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TS 6.9.1.7

April 30, 2003

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

Limerick Generating Station, Units 1 and 2
Facility Operating License Nos. NPF-39 and NPF-85
NRC Docket Nos. 50-352 and 50-353

Subject: 2002 Annual Radiological Environmental Operating Report

Dear Sir:

In accordance with the requirements of Section 3.5 of the Limerick Generating Station (LGS), Units 1 and 2 Offsite Dose Calculation Manual (ODCM), this letter submits the 2002 Annual Radiological Environmental Operating Report No. 19. This report provides the 2002 results for the Radiological Environmental Monitoring Program (REMP) as called for in the Offsite Dose Calculation Manual.

In assessing the data collected for the REMP, we have concluded that the operation of LGS, Units 1 and 2 had no adverse impact on the environment. No plant-produced fission or activation products with the exception of Cs-137 and Co-60 were found in any pathway modeled by the REMP. Cesium-137 levels detected in sediment were similar to those found in previous years. Cobalt-60 activity was found in one downstream sediment sample and was the result of routine liquid effluent discharges. The calculated dose to the maximum exposed individual from the sediment pathway was 1.95 E-03 mrem. This dose represented 0.01% of the 10 CFR 20, Appendix I limits.

If you have any questions, please do not hesitate to contact us.

Sincerely,

Robert C. Braun
Vice President (acting)

Attachment

cc: H. Miller, Administrator, Region I, USNRC
A. Burritt, USNRC Senior Resident Inspector, LGS
S. Wall, Senior Project Manager-NRR, USNRC

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LIMERICK GENERATING STATION
ANNUAL RADIOLOGICAL ENVIRONMENTAL OPERATING REPORT
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Docket No 50-352
50-353

LIMERICK GENERATING STATION
UNITS 1 and 2

Annual Radiological
Environmental Operating Report

Report No.19

1 January Through 31 December 2002

Prepared By

Teledyne Brown Engineering
Environmental Services

Exelon SM

Nuclear

Limerick Generating Station
Sanatoga, PA 19464

April 2003

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Appendices

Figures

I. Summary and Conclusions

This report on the Radiological Environmental Monitoring Program conducted for the Limerick Generating Station (LGS) by Exelon covers the period 1 January 2002 through 31 December 2002. During that time period, 1,246 analyses were performed on 960 samples. In assessing all the data gathered for this report and comparing these results with preoperational data, it was concluded that the operation of LGS had no adverse radiological impact on the environment.

Surface and drinking water samples were analyzed for concentrations of tritium and gamma emitting nuclides. Drinking water samples were also analyzed for concentrations of gross beta (soluble and insoluble fractions). No fission or activation products were detected. Gross beta activities detected were consistent with those detected in previous years. Positive tritium activity was detected in 1 of 16 samples. The activity was slightly above the detection level.

Fish (predator and bottom feeder) and sediment samples were analyzed for concentrations of gamma emitting nuclides. No fission or activation products were detected in fish. Sediment samples collected below the discharge had Cesium–137 concentrations consistent with levels observed during the preoperational years. In addition, positive Co–60 activity was found in a sediment sample at a downstream indicator location and was the result of LGS releases. The dose to a teenager's skin through the sediment pathway was calculated as 1.95 E–3 mrem.

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 and gamma emitting nuclides. All I–131 results were below the minimum detectable activity. Concentrations of naturally occurring K–40 were consistent with those detected in previous years. No fission or activation products were found.

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

Review of the gamma spectroscopy results from the surface water sampler (25S1) located at the Limerick's intake and downstream of the 10CFR20.2002 permitted storage area indicated no offsite radionuclide transport was evident.

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II. Introduction

The Limerick Generating Station (LGS), consisting of two 3458 MWt boiling water reactors owned and operated by Exelon Corporation is located adjacent to the Schuylkill River in Montgomery County, Pennsylvania. Unit No. 1 went critical on 22 December 1984. Unit No. 2 went critical on 11 August 1989. The site is located in Piedmont countryside, transversed by numerous valleys containing small tributaries that feed into the Schuylkill River. On the eastern river bank elevation rises from approximately 110 to 300 feet mean sea level (MSL). On the western river bank elevation rises to approximately 50 feet MSL to the western site boundary.

A Radiological Environmental Monitoring Program (REMP) for LGS was initiated in 1971. Review of the 1971 through 1977 REMP data resulted in the modification of the program to comply with changes in the Environmental Report Operating License Stage (EROL) and the Branch Technical Position Paper (Rev. 1, 1979). The preoperational period for most media covers the periods 1 January 1982 through 21 December 1984 and was summarized in a separate report. This report covers those analyses performed by Teledyne Brown Engineering (TBE), ICN Pharmaceutical, and Environmental Inc. (Midwest Labs) on samples collected during the period 1 January 2002 through 31 December 2002.

On 6 July 1996 a 10CFR20.2002 permit was issued to Limerick for storage of slightly contaminated soils, sediments and sludges obtained from the holding pond, cooling tower and spray pond systems. These materials will decay to background while in storage. Final disposition will be determined at Station decommissioning.

A. Objective of the REMP

The objectives of the REMP are to:

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

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

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 LGS REMP were collected for Exelon Nuclear by Normandeau Associates, RMC Environmental Services Division (RMC). This section describes the general collection methods used by RMC to obtain environmental samples for the LGS REMP in 2002. 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, fish, and sediment. Two gallon water samples were collected monthly from continuous samplers located at two surface water locations (13B1 and 24S1) and four drinking water locations (15F4, 15F7, 16C2, and 28F3). One additional surface water location (10F2) was sampled only during the months when water was taken from the Perkiomen Creek for cooling. Control locations were 10F2, 24S1, and 28F3. All 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, catfish/bullhead (bottom feeder) and sunfish (predator), were collected semiannually at two locations, 16C5 and 29C1 (control). Sediment samples composed of recently deposited substrate were collected at three locations semiannually, 16B2 and 16C4 and 33A2 (control).

Atmospheric Environment

The atmospheric environment was evaluated by performing radiological analyses on samples of air particulate, airborne iodine, and milk. Airborne iodine and particulate samples were collected and analyzed weekly at five locations (10S3, 11S1, 13C1, 14S1, and 22G1). The control location was 22G1. 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 five locations (9G1, 10F4, 18C1, 19B1, and 21B1) from April through November, and monthly from December through March. Four additional locations (36E1, 22C1, 23F1 and 25C1) were sampled quarterly. Locations 36E1, 9G1 and 23F1 were controls. 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.

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 LGS site as follows:

A site boundary ring consisting of 16 locations (36S2, 3S1, 5S1, 7S1, 10S3, 11S1, 13S2, 14S1, 18S2, 21S2, 23S2, 25S2, 26S3, 29S1, 31S1 and 34S2) 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 LGS release.

An intermediate distance ring consisting of 16 locations (36D1, 2E1, 4E1, 7E1, 10E1, 10F3, 13E1, 16F1, 19D1, 20F1, 24D1, 25D1, 28D2, 29E1, 31D2, and 34E1) extending to approximately 5 miles from the site designed to measure possible exposures to close-in population.

The balance of eight locations (5H1, 6C1, 9C1, 13C1, 15D1, 17B1, 20D1 and 31D1) representing control and special interests areas such as population centers, schools, etc.

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 LGS, 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.

Two TLDs –each comprised of three $CaSO_4$ thermoluminescent phosphors enclosed in plastic– were placed at each location in a PVC conduit located approximately three feet above ground level. The TLDs were exchanged quarterly and sent to ICN for analysis.

10CFR20.2002 Permit Storage Area

1. The results of the surface water sampling program were used to determine if radioactive nuclide transport from the storage area into the Schuylkill River had occurred.

B. Sample Analysis

This section describes the general analytical methodologies used by TBE and Midwest Labs to analyze the environmental samples for radioactivity for the LGS REMP in 2002. 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 water, and air particulates.
2. Concentrations of gamma emitters in surface and drinking water, air particulates, milk, fish, and sediment.
3. Concentrations of tritium in surface and drinking water.
4. Concentrations of I–131 in air and milk.
5. Ambient gamma radiation levels at various site environs.

C. Data Interpretation

The radiological and direct radiation data collected prior to LGS becoming operational was used as a baseline with which these operational data were compared. For the purpose of this report, LGS was considered operational at initial criticality. In addition, data were compared to previous years' operational data for consistency and trending. Several factors were important in the interpretation of the data:

1. Lower Limit of Detection and Minimum Detectable Activity

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 LGS detection capabilities for environmental sample analysis.

The minimum detectable activity (MDA) 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 MDA 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 and drinking 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.

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 2002 the LGS REMP had a sample recovery rate in excess of 99%. Exceptions are listed below:

1. Surface water composite sampler at location 13B1 (Vincent Dam) was out of service during the following periods:
   02/18/2002 – 02/25/2002 Freezing
   04/01/2002 – 04/08/2002 Pump failure
   05/06/2002 – 05/13/2002 Sample lost due to river flooding
   07/08/2002 – 07/15/2002 Low river level
   10/11/2002 – 10/14/2002 Sampler pulled due to flooding
   12/13/2002 – 12/17/2002 Sampler pulled due to flooding

   Grab samples were taken for the composite.

2. Surface water composite sampler at location 10F2 (Perkiomen) was out of service during the following periods:
   01/14/2002 – 01/22/2002 Pump failure
   04/01/2002 – 04/08/2002 Maintenance power outage
   12/02/2002 – 12/30/2002 Pump off until spring

   Grab samples were taken for the composite.

3. Drinking water composite sampler at location 28F3 (Pottstown) was out of service during the following periods:
   05/27/2002 – 06/03/2002 Pump failure
   09/09/2002 – 09/16/2002 Electrical problem
   10/07/2002 – 10/28/2002 Electrical problem
   11/25/2002 – 12/02/2002 Clogged intake line
   12/02/2002 – 12/16/2002 Electrical problem

   Grab samples were taken for the composite

4. The QC Laboratory drinking water sample at location 16C2 was not available for April, 2002, because the commercial carrier lost it during shipping.

5. Air particulate and air iodine samples were not available at all stations for the period of 04/15/2002 – 04/22/2002 (week 16), because the commercial carrier lost them during shipping.

6. Air particulate and air iodine samples were not available for the following periods and locations, due to pump failures:
04/22/2002 – 04/29/2002 (week 17), Location 11S2
11/25/2002 – 12/02/2002 (week 48), Location 14S1.

7. Milk sample I-131 results for Location 19B1 collected 11/5/2002 were not reported by the laboratory due to the presence of a non-decaying beta emitter. This laboratory issue was not Limerick specific.

Each program exception was reviewed to understand the causes of the program exception. Sampling and maintenance errors were reviewed with the personnel involved to prevent recurrence. 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

Beginning the second quarter 2002, Teledyne Brown Engineering Environmental Services became the primary laboratory and Environmental Inc. (Midwest Labs) became the QC laboratory.

Commencing with the second quarter, sodium bisulfite preservative was added to milk samples to prevent protein binding of iodine.

IV. Results and Discussion

A. Aquatic Environment

1. Surface Water

Samples were taken from a continuous sampler at three locations (10F2, 13B1, and 24S1) on a monthly schedule. Of these locations only 13B1 located downstream, could be affected by Limerick's effluent releases. The following analyses were performed.

Tritium

Monthly samples from all locations were composited quarterly and analyzed for tritium activity (Table C–I.1, Appendix C). No tritium activity was detected. The highest MDA calculated was <191 pCi/l.

Gamma Spectrometry

Samples from all locations were analyzed for gamma emitting nuclides (Table C–I.2, Appendix C). All nuclides were less than the MDA.

2. Drinking Water

Monthly samples were collected from continuous water samplers at four locations (15F4, 15F7, 16C2, and 28F3). Three locations (15F4, 15F7, and 16C2) could be affected by Limerick's effluent releases. The following analyses were performed:

Gross Beta

Samples from all locations were analyzed for concentrations of gross beta in the insoluble and soluble fractions (Tables C–II.1 and C–II.2, Appendix C). The values ranged from <0.6 to <2.2 pCi/l for the insoluble fraction and from <1.2 to 9.7 pCi/l for the soluble fraction. Concentrations detected in both fractions were consistent with those detected in previous years (Figures C–1 and C–2, Appendix C).

Tritium

Monthly samples from all locations were composited quarterly and analyzed for tritium activity (Table C–II.3, Appendix C). Positive tritium activity was detected in one sample at downstream Location 15F4 at a concentration of 105 pCi/l. The activity detected was slightly above the detection limit.

Gamma Spectrometry

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

3. Fish

Fish samples comprised of catfish/bullhead (bottom feeder) and sunfish (predator) were collected at two locations (16C5 and 29C1) semiannually. Location 16C5 could be affected by Limerick's effluent releases. The following analysis was performed:

Gamma Spectrometry

The edible portion of fish samples from both locations was analyzed for gamma emitting nuclides (Table C–III.1, Appendix C). Naturally occurring K-40 was found at all stations and ranged from 2,940 to 4,080 pCi/kg wet and was consistent with levels detected in previous years. No fission or activation products were found. Historical levels of Cs–137 are shown in Figure C–3, Appendix C.

4. Sediment

Aquatic sediment samples were collected at three locations (16B2, 16C4 and 33A2) semiannually. Of these locations two 16B2 and 16C4 located downstream, could be affected by Limerick's effluent releases. The following analysis was performed:

Gamma Spectrometry

Sediment samples from all three locations were analyzed for gamma emitting nuclides (Table C–IV.1, Appendix C). Nuclides detected were naturally occurring K–40, and the fission product Cs–137.

Potassium–40 was found at all stations and ranged from 9,750 to 21,870 pCi/kg dry. Concentrations of the fission product Cs–137 were found in sediment samples in all samples. Location 16B2 had the highest average concentration of 222 pCi/kg dry. The activity detected was consistent with those detected in the pre–operational years (Figure C–4, Appendix C). Cobalt–60 at a concentration of 116 pCi/kg dry was found at the downstream indicator station 16B2 and was the result of LGS releases. The does to a teenager's skin through the sediment pathway was calculated as 1.95 E–03 mrem. No other Limerick fission or activation products were found.

B. Atmospheric Environment

1. Airborne

a. Air Particulates

Continuous air particulate samples were collected from five locations on a weekly basis. The five locations were separated into three groups: Group I represents locations within the LGS site boundary (10S3, 11S1, and 14S1), Group II represents the location at an intermediate distance

from the LGS site (13C1); and Group III represents the control location at a remote distance from LGS (22G1). The following analyses were performed:

Gross Beta

Weekly samples were analyzed for concentrations of beta emitters (Table C–V.1 and C–V.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 LGS. The results from the On-Site locations (Group I) ranged from 7 to 33 E–3 pCi/m^3 with a mean of 18 E–3 pCi/m^3. The results from the Intermediate Distance location (Group II) ranged from 8 to 29 E–3 pCi/m^3 with a mean of 18 E–3 pCi/m^3. The results from the Distant locations (Group III) ranged from <7 to 26 E–3 pCi/m^3 with a mean of 16 E–3 pCi/m^3. Comparison of the 2002 air particulate data with previous years data indicate no effects from the operation of LGS (Figure C–5, Appendix C). In addition a comparison of the weekly mean values for 2002 indicate no notable differences among the three groups (Figure C–6, Appendix C).

Gamma Spectrometry

Weekly samples were composited quarterly and analyzed for gamma emitting nuclides (Table C–V.3, Appendix C). Naturally occurring Be–7 due to cosmic ray activity was detected in all samples. These values ranged from 48 to 85 E–3 pCi/m^3. All other nuclides were less than the MDA.

b. Airborne Iodine

Continuous air samples were collected from five (10S3, 11S1, 14S1, 13C1, and 22G1) locations and analyzed weekly for I–131 (Table C–VI.1, Appendix C). All results were less than the MDA.

2. Terrestrial

a. Milk

Samples were collected from five locations (9G1, 10F4,

18C1, 19B1 and 21B1) biweekly April through November and monthly December through March. Samples from four additional locations (22C1, 23F1, 25C1 and 36E1) were taken quarterly. The following analyses were performed:

Iodine–131

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

Gamma Spectrometry

Each milk sample from locations 18C1, 19B1, 21B1 and 22F1 were analyzed for concentrations of gamma emitting nuclides (Table C–VII.2, Appendix C).

Naturally occurring K–40 activity was found in all samples and ranged from 1,200 to 1,890 pCi/l. All other nuclides were less than the MDA.

C. Ambient Gamma Radiation

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

Most TLD measurements were below 10 mR/standard month, with a range of 5.1 to 12.4 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 Location 5H1 were consistently higher. The historical ambient gamma radiation data from Location 5H1 was plotted along with similar data from the Site, Intermediate Distance and Outer Ring Locations (Figure C–7, Appendix C). Location 5H1 has a historical high bias, but tracked with the data from all three groups. This bias is most likely due to radon emanating from the ground.

D. 10 CFR 20.2002 Permit Storage Area

The results of the surface water aquatic monitoring program from Location 25S1 were used to determine if radioactivity from the 2002 permit area has made it to the Schuylkill River. The data obtained from the gamma analysis program did not detect any radioactivity from the 2002 permit

area.

E. Land Use Survey

A Land Use Survey conducted during the May to September 2002 growing season around the Limerick Generating Station (LGS) was performed by Normandeau Associates, RMC Environmental Services Division for Exelon Nuclear to comply with Sections 2.15 and 3.4.2 of the Plant's Offsite Dose Calculation Manual. The purpose of the survey was to document the nearest resident, milk producing animal and garden of greater than 500 ft^2 in each of the sixteen 22 ½ degree sectors around the site. The distance and direction of all locations from the LGS reactor buildings were positioned using Global Positioning System (GPS) technology. There were no changes required to the LGS REMP, as a result of this survey. The results of this survey are summarized below.

Distance in Feet from the LGS Reactor Buildings			
Sector	Residence Miles	Garden Miles	Milk Farm Miles
1 N	0.6	1.8	4.7
2 NNE	0.5	0.5	-
3 NE	0.7	1.6	-
4 ENE	0.6	0.7	-
5 E	0.5	2.3	-
6 ESE	0.7	1.7	-
7 SE	1.0	1.4	-
8 SSE	1.0	1.1	-
9 S	0.8	1.2	2.3
10 SSW	1.0	1.0	1.8
11 SW	0.6	0.8	2.9
12 WSW	0.7	1.4	2.7
13 W	0.7	2.1	2.8
14 WNW	0.7	0.8	-
15 NW	0.7	1.6	-
16 NNW	1.0	1.6	-

References

1. Environmental Report Operating License Stage, Limerick Generating Station, Units 1 and 2, Volumes 1–5 Philadelphia Electric Company.
2. Branch Technical Position Paper, Regulatory Guide 4.8, Revision 1, November 1979.
3. Pre-operational Radiological Environmental Monitoring Program Report, Limerick Generating Station Units 1 and 2, 1 January 1982 through 21 December 1984, Teledyne Isotopes and Radiation Management Corporation.

APPENDIX A

RADIOLOGICAL ENVIRONMENTAL MONITORING REPORT SUMMARY

TABLE A-1 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM ANNUAL SUMMARY FOR THE LIMERICK GENERATING STATION, 2002

Name of Facility: LIMERICK GENERATING STATION **DOCKET NUMBER:** 50-352 & 50-353
Location of Facility: MONTGOMERY COUNTY, PA **REPORTING PERIOD:** 2002

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	STATION # NAME DISTANCE AND DIRECTION	NUMBER OF NONROUTINE REPORTED MEASUREMENTS
SURFACE WATER (PCI/LITER	TRITIUM	12	2000	126 (0/4) (<94/<184)	126 (0/8) (<94/<191)	128 (0/4) (<94/<191)	10F2 CONTROL PERKIOMEN PUMPING STATION 7.25 MILES E OF SITE	0
	GAMMA	35						
	MN-54		15	4 (0/12) (<1/<8)	3 (0/23) (<2/<9)	4 (0/12) (<1/<8)	13B1 INDICATOR VINCENT DAM 1.75 MILES SE OF SITE	0
	CO-58		15	8 (0/12) (<1/<7)	3 (0/23) (<1/<9)	4 (0/12) (<1/<7)	13B1 INDICATOR VINCENT DAM 1 75 MILES SE OF SITE	0
	CO-60		15	4 (0/12) (<2/<8)	3 (0/23) (<0 7/<7)	4 (0/12) (<2/<8)	13B1 INDICATOR VINCENT DAM 1 75 MILES SE OF SITE	0
	FE-59		30	8 (0/12) (<4/<15)	7 (0/23) (<2/<16)	8 (0/12) (<4/<15)	13B1 INDICATOR VINCENT DAM 1.75 MILES SE OF SITE	0
	ZN-65		30	7 (0/12) (<2/<17)	6 (0/23) (<2/<15)	7 (0/12) (<2/<17)	13B1 INDICATOR VINCENT DAM 1.75 MILES SE OF SITE	0
	ZR-95		30	6 (0/12) (<3/<10)	6 (0/23) (<3/<13)	6 (0/12) (<3/<10)	13B1 INDICATOR VINCENT DAM 1.75 MILES SE OF SITE	0
	NB-95		15	4 (0/12) (<2/<8)	4 (0/23) (<1/<8)	4 (0/12) (<2/<8)	13B1 INDICATOR VINCENT DAM 1 75 MILES SE OF SITE	0

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

TABLE A-1 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM ANNUAL SUMMARY FOR THE LIMERICK GENERATING STATION, 2002

Name of Facility: LIMERICK GENERATING STATION
Location of Facility: MONTGOMERY COUNTY, PA
DOCKET NUMBER: 50-352 & 50-353
REPORTING PERIOD: 2002

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
	CS-134		15	4 (0/12) (<2/<8)	3 (0/23) (<1/<8)	4 (0/12) (<2/<8)	13B1 INDICATOR VINCENT DAM 1.75 MILES SE OF SITE	0
	CS-137		18	4 (0/12) (<2/<8)	4 (0/23) (<2/<9)	4 (0/12) (<2/<8)	13B1 INDICATOR VINCENT DAM 1.75 MILES SE OF SITE	0
	BA-140		60	23 (0/12) (<8/<40)	19 (0/23) (<5/<32)	23 (0/12) (<8/<40)	13B1 INDICATOR VINCENT DAM 1.75 MILES SE OF SITE	0
	LA-140		15	7 (0/12) (<2/<13)	6 (0/23) (<2/<12)	7 (0/12) (<2/<13)	13B1 INDICATOR VINCENT DAM 1.75 MILES SE OF SITE	0
DRINKING WATER (PCI/LITER)	GROSS BETA SOLUBLE	48	4	4.8 (33/36) (<1.2/9 7)	4 4 (10/12) (<2.2/8.9)	5 8 (12/12) (3.7/9.7)	15F4 INDICATOR PHILA. SUB. WATER CO. 8.62 MILES SE OF SITE	0
	GROSS BETA INSOLUBLE	48	4	1.2 (0/36) (<0.6/<2.2)	1.2 (0/12) (<0.6/<2.2)	1.2 (0/12) (<0.6/<2.2)	28F3 CONTROL POTTSTOWN WATER AUTHORITY 5 84 MILES WNW OF SITE	0
	TRITIUM	16	2000	127 (1/12) (<94/<176)	122 (0/4) (<94/<173)	129 (1/4) (<94/<176)	15F4 INDICATOR PHILA SUB. WATER CO. 8 62 MILES SE OF SITE	0
	GAMMA MN-54	48	15	4 (0/36) (<1/<7)	4 (0/12) (<2/<6)	4 (0/12) (<2/<6)	16C2 INDICATOR CITIZENS HOME WATER CO. 2.66 MILES SSE OF SITE	0

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

TABLE A-1 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM ANNUAL SUMMARY FOR THE LIMERICK GENERATING STATION, 2002

Name of Facility: LIMERICK GENERATING STATION **DOCKET NUMBER:** 50-352 & 50-353
Location of Facility: MONTGOMERY COUNTY, PA **REPORTING PERIOD:** 2002

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	STATION # NAME DISTANCE AND DIRECTION	NUMBER OF NONROUTINE REPORTED MEASUREMENTS
	CO-58		15	4 (0/36) (<0 8/<6)	4 (0/12) (<1/<6)	4 (0/12) (<1/<6)	15F7 INDICATOR PHOENIXVILLE WATER WORKS 6 33 MILES SSE OF SITE	0
	CO-60		15	4 (0/36) (<1/<6)	4 (0/12) (<2/<6)	4 (0/12) (<2/<6)	28F3 CONTROL POTTSTOWN WATER AUTHORITY 5 84 MILES WNW OF SITE	0
	FE-59		30	8 (0/36) (<2/<14)	7 (0/12) (<28/<12)	8 (0/12) (<2/<12)	15F4 INDICATOR PHILA. SUB. WATER CO. 8 62 MILES SE OF SITE	0
	ZN-65		30	7 (0/36) (<2/<14)	7 (0/12) (<4/<14)	8 (0/12) (<2/<14)	15F4 INDICATOR PHILA SUB WATER CO 8 62 MILES SE OF SITE	0
	ZR-95		30	7 (0/36) (<3/<12)	6 (0/12) (<2/<10)	7 (0/12) (<4/<12)	15F7 INDICATOR PHOENIXVILLE WATER WORKS 6 33 MILES SSE OF SITE	0
	NB-95		15	4 (0/36) (<1/<7)	4 (0/12) (<2/<6)	4 (0/12) (<2/<7)	16C2 INDICATOR CITIZENS HOME WATER CO 2 66 MILES SSE OF SITE	0
	CS-134		15	4 (0/36) (<2/<7)	4 (0/12) (<2/<6)	4 (0/12) (<2/<7)	15F7 INDICATOR PHOENIXVILLE WATER WORKS 6 33 MILES SSE OF SITE	0
	CS-137		18	4 (0/36) (<2/<7)	4 (0/12) (<1/<6)	4 (0/12) (<2/<6)	16C2 INDICATOR CITIZENS HOME WATER CO 2 66 MILES SSE OF SITE	0

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

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	BA-140		60	22 (0/36) (<6/<45)	21 (0/12) (<5/<35)	22 (0/12) (6/<45)	15F4 INDICATOR PHILA. SUB. WATER CO. 8.62 MILES SE OF SITE	0
	LA-140		15	7 (0/36) (<0.9/<15)	7 (0/12) (<2/<10)	7 (0/12) (<2/<12)	16C2 INDICATOR CITIZENS HOME WATER CO. 2 66 MILES SSE OF SITE	0
BOTTOM FEEDER (FISH) (PCI/KG WET)	GAMMA	4	N/A					
	K-40			3325 (2/2) (3280/3370)	3316 (2/2) (2940/3692)	3325 (2/2) (3280/3370)	16C5 INDICATOR VINCENT POOL DOWNSTREAM OF DISCHARGE	0
	MN-54		130	17 (0/2) (<9/<25)	15 (0/2) (<11/<19)	17 (0/2) (<9/<25)	16C5 INDICATOR VINCENT POOL DOWNSTREAM OF DISCHARGE	0
	CO-58		130	20 (0/2) (<10/<30)	16 (0/2) (<13/<19)	20 (0/2) (<10/<30)	16C5 INDICATOR VINCENT POOL DOWNSTREAM OF DISCHARGE	0
	CO-60		130	17 (0/2) (<8/<25)	16 (0/2) (<12/<19)	17 (0/2) (<8/<25)	16C5 INDICATOR VINCENT POOL DOWNSTREAM OF DISCHARGE	0
	FE-59		260	43 (0/2) (<23/<64)	35 (0/2) (<30/<41)	43 (0/2) (<23/<64)	16C5 INDICATOR VINCENT POOL DOWNSTREAM OF DISCHARGE	0
	ZN-65		260	36 (0/2) (<18/<53)	34 (0/2) (<28/<41)	36 (0/2) (<18/<53)	16C5 INDICATOR VINCENT POOL DOWNSTREAM OF DISCHARGE	0

