TABLE B-1: Location Designation and Identification System for the Three Mile Island Nuclear Station

XYY-Z- General code for identification of locations, where:

X - Angular Sector of Sampling Location. The compass is divided into 16 sectors of 22 1/2 degrees each with center at Three Mile Island's Units 1 and 2 off-gas vents. Sector A is centered due North, and others are alphabetical in a clockwise direction.

YY - Radial Zone of Sampling Location in miles.

Z - Station's Numerical Designation within sector and zone, using 1, 2, 3... in each sector and zone.

TABLE B-2: Radiological Environmental Monitoring Program - Sampling Locations, Distance and Direction, Three Mile Island Nuclear Station, 2005

Sample Medium	Station Code	Map Number	Distance*	Azimuth	Description
AQS	A1-3	16	0.5 mi	0°	N of site off north tip of TMI in Susquehanna River
ID	A1-4	113	0.3	5	N of Reactor Building on W fence adjacent to North Weather Station, TMI
AP,AI,ID	A3-1	39	2.6	358	N of site at Mill Street Substation
SW	A3-2	40	2.5	355	N of site at Swatara Creek, Middletown
ID	A5-1	44	4.3	3	N of site on Vine Street Exit off Route 283
ID	A9-3	127	8.1	3	N of site at Duke Street Pumping Station, Hummelstown
ID	B1-1	2	0.6	25	NNE of site on light pole in middle of North Bridge, TMI
ID	B1-2	114	0.4	26	NNE of Reactor Building on top of dike, TMI
ID	B2-1	132	1.9	16	NNE of site on Sunset Dr. (off Hillsdale Rd.)
ID	B5-1	45	4.8	18	NNE of site at intersection of School House and Miller Roads
ID	B10-1	61	9.4	21	NNE of site at intersection of West Areba Avenue and Mill Street, Hershey
FP	B10-2	1	10.1	28	NNE of site at Milton Hershey School, Hershey
ID	C1-1	17	0.7	35	NE of site along Route 441 N
ID	C1-2	116	0.3	54	NE of Reactor Building on top of dike, TMI
ID	C2-1	43	1.6	48	NE of site at Middletown Junction
ID	C5-1	46	4.5	42	NE of site on Kennedy Lane
ID	C8-1	62	7.2	48	NE of site at Schenk's Church on School House Road
AQF	Control	-	-	-	All locations where finfish are collected upstream of the TMINS liquid discharge outfall (above Dock St. Dam, Harrisburg) are grouped together and referred to as "control"
GAD	Control	-	-	-	All locations greater than 10 miles from TMINS
ID	D1-1	3	0.2	74	ENE of Reactor Building on top of dike, TMI
ID	D1-2	18	0.6	60	ENE of site on Laurel Road
M	D2-1	29	1.1	65	ENE of site at farm on Gingrich Road
ID	D2-2	133	1.7	73	ENE of site along Hillsdale Rd. (S of Zion Rd.)
ID	D6-1	47	5.2	65	ENE of site off Beagle Road
ID	D15-1	80	10.9	63	ENE of site along Route 241, Lawn, PA
AP,AI,ID,GW,FP	E1-2	19	0.4	95	E of site at TMI Visitor's Center
ID	E1-4	117	0.2	98	E of Reactor Building on top of dike, TMI
M	E2-2	109	1.1	93	E of site at farm on Pecks Road
ID	E2-3	134	1.9	96	E of site along Hillsdale Rd. (N of Creek Rd.)
ID	E5-1	48	4.6	81	E of site at intersection of North Market Street (Route 230) and Zeager Road
ID	E7-1	64	6.8	86	E of site along Hummelstown Street, Elizabethtown
ID	F1-1	20	0.5	117	ESE of site near entrance to 500 kV Substation
ID	F1-2	118	0.2	109	ESE of Reactor Building on top of dike midway within Interim Solid Waste Staging Facility, TMI
AP,AI	F1-3	149	0.6	105	ESE of site in 500 kV Substation
ID	F1-4	154	0.3	115	ESE of Reactor Building on top of dike, TMI
ID	F2-1	135	1.2	120	ESE of site along Engle Road
M	F4-1	156	3.2	104	ESE of site at farm on Turnpike Road
ID	F5-1	49	4.7	107	ESE of site along Amosite Road
ID	F10-1	66	9.4	112	ESE of site along Donegal Springs Road, Donegal Springs
ID	F25-1	82	21.1	113	ESE of site at intersection of Steel Way and Loop Roads, Lancaster
ID	G1-2	22	0.6	143	SE of site along Route 441 S
ID	G1-3	119	0.3	129	SE of Reactor Building on top of dike, TMI
ID	G1-5	139	0.3	144	SE of Reactor Building on top of dike, TMI
ID	G1-6	140	0.3	141	SE of Reactor Building on top of dike, TMI
AI,AP,M	G2-1	104	1.4	125	SE of site at farm on Becker Road
ID	G2-4	136	1.7	135	SE of site on Becker Road
ID	G5-1	50	4.8	131	SE of site at intersection of Bainbridge and Risser Roads
ID	G10-1	67	9.8	127	SE of site at farm along Engles Tollgate Road, Marietta
ID	G15-1	84	14.4	124	SE of site at Columbia Water Treatment Plant
DW	G15-2	85	13.6	128	SE of site at Wrightsville Water Treatment Plant
DW	G15-3	86	14.8	124	SE of site at Lancaster Water Treatment Plant
ID	H1-1	5	0.5	167	SSE of site, TMI

TABLE B-2: Radiological Environmental Monitoring Program - Sampling Locations, Distance and Direction, Three Mile Island Nuclear Station, 2005

Sample Medium	Station Code	Map Number	Distance*	Azimuth	Description
AP,AI,ID	H3-1	41	2.3 mi	159°	SSE of site in Falmouth-Collins Substation
ID	H5-1	52	4.1	157	SSE of site by Guard Shack at Brunner Island Steam Electric Station
ID	H8-1	68	7.4	163	SSE of site along Saginaw Road, Starview
ID	H15-1	87	13.2	157	SSE of site at intersection of Orchard and Stonewood Roads, Wilshire Hills
AQF	Indicator	-	-	-	All locations where finfish are collected downstream of the TMINS liquid discharge outfall are grouped together and referred to as "indicator"
GAD	Indicator	-	-	-	All locations within ten miles of TMINS
ROD	Indicator	-	-	-	All locations where rodents are collected within the owner controlled area, TMI
ID	J1-1	6	0.8	181	S of site, TMI
SW	J1-2	23	0.5	188	S of site downstream of the TMINS liquid discharge outfall in Susquehanna River
ID	J1-3	121	0.3	189	S of Reactor Building on wooden post of Building 221, just S of Unit 2 Admin. Building, TMI
AQS	J2-1	31	1.5	182	S of site in Susquehanna River just upstream of the York Haven Dam
ID	J3-1	141	2.7	178	S of site at York Haven/Cly
ID	J5-1	53	4.9	182	S of site along Canal Road, Conewago Heights
ID	J7-1	69	6.5	177	S of site off of Maple Street, Manchester
ID	J15-1	88	12.6	180	S of site in Met-Ed York Load Dispatch Station
EW	K1-1	7	0.2	209	On site at RML-7 Main Station Discharge Building
AQS	K1-3	24	0.3	202	SSW of site in Susquehanna River
ID	K1-4	123	0.2	208	SSW of Reactor Building on top of dike behind Warehouse 2, TMI
ID	K2-1	32	1.1	200	SSW of site on S Shelley Island
ID	K3-1	142	2.1	202	SSW of site along Rt. 262, N of Cly
ID	K5-1	54	5.0	200	SSW of site along Conewago Creek Road, Strinestown
ID	K8-1	70	7.4	196	SSW of site at intersection of Coppenhaffer Road and Route 295, Zions View
ID	K15-1	90	12.7	204	SSW of site on the Bird's Nest Child Care Center Building, Weiglestown
M	K15-3	151	14.5	205	SSW of site at farm along S Salem Church Rd, Dover
ID	L1-1	9	0.1	235	SW of site on top of dike W of Mech. Draft Cooling Tower, TMI
ID	L1-2	26	0.5	221	SW of site on Beech Island
ID	L2-1	33	1.9	227	SW of site along Route 262
ID	L5-1	55	4.1	228	SW of site at intersection of Stevens and Wilson Roads
ID	L8-1	71	8.0	225	SW of site along Rohlers Church Rd., Andersontown
ID	L15-1	91	11.7	225	SW of site on W side of Route 74, rear of church, Mt. Royal
ID	M1-1	129	0.1	249	WSW of Reactor Building on SE corner of U-2 Screenhouse fence, TMI
ID	M1-2	143	0.5	241	WSW of site on W side of unnamed island between N tip of Beech Island and Shelley Island
AP,AI,ID	M2-1	34	1.3	253	WSW of site adjacent to Fishing Creek, Goldsboro
ID	M5-1	56	4.3	249	WSW of site at intersection of Lewisberry and Roxberry Roads, Newberrytown
ID	M9-1	72	8.6	242	WSW of site along Alpine Road, Maytown
ID	N1-1	10	0.7	270	W of site on Shelley Island
ID	N1-3	124	0.1	270	W of Reactor Building on fence adjacent to Screenhouse entrance gate, TMI
ID,GW	N2-1	35	1.2	262	W of site at Goldsboro Marina
ID	N5-1	57	4.9	268	W of site off of Old York Road along Robin Hood Drive
ID	N8-1	73	7.8	260	W of site along Route 382, 1/2 mile north of Lewisberry
ID	N15-2	95	10.4	274	W of site at intersection of Lisburn Road and Main Street, Lisburn
ID	P1-1	12	0.4	293	WNW of site on Shelley Island

TABLE B-2: Radiological Environmental Monitoring Program - Sampling Locations, Distance and Direction, Three Mile Island Nuclear Station, 2005

Sample Medium	Station Code	Map Number	Distance*	Azimuth	Description
ID	P1-2	38	0.2 mi	290°	WNW of Reactor Building on fence N of Unit 1 Screenhouse, TMI
ID	P2-1	36	1.9	283	WNW of site along Route 262
ID	P5-1	58	4.9	285	WNW of site at intersection of Valley Road (Route 262) and Beinhower Road
ID	P8-1	74	8.0	292	WNW of site along Evergreen Road, Reesers Summit
ID	Q1-1	13	0.5	317	NW of site on Shelley Island
ID	Q1-2	125	0.2	318	NW of Reactor Building on fence W of Warehouse 1, TMI
ID	Q2-1	37	1.8	310	NW of site along access road along river
ID	Q5-1	59	5.0	318	NW of site along Lumber Street, Highspire
SW,DW,ID	Q9-1	76	8.5	308	NW of site at the Steelton Water Company
AP,AI,ID	Q15-1	97	13.5	305	NW of site behind West Fairview Fire Dept. Social Hall
ID	R1-1	14	0.2	335	NNW of Reactor Building along W fence, TMI
ID	R1-2	27	0.7	332	NNW of site on Henry Island
ID	R3-1	107	2.6	338	NNW of site at Crawford Station, Middletown
ID	R5-1	60	4.9	339	NNW of site at interstection of Spring Garden Drive and Route 441
ID	R9-1	77	8.1	340	NNW of site at intersection of Derry and 66th Streets, Rutherford Heights
ID	R15-1	99	11.2	330	NNW of site at intersection of Route 22 and Colonial Road, Colonial Park

IDENTIFICATION KEY

ID = Immersion Dose (TLD)
SW = Surface Water
AI = Air Iodine
AP = Air Particulate
FP = Food Products (Green Leafy Vegetation, Fruits, Vegetables)

GW = Ground Water (offsite)
DW = Drinking Water
M = Milk (Cow)
GAD = Meat (Game)

AQF = Finfish
AQS = Aquatic Sediment
EW = Effluent Water
ROD = Rodents

TABLE B-3: Radiological Environmental Monitoring Program – Summary of Sample Collection and Analytical Methods, Three Mile Island Nuclear Station, 2005

Sample Medium	Analysis	Sampling Method	Collection Procedure Number	Sample Size	Analytical Procedure Number
Surface Water	Gamma Spectroscopy	Monthly composite from a continuous water compositor.	ER-TMI-06 Collection of water samples for radiological analysis (Three Mile Island Nuclear Station)	2 gallon	TBE, TBE-2007 Gamma emitting radioisotope analysis Env. Inc., GS-01 Determination of gamma emitters by gamma spectroscopy
Surface Water	Tritium	Monthly composite from a continuous water compositor.	ER-TMI-06 Collection of water samples for radiological analysis (Three Mile Island Nuclear Station)	2 gallon	TBE, TBE-2010 Tritium and carbon-14 analysis by liquid scintillation Env. Inc., T-02 Determination of tritium in water (direct method)
Surface Water	Iodine- 131	Monthly composite from a continuous water compositor.	ER-TMI-06 Collection of water samples for radiological analysis (Three Mile Island Nuclear Station)	2 gallon	TBE, TBE-2012 Radioiodine in various matrices Env. Inc., I-131-01 Determination of I-131 in milk by anion exchange
Drinking Water	Gross Beta	Monthly composite from a continuous water compositor.	ER-TMI-06 Collection of water samples for radiological analysis (Three Mile Island Nuclear Station)	2 gallon	TBE, TBE-2008 Gross alpha and/or gross beta activity in various matrices Env. Inc., W(DS)-01 Determination of gross alpha and/or gross beta in water (dissolved solids or total residue)
Drinking Water	Gamma Spectroscopy	Monthly composite from a continuous water compositor.	ER-TMI-06 Collection of water samples for radiological analysis (Three Mile Island Nuclear Station)	2 gallon	TBE, TBE-2007 Gamma emitting radioisotope analysis Env. Inc., GS-01 Determination of gamma emitters by gamma spectroscopy
Drinking Water	Tritium	Monthly composite from a continuous water compositor.	ER-TMI-06 Collection of water samples for radiological analysis (Three Mile Island Nuclear Station)	2 gallon	TBE, TBE-2010 Tritium and carbon-14 analysis by liquid scintillation Env. Inc., T-02 Determination of tritium in water (direct method)
Drinking Water	Iodine-131	Monthly composite from a continuous water compositor.	ER-TMI-06 Collection of water samples for radiological analysis (Three Mile Island Nuclear Station)	2 gallon	TBE, TBE-2012 Radioiodine in various matrices Env. Inc., I-131-01 Determination of I-131 in milk by anion exchange
ffluent Water	Iodine-131	Monthly composite from a continuous water compositor.	ER-TMI-06 Collection of water samples for radiological analysis (Three Mile Island Nuclear Station)	2 gallon	TBE, TBE-2012 Radioiodine in various matrices Env. Inc., I-131-01 Determination of I-131 in milk by anion exchange
Effluent Water	Gross Beta	Monthly composite from a continuous water compositor.	ER-TMI-06 Collection of water samples for radiological analysis (Three Mile Island Nuclear Station)	2 gallon	TBE, TBE-2008 Gross alpha and/or gross beta activity in various matrices Env. Inc., W(DS)-01 Determination of gross alpha and/or gross beta in water (dissolved solids or total residue)

TABLE B-3: Radiological Environmental Monitoring Program – Summary of Sample Collection and Analytical Methods, Three Mile Island Nuclear Station, 2005

Sample Medium	Analysis	Sampling Method	Collection Procedure Number	Sample Size	Analytical Procedure Number
Effluent Water	Gamma Spectroscopy	Monthly composite from a continuous water compositor.	ER-TMI-06 Collection of water samples for radiological analysis (Three Mile Island Nuclear Station)	2 gallon	TBE, TBE-2007 Gamma emitting radioisotope analysis Env. Inc., GS-01 Determination of gamma emitters by gamma spectroscopy
Effluent Water	Tritium	Monthly composite from a continuous water compositor.	ER-TMI-06 Collection of water samples for radiological analysis (Three Mile Island Nuclear Station)	2 gallon	TBE, TBE-2010 Tritium and carbon-14 analysis by liquid scintillation Env. Inc., T-02 Determination of tritium in water (direct method)
Effluent Water	Strontium 89/90	Semi-annual composite from monthly samples.	TBE, TBE-2023 Compositing of samples	2 gallon	TBE, TBE-2019 Radiostrontium analysis by ion exchange
Storm Water	Gamma Spectroscopy	Quarterly composite of monthly grab samples	ER-TMI-06 Collection of water samples for radiological analysis (Three Mile Island Nuclear Station)	1 gallon	TBE, TBE-2007 Gamma emitting radioisotope analysis Env. Inc., GS-01 Determination of gamma emitters by gamma spectroscopy
Storm Water	Tritium	Quarterly composite of monthly grab samples	ER-TMI-06 Collection of water samples for radiological analysis (Three Mile Island Nuclear Station)	1 gallon	TBE, TBE-2010 Tritium and carbon-14 analysis by liquid scintillation Env. Inc., T-02 Determination of tritium in water (direct method)
Ground Water	Gamma Spectroscopy	Quarterly, Semi-Annual and Annual samples	ER-TMI-10 Collection of water samples for radiological analysis (Three Mile Island Nuclear Station) TBE, TBE-2023 Compositing of samples	1 gallon	TBE, TBE-2007 Gamma emitting radioisotope analysis Env. Inc., GS-01 Determination of gamma emitters by gamma spectroscopy
Ground Water	Tritium	Quarterly, Semi-Annual and Annual samples, or as needed	EM-TMI-10 Collection of water samples for radiological analysis (Three Mile Island Nuclear Station)	I gallon or 125 mL	TBE, TBE-2010 Tritium and carbon-14 analysis by liquid scintillation Env. Inc., T-02 Determination of tritium in water (direct method)

TABLE B-3: Radiological Environmental Monitoring Program – Summary of Sample Collection and Analytical Methods, Three Mile Island Nuclear Station, 2005

Sample Medium	Analysis	Sampling Method	Collection Procedure Number	Sample Size	Analytical Procedure Number
Ground Water	Strontium 89/90	Quarterly, Semi-Annual and Annual samples	ER-TMI-10 Collection of water samples for radiological analysis (Three Mile Island Nuclear Station) TBE, TBE-2023 Compositing of samples	1 gallon	TBE, TBE-2019 Radiostrontium analysis by ion exchange
Fish	Gamma Spectroscopy	Semi-annual samples collected via electroshocking or other techniques	ER-TMI-13 Collection of fish samples for radiological analysis (Three Mile Island Nuclear Station)	1000 grams (wet)	TBE, TBE-2007 Gamma emitting radioisotope analysis Env. Inc., GS-01 Determination of gamma emitters by gamma spectroscopy
Fish	Strontium 89/90	Semi-annual samples collected via electroshocking or other techniques	ER-TMI-13 Collection of fish samples for radiological analysis (Three Mile Island Nuclear Station)	1000 grams (wet)	TBE, TBE-2019 Radiostrontium analysis by ion exchange
Sediment	Gamma Spectroscopy	Semi-annual grab samples	ER-TMI-03 Collection of sediment samples for radiological analysis (Three Mile Island Nuclear Station)	500 grams (dry)	TBE, TBE-2007 Gamma emitting radioisotope analysis Env. Inc., GS-01 Determination of gamma emitters by gamma spectroscopy
Air Particulates	Gross Beta	One-week composite of continuous air sampling through glass fiber filter paper	ER-TMI-14 Collection of air particulate and air iodine samples for radiological analysis (Three Mile Island Nuclear Station)	1 filter (approximately 280 cubic meters weekly)	TBE, TBE-2008 Gross alpha and/or gross beta activity in various matrices Env. Inc., AP-02 Determination of gross alpha and/or gross beta in air particulate filters
Air Particulates	Gamma Spectroscopy	Quarterly composite of each station	TBE, TBE-2023 Compositing of samples Env. Inc., AP-03 Procedure for compositing air particulate filters for gamma spectroscopic analysis	13 filters (approximately 3600 cubic meters)	TBE, TBE-2007 Gamma emitting radioisotope analysis Env. Inc., GS-01 Determination of gamma emitters by gamma spectroscopy
Air Iodine	Gamma Spectroscopy	One-week composite of continuous air sampling through charcoal filter	ER-TMI-14 Collection of air particulate and air iodine samples for radiological analysis (Three Mile Island Nuclear Station)	1 filter (approximately 280 cubic meters weekly)	TBE, TBE-2007 Gamma emitting radioisotope analysis Env. Inc., I-131-02 Determination of I-131 in charcoal canisters by gamma spectroscopy (batch method)
Milk	I-131	Bi-weekly grab sample when cows are on pasture. Monthly all other times	ER-TMI-01 Collection of milk samples for radiological analysis (Three Mile Island Nuclear Station)	2 gallon	TBE, TBE-2012 Radioiodine in various matrices Env. Inc., I-131-01 Determination of I-131 in milk by anion exchange
Milk	Strontium-89/90	Quarterly composite of Bi-weekly and monthly grab samples	ER-TMI-01 Collection of milk samples for radiological analysis (Three Mile Island Nuclear Station) TBE, TBE-2023 Compositing of samples	2 gallon	TBE, TBE-2019 Radiostrontium analysis by ion exchange

TABLE B-3: Radiological Environmental Monitoring Program – Summary of Sample Collection and Analytical Methods, Three Mile Island Nuclear Station, 2005

Sample Medium	Analysis	Sampling Method	Collection Procedure Number	Sample Size	Analytical Procedure Number
Milk	Gamma Spectroscopy	Bi-weekly grab sample when cows are on pasture. Monthly all other times	ER-TMI-01 Collection of milk samples for radiological analysis (Three Mile Island Nuclear Station)	2 gallon	TBE, TBE-2007 Gamma emitting radioisotope analysis Env. Inc., GS-01 Determination of gamma emitters by gamma spectroscopy
Vegetation	Gamma Spectroscopy	Annual grab sample	ER-TMI-04 Collection of vegetation samples for radiological analysis (Three Mile Island Nuclear Station)	1000 grams	TBE, TBE-2007 Gamma emitting radioisotope analysis Env. Inc., GS-01 Determination of gamma emitters by gamma spectroscopy
Vegetation	Strontium-89/90	Annual grab sample	ER-TMI-04 Collection of vegetation samples for radiological analysis (Three Mile Island Nuclear Station)	1000 grams	TBE, TBE-2019 Radiostrontium analysis by ion exchange
TLD	Thermoluminescence Dosimetry	Quarterly TLDs comprised of two Panasonic 814 (containing 4 each $CaSO_4$ elements)	ER-TMI-02 Collection of TLD samples for radiological analysis (Three Mile Island Nuclear Station)	2 badges with 3 dosimeters	Global Dosimetry Solutions, Inc.

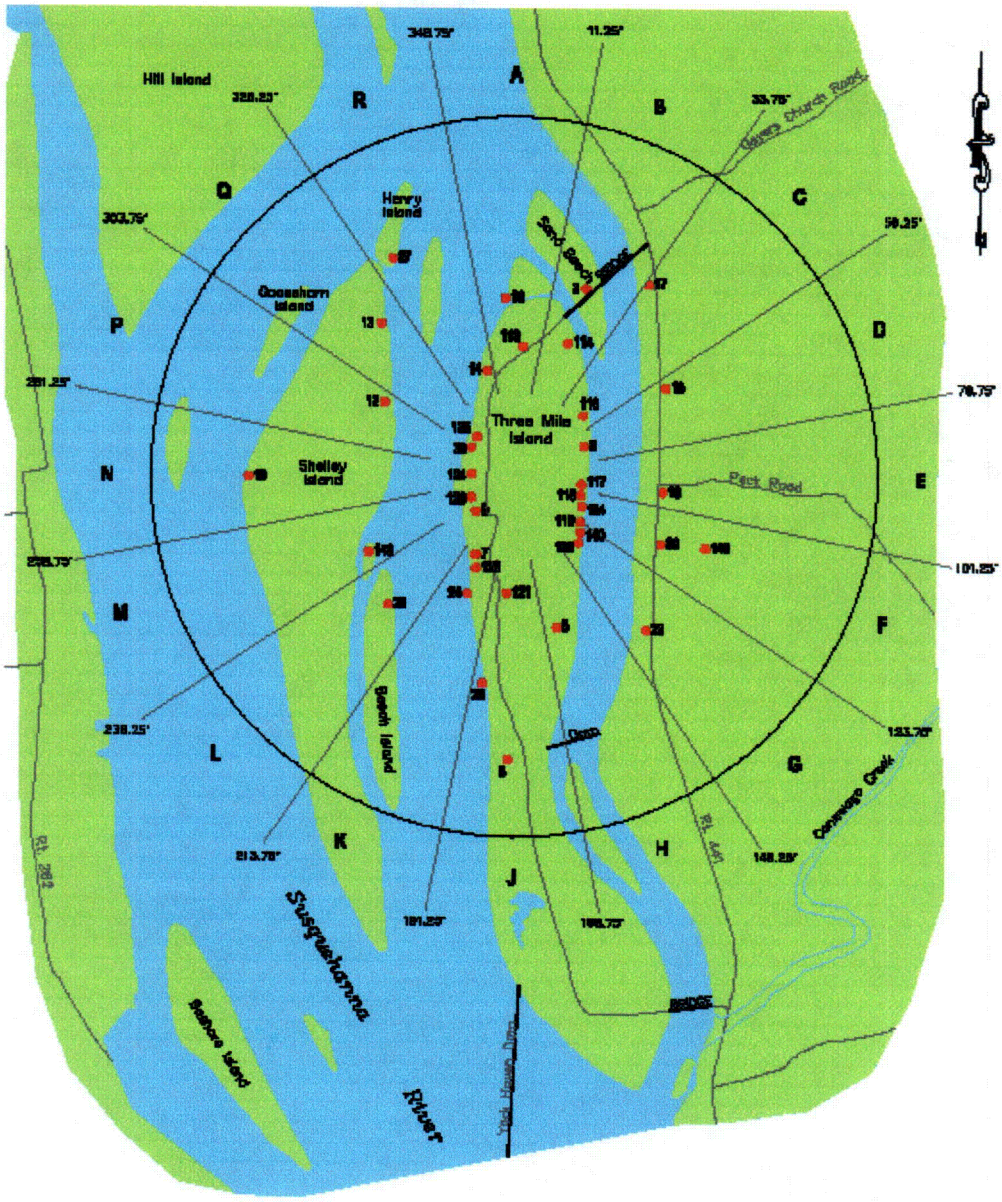


Figure B-1
Environmental Sampling Locations Within One
Mile of the Three Mile Island Nuclear Station, 2005

