T.S.6.9.1.7

PHILADELPHIA ELECTRIC COMPANY

LIMERICK GENERATING STATION

P. O. BOX 2300

SANATOGA, PA 19464-2300

(215) 327-1200, EXT. 3000

DAVID R. HELWIG
VICE PRESIDENT
LIMERICK GENERATING STATION

April 30, 1993

Docket Nos. 50-352
50-353

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NPF-85

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

Subject: Limerick Generating Station Units 1 and 2
1992 Annual Radiological Environmental Operating Report

Gentlemen:

In accordance with the requirements of the Limerick Generating Station (LGS) Unit 1 & 2 Technical Specifications (TS) Section 6.9.1.7, this letter submits the 1992 Annual Radiological Environmental Operating Report No. 9. This report provides the information delineated in TS Section 6.9.1.7, including a summary of the Radiological Environmental Monitoring Program (REMP).

In assessing the data collected for the Radiological Environmental Monitoring Program we concluded that the operation of LGS had no adverse impact on the environment. The data collected indicated trace concentrations of Cesium-137 in the sediment consistent with levels observed in preoperational years. Goat milk samples showed small concentrations of Cs-137. The levels observed were attributed to fallout from Chernobyl.

The 1992 Radiological Environmental Monitoring Program confirmed that the LGS environmental effects from radioactive releases were well below LGS Technical Specification and other applicable regulatory limits.

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

Very truly yours,

DRHelwig

Attachment
KWM/cmb

cc: T. T. Martin, Administrator, Region I, USNRC

IE25 1/1

Docket No: 50-352
50-353

LIMERICK GENERATING STATION
UNITS 1 and 2

ANNUAL RADIOLOGICAL ENVIRONMENTAL OPERATING REPORT

Prepared by

PHILADELPHIA ELECTRIC COMPANY

Nuclear Group Headquarters

955 Chesterbrook Blvd.

Wayne, PA 19087-5691

Radiological Analyses Performed

By

TELEDYNE ISOTOPES

50 Van Buren Avenue

Westwood, NJ 07675

And

PUBLIC SERVICE ELECTRIC AND GAS COMPANY

Research and Testing Laboratory

200 Boyden Avenue

Maplewood, NJ 07040

DOCKET NO.: 50-352
50-353

LIMERICK GENERATING STATION

Units 1 and 2

Annual Radiological
Environmental Operating Report
Report #9

1 January through 31 December 1992

Prepared By
Philadelphia Electric Company
Nuclear Group Headquarters
955-65 Chesterbrook Blvd.
Wayne, PA 19087-5691

Radiological Analyses Performed By

Teledyne Isotopes
50 Van Buren Avenue
Westwood, NJ 07675

And

Public Service Electric and Gas Company
Research and Testing Laboratory
200 Boyden Avenue
Maplewood, NJ 07040

May 1993

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I. Summary and Conclusions

This report on the Radiological Environmental Monitoring Program conducted for the Limerick Generating Station by Philadelphia Electric Company covers the period 1 January 1992 through 31 December 1992. During that time period, 2486 analyses were performed on 2138 samples.

Surface and drinking (potable) water samples were analyzed for concentrations of gross beta (soluble and insoluble fractions), tritium, and gamma emitting nuclides. Activities detected were consistent with those observed in other years.

Fish (predator and bottom feeder) and sediment samples were analyzed for concentrations of gamma emitting nuclides. No Station related fission products were detected in fish samples. Sediment samples collected below the discharge had Cs-137 concentrations consistent with levels observed in the preoperational years.

Air particulate samples were analyzed for concentrations of gross beta and gamma emitting nuclides. Concentrations detected were consistent with those observed in other years.

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

Cow and goat milk samples were analyzed for concentrations of I-131 and gamma emitting nuclides. Iodine-131 results detected were below the minimum detectable level. Concentrations of K-40 were consistent with those observed in other years. Trace amounts of Cs-137 were found in some milk samples. The activity was considered attributable to fallout from Chernobyl.

Environmental gamma radiation measurements were made monthly and quarterly using thermoluminescent dosimeters. Levels detected were consistent with those observed in other years.

In assessing all the data gathered for this report and comparing these results with preoperational data, it was evident that the operation of LGS had no adverse impact on the environment.

II. Introduction

The Limerick Generating Station (LGS), consisting of two 1055 MWe boiling water reactors owned and operated by Philadelphia Electric Company (PECo), 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 which 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 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 Isotopes (TI) on samples collected during the period 1 January 1992 through 31 December 1992.

Public Service Electric and Gas Company (PSE&G) conducted a Quality Control (QC) program for surface and drinking water, air particulates and milk samples.

A. Objectives

The objectives of the Radiological Environmental Monitoring Program are:

1. To provide data on measurable levels of radiation and radioactive materials in the site environs.
2. To 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

Implementation of the stated objectives is accomplished by identifying significant exposure pathways, establishing baseline radiological data of media within those pathways, and continuously monitoring those media before and during Station operation to assess Station effects (if any) on man and the environment.

In order to achieve the stated objectives, the current program includes the following analyses on samples collected

1. Concentrations of beta emitters in surface and drinking (potable) water, and air particulates.

2. Concentrations of gamma emitters in surface and drinking (potable) water, air particulates, milk, fish, and sediment.

3. Concentrations of tritium in surface and drinking (potable) water.

4. Concentrations of I-131 in air and milk.

5. Ambient gamma radiation levels at various site environs.

III. Program Description

A. Sample Collection

Samples for the LGS REMP were collected for Philadelphia Electric Company by RMC Environmental Services, Inc. (RMC). This section describes the collection methods used by RMC to obtain environmental samples for the LGS REMP in 1992.

Aquatic Environment

The aquatic environment was examined by analyzing samples of surface water, drinking water, fish, and sediment. Two gallon water samples were collected monthly from continuous samplers located at three surface water locations (10F2, 13B1, and 24S1) and four drinking water locations (13H2, 15F4, 15F7, and 28F3). One additional drinking water location (16C2) was sampled by compositing weekly grab samples into a monthly sample. Control locations were 10F2, 24S1, and 28F3. All containers used were 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 three locations: 16C5 and 20S1 (indicator) and 29C1 (control). Sediment samples composed of recently deposited substrate were collected at three locations semiannually: 16B2 and 16C4 (indicator) and 33A2 (control).

Atmospheric Environment

The atmospheric environment was examined by analyzing samples of air particulate, airborne iodine, and milk. Air particulate were collected and analyzed weekly at seventeen locations (2B1, 6C1, 9C1, 10S3, 11S1, 13C1, 13H4, 14S1, 15D1, 17B1, 20D1, 22G1, 26B1, 29B1, 31D1, 34S2, and 35B1). Control locations were 13H4 and 22G1. Airborne iodine samples were collected and analyzed weekly from five locations, (10S3, 11S1, 13C1, 13H4, and 14S1). Control location was 13H4. Air particulate and airborne iodine samples were obtained using a vacuum sampler, glass fiber and charcoal filters, respectively. The filters were replaced weekly and sent to the laboratory for analysis. The vacuum samplers were run continuously at approximately 1 cubic foot per minute.

Milk samples were collected biweekly at five locations (10B1, 19B1, 21B1, 22F1, and 25B1) during April through November, and monthly during December through March and quarterly at four locations (36E1, 9G1, 18C1, and 22C1). Locations 36E1, 9G1 and 22F1 were controls. Samples were collected in new unused two gallon plastic bottles from the bulk tank at each location, refrigerated, and shipped promptly to the laboratory. No preservative was added.

Ambient Gamma Radiation

Direct radiation measurements were made using thermoluminescent dosimeters (TLD) consisting of calcium sulfate ($CaSO_4$) doped with dysprosium (Dy). The TLD locations were placed on and around the LGS site using a "three ring concept" consisting of:

A site boundary ring consisting of sixteen locations (36S2, 3S1, 5S1, 7S1, 10S3, 11S1, 14S1, 16S2, 18S1, 21S1, 23S2, 25S1, 26S3, 29S1, 32S1 and 34S2) near and within the site perimeter representing fencepost doses (i.e., at locations where the doses will be potentially greater than maximum annual off-site doses) from LGS release. A middle ring consisting of twenty-seven locations (2B1, 2E1, 4E1, 6C1, 7E1, 9C1, 10E1, 10F3, 13C1, 13E1, 15D1, 16F1, 17B1, 19D1, 20D1, 20F1, 24D1, 25D1, 26B1, 28D2, 29B1, 29E1, 31D1, 31D2, 34E1, 35B1 and 35F1) extending to approximately 5 miles from the site designed to measure possible exposures to close-in population. And an outer ring consisting of five locations (5H1, 13H4, 18G1, 22G1 and 32G1) extending from approximately 12 to 30 miles from the site and considered to be unaffected by LGS releases.

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 16-22 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 four thermoluminescent phosphors enclosed in plastic - were placed at each location in a PVC conduit located approximately three feet above ground level. One TLD was exchanged monthly and the other quarterly and sent to the laboratory for analysis.

B. Data Interpretation

The radiological and direct radiation data collected prior to LGS becoming operational was used as a baseline with which this operational data will be compared. For the purpose of this report, LGS was considered operational at initial criticality. In addition data will be compared to previous years' operational data for consistency and trending. Several factors are important in the interpretation of the data. These factors are discussed here to avoid undue repetition in the discussion of the results.

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. For a more detailed description of the results calculation, see Appendix E.

The minimum detectable level (MDL) for Teledyne Isotopes was defined as the 2 sigma counting statistic and for PSE&G the MDL was defined as the 1.96 sigma. Both definitions represent the range of values into which 95% of repeated counts of the same aliquot would fall. For the analyses gross beta, tritium, and iodine-131 (when analyzed by beta counting), the activity was reported plus/minus the two sigma counting statistic. This includes calculated negative activity. For the analyses gamma and iodine-131 (when analyzed by gamma spectroscopy), an activity that was greater than or equal to the MDL was reported as "activity plus/minus the two sigma counting statistic". When an activity was less than the MDL, the result was reported as "< the MDL value".

Data received from the laboratory were reported using the convention of rounding the result to the same number of significant places as the first significant digit in the error term (i.e., 3.62 ± 1.23 rounds to 4 ± 1; 10.93 ± 0.96 rounds to 10.9 ± 1.0; -0.01 ± 0.1 rounds to 0.0 ± 0.1). Results for each type of sample were grouped according to the analyses performed. For gamma analyses, at least those nuclides required for each sample media and nuclides which had a positive occurrence were reported. Means and standard deviations of these results were calculated. These standard deviations represent the variability of measured results for different samples rather than single analysis uncertainty. For these calculations, all results reported as < MDL were considered to be at the MDL.

C. Program Exceptions

For 1992 the LGS REMP had a sample recovery rate of better than 99%. The exceptions to this program are listed below:

1. Air particulate filters were not available from location 2B1 from week #3, from locations 6C1 and 11S1 from week #5, location 9C1 from week #15, locations 26B1 and 20D1 from week #27 due to sample collection errors.

2. Air particulate sample was not collected from location 6C1 from week #3 due to sample destroyed by weather.

3. Air particulate sample was not collected from location 15D1 from week #51 due to pump failure.

The specific dates for the above weeks may be found in Table C-IX.1, Appendix C.

4. Surface water samples collected at location 24S1 (LGS Intake) were composites of weekly grabs due to equipment problems during the following dates: 1/2/92 to 2/21/92.

5. Surface water samples collected at location 13B1 (Vincent Dam) were composites of weekly grabs due to equipment problems during the following dates: 1/27/92 to 2/14/92, 3/31/92, 4/9/92 to 4/22/92, 5/28/92 and 11/27/92.

6. Surface water samples collected at location 10F2 (Perkiomen Pumping Station) were composites of weekly grabs due to equipment problems during the following dates: 1/2/92 to 1/20/92, 5/4/92, and 5/22/92.

7. Drinking water samples collected at location 13H2 (Belmont Water Works) were composites of daily grabs due to equipment problems during the following dates: 5/4/92, 8/3/92, and 8/17/92.

8. TLDs for location 13H4 were not available for May due to a laboratory scheduling error.

9. Milk sample from the goat farm 10B1 was not available during November, because the goats had stopped lactating.

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.

D. 1992 Program Changes

There were no program changes in 1992.

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 could be affected by Station discharges. 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-I.1 and C-I.2, Appendix C). Detectable activity was observed in the insoluble and soluble fraction of the surface water samples; the results were consistent with data from previous years (Figures C-1 and C-2, Appendix C) and ranged from -0.1 to 1.6 pCi/l for the insoluble fraction and from 2.7 to 12 pCi/l for the soluble fraction. Values for the soluble fraction from Location 10F2 (Perkiomen) were consistently higher than those collected in the Schulykill River. However, similar activity levels were observed between Location 13B1 (indicator) and Location 24S1 (control) in the Schulykill River for the insoluble and soluble fractions.

Tritium

Samples from all locations were analyzed for tritium activity (Table C-I.3, Appendix C). Positive tritium activity was observed at each sample location and values ranged from 0 to 150 pCi/l. Similar activity levels were observed between indicator and control locations for the soluble and insoluble fractions.

Gamma Spectrometry

Samples from all locations were analyzed for gamma emitting nuclides (Table C-I.4, Appendix C). With the exception of naturally occurring K-40, all nuclides searched for were below the minimum detectable level.

2. Drinking (Potable) Water

Monthly samples were collected from continuous water samplers at four locations (13H2, 15F4, 15F7, and 28F3) and by weekly grab samples at one location (16C2). Four locations (13H2, 15F4, 15F7 and 16C2) could be affected by Station discharges. 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 -0.5 to 5 pCi/l for the insoluble fraction and from 2 to 8 pCi/l for the soluble fraction. Concentrations detected in both fractions were consistent with those observed in previous years (Figures C-3 and C-4, Appendix C).

Tritium

Samples from all were analyzed for tritium activity (Table C-II.3, Appendix C). Positive tritium activity was observed at each sample location. The measurements ranged from -50 to 130 pCi/l. Similar activity levels were observed at all locations.

Gamma Spectrometry

Samples from all locations were analyzed for gamma emitting nuclides (Table C-II.4, Appendix C). With the exception of the naturally occurring nuclides K-40 and Ra-226, all nuclides searched for were below the minimum detectable level.

3. Fish

Fish samples comprised of catfish/bullhead (bottom feeder) and redbreast/pumpkinseed (predator) were collected at three locations (16C5, 20S1 and 29C1) semiannually. Two locations (16C5 and 20S1) could be affected by Station discharges. The following analysis was performed:

Gamma Spectrometry

The edible portion of fish samples from all three locations was analyzed for gamma emitting nuclides (Table C-III.1, Appendix C). With the exception of naturally occurring K-40, all nuclides searched for were below the minimum detectable level. Historical levels of Cs-137 are shown in Figure C-5, Appendix C.

4. Sediment

Aquatic sediment samples were collected at three locations (16B2, 16C4 and 33A2) semiannually. Of these locations, two (16B2 and 16C4) could be affected by Station discharge. 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 Be-7, K-40, Ra-226 and Th-228, and fission product Cs-137. The nuclides Th-228 and Ra-226 commonly occur in sediment from daughter decay of natural uranium.Concentrations of Cs-137 were found in sediment samples from both indicator locations and were below MDL at the control location. Location 16B2 had the highest average concentration of .38 pCi/g dry. The activity detected was consistent with those observed in the preope.ational years (Figure C-6, Appendix C). The activity of Cs-137, which commonly occurs in sediment from worldwide fallout, was not attributed to LGS releases because Cs-134 was not also found.

B. Atmospheric Environment

1. Airborne

a. Air Particulates

Continuous air particulate samples were collected from seventeen locations on a weekly basis. The seventeen locations are separated into three groups: Group I represents locations within the LGS site boundary (10S3, 11S1, 14S1 and 34S2), Group II represents locations near the LGS site (2B1, 6C1, 9C1, 13C1, 15D1, 17B1, 20D1, 26B1, 29B1, 31D1, 35B1), and Group III represents control locations at remote distances from LGS (13H4 and 22G1). The following analyses were performed:

Gross Beta

Weekly samples were analyzed for concentrations of beta emitters (Table C-V.1, 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 5 to 39 E-3 pCi/m^3 with a mean of 15 E-3 pCi/m^3. The results from the Intermediate Distance locations (Group II) ranged from 3 to 33 E-3 pCi/m^3 with a mean of 14 E-3 pCi/m^3. The results from the Distant locations (Group III) ranged from 4 to 28 E-3 pCi/m^3 with a mean of 15 E-3 pCi/m^3. Comparison of the weekly mean values indicate no notable differences among the three groups (Figure C-7, Appendix C). Comparison of the 1992 air particulate data with previous years data suggest no effects from the operation of LGS (Figure C-8, Appendix C).

Gamma Spectrometry

Weekly samples from five locations (10S3, 11S1, 14S1, 13C1, and 13H4) were composited and analyzed quarterly for gamma-emitting nuclides (Table C-V.2, Appendix C). Naturally occurring Be-7 due to cosmic ray activity was detected in all samples. These values ranged from 48 to 78 E-3 pCi/m^3. K-40, also naturally occurring, was detected in 13 of 20 samples. The positive K-40 values ranged from 5 to 39 E-3 pCi/m^3. All other nuclides searched for were below the minimum detectable level. No significant difference in activity was observed between the control and indicator locations.

b. Airborne Iodine

Continuous air samples were collected from five locations (10S3, 11S1, 14S1, 13C1, and 13H4) and analyzed weekly for I-131. Results of the I-131 analysis are found in Table C-VI.1, Appendix C. All results were less than the minimum detectable level.

2. Terrestrial

a. Milk

Samples were taken from five locations (10B1, 19B1, 21B1, 22F1 and 25B1) biweekly during the grazing season (April-November) and monthly at other times. Samples from four additional locations (9G1, 18C1, 22C1 and 36E1) were taken quarterly. The following analyses were performed:

Iodine-131

All milk samples from all locations were analyzed for concentrations of I-131 (Table C-VII.1, Appendix C). Values ranged from -.2 to .2 pCi/l. However, all results were below the minimum detectable level.

Gamma Spectrometry

Each milk sample from locations 10B1, 19B1, 21B1, 22F1 and 25B1 were analyzed for concentrations of gamma emitting nuclides (Table C-VII.2, Appendix C).

With the exception of K-40, Cs-137 and Ra-226, all nuclides searched for were below the minimum detectable level. The values for K-40 ranged from 1000 to 2000 pCi/l.

Positive concentrations of Cs-137 were found in 5 of 20 goat milk (10B1) samples ranging from 3 to 7 pCi/l. Cesium-137 was also found in 4 of 84 cow milk samples. The positive values ranged from 3 to 7 pCi/l. This activity was attributed to residual fallout from Chernobyl (Figure C-9, Appendix C).

C. Ambient Gamma Radiation

Ambient gamma radiation levels were measured utilizing $CaSO_4$:Dy thermoluminescent dosimeters. Forty-eight TLD locations were established around the site in a three ring concept for comparison purposes: an "inner ring" of sixteen locations around the site boundary; a "middle ring" of twenty-seven locations within a ten mile radius of the site; and an "outer ring" of five locations at distances outside the ten mile radius of the site. Results of TLD measurements are listed in Tables C-VIII.1 to C-VIII.4, Appendix C.

Most of the TLD measurements were below 10 mrad/std. month, with a range of 1.7 to 11.0 mR/std. month for the monthly TLDs and from 4.1 to 8.5 mR/std. month for the quarterly TLDs. The value of 1.7 mR/std. month was recorded at control location 13H4 in February. This value is unusually low and as a result is suspect. A companion TLD used in the Peach Bottom REMP recorded a value of 9.2 mR/ std. month. Levels measured were consistent with those observed in previous years (Figure C-10, Appendix C).

V. References

. 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. Preoperational 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.

4. Radiological Environmental Operating Report No. 2, Limerick Generating Station Units 1 and 2, 1 January through 31 December 1985, Philadelphia Electric Company, analyses by Teledyne Isotopes.

5. Radiological Environmental Operating Report No. 3, Limerick Generating Station Units 1 and 2, 1 January through 31 December 1986, Philadelphia Electric Company, analyses by Teledyne Isotopes.

6. Radiological Environmental Operating Report No. 4, Limerick Generating Station Units 1 and 2, 1 January through 31 December 1987, Philadelphia Electric Company, analyses by Teledyne Isotopes.

7. Radiological Environmental Operating Report No. 5, Limerick Generating Station Units 1 and 2, 1 January through 31 December 1988, Philadelphia Electric Company, analyses by Teledyne Isotopes.

8. Radiological Environmental Operating Report No. 6, Limerick Generating Station Units 1 and 2, 1 January through 31 December 1989, Philadelphia Electric Company, analyses by Teledyne Isotopes.

9. Radiological Environmental Operating Report No. 7, Limerick Generating Station Units 1 and 2, 1 January through 31 December 1990, Philadelphia Electric Company, analyses by Teledyne Isotopes.

10. Radiological Environmental Operating Report No. 8, Limerick Generating Station Units 1 and 2, 1 January through 31 December 1991, Philadelphia Electric Company, analyses by Teledyne Isotopes.

RADIOLOGICAL ENVIRONMENTAL MONITORING
REPORT SUMMARY

APPENDIX A

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM ANNUAL SUMMARY

NAME OF FACILITY: LIMERICK GENERATING STATION — DOCKET NO.: 50-352 & 50-353

LOCATION OF FACILITY: MONTGOMERY COUNTY, PA — REPORTING PERIOD: 1992

MEDIUM OR PATHWAY SAMPLED (UNIT OF MEASUREMENT)	TYPE OF ANALYSES PERFORMED	NUMBER OF ANALYSES PERFORMED	REQUIRED LOWER LIMIT OF DETECTION (LLD)	INDICATOR LOCATIONS MEAN (F) RANGE	CONTROL LOCATIONS MEAN (F) RANGE	LOCATION WITH HIGHEST ANNUAL MEAN: MEAN (F) RANGE	LOCATION WITH HIGHEST ANNUAL MEAN: STATION # NAME DISTANCE & DIRECTION	NUMBER OF NONROUTINE REPORTED MEASUREMENTS
SURFACE WATER (PCI/LITER)	GROSS BETA SOLUBLE	36	4	5 (12/12) (3/7)	6.5 (24/24) (2.7/12)	9 (12/12) (6/12)	10F2 (CONTROL) PERKIOMEN PUMPING STATION 7.1 MILES E OF SITE	0
	GROSS BETA INSOLUBLE	36	4	0.6 (12/12) (0.1/1.6)	0.4 (24/24) (-0.1/1.5)	0.6 (12/12) (0.1/1.6)	13B1 (INDICATOR) VINCENT DAM 1.8 MILES ESE OF SITE	0
	TRITIUM LIQ. SCINT.	12	2000	90 (4/4) (70/110)	60 (8/8) (30/150)	90 (4/4) (70/110)	13B1 (INDICATOR) VINCENT DAM 1.8 MILES ESE OF SITE	0
	GAMMA	36						
	K-40		N/A	14 (4/12) (6/27)	7 (7/24) (5/9)	14 (4/12) (6/27)	13B1 (INDICATOR) VINCENT DAM 1.8 MILES ESE OF SITE	0
	MN-54		15	< LLD	< LLD	< LLD		0
	CO-58		15	< LLD	< LLD	< LLD		0
	FE-59		30	< LLD	< LLD	< LLD		0
	CO-60		15	< LLD	< LLD	< LLD		0
	ZN-65		30	< LLD	< LLD	< LLD		0
	ZR-95		30	< LLD	< LLD	< LLD		0
	NB-95		15	< LLD	< LLD	< LLD		0
	CS-134		15	< LLD	< LLD	< LLD		0
	CS-137		18	< LLD	< LLD	< LLD		0
	BA-140		60	< LLD	< LLD	< LLD		0
	LA-140		15	< LLD	< LLD	< LLD		0

MEAN AND RANGE BASED UPON DETECTABLE MEASUREMENTS ONLY.
FRACTION OF DETECTABLE MEASUREMENTS AT SPECIFIED LOCATIONS IS INDICATED IN PARENTHESES (F).

APPENDIX A
RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM ANNUAL SUMMARY

NAME OF FACILITY: LIMERICK GENERATING STATION
LOCATION OF FACILITY: MONTGOMERY COUNTY, PA

DOCKET NO.: 50-352 & 50-353
REPORTING PERIOD: 1992

MEDIUM OR PATHWAY SAMPLED (UNIT OF MEASUREMENT)	TYPE OF ANALYSES PERFORMED	NUMBER OF ANALYSES PERFORMED	REQUIRED LOWER LIMIT OF DETECTION (LLD)	INDICATOR LOCATIONS MEAN (F) RANGE	CONTROL LOCATIONS MEAN (F) RANGE	LOCATION WITH HIGHEST ANNUAL MEAN: MEAN (F) RANGE	LOCATION WITH HIGHEST ANNUAL MEAN: STATION # NAME DISTANCE & DIRECTION	NUMBER OF NONROUTINE REPORTED MEASUREMENTS
DRINKING WATER (PCI/LITER)	GROSS BETA SOLUBLE	60	4	4.6 (48/48) (2.0/7.6)	4 (12/12) (2/7)	5.4 (12/12 (3.3/6.5)	15F4 (INDICATOR) PHILA. SUB. WATER CO. 7.8 MILES SSE OF SITE	0
	GROSS BETA INSOLUBLE	60	4	0.5 (48/48) (-0.5/5.5)	0.2 (12/12) (-0.5/0.7)	1.2 (12/12 (-0.1/5.5)	13H2 (INDICATOR) BELMONT WATER WORKS (PHILA.) 25.5 MILES SE OF SITE	0
	TRITIUM LIQ. SCINT.	20	2000	70 (16/16) (-50/130)	60 (4/4) (0/150)	90 (4/4) (30/130)	16C2 (INDICATOR) CITIZENS HOME WATER CO. 2.4 MILES SSE OF SITE	0
	GAMMA	60						
	K-40		N/A	13 (5/48) (10/15)	6 (2/12) (5/7)	14 (2/12) (13/15)	13H2 (INDICATOR) BELMONT WATER WORKS (PHILA.) 25.5 MILES SE OF SITE	0
	MN-54		15	< LLD	< LLD	< LLD		0
	CO-58		15	< LLD	< LLD	< LLD		0
	FE-59		30	< LLD	< LLD	< LLD		0
	CO-60		15	< LLD	< LLD	< LLD		0
	ZN-65		30	< LLD	< LLD	< LLD		0
	ZR-95		30	< LLD	< LLD	< LLD		0
	NB-95		15	< LLD	< LLD	< LLD		0
	CS-134		15	< LLD	< LLD	< LLD		0
	CS-137		18	< LLD	< LLD	< LLD		0
	BA-140		60	< LLD	< LLD	< LLD		0
	LA-140		15	< LLD	< LLD	< LLD		0
	RA-226		N/A	11 (1/48) (11/11)	< LLD	11 (1/12) (11/11)	13H2 (INDICATOR) BELMONT WATER WORKS (PHILA.) 25.5 MILES SE OF SITE	0

MEAN AND RANGE BASED UPON DETECTABLE MEASUREMENTS ONLY.
FRACTION OF DETECTABLE MEASUREMENTS AT SPECIFIED LOCATIONS IS INDICATED IN PARENTHESES (F).

APPENDIX A
RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM ANNUAL SUMMARY

NAME OF FACILITY: LIMERICK GENERATING STATION — DOCKET NO.: 50-352 & 50-353
LOCATION OF FACILITY: MONTGOMERY COUNTY, PA — REPORTING PERIOD: 1992

MEDIUM OR PATHWAY SAMPLED (UNIT OF MEASUREMENT)	TYPE OF ANALYSES PERFORMED	NUMBER OF ANALYSES PERFORMED	REQUIRED LOWER LIMIT OF DETECTION (LLD)	INDICATOR LOCATIONS MEAN (F) RANGE	CONTROL LOCATIONS MEAN (F) RANGE	LOCATION WITH HIGHEST ANNUAL MEAN: MEAN (F) RANGE	LOCATION WITH HIGHEST ANNUAL MEAN: STATION # NAME DISTANCE & DIRECTION	NUMBER OF NONROUTINE REPORTED MEASUREMENTS
FISH PREDATOR (PCI/GRAM WET)	GAMMA	6						
	K-40		N/A	2.9 (4/4) (2.4/3.3)	2.9 (2/2) (2.8/3.0)	3.1 (2/2) (2.8/3.3)	20S1 (INDICATOR) DISCHARGE AREA N/A	0
	MN-54		.13	< LLD	< LLD	< LLD		0
	CO-58		.13	< LLD	< LLD	< LLD		0
	FE-59		.26	< LLD	< LLD	< LLD		0
	CO-60		.13	< LLD	< LLD	< LLD		0
	ZN-65		.26	< LLD	< LLD	< LLD		0
	CS-134		.13	< LLD	< LLD	< LLD		0
	CS-137		.15	< LLD	< LLD	< LLD		0
FISH BOTTOM FEEDER (PCI/GRAM WET)	GAMMA	6						
	K-40		N/A	3.1 (4/4) (2.8/3.8)	4.2 (2/2) (2.7/5.7)	4.2 (2/2) (2.7/5.7)	29C1 (CONTROL) POTTSTOWN VICINITY UPSTREAM OF DISCHARGE	0
	MN-54		.13	< LLD	< LLD	< LLD		0
	CO-58		.13	< LLD	< LLD	< LLD		0
	FE-59		.26	< LLD	< LLD	< LLD		0
	CO-60		.13	< LLD	< LLD	< LLD		0
	ZN-65		.26	< LLD	< LLD	< LLD		0
	CS-134		.13	< LLD	< LLD	< LLD		0
	CS-137		.15	< LLD	< LLD	< LLD		0
SILT/SEDIMENT (PCI/GRAM DRY)	GAMMA	6						
	BE-7		N/A	2.1 (4/4) (1.0/4.9)	< LLD	2.9 (2/2) (1.0/4.9)	16C4 (INDICATOR) VINCENT DAM DOWNSTREAM OF DISCHARGE	0

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LOCATION OF FACILITY: MONTGOMERY COUNTY, PA

DOCKET NO.: 50-352 & 50-353
REPORTING PERIOD: 1992

MEDIUM OR PATHWAY SAMPLED (UNIT OF MEASUREMENT)	TYPE OF ANALYSES PERFORMED	NUMBER OF ANALYSES PERFORMED	REQUIRED LOWER LIMIT OF DETECTION (LLD)	INDICATOR LOCATIONS MEAN (F) RANGE	CONTROL LOCATIONS MEAN (F) RANGE	LOCATION WITH HIGHEST ANNUAL MEAN: MEAN (F) RANGE	LOCATION WITH HIGHEST ANNUAL MEAN: STATION # NAME DISTANCE & DIRECTION	NUMBER OF NONROUTINE REPORTED MEASUREMENTS
SILT/SEDIMENT (PCI/GRAM DRY)	GAMMA K-40		N/A	15 (4/4) (14/17)	11.4 (2/2) (9.8/13)	15 (2/2) (14/17)	16C4 (INDICATOR) VINCENT DAM DOWNSTREAM OF DISCHARGE	0
	CS-134		.15	< LLD	< LLD	< LLD		0
	CS-137		.18	0.31 (4/4) (0.16/0.59)	< LLD	0.38 (2/2) (0.16/0.59)	16B2 (INDICATOR) LINFIELD BRIDGE 1.1 MILES SSE OF SITE	0
	RA-226		N/A	2.2 (4/4) (2/2.5)	2.5 (2/2) (2.5/2.6)	2.5 (2/2) (2.5/2.6)	33A2 (CONTROL) UPSTREAM OF DISCHARGE N/A	0
	TH-228		N/A	1.4 (4/4) (1.1/1.7)	1.1 (2/2) (1.0/1.2)	1.6 (2/2) (1.5/1.7)	16B2 (INDICATOR) LINFIELD BRIDGE 1.1 MILES SSE OF SITE	0
AIR PARTICULATE (E-3 PCI/CU. METER)	GROSS BETA	878	10	15 (774/774) (0/39)	15 (104/104) (4/28)	17 (52/52) (6/26)	13H4 (CONTROL) 2301 MARKET ST. (PHILA.) 28.8 MILES SE OF SITE	0
	GAMMA BE-7	20	N/A	59 (16/16) (48/77)	65 (4/4) (50/78)	65 (4/4) (50/78)	13H4 (CONTROL) 2301 MARKET STREET, PHILADELPHIA 28.8 MILES SE OF SITE	0
	K-40		N/A	13 (11/16) (5/39)	8 (2/4) (5/12)	27 (3/4) (14/39)	10S3 (INDICATOR) KEEN ROAD 0.5 MILES E OF SITE	0
	CS-134		50	< LLD	< LLD	< LLD		0
	CS-137		60	< LLD	< LLD	< LLD		0

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MEDIUM OR PATHWAY SAMPLED (UNIT OF MEASUREMENT)	TYPE OF ANALYSES PERFORMED	NUMBER OF ANALYSES PERFORMED	REQUIRED LOWER LIMIT OF DETECTION (LLD)	INDICATOR LOCATIONS MEAN (F) RANGE	CONTROL LOCATIONS MEAN (F) RANGE	LOCATION WITH HIGHEST ANNUAL MEAN: MEAN (F) RANGE	LOCATION WITH HIGHEST ANNUAL MEAN: STATION # NAME DISTANCE & DIRECTION	NUMBER OF NONROUTINE REPORTED MEASUREMENTS
AIR IODINE (E-3 PCI/CU. METER)	I-131 BY GAMMA SPEC.	260	70	< LLD	< LLD	< LLD		0
MILK (PCI/LITER)	I-131 BY RADIOCHEMISTRY	100	1	-0.01 (71/71) (-0.2/0.09)	-0.01 (29/29) (-0.1/0.2)	0.06 (4/4) (-0.03/0.2)	36E1 (CONTROL) REGIONAL FARM 4.7 MILES N OF SITE	0
	GAMMA	84						
	K-40		N/A	1400 (63/63) (1000/2000)	1400 (21/21) (1300/1500)	1400 (21/21) (1200/1600)	25B1 (INDICATOR) REGIONAL FARM 1.3 MILES WSW OF SITE	0
	CS-134		15	< LLD	< LLD	< LLD		
	CS-137		18	5 (1/63) (5/5)	5 (3/21) (3/7)	5 (3/21) (3/7)	22F1 (CONTROL) REGIONAL FARM 9.8 MILES SW OF SITE	0
	BA-140		60	< LLD	< LLD	< LLD		
	LA-140		15	< LLD	< LLD	< LLD		
	RA-226		N/A	60 (1/63) (60/60)	< LLD	60 (1/21) (60/60)	19B1 (INDICATOR) REGIONAL FARM 1.9 MILES SSW OF SITE	0

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NAME OF FACILITY: LIMERICK GENERATING STATION
LOCATION OF FACILITY: MONTGOMERY COUNTY, PA

DOCKET NO.: 50-352 & 50-353
REPORTING PERIOD: 1992

MEDIUM OR PATHWAY SAMPLED (UNIT OF MEASUREMENT)	TYPE OF ANALYSES PERFORMED	NUMBER OF ANALYSES PERFORMED	REQUIRED LOWER LIMIT OF DETECTION (LLD)	INDICATOR LOCATIONS MEAN (F) RANGE	CONTROL LOCATIONS MEAN (F) RANGE	LOCATION WITH HIGHEST ANNUAL MEAN: MEAN (F) RANGE	LOCATION WITH HIGHEST ANNUAL MEAN: STATION # NAME DISTANCE & DIRECTION	NUMBER OF NONROUTINE REPORTED MEASUREMENTS
GOAT MILK (PCI/LITER)	I-131 BY RADIOCHEMISTRY	20	1	-0.01 (20/20) (-0.08/0.03)		-0.01 (20/20) (-0.08/0.03)	10B1 (INDICATOR) REGIONAL FARM 1.1 MILES ESE OF SITE	0
	GAMMA K-40	20	N/A	1600 (20/20) (1400/1800)		1600 (20/20) (1400/1800)	10B1 (INDICATOR) REGIONAL FARM 1.1 MILES ESE OF SITE	0
	CS-134		15	< LLD		< LLD		
	CS-137		18	5 (5/20) (3/7)		5 (5/20) (3/7)	10B1 (INDICATOR) REGIONAL FARM 1.1 MILES ESE OF SITE	0
	BA-140		60	< LLD		< LLD		0
	LA-140		15	< LLD		< LLD		0
	RA-226		N/A	190 (1/20) (190/190)		190 (1/20) (190-190)	10B1 (INDICATOR) REGIONAL FARM 1.1 MILES ESE OF SITE	0
DIRECT RADIATION (MILLI-ROENTGEN / STD. MONTH)	TLD-MONTHLY	574	N/A	7.54 (515/515) (4.30/11.00)	7.08 (59/59) (1.70/10.10)	9.03 (12/12) (7.40/10.50)	31D1 (INDICATOR) LINCOLN SUBSTATION 3.0 MILES NW OF SITE	0
	TLD-QUARTERLY	192	N/A	6.20 (172/172) (4.30/8.30)	5.95 (20/20) (4.10/8.50)	7.80 (4/4) (7.50/8.50)	5H1 (CONTROL) BIRCH SUBSTATION 25.8 MILES NE OF SITE	0

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SAMPLE DESIGNATION
AND LOCATIONS

APPENDIX B: SAMPLE DESIGNATION AND LOCATIONS

TABLES

FIGURES

Table B-I: 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 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-II: Sample Collection and Analysis Program for the Radiological Environmental Monitoring Program for Limerick Generating Station, 1992

Location	Location Description	Distance & Direction	Collection Method and Frequency	Analysis & Frequency Performed--Consultant
A. Surface Water				
10F2	Perkiomen Pumping Station (control)	7.1 miles E	Two gallon sample collected from a continuous water sampler, monthly	G. Beta (S&I) - monthly - TI Gamma Spec - monthly - TI Tritium - quarterly comp. - TI G. Beta (S&I) - monthly - PSEG* Gamma Spec - monthly - PSEG*
13B1	Vincent Dam (indicator)	1.8 miles ESE	Same as 10F2	Same as 10F2
24S1	Limerick Intake (control)	0.3 miles SSW	Same as 10F2	Same as 10F2
B. Drinking (Potable) Water				
13H2	Belmont Water Works (indicator)	25.5 miles SE	Two gallon composite sample collected from a continuous water sampler, monthly	G. Beta (S&I) - monthly - TI Gamma Spec - monthly - TI Tritium - quarterly comp. - TI
15F4	Philadelphia Suburban Water Company (indicator)	7.8 miles SSE	Same as 13H2	Same as 13H2
15F7	Phoenixville Water Works (indicator)	5.2 miles SSE	Same as 13H2	Same as 13H2
16C2	Citizens Home Water Company (indicator)	2.4 miles SSE	Two gallon composite sample collected by weekly grab samples, monthly	Same as 13H2

TABLE B-II: Sample Collection and Analysis Program for the Radiological Environmental Monitoring Program for Limerick Generating Station, 1992

Location	Location Description	Distance & Direction	Collection Method and Frequency	Analysis & Frequency Performed--Consultant
28F3	Pottstown Water Authority (control)	5.9 miles WNW	Same as 13H2	Same as 13H2
C. Fish				
16C5	Vincent Pool (indicator)	Downstream of Discharge	Fish flesh from two groups representing predator and bottom feeder species collected by electrofisher or other appropriate fishery gear, semiannually	Gamma Spec - semiannually - TI
20S1	Discharge Area (indicator)	Downstream of Discharge	Same as 16C5	Same as 16C5
29C1	Pottstown Vicinity (control)	Upstream of Intake	Same as 16C5	Same as 16C5
D. Sediment				
16B2	Linfield Bridge (indicator)	Downstream of Discharge	Recently deposited sediment collected below the waterline, semi-annually	Gamma Spec - semiannually - TI
16C4	Vicent Dam (indicator)	Downstream of Discharge	Same as 16B2	Same as 16B2
33A2	Control	Upstream of Discharge	Same as 16B2	Same as 16B2
E. Air Particulates / Air Iodine				
2B1	Sanatoga Substation	1.5 miles NNE	Approximately 1 cfm continuous flow through glass fiber and charcoal filters (approx. 2" diameter) which are installed for one week and replaced	G. Beta - weekly - TI I-131 - if necessary

TABLE B-II: Sample Collection and Analysis Program for the Radiological Environmental Monitoring Program for Limerick Generating Station, 1992

Location	Location Description	Distance & Direction	Collection Method and Frequency	Analysis & Frequency Performed--Consultant
6C1	Pottstown Landing Field	2.1 miles ENE	Same as 2B1	Same as 2B1
9C1	Reed Road	2.2 miles E	Same as 2B1	Same as 2B1
10S3	Keen Road	0.5 miles E	Same as 2B1	G. Beta - weekly - TI Gamma Spec - quarterly comp. - TI I-131 - weekly - TI
11S1	LGS Information Center	0.5 miles ESE	Same as 2B1	Same as 10S3
11S2	LGS Information Center	0.5 miles ESE	Same as 2B1	G. Beta - weekly - PSEG* Gamma Spec - qtr. comp - PSEG*
13C1	King Road	2.9 miles SE	Same as 2B1	Same as 10S3
13H4	2301 Market St., Philadelphia (control)	28.8 miles SE	Same as 2B1	Same as 10S3
14S1	Longview Road	0.6 miles SE	Same as 2B1	Same as 10S3
14S2	Longview Road	0.6 miles SE	Same as 2B1	Same as 11S2
15D1	Spring City Substation	3.2 miles SE	Same as 2B1	Same as 2B1
17B1	Linfield Substation	1.6 miles S	Same as 2B1	Same as 2B1
20D1	Ellis Wood Road	3.1 miles SSW	Same as 2B1	Same as 2B1
22G1	Manor Substation (control)	17.6 miles SW	Same as 2B1	Same as 2B1