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

TABLE A-1 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM ANNUAL SUMMARY FOR THE LIMERICK GENERATING STATION, 2002

Name of Facility: LIMERICK GENERATING STATION **DOCKET NUMBER:** 50-352 & 50-353
Location of Facility: MONTGOMERY COUNTY, PA **REPORTING PERIOD:** 2002

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	STATION # NAME DISTANCE AND DIRECTION	NUMBER OF NONROUTINE REPORTED MEASUREMENTS
	CS-134		130	16 (0/2) (<9/<24)	15 (0/2) (<12/<18)	16 (0/2) (<9/<24)	16C5 INDICATOR VINCENT POOL DOWNSTREAM OF DISCHARGE	0
	CS-137		150	17 (0/2) (<10/<24)	18 (0/2) (<12/<23)	18 (0/2) (<12/<23)	29C1 CONTROL POTTSTOWN VICINITY UPSTREAM OF INTAKE	0
PREDATOR (FISH) (PCI/KG WET)	GAMMA K-40	4	130	3786 (2/2) (3491/4080)	3543 (2/2) (3510/3575)	3786 (2/2) (3491/4080)	16C5 INDICATOR VINCENT POOL DOWNSTREAM OF DISCHARGE	0
	CO-58		130	31 (0/2) (<17/<45)	19 (0/2) (<18/<19)	31 (0/2) (<17/<45)	16C5 INDICATOR VINCENT POOL DOWNSTREAM OF DISCHARGE	0
	CO-60		130	25 (0/2) (<16/<34)	17 (0/2) (<16/<18)	25 (0/2) (<16/<34)	16C5 INDICATOR VINCENT POOL DOWNSTREAM OF DISCHARGE	0
	FE-59		260	67 (0/2) (<39/<95)	39 (0/2) (<39/<40)	67 (0/2) (<39/<95)	16C5 INDICATOR VINCENT POOL DOWNSTREAM OF DISCHARGE	0
	ZN-65		260	60 (0/2) (<33/<87)	39 (0/2) (<36/<43)	60 (0/2) (<33/<87)	16C5 INDICATOR VINCENT POOL DOWNSTREAM OF DISCHARGE	0

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

TABLE A-1 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM ANNUAL SUMMARY FOR THE LIMERICK GENERATING STATION, 2002

Name of Facility: LIMERICK GENERATING STATION **DOCKET NUMBER:** 50-352 & 50-353
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	CS-134		130	25 (0/2) (<14/<37)	16 (0/2) (<15/<17)	25 (0/2) (<14/<37)	16C5 INDICATOR VINCENT POOL DOWNSTREAM OF DISCHARGE	0
	CS-137		150	26 (0/2) (<16/<35)	17 (0/2) (<16/<17)	26 (0/2) (<16/<35)	16C5 INDICATOR VINCENT POOL DOWNSTREAM OF DISCHARGE	0
SEDIMENT (PCI/KG DRY)	GAMMA	6						
	K-40		N/A	16895 (4/4) (9750/21870)	14515 (2/2) (11400/17630)	19535 (2/2) (17200/21870)	16B2 INDICATOR LINFIELD BRIDGE 1.35 MILES SSE OF SITE	0
	MN-54		N/A	46 (0/4) (<17/<60)	35 (0/2) (<27/<42)	58 (0/2) (<57/<60)	16B2 INDICATOR LINFIELD BRIDGE 1.35 MILES SSE OF SITE	0
	CO-58		N/A	46 (0/4) (<20/<61)	35 (0/2) (<26/<43)	59 (0/2) (<56/<61)	16B2 INDICATOR LINFIELD BRIDGE 1 35 MILES SSE OF SITE	0
	CO-60		N/A	58 (1/4) (<18/116)	33 (0/2) (<26/<39)	82 (1/2) (<49/116)	16B2 INDICATOR LINFIELD BRIDGE 1.35 MILES SSE OF SITE	0
	CS-134		150	37 (0/4) (<15/<46)	31 (0/2) (<28/<35)	45 (0/2) (<45/<46)	16B2 INDICATOR LINFIELD BRIDGE 1 35 MILES SSE OF SITE	0
	CS-137		180	150 (4/4) (39/268)	118 (1/2) (<28/208)	222 (2/2) (176/268)	16B2 INDICATOR LINFIELD BRIDGE 1.35 MILES SSE OF SITE	0

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

TABLE A-1 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM ANNUAL SUMMARY FOR THE LIMERICK GENERATING STATION, 2002

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AIR PARTICULATE (E-3 PCI/CU.METER)	GROSS BETA	254	10	18 (203/203) (7/33)	16 (50/51) (7/26)	18 (51/51) (7/33)	11S1 INDICATOR LGS INFORMATION CENTER 0 38 MILES ESE OF SITE	0
	GAMMA	20						
	BE-7		N/A	66 (16/16) (48/85)	61 (4/4) (49/74)	68 (4/4) (63/74)	13C1 INDICATOR KING ROAD 2 84 MILES SE OF SITE	0
	MN-54		N/A	0.7 (0/16) (<0 4/<2)	0.7 (0/4) (<0 5/<0 9)	0 9 (0/4) (<0 6/<2)	14S1 INDICATOR LONGVIEW ROAD 0 63 MILES SSE OF SITE	0
	CO-58		N/A	0 8 (0/16) (<0 5/<1)	0 9 (0/4) (<0 6/<1)	1 0 (0/4) (<0 8/<1)	14S1 INDICATOR LONGVIEW ROAD 0 63 MILES SSE OF SITE	0
	CO-60		N/A	0 7 (0/16) (<0 4/<1)	0 6 (0/4) (<0 5/<0 7)	0 9 (0/4) (<0 5/<1)	13C1 INDICATOR KING ROAD 2 84 MILES SE OF SITE	0
	CS-134		50	0 7 (0/16) (<0 3/<1)	0 7 (0/4) (0 4/<0.9)	0 8 (0/4) (<0 6/<1)	13C1 INDICATOR KING ROAD 2 84 MILES SE OF SITE	0
	CS-137		60	0 7 (0/16) (<0 4/<1)	0 7 (0/4) (<0 5/<0 8)	0 7 (0/4) (<0 6/<0 9)	14S1 INDICATOR LONGVIEW ROAD 0 63 MILES SSE OF SITE	0
AIR IODINE (E-3 PCI/CU METER)	I-131	254	70	13 (0/203) (<4/<65)	12 (0/51) (<3/<47)	14 (0/51) (<4/<65)	11S1 INDICATOR LGS INFORMATION CENTER 0 38 MILES ESE OF SITE	0

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

TABLE A-1 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM ANNUAL SUMMARY FOR THE LIMERICK GENERATING STATION, 2002

Name of Facility: LIMERICK GENERATING STATION **DOCKET NUMBER:** 50-352 & 50-353
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MILK (PCI/LITER)	I-131	120	1	0.3 (0/91) (<0.1/<1)	0 3 (0/29) (<0.1/<0 5)	0.3 (0/20) (<0.1/<0.6)	19B1 INDICATOR REGIONAL FARM 1.95 MILES SSW OF SITE	0
	GAMMA K-40	105	N/A	1413 (84/84) (1200/1810)	1427 (21/21) (1210/1890)	1435 (21/21) (1260/1810)	18C1 INDICATOR REGIONAL FARM 2 26 MILES S OF SITE	0
	CS-134		15	4 (0/84) (<1/<9)	4 (0/21) (<2/<7)	4 (0/21) (<2/<9)	19B1 INDICATOR REGIONAL FARM 1 95 MILES SSW OF SITE	0
	CS-137		18	4 (0/84) (<1/<8)	4 (0/21) (<2/<7)	5 (0/21) (<2/<8)	19B1 INDICATOR REGIONAL FARM 1.95 MILES SSW OF SITE	0
	BA-140		60	<21 (0/84) (<8/<43)	<21 (0/21) (<12/<38)	<22 (0/21) (<9/<43)	19B1 INDICATOR REGIONAL FARM 1.95 MILES SSW OF SITE	0
	LA-140		15	6 (0/84) (<1/<14)	6 (0/21) (<2/<10)	7 (0/21) (<2/<14)	19B1 INDICATOR REGIONAL FARM 1.95 MILES SSW OF SITE	0
DIRECT RADIATION (MILLI-ROENTGEN/STD MO.	TLD-QUARTERLY	160	N/A	7 6 (156/156) (5.1/12.4)	8 6 (4/4) (8 2/9.0)	11.5 (4/4) (10.4/12.4)	13S2 INDICATOR 500 KV SUBSTATION 0 41 MILES SE OF SITE	0

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

APPENDIX B

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

TABLE B-1: Location Designation and Identification System for the Limerick Generating Station

XXYZ - General code for identification of locations, where:

XX - Angular Sector of Sampling Location. The compass is divided into 36 sectors of 10 degrees each with center at Limerick's Units 1 and 2 off-gas vents. Sector 36 is centered due North, and others are numbered in a clockwise direction.

Y - Radial Zone of Sampling Location (in this report, the radial distance from the Limerick vent for all regional stations).

S : on-site location
A : 0-1 mile off-site
B : 1-2 miles off-site
C : 2-3 miles off-site
D : 3-4 miles off-site
E : 4-5 miles off-site
F : 5-10 miles off-site
G : 10-20 miles off-site
H : 20-100 miles off-site

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, Limerick Generating Station, 2002

Location	Location Description	Distance & Direction From Site
A. Surface Water		
13B1	Vincent Dam (indicator)	1 75 miles SE
24S1	Limerick Intake (control)	0 20 miles SW
10F2	Perkiomen Pumping Station (control)	7 25 miles E
B. Drinking (Potable) Water		
15F4	Philadelphia Suburban Water Company (indicator)	8 62 miles SE
15F7	Phoenixville Water Works (indicator)	6 33 miles SSE
16C2	Citizens Home Water Company (indicator)	2 66 miles SSE
28F3	Pottstown Water Authority (control)	5 84 miles WNW
C. Milk - bi-weekly / monthly		
9G1	Control	11 64 miles E
10F4		6 60 miles ESE
18C1		2.26 miles S
19B1		1 95 miles SSW
21B1		1.75 miles SSW
D. Milk - quarterly		
36E1		4.70 miles N
22C1		2 92 miles SW
23F1	Control	5 02 miles SW
25C1		2 69 miles WSW
E. Air Particulates / Air Iodine		
10S3	Keen Road	0 50 miles E
11S1	LGS Information Center	0 38 miles ESE
11S2	LGS Information Center	0 38 miles ESE
13C1	King Road	2 84 miles SE
14S1	Longview Road	0 63 miles SSE
22G1	Manor Substation (control)	17.73 miles SW
F.Fish		
16C5	Vincent Pool (indicator)	Downstream of Discharge
29C1	Pottstown Vicinity (control)	Upstream of Intake
G. Sediment		
16B2	Linfield Bridge (indicator)	1.35 miles SSE
16C4	Vincent Dam (indicator)	2 18 miles SSE
33A2	Upstream of Intake (control)	0 84 miles NNW
H. Environmental Dosimetry - TLD		
Site Boundary		
36S2	Evergreen & Sanatoga Road	0 60 miles N
3S1	Sanatoga Road	0 44 miles NNE

TABLE B-2: Radiological Environmental Monitoring Program - Sampling Locations, Distance and Direction, Limerick Generating Station, 2002

Location	Location Description	Distance & Direction From Site
5S1	Possum Hollow Road	0 45 miles NE
7S1	LGS Training Center	0 59 miles ENE
10S3	Keen Road	0 50 miles E
11S1	LGS Information Center	0 38 miles ESE
13S2	500 KV Substation	0 41 miles SE
14S1	Longview Road	0 63 miles SSE
18S2	Rail Line along Longview Road	0 26 miles S
21S2	Near Intake Building	0 19 miles SSW
23S2	Transmission Tower	0 53 miles SW
25S2	Sector Site Boundary	0.46 miles WSW
26S3	Met. Tower #2	0 40 miles W
29S1	Sector Site Boundary	0 55 miles WNW
31S1	Sector Site Boundary	0 26 miles NW
34S2	Met Tower #1	0 58 miles NNW
Intermediate Distance		
36D1	Siren Tower No 147	3.51 miles N
2E1	Laughing Waters GSC	4 76 miles NNE
4E1	Neiffer Road	4 78 miles NE
7E1	Pheasant Road	4 26 miles ENE
10E1	Royersford Road	3 94 miles E
10F3	Trappe Substation	5 58 miles ESE
13E1	Vaughn Substation	4 31 miles SE
16F1	Pikeland Substation	5 04 miles SSE
19D1	Snowden Substation	3 49 miles S
20F1	Sheeder Substation	5 24 miles SSW
24D1	Porters Mill Substation	3 97 miles SW
25D1	Hoffecker & Keim Streets	3 99 miles WSW
28D2	W. Cedarville Road	3 83 miles W
29E1	Prince Street	4.95 miles WNW
31D2	Poplar Substation	3 87 miles NW
34E1	Varnell Road	4 59 miles NNW
Control and Special Interest		
5H1	Birch Substation (control)	24.76 miles NE
6C1	Pottstown Landing Field	2.14 miles NE
9C1	Reed Road	2.15 miles E
13C1	King Road	2.84 miles SE
15D1	Spring City Substation	3 20 miles SE
17B1	Linfield Substation	1 60 miles S
20D1	Ellis Woods Road	3 06 miles SSW
31D1	Lincoln Substation	3 00 miles WNW

TABLE B-3: Radiological Environmental Monitoring Program – Summary of Sample Collection and Analytical Methods, Limerick Generating Station, 2002

Sample Medium	Analysis	Sampling Method	Collection Procedure Number	Sample Size	Analytical Procedure Number
Surface Water	Gamma Spectroscopy	Monthly composite from a continuous water compositor.	RMC-ER5 Collection of water samples for radiological analysis (Limerick Generating Station)	2 gallon	TBE, PRO-042-5 Determination of gamma emitting radioisotopes Env. Inc , GS-01 Determination of gamma emitters by gamma spectroscopy
Surface Water	Tritium	Quarterly composite from a continuous water compositor	RMC-ER5 Collection of water samples for radiological analysis (Limerick Generating Station)	500 ml	TBE, PRO-052-35 Determination of tritium in water by liquid scintillation Env. Inc., T-02 Determination of tritium in water (direct method)
Drinking Water	Gross Beta	Monthly composite from a continuous water compositor	RMC-ER5 Collection of water samples for radiological analysis (Limerick Generating Station)	2 gallon	TBE, PRO-032-41 Gross Alpha and/or gross beta activity in water samples (suspended and dissolved fractions) Env. Inc , W(DS)-01 Determination of gross alpha and/or gross beta in water (dissolved solids or total residue) Env. Inc , W(SS)-02 Determination of gross alpha and/or gross beta in water (suspended solids)
Drinking Water	Gamma Spectroscopy	Monthly composite from a continuous water compositor.	RMC-ER5 Collection of water samples for radiological analysis (Limerick Generating Station)	2 gallon	TBE, PRO-042-5 Determination of gamma emitting radioisotopes Env Inc , GS-01 Determination of gamma emitters by gamma spectroscopy
Drinking Water	Tritium	Quarterly composite from a continuous water compositor	RMC-ER5 Collection of water samples for radiological analysis (Limerick Generating Station)	500 ml	TBE, PRO-052-35 Determination of tritium in water by liquid scintillation Env Inc , T-02 Determination of tritium in water (direct method)
Fish	Gamma Spectroscopy	Semi-annual samples collected via electroshocking or other techniques	RMC-ER6 Collection of fish samples for radiological analysis (Limerick Generating Station)	1000 grams (wet)	TBE, PRO-042-5 Determination of gamma emitting radioisotopes Env Inc , GS-01 Determination of gamma emitters by gamma spectroscopy
Sediment	Gamma Spectroscopy	Semi-annual grab samples	RMC-ER7 Collection of sediment samples for radiological analysis (Limerick Generating Station)	500 grams (dry)	TBE, PRO-042-5 Determination of gamma emitting radioisotopes 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	RMC-ER8 Collection of air particulate and air iodine samples for radiological analysis (Limerick Generating Station)	1 filter (approximately 280 cubic meters weekly)	TBE, PRO-032-10 Gross beta and/or alpha activity in air particulate filters (direct count method) Env. Inc , AP-02 Determination of gross alpha and/or gross beta in air particulate filters

TABLE B-3: Radiological Environmental Monitoring Program – Summary of Sample Collection and Analytical Methods, Limerick Generating Station, 2002

Sample Medium	Analysis	Sampling Method	Collection Procedure Number	Sample Size	Analytical Procedure Number
Air Particulates	Gamma Spectroscopy	Quarterly composite of each station	Env. Inc., AP-03 Procedure for compositing air particulate filters for gamma spectroscopic analysis	13 filters (approximately 3600 cubic meters)	TBE, PRO-042-5 Determination of gamma emitting radioisotopes 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	RMC-ER8 Collection of air particulate and air iodine samples for radiological analysis (Limerick Generating Station)	1 filter (approximately 280 cubic meters weekly)	TBE, PRO-042-5 Determination of gamma emitting radioisotopes 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	RMC-ER10 Collection of milk samples for radiological analysis (Limerick Generating Station)	2 gallon	TBE, PRO-032-20 Radiometric determination of I-131 by the beta-gamma coincidence counting technique Env Inc., I-131-01 Determination of I-131 in milk by anion exchange
Milk	Gamma Spectroscopy	Bi-weekly grab sample when cows are on pasture. Monthly all other times	RMC-ER10 Collection of milk samples for radiological analysis (Limerick Generating Station)	2 gallon	TBE, PRO-042-5 Determination of gamma emitting radioisotopes Env. Inc , GS-01 Determination of gamma emitters by gamma spectroscopy
TLD	Thermoluminescence Dosimetry	Quarterly TLDs comprised of two Panasonic 814 (containing 3 each $CaSO_4$ elements)	RMC-ER9 Collection of TLD samples for radiological analysis (Limerick Generating Station)	2 dosimeters	ICN Pharmaceutical

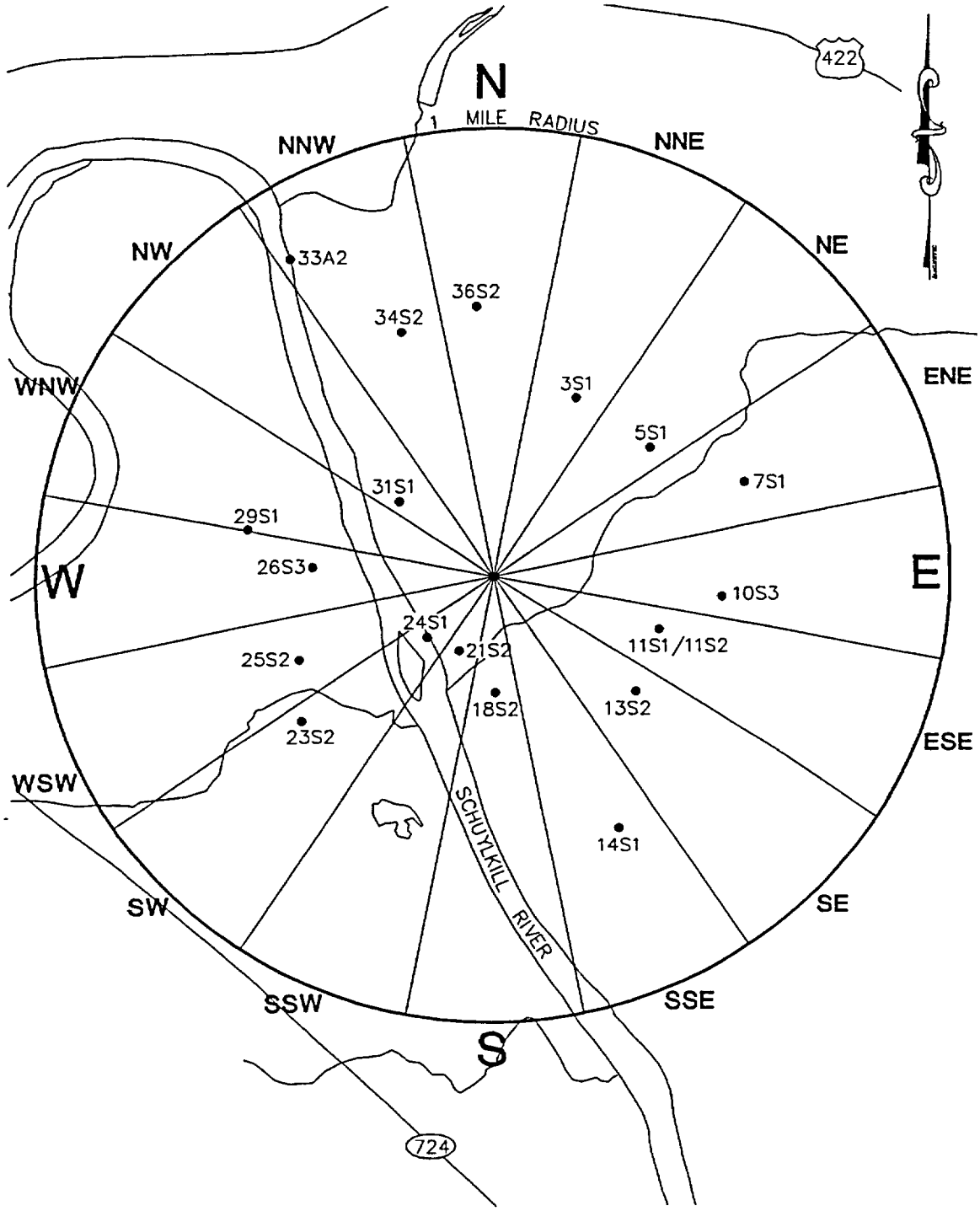

Figure B-1
Environmental Sampling Locations Within One
Mile of the Limerick Generating Station, 2002

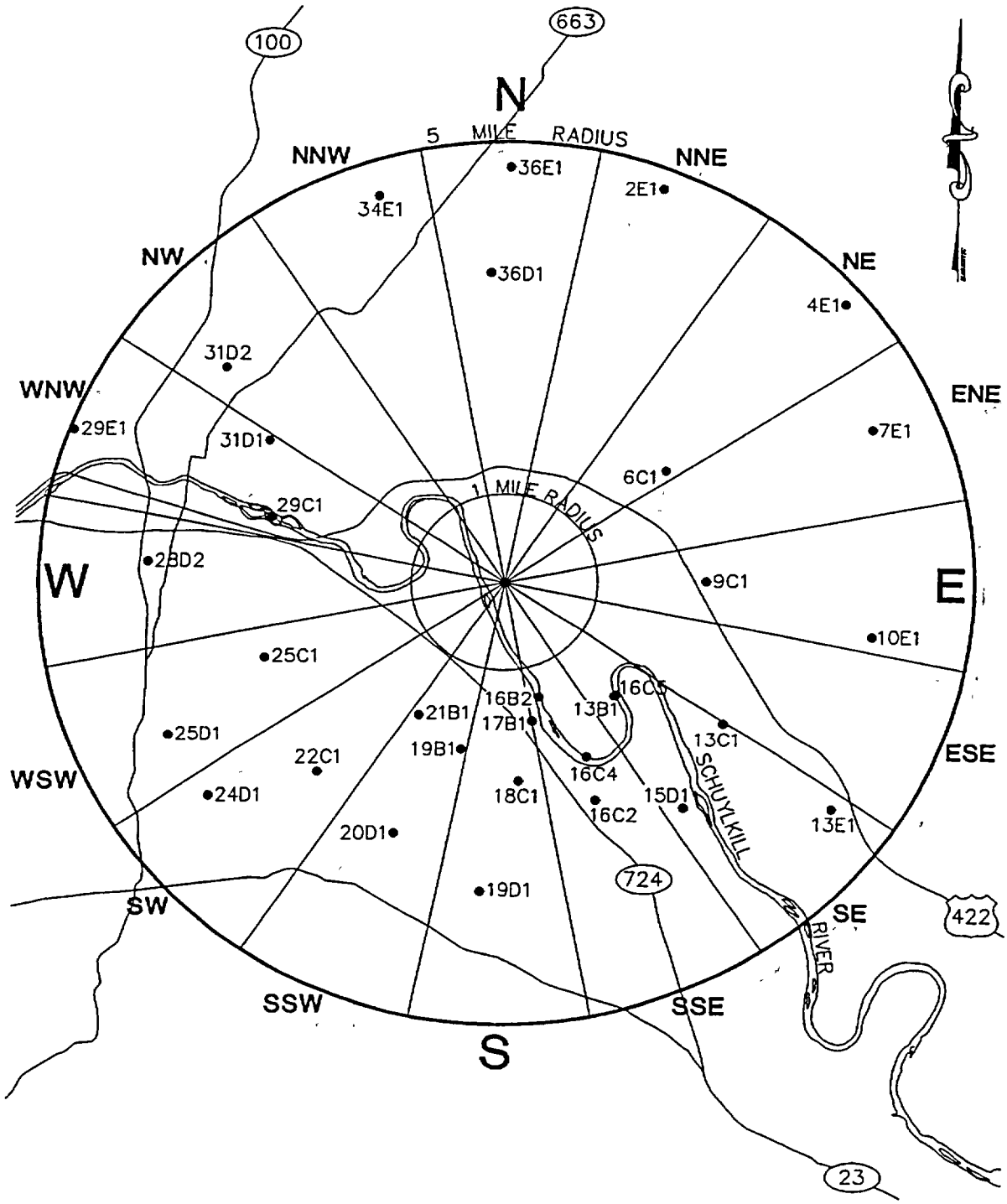

Figure B-2
Environmental Sampling Locations Between One and Five Miles from the Limerick Generating Station, 2002