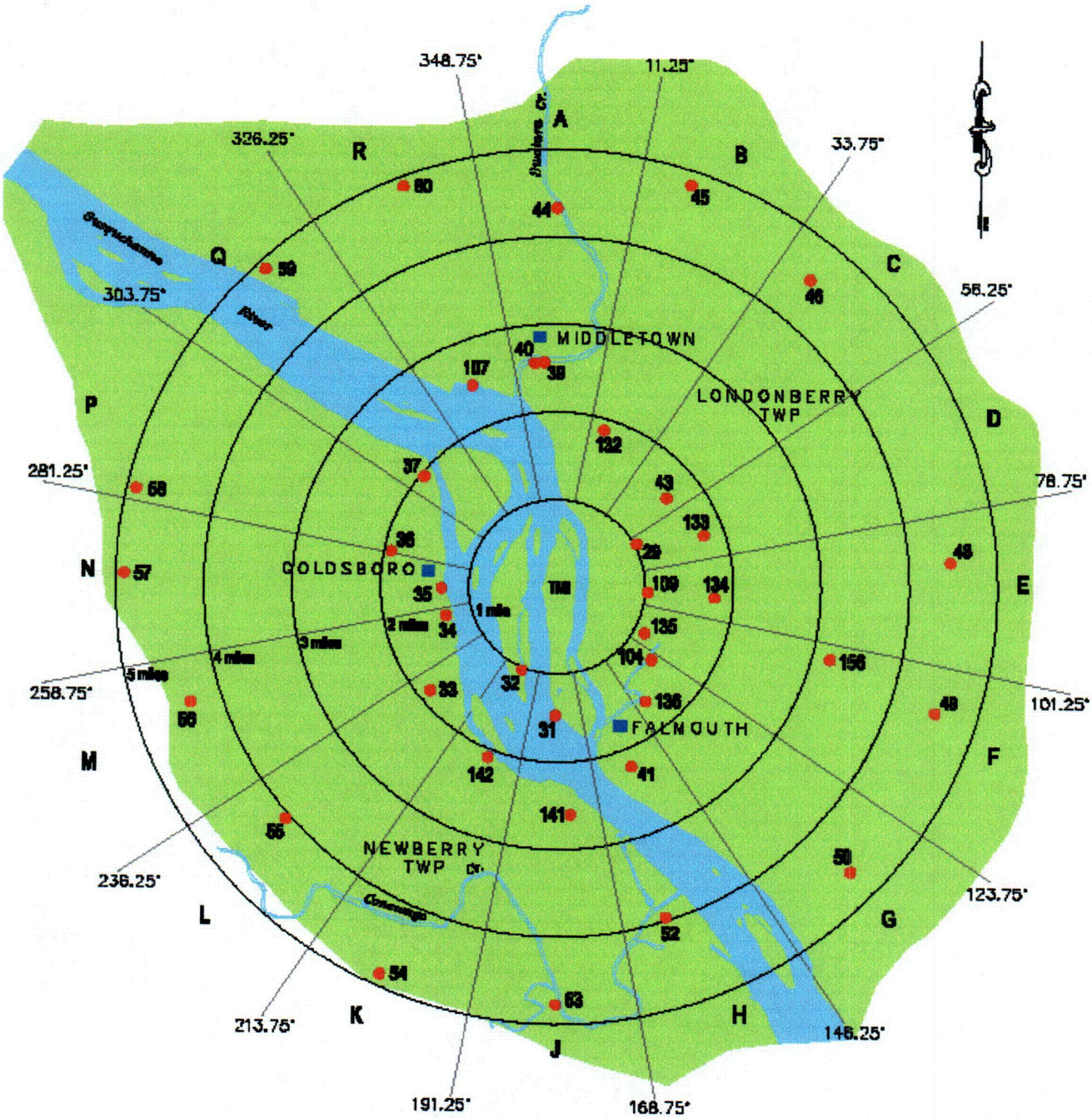


Figure B-2
Environmental Sampling Locations Between One and Five Miles of the Three Mile Island Nuclear Station, 2005

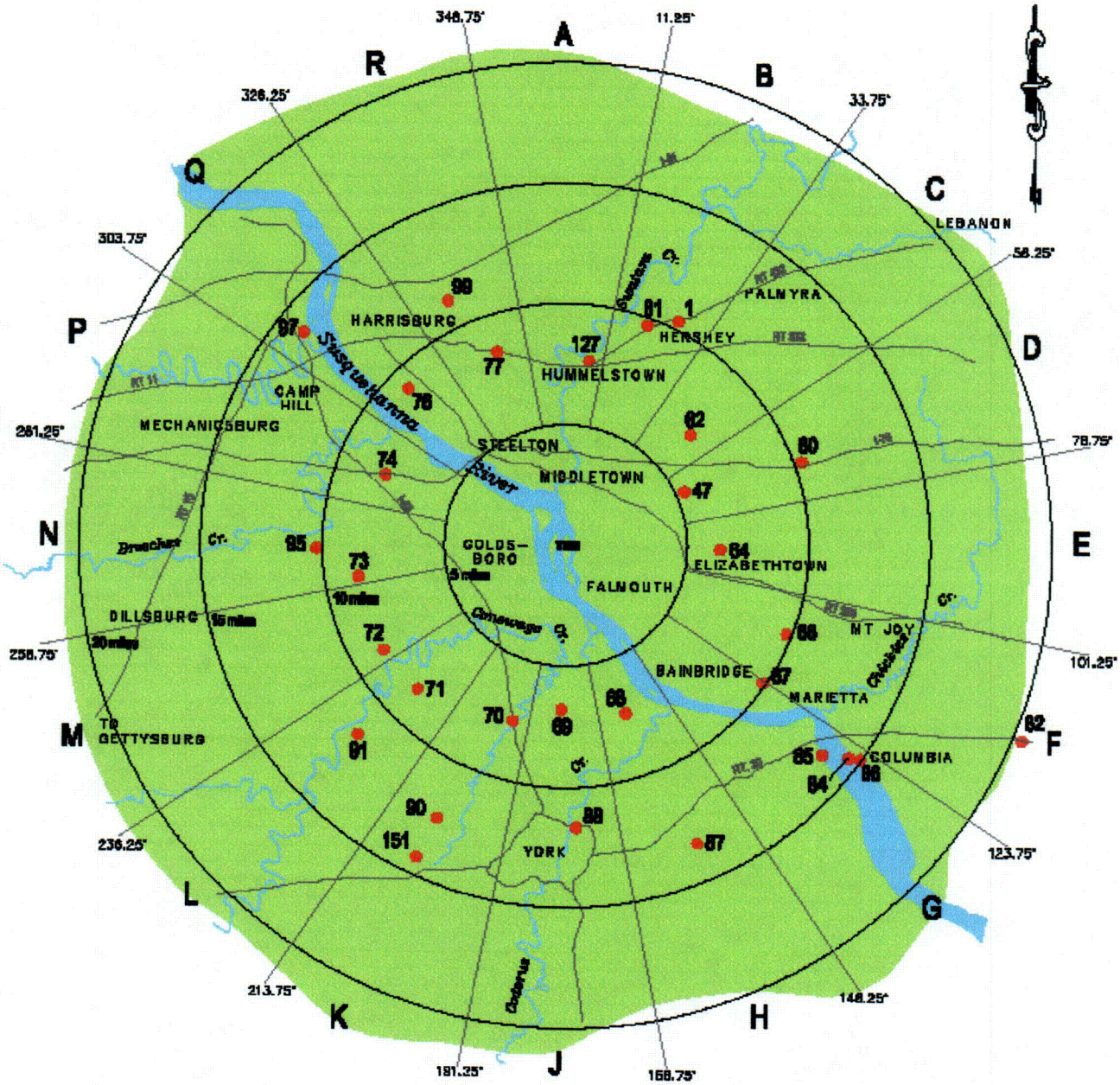


Figure B-3
Environmental Sampling Locations Greater than Five Miles of the Three Mile Island Nuclear Station, 2005

APPENDIX C

DATA TABLES AND FIGURES - PRIMARY LABORATORY

TABLE C-I.1 **CONCENTRATIONS OF TRITIUM IN SURFACE WATER SAMPLES COLLECTED IN THE VICINITY OF THREE MILE ISLAND NUCLEAR STATION, 2005**

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

COLLECTION PERIOD	J1-2	Q9-1
12/28/04 - 02/01/05	< 192	< 191
02/01/05 - 03/01/05	< 188	< 187
03/01/05 - 03/29/05	33500 ± 489	< 174
03/29/05 - 05/03/05	299 ± 113	187 ± 110
05/03/05 - 05/31/05	< 176	< 176
05/31/05 - 06/28/05	< 163	< 164
06/28/05 - 08/02/05	< 172	< 171
08/02/05 - 08/30/05	3510 ± 418	< 183
08/30/05 - 09/27/05	6060 ± 206	< 172
09/27/05 - 11/01/05	334 ± 108	< 164
11/01/05 - 11/30/05	< 174	< 172
11/30/05 - 01/03/06	< 157	< 156
MEAN	3744 ± 19103	175 ± 21

TABLE C-I.2 CONCENTRATIONS OF I-131 IN SURFACE WATER SAMPLES COLLECTED IN THE VICINITY OF THREE MILE ISLAND NUCLEAR STATION, 2005

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

COLLECTION PERIOD	A3-2
12/28/04 - 02/01/05	< 0.3
02/01/05 - 03/01/05	< 0.3
03/01/05 - 03/29/05	< 0.6
03/29/05 - 05/03/05	< 0.3
05/03/05 - 05/31/05	< 0.4
05/31/05 - 06/28/05	< 0.6
06/28/05 - 08/02/05	< 0.2
08/02/05 - 08/30/05	< 0.3
08/30/05 - 09/27/05	< 0.5
09/27/05 - 11/01/05	< 0.3
11/01/05 - 11/30/05	< 0.6
11/30/05 - 01/03/06	< 0.6
MEAN	0.4 ± 0.3

TABLE C-I.3 CONCENTRATIONS OF GAMMA EMITTERS IN SURFACE WATER SAMPLES COLLECTED IN THE VICINITY OF THREE MILE ISLAND NUCLEAR STATION, 2005

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

STC	COLLECTION PERIOD	Mn-54	Co-58	Fe-59	Co-60	Zn-65	Nb-95	Zr-95	Cs-134	Cs-137	Ba-140	La-140
J1-2	12/28/04 - 02/01/05	< 6	< 6	< 10	< 6	< 14	< 6	< 11	< 5	< 7	< 26	< 9
	02/01/05 - 03/01/05	< 4	< 4	< 8	< 3	< 9	< 4	< 6	< 2	< 4	< 22	< 5
	03/01/05 - 03/29/05	< 5	< 5	< 10	< 4	< 9	< 4	< 8	< 4	< 7	< 29	< 6
	03/29/05 - 05/03/05	< 6	< 6	< 12	< 5	< 11	< 5	< 9	< 6	< 6	< 25	< 8
	05/03/05 - 05/31/05	< 4	< 5	< 10	< 6	< 11	< 4	< 8	< 3	< 5	< 15	< 5
	05/31/05 - 06/28/05	< 6	< 7	< 15	< 8	< 15	< 7	< 16	< 5	< 6	< 40	< 9
	06/28/05 - 08/02/05	< 7	< 8	< 10	< 9	< 13	< 8	< 12	< 7	< 7	< 34	< 8
	08/02/05 - 08/30/05	< 5	< 4	< 10	< 5	< 10	< 6	< 8	< 6	< 6	< 29	< 12
	08/30/05 - 09/27/05	< 6	< 5	< 14	< 6	< 11	< 6	< 8	< 6	< 6	< 33	< 10
	09/27/05 - 11/01/05	< 4	< 5	< 10	< 4	< 9	< 6	< 9	< 4	< 5	< 25	< 7
	11/01/05 - 11/30/05	< 5	< 5	< 12	< 5	< 13	< 7	< 9	< 5	< 7	< 29	< 8
	11/30/05 - 01/03/06	< 6	< 6	< 13	< 6	< 16	< 7	< 11	< 8	< 7	< 28	< 11
	MEAN	5 ± 2	5 ± 2	11 ± 4	5 ± 3	12 ± 5	6 ± 3	10 ± 5	5 ± 3	6 ± 2	28 ± 13	8 ± 4
Q9-1	12/28/04 - 02/01/05	< 6	< 6	< 12	< 7	< 12	< 6	< 10	< 5	< 8	< 25	< 8
	02/01/05 - 03/01/05	< 4	< 5	< 11	< 6	< 8	< 5	< 8	< 5	< 4	< 23	< 7
	03/01/05 - 03/29/05	< 6	< 6	< 13	< 6	< 10	< 5	< 8	< 4	< 6	< 32	< 8
	03/29/05 - 05/03/05	< 5	< 5	< 10	< 5	< 9	< 4	< 7	< 4	< 4	< 21	< 8
	05/03/05 - 05/31/05	< 8	< 9	< 16	< 10	< 17	< 8	< 14	< 8	< 8	< 37	< 11
	05/31/05 - 06/28/05	< 6	< 5	< 11	< 5	< 9	< 6	< 8	< 5	< 5	< 25	< 9
	06/28/05 - 08/02/05	< 5	< 5	< 12	< 7	< 11	< 7	< 12	< 5	< 6	< 31	< 10
	08/02/05 - 08/30/05	< 4	< 4	< 10	< 5	< 9	< 5	< 7	< 4	< 5	< 27	< 8
	08/30/05 - 09/27/05	< 5	< 5	< 11	< 5	< 12	< 5	< 8	< 5	< 4	< 28	< 6
	09/27/05 - 11/01/05	< 5	< 4	< 9	< 4	< 10	< 5	< 8	< 4	< 5	< 24	< 9
	11/01/05 - 11/30/05	< 5	< 4	< 8	< 5	< 11	< 6	< 10	< 5	< 6	< 22	< 8
	11/30/05 - 01/03/06	< 6	< 5	< 12	< 5	< 14	< 6	< 9	< 8	< 6	< 28	< 9
	MEAN	5 ± 2	5 ± 2	11 ± 4	6 ± 3	11 ± 5	6 ± 2	9 ± 4	5 ± 2	6 ± 3	27 ± 9	8 ± 3

TABLE C-II.1 **CONCENTRATIONS OF GROSS BETA IN DRINKING WATER SAMPLES COLLECTED IN THE VICINITY OF THREE MILE ISLAND NUCLEAR STATION, 2005**

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

COLLECTION PERIOD	G15-2	G15-3	Q9-1
12/28/04 - 02/01/05	2.6 ± 1.3	2.6 ± 1.3	< 1.7
02/01/05 - 03/01/05	2.2 ± 1.4	2.2 ± 1.4	2.0 ± 1.4
03/01/05 - 03/29/05	3.8 ± 1.4	2.6 ± 1.3	2.8 ± 1.3
03/29/05 - 05/03/05	2.3 ± 1.3	4.4 ± 1.4	2.6 ± 1.3
05/03/05 - 05/31/05	< 2.3	< 2.4	< 2.3
05/31/05 - 06/28/05	3.3 ± 1.6	2.8 ± 1.6	< 2.3
06/28/05 - 08/02/05	4.4 ± 1.7	3.5 ± 1.7	2.9 ± 1.6
08/02/05 - 08/30/05	4.3 ± 1.7	3.3 ± 1.7	4.3 ± 1.7
08/30/05 - 09/27/05	2.9 ± 1.5	3.4 ± 1.6	2.5 ± 1.5
09/27/05 - 11/01/05	5.4 ± 1.6	4.0 ± 1.5	3.3 ± 1.4
11/01/05 - 11/30/05	4.6 ± 1.6	< 2.0	2.0 ± 1.4
11/30/05 - 01/03/06	4.5 ± 1.6	3.1 ± 1.5	2.3 ± 1.4
MEAN	3.5 ± 2.2	3.0 ± 1.4	2.6 ± 1.4

TABLE C-II.2 **CONCENTRATIONS OF I-131 IN DRINKING WATER SAMPLES COLLECTED IN THE VICINITY OF THREE MILE ISLAND NUCLEAR STATION, 2005**

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

COLLECTION PERIOD	G15-2	G15-3	Q9-1
12/28/04 - 02/01/05	< 0.2	< 0.3	< 0.3
02/01/05 - 03/01/05	< 0.4	< 0.5	< 0.5
03/01/05 - 03/29/05	< 0.7	< 0.6	< 0.6
03/29/05 - 05/03/05	< 0.4	< 0.3	< 0.4
05/03/05 - 05/31/05	< 0.3	< 0.4	< 0.5
05/31/05 - 06/28/05	< 0.6	< 0.6	< 0.8
06/28/05 - 08/02/05	< 0.4	< 0.9	< 0.5
08/02/05 - 08/30/05	< 0.4	< 0.6	< 0.2
08/30/05 - 09/27/05	< 0.5	< 0.8	< 0.5
09/27/05 - 11/01/05	< 0.3	< 0.4	< 0.3
11/01/05 - 11/30/05	< 0.3	< 0.4	< 0.3
11/30/05 - 01/03/06	< 0.6	< 0.6	< 0.6
MEAN	0.4 ± 0.3	0.5 ± 0.4	0.4 ± 0.3

TABLE C-II.3 **CONCENTRATIONS OF TRITIUM IN DRINKING WATER SAMPLES COLLECTED IN IN THE VICINITY OF THREE MILE ISLAND NUCLEAR STATION, 2005**

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

COLLECTION PERIOD	G15-2	G15-3	Q9-1
12/28/04 - 02/01/05	< 188	< 188	< 187
02/01/05 - 03/01/05	< 186	< 187	< 183
03/01/05 - 03/29/05	< 175	500 ± 119	263 ± 103
03/29/05 - 05/03/05	< 171	< 193	179 ± 109
05/03/05 - 05/31/05	< 174	< 174	< 174
05/31/05 - 06/28/05	< 163	< 164	< 159
06/28/05 - 08/02/05	< 156	< 174	< 179
08/02/05 - 08/30/05	< 179	360 ± 119	< 176
08/30/05 - 09/27/05	355 ± 114	601 ± 120	< 172
09/27/05 - 11/01/05	251 ± 106	568 ± 112	< 161
11/01/05 - 11/30/05	< 172	< 172	< 172
11/30/05 - 01/03/06	< 153	< 154	< 154
MEAN	194 ± 113	286 ± 346	180 ± 56

TABLE C-II.4

CONCENTRATIONS OF GAMMA EMITTERS IN DRINKING WATER SAMPLES COLLECTED IN THE VICINITY OF THREE MILE ISLAND NUCLEAR STATION, 2005

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

STC	COLLECTION PERIOD	Mn-54	Co-58	Fe-59	Co-60	Zn-65	NB-95	ZR-95	Cs-134	Cs-137	Ba-140	La-140
G15-2	12/28/04 - 02/01/05	< 5	< 6	< 10	< 6	< 10	< 6	< 9	< 5	< 5	< 18	< 7
	02/01/05 - 03/01/05	< 5	< 4	< 9	< 4	< 5	< 5	< 7	< 4	< 5	< 22	< 4
	03/01/05 - 03/29/05	< 3	< 4	< 11	< 6	< 9	< 5	< 7	< 4	< 5	< 28	< 8
	03/29/05 - 05/03/05	< 5	< 6	< 9	< 4	< 9	< 5	< 8	< 4	< 6	< 24	< 9
	05/03/05 - 05/31/05	< 7	< 7	< 13	< 8	< 17	< 9	< 12	< 7	< 8	< 41	< 10
	05/31/05 - 06/28/05	< 9	< 9	< 11	< 10	< 21	< 6	< 13	< 6	< 8	< 40	< 12
	06/28/05 - 08/02/05	< 6	< 4	< 12	< 6	< 13	< 6	< 9	< 6	< 6	< 33	< 8
	08/02/05 - 08/30/05	< 4	< 4	< 10	< 6	< 8	< 5	< 7	< 4	< 5	< 25	< 8
	08/30/05 - 09/27/05	< 6	< 7	< 14	< 6	< 12	< 6	< 11	< 5	< 7	< 27	< 10
	09/27/05 - 11/01/05	< 7	< 7	< 8	< 6	< 14	< 6	< 11	< 5	< 6	< 31	< 8
	11/01/05 - 11/30/05	< 3	< 3	< 8	< 5	< 6	< 4	< 7	< 3	< 4	< 18	< 8
	11/30/05 - 01/03/06	< 3	< 3	< 8	< 5	< 9	< 4	< 7	< 3	< 4	< 17	< 5
	MEAN	5 ± 4	5 ± 3	10 ± 4	6 ± 3	11 ± 9	6 ± 2	9 ± 4	5 ± 2	6 ± 3	27 ± 16	8 ± 4
G15-3	12/28/04 - 02/01/05	< 3	< 2	< 6	< 5	< 7	< 3	< 6	< 3	< 4	< 15	< 3
	02/01/05 - 03/01/05	< 4	< 3	< 7	< 5	< 6	< 4	< 5	< 3	< 4	< 19	< 6
	03/01/05 - 03/29/05	< 7	< 6	< 14	< 7	< 15	< 7	< 15	< 6	< 8	< 41	< 13
	03/29/05 - 05/03/05	< 4	< 5	< 11	< 4	< 10	< 5	< 9	< 4	< 6	< 24	< 7
	05/03/05 - 05/31/05	< 5	< 6	< 10	< 5	< 9	< 6	< 10	< 5	< 6	< 23	< 8
	05/31/05 - 06/28/05	< 3	< 4	< 8	< 5	< 6	< 3	< 7	< 4	< 5	< 18	< 6
	06/28/05 - 08/02/05	< 5	< 5	< 10	< 6	< 9	< 7	< 13	< 5	< 5	< 25	< 9
	08/02/05 - 08/30/05	< 3	< 4	< 10	< 4	< 8	< 5	< 8	< 4	< 4	< 21	< 5
	08/30/05 - 09/27/05	< 5	< 4	< 10	< 4	< 11	< 4	< 8	< 4	< 4	< 23	< 8
	09/27/05 - 11/01/05	< 4	< 4	< 12	< 4	< 8	< 5	< 6	< 4	< 5	< 22	< 8
	11/01/05 - 11/30/05	< 5	< 4	< 10	< 5	< 9	< 5	< 7	< 4	< 5	< 24	< 8
	11/30/05 - 01/03/06	< 4	< 5	< 10	< 5	< 9	< 5	< 7	< 4	< 4	< 21	< 7
	MEAN	4 ± 2	4 ± 2	10 ± 4	5 ± 2	9 ± 5	5 ± 3	8 ± 6	4 ± 2	5 ± 3	23 ± 13	8 ± 5

TABLE C-II.4

CONCENTRATIONS OF GAMMA EMITTERS IN DRINKING WATER SAMPLES COLLECTED IN THE VICINITY OF THREE MILE ISLAND NUCLEAR STATION, 2005

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

STC	COLLECTION PERIOD	Mn-54	Co-58	Fe-59	Co-60	Zn-65	Zr-95	Nb-95	Cs-134	Cs-137	Ba-140	La-140
Q9-1	12/28/04 - 02/01/05	< 5	< 3	< 10	< 6	< 7	< 4	< 8	< 4	< 5	< 19	< 5
	02/01/05 - 03/01/05	< 3	< 4	< 9	< 5	< 8	< 5	< 9	< 4	< 4	< 22	< 10
	03/01/05 - 03/29/05	< 4	< 6	< 13	< 5	< 12	< 6	< 8	< 5	< 5	< 30	< 12
	03/29/05 - 05/03/05	< 4	< 4	< 8	< 4	< 9	< 4	< 7	< 4	< 4	< 20	< 6
	05/03/05 - 05/31/05	< 5	< 5	< 6	< 7	< 9	< 5	< 10	< 4	< 6	< 25	< 7
	05/31/05 - 06/28/05	< 6	< 5	< 10	< 7	< 13	< 8	< 11	< 6	< 7	< 27	< 9
	06/28/05 - 08/02/05	< 4	< 5	< 13	< 7	< 10	< 6	< 9	< 4	< 6	< 25	< 9
	08/02/05 - 08/30/05	< 3	< 3	< 6	< 3	< 6	< 3	< 5	< 3	< 3	< 19	< 4
	08/30/05 - 09/27/05	< 3	< 4	< 8	< 4	< 6	< 5	< 6	< 4	< 4	< 18	< 8
	09/27/05 - 11/01/05	< 4	< 3	< 7	< 6	< 9	< 4	< 6	< 3	< 4	< 18	< 6
	11/01/05 - 11/30/05	< 4	< 4	< 9	< 3	< 7	< 4	< 7	< 3	< 5	< 20	< 5
	11/30/05 - 01/03/06	< 3	< 3	< 4	< 4	< 7	< 3	< 7	< 3	< 4	< 20	< 6
	MEAN	4 ± 2	4 ± 2	9 ± 5	5 ± 3	8 ± 4	5 ± 3	8 ± 4	4 ± 2	5 ± 2	22 ± 8	7 ± 5

TABLE C-III.1 **CONCENTRATIONS OF GROSS BETA, IODINE-131, TRITIUM, AND STRONTIUM IN EFFLUENT WATER SAMPLES FOR STATION K1-1 COLLECTED IN THE VICINITY OF THREE MILE ISLAND NUCLEAR STATION, 2005**

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

COLLECTION PERIOD	Gross Beta	I-131	H-3	Sr-89	Sr-90
12/28/04 - 02/01/05	2.4 ± 1.3	< 0.5	< 192		
02/01/05 - 03/01/05	2.6 ± 1.5	< 0.6	< 187		
03/01/05 - 03/29/05	3.3 ± 1.4	< 0.9	157000 ± 1590		
03/29/05 - 05/03/05	9.9 ± 1.9	< 0.3	182 ± 111		
05/03/05 - 05/31/05	< 2.6	< 0.6	175 ± 108	< 2.3	< 0.6
05/31/05 - 06/28/05	5.9 ± 2.0	< 0.5	218 ± 105		
06/28/05 - 08/02/05	7.2 ± 2.0	1.3 ± 0.6	< 174		
08/02/05 - 08/30/05	8.2 ± 2.2	< 0.9	43700 ± 1170		
08/30/05 - 09/27/05	7.6 ± 2.0	< 0.4	48500 ± 510		
09/27/05 - 11/01/05	7.7 ± 1.8	< 0.4	5240 ± 207		
11/01/05 - 11/30/05	3.9 ± 1.5	< 0.5	< 162	< 1.5	< 0.6
11/30/05 - 01/03/06	3.1 ± 1.5	< 0.3	< 158		
MEAN	5.6 ± 5.4	0.6 ± 0.6	23248 ± 95903	1.9 ± 1.2	0.6 ± 0.1

TABLE C-III.2

CONCENTRATIONS OF GAMMA EMITTERS IN EFFLUENT WATER SAMPLES COLLECTED IN THE VICINITY OF THREE MILE ISLAND NUCLEAR STATION, 2005