TABLE B-II: Sample Collection and Analysis Program for the Radiological Environmental Monitoring Program for Limerick Generating Station, 1992

Location	Location Description	Distance & Direction	Collection Method and Frequency	Analysis & Frequency Performed--Consultant
26B1	Old Schuylkill Road	1.7 miles W	Same as 2B1	Same as 2B1
29B1	Vost Road	1.8 miles NW	Same as 2B1	Same as 2B1
31D1	Lincoln Substation	3.0 miles NW	Same as 2B1	Same as 10S3
34S2	Met. Tower #1	0.6 miles NNW	Same as 2B1	Same as 2B1
35B1	Pleasantview Road	1.9 miles NNW	Same as 2B1	Same as 10S3
F. Cow's Milk				
36E1	Control	4.7 miles N	Two gallons processed milk purchased quarterly at farm dairy store	I-131 - quarterly - TI
9G1	Control	11.4 miles E	Two gallon grab sample collected from bulk tank at farm quarterly	Same as 36E1
18C1		1.9 miles S	Same as 9G1	Same as 36E1
19B1		1.9 miles SSW	Bi-weekly during grazing season (April through November; monthly otherwise	I-131 - biweekly - TI Gamma Spec - biweekly - TI I-131 - quarterly - PSEG* Gamma Spec - quarterly - PSEG*
21B1		1.7 miles SW	Same as 19B1	Same as 19B1
22C1		3.0 miles SW	Same as 9G1	Same as 36E1
22F1	Control	9.8 miles SW	Same as 19B1	Same as 19B1

TABLE B-II: Sample Collection and Analysis Program for the Radiological Environmental Monitoring Program for Limerick Generating Station, 1992

Location	Location Description	Distance & Direction	Collection Method and Frequency	Analysis & Frequency Performed--Consultant
25B1		1.3 miles WSW	Same as 19B1	I-131 - biweekly - TI Gamma Spec - biweekly - TI
G. Goat's Milk				
10B1		1.1 mile ESE	Two gallon grab sample purchased at goat farm, biweekly during grazing season (April through November); monthly otherwise	I-131 - biweekly - TI Gamma Spec - biweekly - TI
H. Environmental Dosimetry - TLD				
36S2	Evergreen & Sanatoga Road	0.6 miles N	Collection method and frequency is described in placement procedure Section III, A.	TLD - monthly - TI TLD - quarterly - TI
2B1	Sanatoga Substation	1.5 miles NNE	Same as 36S2	Same as 36S2
2E1	Laughing Waters GSC	5.1 miles NNE	Same as 36S2	Same as 36S2
3S1	Sanatoga Road	0.6 miles NNE	Same as 36S2	Same as 36S2
4E1	Neiffer Road	4.6 miles NE	Same as 36S2	Same as 36S2
5S1	Possum Hollow Road	0.4 miles NE	Same as 36S2	Same as 36S2
5H1	Birch Substation	25.8 miles NE	Same as 36S2	Same as 36S2
6C1	Pottstown Landing Field	2.1 miles ENE	Same as 36S2	Same as 36S2
7S1	LGS Training Center	0.5 miles ENE	Same as 36S2	Same as 36S2
7E1	Pheasant Road	4.2 miles ENE	Same as 36S2	Same as 36S2
9C1	Reed Road	2.2 miles E	Same as 36S2	Same as 36S2

TABLE B-II: Sample Collection and Analysis Program for the Radiological Environmental Monitoring Program for Limerick Generating Station, 1992

Location	Location Description	Distance & Direction	Collection Method and Frequency	Analysis & Frequency Performed--Consultant
10S3	Keen Road	0.5 miles E	Same as 36S2	Same as 36S2
10E1	Royersford Road	3.9 miles E	Same as 36S2	Same as 36S2
10F3	Trappe Substation	5.5 miles ESE	Same as 36S2	Same as 36S2
11S1	LGS Information Center	0.5 miles ESE	Same as 36S2	Same as 36S2
13C1	King Road	2.9 miles SE	Same as 36S2	Same as 36S2
13E1	Vaughn Substation	4.3 miles SE	Same as 36S2	Same as 36S2
13H4	2301 Market Street Philadelphia, (control)	28.8 miles SE	Same as 36S2	Same as 36S2
14S1	Longview Road	0.6 miles SE	Same as 36S2	Same as 36S2
15D1	Spring City Substation	3.2 miles SE	Same as 36S2	Same as 36S2
16S2	Longview Road	0.6 miles SSE	Same as 36S2	Same as 36S2
16F1	Pikeland Substation	4.9 miles SSE	Same as 36S2	Same as 36S2
17B1	Linfield Substation	1.6 miles S	Same as 36S2	Same as 36S2
18S1	Rail Line along Longview Road	0.3 miles S	Same as 36S2	Same as 36S2
18G1	Planebrook Substation	12.9 miles S	Same as 36S2	Same as 36S2
19D1	Snowden Substation	3.6 miles S	Same as 36S2	Same as 36S2
20D1	Ellis Woods Road	3.1 miles SSW	Same as 36S2	Same as 36S2

TABLE B-II: Sample Collection and Analysis Program for the Radiological Environmental Monitoring Program for Limerick Generating Station, 1992

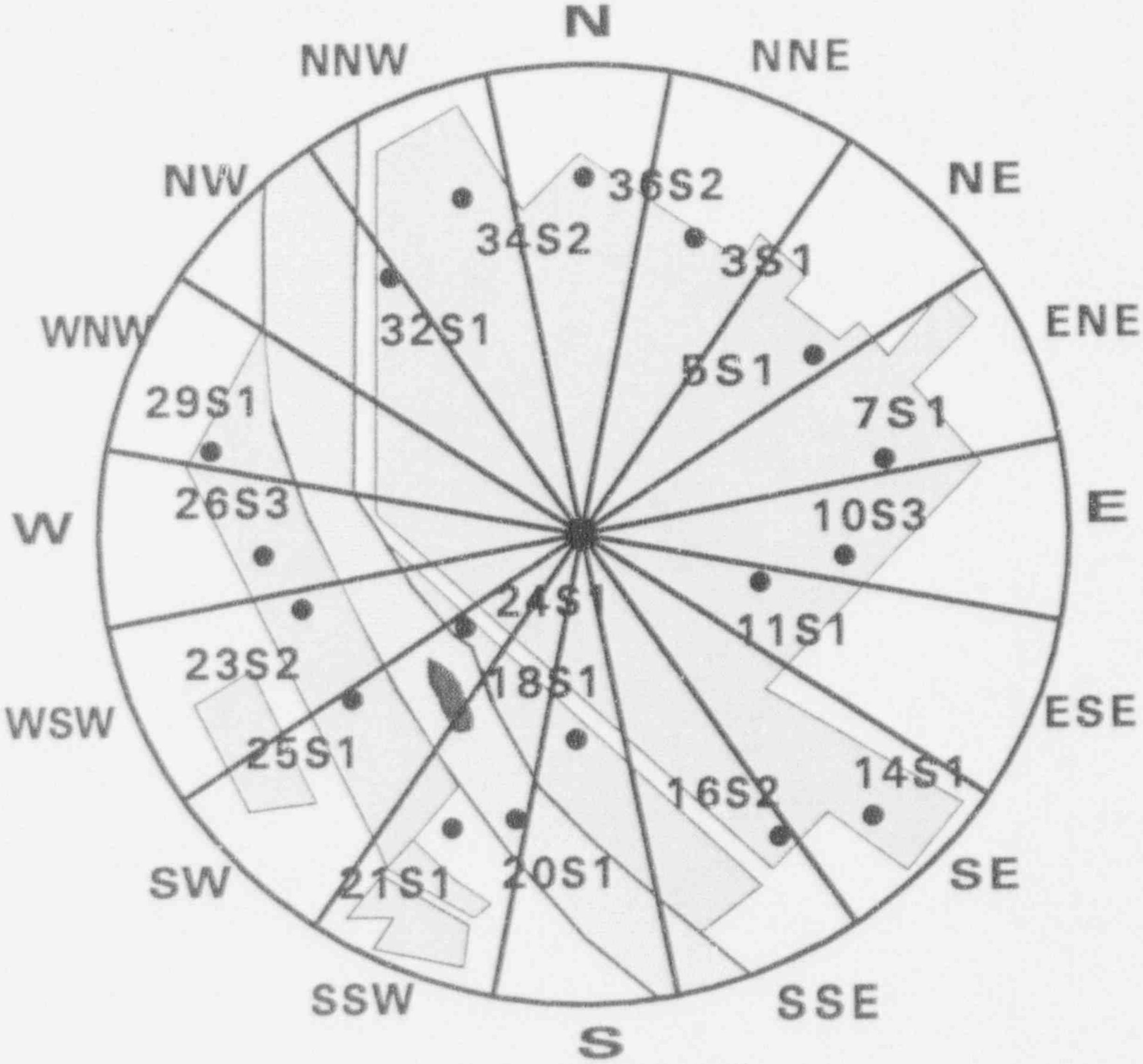
Location	Location Description	Distance & Direction	Collection Method and Frequency	Analysis & Frequency Performed--Consultant
20F1	Sheeder Substation	5.2 miles SSW	Same as 36S2	Same as 36S2
21S1	Impound Basin	0.5 miles SSW	Same as 36S2	Same as 36S2
22G1	Manor Substation	17.6 miles SW	Same as 36S2	Same as 36S2
23S2	Transmission Tower	0.5 miles WSW	Same as 36S2	Same as 36S2
24D1	Porters Mill Substation	3.9 miles SW	Same as 36S2	Same as 36S2
25S1	Sector Site Boundary	0.5 miles SW	Same as 36S2	Same as 36S2
25D1	Hoffecker & Keim Streets	4.0 miles WSW	Same as 36S2	Same as 36S2
26S3	Met. Tower #2	0.4 miles W	Same as 36S2	Same as 36S2
26B1	Old Schuylkill Road	1.7 miles W	Same as 36S2	Same as 36S2
28D2	W. Cedarville Road	3.8 miles W	Same as 36S2	Same as 36S2
29S1	Sector Site Boundary	0.5 miles WNW	Same as 36S2	Same as 36S2
29B1	Yost Road	1.8 miles NW	Same as 36S2	Same as 36S2
29E1	Prince Street	4.9 miles WNW	Same as 36S2	Same as 36S2
31D1	Lincoln Substation	3.0 miles NW	Same as 36S2	Same as 36S2
31D2	Poplar Substation	3.9 miles NW	Same as 36S2	Same as 36S2
32S1	Sector Site Boundary	0.6 miles NW	Same as 36S2	Same as 36S2
32G1	Friendensburg Substation	15.6 miles NW	Same as 36S2	Same as 36S2

TABLE B-II: Sample Collection and Analysis Program for the Radiological Environmental Monitoring Program for Limerick Generating Station, 1992

Location	Location Description	Distance & Direction	Collection Method and Frequency	Analysis & Frequency Performed--Consultant
34S2	Met. Tower #1	0.6 miles NNW	Same as 36S2	Same as 36S2
34E1	Varnell Road	4.6 miles NNW	Same as 36S2	Same as 36S2
35B1	Pleasantville Road	1.9 miles NNW	Same as 36S2	Same as 36S2
35F1	Ringing Rock Substation	4.2 miles N	Same as 36S2	Same as 36S2

* QC Laboratory

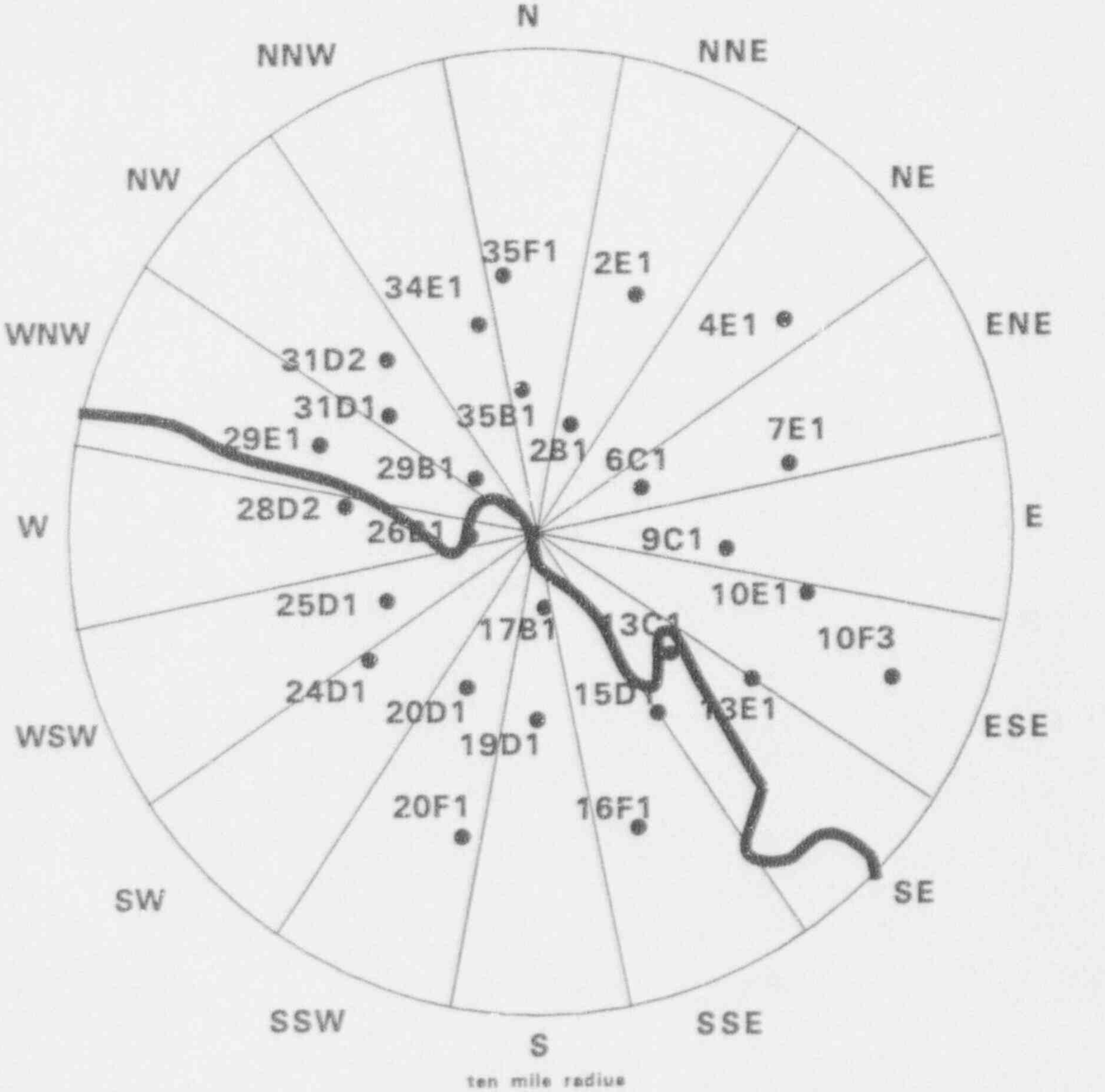
FIGURE B-1
ENVIRONMENTAL SAMPLING LOCATIONS ON-SITE OR NEAR
THE LIMERICK GENERATING STATION, 1992



SITE BOUNDARY

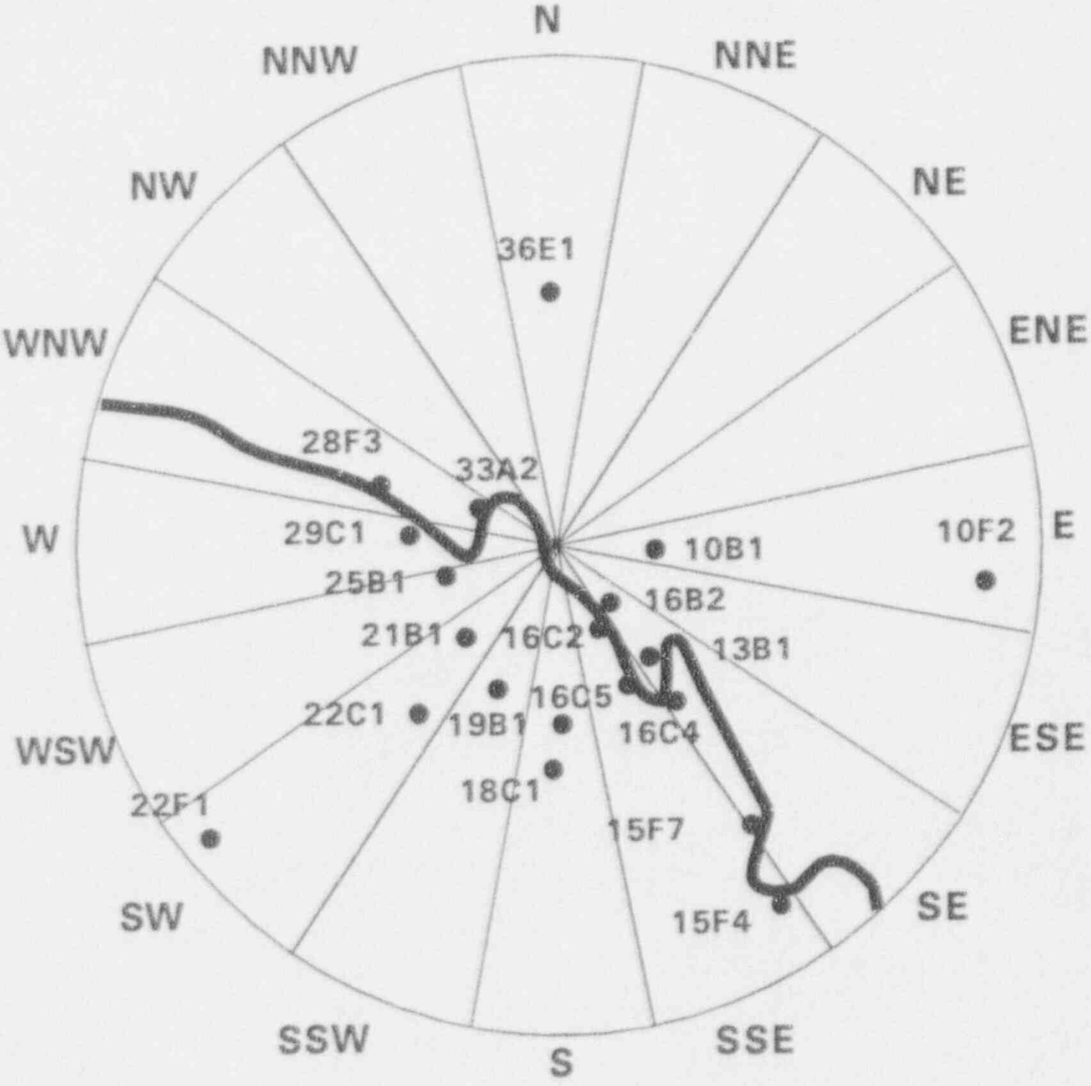
36S2	EVERGREEN & SANATOGA RD.	20S1	LGS DISCHARGE AREA
3S1	SANATOGA RD.	21S1	LGS IMPOUNDING BASIN
5S1	POSSUM HOLLOW RD.	23S2	TRANSMISSION TOWER
7S1	LGS TRAINING CENTER	24S1	LGS INTAKE
10S3	KEEN RD.	25S1	SW SECTOR
11S1	LGS INFORMATION CNTR.	26S3	MET. TOWER #2
14S1	LONGVIEW RD.	29S1	WNW SECTOR
16S2	LONGVIEW RD.	32S1	NW SECTOR
18S1	RAILROAD TRACKS	34S2	MET. TOWER #1

FIGURE B-2
AIRBORNE AND TLD ENVIRONMENTAL SAMPLING LOCATIONS AT INTERMEDIATE DISTANCES FROM LIMERICK GENERATING STATION, 1992



2B1 SANATOGA SUBSTATION
2E1 LAUGHING WATERS GSC
4E1 NEIFFER ROAD
6C1 POTTSTOWN AIRPORT
7E1 PHEASANT ROAD
9C1 REED ROAD
10E1 ROYERSFORD ROAD
10F3 TRAPPE SUBSTATION
13C1 KING ROAD
13E1 VAUGHN ROAD
15D1 SPRING CITY SUBSTATION
16F1 PIKELAND SUBSTATION
17B1 LINFIELD SUBSTATION
19D1 SNOWDEN SUBSTATION
20D1 ELLIS WOODS ROAD
20F1 SHEEDER SUBSTATION
24D1 PORTERS MILL SUBSTATION
25D1 HOFFECKER & KEIM ST.
26B1 OLD SCHUYLKILL RD
28D2 W. CEDARVILLE RD
29B1 YOST ROAD
29E1 HIGH SUBSTATION
31D1 LINCOLN SUBSTATION
31D2 POPLAR SUBSTATION
34E1 YARNELL ROAD
35B1 PLEASANTVILLE RD
35F1 RINGING ROCKS SUB

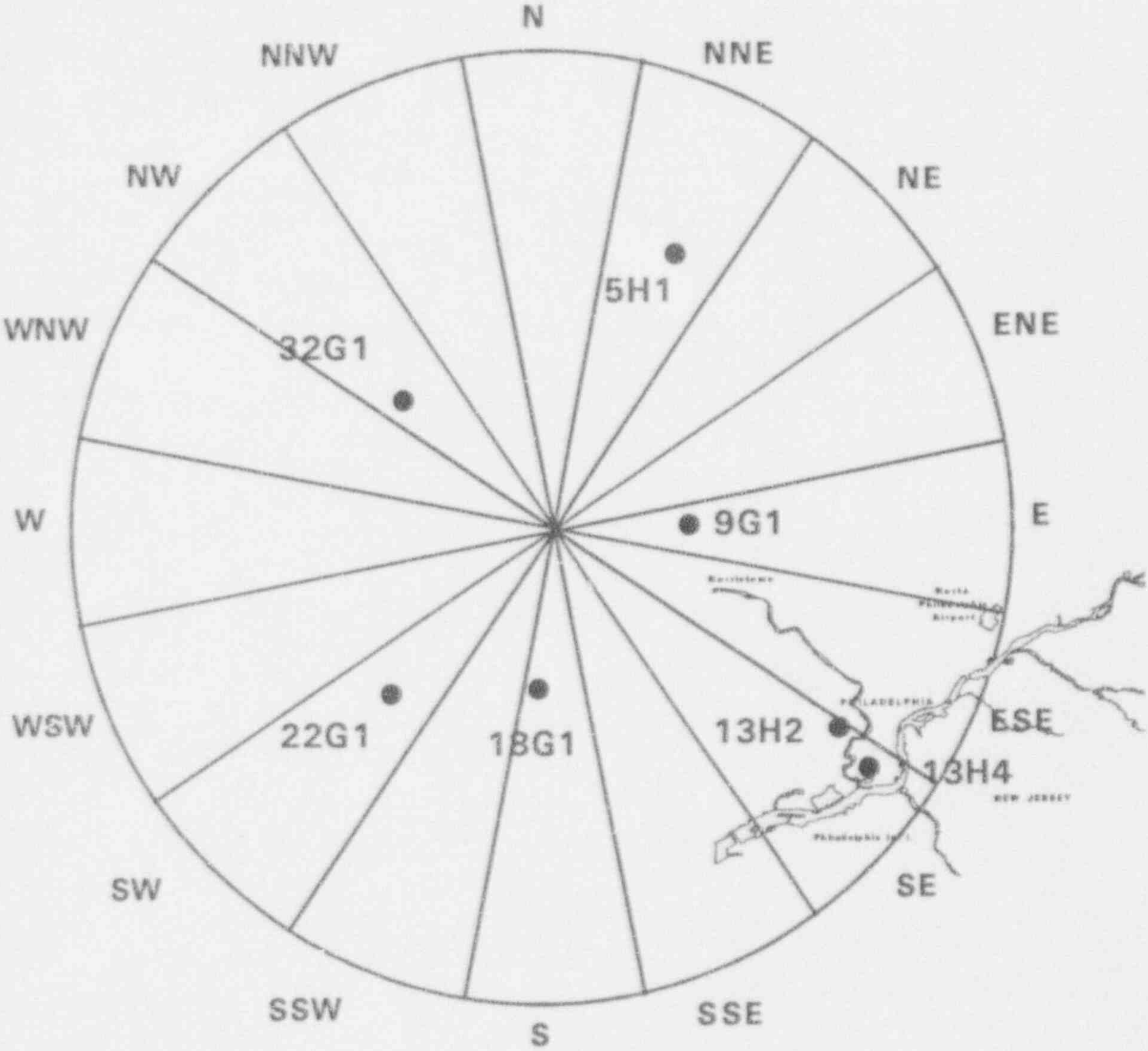
FIGURE B-3
AQUATIC AND TERRESTRIAL ENVIRONMENTAL SAMPLING LOCATIONS AT INTERMEDIATE DISTANCES FROM LIMERICK GENERATING STATION, 1992



ten mile radius

10B1 FARM IN ESE SECTOR
10F2 PERKIOMEN CREEK
13B1 VINCENT DAM
15F4 PHIL. SUB. WATER CO.
15F7 PHOENIXVILLE WATER CO.
16B2 LINFIELD BRIDGE
16C2 CITIZENS HOME WATER CO.
16C4 VINCENT POOL
16C5 VINCENT POOL
18C1 FARM IN S SECTOR
19B1 FARM IN SSW SECTOR
21B1 FARM IN SW SECTOR
22C1 FARM IN SW SECTOR
22F1 FARM IN SW SECTOR
25B1 FARM IN WSW SECTOR
28F3 POTTSTOWN WATER AUTH.
29C1 POTTSTOWN VICINITY
33A2 UPSTREAM OF LGS
36E1 FARM IN N SECTOR

FIGURE B-4
ENVIRONMENTAL SAMPLING LOCATIONS AT REMOTE DISTANCES FROM LIMERICK GENERATING STATION, 1992



fifty mile radius

5H1	BIRCH SUBSTATION
9G1	FARM IN E SECTOR
13H2	BELMONT WATER WORKS
13H4	PECo BUILDING
18G1	PLANEBROOK SUBSTATION
22G1	MANOR SUBSTATION
32G1	FRIEDENBERG SUBSTATION

DATA TABLES
AND FIGURES
PRIMARY LABORATORY

APPENDIX C: DATA TABLES AND FIGURES - PRIMARY LABORATORY

TABLES

FIGURES

TABLE C-I.1 CONCENTRATIONS OF GROSS BETA INSOLUBLE IN SURFACE WATER SAMPLES COLLECTED IN THE VICINITY OF LIMERICK GENERATING STATION, 1992

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

COLLECTION PERIOD	10F2		13B1		24S1	
JAN 92	0.2	± 0.5	0.1	± 0.4	0.6	± 0.5
FEB 92	0.7	± 0.5	0.3	± 0.5	0.4	± 0.5
MAR 92	0.3	± 0.5	0.4	± 0.5	0.0	± 0.5
APR 92	0.4	± 0.5	0.6	± 0.5	0.1	± 0.4
MAY 92	-0.1	± 0.4	0.4	± 0.4	0.0	± 0.4
JUN 92	0.3	± 0.4	1.6	± 0.6	0.1	± 0.4
JUL 92	0.4	± 0.5	0.3	± 0.5	0.2	± 0.5
AUG 92	0.6	± 0.5	1.3	± 0.6	0.6	± 0.5
SEP 92	0.3	± 0.5	0.4	± 0.5	0.0	± 0.5
OCT 92	-0.1	± 0.5	0.5	± 0.5	0.3	± 0.5
NOV 92	1.2	± 0.5	1.5	± 0.6	0.4	± 0.5
DEC 92	1.5	± 0.7	0.6	± 0.5	0.0	± 0.4
MEAN	0.5	± 0.9	0.6	± 1.0	0.2	± 0.5

TABLE C-I.2 CONCENTRATIONS OF GROSS BETA SOLUBLE IN SURFACE WATER SAMPLES COLLECTED IN THE VICINITY OF LIMERICK GENERATING STATION, 1992

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

COLLECTION PERIOD	10F2		13B1		24S1	
JAN 92	9	± 1	4	± 1	4	± 1
FEB 92	8	± 1	5	± 1	5	± 1
MAR 92	8	± 1	3	± 1	4	± 1
APR 92	12	± 1	4	± 1	3.0	± 1.0
MAY 92	10	± 1	4	± 1	3.0	± 1.0
JUN 92	8	± 1	6	± 1	3.6	± 1.0
JUL 92	9	± 1	5	± 1	5	± 1
AUG 92	9	± 1	6	± 1	6	± 1
SEP 92	6	± 1	7	± 1	5	± 1
OCT 92	9	± 1	4	± 1	4	± 1
NOV 92	11	± 1	5	± 1	2.7	± 0.9
DEC 92	7	± 1	5	± 1	4	± 1
MEAN	9	± 3	5	± 2	4.1	± 2.0

TABLE C-I.3 CONCENTRATIONS OF TRITIUM BY LIQUID SCINTILLATION IN SURFACE WATER SAMPLES COLLECTED IN THE VICINITY OF LIMERICK GENERATING STATION, 1992

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

COLLECTION PERIOD	10F2		13B1		24S1	
JAN-MAR 92	60	± 30	70	± 20	60	± 20
APR-JUN 92	60	± 20	90	± 20	30	± 20
JUL-SEP 92	150	± 60	110	± 50	60	± 50
OCT-DEC 92	0	± 100	100	± 100	0	± 100
MEAN	70	± 120	90	± 30	40	± 60

TABLE C-I.4 CONCENTRATIONS OF GAMMA EMITTERS IN SURFACE WATER SAMPLES COLLECTED IN THE VICINITY OF LIMERICK GENERATING STATION, 1992

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

STATION CODE	COLLECTION PERIOD	K-40	MN-54	CO-58	FE-59	CO-60	ZN-65	ZR-95	NB-95	CS-134	CS-137	BA-140	LA-140
13B1	JAN 92	< 10	< 0.3	< 0.4	< 0.8	< 0.4	< 0.8	< 0.9	< 0.4	< 0.4	< 0.4	< 2	< 0.6
	FEB 92	9 ± 7	< 0.3	< 0.3	< 0.7	< 0.3	< 0.7	< 0.6	< 0.3	< 0.3	< 0.3	< 1	< 0.6
	MAR 92	< 10	< 0.3	< 0.3	< 0.7	< 0.3	< 0.7	< 0.7	< 0.4	< 0.4	< 0.4	< 2	< 0.6
	APR 92	27 ± 6	< 0.3	< 0.4	< 0.8	< 0.3	< 0.8	< 0.8	< 0.4	< 0.4	< 0.4	< 2	< 0.9
	MAY 92	< 10	< 0.4	< 0.5	< 1	< 0.4	< 0.9	< 1	< 0.5	< 0.4	< 0.4	< 3	< 1
	JUN 92	< 6	< 0.3	< 0.3	< 0.7	< 0.3	< 0.5	< 0.7	< 0.4	< 0.4	< 0.3	< 2	< 0.9
	JUL 92	< 6	< 0.3	< 0.3	< 0.8	< 0.3	< 0.7	< 0.8	< 0.4	< 0.4	< 0.4	< 3	< 0.8
	AUG 92	6 ± 5	< 0.3	< 0.4	< 0.7	< 0.4	< 0.7	< 0.8	< 0.4	< 0.4	< 0.4	< 2	< 0.9
	SEP 92	< 10	< 0.3	< 0.4	< 0.8	< 0.3	< 0.8	< 0.8	< 0.4	< 0.4	< 0.4	< 2	< 0.5
	OCT 92	16 ± 6	< 0.3	< 0.4	< 0.8	< 0.4	< 0.7	< 0.8	< 0.4	< 0.4	< 0.4	< 2	< 1
	NOV 92	< 7	< 0.4	< 0.4	< 0.8	< 0.4	< 0.8	< 0.8	< 0.4	< 0.4	< 0.4	< 2	< 0.7
	DEC 92	< 4	< 0.3	< 0.2	< 0.5	< 0.3	< 0.6	< 0.5	< 0.3	< 0.2	< 0.3	< 1	< 0.5
	MEAN	10 ± 12	< 0.3	< 0.4	< 0.8	< 0.3	< 0.7	< 0.8	< 0.4	< 0.4	< 0.4	< 2	< 0.8
10F2	JAN 92	< 5	< 0.3	< 0.3	< 0.6	< 0.3	< 0.7	< 0.7	< 0.4	< 0.3	< 0.3	< 1	< 0.7
	FEB 92	6 ± 5	< 0.2	< 0.2	< 0.5	< 0.2	< 0.4	< 0.4	< 0.2	< 0.2	< 0.2	< 1.0	< 0.5
	MAR 92	< 10	< 0.3	< 0.4	< 0.8	< 0.4	< 0.8	< 0.9	< 0.4	< 0.4	< 0.4	< 2	< 0.7
	APR 92	< 10	< 0.4	< 0.4	< 0.9	< 0.4	< 0.8	< 0.9	< 0.4	< 0.4	< 0.4	< 2	< 1
	MAY 92	< 10	< 0.4	< 0.4	< 0.9	< 0.4	< 0.9	< 0.8	< 0.4	< 0.4	< 0.4	< 2	< 0.8
	JUN 92	< 9	< 0.4	< 0.4	< 0.8	< 0.3	< 0.7	< 0.8	< 0.4	< 0.4	< 0.4	< 2	< 0.8
	JUL 92	8 ± 5	< 0.3	< 0.4	< 0.8	< 0.4	< 0.7	< 0.8	< 0.4	< 0.3	< 0.4	< 3	< 1.0
	AUG 92	7 ± 5	< 0.3	< 0.4	< 0.8	< 0.3	< 0.7	< 0.7	< 0.4	< 0.3	< 0.3	< 2	< 0.9
	SEP 92	< 10	< 0.4	< 0.4	< 0.8	< 0.4	< 0.8	< 0.9	< 0.4	< 0.4	< 0.4	< 2	< 0.8
	OCT 92	9 ± 5	< 0.3	< 0.3	< 0.7	< 0.3	< 0.7	< 0.7	< 0.4	< 0.3	< 0.3	< 2	< 0.9
	NOV 92	< 10	< 0.4	< 0.4	< 0.9	< 0.4	< 0.9	< 0.8	< 0.4	< 0.4	< 0.4	< 2	< 0.6
	DEC 92	< 7	< 0.3	< 0.3	< 0.6	< 0.3	< 0.6	< 0.6	< 0.3	< 0.3	< 0.3	< 1	< 0.4
	MEAN	8 ± 4	< 0.3	< 0.4	< 0.8	< 0.3	< 0.7	< 0.8	< 0.4	< 0.3	< 0.4	< 1.8	< 0.8
24S1	JAN 92	< 6	< 0.3	< 0.3	< 0.7	< 0.3	< 0.7	< 0.7	< 0.3	< 0.3	< 0.3	< 1	< 0.7
	FEB 92	< 7	< 0.4	< 0.3	< 0.8	< 0.4	< 0.8	< 0.8	< 0.4	< 0.4	< 0.4	< 2	< 0.8
	MAR 92	< 5	< 0.2	< 0.2	< 0.5	< 0.3	< 0.5	< 0.5	< 0.3	< 0.3	< 0.3	< 1	< 0.4
	APR 92	< 4	< 0.2	< 0.3	< 0.6	< 0.2	< 0.5	< 0.6	< 0.3	< 0.2	< 0.3	< 2	< 0.7
	MAY 92	< 10	< 0.4	< 0.4	< 0.9	< 0.4	< 0.8	< 1	< 0.4	< 0.4	< 0.4	< 3	< 1
	JUN 92	< 7	< 0.3	< 0.4	< 0.9	< 0.4	< 0.7	< 0.8	< 0.4	< 0.3	< 0.4	< 2	< 0.9
	JUL 92	7 ± 5	< 0.3	< 0.4	< 0.9	< 0.4	< 0.7	< 0.9	< 0.4	< 0.4	< 0.4	< 3	< 1
	AUG 92	9 ± 6	< 0.3	< 0.3	< 0.9	< 0.3	< 0.7	< 0.8	< 0.4	< 0.4	< 0.3	< 2	< 1.0
	SEP 92	5 ± 4	< 0.2	< 0.2	< 0.5	< 0.2	< 0.5	< 0.5	< 0.3	< 0.2	< 0.3	< 1	< 0.5
	OCT 92	< 6	< 0.3	< 0.4	< 0.7	< 0.4	< 0.7	< 0.8	< 0.4	< 0.3	< 0.4	< 2	< 0.9
	NOV 92	< 10	< 0.4	< 0.4	< 0.8	< 0.4	< 0.8	< 1.0	< 0.4	< 0.4	< 0.4	< 2	< 0.7
	DEC 92	< 6	< 0.3	< 0.3	< 0.6	< 0.3	< 0.6	< 0.6	< 0.3	< 0.3	< 0.3	< 1	< 0.6
	MEAN	7 ± 4	< 0.3	< 0.3	< 0.7	< 0.3	< 0.7	< 0.8	< 0.4	< 0.3	< 0.4	< 2	< 0.8
MEAN ALL STATIONS		8 ± 8	< 0.3	< 0.3	< 0.8	< 0.3	< 0.7	< 0.8	< 0.4	< 0.3	< 0.4	< 1.9	< 0.8

TABLE C-II.1 CONCENTRATIONS OF GROSS BETA INSOLUBLE IN DRINKING WATER SAMPLES COLLECTED IN THE VICINITY OF LIMERICK GENERATING STATION, 1992

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

COLLECTION PERIOD	13H2		15F4		15F7		16C2		28F3	
JAN 92	0.2	± 0.5	0.7	± 0.5	0.0	± 0.4	0.4	± 0.5	0.3	± 0.5
FEB 92	4	± 1	-0.1	± 0.5	-0.1	± 0.5	0.5	± 0.5	-0.2	± 0.4
MAR 92	0.2	± 0.5	0.6	± 0.5	0.0	± 0.5	0.4	± 0.5	0.0	± 0.5
APR 92	5	± 1	-0.2	± 0.4	0.4	± 0.5	0.3	± 0.5	0.3	± 0.5
MAY 92	0.6	± 0.4	0.1	± 0.4	0.0	± 0.4	0.1	± 0.4	-0.1	± 0.4
JUN 92	0.6	± 0.5	0.2	± 0.4	0.2	± 0.4	0.6	± 0.5	0.7	± 0.5
JUL 92	-0.1	± 0.4	0.6	± 0.5	0.2	± 0.5	0.2	± 0.5	0.5	± 0.5
AUG 92	0.7	± 0.5	0.2	± 0.4	0.4	± 0.5	0.1	± 0.4	0.6	± 0.5
SEP 92	0.5	± 0.5	0.1	± 0.4	0.3	± 0.4	0.4	± 0.5	0.1	± 0.4
OCT 92	0.0	± 0.5	-0.2	± 0.5	-0.5	± 0.4	0.4	± 0.5	-0.5	± 0.4
NOV 92	0.9	± 0.5	0.4	± 0.5	0.2	± 0.4	0.7	± 0.5	0.4	± 0.5
DEC 92	2.1	± 0.7	-0.1	± 0.4	-0.1	± 0.4	0.9	± 0.5	0.3	± 0.5
MEAN	1.2	± 3.3	0.2	± 0.6	0.1	± 0.5	0.4	± 0.5	0.2	± 0.7

TABLE C-II.2 CONCENTRATIONS OF GROSS BETA SOLUBLE IN DRINKING WATER SAMPLES COLLECTED IN THE VICINITY OF LIMERICK GENERATING STATION, 1992

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

COLLECTION PERIOD	13H2		15F4		15F7		16C2		28F3	
JAN 92	5	± 1	5	± 1	4	± 1	2.0	± 1.0	4	± 1
FEB 92	5	± 1	6	± 1	4	± 1	2	± 1	4	± 1
MAR 92	5	± 1	4	± 1	3	± 1	2	± 1	4	± 1
APR 92	4	± 1	3.0	± 1.0	5	± 1	7	± 1	3	± 1
MAY 92	4	± 1	6	± 1	3	± 1	2.0	± 1.0	2	± 1
JUN 92	4	± 1	6	± 1	5	± 1	4	± 1	5	± 1
JUL 92	5	± 1	6	± 1	6	± 1	3	± 1	4	± 1
AUG 92	5	± 1	4	± 1	6	± 1	6	± 1	7	± 1
SEP 92	8	± 1	6	± 1	7	± 1	4	± 1	5	± 1
OCT 92	5	± 1	4	± 1	5	± 1	3	± 1	4	± 1
NOV 92	6	± 1	6	± 1	5	± 1	2.4	± 0.9	5	± 1
DEC 92	3	± 1	6	± 1	3	± 1	3	± 1	4	± 1
MEAN	5	± 2	5.2	± 2.2	5	± 3	3.4	± 3.3	4	± 2

TABLE C-II.3 CONCENTRATIONS OF TRITIUM BY LIQUID SCINTILLATION IN DRINKING WATER SAMPLES COLLECTED IN THE VICINITY OF LIMERICK GENERATING STATION, 1992

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

COLLECTION PERIOD	13H2		15F4		15F7		16C2		28F3	
JAN-MAR 92	70	± 40	60	± 20	130	± 30	80	± 30	100	± 30
APR-JUN 92	40	± 30	70	± 20	110	± 20	30	± 20	60	± 20
JUL-SEP 92	90	± 50	50	± 50	50	± 50	130	± 50	80	± 50
OCT-DEC 92	0	± 100	100	± 100	-50	± 100	100	± 100	0	± 100
MEAN	50	± 80	70	± 40	60	± 160	90	± 80	60	± 90

TABLE C-II.4 CONCENTRATIONS OF GAMMA EMITTERS IN DRINKING WATER SAMPLES COLLECTED IN THE VICINITY OF LIMERICK GENERATING STATION, 1992