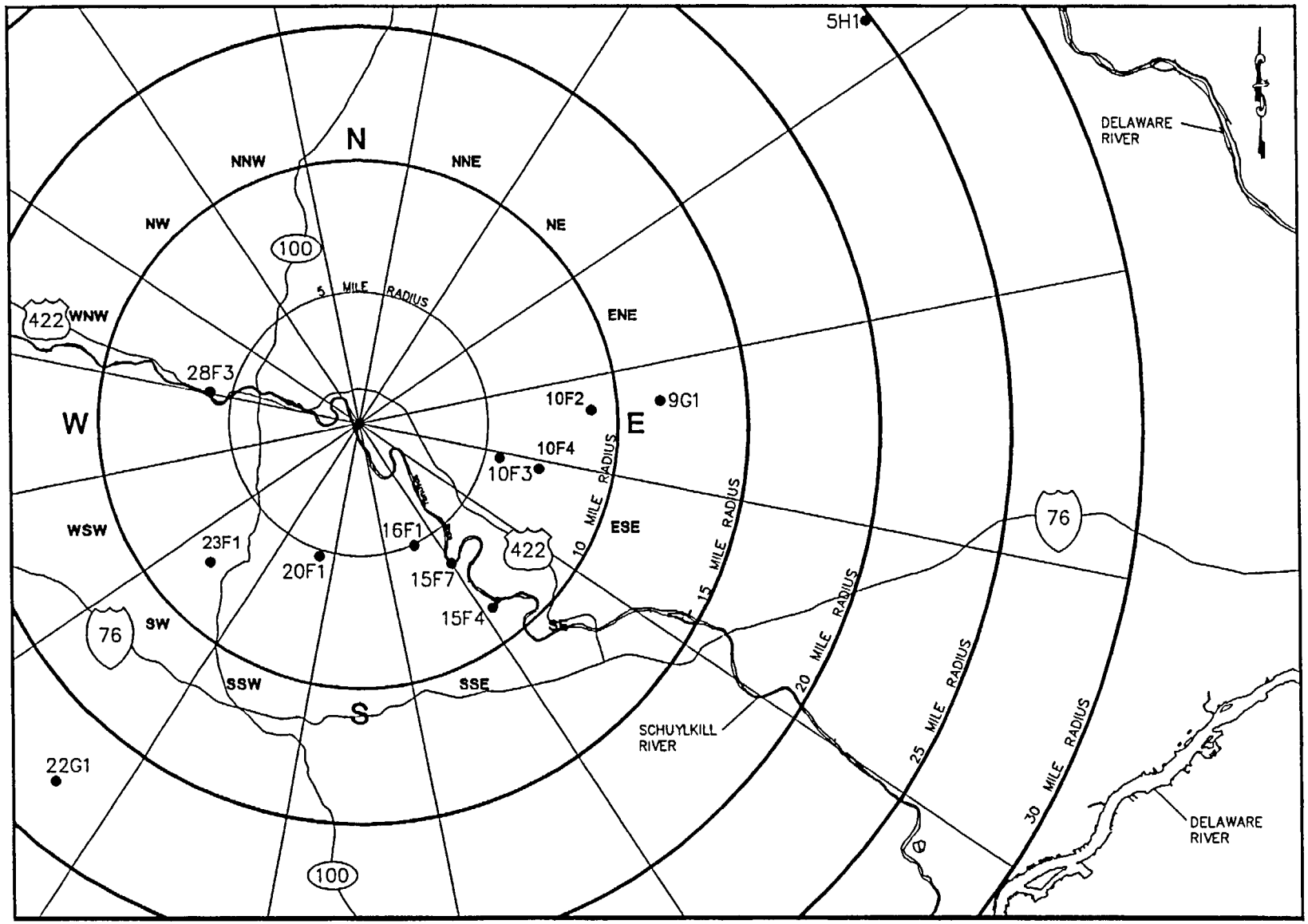

Figure B-3
Environmental Sampling Locations Greater than Five
Miles from the Limerick Generating Station, 2002

APPENDIX C

DATA TABLES AND FIGURES
PRIMARY LABORATORY

TABLE C-I.1 CONCENTRATIONS OF TRITIUM IN SURFACE WATER SAMPLES COLLECTED IN THE VICINITY OF LIMERICK GENERATING STATION, 2002

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

COLLECTION PERIOD	10F2	13B1	24S1
JAN-MAR	< 94	< 94	< 94
APR-JUN	< 96	< 94	< 94
JUL-SEP	< 130	< 132	< 130
OCT-DEC	< 191	< 184	< 178
MEAN	128 ± 91	126 ± 85	124 ± 79

TABLE C-I.2 CONCENTRATIONS OF GAMMA EMITTERS IN SURFACE WATER SAMPLES COLLECTED IN THE VICINITY OF LIMERICK GENERATING STATION, 2002

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
10F2	JAN	< 2	< 2	< 4	< 2	< 4	< 5	< 2	< 4	< 4	< 9	< 2
	FEB	< 3	< 3	< 4	< 0 7	< 3	< 3	< 3	< 2	< 3	< 15	< 2
	MAR	< 2	< 2	< 2	< 2	< 3	< 4	< 1	< 2	< 2	< 5	< 2
	APR	< 3	< 3	< 7	< 3	< 7	< 5	< 3	< 3	< 3	< 13	< 4
	MAY	< 4	< 4	< 8	< 4	< 8	< 7	< 5	< 4	< 4	< 18	< 6
	JUN	< 4	< 4	< 8	< 4	< 7	< 6	< 4	< 4	< 4	< 19	< 7
	JUL	< 4	< 4	< 9	< 4	< 8	< 7	< 5	< 4	< 4	< 22	< 7
	AUG	< 2	< 2	< 6	< 2	< 4	< 4	< 3	< 2	< 3	< 21	< 7
	SEP	< 2	< 2	< 5	< 2	< 4	< 4	< 3	< 2	< 2	< 30	< 10
	OCT	< 4	< 4	< 8	< 4	< 8	< 7	< 5	< 4	< 4	< 27	< 10
	NOV	< 3	< 3	< 6	< 3	< 5	< 5	< 3	< 2	< 3	< 23	< 6
	DEC	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
	MEAN	3 ± 2	3 ± 2	6 ± 4	3 ± 2	6 ± 4	5 ± 3	3 ± 2	3 ± 2	3 ± 2	18 ± 15	6 ± 6
13B1	JAN	< 1	< 2	< 4	< 2	< 2	< 4	< 2	< 3	< 3	< 8	< 2
	FEB	< 3	< 2	< 4	< 3	< 3	< 5	< 3	< 2	< 2	< 13	< 2
	MAR	< 2	< 1	< 4	< 2	< 2	< 3	< 2	< 2	< 2	< 9	< 2
	APR	< 8	< 7	< 15	< 8	< 17	< 12	< 8	< 8	< 8	< 28	< 10
	MAY	< 4	< 4	< 7	< 5	< 7	< 6	< 4	< 4	< 5	< 17	< 6
	JUN	< 6	< 6	< 12	< 5	< 12	< 9	< 6	< 6	< 6	< 30	< 10
	JUL	< 4	< 4	< 9	< 6	< 8	< 7	< 4	< 4	< 6	< 20	< 7
	AUG	< 3	< 4	< 8	< 3	< 6	< 6	< 5	< 3	< 4	< 37	< 13
	SEP	< 2	< 2	< 5	< 3	< 4	< 4	< 3	< 2	< 2	< 29	< 10
	OCT	< 4	< 4	< 9	< 4	< 7	< 8	< 5	< 4	< 4	< 28	< 9
	NOV	< 5	< 5	< 12	< 6	< 12	< 10	< 6	< 5	< 5	< 40	< 13
	DEC	< 2	< 2	< 4	< 3	< 5	< 4	< 2	< 2	< 3	< 11	< 3
	MEAN	4 ± 4	4 ± 4	8 ± 7	4 ± 4	7 ± 9	6 ± 6	4 ± 4	4 ± 4	4 ± 4	23 ± 22	7 ± 8

(1) SEE PROGRAM EXCEPTIONS SECTION FOR EXPLANATION

TABLE C-I.2 CONCENTRATIONS OF GAMMA EMITTERS IN SURFACE WATER SAMPLES COLLECTED IN THE VICINITY OF LIMERICK GENERATING STATION, 2002

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
24S1	JAN	< 2	< 1	< 4	< 3	< 6	< 5	< 3	< 3	< 3	< 13	< 2
	FEB	< 2	< 2	< 4	< 3	< 4	< 5	< 3	< 3	< 3	< 12	< 3
	MAR	< 2	< 1	< 4	< 2	< 2	< 4	< 2	< 2	< 3	< 13	< 2
	APR	< 8	< 9	< 16	< 7	< 15	< 13	< 8	< 8	< 9	< 32	< 12
	MAY	< 5	< 5	< 11	< 5	< 12	< 9	< 5	< 5	< 6	< 25	< 8
	JUN	< 4	< 4	< 9	< 3	< 10	< 7	< 5	< 5	< 6	< 22	< 7
	JUL	< 4	< 4	< 9	< 4	< 8	< 7	< 5	< 4	< 4	< 23	< 8
	AUG	< 2	< 2	< 4	< 1	< 3	< 3	< 2	< 1	< 2	< 15	< 5
	SEP	< 2	< 3	< 6	< 2	< 4	< 4	< 3	< 2	< 2	< 32	< 10
	OCT	< 2	< 2	< 5	< 2	< 4	< 4	< 2	< 2	< 2	< 14	< 5
	NOV	< 4	< 4	< 10	< 4	< 9	< 8	< 5	< 4	< 4	< 28	< 9
	DEC	< 3	< 3	< 7	< 3	< 7	< 6	< 3	< 3	< 3	< 16	< 5
	MEAN	3.4 ± 4	3 ± 4	7 ± 8	3 ± 3	7 ± 8	6 ± 5	4 ± 4	3 ± 3	4 ± 4	20 ± 15	6 ± 7

TABLE C-II.1 CONCENTRATIONS OF GROSS BETA INSOLUBLE IN DRINKING WATER SAMPLES COLLECTED IN THE VICINITY OF LIMERICK GENERATING STATION, 2002

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

COLLECTION PERIOD	15F4	15F7	16C2	28F3
JAN	< 1 5	< 1.7	< 1.7	< 1 6
FEB	< 1 1	< 1 1	< 1.1	< 1.2
MAR	< 1 5	< 1.6	< 1 6	< 1.7
APR	< 0 7	< 0 7	< 0.7	< 0.7
MAY	< 0 7	< 0 7	< 0 7	< 0.7
JUN	< 0 6	< 0 6	< 0 6	< 0.6
JUL	< 0 7	< 0 7	< 0 7	< 0 7
AUG	< 0 7	< 0 7	< 0.7	< 0 7
SEP	< 1 4	< 1.4	< 1.4	< 1.4
OCT	< 1 5	< 1 5	< 1 5	< 1.5
NOV	< 2 2	< 2.2	< 2.2	< 2.2
DEC	< 1 7	< 1 7	< 1 7	< 1 7
MEAN	1 2 ± 1 0	1 2 ± 1.1	1 2 ± 1.1	1 2 ± 1.1

TABLE C-II.2 CONCENTRATIONS OF GROSS BETA SOLUBLE IN DRINKING WATER SAMPLES COLLECTED IN THE VICINITY OF LIMERICK GENERATING STATION, 2002

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

COLLECTION PERIOD	15F4	15F7	16C2	28F3
JAN	4 6 ± 1 0	3 7 ± 0 9	3 9 ± 1.0	3 3 ± 1 0
FEB	6 7 ± 0 9	4 5 ± 0 8	3 6 ± 0.8	4.2 ± 0 9
MAR	4 4 ± 1 0	4 4 ± 1.1	3 2 ± 1.0	3 8 ± 1 0
APR	6 1 ± 1 2	3 4 ± 1 0	2.7 ± 0.9	3.2 ± 1 0
MAY	5 0 ± 1 1	2 9 ± 0 9	< 1.2	3.5 ± 1 0
JUN	6 5 ± 1 1	5 7 ± 1 1	4.3 ± 1 1	4 5 ± 1 1
JUL	6 3 ± 1 3	5 8 ± 1 3	4.1 ± 1 1	5 6 ± 1 3
AUG	5 3 ± 1 1	8 7 ± 1 5	6.3 ± 1.3	8 9 ± 1 5
SEP	9 7 ± 2 0	8 0 ± 2 0	7.5 ± 2.0	6 2 ± 1 9
OCT	5 5 ± 1 7	4 5 ± 1 7	3 6 ± 1.7	3 8 ± 1 6
NOV	6 5 ± 2 5	< 3 0	< 3 2	< 3 1
DEC	3 7 ± 1 6	2 2 ± 1 5	3.3 ± 1.6	< 2 2
MEAN	5 8 ± 3 1	4 7 ± 4 0	3.9 ± 3 3	4 4 ± 3 6

TABLE C-II.3 CONCENTRATIONS OF TRITIUM IN DRINKING WATER SAMPLES COLLECTED IN THE VICINITY OF LIMERICK GENERATING STATION, 2002

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

COLLECTION PERIOD	15F4	15F7	16C2	28F3
JAN-MAR	< 94	< 94	< 94	< 94
APR-JUN	105 ± 61	< 96	< 95	< 94
JUL-SEP	< 141	< 141	< 140	< 126
OCT-DEC	< 176	< 176	< 171	< 173
MEAN	129 ± 74	127 ± 79	125 ± 75	122 ± 75

TABLE C-II.4 CONCENTRATIONS OF GAMMA EMITTERS IN DRINKING WATER SAMPLES COLLECTED IN THE VICINITY OF LIMERICK GENERATING STATION, 2002

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
15F4	JAN	< 2	< 1	< 3	< 3	< 5	< 6	< 3	< 2	< 3	< 12	< 0 9
	FEB	< 2	< 3	< 5	< 2	< 4	< 5	< 2	< 3	< 3	< 10	< 2
	MAR	< 1	< 0 8	< 2	< 1	< 2	< 3	< 2	< 2	< 2	< 6	< 2
	APR	< 6	< 6	< 12	< 6	< 14	< 11	< 6	< 7	< 7	< 25	< 8
	MAY	< 4	< 3	< 7	< 3	< 7	< 6	< 4	< 3	< 3	< 16	< 5
	JUN	< 6	< 6	< 12	< 6	< 14	< 10	< 6	< 6	< 6	< 33	< 11
	JUL	< 3	< 3	< 7	< 3	< 6	< 6	< 4	< 3	< 3	< 20	< 6
	AUG	< 4	< 4	< 8	< 3	< 7	< 7	< 4	< 3	< 4	< 38	< 12
	SEP	< 3	< 3	< 8	< 3	< 5	< 6	< 5	< 3	< 3	< 45	< 15
	OCT	< 4	< 4	< 9	< 4	< 8	< 7	< 5	< 4	< 4	< 29	< 9
	NOV	< 2	< 2	< 10	< 3	< 8	< 3	< 2	< 1	< 2	< 13	< 4
	DEC	< 4	< 4	< 8	< 4	< 7	< 7	< 4	< 3	< 4	< 18	< 7
	MEAN	3 ± 3	3 ± 3	8 ± 6	4 ± 3	7 ± 7	6 ± 5	4 ± 3	3 ± 3	4 ± 3	22 ± 24	7 ± 9
15F7	JAN	< 2	< 1	< 3	< 3	< 2	< 6	< 1	< 3	< 3	< 6	< 2
	FEB	< 2	< 3	< 3	< 2	< 2	< 6	< 3	< 3	< 2	< 10	< 2
	MAR	< 2	< 2	< 5	< 2	< 2	< 6	< 2	< 3	< 4	< 14	< 2
	APR	< 6	< 6	< 12	< 6	< 13	< 10	< 6	< 6	< 6	< 25	< 8
	MAY	< 6	< 6	< 11	< 5	< 13	< 10	< 6	< 7	< 6	< 28	< 9
	JUN	< 3	< 4	< 7	< 3	< 7	< 6	< 4	< 3	< 3	< 20	< 6
	JUL	< 4	< 4	< 8	< 4	< 8	< 6	< 4	< 3	< 4	< 20	< 7
	AUG	< 2	< 3	< 6	< 2	< 4	< 5	< 3	< 2	< 2	< 22	< 9
	SEP	< 2	< 2	< 5	< 2	< 4	< 4	< 3	< 2	< 2	< 27	< 9
	OCT	< 6	< 6	< 14	< 6	< 13	< 12	< 7	< 5	< 6	< 40	< 12
	NOV	< 3	< 3	< 7	< 3	< 6	< 6	< 3	< 3	< 3	< 22	< 8
	DEC	< 3	< 3	< 7	< 3	< 7	< 6	< 3	< 3	< 4	< 17	< 5
	MEAN	3 ± 3	4 ± 3	7 ± 7	3 ± 3	7 ± 9	7 ± 5	4 ± 3	4 ± 3	4 ± 3	21 ± 18	7 ± 6

TABLE C-II.4 CONCENTRATIONS OF GAMMA EMITTERS IN DRINKING WATER SAMPLES COLLECTED IN THE VICINITY OF LIMERICK GENERATING STATION, 2002

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
16C2	JAN	< 3	< 3	< 3	< 2	< 4	< 5	< 3	< 3	< 2	< 10	< 3
	FEB	< 3	< 2	< 4	< 2	< 4	< 3	< 2	< 2	< 2	< 7	< 4
	MAR	< 2	< 2	< 4	< 3	< 4	< 5	< 2	< 3	< 3	< 7	< 2
	APR	< 2	< 2	< 5	< 2	< 5	< 4	< 2	< 3	< 3	< 9	< 3
	MAY	< 4	< 5	< 10	< 4	< 9	< 8	< 5	< 4	< 5	< 22	< 7
	JUN	< 6	< 6	< 12	< 5	< 13	< 10	< 6	< 6	< 6	< 31	< 10
	JUL	< 5	< 5	< 10	< 5	< 10	< 9	< 5	< 4	< 5	< 26	< 9
	AUG	< 3	< 4	< 7	< 3	< 6	< 5	< 4	< 3	< 3	< 31	< 9
	SEP	< 2	< 3	< 6	< 2	< 5	< 5	< 4	< 2	< 3	< 35	< 12
	OCT	< 4	< 4	< 8	< 4	< 7	< 7	< 4	< 3	< 4	< 26	< 9
	NOV	< 4	< 4	< 9	< 3	< 8	< 7	< 4	< 3	< 4	< 27	< 9
	DEC	< 5	< 6	< 12	< 6	< 11	< 10	< 6	< 5	< 6	< 27	< 8
	MEAN	3 5 ± 2	4 ± 3	7 ± 6	4 ± 3	7 ± 6	6 ± 5	4 ± 3	3 ± 3	4 ± 3	22 ± 21	7 ± 7
28F3	JAN	< 4	< 1	< 4	< 3	< 5	< 5	< 3	< 3	< 3	< 14	< 2
	FEB	< 4	< 3	< 4	< 4	< 5	< 7	< 2	< 4	< 4	< 11	< 4
	MAR	< 2	< 2	< 2	< 2	< 4	< 2	< 2	< 2	< 1	< 5	< 2
	APR	< 6	< 6	< 11	< 6	< 11	< 10	< 6	< 6	< 6	< 24	< 9
	MAY	< 4	< 4	< 8	< 4	< 8	< 8	< 4	< 4	< 4	< 20	< 6
	JUN	< 6	< 6	< 12	< 6	< 14	< 10	< 6	< 6	< 6	< 30	< 10
	JUL	< 4	< 5	< 9	< 4	< 9	< 8	< 5	< 4	< 5	< 24	< 8
	AUG	< 3	< 4	< 8	< 4	< 6	< 6	< 5	< 3	< 3	< 35	< 10
	SEP	< 2	< 3	< 6	< 2	< 4	< 5	< 3	< 2	< 2	< 35	< 10
	OCT	< 2	< 2	< 5	< 2	< 4	< 4	< 2	< 2	< 2	< 15	< 4
	NOV	< 3	< 3	< 7	< 3	< 7	< 6	< 3	< 4	< 3	< 25	< 7
	DEC	< 4	< 4	< 8	< 4	< 7	< 7	< 4	< 3	< 4	< 18	< 7
	MEAN	3.7 ± 3	4 ± 3	7 ± 6	4 ± 3	7 ± 6	6 ± 5	4 ± 3	4 ± 3	4 ± 3	21 ± 19	7 ± 6

TABLE C-III.1 **CONCENTRATIONS OF GAMMA EMITTERS IN PREDATOR & BOTTOM FEEDER (FISH) SAMPLES COLLECTED IN THE VICINITY OF LIMERICK GENERATING STATION, 2002**

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
16C5	PREDATOR								
	05/23 - 05/23/02	4080 ± 366	< 37	< 45	< 95	< 34	< 87	< 37	< 35
	10/15 - 10/15/02	3491 ± 277	< 15	< 17	< 39	< 16	< 33	< 14	< 16
	MEAN	3786 ± 833	26 ± 30	31 ± 40	67 ± 80	25 ± 26	60 ± 77	25 ± 33	26 ± 26
	BOTTOM FEEDER								
	05/23 - 05/23/02	3370 ± 385	< 25	< 30	< 64	< 25	< 53	< 24	< 24
	10/15 - 10/15/02	3280 ± 361	< 9	< 10	< 23	< 8	< 18	< 9	< 10
	MEAN	3325 ± 127	17 ± 22	20 ± 28	43 ± 58	17 ± 24	36 ± 49	16 ± 21	17 ± 20
29C1	PREDATOR								
	05/08 - 05/08/02	3510 ± 280	< 19	< 19	< 40	< 18	< 43	< 17	< 17
	10/15 - 10/15/02	3575 ± 322	< 16	< 18	< 39	< 16	< 36	< 15	< 16
	MEAN	3543 ± 92	18 ± 4	19 ± 2	39 ± 2	17 ± 2	39 ± 10	16 ± 3	17 ± 1
	BOTTOM FEEDER								
	05/08 - 05/08/02	2940 ± 338	< 19	< 19	< 41	< 19	< 41	< 18	< 23
	10/15 - 10/15/02	3692 ± 431	< 11	< 13	< 30	< 12	< 28	< 12	< 12
	MEAN	3316 ± 1063	15 ± 11	16 ± 9	35 ± 15	16 ± 10	34 ± 18	15 ± 8	18 ± 14

TABLE C-IV.1 CONCENTRATIONS OF GAMMA EMITTERS IN SEDIMENT SAMPLES COLLECTED IN THE VICINITY OF LIMERICK GENERATING STATION, 2002

RESULTS IN UNITS OF PCI/KG DRY ± 2 SIGMA

STC	COLLECTION PERIOD	Be-7	K-40	Mn-54	Co-58	Co-60	Cs-134	Cs-137
16B2								
	05/23/02	5880 ± 458	17200 ± 1040	< 57	< 56	< 49	< 45	176 ± 30
	11/15/02	5062 ± 595	21870 ± 1184	< 60	< 61	116 ± 37	< 46	268 ± 59
	MEAN	5471 ± 1157	19535 ± 6604	58 ± 4	59 ± 7	82 ± 95	45 ± 2	222 ± 130
16C4								
	05/23/02	549 ± 195	9750 ± 401	< 17	< 20	< 18	< 15	39 ± 18
	11/15/02	3280 ± 445	18760 ± 957	< 51	< 48	< 50	< 42	116 ± 50
	MEAN	1915 ± 3862	14255 ± 12742	34 ± 47	34 ± 40	34 ± 46	29 ± 37	78 ± 109
33A2								
	05/23/02	< 242	11400 ± 640	< 27	< 26	< 26	< 28	< 28
	11/15/02	3643 ± 505	17630 ± 845	< 42	< 43	< 39	< 35	208 ± 38
	MEAN	1943 ± 4810	14515 ± 8811	35 ± 21	35 ± 24	33 ± 18	31 ± 10	118 ± 255

TABLE C-V.1 CONCENTRATIONS OF GROSS BETA IN AIR PARTICULATE SAMPLES COLLECTED IN THE VICINITY OF LIMERICK GENERATING STATION, 2002

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

	GROUP I			GROUP II	GROUP III
WEEK	10S3	11S1	14S1	13C1	22G1
1	19 ± 3	21 ± 3	24 ± 4	19 ± 3	24 ± 4
2	21 ± 3	21 ± 3	22 ± 3	23 ± 4	24 ± 4
3	25 ± 4	24 ± 4	19 ± 4	17 ± 4	21 ± 4
4	24 ± 4	25 ± 4	23 ± 4	27 ± 4	22 ± 4
5	23 ± 4	22 ± 4	18 ± 4	19 ± 4	23 ± 4
6	24 ± 4	28 ± 4	21 ± 4	29 ± 4	23 ± 4
7	21 ± 3	17 ± 3	18 ± 3	15 ± 3	18 ± 3
8	21 ± 4	18 ± 4	20 ± 4	20 ± 4	17 ± 4
9	19 ± 4	20 ± 4	17 ± 4	21 ± 4	18 ± 4
10	28 ± 4	24 ± 4	26 ± 4	27 ± 4	25 ± 4
11	21 ± 3	18 ± 3	23 ± 3	17 ± 3	23 ± 3
12	20 ± 4	20 ± 4	20 ± 4	17 ± 3	17 ± 4
13	15 ± 4	12 ± 4	15 ± 4	13 ± 3	14 ± 4
14	15 ± 3	18 ± 3	16 ± 3	17 ± 3	17 ± 3
15	14 ± 3	15 ± 3	14 ± 3	17 ± 3	15 ± 3
16	(1)	(1)	(1)	(1)	(1)
17	16 ± 3	12 ± 3	13 ± 3	13 ± 3	10 ± 3
18	11 ± 3	11 ± 3	11 ± 3	13 ± 3	11 ± 3
19	13 ± 3	19 ± 3	16 ± 3	15 ± 3	18 ± 3
20	13 ± 3	8 ± 3	10 ± 3	14 ± 3	14 ± 3
21	13 ± 3	12 ± 3	10 ± 3	11 ± 3	12 ± 3
22	14 ± 4	14 ± 4	17 ± 4	14 ± 4	15 ± 4
23	10 ± 3	7 ± 3	12 ± 3	9 ± 3	11 ± 3
24	11 ± 3	12 ± 3	13 ± 3	13 ± 3	12 ± 3
25	13 ± 3	15 ± 3	16 ± 3	15 ± 3	11 ± 3
26	23 ± 3	26 ± 3	24 ± 3	26 ± 3	20 ± 3
27	21 ± 3	26 ± 4	23 ± 3	25 ± 3	17 ± 3
28	17 ± 3	18 ± 3	17 ± 3	18 ± 3	14 ± 3
29	28 ± 4	22 ± 3	29 ± 4	20 ± 3	15 ± 3
30	19 ± 6	15 ± 3	15 ± 3	16 ± 3	9 ± 3
31	21 ± 3	23 ± 4	22 ± 4	14 ± 3	9 ± 3
32	15 ± 3	12 ± 3	18 ± 3	13 ± 3	11 ± 3
33	25 ± 3	33 ± 4	27 ± 3	29 ± 3	16 ± 3
34	16 ± 3	18 ± 3	19 ± 3	16 ± 3	11 ± 3
35	9 ± 3	11 ± 3	11 ± 3	10 ± 3	8 ± 3
36	16 ± 3	20 ± 3	15 ± 3	17 ± 3	< 7
37	18 ± 3	21 ± 3	20 ± 3	22 ± 3	14 ± 3
38	21 ± 5	18 ± 5	17 ± 4	22 ± 5	15 ± 4
39	17 ± 5	15 ± 5	11 ± 4	11 ± 4	10 ± 4
40	24 ± 5	22 ± 5	25 ± 5	23 ± 5	16 ± 4
41	8 ± 4	8 ± 4	8 ± 4	8 ± 4	7 ± 4
42	14 ± 4	15 ± 4	15 ± 4	19 ± 4	15 ± 4
43	15 ± 4	13 ± 4	15 ± 4	11 ± 4	13 ± 4
44	16 ± 4	19 ± 5	18 ± 4	16 ± 4	18 ± 5
45	24 ± 5	23 ± 5	20 ± 4	25 ± 5	26 ± 5
46	22 ± 5	13 ± 4	16 ± 4	17 ± 4	23 ± 5
47	16 ± 4	17 ± 4	15 ± 4	18 ± 4	26 ± 8
48	18 ± 4	16 ± 4	(1)	20 ± 4	14 ± 3
49	15 ± 4	20 ± 5	20 ± 5	20 ± 5	23 ± 5
50	17 ± 4	21 ± 4	17 ± 4	18 ± 4	13 ± 4
51	16 ± 4	18 ± 4	16 ± 4	14 ± 4	16 ± 4
52	12 ± 4	14 ± 4	10 ± 4	14 ± 4	13 ± 4
MEAN	18 ± 10	18 ± 11	17 ± 10	18 ± 10	16 ± 10