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

STC	COLLECTION PERIOD	Mn-54	Co-58	Fe-59	Co-60	Zn-65	Nb-95	Zr-95	Cs-134	Cs-137	Ba-140	La-140
K1-1	12/28/04 - 02/01/05	< 6	< 4	< 9	< 4	< 10	< 5	< 10	< 4	< 6	< 20	< 7
	02/01/05 - 03/01/05	< 4	< 5	< 11	< 5	< 10	< 5	< 8	< 4	< 4	< 22	< 7
	03/01/05 - 03/29/05	< 5	< 5	< 9	< 4	< 7	< 5	< 7	< 3	< 4	< 27	< 9
	03/29/05 - 05/03/05	< 4	< 4	< 8	< 4	< 10	< 5	< 7	< 4	< 5	< 20	< 6
	05/03/05 - 05/31/05	< 6	< 4	< 8	< 4	< 9	< 5	< 8	< 5	< 4	< 21	< 6
	05/31/05 - 06/28/05	< 5	< 5	< 11	< 5	< 11	< 7	< 12	< 5	< 6	< 28	< 10
	06/28/05 - 08/02/05	< 5	< 5	< 10	< 6	< 11	< 6	< 8	< 4	< 5	< 29	< 8
	08/02/05 - 08/30/05	< 4	< 4	< 8	< 4	< 7	< 5	< 8	< 4	< 5	< 23	< 8
	08/30/05 - 09/27/05	< 4	< 3	< 9	< 3	< 8	< 4	< 8	< 4	< 5	< 21	< 5
	09/27/05 - 11/01/05	< 4	< 4	< 8	< 4	< 6	< 5	< 6	< 4	< 5	< 25	< 7
	11/01/05 - 11/30/05	< 4	< 3	< 7	< 4	< 8	< 4	< 7	< 4	< 4	< 21	< 5
	11/30/05 - 01/03/06	< 3	< 3	< 6	< 4	< 8	< 4	< 6	< 3	< 3	< 17	< 6
	MEAN	5 ± 2	4 ± 1	9 ± 3	4 ± 1	9 ± 3	5 ± 2	8 ± 3	4 ± 1	5 ± 2	23 ± 8	7 ± 3

TABLE C-IV.1

CONCENTRATIONS OF TRITIUM AND GAMMA EMITTERS IN STORM WATER SAMPLES COLLECTED IN THE VICINITY OF THREE MILE ISLAND NUCLEAR STATION, 2005

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

STC	COLLECTION PERIOD	H-3	Mn-54	Co-58	Fe-59	Co-60	Zn-65	Nb-95	Zr-95	Cs-134	Cs-137	Ba-140	La-140
EDCB	02/01/05 - 03/29/05	282 ± 113	< 5	< 3	< 11	< 6	< 11	< 4	< 6	< 4	< 5	< 19	< 6
	05/03/05 - 06/28/05	393 ± 109	< 4	< 6	< 9	< 7	< 9	< 5	< 9	< 4	< 7	< 24	< 4
	08/02/05 - 09/27/05	304 ± 116	< 3	< 4	< 7	< 5	< 7	< 4	< 8	< 4	< 4	< 16	< 6
	11/01/05 - 01/03/06	< 167	< 3	< 3	< 6	< 3	< 8	< 3	< 7	< 3	< 3	< 17	< 5
	MEAN	264 ± 279	4 ± 1	4 ± 3	8 ± 4	5 ± 3	9 ± 4	4 ± 1	7 ± 2	4 ± 1	5 ± 3	19 ± 7	5 ± 2

TABLE C-V.1 CONCENTRATIONS OF TRITIUM IN GROUND WATER SAMPLES COLLECTED IN THE VICINITY OF THREE MILE ISLAND NUCLEAR STATION, 2005

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

STATION CODE	03/10/05	06/09/05	09/08/05	12/08/05	MEAN
48S	< 188	< 177	< 173	225 ± 109	191 ± 47
GP-1	(1)	(1)	(1)	(1)	
GP-6	471 ± 118	323 ± 114		< 160	318 ± 311
GP-8	836 ± 127	269 ± 113	< 113	503 ± 115	430 ± 629
GP-9	655 ± 124	(1)	(1)	479 ± 114	567 ± 249
MS-22	1620 ± 149	837 ± 122	912 ± 128	636 ± 116	1001 ± 857
OSF	263 ± 122	584 ± 119	351 ± 115	302 ± 111	375 ± 288
OS-18	539 ± 120	1400 ± 131	345 ± 112	256 ± 105	635 ± 1047
GP-12		212 ± 111		244 ± 108	228 ± 45
MS-2		< 164		284 ± 113	224 ± 170
MS-5		218 ± 113		< 178	198 ± 57
MS-8		271 ± 112		< 178	225 ± 132
MS-20		597 ± 116		251 ± 122	424 ± 489
NW-A		1790 ± 138		1380 ± 141	1585 ± 580
NW-B		(1)		1460 ± 142	
NW-C		3710 ± 164		4160 ± 192	3935 ± 636
NW-CW		1630 ± 135		1490 ± 147	1560 ± 198
OS-14		204 ± 111		169 ± 102	187 ± 49
RW-1		222 ± 113		< 159	191 ± 89
RW-2		18500 ± 304		725 ± 117	9613 ± 25138
E1-2		< 103			
MS-1		249 ± 113			
MS-4		581 ± 118			
MS-7		< 168			
MS-19		< 174			
MS-21		264 ± 112			
N2-1		189 ± 111			

(1) SEE PROGRAM EXCEPTIONS SECTION FOR EXPLANATION

TABLE C-V.2 CONCENTRATIONS OF STRONTIUM AND GAMMA EMITTERS IN GROUND WATER SAMPLES COLLECTED IN THE VICINITY OF THREE MILE ISLAND NUCLEAR STATION, 2005

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

STC	COLLECTION PERIOD	Sr-90	Mn-54	Co-58	Fe-59	Co-60	Zn-65	Nb-95	Zr-95	Cs-134	Cs-137	Ba-140	La-140
48S	03/10/05	< 0.3	< 5	< 4	< 9	< 7	< 7	< 3	< 9	< 5	< 5	< 20	< 7
	06/09/05		< 4	< 5	< 10	< 6	< 9	< 6	< 8	< 4	< 5	< 26	< 10
	09/08/05		< 3	< 3	< 7	< 3	< 7	< 4	< 6	< 3	< 3	< 18	< 5
	12/08/05		< 3	< 5	< 8	< 7	< 8	< 4	< 7	< 3	< 4	< 21	< 7
	MEAN		4 ± 2	4 ± 1	8 ± 3	6 ± 4	8 ± 2	4 ± 2	7 ± 3	4 ± 1	4 ± 1	21 ± 7	7 ± 4
OSF	03/10/05	< 0.4	< 8	< 6	< 18	< 9	< 12	< 11	< 14	< 8	< 8	< 46	< 12
	06/09/05		< 6	< 7	< 13	< 5	< 13	< 6	< 10	< 5	< 7	< 36	< 12
	09/08/05		< 2	< 2	< 4	< 2	< 4	< 3	< 4	< 2	< 2	< 11	< 3
	12/08/05		< 6	< 6	< 14	< 6	< 15	< 10	< 11	< 5	< 6	< 27	< 10
	MEAN		5 ± 5	5 ± 4	12 ± #	6 ± 6	11 ± 9	7 ± 8	10 ± 8	5 ± 5	6 ± 5	30 ± #	9 ± 8
E1-2	06/09/05		< 5	< 5	< 11	< 5	< 10	< 5	< 10	< 4	< 4	< 29	< 8
MS-2	06/10/05	< 0.3	< 1	< 2	< 4	< 1	< 3	< 2	< 3	< 1	< 1	< 39	< 13
MS-5	06/10/05	< 0.4	< 1	< 2	< 5	< 1	< 3	< 2	< 3	< 2	< 1	< 45	< 14
MS-8	06/10/05	< 0.3	< 1	< 2	< 5	< 1	< 4	< 2	< 3	< 2	< 1	< 42	< 14
MS-20	06/10/05		< 1	< 2	< 4	< 1	< 3	< 2	< 3	< 1	< 1	< 40	< 14
MS-22	03/10/05		< 1	< 2	< 5	< 2	< 3	< 2	< 4	< 2	< 1	< 44	< 15
N2-1	06/09/05		< 7	< 7	< 14	< 7	< 13	< 7	< 14	< 7	< 7	< 43	< 12
OS-14	06/10/05	< 0.4	< 1	< 2	< 5	< 1	< 4	< 2	< 4	< 2	< 1	< 43	< 15
RW-1	06/10/05		< 1	< 1	< 4	< 1	< 2	< 1	< 3	< 1	< 1	< 35	< 12
RW-2	06/10/05		< 1	< 2	< 5	< 1	< 3	< 2	< 3	< 2	< 1	< 43	< 14

TABLE C-VI.1 **CONCENTRATIONS OF STRONTIUM IN PREDATOR & BOTTOM FEEDER (FISH) SAMPLES COLLECTED IN THE VICINITY OF THREE MILE ISLAND NUCLEAR STATION, 2005**

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

STC	COLLECTION PERIOD	Sr-89	Sr-90
INDP.	PREDATOR		
	06/14/05	< 19	< 5
	10/17/05	< 16	< 4
	MEAN	18 ± 5	4 ± 1
INDB	BOTTOM FEEDER		
	06/14/05	< 15	< 2
	10/17/05	< 21	< 3
	MEAN	18 ± 9	2 ± 1
BKGP	PREDATOR		
	06/14/05	< 17	< 3
	10/20/05	< 19	< 2
	MEAN	18 ± 3	3 ± 1
BKGB	BOTTOM FEEDER		
	06/14/05	< 16	< 4
	10/20/05	< 20	< 4
	MEAN	18 ± 5	4 ± 0

TABLE C-VI.2

CONCENTRATIONS OF GAMMA EMITTERS IN PREDATOR & BOTTOM FEEDER (FISH) SAMPLES COLLECTED IN THE VICINITY OF THREE MILE ISLAND NUCLEAR STATION, 2005

RESULTS IN UNITS OF PCI/KG WET ± 2 SIGMA

STC	COLLECTION PERIOD	K-40	Mn-54	Co-58	Fe-59	Co-60	Zn-65	Cs-134	Cs-137
INDP	PREDATOR								
	06/14 - 06/20/05	2890 ± 1110	< 55	< 63	< 99	< 55	< 123	< 63	< 60
	10/17 - 10/26/05	3080 ± 642	< 20	< 14	< 51	< 38	< 56	< 23	< 28
	MEAN	2985 ± 269	38 ± 49	38 ± 69	75 ± 67	46 ± 25	89 ± 95	43 ± 57	44 ± 47
INDB	BOTTOM FEEDER								
	06/14 - 06/14/05	2400 ± 633	< 28	< 29	< 68	< 27	< 73	< 33	< 36
	10/17 - 10/17/05	3450 ± 761	< 42	< 48	< 72	< 44	< 89	< 41	< 48
	MEAN	2925 ± 1485	35 ± 21	39 ± 26	70 ± 7	35 ± 24	81 ± 22	37 ± 11	42 ± 17
BKGP	PREDATOR								
	06/14 - 06/14/05	3260 ± 641	< 21	< 24	< 45	< 29	< 52	< 23	< 24
	10/20 - 10/20/05	4020 ± 797	< 38	< 41	< 112	< 48	< 97	< 38	< 39
	MEAN	3640 ± 1075	30 ± 24	33 ± 24	78 ± 95	39 ± 27	74 ± 63	30 ± 20	32 ± 22
BKGB	BOTTOM FEEDER								
	06/14 - 06/14/05	2350 ± 545	< 26	< 15	< 39	< 35	< 34	< 21	< 24
	10/20 - 10/20/05	2290 ± 789	< 35	< 28	< 83	< 33	< 74	< 30	< 41
	MEAN	2320 ± 85	31 ± 12	22 ± 18	61 ± 62	34 ± 3	54 ± 56	26 ± 13	32 ± 24

TABLE C-VII.1 CONCENTRATIONS OF GAMMA EMITTERS IN SEDIMENT SAMPLES COLLECTED IN THE VICINITY OF THREE MILE ISLAND NUCLEAR STATION, 2005

RESULTS IN UNITS OF PCI/KG DRY ± 2 SIGMA

STC	COLLECTION PERIOD	K-40	Mn-54	Co-58	Co-60	Cs-134	Cs-137
A1-3							
	06/08/05	8710 ± 753	< 41	< 38	< 35	< 32	42 ± 33
	10/17/05	7720 ± 905	< 31	< 27	< 43	< 31	< 41
	MEAN	8215 ± 1400	36 ± 14	33 ± 16	39 ± 11	32 ± 1	42 ± 2
J2-1							
	06/08/05	16300 ± 1350	< 45	< 46	< 34	< 36	160 ± 48
	10/17/05	12000 ± 1440	< 60	< 56	< 55	< 60	118 ± 97
	MEAN	14150 ± 6081	53 ± 21	51 ± 14	44 ± 30	48 ± 33	139 ± 59
K1-3							
	06/08/05	8250 ± 959	< 36	< 41	< 43	< 33	139 ± 57
	10/17/05	8200 ± 937	< 49	< 42	< 42	< 44	98 ± 61
	MEAN	8225 ± 71	42 ± 20	42 ± 2	43 ± 1	39 ± 16	119 ± 58
EDCB							
	10/17/05	< 4470	< 95	< 85	< 112	< 80	294 ± 103

TABLE C-VIII.1 CONCENTRATIONS OF GROSS BETA IN AIR PARTICULATE SAMPLES COLLECTED IN THE VICINITY OF THREE MILE ISLAND NUCLEAR STATION, 2005

RESULTS IN UNITS OF E-3 PCI/CU METER ± 2 SIGMA

COLLECTION PERIOD	GROUP I		GROUP II				GROUP III
	E1-2	F1-3	A3-1	G2-1	H3-1	M2-1	Q15-1
12/29/04 - 01/05/05	23 ± 5	28 ± 6	28 ± 6	32 ± 6	26 ± 5	25 ± 5	33 ± 6
01/05/05 - 01/12/05	13 ± 4	12 ± 4	15 ± 5	11 ± 4	13 ± 4	14 ± 4	13 ± 4
01/12/05 - 01/19/05	15 ± 5	17 ± 5	19 ± 5	20 ± 5	17 ± 5	20 ± 5	19 ± 5
01/19/05 - 01/26/05	18 ± 5	15 ± 5	21 ± 6	14 ± 5	14 ± 5	15 ± 5	16 ± 5
01/26/05 - 02/02/05	18 ± 5	15 ± 5	16 ± 5	22 ± 5	20 ± 5	20 ± 5	19 ± 5
02/02/05 - 02/09/05	24 ± 5	20 ± 5	23 ± 5	25 ± 5	22 ± 5	21 ± 5	23 ± 5
02/09/05 - 02/16/05	13 ± 5	16 ± 5	10 ± 5	13 ± 5	16 ± 5	16 ± 5	12 ± 5
02/16/05 - 02/23/05	15 ± 5	13 ± 5	16 ± 5	13 ± 5	11 ± 5	19 ± 5	13 ± 5
02/23/05 - 03/02/05	14 ± 5	11 ± 5	16 ± 5	17 ± 5	18 ± 5	13 ± 5	14 ± 5
03/02/05 - 03/09/05	18 ± 5	12 ± 5	12 ± 5	16 ± 5	11 ± 5	13 ± 5	12 ± 5
03/09/05 - 03/16/05	14 ± 5	13 ± 5	14 ± 5	13 ± 5	13 ± 5	11 ± 5	16 ± 5
03/16/05 - 03/23/05	12 ± 5	17 ± 5	17 ± 5	15 ± 5	14 ± 5	12 ± 5	12 ± 5
03/23/05 - 03/30/05	< 7	< 7	< 7	< 11	< 7	< 7	< 7
03/30/05 - 04/06/05	8 ± 5	< 7	< 7	< 7	14 ± 5	< 12	< 7
04/06/05 - 04/13/05	14 ± 5	14 ± 5	15 ± 5	15 ± 5	13 ± 5	17 ± 6	17 ± 5
04/13/05 - 04/20/05	15 ± 5	17 ± 5	15 ± 5	17 ± 5	15 ± 5	17 ± 5	16 ± 5
04/20/05 - 04/27/05	10 ± 5	7 ± 4	9 ± 4	10 ± 5	8 ± 4	7 ± 4	< 6
04/27/05 - 05/04/05	12 ± 5	11 ± 5	13 ± 5	14 ± 5	17 ± 5	20 ± 5	13 ± 5
05/04/05 - 05/11/05	13 ± 5	17 ± 5	13 ± 5	14 ± 5	12 ± 5	20 ± 5	18 ± 5
05/11/05 - 05/18/05	12 ± 5	12 ± 5	12 ± 5	13 ± 5	15 ± 5	13 ± 5	15 ± 5
05/18/05 - 05/25/05	7 ± 4	10 ± 4	9 ± 4	12 ± 5	8 ± 4	10 ± 5	9 ± 4
05/25/05 - 06/01/05	9 ± 5	13 ± 5	8 ± 5	9 ± 5	8 ± 5	10 ± 5	10 ± 5
06/01/05 - 06/08/05	13 ± 5	14 ± 5	15 ± 5	11 ± 5	12 ± 5	15 ± 5	10 ± 5
06/08/05 - 06/15/05	16 ± 5	15 ± 5	14 ± 5	20 ± 6	12 ± 5	12 ± 5	15 ± 5
06/15/05 - 06/22/05	9 ± 4	11 ± 4	8 ± 4	11 ± 5	10 ± 5	10 ± 5	10 ± 4
06/22/05 - 06/29/05	13 ± 5	16 ± 5	19 ± 5	22 ± 6	17 ± 5	15 ± 5	19 ± 5
06/29/05 - 07/06/05	12 ± 5	13 ± 5	20 ± 5	13 ± 5	11 ± 5	13 ± 5	15 ± 5
07/06/05 - 07/13/05	22 ± 5	17 ± 5	19 ± 5	20 ± 5	17 ± 5	18 ± 5	22 ± 5
07/13/05 - 07/20/05	14 ± 5	11 ± 5	10 ± 5	12 ± 5	13 ± 5	9 ± 5	10 ± 5
07/20/05 - 07/27/05	26 ± 5	22 ± 5	25 ± 5	21 ± 5	20 ± 5	21 ± 5	17 ± 5
07/27/05 - 08/02/05	19 ± 5	20 ± 5	20 ± 6	24 ± 6	23 ± 6	20 ± 6	19 ± 6
08/02/05 - 08/10/05	28 ± 5	29 ± 5	31 ± 6	30 ± 6	29 ± 5	37 ± 8	27 ± 5
08/10/05 - 08/17/05	32 ± 6	29 ± 5	29 ± 6	23 ± 5	32 ± 6	28 ± 6	27 ± 6
08/17/05 - 08/24/05	25 ± 8	21 ± 5	22 ± 5	25 ± 6	27 ± 5	27 ± 6	22 ± 5
08/24/05 - 08/31/05	13 ± 5	12 ± 5	17 ± 5	11 ± 5	14 ± 5	12 ± 5	12 ± 5
08/31/05 - 09/07/05	20 ± 5	18 ± 5	22 ± 5	18 ± 5	15 ± 5	14 ± 5	15 ± 5
09/07/05 - 09/14/05	31 ± 6	30 ± 6	32 ± 6	32 ± 6	28 ± 6	33 ± 6	27 ± 6
09/14/05 - 09/21/05	16 ± 7	19 ± 5	14 ± 5	17 ± 5	24 ± 5	16 ± 5	13 ± 5
09/21/05 - 09/28/05	25 ± 6	24 ± 5	21 ± 5	22 ± 6	19 ± 5	21 ± 6	17 ± 5
09/28/05 - 10/05/05	25 ± 5	23 ± 5	23 ± 5	25 ± 6	19 ± 5	21 ± 5	19 ± 5
10/05/05 - 10/12/05	9 ± 4	9 ± 4	9 ± 5	10 ± 5	< 6	< 7	9 ± 5
10/12/05 - 10/19/05	14 ± 5	16 ± 5	15 ± 5	17 ± 5	12 ± 4	18 ± 5	17 ± 5
10/19/05 - 10/26/05	12 ± 4	15 ± 5	17 ± 5	11 ± 5	12 ± 4	14 ± 5	15 ± 5
10/26/05 - 11/02/05	20 ± 5	22 ± 5	21 ± 5	18 ± 5	21 ± 5	20 ± 5	20 ± 5
11/02/05 - 11/09/05	31 ± 6	25 ± 5	36 ± 9	30 ± 6	23 ± 5	28 ± 6	23 ± 9
11/09/05 - 11/16/05	17 ± 5	19 ± 5	21 ± 5	19 ± 5	17 ± 5	16 ± 5	21 ± 5
11/16/05 - 11/22/05	23 ± 6	23 ± 6	29 ± 6	28 ± 7	26 ± 6	25 ± 6	24 ± 6
11/22/05 - 11/30/05	9 ± 4	11 ± 4	13 ± 4	13 ± 4	11 ± 4	10 ± 4	12 ± 4
11/30/05 - 12/07/05	20 ± 5	18 ± 5	18 ± 5	18 ± 5	12 ± 5	16 ± 5	16 ± 5
12/07/05 - 12/14/05	28 ± 5	30 ± 5	29 ± 6	27 ± 6	29 ± 6	29 ± 6	32 ± 6
12/14/05 - 12/21/05	22 ± 5	21 ± 5	21 ± 5	19 ± 5	18 ± 5	18 ± 5	19 ± 5
12/21/05 - 12/28/05	32 ± 6	30 ± 6	32 ± 6	30 ± 6	32 ± 6	30 ± 6	34 ± 6
MEAN	17 ± 14	17 ± 12	18 ± 14	18 ± 13	17 ± 13	17 ± 14	17 ± 13

TABLE C-VIII.2 MONTHLY AND YEARLY MEAN VALUES OF GROSS BETA CONCENTRATIONS (E-3 PCI/CU METER) IN AIR PARTICULATE SAMPLES COLLECTED IN THE VICINITY OF THREE MILE ISLAND NUCLEAR STATION, 2005

GROUP I - SITE LOCATIONS					GROUP II - OFFSITE LOCATIONS					GROUP III - CONTROL LOCATIONS				
COLLECTION PERIOD		MIN.	MAX.	MEAN ± 2 SD	COLLECTION PERIOD		MIN.	MAX.	MEAN ± 2 SD	COLLECTION PERIOD		MIN.	MAX.	MEAN ± 2 SD
12/29/04 - 02/02/05		12	28	17 ± 10	12/29/04 - 02/02/05		11	32	19 ± 11	12/29/04 - 02/02/05		13	33	20 ± 15
02/02/05 - 03/02/05		11	24	16 ± 9	02/02/05 - 03/02/05		10	25	17 ± 9	02/02/05 - 03/02/05		12	23	16 ± 9
03/02/05 - 03/30/05	<	7	18	13 ± 8	03/02/05 - 03/30/05	<	7	17	12 ± 6	03/02/05 - 03/30/05	<	7	16	12 ± 7
03/30/05 - 04/27/05	<	7	17	11 ± 8	03/30/05 - 04/27/05	<	7	17	12 ± 8	03/30/05 - 04/27/05	<	6	17	11 ± 11
04/27/05 - 06/01/05		7	17	12 ± 6	04/27/05 - 06/01/05		8	20	13 ± 7	04/27/05 - 06/01/05		9	18	13 ± 7
06/01/05 - 06/29/05		9	16	13 ± 5	06/01/05 - 06/29/05		8	22	14 ± 8	06/01/05 - 06/29/05		10	19	14 ± 9
06/29/05 - 08/02/05		11	26	17 ± 10	06/29/05 - 08/02/05		9	25	17 ± 10	06/29/05 - 08/02/05		10	22	17 ± 9
08/02/05 - 08/31/05		12	32	24 ± 15	08/02/05 - 08/31/05		11	37	24 ± 15	08/02/05 - 08/31/05		12	27	22 ± 14
08/31/05 - 09/28/05		16	31	23 ± 11	08/31/05 - 09/28/05		14	33	22 ± 13	08/31/05 - 09/28/05		15	27	19 ± 10
09/28/05 - 11/02/05		9	25	16 ± 12	09/28/05 - 11/02/05	<	6	25	16 ± 11	09/28/05 - 11/02/05		9	20	16 ± 8
11/02/05 - 11/30/05		9	31	20 ± 14	11/02/05 - 11/30/05		10	36	21 ± 15	11/02/05 - 11/30/05		12	28	21 ± 14
11/30/05 - 12/28/05		18	32	25 ± 11	11/30/05 - 12/28/05		12	32	24 ± 13	11/30/05 - 12/28/05		16	34	25 ± 19
12/29/04 - 12/28/05	<	7	32	17 ± 9	12/29/04 - 12/28/05	<	6	37	18 ± 9	12/29/04 - 12/28/05	<	6	34	17 ± 9

TABLE C-VIII.3 CONCENTRATION OF GAMMA EMITTERS IN AIR PARTICULATE SAMPLES COLLECTED IN THE VICINITY OF THREE MILE ISLAND NUCLEAR STATION, 2005

RESULTS IN UNITS OF E-3 PCI/CU METER ± 2 SIGMA

STC	COLLECTION PERIOD	Be-7	Mn-54	Co-58	Co-60	Cs-134	Cs-137
A3-1	12/29 - 03/30/05	53 ± 13	< 1	< 1	< 1	< 1	< 1
	03/30 - 06/29/05	58 ± 11	< 1	< 1	< 1	< 1	< 1
	06/29 - 09/28/05	88 ± 29	< 2	< 3	< 1	< 2	< 2
	09/28 - 12/28/05	61 ± 18	< 2	< 3	< 3	< 3	< 2
	MEAN	65 ± 31	2 ± 2	2 ± 3	2 ± 2	2 ± 2	1 ± 1
E1-2	12/29 - 03/30/05	63 ± 13	< 1	< 1	< 1	< 1	< 1
	03/30 - 06/29/05	65 ± 13	< 1	< 1	< 1	< 1	< 1
	06/29 - 09/28/05	87 ± 28	< 1	< 3	< 2	< 1	< 2
	09/28 - 12/28/05	54 ± 17	< 2	< 2	< 4	< 3	< 2
	MEAN	67 ± 28	1 ± 1	2 ± 2	2 ± 2	1 ± 2	1 ± 1
F1-3	12/29 - 03/30/05	69 ± 12	< 1	< 1	< 1	< 1	< 1
	03/30 - 06/29/05	71 ± 12	< 1	< 1	< 1	< 1	< 1
	06/29 - 09/28/05	82 ± 29	< 2	< 2	< 1	< 1	< 1
	09/28 - 12/28/05	63 ± 24	< 3	< 3	< 3	< 3	< 3
	MEAN	71 ± 16	2 ± 2	2 ± 2	2 ± 2	1 ± 2	1 ± 2
G2-1	12/29 - 03/30/05	73 ± 12	< 1	< 1	< 1	< 1	< 1
	03/30 - 06/29/05	62 ± 13	< 1	< 1	< 1	< 1	< 1
	06/29 - 09/28/05	67 ± 31	< 2	< 3	< 2	< 1	< 2
	09/28 - 12/28/05	73 ± 24	< 3	< 4	< 3	< 4	< 3
	MEAN	69 ± 10	2 ± 2	2 ± 3	2 ± 2	1 ± 3	2 ± 3
H3-1	12/29 - 03/30/05	64 ± 13	< 1	< 1	< 1	< 1	< 1
	03/30 - 06/29/05	70 ± 13	< 1	< 1	< 1	< 1	< 1
	06/29 - 09/28/05	70 ± 36	< 2	< 4	< 2	< 2	< 2
	09/28 - 12/28/05	60 ± 22	< 3	< 3	< 3	< 3	< 3
	MEAN	66 ± 10	2 ± 2	2 ± 3	2 ± 2	2 ± 2	2 ± 2
M2-1	12/29 - 03/30/05	77 ± 12	< 1	< 1	< 1	< 1	< 1
	03/30 - 06/29/05	59 ± 18	< 1	< 1	< 1	< 1	< 1
	06/29 - 09/28/05	< 21	< 2	< 3	< 1	< 2	< 1
	09/28 - 12/28/05	60 ± 19	< 2	< 3	< 2	< 3	< 2
	MEAN	54 ± 47	1 ± 1	2 ± 2	1 ± 1	2 ± 2	1 ± 1
Q15-1	12/29 - 03/30/05	65 ± 16	< 1	< 1	< 1	< 1	< 1
	03/30 - 06/29/05	67 ± 15	< 1	< 1	< 1	< 1	< 1
	06/29 - 09/28/05	96 ± 29	< 2	< 3	< 2	< 2	< 2
	09/28 - 12/28/05	54 ± 25	< 3	< 3	< 3	< 3	< 2
	MEAN	70 ± 35	2 ± 1	2 ± 2	2 ± 2	2 ± 2	2 ± 1