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

STATION CODE	COLLECTION PERIOD	K-40	MN-54	CO-58	FE-59	CO-60	ZN-65	ZR-95	NB-95	CS-134	CS-137	BA-140	LA-140	RA-226
13H2	JAN 92	< 10	< 0.3	< 0.3	< 0.8	< 0.3	< 0.7	< 0.8	< 0.4	< 0.4	< 0.4	< 2	< 0.6	< 7
	FEB 92	< 7	< 0.3	< 0.3	< 0.6	< 0.3	< 0.6	< 0.7	< 0.3	< 0.3	< 0.3	< 1	< 0.5	11 ± 9
	MAR 92	< 6	< 0.3	< 0.3	< 0.7	< 0.3	< 0.6	< 0.7	< 0.3	< 0.3	< 0.3	< 1	< 0.6	< 7
	APR 92	< 7	< 0.3	< 0.4	< 0.8	< 0.3	< 0.7	< 0.8	< 0.4	< 0.3	< 0.4	< 2	< 1.0	< 8
	MAY 92	< 5	< 0.3	< 0.3	< 0.6	< 0.3	< 0.6	< 0.6	< 0.3	< 0.3	< 0.3	< 1	< 0.7	< 7
	JUN 92	< 7	< 0.3	< 0.3	< 0.7	< 0.3	< 0.7	< 0.7	< 0.3	< 0.3	< 0.3	< 2	< 0.7	< 5
	JUL 92	< 6	< 0.3	< 0.3	< 0.8	< 0.3	< 0.6	< 0.7	< 0.4	< 0.3	< 0.3	< 3	< 1	< 7
	AUG 92	15 ± 5	< 0.3	< 0.3	< 0.8	< 0.3	< 0.6	< 0.6	< 0.3	< 0.3	< 0.3	< 2	< 0.8	< 5
	SEP 92	< 6	< 0.3	< 0.3	< 0.8	< 0.3	< 0.6	< 0.6	< 0.4	< 0.3	< 0.3	< 2	< 0.7	< 8
	OCT 92	< 5	< 0.3	< 0.3	< 0.7	< 0.3	< 0.7	< 0.6	< 0.3	< 0.3	< 0.3	< 2	< 0.8	< 4
	NOV 92	13 ± 5	< 0.3	< 0.4	< 0.8	< 0.3	< 0.7	< 0.8	< 0.4	< 0.4	< 0.4	< 2	< 0.7	< 6
	DEC 92	< 5	< 0.2	< 0.2	< 0.5	< 0.3	< 0.5	< 0.4	< 0.2	< 0.2	< 0.3	< 1	< 0.4	< 5
	MEAN	8 ± 7	< 0.3	< 0.3	< 0.7	< 0.3	< 0.6	< 0.7	< 0.3	< 0.3	< 0.3	< 2	< 0.7	7 ± 4
15F4	JAN 92	< 9	< 0.3	< 0.3	< 0.7	< 0.3	< 0.7	< 0.8	< 0.4	< 0.3	< 0.3	< 2	< 0.6	< 5
	FEB 92	< 10	< 0.3	< 0.3	< 0.8	< 0.4	< 0.7	< 0.9	< 0.4	< 0.4	< 0.4	< 2	< 0.6	< 6
	MAR 92	< 5	< 0.3	< 0.3	< 0.6	< 0.3	< 0.7	< 0.7	< 0.3	< 0.3	< 0.4	< 1	< 0.6	< 7
	APR 92	< 7	< 0.3	< 0.3	< 0.7	< 0.3	< 0.6	< 0.7	< 0.3	< 0.3	< 0.3	< 2	< 0.8	< 5
	MAY 92	< 10	< 0.4	< 0.4	< 1.0	< 0.4	< 0.9	< 0.9	< 0.4	< 0.4	< 0.4	< 3	< 1.0	< 7
	JUN 92	< 4	< 0.3	< 0.3	< 0.6	< 0.3	< 0.6	< 0.6	< 0.3	< 0.3	< 0.3	< 2	< 0.9	< 4
	JUL 92	< 2	< 0.2	< 0.3	< 0.6	< 0.3	< 0.6	< 0.6	< 0.3	< 0.2	< 0.3	< 2	< 1	< 4
	AUG 92	< 10	< 0.4	< 0.5	< 1	< 0.4	< 1	< 1	< 0.6	< 0.5	< 0.5	< 4	< 1	< 8
	SEP 92	< 5	< 0.3	< 0.3	< 0.7	< 0.4	< 0.6	< 0.6	< 0.4	< 0.4	< 0.4	< 2	< 0.7	< 7
	OCT 92	< 10	< 0.4	< 0.4	< 0.9	< 0.4	< 0.9	< 0.8	< 0.4	< 0.4	< 0.4	< 2	< 0.9	< 6
	NOV 92	13 ± 7	< 0.4	< 0.4	< 0.9	< 0.4	< 0.9	< 1.0	< 0.5	< 0.4	< 0.4	< 2	< 1.0	< 7
	DEC 92	< 6	< 0.3	< 0.4	< 0.8	< 0.4	< 0.7	< 0.8	< 0.4	< 0.4	< 0.4	< 2	< 0.8	< 8
	MEAN	8 ± 6	< 0.3	< 0.4	< 0.8	< 0.4	< 0.7	< 0.8	< 0.4	< 0.4	< 0.4	< 2	< 0.8	< 6
15F7	JAN 92	< 9	< 0.3	< 0.3	< 0.7	< 0.3	< 0.7	< 0.7	< 0.3	< 0.3	< 0.3	< 2	< 0.5	< 6
	FEB 92	< 9	< 0.3	< 0.3	< 0.7	< 0.3	< 0.7	< 0.7	< 0.4	< 0.4	< 0.4	< 2	< 0.5	< 6
	MAR 92	< 4	< 0.2	< 0.3	< 0.6	< 0.3	< 0.6	< 0.6	< 0.3	< 0.3	< 0.3	< 1	< 0.6	< 4
	APR 92	< 4	< 0.3	< 0.3	< 0.6	< 0.3	< 0.5	< 0.6	< 0.3	< 0.3	< 0.3	< 2	< 0.8	< 4
	MAY 92	< 8	< 0.3	< 0.3	< 0.8	< 0.3	< 0.7	< 0.8	< 0.4	< 0.4	< 0.3	< 2	< 0.8	< 6
	JUN 92	< 5	< 0.2	< 0.2	< 0.6	< 0.2	< 0.5	< 0.5	< 0.3	< 0.2	< 0.2	< 2	< 0.7	< 5
	JUL 92	< 5	< 0.2	< 0.3	< 0.6	< 0.3	< 0.5	< 0.6	< 0.3	< 0.2	< 0.2	< 2	< 0.9	< 5
	AUG 92	14 ± 5	< 0.3	< 0.3	< 0.8	< 0.3	< 0.6	< 0.7	< 0.4	< 0.3	< 0.3	< 2	< 1	< 6
	SEP 92	< 4	< 0.3	< 0.2	< 0.6	< 0.3	< 0.6	< 0.6	< 0.3	< 0.3	< 0.3	< 1	< 0.7	< 4
	OCT 92	< 6	< 0.3	< 0.3	< 0.7	< 0.3	< 0.7	< 0.7	< 0.4	< 0.3	< 0.3	< 2	< 0.9	< 7
	NOV 92	< 10	< 0.4	< 0.4	< 0.9	< 0.4	< 0.9	< 0.9	< 0.4	< 0.4	< 0.4	< 2	< 0.7	< 7
	DEC 92	10 ± 6	< 0.3	< 0.3	< 0.8	< 0.3	< 0.7	< 0.7	< 0.4	< 0.3	< 0.3	< 2	< 0.6	< 6
	MEAN	7 ± 6	< 0.3	< 0.3	< 0.7	< 0.3	< 0.6	< 0.7	< 0.4	< 0.3	< 0.3	< 2	< 0.7	< 6

TABLE C-II.4 CONCENTRATIONS OF GAMMA EMITTERS IN DRINKING WATER SAMPLES COLLECTED IN THE VICINITY OF LIMERICK GENERATING STATION, 1992

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

STATION CODE	COLLECTION PERIOD	K-40	MN-54	CO-58	FE-59	CO-60	ZN-65	ZR-95	NB-95	CS-134	CS-137	BA-140	LA-140	RA-226
16C2	JAN 92	< 6	< 0.3	< 0.3	< 0.6	< 0.3	< 0.6	< 0.7	< 0.3	< 0.3	< 0.3	< 1	< 0.7	< 6
	FEB 92	< 4	< 0.2	< 0.3	< 0.6	< 0.3	< 0.6	< 0.5	< 0.3	< 0.3	< 0.3	< 1	< 0.6	< 5
	MAR 92	< 7	< 0.3	< 0.3	< 0.7	< 0.3	< 0.6	< 0.7	< 0.3	< 0.3	< 0.3	< 1	< 0.5	< 5
	APR 92	< 8	< 0.3	< 0.3	< 0.7	< 0.3	< 0.7	< 0.8	< 0.4	< 0.3	< 0.3	< 2	< 0.6	< 5
	MAY 92	< 8	< 0.3	< 0.3	< 0.7	< 0.3	< 0.7	< 0.8	< 0.3	< 0.3	< 0.3	< 1	< 0.5	< 6
	JUN 92	< 5	< 0.3	< 0.3	< 0.7	< 0.3	< 0.6	< 0.7	< 0.3	< 0.3	< 0.3	< 2	< 1.0	< 6
	JUL 92	< 7	< 0.3	< 0.3	< 0.8	< 0.3	< 0.6	< 0.7	< 0.3	< 0.3	< 0.3	< 3	< 1	< 5
	AUG 92	< 10	< 0.5	< 0.5	< 1	< 0.5	< 1.0	< 1	< 0.6	< 0.5	< 0.5	< 4	< 2	< 8
	SEP 92	< 7	< 0.3	< 0.3	< 0.6	< 0.3	< 0.5	< 0.7	< 0.3	< 0.3	< 0.3	< 1	< 0.6	< 5
	OCT 92	< 5	< 0.2	< 0.3	< 0.6	< 0.3	< 0.5	< 0.6	< 0.3	< 0.3	< 0.3	< 2	< 0.8	< 6
	NOV 92	< 4	< 0.3	< 0.3	< 0.7	< 0.4	< 0.7	< 0.7	< 0.3	< 0.3	< 0.3	< 1	< 0.8	< 5
	DEC 92	< 9	< 0.3	< 0.3	< 0.7	< 0.4	< 0.7	< 0.8	< 0.3	< 0.4	< 0.4	< 1	< 0.6	< 6
	MEAN	< 7	< 0.3	< 0.3	< 0.7	< 0.3	< 0.7	< 0.7	< 0.3	< 0.3	< 0.3	< 2	< 0.8	< 6
28F3	JAN 92	7 ± 6	< 0.3	< 0.3	< 0.6	< 0.3	< 0.6	< 0.7	< 0.3	< 0.3	< 0.3	< 1	< 0.6	< 7
	FEB 92	5 ± 4	< 0.2	< 0.2	< 0.5	< 0.2	< 0.5	< 0.5	< 0.3	< 0.2	< 0.2	< 1	< 0.5	< 5
	MAR 92	< 5	< 0.3	< 0.3	< 0.7	< 0.3	< 0.6	< 0.7	< 0.3	< 0.3	< 0.3	< 1	< 0.5	< 7
	APR 92	< 6	< 0.3	< 0.3	< 0.7	< 0.3	< 0.6	< 0.7	< 0.4	< 0.3	< 0.3	< 2	< 1	< 7
	MAY 92	< 10	< 0.4	< 0.4	< 0.8	< 0.4	< 0.8	< 0.8	< 0.4	< 0.4	< 0.4	< 2	< 0.6	< 6
	JUN 92	< 5	< 0.3	< 0.3	< 0.7	< 0.4	< 0.7	< 0.8	< 0.4	< 0.4	< 0.3	< 2	< 1	< 7
	JUL 92	< 5	< 0.3	< 0.3	< 0.8	< 0.3	< 0.6	< 0.8	< 0.4	< 0.3	< 0.4	< 3	< 1	< 7
	AUG 92	< 10	< 0.4	< 0.4	< 0.9	< 0.4	< 0.8	< 1	< 0.4	< 0.4	< 0.4	< 3	< 1	< 6
	SEP 92	< 5	< 0.3	< 0.3	< 0.7	< 0.3	< 0.6	< 0.7	< 0.3	< 0.3	< 0.3	< 1	< 0.6	< 7
	OCT 92	< 10	< 0.4	< 0.4	< 0.9	< 0.4	< 0.8	< 1	< 0.4	< 0.4	< 0.4	< 3	< 1	< 7
	NOV 92	< 5	< 0.3	< 0.3	< 0.6	< 0.3	< 0.6	< 0.6	< 0.3	< 0.3	< 0.3	< 2	< 0.6	< 6
	DEC 92	< 9	< 0.3	< 0.3	< 0.7	< 0.3	< 0.7	< 0.7	< 0.4	< 0.3	< 0.3	< 1	< 0.5	< 6
	MEAN	7 ± 4	< 0.3	< 0.3	< 0.7	< 0.3	< 0.7	< 0.8	< 0.4	< 0.3	< 0.3	< 2	< 0.7	< 7
MEAN ALL STATIONS		7 ± 6	< 0.3	< 0.3	< 0.7	< 0.3	< 0.7	< 0.7	< 0.4	< 0.3	< 0.3	< 2	< 0.8	6 ± 3

TABLE C-III.1 CONCENTRATIONS OF GAMMA EMITTERS IN FISH SAMPLES COLLECTED IN THE VICINITY OF LIMERICK GENERATING STATION, 1992

RESULTS IN UNITS OF PCI/GRAM (WET) ± 2 SIGMA

STATION CODE	MEDIA	COLLECTION PERIOD	K-40	MN-54	CO-58	FE-59	CO-60	ZN-65	CS-134	CS-137
16C5	PREDATOR	04/24-04/24	3.1 ± 0.3	< 0.007	< 0.007	< 0.02	< 0.008	< 0.02	< 0.008	< 0.009
		10/30-10/30	2.4 ± 0.4	< 0.01	< 0.01	< 0.03	< 0.009	< 0.03	< 0.01	< 0.01
		MEAN	2.8 ± 1.0	< 0.009	< 0.009	< 0.03	< 0.009	< 0.03	< 0.009	< 0.010
	BOTTOM FEEDER	04/24-05/14	2.8 ± 0.3	< 0.006	< 0.006	< 0.02	< 0.007	< 0.01	< 0.007	< 0.007
		10/30-10/30	2.9 ± 0.4	< 0.01	< 0.01	< 0.03	< 0.01	< 0.03	< 0.01	< 0.01
		MEAN	2.9 ± .1	< 0.008	< 0.008	< 0.03	< 0.009	< 0.02	< 0.009	< 0.009
20S1	PREDATOR	04/21-04/21	2.8 ± 0.3	< 0.007	< 0.008	< 0.02	< 0.009	< 0.02	< 0.008	< 0.008
		10/29-10/29	3.3 ± 0.5	< 0.01	< 0.01	< 0.03	< 0.02	< 0.03	< 0.02	< 0.02
		MEAN	3.1 ± .7	< 0.009	< 0.009	< 0 03	< 0.015	< 0.03	< 0.014	< 0.014
	BOTTOM FEEDER	04/21-04/21	2.8 ± 0.3	< 0.006	< 0.006	< 0.01	< 0.006	< 0.01	< 0.006	< 0.007
		10/29-10/29	3.8 ± 0.4	< 0.008	< 0.008	< 0.02	< 0.01	< 0.02	< 0.008	< 0.008
		MEAN	3.3 ± 1.4	< 0.007	< 0.007	< 0.02	< 0.008	< 0.02	< 0.007	< 0.008
29C1	PREDATOR	04/13-04/13	2.8 ± 0.3	< 0.007	< 0.006	< 0.02	< 0.007	< 0.01	< 0.007	< 0.007
		11/12-11/12	3.0 ± 0.5	< 0.02	< 0.02	< 0.03	< 0.02	< 0.03	< 0.01	< 0.01
		MEAN	2.9 ± .3	< 0.014	< 0.013	< 0.03	< 0.014	< 0.02	< 0.009	< 0.009
	BOTTOM FEEDER	04/13-04/13	2.7 ± 0.3	< 0.006	< 0.006	< 0.01	< 0.007	< 0.01	< 0.006	< 0.006
		11/12-11/12	5.7 ± 0.6	< 0.01	< 0.01	< 0.03	< 0.01	< 0.03	< 0.01	< 0.01
		MEAN	4.2 ± 4.2	< 0.008	< 0.008	< 0.02	< 0.009	< 0.02	< 0.008	< 0.008
MEAN	PREDATOR		2.9 ± .6	< 0.010	< 0.010	< 0.03	< 0.012	< 0.02	< 0.011	< 0.011
	BOTTOM FEEDER		3.5 ± 2.3	< 0.008	< 0.008	< 0.02	< 0.008	< 0.02	< 0.008	< 0.008

TABLE C-IV.1 CONCENTRATIONS OF GAMMA EMITTERS IN SILT SAMPLES COLLECTED IN THE VICINITY OF LIMERICK GENERATING STATION, 1992

STATION CODE	COLLECTION PERIOD	BE-7	K-40	CS-134	CS-137	RA-226	TH-228
16B2	05/29	1.3 ± 0.5	14 ± 1	< 0.04	0.16 ± 0.06	2 ± 1	1.5 ± 0.1
	11/30	1.4 ± 0.3	15 ± 1	< 0.02	0.59 ± 0.06	2.2 ± 0.6	1.7 ± 0.2
	MEAN	1.4 ± 0.1	15 ± 1	< 0.03	0.38 ± 0.61	2.1 ± 0.3	1.6 ± 0.3
16C4	05/29	1.0 ± 0.3	14 ± 1	< 0.02	0.25 ± 0.05	2.1 ± 0.7	1.1 ± 0.1
	11/30	4.9 ± 0.5	17 ± 2	< 0.03	0.26 ± 0.04	2.5 ± 0.7	1.4 ± 0.1
	MEAN	3.0 ± 5.5	16 ± 4	< 0.03	0.26 ± 0.01	2.3 ± 0.6	1.3 ± 0.4
33A2	05/29	< 0.2	13 ± 1	< 0.02	< 0.02	2.5 ± 0.8	1.2 ± 0.1
	11/30	< 0.1	9.8 ± 1.0	< 0.02	< 0.02	2.6 ± 0.6	1.0 ± 0.1
	MEAN	< 0.2	11.4 ± 4.5	< 0.02	< 0.02	2.6 ± 0.1	1.1 ± 0.3
MEAN ALL STATIONS		1.5 ± 3.5	13.8 ± 4.8	< 0.03	0.22 ± 0.42	2.3 ± 0.5	1.3 ± 0.5

TABLE C-V.1 CONCENTRATIONS OF GROSS BETA IN AIR PARTICULATE SAMPLES COLLECTED IN THE VICINITY OF LIMERICK GENERATING STATION, 1992

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

GROUP I - ON-SITE LOCATIONS

WEEK	10S3	11S1	14S1	34S2
01	16 ± 3	13 ± 3	13 ± 3	14 ± 3
02	17 ± 3	21 ± 3	17 ± 3	20 ± 3
03	14 ± 3	14 ± 3	15 ± 3	13 ± 3
04	18 ± 3	21 ± 3	19 ± 3	18 ± 3
05	21 ± 3	(1)	25 ± 3	24 ± 3
06	11 ± 3	12 ± 3	11 ± 3	16 ± 3
07	16 ± 3	18 ± 3	16 ± 3	18 ± 3
08	14 ± 3	15 ± 3	13 ± 3	16 ± 3
09	14 ± 3	13 ± 3	11 ± 3	12 ± 3
10	12 ± 3	12 ± 3	13 ± 3	13 ± 3
11	13 ± 3	18 ± 3	16 ± 3	17 ± 3
12	16 ± 3	17 ± 3	13 ± 3	15 ± 3
13	13 ± 3	15 ± 3	16 ± 3	12 ± 3
14	13 ± 3	12 ± 3	10 ± 3	15 ± 3
15	13 ± 3	15 ± 3	16 ± 3	15 ± 3
16	11 ± 3	10 ± 3	10 ± 3	10 ± 3
17	9 ± 2	10 ± 2	8 ± 2	10 ± 3
18	15 ± 3	15 ± 3	14 ± 3	15 ± 3
19	5 ± 3	5 ± 3	5 ± 3	5 ± 3
20	8 ± 3	9 ± 3	9 ± 3	8 ± 3
21	17 ± 3	16 ± 3	19 ± 3	19 ± 3
22	11 ± 3	9 ± 3	10 ± 3	13 ± 3
23	11 ± 2	10 ± 2	13 ± 2	12 ± 2
24	11 ± 3	10 ± 4	12 ± 4	14 ± 4
25	9 ± 3	10 ± 3	8 ± 3	11 ± 3
26	15 ± 3	18 ± 3	15 ± 3	14 ± 3
27	16 ± 3	16 ± 3	15 ± 3	17 ± 3
28	19 ± 4	19 ± 4	15 ± 3	18 ± 3
29	19 ± 3	19 ± 3	25 ± 3	21 ± 3
30	13 ± 3	14 ± 3	12 ± 3	11 ± 3
31	39 ± 4	13 ± 3	14 ± 3	16 ± 3
32	13 ± 3	14 ± 3	16 ± 3	18 ± 3
33	13 ± 4	8 ± 4	8 ± 4	12 ± 4
34	15 ± 3	13 ± 3	15 ± 3	14 ± 3
35	33 ± 4	23 ± 4	28 ± 4	25 ± 4
36	23 ± 4	20 ± 4	19 ± 3	20 ± 10
37	17 ± 4	15 ± 9	11 ± 4	16 ± 4
38	26 ± 4	19 ± 3	21 ± 3	21 ± 3
39	6 ± 3	6 ± 3	5 ± 3	9 ± 3
40	18 ± 3	20 ± 3	16 ± 3	15 ± 3
41	12 ± 3	12 ± 3	14 ± 3	14 ± 3
42	21 ± 3	25 ± 4	20 ± 3	22 ± 3
43	30 ± 4	18 ± 3	20 ± 3	22 ± 3
44	20 ± 3	18 ± 3	16 ± 3	21 ± 3
45	7 ± 3	7 ± 3	8 ± 3	8 ± 3
46	11 ± 3	14 ± 3	11 ± 3	15 ± 3
47	14 ± 3	13 ± 3	35 ± 4	15 ± 3
48	10 ± 3	10 ± 3	8 ± 3	15 ± 3
49	16 ± 4	18 ± 4	16 ± 4	15 ± 3
50	10 ± 3	13 ± 3	8 ± 3	10 ± 3
51	15 ± 4	18 ± 3	16 ± 3	17 ± 3
52	26 ± 3	23 ± 3	26 ± 3	28 ± 4
MEAN	15 ± 13	15 ± 9	15 ± 12	15 ± 9

(1) SEE PROGRAM EXCEPTIONS SECTION FOR EXPLANATION

TABLE C-V.1 CONCENTRATIONS OF GROSS BETA IN AIR PARTICULATE SAMPLES COLLECTED IN THE VICINITY OF LIMERICK GENERATING STATION, 1992

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

GROUP II - INTERMEDIATE DISTANCE LOCATIONS

WEEK	2B1	6C1	9C1	13C1	15D1	17B1
01	13 ± 3	13 ± 3	11 ± 3	12 ± 3	17 ± 3	11 ± 3
02	20 ± 3	17 ± 3	20 ± 3	20 ± 3	18 ± 3	18 ± 3
03	(1)	(1)	16 ± 3	16 ± 3	15 ± 3	15 ± 3
04	20 ± 3	15 ± 3	15 ± 3	18 ± 3	18 ± 3	16 ± 3
05	23 ± 3	(1)	23 ± 3	25 ± 3	20 ± 3	22 ± 3
06	9 ± 3	8 ± 3	13 ± 3	11 ± 3	10 ± 3	9 ± 3
07	15 ± 3	14 ± 3	18 ± 3	16 ± 3	19 ± 3	15 ± 3
08	13 ± 3	12 ± 3	14 ± 3	13 ± 3	14 ± 3	16 ± 3
09	13 ± 3	13 ± 3	12 ± 3	12 ± 3	13 ± 3	8 ± 3
10	10 ± 3	12 ± 3	12 ± 3	16 ± 3	14 ± 3	11 ± 3
11	15 ± 3	16 ± 3	17 ± 3	16 ± 3	17 ± 3	15 ± 3
12	15 ± 3	12 ± 3	18 ± 3	13 ± 3	16 ± 3	13 ± 3
13	15 ± 3	15 ± 3	13 ± 3	14 ± 3	16 ± 3	14 ± 3
14	12 ± 3	11 ± 3	12 ± 3	12 ± 3	13 ± 3	13 ± 3
15	17 ± 3	13 ± 3	(1)	14 ± 3	16 ± 3	13 ± 3
16	9 ± 3	9 ± 3	10 ± 3	11 ± 3	7 ± 3	10 ± 3
17	9 ± 2	10 ± 3	10 ± 3	11 ± 3	9 ± 3	11 ± 3
18	18 ± 4	13 ± 3	14 ± 3	13 ± 3	12 ± 3	11 ± 3
19	5 ± 3	3 ± 3	5 ± 3	7 ± 3	5 ± 3	4 ± 3
20	8 ± 3	6 ± 3	8 ± 3	8 ± 3	9 ± 3	6 ± 3
21	19 ± 3	16 ± 3	19 ± 3	16 ± 3	16 ± 3	15 ± 3
22	8 ± 3	9 ± 3	10 ± 3	9 ± 3	11 ± 3	6 ± 3
23	9 ± 2	9 ± 2	12 ± 2	11 ± 2	9 ± 2	11 ± 2
24	10 ± 3	12 ± 4	14 ± 4	13 ± 4	11 ± 4	11 ± 4
25	11 ± 3	10 ± 3	9 ± 3	11 ± 3	9 ± 3	10 ± 3
26	15 ± 3	16 ± 3	15 ± 3	17 ± 3	14 ± 3	17 ± 3
27	16 ± 3	17 ± 3	18 ± 3	13 ± 3	12 ± 3	13 ± 3
28	18 ± 4	15 ± 3	18 ± 3	18 ± 4	14 ± 3	20 ± 4
29	21 ± 3	24 ± 3	22 ± 3	20 ± 3	20 ± 3	20 ± 3
30	13 ± 3	18 ± 3	15 ± 3	13 ± 3	13 ± 3	11 ± 3
31	16 ± 3	13 ± 3	15 ± 3	12 ± 3	15 ± 3	14 ± 3
32	17 ± 3	16 ± 3	17 ± 3	12 ± 3	14 ± 3	13 ± 3
33	10 ± 4	12 ± 4	14 ± 4	10 ± 4	11 ± 4	10 ± 4
34	17 ± 3	13 ± 3	15 ± 3	14 ± 3	11 ± 3	16 ± 3
35	26 ± 4	26 ± 4	29 ± 4	25 ± 4	23 ± 4	21 ± 4
36	17 ± 3	17 ± 3	18 ± 3	18 ± 3	20 ± 3	17 ± 3
37	17 ± 4	20 ± 4	14 ± 4	15 ± 4	16 ± 4	14 ± 4
38	22 ± 3	21 ± 3	23 ± 3	24 ± 4	21 ± 3	22 ± 3
39	6 ± 3	7 ± 3	8 ± 3	7 ± 3	6 ± 3	9 ± 3
40	16 ± 3	15 ± 3	17 ± 3	16 ± 3	17 ± 3	19 ± 3
41	12 ± 3	11 ± 3	14 ± 3	14 ± 3	13 ± 3	12 ± 3
42	20 ± 3	18 ± 3	19 ± 3	20 ± 3	22 ± 4	20 ± 3
43	33 ± 4	18 ± 3	20 ± 3	16 ± 3	17 ± 3	16 ± 3
44	17 ± 3	16 ± 3	20 ± 3	20 ± 3	18 ± 3	19 ± 3
45	8 ± 3	8 ± 3	7 ± 3	8 ± 3	7 ± 3	8 ± 3
46	11 ± 3	13 ± 3	13 ± 3	12 ± 3	14 ± 3	12 ± 3
47	13 ± 3	13 ± 3	12 ± 3	16 ± 3	14 ± 3	12 ± 3
48	11 ± 3	10 ± 3	10 ± 3	12 ± 3	11 ± 3	10 ± 3
49	15 ± 3	18 ± 4	18 ± 4	18 ± 4	18 ± 4	16 ± 4
50	14 ± 3	9 ± 3	11 ± 3	12 ± 3	14 ± 5	11 ± 3
51	16 ± 3	16 ± 3	16 ± 3	17 ± 3	(1)	14 ± 3
52	27 ± 3	33 ± 4	24 ± 3	25 ± 3	19 ± 3	27 ± 4
MEAN	15 ± 11	14 ± 10	15 ± 9	15 ± 9	14 ± 8	14 ± 9

(1) SEE PROGRAM EXCEPTIONS SECTION FOR EXPLANATION

TABLE C-V.1 CONCENTRATIONS OF GROSS BETA IN AIR PARTICULATE SAMPLES COLLECTED IN THE VICINITY OF LIMERICK GENERATING STATION, 1992

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

GROUP II - INTERMEDIATE DISTANCE LOCATIONS

WEEK	20D1	26B1	29B1	31D1	35B1
01	10 ± 3	11 ± 3	11 ± 3	13 ± 3	12 ± 3
02	18 ± 3	22 ± 4	14 ± 3	19 ± 3	20 ± 3
03	16 ± 3	13 ± 3	13 ± 3	(1)	14 ± 3
04	15 ± 3	15 ± 3	15 ± 3	17 ± 3	19 ± 3
05	24 ± 3	21 ± 3	24 ± 3	23 ± 3	23 ± 3
06	10 ± 3	12 ± 3	8 ± 3	12 ± 3	13 ± 3
07	31 ± 4	15 ± 3	19 ± 3	20 ± 3	18 ± 3
08	13 ± 3	13 ± 3	13 ± 3	11 ± 3	14 ± 3
09	12 ± 3	14 ± 3	10 ± 3	11 ± 3	13 ± 3
10	11 ± 3	12 ± 3	12 ± 3	12 ± 3	11 ± 3
11	16 ± 3	17 ± 3	14 ± 3	14 ± 3	15 ± 3
12	11 ± 3	16 ± 3	14 ± 3	14 ± 3	16 ± 3
13	14 ± 3	14 ± 3	15 ± 3	15 ± 3	14 ± 3
14	10 ± 3	13 ± 3	13 ± 3	11 ± 3	13 ± 3
15	10 ± 3	11 ± 3	13 ± 3	15 ± 3	14 ± 3
16	7 ± 3	9 ± 3	8 ± 3	11 ± 3	7 ± 3
17	10 ± 3	7 ± 2	11 ± 3	9 ± 2	11 ± 3
18	15 ± 3	14 ± 3	13 ± 3	10 ± 3	14 ± 3
19	6 ± 3	6 ± 3	6 ± 3	6 ± 3	4 ± 3
20	5 ± 3	8 ± 3	9 ± 3	8 ± 3	11 ± 3
21	18 ± 3	15 ± 3	14 ± 3	17 ± 3	17 ± 3
22	7 ± 3	9 ± 3	9 ± 3	9 ± 3	12 ± 3
23	10 ± 2	11 ± 2	12 ± 2	9 ± 2	11 ± 2
24	12 ± 3	14 ± 4	11 ± 3	13 ± 4	11 ± 3
25	10 ± 3	9 ± 3	8 ± 3	9 ± 3	11 ± 3
26	15 ± 3	16 ± 3	16 ± 3	16 ± 3	16 ± 3
27	(1)	(1)	16 ± 3	15 ± 3	14 ± 3
28	17 ± 3	14 ± 3	17 ± 3	19 ± 4	18 ± 3
29	21 ± 3	22 ± 3	21 ± 3	22 ± 3	18 ± 3
30	14 ± 3	13 ± 3	12 ± 3	15 ± 3	15 ± 3
31	14 ± 3	14 ± 3	16 ± 3	16 ± 3	15 ± 3
32	16 ± 3	13 ± 3	15 ± 3	16 ± 3	11 ± 3
33	14 ± 4	13 ± 4	8 ± 4	9 ± 4	23 ± 4
34	14 ± 3	11 ± 3	15 ± 3	14 ± 3	17 ± 3
35	26 ± 4	24 ± 4	22 ± 4	25 ± 4	19 ± 4
36	18 ± 3	14 ± 3	16 ± 3	17 ± 3	18 ± 3
37	16 ± 4	16 ± 4	12 ± 4	13 ± 4	12 ± 4
38	23 ± 3	18 ± 3	21 ± 3	20 ± 3	21 ± 3
39	7 ± 3	9 ± 3	5 ± 3	8 ± 3	7 ± 3
40	15 ± 3	15 ± 3	18 ± 3	17 ± 3	19 ± 3
41	12 ± 3	14 ± 3	12 ± 3	11 ± 3	15 ± 3
42	20 ± 3	19 ± 3	23 ± 4	16 ± 3	21 ± 3
43	15 ± 3	17 ± 3	16 ± 3	16 ± 3	17 ± 3
44	20 ± 3	18 ± 3	20 ± 3	18 ± 3	19 ± 3
45	7 ± 3	8 ± 3	9 ± 3	9 ± 3	6 ± 3
46	11 ± 3	10 ± 3	12 ± 3	13 ± 3	14 ± 3
47	12 ± 3	13 ± 3	14 ± 3	17 ± 3	16 ± 3
48	12 ± 3	11 ± 3	11 ± 3	14 ± 3	12 ± 3
49	14 ± 3	15 ± 3	15 ± 3	15 ± 3	19 ± 4
50	13 ± 4	12 ± 3	11 ± 3	13 ± 3	10 ± 3
51	18 ± 3	13 ± 3	16 ± 3	14 ± 3	17 ± 3
52	27 ± 4	24 ± 3	26 ± 3	24 ± 3	27 ± 3
MEAN	14 ± 11	14 ± 8	14 ± 9	14 ± 9	15 ± 9

(1) SEE PROGRAM EXCEPTIONS SECTION FOR EXPLANATION

TABLE C-V.1 CONCENTRATIONS OF GROSS BETA IN AIR PARTICULATE SAMPLES COLLECTED IN THE VICINITY OF LIMERICK GENERATING STATION, 1992

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

GROUP III - CONTROL LOCATIONS

WEEK	13B4		22G1	
01	15	± 3	11	± 3
02	23	± 3	19	± 3
03	21	± 3	14	± 3
04	21	± 3	15	± 3
05	24	± 4	21	± 3
06	13	± 3	10	± 3
07	18	± 3	16	± 3
08	16	± 3	12	± 3
09	14	± 3	8	± 3
10	14	± 3	12	± 3
11	19	± 3	14	± 3
12	16	± 3	13	± 3
13	16	± 3	13	± 3
14	11	± 3	8	± 3
15	20	± 3	11	± 3
16	12	± 3	10	± 3
17	13	± 3	8	± 2
18	15	± 3	13	± 3
19	9	± 2	4	± 3
20	14	± 3	6	± 3
21	17	± 3	17	
22	12	± 3	10	± 3
23	11	± 3	11	± 2
24	15	± 3	13	± 4
25	12	± 3	10	± 3
26	21	± 3	15	± 3
27	19	± 3	15	± 3
28	20	± 3	19	± 4
29	18	± 3	22	± 3
30	24	± 7	14	± 3
31	17	± 3	16	± 3
32	22	± 3	13	± 3
33	16	± 3	9	± 4
34	24	± 3	16	± 3
35	24	± 3	28	± 4
36	18	± 3	20	± 4
37	16	± 3	12	± 4
38	21	± 3	16	± 3
39	10	± 2	6	± 3
40	20	± 3	14	± 3
41	20	± 3	12	± 3
42	26	± 3	17	± 3
43	17	± 3	17	± 3
44	17	± 3	18	± 3
45	6	± 3	5	± 3
46	18	± 3	15	± 3
47	17	± 3	9	± 3
48	13	± 3	11	± 3
49	20	± 3	14	± 4
50	12	± 2	11	± 3
51	17	± 3	16	± 3
52	24	± 3	26	± 4
MEAN	17	± 9	14	± 10

TABLE C-V.2 CONCENTRATIONS OF GAMMA EMITTERS IN AIR PARTICULATE SAMPLES COLLECTED IN THE VICINITY OF LIMERICK GENERATING STATION, 1992

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

STATION CODE	COLLECTION PERIOD	BE-7	K-40	CS-134	CS-137
10S3	12/30-03/30	50 ± 6	< 4	< 0.2	< 0.2
	03/30-06/29	77 ± 8	14 ± 4	< 0.2	< 0.2
	06/29-09/28	63 ± 6	39 ± 6	< 0.2	< 0.2
	09/28-12/29	51 ± 7	29 ± 6	< 0.3	< 0.3
	MEAN	60 ± 25	22 ± 31	< 0.2	< 0.2
11S1	12/30-03/30	48 ± 5	< 3	< 0.2	< 0.1
	03/30-06/29	69 ± 7	19 ± 5	< 0.2	< 0.2
	06/29-09/28	63 ± 7	5 ± 5	< 0.2	< 0.2
	09/28-12/29	51 ± 7	5 ± 4	< 0.2	< 0.3
	MEAN	58 ± 20	8 ± 15	< 0.2	< 0.2
14S1	12/30-03/30	60 ± 6	6 ± 3	< 0.2	< 0.2
	03/30-06/29	61 ± 7	5 ± 4	< 0.2	< 0.2
	06/29-09/28	55 ± 6	6 ± 4	< 0.2	< 0.2
	09/28-12/29	48 ± 5	6 ± 4	< 0.2	< 0.2
	MEAN	56 ± 12	6 ± 1	< 0.2	< 0.2
13C1	12/30-03/30	60 ± 6	< 7	< 0.2	< 0.2
	03/30-06/29	64 ± 7	6 ± 4	< 0.3	< 0.2
	06/29-09/28	70 ± 7	< 3	< 0.2	< 0.1
	09/28-12/29	51 ± 7	< 4	< 0.3	< 0.2
	MEAN	61 ± 16	5 ± 4	< 0.3	< 0.2
13B4	12/30-03/30	60 ± 7	< 4	< 0.2	< 0.3
	03/30-06/29	72 ± 7	12 ± 4	< 0.2	< 0.1
	06/29-09/28	78 ± 8	5 ± 4	< 0.2	< 0.2
	09/28-12/29	50 ± 6	< 7	< 0.3	< 0.2
	MEAN	65 ± 25	7 ± 7	< 0.2	< 0.2

TABLE C-VI.1 CONCENTRATIONS OF I-131 BY GAMMA SPEC IN AIR IODINE SAMPLES COLLECTED IN THE VICINITY OF LIMERICK GENERATING STATION, 1992

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

	GROUP I			GROUP II	GROUP III
WEEK	10S3	11S1	14S1	13C1	13H4
01	< 9	< 9	< 9	< 9	< 20
02	< 10	< 10	< 10	< 10	< 20
03	< 9	< 9	< 9	< 9	< 10
04	< 9	< 20	< 20	< 9	< 8
05	< 20	< 10	< 20	< 20	< 20
06	< 10	< 10	< 10	< 10	< 20
07	< 8	< 8	< 9	< 7	< 6
08	< 9	< 9	< 9	< 9	< 6
09	< 8	< 8	< 8	< 8	< 5
10	< 8	< 8	< 8	< 9	< 9
11	< 8	< 8	< 8	< 8	< 10
12	< 9	< 9	< 9	< 10	< 10
13	< 9	< 9	< 9	< 9	< 6
14	< 9	< 8	< 9	< 9	< 5
15	< 8	< 8	< 8	< 8	< 10
16	< 7	< 7	< 7	< 7	< 10
17	< 9	< 9	< 9	< 9	< 5
18	< 6	< 6	< 7	< 7	< 10
19	< 10	< 10	< 10	< 10	< 5
20	< 10	< 9	< 10	< 10	< 40
21	< 9	< 9	< 9	< 9	< 30
22	< 8	< 8	< 8	< 8	< 20
23	< 5	< 5	< 5	< 5	< 9
24	< 9	< 9	< 9	< 9	< 10
25	< 10	< 10	< 10	< 10	< 8
26	< 10	< 10	< 10	< 9	< 10
27	< 10	< 10	< 10	< 10	< 20
28	< 3	< 3	< 3	< 3	< 9
29	< 10	< 10	< 10	< 10	< 20
30	< 9	< 9	< 9	< 9	< 9
31	< 8	< 8	< 8	< 8	< 40
32	< 10	< 10	< 10	< 10	< 30
33	< 4	< 4	< 4	< 4	< 10
34	< 8	< 9	< 9	< 8	< 10
35	< 8	< 8	< 8	< 8	< 20
36	< 9	< 9	< 9	< 9	< 10
37	< 10	< 40	< 10	< 30	< 10
38	< 10	< 10	< 10	< 10	< 6
39	< 9	< 9	< 9	< 9	< 7
40	< 10	< 10	< 10	< 10	< 8
41	< 9	< 10	< 10	< 9	< 10
42	< 8	< 8	< 8	< 8	< 10
43	< 10	< 10	< 10	< 10	< 10
44	< 10	< 10	< 10	< 10	< 9
45	< 4	< 4	< 4	< 4	< 9
46	< 10	< 10	< 10	< 10	< 4
47	< 1	< 1	< 1	< 1	< 20
48	< 8	< 8	< 8	< 8	< 7
49	< 3	< 3	< 3	< 3	< 5
50	< 8	< 8	< 8	< 8	< 10
51	< 6	< 4	< 4	< 3	< 7
52	< 10	< 10	< 10	< 20	< 20
MEAN	< 8	< 9	< 9	< 9	< 13