(1) SEE PROGRAM EXCEPTIONS SECTION FOR EXPLANATION

TABLE C-V.2 **MONTHLY AND YEARLY MEAN VALUES OF GROSS BETA CONCENTRATIONS (E-3 PCI/CU METER) IN AIR PARTICULATE SAMPLES COLLECTED IN THE VICINITY OF LIMERICK GENERATING STATION, 2002**

GROUP I - ON-SITE LOCATIONS				GROUP II - INTERMEDIATE DISTANCE 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
12/31/01 - 01/28/02	19	25	22 ± 4	12/31/01 - 01/28/02	17	27	22 ± 9	12/31/01 - 01/28/02	21	24	23 ± 3
01/28/02 - 02/25/02	17	28	21 ± 6	01/28/02 - 02/25/02	15	29	21 ± 12	01/28/02 - 02/25/02	17	23	20 ± 6
02/25/02 - 04/01/02	12	28	20 ± 9	02/25/02 - 04/01/02	13	27	19 ± 11	02/25/02 - 04/01/02	14	25	19 ± 9
04/01/02 - 04/29/02	12	18	15 ± 4	04/01/02 - 04/29/02	13	17	16 ± 4	04/01/02 - 04/29/02	10	17	14 ± 7
04/29/02 - 06/03/02	8	19	13 ± 6	04/29/02 - 06/03/02	11	15	13 ± 3	04/29/02 - 06/03/02	11	18	14 ± 5
06/03/02 - 07/01/02	7	26	15 ± 12	06/03/02 - 07/01/02	9	26	16 ± 14	06/03/02 - 07/01/02	11	20	14 ± 9
07/01/02 - 07/29/02	15	29	21 ± 10	07/01/02 - 07/29/02	16	25	20 ± 8	07/01/02 - 07/29/02	9	17	14 ± 7
07/29/02 - 09/02/02	9	33	18 ± 13	07/29/02 - 09/02/02	10	29	17 ± 15	07/29/02 - 09/02/02	8	16	11 ± 6
09/02/02 - 09/30/02	11	21	17 ± 6	09/02/02 - 09/30/02	11	22	18 ± 11	09/02/02 - 09/30/02	<7	15	12 ± 7
09/30/02 - 10/28/02	8	25	15 ± 12	09/30/02 - 10/28/02	8	23	15 ± 14	09/30/02 - 10/28/02	7	16	13 ± 8
10/28/02 - 12/02/02	13	24	18 ± 7	10/28/02 - 12/02/02	16	25	19 ± 7	10/28/02 - 12/02/02	14	26	22 ± 11
12/02/02 - 12/30/02	10	21	16 ± 7	12/02/02 - 12/30/02	14	20	17 ± 6	12/02/02 - 12/30/02	13	23	16 ± 9
12/31/01 - 12/30/02	7	33	18 ± 10	12/31/01 - 12/30/02	8	29	18 ± 10	12/31/01 - 12/30/02	<7	26	16 ± 10

TABLE C-V.3 CONCENTRATION OF GAMMA EMITTERS IN AIR PARTICULATE SAMPLES COLLECTED IN THE VICINITY OF LIMERICK GENERATING STATION, 2002

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
10S3	12/31 - 04/01/02	63 ± 18	< 07	< 1	< 08	< 08	< 1
	04/01 - 07/01/02	70 ± 5	< 05	< 06	< 05	< 0.5	< 05
	07/01 - 09/30/02	81 ± 13	< 07	< 1	< 05	< 0.6	< 0.8
	09/30 - 12/30/02	48 ± 9	< 04	< 05	< 04	< 03	< 04
	MEAN	66 ± 28	06 ± 0.3	08 ± 07	06 ± 03	06 ± 04	07 ± 07
11S1	12/31 - 04/01/02	62 ± 16	< 06	< 09	< 07	< 06	< 0.9
	04/01 - 07/01/02	71 ± 5	< 06	< 07	< 05	< 06	< 05
	07/01 - 09/30/02	85 ± 13	< 0.7	< 08	< 06	< 05	< 05
	09/30 - 12/30/02	49 ± 8	< 0.6	< 07	< 08	< 06	< 07
	MEAN	67 ± 30	06 ± 01	08 ± 02	06 ± 02	06 ± 005	06 ± 04
13C1	12/31 - 04/01/02	69 ± 20	< 07	< 06	< 1	< 1	< 07
	04/01 - 07/01/02	67 ± 5	< 06	< 0.7	< 05	< 06	< 05
	07/01 - 09/30/02	63 ± 10	< 07	< 0.9	< 08	< 06	< 07
	09/30 - 12/30/02	74 ± 11	< 0.7	< 08	< 09	< 07	< 07
	MEAN	68 ± 9	07 ± 01	08 ± 03	09 ± 06	0.7 ± 05	06 ± 02
14S1	12/31 - 04/01/02	63 ± 16	< 2	< 1	< 08	< 09	< 09
	04/01 - 07/01/02	74 ± 6	< 07	< 09	< 07	< 08	< 06
	07/01 - 09/30/02	66 ± 7	< 06	< 08	< 08	< 05	< 06
	09/30 - 12/30/02	59 ± 9	< 07	< 09	< 08	< 0.8	< 08
	MEAN	65 ± 13	09 ± 08	1 ± 05	08 ± 01	07 ± 04	07 ± 03
22G1	12/31 - 04/01/02	64 ± 21	< 09	< 1	< 07	< 09	< 08
	04/01 - 07/01/02	74 ± 5	< 06	< 08	< 06	< 07	< 06
	07/01 - 09/30/02	49 ± 7	< 0.9	< 1	< 07	< 07	< 08
	09/30 - 12/30/02	58 ± 8	< 05	< 06	< 05	< 04	< 0.5
	MEAN	61 ± 21	07 ± 04	09 ± 06	06 ± 02	0.7 ± 04	0.7 ± 0.3

TABLE C-VI.1 CONCENTRATIONS OF I-131 IN AIR IODINE SAMPLES COLLECTED IN THE VICINITY OF LIMERICK GENERATING STATION, 2002

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

	GROUP I			GROUP II	GROUP III
WEEK	10S3	11S1	14S1	13C1	22G1
1	< 13	< 14	< 13	< 13	< 14
2	< 7	< 7	< 7	< 7	< 7
3	< 9	< 9	< 9	< 9	< 9
4	< 10	< 10	< 10	< 10	< 10
5	< 12	< 13	< 12	< 12	< 12
6	< 9	< 9	< 9	< 9	< 9
7	< 10	< 11	< 10	< 10	< 11
8	< 9	< 9	< 9	< 9	< 9
9	< 11	< 11	< 11	< 11	< 11
10	< 10	< 10	< 10	< 10	< 10
11	< 15	< 15	< 15	< 15	< 15
12	< 9	< 9	< 9	< 9	< 9
13	< 13	< 13	< 13	< 13	< 13
14	< 6	< 9	< 10	< 9	< 4
15	< 13	< 13	< 8	< 13	< 12
16	(1)	(1)	(1)	(1)	(1)
17	< 13	< 14	< 14	< 13	< 13
18	< 7	< 8	< 7	< 7	< 18
19	< 10	< 11	< 10	< 10	< 10
20	< 11	(1)	< 11	< 9	< 11
21	< 35	< 37	< 35	< 22	< 35
22	< 19	< 20	< 16	< 19	< 19
23	< 8	< 6	< 8	< 8	< 8
24	< 12	< 12	< 11	< 8	< 12
25	< 7	< 13	< 13	< 13	< 13
26	< 11	< 12	< 12	< 12	< 8
27	< 6	< 8	< 8	< 6	< 9
28	< 10	< 11	< 11	< 11	< 11
29	< 11	< 16	< 17	< 16	< 16
30	< 14	< 5	< 6	< 6	< 9
31	< 14	< 20	< 20	< 19	< 20
32	< 20	< 21	< 22	< 21	< 14
33	< 6	< 14	< 14	< 14	< 15
34	< 23	< 24	< 16	< 24	< 24
35	< 17	< 18	< 14	< 18	< 18
36	< 5	< 5	< 5	< 4	< 9
37	< 14	< 14	< 9	< 13	< 14
38	< 13	< 18	< 17	< 18	< 13
39	< 22	< 22	< 22	< 22	< 15
40	< 13	< 13	< 13	< 13	< 9
41	< 12	< 12	< 12	< 12	< 6
42	< 22	< 22	< 21	< 21	< 14
43	< 18	< 18	< 18	< 18	< 10
44	< 65	< 65	< 63	< 64	< 47
45	< 13	< 13	< 13	< 13	< 5
46	< 21	< 21	< 21	< 21	< 11
47	< 13	< 13	< 13	< 13	< 12
48	< 6	< 6	(1)	< 6	< 3
49	< 9	< 9	< 9	< 9	< 9
50	< 4	< 4	< 4	< 4	< 4
51	< 6	< 6	< 5	< 5	< 6
52	< 4	< 4	< 4	< 4	< 4
MEAN	13 ± 19	14 ± 19	13 ± 18	13 ± 18	12 ± 15

(1) SEE PROGRAM EXCEPTIONS SECTION FOR EXPLANATION

TABLE C-VII.1 CONCENTRATIONS OF I-131 IN MILK SAMPLES COLLECTED IN THE VICINITY OF LIMERICK GENERATING STATION, 2002

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

	CONTROL FARMS			INDICATOR FARMS					
COLLECTION PERIOD	36E1	9G1	23F1	18C1	19B1	21B1	22C1	25C1	10F4
01/08/02	< 0 2	< 0 3	< 0 2	< 0 4	< 0 3	< 0 2	< 0.2	< 0 2	< 0 3
02/05/02		< 0 3		< 0 2	< 0 2	< 0 2			< 0 2
03/05/02		< 0 2		< 0 2	< 0 2	< 0 2			< 0 3
04/09/02	< 0 3	< 0 3	< 0 1	< 0 2	< 0 2	< 0 1	< 0 2	< 0 1	< 0 2
04/23/02		< 0 1		< 0 1	< 0 3	< 0 1			< 0 2
05/07/02		< 0 1		< 0 2	< 0 1	< 0 1			< 0 2
05/21/02		< 0 3		< 0 2	< 0 3	< 0 2			< 0 2
06/04/02		< 0 3		< 0 2	< 0 6	< 0 2			< 0 2
06/18/02		< 0 3		< 0 4	< 0 3	< 1			< 0 4
07/02/02	< 0 2	< 0 2	< 0 2	< 0 2	< 0 2	< 0 2	< 0 2	< 0 2	< 0 2
07/15/02		< 0 3		< 0 2	< 0 2	< 0 5			< 0 2
07/29/02		< 0 2		< 0 2	< 0 2	< 0 3			< 0 2
08/12/02		< 0 4		< 0 2	< 0 2	< 0 2			< 0 2
08/26/02		< 0 2		< 0 2	< 0 2	< 0 2			< 0 3
09/09/02		< 0 2		< 0 2	< 0 2	< 0 2			< 0 2
09/23/02		< 0 4		< 0 4	< 0 3	< 0 3			< 0 3
10/07/02	< 0 3	< 0 4	< 0.2	< 0 3	< 0 4	< 0 3	< 0 3	< 0 3	< 0 3
10/22/02		< 0 4		< 0 4	< 0 4	< 0 5			< 0 4
11/05/02		< 0 4		< 0 2		(1) < 0 3			< 0 7
11/19/02		< 0 5		< 0 3	< 0 4	< 0 3			< 0 4
12/11/02		< 0.3		< 0 4	< 0 4	< 0 4			< 0 3
MEAN	0 2 ± 0 1	0 3 ± 0.2	0 2 ± 0.1	0.3 ± 0 2	0.3 ± 0 2	0 3 ± 0 4	0 2 ± 0 2	0 2 ± 0 2	0.3 ± 0 3

(1) SEE PROGRAM EXCEPTIONS SECTION FOR EXPLANATION

TABLE C-VII.2 CONCENTRATIONS OF GAMMA EMITTERS IN MILK SAMPLES COLLECTED IN THE VICINITY OF LIMERICK GENERATING STATION, 2002

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

STC	COLLECTION PERIOD	K-40	Cs-134	Cs-137	Ba-140	La-140
10F4	01/08/02	1386 ± 106	< 5	< 2	< 17	< 2
	02/05/02	1379 ± 109	< 3	< 2	< 11	< 3
	03/05/02	1531 ± 117	< 4	< 3	< 15	< 2
	04/09/02	1390 ± 87	< 4	< 4	< 20	< 7
	04/23/02	1540 ± 97	< 7	< 7	< 26	< 8
	05/07/02	1390 ± 82	< 5	< 5	< 22	< 7
	05/21/02	1560 ± 66	< 2	< 3	< 10	< 3
	06/04/02	1390 ± 110	< 5	< 7	< 25	< 8
	06/18/02	1400 ± 83	< 7	< 6	< 29	< 9
	07/02/02	1320 ± 89	< 4	< 5	< 23	< 6
	07/16/02	1400 ± 84	< 4	< 4	< 19	< 6
	07/30/02	1490 ± 88	< 4	< 5	< 20	< 6
	08/13/02	1290 ± 86	< 7	< 6	< 32	< 10
	08/27/02	1260 ± 66	< 5	< 5	< 23	< 7
	09/10/02	1320 ± 81	< 4	< 4	< 20	< 7
	09/24/02	1290 ± 109	< 4	< 4	< 33	< 12
	10/08/02	1400 ± 60	< 2	< 3	< 15	< 5
	10/22/02	1480 ± 104	< 4	< 5	< 28	< 10
	11/05/02	1496 ± 48	< 2	< 2	< 13	< 3
	11/19/02	1415 ± 90	< 2	< 2	< 8	< 3
	12/10/02	1315 ± 91	< 3	< 4	< 18	< 5
	MEAN	1402 ± 174	4 ± 3	4 ± 3	20 ± 14	6 ± 6
18C1	01/08/02	1387 ± 67	< 3	< 3	< 10	< 1
	02/05/02	1427 ± 102	< 4	< 3	< 12	< 2
	03/05/02	1281 ± 107	< 3	< 3	< 14	< 3
	04/09/02	1430 ± 93	< 4	< 4	< 22	< 7
	04/23/02	1810 ± 94	< 6	< 7	< 23	< 8
	05/07/02	1400 ± 90	< 5	< 5	< 27	< 8
	05/21/02	1490 ± 73	< 3	< 3	< 15	< 4
	06/04/02	1510 ± 87	< 4	< 5	< 19	< 6
	06/18/02	1370 ± 103	< 9	< 8	< 36	< 12
	07/02/02	1440 ± 85	< 4	< 4	< 20	< 6
	07/16/02	1410 ± 79	< 3	< 4	< 17	< 6
	07/30/02	1470 ± 85	< 4	< 5	< 18	< 6
	08/13/02	1260 ± 81	< 7	< 7	< 34	< 10
	08/27/02	1350 ± 79	< 6	< 6	< 31	< 10
	09/10/02	1320 ± 75	< 3	< 4	< 18	< 6
	09/24/02	1470 ± 98	< 4	< 4	< 28	< 9
	10/08/02	1440 ± 58	< 2	< 2	< 18	< 5
	10/22/02	1570 ± 100	< 3	< 4	< 31	< 9
	11/05/02	1500 ± 55	< 1	< 1	< 8	< 2
	11/19/02	1340 ± 84	< 4	< 4	< 20	< 7
	12/10/02	1463 ± 107	< 4	< 5	< 22	< 6
	MEAN	1435 ± 231	4 ± 4	4 ± 3	21 ± 15	6 ± 5

TABLE C-VII.2 CONCENTRATIONS OF GAMMA EMITTERS IN MILK SAMPLES COLLECTED IN THE VICINITY OF LIMERICK GENERATING STATION, 2002

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

STC	COLLECTION PERIOD	K-40	Cs-134	Cs-137	Ba-140	La-140
19B1	01/08/02	1238 ± 152	< 4	< 5	< 18	< 3
	02/05/02	1512 ± 118	< 3	< 4	< 15	< 2
	03/05/02	1493 ± 118	< 4	< 4	< 11	< 4
	04/09/02	1410 ± 88	< 4	< 5	< 22	< 8
	04/23/02	1540 ± 77	< 3	< 5	< 13	< 4
	05/07/02	1420 ± 100	< 7	< 7	< 30	< 9
	05/21/02	1460 ± 59	< 2	< 2	< 9	< 3
	06/04/02	1510 ± 90	< 4	< 5	< 22	< 6
	06/18/02	1420 ± 79	< 6	< 7	< 27	< 8
	07/02/02	1360 ± 88	< 4	< 5	< 24	< 7
	07/16/02	1200 ± 88	< 4	< 5	< 21	< 7
	07/30/02	1350 ± 83	< 4	< 5	< 22	< 7
	08/13/02	1380 ± 108	< 9	< 8	< 43	< 14
	08/27/02	1400 ± 103	< 8	< 8	< 41	< 13
	09/10/02	1280 ± 85	< 4	< 5	< 24	< 7
	09/24/02	1270 ± 96	< 4	< 4	< 29	< 8
	10/08/02	1420 ± 65	< 2	< 3	< 18	< 6
	10/22/02	1350 ± 96	< 3	< 4	< 30	< 8
	11/05/02	1430 ± 68	< 2	< 3	< 18	< 5
	11/19/02	1220 ± 90	< 4	< 5	< 23	< 7
	12/10/02	1346 ± 94	< 2	< 3	< 11	< 3
	MEAN	1381 ± 196	4 ± 4	5 ± 3	22 ± 18	7 ± 6
21B1	01/08/02	1440 ± 121	< 4	< 4	< 19	< 3
	02/05/02	1476 ± 112	< 4	< 4	< 13	< 1
	03/05/02	1514 ± 127	< 4	< 4	< 19	< 2
	04/09/02	1350 ± 110	< 5	< 5	< 27	< 8
	04/23/02	1570 ± 80	< 5	< 6	< 22	< 6
	05/07/02	1390 ± 89	< 3	< 4	< 17	< 5
	05/21/02	1500 ± 64	< 2	< 2	< 10	< 3
	06/04/02	1440 ± 97	< 5	< 5	< 22	< 7
	06/18/02	1450 ± 89	< 7	< 6	< 30	< 9
	07/02/02	1490 ± 100	< 5	< 5	< 27	< 9
	07/16/02	1380 ± 74	< 3	< 3	< 16	< 5
	07/30/02	1390 ± 95	< 4	< 6	< 23	< 6
	08/13/02	1520 ± 88	< 7	< 6	< 32	< 10
	08/27/02	1380 ± 74	< 5	< 5	< 30	< 9
	09/10/02	1380 ± 83	< 4	< 4	< 22	< 7
	09/24/02	1380 ± 86	< 3	< 4	< 30	< 8
	10/08/02	1390 ± 78	< 1	< 2	< 12	< 4
	10/22/02	1480 ± 105	< 4	< 4	< 30	< 10
	11/05/02	1452 ± 47	< 2	< 2	< 12	< 3
	11/19/02	1310 ± 75	< 3	< 4	< 21	< 5
	12/10/02	1382 ± 91	< 2	< 2	< 10	< 3
	MEAN	1432 ± 132	4 ± 3	4 ± 3	21 ± 14	6 ± 5

TABLE C-VII.2 CONCENTRATIONS OF GAMMA EMITTERS IN MILK SAMPLES COLLECTED IN THE VICINITY OF LIMERICK GENERATING STATION, 2002

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

STC	COLLECTION PERIOD	K-40	Cs-134	Cs-137	Ba-140	La-140
9G1	01/08/02	1386 ± 111	< 3	< 3	< 16	< 3
	02/05/02	1218 ± 112	< 4	< 4	< 22	< 2
	03/05/02	1300 ± 115	< 4	< 3	< 17	< 3
	04/09/02	1390 ± 83	< 4	< 4	< 19	< 6
	04/23/02	1890 ± 102	< 7	< 7	< 26	< 9
	05/07/02	1570 ± 88	< 5	< 5	< 22	< 7
	05/21/02	1420 ± 59	< 2	< 2	< 12	< 3
	06/04/02	1460 ± 89	< 4	< 6	< 20	< 7
	06/18/02	1450 ± 79	< 3	< 4	< 18	< 6
	07/02/02	1420 ± 88	< 4	< 5	< 23	< 8
	07/16/02	1280 ± 79	< 3	< 4	< 18	< 6
	07/30/02	1310 ± 84	< 4	< 5	< 20	< 7
	08/13/02	1380 ± 75	< 6	< 4	< 27	< 8
	08/27/02	1270 ± 78	< 4	< 4	< 21	< 7
	09/10/02	1210 ± 74	< 3	< 4	< 19	< 7
	09/24/02	1630 ± 107	< 4	< 4	< 35	< 10
	10/08/02	1350 ± 57	< 2	< 2	< 17	< 6
	10/22/02	1430 ± 95	< 4	< 4	< 30	< 8
	11/05/02	1440 ± 104	< 5	< 5	< 38	< 8
	11/19/02	1761 ± 126	< 3	< 3	< 14	< 3
	12/10/02	1404 ± 85	< 4	< 4	< 16	< 4
	MEAN	1427 ± 337	4 ± 2	4 ± 2	21 ± 13	6 ± 5

TABLE C-VIII.1 QUARTERLY TLD RESULTS FOR LIMERICK GENERATION STATION, 2002

RESULTS IN UNITS OF MILLI-ROENTGEN/STD. MONTH ± 2 STANDARD DEVIATIONS

STATION CODE	MEAN ± 2 S. D.	JAN - MAR	APR - JUN	JUL - SEP	OCT - DEC
36S2	81 ± 15	85 ± 03	83 ± 06	86 ± 07	70 ± 06
36D1	67 ± 11	6.9 ± 05	67 ± 06	7.3 ± 05	60 ± 08
2E1	80 ± 18	8.0 ± 06	82 ± 08	89 ± 09	67 ± 08
3S1	74 ± 15	7.2 ± 06	78 ± 06	82 ± 06	65 ± 12
4E1	61 ± 06	63 ± 04	63 ± 03	63 ± 1.1	57 ± 08
5S1	88 ± 19	84 ± 07	91 ± 09	99 ± 05	77 ± 06
5H1	86 ± 06	82 ± 10	87 ± 06	90 ± 08	87 ± 05
6C1	7.4 ± 09	7.2 ± 08	7.0 ± 06	80 ± 09	73 ± 03
7S1	83 ± 12	84 ± 06	84 ± 07	89 ± 05	74 ± 07
7E1	7.9 ± 16	80 ± 03	82 ± 04	87 ± 03	68 ± 05
9C1	72 ± 11	7.0 ± 03	68 ± 07	80 ± 09	72 ± 18
10S3	81 ± 22	81 ± 07	84 ± 08	93 ± 05	66 ± 06
10E1	77 ± 17	7.9 ± 06	78 ± 07	86 ± 06	66 ± 1.1
10F3	7.9 ± 1.2	81 ± 10	83 ± 06	82 ± 09	70 ± 05
11S1	92 ± 16	91 ± 04	98 ± 07	98 ± 18	81 ± 02
13S2	11.5 ± 18	112 ± 06	120 ± 18	124 ± 1.2	104 ± 1.3
13C1	55 ± 10	52 ± 04	51 ± 03	63 ± 0.5	55 ± 05
13E1	7.8 ± 13	7.9 ± 04	83 ± 09	80 ± 0.4	68 ± 08
14S1	6.9 ± 12	69 ± 0.3	7.2 ± 07	74 ± 0.7	6.1 ± 08
15D1	7.5 ± 10	73 ± 06	7.5 ± 13	82 ± 0.8	7.1 ± 06
16F1	80 ± 1.1	81 ± 00	83 ± 06	83 ± 08	7.2 ± 09
17B1	7.2 ± 14	69 ± 0.5	8.0 ± 06	7.6 ± 04	6.4 ± 06
18S2	82 ± 13	79 ± 0.4	9.0 ± 12	85 ± 10	7.4 ± 0.9
19D1	7.4 ± 10	77 ± 0.5	7.6 ± 06	7.7 ± 07	66 ± 08
20D1	68 ± 12	64 ± 0.4	7.5 ± 04	7.1 ± 06	62 ± 04
20F1	7.6 ± 11	7.9 ± 0.4	7.7 ± 06	81 ± 08	68 ± 1.2
21S2	69 ± 09	66 ± 06	7.5 ± 1.1	7.0 ± 11	65 ± 04
23S2	7.2 ± 11	76 ± 04	76 ± 0.6	74 ± 11	64 ± 03
24D1	67 ± 08	7.1 ± 06	70 ± 0.9	67 ± 05	62 ± 04
25S2	69 ± 10	69 ± 03	74 ± 09	70 ± 06	62 ± 07
25D1	64 ± 1.0	65 ± 06	66 ± 06	67 ± 0.5	56 ± 06
26S3	68 ± 12	69 ± 05	70 ± 07	7.4 ± 0.7	60 ± 10
28D2	73 ± 10	75 ± 10	74 ± 04	78 ± 0.7	66 ± 06
29S1	69 ± 11	70 ± 03	72 ± 08	7.3 ± 0.7	61 ± 04
29E1	72 ± 09	7.2 ± 06	76 ± 04	74 ± 09	66 ± 06
31S1	78 ± 13	8.1 ± 06	84 ± 07	7.9 ± 09	68 ± 04
31D1	90 ± 17	8.3 ± 06	100 ± 06	94 ± 05	8.2 ± 05
31D2	74 ± 09	7.0 ± 06	77 ± 13	7.9 ± 10	7.1 ± 06
34S2	82 ± 14	86 ± 08	86 ± 08	8.3 ± 10	7.1 ± 07
34E1	72 ± 11	7.0 ± 07	68 ± 06	80 ± 06	68 ± 06

TABLE C-VIII.2 MEAN QUARTERLY TLD RESULTS FOR THE SITE BOUNDARY, MIDDLE AND CONTROL LOCATIONS FOR LIMERICK GENERATING STATION, 2002

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

STATION CODE	SITE BOUNDARY ± 2 S. D.	MIDDLE	CONTROL
JAN-MAR	8.0 ± 2.3	7.3 ± 1.5	8.2 ± 1.0
APR-JUN	8.4 ± 2.5	7.5 ± 1.9	8.7 ± 0.6
JUL-SEP	8.5 ± 2.8	7.8 ± 1.6	9.0 ± 0.8
OCT-DEC	7.0 ± 2.2	6.7 ± 1.2	8.7 ± 0.5

TABLE C-VIII.3 SUMMARY OF THE AMBIENT DOSIMETRY PROGRAM FOR LIMERICK GENERATING STATION, 2002

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	64	6.0	12.4	7.9 ± 2.7	7.6 ± 2.4
MIDDLE DISTANCE	92	5.1	10.0	7.3 ± 1.7	7.8 ± 2.2
CONTROL	4	8.2	9.0	8.6 ± 0.6	7.8 ± 3.0

THE PRE-OPERATIONAL MEAN WAS CALCULATED FROM MONTHLY TLD READINGS 01/15/52 TO 12/02/94.