TABLE C-IX.1 CONCENTRATIONS OF I-131 IN AIR IODINE SAMPLES COLLECTED IN THE VICINITY OF THREE MILE ISLAND NUCLEAR STATION, 2005

RESULTS IN UNITS OF E-3 PCI/CU METER ± 2 SIGMA

	GROUP I		GROUP II				GROUP III
COLLECTION PERIOD	E1-2	F1-3	A3-1	G2-1	H3-1	M2-1	Q15-1
12/29/04 - 01/05/05	< 20	< 20	< 27	< 21	< 21	< 27	< 26
01/05/05 - 01/12/05	< 14	< 14	< 14	< 14	< 14	< 7	< 13
01/12/05 - 01/19/05	< 23	< 23	< 21	< 24	< 23	< 21	< 21
01/19/05 - 01/26/05	< 23	< 23	< 20	< 24	< 23	< 19	< 19
01/26/05 - 02/02/05	< 22	< 22	< 21	< 22	< 22	< 21	< 21
02/02/05 - 02/09/05	< 22	< 22	< 20	< 22	< 21	< 20	< 20
02/09/05 - 02/16/05	< 20	< 20	< 21	< 20	< 20	< 21	< 21
02/16/05 - 02/23/05	< 16	< 15	< 12	< 16	< 16	< 12	< 12
02/23/05 - 03/02/05	< 24	< 24	< 22	< 25	< 24	< 22	< 22
03/02/05 - 03/09/05	< 21	< 21	< 15	< 22	< 22	< 15	< 14
03/09/05 - 03/16/05	< 21	< 20	< 17	< 21	< 17	< 17	< 17
03/16/05 - 03/23/05	< 18	< 18	< 21	< 19	< 18	< 21	< 20
03/23/05 - 03/30/05	< 24	< 24	< 17	< 25	< 17	< 17	< 17
03/30/05 - 04/06/05	< 19	< 19	< 14	< 19	< 19	< 17	< 14
04/06/05 - 04/13/05	< 18	< 18	< 17	< 18	< 18	< 20	< 17
04/13/05 - 04/20/05	< 11	< 11	< 15	< 12	< 11	< 15	< 14
04/20/05 - 04/27/05	< 22	< 22	< 24	< 22	< 22	< 25	< 24
04/27/05 - 05/04/05	< 27	< 27	< 21	< 28	< 28	< 21	< 21
05/04/05 - 05/11/05	< 19	< 19	< 19	< 20	< 20	< 19	< 19
05/11/05 - 05/18/05	< 17	< 17	< 20	< 17	< 17	< 20	< 20
05/18/05 - 05/25/05	< 26	< 26	< 26	< 27	< 22	< 22	< 22
05/25/05 - 06/01/05	< 17	< 16	< 20	< 17	< 20	< 20	< 19
06/01/05 - 06/08/05	< 20	< 20	< 21	< 20	< 20	< 21	< 21
06/08/05 - 06/15/05	< 27	< 27	< 27	< 28	< 27	< 27	< 27
06/15/05 - 06/22/05	< 29	< 29	< 27	< 30	< 29	< 27	< 26
06/22/05 - 06/29/05	< 22	< 22	< 21	< 22	< 22	< 21	< 20
06/29/05 - 07/06/05	< 16	< 16	< 17	< 16	< 16	< 17	< 17
07/06/05 - 07/13/05	< 24	< 24	< 22	< 25	< 25	< 22	< 22
07/13/05 - 07/20/05	< 24	< 24	< 30	< 25	< 24	< 30	< 30
07/20/05 - 07/27/05	< 16	< 16	< 16	< 18	< 17	< 16	< 17
07/27/05 - 08/02/05	< 20	< 20	< 25	< 21	< 25	< 25	< 26
08/02/05 - 08/10/05	< 18	< 18	< 20	< 19	< 19	< 20	< 20
08/10/05 - 08/17/05	< 25	< 24	< 19	< 26	< 19	< 19	< 19
08/17/05 - 08/24/05	< 26	< 22	< 28	< 24	< 22	< 28	< 29
08/24/05 - 08/31/05	< 18	< 18	< 30	< 19	< 30	< 30	< 31
08/31/05 - 09/07/05	< 16	< 16	< 17	< 17	< 16	< 17	< 17
09/07/05 - 09/14/05	< 26	< 25	< 32	< 27	< 26	< 32	< 32
09/14/05 - 09/21/05	< 20	< 16	< 12	< 18	< 17	< 12	< 12
09/21/05 - 09/28/05	< 26	< 24	< 18	< 26	< 25	< 18	< 19
09/28/05 - 10/05/05	< 57	< 56	< 48	< 60	< 56	< 50	< 50
10/05/05 - 10/12/05	< 24	< 23	< 27	< 26	< 26	< 14	< 27
10/12/05 - 10/19/05	< 24	< 24	< 28	< 26	< 24	< 28	< 28
10/19/05 - 10/26/05	< 20	< 20	< 19	< 21	< 13	< 21	< 19
10/26/05 - 11/02/05	< 25	< 24	< 43	< 26	< 25	< 44	< 44
11/02/05 - 11/09/05	< 28	< 27	< 46	< 30	< 28	< 28	< 47
11/09/05 - 11/16/05	< 21	< 20	< 27	< 22	< 26	< 27	< 18
11/16/05 - 11/22/05	< 32	< 31	< 38	< 34	< 37	< 38	< 39
11/22/05 - 11/30/05	< 16	< 15	< 29	< 16	< 27	< 28	< 28
11/30/05 - 12/07/05	< 20	< 19	< 25	< 16	< 20	< 26	< 26
12/07/05 - 12/14/05	< 25	< 25	< 33	< 27	< 25	< 33	< 34
12/14/05 - 12/21/05	< 17	< 17	< 26	< 18	< 17	< 26	< 26
12/21/05 - 12/28/05	< 25	< 25	< 24	< 27	< 31	< 32	< 32
MEAN	22 ± 13	22 ± 13	23 ± 16	23 ± 14	22 ± 14	23 ± 15	23 ± 17

TABLE C-X.1 CONCENTRATIONS OF I-131 IN MILK SAMPLES COLLECTED IN THE VICINITY OF THREE MILE ISLAND NUCLEAR STATION, 2005

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

	CONTROL FARM	INDICATOR FARMS			
COLLECTION PERIOD	K15-3	D2-1	E2-2	F4-1	G2-1
01/05/05	< 0.9	< 0.5	< 0.8		< 0.7
02/02/05	< 0.5	< 0.2	< 0.2		< 0.2
03/02/05	< 0.4	< 0.2	< 0.3		< 0.4
03/16/05	< 0.5	< 0.3	< 0.4		< 0.4
03/30/05	< 1.0	< 0.3	< 0.5	< 0.4	< 0.3
04/13/05	< 0.3	< 0.2	< 0.5		< 0.3
04/27/05	< 0.7	< 0.7	< 0.8		< 0.6
05/11/05	< 0.3	< 0.2	< 0.3		< 0.3
05/25/05	< 0.5	< 0.3	< 0.6		< 0.6
06/08/05	< 0.7	< 0.3	< 0.4		< 0.3
06/22/05	< 0.3	< 0.2	< 0.4	< 0.3	< 0.3
07/06/05	< 0.3	< 0.2	< 0.2		< 0.2
07/20/05	< 0.7	< 0.6	< 0.9		< 0.7
08/03/05	< 0.6	< 0.4	< 0.6		< 0.6
08/17/05	< 0.4	< 0.3	< 0.3		< 0.4
08/31/05	< 0.4	< 0.9	< 1.0		< 0.9
09/14/05	< 0.3	< 0.4	< 0.6		< 0.4
09/28/05	< 0.7	< 0.8	< 0.4	< 0.6	< 0.8
10/12/05	< 0.6	< 0.4	< 0.6		< 0.8
10/26/05	< 0.9	< 0.5	< 0.8		< 0.7
11/09/05	< 0.6	< 0.3	< 0.3		< 0.3
11/22/05	< 0.4	< 0.3	< 0.5		< 0.4
12/07/05	< 0.4	< 0.5	< 0.3	< 0.3	< 0.3
MEAN	0.5 ± 0.4	0.4 ± 0.4	0.5 ± 0.4	0.4 ± 0.3	0.5 ± 0.4

TABLE C-X.2 CONCENTRATIONS OF STRONTIUM IN MILK SAMPLES COLLECTED IN THE VICINITY OF THREE MILE ISLAND NUCLEAR STATION, 2005

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

COLLECTION	CONTROL FARM		INDICATOR FARMS							
	K15-3		D2-1		E2-2		F4-1		G2-1	
PERIOD	Sr-89	Sr-90	Sr-89	Sr-90	Sr-89	Sr-90	Sr-89	Sr-90	Sr-89	Sr-90
01/05/05 - 03/30/05	< 1.6	< 0.3	< 1.3	0.6 ± 0.2	< 1.3	0.4 ± 0.2	< 2.6	1.4 ± 0.5	< 1.6	0.3 ± 0.2
04/13/05 - 06/22/05	< 0.9	0.6 ± 0.1	< 1.0	1.0 ± 0.2	< 0.9	0.8 ± 0.1	< 1.3	0.4 ± 0.2	< 1.0	0.7 ± 0.3
07/06/05 - 09/28/05	< 3.4	0.7 ± 0.3	< 3.7	0.9 ± 0.3	< 4.2	0.9 ± 0.3	< 2.8	2.5 ± 0.9	< 2.9	0.6 ± 0.2
10/12/05 - 12/07/05	< 2.4	0.5 ± 0.2	< 2.2	0.7 ± 0.2	< 3.3	1.0 ± 0.4	< 2.3	< 0.6	< 2.3	0.5 ± 0.3
MEAN	2.0 ± 2.2	0.6 ± 0.4	2.0 ± 2.4	0.8 ± 0.4	2.4 ± 3.2	0.8 ± 0.5	2.2 ± 1.3	1.2 ± 1.9	1.9 ± 1.7	0.5 ± 0.3

TABLE C-X.3 CONCENTRATIONS OF GAMMA EMITTERS IN MILK SAMPLES COLLECTED IN THE VICINITY OF THREE MILE ISLAND NUCLEAR STATION, 2005

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

STC	COLLECTION PERIOD	K-40	Cs-134	Cs-137	Ba-140	La-140
D2-1	01/05/05	1430 ± 118	< 4	< 4	< 18	< 5
	02/02/05	1330 ± 156	< 6	< 6	< 30	< 9
	03/02/05	1250 ± 119	< 4	< 5	< 20	< 6
	03/16/05	1380 ± 160	< 6	< 7	< 26	< 9
	03/30/05	1340 ± 173	< 7	< 8	< 30	< 9
	04/13/05	1220 ± 150	< 4	< 5	< 19	< 7
	04/27/05	1350 ± 141	< 5	< 6	< 26	< 8
	05/11/05	1280 ± 134	< 5	< 5	< 22	< 6
	05/25/05	1190 ± 179	< 8	< 11	< 40	< 15
	06/08/05	1170 ± 166	< 4	< 5	< 24	< 6
	06/22/05	1220 ± 218	< 8	< 11	< 42	< 11
	07/06/05	1100 ± 182	< 5	< 8	< 31	< 8
	07/20/05	1230 ± 128	< 4	< 5	< 25	< 8
	08/03/05	1310 ± 164	< 7	< 6	< 24	< 8
	08/17/05	1310 ± 143	< 5	< 7	< 24	< 7
	08/31/05	1550 ± 157	< 6	< 7	< 27	< 10
	09/14/05	1210 ± 236	< 11	< 13	< 41	< 12
	09/28/05	1320 ± 155	< 4	< 3	< 19	< 6
	10/12/05	1290 ± 148	< 4	< 4	< 20	< 5
	10/26/05	1200 ± 144	< 4	< 4	< 19	< 5
	11/09/05	1220 ± 157	< 6	< 8	< 29	< 9
	11/22/05	1340 ± 139	< 3	< 4	< 18	< 5
	12/07/05	1290 ± 223	< 5	< 6	< 23	< 6
	MEAN	1284 ± 191	5 ± 4	6 ± 5	26 ± 14	8 ± 5
E2-2	01/05/05	1330 ± 131	< 5	< 5	< 20	< 5
	02/02/05	1250 ± 113	< 4	< 6	< 22	< 6
	03/02/05	1300 ± 131	< 4	< 4	< 20	< 6
	03/16/05	1420 ± 194	< 5	< 6	< 24	< 7
	03/30/05	1230 ± 164	< 4	< 6	< 25	< 9
	04/13/05	1290 ± 178	< 7	< 8	< 32	< 11
	04/27/05	1290 ± 45	< 1	< 2	< 7	< 2
	05/11/05	1230 ± 149	< 5	< 7	< 23	< 8
	05/25/05	1340 ± 172	< 6	< 8	< 30	< 9
	06/08/05	1420 ± 161	< 7	< 7	< 30	< 9
	06/22/05	1310 ± 192	< 7	< 9	< 33	< 13
	07/06/05	1340 ± 140	< 5	< 6	< 27	< 7
	07/20/05	1140 ± 140	< 4	< 4	< 14	< 7
	08/03/05	1160 ± 204	< 5	< 5	< 23	< 7
	08/17/05	1450 ± 165	< 4	< 7	< 20	< 4
	08/31/05	1390 ± 145	< 6	< 6	< 26	< 8
	09/14/05	1430 ± 256	< 11	< 11	< 45	< 8
	09/28/05	1200 ± 161	< 6	< 8	< 31	< 8
	10/12/05	1230 ± 159	< 7	< 7	< 34	< 10
	10/26/05	1390 ± 145	< 6	< 8	< 27	< 6
	11/09/05	1170 ± 147	< 4	< 4	< 21	< 4
	11/22/05	1300 ± 123	< 5	< 5	< 24	< 8
	12/07/05	1220 ± 225	< 7	< 10	< 43	< 9
	MEAN	1297 ± 183	5 ± 4	6 ± 4	26 ± 17	7 ± 5

TABLE C-X.3 CONCENTRATIONS OF GAMMA EMITTERS IN MILK SAMPLES COLLECTED IN THE VICINITY OF THREE MILE ISLAND NUCLEAR STATION, 2005

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

STC	COLLECTION PERIOD	K-40	Cs-134	Cs-137	Ba-140	La-140
F4-1	03/30/05	1380 ± 193	< 8	< 10	< 38	< 10
	06/22/05	1400 ± 210	< 7	< 9	< 30	< 11
	09/28/05	1450 ± 152	< 5	< 7	< 26	< 6
	12/07/05	1360 ± 200	< 8	< 9	< 35	< 13
	MEAN	1398 ± 77	7 ± 2	8 ± 3	32 ± 11	10 ± 6
G2-1	01/05/05	1350 ± 124	< 4	< 5	< 23	< 7
	02/02/05	1220 ± 147	< 6	< 7	< 32	< 10
	03/02/05	1200 ± 106	< 5	< 5	< 22	< 8
	03/16/05	1120 ± 216	< 8	< 9	< 38	< 11
	03/30/05	1390 ± 139	< 5	< 6	< 25	< 7
	04/13/05	1400 ± 153	< 5	< 7	< 21	< 7
	04/27/05	1300 ± 134	< 4	< 6	< 23	< 6
	05/11/05	976 ± 141	< 5	< 5	< 25	< 5
	05/25/05	1130 ± 139	< 5	< 7	< 31	< 11
	06/08/05	1040 ± 171	< 6	< 9	< 35	< 9
	06/22/05	944 ± 136	< 6	< 5	< 23	< 7
	07/06/05	1280 ± 161	< 7	< 7	< 27	< 9
	07/20/05	1230 ± 160	< 6	< 7	< 25	< 7
	08/03/05	1180 ± 175	< 5	< 6	< 28	< 8
	08/17/05	1180 ± 131	< 3	< 4	< 17	< 5
	08/31/05	1680 ± 147	< 4	< 4	< 19	< 4
	09/14/05	1070 ± 147	< 5	< 7	< 27	< 9
	09/28/05	1400 ± 130	< 5	< 5	< 22	< 7
	10/12/05	1350 ± 130	< 5	< 6	< 27	< 8
	10/26/05	1120 ± 124	< 6	< 7	< 25	< 8
	11/09/05	1550 ± 184	< 6	< 7	< 33	< 7
	11/22/05	1350 ± 150	< 4	< 5	< 21	< 9
	12/07/05	1300 ± 206	< 6	< 5	< 22	< 12
	MEAN	1250 ± 352	5 ± 2	6 ± 3	26 ± 11	8 ± 4
K15-3	01/05/05	1530 ± 151	< 5	< 6	< 23	< 7
	02/02/05	1400 ± 142	< 3	< 5	< 13	< 5
	03/02/05	1470 ± 135	< 3	< 4	< 16	< 5
	03/16/05	1400 ± 217	< 8	< 10	< 45	< 11
	03/30/05	1210 ± 152	< 3	< 5	< 17	< 5
	04/13/05	1290 ± 174	< 5	< 5	< 21	< 6
	04/27/05	1280 ± 152	< 4	< 7	< 28	< 9
	05/11/05	1410 ± 167	< 4	< 6	< 17	< 6
	05/25/05	1370 ± 144	< 5	< 6	< 29	< 10
	06/08/05	1430 ± 129	< 4	< 5	< 25	< 6
	06/22/05	1420 ± 195	< 8	< 7	< 31	< 10
	07/06/05	1350 ± 169	< 6	< 7	< 26	< 4
	07/20/05	1320 ± 123	< 5	< 5	< 21	< 7
	08/03/05	1300 ± 191	< 8	< 7	< 38	< 9
	08/17/05	1340 ± 153	< 5	< 6	< 25	< 10
	08/31/05	1470 ± 197	< 5	< 5	< 28	< 10
	09/14/05	1270 ± 54	< 1	< 2	< 10	< 3
	09/28/05	1420 ± 150	< 5	< 4	< 19	< 7
	10/12/05	1260 ± 158	< 5	< 4	< 20	< 8
	10/26/05	1340 ± 157	< 4	< 5	< 18	< 5
	11/09/05	1480 ± 130	< 5	< 6	< 26	< 7
	11/22/05	1290 ± 152	< 5	< 6	< 32	< 11
	12/07/05	1230 ± 223	< 9	< 10	< 30	< 10
	MEAN	1360 ± 173	5 ± 4	6 ± 4	24 ± 16	7 ± 5

TABLE C-XI.1 **CONCENTRATIONS OF STRONTIUM AND GAMMA EMITTERS IN FOOD PRODUCT SAMPLES COLLECTED IN THE VICINITY OF THREE MILE ISLAND NUCLEAR STATION, 2005**

RESULTS IN UNITS OF PCI/KG WET ± 2 SIGMA

STC	COLLECTION PERIOD	Sr-90	K-40	I-131	Cs-134	Cs-137
B10-2 Cabbage	07/21/05	< 4	1790 ± 360	< 28	< 18	< 22
B10-2 Red Beets	08/01/05		2840 ± 509	< 42	< 20	< 23
B10-2 Tomatoes	08/01/05		1900 ± 285	< 22	< 12	< 15
B10-2 Sweet Corn	08/01/05		2420 ± 406	< 22	< 14	< 14
	MEAN		2238 ± 973	28 ± 18	16 ± 8	19 ± 10
E1-2 Cabbage	07/21/05	< 4	2190 ± 266	< 20	< 13	< 12
E1-2 Red Beets	08/01/05		4030 ± 616	< 42	< 16	< 20
E1-2 Tomatoes	08/01/05		2560 ± 430	< 32	< 17	< 19
E1-2 Sweet Corn	08/01/05		2350 ± 354	< 28	< 13	< 16
	MEAN		2783 ± 1691	30 ± 19	15 ± 4	17 ± 7

TABLE C-XII.1 QUARTERLY TLD RESULTS FOR THREE MILE ISLAND NUCLEAR STATION, 2005

RESULTS IN UNITS OF MILLI-ROENTGEN/STD. MONTH

STATION CODE	MEAN ± 2 S. D.	01/13 - 04/14/05	04/14 - 07/14/05	07/14 - 10/13/05	10/13 - 01/13/06
A1-4	3.5 ± 1.1	3.3	2.8	3.8	4.1
A3-1	3.9 ± 1.1	3.8	3.2	4.3	4.4
A5-1	4.8 ± 1.0	4.3	4.3	5.2	5.2
A9-3	3.4 ± 1.2	3.2	2.6	4.0	3.6
B1-1	4.0 ± 1.0	3.9	3.4	4.6	4.2
B1-2	3.8 ± 0.4	3.6	(1)	4.0	3.7
B2-1	3.5 ± 1.3	3.2	2.8	4.1	4.0
B5-1	3.5 ± 1.2	3.1	2.8	4.1	3.9
B10-1	4.4 ± 1.3	4.1	3.6	5.1	4.7
C1-1	4.1 ± 1.5	3.6	3.4	4.8	4.7
C1-2	3.6 ± 1.6	3.2	2.8	4.6	3.7
C2-1	3.9 ± 1.3	3.6	3.2	4.5	4.4
C5-1	4.3 ± 1.5	3.9	3.5	5.0	4.9
C8-1	4.4 ± 1.5	4.1	4.2	5.5	3.8
D1-1	3.6 ± 1.4	3.3	2.9	4.5	3.8
D1-2	4.3 ± 2.1	3.7	3.2	5.6	4.5
D2-2	4.5 ± 1.5	4.1	3.6	5.3	4.8
D6-1	5.0 ± 1.4	4.6	4.3	5.8	5.4
D15-1	5.2 ± 1.5	4.7	4.4	5.9	5.7
E1-2	3.8 ± 1.2	3.5	3.1	4.5	4.1
E1-4	3.5 ± 1.3	3.1	2.8	4.3	3.7
E2-3	4.9 ± 1.8	4.3	4.0	5.9	5.5
E5-1	4.3 ± 1.6	3.7	3.5	5.1	4.8
E7-1	4.2 ± 1.2	3.7	3.7	4.9	4.6
F1-1	5.7 ± 2.0	5.1	4.8	7.1	5.6
F1-2	4.0 ± 1.4	3.5	3.3	4.7	4.5
F1-4	3.7 ± 1.4	3.2	3.0	4.4	4.1
F2-1	3.6 ± 1.8	3.2	2.6	4.7	4.0
F5-1	4.7 ± 1.6	4.0	4.1	5.7	5.1
F10-1	4.6 ± 1.4	4.1	4.0	5.5	4.9
F25-1	5.0 ± 1.2	4.7	4.3	5.7	5.3
G1-2	6.4 ± 1.1	6.6	5.7	7.0	6.3
G1-3	4.5 ± 1.6	4.2	3.5	5.4	4.7
G1-5	3.7 ± 1.4	3.2	3.1	4.6	3.8
G1-6	3.7 ± 1.8	3.2	2.8	4.8	4.1
G2-4	4.7 ± 1.7	4.0	3.9	5.7	5.0
G5-1	4.0 ± 1.2	3.7	3.4	4.8	4.0
G10-1	5.3 ± 1.6	5.0	4.3	6.2	5.6
G15-1	4.1 ± 1.6	3.7	3.2	5.0	4.5
H1-1	4.1 ± 1.5	3.5	3.4	4.8	4.7
H3-1	5.0 ± 1.2	4.6	4.3	5.5	5.4
H5-1	3.3 ± 1.1	3.1	2.5	3.7	3.7
H8-1	3.2 ± 0.9	3.1	2.6	3.6	3.5
H15-1	6.9 ± 1.4	6.4	6.2	7.7	7.1
J1-1	3.4 ± 1.2	3.3	2.6	4.0	3.8

