# PEACH BOTTOM ATOMIC POWER STATION

## Radiological Regional Environmental Monitoring Program Report #14

**January 1, 1978 Through December 31, 1978**

Prepared For

Philadelphia Electric Company

By

RADIATION MANAGEMENT CORPORATION

University City Science Center
3508 Market Street
Philadelphia, Pa. 19104



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TABLE OF CONTENTS

LIST OF TABLES

TABLES

LIST OF TABLES (CONT.)

LIST OF FIGURES

# I. INTRODUCTION

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Radiation Management Corporation (RMC) began conducting a radiological environmental monitoring program in September 1970 for the Philadelphia Electric Company in connection with the Peach Bottom Atomic Power Station (PBAPS) located in Peach Bottom Township, York County, Pennsylvania. This RMC program supplements an existing program being conducted by others which has been carried out since March 1960. PBAPS is located along the Susquehanna River, between Holtwood and Conowingo Dams which are about 14 miles apart. The pond created by Conowingo Dam is called Conowingo Pond.

The initial loading of fuel into Peach Bottom Unit #1, a 40 MWe (Net) high temperature gas-cooled reactor, was started on February 5, 1966, and initial criticality was achieved March 3, 1966. Final shutdown of Peach Bottom Unit #1 was on October 31, 1974. Peach Bottom Unit #2 and #3 are boiling water reactors each with a power output of 1050 MWe (Net). The first fuel was loaded into Unit #2 on August 9, 1973, and criticality was first achieved on September 16, 1973. The fuel was loaded into Unit #3 on July 5, 1974 and criticality was first achieved on August 7, 1974. Peach Bottom Unit #2 first reached full power on June 16, 1974. Peach Bottom Unit #3 first reached full power on December 21, 1974.

Results of the RMC portion of the overall regional radiological environmental monitoring program have been reported in semi-annual and annual reports. Semi-annual reports were discontinued after 1975. This report contains data from samples representing the period January 1, 1978, through December 31, 1978.

A special preoperational report[1] for Peach Bottom Units #2 and #3 has been issued previously which summarizes results of all analyses performed by RMC on samples collected from the start of the RMC portion of the overall program through August 8, 1973, the day before fuel was first loaded into Peach Bottom Unit #2.

## A. PROGRAM OBJECTIVES

1. Identify, measure, and evaluate existing radionuclides in the environs of the Peach Bottom site and any fluctuations in radioactivity levels which may occur.

2. Monitor and evaluate ambient radiation levels.

3. Determine, within the scope of the program, any measurable quantity of radioactivity introduced to the environment by the operation of the Peach Bottom Atomic Power Station.

4. Supplement other existing radiological environmental monitoring programs at Peach Bottom Atomic Power Station.

B. PROGRAM IMPLEMENTATION

In order to achieve these objectives, Radiation Management Corporation performed the following analyses on samples collected during the period of this report.

1. Measured and evaluated concentrations of aqueous tritium in surface water, discharge water, well water, precipitation, milk, fish, and vegetation.

2. Measured and evaluated concentrations of alpha emitters in surface water and soil.

3. Measured and evaluated concentrations of beta emitters in surface water, discharge water, well water, precipitation and air particulates.

4. Identified, measured and evaluated gamma emitting radionuclides in surface water, discharge water, milk, precipitation, well water, air particulates and soil.

5. Measured and evaluated concentrations of I-131 in milk.

6. Measured and evaluated concentrations of Sr-89 and Sr-90 in soil and milk.

7. Measured ambient radiation levels in the environment and evaluated the variations with time and location with respect to the site.

# II. RMC PROGRAM DESCRIPTION

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### A. SAMPLE COLLECTION AND TLD PLACEMENT PROCEDURES

The program being conducted by RMC is described in tables I and II and figures 1-5.

#### 1. Sample Collection

##### a. Water (except precipitation)

All samples were collected by consultants to the Philadelphia Electric Company. All samples were collected in new polyethylene bottles. All persons involved in sample collection and handling were advised not to wear tritium luminous dial watches in order to avoid possible cross contamination from that source. Sample containers were rinsed at least twice with the water to be sampled before collection.

All water samples were grab samples except those collected at stations 1LL, 1MM, 6I and 4L. Weekly samples were taken from a tank which continually collects a sample at these four locations. These were composited into a monthly sample for analysis. Collection methods are described in more detail in table II, Section V.

##### b. Precipitation

Precipitation was collected in an apparatus consisting of a new polyethylene bottle with a plastic funnel 8 inches in diameter. The bottle was replaced monthly and the sample bottle was shipped to RMC for analysis. The amount of precipitation was recorded continuously by a separate rain gauge at station 1A.

##### c. Air Particulates

Air particulate filters, approximately 2" in diameter, were obtained using a Gast Model IV BF-10-M100X vacuum sampler. The filter was replaced weekly and sent to RMC for analysis. The vacuum sampler was run contiunously at approximately 1 cubic foot per minute.

##### d. Milk

Milk samples were collected in new polyethylene bottles from the bulk tank at each farm and shipped immediately. No preservative was added.

##### e. Fish

Fish samples were collected by the Ecological Division of Radiation Management, sealed in plastic bags immediately after collection, frozen, and shipped to RMC. No preservative was added.

f. Vegetation

Samples of vegetation were collected, sealed in plastic bags, and shipped to RMC. No preservative was added.

g. Soil

Soil samples consisting of seven cores, 2" in diameter and 6" deep were collected from a 50 X 50 ft. area at each sampling location. Top soil (upper 1 inch) and bottom soil (lower 5 inches) were separated, then sealed in separate plastic bags, and shipped to RMC.

2. TLD Placement

A system using thermoluminescent dosimeters (TLDs) was used to measure the direct radiation levels in the PBAPS environment. The TLD stations were placed on and around the Peach Bottom site using the "three ring concept". Three on-site stations were not included in any of the three rings and were called plant-complex stations.

a. A site boundary ring near the site perimeter, representing fencepost doses, i.e., at locations where the doses are greater than maximum off-site doses from plant releases;

b. A middle ring extending to approximately 10 miles from the site, designed to measure possible exposures to close-in population;

c. An outer ring extending from approximately 10 to about 60 miles from the site, and considered not to be affected by station releases;

d. The specific location of each station was determined by the following criteria:

(1) The presence of relatively densely populated areas;

(2) Areas where estimated annual dose from the station, if any, would be more significant, calculated from site meteorological data taking into account distance and elevation for each of the 36 ten-degree sectors around the site;

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

(4) Near the closest house to the stack in the prevailing downwind direction.

e. Each TLD set (4 TLDs per set) was placed in a sealed polyethylene package to verify the integrity of the dosimeters when collected. Two packages were kept in a locked formica "birdhouse" or polyethylene jar, about six feet above the ground or supporting surface at each location. At each station one package was exchanged for measurement on a monthly

schedule, and one on a quarterly schedule.

B. PROGRAM CHANGES

1978 Changes - There were several modifications to the 1978 sampling and analysis program compared to previous years. These changes were made after a thorough review of the program in late 1977. Detailed reasons for making these changes are given in the 1977 annual report.

1. Sampling

a. Fish - Sampling at stations 25A, B, C, D, E (Pequea Creek), and 30A, B, C, D (Peters Creek) was discontinued.

b. Plankton - Sampling at station 4G was discontinued.

c. Surface Water - Sampling at station 1P (Unit #1 intake) was discontinued and a composite sampler at station 1LL (Units #2 & 3 intake) was installed.

d. Discharge Water - Sampling at station 1R (Unit #1 discharge grab) was discontinued, and a composite sampler at station 1MM (PBAPS canal discharge) was installed.

e. Well Water - Sampling at station 8 was discontinued.

f. Ambient Radiation - Semi-annual TLDs were discontinued.

2. Analyses

a. Gamma Spectrometry - Analysis of surface water and discharge water samples was changed to total, rather than only soluble fraction and this analysis was discontinued on well water samples.

b. Potassium-40 - This analysis was discontinued on all water samples.

c. Organic Tritium - This analysis was discontinued on samples of milk, fish, and vegetation.

d. Aqueous Tritium - This analysis was started on well water station 7 to replace station 8.

1979 Changes - Effective with samples collected in 1979, the following changes have been made. All of the changes are in accordance with current NRC guidelines for monitoring programs. None of these changes involve the PBAPS technical specification program.

3. Sampling

a. Discharge Water - Sampling at station 1T (Peach Bottom Discharge Canal) was discontinued after the December 1978 sample because the new composite sampler at station 1MM is a better indicator of PBAPS discharge water.

b. Well Water - The frequency of sampling at stations 1U and 1V (Peach Bottom Site) was changed from monthly to quarterly beginning in January 1979 because there has been no detectable short term variation on radioactivity levels from PBAPS operation.

4. Analyses

a. Tritium - Analysis of precipitation, fish and vegetation was discontinued beginning in 1979 because there has been no detectable effect on tritium activity in precipitation, fish or vegetation as a result of PBAPS operation. Also analysis of milk was reduced from eleven to four farms quarterly, beginning in 1979.

b. Gross Alpha - This analysis is not part of the PBAPS ETS and has been discontinued at the end of 1978 on soil samples. Alpha activity has not changed since the pre-operational period and can all be attributed to naturally occurring Ra and Th.

C. ANALYSES PERFORMED

The schedule of analyses performed by RMC is listed by sample type in table II. This schedule was followed except where noted below. Table III lists the type and number of analyses performed during this period by sample type and station location. Methods used in performing these analyses can be found in Appendix A of PBAPS Radiological Environmental Monitoring Program Report #12, January 1, 1976 - December 31, 1976.

D. EXCEPTIONS TO THE PROGRAM

1. Surface water samples were not taken from station 6I from 1/22-3/11, 6/3-6/10, 6/17-6/24 and 7/15-7/29 due to pump malfunctions.

2. Surface water samples were not taken from station 4L from 6/3-8/24 due to a pump malfunction.

3. During the first quarter fish samples were not collected from stations 1EE, 1X and 4I. In addition, white crappie was unavailable from station 6H. During the second quarter, no samples were collected from station 1X and white crappie was not available at stations 1EE and 6H. During the third quarter, white crappie was not available at stations 1EE and 1X. During the fourth quarter white crappie was not available at stations 1EE, 1X 4I and 6H.

4. TLDs were stolen from station 19 in February, 1st quarter, July and 2nd quarter; from station 22 in May, September, and third quarter; and from stations 1C and 1I in August and the third quarter. January TLDs at station 1J were buried in snow. TLDs were removed from station 21B in May, June, and the second quarter because the station was temporarily out of service.

# III. RESULTS AND DISCUSSION

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### A. DATA INTERPRETATION AND STATISTICAL ANALYSIS

Several factors are important in the interpretation of the data. In order to avoid undue repetition in the discussion which follows, these factors are described below.

#### 1. Grab Sampling

Grab sampling is a useful and acceptable procedure for taking environmental samples of a medium in which the concentration of radionuclides is expected to vary slowly with time or where intermittent sampling is deemed sufficient to establish the radiological characteristics of the medium. This method, however, is only representative of the sampled medium for that specific location and instant of time. As a result, variation in the radionuclide concentrations of the samples will normally occur. Since these variations will tend to counterbalance one another, the extraction of averages based upon repetitive grab samples is valid.

#### 2. Minimum Detectable Levels (MDL)

It is characteristic of environmental monitoring data that many results occur at or below the specified detection level. Formal statistical error analysis of groups of such data is difficult. Pragmatic approaches to the problem include counting the detection level entries as zero, as half the detection level value, or as full detection level value. For reporting and calculation of averages, any result occurring at or below the minimum detectable level is considered to be at that level. Averages obtained using this method are therefore biased high.

#### 3. Standard Deviation of Analytical Results

Within the data tables an approximate 95% (2 sigma) confidence interval is supplied for those data points at and above the minimum detectable level. These intervals represent the range of values into which 95% of repeated counts of the sample would fall.

#### 4. Table Means and Standard Deviations

Results for each type of sample were grouped according to the analysis performed. 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 below the MDL were considered to be at the MDL. As a result, the means are biased high, and the standard deviations are biased low.

B. DISCUSSION OF RESULTS

Results are summarized in brief form in tables IV, V and VI (Section V). Tables of results for individual sample types and analyses performed can be found in Section V, tables VII to XLI. Graphical presentations of results can be found in Section VI.

1. Surface Water

Samples were taken from eight stations on a monthly schedule. Three stations (1LL, 6I and 4L) were continuous composite samples and five (1Q, 4F, 4G and 13A) were grab samples. Station 13B was collected once in May as a grab sample. Of these eight stations, six could be affected by releases from Peach Bottom Atomic Power Station. The remaining stations (6A and 6I) were above Holtwood Dam and, therefore, could not be affected by plant discharges. (Refer to figure 1 and 2, Section VI, for station locations).

a. Tritium

Total samples from seven stations were analyzed for concentrations of aqueous tritium. Samples from stations 1LL, 1Q, 4L, and 6I were analyzed on a monthly basis, while samples from stations 4F, 6A and 13A were composited monthly into a quarterly sample. Results of this analysis of surface water samples can be found in tables VII - IX, section V. The concentrations detected were well within the range found during the Peach Bottom Units #2 and #3 preoperational period (1). Graphical comparisons of the unaffected stations (6A and 6I) above Holtwood Dam with potentially affected stations (4F and 4L) at Conowingo Dam showed no difference in concentrations, indicating no detectable addition of tritium to Conowingo Pond from the operation of PBAPS (fig 6-7).

b. Gross Alpha

Samples from four stations (4F, 4L, 6I and 6A) were analyzed for gross alpha concentrations in the soluble and insoluble fractions. Results of gross alpha analysis in surface water samples can be found in tables VII-IX, section V. Results at all locations were generally at or below the minimum detectable level in the soluble fraction. With a few exceptions, results of the insoluble fraction were below the MDL. Positive values observed at station 4F can be attributed to the presence of sediment, a reservoir of fallout and natural alpha emitters.

c. Gross Beta

Samples from all eight stations, were analyzed for concentrations of gross beta in the soluble and insoluble fractions. Results of gross beta analysis in surface water samples can be found in tables VII-IX, section V. The concentrations detected in the

soluble fraction were well within the range observed during the preoperational period for Units #2 and #3. (1) One sample each at station 6A and 13A had concentrations in the insoluble fraction of 7.5±0.6 pCi/l and 17.9±0.9 pCi/l respectively. Both samples contained a significant amount of solids, indicating the presence of sediment. No gamma emitting nuclides were detected in either sample. Four of the twelve samples taken at station 4F showed significant activity in the insoluble fraction. Since this station is taken near the bottom of Conowingo Pond, sediment and debris should contribute to the gross beta activity in samples from this location. Similar levels were detected during the preoperational period at this station. (1) A graphical comparison of two Conowingo Dam stations (4F and 4G) with one Holtwood Dam station (6A) shows the results of the soluble fraction to be generally the same for all three locations. While in the insoluble fraction, the results differ significantly (figures 8 & 9, sec. VI). This difference can be attributed to the presence of sediment in samples taken at 4F and 6A which are collected at a greater depth than 4G.

e. Gamma Spectrometry

Samples from all eight stations, were analyzed for gamma-emitting nuclides by gamma spectrometry. Results of gamma spectrometry on surface water samples can be found in table X, section V. All results were below the minimum detectable level with one exception. The April sample taken at location 10 indicated the presence of Co-60 at a concentration of 1.3±0.7 pCi/l. No other nuclides were detected in this sample.

2. Discharge Water

Samples were taken from three stations (1M, 1T and 1MM) on a monthly schedule. Only stations 1M and 1MM are exposed to Units #2 and #3 liquid radwaste discharge under normal operating conditions (Refer to figure 1, section VI, for station locations). The following analyses were performed on discharge water samples.

a. Tritium

Total samples from two stations were analyzed for concentrations of aqueous tritium on a monthly basis. Results of tritium analysis in discharge water samples can be found in tables XI-XIII, section V. The concentrations detected were well within the range found during the Peach Bottom Units #2 and #3 preoperational period (1). A graphical comparison of results for composite surface water and discharge water samples showed no significant difference in concentrations of aqueous tritium, with one exception. The June sample from station 1MM had a result of 510±80 pCi/l. Some of the activity in this sample may be the result of K-40 activity in the vial and not H-3 in the sample. A switch from glass to plastic vials in August, 1978 eliminated this source of error. Since this sample was inadvertently discarded a reanalysis could not be performed.

b. Gross Beta

Samples from all three stations were analyzed for gross beta concentrations in the soluble and insoluble fractions. Results of these analyses in discharge water samples can be found in tables XI-XIII, section V. The concentrations detected were well within the range found during the Peach Bottom Units #2 and #3 preoperational period (1). Graphical comparisons of results for the composite surface and discharge water samples showed no significant differences in concentration in the soluble fraction (figure 11, sec. VI). Differences in the insoluble fraction in January can be attributed to the presence of sediment in the sample from 1MM (figure 12, sec. VI).

c. Gamma Spectrometry

Samples from all three stations were analyzed for gamma-emitting nuclides by spectrometry. Results of gamma spectrometric analysis of samples from all stations are given in table XIV, section V. Results were generally below the minimum detectable level, with one exception. In June, Mn-54 was detected at station 1MM at a concentration of 0.7±0.6 pCi/l. This result is very close to the detection limit and is not significant from a dose standpoint.

3. Well Water

Samples were taken from two stations on a monthly schedule and from two stations on a quarterly schedule. The two stations (1U and 1V) sampled monthly were located within the site area (for station location, see figure 1, section VI). The stations sampled quarterly were located about one mile (station 40) and about 10 miles (station 7) from the plant. These station locations are shown in figures 1 and 2, section VI. The following analyses were performed on well water samples.

a. Tritium

Total samples from all four stations were analyzed for aqueous tritium concentrations. Results of tritium analysis of well water samples can be found in tables XV-XVII, section V. Results of all samples were well within the range found during the Peach Bottom Units #2 and #3 preoperational period (1). A graphical comparison of the distant, site-area, and on-site wells showed that tritium levels have been gradually decreasing with time due to the cessation of routine atmospheric nuclear weapons testing (figure 13, sec. VI). One result (450±80 pCi/l) detected at station 40 in July may have been due to K-40 activity in the vial and not H-3 in the sample. A switch from glass to plastic vials for liquid scintillation counting in August, 1978 eliminated this source of error.

b. Gross Beta

Samples from all four stations were analyzed for gross beta concentrations in the soluble and insoluble fractions.

Results of gross beta analysis on well water samples can be found in tables XV and XVII, section V. The concentrations detected were well within the range found during the Peach Bottom Units #2 and #3 preoperational period (1).

4. Precipitation

Precipitation was collected from two stations on a monthly schedule. Station 1A is located at the on-site Peach Bottom Weather Station #1. Station 8, located in Colora, MD., is about 10 miles from the plant site (for station locations, see figure 1, section VI).

a. Tritium

Quarterly composites of monthly samples were analyzed for concentrations of aqueous tritium in the total sample. Results of these analyses of precipitation samples can be found in tables XVIII-XIX, section V. Concentrations detected were well within the range found during Peach Bottom Units #2 and #3 preoperational period (1).

b. Gross Beta

Monthly samples were analyzed for gross beta concentrations in the total sample. Results of gross beta analysis in precipitation samples can be found in tables XVIII-XIX, section V. Generally increased levels of beta activity during the spring reflect world-wide fallout from recent weapons testing by the Peoples Republic of China. Similar concentrations have been observed throughout the Middle Atlantic States.

c. Gamma Spectrometry

Monthly samples were analyzed for gamma-emitting nuclides by spectrometry of the total sample. Results of gamma spectrometric analysis of samples from both stations are given in table XX, section V. Nuclides detected during the spring can be attributed to world-wide fallout. Most nuclides were detected at stations 1A and 8 in similar concentrations.

5. Air Particulates

Continuous air particulate samples were taken from one station (1Z) located at the on-site Peach Bottom Weather Station #1 (for station location, see figure 1, section VI).

a. Gross Beta

Weekly samples were analyzed for concentrations of gross beta activity. Results of gross beta analysis of air particulate

samples can be found in table XXI, section V. Generally increased levels of beta activity during the spring followed the same trend that was observed with precipitation and can be attributed to world-wide fallout since similar concentrations have been detected throughout the Middle Atlantic Region.

b. Gamma Spectrometry

Monthly composite samples were analyzed by spectrometry for gamma-emitting nuclides. Results of gamma spectrometric analysis are given in table XXII, section V. Nuclides found were similiar to those detected in precipitation with increases occurring in the spring. Concentrations observed can be attributed to world-wide fallout since similar concentrations have been detected throughout the Middle Atlantic Region.

6. Milk

Milk was sampled at eleven farms; three (G, H, J) were designated as "near farms" (within 2 miles of PBAPS); four (D, L, M, N) were designated as "intermediate farms" (3-5 miles from PBAPS); and four (A, B, C, and E) were designated as "distant farms" (>5 miles from PBAPS).

a. Tritium

Milk from all eleven farms was analyzed for tritium concentrations in the aqueous fraction on a quarterly basis. Results of tritium determinations in milk samples can be found in tables XXIII, XXIV and XXVI, section V. Concentrations detected generally were within the range found during the Peach Bottom Units #2 and #3 preoperational period (1). A few positive results detected in the first quarter samples at farms G and D and in the second quarter samples at farms L, M, and N may have been the result of counting error. Prior to August, 1978 glass vials of low K activity were used in liquid scintillation counting. Since the activity of the vials was not uniform, some of the sample activity could be atrributed to K-40 in the glass and not H-3 in the sample. A switch to plastic vials has eliminated this source of error.

Tritium concentrations in milk were similar to those found in other media (see table XXXIII, section V). Graphical comparisons of the near, intermediate and distant farms showed no significant differences in tritium concentration, indicating that PBAPS has not added tritium to the milk (figure 14, sec. VII).

2337 296

b. Iodine-131

Milk from eight farms (A, B, C, D, G, H, J, N) near Peach Bottom was analyzed for concentrations of I-131, monthly in January, February and March. Weekly sampling was resumed at the end of March and continued through the first week of December. Three additional farms (L, M, E) were sampled and analyzed quarterly for I-131. Results of I-131 analysis can be found in tables XXIII, XXV, and XXVI, section V.

Elevated levels of I-131 were detected in milk samples taken at all farms beginning on March 27; the levels dropped to below the minimum detectable level by May 29. These concentrations were attributed to world-wide fallout from an atmospheric nuclear weapons test by the Peoples Republic of China on March 14 since all farms showed similar levels. Samples taken October 2 at two near farms, H and J, showed concentrations of I-131 at or near the minimum detectable level, and dropped to below the detection limit of .05 pCi/l the following week. Beginning November 13, trace amounts of I-131 were detected in samples taken at near farms G, H and J, and were probably due to PBAPS operation. Two farms G and J dropped to below the detection limit the following week. Farm H, with the highest concentration (.84±.08 pCi/l) showed positive results in two additional weekly samples. The maximum hypothetical dose to an infant's thyroid from drinking this milk was calculated to be .11 mrem. This was calculated using a usage factor of 0.9 liter of milk per day (USNRC Reg Guide 1.109, March 1976) for 21 days. The dose factor used for dose to an infant's thyroid due to ingestion pathways was $1.3 \times 10^{-2}$ mrem/pCi (USNRC Reg Guide 1.109, March, 1976).

c. Sr-89 & Sr-90

One milk sample collected at farm J in each quarter was analyzed for Sr-89 and Sr-90. Results can be found in table XXIII, section V. Concentrations of Sr-89 detected in the May sample can be attributed to fallout from atmospheric nuclear weapons testing.

d. Gamma Spectrometry

One milk sample collected at farm J in each quarter was analyzed by gamma spectrometry. Results can be found in table XXVII, section V. Nuclides detected were naturally-occurring K-40, and Cs-137 which is commonly found in milk from world-wide fallout.

7. Fish

Fish were sampled from locations 1X (a cooling tower pond), 1EE ( in the PBAPS discharge canal), 4H, 4I and 4J (near Conowingo Dam), and 6H (near Holtwood Dam). For sampling locations, see figures 1-2, section VI.