SITE BOUNDARY STATIONS - 36S2, 3S1, 5S1, 7S1, 10S3, 11S1, 13S2, 14S1, 18S2, 21S2, 23S2, 25S2, 26S3, 29S1, 31S1, 34S2

MIDDLE DISTANCE STATIONS - 36D1, 2E1, 4E1, 6C1, 7E1, 9C1, 10E1, 10F3, 13C1, 13E1, 15D1, 16F1, 17B1, 19D1, 20D1, 20F1, 24D1, 25D1, 28D2, 29E1, 31D1, 31D2, 34E1

CONTROL STATIONS - 5H1

TABLE C-IX.1 SUMMARY OF COLLECTION DATES FOR SAMPLES COLLECTED IN THE VICINITY OF LIMERICK GENERATING STATION, 2002

SURFACE WATER (TRITIUM LIQUID SCINTILLATION)

COLLECTION PERIOD	10F2	13B1	24S1
JAN-MAR	12/31/02 - 04/01/02	12/31/02 - 04/01/02	12/31/02 - 04/01/02
APR-JUN	04/01/02 - 07/01/02	04/01/02 - 07/01/02	04/01/02 - 07/01/02
JUL-SEP	07/01/02 - 09/30/02	07/01/02 - 09/30/02	07/01/02 - 09/30/02
OCT-DEC	09/30/02 - 12/30/02	09/30/02 - 12/30/02	09/30/02 - 12/30/02

SURFACE WATER (GAMMA SPECTROSCOPY)

COLLECTION PERIOD	10F2	13B1	24S1
JAN	12/31/02 - 01/28/02	12/31/02 - 01/28/02	12/31/02 - 01/28/02
FEB	01/28/02 - 02/25/02	01/28/02 - 02/25/02	01/28/02 - 02/25/02
MAR	02/25/02 - 04/01/02	02/25/02 - 04/01/02	02/25/02 - 04/01/02
APR	04/01/02 - 04/29/02	04/01/02 - 04/29/02	04/01/02 - 04/29/02
MAY	04/29/02 - 05/28/02	04/29/02 - 05/28/02	04/29/02 - 05/28/02
JUN	05/28/02 - 07/01/02	05/28/02 - 07/01/02	05/28/02 - 07/01/02
JUL	07/01/02 - 07/29/02	07/01/02 - 07/29/02	07/01/02 - 07/29/02
AUG	07/29/02 - 09/03/02	07/29/02 - 09/03/02	07/29/02 - 09/03/02
SEP	09/03/02 - 09/30/02	09/03/02 - 09/30/02	09/03/02 - 09/30/02
OCT	09/30/02 - 10/28/02	09/30/02 - 10/28/02	09/30/02 - 10/28/02
NOV	10/28/02 - 12/02/02	10/28/02 - 12/02/02	10/28/02 - 12/02/02
DEC	12/02/02 - 12/30/02	12/02/02 - 12/30/02	12/02/02 - 12/30/02

DRINKING WATER (TRITIUM)

COLLECTION PERIOD	15F4	15F7	16C2	28F3
JAN-MAR	12/31/02 - 04/01/02	12/31/02 - 04/01/02	12/31/02 - 04/01/02	12/31/02 - 04/01/02
APR-JUN	04/01/02 - 07/01/02	04/01/02 - 07/01/02	04/01/02 - 07/01/02	04/01/02 - 07/01/02
JUL-SEP	07/01/02 - 09/30/02	07/01/02 - 09/30/02	07/01/02 - 09/30/02	07/01/02 - 09/30/02
OCT-DEC	09/30/02 - 12/30/02	09/30/02 - 12/30/02	09/30/02 - 12/30/02	09/30/02 - 12/30/02

DRINKING WATER (GROSS BETA & GAMMA SPECTROSCOPY)

COLLECTION PERIOD	15F4	15F7	16C2	28F3
JAN	12/31/01 - 01/28/02	12/31/01 - 01/28/02	12/31/01 - 01/28/02	12/31/01 - 01/28/02
FEB	01/28/02 - 02/25/02	01/28/02 - 02/25/02	01/28/02 - 02/25/02	01/28/02 - 02/25/02
MAR	02/25/02 - 04/01/02	02/25/02 - 04/01/02	02/25/02 - 04/01/02	02/25/02 - 04/01/02
APR	04/01/02 - 04/29/02	04/01/02 - 04/29/02	04/01/02 - 04/29/02	04/01/02 - 04/29/02
MAY	04/29/02 - 05/28/02	04/29/02 - 05/28/02	04/29/02 - 05/28/02	04/29/02 - 05/28/02
JUN	05/28/02 - 07/01/02	05/28/02 - 07/01/02	05/28/02 - 07/01/02	05/28/02 - 07/01/02
JUL	07/01/02 - 07/29/02	07/01/02 - 07/29/02	07/01/02 - 07/29/02	07/01/02 - 07/29/02
AUG	07/29/02 - 09/03/02	07/29/02 - 09/03/02	07/29/02 - 09/03/02	07/29/02 - 09/03/02
SEP	09/03/02 - 09/30/02	09/03/02 - 10/28/02	09/03/02 - 10/28/02	09/03/02 - 10/28/02
OCT	09/30/02 - 10/28/02	09/30/02 - 10/28/02	09/30/02 - 10/28/02	09/30/02 - 10/28/02
NOV	10/02/02 - 12/02/02	10/02/02 - 12/02/02	10/02/02 - 12/02/02	10/02/02 - 12/02/02
DEC	12/02/02 - 12/30/02	12/02/02 - 12/30/02	12/02/02 - 12/30/02	12/02/02 - 12/30/02

TABLE C-IX.1 SUMMARY OF COLLECTION DATES FOR SAMPLES COLLECTED IN THE VICINITY OF LIMERICK GENERATING STATION, 2002

AIR PARTICULATE (GAMMA SPECTROSCOPY)

COLLECTION PERIOD	10S3	11S1	14S1	13CS	22G1
JAN-MAR	12/31/02 - 04/01/02	12/31/02 - 04/01/02	12/31/02 - 04/01/02	12/31/02 - 04/01/02	12/31/02 - 04/01/02
APR-JUN	04/01/02 - 07/01/02	04/01/02 - 07/01/02	04/01/02 - 07/01/02	04/01/02 - 07/01/02	04/01/02 - 07/01/02
JUL-SEP	07/01/02 - 09/30/02	07/01/02 - 09/30/02	07/01/02 - 09/30/02	07/01/02 - 09/30/02	07/01/02 - 09/30/02
OCT-DEC	09/30/02 - 12/30/02	09/30/02 - 12/30/02	09/30/02 - 12/30/02	09/30/02 - 12/30/02	09/30/02 - 12/30/02

AIR PARTICULATE (GROSS BETA & I-131)

COLLECTION PERIOD	10S3	11S1	14S1	13CS	22G1
1	12/31/01 - 01/07/02	12/31/01 - 01/07/02	12/31/01 - 01/07/02	12/31/01 - 01/07/02	12/31/01 - 01/07/02
2	01/07/02 - 01/14/02	01/07/02 - 01/14/02	01/07/02 - 01/14/02	01/07/02 - 01/14/02	01/07/02 - 01/14/02
3	01/14/02 - 01/21/02	01/14/02 - 01/21/02	01/14/02 - 01/21/02	01/14/02 - 01/21/02	01/14/02 - 01/21/02
4	01/21/02 - 01/28/02	01/21/02 - 01/28/02	01/21/02 - 01/28/02	01/21/02 - 01/28/02	01/21/02 - 01/28/02
5	01/28/02 - 02/04/02	01/28/02 - 02/04/02	01/28/02 - 02/04/02	01/28/02 - 02/04/02	01/28/02 - 02/04/02
6	02/04/02 - 02/11/02	02/04/02 - 02/11/02	02/04/02 - 02/11/02	02/04/02 - 02/11/02	02/04/02 - 02/11/02
7	02/11/02 - 02/18/02	02/11/02 - 02/18/02	02/11/02 - 02/18/02	02/11/02 - 02/18/02	02/11/02 - 02/18/02
8	02/18/02 - 02/25/02	02/18/02 - 02/25/02	02/18/02 - 02/25/02	02/18/02 - 02/25/02	02/18/02 - 02/25/02
9	02/25/02 - 03/04/02	02/25/02 - 03/04/02	02/25/02 - 03/04/02	02/25/02 - 03/04/02	02/25/02 - 03/04/02
10	03/04/02 - 03/11/02	03/04/02 - 03/11/02	03/04/02 - 03/11/02	03/04/02 - 03/11/02	03/04/02 - 03/11/02
11	03/11/02 - 03/18/02	03/11/02 - 03/18/02	03/11/02 - 03/18/02	03/11/02 - 03/18/02	03/11/02 - 03/18/02
12	03/18/02 - 03/25/02	03/18/02 - 03/25/02	03/18/02 - 03/25/02	03/18/02 - 03/25/02	03/18/02 - 03/25/02
13	03/25/02 - 04/01/02	03/25/02 - 04/01/02	03/25/02 - 04/01/02	03/25/02 - 04/01/02	03/25/02 - 04/01/02
14	04/01/02 - 04/08/02	04/01/02 - 04/08/02	04/01/02 - 04/08/02	04/01/02 - 04/08/02	04/01/02 - 04/08/02
15	04/08/02 - 04/15/02	04/08/02 - 04/15/02	04/08/02 - 04/15/02	04/08/02 - 04/15/02	04/08/02 - 04/15/02
16	04/15/02 - 04/22/02	04/15/02 - 04/22/02	04/15/02 - 04/22/02	04/15/02 - 04/22/02	04/15/02 - 04/22/02
17	04/22/02 - 04/29/02	04/22/02 - 04/29/02	04/22/02 - 04/29/02	04/22/02 - 04/29/02	04/22/02 - 04/29/02
18	04/29/02 - 05/06/02	04/29/02 - 05/06/02	04/29/02 - 05/06/02	04/29/02 - 05/06/02	04/29/02 - 05/06/02
19	05/06/02 - 05/13/02	05/06/02 - 05/13/02	05/06/02 - 05/13/02	05/06/02 - 05/13/02	05/06/02 - 05/13/02
20	05/13/02 - 05/20/02	05/13/02 - 05/20/02	05/13/02 - 05/20/02	05/13/02 - 05/20/02	05/13/02 - 05/20/02
21	05/20/02 - 05/27/02	05/20/02 - 05/27/02	05/20/02 - 05/27/02	05/20/02 - 05/27/02	05/20/02 - 05/27/02
22	05/27/02 - 06/03/02	05/27/02 - 06/03/02	05/27/02 - 06/03/02	05/27/02 - 06/03/02	05/27/02 - 06/03/02
23	06/03/02 - 06/10/02	06/03/02 - 06/10/02	06/03/02 - 06/10/02	06/03/02 - 06/10/02	06/03/02 - 06/10/02
24	06/10/02 - 06/17/02	06/10/02 - 06/17/02	06/10/02 - 06/17/02	06/10/02 - 06/17/02	06/10/02 - 06/17/02
25	06/17/02 - 06/24/02	06/17/02 - 06/24/02	06/17/02 - 06/24/02	06/17/02 - 06/24/02	06/17/02 - 06/24/02
26	06/24/02 - 07/01/02	06/24/02 - 07/01/02	06/24/02 - 07/01/02	06/24/02 - 07/01/02	06/24/02 - 07/01/02
27	07/01/02 - 07/08/02	07/01/02 - 07/08/02	07/01/02 - 07/08/02	07/01/02 - 07/08/02	07/01/02 - 07/08/02
28	07/08/02 - 07/15/02	07/08/02 - 07/15/02	07/08/02 - 07/15/02	07/08/02 - 07/15/02	07/08/02 - 07/15/02
29	07/15/02 - 07/22/02	07/15/02 - 07/22/02	07/15/02 - 07/22/02	07/15/02 - 07/22/02	07/15/02 - 07/22/02
30	07/22/02 - 07/29/02	07/22/02 - 07/29/02	07/22/02 - 07/29/02	07/22/02 - 07/29/02	07/22/02 - 07/29/02
31	07/29/02 - 08/05/02	07/29/02 - 08/05/02	07/29/02 - 08/05/02	07/29/02 - 08/05/02	07/29/02 - 08/05/02
32	08/05/02 - 08/12/02	08/05/02 - 08/12/02	08/05/02 - 08/12/02	08/05/02 - 08/12/02	08/05/02 - 08/12/02
33	08/12/02 - 08/19/02	08/12/02 - 08/19/02	08/12/02 - 08/19/02	08/12/02 - 08/19/02	08/12/02 - 08/19/02
34	08/19/02 - 08/26/02	08/19/02 - 08/26/02	08/19/02 - 08/26/02	08/19/02 - 08/26/02	08/19/02 - 08/26/02
35	08/26/02 - 09/02/02	08/26/02 - 09/02/02	08/26/02 - 09/02/02	08/26/02 - 09/02/02	08/26/02 - 09/02/02
36	09/02/02 - 09/09/02	09/02/02 - 09/09/02	09/02/02 - 09/09/02	09/02/02 - 09/09/02	09/02/02 - 09/09/02
37	09/09/02 - 09/16/02	09/09/02 - 09/16/02	09/09/02 - 09/16/02	09/09/02 - 09/16/02	09/09/02 - 09/16/02
38	09/16/02 - 09/23/02	09/16/02 - 09/23/02	09/16/02 - 09/23/02	09/16/02 - 09/23/02	09/16/02 - 09/23/02
39	09/23/02 - 09/30/02	09/23/02 - 09/30/02	09/23/02 - 09/30/02	09/23/02 - 09/30/02	09/23/02 - 09/30/02
40	09/30/02 - 10/07/02	09/30/02 - 10/07/02	09/30/02 - 10/07/02	09/30/02 - 10/07/02	09/30/02 - 10/07/02
41	10/07/02 - 10/14/02	10/07/02 - 10/14/02	10/07/02 - 10/14/02	10/07/02 - 10/14/02	10/07/02 - 10/14/02
42	10/14/02 - 10/21/02	10/14/02 - 10/21/02	10/14/02 - 10/21/02	10/14/02 - 10/21/02	10/14/02 - 10/21/02
43	10/21/02 - 10/28/02	10/21/02 - 10/28/02	10/21/02 - 10/28/02	10/21/02 - 10/28/02	10/21/02 - 10/28/02
44	10/28/02 - 11/04/02	10/28/02 - 11/04/02	10/28/02 - 11/04/02	10/28/02 - 11/04/02	10/28/02 - 11/04/02
45	11/04/02 - 11/11/02	11/04/02 - 11/11/02	11/04/02 - 11/11/02	11/04/02 - 11/11/02	11/04/02 - 11/11/02
46	11/11/02 - 11/18/02	11/11/02 - 11/18/02	11/11/02 - 11/18/02	11/11/02 - 11/18/02	11/11/02 - 11/18/02
47	11/18/02 - 11/25/02	11/18/02 - 11/25/02	11/18/02 - 11/25/02	11/18/02 - 11/25/02	11/18/02 - 11/25/02
48	11/25/02 - 12/02/02	11/25/02 - 12/02/02	11/25/02 - 12/02/02	11/25/02 - 12/02/02	11/25/02 - 12/02/02
49	12/02/02 - 12/09/02	12/02/02 - 12/09/02	12/02/02 - 12/09/02	12/02/02 - 12/09/02	12/02/02 - 12/09/02
50	12/09/02 - 12/16/02	12/09/02 - 12/16/02	12/09/02 - 12/16/02	12/09/02 - 12/16/02	12/09/02 - 12/16/02
51	12/16/02 - 12/23/02	12/16/02 - 12/23/02	12/16/02 - 12/23/02	12/16/02 - 12/23/02	12/16/02 - 12/23/02
52	12/23/02 - 12/30/02	12/23/02 - 12/30/02	12/23/02 - 12/30/02	12/23/02 - 12/30/02	12/23/02 - 12/30/02

TABLE C-IX.1 SUMMARY OF COLLECTION DATES FOR SAMPLES COLLECTED IN THE VICINITY OF LIMERICK GENERATING STATION, 2002

TLD

STATION CODE	JAN - MAR	APR - JUN	JUL - SEP	OCT - DEC
36S2	01/02/02 - 04/02/02	04/02/02 - 07/02/02	07/02/02 - 10/02/02	10/02/02 - 01/07/03
36D1	01/02/02 - 04/02/02	04/02/02 - 07/02/02	07/02/02 - 10/02/02	10/02/02 - 01/07/03
2E1	01/02/02 - 04/02/02	04/02/02 - 07/02/02	07/02/02 - 10/02/02	10/02/02 - 01/07/03
3S1	01/02/02 - 04/02/02	04/02/02 - 07/02/02	07/02/02 - 10/02/02	10/02/02 - 01/07/03
4E1	01/02/02 - 04/02/02	04/02/02 - 07/02/02	07/02/02 - 10/02/02	10/02/02 - 01/07/03
5S1	01/02/02 - 04/02/02	04/02/02 - 07/02/02	07/02/02 - 10/02/02	10/02/02 - 01/07/03
5H1	01/02/02 - 04/02/02	04/02/02 - 07/02/02	07/02/02 - 10/02/02	10/02/02 - 01/07/03
6C1	01/02/02 - 04/02/02	04/02/02 - 07/02/02	07/02/02 - 10/02/02	10/02/02 - 01/07/03
7S1	01/02/02 - 04/02/02	04/02/02 - 07/02/02	07/02/02 - 10/02/02	10/02/02 - 01/07/03
7E1	01/02/02 - 04/02/02	04/02/02 - 07/02/02	07/02/02 - 10/02/02	10/02/02 - 01/07/03
9C1	01/02/02 - 04/02/02	04/02/02 - 07/02/02	07/02/02 - 10/02/02	10/02/02 - 01/07/03
10S3	01/02/02 - 04/02/02	04/02/02 - 07/02/02	07/02/02 - 10/02/02	10/02/02 - 01/07/03
10E1	01/02/02 - 04/02/02	04/02/02 - 07/02/02	07/02/02 - 10/02/02	10/02/02 - 01/07/03
10F3	01/02/02 - 04/02/02	04/02/02 - 07/02/02	07/02/02 - 10/02/02	10/02/02 - 01/07/03
11S1	01/02/02 - 04/02/02	04/02/02 - 07/02/02	07/02/02 - 10/02/02	10/02/02 - 01/07/03
13S2	01/02/02 - 04/02/02	04/02/02 - 07/02/02	07/02/02 - 10/02/02	10/02/02 - 01/07/03
13C1	01/02/02 - 04/02/02	04/02/02 - 07/02/02	07/02/02 - 10/02/02	10/02/02 - 01/07/03
13E1	01/02/02 - 04/02/02	04/02/02 - 07/02/02	07/02/02 - 10/02/02	10/02/02 - 01/07/03
14S1	01/02/02 - 04/02/02	04/02/02 - 07/02/02	07/02/02 - 10/02/02	10/02/02 - 01/07/03
15D1	01/02/02 - 04/02/02	04/02/02 - 07/02/02	07/02/02 - 10/02/02	10/02/02 - 01/07/03
16F1	01/02/02 - 04/02/02	04/02/02 - 07/02/02	07/02/02 - 10/02/02	10/02/02 - 01/07/03
17B1	01/02/02 - 04/02/02	04/02/02 - 07/02/02	07/02/02 - 10/02/02	10/02/02 - 01/07/03
18S2	01/02/02 - 04/02/02	04/02/02 - 07/02/02	07/02/02 - 10/02/02	10/02/02 - 01/07/03
19D1	01/02/02 - 04/02/02	04/02/02 - 07/02/02	07/02/02 - 10/02/02	10/02/02 - 01/07/03
20D1	01/02/02 - 04/02/02	04/02/02 - 07/02/02	07/02/02 - 10/02/02	10/02/02 - 01/07/03
20F1	01/02/02 - 04/02/02	04/02/02 - 07/02/02	07/02/02 - 10/02/02	10/02/02 - 01/07/03
21S2	01/02/02 - 04/02/02	04/02/02 - 07/02/02	07/02/02 - 10/02/02	10/02/02 - 01/07/03
23S2	01/02/02 - 04/02/02	04/02/02 - 07/02/02	07/02/02 - 10/02/02	10/02/02 - 01/07/03
24D1	01/02/02 - 04/02/02	04/02/02 - 07/02/02	07/02/02 - 10/02/02	10/02/02 - 01/07/03
25S2	01/02/02 - 04/02/02	04/02/02 - 07/02/02	07/02/02 - 10/02/02	10/02/02 - 01/07/03
25D1	01/02/02 - 04/02/02	04/02/02 - 07/02/02	07/02/02 - 10/02/02	10/02/02 - 01/07/03
26S3	01/02/02 - 04/02/02	04/02/02 - 07/02/02	07/02/02 - 10/02/02	10/02/02 - 01/07/03
28D2	01/02/02 - 04/02/02	04/02/02 - 07/02/02	07/02/02 - 10/02/02	10/02/02 - 01/07/03
29S1	01/02/02 - 04/02/02	04/02/02 - 07/02/02	07/02/02 - 10/02/02	10/02/02 - 01/07/03
29E1	01/02/02 - 04/02/02	04/02/02 - 07/02/02	07/02/02 - 10/02/02	10/02/02 - 01/07/03
31S1	01/02/02 - 04/02/02	04/02/02 - 07/02/02	07/02/02 - 10/02/02	10/02/02 - 01/07/03
31D1	01/02/02 - 04/02/02	04/02/02 - 07/02/02	07/02/02 - 10/02/02	10/02/02 - 01/07/03
31D2	01/02/02 - 04/02/02	04/02/02 - 07/02/02	07/02/02 - 10/02/02	10/02/02 - 01/07/03
34S2	01/02/02 - 04/02/02	04/02/02 - 07/02/02	07/02/02 - 10/02/02	10/02/02 - 01/07/03
34E1	01/02/02 - 04/02/02	04/02/02 - 07/02/02	07/02/02 - 10/02/02	10/02/02 - 01/07/03

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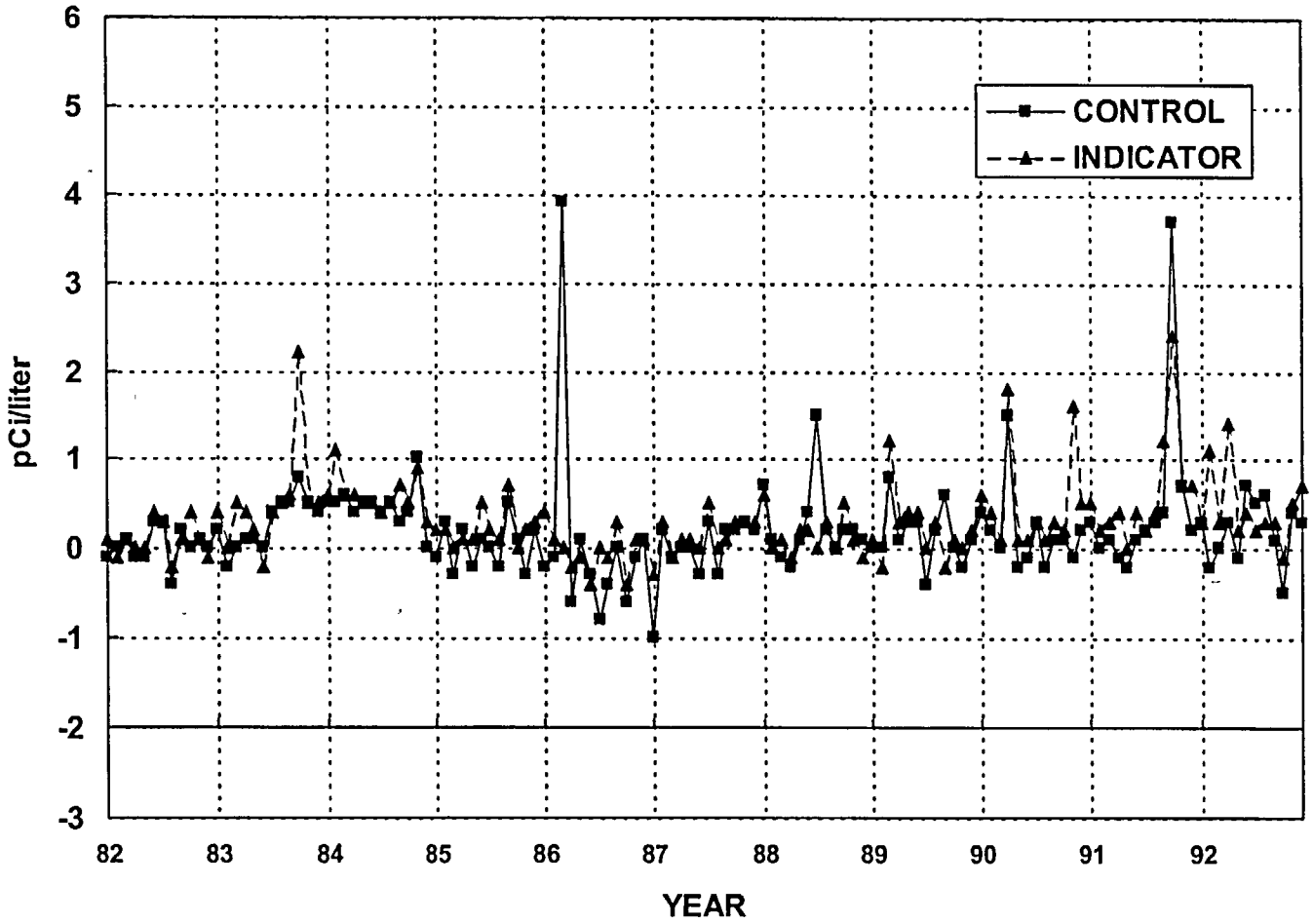
FIGURE C-1
MEAN MONTHLY INSOLUBLE GROSS BETA CONCENTRATIONS IN DRINKING WATER SAMPLES COLLECTED IN THE VICINITY OF LGS, 1982 - 2002



LGS CRITICALITY
UNIT NO. 1: 12/22/84
UNIT NO. 2: 08/11/89

FIGURE C-1 (cont.)