(1) SEE PROGRAM EXCEPTIONS SECTION FOR EXPLANATION

TABLE C-XII.1 QUARTERLY TLD RESULTS FOR THREE MILE ISLAND NUCLEAR STATION, 2005

RESULTS IN UNITS OF MILLI-ROENTGEN/STD. MONTH

STATION CODE	MEAN ± 2 S. D.	01/13 - 04/14/05	04/14 - 07/14/05	07/14 - 10/13/05	10/13 - 01/13/06
J1-3	3.0 ± 1.5	2.8	2.0	3.7	3.3
J3-1	4.8 ± 1.1	4.4	4.2	5.4	5.1
J5-1	3.9 ± 1.4	3.6	3.1	4.6	4.3
J7-1	4.7 ± 1.2	4.3	4.0	5.2	5.2
J15-1	5.0 ± 1.4	4.5	4.2	5.7	5.4
K1-4	3.6 ± 1.0	3.4	2.9	4.1	3.8
K2-1	4.1 ± 0.7	4.4	3.6	4.3	4.1
K3-1	4.6 ± 1.9	3.9	3.7	5.4	5.4
K5-1	3.5 ± 1.0	3.2	3.0	3.8	4.1
K8-1	4.5 ± 1.1	4.1	4.0	5.1	4.8
K15-1	4.7 ± 1.1	4.7	3.9	5.1	5.0
L1-1	3.7 ± 1.1	3.6	2.9	3.9	4.2
L1-2	3.4 ± 1.2	3.4	2.6	4.0	3.6
L2-1	4.2 ± 1.0	4.2	3.5	4.6	4.5
L5-1	4.2 ± 1.2	3.9	3.5	4.7	4.7
L8-1	3.9 ± 2.1	3.5	2.7	5.2	4.3
L15-1	4.3 ± 1.2	3.8	3.7	4.7	4.9
M1-1	3.4 ± 1.6	3.4	2.7	3.0	4.5
M1-2	3.4 ± 1.1	3.2	3.0	3.3	4.2
M2-1	3.2 ± 1.2	2.8	2.8	3.1	4.1
M5-1	4.0 ± 0.9	4.1	3.4	3.8	4.5
M9-1	5.0 ± 1.1	4.7	4.6	4.9	5.8
N1-1	3.5 ± 0.9	3.3	3.1	3.3	4.1
N1-3	3.6 ± 2.1	3.4	2.7	3.3	5.1
N2-1	4.7 ± 1.2	4.3	4.1	4.8	5.4
N5-1	3.5 ± 2.2	3.0	2.8	3.0	5.1
N8-1	3.2 ± 1.2	2.9	2.8	3.0	4.1
N15-2	4.2 ± 1.0	4.0	3.8	3.9	4.9
P1-1	3.7 ± 1.2	3.8	3.1	3.5	4.5
P1-2	3.8 ± 3.4	3.1	2.8	3.0	6.4
P2-1	4.8 ± 0.9	4.6	4.6	4.5	5.5
P5-1	3.9 ± 1.0	3.7	3.5	3.6	4.6
P8-1	3.1 ± 1.1	3.0	2.7	2.9	3.9
Q1-1	3.6 ± 1.2	3.0	3.4	3.6	4.4
Q1-2	3.1 ± 1.7	2.8	2.4	2.8	4.3
Q2-1	4.2 ± 0.3	4.4	4.1	4.2	(1)
Q5-1	3.5 ± 2.2	2.2	3.0	4.6	4.2
Q9-1	3.5 ± 0.9	3.4	3.1	3.4	4.2
Q15-1	4.0 ± 1.2	3.8	3.5	3.7	4.8
R1-1	3.5 ± 1.4	3.3	3.1	3.1	4.6
R1-2	3.4 ± 1.0	3.1	3.0	3.4	4.1
R3-1	3.8 ± 1.2	3.5	3.3	3.6	4.6
R5-1	4.6 ± 1.1	4.2	4.2	4.7	5.4
R9-1	4.6 ± 1.3	4.7	3.9	4.4	5.5
R15-1	4.5 ± 1.6	4.5	3.7	4.3	5.6

(1) SEE PROGRAM EXCEPTIONS SECTION FOR EXPLANATION

TABLE C-XII.2 MEAN QUARTERLY TLD RESULTS FOR THE SITE BOUNDARY, OFFSITE AND CONTROL LOCATIONS FOR THREE MILE ISLAND NUCLEAR STATION, 2005

RESULTS IN UNITS OF MILLI-ROENTGEN PER STD. MONTH ± 2 STANDARD DEVIATIONS OF THE STATION DATA

STATION CODE	SITE BOUNDARY ± 2 S. D.	OFFSITE	CONTROL
JAN-MAR	3.3 ± 0.5	3.9 ± 1.4	4.4 ± 1.6
APR-JUN	2.8 ± 0.6	3.5 ± 1.4	4.0 ± 1.3
JUL-SEP	4.0 ± 1.3	4.6 ± 2.0	5.1 ± 1.8
OCT-DEC	4.2 ± 1.3	4.7 ± 1.4	5.0 ± 1.2

TABLE C-XII.3 SUMMARY OF THE AMBIENT DOSIMETRY PROGRAM FOR THREE MILE ISLAND NUCLEAR STATION, 2005

RESULTS IN UNITS OF MILLI-ROENTGEN/STD. MONTH

LOCATION	SAMPLES ANALYZED	PERIOD MINIMUM	PERIOD MAXIMUM	PERIOD MEAN ± 2 S. D.	PRE-OP MEAN ± 2 S. D.
SITE BOUNDARY	83	2.0	6.4	3.6 ± 1.5	4.8 ± 1.5
OFFSITE	232	2.2	7.7	4.2 ± 1.8	5.2 ± 1.5
CONTROL	43	3.3	7.0	4.6 ± 1.7	5.8 ± 1.7

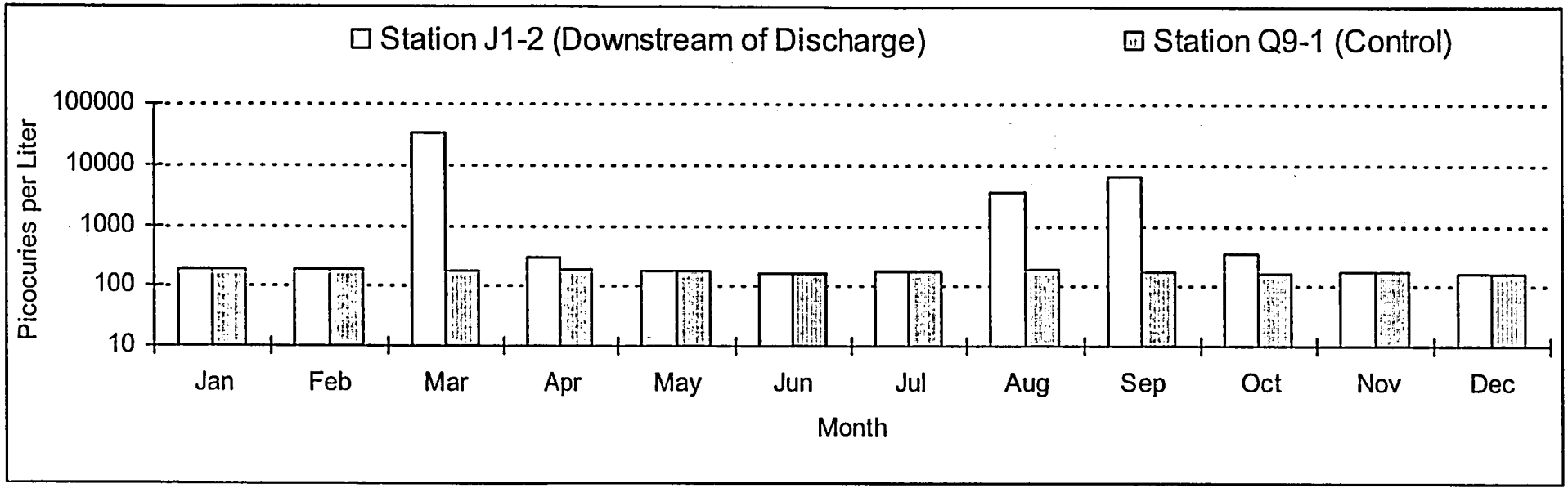
THE PRE-OPERATIONAL MEAN WAS CALCULATED FROM MONTHLY TLD READINGS 1980 TO 1985.

SITE BOUNDARY STATIONS - A1-4, B1-1, B1-2, C1-2, D1-1, E1-4, F1-2, F1-4, G1-3, G1-5, G1-6, H1-1, J1-1, J1-3, K1-4, L1-1, M1-1, N1-3, P1-2, Q1-2, R1-1

OFFSITE STATIONS - A3-1, A5-1, A9-3, B2-1, B5-1, B10-1, C1-1, C2-1, C5-1, C8-1, D1-2, D2-2, D6-1, E1-2, E2-3, E5-1, E7-1, F1-1, F2-1, F5-1, F10-1, G1-2, G2-4, G5-1, H3-1, H5-1, H8-1, J3-1, J5-1, J7-1, K2-1, K3-1, K5-1, K8-1, L1-2, L2-1, L5-1, L8-1, M1-2, M2-1, M5-1, M9-1, N1-1, N2-1, N5-1, N8-1, P1-1, P2-1, P5-1, P8-1, Q1-1, Q2-1, Q5-1, Q9-1, R1-2, R3-1, R5-1, R9-1

CONTROL STATIONS - D15-1, F25-1, G10-1, G15-1, H15-1, J15-1, K15-1, L15-1, N15-2, Q15-1, R15-1

FIGURE C-1
Monthly Tritium Concentrations in Surface Water and Effluent Water
Three Mile Island Nuclear Station, 2005



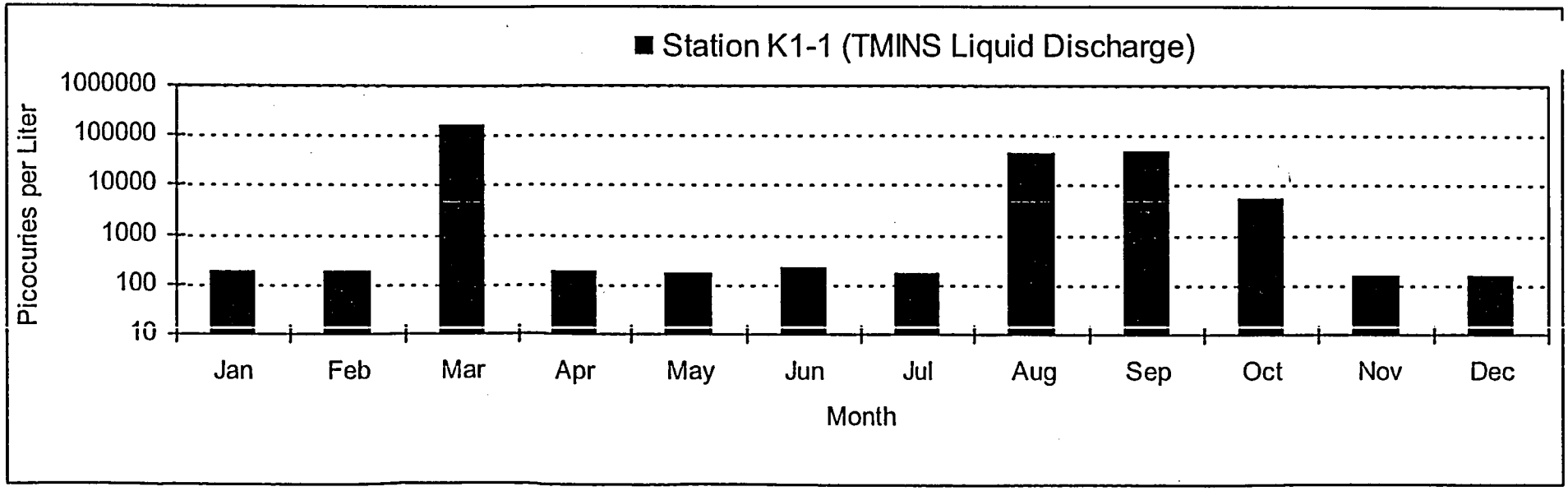


FIGURE C-2

Mean Quarterly Tritium Concentrations in Surface Water

Three Mile Island Nuclear Station, 1974 - 2005

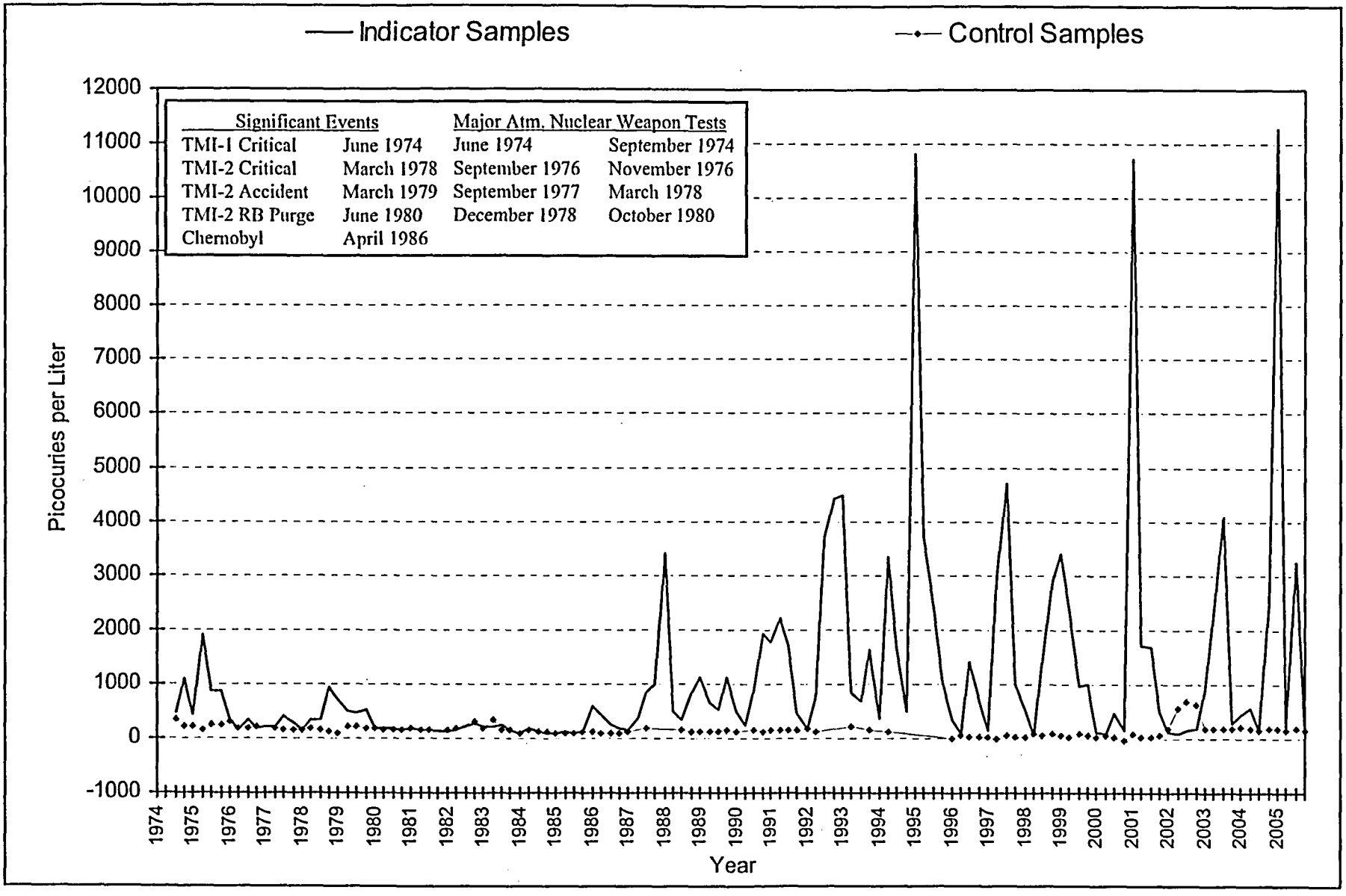


FIGURE C-3
Mean Monthly Gross Beta Concentrations in Drinking Water
Three Mile Island Nuclear Station, 2005

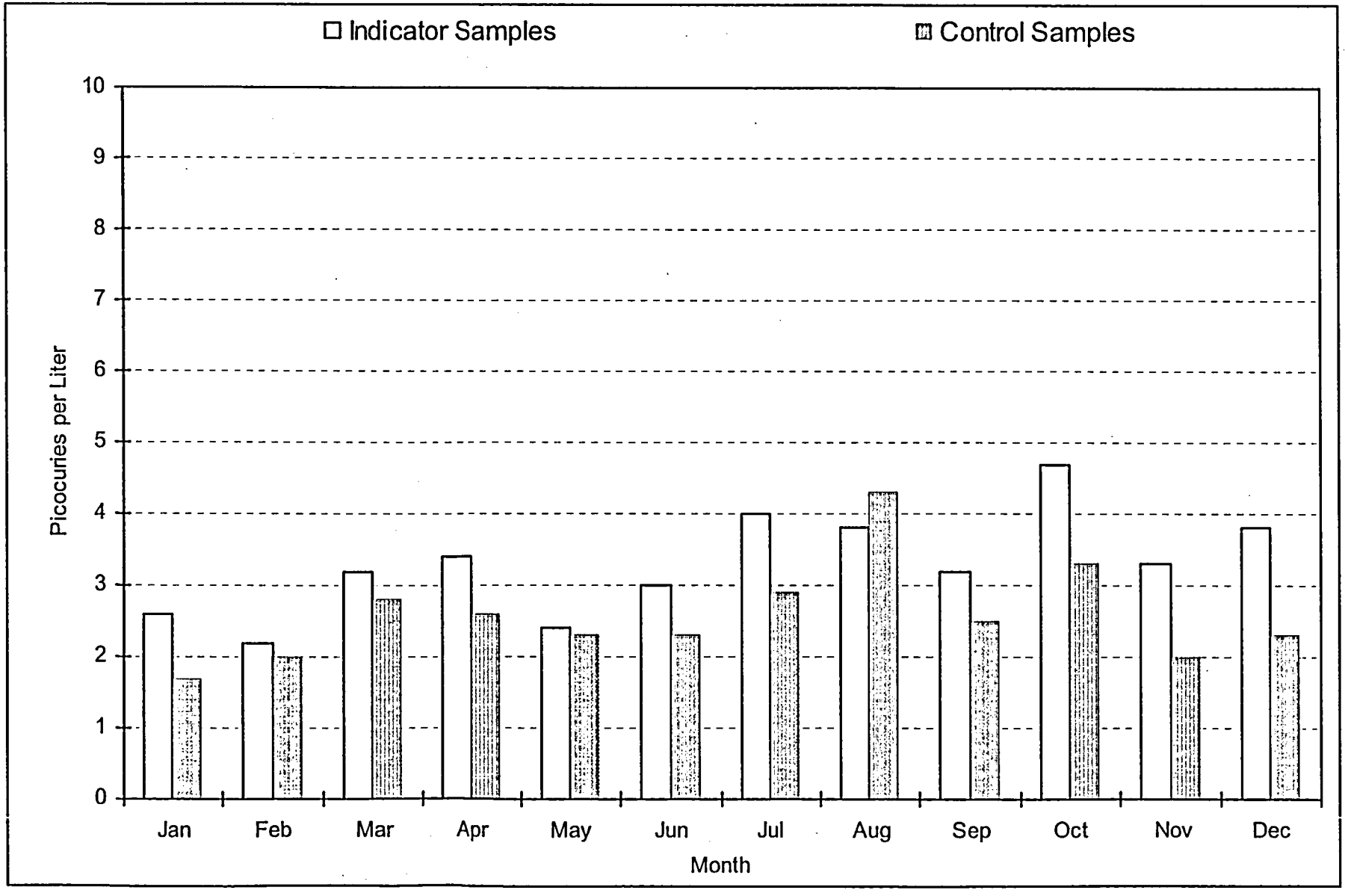
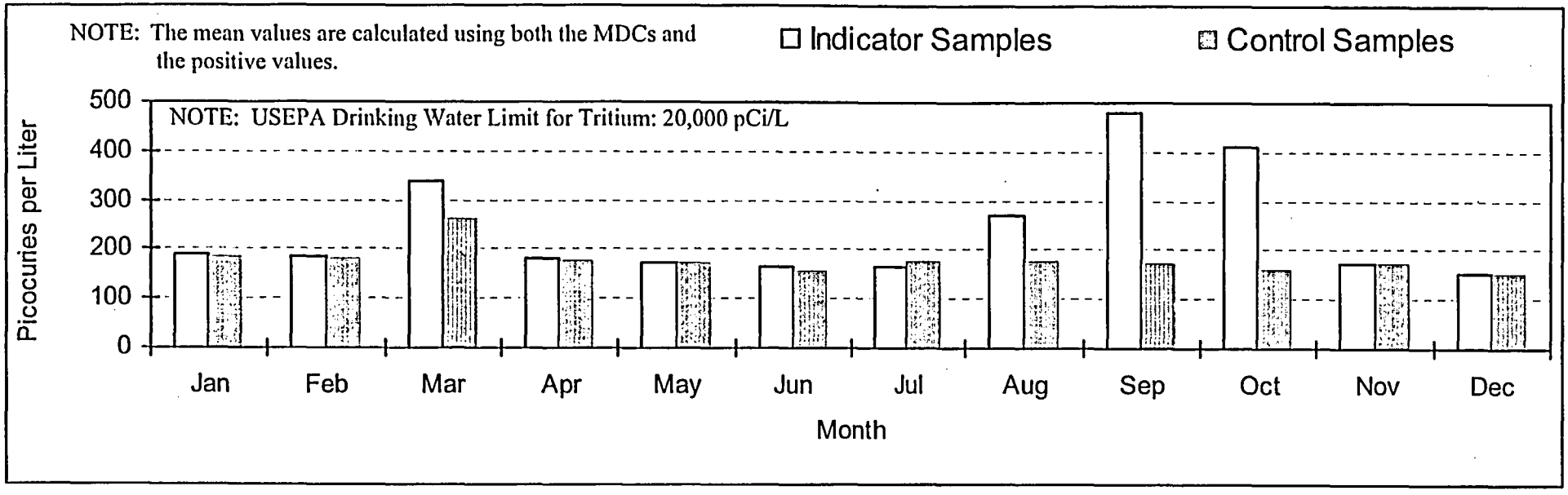


FIGURE C-4

Mean Monthly Tritium Concentrations in Drinking Water and Effluent Water

Three Mile Island Nuclear Station, 2005



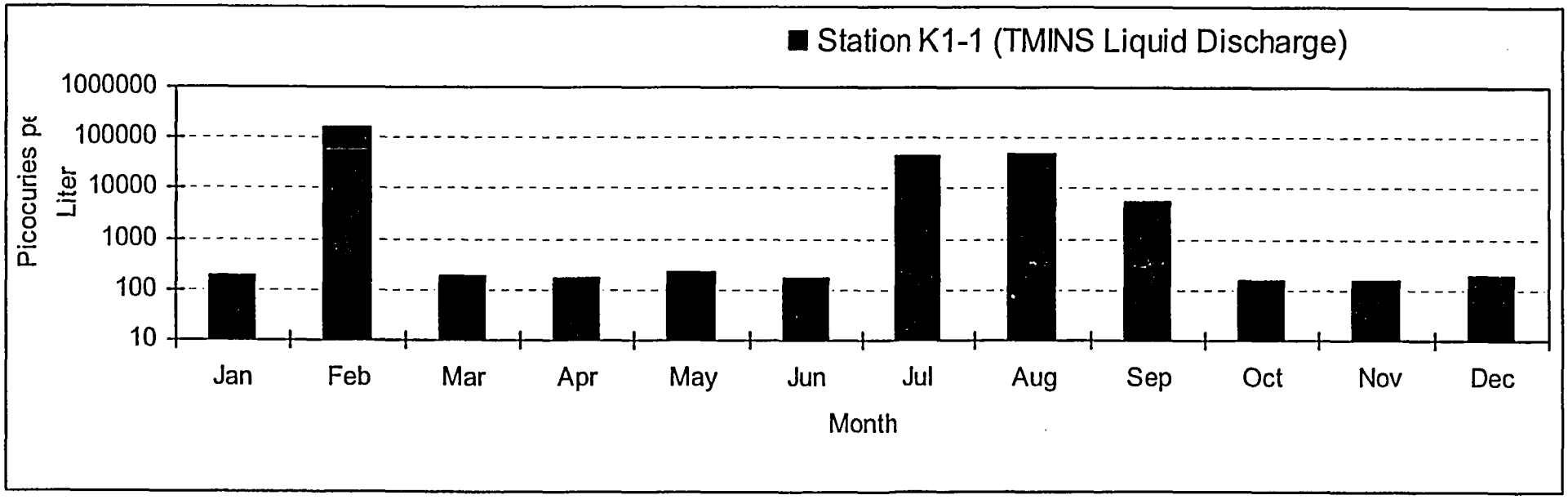


FIGURE C-5
Mean Cesium-137 Concentrations in Aquatic Sediments
Three Mile Island Nuclear Station, 1984 - 2005

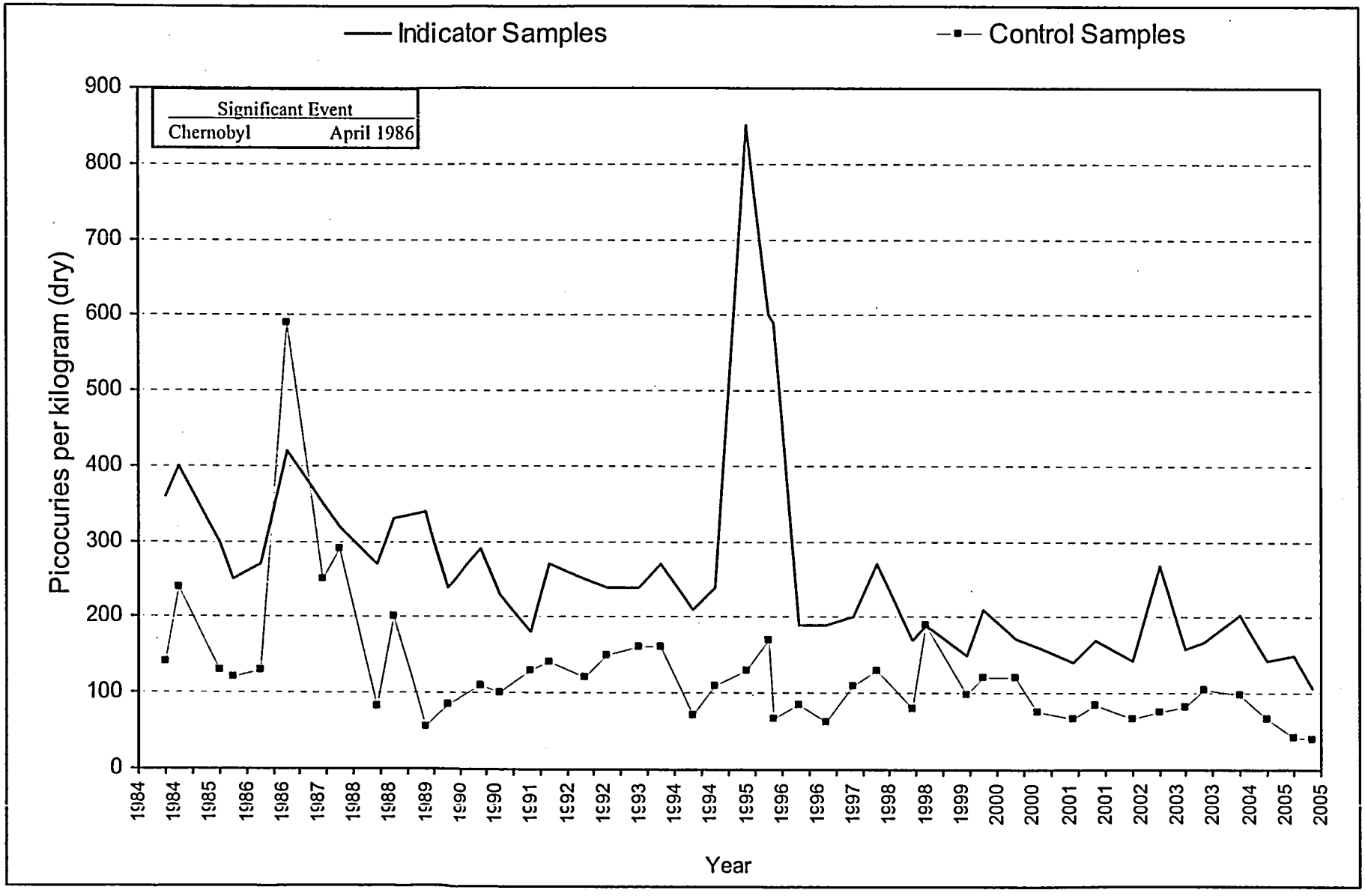


FIGURE C-6
Mean Quarterly Gross Beta Concentrations in Air Particulates
Three Mile Island Nuclear Station, 1972 - 2005