The species sampled were white crappie (Promoxis annularis) from stations 6H, 4I, and 4J, and channel catfish (Ictalurus punctatus) from stations 1X, 1EE, 4I, 4J and 6H. American shad (Alosa sapidissimus) was sampled from station 4H.

a. Tritium

The edible portions of fish samples were analyzed for tritium concentrations in the aqueous fraction and results were found to be consistent with PBAPS Units #2 and #3 preoperational findings (1). Results of tritium analyses in fish samples can be found in tables XXVIII-XXX, section V.

Graphical comparisons of white crappie and channel catfish from the unaffected station (6H), discharge water station (1EE) and potentially affected stations (4I and 4J) showed similar concentrations, indicating that the operation of PBAPS has not increased tritium levels in fish in Conowingo Pond (figure 16 & 17, sec. VI).

8. Vegetation

Two stations, one in the site area (station 1) and one about 5 miles away (station 5), were sampled (for station location, see figure 2, section VI). Vegetation sampled was beets, cabbage, corn, parsnips and turnips.

a. Tritium

All samples were analyzed for tritium concentrations in the aqueous fraction and results found were consistent with PBAPS Units #2 and #3 preoperational data (1). Results of tritium concentrations in vegetation samples can be found in tables XXXI-XXXII, section V. Tritium concentrations did not vary by sample type. Levels found were the same as for other media sampled (see table XXXIII, section V and figure 18, section VI).

9. Soil

Samples were taken at three locations, one on-site station (2) (for station location, see figure 1, section VI) and two (3A and 5) about four miles away from PBAPS (for station locations, see figure 2, section VI). The area at station 2 is heavily wooded with rock outcroppings. The soil at this location would be expected to contain substantial humus from the accumulation of natural vegetation debris. Station 3A is covered only with grass. Station 5 is a combination of grass and cultivated land.

a. Gross Alpha

Samples from all stations were analyzed for gross alpha

concentration in the top one inch and bottom five inches separately. Results of gross alpha analysis in soil samples can be found in tables XXXIV and XXXV, section V. Concentrations of gross alpha emitters detected were well within the range found during PBAPS Units #2 and #3 preoperational period (1).

b. Strontium-89 and Strontium-90

Samples from all stations were analyzed for Sr-89 and Sr-90 concentrations in the top one inch and bottom five inches separately. Results of Sr-90 and Sr-89 analysis in soil samples can be found in tables XXXIV and XXXV , section V. Concentrations of Sr-90 detected were well within the range found during PBAPS Units #2 and #3 preoperational period (1). Concentrations of Sr-89 were at or near the minimum detectable level in all samples. Graphical comparisons of Sr-90 in the top one inch and bottom cut showed no differences between on-site and distant locations (figure 19 & 20, sec. VI).

c. Gamma Spectrometry

Samples from all stations were analyzed for gamma-emitting nuclides by Ge(Li) gamma spectrometry (table XXXVI, section V). Nuclides identified were generally the same as those found during the PBAPS Units #2 and #3 preoperational period with most at the same or lower concentrations (1). Some naturally-occurring nuclides were found (K-40, Th-232, Ra-226). Others found have been attributed to fallout because other plant-associated radionuclides were not found and concentrations were evenly distributed on site and off site. Differences in concentration of Cs-137 in the top one-inch at one on-site location can be attributed to the accumulation of vegetative debris at this location (see figures 21 and 22, sec. VI).

11. Ambient Gamma Radiation

Ambient gamma radiation levels were measured with calcium sulfate: Tm thermoluminescent dosimeters.

Eleven stations 1B, 1C, 1D, 1E, 1F, 1G, 1H, 1J, 1L, 1M and 2) were located around the site boundary and designated as the site boundary ring for comparison purposes (for station locations, see figure 3, section VI). Fifteen stations (3A, 4K, 5, 6B, 14, 15, 17, 22, 23, 26, 27, 31, 32, 33A and 38) were located within a 10-mile radius of the site and designated as the middle ring (for station locations, see figure 4, section VI). Seven stations (12B, 16, 18, 19, 20, 21B and 24) were located from 10 to 60 miles from the site and designated as the outer ring (for station locations, see figure 5, section VI). Three stations (1A, 1I, 1K) located within the plant complex constitute a fourth group called plant-complex stations since they could be more directly affected by plant

activities and do not represent doses to the public (for station location, see figure 3, section VI). Results of TLD measurements can be found in tables XXXVII-XXXIX, section V.

The annual average of monthly, quarterly, and semiannual radiation levels were well within the range found during the Peach Bottom Units #2 and #3 preoperational period (1). Graphical comparisons of the site-boundary, middle and outer rings on monthly, quarterly and semiannual readings showed no differences in ambient radiation levels with distance from PBAPS, indicating no measurable station contribution (table XL, section V, figures 23-24, section VI). Station 1K, located about 100 feet from the turbine building, in a controlled area, indicated dose levels generally rising with power levels. Stations 1A and 1I, in the predominant downwind direction, did not show any increased levels so that it is improbable that this was an effluent effect. The increased dose levels measured at 1K are attributed to direct and scattered radiation from Peach Bottom Units #2 and #3.

# IV. SUMMARY AND CONCLUSIONS

## IV. SUMMARY AND CONCLUSIONS

This report on the supplemental radiological environmental monitoring program conducted at the Peach Bottom Atomic Power Station for Philadelphia Electric Company by Radiation Management Corporation covers the period January 1, 1978 to December 31, 1978. During this period 3467 analyses were performed on 2851 samples.

Surface water and discharge water samples were analyzed for concentrations of tritium, gross beta, and gamma-emitting nuclides. Surface water was also analyzed for concentrations of gross alpha. Comparisons of unaffected stations with potentially affected stations, in Conowingo Pond, showed no significant difference in concentrations of the radionuclides studied. It was shown that no significant differences existed between the preoperational and operational periods; therefore, it can be concluded that the levels of radioactivity in Conowingo Pond have not been measurably influenced by the operation of Peach Bottom Atomic Power Station.

Other selected media in human food chains (milk, fish and vegetation) were analyzed for concentrations of tritium in the aqueous fractions. Levels measured agree with results seen in other media studied and with preoperational data for the same media.

High sensitivity I-131 analyses were performed on weekly milk samples while cows were on pasture and on monthly samples while cows were not grazing. Trace concentrations of I-131 attributable to PBAPS operation were detected in samples collected in the fall, resulting in a maximum exposure to an infant's thyroid of only .11 mrem. Higher concentrations measured in the spring were attributed to fallout from a nuclear bomb test.

Soil samples were analyzed for concentrations of gross alpha, Sr-90, Sr-89 and gamma-emitting nuclides and levels observed were in agreement with preoperational data.

Environmental gamma radiation measurements were made using thermoluminescent dosimeters. Results from the site-boundary, middle and outer rings were found to be not significantly different, so it can be concluded that the operation of Peach Bottom Atomic Power Station did not produce measurable levels of ambient gamma radiation at any off-site location.

In assessing all the data gathered for this report and comparing the results with preoperational data, it seems evident that the operation of the Peach Bottom Atomic Power Station added no significant amount of radioactivity to the environment.

## REFERENCES


(1) Radiation Management Corporation Publication, Peach Bottom Atomic Power Station Preoperational Radiological Monitoring Report for Units #2 and #3, January 1974, Philadelphia, Pa.

(2) Interex Corporation, Peach Bottom Atomic Power Station Regional Environs Radiation Monitoring Program Preoperational Summary Report, Units #2 and #3, February 5, 1966 through August 8, 1973, June 1977, Natick, Mass.

V. TABLES

TABLE I

RMC STATION DESIGNATION AND SAMPLE IDENTIFICATION SYSTEM

VV-WW-XXYZ General code for identification of samples, where:

VV- Power Plant identification code

PB - Peach Bottom Atomic Power Station

WWW - Type of Sample

AQF - Aquatic, Fish

AQP - Aquatic, Plankton

FPA - Food Products, Apple

FPV - Food Products, Various

AP - Air Particulates

ID - Immersion Dose

M - Milk

DW - Discharge Water

RW - Rain Water

SW - Surface Water

WW - Well Water

E - Soil

XX- Angular Sector of Sampling Location

Compass is divided into 36 sectors of 10 degrees each with center at Peach Bottom off-gas stack. Sector 36 is centered due North, and others are numbered in a clockwise direction. Sector 00 is used to designate an unidentified direction.

Y - Radial Zone of Sampling Location (In this report, the Radial distance from the Peach Bottom off-gas stack for all regional stations).

| | | | |
|---|---|---|---|
| S: | on-site location | D: | 3-4 miles off-site |
| A: | 0-1 mile off-site | E: | 4-5 miles off-site |
| B: | 1-2 miles off-site | F: | 5-10 miles off-site |
| C: | 2-3 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 II

RMC SAMPLE COLLECTION AND ANALYSIS PROGRAM

| ENV. STATION NO. | STATION NAME | RMC STATION DESIGNATION | STATION LOCATION DIRECTION & DISTANCE FROM PEACH BOTTOM | COLLECTION METHOD & FREQUENCY | ANALYSIS AND FREQUENCY PERFORMED |
|---|---|---|---|---|---|
| A. SURFACE WATER | | | | | |
| 1LL | Peach Bottom Units 2&3 Intake - Composite | PB-SW-6S4 | Continuous sampler On site at Units 2&3 Intake 1500' NNE of Unit #1 | Water is continuously sampled from the Peach Bottom Units 2&3 Intake and is collected in a 190 gallon tank. Each week 2 qts. are withdrawn from the tank prior to draining the tank and placed in a 2 gallon polyethylene bottle to form a monthly composite sample. | Tritium - Monthly<br>Gross Beta (S+I) - Monthly<br>Gamma Spec - Monthly |
| 1Q | Peach Bottom Unit #2 Intake | PB-SW-6S3 | On site at Unit #2 Intake about 1500' NNE of Unit #1 | Two gallon grab sample is collected in front of intake structure monthly. | Same as station 1LL above |
| 4F | Conowingo Dam El. 33' MSL | PB-SW-14F2 | In the Conowingo Hydroelectric Station, 8.5 miles SE of Unit #1. | Two gallon grab sample is taken monthly from the same header which is used for the composite sample (4L). This header continuously draws pond water from about elevation 33' MSL. This sample and PB-SW-14F3 samples are collected at the same time. | Tritium - quarterly comp.<br>Gross Alpha (S+I) - monthly<br>Gross Beta (S+I) - monthly<br>Gamma Spec - monthly |
| 4G | Conowingo Dam Surface | PB-SW-14F3 | At Conowing Dam in Maryland, 8.5 miles SE of Unit #1. Water sample is taken from Conowingo Pond on upstream side of dam. | Two gallon grab sample is collected near the surface of the pond on the upstream side of the dam monthly. | Gross Beta (S+I) - monthly<br>Gamma Spec - monthly |
| 4L | Conowingo Dam El. 33' MSL - Composite | PB-SW-14F5 | Continuous sampler in Conowingo Hydroelectric Station; about 8.4 miles SE of Unit #1. | Water is continuously sampled from a header which draws Pond water from elevation 33' MSL and is collected in a 175 gal. tank. Each week 2 qts. are withdrawn from the tank prior to draining the tank and placed in a 2 gal. polyethylene bottle to form a monthly composite sample. | Tritium - monthly<br>Gross Alpha (S+I) - monthly<br>Gross Beta (S+I) - monthly<br>Gamma Spec - monthly |
| 6A | Holtwood Dam Hydroelectric Station | PB-SW-33F1 | At Holtwood Dam, Pa., 5.9 miles NW of Unit #1. | Two gallon grab sample is collected from Holtwood Pond at Hydroelectric Station intake monthly. | Same as station 4F above |

2339 216

TABLE II (cont.)

RMC SAMPLE COLLECTION AND ANALYSIS PROGRAM

| ENV. STATION NO. | STATION NAME | RMC STATION DESIGNATION | STATION LOCATION DIRECTION & DISTANCE FROM PEACH BOTTOM | COLLECTION METHOD & FREQUENCY | ANALYSIS AND FREQUENCY PERFORMED |
|---|---|---|---|---|---|
| 6I | Holtwood Dam Hydroelectric Station-Composite | PB-SW-33F4 | Continuous sampler at Holtwood Dam, Pa., 5.9 miles NW of Unit #1. | Water is continuously sampled from the Holtwood Hydroelectric Station Intake and is collected in a 175 gal. tank. Each week 2 qts. are withdrawn from the tank prior to draining the tank and placed in a 2 gal. polyethylene bottle to form a monthly composite sample. | Tritium - monthly<br>Gross Alpha (S+I) - monthly<br>Gross Beta (S+I) - monthly<br>Gamma Spec - monthly |
| 13A | Chester Water Intake-Pond | PB-SW-11C1 | On east shore of Conowingo Pond at Chester Water Authority Intake, 2.8 miles SE of Unit #1. | Two gallon grab sample is collected from Conowingo Pond near the shore monthly . | Tritium - quarterly comp.<br>Gross Beta (S+I) - monthly<br>Gamma Spec - monthly |
| 13B | Chester Water Intake-pump Discharge | PB-SW-11C2 | At Chester Water Authority Intake. The same as PB-SW-11C1 but the sample is collected from the pump discharge. | Two gallon grab sample is collected from pump discharge during any month that the pump operates. | Same as station 1LL above (when samples are collected) |
| B. DISCHARGE WATER | | | | | |
| 1M | Peach Bottom Canal Discharge | PB-DW-13S2 | Located at Canal Discharge structure; 0.9 miles SE of Unit #1. | Two gallon grab sample is collected at the exit of the discharge canal monthly. | Tritium - monthly<br>Gross Beta (S+I) - monthly<br>Gamma Spec - monthly |
| 1MM | Peach Bottom Canal Discharge - Composite | PB-DW-13S5 | A continuous sampler on site at canal discharge .9 miles SE of Unit #1. | Water is continuously sampled from the Peach Bottom Unit 2&3 discharge canal and is collected in a 190 gallon tank. Each week 2 qts. are withdrawn from the tank prior to draining the tank and placed in a 2 gal. polyethylene bottle to form a monthly composite sample. | Same as station 1M above |
| 1T | Peach Bottom Discharge Canal-2200' | PB-DW-13S3 | On site in the station discharge canal about 0.4 miles SE of Unit #1 and 2200' from Unit #1 intake. | Two gallon grab sample is collected from the discharge canal monthly. | Gross Beta (S+I) - monthly<br>Gamma Spec - monthly |

TABLE II (cont.)

RMC SAMPLE COLLECTION AND ANALYSIS PROGRAM

| ENV. STATION NO. | STATION NAME | RMC STATION DESIGNATION | STATION LOCATION DIRECTION & DISTANCE FROM PEACH BOTTOM | COLLECTION METHOD & FREQUENCY | ANALYSIS AND FREQUENCY PERFORMED |
|---|---|---|---|---|---|
| C. WELL WATER | | | | | |
| 1U | Peach Bottom Site-Utility Building | PB-WW-15S2 | Well at plant site. 450' SW of Unit #1. | Well pump is run for several minutes prior to sampling in order to flush the sample line. Then two gallon grab sample is taken from the building faucet monthly. | Tritium - quarterly comp. Gross Beta (S+I) - monthly |
| 1V | Peach Bottom Site-Info. Center | PB-WW-12S2 | Well at plant site. 450' SE of Unit #1. | Same as station 1U above | Same as station 1U above |
| 7 | Darlington, Md. Area | PB-WW-16F1 | 9.4 miles SSE of Unit #1 in Harford Co., Md. | Same as station 1U above except quarterly | Tritium - quarterly Gross beta (S+I) - quarterly |
| 40 | Peach Bottom Site Area | PB-WW-21B2 | Well in site Area, 1.2 miles SW of Unit #1. | Same as station 1U above except quarterly | Same as station 7 above |
| D. AIR PARTICULATES | | | | | |
| 1Z | Peach Bottom Weather Station #1 | PB-RW-11S4 | On site at Weather Station #1, 0.1 miles ESE of Unit #1. | About 1 cfm continuous flow through filter paper (approx. 2" diam.) is installed for a week and replaced. | Gross Beta - weekly Gamma Spec - monthly comp. |
| E. PRECIPITATION | | | | | |
| 1A | Peach Bottom Weather Station #1 | PB-RW-11S1 | On site at Weather Station #1, 0.1 miles ESE of Unit #1. | The sample from the rain collector is shipped to RMC monthly. The rain collector consists of an 8-inch diameter plastic funnel connected to a two-gallon polyethylene container. | Gross Beta - monthly Gamma Spec - monthly Tritium - quarterly comp. |
| 8 | Colora, Md. | PB-RW-12F1 | 9.9 miles ESE of Unit #1 in Cecil Co., Md. | Same as Station 1A above | Same as station 1A above |

TABLE II (cont.)

RMC SAMPLE COLLECTION AND ANALYSIS PROGRAM

| ENV. STATION NO. | STATION NAME | RMC STATION DESIGNATION | STATION LOCATION DIRECTION & DISTANCE FROM PEACH BOTTOM | COLLECTION METHOD & FREQUENCY | ANALYSIS AND FREQUENCY PERFORMED |
|---|---|---|---|---|---|
| F. MILK | | | | | |
| | Regional Farm A | PB-M-24F1 | Distant regional farms surrounding the site, designated "A", "B" and "C" on the west side of Conowingo Pond and "E" on the east side of Conowingo Pond. Near-by regional farms surrounding the Peach Bottom site on the west side of Conowingo Pond are designated "G", "H" and "J". Regional farms at intermediate distances from Peach Bottom on the east side are designated "D", "L", "M" and "N". | Two gallon grab sample is collected at each farm from a tank containing milk from all cows weekly while cows are on pasture, monthly otherwise. Samples are shipped to RMC. | I-131 - weekly<br>Aq tritium - quarterly |
| | Regional Farm B | PB-M-[illegible] | | | Same as station A above |
| | Regional Farm C | PB-M-31F1 | | | Same as station A above |
| | Regional Farm D | PB-M-5D1 | | | Same as station A above |
| | Regional Farm E | PB-M-36F1 | | Same as station A above except quarterly | I-131 - quarterly<br>Aq tritium - quarterly |
| | Regional Farm G | PB-M-20B1 | | | Same as station A above |
| | Regional Farm H | PB-M-18B1 | | | Same as station A above |
| | Regional Farm J | PB-M-28A1 | | | I-131 - weekly<br>Aq tritium - quarterly<br>Sr-89 & -90 - quarterly<br>Gamma Spec - quarterly |
| | Regional Farm L | PB-M-5B1 | | Same as station A above except quarterly | I-131 - quarterly<br>Aq tritium - quarterly |
| | Regional Farm M | PB-M-7C1 | | Same as station A above except quarterly | Same as station L above |
| | Regional Farm N | PB-M-11C3 | | Same as station A above except quarterly | Same as station L above |
| G. FISH (8) | | | | | |
| 1X | Peach Bottom Site Cooling Tower Pond B-1 | PB-AQF-10S4 | Located in berm Pond B-1 about 1100' ENE of Unit #1. | One lb. each of White Crappie and Channel Catfish are collected quarterly by trapping. Each species is sealed in a separate plastic bag, frozen, and shipped to RMC. | Aq tritium - quarterly |

TABLE II (cont.)

RMC SAMPLE COLLECTION AND ANALYSIS PROGRAM

| ENV STATION NO. | STATION NAME | RMC STATION DESIGNATION | STATION LOCATION DIRECTION & DISTANCE FROM PEACH BOTTOM | COLLECTION METHOD & FREQUENCY | ANALYSIS AND FREQUENCY PERFORMED |
|---|---|---|---|---|---|
| G. FISH (8) (cont.) | | | | | |
| 1EE | Peach Bottom Discharge Canal Below Radwaste Discharge | PB-AQF-13S4 | Located in the discharge canal between PB liquid radwaste discharge and canal exit. | One lb. each of White Crappie and Channel Catfish are collected quarterly by trapping or angling. Each species is sealed in a separate plastic bag, frozen and shipped to RMC. | Aq tritium - quarterly |
| 4H | Conowingo Dam Tailrace | PB-AQF-14F4 | Located in Conowingo Dam Tailrace about 8.5 miles SE of Unit #1. | One lb. of American Shad is collected annually by trapping, sealed in a plastic bag, frozen, and shipped to RMC. | Aq tritium - annually |
| 4I | Conowingo Pond Net Trap #8 | PB-AQF-9A1 | Located in Conowingo Pond about 1450' E of Unit #1. | One lb. each of White Crappie and Channel Catfish are collected quarterly by trapping. Each species is sealed in a plastic bag, frozen and shipped to RMC. | Aq tritium - quarterly |
| 4J | Conowingo Pond Net Trap #15 | PB-AQF-14B1 | Located in Conowingo Pond about 6400' SE of Unit #1. | One lb. each of White Crappie and Channel Catfish are collected quarterly by trapping. Each species is sealed in a plastic bag, frozen and shipped to RMC. | Aq tritium - quarterly |
| 6H | Holtwood Pond | PB-AQF-33F3 | Located in Holtwood Pond near the west bank about 6.6 miles NW of Unit #1. | One lb. each of White Crappie and Channel Catfish are collected quarterly by trapping. Each species is sealed in a plastic bag, frozen and shipped to RMC. | Aq tritium - quarterly |
| 6J | Holtwood Pond | PB-AQF-33G2 | Located in Holtwood Pond about 10.7 miles NNW of Unit #1. | Same method as station 6H above; collected quarterly if none available at 6H. | Same as station 6H above |

TABLE II (cont.)

RMC SAMPLE COLLECTION AND ANALYSIS PROGRAM

| ENV. STATION NO. | STATION NAME | RMC STATION DESIGNATION | STATION LOCATION DIRECTION & DISTANCE FROM PEACH BOTTOM | COLLECTION METHOD & FREQUENCY | ANALYSIS AND FREQUENCY PERFORMED |
|---|---|---|---|---|---|
| H. VEGETATION | | | | | |
| 1 | Peach Bottom Site Area | PB-FPV-00A1 | Located in site area. | Vegetation samples are collected three times a year, sealed in plastic bag, and shipped to RMC. | Aq tritium - 3 times per year |
| 5 | Wakefield, Pa. | PB-FPV-8E1 | Located 4.5 miles E of Unit #1. | Same as station 1 above | Same as station 1 above |
| I. SOIL | | | | | |
| 2 | Peach Bottom 130° Sector Hill | PB-E-13S1 | On site, 0.7 miles SE of Unit #1. | Seven cores (2" in diameter and 6" deep) are collected from a 50 X 50 ft. area semi-annually. Top 1 inch and bottom 5 inches are separated, sealed in plastic bags, and shipped to RMC. | Gamma Spec - semi-annual<br>Gross alpha - semi-annual<br>Sr-89 & -90 - semi-annual |
| 3A | Delta, Pa. Substation | PB-E-23D1 | 3.6 miles SW of Unit #1 at Delta, Pa. | Same as station 2 above | Same as station 2 above |
| 5 | Wakefield, Pa. | PB-E-8E1 | 4.5 miles E of Unit #1 at Wakefield, Pa. | Same as station 2 above | Same as station 2 above |
| J. ENVIRONMENTAL DOSIMETRY - TLD | | | | | |
| | At each of the following stations there are 2 environmental dosimeter packets with 4 TLDs per package. One packet is replaced monthly, and one quarterly. The packets for each time period are collected and replaced on the same day at all the stations. | | | | |
| 1A | Peach Bottom Weather Station #1 | PB-ID-11S1 | On site, 0.1 miles ESE of Unit #1. | Procedure for collection is described in the placement procedure in Sec. II., A. | TLD - monthly & quarterly |
| 1B | Peach Bottom Weather Station #2 | PB-ID-33S1 | On site, 0.6 miles NNW of Unit #1. | | TLD - monthly & quarterly |
| 1C | Peach Bottom South Substation Rd. | PB-ID-16S1 | On site, 0.7 miles SSE of Unit #1. | | TLD - monthly & quarterly |

TABLE II (cont.)