TABLE C-VII.1 CONCENTRATIONS OF I-131 BY RADIOCHEMISTRY IN MILK SAMPLES COLLECTED IN THE VICINITY OF LIMERICK GENERATING STATION, 1992

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

	CONTROL FARMS			INDICATOR FARMS					
COLLECTION DATE	36E1	9G1	22F1	10B1	18C1	19B1	21B1	22C1	25B1
01/14/92	0.01 ± 0.04	0.02 ± 0.04	-0.03 ± 0.04	0.03 ± 0.04	0.01 ± 0.03	-0.03 ± 0.03	-0.05 ± 0.05	-0.03 ± 0.06	-0.04 ± 0.07
02/11/92			0.00 ± 0.04	0.02 ± 0.04		0.00 ± 0.03	-0.02 ± 0.04		0.01 ± 0.04
03/17/92			-0.05 ± 0.07	-0.03 ± 0.08		0.00 ± 0.09	-0.06 ± 0.07		-0.06 ± 0.09
04/14/92	-0.03 ± 0.04	0.04 ± 0.04	-0.05 ± 0.05	0.01 ± 0.05	0.00 ± 0.05	-0.03 ± 0.05	0.03 ± 0.06	-0.03 ± 0.05	0.02 ± 0.06
04/28/92			-0.02 ± 0.04	-0.02 ± 0.04		0.00 ± 0.03	-0.02 ± 0.04		-0.01 ± 0.04
05/12/92			-0.04 ± 0.10	-0.02 ± 0.04		0.0 ± 0.2	-0.1 ± 0.1		0.02 ± 0.05
05/26/92			-0.05 ± 0.06	-0.04 ± 0.04		-0.03 ± 0.06	0.06 ± 0.06		-0.09 ± 0.05
06/09/92			0.07 ± 0.07	0.00 ± 0.05		0.02 ± 0.08	-0.03 ± 0.06		-0.01 ± 0.06
06/23/92			-0.02 ± 0.03	-0.01 ± 0.08		0.00 ± 0.08	0.1 ± 0.2		0.03 ± 0.05
07/07/92	0.2 ± 0.3	-0.03 ± 0.06	-0.1 ± 0.1	-0.03 ± 0.06	-0.05 ± 0.10	-0.02 ± 0.07	0.01 ± 0.06	-0.02 ± 0.07	0.1 ± 0.2
07/21/92			0.1 ± 0.1	-0.02 ± 0.05		-0.2 ± 0.2	0.04 ± 0.05		0.03 ± 0.08
08/04/92			-0.02 ± 0.04	0.01 ± 0.04		0.02 ± 0.04	0.01 ± 0.04		-0.07 ± 0.05
08/18/92			0.0 ± 0.1	-0.08 ± 0.09		-0.03 ± 0.05	-0.11 ± 0.07		-0.05 ± 0.05
09/01/92			-0.01 ± 0.06	-0.01 ± 0.04		-0.01 ± 0.05	-0.08 ± 0.06		-0.02 ± 0.04
09/15/92			-0.06 ± 0.07	-0.03 ± 0.06		0.00 ± 0.03	0.01 ± 0.08		0.02 ± 0.08
09/29/92			-0.01 ± 0.06	-0.02 ± 0.05		-0.02 ± 0.08	-0.01 ± 0.07		-0.04 ± 0.06
10/13/92	0.00 ± 0.06	-0.03 ± 0.05	0.00 ± 0.05	-0.02 ± 0.04	-0.01 ± 0.06	0.05 ± 0.06	-0.03 ± 0.05	-0.08 ± 0.05	0.03 ± 0.06
10/27/92			0.02 ± 0.05	0.02 ± 0.04		0.1 ± 0.1	0.00 ± 0.05		0.02 ± 0.04
11/10/92			-0.1 ± 0.2	0.01 ± 0.09		0.01 ± 0.04	0.02 ± 0.06		0.1 ± 0.1
11/24/92			-0.04 ± 0.04	(1)		0.04 ± 0.07	0.08 ± 0.08		-0.02 ± 0.05
12/15/92			0.03 ± 0.04	-0.05 ± 0.08		-0.01 ± 0.05	-0.05 ± 0.05		-0.04 ± 0.05
MEAN	0.06 ± 0.25	0.00 ± 0.06	-0.02 ± 0.09	-0.01 ± 0.05	-0.01 ± 0.05	-0.01 ± 0.12	-0.01 ± 0.10	-0.04 ± 0.06	-0.01 ± 0.08

(1) SEE PROGRAM EXCEPTIONS SECTION FOR EXPLANATION
NOTE: STATION 10B1 IS A GOAT MILK FARM

TABLE C-VII.2 CONCENTRATIONS OF GAMMA EMITTERS IN MILK SAMPLES COLLECTED IN THE VICINITY OF LIMERICK GENERATING STATION, 1992

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

STATION CODE	COLLECTION DATE	K-40	CS-134	CS-137	BA-140	LA-140	RA-226
10B1	01/14-01/14	1400 ± 100	< 2	4 ± 3	< 6	< 2	< 30
	02/11-02/11	1400 ± 100	< 2	< 2	< 7	< 3	< 40
	03/17-03/17	1700 ± 200	< 2	< 2	< 7	< 2	190 ± 90
	04/14-04/14	1600 ± 200	< 2	3 ± 3	< 6	< 2	< 30
	04/28-04/28	1600 ± 200	< 2	< 2	< 7	< 3	< 40
	05/12-05/12	1400 ± 100	< 2	< 2	< 7	< 2	< 40
	05/26-05/26	1700 ± 200	< 1	3 ± 2	< 3	< 1	< 30
	06/09-06/09	1700 ± 200	< 2	< 2	< 7	< 3	< 40
	06/23-06/23	1600 ± 200	< 2	< 2	< 6	< 2	< 40
	07/07-07/07	1700 ± 200	< 1	< 1	< 4	< 1	< 30
	07/21-07/21	1600 ± 200	< 2	< 2	< 5	< 2	< 30
	08/04-08/04	1800 ± 200	< 1	< 2	< 4	< 2	< 20
	08/18-08/18	1500 ± 200	< 2	< 2	< 6	< 2	< 40
	09/01-09/01	1800 ± 200	< 2	7 ± 4	< 7	< 3	< 40
	09/15-09/15	1800 ± 200	< 2	7 ± 3	< 5	< 2	< 30
	09/29-09/29	1600 ± 200	< 2	< 2	< 6	< 2	< 30
	10/13-10/13	1600 ± 200	< 1	< 2	< 5	< 2	< 30
	10/27-10/27	1700 ± 200	< 2	< 2	< 6	< 3	< 30
	11/10-11/10	1500 ± 200	< 2	< 2	< 6	< 2	< 30
	11/24-11/24	(1)					
	12/15-12/15	1800 ± 200	< 2	< 2	< 6	< 2	< 30
	MEAN	1625 ± 267	< 2	3 ± 3	< 6	< 2	41 ± 71
19B1	01/14-01/14	1300 ± 100	< 2	< 2	< 5	< 2	< 40
	02/11-02/11	1400 ± 100	< 2	< 2	< 8	< 3	< 30
	03/17-03/17	1300 ± 100	< 1	< 1	< 5	< 2	60 ± 50
	04/14-04/14	1300 ± 100	< 1	< 1	< 5	< 2	< 30
	04/28-04/28	1400 ± 100	< 2	< 2	< 6	< 2	< 30
	05/12-05/12	1400 ± 100	< 2	< 2	< 6	< 3	< 30
	05/26-05/26	1200 ± 100	< 2	< 2	< 4	< 2	< 30
	06/09-06/09	1300 ± 100	< 2	< 2	< 5	< 2	< 30
	06/23-06/23	1400 ± 100	< 2	< 2	< 8	< 4	< 40
	07/07-07/07	1300 ± 100	< 2	< 2	< 4	< 2	< 30
	07/21-07/21	1400 ± 100	< 1	< 1	< 5	< 2	< 30
	08/04-08/04	1000 ± 100	< 1	< 1	< 3	< 1	< 20
	08/18-08/18	1400 ± 100	< 2	< 2	< 5	< 2	< 30
	09/01-09/01	2000 ± 200	< 2	< 2	< 6	< 2	< 30
	09/15-09/15	1400 ± 100	< 2	< 2	< 6	< 2	< 40
	09/29-09/29	1300 ± 100	< 1	< 1	< 5	< 2	< 30
	10/13-10/13	1400 ± 100	< 2	< 2	< 6	< 2	< 30
	10/27-10/27	1300 ± 100	< 1	< 1	< 5	< 2	< 30
	11/10-11/10	1400 ± 100	< 1	< 1	< 5	< 2	< 30
	11/24-11/24	1400 ± 100	< 2	< 2	< 5	< 2	< 30
	12/15-12/15	1600 ± 200	< 1	< 1	< 5	< 2	< 30
	MEAN	1376 ± 363	< 2	< 2	< 5	< 2	32 ± 15
21B1	01/14-01/14	1200 ± 100	< 2	< 2	< 6	< 2	< 40
	02/11-02/11	1400 ± 100	< 1	< 1	< 5	< 2	< 30
	03/17-03/17	1400 ± 100	< 2	< 2	< 6	< 2	< 30
	04/14-04/14	1500 ± 100	< 1	< 1	< 5	< 2	< 30
	04/28-04/28	1300 ± 100	< 2	< 2	< 6	< 2	< 30
	05/12-05/12	1500 ± 100	< 2	5 ± 3	< 6	< 2	< 30
	05/26-05/26	1400 ± 100	< 2	< 2	< 4	< 2	< 30
	06/09-06/09	1300 ± 100	< 2	< 2	< 5	< 2	< 40
	06/23-06/23	1400 ± 100	< 2	< 2	< 6	< 3	< 40
	07/07-07/07	1300 ± 100	< 2	< 2	< 4	< 2	< 30
	07/21-07/21	1400 ± 100	< 2	< 2	< 6	< 2	< 40
	08/04-08/04	1100 ± 100	< 1	< 1	< 5	< 2	< 30
	08/18-08/18	1300 ± 100	< 2	< 2	< 5	< 2	< 30
	09/01-09/01	1700 ± 200	< 1	< 1	< 5	< 2	< 30
	09/15-09/15	1400 ± 100	< 2	< 2	< 6	< 3	< 30
	09/29-09/29	1600 ± 100	< 2	< 2	< 6	< 3	< 30
	10/13-10/13	1200 ± 100	< 2	< 2	< 6	< 2	< 40
	10/27-10/27	1300 ± 100	< 1	< 1	< 5	< 2	< 30
	11/10-11/10	1500 ± 100	< 1	< 1	< 4	< 2	< 30
	11/24-11/24	1600 ± 200	< 2	< 2	< 6	< 2	< 30
	12/15-12/15	1400 ± 100	< 1	< 1	< 5	< 2	< 30
	MEAN	1381 ± 273	< 2	2 ± 2	< 5	< 2	< 32

(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, 1992

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

STATION CODE	COLLECTION DATE	K-40	CS-134	CS-137	BA-140	LA-140	RA-226
25B1	01/14-01/14	1400 ± 100	< 2	< 2	< 5	< 2	< 30
	02/11-02/11	1300 ± 100	< 1	< 1	< 5	< 2	< 30
	03/17-03/17	1300 ± 100	< 2	< 2	< 5	< 2	< 30
	04/14-04/14	1300 ± 100	< 2	< 2	< 6	< 2	< 30
	04/28-04/28	1300 ± 100	< 1	< 1	< 5	< 2	< 30
	05/12-05/12	1300 ± 100	< 1	< 1	< 5	< 2	< 30
	05/26-05/26	1300 ± 100	< 1	< 1	< 4	< 1	< 30
	06/09-06/09	1400 ± 100	< 1	< 1	< 5	< 2	< 30
	06/23-06/23	1500 ± 100	< 2	< 1	< 5	< 2	< 30
	07/07-07/07	1300 ± 100	< 1	< 2	< 4	< 1	< 30
	07/21-07/21	1500 ± 100	< 2	< 2	< 5	< 2	< 30
	08/04-08/04	1600 ± 100	< 1	< 1	< 4	< 2	< 20
	08/18-08/18	1300 ± 100	< 2	< 2	< 5	< 2	< 30
	09/01-09/01	1400 ± 100	< 1	< 1	< 5	< 2	< 30
	09/15-09/15	1600 ± 200	< 2	< 2	< 6	< 2	< 30
	09/29-09/29	1400 ± 100	< 2	< 2	< 7	< 3	< 40
	10/13-10/13	1500 ± 100	< 2	< 2	< 5	< 2	< 30
	10/27-10/27	1400 ± 100	< 2	< 2	< 6	< 2	< 30
	11/10-11/10	1400 ± 100	< 2	< 2	< 5	< 2	< 30
	11/24-11/24	1400 ± 100	< 1	< 1	< 5	< 2	< 30
	12/15-12/15	1200 ± 100	< 2	< 2	< 5	< 2	< 30
	MEAN	1376 ± 189	< 2	< 2	< 5	< 2	< 30
22F1	01/14-01/14	1300 ± 100	< 2	< 2	< 5	< 2	< 40
	02/11-02/11	1300 ± 100	< 2	< 2	< 10	< 5	< 30
	03/17-03/17	1300 ± 100	< 2	< 2	< 6	< 2	< 40
	04/14-04/14	1300 ± 100	< 2	7 ± 3	< 7	< 3	< 40
	04/28-04/28	1300 ± 100	< 2	3 ± 2	< 6	< 2	< 40
	05/12-05/12	1300 ± 100	< 2	< 2	< 6	< 2	< 40
	05/26-05/26	1300 ± 100	< 2	< 2	< 4	< 2	< 40
	06/09-06/09	1300 ± 100	< 2	< 2	< 5	< 3	< 40
	06/23-06/23	1400 ± 100	< 2	< 2	< 6	< 3	< 40
	07/07-07/07	1300 ± 100	< 2	< 2	< 4	< 2	< 40
	07/21-07/21	1400 ± 100	< 2	< 2	< 6	< 2	< 40
	08/04-08/04	1400 ± 100	< 1	< 1	< 4	< 1	< 20
	08/18-08/18	1500 ± 100	< 2	< 2	< 5	< 2	< 40
	09/01-09/01	1400 ± 100	< 2	< 2	< 6	< 2	< 40
	09/15-09/15	1400 ± 100	< 2	7 ± 4	< 6	< 2	< 40
	09/29-09/29	1400 ± 100	< 2	< 2	< 6	< 3	< 40
	10/13-10/13	1300 ± 100	< 2	< 2	< 6	< 2	< 40
	10/27-10/27	1500 ± 100	< 2	< 2	< 7	< 3	< 40
	11/10-11/10	1400 ± 100	< 2	< 2	< 6	< 3	< 40
	11/24-11/24	1500 ± 200	< 2	< 2	< 5	< 2	< 30
	12/15-12/15	1500 ± 100	< 2	< 2	< 6	< 3	< 40
	MEAN	1371 ± 157	< 2	2 ± 3	< 6	< 2	< 38

TABLE C-VIII.1 MONTHLY TLD RESULTS FOR LIMERICK GENERATING STATION, 1992
RESULTS IN UNITS OF MILLI-ROENTGEN/STD. MO. ± 2 S.D.

STATION CODE	MEAN ± 2 S.D. (1)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
36S2	8.0 ± 1.7	7.6 ± 0.8	8.3 ± 0.6	7.7 ± 0.7	8.7 ± 0.4	8.5 ± 0.6	8.4 ± 0.9	9.2 ± 1.0	9.2 ± 0.7	7.8 ± 0.1	6.6 ± 0.1	7.1 ± 0.3	7.1 ± 0.3
2B1	7.0 ± 1.5	6.6 ± 0.4	7.1 ± 0.6	7.5 ± 1.8	8.0 ± 0.6	7.6 ± 0.4	7.7 ± 1.1	8.0 ± 0.4	7.2 ± 0.7	6.6 ± 0.4	5.9 ± 0.6	6.2 ± 0.2	6.1 ± 0.1
2E1	7.8 ± 1.6	7.3 ± 0.1	7.8 ± 0.7	7.2 ± 0.7	8.6 ± 0.4	8.0 ± 0.3	7.9 ± 0.5	9.3 ± 0.9	9.0 ± 0.8	8.0 ± 0.4	7.2 ± 0.7	7.2 ± 0.7	6.7 ± 0.1
3S1	7.6 ± 1.7	7.2 ± 0.1	8.0 ± 0.4	7.3 ± 0.8	8.4 ± 0.5	9.2 ± 0.5	8.3 ± 0.7	8.2 ± 1.2	8.2 ± 0.8	7.2 ± 0.2	6.6 ± 0.2	6.5 ± 0.5	6.7 ± 0.1
4E1	6.3 ± 1.9	5.6 ± 0.3	6.5 ± 0.6	6.1 ± 0.7	7.4 ± 0.2	6.5 ± 0.5	7.1 ± 0.2	7.4 ± 0.9	7.9 ± 1.5	5.9 ± 0.1	4.9 ± 0.4	5.4 ± 0.4	5.3 ± 0.4
5S1	8.7 ± 1.4	7.8 ± 0.2	9.3 ± 1.2	8.3 ± 0.9	9.5 ± 0.3	8.8 ± 0.3	9.6 ± 0.5	9.4 ± 0.2	9.6 ± 0.6	8.2 ± 0.4	8.2 ± 0.6	7.9 ± 0.2	8.0 ± 0.8
5H1	8.9 ± 1.6	8.5 ± 0.2	9.7 ± 0.5	8.6 ± 1.1	9.3 ± 0.6	9.4 ± 0.6	9.1 ± 0.6	10.1 ± 1.5	10.1 ± 1.1	8.8 ± 0.7	7.8 ± 0.4	7.8 ± 0.2	8.2 ± 0.5
6C1	7.9 ± 2.0	7.1 ± 0.2	7.9 ± 0.5	7.6 ± 1.4	8.5 ± 0.3	8.0 ± 0.5	8.5 ± 0.9	9.3 ± 2.2	9.9 ± 1.5	7.6 ± 0.4	7.1 ± 0.4	6.9 ± 0.4	6.7 ± 0.1
7S1	8.2 ± 2.3	7.5 ± 0.7	8.4 ± 0.5	7.5 ± 0.5	8.8 ± 0.3	8.9 ± 2.2	8.7 ± 0.5	10.9 ± 4.0	8.8 ± 1.6	7.7 ± 0.1	6.8 ± 0.2	7.2 ± 0.3	6.9 ± 0.2
7E1	7.9 ± 1.9	7.7 ± 0.8	7.6 ± 0.4	7.6 ± 0.7	7.9 ± 0.1	8.0 ± 0.5	9.0 ± 1.1	9.3 ± 1.1	9.1 ± 0.5	8.4 ± 0.3	6.6 ± 0.2	6.9 ± 0.3	6.5 ± 0.2
9C1	7.3 ± 1.5	7.9 ± 0.7	6.9 ± 0.3	7.2 ± 0.3	8.2 ± 0.4	7.8 ± 0.6	7.4 ± 0.6	8.6 ± 0.9	7.6 ± 1.1	6.9 ± 0.5	6.4 ± 0.3	6.5 ± 0.2	6.4 ± 0.1
10S3	8.2 ± 1.8	7.3 ± 0.2	8.3 ± 0.5	7.8 ± 0.4	8.8 ± 0.3	7.9 ± 0.6	8.6 ± 0.8	9.0 ± 0.9	9.3 ± 0.7	7.7 ± 0.3	6.8 ± 0.5	7.1 ± 0.2	9.6 ± 0.5
10E1	7.8 ± 1.8	7.3 ± 0.4	8.4 ± 0.3	7.5 ± 0.3	8.5 ± 0.3	8.1 ± 0.4	8.4 ± 0.9	8.8 ± 1.5	8.7 ± 0.6	7.8 ± 0.4	5.8 ± 0.3	6.7 ± 0.2	7.0 ± 0.5
10F3	7.9 ± 1.8	7.2 ± 0.5	8.0 ± 0.2	7.8 ± 0.9	8.5 ± 0.4	8.0 ± 0.5	9.2 ± 0.3	9.5 ± 1.5	8.0 ± 0.9	8.5 ± 0.4	6.7 ± 0.3	6.8 ± 0.3	7.0 ± 0.6
11S1	8.7 ± 1.6	7.8 ± 0.5	9.0 ± 0.4	8.4 ± 0.6	9.3 ± 0.4	8.5 ± 0.3	9.6 ± 0.6	10.0 ± 1.5	9.5 ± 1.1	8.5 ± 0.3	8.1 ± 0.5	7.6 ± 0.3	7.7 ± 0.3
13C1	6.1 ± 1.7	5.5 ± 0.4	6.5 ± 0.3	5.8 ± 0.9	7.0 ± 0.7	6.2 ± 0.2	6.3 ± 0.3	7.6 ± 1.4	7.0 ± 0.9	5.4 ± 0.3	5.2 ± 0.2	5.0 ± 0.2	5.3 ± 0.3
13E1	7.8 ± 1.5	7.2 ± 0.3	8.1 ± 1.0	7.6 ± 0.7	7.9 ± 0.0	8.0 ± 0.3	8.6 ± 0.5	9.1 ± 1.3	9.1 ± 0.8	7.4 ± 0.4	7.0 ± 0.2	6.9 ± 0.4	7.2 ± 0.2
13H4	5.2 ± 3.3	5.4 ± 0.1	1.7 ± 0.3	6.1 ± 0.4	(2)	4.2 ± 0.3	5.2 ± 0.6	6.2 ± 0.4	4.4 ± 0.3	6.0 ± 0.2	8.3 ± 0.2	5.6 ± 0.2	4.4 ± 0.6
14S1	7.3 ± 1.7	6.7 ± 0.7	7.3 ± 0.5	7.0 ± 0.8	7.8 ± 0.6	7.3 ± 0.6	8.0 ± 1.0	8.1 ± 0.9	8.9 ± 0.4	6.9 ± 0.2	6.1 ± 0.4	6.1 ± 0.1	6.8 ± 0.2
15D1	7.9 ± 2.4	7.3 ± 0.4	8.2 ± 0.3	7.8 ± 0.8	8.5 ± 0.7	8.2 ± 0.8	8.5 ± 0.4	9.0 ± 0.8	10.1 ± 1.1	7.6 ± 0.3	5.4 ± 0.4	6.7 ± 0.3	7.5 ± 0.4
16S2	7.2 ± 1.6	6.3 ± 0.4	7.1 ± 0.5	6.8 ± 0.2	6.9 ± 0.2	7.4 ± 0.3	7.7 ± 1.8	8.3 ± 1.4	8.2 ± 1.3	6.9 ± 0.3	8.3 ± 1.3	5.9 ± 0.4	6.4 ± 0.3
16F1	8.1 ± 1.9	7.3 ± 0.6	8.1 ± 0.3	8.2 ± 0.8	8.7 ± 0.9	7.9 ± 0.6	8.9 ± 0.9	9.4 ± 0.8	9.5 ± 1.5	7.9 ± 0.3	6.7 ± 0.5	6.7 ± 0.3	7.4 ± 0.3
17B1	7.4 ± 1.3	7.0 ± 0.3	7.7 ± 0.4	7.7 ± 1.3	8.3 ± 0.3	7.6 ± 0.3	6.9 ± 0.2	8.2 ± 1.1	8.4 ± 0.5	7.1 ± 0.3	7.2 ± 0.6	6.4 ± 0.3	6.7 ± 0.1
18S1	7.0 ± 1.5	6.7 ± 1.2	7.2 ± 0.5	6.9 ± 1.0	7.7 ± 0.3	7.3 ± 0.3	7.4 ± 0.5	7.8 ± 0.1	8.3 ± 0.7	6.8 ± 0.9	5.8 ± 0.6	6.0 ± 0.4	6.3 ± 1.3

1. MEAN AND TWO TIMES THE STANDARD DEVIATION OF THE MONTHLY RESULTS.
2. SEE PROGRAM EXCEPTIONS SECTION FOR EXPLANATION.

TABLE C-VIII.1 MONTHLY TLD RESULTS FOR LIMERICK GENERATING STATION, 1992
RESULTS IN UNITS OF MILLI-ROENTGEN/STD. MO. ± 2 S.D.

STATION CODE	MEAN ± 2 S.D. (1)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
18G1	5.9 ± 1.6	5.4 ± 0.5	6.2 ± 0.5	5.7 ± 0.2	7.1 ± 0.2	5.7 ± 0.2	[illegible] ± 0.7	6.7 ± 0.8	7.1 ± 0.4	5.4 ± 0.3	5.1 ± 0.3	5.0 ± 0.2	5.1 ± 0.2
19D1	7.4 ± 1.3	6.9 ± 0.6	7.8 ± 0.6	7.1 ± 0.2	7.9 ± 0.3	7.6 ± 0.5	8.0 ± 0.3	8.8 ± 1.0	7.6 ± 1.6	7.2 ± 0.4	6.5 ± 0.2	6.6 ± 1.1	6.8 ± 0.1
20D1	7.2 ± 2.0	6.6 ± 0.4	6.8 ± 0.3	8.0 ± 0.7	8.8 ± 0.1	7.5 ± 0.2	7.8 ± 0.3	8.5 ± 1.6	7.6 ± 0.6	6.5 ± 0.3	6.2 ± 0.3	6.3 ± 0.5	5.5 ± 0.6
20F1	7.8 ± 1.6	7.1 ± 0.4	8.3 ± 0.5	7.2 ± 0.1	9.2 ± 0.9	7.6 ± 0.3	8.5 ± 1.1	8.8 ± 0.5	8.4 ± 0.7	7.0 ± 0.1	6.9 ± 0.4	7.6 ± 0.4	7.1 ± 0.1
21S1	7.1 ± 2.3	7.5 ± 0.1	6.9 ± 0.2	6.7 ± 0.1	8.3 ± 0.2	7.1 ± 1.0	7.2 ± 0.6	8.3 ± 1.4	9.3 ± 1.2	6.5 ± 0.2	5.9 ± 0.4	5.9 ± 0.3	5.2 ± 0.2
22G1	7.2 ± 1.6	6.6 ± 0.6	8.1 ± 0.1	6.9 ± 0.3	8.5 ± 0.3	8.1 ± 0.7	7.6 ± 0.5	7.8 ± 0.7	7.8 ± 1.4	6.5 ± 0.3	6.3 ± 0.3	6.4 ± 0.2	6.3 ± 0.1
23S2	7.3 ± 2.1	7.0 ± 0.2	7.7 ± 0.3	6.8 ± 0.5	8.1 ± 1.0	7.1 ± 0.4	7.9 ± 1.1	8.2 ± 0.5	9.4 ± 1.1	6.9 ± 0.2	5.4 ± 0.3	6.3 ± 0.2	6.6 ± 0.2
24D1	6.9 ± 2.0	6.6 ± 0.6	8.0 ± 0.5	6.4 ± 0.0	8.0 ± 0.9	7.0 ± 0.2	7.0 ± 0.4	8.2 ± 1.4	8.5 ± 1.0	6.2 ± 0.1	5.6 ± 0.3	5.7 ± 0.2	6.0 ± 0.2
25S1	7.1 ± 2.1	6.5 ± 0.3	7.2 ± 1.0	6.4 ± 0.2	8.5 ± 0.1	7.2 ± 0.5	7.4 ± 0.3	7.8 ± 0.9	9.2 ± 1.3	6.8 ± 0.3	5.8 ± 0.2	6.1 ± 0.6	6.1 ± 0.2
25D1	6.6 ± 1.9	6.2 ± 0.5	6.9 ± 0.5	6.0 ± 0.6	8.1 ± 0.4	6.7 ± 0.2	7.3 ± 0.5	7.5 ± 0.9	8.0 ± 1.3	6.0 ± 0.3	5.7 ± 0.3	5.6 ± 0.2	5.2 ± 0.2
26S3	7.0 ± 2.5	6.4 ± 0.2	6.3 ± 0.2	6.3 ± 0.4	8.1 ± 0.5	8.3 ± 0.9	7.4 ± 0.6	8.2 ± 1.3	9.6 ± 1.0	6.5 ± 0.3	5.7 ± 0.5	5.8 ± 0.2	6.0 ± 0.1
26B1	7.4 ± 2.0	6.8 ± 0.3	7.9 ± 0.3	6.8 ± 0.6	8.7 ± 0.3	8.5 ± 0.5	7.7 ± 0.3	8.0 ± 0.6	9.0 ± 0.6	6.6 ± 0.2	6.4 ± 0.4	6.1 ± 0.2	6.3 ± 0.2
28D2	7.1 ± 2.3	6.5 ± 0.3	7.2 ± 0.7	6.5 ± 0.1	8.7 ± 0.4	7.8 ± 0.3	7.3 ± 0.8	7.9 ± 0.3	9.3 ± 1.2	6.7 ± 0.2	6.2 ± 0.2	6.0 ± 0.3	5.3 ± 0.2
29S1	6.9 ± 2.4	6.5 ± 0.3	7.5 ± 0.7	6.2 ± 0.2	7.8 ± 1.2	7.8 ± 0.9	8.1 ± 0.8	7.9 ± 0.7	8.6 ± 1.3	6.4 ± 0.3	4.7 ± 0.4	5.7 ± 0.1	6.0 ± 0.2
29B1	7.4 ± 2.3	6.8 ± 0.4	7.6 ± 0.5	7.2 ± 0.6	8.2 ± 0.2	8.4 ± 0.3	7.8 ± 0.7	8.0 ± 0.7	9.9 ± 0.7	6.6 ± 0.5	5.7 ± 0.2	6.3 ± 0.3	6.3 ± 0.4
29E1	7.6 ± 2.7	6.7 ± 0.2	7.8 ± 0.6	6.5 ± 0.3	8.6 ± 0.4	8.0 ± 0.4	9.9 ± 0.8	9.7 ± 0.5	8.0 ± 1.2	7.0 ± 0.5	6.3 ± 0.3	6.3 ± 0.3	6.0 ± 0.2
31D1	9.0 ± 2.1	8.5 ± 0.8	9.7 ± 0.3	8.9 ± 0.7	10.5 ± 0.3	10.2 ± 0.5	8.3 ± 0.9	9.6 ± 0.6	10.5 ± 1.6	8.3 ± 0.3	7.4 ± 0.4	8.1 ± 0.3	8.4 ± 0.2
31D2	7.9 ± 1.9	7.1 ± 0.2	8.1 ± 0.5	7.7 ± 0.9	9.3 ± 0.5	8.8 ± 0.5	(2)	8.7 ± 0.3	9.1 ± 0.6	7.2 ± 0.3	7.2 ± 0.8	6.7 ± 0.2	7.0 ± 0.3
32S1	6.2 ± 2.4	5.7 ± 0.5	6.6 ± 0.4	5.8 ± 0.7	8.2 ± 0.4	6.8 ± 0.6	5.5 ± 0.7	7.0 ± 0.6	8.1 ± 1.2	5.5 ± 0.2	4.9 ± 0.1	6.0 ± 0.3	4.3 ± 0.3
32G1	7.9 ± 1.9	7.3 ± 0.2	8.2 ± 0.6	7.6 ± 0.4	9.2 ± 0.4	8.6 ± 0.9	7.9 ± 0.5	8.6 ± 1.2	9.6 ± 1.0	7.1 ± 0.4	7.0 ± 0.5	6.7 ± 0.0	7.2 ± 0.2
34S2	8.3 ± 2.5	7.8 ± 0.9	8.5 ± 0.3	8.0 ± 0.2	9.8 ± 0.4	9.3 ± 0.6	7.6 ± 0.6	8.9 ± 0.5	11.0 ± 0.9	7.8 ± 0.6	6.5 ± 0.3	7.4 ± 0.3	7.6 ± 0.1
34E1	7.5 ± 2.3	6.9 ± 0.4	7.8 ± 1.3	7.0 ± 0.6	9.0 ± 0.3	8.3 ± 0.6	7.4 ± 0.7	8.5 ± 1.2	9.6 ± 0.9	7.0 ± 0.5	5.7 ± 0.3	6.6 ± 0.2	6.6 ± 0.4
35B1	7.8 ± 2.3	7.0 ± 0.5	7.9 ± 0.4	7.1 ± 0.3	9.2 ± 0.7	8.8 ± 0.2	8.8 ± 1.1	8.3 ± 0.4	9.7 ± 1.7	6.9 ± 0.2	6.4 ± 0.1	6.6 ± 0.3	6.9 ± 0.4
35F1	8.4 ± 2.3	7.4 ± 0.2	8.2 ± 0.4	7.7 ± 0.3	10.1 ± 0.5	9.2 ± 0.5	8.6 ± 0.9	9.2 ± 0.3	10.6 ± 1.3	7.5 ± 0.2	7.2 ± 0.3	7.3 ± 0.3	7.4 ± 0.4

1. MEAN AND TWO TIMES THE STANDARD DEVIATION OF THE MONTHLY RESULTS.
2. SEE PROGRAM EXCEPTIONS SECTION FOR EXPLANATION.

TABLE C-VIII.2 QUARTERLY TLD RESULTS FOR LIMERICK GENERATING STATION, 1992
RESULTS IN UNITS OF MILLI-ROENTGEN/STD. MO. ± 2 S.D.

STATION CODE	MEAN ± 2 S.D. (1)	JAN-MAR	APR-JUN	JUL-SEP	OCT-DEC
36S2	6.6 ± 1.1	6.6 ± 0.2	6.4 ± 0.1	7.4 ± 0.4	6.1 ± 0.2
2B1	5.9 ± 0.8	5.9 ± 0.4	5.7 ± 0.4	6.5 ± 0.2	5.6 ± 0.2
2E1	6.6 ± 1.5	6.4 ± 0.2	6.0 ± 0.2	7.7 ± 0.3	6.2 ± 0.2
3S1	6.1 ± 1.1	6.0 ± 0.1	5.7 ± 0.2	6.9 ± 0.5	5.8 ± 0.2
4E1	5.0 ± 0.9	4.9 ± 0.2	4.7 ± 0.1	5.6 ± 0.2	4.7 ± 0.1
5S1	7.2 ± 1.4	7.2 ± 0.4	6.6 ± 0.4	8.2 ± 0.8	6.8 ± 0.2
5H1	7.8 ± 0.9	7.6 ± 0.1	7.6 ± 1.0	8.5 ± 0.4	7.5 ± 0.3
6C1	6.5 ± 1.4	6.4 ± 0.4	5.9 ± 0.2	7.5 ± 0.4	6.3 ± 0.3
7S1	6.6 ± 1.3	6.5 ± 0.2	6.0 ± 0.2	7.5 ± 0.4	6.3 ± 0.1
7E1	6.4 ± 1.0	6.6 ± 0.4	6.0 ± 0.5	7.0 ± 0.3	6.0 ± 0.2
9C1	6.3 ± 0.9	6.4 ± 0.3	6.0 ± 0.3	6.8 ± 0.2	5.8 ± 0.1
10S3	6.7 ± 1.4	6.2 ± 0.2	7.0 ± 0.7	7.6 ± 0.5	6.1 ± 0.2
10E1	6.7 ± 0.9	6.6 ± 0.6	7.0 ± 0.3	7.0 ± 0.4	6.1 ± 0.2
10F3	6.6 ± 1.4	6.3 ± 0.1	6.3 ± 0.3	7.6 ± 0.5	6.1 ± 0.1
11S1	7.0 ± 1.5	7.1 ± 0.2	6.3 ± 0.6	8.0 ± 0.5	6.7 ± 0.2
13C1	4.6 ± 0.7	4.7 ± 0.1	4.4 ± 0.1	5.1 ± 0.4	4.4 ± 0.1
13E1	6.3 ± 1.1	6.3 ± 0.2	6.0 ± 0.2	7.1 ± 0.3	5.8 ± 0.1
13H4	4.9 ± 0.8	5.3 ± 0.1	4.6 ± 0.1	5.2 ± 0.2	4.5 ± 0.4
14S1	5.8 ± 0.8	5.8 ± 0.1	5.6 ± 0.4	6.4 ± 0.3	5.5 ± 0.1
15D1	6.6 ± 1.2	6.4 ± 0.2	6.6 ± 0.2	7.4 ± 0.3	6.0 ± 0.2
16S2	5.9 ± 1.4	5.7 ± 0.2	5.5 ± 0.2	6.9 ± 0.4	5.4 ± 0.2
16F1	6.9 ± 1.7	6.7 ± 0.2	6.5 ± 0.2	8.2 ± 0.4	6.3 ± 0.2
17B1	5.9 ± 0.7	6.0 ± 0.2	5.8 ± 0.3	6.4 ± 0.3	5.6 ± 0.1
18S1	5.6 ± 0.9	5.5 ± 0.1	5.4 ± 0.2	6.3 ± 0.2	5.3 ± 0.1
18G1	4.5 ± 0.8	4.7 ± 0.2	4.2 ± 0.1	5.0 ± 0.1	4.1 ± 0.1
19D1	6.3 ± 1.2	5.8 ± 0.2	6.8 ± 0.3	6.8 ± 0.4	5.8 ± 0.1
20D1	5.9 ± 0.6	5.7 ± 0.5	5.7 ± 0.4	6.2 ± 0.3	6.2 ± 0.2
20F1	6.3 ± 1.2	6.0 ± 0.2	5.9 ± 0.1	7.2 ± 0.4	6.0 ± 0.1
21S1	5.8 ± 0.8	5.4 ± 0.2	5.5 ± 0.1	6.3 ± 0.4	5.8 ± 0.2
22G1	6.0 ± 0.5	6.0 ± 0.5	5.9 ± 0.4	6.4 ± 0.3	5.8 ± 0.1
23S2	6.0 ± 0.9	5.8 ± 0.1	5.6 ± 0.1	6.6 ± 0.3	6.1 ± 0.3
24D1	5.6 ± 0.7	5.5 ± 0.2	6.0 ± 0.3	5.9 ± 0.5	5.2 ± 0.3
25S1	5.6 ± 0.9	5.5 ± 0.2	5.4 ± 0.3	6.3 ± 0.3	5.4 ± 0.1
25D1	5.2 ± 0.5	5.2 ± 0.2	4.9 ± 0.2	5.5 ± 0.2	5.2 ± 0.1
26S3	5.7 ± 0.9	5.3 ± 0.3	6.0 ± 0.3	6.2 ± 0.3	5.3 ± 0.1
26B1	6.1 ± 0.6	6.0 ± 0.2	5.8 ± 0.2	6.4 ± 0.2	6.3 ± 0.2
28D2	6.0 ± 1.1	6.4 ± 0.5	5.3 ± 0.3	6.5 ± 0.3	5.8 ± 0.2
29S1	5.7 ± 0.6	5.4 ± 0.3	5.4 ± 0.2	6.0 ± 0.2	5.9 ± 0.2
29B1	6.0 ± 0.7	5.8 ± 0.4	5.8 ± 0.2	6.5 ± 0.5	5.9 ± 0.1
29E1	6.3 ± 1.8	6.3 ± 0.1	5.6 ± 0.2	7.5 ± 0.4	5.6 ± 0.1
31D1	7.8 ± 1.0	7.3 ± 0.3	8.3 ± 0.4	8.0 ± 0.3	7.4 ± 0.2
31D2	6.6 ± 0.9	6.4 ± 0.3	6.4 ± 0.2	7.3 ± 0.6	6.3 ± 0.3
32S1	4.9 ± 0.9	4.7 ± 0.1	4.3 ± 0.3	5.2 ± 0.2	5.3 ± 0.1
32G1	6.5 ± 0.8	6.5 ± 0.2	6.3 ± 0.1	7.1 ± 0.5	6.2 ± 0.1
34S2	6.9 ± 0.9	6.8 ± 0.5	6.6 ± 0.3	7.5 ± 0.1	6.6 ± 0.3
34E1	6.4 ± 1.4	6.2 ± 0.5	5.8 ± 0.1	7.4 ± 0.6	6.2 ± 0.1
35B1	6.3 ± 1.1	6.3 ± 0.6	5.9 ± 0.5	7.1 ± 0.3	6.1 ± 0.2
35F1	7.2 ± 1.5	6.6 ± 0.2	7.7 ± 0.3	8.0 ± 0.2	6.6 ± 0.2

1. MEAN AND TWO TIMES THE STANDARD DEVIATION OF THE QUARTERLY RESULTS.
2. SEE PROGRAM EXCEPTIONS SECTION FOR EXPLANATION.

TABLE C-VIII.3 1992 MEAN TLD RESULTS FROM LIMERICK GENERATING STATION FOR THE SITE BOUNDARY, MIDDLE, AND OUTER RINGS

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

SAMPLE TYPE	EXPOSURE PERIOD	SITE	MIDDLE RING	OUTER RING
MONTHLY	JAN 1992	7.0 ± 1.3	7.0 ± 1.2	6.6 ± 2.6
	FEB 1992	7.7 ± 1.7	7.7 ± 1.3	6.8 ± 6.2
	MAR 1992	7.1 ± 1.5	7.2 ± 1.4	7.0 ± 2.3
	APR 1992	8.4 ± 1.5	8.5 ± 1.5	8.5 ± 2.0
	MAY 1992	8.0 ± 1.7	7.9 ± 1.6	7.2 ± 4.3
	JUN 1992	8.0 ± 2.0	8.0 ± 1.7	7.3 ± 2.9
	JUL 1992	8.6 ± 1.9	8.6 ± 1.3	7.9 ± 3.1
	AUG 1992	9.1 ± 1.5	8.8 ± 2.0	7.8 ± 4.5
	SEP 1992	7.1 ± 1.5	7.1 ± 1.6	6.8 ± 2.6
	OCT 1992	6.4 ± 2.2	6.4 ± 1.4	6.9 ± 2.5
	NOV 1992	6.5 ± 1.4	6.5 ± 1.3	6.3 ± 2.1
	DEC 1992	6.7 ± 2.4	6.5 ± 1.6	6.2 ± 3.1
QUARTERLY	JAN-MAR 1992	6.0 ± 1.4	6.1 ± 1.1	6.0 ± 2.2
	APR-JUN 1992	5.8 ± 1.3	6.0 ± 1.6	5.7 ± 2.7
	JUL-SEP 1992	6.8 ± 1.6	6.9 ± 1.6	6.4 ± 2.9
	OCT-DEC 1992	5.9 ± 1.0	5.9 ± 1.2	5.6 ± 2.7

TABLE C-VIII.4 SUMMARY OF THE 1992 AMBIENT DOSIMETRY PROGRAM FOR LIMERICK GENERATING STATION

RESULTS IN UNITS OF MILLI-ROENTGEN/STD. MO.