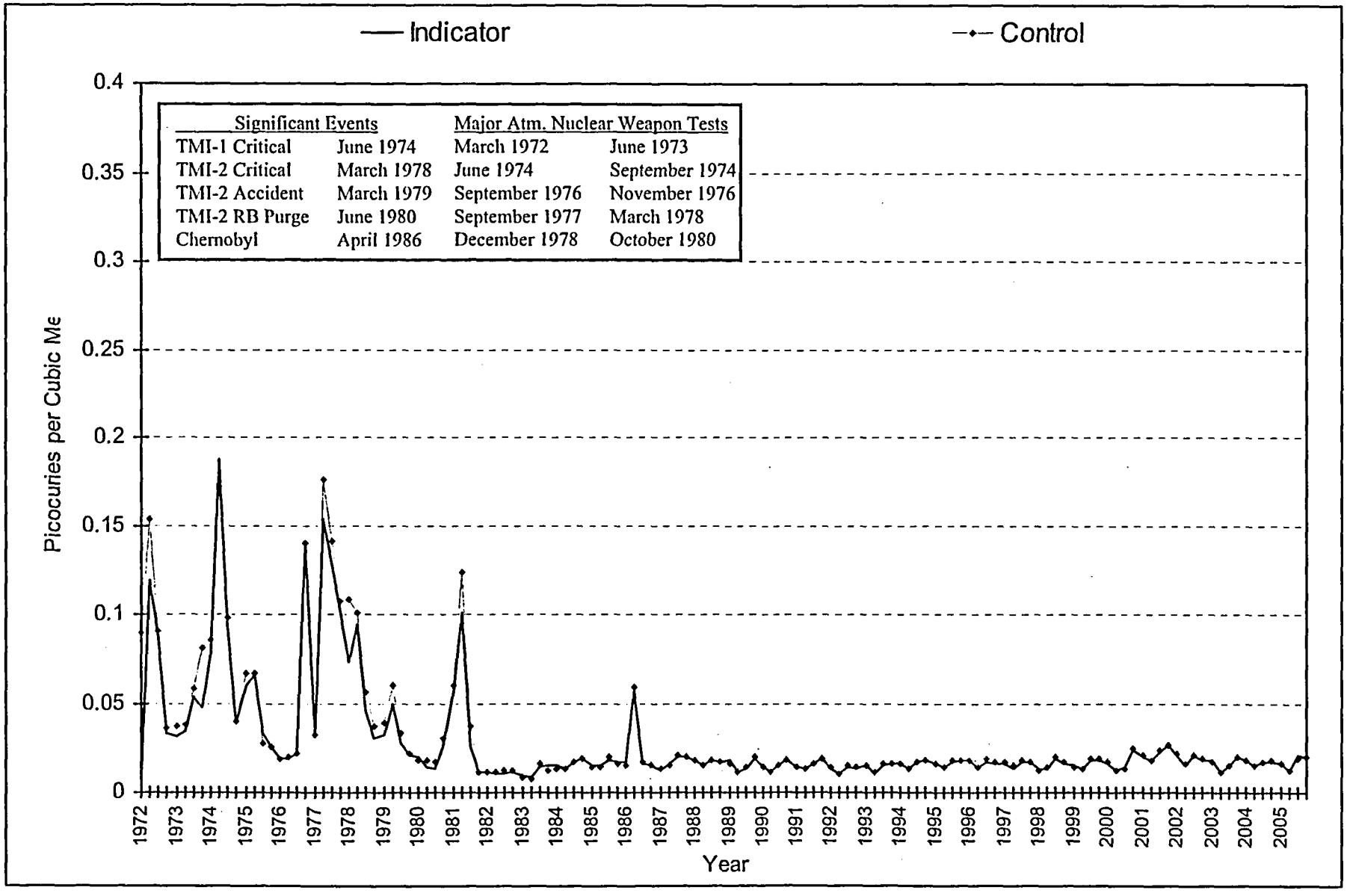


FIGURE C-7
Mean Weekly Gross Beta Concentrations in Air Particulates
Three Mile Island Nuclear Station, 2005

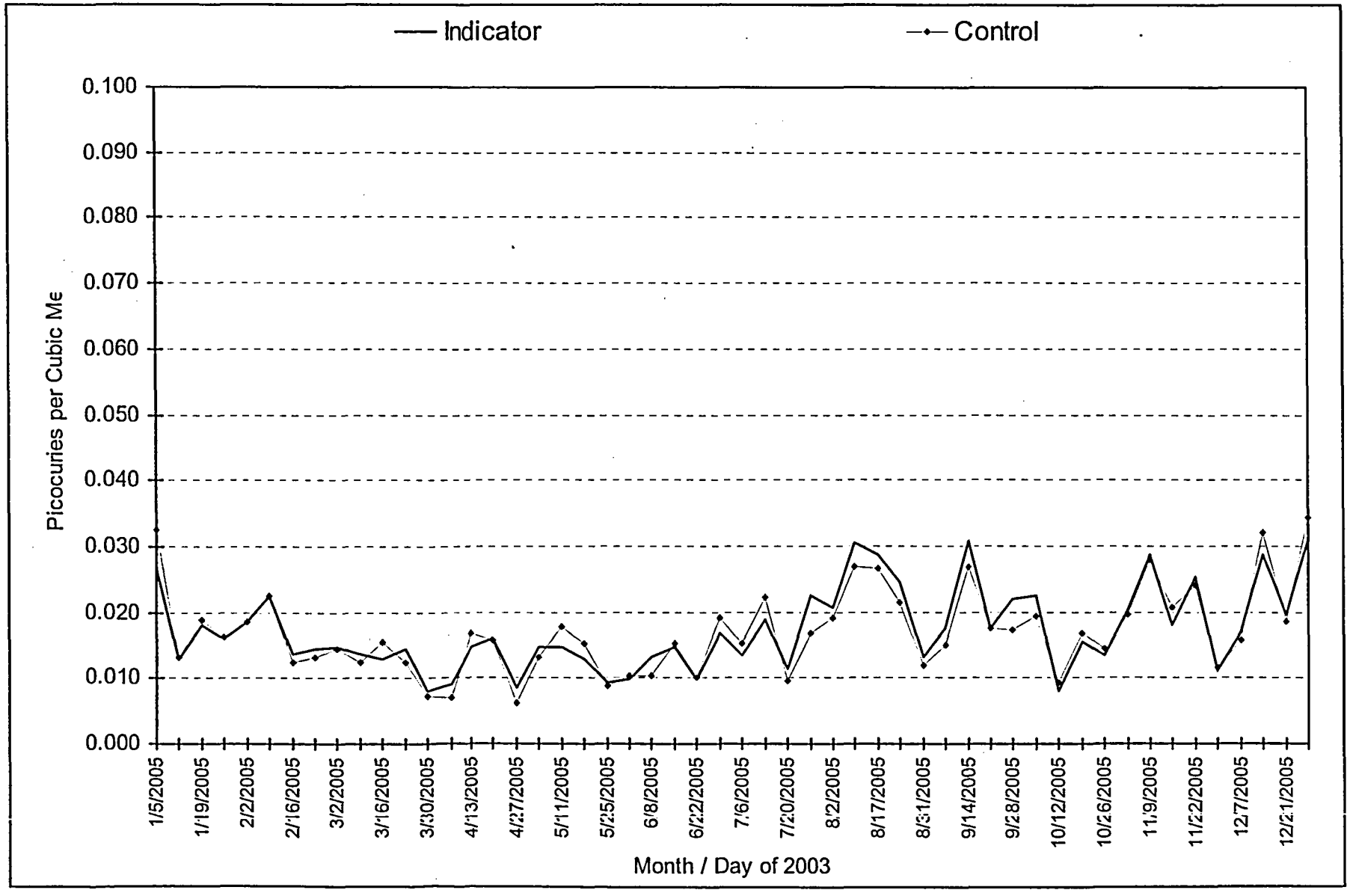


FIGURE C-8
Mean Quarterly Strontium-90 Concentrations in Cow Milk
Three Mile Island Nuclear Station, 1979 - 2005

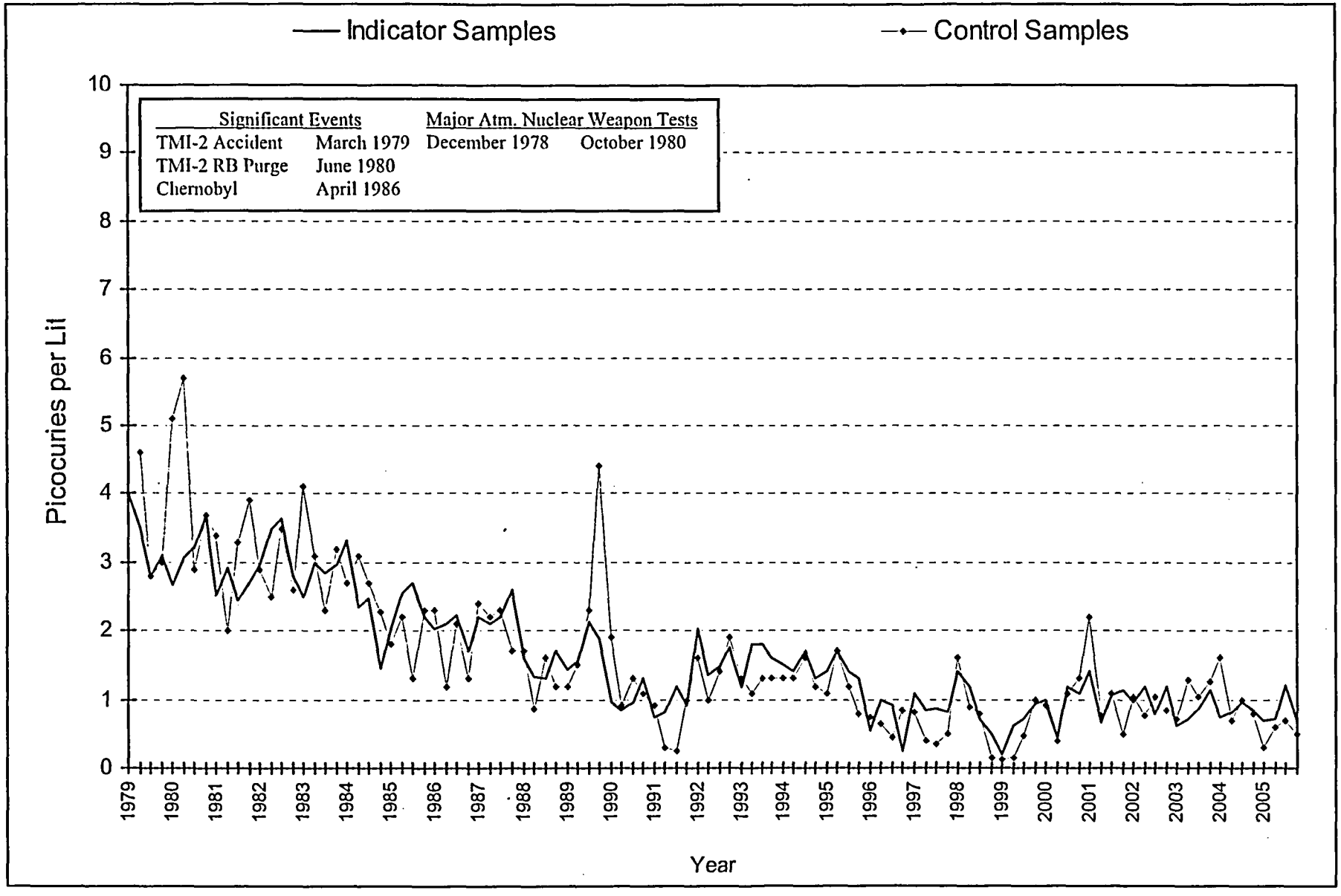
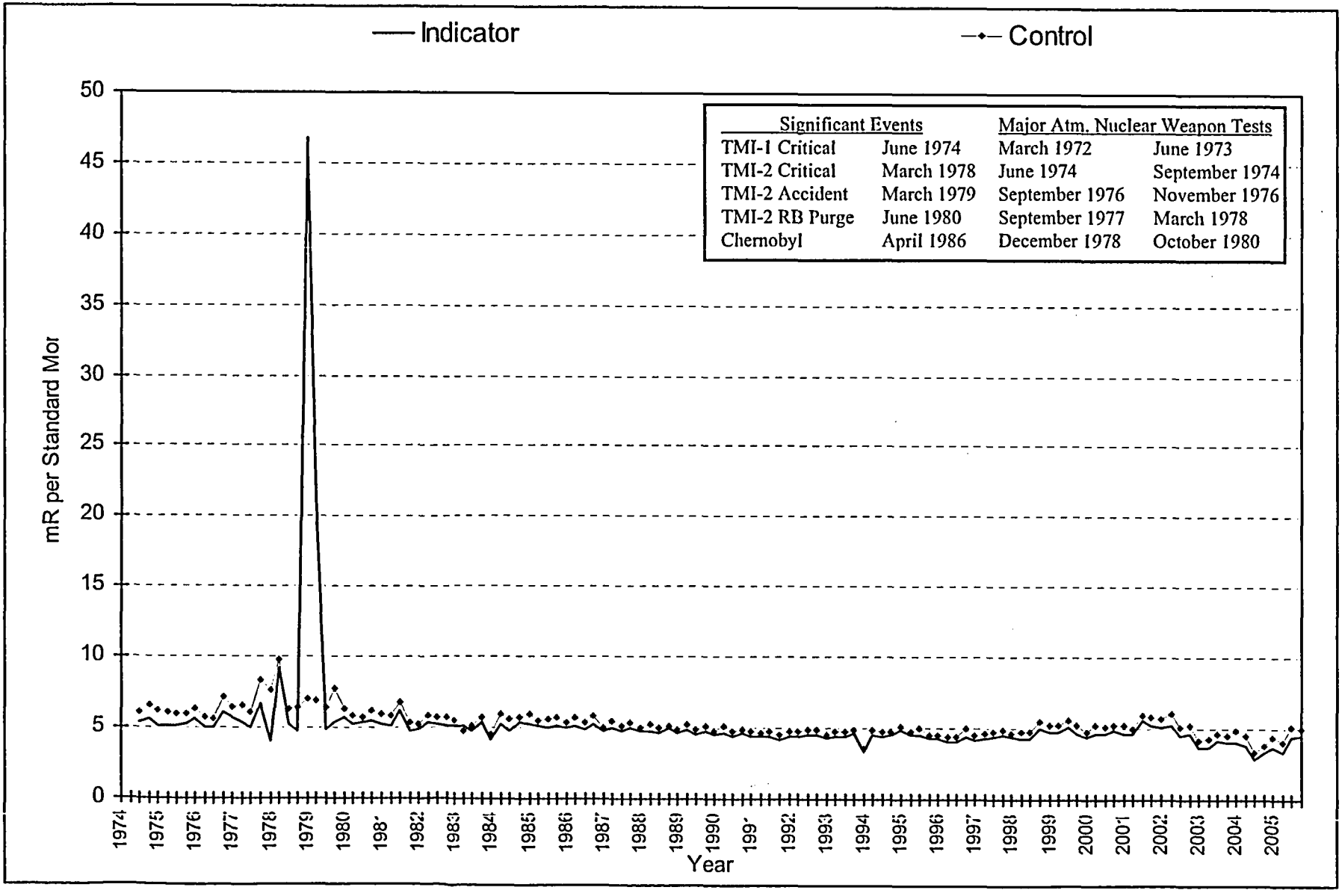


FIGURE C-9
Mean Quarterly Gamma Exposure Rates
Three Mile Island Nuclear Station, 1974 - 2005



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APPENDIX D

DATA TABLES AND FIGURES
COMPARISON LABORATORY

The following section contains data and figures illustrating the analyses performed by the quality control laboratory, Environmental Inc. (Env). Duplicate samples were obtained from several locations and media and split between the primary laboratory, Teledyne Brown Engineering (TBE) and Environmental Inc. (Env). Comparison of the results for most media were within expected ranges.

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TABLE D-I.1 CONCENTRATIONS OF GROSS BETA IN DRINKING WATER SAMPLES COLLECTED IN THE VICINITY OF THREE MILE ISLAND NUCLEAR STATION, 2005

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

COLLECTION PERIOD	Q9-1Q
12/28/04 - 02/01/05	< 1.9
02/01/05 - 03/01/05	< 1.7
03/01/05 - 03/29/05	< 1.8
03/29/05 - 05/03/05	< 0.9
05/03/05 - 05/31/05	2.6 ± 1.1
05/31/05 - 06/28/05	1.0 ± 0.5
06/28/05 - 08/02/05	2.2 ± 1.0
08/02/05 - 08/30/05	3.1 ± 1.1
08/30/05 - 09/27/05	1.3 ± 0.6
09/27/05 - 11/01/05	2.5 ± 1.1
11/01/05 - 11/30/05	< 1.9
11/30/05 - 01/03/06	1.9 ± 1.0
MEAN	1.9 ± 1.3

TABLE D-I.2 CONCENTRATIONS OF TRITIUM IN DRINKING WATER SAMPLES COLLECTED IN THE VICINITY OF THREE MILE ISLAND NUCLEAR STATION, 2005

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

COLLECTION PERIOD	Q9-1Q
12/28/04 - 02/01/05	< 162
02/01/05 - 03/01/05	< 163
03/01/05 - 03/29/05	< 166
03/29/05 - 05/03/05	< 140
05/03/05 - 05/31/05	< 167
05/31/05 - 06/28/05	< 162
06/28/05 - 08/02/05	170 ± 95
08/02/05 - 08/30/05	197 ± 100
08/30/05 - 09/27/05	158 ± 86
09/27/05 - 11/01/05	< 179
11/01/05 - 11/30/05	< 178
11/30/05 - 01/03/06	< 152
MEAN	166 ± 29

TABLE D-I.3 CONCENTRATIONS OF IODINE-131 IN DRINKING WATER SAMPLES COLLECTED IN THE VICINITY OF THREE MILE ISLAND NUCLEAR STATION, 2005

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

COLLECTION PERIOD	Q9-1Q
12/28/04 - 02/01/05	< 0.3
02/01/05 - 03/01/05	< 0.3
03/01/05 - 03/29/05	< 0.3
03/29/05 - 05/03/05	< 0.3
05/03/05 - 05/31/05	< 0.3
05/31/05 - 06/28/05	< 0.2
06/28/05 - 08/02/05	< 0.2
08/02/05 - 08/30/05	< 0.4
08/30/05 - 09/27/05	< 0.3
09/27/05 - 11/01/05	< 0.3
11/01/05 - 11/30/05	< 0.2
11/30/05 - 01/03/06	< 0.2
MEAN	0.3 ± 0.1

TABLE D-I.4 CONCENTRATIONS OF GAMMA EMITTERS IN DRINKING WATER SAMPLES COLLECTED IN THE VICINITY OF THREE MILE ISLAND NUCLEAR STATION, 2005

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

STC	COLLECTION PERIOD	Mn-54	Co-58	Fe-59	Co-60	Zn-65	Zr-95	Nb-95	Cs-134	Cs-137	Ba-140	La-140
Q9-1Q	12/28/04 - 02/01/05	< 2.3	< 4.1	< 4.1	< 2.1	< 6.4	< 6.7	< 4.7	< 2.4	< 1.8	< 17	< 4.3
	02/01/05 - 03/01/05	< 4.1	< 3.0	< 10	< 2.2	< 7.8	< 4.8	< 4.2	< 4.6	< 5.2	< 19	< 3.7
	03/01/05 - 03/29/05	< 1.3	< 3.0	< 5.0	< 3.0	< 7.3	< 5.5	< 3.8	< 3.3	< 1.7	< 11	< 1.4
	03/29/05 - 05/03/05	< 2.8	< 2.6	< 9.7	< 2.5	< 4.4	< 7.4	< 4.7	< 4.9	< 3.6	< 24	< 5.5
	05/03/05 - 05/31/05	< 3.3	< 2.5	< 6.0	< 2.5	< 3.7	< 5.7	< 4.9	< 3.2	< 3.8	< 36	< 4.9
	05/31/05 - 06/28/05	< 5.4	< 4.5	< 6.0	< 2.2	< 3.8	< 7.5	< 4.0	< 1.7	< 4.3	< 39	< 12
	06/28/05 - 08/02/05	< 3.6	< 3.2	< 4.2	< 2.5	< 4.7	< 7.6	< 3.5	< 3.4	< 4.8	< 24	< 6.1
	08/02/05 - 08/30/05	< 2.6	< 2.9	< 2.6	< 2.5	< 5.0	< 5.2	< 4.2	< 3.1	< 2.7	< 13	< 4.2
	08/30/05 - 09/27/05	< 2.7	< 2.3	< 6.3	< 1.5	< 4.3	< 5.7	< 3.2	< 3.2	< 2.9	< 14	< 3.4
	09/27/05 - 11/01/05	< 2.9	< 1.4	< 9.1	< 1.2	< 3.2	< 5.7	< 5.1	< 2.8	< 3.1	< 15	< 5.7
	11/01/05 - 11/30/05	< 6.1	< 4.9	< 21	< 8.8	< 9.7	< 13	< 7.1	< 5.3	< 4.9	< 36	< 13
	11/30/05 - 01/03/06	< 2.3	< 2.6	< 7.4	< 3.0	< 4.0	< 4.0	< 3.7	< 2.0	< 2.1	< 12	< 1.7
	MEAN	3.3 ± 2.7	3.1 ± 2.0	7.6 ± 9.6	2.8 ± 3.9	5.4 ± 4.0	6.6 ± 4.7	4.4 ± 2.0	3.3 ± 2.2	3.4 ± 2.4	22 ± 20	5.5 ± 7.2

TABLE D-I.5 CONCENTRATIONS OF TRITIUM, STRONTIUM, AND GAMMA EMITTERS IN GROUND WATER SAMPLES COLLECTED IN THE VICINITY OF THREE MILE ISLAND NUCLEAR STATION, 2005

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

STC	COLLECTION PERIOD	H-3	Sr-90	Mn-54	Co-58	Fe-59	Co-60	Zn-65	Zr-95	Nb-95	Cs-134	Cs-137	Ba-140	La-140
MS-2Q	06/10/05	218 ± 92												
	12/08/05	251 ± 112	< 0.5	< 4.8	< 3.7	< 13	< 3.7	< 9.8	< 7.6	< 6.5	< 4.5	< 5.3	< 18	< 6.0

TABLE D-I.6 CONCENTRATIONS OF STRONTIUM AND GAMMA EMITTERS IN FISH SAMPLES COLLECTED IN THE VICINITY OF THREE MILE ISLAND NUCLEAR STATION, 2005

RESULTS IN UNITS OF PCI/KG WET ± 2 SIGMA

STC	COLLECTION PERIOD	Sr-89	Sr-90	K-40	Mn-54	Co-58	Fe-59	Co-60	Zn-65	Cs-134	Cs-137
INDPQ	10/26/05	< 11	< 5.5	2810 ± 568	< 14	< 30	< 79	< 15	< 54	< 19	< 14

TABLE D-I.7 CONCENTRATIONS OF GAMMA EMITTERS IN SEDIMENT SAMPLES COLLECTED IN THE VICINITY OF THREE MILE ISLAND NUCLEAR STATION, 2005

RESULTS IN UNITS OF PCI/KG WET ± 2 SIGMA

STC	COLLECTION PERIOD	K-40	Cs-134	Cs-137
J2-1Q	10/17/05	10765 ± 745	< 36	90 ± 35

TABLE D-I.8 CONCENTRATIONS OF GAMMA EMITTERS AND STRONTIUM IN FOOD PRODUCT SAMPLES COLLECTED IN THE VICINITY OF THREE MILE ISLAND NUCLEAR STATION, 2005

RESULTS IN UNITS OF PCI/KG WET ± 2 SIGMA

STC	COLLECTION PERIOD	K-40	I-131	Cs-134	Cs-137	Sr-89	Sr-90
B10-2Q	07/21/05	1635 ± 174	< 21	< 8.3	< 7.6	< 1.1	1.0 ± 0.5

TABLE D-II.1 CONCENTRATIONS OF GROSS BETA IN AIR PARTICULATE SAMPLES COLLECTED IN THE VICINITY OF THREE MILE ISLAND NUCLEAR STATION, 2005

RESULTS IN UNITS OF E-3 PCI/CU METER ± 2 SIGMA

COLLECTION PERIOD	E1-2Q
12/29/05 - 01/05/05	39 ± 4
01/05/05 - 01/12/05	16 ± 4
01/12/05 - 01/19/05	23 ± 5
01/19/05 - 01/26/05	28 ± 5
01/26/05 - 02/02/05	23 ± 4
02/02/05 - 02/09/05	33 ± 4
02/09/05 - 02/16/05	21 ± 4
02/16/05 - 02/23/05	22 ± 4
02/23/05 - 03/02/05	24 ± 4
03/02/05 - 03/09/05	19 ± 4
03/09/05 - 03/16/05	20 ± 4
03/16/05 - 03/23/05	16 ± 4
03/23/05 - 03/30/05	11 ± 3
03/30/05 - 04/06/05	12 ± 4
04/06/05 - 04/13/05	24 ± 4
04/13/05 - 04/20/05	22 ± 4
04/20/05 - 04/27/05	12 ± 4
04/27/05 - 05/04/05	16 ± 4
05/04/05 - 05/11/05	22 ± 4
05/11/05 - 05/18/05	21 ± 4
05/18/05 - 05/25/05	11 ± 4
05/25/05 - 06/01/05	13 ± 4
06/01/05 - 06/08/05	16 ± 4
06/08/05 - 06/15/05	20 ± 4
06/15/05 - 06/22/05	11 ± 4
06/22/05 - 06/29/05	(1)
06/29/05 - 07/06/05	21 ± 4
07/06/05 - 07/13/05	22 ± 5
07/13/05 - 07/20/05	18 ± 4
07/20/05 - 07/27/05	19 ± 4
07/27/05 - 08/02/05	23 ± 5
08/02/05 - 08/10/05	38 ± 4
08/10/05 - 08/17/05	(1)
08/17/05 - 08/24/05	39 ± 5
08/24/05 - 08/31/05	21 ± 4
08/31/05 - 09/07/05	19 ± 5
09/07/05 - 09/14/05	40 ± 5
09/14/05 - 09/21/05	27 ± 6
09/21/05 - 09/28/05	(1)
09/28/05 - 10/05/05	29 ± 5
10/05/05 - 10/12/05	8 ± 4
10/12/05 - 10/19/05	13 ± 4
10/19/05 - 10/26/05	11 ± 4
10/26/05 - 11/02/05	24 ± 4
11/02/05 - 11/09/05	33 ± 5
11/09/05 - 11/16/05	23 ± 5
11/16/05 - 11/22/05	33 ± 5
11/22/05 - 11/30/05	20 ± 3
11/30/05 - 12/07/05	25 ± 4
12/07/05 - 12/14/05	36 ± 5
12/14/05 - 12/21/05	26 ± 5
12/21/05 - 12/28/05	42 ± 5
MEAN	23 ± 17