RMC SAMPLE COLLECTION AND ANALYSIS PROGRAM

| ENV. STATION NO. | STATION NAME | RMC STATION DESIGNATION | STATION LOCATION DIRECTION & DISTANCE FROM PEACH BOTTOM | COLLECTION METHOD & FREQUENCY | ANALYSIS AND FREQUENCY PERFORMED |
|---|---|---|---|---|---|
| J. ENVIRONMENTAL DOSIMETRY - TLD (cont.) | | | | | |
| 1D | Peach Bottom 140° Sector Site Boundary | PB-ID-14S1 | On site, 0.5 miles SE of Unit #1. | | TLD - monthly & quarterly |
| 1E | Peach Bottom 350° Sector Site Boundary | PB-ID-35S1 | On site, 0.8 miles N of Unit #1. | | TLD - monthly & quarterly |
| 1F | Peach Bottom 200° Sector Hill | PB-ID-20S1 | On site, 0.6 miles SSW of Unit #1. | | TLD - monthly & quarterly |
| 1G | Peach Bottom North Substation | PB-ID-30S1 | On site, 0.7 miles WNW of Unit #1. | | TLD - monthly & quarterly |
| 1H | Peach Bottom Site 270° Sector Hill | PB-ID-27S1 | On site, 0.6 miles W of Unit #1. | | TLD - monthly & quarterly |
| 1I | Peach Bottom South Substation | PB-ID-15S1 | On site, 0.4 miles S of Unit #1. | | TLD - monthly & quarterly |
| 1J | Peach Bottom Site 180° Sector Hill | PB-ID-18S1 | On site, 0.6 miles S of Unit #1. | | TLD - monthly & quarterly |
| 1K | Peach Bottom Units 2 & 3 Administration Building | PB-ID-6S1 | On site, 0.2 miles NNW of Unit #1. | | TLD - monthly & quarterly |
| 1L | Peach Bottom Unit 3 Intake | PB-ID-6S2 | Located near Unit 3 Intake structure; 0.3 miles NNE of Unit #1. | | TLD - monthly & quarterly |
| 1M | Peach Bottom Canal Discharge | PB-ID-13S2 | Located near Canal Discharge structure; 0.9 miles SE of Unit #1. | | TLD - monthly & quarterly |
| 2 | Peach Bottom Site 130° Sector Hill | PB-ID-13S1 | On site, 0.7 miles SE of Unit #1. | | TLD - monthly & quarterly |

TABLE II (cont.)

RMC SAMPLE COLLECTION AND ANALYSIS PROGRAM

| ENV. STATION NO. | STATION NAME | RMC STATION DESIGNATION | STATION LOCATION DIRECTION & DISTANCE FROM PEACH BOTTOM | COLLECTION METHOD & FREQUENCY | ANALYSIS AND FREQUENCY PERFORMED |
|---|---|---|---|---|---|
| J. ENVIRONMENTAL DOSIMETRY - TLD (cont.) | | | | | |
| 3A | Delta, Pa. Substation | PB-ID-23D1 | 3.6 miles SW of Unit #1 at Delta, Pa. | | TLD - monthly & quarterly |
| 4K | Conowingo Dam Powerhouse Roof | PB-ID-14F1 | On roof of Conowingo Powerhouse, 8.5 miles SE of Unit #1. | | TLD - monthly & quarterly |
| 5 | Wakefield, Pa. | PB-ID-8E1 | At Wakefield, Pa. 4.5 miles E of Unit #1. | | TLD - monthly & quarterly |
| 5B | Holtwood Dam Hydroelectric Station | PB-ID-33F2 | On roof of Hydroelectric Station, 5.9 miles NW of Unit #1. | | TLD - monthly & quarterly |
| 12B | Phila., Pa. 3508 Market St. | PB-ID-8H1 | On roof of Radiation Management Corp., Philadelphia, Pa., 64 miles E of Unit #1. | | TLD - monthly & quarterly |
| 14 | Peters Creek | PB-ID-10C1 | 2.3 miles E of Unit #1 near the mouth of Peters Creek | | TLD - monthly & quarterly |
| 15 | Silver Spring Road | PB-ID-36D1 | 3.8 miles N of Unit #1 near Silver Spring Road. | | TLD - monthly & quarterly |
| 16 | Nottingham, Pa. Substation | PB-ID-9G1 | 12.8 miles E of Unit #1 at Nottingham Substation. | | TLD - monthly & quarterly |
| 17 | Riverview Road | PB-ID-11E1 | 4.4 miles ESE of Unit #1 near Riverview Road. | | TLD - monthly & quarterly |
| 18 | Fawn Grove, Pa. | PB-ID-26F1 | 10 miles W of Unit #1 at Fawn Grove, Pa. | | TLD - monthly & quarterly |
| 19 | Red Lion, Pa. | PB-ID-30G1 | 20.6 miles WNW of Unit #1 at Red Lion, Pa. | | TLD - monthly & quarterly |
| 20 | Bel Air, Md. Area | PB-ID-20G1 | 15.1 miles SSW of Unit #1 near Bel Air, Maryland. | | TLD - monthly & quarterly |
| 21B | Lancaster, Pa. Area | PB-ID-35G1 | 19 miles NNW of Unit #1 near Lancaster, Pa. | | TLD - monthly & quarterly |
| 22 | Eagle Road | PB-ID-3C1 | 2.5 miles NNE of Unit #1 near Eagle Road. | | TLD - monthly & quarterly |

TABLE II (cont.)

RMC SAMPLE COLLECTION AND ANALYSIS PROGRAM

| ENV. STATION NO. | STATION NAME | RMC STATION DESIGNATION | STATION LOCATION DIRECTION & DISTANCE FROM PEACH BOTTOM | COLLECTION METHOD & FREQUENCY | ANALYSIS AND FREQUENCY PERFORMED |
|---|---|---|---|---|---|
| J. ENVIRONMENTAL DOSIMETRY - TLD (cont.) | | | | | |
| 23 | Peach Bottom 150° Sector Hill off site | PB-ID-15B1 | Off-site Hill 0.9 miles SSE of Unit #1 | | TLD - monthly & quarterly |
| 24 | Harrisville, Md. Substation | PB-ID-11G1 | 10.9 miles ESE of Unit #1 at Harris Substation | | TLD - monthly & quarterly |
| 26 | Slab Road | PB-ID-21E1 | 4.3 miles NW of Unit #1 near Slab Road. | | TLD - monthly & quarterly |
| 27 | N. Cooper Road | PB-ID-18C1 | 2.5 miles S of Unit #1 near N. Cooper Road. | | TLD - monthly & quarterly |
| 31 | Pilotown Road | PB-ID-13F1 | 4.8 miles SE of Unit #1 near Pilotown Road. | | TLD - monthly & quarterly |
| 32 | Slate Hill Road | PB-ID-6C1 | 2.8 miles NE of Unit #1 near Slate Hill Road. | | TLD - monthly & quarterly |
| 33A | Fulton Main Weather Station | PB-ID-6B2 | 1.8 miles ENE of Unit #1 | | TLD - monthly & quarterly |
| 38 | Peach Bottom Road | PB-ID-8D1 | 2.9 miles E of Unit #1 near Peach Bottom Road. | | TLD - monthly & quarterly |

TABLE III

SUMMARY OF ANALYSES PERFORMED ON SAMPLES COLLECTED DURING 1978

| Station No. | RMC Designation | Location | Number of Samples | Type of Analyses | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | H-3 | Gross Beta | Gross Alpha | TLD | Gamma Spec. | I-131 | Sr-89 | Sr-90 | Total Analyses |
| A. SURFACE WATER | | | | | | | | | | | | |
| 1Q | PB-SW-6S3 | Peach Bottom Unit #2 Intake - Grab | 12 | 12 | 24 | | | 12 | | | | 48 |
| 1LL | PB-SW-6S4 | Peach Bottom Unit #2 & 3 Intake - Composite | 12 | 12 | 24 | | | 12 | | | | 48 |
| 13A | PB-SW-11C1 | Chester Water Intake Pond | 12 | 4 | 24 | | | 12 | | | | 40 |
| 13B | PB-SW-11C2 | Chester Water Intake - Pump Discharge | 1 | 1 | 2 | | | 1 | | | | 4 |
| 4F | PB-SW-14F2 | Conowingo Dam El 33' MSL - Grab | 12 | 4 | 24 | 24 | | 12 | | | | 64 |
| 4G | PB-SW-14F3 | Conowingo Dam Surface-Grab | 12 | | 24 | | | 12 | | | | 36 |
| 4L | PB-SW-14F5 | Conowingo Dam El 33' - Composite | 10 | 10 | 20 | 20 | | 10 | | | | 60 |
| 6A | PB-SW-33F1 | Holtwood Dam Hydroelectric Station | 12 | 4 | 24 | 24 | | 12 | | | | 64 |
| 6I | PB-SW-33F4 | Holtwood Dam Hydroelectric Station | 11 | 11 | 22 | 22 | | 11 | | | | 66 |

TABLE III Cont.

| Station No. | KMC Designation | Location | Number of Samples | Type of Analyses: H-3 | Gross Beta | Gross Alpha | TLD | Gamma Spec. | I-131 | Sr-89 | Sr-90 | Total Analyses |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| B. DISCHARGE WATER | | | | | | | | | | | | |
| 1M | PB-DW-13S2 | Peach Bottom Canal Discharge-Grab | 12 | 12 | 24 | | | 12 | | | | 48 |
| 1MM | PB-DW-13S5 | Peach Bottom Canal Discharge-Composite | 12 | 12 | 24 | | | 12 | | | | 48 |
| 1T | PB-DW-13S3 | Peach Bottom Discharge Canal-2200' | 12 | | 24 | | | 12 | | | | 36 |
| C. WELL WATER | | | | | | | | | | | | |
| 1U | PB-WW-15S2 | Peach Bottom Site Utility Bldg. | 12 | 4 | 24 | | | | | | | 28 |
| 1V | PB-WW-12S2 | Peach Bottom Site Info. Center | 12 | 4 | 24 | | | | | | | 28 |
| 40 | PB-WW-21B2 | Peach Bottom Site Area | 4 | 4 | 8 | | | | | | | 12 |
| 7 | PB-WW-16F1 | Darlington, Md. Area | 4 | 4 | 8 | | | | | | | 12 |
| D. AIR PARTICULATES | | | | | | | | | | | | |
| 1Z | PB-AP-11S4 | Peach Bottom Weather Station #1 | 52 | | 52 | | | 12 | | | | 64 |

TABLE III Cont.

| Station No. | RMC Designation | Location | Number of Samples | Type of Analyses | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | H-3 | Gross Beta | Gross Alpha | TLD | Gamma Spec. | I-131 | Sr-89 | Sr-90 | Total Analyses |
| E. RAIN WATER | | | | | | | | | | | | |
| 1A | PB-RW-11S1 | Peach Bottom Weather Station #1 | 12 | 4 | 12 | | | 12 | | | | 28 |
| 8 | PB-RW-12F1 | Colora, Md. | 12 | 4 | 12 | | | 12 | | | | 28 |
| F. MILK | | | | | | | | | | | | |
| | PB-M-24F1 | Regional Farm A | 41 | 4 | | | | | 41 | | | 45 |
| | PB-M-19G1 | Regional Farm B | 41 | 4 | | | | | 41 | | | 45 |
| | PB-M-31F1 | Regional Farm C | 41 | 4 | | | | | 41 | | | 45 |
| | PB-M-5D1 | Regional Farm D | 41 | 4 | | | | | 41 | | | 45 |
| | PB-M-36F1 | Regional Farm E | 4 | 4 | | | | | 4 | | | 8 |
| | PB-M-20B1 | Regional Farm G | 41 | 4 | | | | | 41 | | | 45 |
| | PB-M-18B1 | Regional Farm H | 41 | 4 | | | | | 41 | | | 45 |
| | PB-M-28A1 | Regional Farm J | 41 | 4 | | | | 4 | 41 | 4 | 4 | 57 |
| | PB-M-5B1 | Regional Farm L | 4 | 4 | | | | | 4 | | | 8 |
| | PB-M-7C1 | Regional Farm M | 4 | 4 | | | | | 4 | | | 8 |
| | PB-M-11C3 | Regional Farm N | 41 | 4 | | | | | 41 | | | 45 |

TABLE III Cont.

| Station No. | RMC Designation | Location | Number of Samples | Type of Analyses | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | H-3 | Gross Beta | Gross Alpha | TLD | Gamma Spec. | I-131 | Sr-89 | Sr-90 | Total Analyses |
| G. FISH | | | | | | | | | | | | |
| 1X | PB-AQF-10S4 | Peach Bottom Site Cooling Tower Pond B-1 | 2 | 2 | | | | | | | | 2 |
| 1EE | PB-AQF-13S4 | Peach Bottom Discharge Canal - Below Radwaste Discharge | 3 | 3 | | | | | | | | 3 |
| 4H | PB-AQF-14F4 | Conowingo Dam Tailrace | 1 | 1 | | | | | | | | 1 |
| 4I | PB-AQF-9A1 | Conowingo Pond Net Trap #8 | 5 | 5 | | | | | | | | 5 |
| 4J | PB-AQF-14B1 | Conowingo Pond Net Trap #15 | 8 | 8 | | | | | | | | 8 |
| 6H | PB-AQF-33F3 | Holtwood Pond | 4 | 4 | | | | | | | | 4 |
| H. VEGETATION | | | | | | | | | | | | |
| 1 | PB-FP-00A1 | Peach Bottom Site Area | 6 | 6 | | | | | | | | 6 |
| 5 | PB-FP-8E1 | Wakefield, Pa. | 6 | 6 | | | | | | | | 6 |

TABLE III Cont.

| Station No. | RMC Designation | Location | Number of Samples | Type of Analyses | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | H-3 | Gross Beta | Gross Alpha | TLD | Gamma Spec. | I-131 | Sr-89 | Sr-90 | Total Analyses |
| I. SOIL | | | | | | | | | | | | |
| 2 | PB-E-13S1 | Peach Bottom 130° Sector Hill | 4 | | | 4 | | 4 | | 4 | 4 | 16 |
| 3A | PB-E-23D1 | Delta, Pa. Substation | 4 | | | 4 | | 4 | | 4 | 4 | 16 |
| 5 | PB-E-8E1 | Wakefield, Pa. | 4 | | | 4 | | 4 | | 4 | 4 | 16 |
| J. ENVIRONMENTAL DOSIMETRY | | | | | | | | | | | | |
| 1A | PB-ID-11S1 | Peach Bottom Weather Station #1 | 64 | | | | 64 | | | | | 64 |
| 1B | PB-ID-33S1 | Peach Bottom Weather Station #2 | 64 | | | | 64 | | | | | 64 |
| 1C | PB-ID-16S1 | Peach Bottom South Substation Road | 56 | | | | 56 | | | | | 56 |
| 1D | PB-ID-14S1 | Peach Bottom 140° Sector Site Boundary | 64 | | | | 64 | | | | | 64 |
| 1E | PB-ID-35S1 | Peach Bottom 350° Sector Site Boundary | 64 | | | | 64 | | | | | 64 |
| 1F | PB-ID-20S1 | Peach Bottom 200° Sector Hill | 64 | | | | 64 | | | | | 64 |

TABLE III Cont.

| Station No. | RMC Designation | Location | Number of Samples | Type of Analyses | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | H-3 | Gross Beta | Gross Alpha | TLD | Gamma Spec. | I-131 | Sr-89 | Sr-90 | Total Analyses |
| 1G | PB-ID-30S1 | Peach Bottom North Substation | 64 | | | | 64 | | | | | 64 |
| 1H | PB-ID-27S1 | Peach Bottom 270° Sector Hill | 64 | | | | 64 | | | | | 64 |
| 1I | PB-ID-15S1 | Peach Bottom South Substation | 56 | | | | 56 | | | | | 56 |
| 1J | PB-ID-18S1 | Peach Bottom 180° Sector Hill | 55 | | | | 55 | | | | | 55 |
| 1K | PB-ID-6S1 | Peach Bottom Units 2 & 3 Administrative Bldg. | 64 | | | | 64 | | | | | 64 |
| 1L | PB-ID-6S2 | Peach Bottom Units 2 & 3 Intake | 64 | | | | 64 | | | | | 64 |
| 1M | PB-ID-13S2 | Peach Bottom Canal-Discharge | 64 | | | | 64 | | | | | 64 |
| 2 | PB-ID-13S1 | Peach Bottom 130° Sector Hill | 64 | | | | 64 | | | | | 64 |
| 3A | PB-ID-23D1 | Delta, Pa. Substation | 64 | | | | 64 | | | | | 64 |
| 4K | PB-ID-14F1 | Conowingo Dam Powerhouse Roof | 60 | | | | 60 | | | | | 60 |

TABLE III Cont.

| Station No. | RMC Designation | Location | Number of Samples | Type of Analyses | | | | | | | | Total Analyses |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | H-3 | Gross Beta | Gross Alpha | TLD | Gamma Spec. | I-131 | Sr-89 | Sr-90 | |
| 5 | PB-ID-8E1 | Wakefield, Pa. | 64 | | | | 64 | | | | | 64 |
| 6B | PB-ID-33F2 | Holtwood Dam Hydroelectric Station | 64 | | | | 64 | | | | | 64 |
| 12B | PB-ID-8H1 | Phila., Pa. 3508 Market St. | 64 | | | | 64 | | | | | 64 |
| 14 | PB-ID-10C1 | Peters Creek | 64 | | | | 64 | | | | | 64 |
| 15 | PB-ID-72D1 | Silver Spring Rd. | 64 | | | | 64 | | | | | 64 |
| 16 | PB-ID-9G1 | Nottingham, Pa. Substation | 64 | | | | 64 | | | | | 64 |
| 17 | PB-ID-11E1 | Riverview Rd. | 64 | | | | 64 | | | | | 64 |
| 18 | PB-ID-26F1 | Fawn Grove, Pa. | 64 | | | | 64 | | | | | 64 |
| 19 | PB-ID-30G1 | Red Lion, Pa. | 48 | | | | 48 | | | | | 48 |
| 20 | PB-ID-20G1 | Bel Air, Md. Area | 64 | | | | 64 | | | | | 64 |
| 21B | PB-ID-35G1 | Lancaster, Pa. | 52 | | | | 52 | | | | | 52 |
| 22 | PB-ID-3C1 | Eagle Road | 51 | | | | 51 | | | | | 51 |
| 23 | PB-ID-15B1 | Off-site 150° Sector Hill | 64 | | | | 64 | | | | | 64 |
| 24 | PB-ID-11G1 | Harrisville, Md. | 64 | | | | 64 | | | | | 64 |

TABLE III Cont.

| Station No. | RMC Designation | Location | Number of Samples | Type of Analyses | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | H-3 | Gross Beta | Gross Alpha | TLD | Gamma Spec. | I-131 | Sr-89 | Sr-90 | Total Analyses |
| 26 | PB-ID-31E1 | Slab Road | 64 | | | | 64 | | | | | 64 |
| 27 | PB-ID-18C1 | N. Cooper Road | 64 | | | | 64 | | | | | 64 |
| 31 | PB-ID-13F1 | Pilotown Road | 64 | | | | 64 | | | | | 64 |
| 32 | PB-ID-6C1 | Slate Hill Road | 64 | | | | 64 | | | | | 64 |
| 33A | PB-ID-6B2 | Fulton Weather Station | 64 | | | | 64 | | | | | 64 |
| 38 | PB-ID-8D1 | Peach Bottom Road | 56 | | | | 56 | | | | | 56 |
| | TOTAL | | 2851 | 185 | 400 | 102 | 2226 | 182 | 340 | 16 | 16 | 3467 |

TABLE IV

SUMMARY OF RADIOACTIVITY CONCENTRATIONS

| Sample Type and Location | Analysis | No. of Samples Analyzed | Number Detected | Period* Minimum | Period* Maximum | Period** Mean | Pre-Op*** Mean | Units |
|---|---|---|---|---|---|---|---|---|
| SURFACE WATER | | | | | | | | |
| Potentially | Aqueous Tritium (Grab) | 12 | 8 | <80 | 200±70 | 110±80 | 320±250 | pCi/l |
| Affected | Aqueous Tritium (Grab-Quarterly Comp.) | 8 | 7 | <70 | 350±80 | 160±210 | - | pCi/l |
| Stations | Aqueous Tritium (Composite) | 22 | 14 | <70 | 240±80 | 110±80 | 240±30 | pCi/l |
| (1Q, 4F, | Gross Beta (Soluble-Grab) | 48 | 46 | <0.3 | 4.3±0.5 | 2.1±1.6 | 3.3±2.6 | pCi/l |
| 4G, 13A-Grab) | Gross Beta (Soluble-Composite) | 22 | 21 | <0.4 | 2.8±0.4 | 1.9±1.2 | 3.5±2.6 | pCi/l |
| (1LL, 4L-Composite) | Gross Beta (Insoluble-Grab) | 48 | 41 | <0.3 | 25±2 | 2.8±9.4 | 3.4±3.1 | pCi/l |
| (4F, 13A- | Gross Beta (Insoluble-Composite) | 22 | 19 | 0.4±0.3 | 4.6±0.5 | 1.5±2.6 | 3.4±2.6 | pCi/l |
| Quarterly, | Gross Alpha (Soluble-Grab) | 12 | 2 | <0.3 | 3±1 | 1.0±2.1 | - | pCi/l |
| Composite for | Gross Alpha (Soluble-Composite) | 10 | 0 | <0.4 | <1 | <0.55 | - | pCi/l |
| Tritium) | Gross Alpha (Insoluble-Grab) | 12 | 5 | <0.2 | 7±2 | 1.8±4.9 | - | pCi/l |
| | Gross Alpha (Insoluble-Composite) | 10 | 5 | <0.1 | 1.6±0.8 | 0.45±0.92 | - | pCi/l |
| Unaffected | queous Tritium (Grab-Quarterly Comp.) | 4 | 3 | <70 | 170±80 | 120±100 | - | pCi/l |
| Stations | Aqueous Tritium (Composite) | 11 | 9 | <70 | 200±80 | 110±80 | - | pCi/l |
| (6A-Grab) | Gross Beta (Soluble-Grab) | 12 | 12 | 0.8±0.4 | 3.4±0.5 | 2.1±1.4 | 3.5±0.4 | pCi/l |
| (6I-Composite) | Gross Beta (Soluble-Composite) | 11 | 10 | <0.3 | 2.7±0.4 | 2.0±1.5 | - | pCi/l |
| (6A-Quarterly | Gross Beta (Insoluble-Grab) | 12 | 9 | <0.3 | 7.5±0.6 | 1.7±4.6 | 3.7±4.5 | pCi/l |
| Composite for | Gross Beta (Insoluble-Composite) | 11 | 6 | <0.3 | 2.3±0.5 | 0.76±1.40 | - | pCi/l |
| Tritium) | Gross Alpha (Soluble-Grab) | 12 | 2 | <0.09 | <2 | 0.69±1.06 | - | pCi/l |
| | Gross Alpha (Soluble-Composite) | 11 | 3 | <0.4 | 1.1±0.7 | 0.61±0.39 | - | pCi/l |
| | Gross Alpha (Insoluble-Grab) | 12 | 3 | <0.1 | 4±2 | 0.59±2.20 | - | pCi/l |
| | Gross Alpha (Insoluble-Composite) | 11 | 0 | <0.1 | <1 | <.25 | - | pCi/l |
| DISCHARGE WATER | | | | | | | | |
| Potentially | Aqueous Tritium (Grab) | 12 | 7 | <60 | 380±80 | 150±200 | 310±200 | pCi/l |
| Affected | | | | | | | | |
| Stations | Aqueous Tritium (Composite) | 12 | 8 | <70 | 510±80 | 180±260 | 480±30 | pCi/l |
| (1M, | Gross Beta (Soluble-Grab) | 24 | 24 | 0.6±0.4 | 2.6±0.4 | 1.9±1.0 | 3.4±0.6 | pCi/l |
| 1T-Grab) | Gross Beta (Soluble-Composite) | 12 | 12 | 1.0±0.4 | 2.7±0.5 | 1.8±1.1 | 3.4±0.6 | pCi/l |
| (1MM-Composite) | Gross Beta (Insoluble-Grab) | 24 | 20 | <0.3 | 4.0±0.5 | 1.6±2.6 | 3.2±1.3 | pCi/l |
| | Gross Beta (Insoluble-Composite) | 12 | 10 | <0.4 | 10.6±0.7 | 2.3±5.6 | .3±2.5 | pCi/l |