SAMPLE TYPE	LOCATION	NO. OF SAMPLES ANALYZED	PERIOD MINIMUM	PERIOD MAXIMUM	PERIOD MEAN ± 2 S.D.	PRE-OP MEAN ± 2 S.D. (1)
MONTHLY	SITE	192	4.3	11.0	7.6 ± 2.4	7.6 ± 2.4
	MIDDLE RING	323	6.9	10.6	7.5 ± 2.2	7.8 ± 2.2
	OUTER RING	59	1.7	10.1	7.1 ± 3.3	7.8 ± 3.0
QUARTERLY	SITE	64	4.3	8.2	6.1 ± 1.6	
	MIDDLE RING	108	4.4	8.3	6.2 ± 1.6	
	OUTER RING	20	4.1	8.5	5.9 ± 2.5	

(1) THE PRE-OPERATIONAL MEAN WAS CALCULATED FROM TLD READINGS 1-15-82 TO 12-02-84.

SITE BOUNDARY RING STATIONS - 3S1, 5S1, 7S1,10S3,11S1,14S1,16S2,18S1,
- 21S1,23S2,25S1,26S3,29S1,32S1,34S2,36S1,
- 36S2.

MIDDLE RING STATIONS - 2B1, 2E1, 4E1, 6C1, 7E1, 9C1,10E1,10F3,
- 13C1,13E1,15D1,16F1,17B1,19D1,20D1,20F1,
- 24D1,25D1,26B1,28D2,29B1,29E1,31D1,31D2,
- 34E1,35B1,35F1.

OUTER RING STATIONS - 5H1,13H4,18G1,22G1,32G1.

TABLE C-IX.1 SUMMARY OF COLLECTION DATES FOR SAMPLES COLLECTED IN THE VICINITY OF LIMERICK GENERATING STATION, 1992

SURFACE WATER (GROSS BETA AND GAMMA)

COLLECTION PERIOD	10F2	13B1	24S1
JAN 92	12/30-01/27	12/30-01/27	12/30-01/27
FEB 92	01/27-02/24	01/27-02/24	01/27-02/24
MAR 92	02/24-03/31	02/24-03/31	02/24-03/31
APR 92	03/31-04/27	03/31-04/27	03/31-04/27
MAY 92	04/27-05/26	04/27-05/26	04/27-05/26
JUN 92	05/26-06/29	05/26-06/29	05/26-06/29
JUL 92	06/29-07/28	06/29-07/28	06/29-07/28
AUG 92	07/28-08/31	07/28-08/31	07/28-08/31
SEP 92	08/31-09/28	08/31-09/28	08/31-09/28
OCT 92	09/28-10/26	09/28-10/26	09/28-10/26
NOV 92	10/26-11/30	10/26-11/30	10/26-11/30
DEC 92	11/30-12/29	11/30-12/29	11/30-12/29

SURFACE WATER (TRITIUM)

JAN-MAR 92	12/30-03/31	12/30-03/31	12/30-03/31
APR-JUN 92	03/31-06/29	03/31-06/29	03/31-06/29
JUL-SEP 92	06/29-09/28	06/29-09/28	06/29-09/28
OCT-DEC 92	09/28-12/29	09/28-12/29	09/28-12/29

TABLE C-IX.1 SUMMARY OF COLLECTION DATES FOR SAMPLES COLLECTED IN THE VICINITY OF LIMERICK GENERATING STATION, 1992

DRINKING WATER (GROSS BETA AND GAMMA)

COLLECTION PERIOD	13H2	15F4	15F7	16C2	28F3
JAN 92	12/30-01/27	12/30-01/27	12/30-01/27	12/30-01/27	12/30-01/27
FEB 92	01/27-02/24	01/27-02/24	01/27-02/24	01/27-02/24	01/27-02/24
MAR 92	02/24-03/31	02/24-03/31	02/24-03/31	02/24-03/31	02/24-03/31
APR 92	03/31-04/27	03/31-04/27	03/31-04/27	03/31-04/27	03/31-04/27
MAY 92	04/27-05/26	04/27-05/26	04/27-05/26	04/27-05/26	04/27-05/26
JUN 92	05/26-06/29	05/26-06/29	05/26-06/29	05/26-06/29	05/26-06/29
JUL 92	06/29-07/28	06/29-07/28	06/29-07/28	06/29-07/28	06/29-07/28
AUG 92	07/28-08/31	07/28-08/31	07/28-08/31	07/28-08/31	07/28-08/31
SEP 92	08/31-09/28	08/31-09/28	08/31-09/28	08/31-09/28	08/31-09/28
OCT 92	09/28-10/26	09/28-10/26	09/28-10/26	09/28-10/26	09/28-10/26
NOV 92	10/26-11/30	10/26-11/30	10/26-11/30	10/26-11/30	10/26-11/30
DEC 92	11/30-12/29	11/30-12/29	11/30-12/29	11/30-12/29	11/30-12/29

DRINKING WATER (TRITIUM)

JAN-MAR 92	12/30-03/31	12/30-03/31	12/30-03/31	12/30-03/31	12/30-03/31
APR-JUN 92	03/31-06/29	03/31-06/29	03/31-06/29	03/31-06/29	03/31-06/29
JUL-SEP 92	06/29-09/28	06/29-09/28	06/29-09/28	06/29-09/28	06/29-09/28
OCT-DEC 92	09/28-12/29	09/28-12/29	09/28-12/29	09/28-12/29	09/28-12/29

TABLE C-IX.1 SUMMARY OF COLLECTION DATES FOR SAMPLES COLLECTED IN THE VICINITY OF LIMERICK GENERATING STATION, 1992

AIR PARTICULATE AND AIR IODINE

GROUP I - ON-SITE LOCATIONS

WEEK	10S3	11S1	14S1	34S2
01	12/30-01/06	12/30-01/06	12/30-01/06	12/30-01/06
02	01/06-01/13	01/06-01/13	01/06-01/13	01/06-01/13
03	01/13-01/20	01/13-01/20	01/13-01/20	01/13-01/20
04	01/20-01/27	01/20-01/27	01/20-01/27	01/20-01/27
05	01/27-02/03	01/27-02/03	01/27-02/03	01/27-02/03
06	02/03-02/10	02/03-02/10	02/03-02/10	02/03-02/10
07	02/10-02/17	02/10-02/17	02/10-02/17	02/10-02/17
08	02/17-02/24	02/17-02/24	02/17-02/24	02/17-02/24
09	02/24-03/02	02/24-03/02	02/24-03/02	02/24-03/02
10	03/02-03/09	03/02-03/09	03/02-03/09	03/02-03/09
11	03/09-03/16	03/09-03/16	03/09-03/16	03/09-03/16
12	03/16-03/23	03/16-03/23	03/16-03/23	03/16-03/23
13	03/23-03/30	03/23-03/30	03/23-03/30	03/23-03/30
14	03/30-04/06	03/30-04/06	03/30-04/06	03/30-04/06
15	04/06-04/13	04/06-04/13	04/06-04/13	04/06-04/13
16	04/13-04/20	04/13-04/20	04/13-04/20	04/13-04/20
17	04/20-04/28	04/20-04/28	04/20-04/28	04/20-04/28
18	04/28-05/04	04/28-05/04	04/28-05/04	04/28-05/04
19	05/04-05/11	05/04-05/11	05/04-05/11	05/04-05/11
20	05/11-05/18	05/11-05/18	05/11-05/18	05/11-05/18
21	05/18-05/25	05/18-05/25	05/18-05/25	05/18-05/25
22	05/25-06/01	05/25-06/01	05/25-06/01	05/25-06/01
23	06/01-06/09	06/01-06/09	06/01-06/09	06/01-06/09
24	06/09-06/15	06/09-06/15	06/09-06/15	06/09-06/15
25	06/15-06/22	06/15-06/22	06/15-06/22	06/15-06/22
26	06/22-06/29	06/22-06/29	06/22-06/29	06/22-06/29
27	06/29-07/06	06/29-07/06	06/29-07/06	06/29-07/06
28	07/06-07/14	07/06-07/14	07/06-07/14	07/06-07/14
29	07/13-07/20	07/13-07/20	07/13-07/20	07/13-07/20
30	07/20-07/27	07/20-07/27	07/20-07/27	07/20-07/27
31	07/27-08/03	07/27-08/03	07/27-08/03	07/27-08/03
32	08/03-08/10	08/03-08/10	08/03-08/10	08/03-08/10
33	08/10-08/17	08/10-08/17	08/10-08/17	08/10-08/17
34	08/17-08/24	08/17-08/24	08/17-08/24	08/17-08/24
35	08/24-08/31	08/24-08/31	08/24-08/31	08/24-08/31
36	08/31-09/08	08/31-09/08	08/31-09/08	08/31-09/08
37	09/08-09/14	09/08-09/14	09/08-09/14	09/08-09/14
38	09/14-09/21	09/14-09/21	09/14-09/21	09/14-09/21
39	09/21-09/28	09/21-09/28	09/21-09/28	09/21-09/28
40	09/28-10/05	09/28-10/05	09/28-10/05	09/28-10/05
41	10/05-10/12	10/05-10/12	10/05-10/12	10/05-10/12
42	10/12-10/19	10/12-10/19	10/12-10/19	10/12-10/19
43	10/19-10/26	10/19-10/26	10/19-10/26	10/19-10/26
44	10/26-11/02	10/26-11/02	10/26-11/02	10/26-11/02
45	11/02-11/09	11/02-11/09	11/02-11/09	11/02-11/09
46	11/09-11/16	11/09-11/16	11/09-11/16	11/09-11/16
47	11/16-11/24	11/16-11/24	11/16-11/24	11/16-11/24
48	11/24-12/01	11/24-12/01	11/24-12/01	11/24-12/01
49	12/01-12/07	12/01-12/07	12/01-12/07	12/01-12/07
50	12/07-12/14	12/07-12/14	12/07-12/14	12/07-12/14
51	12/14-12/21	12/14-12/21	12/14-12/21	12/14-12/21
52	12/21-12/29	12/21-12/29	12/21-12/29	12/21-12/29

TABLE C-IX.1 SUMMARY OF COLLECTION DATES FOR SAMPLES COLLECTED IN THE VICINITY OF LIMERICK GENERATING STATION, 1992

AIR PARTICULATE AND AIR IODINE

GROUP II - INTERMEDIATE DISTANCE LOCATIONS

WEEK	2B1	6C1	9C1	13C1	15D1	17B1
01	12/30-01/06	12/30-01/06	12/30-01/06	12/30-01/06	12/30-01/06	12/30-01/06
02	01/06-01/13	01/06-01/13	01/06-01/13	01/06-01/13	01/06-01/13	01/06-01/13
03			01/13-01/20	01/13-01/20	01/13-01/20	01/13-01/20
04	01/20-01/27	01/20-01/27	01/20-01/27	01/20-01/27	01/20-01/27	01/20-01/27
05	01/27-02/03	01/27-02/03	01/27-02/03	01/27-02/03	01/27-02/03	01/27-02/03
06	02/03-02/10	02/03-02/10	02/03-02/10	02/03-02/10	02/03-02/10	02/03-02/10
07	02/10-02/17	02/10-02/17	02/10-02/17	02/10-02/17	02/10-02/17	02/10-02/17
08	02/17-02/24	02/17-02/24	02/17-02/24	02/17-02/24	02/17-02/24	02/17-02/24
09	02/24-03/02	02/24-03/02	02/24-03/02	02/24-03/02	02/24-03/02	02/24-03/02
10	03/02-03/09	03/02-03/09	03/02-03/09	03/02-03/09	03/02-03/09	03/02-03/09
11	03/09-03/16	03/09-03/16	03/09-03/16	03/09-03/16	03/09-03/16	03/09-03/16
12	03/16-03/23	03/16-03/23	03/16-03/23	03/16-03/23	03/16-03/23	03/16-03/23
13	03/23-03/30	03/23-03/30	03/23-03/30	03/23-03/30	03/23-03/30	03/23-03/30
14	03/30-04/06	03/30-04/06	03/30-04/06	03/30-04/06	03/30-04/06	03/30-04/06
15	04/06-04/13	04/06-04/13		04/06-04/13	04/06-04/13	04/06-04/13
16	04/13-04/20	04/13-04/20	04/13-04/20	04/13-04/20	04/13-04/20	04/13-04/20
17	04/20-04/28	04/20-04/28	04/20-04/28	04/20-04/28	04/20-04/28	04/20-04/28
18	04/28-05/04	04/28-05/04	04/28-05/04	04/28-05/04	04/28-05/04	04/28-05/04
19	05/04-05/11	05/04-05/11	05/04-05/11	05/04-05/11	05/04-05/11	05/04-05/11
20	05/11-05/18	05/11-05/18	05/11-05/18	05/11-05/18	05/11-05/18	05/11-05/18
21	05/18-05/25	05/18-05/25	05/18-05/25	05/18-05/25	05/18-05/25	05/18-05/25
22	05/25-06/01	05/25-06/01	05/25-06/01	05/25-06/01	05/25-06/01	05/25-06/01
23	06/01-06/09	06/01-06/09	06/01-06/09	06/01-06/09	06/01-06/09	06/01-06/09
24	06/09-06/15	06/09-06/15	06/09-06/15	06/09-06/15	06/09-06/15	06/09-06/15
25	06/15-06/22	06/15-06/22	06/15-06/22	06/15-06/22	06/15-06/22	06/15-06/22
26	06/22-06/29	06/22-06/29	06/22-06/29	06/22-06/29	06/22-06/29	06/22-06/29
27	06/29-07/06	06/29-07/06	06/29-07/06	06/29-07/06	06/29-07/06	06/29-07/06
28	07/06-07/14	07/06-07/14	07/06-07/14	07/06-07/14	07/06-07/14	07/06-07/14
29	07/13-07/20	07/13-07/20	07/13-07/20	07/13-07/20	07/13-07/20	07/13-07/20
30	07/20-07/27	07/20-07/27	07/20-07/27	07/20-07/27	07/20-07/27	07/20-07/27
31	07/27-08/03	07/27-08/03	07/27-08/03	07/27-08/03	07/27-08/03	07/27-08/03
32	08/03-08/10	08/03-08/10	08/03-08/10	08/03-08/10	08/03-08/10	08/03-08/10
33	08/10-08/17	08/10-08/17	08/10-08/17	08/10-08/17	08/10-08/17	08/10-08/17
34	08/17-08/24	08/17-08/24	08/17-08/24	08/17-08/24	08/17-08/24	08/17-08/24
35	08/24-08/31	08/24-08/31	08/24-08/31	08/24-08/31	08/24-08/31	08/24-08/31
36	08/31-09/08	08/31-09/08	08/31-09/08	08/31-09/08	08/31-09/08	08/31-09/08
37	09/08-09/14	09/08-09/14	09/08-09/14	09/08-09/14	09/08-09/14	09/08-09/14
38	09/14-09/21	09/14-09/21	09/14-09/21	09/14-09/21	09/14-09/21	09/14-09/21
39	09/21-09/28	09/21-09/28	09/21-09/28	09/21-09/28	09/21-09/28	09/21-09/28
40	09/28-10/05	09/28-10/05	09/28-10/05	09/28-10/05	09/28-10/05	09/28-10/05
41	10/05-10/12	10/05-10/12	10/05-10/12	10/05-10/12	10/05-10/12	10/05-10/12
42	10/12-10/19	10/12-10/19	10/12-10/19	10/12-10/19	10/12-10/19	10/12-10/19
43	10/19-10/26	10/19-10/26	10/19-10/26	10/19-10/26	10/19-10/26	10/19-10/26
44	10/26-11/02	10/26-11/02	10/26-11/02	10/26-11/02	10/26-11/02	10/26-11/02
45	11/02-11/09	11/02-11/09	11/02-11/09	11/02-11/09	11/02-11/09	11/02-11/09
46	11/09-11/16	11/09-11/16	11/09-11/16	11/09-11/16	11/09-11/16	11/09-11/16
47	11/16-11/24	11/16-11/24	11/16-11/24	11/16-11/24	11/16-11/24	11/16-11/24
48	11/24-12/01	11/24-12/01	11/24-12/01	11/24-12/01	11/24-12/01	11/24-12/01
49	12/01-12/07	12/01-12/07	12/01-12/07	12/01-12/07	12/01-12/07	12/01-12/07
50	12/07-12/14	12/07-12/14	12/07-12/14	12/07-12/14	12/07-12/14	12/07-12/14
51	12/14-12/21	12/14-12/21	12/14-12/21	12/14-12/21	12/14-12/21	12/14-12/21
52	12/21-12/29	12/21-12/29	12/21-12/29	12/21-12/29	12/21-12/29	12/21-12/29

TABLE C-IX.1 SUMMARY OF COLLECTION DATES FOR SAMPLES COLLECTED IN THE VICINITY OF LIMERICK GENERATING STATION, 1992

AIR PARTICULATE AND AIR IODINE

GROUP II - INTERMEDIATE DISTANCE LOCATIONS

WEEK	20D1	26B1	29B1	31D1	35B1
01	12/30-01/06	12/30-01/06	12/30-01/06	12/30-01/06	12/30-01/06
02	01/06-01/13	01/06-01/13	01/06-01/13	01/06-01/13	01/06-01/13
03	01/13-01/20	01/13-01/20	01/13-01/20	01/13-01/20	01/13-01/20
04	01/20-01/27	01/20-01/27	01/20-01/27	01/20-01/27	01/20-01/27
05	01/27-02/03	01/27-02/03	01/27-02/03	01/27-02/03	01/27-02/03
06	02/03-02/10	02/03-02/10	02/03-02/10	02/03-02/10	02/03-02/10
07	02/10-02/17	02/10-02/17	02/10-02/17	02/10-02/17	02/10-02/17
08	02/17-02/24	02/17-02/24	02/17-02/24	02/17-02/24	02/17-02/24
09	02/24-03/02	02/24-03/02	02/24-03/02	02/24-03/02	02/24-03/02
10	03/02-03/09	03/02-03/09	03/02-03/09	03/02-03/09	03/02-03/09
11	03/09-03/16	03/09-03/16	03/09-03/16	03/09-03/16	03/09-03/16
12	03/16-03/23	03/16-03/23	03/16-03/23	03/16-03/23	03/16-03/23
13	03/23-03/30	03/23-03/30	03/23-03/30	03/23-03/30	03/23-03/30
14	03/30-04/06	03/30-04/06	03/30-04/06	03/30-04/06	03/30-04/06
15	04/06-04/13	04/06-04/13	04/06-04/13	04/06-04/13	04/06-04/13
16	04/13-04/20	04/13-04/20	04/13-04/20	04/13-04/20	04/13-04/20
17	04/20-04/28	04/20-04/28	04/20-04/28	04/20-04/28	04/20-04/28
18	04/28-05/04	04/28-05/04	04/28-05/04	04/28-05/04	04/28-05/04
19	05/04-05/11	05/04-05/11	05/04-05/11	05/04-05/11	05/04-05/11
20	05/11-05/18	05/11-05/18	05/11-05/18	05/11-05/18	05/11-05/18
21	05/18-05/25	05/18-05/25	05/18-05/25	05/18-05/25	05/18-05/25
22	05/25-06/01	05/25-06/01	05/25-06/01	05/25-06/01	05/25-06/01
23	06/01-06/09	06/01-06/09	06/01-06/09	06/01-06/09	06/01-06/09
24	06/09-06/15	06/09-06/15	06/09-06/15	06/09-06/15	06/09-06/15
25	06/15-06/22	06/15-06/22	06/15-06/22	06/15-06/22	06/15-06/22
26	06/22-06/29	06/22-06/29	06/22-06/29	06/22-06/29	06/22-06/29
27			06/29-07/06	06/29-07/06	06/29-07/06
28	07/06-07/14	07/06-07/14	07/06-07/14	07/06-07/14	07/06-07/14
29	07/13-07/20	07/13-07/20	07/13-07/20	07/13-07/20	07/13-07/20
30	07/20-07/27	07/20-07/27	07/20-07/27	07/20-07/27	07/20-07/27
31	07/27-08/03	07/27-08/03	07/27-08/03	07/27-08/03	07/27-08/03
32	08/03-08/10	08/03-08/10	08/03-08/10	08/03-08/10	08/03-08/10
33	08/10-08/17	08/10-08/17	08/10-08/17	08/10-08/17	08/10-08/17
34	08/17-08/24	08/17-08/24	08/17-08/24	08/17-08/24	08/17-08/24
35	08/24-08/31	08/24-08/31	08/24-08/31	08/24-08/31	08/24-08/31
36	08/31-09/08	08/31-09/08	08/31-09/08	08/31-09/08	08/31-09/08
37	09/08-09/14	09/08-09/14	09/08-09/14	09/08-09/14	09/08-09/14
38	09/14-09/21	09/14-09/21	09/14-09/21	09/14-09/21	09/14-09/21
39	09/21-09/28	09/21-09/28	09/21-09/28	09/21-09/28	09/21-09/28
40	09/28-10/05	09/28-10/05	09/28-10/05	09/28-10/05	09/28-10/05
41	10/05-10/12	10/05-10/12	10/05-10/12	10/05-10/12	10/05-10/12
42	10/12-10/19	10/12-10/19	10/12-10/19	10/12-10/19	10/12-10/19
43	10/19-10/26	10/19-10/26	10/19-10/26	10/19-10/26	10/19-10/26
44	10/26-11/02	10/26-11/02	10/26-11/02	10/26-11/02	10/26-11/02
45	11/02-11/09	11/02-11/09	11/02-11/09	11/02-11/09	11/02-11/09
46	11/09-11/16	11/09-11/16	11/09-11/16	11/09-11/16	11/09-11/16
47	11/16-11/24	11/16-11/24	11/16-11/24	11/16-11/24	11/16-11/24
48	11/24-12/01	11/24-12/01	11/24-12/01	11/24-12/01	11/24-12/01
49	12/01-12/07	12/01-12/07	12/01-12/07	12/01-12/07	12/01-12/07
50	12/07-12/14	12/07-12/14	12/07-12/14	12/07-12/14	12/07-12/14
51	12/14-12/21	12/14-12/21	12/14-12/21	12/14-12/21	12/14-12/21
52	12/21-12/29	12/21-12/29	12/21-12/29	12/21-12/29	12/21-12/29

TABLE C-IX.1 SUMMARY OF COLLECTION DATES FOR SAMPLES COLLECTED IN THE VICINITY OF LIMERICK GENERATING STATION, 1992

AIR PARTICULATE AND AIR IODINE

GROUP III - CONTROL LOCATIONS

WEEK	13H4	22G1
01	12/30-01/06	12/30-01/06
02	01/06-01/13	01/06-01/13
03	01/13-01/21	01/13-01/20
04	01/21-01/27	01/20-01/27
05	01/27-02/03	01/27-02/03
06	02/03-02/10	02/03-02/10
07	02/10-02/18	02/10-02/17
08	02/18-02/24	02/17-02/24
09	02/24-03/02	02/24-03/02
10	03/02-03/09	03/02-03/09
11	03/09-03/16	03/09-03/16
12	03/16-03/23	03/16-03/23
13	03/23-03/30	03/23-03/30
14	03/30-04/06	03/30-04/06
15	04/06-04/14	04/06-04/13
16	04/14-04/20	04/13-04/20
17	04/20-04/27	04/20-04/28
18	04/27-05/04	04/28-05/04
19	05/04-05/11	05/04-05/11
20	05/11-05/19	05/11-05/18
21	05/19-05/26	05/18-05/25
22	05/26-06/01	05/25-06/01
23	06/01-06/08	06/01-06/09
24	06/08-06/15	06/09-06/15
25	06/15-06/22	06/15-06/22
26	06/22-06/29	06/22-06/29
27	06/29-07/06	06/29-07/06
28	07/06-07/13	07/06-07/14
29	07/13-07/20	07/13-07/20
30	07/20-07/27	07/20-07/27
31	07/27-08/03	07/27-08/03
32	08/03-08/10	08/03-08/10
33	08/10-08/17	08/10-08/17
34	08/17-08/24	08/17-08/24
35	08/24-08/31	08/24-08/31
36	08/31-09/08	08/31-09/08
37	09/08-09/14	09/08-09/14
38	09/14-09/21	09/14-09/21
39	09/21-09/28	09/21-09/28
40	09/28-10/05	09/28-10/05
41	10/05-10/13	10/05-10/12
42	10/13-10/19	10/12-10/19
43	10/19-10/26	10/19-10/26
44	10/26-11/02	10/26-11/02
45	11/02-11/09	11/02-11/09
66	11/09-11/16	11/09-11/16
47	11/16-11/23	11/16-11/24
48	11/23-11/30	11/24-12/01
49	11/30-12/07	12/01-12/07
50	12/07-12/14	12/07-12/14
51	12/14-12/21	12/14-12/21
52	12/21-12/29	12/21-12/29

TABLE C-IX.1 SUMMARY OF COLLECTION DATES FOR SAMPLES COLLECTED IN THE VICINITY OF LIMERICK GENERATING STATION, 1992

TLD - MONTHLY

STATION CODE	JAN 1992	FEB 1992	MAR 1992	APR 1992	MAY 1992	JUN 1992	JUL 1992	AUG 1992	SEP 1992	OCT 1992	NOV 1992	DEC 1992
36S2	01/07-02/04	02/04-03/03	03/03-04/07	04/07-05/05	05/05-06/03	06/04-07/07	07/07-08/04	08/04-09/01	09/01-10/05	10/05-11/03	11/03-12/01	12/01-01/05
2B1	01/07-02/04	02/04-03/03	03/03-04/07	04/07-05/05	05/05-06/03	06/04-07/07	07/07-08/04	08/04-09/01	09/01-10/06	10/06-11/03	11/03-12/01	12/01-01/05
2E1	01/07-02/04	02/04-03/03	03/03-04/07	04/07-05/05	05/05-06/04	06/04-07/07	07/07-08/04	08/04-09/01	09/01-10/05	10/05-11/03	11/03-12/01	12/01-01/05
3S1	01/07-02/04	02/04-03/03	03/03-04/07	04/07-05/05	05/05-06/03	06/04-07/07	07/07-08/04	08/04-09/01	09/01-10/05	10/05-11/03	11/03-12/01	12/01-01/05
4E1	01/07-02/04	02/04-03/03	03/03-04/07	04/07-05/05	05/05-06/04	06/04-07/07	07/07-08/04	08/04-09/01	09/01-10/05	10/05-11/03	11/03-12/01	12/01-01/05
5S1	01/07-02/04	02/04-03/03	03/03-04/07	04/07-05/05	05/05-06/03	06/04-07/07	07/07-08/04	08/04-09/01	09/01-10/05	10/05-11/03	11/03-12/01	12/01-01/05
5H1	01/07-02/04	02/04-03/03	03/03-04/07	04/07-05/05	05/05-06/04	06/04-07/07	07/07-08/04	08/04-09/01	09/01-10/05	10/05-11/03	11/03-12/01	12/01-01/05
6C1	01/07-02/04	02/04-03/03	03/03-04/07	04/07-05/05	05/05-06/04	06/04-07/07	07/07-08/04	08/04-09/01	09/01-10/06	10/06-11/03	11/03-12/01	12/01-01/05
7S1	01/07-02/04	02/04-03/03	03/03-04/07	04/07-05/05	05/05-06/03	06/04-07/07	07/07-08/04	08/04-09/01	09/01-10/05	10/05-11/03	11/03-12/01	12/01-01/05
7E1	01/07-02/04	02/04-03/03	03/03-04/07	04/07-05/05	05/05-06/04	06/04-07/07	07/07-08/04	08/04-09/01	09/01-10/05	10/05-11/03	11/03-12/01	12/01-01/05
9C1	01/07-02/04	02/04-03/03	03/03-04/07	04/07-05/05	05/05-06/04	06/04-07/07	07/07-08/04	08/04-09/01	09/01-10/06	10/06-11/03	11/03-12/01	12/01-01/05
10S3	01/07-02/04	02/04-03/03	03/03-04/07	04/07-05/05	05/05-06/03	06/04-07/07	07/07-08/04	08/04-09/01	09/01-10/05	10/05-11/03	11/03-12/01	12/01-01/05
10E1	01/07-02/04	02/04-03/03	03/03-04/07	04/07-05/05	05/05-06/04	06/04-07/07	07/07-08/04	08/04-09/01	09/01-10/05	10/05-11/03	11/03-12/01	12/01-01/05
10F3	01/07-02/04	02/04-03/03	03/03-04/07	04/07-05/05	05/05-06/04	06/04-07/07	07/07-08/04	08/04-09/01	09/01-10/05	10/05-11/03	11/03-12/01	12/01-01/05
11S1	01/07-02/04	02/04-03/03	03/03-04/07	04/07-05/05	05/05-06/03	06/04-07/07	07/07-08/04	08/04-09/01	09/01-10/05	10/05-11/03	11/03-12/01	12/01-01/05
13C1	01/07-02/04	02/04-03/03	03/03-04/07	04/07-05/05	05/05-06/04	06/04-07/07	07/07-08/04	08/04-09/01	09/01-10/06	10/06-11/03	11/03-12/01	12/01-01/05
13E1	01/07-02/04	02/04-03/03	03/03-04/07	04/07-05/05	05/05-06/04	06/04-07/07	07/07-08/04	08/04-09/01	09/01-10/05	10/05-11/03	11/03-12/01	12/01-01/05
13H4	01/06-02/10	02/10-03/02	03/02-04/14		04/14-06/10	06/10-07/07	07/07-08/03	08/03-09/08	09/08-10/05	10/05-11/02	11/02-11/30	11/30-01/11
14S1	01/07-02/04	02/04-03/03	03/03-04/07	04/07-05/05	05/05-06/03	06/04-07/07	07/07-08/04	08/04-09/01	09/01-10/05	10/05-11/03	11/03-12/01	12/01-01/05
15D1	01/07-02/04	02/04-03/03	03/03-04/07	04/07-05/05	05/05-06/04	06/04-07/07	07/07-08/04	08/04-09/01	09/01-10/06	10/06-11/03	11/03-12/01	12/01-01/05
16S2	01/07-02/04	02/04-03/03	03/03-04/07	04/07-05/05	05/05-06/03	06/04-07/07	07/07-08/04	08/04-09/01	09/01-10/05	10/05-11/03	11/03-12/01	12/01-01/05
16F1	01/07-02/04	02/04-03/03	03/03-04/07	04/07-05/05	05/05-06/04	06/04-07/07	07/07-08/04	08/04-09/01	09/01-10/06	10/06-11/03	11/03-12/01	12/01-01/05
17B1	01/07-02/04	02/04-03/03	03/03-04/07	04/07-05/05	05/05-06/03	06/04-07/07	07/07-08/04	08/04-09/01	09/01-10/06	10/06-11/03	11/03-12/01	12/01-01/05
18S1	01/07-02/04	02/04-03/03	03/03-04/07	04/07-05/05	05/05-06/03	06/04-07/07	07/07-08/04	08/04-09/01	09/01-10/05	10/05-11/03	11/03-12/01	12/01-01/05
18G1	01/07-02/04	02/04-03/03	03/03-04/07	04/07-05/05	05/05-06/04	06/04-07/07	07/07-08/04	08/04-09/01	09/01-10/06	10/06-11/03	11/03-12/01	12/01-01/05
19D1	01/07-02/04	02/04-03/03	03/03-04/07	04/07-05/05	05/05-06/03	06/04-07/07	07/07-08/04	08/04-09/01	09/01-10/06	10/06-11/03	11/03-12/01	12/01-01/05
20D1	01/07-02/04	02/04-03/03	03/03-04/07	04/07-05/05	05/05-06/03	06/04-07/07	07/07-08/04	08/04-09/01	09/01-10/06	10/06-11/03	11/03-12/01	12/01-01/05
20F1	01/07-02/04	02/04-03/03	03/03-04/07	04/07-05/05	05/05-06/04	06/04-07/07	07/07-08/04	08/04-09/01	09/01-10/06	10/06-11/03	11/03-12/01	12/01-01/05
21S1	01/07-02/04	02/04-03/03	03/03-04/07	04/07-05/05	05/05-06/04	06/04-07/07	07/07-08/04	08/04-09/01	09/01-10/05	10/05-11/03	11/03-12/01	12/01-01/05
22G1	01/07-02/04	02/04-03/03	03/03-04/07	04/07-05/05	05/05-06/04	06/04-07/07	07/07-08/04	08/04-09/01	09/01-10/06	10/06-11/03	11/03-12/01	12/01-01/05
23S2	01/07-02/04	02/04-03/03	03/03-04/07	04/07-05/05	05/05-06/04	06/04-07/07	07/07-08/04	08/04-09/01	09/01-10/05	10/05-11/03	11/03-12/01	12/01-01/05
24D1	01/07-02/04	02/04-03/03	03/03-04/07	04/07-05/05	05/05-06/04	06/04-07/07	07/07-08/04	08/04-09/01	09/01-10/06	10/06-11/03	11/03-12/01	12/01-01/05
25S1	01/07-02/04	02/04-03/03	03/03-04/07	04/07-05/05	05/05-06/04	06/04-07/07	07/07-08/04	08/04-09/01	09/01-10/05	10/05-11/03	11/03-12/01	12/01-01/05
25D1	01/07-02/04	02/04-03/03	03/03-04/07	04/07-05/05	05/05-06/04	06/04-07/07	07/07-08/04	08/04-09/01	09/01-10/06	10/06-11/03	11/03-12/01	12/01-01/05
26S3	01/07-02/04	02/04-03/03	03/03-04/07	04/07-05/05	05/05-06/04	06/04-07/07	07/07-08/04	08/04-09/01	09/01-10/05	10/05-11/03	11/03-12/01	12/01-01/05
26B1	01/07-02/04	02/04-03/03	03/03-04/07	04/07-05/05	05/05-06/03	06/04-07/07	07/07-08/04	08/04-09/01	09/01-10/06	10/06-11/03	11/03-12/01	12/01-01/05
28D2	01/07-02/04	02/04-03/03	03/03-04/07	04/07-05/05	05/05-06/04	06/04-07/07	07/07-08/04	08/04-09/01	09/01-10/06	10/06-11/03	11/03-12/01	12/01-01/05
29S1	01/07-02/04	02/04-03/03	03/03-04/07	04/07-05/05	05/05-06/04	06/04-07/07	07/07-08/04	08/04-09/01	09/01-10/05	10/05-11/03	11/03-12/01	12/01-01/05
29B1	01/07-02/04	02/04-03/03	03/03-04/07	04/07-05/05	05/05-06/03	06/04-07/07	07/07-08/04	08/04-09/01	09/01-10/06	10/06-11/03	11/03-12/01	12/01-01/05
29E1	01/07-02/04	02/04-03/03	03/03-04/07	04/07-05/05	05/05-06/04	06/04-07/07	07/07-08/04	07/07-09/01	09/01-10/06	10/06-11/03	11/03-12/01	12/01-01/05
31D1	01/07-02/04	02/04-03/03	03/03-04/07	04/07-05/05	05/05-06/03	06/04-07/07	07/07-08/04	08/04-09/01	09/01-10/06	10/06-11/03	11/03-12/01	12/01-01/05
31D2	01/07-02/04	02/04-03/03	03/03-04/07	04/07-05/05	05/05-06/04		07/07-08/04	08/04-09/01	09/01-10/06	10/06-11/03	11/03-12/01	12/01-01/05
32S1	01/07-02/04	02/04-03/03	03/03-04/07	04/07-05/05	05/05-06/03	06/04-07/07	07/07-08/04	08/04-09/01	09/01-10/05	10/05-11/03	11/03-12/01	12/01-01/05
32G1	01/07-02/04	02/04-03/03	03/03-04/07	04/07-05/05	05/05-06/04	06/04-07/07	07/07-08/04	08/04-09/01	09/01-10/06	10/06-11/03	11/03-12/01	12/01-01/05
34S2	01/07-02/04	02/04-03/03	03/03-04/07	04/07-05/05	05/05-06/03	06/04-07/07	07/07-08/04	08/04-09/01	09/01-10/05	10/05-11/03	11/03-12/01	12/01-01/05
34E1	01/07-02/04	02/04-03/03	03/03-04/07	04/07-05/05	05/05-06/04	06/04-07/07	07/07-08/04	08/04-09/01	09/01-10/06	10/06-11/03	11/03-12/01	12/01-01/05
35B1	01/07-02/04	02/04-03/03	03/03-04/07	04/07-05/05	05/05-06/03	06/04-07/07	07/07-08/04	08/04-09/01	09/01-10/06	10/06-11/03	11/03-12/01	12/01-01/05
35F1	01/07-02/04	02/04-03/03	03/03-04/07	04/07-05/05	05/05-06/04	06/04-07/07	07/07-08/04	08/04-09/01	09/01-10/06	10/06-11/03	11/03-12/01	12/01-01/05

TABLE C-IX.1 SUMMARY OF COLLECTION DATES FOR SAMPLES COLLECTED IN THE VICINITY OF LIMERICK GENERATING STATION, 1992

TLD - QUARTERLY

STATION CODE	JAN-MAR 1992	APR-JUN 1992	JUL-SEP 1992	OCT-DEC 1992
36S2	01/07-04/07	04/07-07/07	07/07-10/05	10/05-01/05
2B1	01/07-04/07	04/07-07/07	07/07-10/06	10/06-01/05
2E1	01/07-04/07	04/07-07/07	07/07-10/05	10/05-01/05
3S1	01/07-04/07	04/07-07/07	07/07-10/05	10/05-01/05
4E1	01/07-04/07	04/07-07/07	07/07-10/05	10/05-01/05
5S1	01/07-04/07	04/07-07/07	07/07-10/05	10/05-01/05
5H1	01/07-04/07	04/07-07/07	07/07-10/05	10/05-01/05
6C1	01/07-04/07	04/07-07/07	07/07-10/06	10/06-01/05
7S1	01/07-04/07	04/07-07/07	07/07-10/05	10/05-01/05
7E1	01/07-04/07	04/07-07/07	07/07-10/05	10/05-01/05
9C1	01/07-04/07	04/07-07/07	07/07-10/06	10/06-01/05
10S3	01/07-04/07	04/07-07/07	07/07-10/05	10/05-01/05
10E1	01/07-04/07	04/07-07/07	07/07-10/05	10/05-01/05
10F3	01/07-04/07	04/07-07/07	07/07-10/05	10/05-01/05
11S1	01/07-04/07	04/07-07/07	07/07-10/05	10/05-01/05
13C1	01/07-04/07	04/07-07/07	07/07-10/06	10/06-01/05
13E1	01/07-04/07	04/07-07/07	07/07-10/05	10/05-01/05
13E4	01/06-04/14	04/16-07/07	07/07-10/05	10/05-01/11
14S1	01/07-04/07	04/07-07/07	07/07-10/05	10/05-01/05
15D1	01/07-04/07	04/07-07/07	07/07-10/06	10/06-01/05
16S2	01/07-04/07	04/07-07/07	07/07-10/05	10/05-01/05
16F1	01/07-04/07	04/07-07/07	07/07-10/06	10/06-01/05
17B1	01/07-04/07	04/07-07/07	07/07-10/06	10/06-01/05
18S1	01/07-04/07	04/07-07/07	07/07-10/05	10/05-01/05
18G1	01/07-04/07	04/07-07/07	07/07-10/06	10/06-01/05
19D1	01/07-04/07	04/07-07/07	07/07-10/06	10/06-01/05
20D1	01/07-04/07	04/07-07/07	07/07-10/06	10/06-01/05
20F1	01/07-04/07	04/07-07/07	07/07-10/06	10/06-01/05
21S1	01/07-04/07	04/07-07/07	07/07-10/05	10/05-01/05
22G1	01/07-04/07	04/07-07/07	07/07-10/06	10/06-01/05
23S2	01/07-04/07	04/07-07/07	07/07-10/05	10/05-01/05
24D1	01/07-04/07	04/07-07/07	07/07-10/06	10/06-01/05
25S1	01/07-04/07	04/07-07/07	07/07-10/05	10/05-01/05
25D1	01/07-04/07	04/07-07/07	07/07-10/06	10/06-01/05
26S3	01/07-04/07	04/07-07/07	07/07-10/05	10/05-01/05
26B1	01/07-04/07	04/07-07/07	07/07-10/06	10/06-01/05
28D2	01/07-04/07	04/07-07/07	06/04-10/06	10/06-01/05
29S1	01/07-04/07	04/07-07/07	07/07-10/05	10/05-01/05
29B1	01/07-04/07	04/07-07/07	07/07-10/06	10/06-01/05
29E1	01/07-04/07	04/07-07/07	08/04-10/06	10/06-01/05
31D1	01/07-04/07	04/07-07/07	07/07-10/06	10/06-01/05
31D2	01/07-04/07	04/07-07/07	07/07-10/06	10/06-01/05
32S1	01/07-04/07	04/07-07/07	07/07-10/05	10/05-01/05
32G1	01/07-04/07	04/07-07/07	07/07-10/06	10/06-01/05
34S2	01/07-04/07	04/07-07/07	07/07-10/05	10/05-01/05
34E1	01/07-04/07	04/07-07/07	07/07-10/06	10/06-01/05
35B1	01/07-04/07	04/07-07/07	07/07-10/06	10/06-01/05
35F1	01/07-04/07	04/07-07/07	07/07-10/06	10/06-01/05