(1) SEE PROGRAM EXCEPTIONS SECTION FOR EXPLANATION

TABLE D-II.2 CONCENTRATIONS OF GAMMA EMITTERS IN AIR PARTICULATE SAMPLES COLLECTED IN THE VICINITY OF THREE MILE ISLAND NUCLEAR STATION, 2005

RESULTS IN UNITS OF E-3 PCI/CU METER ± 2 SIGMA

STC	COLLECTION PERIOD	Be-7	Cs-134	Cs-137
E1-2Q	12/29 - 03/30/05	71 ± 17	< 1.0	< 0.4
	03/30 - 06/22/05	63 ± 20	< 0.8	< 0.9
	06/29 - 09/21/05	83 ± 17	< 0.9	< 0.6
	09/28 - 12/28/05	58 ± 13	< 0.6	< 0.6
	MEAN	69 ± 22	0.8 ± 0.3	0.6 ± 0.4

TABLE D-III.1 CONCENTRATIONS OF I-131 BY CHEMICAL SEPARATION,GAMMA EMITTERS, & STRONTIUM IN MILK SAMPLES COLLECTED IN THE VICINITY OF THREE MILE ISLAND NUCLEAR STATION, 2005

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

STC	COLLECTION PERIOD	I-131	K-40	Cs-134	Cs-137	Ba-140	La-140	Sr-89	Sr-90
G2-1Q	01/05/05	< 0.3	1372 ± 108	< 4.5	< 5.1	< 19	< 3.4		
	02/02/05	< 0.3	1252 ± 100	< 5.3	< 2.9	< 23	< 5.3		
	03/02/05	< 0.2	1100 ± 106	< 4.3	< 3.6	< 22	< 3.2		
	03/16/05	< 0.3	1228 ± 116	< 2.9	< 4.1	< 20	< 4.5		
	03/30/05	< 0.2	1478 ± 201	< 4.8	< 3.6	< 25	< 3.9	< 0.5	< 0.7
	04/13/05	< 0.3	1346 ± 111	< 4.8	< 2.0	< 22	< 3.5		
	04/27/05	< 0.2	1227 ± 170	< 6.2	< 4.4	< 39	< 4.1		
	05/11/05	< 0.3	1243 ± 120	< 4.1	< 2.5	< 23	< 6.2		
	05/25/05	< 0.2	886 ± 152	< 5.3	< 7.1	< 14	< 10		
	06/08/05	< 0.3	1305 ± 111	< 2.5	< 4.0	< 37	< 5.7		
	06/22/05	< 0.3	1229 ± 113	< 4.1	< 2.3	< 30	< 5.8	< 0.7	< 0.6
	07/06/05	< 0.3	1343 ± 149	< 4.8	< 2.1	< 53	< 9.8		
	07/20/05	< 0.3	1329 ± 156	< 5.5	< 4.9	< 19	< 4.0		
	08/03/05	< 0.2	1194 ± 159	< 5.9	< 5.9	< 57	< 6.7		
	08/17/05	< 0.3	1465 ± 196	< 5.4	< 5.7	< 33	< 3.4		
	08/31/05	< 0.3	1334 ± 168	< 5.2	< 6.9	< 35	< 6.5		
	09/14/05	< 0.4	1071 ± 144	< 6.6	< 4.8	< 27	< 8.7		
	09/28/05	< 0.2	1277 ± 169	< 3.5	< 4.5	< 10	< 4.6	< 0.6	< 0.7
	10/12/05	< 0.3	1071 ± 104	< 4.1	< 4.6	< 34	< 7.3		
	10/26/05	< 0.3	1045 ± 158	< 8.2	< 5.8	< 18	< 5.5		
	11/09/05	< 0.2	1254 ± 117	< 3.8	< 2.1	< 16	< 4.4		
	11/22/05	< 0.3	1329 ± 118	< 2.8	< 4.5	< 22	< 3.1		
	12/07/05	< 0.4	1369 ± 115	< 4.6	< 3.6	< 11	< 4.3	< 0.7	0.7 + 0.4
	MEAN	0.3 ± 0.1	1250 ± 281	4.7 ± 2.6	4.2 ± 3.0	26 ± 24	5.4 ± 4.1	0.6 ± 0.2	0.7 ± 0.1

FIGURE D-1
MONTHLY GROSS BETA CONCENTRATIONS IN DRINKING WATER SAMPLES COLLECTED FROM TMINS LOCATION Q9-1Q, 2005

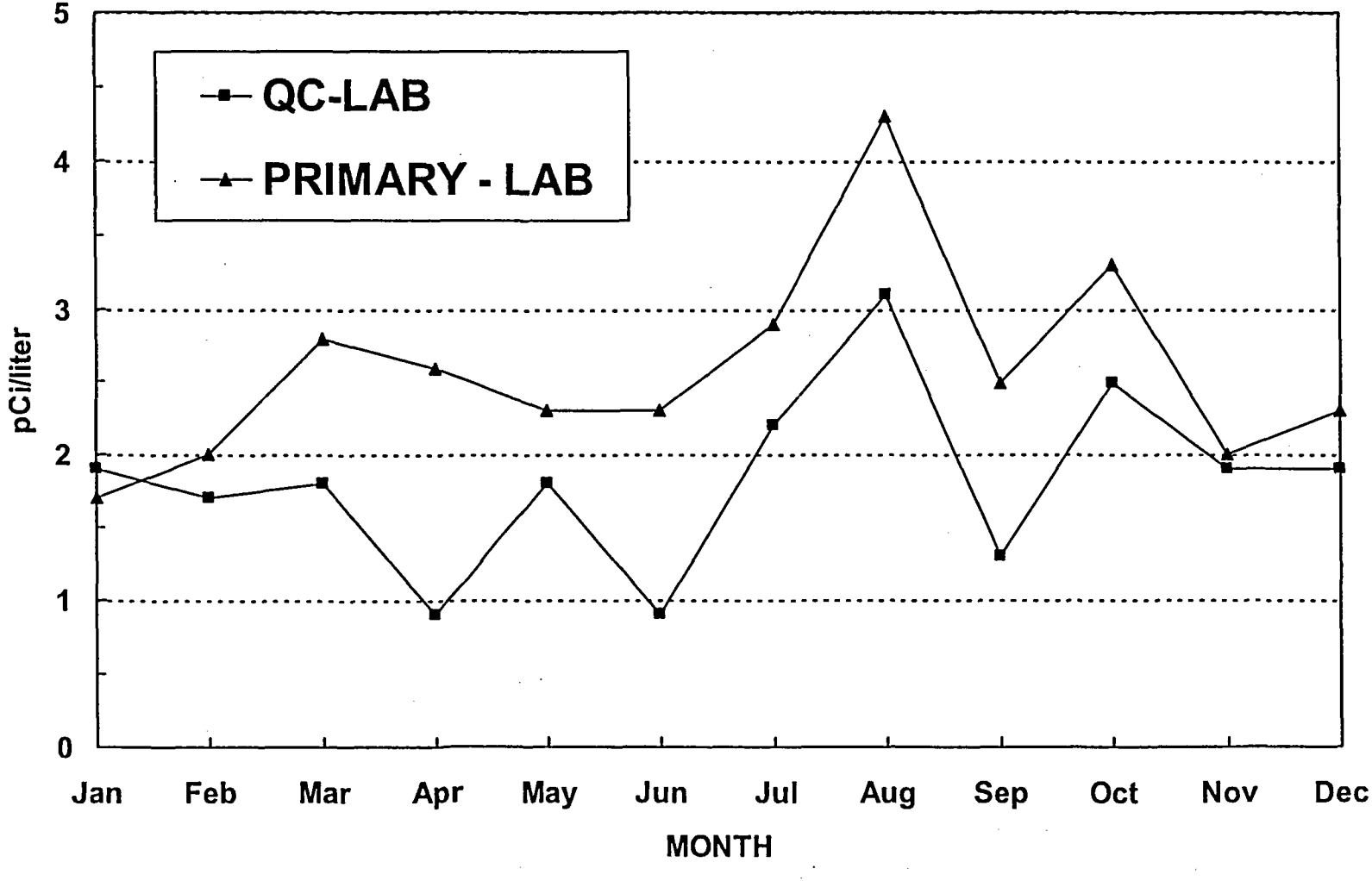
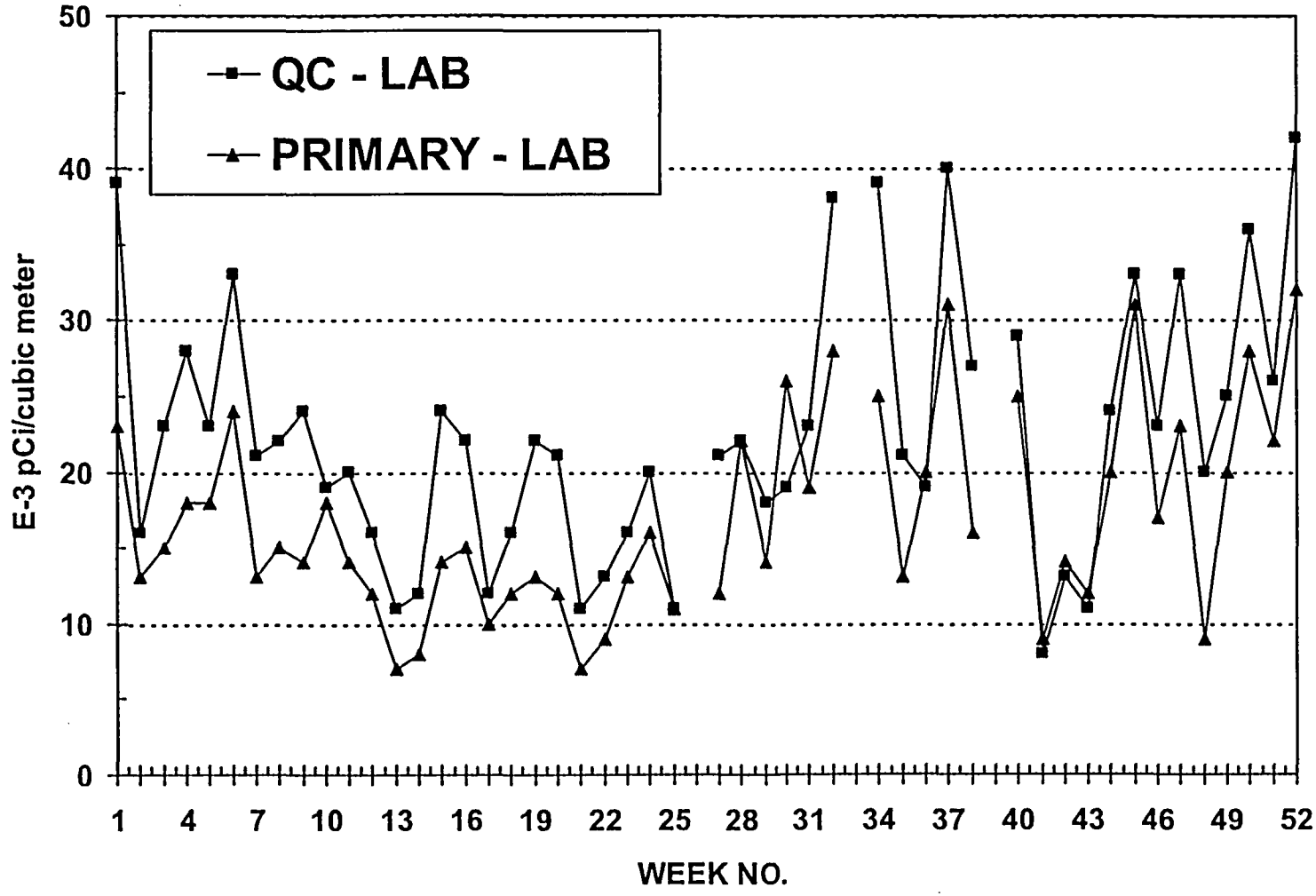


FIGURE D-2
WEEKLY GROSS BETA CONCENTRATIONS IN AIR PARTICULATE SAMPLES COLLECTED FROM TMINS LOCATION E1-2Q, 2005



APPENDIX E

INTER-LABORATORY COMPARISON PROGRAM

TABLE E-1 ANALYTICS ENVIRONMENTAL RADIOACTIVITY CROSS CHECK PROGRAM
TELEDYNE BROWN ENGINEERING, 2005
(PAGE 1 OF 3)

Month/Year	Identification Number	Matrix	Nuclide	Units	Reported Value (a)	Known Value (b)	Ratio (c) TBE/Analytics	Evaluation (d)
March 2005	E4522-396	Milk	Sr-89	pCi/L	96.9	107	0.91	A
			Sr-90	pCi/L	16.9	17.9	0.94	A
	E4523-396	Milk	I-131	pCi/L	82.7	92.3	0.90	A
			Ce-141	pCi/L	217	229	0.95	A
			Cr-51	pCi/L	314	334	0.94	A
			Cs-134	pCi/L	123	139	0.89	A
			Cs-137	pCi/L	125	130	0.96	A
			Co-58	pCi/L	110	115	0.96	A
			Mn-54	pCi/L	158	160	0.99	A
			Fe-59	pCi/L	118	111	1.06	A
			Zn-65	pCi/L	191	198	0.96	A
			Co-60	pCi/L	140	144	0.97	A
	E4525-396	AP	Ce-141	pCi	150	172	0.87	A
			Cr-51	pCi	278	250	1.11	A
			Cs-134	pCi	105	104	1.01	A
			Cs-137	pCi	95.6	97.1	0.98	A
			Co-58	pCi	84.4	86.3	0.98	A
			Mn-54	pCi	112	120	0.93	A
			Fe-59	pCi	92.8	83.2	1.12	A
			Zn-65	pCi	162	148	1.09	A
			Co-60	pCi	102	108	0.94	A
	E4524-396	Charcoal	I-131	pCi	67.4	60.7	1.11	A
June 2005	E4630-396	Milk	Sr-89	pCi/L	89.4	88.1	1.01	A
			Sr-90	pCi/L	11.6	11.4	1.02	A
	E4631-396	Milk	I-131	pCi/L	82.3	86.9	0.95	A
			Ce-141	pCi/L	91.6	92.4	0.99	A
			Cr-51	pCi/L	278	303	0.92	A
			Cs-134	pCi/L	81.1	95.0	0.85	A
			Cs-137	pCi/L	180	189	0.95	A
			Mn-54	pCi/L	124	125	0.99	A
			Fe-59	pCi/L	61.1	63.9	0.96	A
			Zn-65	pCi/L	156	155	1.01	A
			Co-60	pCi/L	136	145	0.94	A
	E4633-396	AP	Ce-141	pCi	79.2	64.2	1.23	W
			Cr-51	pCi	263	210	1.25	W
			Cs-134	pCi	69.7	66.1	1.05	A
			Cs-137	pCi	135	131	1.03	A
			Mn-54	pCi	94.9	87.0	1.09	A
			Fe-59	pCi	48	44.4	1.09	A
			Zn-65	pCi	120	108	1.11	A
			Co-60	pCi	104	101	1.03	A
	E4632-396	Charcoal	I-131	pCi	88.9	92.5	0.96	A

TABLE E-1 ANALYTICS ENVIRONMENTAL RADIOACTIVITY CROSS CHECK PROGRAM
TELEDYNE BROWN ENGINEERING, 2005
(PAGE 2 OF 3)

Month/Year	Identification Number	Matrix	Nuclide	Units	Reported Value (a)	Known Value (b)	Ratio (c) TBE/Analytics	Evaluation (d)
September 2005	E4766-396	Milk	Sr-89	pCi/L	135.0	146.0	0.92	A
			Sr-90	pCi/L	9.7	11.5	0.84	A
	E4767-396	Milk	I-131	pCi/L	87.5	94.3	0.93	A
			Ce-141	pCi/L	203	233	0.87	A
			Cr-51	pCi/L	279	338	0.83	A
			Cs-134	pCi/L	102	122.0	0.84	A
			Cs-137	pCi/L	178	195	0.91	A
			Co-58	pCi/L	55.3	63.4	0.87	A
			Mn-54	pCi/L	81.8	92.0	0.89	A
			Fe-59	pCi/L	59.9	61.0	0.98	A
			Zn-65	pCi/L	120	123	0.98	A
			Co-60	pCi/L	146	167	0.87	A
	E4769-396	AP	Ce-141	pCi	193	169	1.14	A
			Cr-51	pCi	267	246	1.09	A
			Cs-134	pCi	78.4	88.8	0.88	A
			Cs-137	pCi	166	142	1.17	A
			Co-58	pCi	53.7	46.0	1.17	A
			Mn-54	pCi	81.6	66.8	1.22	W
			Fe-59	pCi	59.6	44.3	1.35	N (1)
			Zn-65	pCi	107	89.6	1.19	A
			Co-60	pCi	133	122	1.09	A
	E4768-396	Charcoal	I-131	pCi	63.9	64.2	1.00	A
December 2005	E4766-396	Milk	Sr-89	pCi/L	114	128	0.89	A
			Sr-90	pCi/L	11.6	10.3	1.13	A
	E4767-396	Milk	I-131	pCi/L	79.6	74.6	1.07	A
			Ce-141	pCi/L	202	224	0.90	A
			Cr-51	pCi/L	185	193	0.96	A
			Cs-134	pCi/L	74.9	87.3	0.86	A
			Cs-137	pCi/L	177	189	0.94	A
			Co-58	pCi/L	73.9	77.5	0.95	A
			Mn-54	pCi/L	152	152	1.00	A
			Fe-59	pCi/L	97.5	82.4	1.18	A
			Zn-65	pCi/L	161	154	1.05	A
			Co-60	pCi/L	102	111	0.92	A
	E4633-396	AP	Ce-141	pCi	221	201	1.10	A
			Cr-51	pCi	195	173	1.13	A
			Cs-134	pCi	68.4	78.3	0.87	A
			Cs-137	pCi	194	170	1.14	A
			Co-58	pCi	77.4	69.4	1.12	A
			Mn-54	pCi	171	137	1.25	W
			Fe-59	pCi	94.2	73.9	1.27	W
			Zn-65	pCi	173	138	1.25	W
			Co-60	pCi	109	99.1	1.10	A

TABLE E-1 ANALYTICS ENVIRONMENTAL RADIOACTIVITY CROSS CHECK PROGRAM
TELEDYNE BROWN ENGINEERING, 2005
(PAGE 3 OF 3)

Month/Year	Identification Number	Matrix	Nuclide	Units	Reported Value (a)	Known Value (b)	Ratio (c) TBE/Analytics	Evaluation (d)
December 2005	E4632-396	Charcoal	I-131	pCi	73.3	73.3	1.00	A

(1) New technician - AP not counted in petri dish resulted in high Fe-59 activity. Counting in petri dish, the Fe-59 would have been acceptable as evidenced by the 4Q05 AP recount data. NCR 06-01

(a) Teledyne Brown Engineering reported result.

(b) The Analytics known value is equal to 100% of the parameter present in the standard as determined by gravimetric and/or volumetric measurements made during standard preparation.

(c) Ratio of Teledyne Brown Engineering to Analytics results.

(d) Analytics evaluation based on TBE internal QC limits: A= Acceptable. Reported result falls within ratio limits of 0.80-1.20. W-Acceptable with warning. Reported result falls within 0.70-0.80 or 1.20-1.30. N = Not Acceptable. Reported result falls outside the ratio limits of < 0.70 and > 1.30.

TABLE E-2 ERA ENVIRONMENTAL RADIOACTIVITY CROSS CHECK PROGRAM
TELEDYNE BROWN ENGINEERING, 2005
(PAGE 1 OF 1)

Month/Year	Identification Number	Media	Nuclide	Units	Reported Value (a)	Known Value (b)	Control Limits	Evaluation (c)
May 2005	Rad 61	Water	Sr-89	pCi/L	37.5	41.3	32.6 - 50.0	A
			Sr-90	pCi/L	5.37	5.92	0.00 - 14.6	A
			Ba-133	pCi/L	88.6	88.4	73.1 - 104	A
			Cs-134	pCi/L	70.5	78.6	69.9 - 87.3	A
			Cs-137	pCi/L	201	201	184 - 218	A
			Co-60	pCi/L	37.5	37.0	28.3 - 45.7	A
			Zn-65	pCi/L	122	118	97.6 - 138	A
			Gr-A	pCi/L	35.5	37.0	21.0 - 53.0	A
			Gr-B	pCi/L	35.6	34.2	25.5 - 42.9	A
			H-3	pCi/L	24600	24400	20200 - 28600	A
	Rad 61	Water	I-131	pCi/L	13.6	15.5	10.3 - 20.7	A
November 2005	Rad 63	Water	Sr-89	pCi/L	18.0	19.0	10.3 - 27.7	A
			Sr-90	pCi/L	16.6	16.0	7.37 - 24.7	A
			Ba-133	pCi/L	31.7	31.2	22.5 - 39.9	A
			Cs-134	pCi/L	30.8	33.9	25.2 - 42.6	A
			Cs-137	pCi/L	26.8	28.3	19.6 - 37.0	A
			Co-60	pCi/L	83.9	84.1	75.4 - 92.8	A
			Zn-65	pCi/L	109	105	86.8 - 123	A
			Gr-A	pCi/L	19.5	23.3	13.2 - 33.4	A
			Gr-B	pCi/L	34.0	39.1	30.4 - 47.8	A
			H-3	pCi/L	12400	12200	10100 - 14300	A
	Rad 63	Water	I-131	pCi/L	17.8	17.4	12.2 - 22.6	A

(a) Teledyne Brown Engineering reported result.
(b) The ERA known value is equal to 100% of the parameter present in the standard as determined by gravimetric and/or volumetric measurements made during standard preparation.
(c) ERA evaluation: A=acceptable. Reported result falls within the Warning Limits. NA=not acceptable. Reported result falls outside of the Control Limits. CE=check for Error. Reported result falls within the Control Limits and outside of the Warning Limit.

TABLE E-3 DOE's MIXED ANALYTE PERFORMANCE EVALUATION PROGRAM (MAPEP)
TELEDYNE BROWN ENGINEERING, 2005
(PAGE 1 OF 2)

Month/Year	Identification Number	Media	Nuclide	Units	Reported Value (a)	Known Value (b)	Acceptance Range	Evaluation (c)
April 2005	05-MaW13	Water	Cs-134	Bq/L	108	127	88.90 - 165.10	A
			Cs-137	Bq/L	305	332	232.40 - 461.60	A
			Co-57	Bq/L	215	227	158.90 - 295.10	A
			Co-60	Bq/L	241	251	175.70 - 326.30	A
			H-3	Bq/L	283	280	196.00 - 364.00	A
			Mn-54	Bq/L	314	331	231.70 - 430.30	A
			Sr-90	Bq/L	0.093		no range given (1)	A
			Zn-65	Bq/L	509	496	347.20 - 644.80	A
	MaS13	Soil	Cs-134	Bq/L	655	759	531.30 - 986.70	A
			Cs-137	Bq/L	310	315	220.50 - 409.50	A
			Co-57	Bq/L	234	242	169.40 - 314.60	A
			Co-60	Bq/L	219	212	148.40 - 275.60	A
			Mn-54	Bq/L	512	485	339.50 - 630.50	A
			K-40	Bq/L	642	604	422.80 - 785.20	A
			Zn-65	Bq/L	890	810	567.00 - 1053	A
	GrW13	Water	Gr-A	Bq/L	0.601	0.525	>0.0 - 1.05	A
			Gr-B	Bq/L	1.54	1.67	0.84 - 2.51	A
	RdF13	AP	Cs-134	Bq/sample	3.26	3.51	2.46 - 4.56	A
			Cs-137	Bq/sample	2.05	2.26	1.58 - 2.94	A
			Co-57	Bq/sample	4.78	4.92	3.44 - 6.40	A
			Co-60	Bq/sample	3.02	3.03	2.12 - 3.94	A
			Mn-54	Bq/sample	3.31	3.33	2.33 - 4.33	A
			Sr-90	Bq/sample	1.15	1.35	0.95 - 1.76	A
			Zn-65	Bq/sample	3.14	3.14	2.20 - 4.08	A
	GrF13	AP	Gr-A	Bq/sample	0.0764	0.232	>0.0 - 0.46	A
			Gr-B	Bq/sample	0.305	0.297	0.15 - 0.45	A
April 2005	RdV13	Vegetation	Cs-134	Bq/kg	5.45	5	3.50 - 6.50	A
			Cs-137	Bq/kg	4.80	4.1	2.88 - 5.34	A
			Co-57	Bq/kg	13.4	9.88	6.92 - 12.84	A *
			Co-60	Bq/kg	3.67	3.15	2.21 - 4.10	A
			Mn-54	Bq/kg	6.45	5.18	3.63 - 6.73	A
			Sr-90	Bq/kg	1.49	1.65	1.16 - 2.15	A
			Zn-65	Bq/kg	7.71	6.29	4.40 - 8.18	A
October 2005	05-MaW14	Water	Cs-134	Bq/L	142	167	116.90 - 217.10	A
			Cs-137	Bq/L	302	333	233.10 - 432.90	A
			Co-57	Bq/L	251	272	190.40 - 353.60	A
			Co-60	Bq/L	243	261	182.70 - 339.30	A
			H-3	Bq/L	547	527	368.90 - 685.10	A
			Mn-54	Bq/L	383	418	292.60 - 543.40	A
			Sr-90	Bq/L	8.75	8.98	6.29 - 11.67	A
			Zn-65	Bq/L	324	330	231.00 - 429.00	A

TABLE E-3 DOE's MIXED ANALYTE PERFORMANCE EVALUATION PROGRAM (MAPEP)
TELEDYNE BROWN ENGINEERING, 2005
(PAGE 2 OF 2)

Month/Year	Identification Number	Media	Nuclide	Units	Reported Value (a)	Known Value (b)	Acceptance Range	Evaluation (c)
October 2005	MaS14	Soil	Cs-134	Bq/L	494	568	397.60 - 738.40	A
			Cs-137	Bq/L	446	439	307.30 - 570.70	A
			Co-57	Bq/L	506	524	366.80 - 681.20	A
			Co-60	Bq/L	289	287	200.90 - 373.10	A
			Mn-54	Bq/L	460	439	307.30 - 570.70	A
			K-40	Bq/L	626	604	422.80 - 785.20	A
			Zn-65	Bq/L	889	823	576.10 - 1070	A
	GrW14	Water	Gr-A	Bq/L	0.858	0.79	0.21 - 1.38	A
			Gr-B	Bq/L	1.22	1.35	0.85 - 1.92	A
October 2005	RdF14	AP	Cs-134	Bq/sample	4.11	3.85	2.70 - 5.01	A
			Cs-137	Bq/sample	3.16	3.23	2.26 - 4.20	A
			Co-57	Bq/sample	6.14	6.2	4.34 - 8.06	A
			Co-60	Bq/sample	2.86	2.85	2.00 - 3.71	A
			Mn-54	Bq/sample	4.54	4.37	3.06 - 5.68	A
			Sr-90	Bq/sample	2.12	2.25	1.58 - 2.93	A
			Zn-65	Bq/sample	4.28	4.33	3.03 - 5.63	A
	GrF14	AP	Gr-A	Bq/sample	0.304	0.482	>0.0 - 0.80	A
			Gr-B	Bq/sample	0.858	0.827	0.55 - 1.22	A
	RdV13	Vegetation	Cs-134	Bq/kg	4.35	4.09	2.86 - 5.32	A
			Cs-137	Bq/kg	5.99	5.4	3.80 - 7.06	A
			Co-57	Bq/kg	17.0	13.30	9.31 - 17.29	W
			Co-60	Bq/kg	4.87	4.43	3.10 - 5.76	A
			Mn-54	Bq/kg	7.40	6.57	4.60 - 8.54	A
			Sr-90	Bq/kg	2.03	2.42	1.69 - 3.15	A
			Zn-65	Bq/kg	11.8	10.2	7.14 - 13.26	A

** Under investigation. MAPEP reported the result as acceptable although the reported value of 13.4 is higher than the acceptance range upper limit of 12.84.*

(1) The Sr-90 in water was a MAPEP false positive test. The TBE reported result of 0.093 ± 0.0908 Bq/L was the forced Sr-90 activity and uncertainty, as required by MAPEP. The MDC for the sample was 0.145 pCi/L.