TABLE IV (CONTINUED)

| Sample Type and Location | Analysis | No. of Samples Analyzed | Number Detected | Period* Minimum | Period* Maximum | Period** Mean | Pre-Op*** Mean | Units |
|---|---|---|---|---|---|---|---|---|
| WELL WATER | | | | | | | | |
| On-Site Wells (1U+1V) | Aqueous Tritium (Quarterly Composite) | 8 | 6 | <70 | 240±80 | 130±130 | 270±300 | pCi/l |
| | Gross Beta (Soluble) | 24 | 8 | <0.3 | 1.6±0.4 | 0.48±0.58 | 3.1±0.8 | pCi/l |
| | Gross Beta (Insoluble) | 24 | 16 | <0.3 | 3±1 | 0.68±1.29 | 3.2±1.2 | pCi/l |
| Site Area (40) | Aqueous Tritium | 4 | 4 | 70±60 | 450±80 | 210±330 | 410±100 | pCi/l |
| | Gross Beta (Soluble) | 4 | 4 | 0.5±0.3 | 0.9±0.3 | 0.75±0.35 | 3.0±0.1 | pCi/l |
| | Gross Beta (Insoluble) | 4 | 4 | 0.3±0.3 | 1.3±0.3 | 0.73±0.87 | <3.0 | pCi/l |
| Distant Well (7) | Aqueous Tritium | 4 | 0 | <60 | <80 | <73 | - | pCi/l |
| | Gross Beta (Soluble) | 4 | 4 | 1.4±0.4 | 2.2±0.4 | 1.8±0.9 | - | pCi/l |
| | Gross Beta (Insoluble) | 4 | 0 | <0.3 | <0.3 | <0.3 | - | pCi/l |
| RAIN WATER | | | | | | | | |
| On-Site (1A) | Aqueous Tritium (Quarterly Composite) | 4 | 3 | <80 | 120±80 | 100±30 | 240±180 | $pCi/l_2$ |
| | Aqueous Tritium (Quarterly Composite-Surface Density) | 4 | 3 | <20 | 30±20 | 23±10 | - | $nCi/m^2$ |
| | Gross Beta (Total) | 12 | 12 | 4±1 | 325±8 | 61±184 | 4.8±6.4 | $pCi/l_2$ |
| | Gross Beta (Total-Surface Density) | 12 | 12 | 240±50 | 40300±900 | 5200±22400 | - | $pCi/m^2$ |
| Distant (8) | Aqueous Tritium (Quarterly Composite | 4 | 1 | < 70 | 90±70 | 80±16 | - | $pCi/l_2$ |
| | Aqueous Tritium (Quarterly Composite-Surface Density) | 4 | 1 | <9 | 20±10 | 15±12 | - | $nCi/m^2$ |
| | Gross Beta (Total) | 12 | 12 | 4±1 | 307±7 | 53±169 | - | $pCi/l_2$ |
| | Gross Beta (Total-Surface Density) | 12 | 12 | 270±20 | 34100±800 | 4300±19000 | - | $pCi/m^2$ |
| AIR PARTICULATES | | | | | | | | |
| Weather Station #1 (1Z) | Gross Beta | 52 | 52 | 0.029±0.005 | 1.53±0.03 | 0.12±0.41 | - | $pCi/m^3$ |

2339 234

TABLE IV (CONTINUED)

| Sample Type and Location | Analysis | No. of Samples Analyzed | Number Detected | Period* Minimum | Period* Maximum | Period** Mean | Pre-Op*** Mean | Units |
|---|---|---|---|---|---|---|---|---|
| MILK | | | | | | | | |
| Near Farms (G,H,J) | Tritium (Aqueous Fraction) | 12 | 7 | <50 | 390±70 | 110±200 | - | pCi/l (milk) |
| | Tritium (Aqueous Fraction) | 12 | 7 | <60 | 440±80 | 130±220 | 140±248 | pCi/l (water) |
| | I-131 | 123 | 32 | <.03 | 4.9±0.5 | 0.20±1.15 | <0.2 | pCi/l (milk) |
| | Sr-89 (Quarterly-Grab, Farm J) | 4 | 1 | <1 | 4±1 | 2.0±2.8 | - | pCi/l (milk) |
| | Sr-90 (Quarterly-Grab, Farm J) | 4 | 4 | 5.2±0.9 | 10±1 | 7.3±4.3 | - | pCi/l (milk) |
| Intermediate Farms (D,L,M,N) | Tritium (Aqueous Fraction) | 16 | 13 | <50 | 420±70 | 170±280 | - | pCi/l (milk) |
| | Tritium (Aqueous Fraction) | 16 | 13 | <50 | 460±70 | 190±300 | 220±330 | pCi/l (water) |
| | I-131 | 90 | 11 | <0.02 | 9.1±0.9 | 0.21±1.98 | <0.2 | pCi/l (milk) |
| Distant Farms (A,B,C,E) | Tritium (Aqueous Fraction) | 16 | 10 | <50 | 260±70 | 80±100 | - | pCi/l (milk) |
| | Tritium (Aqueous Fraction | 16 | 10 | <50 | 300±80 | 90±120 | 103±73 | pCi/l (water) |
| | I-131 | 127 | 19 | <0.02 | 4.7±0.5 | 0.18±1.21 | <0.2 | pCi/l (milk) |
| FISH | | | | | | | | |
| WHITE CRAPPIE Potentially Affected Pond Station (1X,4I,4J) | Tritium (Aqueous Fraction) | 6 | 4 | <0.06 | 0.30±0.05 | 0.15±0.18 | - | pCi/g (wet)(1) |
| | Tritium (Aqueous Fraction) | 6 | 4 | <80 | 400±70 | 170±240 | 340±370 | pCi/l (water) |
| Unaffected Pond Stations (6H & J) | Tritium (Aqueous Fraction) | 1 | 1 | - | 0.07±0.05 | - | - | pCi/g (wet) |
| | Tritium (Aqueous Fraction) | 1 | 1 | - | 100±70 | - | - | pCi/l (water) |

TABLE IV (CONTINUED)

| Sample Type and Location | Analysis | No. of Samples Analyzed | Number Detected | Period* Minimum | Period* Maximum | Period** Mean | Pre-Op*** Mean | Units |
|---|---|---|---|---|---|---|---|---|
| FISH (Cont.) | | | | | | | | |
| Discharge water Station (1EE) | Tritium (Aqueous Fraction) | 0 | - | - | - | - | - | pCi/g (wet)(1) |
| | Tritium (Aqueous Fraction) | 0 | - | - | - | - | - | pCi/l (water) |
| CHANNEL CATFISH Potentially Affected Pond Stations (1X,4I,4J) | Tritium (Aqueous Fraction) | 9 | 7 | 0.05±0.02 | 0.29±0.05 | 0.12±0.15 | - | pCi/g (wet)(1) |
| | Tritium (Aqueous Fraction) | 9 | 7 | <100 | 390±70 | 180±180 | 320±400 | pCi/l (water) |
| Discharge Water Station (1EE) | Tritium (Aqueous Fraction) | 3 | 2 | <0.09 | 0.09±0.05 | 0.09±0.01 | - | pCi/g (wet) (1) |
| | Tritium (Aqueous Fraction) | 3 | 2 | <100 | 180±80 | 140±80 | - | pCi/l (water) |
| Unaffected Pond Station (6H & J) | Tritium (Aqueous Fraction) | 3 | 3 | 0.04±0.02 | 0.14±0.05 | 0.08±0.11 | - | pCi/g (wet)(1) |
| | Tritium (Aqueous Fraction) | 3 | 3 | 80±80 | 190±70 | 130±110 | - | pCi/l (water) |
| AMERICAN SHAD Potentially Affected Station (4H) | Tritium (Aqueous Fraction) | 1 | 0 | - | <0.1 | - | - | pCi/g (wet)(1) |
| | Tritium (Aqueous Fraction) | 1 | 0 | - | <100 | - | 120 | pCi/l (water) |
| VEGETATION | | | | | | | | |
| On-Site Station (1) | Tritium (Aqueous Fraction) | 6 | 6 | .07±.06 | 0.23±0.07 | 0.14±0.11 | - | pCi/g (wet)(1) |
| | Tritium (Aqueous Fraction) | 6 | 6 | 70±70 | 270±80 | 170±140 | <80 | pCi/l (water) |

2339 236

TABLE IV (CONTINUED)

| Sample Type and Location | Analysis | No. of Samples Analyzed | Number Detected | Period* Minimum | Period* Maximum | Period** Mean | Pre-Op*** Mean | Units |
|---|---|---|---|---|---|---|---|---|
| VEGETATION (Cont.) | | | | | | | | |
| Distant Station (5) | Tritium (Aqueous Fraction) | 6 | 6 | 0.09±0.04 | 0.14±0.07 | 0.11±0.04 | - | pCi/g (wet)(1) |
| | Tritium (Aqueous Fraction) | 6 | 6 | 110±70 | 160±80 | 130±40 | <80 | pCi/l (water) |
| SOIL | | | | | | | | |
| On-Site Location (2) | Sr-89 (top 1") | 2 | 1 | <0.1 | 0.2±0.1 | 0.15±0.14 | - | pCi/g (dry) |
| | (bottom) | 2 | 1 | 0.08±0.06 | <0.09 | 0.09±0.01 | - | pCi/g (dry) |
| | Sr-90 (top 1") | 2 | 2 | 0.30±0.07 | 0.59±0.08 | 0.45±0.41 | 2.1 | pCi/g (dry) |
| | (bottom) | 2 | 2 | 0.09±0.05 | 0.14±0.04 | 0.12±0.07 | 0.1 | pCi/g (dry) |
| | Gross Alpha (top 1") | 2 | 2 | 2±1 | 10±5 | 6.0±11.3 | 16 | pCi/g (dry) |
| | (bottom) | 2 | 2 | 3±1 | 13±6 | 8.0±14.± | 17 | pCi/g (dry) |
| Distant Location (3A & 5) | Sr-89 (top 1") | 4 | 0 | <0.06 | <0.08 | <0.07 | - | pCi/g (dry) |
| | (bottom) | 4 | 0 | <0.05 | <0.1 | <0.08 | - | pCi/g (dry) |
| | Sr-90 (top 1") | 4 | 4 | 0.16±0.04 | 0.51±0.05 | 0.28±0.31 | 0.6 | pCi/g (dry) |
| | (bottom) | 4 | 4 | 0.14±0.04 | 0.26±0.05 | 0.19±0.10 | 0.4 | pCi/g (dry) |
| | Gross Alpha (top 1") | 4 | 2 | <0.9 | 6±4 | 3.0±4.4 | 21 | pCi/g (dry) |
| | (bottom) | 4 | 4 | 1.1±0.9 | 16.6 | 6.5±13.3 | 26 | pCi/g (dry) |

* All results above the MDL are quoted with a two sigma counting error.

** A two sigma deviation of the data is included with each mean. No value is given when only one result appears.

*** A two sigma deviation of the data is included with each mean. A dash indicates that this analysis was not performed during the pre-operational period. Pre-op mean was calculated using pre-operational data where the minimum detectable levels were the same as those in 1974.

(1) Results reported in pCi/g (wet) are calculated using the prepared sample weight before drying.

TABLE V

SUMMARY OF GAMMA SPECTROMETRY

| SAMPLE TYPE | # OF SAMPLES ANALYZED | NUCLIDES FOUND | # OF SAMPLES WITH NUCLIDE DETECTED | PERIOD* MINIMUM | PERIOD* MAXIMUM | PERIOD** MEAN | PRE-OP*** MEAN | UNITS |
|---|---|---|---|---|---|---|---|---|
| Surface Water - Potentially Affected Stations | | | | | | | | |
| (1Q, 4F, 4G, 13A, 13B, - Grab) | | | | | | | | |
| (1LL, 4L - Composite) | | | | | | | | |
| (Soluble - Grab) | 49 | Co-60 | 1 | - | 1.3±0.7 | 1.3 | - | pCi/l |
| (Soluble - Composite) | 22 | None | | | | | | |
| Surface Water - Unaffected Stations | | | | | | | | |
| (6A - Grab) | | | | | | | | |
| (6I - Composite) | | | | | | | | |
| (Soluble - Grab) | 12 | None | | | | | | |
| (Soluble - Composite) | 11 | None | | | | | | |
| Discharge Water - Potentially Affected Stations | | | | | | | | |
| (1M, 1T - Grab) | | | | | | | | |
| (1MM - Composite) | | | | | | | | |
| (Soluble - Grab) | 24 | None | | | | | | |
| (Soluble - Composite) | 12 | Mn-54 | 1 | - | 0.7±0.6 | 0.7 | - | pCi/l |
| Precipitation - On-site Station | | | | | | | | |
| (1A - Composite) | 8 | Be-7 | 4 | 13±4 | 40±5 | 22±24 | - | pCi/l |
| | | Zr-95 | 1 | - | 2.2±0.8 | 2.2 | - | pCi/l |
| | | Nb-95 | 2 | 1.1±0.5 | 1.4±0.8 | 1.3±0.4 | - | pCi/l |
| | | Ru-103 | 1 | - | 21±2 | 21 | - | pCi/l |
| | | Ru-106 | 3 | 5±4 | 9±6 | 6.3±4.6 | - | pCi/l |
| | | Sb-125 | 1 | - | 2±1 | 2 | - | pCi/l |
| | | I-131 | 1 | - | 23±3 | 23 | - | pCi/l |
| | | Cs-137 | 3 | 0.7±0.4 | 2.9±0.6 | 2.0±2.3 | - | pCi/l |
| | | Ba-La-140 | 1 | - | 17±2 | 17 | - | pCi/l |
| | | Ce-141 | 1 | - | 6±1 | 6 | - | pCi/l |
| | | Ce-144 | 3 | 3±2 | 14±2 | 8.0±11.1 | - | pCi/l |
| | | Ra-226 | 1 | - | 4±1 | 4 | - | pCi/l |
| Precipitation - Distant Station | | | | | | | | |
| (8 - Composite) | 8 | Be-7 | 5 | 11±5 | 150±120 | 49±116 | - | pCi/l |
| | | K-40 | 1 | - | 19±8 | 19 | - | pCi/l |
| | | Co-60 | 1 | - | 1.2±0.9 | 1.2 | - | pCi/l |

TABLE V (cont.)

SUMMARY OF GAMMA SPECTROMETRY

| SAMPLE TYPE | # OF SAMPLES ANALYZED | NUCLIDES FOUND | # OF SAMPLES WITH NUCLIDE DETECTED | PERIOD* MINIMUM | PERIOD* MAXIMUM | PERIOD** MEAN | PRE-OP*** MEAN | UNIT |
|---|---|---|---|---|---|---|---|---|
| Precipitation - Distant Station (cont.) | | | | | | | | |
| (8 - Composite) | 8 | Zr-95 | 2 | 2±2 | 2.2±0.8 | 2.1±0.3 | - | pCi/l |
| | | Nb-95 | 3 | 2±1 | 11±10 | 5.0±10.3 | - | pCi/l |
| | | Ru-103 | 1 | - | 27±3 | 27 | - | pCi/l |
| | | Ru-106 | 1 | - | 7±6 | 7 | - | pCi/l |
| | | Sb-125 | 2 | 4±2 | 5±4 | 4.5±1.4 | - | pCi/l |
| | | I-131 | 1 | - | 27±3 | 27 | - | pCi/l |
| | | I-132 | 1 | - | 0.4±0.4 | 0.4 | - | pCi/l |
| | | Cs-137 | 3 | 2±1 | 3±1 | 2.4±1.1 | - | pCi/l |
| | | BaLa-140 | 1 | - | 23±2 | 23 | - | pCi/l |
| | | Ce-141 | 1 | - | 7.7 | 7.7 | - | pCi/l |
| | | Ce-144 | 2 | 6±2 | 10±5 | 8.0±5.7 | - | pCi/l |
| | | Ra-226 | 1 | - | 5±1 | 5 | - | pCi/l |
| | | Th-232 | 1 | - | 5±1 | 5 | - | pCi/l |
| Air Particulates - Weather Station #1 | | | | | | | | |
| (1Z) | 12 | Be-7 | 12 | 57±14 | 140±14 | 85±54 | - | $10^{-3}$ pCi/$m^3$ |
| | | Mn-54 | 1 | - | 1.0±0.7 | 1.0 | - | $10^{-3}$ pCi/$m^3$ |
| | | Zr-95 | 4 | 2±1 | 7±1 | 3.8±4.4 | - | $10^{-3}$ pCi/$m^3$ |
| | | Nb-95 | 6 | 3.0±0.8 | 8±1 | 4.9±4.2 | - | $10^{-3}$ pCi/$m^3$ |
| | | Ru-103 | 2 | 8±1 | 30±3 | 19±31 | - | $10^{-3}$ pCi/$m^3$ |
| | | Ru-106 | 6 | 9±5 | 31±13 | 20±17 | - | $10^{-3}$ pCi/$m^3$ |
| | | Sb-125 | 4 | 1±1 | 8±4 | 4.0±5.9 | - | $10^{-3}$ pCi/$m^3$ |
| | | I-131 | 2 | 1±1 | 24±2 | 13±33 | - | $10^{-3}$ pCi/$m^3$ |
| | | Te-132 | 1 | - | 4.8±0.6 | 4.8 | - | $10^{-3}$ pCi/$m^3$ |
| | | Cs-137 | 12 | 1±1 | 8±2 | 3.1±4.3 | - | $10^{-3}$ pCi/$m^3$ |
| | | BaLa-140 | 2 | 4±1 | 33±3 | 19±41 | - | $10^{-3}$ pCi/$m^3$ |
| | | Ce-141 | 3 | 0.9±0.7 | 21±2 | 9±21 | - | $10^{-3}$ pCi/$m^3$ |
| | | Ce-144 | 10 | 4±4 | 83±8 | 33±49 | - | $10^{-3}$ pCi/$m^3$ |
| Milk - Near Farm | | | | | | | | |
| (J) | | K-40 | 4 | 970±97 | 1800±180 | 1300±700 | - | pCi/l |
| | | Cs-137 | 4 | 3.0±1.1 | 8±1 | 4.8±4.7 | - | pCi/l |
| Soil - On-site Location | | | | | | | | |
| (2) | | | | | | | | |
| (Top 1") | 2 | Be-7 | 1 | - | 0.5±0.3 | 0.5 | - | pCi/g(dry) |
| | | K-40 | 2 | 5.8±0.6 | 19±2 | 12±19 | 19±7 | pCi/g(dry) |
| | | Mn-54 | 2 | 0.02±0.01 | 0.03±0.02 | 0.03±0.02 | - | pCi/g(dry) |

TABLE V (cont.)

SUMMARY OF GAMMA SPECTROMETRY

| SAMPLE TYPE | # OF SAMPLES ANALYZED | NUCLIDES FOUND | # OF SAMPLES WITH NUCLIDE DETECTED | PERIOD* MINIMUM | PERIOD* MAXIMUM | PERIOD** MEAN | PRE-OP*** MEAN | UNITS |
|---|---|---|---|---|---|---|---|---|
| Soil - On-site Location (cont.) | | | | | | | | |
| (2) | | | | | | | | |
| | | Zr-95 | 1 | - | 0.12±0.04 | 0.12 | - | pCi/g(dry) |
| | | Nb-95 | 1 | - | 0.16±0.03 | 0.16 | - | pCi/g(dry) |
| | | Ru-103 | 1 | - | 0.16±0.03 | 0.16 | - | pCi/g(dry) |
| | | Ru-106 | 1 | - | 0.5±0.2 | 0.5 | - | pCi/g(dry) |
| | | Sb-125 | 2 | 0.10±0.07 | 0.20±0.05 | 0.15±0.14 | 0.4±0.1 | pCi/g(dry) |
| | | Cs-137 | 2 | 2.3±0.2 | 4.6±0.5 | 3.5±3.3 | 2.3±5.6 | pCi/g(dry) |
| | | Ce-141 | 1 | - | 0.12±0.03 | 0.12 | - | pCi/g(dry) |
| | | Ce-144 | 2 | 0.20±0.08 | 0.7±0.1 | 0.45±0.71 | - | pCi/g(dry) |
| | | Ra-226 | 2 | 0.57±0.06 | 1.1±0.1 | 0.84±0.75 | 1.0±0.2 | pCi/g(dry) |
| | | Th-232 | 2 | 0.54±0.08 | 1.3±0.1 | 0.92±1.07 | 1.2±0.4 | pCi/g(dry) |
| (Bottom) | 2 | K-40 | 2 | 12±1 | 22±2 | 17±14 | 23±5 | pCi/g(dry) |
| | | Zr-95 | 1 | - | 0.05±0.04 | 0.05 | - | pCi/g(dry) |
| | | Ru-103 | 1 | - | 0.05±0.02 | 0.05 | - | pCi/g(dry) |
| | | Cs-137 | 2 | 0.64±0.06 | 1.0±0.1 | 0.82±0.51 | 1.1±3.5 | pCi/g(dry) |
| | | Ce-144 | 1 | - | 0.1±0.1 | 0.1 | - | pCi/g(dry) |
| | | Ra-226 | 2 | 1.1±0.1 | 1.2±0.1 | 1.2±0.1 | 1.4±0.5 | pCi/g(dry) |
| | | Th-232 | 2 | 1.0±0.1 | 1.5±0.1 | 1.3±0.7 | 1.6±1.5 | pCi/g(dry) |
| Soil - Distant Location (3A & 5) | | | | | | | | |
| (Top 1") | 4 | K-40 | 4 | 16±2 | 26±3 | 21±8 | 21±4 | pCi/g(dry) |
| | | Zr-95 | 2 | 0.03±0.03 | 0.05±0.04 | 0.040±0.028 | - | pCi/g(dry) |
| | | Cs-137 | 4 | 1.0±0.1 | 1.4±0.1 | 1.2±0.4 | 0.6±0.8 | pCi/g(dry) |
| | | Ce-141 | 1 | - | 0.03±0.02 | 0.03 | - | pCi/g(dry) |
| | | Ce-144 | 3 | 0.17±0.08 | 0.24±0.09 | 0.20±0.07 | - | pCi/g(dry) |
| | | Ra-226 | 4 | 1.1±0.1 | 1.2±0.1 | 1.2±0.1 | 0.8±0.9 | pCi/g(dry) |
| | | Th-232 | 4 | 1.2±0.1 | 1.5±0.1 | 1.4±0.3 | 1.0±1.2 | pCi/g(dry) |
| (Bottom) | 4 | K-40 | 4 | 19±2 | 26±3 | 22±7 | 21±26 | pCi/g(dry) |
| | | Cs-137 | 4 | 0.35±0.04 | 1.1±0.1 | 0.66±0.63 | 0.2±0.2 | pCi/g(dry) |
| | | Ra-226 | 4 | 1.0±0.1 | 1.3±0.1 | 1.2±0.3 | 0.9±1.0 | pCi/g(dry) |
| | | Th-232 | 4 | 1.2±0.2 | 1.6±0.2 | 1.4±0.3 | 0.9±1.1 | pCi/g(dry) |

2339 240

* All results above the MDL are quoted with a two sigma counting error.
** MDL values are not included. Period mean was calculated using only positive values for the nuclides listed.
*** Pre-op mean was calculated using only positive pre-operational values and not MDLs for the nuclides listed.