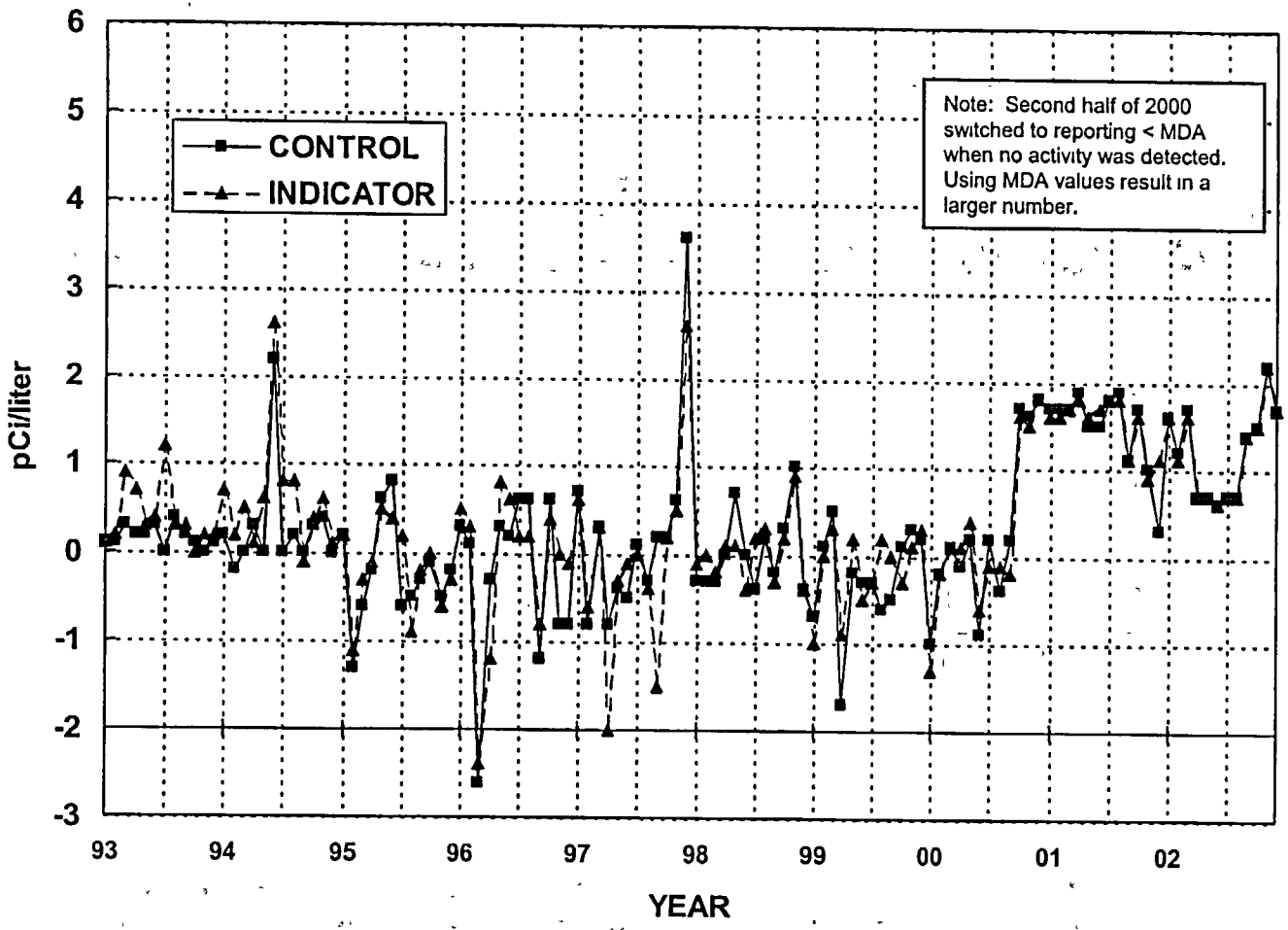
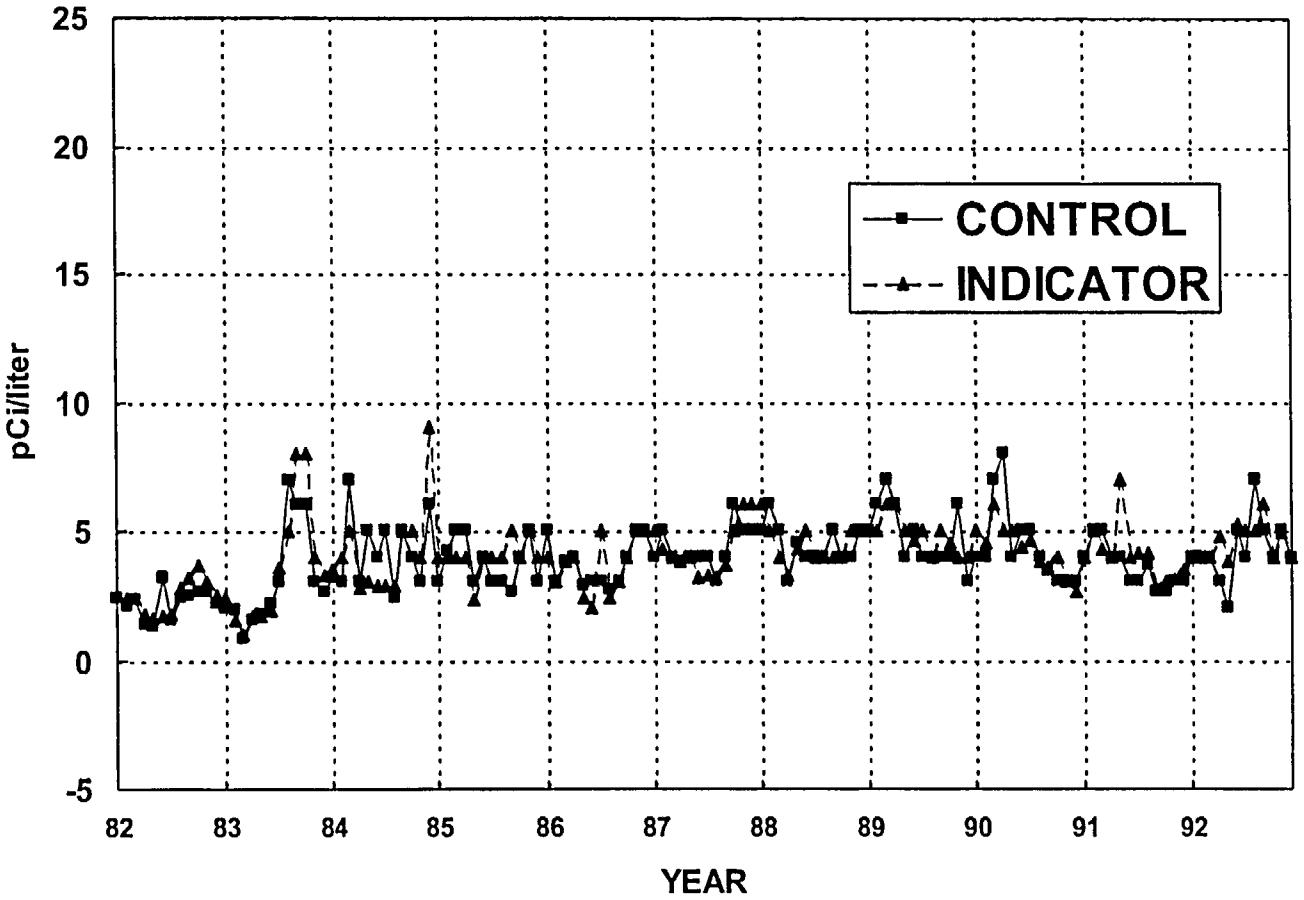


FIGURE C-2
MEAN MONTHLY SOLUBLE GROSS BETA CONCENTRATIONS IN DRINKING WATER SAMPLES COLLECTED IN THE VICINITY OF LGS, 1982 - 2002



LGS CRITICALITY
UNIT NO. 1: 12/22/84
UNIT NO. 2: 08/11/89

FIGURE C-2 (cont.)

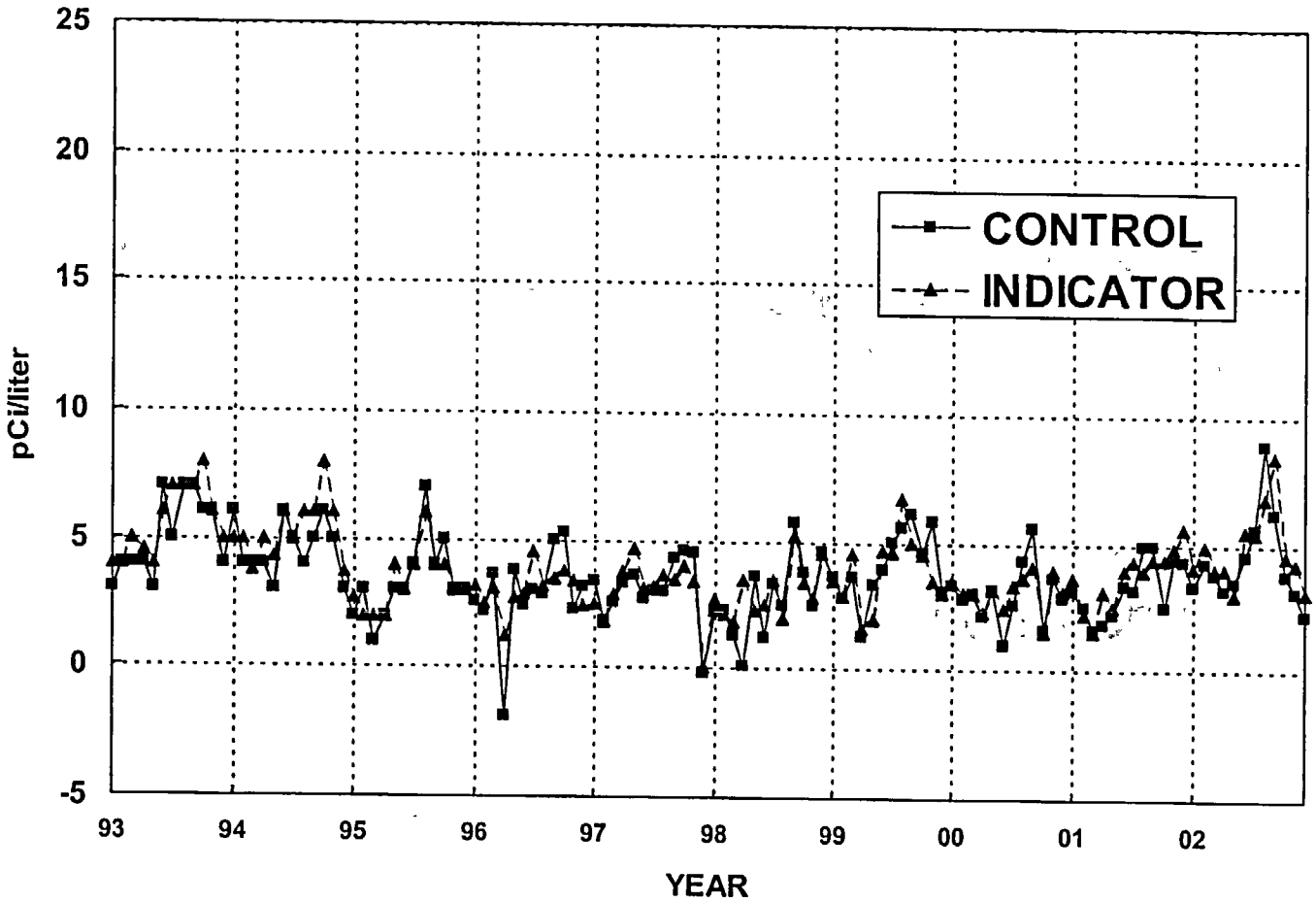
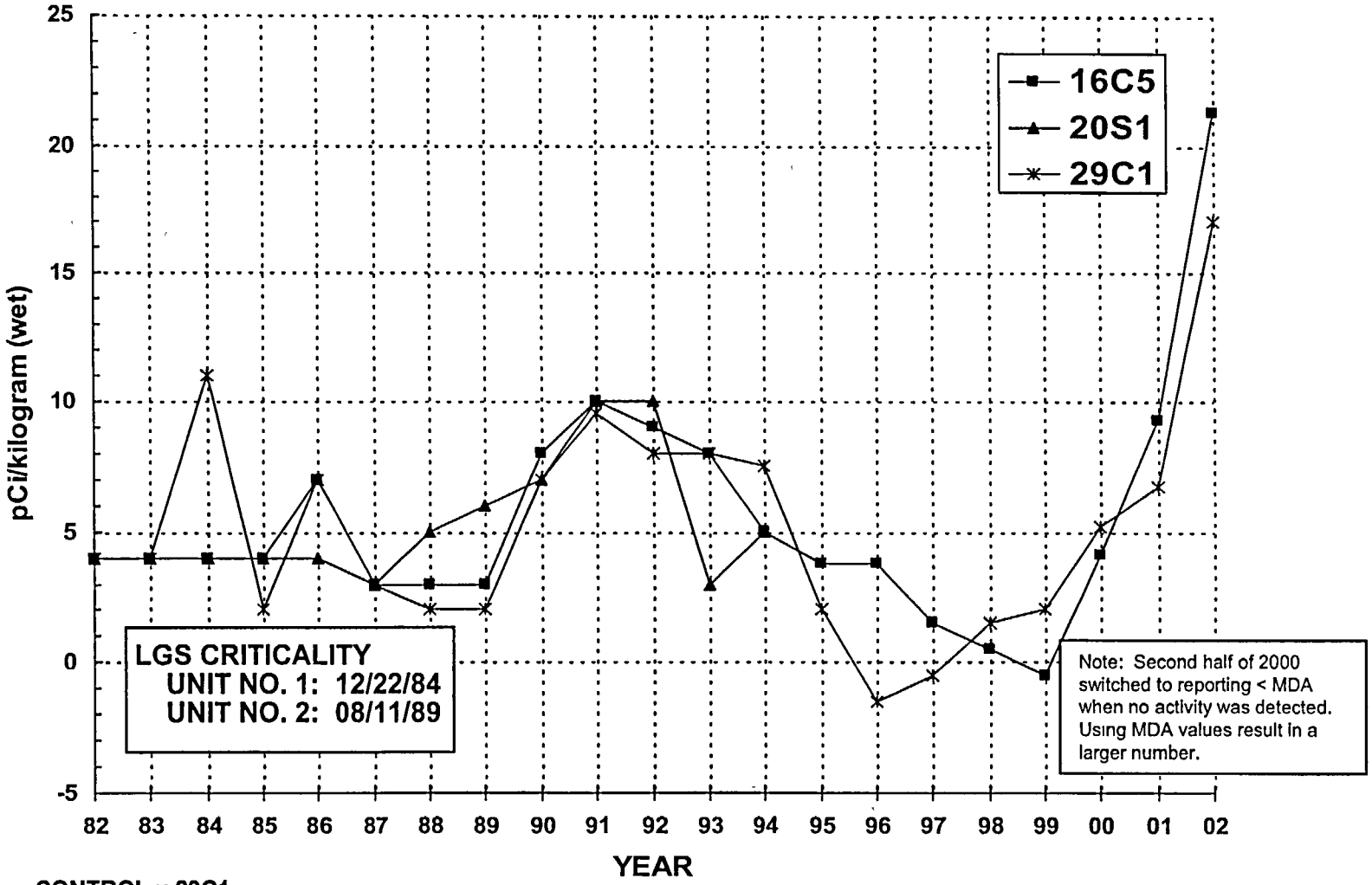


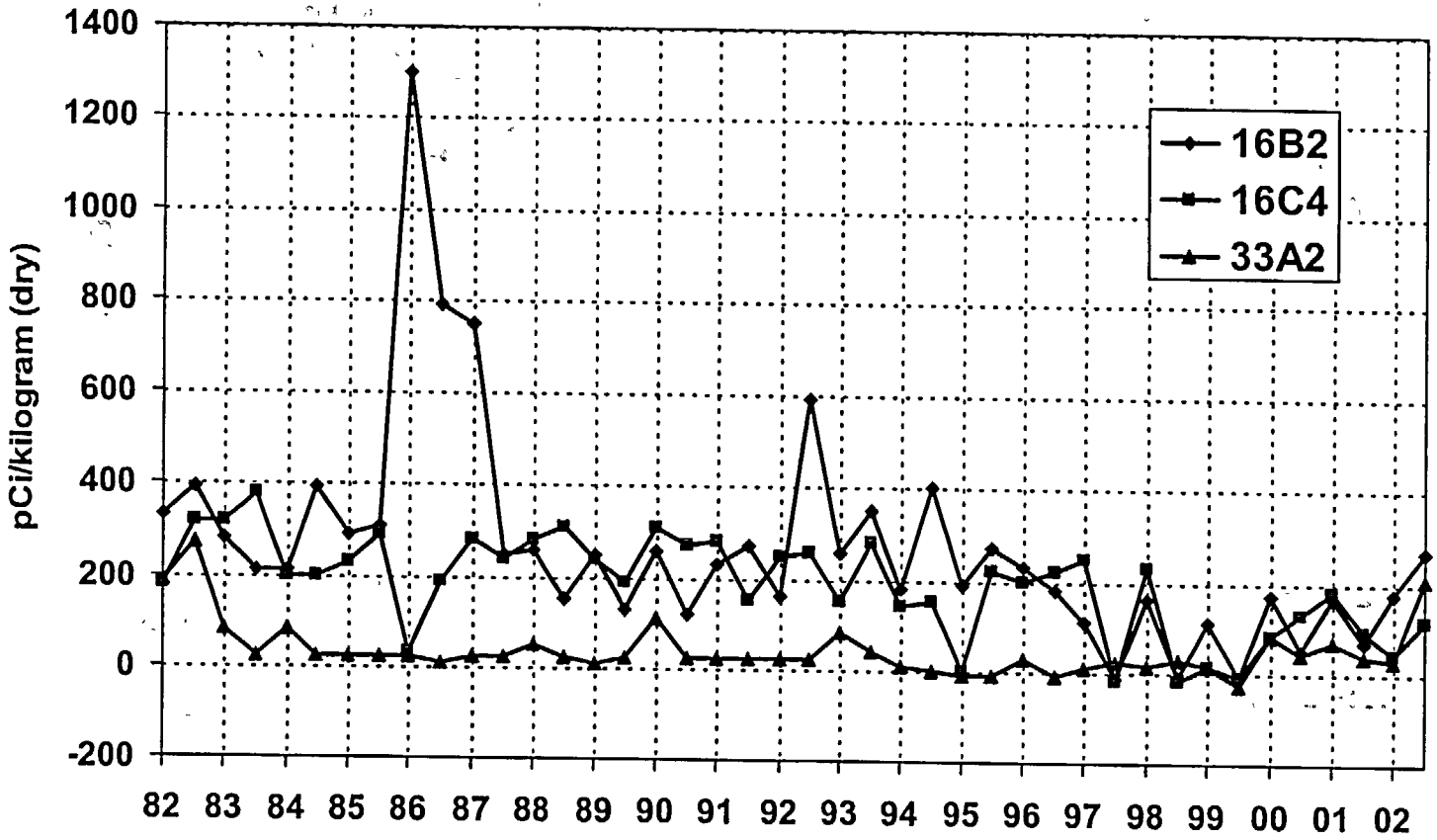
FIGURE C-3
MEAN ANNUAL CS-137 CONCENTRATIONS IN FISH SAMPLES COLLECTED IN THE VICINITY OF LGS, 1982 - 2002



CONTROL = 29C1

Station 20S1 discontinued in 1995

FIGURE C-4
CONCENTRATIONS OF CS-137 IN SEDIMENT SAMPLES COLLECTED IN THE VICINITY OF LGS, 1982 - 2002



LGS CRITICALITY
UNIT NO. 1: 12/22/84
UNIT NO. 2: 08/11/89

CONTROL = 33A2

FIGURE C-5
MEAN MONTHLY GROSS BETA CONCENTRATIONS IN AIR PARTICULATE SAMPLES COLLECTED IN THE VICINITY OF LGS, 1982 - 2002

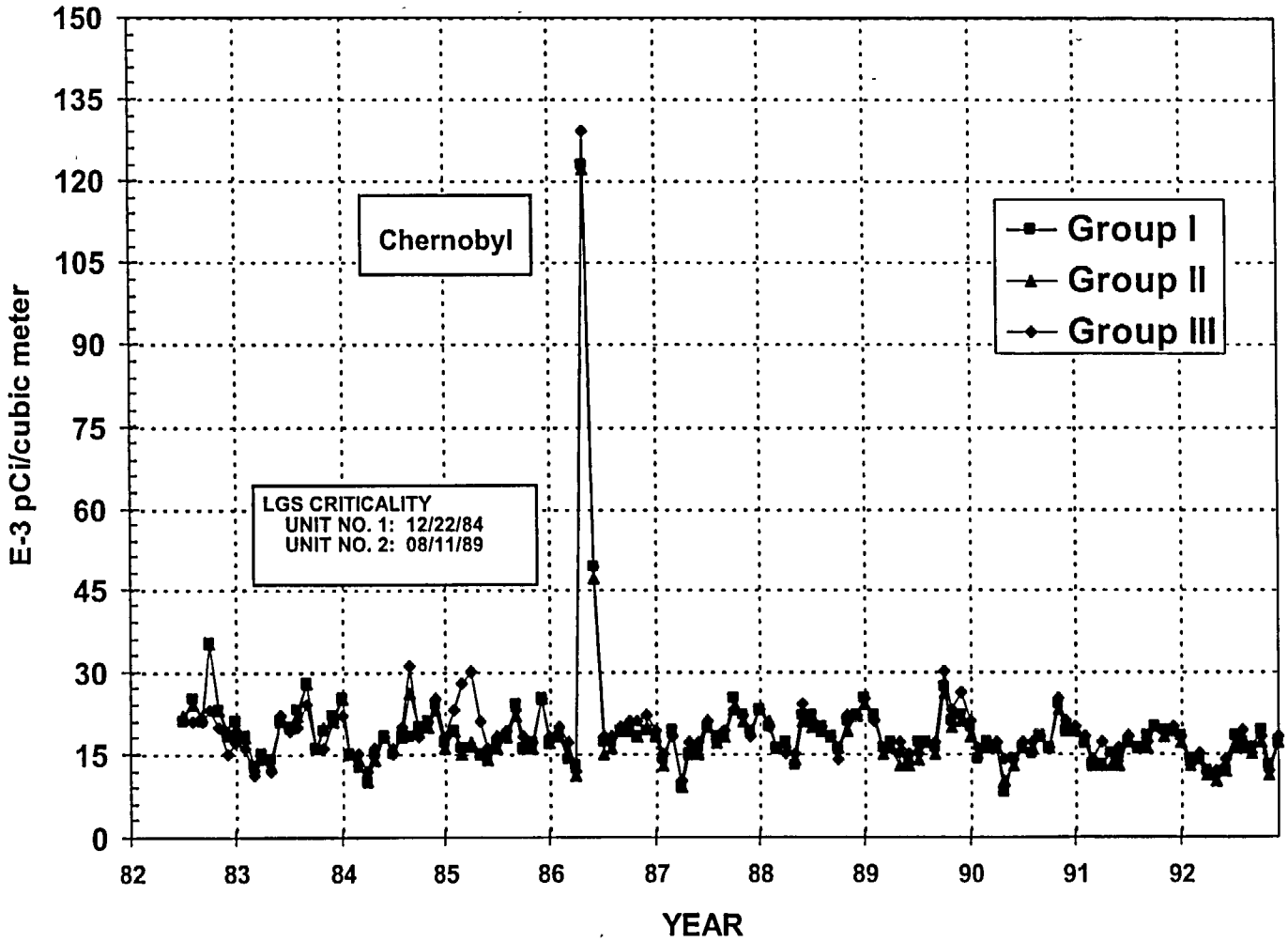


FIGURE C-5 (cont.)