(a) Teledyne Brown Engineering reported result.

(b) The MAPEP known value is equal to 100% of the parameter present in the standard as determined by gravimetric and/or volumetric measurements made during standard preparation.

(c) DOE/MAPEP evaluation: A=acceptable, W=acceptable with warning, N=not acceptable.

TABLE E-4

ERA[a] STATISTICAL SUMMARY PROFICIENCY TESTING PROGRAM ENVIRONMENTAL, INC., 2005

(Page 1 of 2)

Lab Code	Date	Analysis	Concentration (pCi/L) Laboratory Result[b]	ERA Result[c]	Control Limits	Acceptance
STW-1051	02/15/05	Sr-89	28.0 ± 1.2	29.4	20.7 - 38.1	Pass
STW-1051	02/15/05	Sr-90	25.1 ± 0.7	24.4	15.7 - 33.1	Pass
STW-1052	02/15/05	Ba-133	52.9 ± 2.8	53.4	44.2 - 62.6	Pass
STW-1052	02/15/05	Co-60	54.4 ± 0.4	56.6	47.9 - 65.3	Pass
STW-1052	02/15/05	Cs-134	67.7 ± 1.8	64.9	56.2 - 73.6	Pass
STW-1052	02/15/05	Cs-137	39.6 ± 1.8	40.2	31.5 - 48.9	Pass
STW-1052	02/15/05	Zn-65	159.7 ± 3.0	161.0	133.0 - 189.0	Pass
STW-1053	02/15/05	Gr. Alpha	55.1 ± 1.8	67.9	38.5 - 97.3	Pass
STW-1053	02/15/05	Gr. Beta	46.8 ± 1.3	51.1	38.5 - 97.3	Pass
STW-1054	02/15/05	Ra-226	13.7 ± 1.5	14.1	10.4 - 17.8	Pass
STW-1054	02/15/05	Ra-228	13.3 ± 0.6	13.7	7.8 - 19.6	Pass
STW-1054	02/15/05	Uranium	5.1 ± 0.2	5.0	0.0 - 10.2	Pass
STW-1055	05/17/05	Sr-89	45.1 ± 4.1	41.3	32.6 - 50.0	Pass
STW-1055	05/17/05	Sr-90	7.5 ± 0.9	5.9	0.0 - 14.6	Pass
STW-1056	05/17/05	Ba-133	87.1 ± 2.0	88.4	73.1 - 104.0	Pass
STW-1056	05/17/05	Co-60	38.4 ± 0.8	37.0	28.3 - 45.7	Pass
STW-1056	05/17/05	Cs-134	75.3 ± 0.7	78.6	69.9 - 87.3	Pass
STW-1056	05/17/05	Cs-137	201.0 ± 8.4	194.0	184.0 - 218.0	Pass
STW-1056	05/17/05	Zn-65	130.0 ± 6.7	118.0	97.6 - 138.0	Pass
STW-1057	05/17/05	Gr. Alpha	42.7 ± 2.9	37.0	21.0 - 53.0	Pass
STW-1057	05/17/05	Gr. Beta	34.0 ± 0.4	34.2	25.5 - 42.9	Pass
STW-1058	05/17/05	I-131	14.7 ± 0.5	15.5	10.3 - 20.7	Pass
STW-1059	05/17/05	Ra-226	6.6 ± 0.1	7.6	5.6 - 9.5	Pass
STW-1059	05/17/05	Ra-228	19.3 ± 0.7	18.9	10.7 - 27.1	Pass
STW-1059	05/17/05	Uranium	9.6 ± 0.1	10.1	4.9 - 15.3	Pass
STW-1060	05/17/05	H-3	24100.0 ± 109.0	24400.0	20200.0 - 28600.0	Pass
STW-1067	08/16/05	Sr-89	29.1 ± 3.0	28.0	19.3 - 36.7	Pass
STW-1067	08/16/05	Sr-90	36.0 ± 0.6	33.8	25.1 - 42.5	Pass
STW-1068	08/16/05	Ba-133	107.0 ± 1.7	106.0	87.7 - 124.0	Pass
STW-1068	08/16/05	Co-60	15.2 ± 0.2	13.5	4.8 - 22.2	Pass
STW-1068	08/16/05	Cs-134	89.1 ± 0.3	92.1	83.4 - 101.0	Pass
STW-1068	08/16/05	Cs-137	72.1 ± 1.0	72.7	64.0 - 81.4	Pass
STW-1068	08/16/05	Zn-65	67.4 ± 1.4	65.7	54.3 - 77.1	Pass
STW-1069	08/16/05	Gr. Alpha	44.3 ± 1.5	55.7	31.6 - 79.8	Pass
STW-1069	08/16/05	Gr. Beta	58.4 ± 2.1	61.3	44.0 - 78.6	Pass
STW-1070	08/16/05	Ra-226	16.6 ± 1.5	16.6	12.3 - 20.9	Pass
STW-1070	08/16/05	Ra-228	6.2 ± 0.3	6.2	3.5 - 8.9	Pass
STW-1070	08/16/05	Uranium	4.5 ± 0.1	4.5	0.0 - 9.7	Pass

TABLE E-4

ERA[a] STATISTICAL SUMMARY PROFICIENCY TESTING PROGRAM ENVIRONMENTAL, INC., 2005

(Page 1 of 2)

Lab Code	Date	Analysis	Concentration (pCi/L) Laboratory Result[b]	ERA Result[c]	Control Limits	Acceptance
STW-1072	11/15/05	Sr-89	20.6 ± 0.4	19.0	10.3 - 27.7	Pass
STW-1072	11/15/05	Sr-90	15.0 ± 0.3	16.0	7.3 - 24.7	Pass
STW-1073	11/15/05	Ba-133	31.8 ± 1.8	31.2	22.5 - 39.9	Pass
STW-1073	11/15/05	Co-60	85.0 ± 1.4	84.1	75.4 - 92.8	Pass
STW-1073	11/15/05	Cs-134	37.2 ± 2.1	33.9	25.2 - 42.6	Pass
STW-1073	11/15/05	Cs-137	27.8 ± 0.7	28.3	19.6 - 37.0	Pass
STW-1073	11/15/05	Zn-65	109.0 ± 1.0	105.0	86.8 - 123.0	Pass
STW-1074 [d]	11/15/05	Gr. Alpha	41.1 ± 1.2	23.3	13.2 - 33.4	Fail
STW-1074	11/15/05	Gr. Beta	42.7 ± 0.5	39.1	30.4 - 47.8	Pass
STW-1075	11/15/05	I-131	20.5 ± 0.6	17.4	12.2 - 22.6	Pass
STW-1076	11/15/05	Ra-226	7.8 ± 0.6	8.3	6.2 - 10.5	Pass
STW-1076 [e]	11/15/05	Ra-228	5.5 ± 0.6	3.5	2.0 - 5.0	Fail
STW-1076	11/15/05	Uranium	15.5 ± 0.3	16.1	10.9 - 21.3	Pass
STW-1077	11/15/05	H-3	12500.0 ± 238.0	12200.0	10100.0 - 14300.0	Pass

[a] *Results obtained by Environmental, Inc., Midwest Laboratory as a participant in the crosscheck program for proficiency* testing in drinking water conducted by Environmental Resources Associates (ERA).

[b] Unless otherwise indicated, the laboratory result is given as the mean ± standard deviation for three determinations.

[c] Results are presented as the known values, expected laboratory precision (1 sigma, 1 determination) and control limits as provided by ERA.

[d] The original samples were calculated using an Am-241 efficiency. The samples were spiked with Th-232. Samples were recounted and calculated using the Th-232 efficiency. Results of the recount: 27.01 ± 2.35 pCi/L.

[e] Decay of short-lived radium daughters contributed to a higher counting rate. Delay of counting for 100 minutes provided better results. The reported result was the average of the first cycle of 100 minutes, the average of the second cycle counts was 4.01 pCi/L

TABLE E-5 DOE'S MIXED ANALYTE PERFORMANCE EVALUATION PROGRAM (MAPEP)
ENVIRONMENTAL, INC., 2005

(Page 1 of 3)

Lab Code[c]	Date	Analysis	Concentration [b] Laboratory result	Known Activity	Control Limits [a]	Acceptance
STW-1045	01/01/05	Gr. Alpha	0.45 ± 0.10	0.53	0.00 - 1.05	Pass
STW-1045	01/01/05	Gr. Beta	1.90 ± 0.10	1.67	0.84 - 2.51	Pass
STW-1046	01/01/05	Am-241	1.62 ± 0.12	1.72	1.20 - 2.24	Pass
STW-1046	01/01/05	Co-57	239.40 ± 1.20	227.00	158.90 - 295.10	Pass
STW-1046	01/01/05	Co-60	248.70 ± 1.00	251.00	175.70 - 326.30	Pass
STW-1046	01/01/05	Cs-134	115.50 ± 1.80	127.00	88.90 - 165.10	Pass
STW-1046	01/01/05	Cs-137	328.50 ± 1.70	332.00	232.40 - 431.60	Pass
STW-1046	01/01/05	Fe-55	64.90 ± 7.00	75.90	53.13 - 98.67	Pass
STW-1046	01/01/05	H-3	304.00 ± 9.70	280.00	196.00 - 364.00	Pass
STW-1046	01/01/05	Mn-54	334.80 ± 1.90	331.00	231.70 - 430.30	Pass
STW-1046	01/01/05	Ni-63	7.10 ± 1.60	9.00	0.00 - 20.00	Pass
STW-1046	01/01/05	Pu-238	0.01 ± 0.02	0.02	0.00 - 1.00	Pass
STW-1046	01/01/05	Pu-239/40	2.50 ± 0.14	2.40	1.68 - 3.12	Pass
STW-1046	01/01/05	Sr-90	0.70 ± 0.80	0.00	0.00 - 5.00	Pass
STW-1046	01/01/05	Tc-99	43.20 ± 1.40	42.90	30.03 - 55.77	Pass
STW-1046	01/01/05	U-233/4	3.31 ± 0.20	3.24	2.27 - 4.21	Pass
STW-1046	01/01/05	U-238	3.38 ± 0.20	3.33	2.33 - 4.33	Pass
STW-1046	01/01/05	Zn-65	538.40 ± 3.80	496.00	347.20 - 644.80	Pass
STVE-1047	01/01/05	Co-57	10.60 ± 0.20	9.88	6.92 - 12.84	Pass
STVE-1047	01/01/05	Co-60	3.00 ± 0.20	3.15	2.21 - 4.10	Pass
STVE-1047	01/01/05	Cs-134	4.80 ± 0.40	5.00	3.50 - 6.50	Pass
STVE-1047	01/01/05	Cs-137	4.10 ± 0.30	4.11	2.88 - 5.34	Pass
STVE-1047	01/01/05	Mn-54	5.10 ± 0.30	5.18	3.63 - 6.73	Pass
STVE-1047	01/01/05	Zn-65	6.20 ± 0.50	6.29	4.40 - 8.18	Pass
STSO-1048	01/01/05	Am-241	96.60 ± 10.00	109.00	76.30 - 141.70	Pass
STSO-1048	01/01/05	Co-57	264.00 ± 2.00	242.00	169.40 - 314.60	Pass
STSO-1048	01/01/05	Co-60	226.50 ± 2.20	212.00	148.40 - 275.60	Pass
STSO-1048	01/01/05	Cs-134	760.60 ± 3.70	759.00	531.30 - 986.70	Pass
STSO-1048	01/01/05	Cs-137	336.20 ± 3.60	315.00	220.50 - 409.50	Pass
STSO-1048	01/01/05	K-40	663.70 ± 18.00	604.00	422.80 - 785.20	Pass
STSO-1048	01/01/05	Mn-54	541.30 ± 3.90	485.00	339.50 - 630.50	Pass
STSO-1048	01/01/05	Ni-63	924.30 ± 17.20	1220.00	854.00 - 1586.00	Pass
STSO-1048	01/01/05	Pu-238	0.60 ± 0.80	0.48	0.00 - 1.00	Pass
STSO-1048	01/01/05	Pu-239/40	78.00 ± 4.80	89.50	62.65 - 116.35	Pass
STSO-1048	01/01/05	Sr-90	514.60 ± 18.70	640.00	448.00 - 832.00	Pass
STSO-1048	01/01/05	U-233/4	47.90 ± 4.00	62.50	43.75 - 81.25	Pass
STSO-1048	01/01/05	U-238	226.30 ± 8.60	249.00	174.30 - 323.70	Pass
STSO-1048	01/01/05	Zn-65	851.30 ± 7.30	810.00	567.00 - 1053.00	Pass
STAP-1050	01/01/05	Gr. Alpha	0.11 ± 0.03	0.23	0.00 - 0.46	Pass
STAP-1050	01/01/05	Gr. Beta	0.38 ± 0.05	0.30	0.15 - 0.45	Pass

TABLE E-5 DOE'S MIXED ANALYTE PERFORMANCE EVALUATION PROGRAM (MAPEP)[a]
ENVIRONMENTAL, INC., 2005

Lab Code[c]	Date	Analysis	Concentration[b] Laboratory result	Known Activity	Control Limits[a]	Acceptance
STAP-1049	01/01/05	Am-241	0.10 ± 0.04	0.10	0.07 - 0.13	Pass
STAP-1049	01/01/05	Co-57	4.76 ± 0.64	4.92	3.44 - 6.40	Pass
STAP-1049	01/01/05	Co-60	2.84 ± 0.22	3.03	2.12 - 3.94	Pass
STAP-1049	01/01/05	Cs-134	3.54 ± 0.37	3.51	2.46 - 4.56	Pass
STAP-1049	01/01/05	Cs-137	2.20 ± 0.27	2.26	1.58 - 2.94	Pass
STAP-1049	01/01/05	Mn-54	3.15 ± 0.21	3.33	2.33 - 4.33	Pass
STAP-1049	01/01/05	Pu-238	0.16 ± 0.04	0.20	0.14 - 0.25	Pass
STAP-1049	01/01/05	Pu-239/40	0.17 ± 0.02	0.17	0.14 - 0.25	Pass
STAP-1049[e]	01/01/05	Sr-90	2.24 ± 0.34	1.35	0.95 - 1.76	Fail
STAP-1049	01/01/05	U-233/4	0.34 ± 0.02	0.34	0.24 - 0.44	Pass
STAP-1049	01/01/05	U-238	0.35 ± 0.02	0.35	0.25 - 0.46	Pass
STAP-1049	01/01/05	Zn-65	3.12 ± 0.15	3.14	2.20 - 4.08	Pass
STW-1061	07/01/05	Am-241	2.21 ± 0.13	2.23	1.56 - 2.90	Pass
STW-1061	07/01/05	Co-57	293.20 ± 7.30	272.00	190.40 - 353.60	Pass
STW-1061	07/01/05	Co-60	275.70 ± 1.30	261.00	182.70 - 339.30	Pass
STW-1061	07/01/05	Cs-134	171.80 ± 4.00	167.00	116.90 - 217.10	Pass
STW-1061	07/01/05	Cs-137	342.10 ± 2.20	333.00	233.10 - 432.90	Pass
STW-1061	07/01/05	Fe-55	167.80 ± 9.30	196.00	137.20 - 254.80	Pass
STW-1061	07/01/05	H-3	514.20 ± 12.60	527.00	368.90 - 685.10	Pass
STW-1061	07/01/05	Mn-54	437.00 ± 2.50	418.00	292.60 - 543.40	Pass
STW-1061	07/01/05	Ni-63	105.10 ± 3.60	100.00	70.00 - 130.00	Pass
STW-1061	07/01/05	Pu-238	1.64 ± 0.12	1.91	1.34 - 2.48	Pass
STW-1061	07/01/05	Pu-239/40	2.32 ± 0.13	2.75	1.93 - 3.58	Pass
STW-1061	07/01/05	Sr-90	9.20 ± 1.30	8.98	6.29 - 11.67	Pass
STW-1061	07/01/05	Tc-99	72.30 ± 2.30	66.50	46.55 - 86.45	Pass
STW-1061	07/01/05	U-233/4	4.11 ± 0.18	4.10	2.87 - 5.33	Pass
STW-1061	07/01/05	U-238	4.14 ± 0.18	4.26	2.98 - 5.54	Pass
STW-1061	07/01/05	Zn-65	364.60 ± 4.90	330.00	231.00 - 429.00	Pass
STW-1062	07/01/05	Gr. Alpha	0.57 ± 0.05	0.79	0.21 - 1.38	Pass
STW-1062	07/01/05	Gr. Beta	1.36 ± 0.05	1.35	0.85 - 1.92	Pass
STSO-1063[f]	07/01/05	Am-241	48.40 ± 3.90	81.10	56.77 - 105.43	Fail
STSO-1063	07/01/05	Co-57	608.30 ± 2.80	524.00	366.80 - 681.20	Pass
STSO-1063	07/01/05	Co-60	322.70 ± 2.40	287.00	200.90 - 373.10	Pass
STSO-1063	07/01/05	Cs-134	632.10 ± 5.20	568.00	397.60 - 738.40	Pass
STSO-1063	07/01/05	Cs-137	512.40 ± 4.20	439.00	307.30 - 570.70	Pass
STSO-1063	07/01/05	K-40	720.50 ± 19.00	604.00	422.80 - 785.20	Pass
STSO-1063	07/01/05	Mn-54	516.80 ± 5.10	439.00	307.30 - 570.70	Pass
STSO-1063	07/01/05	Ni-63	366.50 ± 13.30	445.00	311.50 - 578.50	Pass
STSO-1063	07/01/05	Pu-238	68.80 ± 15.00	60.80	42.56 - 79.04	Pass
STSO-1063	07/01/05	Pu-239/40	0.00 ± 0.00	0.00	0.00 - 0.00	
STSO-1063	07/01/05	Sr-90	602.90 ± 17.20	757.00	529.90 - 984.10	Pass
STSO-1063	07/01/05	U-233/4	61.50 ± 1.00	52.50	36.75 - 68.25	Pass
STSO-1063	07/01/05	U-238	164.50 ± 16.70	168.00	117.60 - 218.40	Pass
STSO-1063	07/01/05	Zn-65	874.70 ± 8.40	823.00	576.10 - 1070.00	Pass

TABLE E-5 DOE'S MIXED ANALYTE PERFORMANCE EVALUATION PROGRAM (MAPEP)[a]
ENVIRONMENTAL, INC., 2005

(Page 3 of 3)

Lab Code[c]	Date	Analysis	Concentration[b] Laboratory result	Known Activity	Control Limits[d]	Acceptance
STVE-1064	07/01/05	Am-241	0.18 ± 0.03	0.23	0.16 - 0.30	Pass
STVE-1064	07/01/05	Co-57	15.90 ± 0.20	13.30	9.31 - 17.29	Pass
STVE-1064	07/01/05	Co-60	4.80 ± 0.10	4.43	3.10 - 5.76	Pass
STVE-1064	07/01/05	Cs-134	4.60 ± 0.20	4.09	2.86 - 5.32	Pass
STVE-1064	07/01/05	Cs-137	5.90 ± 0.30	5.43	3.80 - 7.06	Pass
STVE-1064	07/01/05	Mn-54	7.20 ± 0.20	6.57	4.60 - 8.54	Pass
STVE-1064	07/01/05	Pu-238	0.04 ± 0.02	0.00	0.00 - 1.00	Pass
STVE-1064	07/01/05	Pu-239/40	0.13 ± 0.02	0.16	0.11 - 0.21	Pass
STVE-1064	07/01/05	Sr-90	2.80 ± 0.30	2.42	1.69 - 3.15	Pass
STVE-1064	07/01/05	U-233/4	0.28 ± 0.03	0.33	0.23 - 0.43	Pass
STVE-1064	07/01/05	U-238	0.33 ± 0.04	0.35	0.24 - 0.45	Pass
STVE-1064	07/01/05	Zn-65	11.00 ± 0.50	10.20	7.14 - 13.26	Pass
STAP-1065	07/01/05	Gr. Alpha	0.30 ± 0.04	0.48	0.00 - 0.80	Pass
STAP-1065	07/01/05	Gr. Beta	0.97 ± 0.06	0.83	0.55 - 1.22	Pass
STAP-1066	07/01/05	Am-241	0.14 ± 0.03	0.16	0.11 - 0.21	Pass
STAP-1066	07/01/05	Co-57	5.81 ± 0.17	6.20	4.34 - 8.06	Pass
STAP-1066	07/01/05	Co-60	2.79 ± 0.14	2.85	2.00 - 3.71	Pass
STAP-1066	07/01/05	Cs-134	3.67 ± 0.12	3.85	2.70 - 5.01	Pass
STAP-1066	07/01/05	Cs-137	2.93 ± 0.23	3.23	2.26 - 4.20	Pass
STAP-1066	07/01/05	Mn-54	4.11 ± 0.26	4.37	3.06 - 5.68	Pass
STAP-1066	07/01/05	Pu-238	0.11 ± 0.02	0.10	0.07 - 0.13	Pass
STAP-1066	07/01/05	Pu-239/40	0.10 ± 0.01	0.09	0.06 - 0.12	Pass
STAP-1066	07/01/05	Sr-90	2.25 ± 0.29	2.25	1.58 - 2.93	Pass
STAP-1066	07/01/05	U-233/4	0.28 ± 0.02	0.27	0.19 - 0.35	Pass
STAP-1066	07/01/05	U-238	0.28 ± 0.02	0.28	0.20 - 0.37	Pass
STAP-1066	07/01/05	Zn-65	4.11 ± 0.26	4.33	3.06 - 5.68	Pass

[a] Results obtained by Environmental, Inc., Midwest Laboratory as a participant in the Department of Energy's Mixed Analyte Performance Evaluation Program, Idaho Operations office, Idaho Falls, Idaho

[b] Results are reported in units of Bq/kg (soil), Bq/L (water) or Bq/total sample (filters, vegetation) as requested by the Department of Energy.

[c] Laboratory codes as follows: STW (water), STAP (air filter), STSO (soil), STVE (vegetation).

[d] MAPEP results are presented as the known values and expected laboratory precision (1 sigma, 1 determination) and control limits as defined by the MAPEP.

[e] The strontium carbonate precipitates were redissolved and processed. The average of the three analyses was 1.34 pCi/L, although the recovery was only 30%. The result of a new analysis was 1.56 pCi/L.

[f] Incorrect sample weight used in calculation. Result of recalculation: 97.0 ± 7.8 Bq/kg.

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APPENDIX F

SPECIAL GROUNDWATER SAMPLING DATA

TABLE F-I.1 CONCENTRATIONS OF TRITIUM IN SPECIAL GROUND WATER SAMPLES COLLECTED IN THE VICINITY OF THREE MILE ISLAND NUCLEAR STATION - 2005

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

Collection Date	MS-20	RW-1	RW-2
01/27/05		< 190	881 ± 143
03/10/05	1770 ± 154	581 ± 122	5440 ± 237
06/10/05	597 ± 116	222 ± 113	18200 ± 295
07/07/05		197 ± 100	22800 ± 320
08/01/05	672 ± 334	< 166	1850 ± 136
08/05/05		< 147	2410 ± 137
08/08/05	455 ± 94	< 152	10300 ± 242
08/11/05		< 169	19000 ± 355
08/15/05	507 ± 109	< 175	19400 ± 357
08/19/05			19000 ± 371
08/22/05	< 173	< 129	15400 ± 349
08/24/05			18000 ± 366
08/26/05			20200 ± 387
08/29/05	466 ± 123	210 ± 118	19500 ± 376
08/31/05			22300 ± 495
09/02/05			20400 ± 405
09/06/05			21600 ± 406
09/08/05	479 ± 95	362 ± 115	31100 ± 447
09/12/05	429 ± 53	< 103	31400 ± 331
09/16/05	509 ± 125	201 ± 116	32400 ± 469
09/19/05	679 ± 131	227 ± 110	32800 ± 476
09/23/05	759 ± 115	440 ± 104	32800 ± 489
09/26/05	604 ± 127	524 ± 109	29300 ± 463
09/30/05	636 ± 130	259 ± 125	33100 ± 484
10/02/05	277 ± 125	< 192	32600 ± 485
10/07/05	284 ± 126	< 189	30400 ± 472
10/10/05	< 194	< 198	14700 ± 334
10/14/05	619 ± 134	395 ± 121	5390 ± 205
10/17/05	836 ± 126	197 ± 118	4910 ± 207
10/20/05	553 ± 135	< 187	2760 ± 164
10/24/05	719 ± 142	< 182	4120 ± 202
10/27/05	478 ± 124	< 187	1110 ± 138
10/31/05	1310 ± 140	< 176	1580 ± 143
11/03/05	2110 ± 159	230 ± 120	2180 ± 161
11/07/05	2410 ± 164	< 182	2110 ± 158
11/10/05	1660 ± 172	< 171	1550 ± 170
11/14/05	886 ± 124	< 168	1010 ± 128
11/17/05		< 172	639 ± 121
11/21/05	796 ± 127	401 ± 118	868 ± 128
11/23/05	672 ± 125	187 ± 114	1140 ± 135
12/02/05			1350 ± 130
AVG	777 ± 552	231 ± 112	14341 ± 12044