TABLE VI
SUMMARY OF AMBIENT DOSIMETRY PROGRAM
STANDARD MONTHLY EQUIVALENT AVERAGE DOSE

| SAMPLE TYPE | LOCATION | NO. OF SAMPLES ANALYZED | PERIOD MINIMUM | PERIOD MAXIMUM | PERIOD MEAN ± 2 SIGMA | PRE-OP(1) MEAN ± 2 SIGMA | UNITS |
|---|---|---|---|---|---|---|---|
| MONTHLY | SITE | 519 | 3.49 ± 0.25 | 9.54 ± 0.64 | 6.56 ± 2.49 | 5.05 ± 2.05 | MRAD/STD. MONTH |
| | MIDDLE RING | 707 | 3.96 ± 0.31 | 9.05 ± 0.73 | 6.72 ± 2.24 | 5.70 ± 1.87 | MRAD/STD. MONTH |
| | OUTER RING | 320 | 4.09 ± 0.89 | 9.29 ± 0.42 | 6.81 ± 2.27 | 5.89 ± 1.37 | MRAD/STD. MONTH |
| QUARTERLY | SITE | 168 | 3.32 ± 0.41 | 8.27 ± 0.21 | 5.99 ± 2.40 | 5.14 ± 1.60 | MRAD/STD. MONTH |
| | MIDDLE RING | 228 | 3.97 ± 0.43 | 8.04 ± 0.48 | 6.25 ± 2.06 | 5.07 ± 1.25 | MRAD/STD. MONTH |
| | OUTER RING | 100 | 4.63 ± 0.34 | 8.08 ± 0.36 | 6.37 ± 2.00 | 5.44 ± 1.70 | MRAD/STD. MONTH |

(1) THE PRE-OPTIONAL MEAN WAS CALCULATED FROM TLD READINGS 1-07-73 TO 8-05-73. STATIONS 1M, 31 AND 32 WERE ADDED TO THE PROGRAM 7-06-73 AND STATIONS 33A, 38 WERE NOT IN THE PRE-OPERATIONAL PROGRAM.

SITE BOUNDARY RING STATIONS- 1B, 1C, 1D, 1E, 1F, 1G, 1H, 1J, 1L, 1M, 2

MIDDLE RING STATIONS - 3A, 4K, 5, 6B, 14, 15, 17, 22, 23, 26, 27, 31, 32, 33A, 38

OUTER RING STATIONS - 12B, 16, 18, 19, 20, 21B, 24

TABLE VII
ANALYTICAL DATA FOR SURFACE WATER GRAB SAMPLES
CONCENTRATION (PC/L)

| STATION CODE | COLLECTION DATE | G. ALPHA SOLUBLE | G. ALPHA INSOLUBLE | G. BETA SOLUBLE | G. BETA INSOLUBLE | A. H3 TOTAL |
|---|---|---|---|---|---|---|
| 1Q | 78 01/07 | | | 1.9 ± .4 | < .3 | 80 ± 60 |
| | 02/04 | | | 1.8 ± .4 | 2.5 ± .4 | < 80 |
| | 03/05 | | | 2.0 ± .4 | .3 ± .3 | 130 ± 80 |
| | 04/01 | | | 1.8 ± .4 | 1.4 ± .4 | < 80 |
| | 05/06 | | | 1.8 ± .4 | 1.2 ± .3 | < 80 |
| | 06/03 | | | < .3 | .3 ± .3 | < 80 |
| | 07/02 | | | 2.5 ± .4 | .5 ± .3 | 150 ± 80 |
| | 08/05 | | | 2.5 ± .5 | 2 ± 1 | 80 ± 60 |
| | 09/03 | | | 1.8 ± .5 | < .3 | 80 ± 70 |
| | 10/01 | | | 2.6 ± .4 | .3 ± .3 | 130 ± 70 |
| | 11/05 | | | .4 ± .4 | 5.4 ± .6 | 200 ± 70 |
| | 12/02 | | | 3.1 ± .5 | .7 ± .3 | 140 ± 70 |
| 4F | 78 01/07 | < .5 | < .4 | 2.4 ± .4 | 1.5 ± .4 | |
| | 02/04 | < .6 | < .5 | 2.3 ± .4 | 6.9 ± .6 | |
| | 03/05 | < 2 | 7 ± 2 | 1.6 ± .4 | 12.8 ± .8 | 350 ± 80 |
| | 04/01 | < .3 | .8 ± .4 | 2.6 ± .5 | 3.4 ± .5 | |
| | 05/06 | < .4 | 5 ± 2 | 1.7 ± .4 | 10.2 ± .7 | |
| | 06/03 | < .5 | < .2 | 1.3 ± .4 | 2.9 ± .4 | < 70 |
| | 07/02 | < .4 | < .2 | 2.1 ± .4 | .7 ± .3 | |
| | 08/05 | < .5 | < 5 | 2.4 ± .4 | 25 ± 2 | |
| | 09/03 | < .4 | .8 ± .5 | 2.3 ± .5 | 2.2 ± .4 | 70 ± 70 |
| | 10/01 | 3 ± 1 | < .5 | 2.5 ± .4 | 4.2 ± .6 | |
| | 11/05 | 3 ± 1 | < .2 | 4.3 ± .5 | 2.3 ± .5 | |
| | 12/02 | < .6 | 1.2 ± .5 | 2.7 ± .5 | 3.0 ± .5 | 120 ± 70 |
| 4G | 78 01/07 | | | 1.8 ± .4 | < .3 | |
| | 02/04 | | | 1.8 ± .4 | 2.0 ± .4 | |
| | 03/05 | | | 1.7 ± .4 | .4 ± .3 | |
| | 04/01 | | | 2.0 ± .4 | 1.6 ± .4 | |
| | 05/06 | | | 2.0 ± .4 | 1.2 ± .3 | |
| | 06/03 | | | 1.4 ± .4 | .3 ± .3 | |
| | 07/02 | | | 2.1 ± .4 | < .3 | |
| | 08/05 | | | 2.7 ± .5 | < 1 | |
| | 09/03 | | | 1.9 ± .5 | < .3 | |
| | 10/01 | | | 4.1 ± .5 | .4 ± .3 | |
| | 11/05 | | | < .3 | 4.8 ± .6 | |
| | 12/02 | | | 2.6 ± .5 | .6 ± .3 | |
| 6A | 78 01/07 | < .09 | .4 ± .3 | 3.0 ± .5 | < .3 | |
| | 02/04 | < .5 | 4 ± 2 | 1.8 ± .4 | 7.5 ± .6 | |
| | 03/05 | < 2 | .2 ± .3 | 1.9 ± .4 | .5 ± .3 | 170 ± 80 |
| | 04/01 | < .3 | < .4 | 2.2 ± .4 | 2.5 ± .5 | |
| | 05/06 | .7 ± .5 | < .2 | 1.8 ± .4 | .7 ± .3 | |
| | 06/03 | < .5 | < .1 | 1.3 ± .4 | .4 ± .3 | 140 ± 70 |
| | 07/02 | < .4 | < .2 | 2.2 ± .4 | < .3 | |
| | 08/05 | < .8 | < 1 | 2.1 ± .4 | 5 ± 2 | |

2339 242

TABLE VII Cont.
ANALYTICAL DATA FOR SURFACE WATER GRAB SAMPLES
CONCENTRATION (PC/L)

| STATION CODE | COLLECTION DATE | G.ALPHA SOLUBLE | G.ALPHA INSOLUBLE | G.BETA SOLUBLE | G.BETA INSOLUBLE | A.H3 TOTAL |
|---|---|---|---|---|---|---|
| 6A | 78 09/03 | 1.4 ± .8 | < .2 | 2.8 ± .5 | .4 ± .3 | < 70 |
| | 10/01 | < .3 | < .2 | 3.4 ± .5 | < .3 | |
| | 11/05 | < .7 | < .1 | .8 ± .4 | 1.8 ± .4 | |
| | 12/02 | < .6 | < .1 | 2.4 ± .5 | .3 ± .3 | 80 ± 70 |
| 13A | 78 01/07 | | | 2.5 ± .4 | < .3 | |
| | 02/05 | | | 1.5 ± .4 | .5 ± .3 | |
| | 03/05 | | | 1.5 ± .4 | .3 ± .3 | 140 ± 80 |
| | 04/01 | | | 2.2 ± .4 | 17.9 ± .9 | |
| | 05/06 | | | 1.9 ± .4 | .9 ± .3 | |
| | 06/03 | | | 1.1 ± .4 | 1.1 ± .4 | 110 ± 70 |
| | 07/02 | | | 2.5 ± .4 | .6 ± .3 | |
| | 08/05 | | | 2.7 ± .5 | 2 ± 1 | |
| | 09/03 | | | 2.5 ± .5 | 1.8 ± .4 | 310 ± 80 |
| | 10/01 | | | 2.5 ± .4 | .8 ± .3 | |
| | 11/05 | | | .4 ± .4 | 2.2 ± .5 | |
| | 12/02 | | | 3.5 ± .5 | .3 ± .3 | 130 ± 70 |
| 13B | 78 05/13 | | | 1.5 ± .4 | 2.7 ± .4 | < 60 |

TABLE VIII
ANALYTICAL DATA FOR SURFACE WATER COMPOSITE SAMPLES
CONCENTRATION (PC/L)

| STATION CODE | | COLLECTION PERIOD | G. ALPHA SOLUBLE | G. ALPHA INSOLUBLE | G. BETA SOLUBLE | G. BETA INSOLUBLE | A. H3 TOTAL |
|---|---|---|---|---|---|---|---|
| 1LL | 78 | 01/16-02/03 | | | 1.7 ± .4 | 4.2 ± .5 | 150 ± 80 |
| | | 02/03-02/13 | | | (1) | (1) | (1) |
| | | 02/13-03/03 | | | 1.3 ± .4 | .5 ± .3 | 120 ± 80 |
| | | 03/03-03/31 | | | 2.5 ± .5 | 3.1 ± .5 | < 80 |
| | | 03/31-05/05 | | | 1.5 ± .4 | 1.7 ± .4 | < 80 |
| | | 05/05-06/02 | | | 1.7 ± .4 | 1.2 ± .4 | < 80 |
| | | 06/02-06/30 | | | 2.2 ± .4 | .6 ± .3 | 240 ± 80 |
| | | 06/30-08/04 | | | 2.4 ± .5 | < 1 | 90 ± 60 |
| | | 08/04-09/01 | | | 2.1 ± .5 | .5 ± .3 | < 70 |
| | | 09/01-09/29 | | | 2.6 ± .4 | .8 ± .3 | 110 ± 70 |
| | | 09/29-11/03 | | | < .4 | 2.4 ± .5 | 100 ± 70 |
| | | 11/03-12/01 | | | 2.2 ± .5 | .5 ± .3 | 90 ± 70 |
| | | 12/01-01/05 | | | 2.1 ± .5 | < .4 | 140 ± 70 |
| 4L | 78 | 01/07-02/04 | < .5 | 1.6 ± .8 | 2.0 ± .4 | 4.6 ± .5 | < 80 |
| | | 02/04-03/05 | < 1 | .4 ± .3 | 1.3 ± .4 | 1.5 ± .4 | 150 ± 80 |
| | | 03/05-04/01 | < .4 | .6 ± .4 | 2.4 ± .5 | 1.9 ± .4 | 170 ± 80 |
| | | 04/01-05/06 | < .4 | .8 ± .6 | 2.0 ± .4 | 3.6 ± .5 | < 80 |
| | | 05/06-06/03 | < .5 | .2 ± .2 | 1.2 ± .4 | 1.2 ± .4 | < 80 |
| | | 06/03-08/24 | (2) | (2) | (2) | (2) | (2) |
| | | 08/24-09/03 | < .4 | < .2 | 1.9 ± .5 | .4 ± .3 | < 70 |
| | | 09/03-10/01 | < .4 | < .2 | 2.8 ± .4 | .4 ± .3 | 140 ± 70 |
| | | 10/01-11/05 | < .7 | < .1 | .7 ± .4 | 1.7 ± .4 | 130 ± 70 |
| | | 11/05-12/02 | < .7 | < .2 | 2.4 ± .5 | .8 ± .3 | 100 ± 70 |
| | | 12/02-01/06 | < .5 | < .2 | 1.8 ± .4 | < .4 | 160 ± 70 |
| 6I | 78 | 01/07-01/22 | < .5 | < .1 | 1.5 ± .4 | < .3 | 180 ± 80 |
| | | 01/22-03/11 | (3) | (3) | (3) | (3) | (3) |
| | | 03/11-04/01 | < .4 | < .2 | 2.6 ± .5 | < .3 | 110 ± 80 |
| | | 04/01-05/06 | .5 ± .4 | < .2 | 1.8 ± .4 | .7 ± .3 | < 80 |
| | | 05/06-06/03 | < .6 | < .1 | 1.4 ± .4 | 1.9 ± .4 | < 80 |
| | | 06/03-06/10 | (4) | (4) | (4) | (4) | (4) |
| | | 06/10-07/02 | < .5 | < .2 | 2.2 ± .4 | < .3 | 200 ± 80 |
| | | 07/02-08/05 | < .7 | < 1 | 2.2 ± .4 | 1 ± 1 | 80 ± 60 |
| | | 08/05-09/03 | .7 ± .6 | < .2 | 2.5 ± .5 | .5 ± .3 | 70 ± 70 |
| | | 09/03-10/01 | 1.1 ± .7 | < .2 | 2.7 ± .4 | < .3 | 90 ± 70 |
| | | 10/01-11/05 | < .6 | < .1 | < .3 | 2.3 ± .5 | 120 ± 70 |
| | | 11/05-12/02 | < .7 | < .1 | 2.7 ± .5 | < .3 | 110 ± 70 |
| | | 12/02-01/06 | < .4 | < .3 | 1.7 ± .4 | .5 ± .4 | 110 ± 70 |

(1) No sample collected from 2/3-2/13 due to a sampler malfunction.
(2) No sample collected from 6/3-8/24 due to a sampler malfunction.
(3) No sample collected from 1/22-3/11 due to a sampler malfunction.
(4) No sample collected from 6/3-6/10 due to a sampler malfunction.

TABLE IX

1978 ANNUAL MEAN RADIOACTIVITY CONCENTRATION IN SURFACE WATER

RESULTS IN UNITS OF pCi/l ± 2 S? MA

| Env. Station No. | Aqueous Tritium Total Sample | Gross Alpha Soluble | Gross Alpha Insoluble | Gross Beta Soluble | Gross Beta Insoluble |
|---|---|---|---|---|---|
| GRAB SAMPLES | | | | | |
| 1Q | 110±80 | - | - | 1.9±1.7 | 1.3±3.0 |
| 4F | - | 1.0±2.1 | 1.8±4.8 | 2.4±1.5 | 6.3±13.9 |
| 4G | - | - | - | 2.0±1.8 | 1.1±2.6 |
| 6A | - | 0.69±1.06 | 0.59±2.20 | 2.1±1.4 | 1.7±4.6 |
| 13A | - | - | - | 2.1±1.7 | 2.4±9.9 |
| 13B | <60 | - | - | 1.5 | 2.7 |
| COMPOSITE SAMPLES | | | | | |
| 1LL | 110±90 | - | - | 1.9±1.2 | 1.4±2.4 |
| 4L | 120±80 | <0.55 | 0.45±0.92 | 1.9±1.3 | 1.7±2.8 |
| 6I | 110±80 | 0.61±0.39 | <0.25 | 2.0±1.5 | 0.76±1.40 |
| QUARTERLY COMPOSITE | | | | | |
| 4F | 150±270 | | | | |
| 6A | 120±100 | | | | |
| 13A | 170±190 | | | | |

TABLE X

CONCENTRATIONS OF GAMMA EMITTERS* IN SURFACE WATER

Results in Units of pCi/l ± 2 sigma

GRAB SAMPLES

| Env. Station No. | RMC Designation | Sampling Dates 1-07-78 | 2-04-78 | 3-05-78 | 4-01-78 | 5-06-78 | 6-03-78 | 7-02-78 | 8-05-78 | 9-03-78 | 10-01-78 | 11-05-78 | 12-02-78 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1Q | PB-SWA-6S3 | All<MDL | All<MDL | All<MDL | Co-60(1.3±0.7) Others <MDL | All<MDL | All<MDL | All<MDL | All<MDL | All<MDL | All<MDL | All<MDL | All<MDL |
| 4F | PB-SWA-14F2 | All<MDL | All<MDL | All<MDL | All<MDL | All<MDL | All<MDL | All<MDL | All<MDL | All<MDL | All<MDL | All<MDL | All<MDL |
| 4G | PB-SWA-14F3 | All<MDL | All<MDL | All<MDL | All<MDL | All<MDL | All<MDL | All<MDL | All<MDL | All<MDL | All<MDL | All<MDL | All<MDL |
| 6A | PB-SWA-33F1 | All<MDL | All<MDL | All<MDL | All<MDL | All<MDL | All<MDL | All<MDL | All<MDL | All<MDL | All<MDL | All<MDL | All<MDL |
| 13A | PB-SWA-11C1 | All<MDL | All<MDL(1) | All<MDL | All<MDL | All<MDL | All<MDL | All<MDL | All<MDL | All<MDL | All<MDL | All<MDL | All<MDL |
| 13B | PB-SWA-11C2 | | | | | | All<MDL(2) | | | | | | |

COMPOSITE SAMPLES

| Env. Station No. | RMC Designation | Sampling Period 1-07-78 to 2-04-78 | 2-04-78 to 3-05-78 | 3-05-78 to 4-01-78 | 4-01-78 to 5-06-78 | 5-06-78 to 6-03-78 | 6-03-78 to 7-02-78 | 7-02-78 to 8-05-78 | 8-05-78 to 9-03-78 | 9-03-78 to 10-01-78 | 10-01-78 to 11-05-78 | 11-05-78 to 12-02-78 | 12-02-78 to 1-06-79 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1LL(3) | PB-SWA-6S4 | All<MDL | All<MDL | All<MDL | All<MDL | All<MDL | All<MDL | All<MDL | All<MDL | All<MDL | All<MDL | All<MDL | All<MDL |
| 4L | PB-SWA-14F5 | All<MDL | All<MDL | All<MDL | All<MDL | All<MDL | (4) | (4) | All<MDL(4) | All<MDL | All<MDL | All<MDL | All<MDL |
| 6I | PB-SWA-33F4 | All<MDL(5) | (5) | All<MDL | All<MDL | All<MDL | (6) | All<MDL | All<MDL | All<MDL | All<MDL | All<MDL | All<MDL |

* For typical minimum detectable levels of nuclides searched for and not found, see table XLI.

(1) Sampling date for station 13A was 2-05-78.

(2) Sampling date for station 13B was 5-13-78.

(3) Sampling dates for station 1LL were 1/16-2/3, 2/13-3/3, 3/3-3/31, 3/31-5/5, 5/5-6/2, 6/2-6/30, 6/30-8/4, 8/4-9/1, 9/1-9/29, 9/29-11/3, 11/3-12/1, 12/1-1/5.

(4) No sample sent due to sampler malfunction from 6/3-8/24.

(5) Sampling dates for station 6I were 1/7-1/22 and 3/11-4/1 due to a sampler malfunction from 1/22-3/11.

(6) Insufficient sample size due to sampler malfunction from 6/3-6/10 and 6/17-6/24.

TABLE XI
ANALYTICAL DATA FOR DISCHARGE WATER GRAB SAMPLES
CONCENTRATION (PC/L)

| STATION CODE | COLLECTION DATE | G. BETA SOLUBLE | G. BETA INSOLUBLE | A. H3 TOTAL |
|---|---|---|---|---|
| 1M | 78 01/07 | 1.8 ± .4 | < .3 | < 60 |
| | 02/04 | 2.0 ± .4 | 3.0 ± .5 | < 80 |
| | 03/05 | 1.9 ± .4 | .4 ± .3 | 200 ± 80 |
| | 04/01 | 2.2 ± .4 | 2.2 ± .5 | < 80 |
| | 05/06 | 1.3 ± .4 | .6 ± .3 | < 80 |
| | 06/03 | 1.8 ± .4 | 1.1 ± .4 | < 80 |
| | 07/02 | 2.6 ± .4 | 1.0 ± .4 | 380 ± 80 |
| | 08/05 | 2.5 ± .5 | 3 ± 1 | 130 ± 50 |
| | 09/03 | 2.2 ± .5 | < .3 | 190 ± 70 |
| | 10/01 | 2.6 ± .4 | 1.1 ± .3 | 110 ± 70 |
| | 11/05 | .7 ± .4 | 2.3 ± .5 | 310 ± 70 |
| | 12/02 | 2.2 ± .5 | 1.1 ± .4 | 130 ± 70 |
| 1I | 78 01/07 | 2.2 ± .4 | < .3 | |
| | 02/04 | 2.3 ± .4 | 3.1 ± .5 | |
| | 03/05 | 1.7 ± .4 | < .3 | |
| | 04/01 | 2.1 ± .4 | 3.5 ± .5 | |
| | 05/06 | 1.3 ± .4 | .7 ± .3 | |
| | 06/03 | 1.9 ± .4 | .6 ± .3 | |
| | 07/02 | 2.0 ± .4 | .9 ± .3 | |
| | 08/05 | 2.2 ± .4 | 4 ± 2 | |
| | 09/03 | 1.8 ± .5 | .5 ± .4 | |
| | 10/01 | 2.3 ± .4 | .8 ± .3 | |
| | 11/05 | .6 ± .4 | 2.6 ± .5 | |
| | 12/02 | 1.7 ± .4 | 4.0 ± .5 | |

TABLE XII
ANALYTICAL DATA FOR DISCHARGE WATER COMPOSITE SAMPLES
CONCENTRATION (PC/L)

| STATION CODE | COLLECTION PERIOD | G. BETA SOLUBLE | G. BETA INSOLUBLE | A. H3 TOTAL |
|---|---|---|---|---|
| 1MM | 78 01/01-02/03 | 1.6 ± .4 | 10.6 ± .7 | 170 ± 80 |
| | 02/03-02/24 | 1.6 ± .4 | .5 ± .3 | 240 ± 80 |
| | 02/24-03/10 | (1) | (1) | (1) |
| | 03/10-03/31 | 2.6 ± .5 | 1.9 ± .4 | 240 ± 80 |
| | 03/31-05/05 | 1.0 ± .4 | 3.6 ± .5 | < 80 |
| | 05/05-06/02 | 1.4 ± .4 | 2.1 ± .4 | < 80 |
| | 06/02-06/30 | 1.7 ± .4 | 1.3 ± .4 | 510 ± 80 |
| | 06/30-08/04 | 2.5 ± .5 | < 1 | 100 ± 50 |
| | 08/04-09/01 | 1.9 ± .5 | 1.7 ± .4 | < 70 |
| | 09/01-09/15 | 2.7 ± .4 | .9 ± .3 | 190 ± 70 |
| | 09/15-09/29 | (2) | (2) | (2) |
| | 09/29-11/03 | 1.3 ± .4 | 2.7 ± .5 | 160 ± 70 |
| | 11/03-11/09 | 2.2 ± .5 | .4 ± .3 | 300 ± 70 |
| | 11/09-12/12 | (3) | (3) | (3) |
| | 12/12-01/05 | 1.6 ± .4 | < .4 | < 70 |

(1) No sample collected from 2/24-3/10 due to a sampler malfunction.
(2) No sample collected from 9/15-9/29 due to a sampler malfunction.
(3) No sample collected from 11/9-12/12 due to a sampler malfunction.

TABLE XIII

1978 ANNUAL MEAN RADIOACTIVITY CONCENTRATION IN DISCHARGE WATER

RESULTS IN UNITS OF pCi/l ± 2 SIGMA

| Env. Station No. | Aqueous Tritium | Gross Beta | |
|---|---|---|---|
| | Total Sample | Soluble | Insoluble |
| GRAB SAMPLES | | | |
| 1M | 150±200 | 2.0±1.1 | 1.4±2.0 |
| 1T | - | 1.8±1.0 | 1.8±3.0 |
| COMPOSITE SAMPLE | | | |
| 1MM | 180±260 | 1.8±1.1 | 2.3±5.6 |

TABLE XIV

CONCENTRATIONS OF GAMMA EMITTERS* IN DISCHARGE WATER

Results in Units of pCi/l ± 2 sigma

GRAB SAMPLES

| Env. Station No. | RMC Designation | Sampling Dates 1-07-78 | 2-04-78 | 3-05-78 | 4-01-78 | 5-06-78 | 6-03-78 | 7-02-78 | 8-05-78 | 9-03-78 | 10-01-78 | 11-05-78 | 12-02-78 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1M | PB-DWA-13S2 | All<MDL | All<MDL | All<MDL | All<MDL | All<MDL | All<MDL | All<MDL | All<MDL | All<MDL | All<MDL | All<MDL | All<MDL |
| 1T | PB-DWA-13S3 | All<MDL | All<MDL | All<MDL | All<MDL | All<MDL | All<MDL | All<MDL | All<MDL | All<MDL | All<MDL | All<MDL | All<MDL |

COMPOSITE SAMPLES

| Env. Station No. | RMC Designation | Sampling Period 1-01-78 to 2-03-78 | 2-03-78 to 2-24-78 | 3-10-78 to 3-31-78 | 3-31-78 to 5-05-78 | 5-05-78 to 6-02-78 | 6-02-78 to 6-30-78 | 6-30-78 to 8-04-78 | 8-04-78 to 9-01-78 | 9-01-78 to 9-15-78 | 9-29-78 to 11-03-78 | 11-03-78 to 11-09-78 | 12-12-78 to 1-05-78 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1MM | PB-DWA-10S2 | All<MDL | All<MDL(1) | All<MDL | All<MDL | All<MDL | Mn-54 (0.7±0.6)(2) Others <MDL | All<MDL | All<MDL | All<MDL(3) | All<MDL | All<MDL(4) | All<MDL |

* For typical minimum detectable levels of nuclides searched for and not found, see table XLI.
(1) No sample from 02/24 to 03/10 due to sampler malfunction.
(2) Sampler was out of service from 06/27 to 06/28.
(3) No sample from 09/15 to 09/29 due to sampler malfunction.
(4) No sample from 11/09 to 12/12 due to sampler malfunction.