FIGURE C-1
MEAN MONTHLY INSOLUBLE GROSS BETA CONCENTRATIONS IN SURFACE WATER SAMPLES COLLECTED IN THE VICINITY OF LGS, 1982 - 1992

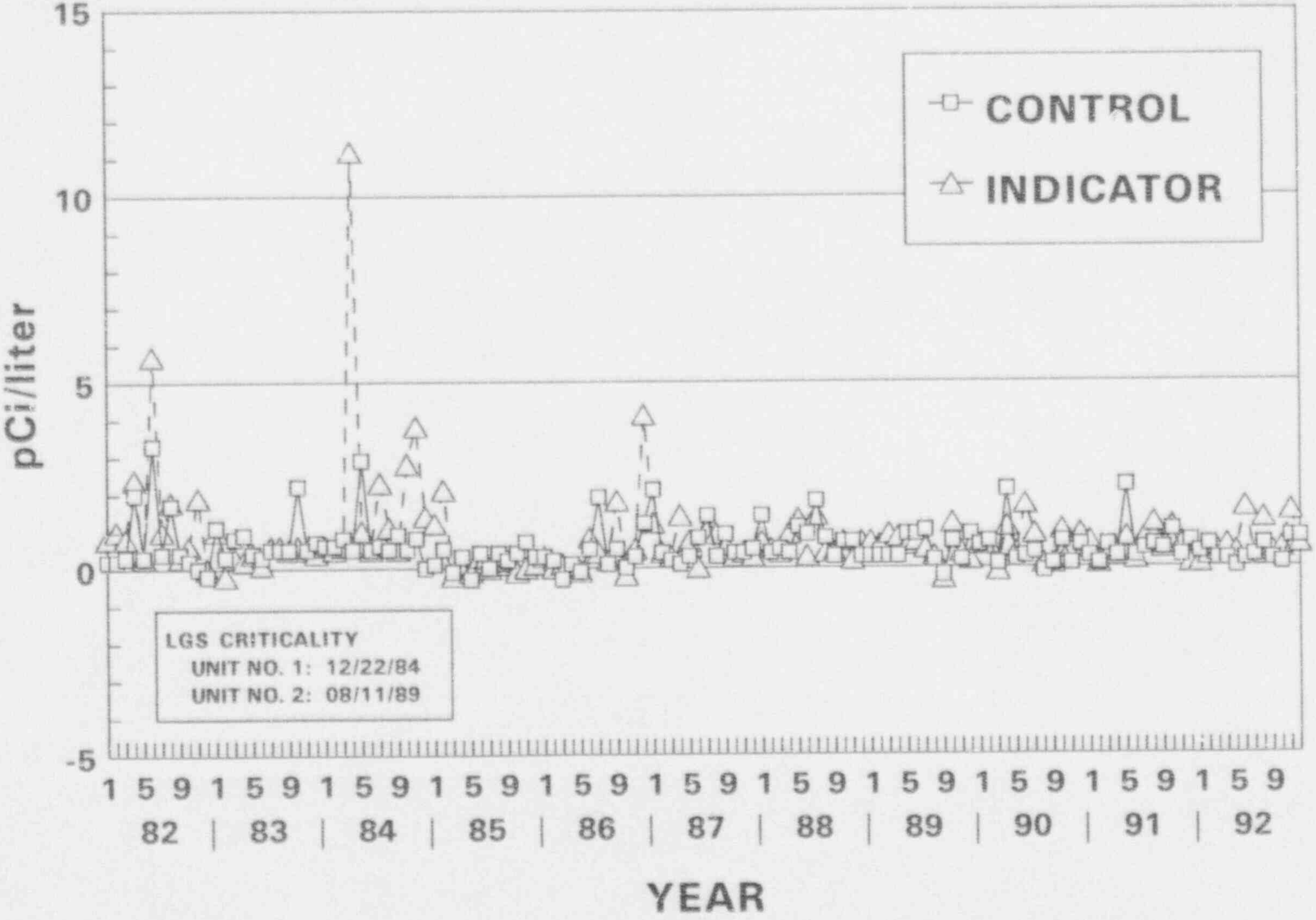


FIGURE C-2

MEAN MONTHLY SOLUBLE GROSS BETA CONCENTRATIONS IN SURFACE WATER SAMPLES COLLECTED IN THE VICINITY OF LGS, 1982 - 1992

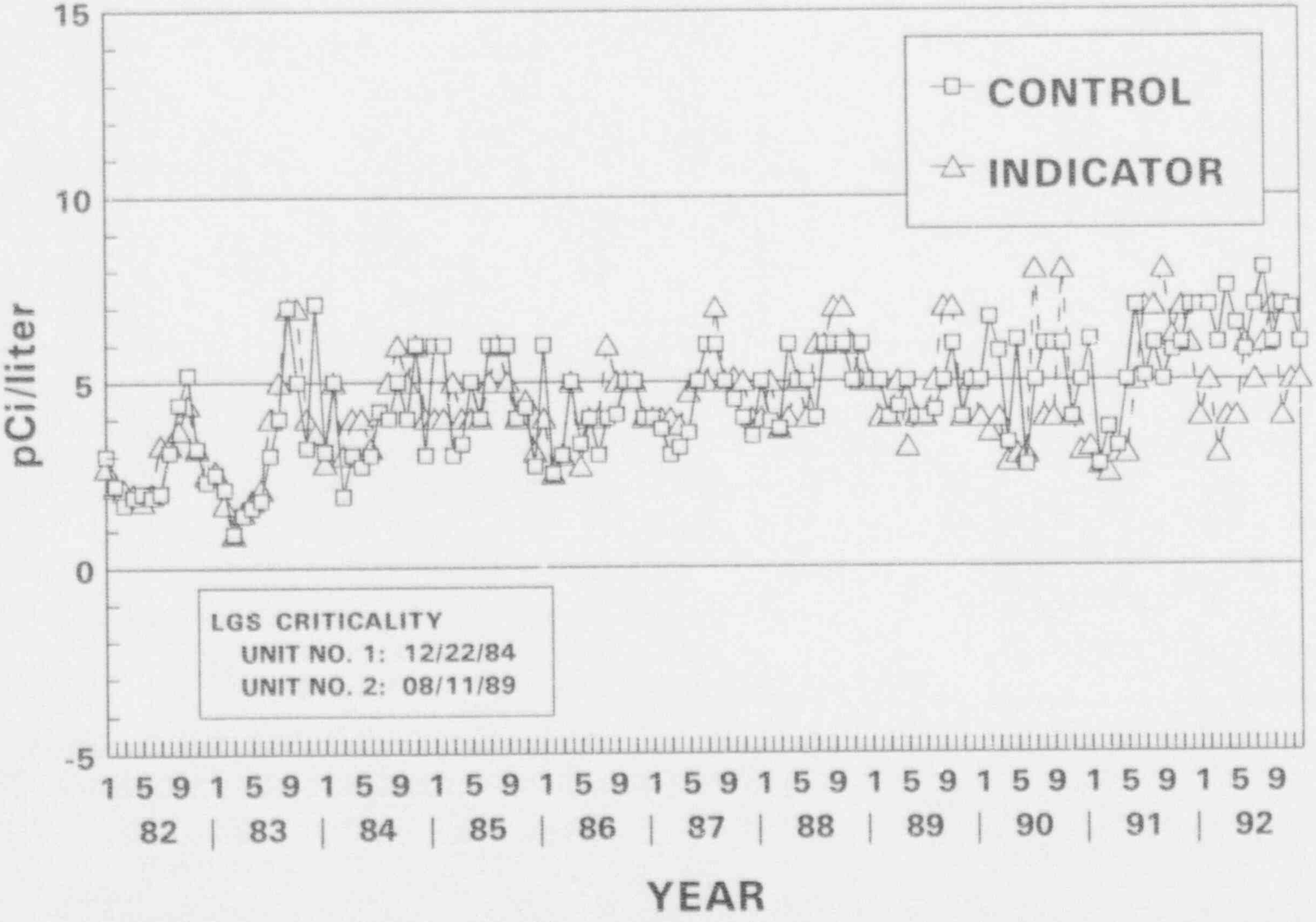


FIGURE C-3
MEAN MONTHLY INSOLUBLE GROSS BETA CONCENTRATIONS IN DRINKING WATER SAMPLES COLLECTED IN THE VICINITY OF LGS, 1982 - 1992

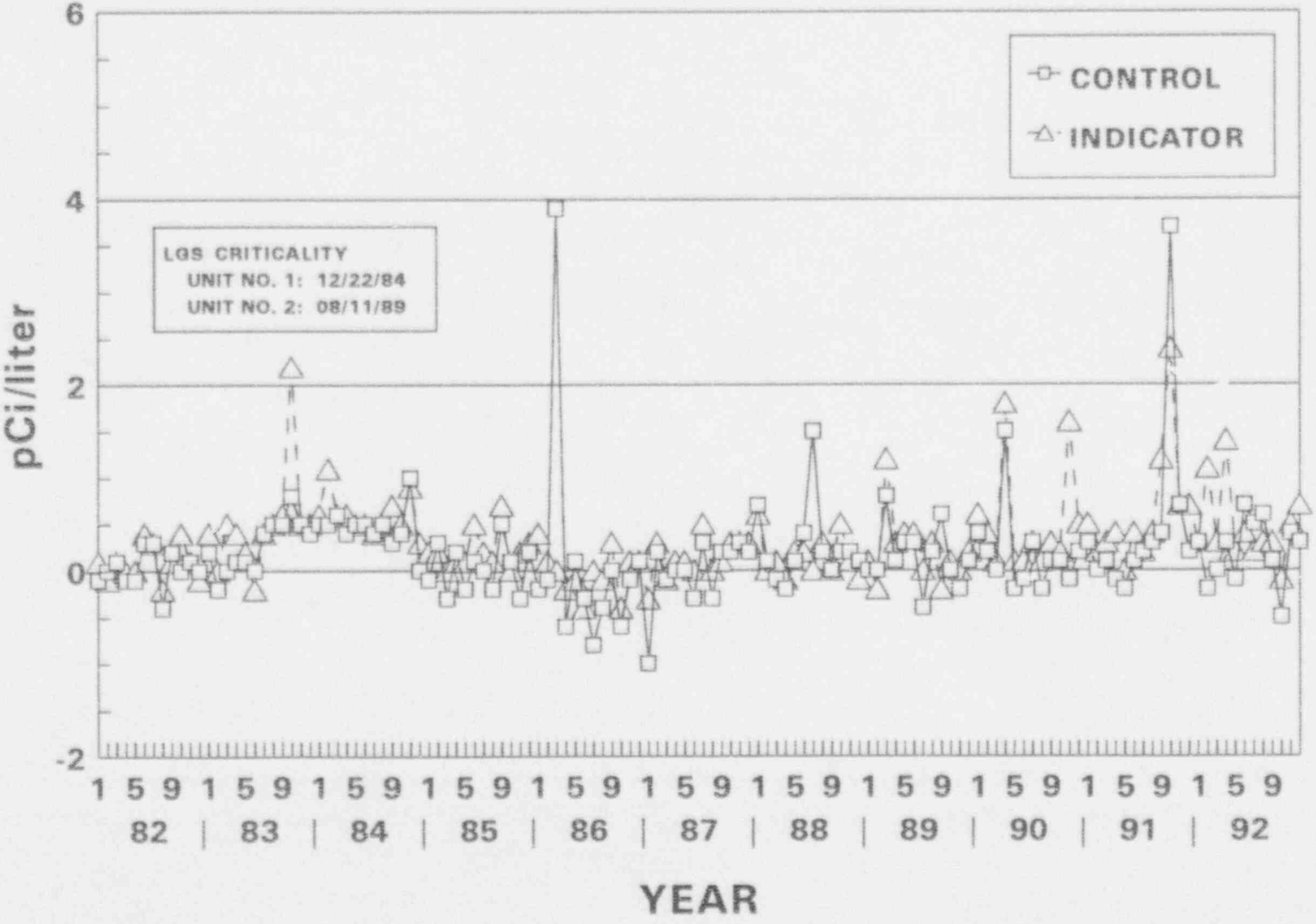


FIGURE C-4

MEAN MONTHLY SOLUBLE GROSS BETA CONCENTRATIONS IN DRINKING WATER SAMPLES COLLECTED IN THE VICINITY OF LGS, 1982 - 1992

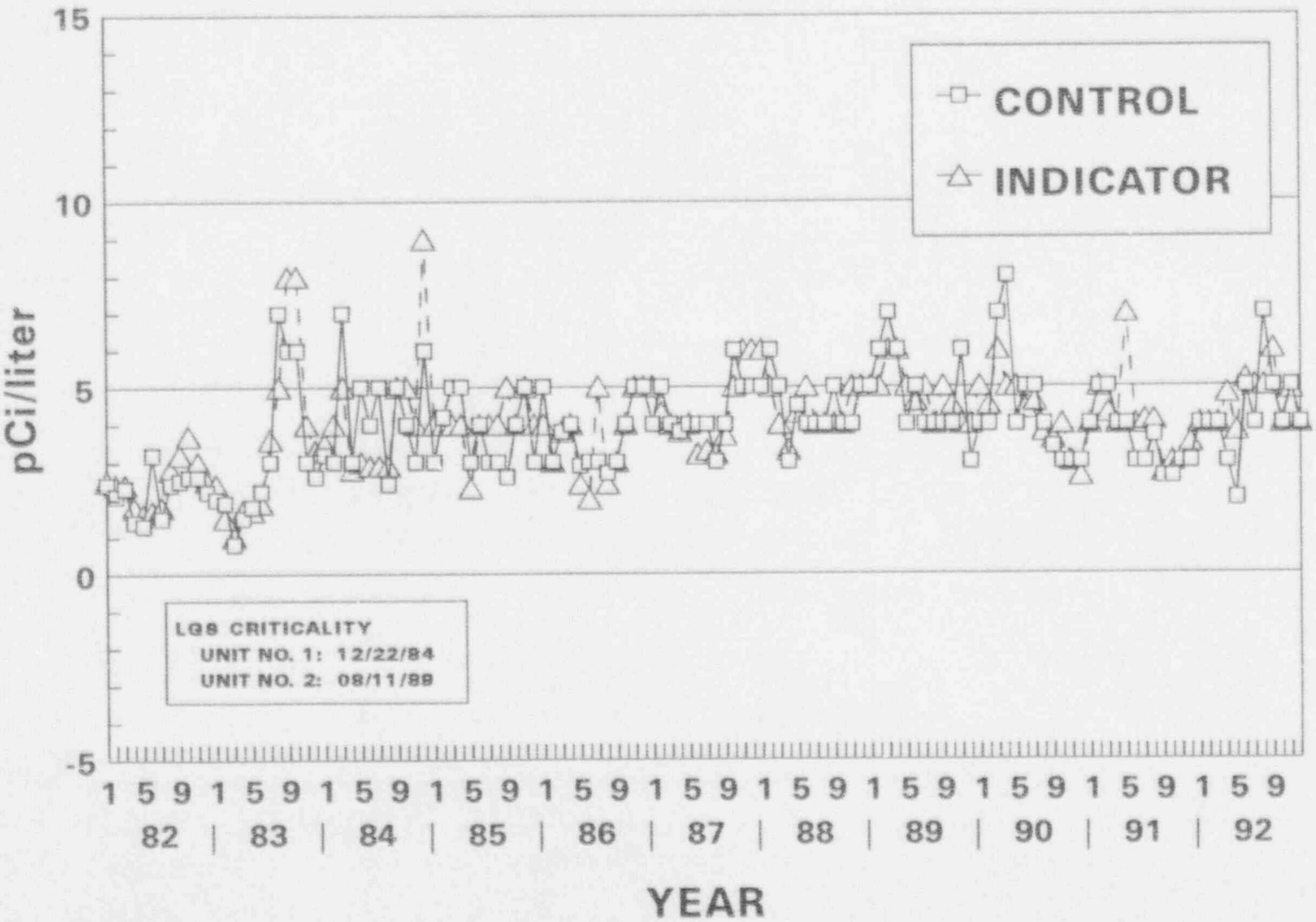


FIGURE C-5
MEAN ANNUAL CS-137 CONCENTRATIONS IN FISH SAMPLES
COLLECTED IN THE VICINITY OF LGS, 1982 - 1992

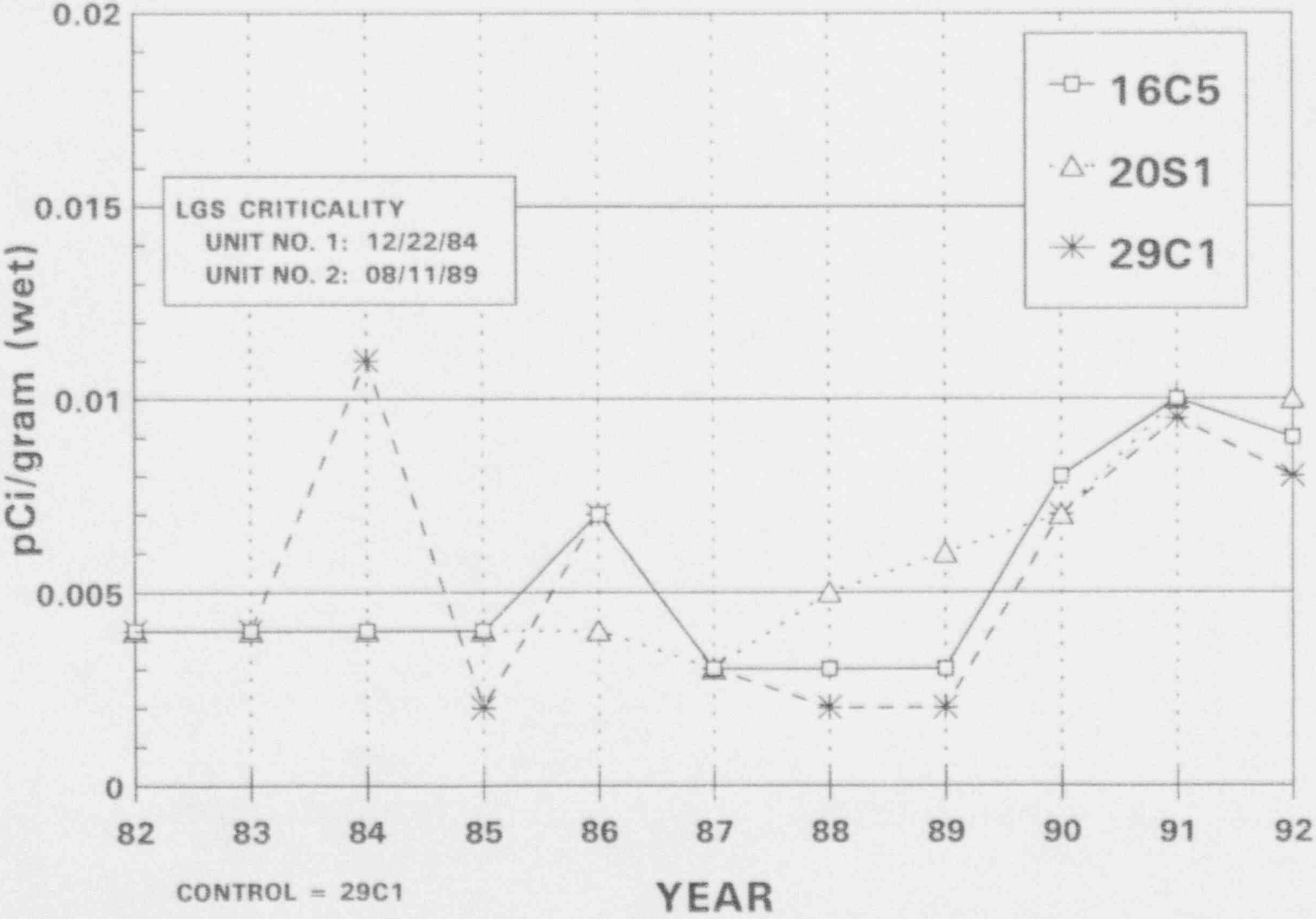


FIGURE C-6
CONCENTRATIONS OF CS-137 IN SEDIMENT SAMPLES
COLLECTED IN THE VICINITY OF LGS, 1982 - 1992

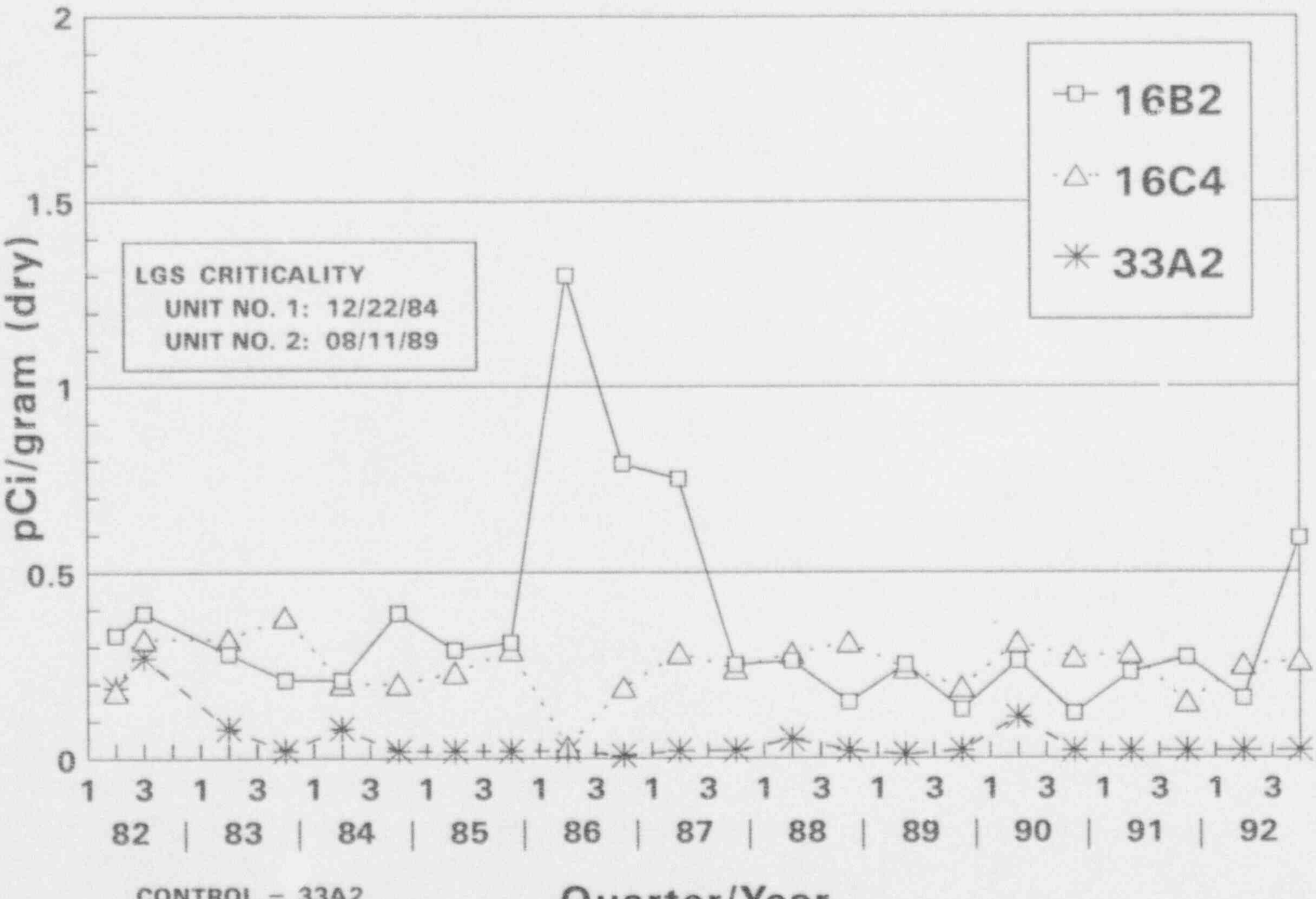


FIGURE C-7
MEAN WEEKLY GROSS BETA CONCENTRATIONS IN AIR PARTICULATE SAMPLES COLLECTED IN THE VICINITY OF LGS, 1992

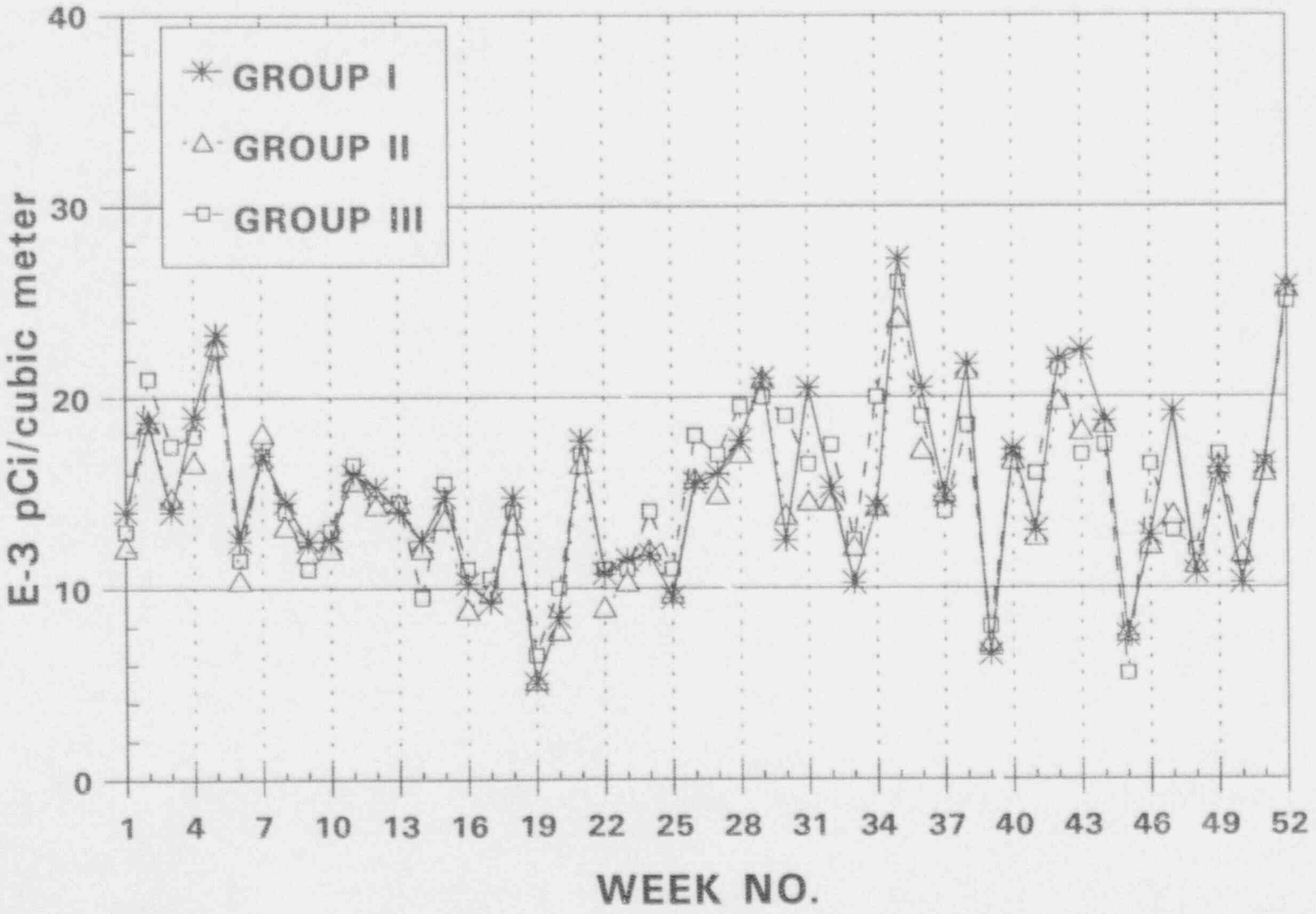


FIGURE C-8
MEAN MONTHLY GROSS BETA CONCENTRATIONS IN AIR PARTICULATE SAMPLES COLLECTED IN THE VICINITY OF LGS, 1982 - 1992

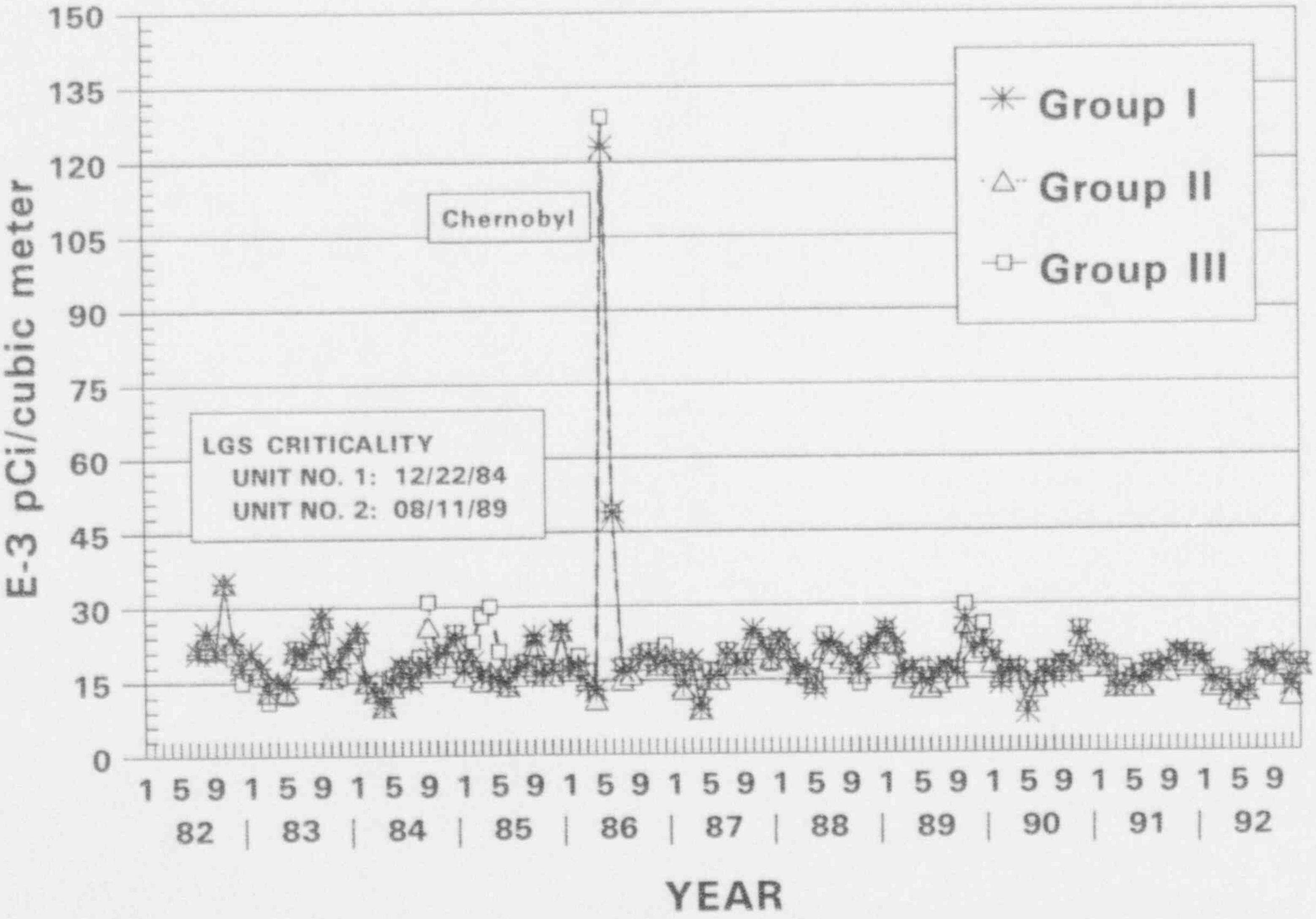


FIGURE C-9

COMPARISON OF POSITIVE MEAN MONTHLY CS-137 VALUES IN MILK SAMPLES COLLECTED IN THE VICINITY OF LGS, 1984 - 1992

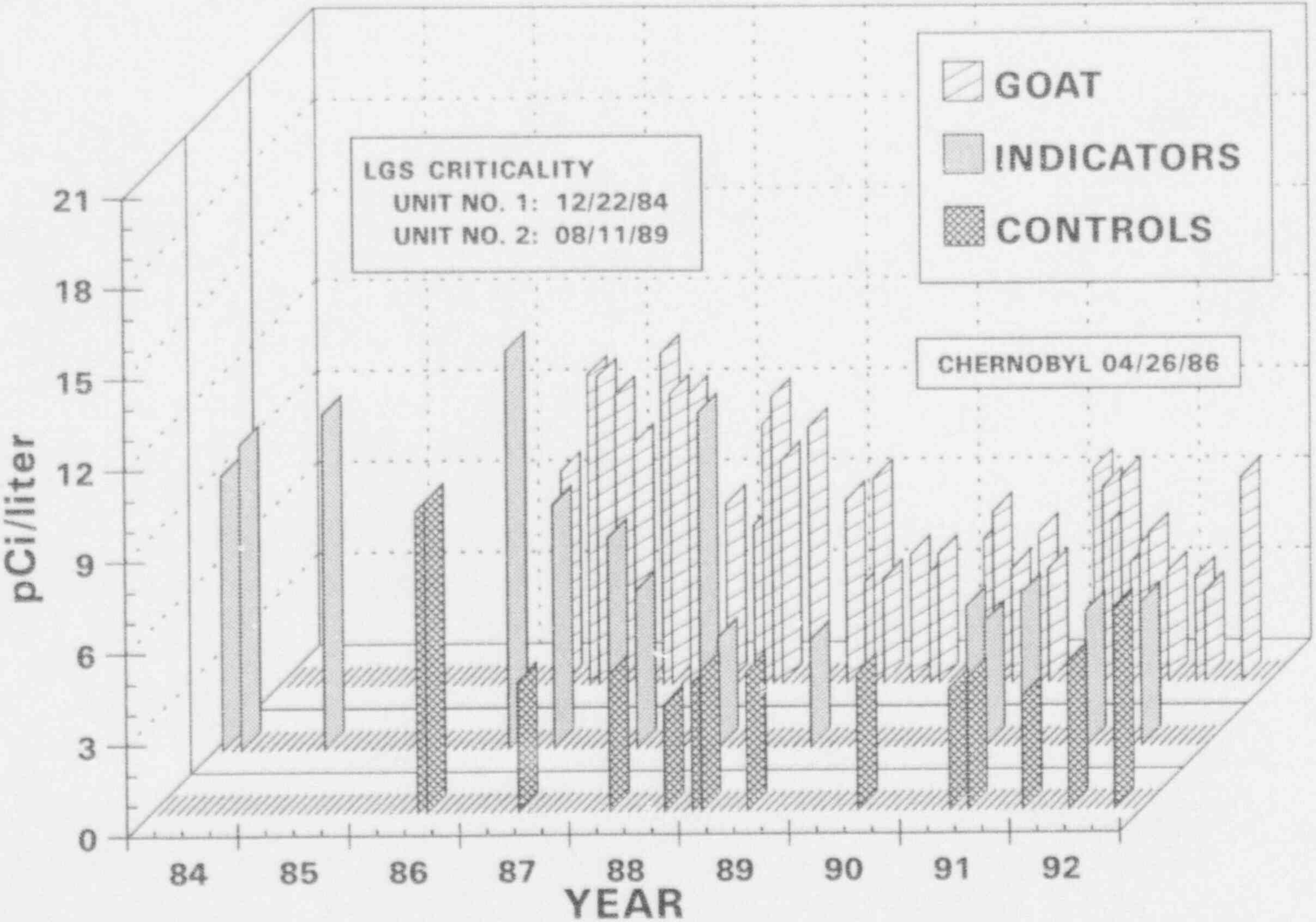
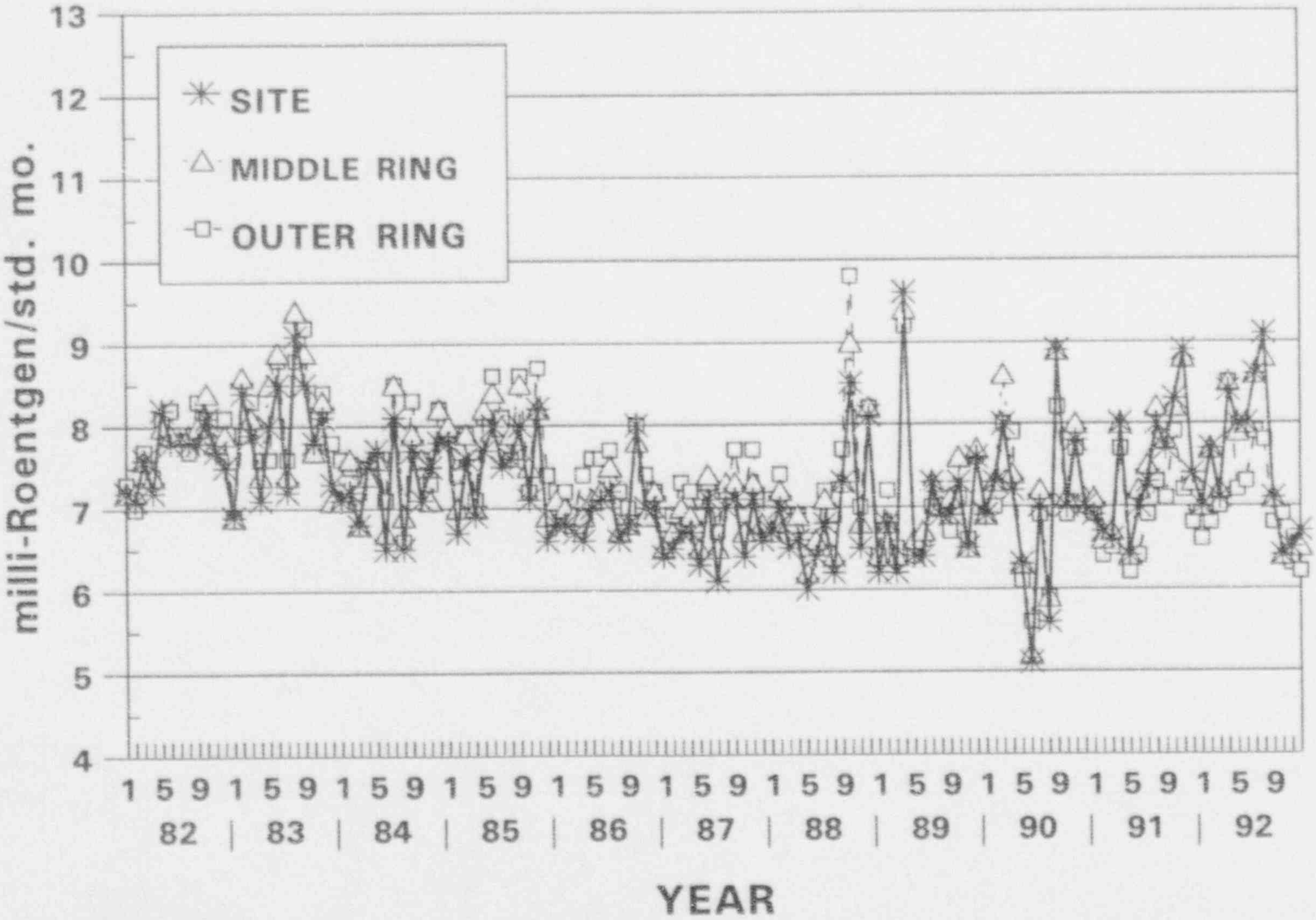


FIGURE C-10
MEAN MONTHLY AMBIENT GAMMA RADIATION LEVELS (TLD)
IN THE VICINITY OF LGS, 1982-1992



DATA TABLES
QC LABORATORY

APPENDIX D: DATA TABLES AND FIGURES - QC LABORATORY

TABLES

FIGURES

The following section contains data and figures illustrating the analyses performed by the quality control laboratory. Duplicate samples were obtained from several locations and media and split between the primary laboratory, Teledyne Isotopes (TI) and the quality control laboratory, Public Service Electric & Gas Co. (PSE&G). Comparison of the results for most media were within expected ranges, though occasional differences were seen:

PSE&G's results of gross beta soluble in surface and drinking water samples were lower than the results from Teledyne Isotopes (Figures D-2 and D-4). The differences were probably due to variations in the respective laboratory's analytical procedures. PSE&G ashes the sample prior to counting whereas, TI does not.

PSE&G's gross beta results for air particulate samples were higher than TI's results, but the trends were similar for both laboratories (Figures D-5 and D-6). PSE&G uses Sr-90 as a calibration source whereas, TI uses Cs-137.