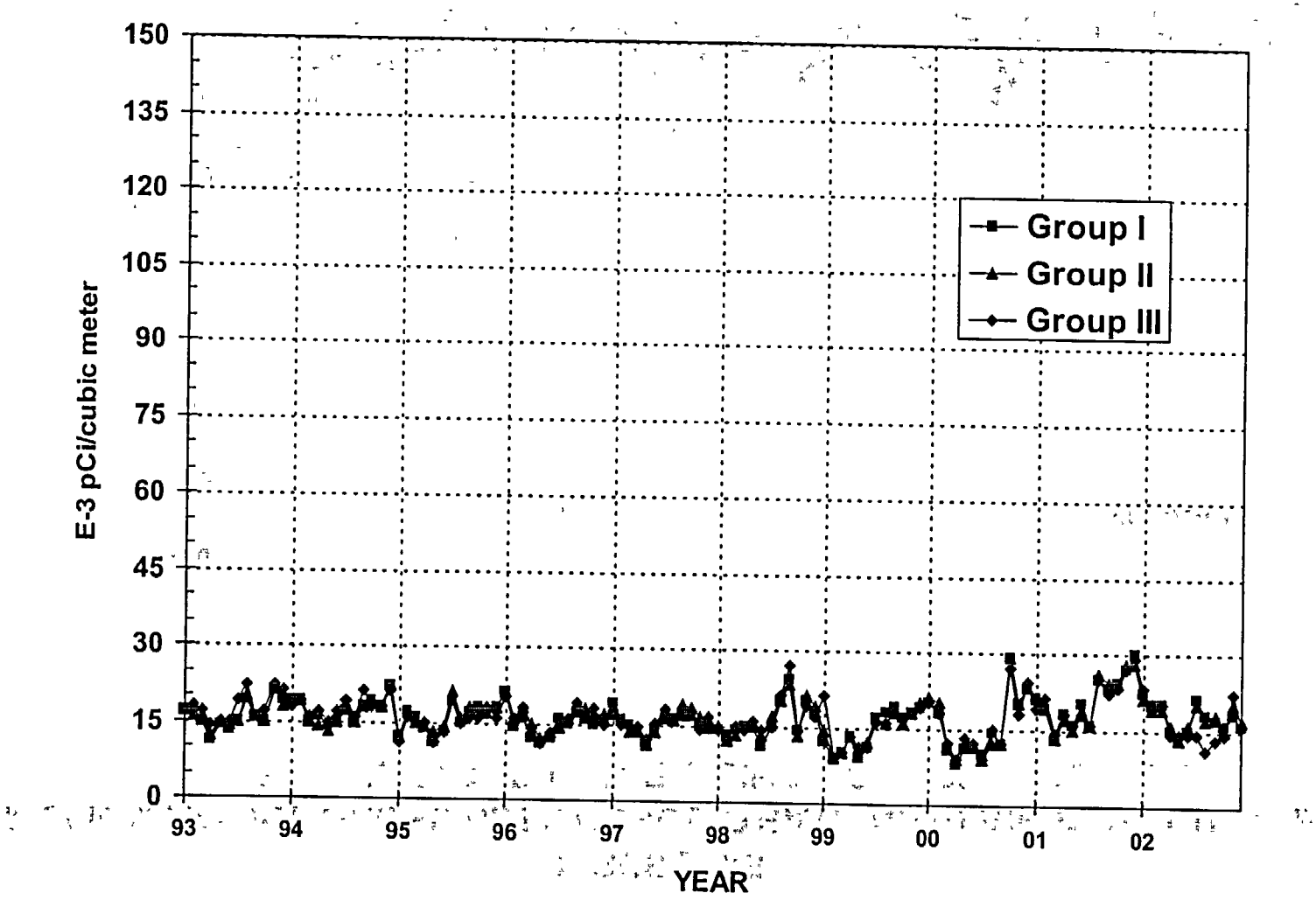


FIGURE C-6
MEAN WEEKLY GROSS BETA CONCENTRATIONS IN AIR PARTICULATE SAMPLES COLLECTED IN THE VICINITY OF LGS, 2002

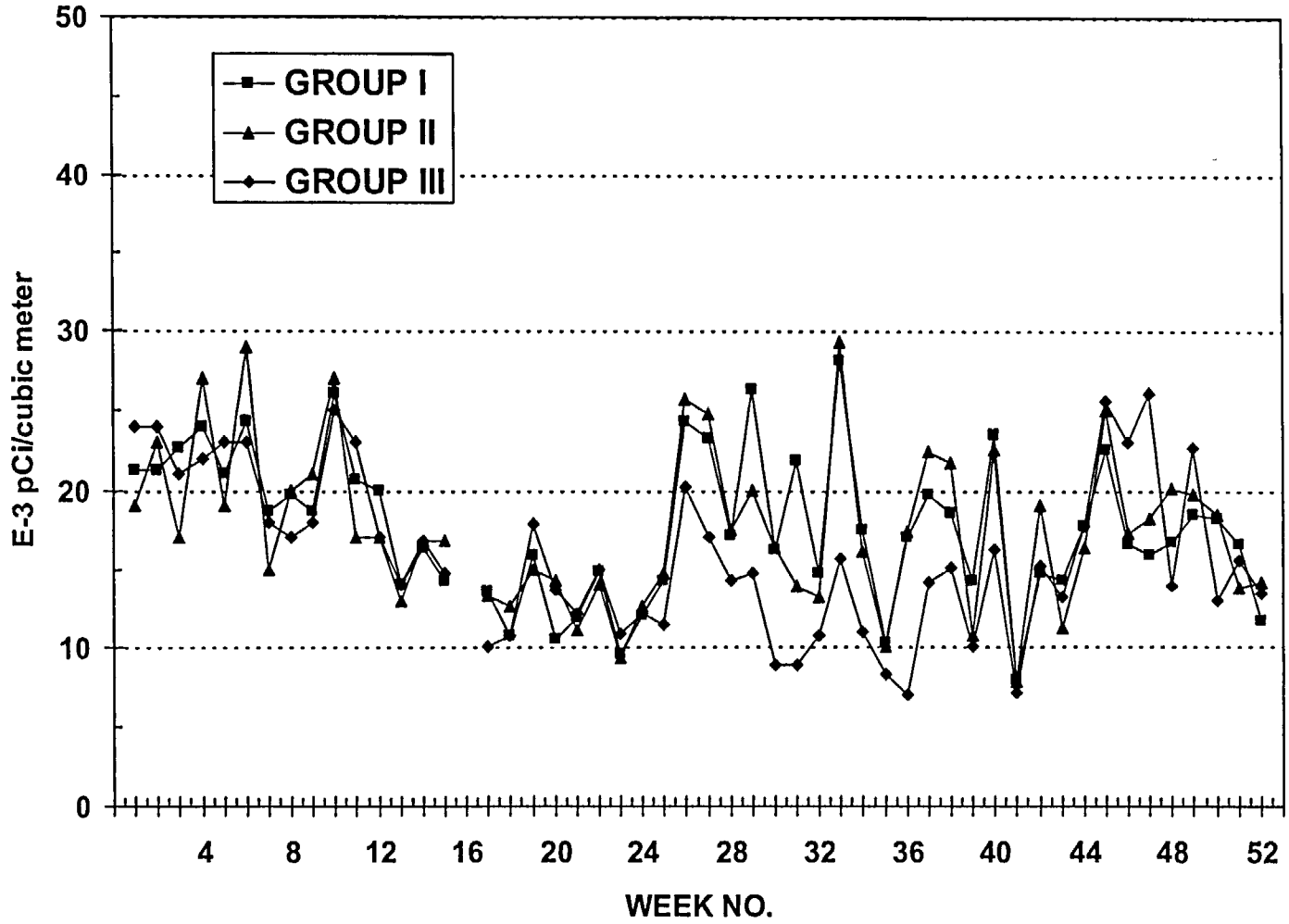
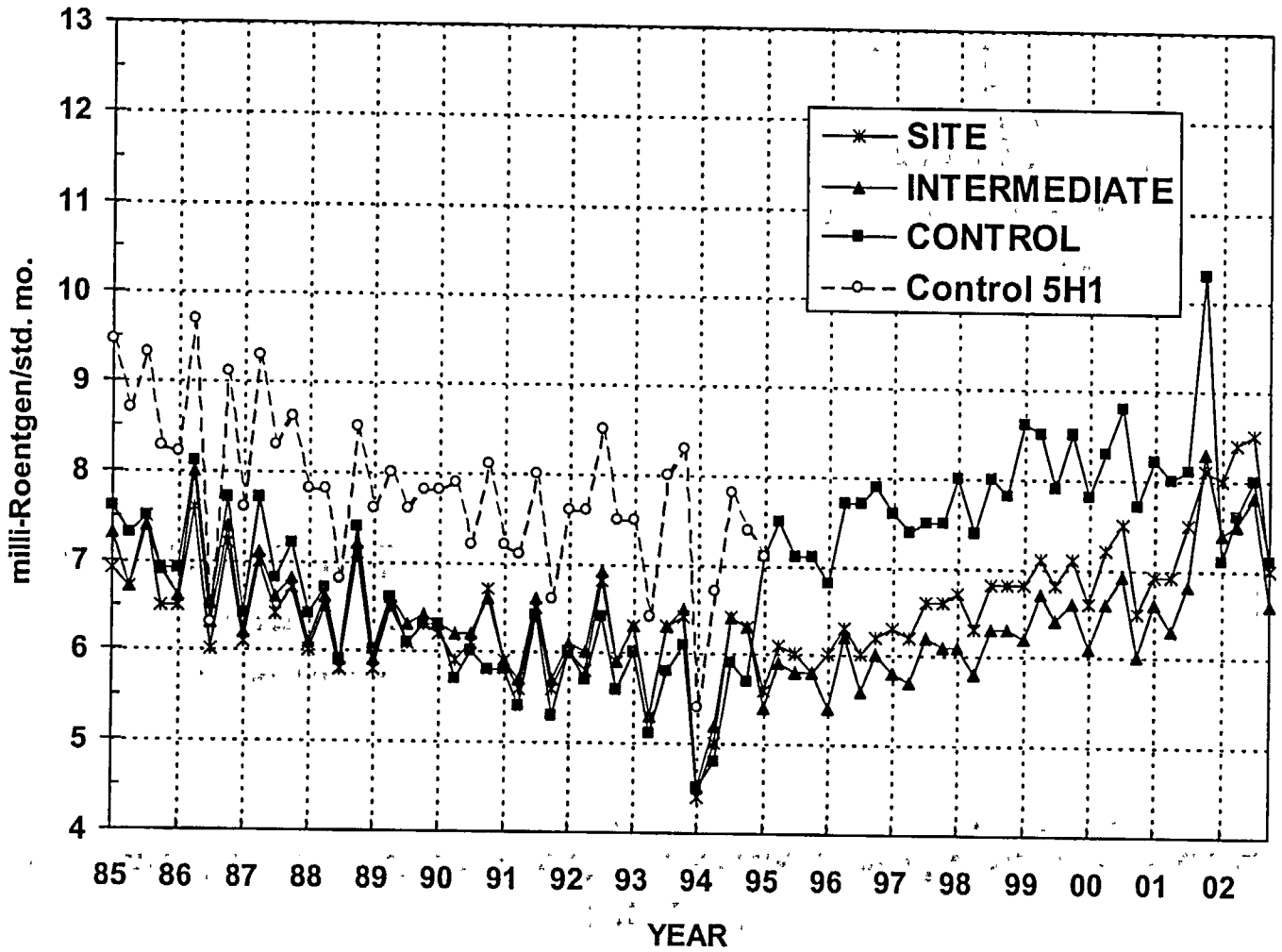


FIGURE C-7
MEAN QUARTERLY AMBIENT GAMMA RADIATION LEVELS (TLD) IN THE VICINITY OF LGS, 1985 – 2002



NOTE: Control Station 5H1 became the only distant location beginning in 1995

APPENDIX D

DATA TABLES AND FIGURES
COMPARISON LABORATORY

The following section contains data and figures illustrating the analyses performed by the quality control laboratory. The first quarter of 2002, TBE was the QC laboratory. Quarters 2-4 Environmental Inc (ENV) was the QC laboratory. Duplicate samples were obtained from several locations and media and split between the primary and QC laboratories. Comparison of the results for most media were within expected ranges.

First Quarter TBE was the QC laboratory. Second Quarter

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TABLE D-I.1 CONCENTRATIONS OF GROSS BETA INSOLUBLE IN DRINKING WATER SAMPLES COLLECTED IN THE VICINITY OF LIMERICK GENERATING STATION, 2002

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

COLLECTION PERIOD	16C2
JAN	-0 1 ± 0 5
FEB	0 4 ± 0 5
MAR	-0 04 ± 0 4
APR	(1)
MAY	< 1.9
JUN	< 1.8
JUL	< 1.5
AUG	< 1.5
SEP	< 1.8
OCT	< 1.9
NOV	< 1.5
DEC	< 1.6
MEAN	1 2 ± 1.5

TABLE D-I.2 CONCENTRATIONS OF GROSS BETA SOLUBLE IN DRINKING WATER SAMPLES COLLECTED IN THE VICINITY OF LIMERICK GENERATING STATION, 2002

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

COLLECTION PERIOD	16C2
JAN	4 0 ± 1 0
FEB	5 0 ± 1 0
MAR	4 0 ± 1 0
APR	(1)
MAY	3 2 ± 1.0
JUN	2 9 ± 1.2
JUL	3 2 ± 1 0
AUG	4 3 ± 1.0
SEP	2 3 ± 1.1
OCT	< 1.8
NOV	3 2 ± 0 9
DEC	1.7 ± 0.9
MEAN	3 2 ± 2.1

(1) SEE PROGRAM EXCEPTIONS SECTION FOR EXPLANATION

TABLE D-I.3 CONCENTRATIONS OF GAMMA EMITTERS IN DRINKING WATER SAMPLES COLLECTED IN THE VICINITY OF LIMERICK GENERATING STATION, 2002

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
16C2	JAN	< 2	< 2	< 5	< 2	< 5	< 4	< 2	< 3	< 3	< 10	< 3
	FEB	< 2	< 2	< 4	< 2	< 4	< 3	< 2	< 2	< 2	< 8	< 2
	MAR	< 2	< 2	< 4	< 2	< 4	< 3	< 2	< 2	< 2	< 8	< 3
	APR	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
	MAY	< 2	< 2	< 4	< 3	< 2	< 5	< 2	< 3	< 2	< 10	< 2
	JUN	< 4	< 4	< 8	< 3	< 8	< 6	< 7	< 4	< 2	< 35	< 9
	JUL	< 3	< 3	< 10	< 4	< 4	< 4	< 6	< 2	< 2	< 50	< 8
	AUG	< 4	< 4	< 8	< 3	< 11	< 8	< 4	< 4	< 5	< 17	< 4
	SEP	< 4	< 3	< 6	< 3	< 6	< 7	< 2	< 6	< 5	< 14	< 4
	OCT	< 2	< 2	< 8	< 3	< 6	< 7	< 4	< 3	< 2	< 15	< 2
	NOV	< 2	< 2	< 8	< 3	< 5	< 6	< 2	< 3	< 3	< 10	< 2
	DEC	< 2	< 1	< 5	< 5	< 7	< 3	< 3	< 4	< 4	< 17	< 4
	MEAN	2 6 ± 1.8	2 5 ± 1.9	6 4 ± 4.2	3 0 ± 1.8	5 6 ± 4 7	5.1 ± 3 6	3.3 ± 3 6	3.3 ± 2 4	2 9 ± 2 4	18 ± 26	3.9 ± 4 9

(1) SEE PROGRAM EXCEPTIONS SECTION FOR EXPLANATION

TABLE D-II.1 CONCENTRATIONS OF GROSS BETA IN AIR PARTICULATE SAMPLES COLLECTED IN THE VICINITY OF LIMERICK GENERATING STATION, 2002

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

COLLECTION PERIOD	11S2
1	21 ± 3
2	17 ± 3
3	20 ± 3
4	15 ± 3
5	17 ± 3
6	21 ± 3
7	16 ± 3
8	15 ± 3
9	17 ± 3
10	23 ± 4
11	17 ± 3
12	13 ± 3
13	11 ± 3
14	17 ± 3
15	19 ± 4
16	25 ± 3
17	(1)
18	17 ± 3
19	19 ± 3
20	18 ± 4
21	13 ± 3
22	19 ± 4
23	16 ± 4
24	13 ± 3
25	22 ± 3
26	25 ± 4
27	29 ± 4
28	21 ± 3
29	31 ± 4
30	22 ± 3
31	28 ± 4
32	19 ± 3
33	31 ± 4
34	17 ± 3
35	11 ± 3
36	15 ± 3
37	22 ± 3
38	15 ± 3
39	20 ± 3
40	24 ± 4
41	11 ± 3
42	17 ± 3
43	17 ± 4
44	24 ± 3
45	23 ± 3
46	18 ± 3
47	25 ± 4
48	12 ± 3
49	31 ± 4
50	20 ± 4
51	23 ± 3
52	23 ± 4
MEAN	20 ± 10

(1) SEE PROGRAM EXCEPTIONS SECTION FOR EXPLANATION

TABLE D-II.2 CONCENTRATIONS OF GAMMA EMITTERS IN AIR PARTICULATE SAMPLES COLLECTED IN THE VICINITY OF LIMERICK GENERATING STATION, 2002

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
11S2	12/31 - 04/01/02	47 ± 5	< 0 6	< 0 6	< 0 5	< 0 5	< 0.5
	04/01 - 07/01/02	93 ± 24	< 1 3	< 1 3	< 1 5	< 0 8	< 0 6
	07/01 - 09/30/02	78 ± 19	< 0 5	< 0 7	< 0 9	< 0 6	< 1 2
	09/30 - 12/30/02	39 ± 8	< 0.9	< 0 7	< 0.5	< 0 8	< 0 6
	MEAN	64 ± 51	0 8 ± 0.7	0 8 ± 0 6	0 9 ± 0 9	0 7 ± 0 3	0 7 ± 0 6

TABLE D-III.1 CONCENTRATIONS OF I-131 BY CHEMICAL SEPARATION AND GAMMA EMITTERS IN MILK SAMPLES COLLECTED IN THE VICINITY OF LIMERICK GENERATING STATION, 2002

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

STC	COLLECTION PERIOD	I-131	K-40	Cs-134	Cs-137	Ba-140	La-140
19B1	01/08/02	0.08 ± 0 08	1160 ± 65	< 2	< 2	< 7	< 2
	04/08/02	< 0 2	1277 ± 117	< 3	< 2	< 15	< 3
	07/08/02	< 0 4	1365 ± 114	< 5	< 2	< 51	< 7
	10/08/02	< 0 3	1281 ± 125	< 3	< 3	< 13	< 2
	MEAN	0 25 ± 0 27	1271 ± 168	3 ± 3	2 ± 1	22 ± 40	4 ± 5
21B1	01/08/02	0 02 ± 0 06	1570 ± 103	< 6	< 5	< 20	< 6
	04/08/02	< 0 2	1484 ± 117	< 3	< 3	< 16	< 2
	07/08/02	< 0 2	1454 ± 93	< 3	< 3	< 48	< 9
	10/08/02	< 0 3	1428 ± 133	< 5	< 2	< 9	< 2
	MEAN	0.18 ± 0 23	1484 ± 123	4 ± 3	3 ± 3	23 ± 34	5 ± 7
9G1	01/08/02	0 03 ± 0 06	1380 ± 96	< 6	< 6	< 23	< 6
	04/08/02	< 0 3	1296 ± 109	< 4	< 2	< 12	< 3
	07/08/02	< 0 4	1342 ± 100	< 2	< 3	< 57	< 7
	10/08/02	< 0 3	1267 ± 118	< 3	< 5	< 9	< 2
	MEAN	0 26 ± 0 32	1321 ± 100	4 ± 3	4 ± 4	25 ± 44	5 ± 5

TABLE D-IV.1 SUMMARY OF COLLECTION DATES FOR SAMPLES COLLECTED IN THE VICINITY OF LIMERICK GENERATING STATION, 2002

DRINKING WATER (GROSS BETA & GAMMA SPECTROSCOPY)

COLLECTION PERIOD	16C2
JAN	12/31/01 - 02/04/02
FEB	02/04/02 - 03/04/02
MAR	03/04/02 - 04/01/02
APR	04/01/02 - 04/29/02
MAY	04/29/02 - 05/28/02
JUN	05/28/02 - 07/01/02
JUL	07/01/02 - 07/29/02
AUG	07/29/02 - 09/03/02
SEP	09/03/02 - 09/30/02
OCT	09/30/02 - 10/28/02
NOV	10/28/02 - 12/02/02
DEC	12/02/02 - 12/30/02

AIR PARTICULATE (GAMMA SPECTROSCOPY)

COLLECTION PERIOD	11S2
JAN-MAR	12/31/01 - 04/01/02
APR-JUN	04/01/02 - 07/01/02
JUL-SEP	07/01/02 - 09/30/02
OCT-DEC	09/30/02 - 12/30/02

AIR PARTICULATE (GROSS BETA)

COLLECTION PERIOD	11S2	COLLECTION PERIOD	11S2
1	12/31/01 - 01/07/02	27	07/01/02 - 07/08/02
2	01/07/02 - 01/14/02	28	07/08/02 - 07/15/02
3	01/14/02 - 01/21/02	29	07/15/02 - 07/22/02
4	01/21/02 - 01/28/02	30	07/22/02 - 07/29/02
5	01/28/02 - 02/04/02	31	07/29/02 - 08/05/02
6	02/04/02 - 02/11/02	32	08/05/02 - 08/12/02
7	02/11/02 - 02/18/02	33	08/12/02 - 08/19/02
8	02/18/02 - 02/25/02	34	08/19/02 - 08/26/02
9	02/25/02 - 03/04/02	35	08/26/02 - 09/02/02
10	03/04/02 - 03/11/02	36	09/02/02 - 09/09/02
11	03/11/02 - 03/18/02	37	09/09/02 - 09/16/02
12	03/18/02 - 03/25/02	38	09/16/02 - 09/23/02
13	03/25/02 - 04/01/02	39	09/23/02 - 09/30/02
14	04/01/02 - 04/08/02	40	09/30/02 - 10/07/02
15	04/08/02 - 04/15/02	41	10/07/02 - 10/14/02
16	04/15/02 - 04/22/02	42	10/14/02 - 10/21/02
17	04/22/02 - 04/29/02	43	10/21/02 - 10/28/02
18	04/29/02 - 05/06/02	44	10/28/02 - 11/04/02
19	05/06/02 - 05/13/02	45	11/04/02 - 11/11/02
20	05/13/02 - 05/20/02	46	11/11/02 - 11/18/02
21	05/20/02 - 05/28/02	47	11/18/02 - 11/25/02
22	05/28/02 - 06/03/02	48	11/25/02 - 12/02/02
23	06/03/02 - 06/10/02	49	12/02/02 - 12/09/02
24	06/10/02 - 06/17/02	50	12/09/02 - 12/16/02
25	06/17/02 - 06/24/02	51	12/16/02 - 12/23/02
26	06/24/02 - 07/01/02	52	12/23/02 - 12/30/02

FIGURE D-1
COMPARISON OF MONTHLY INSOLUBLE GROSS BETA CONCENTRATIONS IN DRINKING WATER SAMPLES SPLIT BETWEEN ENV AND TBE, 2002

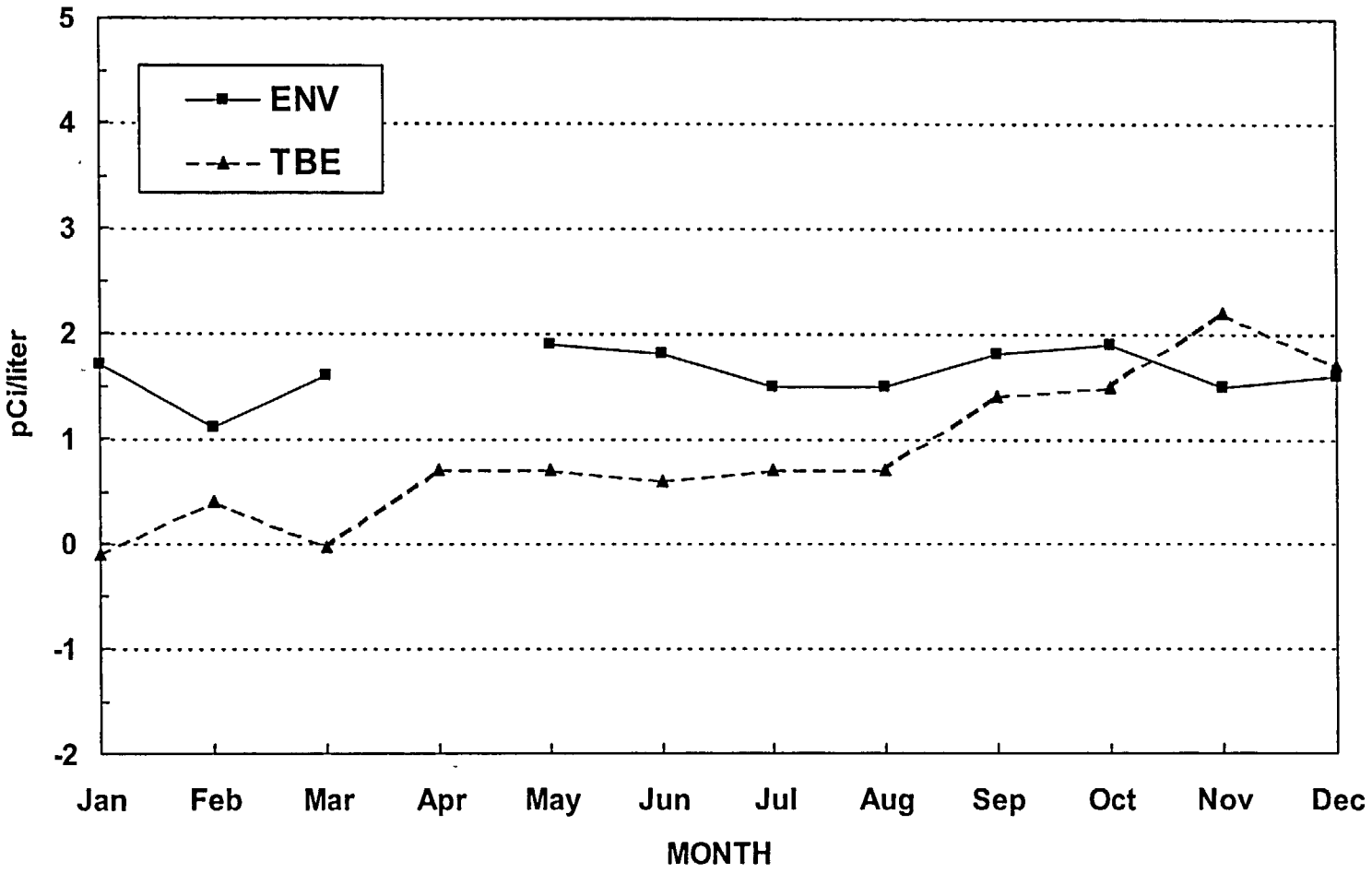


FIGURE D-2
COMPARISON OF MONTHLY SOLUBLE GROSS BETA CONCENTRATIONS IN DRINKING WATER SAMPLES SPLIT BETWEEN ENV AND TBE, 2002

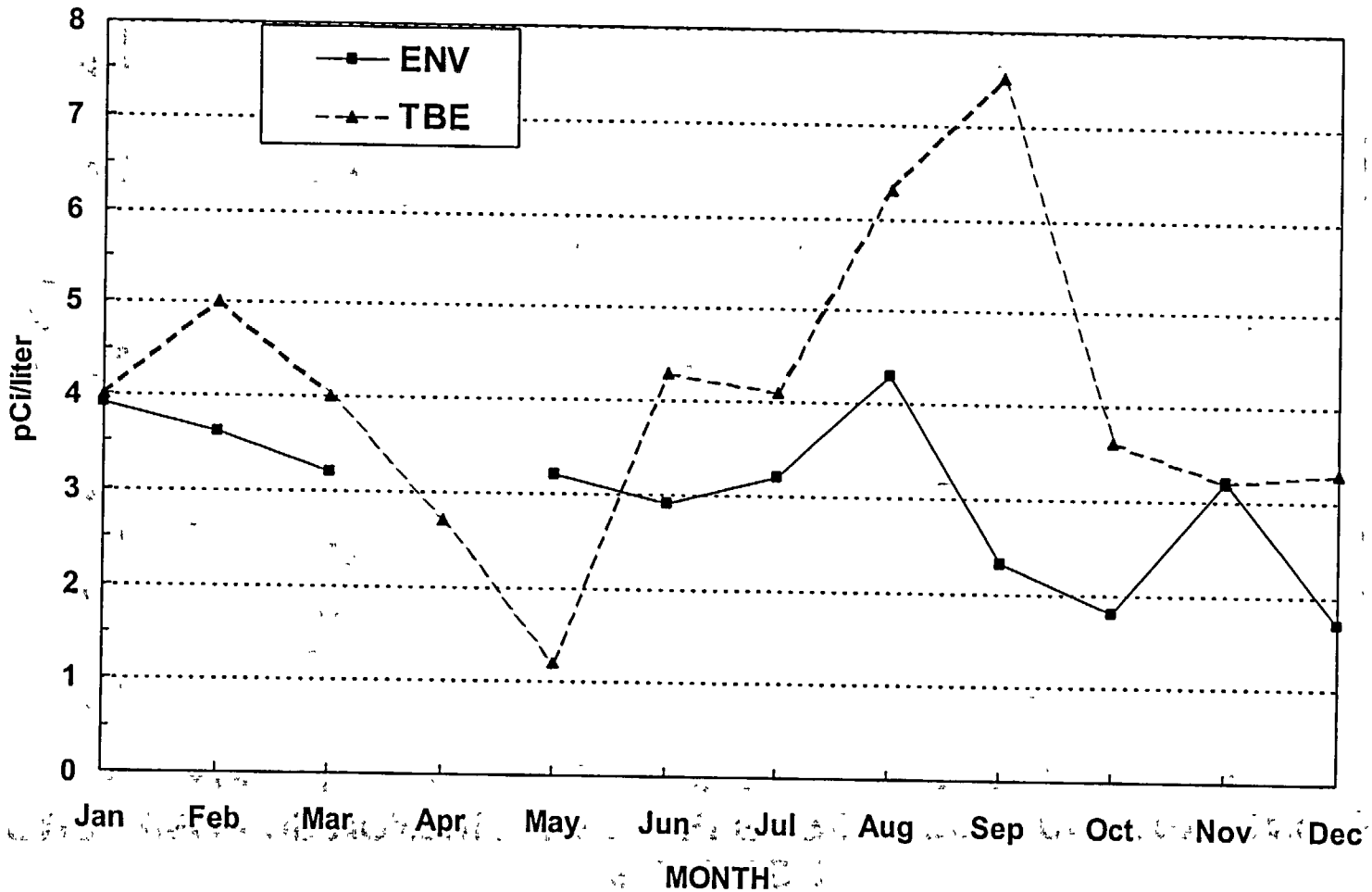
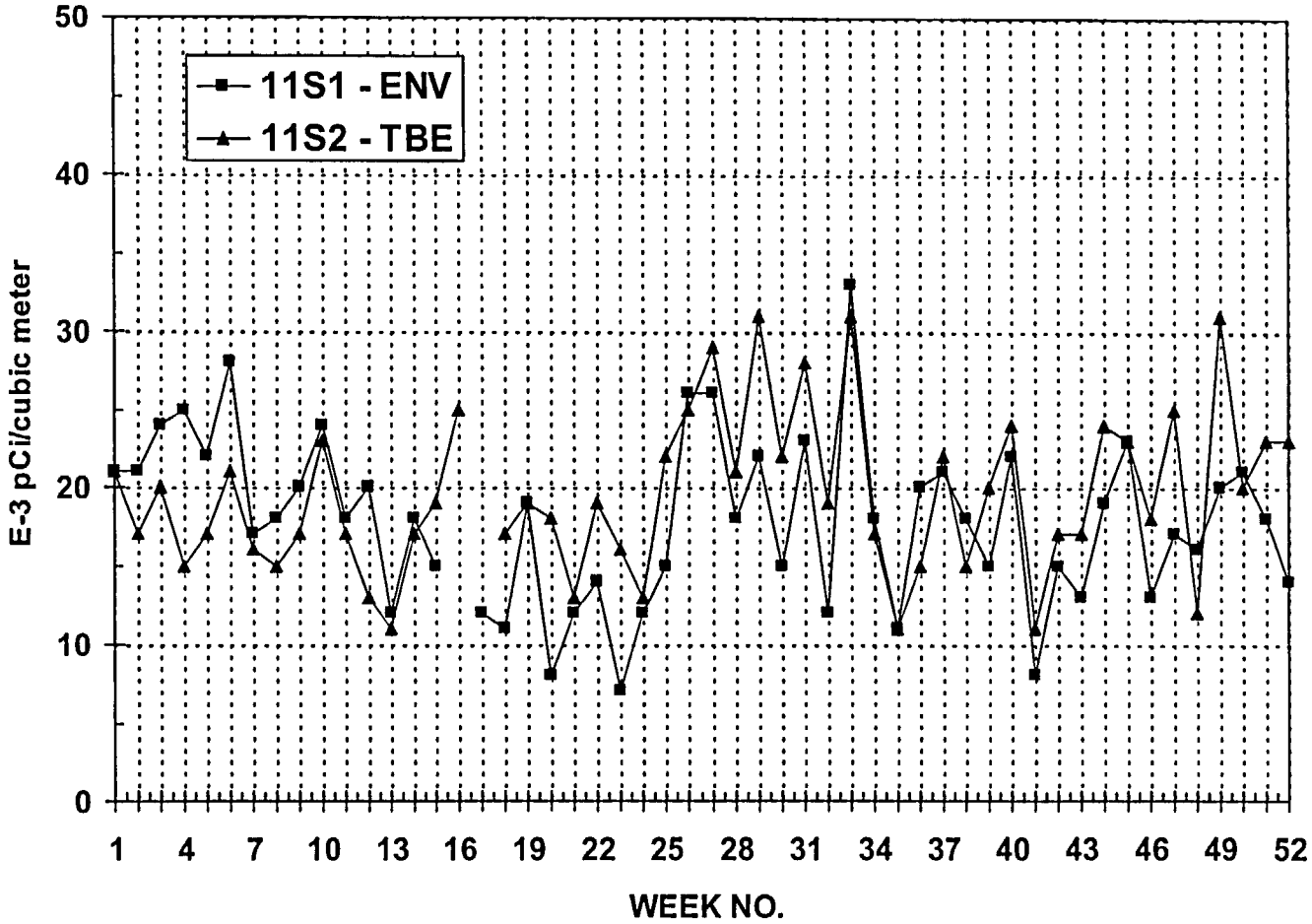