TABLE XV
ANALYTICAL DATA FOR WELL WATER SAMPLES
CONCENTRATION (PC/L)

| STATION CODE | COLLECTION DATE | G.BETA SOLUBLE | G.BETA INSOLUBLE | A.H3 |
|---|---|---|---|---|
| 10 | 78 01/07 | .6 ± .3 | .8 ± .3 | |
| | 02/04 | .6 ± .3 | .4 ± .3 | |
| | 03/05 | < .3 | .5 ± .3 | 240 ± 80 |
| | 04/01 | < .3 | < .3 | |
| | 05/06 | < .3 | .5 ± .3 | |
| | 06/03 | 1.6 ± .4 | .8 ± .3 | 90 ± 70 |
| | 07/02 | < .3 | < .3 | |
| | 08/05 | < .3 | 3 ± 1 | |
| | 09/03 | < .4 | 1.3 ± .4 | < 70 |
| | 10/01 | < .3 | .9 ± .3 | |
| | 11/05 | .8 ± .4 | < .3 | |
| | 12/02 | < .4 | 1.0 ± .4 | 100 ± 70 |
| 1V | 78 01/07 | .6 ± .3 | < .3 | |
| | 02/04 | .7 ± .3 | < .3 | |
| | 03/05 | < .3 | .3 ± .3 | 210 ± 80 |
| | 04/01 | .4 ± .3 | < .3 | |
| | 05/06 | .8 ± .4 | .9 ± .4 | |
| | 06/03 | < .3 | .4 ± .3 | 110 ± 70 |
| | 07/02 | < .3 | .3 ± .3 | |
| | 08/05 | < .3 | 2 ± 1 | |
| | 09/03 | < .4 | .6 ± .4 | < 70 |
| | 10/01 | < .3 | < .3 | |
| | 11/05 | < .4 | < .3 | |
| | 12/02 | < .4 | .3 ± .3 | 110 ± 70 |
| 7 | 78 01/07 | 2.2 ± .4 | < .3 | < 60 |
| | 04/01 | 1.4 ± .4 | < .3 | < 80 |
| | 07/03 | 2.1 ± .4 | < .3 | < 80 |
| | 10/01 | 1.4 ± .4 | < .3 | < 60 |
| 40 | 78 01/07 | .3 ± .3 | .8 ± .3 | 70 ± 60 |
| | 04/01 | .8 ± .4 | .5 ± .3 | 140 ± 80 |
| | 07/02 | .5 ± .3 | .3 ± .3 | 450 ± 80 |
| | 10/01 | .8 ± .3 | 1.3 ± .3 | 190 ± 70 |

TABLE XVI

1978 MEAN CONCENTRATION OF AQUEOUS TRITIUM IN WELL WATER BY QUARTER

RESULTS IN UNITS OF pCi/l ± 2 SIGMA

| Env. Station No. | Collection Period 1/7-3/5 | 4/1-6/3 | 7/2-9/3 | 10/1-12/2 |
|---|---|---|---|---|
| ON-SITE WELLS | | | | |
| 1U & 1V | 230±40 | 100±30 | <70 | 110±10 |

TABLE XVII

1978 ANNUAL MEAN RADIOACTIVITY CONCENTRATION IN WELL WATER

RESULTS IN UNITS OF pCi/l ± 2 SIGMA

| Env. Station No. | Aqueous Tritium | Gross Beta | |
|---|---|---|---|
| | Total Sample | Soluble | Insoluble |
| ON-SITE WELLS | | | |
| 1U | 130±160 | 0.52±0.76 | 0.84±1.50 |
| 1V | 130±120 | 0.43±0.34 | 0.53±1.00 |
| SITE AREA WELLS | | | |
| 40 | 210±330 | 0.75±0.35 | 0.73±0.87 |
| DISTANT WELLS | | | |
| 7 | <73 | 1.8±0.9 | <0.3 |

TABLE XVIII
ANALYTICAL DATA FOR PRECIPITATION SAMPLES
CONCENTRATION (PC/L)

| STATION CODE | COLLECTION PERIOD | VOLUME (ML) | G.BETA | | A.H3 | |
|---|---|---|---|---|---|---|
| 1A | 78 01/07-02/04 | 3790 | 23 | ± 2 | | |
| | 02/04-03/05 | 240 | 132 | ± 5 | | |
| | 01/07-04/01 | 7810 | | | < | 80 |
| | 03/05-04/01 | 4020 | 325 | ± 8 | | |
| | 04/01-05/06 | 1150 | 92 | ± 4 | | |
| | 05/06-06/03 | 3840 | 58 | ± 3 | | |
| | 04/01-07/02 | 7870 | | | 120 | ± 80 |
| | 06/03-07/02 | 2880 | 33 | ± 2 | | |
| | 07/02-08/05 | 3900 | 28 | ± 2 | | |
| | 08/05-09/03 | 2150 | 7 | ± 2 | | |
| | 07/02-10/01 | 7250 | | | 100 | ± 70 |
| | 09/03-10/01 | 1200 | 10 | ± 2 | | |
| | 10/01-11/05 | 930 | 8 | ± 2 | | |
| | 11/05-12/02 | 1880 | 8 | ± 2 | | |
| | 10/01-01/06 | 7860 | | | 100 | ± 70 |
| | 12/02-01/05 | 5050 | 4 | ± 1 | | |
| 8 | 78 01/07-02/05 | 4330 | 16 | ± 2 | | |
| | 02/05-03/05 | 160 | 54 | ± 5 | | |
| | 01/07-04/01 | 3600 | | | < | 80 |
| | 03/05-04/01 | 3600 | 307 | ± 7 | | |
| | 04/01-05/06 | 1250 | 93 | ± 4 | | |
| | 05/06-06/03 | 2690 | 59 | ± 3 | | |
| | 04/01-07/02 | 5970 | | | < | 80 |
| | 06/03-07/02 | 2030 | 37 | ± 3 | | |
| | 07/02-08/05 | 3260 | 23 | ± 2 | | |
| | 08/05-09/03 | 3050 | 10 | ± 2 | | |
| | 07/02-10/01 | 6990 | | | 90 | ± 70 |
| | 09/03-10/01 | 680 | 16 | ± 2 | | |
| | 10/01-11/05 | 1140 | 8 | ± 2 | | |
| | 11/05-12/02 | 1785 | 9 | ± 2 | | |
| | 10/01-01/06 | 7475 | | | < | 70 |
| | 12/02-01/05 | 4550 | 4 | ± 1 | | |

TABLE XVIII Cont.
ANALYTICAL DATA FOR PRECIPITATION SAMPLES
CONCENTRATION (PC/SQ. M)

| STATION CODE | | COLLECTION PERIOD | VOLUME (ML) | G.BETA | |
|---|---|---|---|---|---|
| 1A | 78 | 01/07-02/04 | 3790 | 2700 | ± 300 |
| | | 02/04-03/05 | 240 | 980 | ± 40 |
| | | 03/05-04/01 | 4020 | 40300 | ± 900 |
| | | 04/01-05/06 | 1150 | 3300 | ± 100 |
| | | 05/06-06/03 | 3840 | 6900 | ± 400 |
| | | 06/03-07/02 | 2380 | 2900 | ± 200 |
| | | 07/02-08/05 | 3900 | 3400 | ± 300 |
| | | 08/05-09/03 | 2150 | 500 | ± 100 |
| | | 09/03-10/01 | 1200 | 380 | ± 60 |
| | | 10/01-11/05 | 930 | 240 | ± 50 |
| | | 11/05-12/02 | 1880 | 500 | ± 100 |
| | | 12/02-01/06 | 5050 | 700 | ± 200 |
| 8 | 78 | 01/07-02/05 | 4330 | 2100 | ± 300 |
| | | 02/05-03/05 | 160 | 270 | ± 20 |
| | | 03/05-04/01 | 3600 | 34100 | ± 800 |
| | | 04/01-05/06 | 1250 | 3580 | ± 155 |
| | | 05/06-06/03 | 2690 | 4900 | ± 300 |
| | | 06/03-07/02 | 2030 | 2300 | ± 200 |
| | | 07/02-08/05 | 3260 | 2300 | ± 200 |
| | | 08/05-09/03 | 3050 | 900 | ± 200 |
| | | 09/03-10/01 | 680 | 340 | ± 40 |
| | | 10/01-11/05 | 1140 | 270 | ± 60 |
| | | 11/05-12/02 | 1785 | 500 | ± 100 |
| | | 12/02-01/06 | 4550 | 600 | ± 200 |

CONCENTRATION (NC/SQ. M)

| STATION CODE | | COLLECTION PERIOD | VOLUME (ML) | A.H3 | |
|---|---|---|---|---|---|
| 1A | 78 | 01/07-04/01 | 7810 | < | 20 |
| | | 04/01-07/02 | 7870 | 30 | ± 20 |
| | | 07/02-10/01 | 7250 | 20 | ± 10 |
| | | 10/01-01/06 | 7860 | 20 | ± 20 |
| 8 | 78 | 01/07-04/01 | 3600 | < | 9 |
| | | 04/01-07/02 | 5970 | < | 10 |
| | | 07/02-10/01 | 6990 | 20 | ± 10 |
| | | 10/01-01/06 | 7475 | < | 20 |

TABLE XIX

1978 ANNUAL MEAN RADIOACTIVITY CONCENTRATION IN PRECIPITATION

| Env. Station No. | Analysis | Concentration pCi/l ±2 Sigma | Surface Density $nCi/m^2$ ±2 Sigma |
|---|---|---|---|
| 1A | Gross Beta | 61±184 | 5.2±22.4 |
| | Aqueous Tritium | 100±30 | 23±10 |
| 8 | Gross Beta | 53±168 | 4.3±19.0 |
| | Aqueous Tritium | 80±16 | 15±12 |

TABLE XX

CONCENTRATIONS OF GAMMA EMITTERS IN PRECIPITATION (TOTAL SAMPLE)

Results in Units of pCi/l ± 2 sigma

| DATE | 1A PB-RWA-11S1 NUCLIDES | | 8 PB-RWA-12F1 NUCLIDES | |
|---|---|---|---|---|
| 1-07-78 to 2-04-78(1) | Be-7 | 13±4 | | All*<MDL |
| | Ru-106 | 5±3 | | |
| | Cs-137 | 0.7±0.4 | | |
| | Ce-144 | 3±2 | | |
| | Ra-226 | 4±1 | | |
| | Others* | <MDL | | |
| 2-04-78 to 3-05-78 | | (2) | | (2) |
| 3-05-78 to 4-01-78 | Be-7 | 20±5 | Be-7 | 26±6 |
| | Zr-95 | 2.2±0.8 | K-40 | 19±8 |
| | Nb-95 | 1.1±0.5 | Co-60 | 1.2±0.8 |
| | Ru-103 | 21±2 | Zr-95 | 2.2±0.8 |
| | Ru-106 | 5±4 | Nb-95 | 2.1±0.7 |
| | I-131 | 23±3 | Ru-103 | 27±3 |
| | Cs-137 | 2.4±0.7 | Sb-125 | 5±4 |
| | BaLa-140 | 17±2 | I-131 | 27±3 |
| | Ce-141 | 6±1 | I-132 | 0.4±0.4 |
| | Ce-144 | 7±6 | Cs-137 | 2.2±0.8 |
| | Others* | <MDL | BaLa-140 | 23±2 |
| | | | Ce-141 | 7.7±0.9 |
| | | | Ce-144 | 6±2 |
| | | | Ra-226 | 5±1 |
| | | | Th-232 | 5±1 |
| | | | Others* | <MDL |
| 4-01-78 to 5-06-78 | | All* <MDL | Be-7 | 150±120 |
| | | | Nb-95 | 11±10 |
| | | | Others* | <MDL |
| 5-06-78 to 6-03-78 | Be-7 | 40±5 | Be-7 | 46±8 |
| | Nb-95 | 1.4±0.8 | Zr-95 | 2±2 |
| | Ru-106 | 9±6 | Nb-95 | 2±1 |
| | Sb-125 | 2±1 | Ru-106 | 7±6 |
| | Cs-137 | 2.9±0.6 | Sb-125 | 4±2 |
| | Ce-144 | 14±2 | Cs-137 | 3±1 |
| | Others* | <MDL | Ce-144 | 10±5 |
| | | | Others* | <MDL |
| 6-03-78 to 7-02-78 | | (2) | | (2) |
| 7-02-78 to 8-05-78 | | All*<MDL | Be-7 | 11±5 |
| | | | Cs-137 | 2±1 |
| | | | Others* | <MDL |
| 8-05-78 to 9-03-78 | | All*<MDL | | All*<MDL |
| 9-03-78 to 10-01-78 | | (2) | | (2) |
| 10-01-78 to 11-05-78 | | (2) | | (2) |
| 11-05-78 to 12-02-78 | | All*<MDL | | All*<MDL |
| 12-02-78 to 1-06-79 | Be-7 | 16±6 | Be-7 | 14±6 |
| | Others* | <MDL | Others* | <MDL |



* For typical minimum detectable levels, see Table XLI.
(1) Sample period for the sample collected from station 8 was 01/07-02/05.
(2) As a result of the small sample size, no gamma spectrometry analysis was performed.

TABLE XXI
ANALYTICAL DATA FOR AIR-PARTICULATE SAMPLES
CONCENTRATIONS OF GROSS BETA RADIOACTIVITY (PCI/M3)

GROUP I - PEACH BOTTOM SITE

| | COLLECTION PERIOD | 1Z |
|---|---|---|
| 78 | 12/31-01/07 | .098 ± .009 |
| | 01/07-01/15 | .074 ± .008 |
| | 01/15-01/22 | .080 ± .009 |
| | 01/22-01/28 | .11 ± .01 |
| | 01/28-02/04 | .074 ± .008 |
| | 02/04-02/12 | .096 ± .008 |
| | 02/12-02/18 | .068 ± .008 |
| | 02/18-02/25 | .089 ± .008 |
| | 02/25-03/05 | .111 ± .009 |
| | 03/05-03/11 | .17 ± .01 |
| | 03/11-03/18 | .085 ± .008 |
| | 03/18-03/25 | 1.53 ± .03 |
| | 03/25-04/01 | .25 ± .01 |
| | 04/01-04/09 | .21 ± .01 |
| | 04/09-04/15 | .26 ± .02 |
| | 04/15-04/22 | .044 ± .006 |
| | 04/22-04/29 | .17 ± .01 |
| | 04/29-05/06 | .18 ± .01 |
| | 05/06-05/13 | .060 ± .007 |
| | 05/13-05/20 | .088 ± .008 |
| | 05/20-05/28 | .110 ± .008 |
| | 05/28-06/03 | .12 ± .01 |
| | 06/03-06/10 | .112 ± .009 |
| | 06/10-06/17 | .15 ± .01 |
| | 06/17-06/24 | .16 ± .01 |
| | 06/24-07/02 | .17 ± .01 |
| | 07/02-07/08 | .12 ± .01 |
| | 07/08-07/15 | .12 ± .01 |
| | 07/15-07/23 | .110 ± .008 |
| | 07/23-07/29 | .061 ± .008 |
| | 07/29-08/05 | .039 ± .006 |
| | 08/05-08/11 | .052 ± .007 |
| | 08/11-08/19 | .055 ± .006 |
| | 08/19-08/26 | .061 ± .007 |
| | 08/26-09/03 | .050 ± .006 |
| | 09/03-09/10 | .066 ± .007 |
| | 09/10-09/17 | .045 ± .006 |
| | 09/17-09/24 | .038 ± .006 |
| | 09/24-10/01 | .048 ± .006 |
| | 10/01-10/08 | .040 ± .006 |
| | 10/08-10/14 | .045 ± .007 |
| | 10/14-10/22 | .029 ± .005 |
| | 10/22-10/29 | .046 ± .006 |
| | 10/29-11/05 | .055 ± .007 |
| | 11/05-11/12 | .063 ± .007 |
| | 11/12-11/19 | .049 ± .006 |
| | 11/19-11/25 | .041 ± .007 |
| | 11/25-12/02 | .041 ± .006 |
| | 12/02-12/10 | .041 ± .006 |
| | 12/10-12/17 | .048 ± .007 |
| | 12/17-12/23 | .039 ± .006 |
| | 12/23-12/31 | .066 ± .007 |
| | AVERAGE | .118 ±.414 |

TABLE XXII

CONCENTRATIONS OF GAMMA EMITTERS IN AIR PARTICULATES

Results in Units of $10^{-3}$ pCi/$m^3$ ± 2 sigma

| Env. Station No. 1Z | RMC Designation PB-APT-11S4 | Monthly Composite Periods 12-31-77 to 1-28-78 | 1-28-78 to 2-25-78 | 2-25-78 to 4-01-78 | 4-01-78 to 4-29-78 | 4-29-78 to 5-28-78 | 5-28-78 to 7-02-78 | 7-02-78 to 7-29-78 | 7-29-78 to 9-03-78 | 9-03-78 to 10-01-78 | 10-01-78 to 10-29-78 | 10-29-78 to 12-02-78 | 12-02-78 to 12-31-78 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Be-7 | | 66±11 | 57±14 | 110±11 | 110±11 | 140±14 | 110±11 | 91±12 | 74±7 | 62±13 | 60±8 | 77±10 | 59±8 |
| Mn-54 | | <0.5 | <0.5 | <0.6 | 1.0±0.7 | <1 | <0.7 | <0.7 | <0.4 | <0.6 | <0.6 | <0.6 | <0.5 |
| Zr-95 | | <1 | <0.9 | 7±1 | 3±1 | 3±2 | 2±1 | <1 | <0.7 | <1 | <1 | <0.9 | <0.9 |
| Nb-95 | | 3±1 | 3.1±0.9 | 8±1 | 6±1 | 6±2 | 3.0±0.8 | <0.9 | <0.6 | <0.7 | <0.5 | <0.6 | <0.5 |
| Ru-103 | | <0.5 | <0.4 | 30±3 | 8±1 | <1 | <0.5 | <0.7 | <0.4 | <0.6 | <0.6 | <0.6 | <0.5 |
| Ru-106 | | <5 | <5 | 16±9 | 26±10 | 31±13 | 22±7 | 13±8 | 9±5 | <6 | <6 | <5 | <5 |
| Sb-125 | | <1 | <1 | <2 | 3±2 | 8±4 | 4±2 | <2 | 1±1 | <2 | <2 | <2 | <2 |
| I-131 | | <0.4 | <0.4 | 24±2 | 1±1 | <0.9 | <0.5 | <0.7 | <0.4 | <0.7 | <0.5 | <0.5 | <0.6 |
| Te-132 | | <0.4 | <0.4 | 4.8±0.6 | <0.6 | <0.7 | <0.4 | <0.6 | <0.3 | <0.6 | <0.4 | <0.5 | <0.4 |
| Cs-137 | | 2±1 | 2.5±0.8 | 4±1 | 5±1 | 8±2 | 5±1 | 4±1 | 1.9±0.7 | 1±1 | 1.2±0.8 | 1.3±0.9 | 1.4±1.0 |
| BaLa-140 | | <0.9 | <0.8 | 33±3 | 4±1 | <2 | <0.9 | <1 | <0.8 | <1 | <1 | <1 | <1 |
| Ce-141 | | <0.8 | <0.8 | 21±2 | 5±2 | <1 | <0.5 | <1 | <0.5 | <1 | 0.9±0.7 | <0.8 | <0.9 |
| Ce-144 | | 29±10 | 27±8 | 43±4 | 50±7 | 83±8 | 44±4 | 40±11 | 10±2 | <4 | 4±2 | 4±4 | <4 |
| Others* | | <MDL | <MDL | <MDL | <MDL | <MDL | <MDL | <MDL | <MDL | <MDL | <MDL | <MDL | <MDL |

2339 259

* For typical minimum detectable levels of nuclides searched for and not found, see table XLI.