TABLE D-I.1 CONCENTRATIONS OF GROSS BETA INSOLUBLE IN SURFACE AND DRINKING WATER SAMPLES COLLECTED IN THE VICINITY OF LIMERICK GENERATING STATION, 1992

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

COLLECTION PERIOD	10F2	16C2
JAN 92	0.3 ± 0.4	0.5 ± 0.4
FEB 92	0.0 ± 0.4	0.1 ± 0.4
MAR 92	0.6 ± 0.4	0.1 ± 0.4
APR 92	0.5 ± 0.4	0.5 ± 0.4
MAY 92	0.3 ± 0.4	0.5 ± 0.4
JUN 92	1.1 ± 0.5	0.1 ± 0.4
JUL 92	0.5 ± 0.4	0.1 ± 0.4
AUG 92	0.0 ± 0.4	-0.1 ± 0.4
SEP 92	0.0 ± 0.4	0.2 ± 0.4
OCT 92	0.3 ± 0.4	0.1 ± 0.4
NOV 92	0.4 ± 0.4	0.8 ± 0.4
DEC 92	0.7 ± 0.4	-0.1 ± 0.4
MEAN	0.4 ± 0.6	0.2 ± 0.6

TABLE D-I.2 CONCENTRATIONS OF GROSS BETA SOLUBLE IN SURFACE AND DRINKING WATER SAMPLES COLLECTED IN THE VICINITY OF LIMERICK GENERATING STATION, 1992

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

COLLECTION PERIOD	10F2	16C2
JAN 92	6.4 ± 0.9	1.8 ± 0.6
FEB 92	5.6 ± 0.8	1.9 ± 0.6
MAR 92	6.6 ± 0.8	1.7 ± 0.5
APR 92	9.0 ± 1.0	1.6 ± 0.6
MAY 92	7.0 ± 0.8	2.2 ± 0.5
JUN 92	6.0 ± 0.8	2.1 ± 0.6
JUL 92	6.7 ± 0.9	2.8 ± 0.6
AUG 92	4.9 ± 0.8	2.3 ± 0.6
SEP 92	5.5 ± 0.7	3.3 ± 0.6
OCT 92	6.8 ± 0.8	3.1 ± 0.6
NOV 92	8.0 ± 0.9	2.3 ± 0.6
DEC 92	5.7 ± 0.8	2.2 ± 0.6
MEAN	6.5 ± 2.3	2.3 ± 1.1

TABLE D-1.3 CONCENTRATIONS OF GAMMA EMITTERS IN SURFACE AND DRINKING WATER SAMPLES COLLECTED IN THE VICINITY OF LIMERICK GENERATING STATION, 1992

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

STC	COLLECTION PERIOD	K-40	MN-54	CO-58	FE-59	CO-60	ZN-65	ZR-95	NB-95	CS-134	CS-137	BA-140	LA-140
10F2	JAN 92	< 40	< 1.0	< 0.4	< 0.8	< 0.6	< 1	< 0.8	< 0.7	< 0.9	< 0.8	< 1	< 0.7
	FEB 92	60 ± 20	< 0.5	< 1	< 1	< 1	< 2	< 3	< 0.5	< 0.6	< 1	< 5	< 10
	MAR 92	50 ± 10	< 0.6	< 1	< 1	< 0.8	< 2	< 2	< 0.6	< 0.9	< 0.5	< 3	< 0.8
	APR 92	< 20	< 0.6	< 0.4	< 2	< 0.6	< 2	< 3	< 1	< 1	< 0.5	< 3	< 1.0
	MAY 92	50 ± 20	< 1	< 0.5	< 0.7	< 0.5	< 0.9	< 3	< 0.5	< 1.0	< 1.0	< 4	< 2
	JUN 92	60 ± 20	< 0.6	< 0.6	< 0.9	< 2	< 2	< 3	< 0.7	< 1.0	< 0.8	< 4	< 5
	JUL 92	50 ± 20	< 0.5	< 0.6	< 0.6	< 0.8	< 2	< 1	< 0.4	< 0.6	< 0.4	< 4	< 3
	AUG 92	60 ± 20	< 0.8	< 1	< 2	< 0.7	< 2	< 1	< 0.7	< 0.8	< 0.5	< 2	< 1
	SEP 92	40 ± 20	< 0.6	< 0.6	< 0.6	< 0.5	< 1.0	< 1	< 1	< 0.5	< 0.8	< 3	< 0.9
	OCT 92	40 ± 10	< 1	< 0.4	< 1	< 1	< 1	< 2	< 1	< 0.9	< 2	< 4	< 5
	NOV 92	60 ± 20	< 1	< 0.6	< 1	< 0.8	< 5	< 2	< 0.4	< 0.8	< 1.0	< 3	< 2
	DEC 92	50 ± 20	< 0.4	< 0.8	< 0.8	< 0.7	< 2	< 1	< 0.8	< 0.7	< 0.8	< 3	< 2
	MEAN	48 ± 23	< 0.7	< 0.7	< 1.0	< 0.8	< 1.9	< 1.9	< 0.7	< 0.8	< 0.8	< 3	< 2.8
16C2	JAN 92	< 20	< 0.6	< 0.7	< 2	< 1	< 2	< 3	< 1	< 1	< 0.9	< 2	< 1
	FEB 92	< 10	< 0.9	< 0.8	< 2	< 0.5	< 1	< 2	< 0.5	< 0.7	< 0.9	< 3	< 3
	MAR 92	< 10	< 0.4	< 0.4	< 1	< 0.7	< 1	< 0.7	< 0.6	< 0.5	< 0.4	< 3	< 6
	APR 92	< 60	< 0.8	< 0.7	< 1	< 1	< 2	< 1	< 0.5	< 3	< 0.7	< 2	< 1
	MAY 92	< 40	< 0.9	< 0.6	< 2	< 0.9	< 2	< 1	< 0.8	< 0.8	< 0.5	< 2	< 2
	JUN 92	< 50	< 1	< 0.6	< 0.8	< 0.7	< 2	< 1	< 1	< 0.8	< 0.9	< 4	< 2
	JUL 92	< 20	< 0.7	< 0.7	< 0.8	< 1	< 1	< 2	< 0.7	< 0.9	< 1	< 5	< 1
	AUG 92	< 4	< 0.7	< 0.9	< 2	< 0.7	< 0.8	< 0.8	< 0.5	< 0.3	< 0.7	< 3	< 2
	SEP 92	< 10	< 0.4	< 2	< 0.9	< 0.7	< 0.8	< 1	< 0.5	< 0.5	< 0.4	< 3	< 2
	OCT 92	< 50	< 0.9	< 1	< 2	< 1	< 1	< 2	< 0.5	< 0.9	< 0.7	< 2	< 2
	NOV 92	< 20	< 1	< 0.4	< 2	< 1	< 2	< 3	< 0.9	< 2	< 1.0	< 5	< 1
	DEC 92	< 20	< 1	< 0.7	< 1	< 1.0	< 2	< 1	< 0.8	< 0.9	< 0.9	< 3	< 3
	MEAN	< 26	< 0.8	< 0.8	< 1.5	< 0.9	< 1.5	< 1.5	< 0.7	< 1.0	< 0.8	< 3	< 2

TABLE D-II.1 CONCENTRATIONS OF GROSS BETA IN AIR PARTICULATE SAMPLES COLLECTED IN THE VICINITY OF LIMERICK GENERATING STATION, 1992

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

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

TABLE D-II.2 CONCENTRATIONS OF GAMMA EMITTERS IN AIR PARTICULATE SAMPLES COLLECTED IN THE VICINITY OF LIMERICK GENERATING STATION, 1992

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

STC	COLLECTION PERIOD	BE-7	K-40	CS-134	CS-137	RA-226	TH-228
11S2	12/30-03/30/92	66 ± 5	14 ± 4	< 0.08	< 0.1	< 0.4	< 2
	03/30-06/29/92	79 ± 7	< 6	< 0.2	< 0.3	< 1	< 2
	06/29-09/28/92	70 ± 20	15 ± 4	< 0.2	< 0.10	< 0.5	< 0.8
	09/28-12/29/92	60 ± 20	14 ± 5	< 0.2	< 0.3	< 0.7	< 2
	MEAN	67 ± 17	12 ± 8	< 0.17	< 0.20	< 0.7	< 1.7
14S2	12/30-03/30/92	67 ± 6	12 ± 4	< 0.3	< 0.3	< 0.6	< 2
	03/30-06/29/92	76 ± 7	< 6	< 0.2	< 0.1	< 0.7	< 1.0
	06/29-09/28/92	71 ± 8	17 ± 4	< 0.2	< 0.2	< 0.7	< 1
	09/28-12/29/92	61 ± 6	12 ± 1	< 0.4	< 0.4	< 0.7	< 1
	MEAN	69 ± 13	12 ± 9	< 0.3	< 0.3	< 0.7	< 1.3

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, 1992

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

STC	COLLECTION PERIOD	I-131	K-40	CS-134	CS-137	BA-140	LA-140
19B1	01/14-01/14/92	< 0.3	1350 ± 80	< 1	< 1	< 6	< 3
	04/14-04/14/92	< 0.3	1370 ± 90	< 1	< 2	< 5	< 3
	07/07-07/07/92	< 0.2	1400 ± 80	< 1.0	< 1	< 5	< 3
	10/13-10/13/92	< 0.2	1[illegible]00 ± 80	< 2	< 2	< 6	< 20
	MEAN	< 0.3	1380 ± 50	< 1.3	< 2	< 6	< 7
21B1	01/14-01/14/92	< 0.3	1370 ± 80	< 2	< 1	< 5	< 3
	04/14-04/14/92	< 0.2	1400 ± 80	< 1	< 2	< 7	< 2
	07/07-07/07/92	< 0.2	1100 ± 100	< 0.9	< 4	< 3	< 2
	10/13-10/13/92	< 0.5	1390 ± 90	< 0.8	< 1	< 4	< 4
	MEAN	< 0.3	1320 ± 280	< 1.2	< 2	< 5	< 3
22F1	01/14-01/14/92	< 0.2	1370 ± 80	< 0.7	< 2	< 6	< 3
	04/14-04/14/92	< 0.3	1400 ± 100	< 2	< 2	< 7	< 5
	07/07-07/07/92	< 0.4	1400 ± 90	< 1	< 2	< 6	< 1
	10/13-10/13/92	< 0.3	1440 ± 80	< 1	< 1	< 8	< 1
	MEAN	< 0.3	1400 ± 60	< 1.2	< 2	< 7	< 3

TABLE D-IV.1 SUMMARY OF COLLECTION DATES FOR SAMPLES COLLECTED IN THE VICINITY OF LIMERICK GENERATING STATION, 1992

SURFACE AND DRINKING WATER

COLLECTION PERIOD	10F2	16C2
JAN 92	12/30-01/27	12/30-01/27
FEB 92	01/27-02/24	01/27-02/24
MAR 92	02/24-03/31	02/24-03/31
APR 92	03/31-04/27	03/31-04/27
MAY 92	04/27-05/26	04/27-05/26
JUN 92	05/26-06/29	05/26-06/29
JUL 92	06/29-07/28	06/29-07/28
AUG 92	07/28-08/31	07/28-08/31
SEP 92	08/31-09/28	08/31-09/28
OCT 92	09/28-10/26	09/28-10/26
NOV 92	10/26-11/30	10/26-11/30
DEC 92	11/30-12/29	11/30-12/29

AIR PARTICULATES

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

FIGURE D-1

COMPARISON OF MONTHLY INSOLUBLE GROSS BETA CONCENTRATIONS IN SURFACE WATER SAMPLES SPLIT BETWEEN TELEDYNE ISOTOPES AND PUBLIC SERVICE ELECTRIC & GAS, 1992

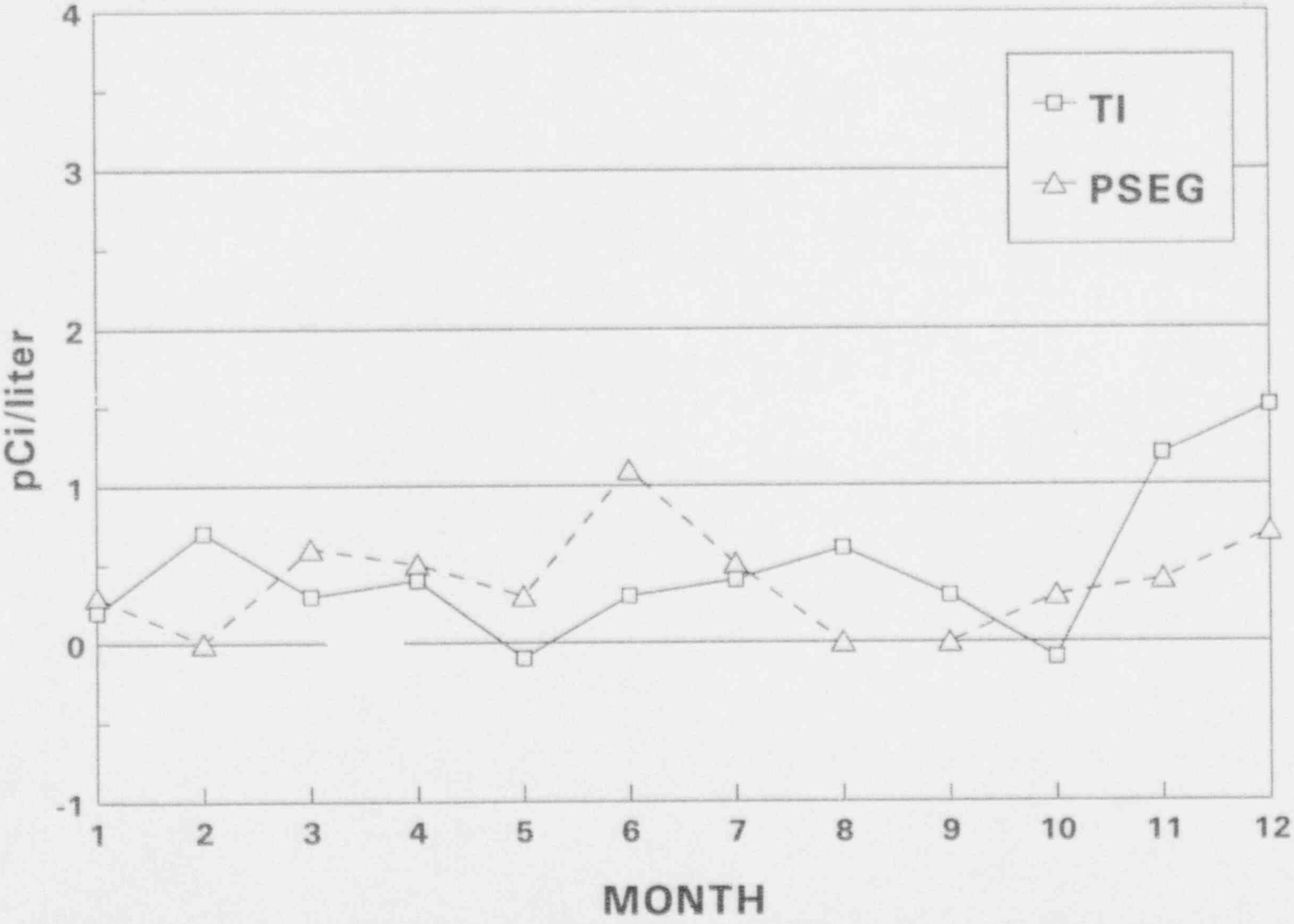


FIGURE D-2

COMPARISON OF MONTHLY SOLUBLE GROSS BETA CONCENTRATIONS IN SURFACE WATER SAMPLES SPLIT BETWEEN TELEDYNE ISOTOPES AND PUBLIC SERVICE ELECTRIC & GAS, 1992

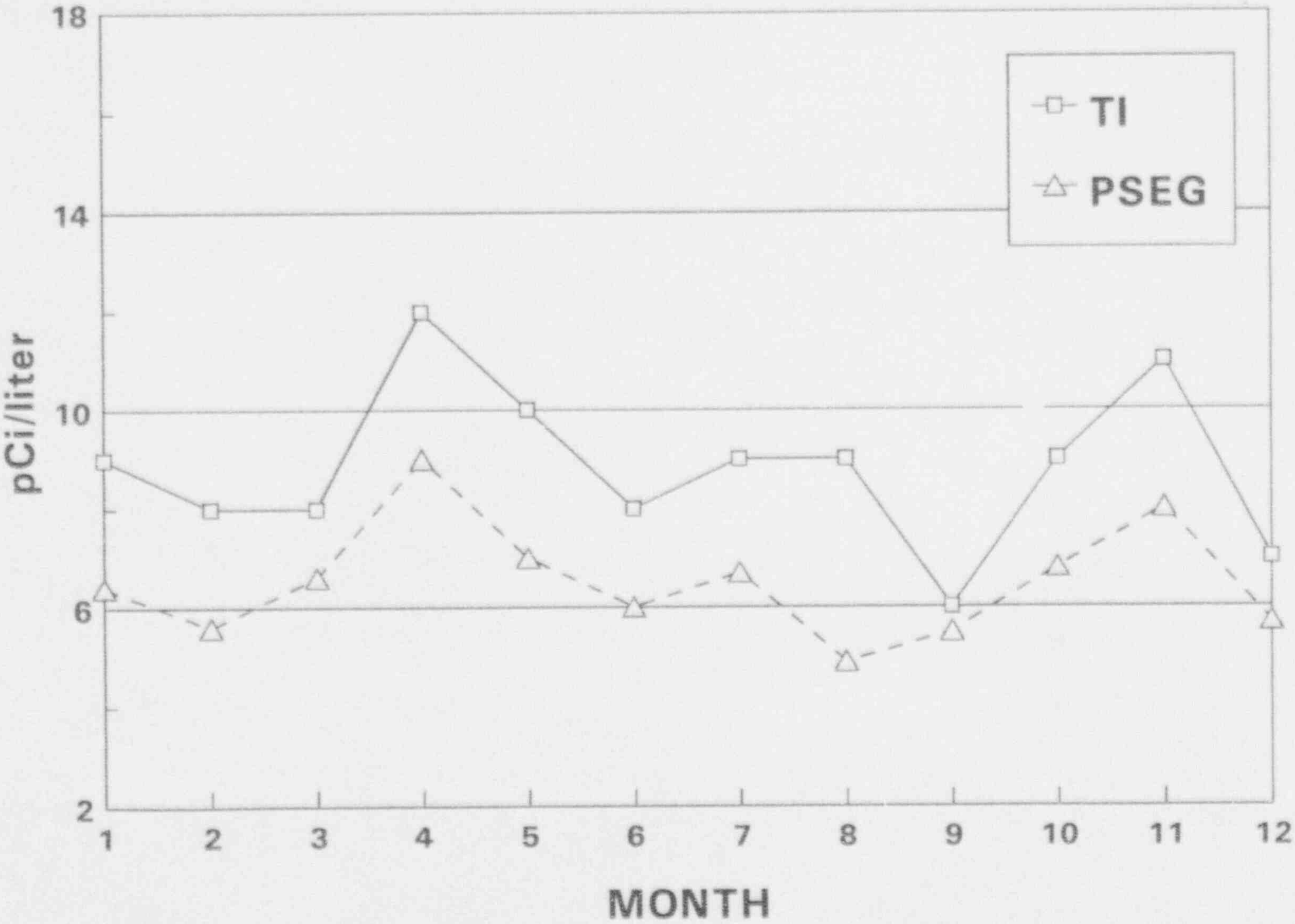


FIGURE D-3
COMPARISON OF MONTHLY INSOLUBLE GROSS BETA CONCENTRATIONS IN DRINKING WATER SAMPLES SPLIT BETWEEN TELEDYNE ISOTOPES AND PUBLIC SERVICE ELECTRIC & GAS, 1992

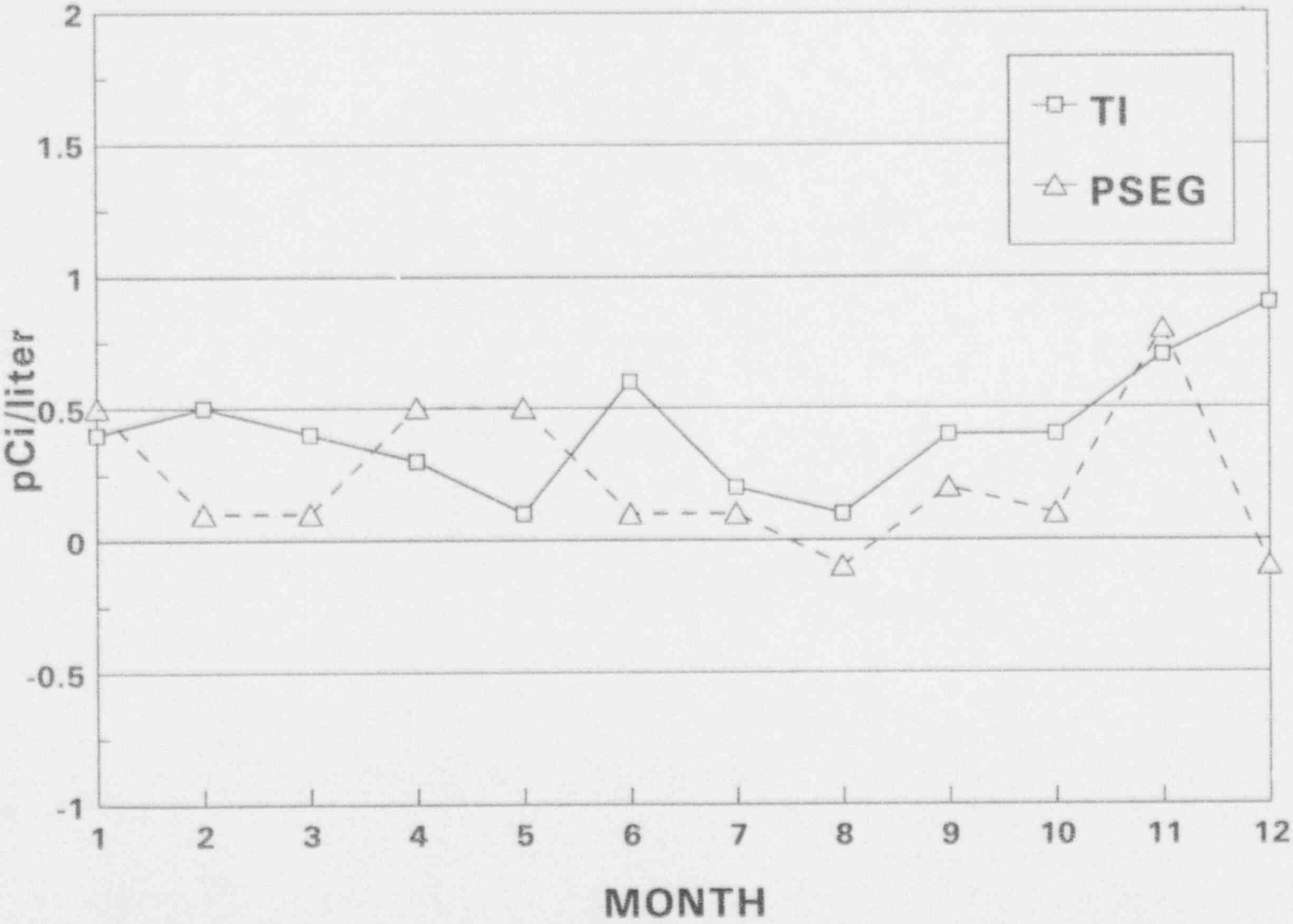


FIGURE D-4
COMPARISON OF MONTHLY SOLUBLE GROSS BETA CONCENTRATIONS IN DRINKING WATER SAMPLES SPLIT BETWEEN TELEDYNE ISOTOPES AND PUBLIC SERVICE ELECTRIC & GAS, 1992

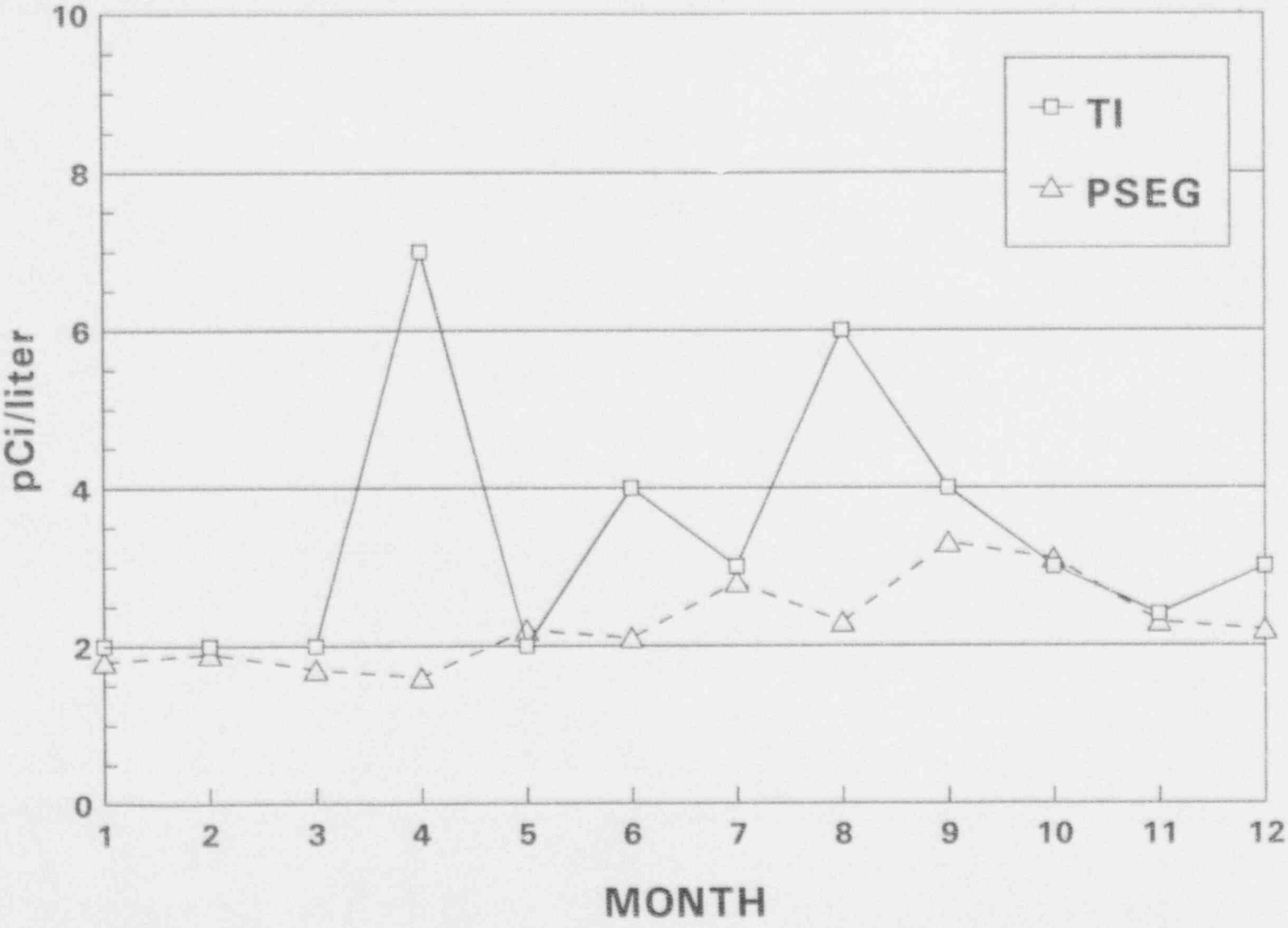


FIGURE D-5
MEAN WEEKLY GROSS BETA CONCENTRATIONS IN AIR PARTICULATE SAMPLES COLLECTED FROM LGS LOCATIONS 11S1 AND 11S2, 1992

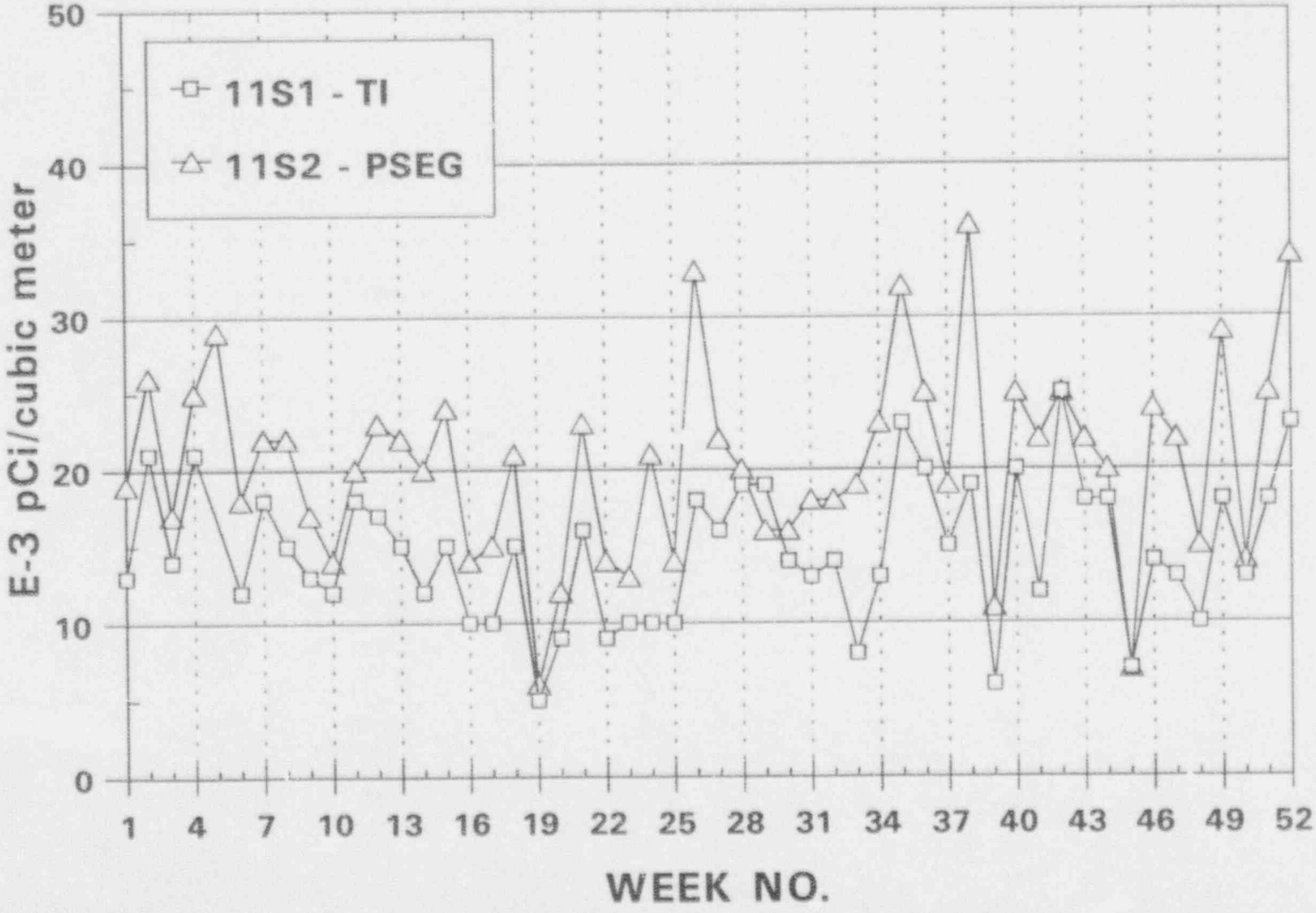
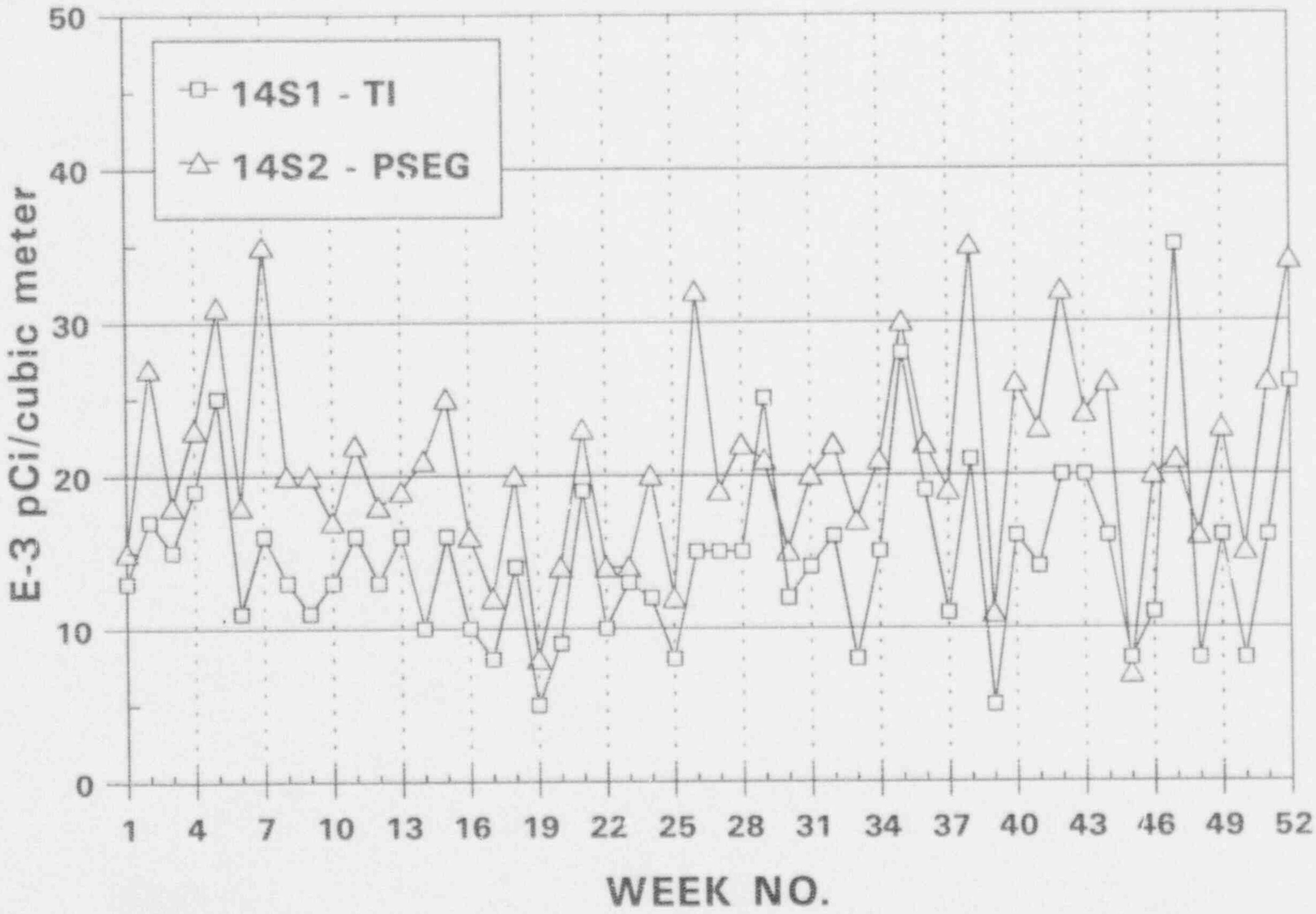


FIGURE D-6
MEAN WEEKLY GROSS BETA CONCENTRATIONS IN AIR PARTICULATE SAMPLES COLLECTED FROM LGS LOCATIONS 14S1 AND 14S2, 1992



SYNOPSIS OF ANALYTICAL PROCEDURES

APPENDIX E: SYNOPSIS OF ANALYTICAL PROCEDURES

The following section contains a description of the analytical laboratory procedures along with an explanation of the analytical calculation methods used by Teledyne Isotopes and Public Service Electric & Gas to obtain the sample activities.

DETERMINATION OF GROSS BETA ACTIVITY IN WATER SAMPLES (TOTAL SUSPENDED AND DISSOLVED FRACTIONS)

Teledyne Isotopes

This describes the process used to measure the radioactivity of water samples without identifying the radioactive species present. No chemical separation techniques are involved.

For surface and drinking water samples, one liter of the sample is filtered under vacuum through a 0.45 micron Millipore filter. This filter represents the insoluble portion of the sample. The filter is dried and mounted on a planchet. The filter which represents the soluble portion of the sample is evaporated on a hot plate, and the residue is transferred and dried on another planchet.

The planchets are counted for 50 minutes in a low-background gas flow proportional counter. Calculation of activity includes a self-absorption correction for counter efficiency based on the weight of residue on each planchet.

Calculation of Sample Activity and 2 Sigma Error:

$$\frac{Result}{(pCi/l)} = \frac{\frac{N}{t} - \beta}{(2.22)(v)(E)} \pm \frac{2\sqrt{\frac{N}{t^2} + \frac{\beta}{t}}}{(2.22)(v)(E)}$$

Net Activity   Counting Error

where:

N	=	total counts from sample (counts)
t	=	counting time for sample (min)
ß	=	background rate of counter (cpm)
2.22	=	dpm/pCi
v	=	volume in liters
E	=	efficiency of the counter
2	=	multiple of counting error

The MDL is defined as that value equal to the two sigma counting error of the result. Less than MDL is reported as the result when this value is greater than the measured result defined above.

DETERMINATION OF GROSS BETA ACTIVITY IN WATER SAMPLES (TOTAL SUSPENDED AND DISSOLVED FRACTIONS)

Public Service Electric & Gas

This describes the process used to measure the overall radioactivity of water samples without identifying the radioactive species present. No chemical separation techniques are involved.

The sample is mixed thoroughly. Then, a 1.0 liter portion is removed from the surface or drinking water container and filtered through a slow, hardened ashless filter paper mounted in a Buchner funnel. The filter paper is removed from the Buchner funnel, folded into a triangle, placed in a covered porcelain crucible and heated over a Bunsen burner until completely charred. The crucible is then ashed for at least 2 hours in a muffle furnace at 500° C. The cooled ash is then transferred to a tared stainless steel ribbed planchet using a rubber policeman with laboratory aerosol and reagent water.

The filtrate portion of the sample is evaporated on a hot plate until the volume approaches 20 to 25 ml. At that point, the filtrate is transferred to a tared stainless steel ribbed planchet. Both planchets are evaporated to dryness under an infrared heat lamp. They are subsequently cooled in a desiccator, weighed and counted using a low background gas proportional counter.

Calculation of Sample Activity and 1.96 Sigma Error:

$$\frac{\text{Result}}{(pCi/l)} = \frac{\frac{C_s}{T_s} - \frac{C_b}{T_b}}{2.22\,(v)\,(E)} \pm \frac{1.96\sqrt{\frac{C_s}{T_s^2} + \frac{C_b}{T_b^2}}}{2.22\,(v)\,(E)}$$

Net Activity   Counting Error

where:

C_s	=	total gross sample counts (counts)
T_s	=	sample count time (min)
C_b	=	total background count (counts)
T_b	=	background count time (min)
E	=	counting efficiency based on Sr-90 for the weight of planchetted sample
v	=	aliquot size in liters
2.22	=	dpm per pCi
1.96	=	multiple of counting error

The MDL is defined as that value equal to the 1.96 sigma counting error of the result. Less than MDL is reported as the result when this value is greater than the net activity.

DETERMINATION OF TRITIUM IN WATER BY ELECTROLYTIC ENRICHMENT AND LIQUID SCINTILLATION COUNTING

Teledyne Isotopes

A 60 ml aliquot is distilled and collected in an Erlenmeyer flask. Approximately 55 g of the distillate is transferred into an electrolytic enrichment cell. One ml of 30% sodium hydroxide solution is added to the cell. The sample is electrolyzed in a 10° C cooling water bath until the volume is 3-4 ml. CO_2 is bubbled through the solution to neutralize the sodium hydroxide. The sample is transferred to a collecting bottle at 80° C and weighed. It is then transferred into a liquid scintillation vial and 20 ml of cocktail is added. The sample is counted for 100 minutes in a liquid scintillation counter.

Determination of the Enrichment Factor:

$$EnrichmentFactor = \frac{(final\ volume)(observed\ dpm/ml)}{(initial\ volume)(standard\ dpm/ml)}$$

Aliquots of a tritium standard solution have been enriched to different final volumes to provide a graph of the enrichment factor versus the final volume.

Calculation of Sample Activity and 2 Sigma Error:

$$\frac{Result}{(pCi/l)} = \frac{\frac{N}{t} - \beta}{2.22(v)(EF)(E)} \pm \frac{2\sqrt{\frac{N}{t^2} + \frac{\beta}{t}}}{2.22(v)(EF)(E)}$$

Net Activity Counting Error

where:

N	=	total counts from sample (counts)
t	=	counting time for sample (min)
ß	=	background rate of counter (cpm)
2.22	=	dpm/pCi
v	=	initial volume (in liters) before enrichment
EF	=	enrichment factor = .039 x VF + .603 where VF = Final Volume
E	=	efficiency of the counter tritium
2	=	multiples of counting error

The MDL is defined as that value equal to the two sigma counting error of the result. Less than MDL is reported as the result when this value is greater than the net activity.

DETERMINATION OF TRITIUM IN WATER
BY LIQUID SCINTILLATION COUNTING

Teledyne Isotopes

Ten (10) milliliters of sample is directly pipetted into a 25 ml vial and mixed with liquid scintillation material and counted for a minimum of 100 minutes to determine its activity. The tritium activity is determined by measuring the count rate in the beta activity energy spectrum from 0 to 18 KeV. Eighteen to 100 KeV represents the carbon-14 energy region. If there is no count rate above background in the carbon-14 energy region, the sample has no contamination and the tritium activity may be calculated directly. If the net count rate in the carbon-14 energy channel is 10% of the tritium count rate or higher, the sample contains contamination that may affect the count rate in the tritium channel, and the sample must be purified by distillation before recounting.

Calculation of Sample Activity and 2 Sigma Error:

$$\frac{Result}{(pCi/l)} = \frac{\frac{N}{t} - \beta}{2.22(v)(E)} \pm \frac{2\sqrt{\frac{N}{t^2} + \frac{\beta}{t}}}{2.22(v)(E)}$$

Net Activity Counting Error

where:

N	=	total counts from sample (counts)
t	=	counting time for sample (min)
ß	=	background rate of counter (cpm)
2.22	=	dpm/pCi
v	=	sample volume (in liters)
E	=	efficiency of the counter tritium
2	=	multiples of counting error

The MDL is defined as that value equal to the two sigma counting error of the result. Less than MDL is reported as the result when this value is greater than the net activity.