FIGURE D-3
COMPARISON OF WEEKLY GROSS BETA CONCENTRATIONS IN AIR PARTICULATE SAMPLES COLLECTED FROM LGS COLLOCATED LOCATIONS 11S1 AND 11S2, 2002



APPENDIX E

INTER-LABORATORY COMPARISON PROGRAM

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

Month/Year	Identification Number	Matrix	Nuclide (1)	Units	Reported Value (a)	Known Value (b)	Ratio (c) TBE/Analytics	Evaluation (d)
February, 2002	A15211-55	Liquid	Sr-89	uCi/mL	1.60E-03	2.03E-03	0.79	W
			Sr-90		2.90E-04	3.64E-04	0 80	A
	A15213-55	Liquid	H-3	uCi/mL	1.08E-03	1.19E-03	0.90	A
March, 2002	E3064-396	Milk	Sr-89	pCi/L	80	83	0 96	A
			Sr-90		28	27	1.04	A
	* E3065-396	Milk	I-131	pCi/L	86	92	0 93	A
			Ce-141		300	326	0.92	A
			Cr-51		256	267	0 96	A
			Cs-134		94	122	0.77	W
			Cs-137		252	266	0 95	A
			Mn-54		217	224	0.97	A
			Fe-59		108	116	0.93	A
			Zn-65		218	221	0.99	A
			Co-60		147	158	0.93	A
	E3067-396	AP	I-131	pCi	202	199	1.02	A
			Cr-51		166	163	1.02	A
			Cs-134		77	74	1.04	A
			Cs-137		162	162	1.00	A
			Mn-54		135	136	0.99	A
			Fe-59		70	70	1.00	A
			Zn-65		128	134	0.96	A
			Co-60		95	96	0.99	A
	E3066-396	Charcoal	I-131	pCi	66	77	0.86	A
May, 2002	A15521-55	Liquid	Gr-Alpha	uCi/mL	8 48E-04	7.15E-04	1.19	A
	A15520-55	Liquid	Sr-89	uCi/mL	2.63E-03	3 25E-03	0.81	A
			Sr-90		2.51E-04	2.70E-04	0.93	A
	A15522-55	Liquid	Tritium	uCi/mL	1.35E-03	1.46E-03	0.92	A

TABLE E-1 ANALYTICS ENVIRONMENTAL RADIOACTIVITY CROSS CHECK PROGRAM
TELEDYNE BROWN ENGINEERING ENVIRONMENTAL SERVICES

Month/Year	Identification Number	Matrix	Nuclide (1)	Units	Reported Value (a)	Known Value (b)	Ratio (c) TBE/Analytics	Evaluation (d)
June, 2002	E3220-396	Milk	I-131	pCi/L	86	87	0.99	A
			Ce-141		84	90	0.93	A
			Cr-51		197	235	0.84	A
			Cs-134		110	120	0.92	A
			Cs-137		96	91	1.05	A
			Co-58		95	100	0.95	A
			Mn-54		106	95	1.12	A
			Fe-59		95	81	1.17	A
			Zn-65		186	180	1.03	A
			Co-60		132	125	1.06	A
June, 2002	E3222-396	AP	Ce-141	pCi	85	75	1.13	A
			Cr-51		199	196	1.02	A
			Cs-134		96	100	0 96	A
			Cs-137		92	76	1.21	W
			Co-58		98	83	1.18	A
			Mn-54		87	79	1.10	A
			Fe-59		85	67	1 27	W
			Zn-65		182	150	1.21	W
			Co-60		121	104	1.16	A
August, 2002	A16018-55	Liquid	Sr-89	uCi/mL	4.12E-03	4.99E-03	0.83	A
			Sr-90		2.43E-04	2.64E-04	0.92	A
	A16020-55	Liquid	Tritium	uCi/mL	1.93E-03	2.00E-03	0.97	A
September, 2002	A15989-148	Liquid	Sr-89	uCi/mL	4.02E-03	4.99E-03	0 81	A
			Sr-90		2.49E-04	2.64E-04	0 94	A
	E3324-396	Milk	Sr-89	pCi/L	106	92	1.15	A
			Sr-90		39	39	1.00	A
September, 2002	E3325-396	Milk	I-131	pCi/L	84	80	1.05	A
			Ce-141		168	160	1.05	A
			Cr-51		210.5	227	0.93	A
			Cs-134		127	132	0 96	A
			Cs-137		136	127	1.07	A
			Co-58		93	97	0.96	A
			Mn-54		165	152	1 09	A
			Fe-59		90	89	1.01	A
			Zn-65		196	187	1 05	A
			Co-60		147	149	0.99	A

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

Month/Year	Identification Number	Matrix	Nuclide (1)	Units	Reported Value (a)	Known Value (b)	Ratio (c) TBE/Analytics	Evaluation (d)
September, 2002	E-3327-396	Filter	Ce-141	pCi	115	110	1.05	A
			Cr-51		163 6	156	1.05	A
			Cs-134		79	90	0 88	A
			Cs-137		95	87	1.09	A
			Co-58		71	67	1.06	A
			Mn-54		118	104	1.13	A
			Fe-59		76	61	1.25	A
			Zn-65		155	130	1.19	A
			Co-60		108	102	1.06	A
	E3326-396	Charcoal	I-131	pCi	73	85	0.86	A
December, 2002	E3520-396	Milk	Sr-89	pCi/L	88	68	1.29	W
			Sr-90		40	38	1.05	A
	E3521-396	Milk	I-131	pCi/L	97	86	1.13	A
			Ce-141		136	111	1.23	W
			Cr-51		347	346	1.00	A
			Cs-134		97	99	0 98	A
			Cs-137		229	220	1.04	A
			Co-58		143	139	1.03	A
			Mn-54		162	142	1.14	A
			Fe-59		80	72	1.11	A
			Zn-65		217	178	1.22	W
			Co-60		172	164	1.05	A
December, 2002	E3523-396	Filter	Ce-141	pCi	108	128	0.84	A
			Cr-51		370	398	0.93	A
			Cs-134		79	114	0.69	N (2)
			Cs-137		226	253	0.89	A
			Co-58		141	160	0 88	A
			Mn-54		152	163	0.93	A
			Fe-59		89	83	1.07	A
			Zn-65		196	206	0.95	A
			Co-60		170	189	0 90	A
	E3522-396	Charcoal	I-131	pCi	84	96	0 88	A

(1) Only analyses performed routinely for the REMP are included on this table.

(2) Coincidental summing resulted in low Cesium-134 activity Elimination of the coincidental summing resulted in an activity of 110 pCi No further action required

* Analytics known values were incorrectly calculated Revised (as shown) evaluation was acceptable

(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 A= Acceptable Reported result falls within ratio limits of 0.80-1.20 W=Acceptable with warning Reported result falls within ratio limits of 0 70-0 79 and 1 21-1 30

TABLE E-2 DOE/EML ENVIRONMENTAL RADIOACTIVITY CROSS CHECK PROGRAM
TELEDYNE BROWN ENGINEERING ENVIRONMENTAL SERVICES
(PAGE 1 OF 2)

Month/Year	Identification Number	Media	Nuclide (1)	Units	Reported Value (a)	Known Value (b)	Ratio (c) TBE/EML	Evaluation (d)
June, 2002	QAP 56	AP	Co-60	Bq/filter	31.7	30 52	1.04	A
			Cs-137		30 4	28.23	1.08	A
			Gr-Beta		1.21	1.30	0 93	A
			Mn-54		38 3	38 53	0.99	A
			Sr-90		4.68	4.832	0.97	A
		Soil	Ac-228	Bq/kg	50	51 167	0.98	A
			Bi-212		35.9	53.43	0.67	A
			Bi-214		46.3	53.933	0.86	W
			Cs-137		1300	1326.67	0.98	A
			K-40		608	621.67	0.98	A
			Pb-212		49.4	51.1	0.97	A
			Pb-214		49.1	54.367	0.90	A
			Sr-90		46.6	53.756	0.87	A
		Vegetation	Co-60	Bq/kg	11.7	11.23	1.04	A
			Cs-137		346	313 667	1.10	A
			K-40		952	864.33	1.10	A
			Sr-90		477	586.28	0 81	A
June, 2002	QAP 56	Water	Co-60	Bq/L	367	347.33	1.06	A
			Cs-134		2.93	3.357	0.87	W
			Cs-137		59 6	56.067	1.06	A
			Gr-Beta		895	1030	0.87	A
			H-3		285	283.7	1.00	A
			Sr-90		5.78	7.579	0.76	W

TABLE E-2 DOE/EML ENVIRONMENTAL RADIOACTIVITY CROSS CHECK PROGRAM
TELEDYNE BROWN ENGINEERING ENVIRONMENTAL SERVICES
(PAGE 2 OF 2)

Month/Year	Identification Number	Media	Nuclide (1)	Units	Reported Value (a)	Known Value (b)	Ratio (c) TBE/EML	Evaluation (d)
December, 2002	QAP 57	AP	Co-60	Bq/filter	24.1	23.0	1.05	A
			Cs-137		36.1	32 5	1.11	A
			Gr-Beta		0.813	0 871	0.93	A
			Mn-54		58.3	52.2	1.12	A
			Sr-90		5.86	5 561	1.05	A
		Soil	Bi-212	Bq/kg	23.2	45.93	0.51	W
			Bi-214		32.4	33.63	0.96	A
			Cs-137		835	829.33	1 01	A
			K-40		671	637.67	1.05	A
			Pb-212		42.00	43.43	0.97	A
			Pb-214		44.46	35.2	1 26	A
			Sr-90		41.00	41.16	1.00	A
December, 2002	QAP 57	Vegetation	Co-60	Bq/kg	11.5	9.66	1.19	A
			Cs-137		345	300.67	1.15	A
			K-40		1690	1480	1.14	A
			Sr-90		457	476 26	0.96	A
		Water	Am-241	Bq/L	2.89	3 043	0.95	A
			Co-60		303	268.67	1.13	W
			Cs-134		59	60.2	0.98	A
			Cs-137		85 8	81.43	1.05	A
			Gr-Beta		817	900	0.91	A
			H-3		353	227.3	1.55	W
			Sr-90		8.58	8.69	0 99	A

(1) Only analyses performed routinely for the REMP are included on this table.

(a) Teledyne Brown Engineerin reported result.

(b) The DOE/EML 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 DOE/EML results.

(d) DOE/EML evaluation: A=acceptable, W=acceptable with warning, N=not acceptable

TABLE E-3 ERA ENVIRONMENTAL RADIOACTIVITY CROSS CHECK PROGRAM
TELEDYNE BROWN ENGINEERING ENVIRONMENTAL SERVICES

Month/Year	Identification Number	Media	Nuclide (1)	Units	Reported Value (a)	Known Value (b)	Ratio (c) TBE/ERA	Evaluation (d)
May, 2002	Rad 49	Water	Gr-Beta	pCi/L	162	189	0 86	A
			Co-60		39.3	39.1	1.01	A
			Cs-134		15 5	17.1	0 91	A
			Cs-137		52.2	52.1	1.00	A
			Sr-89		27.2	31.7	0.86	A
			Sr-90		25.1	28.3	0.89	A
			I-131		13 35	14.7	0.91	A
			H-3		14600	17400	0.84	A
November, 2002	Rad 51	Water	H-3	pCi/L	10100	10200	0 99	A
			I-131		7.94	6 76	1.17	A
			Gr-Beta		280	330	0.85	A
			Sr-89		41.7	47.6	0 88	A
			Sr-90		6.75	7.56	0.89	A
			Co-60		122	104	1.17	A
			Cs-134		60.0	55.5	1.08	A
			Cs-137		140	117	1.20	A

(1) Only analyses performed routinely for the REMP are included on this table

(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) Ratio of Teledyne Brown Engineering to ERA results

(d) 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-4 MAPEP ENVIRONMENTAL RADIOACTIVITY CROSS CHECK PROGRAM
TELEDYNE BROWN ENGINEERING ENVIRONMENTAL SERVICES

Month/Year	Identification Number	Media	Nuclide (1)	Units	Reported Value (a)	Known Value (b)	Ratio (c) TBE/MAPEP	Evaluation (d)
March, 2002	01-W9	Water	Mn-54	Bq/L	253	246	172.20 - 319 80	A
			Co-57		141	143	100.10-185 90	A
			Co-60		143	141	98.70 - 183.30	A
			Cs-134		26 0	28.5	19.95 - 37.05	A
			Cs-137		270	286	200 20 - 371.80	A
			Sr-90		4.71	4 8	3 39 - 6.24	A
August, 2002	02-S9	Soil	Mn-54	Bq/kg	679	546	382.2 - 709.8	W
			Co-57		289	246	172.2 - 319.8	A
			Co-60		109	87.5	61.25 - 113.75	W
			Cs-134		948	862	603.4 - 1120.6	A
			Cs-137		131	111	77.7 - 144.3	A
			Zn-65		1020	809	556.3 - 1051.7	W
			K-40		722	652	456.4 - 847.6	A

(1) Only analyses performed routinely for the REMP are included on this table

(a) Teledyne Brown Engineenn 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) Ratio of Teledyne Brown Engineering to DOE/MAPEP results

(d) DOE/MAPEP evaluation A=acceptable, W=acceptable with warning, N=not acceptable

Table E-5 ERA[a] Statistical Summary Proficiency Testing Program
Environmental, Inc., 2002
(PAGE 1 OF 2)

Lab Code	Date	Analysis	Concentration (pCi/L) Laboratory Result[b]	ERA Result[c]	Control Limits
STW-940	02/20/02	Sr-89	53.0 ± 2.5	55.3 ± 5.0	46.6 - 64.0
STW-940	02/20/02	Sr-90	16.6 ± 0.5	15.9 ± 5.0	7.2 - 24.6
STW-942	02/20/02	Gr. Alpha	6.5 ± 0.6	8 0 ± 5.0	0.0 - 16.7
STW-942	02/20/02	Gr. Beta	45.7 ± 3.1	48.3 ± 5.0	39.6 - 57.0
STW-944	02/20/02	Ba-133	25.8 ± 1.5	28.9 ± 5.0	20.2 - 37.6
STW-944	02/20/02	Co-60	76.9 ± 2.7	73 4 ± 5.0	64.7 - 82.1
STW-944	02/20/02	Cs-134	38.7 ± 1.6	42.1 ± 5 0	33.4 - 50.8
STW-944	02/20/02	Cs-137	92.9 ± 2.7	88 8 ± 5.0	80.1 - 97.5
STW-944	02/20/02	Ra-226	15.3 ± 0.7	14.3 ± 2.2	10.6 - 18.0
STW-944	02/20/02	Ra-228	17.5 ± 0.4	16.9 ± 4.2	9.6 - 24.2
STW-944	02/20/02	Uranium	23.8 ± 1.1	28.3 ± 3.0	23.1 - 33.5
STW-944	02/20/02	Zn-65	361.0 ± 9.2	359.0 ± 35.9	298.0 - 420.0
STW-951	05/22/02	Gr. Alpha	23.9 ± 2.5	22.8 ± 5.7	13.0 - 32.6
STW-951	05/22/02	Ra-226	5.9 ± 0.5	6.1 ± 0.9	4.5 - 7.7
STW-951	05/22/02	Ra-228	5.6 ± 0 9	4.5 ± 1.1	2.6 - 6.5
STW-951	05/22/02	Uranium	7.6 ± 0.2	9.3 ± 3.0	4.1 - 14.5
STW-952	05/22/02	Co-60	37.9 ± 0.7	39.1 ± 5.0	30.4 - 47.8
STW-952	05/22/02	Cs-134	14.5 ± 0.8	17.1 ± 5.0	8.4 - 25.8
STW-952	05/22/02	Cs-137	50.0 ± 2.0	52.1 ± 5.0	43.4 - 60.8
STW-952	05/22/02	Gr. Beta	171.0 ± 2.5	189 0 ± 28.4	140.0 - 238.0
STW-952	05/22/02	Sr-89	28.4 ± 4 8	31.7 ± 5.0	23.0 - 40.4
STW-952	05/22/02	Sr-90	32.4 ± 3 1	28.3 ± 5.0	19.6 - 37.0
STW-953	[c] 05/22/02	H-3	13900.0 ± 100.0	17400.0 ± 1740.0	14400.0 - 20400.0
STW-954	05/22/02	I-131	14 6 ± 0.3	14.7 ± 2.0	11.2 - 18.2
STW-965	08/21/02	Ba-133	71.9 ± 2.1	80.0 ± 8.0	66.4 - 93.6
STW-965	08/21/02	Co-60	23.8 ± 1.0	23.3 ± 5.0	14.6 - 32.0
STW-965	08/21/02	Cs-134[e]	62.9 ± 1.2	71.7 ± 5.0	63.0 - 80.4
STW-965	08/21/02	Cs-137	219.3 ± 10.7	214.0 ± 10.7	195.0 - 233.0
STW-965	08/21/02	Gr. Alpha	74.4 ± 0.6	58.8 ± 14.7	33.5 - 84.1
STW-965	08/21/02	Gr. Beta	26.7 ± 0.4	21.9 ± 2.2	13.2 - 30.6
STW-965	08/21/02	Ra-226	5.0 ± 0.5	5.0 ± 0.8	3.7 - 6.3
STW-965	08/21/02	Ra-228	6.0 ± 0.7	4.7 ± 1.2	2.7 - 6.7
STW-965	08/21/02	Sr-89	28.4 ± 1.5	29.0 ± 5.0	20.3 - 37.7
STW-965	08/21/02	Sr-90	36.5 ± 1.1	36.4 ± 5.0	27.7 - 45.1
STW-965	08/21/02	Uranium	4.1 ± 0.1	5.0 ± 3.0	0.0 - 10.2
STW-965	08/21/02	Zn-65	92.4 ± 2.2	95.7 ± 9.6	79 4 - 112.0
STW-966	11/20/02	Gr. Alpha	9.3 ± 0.4	12.2 ± 5.0	3.5 - 20.9
STW-966	11/20/02	Gr. Beta	44.7 ± 1.0	47.0 ± 5.0	38.3 - 55.7
STW-967	11/20/02	H-3	10100.0 ± 38.7	10200.0 ± 1020.0	8440.0 - 12000.0
STW-968	11/20/02	Ra-226	11.6 ± 0.1	12.1 ± 1.8	9.0 - 15.2
STW-968	11/20/02	Ra-228	16.0 ± 1.4	15.1 ± 3.8	8.6 - 21.6

Table E-5 ERA[a] Statistical Summary Proficiency Testing Program
Environmental, Inc., 2002

Lab Code	Date	Analysis	Concentration (pCi/L) Laboratory Result[b]	ERA Result[c]	Control Limits
STW-968	11/20/02	Uranium	15.5 ± 0.5	19.2 ± 3.0	14.0 - 24.4
STW-969	11/20/02	I-131	6.0 ± 0.4	6.8 ± 2.0	3.3 - 10.2
STW-970	11/20/02	Co-60	104.0 ± 7.1	104.0 ± 5.2	95.0 - 113.0
STW-970	11/20/02	Cs-134	48.2 ± 2.3	55.5 ± 5.0	46.8 - 64.2
STW-970	11/20/02	Cs-137	109.0 ± 12.6	117.0 ± 5.9	107.0 - 127.0
STW-970	11/20/02	Gr. Beta	252.0 ± 26.8	288.0 ± 49.5	244.0 - 416.0
STW-970	11/20/02	Sr-89	43.2 ± 0.7	47.6 ± 5.0	38.9 - 56.3
STW-970	11/20/02	Sr-90	7.5 ± 0.2	7.6 ± 5.0	0.0 - 16.2
STW-971	11/20/02	Gr. Alpha	74.9 ± 1.5	103.0 ± 25.8	58.4 - 148.0
STW-971	11/20/02	Ra-226	8.9 ± 0.0	9.1 ± 1.4	6.7 - 11.5
STW-971	11/20/02	Ra-228	15.3 ± 0.1	17.8 ± 4.5	10.1 - 25.5
STW-971	11/20/02	Uranium	51.7 ± 1.6	61.7 ± 6.2	51.0 - 72.4

[a] Results obtained by Environmental, Inc., Midwest Laboratory as a participant in the environmental samples crosscheck program operated 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] Analysis was repeated; result of reanalysis: 16114±487 pCi/L.
[e] ERA acknowledged an unacceptably high percentage of failure for Cs-134 and questioned its own control limits. No problems were identified in the analysis.

TABLE E-6 DOE's Mixed Analyte Performance Evaluation Program (MAPEP)[a]
Environmental, Inc., 2002

(PAGE 1 OF 1)

			Concentration[b]			
Lab Code	Type	Date	Analysis	Laboratory result	Known Activity	Control Limits[c]
STW-939	water	12/01/01	Am-241	1.25 ± 0.0	1.19 ± 0 0	0.83 - 1.6
STW-939	water	12/01/01	Co-57	138 9 ± 0.5	143 ± 14.3	100.1 - 185.9
STW-939	water	12/01/01	Co-60	139 1 ± 0.5	141 ± 14.1	98.7 - 183.3
STW-939	water	12/01/01	Cs-134	25.16 ± 0.2	28.5 ± 0.3	19.95 - 37.1
STW-939	water	12/01/01	Cs-137	279.96 ± 0.9	286 ± 28.6	200.2 - 371.8
STW-939[d]	water	12/01/01	Fe-55	19.68 ± 23.2	9.2 ± 0.9	6.44 - 12.0
STW-939	water	12/01/01	Mn-54	253.64 ± 0.9	246 ± 0 2	172.2 - 319.8
STW-939	water	12/01/01	Ni-63	65.88 ± 1.9	88.3 ± 8.8	61.81 - 114.8
STW-939[e]	water	12/01/01	Pu-238	0.060 ± 0.01	0.0 ± 0.0	-
STW-939	water	12/01/01	Pu-239/40	2.79 ± 0.0	2.99 ± 0.3	2.09 - 3.9
STW-939	water	12/01/01	Sr-90	4.88 ± 0.3	4.8 ± 0.5	3.36 - 6.2
STW-939	water	12/01/01	U-233/4	0.89 ± 0.0	0.98 ± 0.1	0.69 - 1.3
STW-939	water	12/01/01	U-238	6.75 ± 0.0	7.8 ± 0.8	5.46 - 10.1
STW-939	water	12/01/01	Zn-65	70.6 ± 1.1	67.3 ± 6.7	47.11 - 87.5
STSO-955	soil	10/16/02	Am-241	40.54 ± 2.7	43.5 ± 4.4	30.45 - 56.6
STSO-955	soil	10/16/02	Co-57	210.58 ± 2.0	246 ± 24.6	172.2 - 319.8
STSO-955	soil	10/16/02	Co-60	84.38 ± 0.9	87.5 ± 8 8	61.25 - 113.8
STSO-955	soil	10/16/02	Cs-134	692 6 ± 2.1	862 ± 86.0	603.4 - 1120.6
STSO-955	soil	10/16/02	Cs-137	96.98 ± 1.7	111 ± 11.1	77.7 - 144.3
STSO-955	soil	10/16/02	Fe-55	1714.6 ± 299.6	1870 ± 187.0	1309 - 2431.0
STSO-955	soil	10/16/02	Mn-54	509.74 ± 3.4	546 ± 54.6	382.2 - 709.8
STSO-955	soil	10/16/02	Ni-63	890.6 ± 22 4	1180 ± 118.0	826 - 1534.0
STSO-955	soil	10/16/02	Pu-238	34.04 ± 6.0	33.3 ± 3.3	23.31 - 43.3
STSO-955	soil	10/16/02	Pu-239/40	68.7 ± 3.7	72.9 ± 7.3	51.03 - 94.8
STSO-955[e]	soil	10/16/02	Sr-90	1.5 ± 3.0	0 0 ± 0.0	-
STSO-955	soil	10/16/02	U-233/4	166.33 ± 3.8	229 ± 22.9	160.3 - 297.7
STSO-955	soil	10/16/02	U-238	169.76 ± 3.8	220 ± 22.0	154 - 286.0
STSO-955	soil	10/16/02	Zn-65	783.59 ± 6.4	809 ± 80.9	566.3 - 1051.7

[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] All results are in Bq/kg or Bq/L as requested by the Department of Energy.

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

[d] Known activity below the laboratory LLD. The sample was recounted for 2000 minutes; result : 11.52 ± 5.55 Bq /L.

[e] Included in the testing series as a "false positive". No activity expected.