TABLE XXIII
ANALYTICAL DATA FOR MILK SAMPLES

| STATION CODE | COLLECTION DATE | I-131 (PC/L OF MILK) | SR-89 (PC/L OF Milk) | SR-90 (PC/L OF Milk) | A.H3 (PC/L OF MILK) | A.H3 (PC/L OF WATER) |
|---|---|---|---|---|---|---|
| A | 78 01/22 | < .05 | | | 70 ± 70 | 80 ± 80 |
| | 02/12 | < .05 | | | | |
| | 03/13 | < .04 | | | | |
| | 03/27 | 4.7 ± .5 | | | | |
| | 04/03 | .60 ± .07 | | | | |
| | 04/10 | .16 ± .04 | | | | |
| | 04/17 | .05 ± .03 | | | | |
| | 04/24 | < .04 | | | | |
| | 05/01 | .17 ± .05 | | | | |
| | 05/08 | .08 ± .03 | | | | |
| | 05/15 | < .06 | | | < 70 | < 80 |
| | 05/22 | < .05 | | | | |
| | 05/29 | < .03 | | | | |
| | 06/05 | < .04 | | | | |
| | 06/12 | < .03 | | | | |
| | 06/19 | < .03 | | | | |
| | 06/26 | < .03 | | | | |
| | 07/03 | < .05 | | | | |
| | 07/10 | < .04 | | | | |
| | 07/17 | < .04 | | | | |
| | 07/24 | < .05 | | | | |
| | 07/31 | < .04 | | | 50 ± 50 | 60 ± 60 |
| | 08/07 | < .03 | | | | |
| | 08/14 | < .03 | | | | |
| | 08/21 | < .03 | | | | |
| | 08/28 | < .02 | | | | |
| | 09/04 | < .03 | | | | |
| | 09/11 | < .06 | | | | |
| | 09/18 | < .05 | | | | |
| | 09/25 | < .04 | | | | |
| | 10/02 | < .04 | | | | |
| | 10/09 | < .04 | | | | |
| | 10/16 | < .04 | | | | |
| | 10/23 | < .05 | | | | |
| | 10/30 | < .05 | | | | |
| | 11/06 | < .06 | | | 100 ± 50 | 120 ± 50 |
| | 11/13 | < .06 | | | | |
| | 11/20 | < .07 | | | | |
| | 11/27 | < .04 | | | | |
| | 12/04 | < .03 | | | | |
| | 12/11 | < .03 | | | | |
| B | 78 01/22 | < .04 | | | 260 ± 70 | 300 ± 80 |
| | 02/12 | < .07 | | | | |
| | 03/13 | < .04 | | | | |
| | 03/27 | 3.4 ± .3 | | | | |
| | 04/03 | 2.7 ± .3 | | | | |
| | 04/10 | 1.7 ± .2 | | | | |
| | 04/17 | 1.3 ± .1 | | | | |
| | 04/24 | .54 ± .06 | | | | |
| | 05/01 | .21 ± .05 | | | | |

TABLE XXIII Cont.
ANALYTICAL DATA FOR MILK SAMPLES

| STATION CODE | COLLECTION DATE | I-131 (PC/L OF MILK) | SR-89 (PC/L OF Milk) | SR-90 (PC/L OF Milk) | A.M3 (PC/L OF MILK) | A.M3 (PC/L OF WATER) |
|---|---|---|---|---|---|---|
| B | 78 05/08 | < .04 | | | | |
| | 05/15 | < .04 | | | < 70 | < 80 |
| | 05/22 | < .04 | | | | |
| | 05/29 | < .03 | | | | |
| | 06/05 | < .04 | | | | |
| | 06/12 | < .03 | | | | |
| | 06/19 | < .03 | | | | |
| | 06/26 | < .03 | | | | |
| | 07/03 | < .04 | | | | |
| | 07/10 | < .04 | | | | |
| | 07/17 | < .05 | | | | |
| | 07/24 | < .04 | | | | |
| | 07/31 | < .04 | | | < 50 | < 60 |
| | 08/07 | < .03 | | | | |
| | 08/14 | < .03 | | | | |
| | 08/21 | < .03 | | | | |
| | 08/28 | < .03 | | | | |
| | 09/04 | < .04 | | | | |
| | 09/11 | < .04 | | | | |
| | 09/18 | < .05 | | | | |
| | 09/25 | < .04 | | | | |
| | 10/02 | < .05 | | | | |
| | 10/09 | < .04 | | | | |
| | 10/16 | < .04 | | | | |
| | 10/23 | < .04 | | | | |
| | 10/30 | < .04 | | | | |
| | 11/06 | < .05 | | | 60 ± 40 | 80 ± 50 |
| | 11/13 | < .05 | | | | |
| | 11/20 | < .05 | | | | |
| | 11/27 | < .04 | | | | |
| | 12/04 | < .04 | | | | |
| | 12/11 | < .03 | | | | |
| C | 78 01/22 | < .04 | | | 110 ± 70 | 120 ± 80 |
| | 02/11 | < .05 | | | | |
| | 03/13 | < .04 | | | | |
| | 03/27 | 1.9 ± .2 | | | | |
| | 04/03 | .25 ± .05 | | | | |
| | 04/10 | .17 ± .05 | | | | |
| | 04/17 | .07 ± .03 | | | | |
| | 04/24 | .04 ± .02 | | | | |
| | 05/01 | .07 ± .04 | | | | |
| | 05/08 | < .03 | | | | |
| | 05/15 | < .04 | | | < 70 | < 80 |
| | 05/22 | .10 ± .04 | | | | |
| | 05/29 | < .03 | | | | |
| | 06/05 | < .03 | | | | |
| | 06/12 | < .03 | | | | |
| | 06/19 | < .03 | | | | |
| | 06/26 | < .03 | | | | |
| | 07/03 | < .04 | | | | |

2339 261

TABLE XXIII Cont.
ANALYTICAL DATA FOR MILK SAMPLES

| STATION CODE | | COLLECTION DATE | I-131 (PC/L OF MILK) | Sr-89 (PC/L OF Milk) | Sr-90 (PC/L OF Milk) | A.B3 (PC/L OF MILK) | A.B3 (PC/L OF WATER) |
|---|---|---|---|---|---|---|---|
| C | 78 | 07/10 | < .03 | | | | |
| | | 07/17 | < .03 | | | | |
| | | 07/24 | < .03 | | | | |
| | | 07/31 | < .03 | | | 70 ± 50 | 70 ± 60 |
| | | 08/07 | < .03 | | | | |
| | | 08/14 | < .03 | | | | |
| | | 08/21 | < .03 | | | | |
| | | 08/28 | < .03 | | | | |
| | | 09/04 | < .03 | | | | |
| | | 09/11 | < .03 | | | | |
| | | 09/18 | < .05 | | | | |
| | | 09/25 | < .05 | | | | |
| | | 10/02 | < .05 | | | | |
| | | 10/09 | < .04 | | | | |
| | | 10/16 | < .04 | | | | |
| | | 10/23 | < .04 | | | | |
| | | 10/30 | < .05 | | | | |
| | | 11/06 | < .04 | | | 50 ± 50 | 60 ± 50 |
| | | 11/13 | < .05 | | | | |
| | | 11/20 | < .06 | | | | |
| | | 11/27 | < .04 | | | | |
| | | 12/04 | < .04 | | | | |
| | | 12/11 | < .03 | | | | |
| D | 78 | 01/23 | < .05 | | | 340 ± 70 | 380 ± 80 |
| | | 02/11 | < .04 | | | | |
| | | 03/13 | < .03 | | | | |
| | | 03/27 | .40 ± .06 | | | | |
| | | 04/03 | .06 ± .04 | | | | |
| | | 04/10 | 2.1 ± .2 | | | | |
| | | 04/17 | 1.3 ± .1 | | | | |
| | | 04/24 | .85 ± .08 | | | | |
| | | 05/01 | .58 ± .06 | | | | |
| | | 05/08 | .15 ± .04 | | | | |
| | | 05/15 | .12 ± .03 | | | < 70 | < 80 |
| | | 05/22 | < .04 | | | | |
| | | 05/29 | < .04 | | | | |
| | | 06/05 | < .03 | | | | |
| | | 06/12 | < .03 | | | | |
| | | 06/19 | < .03 | | | | |
| | | 06/26 | < .03 | | | | |
| | | 07/03 | < .04 | | | | |
| | | 07/10 | < .03 | | | | |
| | | 07/17 | < .04 | | | | |
| | | 07/24 | < .04 | | | | |
| | | 07/31 | < .04 | | | < 50 | < 60 |
| | | 08/07 | < .03 | | | | |
| | | 08/14 | < .03 | | | | |
| | | 08/21 | < .03 | | | | |
| | | 08/28 | < .02 | | | | |
| | | 09/04 | < .03 | | | | |

2359 202

TABLE XXIII Cont.
ANALYTICAL DATA FOR MILK SAMPLES

| STATION CODE | COLLECTION DATE | I-131 (PC/L OF MILK) | SR-89 (PC/L OF Milk) | SR-90 (PC/L OF Milk) | A.H3 (PC/L OF MILK) | A.H3 (PC/L OF WATER) |
|---|---|---|---|---|---|---|
| D | 78 09/11 | < .04 | | | | |
| | 09/18 | < .07 | | | | |
| | 09/25 | < .04 | | | | |
| | 10/02 | < .04 | | | | |
| | 10/09 | < .04 | | | | |
| | 10/16 | < .04 | | | | |
| | 10/23 | < .04 | | | | |
| | 10/30 | < .04 | | | | |
| | 11/06 | < .04 | | | < 50 | < 50 |
| | 11/13 | < .05 | | | | |
| | 11/20 | < .05 | | | | |
| | 11/27 | < .04 | | | | |
| | 12/04 | < .04 | | | | |
| | 12/11 | < .04 | | | | |
| E | 78 01/22 | < .05 | | | 90 ± 70 | 100 ± 80 |
| | 05/15 | < .04 | | | < 70 | < 80 |
| | 07/31 | < .03 | | | 80 ± 50 | 90 ± 60 |
| | 11/06 | < .05 | | | < 50 | < 50 |
| G | 78 01/23 | < .04 | | | 390 ± 70 | 440 ± 80 |
| | 02/12 | < .05 | | | | |
| | 03/13 | < .03 | | | | |
| | 03/27 | 2.4 ± .2 | | | | |
| | 04/03 | .50 ± .08 | | | | |
| | 04/10 | .13 ± .03 | | | | |
| | 04/17 | .09 ± .03 | | | | |
| | 04/24 | .11 ± .04 | | | | |
| | 05/01 | .51 ± .06 | | | | |
| | 05/08 | .18 ± .04 | | | | |
| | 05/15 | .09 ± .04 | | | < 70 | < 80 |
| | 05/22 | < .05 | | | | |
| | 05/29 | < .04 | | | | |
| | 06/05 | < .04 | | | | |
| | 06/12 | < .04 | | | | |
| | 06/19 | < .04 | | | | |
| | 06/26 | < .05 | | | | |
| | 07/03 | < .06 | | | | |
| | 07/10 | < .03 | | | | |
| | 07/17 | < .06 | | | | |
| | 07/24 | < .05 | | | | |
| | 07/31 | < .03 | | | < 50 | < 60 |
| | 08/07 | < .05 | | | | |
| | 08/14 | < .04 | | | | |
| | 08/21 | < .04 | | | | |
| | 08/28 | < .04 | | | | |
| | 09/04 | < .05 | | | | |
| | 09/11 | < .06 | | | | |
| | 09/18 | < .06 | | | | |
| | 09/25 | < .05 | | | | |
| | 10/02 | < .05 | | | | |

TABLE XXIII Cont.
ANALYTICAL DATA FOR MILK SAMPLES

| STATION CODE | COLLECTION DATE | I-131 (PC/L OF MILK) | SR-89 (PC/L OF Milk) | SR-90 (PC/L OF Milk) | A.H3 (PC/L OF MILK) | A.H3 (PC/L OF WATER) |
|---|---|---|---|---|---|---|
| G | 78 10/09 | < .05 | | | | |
| | 10/16 | < .05 | | | | |
| | 10/23 | < .05 | | | | |
| | 10/30 | < .05 | | | | |
| | 11/06 | < .05 | | | 60 ± 40 | 70 ± 50 |
| | 11/13 | .11 ± .05 | | | | |
| | 11/20 | < .06 | | | | |
| | 11/27 | < .04 | | | | |
| | 12/04 | < .03 | | | | |
| | 12/11 | < .04 | | | | |
| H | 78 01/23 | < .04 | | | 210 ± 70 | 230 ± 80 |
| | 02/12 | < .05 | | | | |
| | 03/13 | < .05 | | | | |
| | 03/27 | .86 ± .09 | | | | |
| | 04/03 | .33 ± .06 | | | | |
| | 04/10 | .45 ± .06 | | | | |
| | 04/17 | .82 ± .08 | | | | |
| | 04/24 | .75 ± .07 | | | | |
| | 05/01 | .38 ± .05 | | | | |
| | 05/08 | .23 ± .05 | | | | |
| | 05/15 | .08 ± .04 | | | < 70 | < 80 |
| | 05/22 | < .04 | | | | |
| | 05/29 | < .04 | | | | |
| | 06/05 | < .04 | | | | |
| | 06/12 | < .04 | | | | |
| | 06/19 | < .04 | | | | |
| | 06/26 | < .04 | | | | |
| | 07/03 | < .05 | | | | |
| | 07/10 | < .04 | | | | |
| | 07/17 | < .05 | | | | |
| | 07/24 | < .05 | | | | |
| | 07/31 | < .03 | | | 60 ± 50 | 70 ± 60 |
| | 08/07 | < .04 | | | | |
| | 08/14 | < .04 | | | | |
| | 08/21 | < .04 | | | | |
| | 08/28 | < .03 | | | | |
| | 09/04 | < .04 | | | | |
| | 09/11 | < .05 | | | | |
| | 09/18 | < .05 | | | | |
| | 09/25 | < .05 | | | | |
| | 10/02 | .05 ± .03 | | | | |
| | 10/09 | < .05 | | | | |
| | 10/16 | < .05 | | | | |
| | 10/23 | < .05 | | | | |
| | 10/30 | < .05 | | | | |
| | 11/06 | < .06 | | | 90 ± 50 | 100 ± 60 |
| | 11/13 | .84 ± .08 | | | | |
| | 11/20 | .27 ± .05 | | | | |
| | 11/27 | .17 ± .05 | | | | |
| | 12/04 | < .04 | | | | |

TABLE XXIII Cont.
ANALYTICAL DATA FOR MILK SAMPLES

| STATION CODE | | COLLECTION DATE | I-131 (PC/L OF MILK) | SR-89 (PC/L OF Milk) | SR-90 (PC/L OF Milk) | A.R3 (PC/L OF MILK) | A.R3 (PC/L OF WATER) |
|---|---|---|---|---|---|---|---|
| H | 78 | 12/11 | < .04 | | | | |
| J | 78 | 01/23 | < .04 | < 1 | 5.2 ± .9 | 150 ± 70 | 160 ± 80 |
| | | 02/12 | < .06 | | | | |
| | | 03/13 | < .03 | | | | |
| | | 03/27 | 4.9 ± .5 | | | | |
| | | 04/03 | 3.1 ± .3 | | | | |
| | | 04/10 | .68 ± .07 | | | | |
| | | 04/17 | .56 ± .06 | | | | |
| | | 04/24 | .14 ± .04 | | | | |
| | | 05/01 | .85 ± .08 | | | | |
| | | 05/08 | .57 ± .06 | | | | |
| | | 05/15 | .37 ± .06 | 4 ± 1 | 10 ± 1 | < 70 | < 80 |
| | | 05/22 | .09 ± .04 | | | | |
| | | 05/29 | < .05 | | | | |
| | | 06/05 | < .04 | | | | |
| | | 06/12 | < .04 | | | | |
| | | 06/19 | < .04 | | | | |
| | | 06/26 | < .04 | | | | |
| | | 07/03 | < .05 | | | | |
| | | 07/10 | < .04 | | | | |
| | | 07/17 | < .05 | | | | |
| | | 07/24 | < .06 | | | | |
| | | 07/31 | < .05 | < 1 | 6.1 ± .9 | 90 ± 50 | 100 ± 60 |
| | | 08/07 | < .04 | | | | |
| | | 08/14 | < .04 | | | | |
| | | 08/21 | < .04 | | | | |
| | | 08/28 | < .04 | | | | |
| | | 09/04 | < .04 | | | | |
| | | 09/11 | < .04 | | | | |
| | | 09/18 | < .05 | | | | |
| | | 09/25 | < .05 | | | | |
| | | 10/02 | .09 ± .04 | | | | |
| | | 10/09 | < .05 | | | | |
| | | 10/16 | < .05 | | | | |
| | | 10/23 | < .07 | | | | |
| | | 10/30 | < .05 | | | | |
| | | 11/06 | < .05 | < 2 | 8 ± 1 | < 60 | < 60 |
| | | 11/13 | .11 ± .04 | | | | |
| | | 11/20 | < .04 | | | | |
| | | 11/27 | < .05 | | | | |
| | | 12/04 | < .04 | | | | |
| | | 12/11 | < .04 | | | | |
| L | 78 | 01/22 | < .04 | | | 140 ± 70 | 150 ± 80 |
| | | 05/15 | < .04 | | | 330 ± 60 | 370 ± 70 |
| | | 07/31 | < .04 | | | 60 ± 50 | 70 ± 60 |
| | | 11/06 | < .05 | | | 90 ± 50 | 110 ± 60 |
| M | 78 | 01/22 | < .04 | | | 190 ± 70 | 220 ± 80 |
| | | 05/15 | < .04 | | | 400 ± 70 | 440 ± 70 |

TABLE XXIII Cont.
ANALYTICAL DATA FOR MILK SAMPLES

| STATION CODE | COLLECTION DATE | I-131 (PC/L OF MILK) | SR-89 (PC/L OF Milk) | SR-90 (PC/L OF Milk) | A.H3 (PC/L OF MILK) | A.H3 (PC/L OF WATER) |
|---|---|---|---|---|---|---|
| M | 78 07/31 | < .04 | | | 80 ± 50 | 100 ± 60 |
| | 11/06 | < .08 | | | 80 ± 50 | 90 ± 60 |
| N | 78 01/22 | < .04 | | | 300 ± 70 | 330 ± 80 |
| | 02/12 | < .07 | | | | |
| | 03/13 | < .04 | | | | |
| | 03/27 | 9.1 ± .9 | | | | |
| | 04/03 | .77 ± .08 | | | | |
| | 04/10 | .30 ± .05 | | | | |
| | 04/17 | < .06 | | | | |
| | 04/24 | < .06 | | | | |
| | 05/01 | < .04 | | | | |
| | 05/08 | < .04 | | | | |
| | 05/15 | < .05 | | | 420 ± 70 | 460 ± 70 |
| | 05/22 | < .04 | | | | |
| | 05/29 | < .04 | | | | |
| | 06/05 | < .04 | | | | |
| | 06/12 | < .05 | | | | |
| | 06/19 | < .04 | | | | |
| | 06/26 | < .04 | | | | |
| | 07/03 | < .05 | | | | |
| | 07/10 | < .03 | | | | |
| | 07/17 | < .05 | | | | |
| | 07/24 | < .05 | | | | |
| | 07/31 | < .05 | | | 70 ± 50 | 90 ± 60 |
| | 08/07 | < .04 | | | | |
| | 08/14 | < .04 | | | | |
| | 08/21 | < .04 | | | | |
| | 08/28 | < .04 | | | | |
| | 09/04 | < .04 | | | | |
| | 09/11 | < .04 | | | | |
| | 09/18 | < .05 | | | | |
| | 09/25 | < .05 | | | | |
| | 10/02 | < .05 | | | | |
| | 10/09 | < .04 | | | | |
| | 10/16 | < .04 | | | | |
| | 10/23 | < .05 | | | | |
| | 10/30 | < .05 | | | | |
| | 11/06 | < .06 | | | 60 ± 60 | 70 ± 60 |
| | 11/13 | < .06 | | | | |
| | 11/20 | < .06 | | | | |
| | 11/27 | < .05 | | | | |
| | 12/04 | < .04 | | | | |
| | 12/11 | < .05 | | | | |

2339 206

TABLE XXIV

1978 MEAN CONCENTRATION OF AQUEOUS TRITIUM IN MILK BY QUARTER

| Farm Groups | Collection Dates | Results in Units of pCi/l of Water* ±2 Sigma | Results in Units of pCi/l of Milk ±2 Sigma |
|---|---|---|---|
| NEAR FARMS (G,H,J) | 1/23 | 280±290 | 250±250 |
| | 5/15 | <80 | <70 |
| | 7/31 | 80±40 | 70±30 |
| | 11/6 | 80±40 | 70±30 |
| INTERMEDIATE FARMS (D,L,M,N) | 1/22-1/23 | 270±210 | 240±190 |
| | 5/15 | 340±350 | 310±320 |
| | 7/31 | 80±40 | 70±30 |
| | 11/6 | 80±51 | 70±30 |
| DISTANT FARMS (A,B,C,E) | 1/22 | 150±200 | 130±170 |
| | 5/15 | <80 | <70 |
| | 7/31 | 70±30 | 60±30 |
| | 11/6 | 80±60 | 70±50 |

* The water is obtained by freeze-drying the sample.

TABLE XXV

1978 MEAN CONCENTRATION OF IODINE-131 IN MILK BY WEEK

RESULTS IN UNITS OF pCi/l ± 2 SIGMA

| Collection Date | Near Farms (G,H,J) | Intermediate Farms (D,L,M,N) | Distant Farms (A,B,C,E) | All Farms |
|---|---|---|---|---|
| 1/22-1/23 | <0.04 | <0.04 | <0.05 | <0.04 |
| 2/11-2/12 | <0.05 | <0.06 | <0.06 | <0.06 |
| 3/13 | <0.04 | <0.04 | <0.04 | <0.04 |
| 3/27 | 2.7±4.1 | 4.8±12.3 | 3.3±2.8 | 3.5±5.6 |
| 4/3 | 1.3±3.1 | 0.42±1.00 | 1.2±2.6 | 1.0±2.3 |
| 4/10 | 0.42±0.55 | 1.2±2.5 | 0.68±1.77 | 0.71±1.53 |
| 4/17 | 0.49±0.74 | 0.68±1.75 | 0.48±1.43 | 0.53±1.10 |
| 4/24 | 0.33±0.72 | 0.46±1.12 | 0.21±0.58 | 0.31±0.68 |
| 5/1 | 0.58±0.49 | 0.31±0.76 | 0.15±0.14 | 0.35±0.56 |
| 5/8 | 0.34±0.41 | 0.10±0.16 | 0.05±0.05 | 0.17±0.37 |
| 5/15 | 0.18±0.33 | 0.06±0.08 | < 0.05 | 0.08±0.19 |
| 5/22 | 0.06±0.05 | <0.04 | 0.06±0.06 | 0.06±0.05 |
| 5/29 | <0.04 | <0.04 | < 0.03 | <0.04 |
| 6/5 | <0.04 | <0.04 | < 0.04 | <0.04 |
| 6/12 | <0.04 | <0.04 | < 0.03 | <0.04 |
| 6/19 | <0.04 | <0.04 | < 0.03 | <0.04 |
| 6/26 | <0.04 | <0.04 | < 0.03 | <0.04 |
| 7/3 | <0.05 | <0.05 | < 0.04 | <0.05 |
| 7/10 | <0.04 | <0.03 | < 0.04 | <0.04 |
| 7/17 | <0.05 | <0.05 | < 0.04 | <0.05 |
| 7/24 | <0.05 | <0.05 | < 0.04 | <0.05 |
| 7/31 | <0.04 | <0.04 | < 0.04 | <0.04 |

TABLE XXV Cont.

1978 MEAN CONCENTRATION OF IODINE-131 IN MILK BY WEEK

RESULTS IN UNITS OF pCi/l ± 2 SIGMA

| Collection Date | Near Farms (G,H,J) | Intermediate Farms (D,L,M,N) | Distant Farms (A,B,C,E) | All Farms |
|---|---|---|---|---|
| 8/7 | <0.04 | <0.04 | <0.03 | <0.04 |
| 8/14 | <0.04 | <0.04 | <0.03 | <0.04 |
| 8/21 | <0.04 | <0.04 | <0.03 | <0.04 |
| 8/28 | <0.04 | <0.03 | <0.03 | <0.03 |
| 9/4 | <0.04 | <0.04 | <0.03 | <0.04 |
| 9/11 | <0.05 | <0.04 | <0.04 | <0.05 |
| 9/18 | <0.05 | <0.06 | <0.05 | <0.05 |
| 9/25 | <0.05 | <0.05 | <0.04 | <0.05 |
| 10/2 | 0.06±0.05 | <0.05 | <0.05 | 0.05±0.03 |
| 10/9 | <0.05 | <0.04 | <0.04 | <0.04 |
| 10/16 | <0.05 | <0.04 | <0.04 | <0.04 |
| 10/23 | <0.06 | <0.05 | <0.04 | <0.05 |
| 10/30 | <0.05 | <0.05 | <0.05 | <0.05 |
| 11/6 | <0.05 | <0.06 | <0.05 | <0.05 |
| 11/13 | 0.35±0.84 | <0.06 | <0.05 | 0.17±0.55 |
| 11/20 | 0.12±0.25 | <0.06 | <0.06 | 0.08±0.15 |
| 11/27 | 0.09±0.14 | <0.05 | <0.04 | 0.06±0.09 |
| 12/4 | <0.04 | <0.04 | <0.04 | <0.04 |
| 12/11 | <0.04 | <0.05 | <0.03 | <0.04 |

TABLE XXVI

1978 ANNUAL MEAN RADIOACTIVITY CONCENTRATION IN MILK

| Env. Station No. | Aqueous Tritium pCi/l of Water* ±2 Sigma | Aqueous Tritium pCi/l of Milk ±2 Sigma | I-131 pCi/l ±2 Sigma |
|---|---|---|---|
| NEAR FARMS | | | |
| G | 160±370 | 140±330 | 0.14±0.75 |
| H | 120±150 | 110±140 | 0.16±0.48 |
| J | 100±90 | 93±81 | 0.31±1.78 |
| INTERMEDIATE FARMS | | | |
| D | 140±320 | 130±280 | 0.17±0.79 |
| L | 180±270 | 160±240 | 0.04±0.01 |
| M | 210±330 | 190±300 | 0.05±0.04 |
| N | 240±380 | 210±350 | 0.29±2.83 |
| DISTANT FARMS | | | |
| A | 85±50 | 73±41 | 0.18±1.46 |
| B | 130±230 | 110±200 | 0.27±1.44 |
| C | 83±53 | 75±50 | 0.09±0.58 |
| E | 80±43 | 73±54 | 0.04±0.02 |



* The water is obtained by freeze-drying the sample.

TABLE XXVII

CONCENTRATIONS OF GAMMA EMITTERS*, STRONTIUM-89 AND -90 IN MILK

Results in Units of pCi/l ± 2 sigma

| Env. Station No. | RMC Designation | Sampling Date | Nuclides Found Sr-89 | Sr-90 | K-40 | Cs-137 |
|---|---|---|---|---|---|---|
| J | PB-MLK-28A1 | 1-23-78 | <1 | 5.2±0.9 | 1800±180 | 3±1 |
| | | 5-15-78 | 4±1 | 10±1 | 1300±130 | 8±1 |
| | | 7-31-78 | <1 | 6.1±0.9 | 970±97 | 5.0±0.8 |
| | | 11-06-78 | | | 1300±130 | 3.0±1.1 |



* For typical minimum detectable levels of nuclides searched for and not found, see table XLI.