DETERMINATION OF GROSS BETA ACTIVITY IN AIR PARTICULATE SAMPLES

Teledyne Isotopes

This describes the process used to measure the overall beta activity of air particulate filters without identifying the radioactive species present. No chemical separation techniques are involved. Each air particulate filter is placed directly on a 2-inch stainless steel planchet. The planchets are then counted for beta activity in a low-background gas flow proportional counter. Calculation of activity includes an empirical self-absorption correction curve which allows for the change in effective counting efficiency caused by the residue mass. Self-absorption is not considered in the case of air particulate filters because of the impracticality of accurately weighing the deposit and because the penetration depth of the deposit into the filter is unknown.

Calculation of Sample Activity and 2 Sigma Error:

$$\frac{Result}{(pCi/m^3)} = \frac{(\frac{N}{t}) - \beta}{2.22(v)(E)(.02832)} \pm \frac{2\sqrt{(\frac{N}{t^2}) + (\frac{\beta}{t})}}{2.22(v)(E)(.02832)}$$

Net Activity Counting Error

where:

N	=	total counts from sample (counts)
t	=	counting time for sample (min)
ß	=	background rate of counter (cpm)
2.22	=	dpm/pCi
v	=	volume of sample analyzed in cubic feet calculated from the elapsed time meter
E	=	efficiency of the counter
2	=	multiple of counting error
.02832	=	conversion to cubic meters

The MDL is defined as that value equal to the two sigma counting error of the result. Less than MDL is reported as the result when this value is greater than the net activity.

DETERMINATION OF GROSS BETA ACTIVITY IN AIR PARTICULATE SAMPLES

Public Service Electric & Gas

After allowing at least a three-day (extending from the sample stop date to the sample count time) period for the short-lived radionuclides to decay out, each air particulate filter paper is placed in a 2-inch diameter stainless steel planchet and counted using a gas proportional counter.

Calculation of Sample Activity and 1.96 Sigma Error:

$$\frac{Result}{(pCi/m^3)} = \frac{\frac{C_s}{T_s} - \frac{C_b}{T_b}}{2.22(v)(E)(.02832)} \pm \frac{1.96\sqrt{\frac{C_s}{T_s^2} + \frac{C_b}{T_b^2}}}{2.22(v)(E)(.02832)}$$

Net Activity   Counting Error

where:

C_s	=	total gross sample counts (counts)
T_s	=	sample count time (min)
C_b	=	total background count (counts)
T_b	=	background count time (min)
E	=	counting efficiency based on Sr-90
v	=	sample volume in cubic feet calculated from the elapsed time meter readings and the flow rate
.02832	=	conversion to cubic meters
2.22	=	dpm/pCi
1.96	=	multiple of the counting error

The MDL is defined as that value equal to the 1.96 sigma counting error of the result. Less than MDL is reported as the result when this value is greater than the net activity.

DETERMINATION OF I-131 IN MILK AND WATER SAMPLES

Teledyne Isotopes

Two liters of sample are first equilibrated with stable iodide carrier. A batch treatment with anion exchange resin is used to remove iodide from the sample. The iodine is then stripped from the resin with sodium hypochlorite, reduced with hydroxylamine hydrochloride, and extracted into carbon tetrachloride as free iodine. It is then back-extracted as iodide into sodium bisulfite solution and is precipitated as palladium iodide. The precipitate is weighed for chemical yield and is mounted on a nylon planchet for low level beta counting. The chemical yield is corrected by measuring the stable iodide content of the milk or water with a specific ion electrode.

Calculation of the Sample Activity and 2 Sigma Error:

$$\frac{Result}{(pCi/l)} = \frac{\frac{N}{t} - \beta}{(2.22)(v)(E)(y)(\exp^{-\lambda \Delta t})} \pm \frac{2\sqrt{\frac{N}{t^2} + \frac{\beta}{t}}}{(2.22)(v)(E)(y)(\exp^{-\lambda \Delta t})}$$

Net Activity Counting Error

where:

N	=	total counts from sample (counts)
t	=	counting time for sample (min)
β	=	background rate of counter (cpm)
2.22	=	dpm/pCi
v	=	volume of sample analyzed (liters)
y	=	chemical yield of the amount of sample counted
λ	=	is the radioactive decay constant for I-131 (0.693/8.05)
Δt	=	is the elapsed time between sample collection (or end of the sample collection) to the midcount time
2	=	multiple of the counting error
E	=	efficiency of the counter for I-131, corrected for self absorption effects by the formula:

$$E = E_s \frac{(\exp^{-0.0061M})}{(\exp^{-0.0061M_s})}$$

where:

E_s	=	efficiency of the counter determined from an I-131 standard mount
M	=	mass of PdI_2 on the sample mount (mg)
M_s	=	mass of PdI_2 on the standard mount (mg)

The MDL is defined as that value equal to the two sigma counting error of the result. Less than MDL is reported as the result when this value is greater than the net activity.

DETERMINATION OF I-131 IN MILK AND WATER SAMPLES

Public Service Electric & Gas

Stable iodine carrier is equilibrated in a 4-liter volume of raw milk before two separate 50 ml batches of anion exchange resin are introduced to extract iodine. After each batch has been stirred in the milk for an appropriate time, both are then transferred to an aluminum sample can where the resins are rinsed with demineralized water several times and any leftover rinse water removed with an aspirator stick. The can is hermetically sealed and then counted on a gamma detector.

Calculation of the Sample Activity and 1.96 Sigma Error:

$$\frac{Result}{(pCi/l)} = \frac{\left(\frac{C_s}{T_s} - \frac{C_b}{T_b}\right)(1.05)}{(2.22)(v)(E)(y)(\exp^{-\lambda \Delta t})} \pm \frac{1.96\sqrt{\frac{C_s}{T_s^2} + \frac{C_b}{T_b^2}}\,(1.05)}{(2.22)(v)(E)(y)(\exp^{-\lambda \Delta t})}$$

Net Activity Counting Error

where:

C_s	=	total gross sample counts (counts)
T_s	=	sample count time (min)
C_b	=	total background count time (counts)
T_b	=	background count time (min)
E	=	counting efficiency for I-131
v	=	aliquot analyzed (liters)
y	=	iodine yield
λ	=	is the radioactive decay constant for I-131 (0.693/8.05)
Δt	=	is the elapsed time between sample collection (or end of the sample collection) to the midcount time
1.05	=	Correction factor for protein-bound iodine
2.22	=	dpm/pCi
1.96	=	multiple of counting error

The MDL is defined as that value equal to the 1.96 sigma counting error of the result. Less than MDL is reported as the result when this value is greater than the net activity.

DETERMINATION OF GAMMA EMITTING RADIOISOTOPES

Teledyne Isotopes

Gamma emitting radioisotopes are determined with the use of a lithium drifted germanium (GeLi) and high purity germanium detectors with high resolution spectrometry in specific media; such as, air particulate filters, charcoal filters, milk and water. Each sample to be assayed is prepared and counted in standard geometries such as one liter wrap-around Marinelli containers, 300 ml or 150 ml bottles, or 2-inch filter paper source geometries.

Samples are counted on large (>55 cc volume) GeLi detectors connected to Nuclear Data 6620 data acquisition and computation systems. All resultant spectra are stored on magnetic tape.

The analysis of each sample consists of calculating the specific activities of all detected radionuclides or the detection limits from a standard list of nuclides. The GeLi systems are calibrated for each standard geometry using certified radionuclide standards traceable to the National Bureau of Standards.

Calculation of the Sample Activity and 2 Sigma Error:

$$\frac{Result}{\left(\frac{pCi}{vol - mass}\right)} = \frac{N_{(j)} - B_{(j)}}{(2.22)(v)(t)(E_{(j)})(BI_{(j)})(\exp^{-\lambda_{(j)}\Delta t})}$$

Net Activity

$$\pm \frac{2\sqrt{N_{(j)} + B_{(j)}}}{(2.22)(v)(t)(E_{(j)})(BI_{(j)})(\exp^{-\lambda_{(j)}\Delta t})}$$

Counting Error

where:

$N_{(j)}$ = area, in counts, of a special region containing a gamma emission of the nuclide of interest

NOTE: If the detector exhibits a peak in this region when counting a blank (i.e., from natural background (ß)(t) is subtracted from N before using the above equation. ß is the count rate of the blank, cpm, in the background peak.

$B_{(j)}$	=	background counts in the region of interest, calculated by fitting a straight line across the region connecting the two adjacent regions
2	=	multiple of counting error
2.22	=	dpm/pCi
v	=	volume or mass of sample analyzed
t	=	counting interval of sample, minutes
$E_{(j)}$	=	efficiency of counter at the energy region of interest
$BI_{(j)}$	=	branching intensity of the nuclide at the gamma emission energy under consideration
$\lambda_{(j)}$	=	is the radioactive decay constant for $nuclide_{(j)}$ (0.693/nuclide half life)
Δt	=	is the elapsed time between sample collection (or end of the sample collection) to the midcount time

The MDL is defined as that value equal to the two sigma counting error of the result. Less than MDL is reported as the result when this value is greater than the measured result defined above.

DETERMINATION OF GAMMA EMITTING RADIOISOTOPES

Public Service Electric & Gas

The procedure for detection of gamma emitting radioisotopes generates high resolution gamma spectra which are used for quantitative determination and identification. Standard geometries have been established to maximize efficiency, for sample types: air particulate filters, water, and milk.

A description of the analytical methods, beginning with air particulates used for each sample type is presented, followed by the general formula used for calculation of the sample activities.

Air particulate: At the end of each calendar quarter, 13 weekly air filters from a given location are stacked in a two inch diameter Petri dish in chronological order, with the oldest filter at the bottom, nearest the detector, and the newest one on top. The Petri dish is closed and the sample counted.

Water and Milk: A well-mixed 3.5-liter sample is poured into a calibrated Marinelli beaker. The samples are brought to ambient temperature and counted.

Calculation of the Sample Activity and 1.96 Sigma Error:

$$\frac{Result}{\left(\frac{pCi}{vol - mass}\right)} = \frac{N_{(j)} - B_{(j)}}{(2.22)(v)(t)(E_{(j)})(BI_{(j)})(\exp^{-\lambda_{(j)}\Delta t})}$$

Net Activity

$$\pm \frac{1.96\sqrt{N_{(j)} + B_{(j)}}}{(2.22)(v)(t)(E_{(j)})(BI_{(j)})(\exp^{-\lambda_{(j)}\Delta t})}$$

Counting Error

where:

$N_{(j)}$ = area, in counts, of a special region containing a gamma emission of the nuclide of interest

NOTE: If the detector exhibits a peak in this region when counting a blank (i.e., from natural background (ß)(t) is subtracted from N before using the above equation. ß is the count rate of the blank, cpm, in the background peak.

$B_{(j)}$ = background counts in the region of interest, calculated by fitting a straight line across the region connecting the two adjacent regions

1.96 = multiple of counting error

2.22 = dpm/pCi

v = volume or mass of sample analyzed

t = counting interval of sample, minutes

$E_{(j)}$ = efficiency of counter at the energy region of interest

$BI_{(j)}$ = branching intensity of the nuclide at the gamma emission energy under consideration (no. of photons per disintegration)

$\lambda_{(j)}$ = is the radioactive decay constant for $nuclide_{(j)}$ (0.693/nuclide half life)

Δt = is the elapsed time between sample collection (or end of the sample collection) to the midcount time

The MDL is defined as that value equal to the two sigma counting error of the result. Less than MDL is reported as the result when this value is greater than the measured result defined above.

ENVIRONMENTAL DOSIMETRY

Teledyne Isotopes

Teledyne Isotopes dosimeters are rectangular teflon wafers impregnated with 25% CaSO4:Dy phosphor. They are annealed in a hot air oven prior to use and are inserted into black polyethylene pouches. The filled pouches are labelled and placed in rectangular holders which contain copper shielding to filter out low energy radiation. After exposure in the environment, four separate areas of the dosimeter are read in a Teledyne Isotopes model 8300 TLD reader. The dosimeter is then re-irradiated by a standardized Cs-137 source and the four areas are read again. Calculation of the environmental exposure is performed by computer, using the re-irradiation readings to determine the sensitivity of each area of the dosimeter. The reading of control dosimeters are subtracted to allow for transit dose and system background.

A. For any given area of the dosimeter, the dose mR is calculated by the formula:

$$Dose = (R)\left(\frac{redose}{RR}\right)(avcontrol)$$

where:

R	=	initial reading of the area
RR	=	second reading of the area (after re-irradiation)
redose	=	re-irradiation dose in mR
avcontrol	=	average of control values calculated as explained below. If no controls are used, avcontrol = 0 and gross exposures result

B. Each area of each control is calculated by the formula:

$$cdose = (cr)\left(\frac{credose}{crr}\right)$$

where:

cdose	=	control area dose in mR
cr	=	initial reading of the control area
crr	=	second reading of the control area (after re-irradiation)
credose	=	re-irradiation dose of the control dosimeter in mR

The average of control values is then calculated from all four areas of all controls by the formula:

$$avcontrol = \frac{\sum_{1}^{4N} cdose}{4N}$$

where:

N = total number of control dosimeters

C. The average and standard deviation of the area readings for each dosimeter are calculated by standard methods.

D. Using the criteria that if one standard deviation is greater than 10% of the average of the four readings and that if the value of one area is outside the range of 3 standard deviations of the average of the other three areas, then that area will be eliminated and the results will be based on the remaining areas.

QUALITY CONTROL

EPA INTER-LABORATORY COMPARISON PROGRAM

NRC, DER AND PECO TLD INTERCOMPARISON PROGRAM

APPENDIX F: QUALITY CONTROL PROGRAM

Teledyne Isotopes (TI) and Public Service Electric & Gas (PSE&G) participate in the EPA Radiological Inter-laboratory Comparison (cross check) Program. This participation includes a number of analyses on various sample media as found in the Limerick Generating Station REMP. As a result of this participation, an objective measurement of analytical precision and accuracy as well as, a bias estimation of the results are obtained.

Examination of the data shows that the vast majority were within the EPA control limits. Each case of exceeding the control limits was investigated. There was no evidence to suggest systematic errors.

The results of TI's and PSE&G's participation in the EPA cross check program can be found in Tables F-1 and F-2, respectively.

As part of another intercomparison program, thermoluminescent dosimeters (TLDs) from the NRC, Pennsylvania Department of Environmental Resources and PECo were placed at various distances around the Limerick Generating Station. The data were summarized into three categories: 0-2 miles, 2-5 miles and greater than 5 miles from the Limerick Generating Station (Figures F-1 through F-3, Appendix F). The data overlap each other, indicating that each TLD system accurately represents the ambient gamma radiation levels in the environs around the Limerick Generating Station.

TABLE F-1

USEPA
INTER-LABORATORY COMPARISONS - 1992
TELEDYNE ISOTOPES

Collection Date	Sequence No.	Media	Nuclide	EPA Results(a)	Teledyne Isotopes Results(b)	Normalized Deviation Grand Avg.	Normalized Deviation Known	All Participants Mean ± 2 s.d.
01/17/92	592	Water	Sr-89	51.0 ± 8.66	45.67 ± 4.59	-0.50	-1.85	47.12 ± 21.10
			Sr-90	20.0 ± 8.66	18.67 ± 4.59	-0.21	-0.46	19.28 ± 4.92
02/07/92	589	Water	I-131	59.0 ± 10.39	61.00 ± 5.19	0.24	0.58	60.16 ± 11.08
02/14/92	593	Water	Co-60	40.0 ± 8.66	38.00 ± 7.95	-0.72	-0.69	40.08 ± 6.76
			Zn-65	148.0 ± 25.98	145.00 ± 5.19	-0.44	-0.35	148.85 ± 18.20
			Ru-106	203.0 ± 34.64	191.00 ± 64.98	-0.31	-1.04	194.62 ± 36.58
			Cs-134	31.0 ± 8.66	29.00 ± 6.00	-0.15	-0.69	29.44 ± 5.38
			Cs-137	49.0 ± 8.66	53.67 ± 7.56	1.03	1.62	50.69 ± 7.38
			Ba-133	76.0 ± 13.86	75.67 ± 22.53	0.13	-0.07	75.06 ± 11.54
02/21/92	591	Water	H-3	7904.0 ± 1368.32	7800.00 ± 300.00	-0.31	-0.23	7942.78 ± 1404.00
03/27/92	594	Air Filter	Gr-Alpha	7.0 ± 8.66	11.33 ± 1.74	1.03	1.50	8.35 ± 3.38
			Gr-Beta	41.0 ± 8.66	43.00 ± 3.00	0.23	0.69	42.32 ± 6.62
			Sr-90	15.0 ± 8.66	12.67 ± 1.74	-0.67	-0.81	14.59 ± 4.54
			Cs-137	10.0 ± 8.66	11.00 ± 5.19	-0.01	0.35	11.02 ± 4.16
04/14/92	598	Water	Gr-Beta	140.0 ± 36.37	98.00 ± 6.00	-1.66	-3.46	118.11 ± 33.82(c)
			Sr-89	15.0 ± 8.66	16.00 ± 3.00	0.17	0.35	15.52 ± 6.50
			Sr-90	17.0 ± 8.66	14.33 ± 3.45	-0.52	-0.92	15.85 ± 4.74
			Co-60	56.0 ± 8.66	55.00 ± 5.19	-0.50	-0.35	56.44 ± 5.94
			Cs-134	24.0 ± 8.66	22.67 ± 4.59	-0.26	-0.46	23.42 ± 4.04
			Cs-137	22.0 ± 8.66	24.67 ± 9.18	0.51	0.92	23.20 ± 4.70
			Gr-Alpha	40.0 ± 17.32	34.33 ± 6.24	-0.94	-0.98	39.77 ± 18.78
04/24/92	599	Milk	Sr-89	38.0 ± 8.66	36.00 ± 13.74	1.73	-0.69	31.02 ± 17.70
			Sr-90	29.0 ± 8.66	26.00 ± 0.00	0.46	-1.04	24.66 ± 10.86
			I-131	78.0 ± 13.86	71.67 ± 12.12	-1.47	-1.37	78.45 ± 12.14
			Cs-137	39.0 ± 8.66	46.67 ± 6.93	2.20	2.66	40.32 ± 7.18(d)
			K	1710.0 ± 148.96	1680.00 ± 216.33	-0.48	-0.60	1704.01 ± 211.02
05/08/92	600	Water	Sr-89	29.0 ± 8.66	24.00 ± 5.19	-1.40	-1.73	28.05 ± 10.98
			Sr-90	8.0 ± 8.66	6.33 ± 1.74	-0.49	-0.58	7.74 ± 3.92
05/15/92	596	Water	Gr-Alpha	15.0 ± 8.66	10.00 ± 3.00	-1.50	-1.73	14.34 ± 9.88
			Gr-Beta	44.0 ± 8.66	44.67 ± 3.45	0.65	0.[illegible]	42.79 ± 13.62

TABLE F-1

USEPA
INTER-LABORATORY COMPARISONS - 1992
TELEDYNE ISOTOPES

Collection Date	Sequence No.	Media	Nuclide	EPA Results(a)	Teledyne Isotopes Results(b)	Normalized Deviation Grand Avg.	Normalized Deviation Known	All Participants Mean ± 2 s.d.
06/05/92	601	Water	Co-60	20.0 ± 8.66	21.33 ± 1.74	0.25	0.46	20.61 ± 4.56
			Zn-65	99.0 ± 17.32	107.00 ± 10.83	0.41	1.39	104.65 ± 14.98
			Ru-106	141.0 ± 24.25	127.00 ± 34.59	-1.42	-1.73	138.47 ± 23.72
			Cs-134	15.0 ± 8.66	15.00 ± 3.00	0.08	0.00	14.76 ± 3.98
			Cs-137	15.0 ± 8.66	16.00 ± 3.00	-0.04	0.35	16.11 ± 7.66
			Ba-133	98.0 ± 17.32	93.33 ± 18.09	-0.49	-0.81	96.17 ± 14.20
06/19/92	602	Water	H-3	2125.0 ± 601.02	2100.00 ± 0.00	-0.01	-0.12	2101.61 ± 442.68
08/07/92	605	Water	I-131	45.0 ± 10.39	43.33 ± 10.50	-0.74	-0.48	45.91 ± 7.58
08/28/92	608	Air Filter	Gr-Alpha	30.0 ± 13.86	27.33 ± 1.72	-0.77	-0.58	30.87 ± 10.54
			Gr-Beta	69.0 ± 17.32	69.00 ± 3.00	-0.52	0.00	71.98 ± 12.86
			Sr-90	25.0 ± 8.66	22.67 ± 3.45	-0.57	-0.81	24.31 ± 5.60
			Cs-137	18.0 ± 8.66	16.67 ± 6.93	-1.04	-0.46	19.68 ± 5.88
09/11/92	609	Water	Sr-89	20.0 ± 8.66	16.00 ± 3.00	-1.40	-1.39	20.04 ± 9.68
			Sr-90	15.0 ± 8.66	45.00 ± 5.19	-0.52	-0.69	48.61 ± 18.28
09/18/92	606	Water	Gr-Alpha	45.0 ± 19.05	45.00 ± 6.00	1.34	0.00	36.46 ± 23.04
			Gr-Beta	50.0 ± 8.66	45.00 ± 5.19	-1.25	-1.73	48.61 ± 18.28
09/25/92	612	Milk	Sr-89	15.0 ± 8.66	16.00 ± 6.00	0.79	0.35	13.71 ± 8.60
			Sr-90	15.00 ± 8.66	12.67 ± 3.45	-0.05	-0.81	12.82 ± 5.40
			I-131	100.0 ± 17.32	99.00 ± 21.63	-0.34	-0.17	100.98 ± 13.34
			Cs-137	15.0 ± 8.66	15.67 ± 3.45	-0.15	0.23	16.10 ± 3.86
			K	1750.0 ± 152.42	1660.00 ± 256.32	-1.02	-1.77	1711.91 ± 186.52
10/09/92	610	Water	Co-60	10.0 ± 8.66	11.00 ± 3.00	0.01	0.35	10.96 ± 4.20
			Zn-65	148.0 ± 25.98	156.67 ± 1.74	-0.05	1.00	157.10 ± 15.70
			Ru-106	175.0 ± 31.18	164.33 ± 22.53	0.35	-1.03	160.69 + 29.28
			Cs-134	8.0 ± 8.66	8.67 ± 1.74	0.18	0.23	8.14 ± 3.28
			Cs-137	8.0 ± 8.66	8.67 ± 1.74	-0.02	0.23	8.73 ± 3.40
			Ba-133	74.0 ± 12.12	75.67 ± 27.87	0.65	0.41	73.05 ± 10.36

TABLE F-1

USEPA
INTER-LABORATORY COMPARISONS - 1992
TELEDYNE ISOTOPES

Collection Date	Sequence No.	Media	Nuclide	EPA Results(a)	Teledyne Isotopes Results(b)	Normalized Deviation Grand Avg.	Normalized Deviation Known	All Participants Mean ± 2 s.d.
10/20/92	615	Water	Gr-Beta	53.0 ± 17.32	49.00 ± 7.95	0.43	-0.69	46.53 ± 13.10
			Sr-89	8.0 ± 8.66	8.67 ± 1.74	0.02	0.23	8.60 ± 6.14
			Sr-90	10.0 ± 8.66	8.00 ± 3.00	-0.86	-0.69	10.50 ± 3.66
			Co-60	15.0 ± 8.66	15.00 ± 3.00	-0.11	0.00	15.31 ± 3.94
			Cs-134	5.0 ± 8.66	5.00 ± 0.00	-0.11	0.00	5.33 ± 2.90
			Cs-137	8.0 ± 8.66	8.67 ± 1.74	-0.07	0.23	8.86 ± 3.52
			Gr-Alpha	29.0 ± 12.12	27.33 ± 12.48	-0.27	-0.41	28.42 ± 12.14
10/23/92	611	Water	H-3	5962.0 ± 1032.30	5666.67 ± 173.22	-0.96	-0.86	5997.40 ± 1131.66

Footnotes:

(a) EPA Results - Expected laboratory precision (3 sigma). Units are pCi/l for water and milk except K is in mg/l.

(b) Teledyne Results - Average ± 3 sigma. Units are pCi/l for water and milk except K is in mg/l. Units are total pCi for air particulate filters.

(c) There was large fraction of low energy beta emitters (Co-60 and Cs-134) in the sample. Detector efficiency decreases with decreasing energy. We are required to calibrate with the high energy beta emitters (Cs-137 and Sr-90). No corrective action necessary.

(d) There is no apparent reason for the high Cs-137 results. The sample geometry and detector efficiencies were verified to be correct. The Total K and I-131 by gamma spectroscopy were in good agreement with EPA values. There is no trend and results were within ± sigma so no action taken.

TABLE F-2

USEPA
ENVIRONMENTAL RADIOACTIVITY LABORATORY
INTERCOMPARISON STUDY PROGRAM

DATE MM-YY	ENV SAMPLE CODE	MEDIUM	ANALYSIS	* PSE&G Mean ± s.d.	** EPA Known
01-92	EPA-WAT-AB339	Water	Alpha	29 ± 0.8	30 ± 8
			Beta	31 ± 1.2	30 ± 5
02-92	EPA-WAT-G340	Water	Ba-133	88 ± 2.8	76 ± 8
			Co-60	41 ± 2.0	40 ± 5
			Zn-65	146 ± 2.5	148 ± 15
			Ru-106	213 ± 9.1	203 ± 20
			Cs-134	30 ± 0.7	31 ± 5
			Cs-137	50 ± 0.4	49 ± 5
02-92	EPA-WAT-I341	Water	I-131	60 ± 1.2	59 ± 6.0
02-92	EPA-WAT-H344	Water	H-3	8127 ± 52	7904 ± 790
03-92	EPA-APT-GABS343	APT	Beta	40 ± 0.9	41 ± 5
			Cs-137	13 ± 0.5	10 ± 5
04-92	EPA-WAT-P344	Water	Beta	126 ± 2.1	140 ± 21
			Cs-134	26 ± 1.6	24 ± 5
			Cs-137	24 ± 0.5	22 ± 5
			Co-60	56 ± 0.5	56 ± 5
04-92	EPA-MLK-GS345	Milk	Cs-137	39 ± 0.9	39 ± 5
			K(1)	1563 ± 25	1710 ± 86
			I-131	76 ± 2.8	78 ± 8
06-92	EPA-WAT-G348	Water	Co-60	21 ± 0.8	20 ± 5
			Zn-65	105 ± 1.2	99 ± 10
			Ru-106	140 ± 0.9	141 ± 14
			Cs-134	97 ± 2.6	15 ± 5(b)
			Cs-137	16 ± 0.9	15 ± 5
			Ba-133	17 ± 0.5	98 ± 10(b)
06-92	EPA-WAT-H349	Water	H-3	2043 ± 17	2125 ± 347
08-92	EPA-WAT-I350	Water	I-131	49 ± 5.1	45 ± 6.0

TABLE F-2

USEPA
ENVIRONMENTAL RADIOACTIVITY LABORATORY
INTERCOMPARISON STUDY PROGRAM

DATE MM-YY	ENV SAMPLE CODE	MEDIUM	ANALYSIS	* PSE&G Mean ± s.d.	** EPA Known
08-92	EPA-APT-GABS351	APT	Alpha	60 ± 1.4	30 ± 8(a)
			Beta	67 ± 0.5	69 ± 10
			Cs-137	21 ± 0.5	18 ± 5
09-92	EPA-WAT-AP353	Water	Alpha	36 ± 2.1	45 ± 11
			Beta	42 ± 1.6	50 ± 5
09-92	EPA-MLK-GS354	MLK	I-131	108 ± 2.4	100 ± 10
			Cs-137	18 ± 0.0	15 ± 5
			K(1)	1780 ± 8.2	1750 ± 88
10-92	EPA-WAT-G355	Water	Co-60	13 ± 0.0	10 ± 5
			Zn-65	155 ± 0.5	148 ± 15
			Ru-106	170 ± 1.9	175 ± 18
			Cs-134	10 ± 0.0	8.0 ± 5.0
			Cs-137	10 ± 0.9	8.0 ± 5.0
			Ba-133	73 ± 1.9	74 ± 7
10-92	EPA-WAT-H356	Water	H-3	5887 ± 20	5962 ± 596
10-92	EPA-WAT-P357	Water	Alpha	30 ± 2.0	29 ± 7.0
			Beta	49 ± 1.2	53 ± 10
			Co-60	15 ± 0.3	15 ± 5.0
			Cs-134	6.3 ± 0.3	5 ± 5.0
			Cs-137	8.7 ± 0.4	8 ± 5.0

a) Reason for discrepancy unknown

b) Transmittal error resulting in the reversal of Cs-134 and Ba-133 numbers

(1) Reported as mg/l of Potassium

* s.d. - one standard deviation of three individual analytical results
** known value plus or minus one sigma as reported by EPA

FIGURE F-1
COMPARISON OF PECo, NRC AND DER TLD DATA AT DISTANCES OF 0 - 2 MILES FROM LIMERICK GENERATING STATION, 1988 - 1991

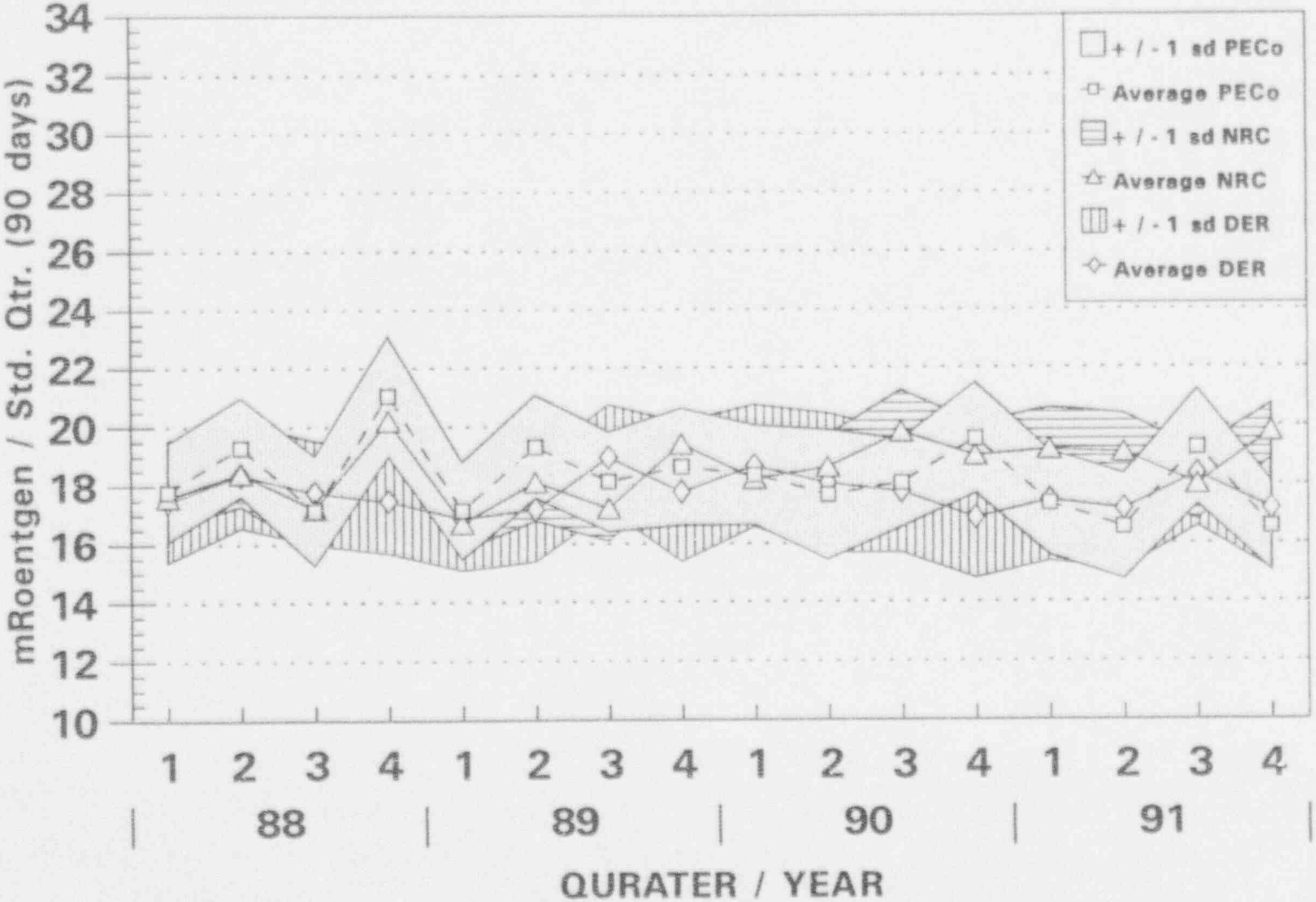


FIGURE F-2
COMPARISON OF PECo, NRC AND DER TLD DATA AT DISTANCES OF 2 - 5 MILES FROM LIMERICK GENERATING STATION, 1988 - 1991

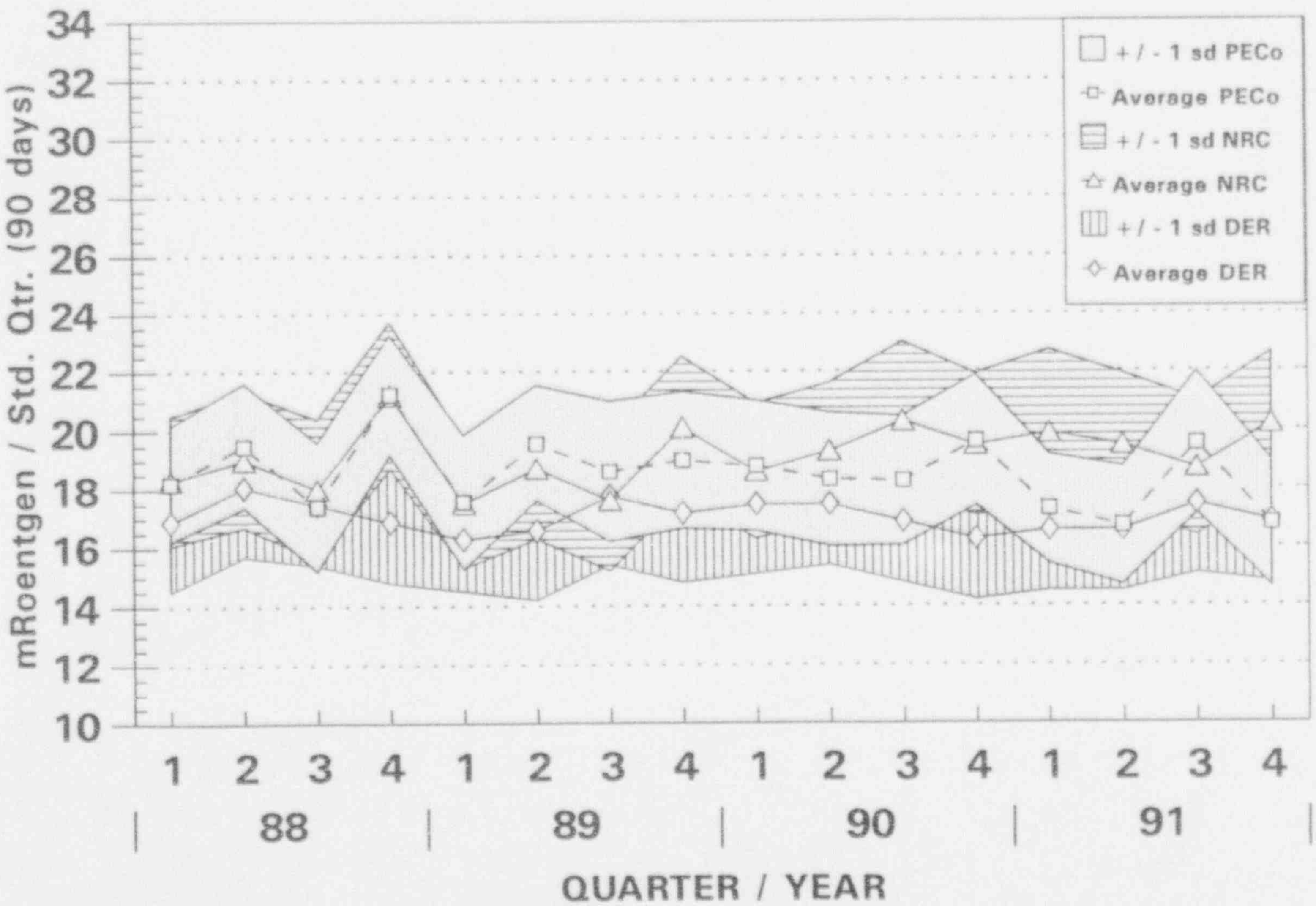
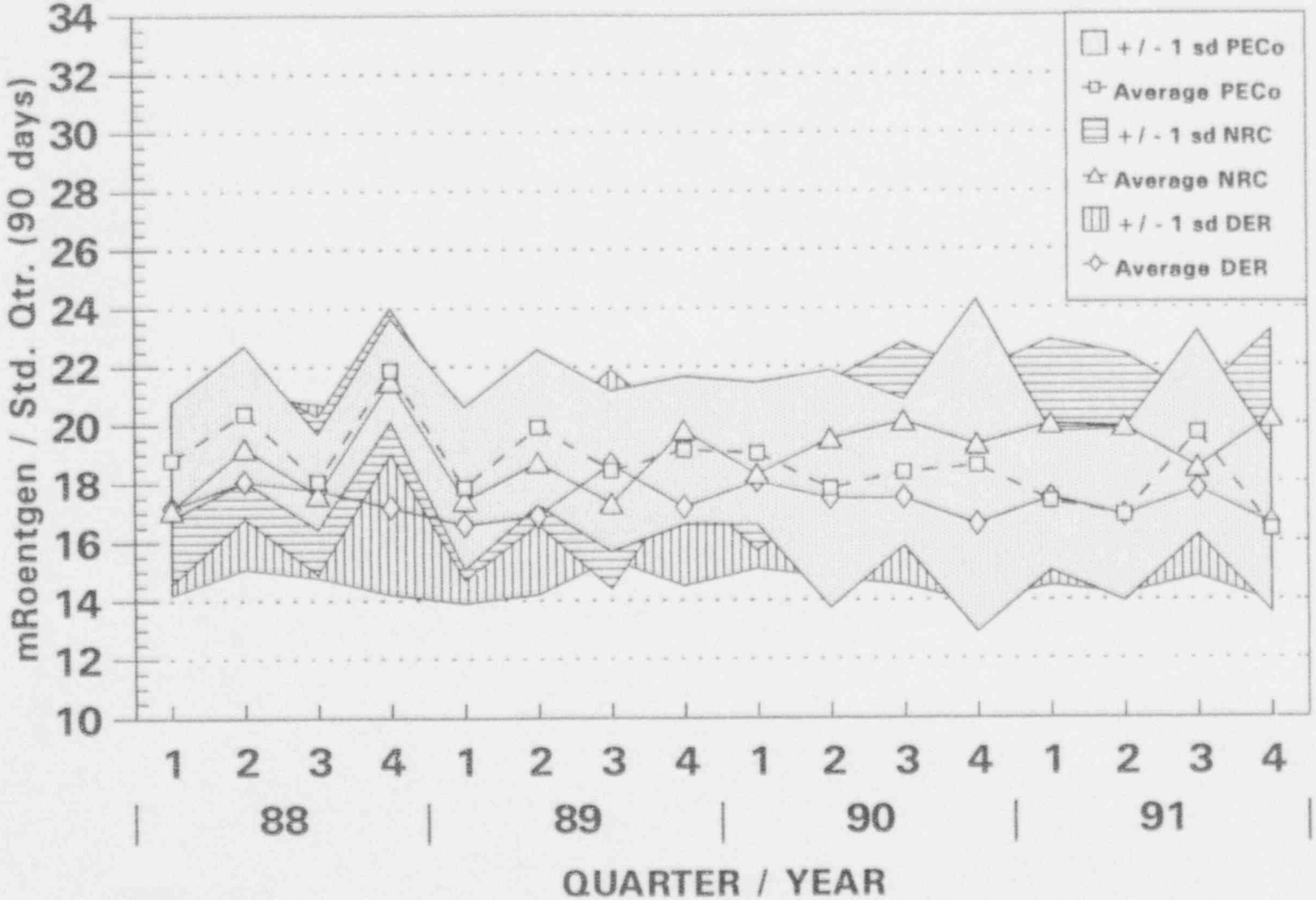


FIGURE F-3
COMPARISON OF PECo, NRC AND DER TLD DATA AT DISTANCES OF > 5 MILES FROM LIMERICK GENERATING STATION, 1988 - 1991



LGS SURVEY

APPENDIX G: LGS SURVEYS

A Land Use Census around the Limerick Generating Station (LGS) was conducted by RMC Environmental Services for Philadelphia Electric Company (PECo) to comply with the Plant's Technical Specifications Section 6.8.4.f and ODCM control 3.4.2. The survey was conducted during the May to September 1992 growing season. The results of this survey are summarized in Table G-1.

There were no changes required to the LGS REMP as a result of this survey.

Table G-1 Location of Nearest Residence, Garden and Milk Farm within a Five Mile Radius of Limerick Generating Station, 1992

(Distance in Miles)

Sector	Residence	Garden[1]	Milk Farm
N	0.6	1.7	4.7
NNE	0.5	0.5	-
NE	0.8	0.2	-
ENE	0.6	0.9	-
E	0.6	1.1	-
ESE	0.5	0.6	1.1 [2]
SE	1.0	1.5	4.6
SSE	1.0	1.1	-
S	0.8	1.2	2.3
SSW	1.0	1.2	1.8
SW	0.6	0.6	3.0
WSW	0.8	1.4	1.4
W	0.6	2.2	2.8
WNW	0.7	1.0	-
NW	1.3	1.6	4.6 [2]
NNW	0.9	1.5	-

(1) Garden greater than 500 square feet
(2) Goat Milk