TABLE XXVIII
ANALYTICAL DATA FOR FISH SAMPLES
CONCENTRATION (PC/LITER OF WATER)

| STATION CODE | MEDIA | COLLECTION DATES | ID | A.H3 |
|---|---|---|---|---|
| 1EE | CHANNEL CATFISH 78 | 05/19 | 93839H | < 100 |
| | | 09/11 | 97032H | 130 ± 70 |
| | | 10/23 | 99107H | 180 ± 80 |
| 1X | CHANNEL CATFISH 78 | 09/11-09/13 | 97033H | 120 ± 70 |
| | | 11/02 | 99108H | 210 ± 80 |
| 4H | AMERICAN SHAD 78 | 06/01-06/03 | 938403 | < 100 |
| 4I | CHANNEL CATFISH 78 | 05/09-06/06 | 93842H | < 100 |
| | | 09/19-09/27 | 97035H | 390 ± 70 |
| | | 10/16-11/06 | 99109H | 180 ± 80 |
| | WHITE CRAPPIE 78 | 05/09-06/05 | 93841H | 100 ± 100 |
| | | 09/19 | 97034H | 160 ± 70 |
| 4J | CHANNEL CATFISH 78 | 04/10 | 92376H | 180 ± 80 |
| | | 05/08-06/05 | 93844H | < 100 |
| | | 07/24 | 97037H | 220 ± 70 |
| | | 11/14 | 99111H | 160 ± 80 |
| | WHITE CRAPPIE 78 | 04/10 | 92375H | < 80 |
| | | 06/08 | 93843H | < 100 |
| | | 07/24 | 97036H | 400 ± 70 |
| | | 11/20 | 99110H | 190 ± 80 |
| 6H | CHANNEL CATFISH 78 | 05/02 | 92377H | 80 ± 80 |
| | | 09/25 | 97039H | 190 ± 70 |
| | | 10/23 | 99112H | 130 ± 80 |
| | WHITE CRAPPIE 78 | 09/25 | 97038H | 100 ± 70 |

TABLE XXVIII Cont.
ANALYTICAL DATA FOR FISH SAMPLES
CONCENTRATION (PC/GRAM WET)

| STATION CODE | MEDIA | COLLECTION DATES | ID | A.H3 |
|---|---|---|---|---|
| 1EE | CHANNEL CATFISH 78 | 05/19 | *3839H | < .09 |
| | | 09/11 | *7032H | .09 ± .05 |
| | | 10/23 | *9107H | .08 ± .03 |
| 1X | CHANNEL CATFISH 78 | 09/11-09/13 | *7033H | .09 ± .05 |
| | | 11/02 | *9108H | .07 ± .03 |
| 4H | AMERICAN SHAD 78 | 06/01-06/03 | *38403 | < .1 |
| 4I | CHANNEL CATFISH 78 | 05/09-06/06 | *3842H | < .1 |
| | | 09/19-09/27 | *7035H | .29 ± .05 |
| | | 10/16-11/06 | *9109H | .07 ± .03 |
| | WHITE CRAPPIE 78 | 05/09-06/05 | *3841H | .2 ± .2 |
| | | 09/19 | *7034H | .12 ± .05 |
| 4J | CHANNEL CATFISH 78 | 04/10 | *2376H | .15 ± .07 |
| | | 05/08-06/08 | *3844H | < .1 |
| | | 07/24 | *7037H | .20 ± .06 |
| | | 11/14 | *9111H | .05 ± .02 |
| | WHITE CRAPPIE 78 | 04/10 | *2375H | < .06 |
| | | 06/08 | *3843H | < .1 |
| | | 07/24 | *7036H | .30 ± .05 |
| | | 11/20 | *9110H | .09 ± .04 |
| 6H | CHANNEL CATFISH 78 | 05/02 | *2377H | .06 ± .06 |
| | | 09/25 | *7039H | .14 ± .05 |
| | | 10/23 | *9112H | .04 ± .02 |
| | WHITE CRAPPIE 78 | 09/25 | *7038H | .07 ± .05 |

TABLE XXIX

1978 MEAN CONCENTRATION OF AQUEOUS TRITIUM IN FISH BY QUARTER

RESULTS IN UNITS OF pCi/l OF WATER* ± 2 SIGMA

| Station Grouping | Collection Period | Channel Catfish | White Crappie |
|---|---|---|---|
| 4I & 4J | 4/10/78 | 180 | <80 |
| | 5/8/78-6/8/78 | <100 | <100 |
| | 7/24/78-9/27/78 | 310±240 | 280±340 |
| | 10/16/78-11/20/78 | 170±30 | 190 |

TABLE XXXX

1978 ANNUAL MEAN CONCENTRATION OF AQUEOUS TRITIUM IN FISH

| Env. Station No. | Results in Units of pCi/l of Water* ±2 Sigma | Results in Units of pCi/g (Wet) ±2 Sigma |
|---|---|---|
| 1X | 170±130 | 0.080±0.028 |
| 1EE | 140±80 | 0.087±0.012 |
| 4H | <100 | <0.10 |
| 4I | 190±240 | 0.16±0.18 |
| 4J | 180±200 | 0.13±0.17 |
| 6H | 130±100 | 0.078±0.087 |
| Average White Crappie | 160±220 | 0.13±0.17 |
| Average Channel Catfish | 160±150 | 0.11±0.13 |
| Average All Fish | 160±170 | 0.12±0.14 |

* The water is obtained by freeze-drying the sample.

TABLE XXXI
ANALYTICAL DATA FOR VEGETATION SAMPLES
CONCENTRATION (PC/LITER OF WATER)

| STATION CODE | COLLECTION DATE | SAMPLE TYPE | A.H3 | |
|---|---|---|---|---|
| 1 | 78 07/24 | BEETS | 270 | ± 80 |
| | | CABBAGE | 220 | ± 80 |
| | 08/11 | BEETS | 150 | ± 50 |
| | | PARSNIPS | 120 | ± 50 |
| | 10/09 | CABBAGE | 170 | ± 70 |
| | | TURNIPS | 70 | ± 70 |
| 5 | 78 07/24 | BEETS | 140 | ± 80 |
| | | CORN | 160 | ± 80 |
| | 08/11 | CABBAGE | 120 | ± 50 |
| | | CORN | 120 | ± 50 |
| | 10/09 | CABBAGE | 140 | ± 70 |
| | | TURNIPS | 110 | ± 70 |

CONCENTRATION (PC/GRAM WET)

| STATION CODE | COLLECTION DATE | SAMPLE TYPE | A.H3 | |
|---|---|---|---|---|
| 1 | 78 07/24 | BEETS | .23 | ± .07 |
| | | CABBAGE | .18 | ± .06 |
| | 08/11 | BEETS | .12 | ± .04 |
| | | PARSNIPS | .11 | ± .04 |
| | 10/09 | CABBAGE | .14 | ± .06 |
| | | TURNIPS | .07 | ± .06 |
| 5 | 78 07/24 | BEETS | .11 | ± .06 |
| | | CORN | .10 | ± .05 |
| | 08/11 | CABBAGE | .09 | ± .04 |
| | | CORN | .09 | ± .04 |
| | 10/09 | CABBAGE | .14 | ± .07 |
| | | TURNIPS | .10 | ± .06 |

TABLE XXXII

1978 ANNUAL MEAN CONCENTRATION OF AQUEOUS TRITIUM IN VEGETATION

| Env. Station No. | Results in Units of pCi/l of Water* ±2 Sigma | Results in Units of pCi/g (Wet) ±2 Sigma |
|---|---|---|
| 1 | 170±140 | 0.14±0.11 |
| 5 | 130±40 | 0.11±0.04 |



* The water is obtained by freeze-drying the sample.

TABLE XXXIII

A COMPARISON OF TRITIUM CONCENTRATION IN VARIOUS MEDIA

| MEDIA SAMPLED | Average Concentration for Period* pCi/l (Water) ± 2 sigma |
|---|---|
| Surface Water - Grab (aq) | 110±80 |
| Surface Water - Grab Composite (aq) | 150±180 |
| Surface Water - Composite (aq) | 110±80 |
| Discharge Water - Grab (aq) | 150±200 |
| Discharge Water - Composite (aq) | 180±260 |
| Well Water - Composite (aq) | 130±130 |
| Well Water - Grab (aq) | 140±270 |
| Rain Water (aq) | 90±32 |
| Milk (aq) | 140±240 |
| Fish-White Crappie (aq) | 160±220 |
| Fish-Channel Catfish (aq) | 160±150 |
| Fish-American Shad (aq) | <100 |
| Vegetation (aq) | 150±110 |



* Period covered in this report is January 1, 1978 to December 31, 1978.

TABLE XXXIV
ANALYTICAL DATA FOR SOIL SAMPLES
CONCENTRATION (PC/G DRY)

| STATION CODE | COLLECTION DATE | G. ALPHA BOTTOM | G. ALPHA TOP | SR-89 BOTTOM | SR-89 TOP | SR-90 BOTTOM | SR-90 TOP |
|---|---|---|---|---|---|---|---|
| 2 | 78 06/03 | 3 ± 1 | 2 ± 1 | .08 ± .06 | .2 ± .1 | .14 ± .04 | .59 ± .08 |
| | 11/06 | 13 ± 6 | 10 ± 5 | < .09 | < .1 | .09 ± .05 | .30 ± .07 |
| 3A | 78 06/03 | 3 ± 1 | 2 ± 1 | < .06 | < .06 | .14 ± .04 | .16 ± .04 |
| | 11/05 | 6 ± 4 | 6 ± 4 | < .1 | < .08 | .26 ± .05 | .22 ± .05 |
| 5 | 78 06/03 | 1.1 ± .9 | < .9 | < .05 | < .06 | .19 ± .04 | .24 ± .05 |
| | 11/05 | 16 ± 6 | < 3 | < .1 | < .07 | .18 ± .05 | .51 ± .05 |

TABLE XXXV

1978 MEAN RADIOACTIVITY CONCENTRATION IN SOIL

RESULTS IN UNITS OF pCi/g (dry) ± 2 SIGMA

| Env. Station No. | Collection Date | Sample | Gross Alpha | Sr-89 | Sr-90 | Cs-137 |
|---|---|---|---|---|---|---|
| ON-SITE LOCATIONS | | | | | | |
| 2 | | | | | | |
| Annual Mean | - | Top 1" | 6.0±11.3 | 0.15±0.14 | 0.45±0.41 | 3.5±3.3 |
| | | Bottom | 8.0±14.1 | 0.085±0.014 | 0.12±0.07 | 0.82±0.51 |
| DISTANT LOCATIONS | | | | | | |
| 3A | | Top 1" | 4.0±5.7 | <0.07 | 0.19±0.08 | 1.3±0.3 |
| Annual Mean | - | Bottom | 4.5±4.2 | <0.08 | 0.13±0.26 | 0.86±0.68 |
| 5 | | Top 1" | 2.0 | <0.07 | 0.38±0.38 | 1.0 |
| Annual Mean | - | Bottom | 8.6±21.1 | <0.08 | 0.19±0.01 | 0.46±0.30 |
| 3A & 5 | | | | | | |
| Semiannual Mean | 6/3 | Top 1" | 1.5±1.6 | <0.06 | 0.20±0.11 | 1.1±0.3 |
| | | Bottom | 2.1±2.7 | <0.06 | 0.17±0.07 | 0.49±0.38 |
| Semiannual Mean | 11/5 | Top 1" | 4.5±4.2 | <0.08 | 0.37±0.41 | 1.2±0.6 |
| | | Bottom | 11±14 | <0.10 | 0.22±0.11 | 0.83±0.76 |

TABLE XXXVI

CONCENTRATIONS OF GAMMA EMITTERS IN SOIL

Results in Units of pCi/g(dry)

| Env. Station No. / RMC Designation / Date | | 2 PB-SOL-13S1 6-03-78 | 2 PB-SOL-13S1 11-06-78 | Average* Site Location | 3A PB-SOL-23D1 6-03-78 | 3A PB-SOL-23D1 11-05-78 | 5 PB-SOL-8E1 6-03-78 | 5 PB-SOL-8E1 11-05-78 | Average of* Distant Locations |
|---|---|---|---|---|---|---|---|---|---|
| Nuclides Found | | | | | | | | | |
| Be-7 | top 1" | 0.5±0.3 | <0.2 | 0.4±0.4 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| | bottom | <0.2 | <0.2 | <0.2 | <0.2 | <0.1 | <0.2 | <0.1 | <0.2 |
| K-40 | top 1" | 5.8±0.6 | 19±2 | 12±19 | 16±2 | 20±2 | 22±2 | 26±3 | 21±8 |
| | bottom | 12±1 | 22±2 | 17±14 | 19±2 | 19±2 | 26±3 | 23±2 | 22±7 |
| Mn-54 | top 1" | 0.02±0.01 | 0.03±0.02 | 0.03±0.01 | <0.02 | <0.02 | <0.02 | <0.02 | <0.02 |
| | bottom | <0.02 | <0.02 | <0.02 | <0.02 | <0.02 | <0.02 | <0.02 | <0.02 |
| Nb-95 | top 1" | 0.16±0.03 | <0.02 | 0.09±0.20 | <0.02 | <0.02 | <0.02 | <0.02 | <0.02 |
| | bottom | <0.02 | <0.02 | <0.02 | <0.02 | <0.02 | <0.02 | <0.01 | <0.02 |
| Zr-95 | top 1" | 0.12±0.04 | <0.03 | 0.08±0.13 | 0.03±0.03 | <0.03 | 0.05±0.04 | <0.03 | 0.04±0.02 |
| | bottom | 0.05±0.04 | <0.03 | 0.04±0.03 | <0.04 | <0.03 | <0.04 | <0.03 | <0.04 |
| Ru-103 | top 1" | 0.16±0.03 | <0.02 | 0.09±0.20 | <0.02 | <0.02 | <0.02 | <0.02 | <0.02 |
| | bottom | 0.05±0.02 | <0.02 | 0.04±0.04 | <0.02 | <0.02 | <0.02 | <0.01 | <0.02 |
| Ru-106 | top 1" | 0.5±0.2 | <0.2 | 0.4±0.4 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| | bottom | <0.2 | <0.2 | <0.2 | <0.2 | <0.1 | <0.2 | <0.1 | <0.2 |
| Sb-125 | top 1" | 0.20±0.05 | 0.10±0.07 | 0.15±0.14 | <0.06 | <0.05 | <0.06 | <0.05 | <0.06 |
| | bottom | <0.06 | <0.05 | <0.06 | <0.06 | <0.05 | <0.05 | <0.05 | <0.05 |
| Cs-137 | top 1" | 4.6±0.5 | 2.3±0.2 | 3.5±3.3 | 1.2±0.1 | 1.4±0.1 | 1.0±0.1 | 1.0±0.1 | 1.2±0.4 |
| | bottom | 1.0±0.1 | 0.64±0.06 | 0.82±0.51 | 0.62±0.06 | 1.1±0.1 | 0.35±0.04 | 0.56±0.06 | 0.66±0.63 |
| Ce-141 | top 1" | 0.12±0.03 | <0.02 | 0.07±0.14 | <0.03 | 0.03±0.02 | <0.04 | <0.02 | 0.03±0.02 |
| | bottom | <0.03 | <0.03 | <0.03 | <0.03 | <0.02 | <0.02 | <0.02 | <0.02 |
| Ce-144 | top 1" | 0.7±0.1 | 0.20±0.08 | 0.45±0.71 | 0.2±0.2 | 0.17±0.08 | <0.2 | 0.24±0.09 | 0.20±0.06 |
| | bottom | 0.1±0.1 | <0.1 | 0.10 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Ra-226 | top 1" | 0.57±0.06 | 1.1±0.1 | 0.84±0.75 | 1.1±0.1 | 1.2±0.1 | 1.1±0.1 | 1.2±0.1 | 1.2±0.1 |
| | bottom | 1.1±0.1 | 1.2±0.1 | 1.2±0.1 | 1.3±0.1 | 1.2±0.1 | 1.2±0.1 | 1.0±0.1 | 1.2±0.3 |
| Th-232 | top 1" | 0.54±0.08 | 1.3±0.1 | 0.92±1.07 | 1.2±0.1 | 1.3±0.1 | 1.4±0.1 | 1.5±0.2 | 1.4±0.3 |
| | bottom | 1.0±0.1 | 1.5±0.2 | 1.3±0.7 | 1.4±0.1 | 1.2±0.2 | 1.5±0.2 | 1.6±0.2 | 1.4±0.3 |
| Other** | top 1" | <MDL | <MDL | <MDL | <MDL | <MDL | <MDL | <MDL | <MDL |
| | bottom | <MDL | <MDL | <MDL | <MDL | <MDL | <MDL | <MDL | <MDL |

* Averages calculated using positive values only.
** For typical minimum detectable levels of nuclides searched for and not found, see table XLI.

TABLE XXXVII
MONTHLY TLD RESULTS
RESULTS IN UNITS OF MRADS/STD. MONTH*

| STATION CODE | 78 MOV. MO. AVG. | 78 01/07-02/04 | 78 02/04-03/05 | 78 03/05-04/01 | 78 04/01-05/06 | 78 05/06-06/03 | 78 06/03-07/02 | 78 07/02-08/05 | 78 08/05-09/03 | 78 09/03-10/01 | 78 10/01-11/05 | 78 11/05-12/02 | 79 12/02-01/06 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1A | 7.56 ; 1.30 | 6.75;0.60 | 6.71;0.49 | 6.50;0.61 | .18;0.70 | 7.51;0.36 | 8.09;1.24 | 7.41;0.23 | 7.59;0.18 | 7.24;0.96 | 7.71;0.42 | 8.57;0.37 | 8.13;0.18 |
| 1B | 6.03 ; 0.84 | 5.84;0.46 | 5.94;0.14 | .28;0.50 | 6.63;0.59 | 6.02;0.65 | 6.23;0.84 | 5.90;0.85 | 5.54;0.09 | 6.28;0.82 | 6.30;0.48 | 6.52;0.69 | 6.12;0.36 |
| 1C | 7.31 ; 1.27 | 6.34;0.37 | 6.67;0.50 | 6.62;0.47 | 8.15;0.60 | 7.37;0.51 | 7.25;0.96 | 7.04;1.48 | (7) | 7.67;0.38 | 7.27;0.66 | 8.44;0.63 | 7.42;0.35 |
| 1D | 6.76 ; 0.97 | 6.25;0.58 | 6.34;0.27 | 5.94;0.40 | 7.02;0.47 | 6.47;0.77 | 6.79;1.44 | 7.00;0.65 | 6.13;0.18 | 7.20;0.66 | 7.20;0.42 | 7.39;0.38 | 7.10;0.13 |
| 1E | 6.85 ; 1.22 | 6.59;0.24 | 6.06;0.24 | 5.95;0.69 | 7.53;0.65 | 6.94;0.55 | 6.92;1.02 | 6.48;1.17 | 6.27;0.32 | 7.00;0.90 | 7.31;0.48 | 8.04;0.12 | 6.96;0.28 |
| 1F | 8.13 ; 1.13 | 7.41;0.73 | 7.48;0.80 | 7.64;0.43 | 7.76;1.03 | 8.42;0.29 | 8.06;0.80 | 8.13;1.04 | 7.71;0.79 | 8.62;0.88 | 8.33;0.25 | 9.29;0.89 | 8.66;0.71 |
| 1G | .42 ; 0.97 | 5.49;0.52 | 5.48;0.56 | 4.64;0.46 | 5.77;0.28 | 5.39;0.19 | 5.18;0.53 | 5.09;0.26 | 4.93;0.19 | 5.85;0.25 | 5.36;0.24 | 6.55;0.51 | 5.38;0.25 |
| 1H | 7.20 ; 1.26 | 7.09;0.53 | 6.90;0.20 | 6.10;0.57 | 7.40;0.55 | 7.35;1.04 | 7.00;0.42 | 6.88;0.81 | 6.54;0.36 | 7.96;0.32 | 7.35;0.42 | 8.55;0.85 | 7.24;0.53 |
| 1I | 5.64 ; 1.02 | 5.14;0.41 | 5.56;0.39 | 5.05;0.78 | 6.23;0.55 | 5.62;0.49 | 5.50;0.89 | 5.18;0.66 | (7) | 5.71;0.73 | 5.59;0.24 | 6.83;0.77 | 5.67;0.28 |
| 1J | 8.04 ; 1.33 | (1) | 7.36;0.39 | 7.01;0.41 | 8.65;0.73 | 8.19;1.47 | 7.92;0.95 | 7.64;0.88 | 7.76;0.19 | 8.21;0.60 | 8.10;0.22 | 9.54;0.64 | 8.02;0.42 |
| 1K | 27.79 ;15.35 | 31.15;1.70 | 30.75;2.07 | 25.71;3.23 | 32.27;1.50 | 14.95;0.59 | 25.11;1.80 | 30.01;2.43 | 28.26;1.51 | 27.57;4.31 | 30.71;2.19 | 35.33;3.87 | 37.82;2.15 |
| 1L | 5.98 ; 1.14 | 6.15;0.61 | 6.66;0.36 | 5.60;0.82 | 5.47;0.44 | 5.11;0.43 | 5.65;0.45 | 5.82;1.76 | 5.76;0.10 | 6.09;0.49 | 5.90;0.58 | 7.20;0.93 | 6.49;0.41 |
| 1M | 4.05 ; 0.70 | 3.93;0.15 | 4.35;0.70 | 3.75;0.27 | 4.29;0.42 | 4.16;0.33 | 4.20;0.76 | 3.57;0.94 | 3.49;0.25 | 4.36;0.61 | 3.95;0.21 | 4.70;0.34 | 3.95;0.34 |
| 2 | 6.68 ; 1.24 | 6.07;0.76 | 5.96;0.24 | 5.92;0.32 | 7.37;0.50 | 6.61;0.39 | 6.44;0.09 | 6.61;0.67 | 6.00;0.21 | 6.89;0.30 | 7.20;0.32 | 7.98;0.41 | 6.90;0.24 |
| 3A | 5.35 ; 0.86 | 5.21;0.56 | 5.07;0.33 | 4.76;0.42 | 5.90;0.44 | 5.53;0.12 | 5.23;0.18 | 5.04;0.31 | 4.83;0.24 | 5.27;0.48 | 5.54;0.39 | 6.25;0.09 | 5.53;0.28 |
| 4A | 4.67 ; 0.95 | 4.51;0.26 | 5.46;0.12 | 4.08;0.52 | 5.05;0.24 | 4.57;0.20 | 4.27;0.50 | 4.35;0.22 | 3.96;0.31 | 4.60;0.22 | 4.70;0.38 | 5.35;0.10 | 5.03;0.21 |
| 5 | 6.50 ; 1.03 | 5.92;0.69 | 5.92;0.47 | 5.93;0.79 | 7.17;0.46 | 6.32;0.31 | 6.66;0.49 | 6.28;0.64 | 5.93;0.23 | 6.67;0.41 | 6.86;0.27 | 7.44;0.03 | 6.65;0.37 |
| 6A | 6.06 ; 1.09 | 5.90;0.54 | 6.40;0.37 | 6.10;0.33 | 6.41;0.65 | 5.80;0.43 | 5.33;1.13 | 5.86;0.65 | 5.26;0.23 | 6.41;1.22 | 5.92;0.24 | 7.02;0.99 | 6.02;0.10 |
| 7A | 6.74 ; 0.98 | 6.59;0.43 | 6.74;0.26 | 6.65;0.41 | 7.62;0.43 | 6.63;0.23 | 6.43;0.52 | 6.26;0.40 | 5.73;0.61 | 7.12;0.99 | 6.85;0.35 | 7.33;0.84 | 6.79;0.41 |
| 7B | 7.04 ; 1.32 | 5.96;0.40 | 6.84;0.35 | 6.43;0.92 | 7.99;0.33 | 7.23;0.56 | 6.93;0.56 | 6.55;0.63 | 6.30;0.21 | 7.52;0.45 | 7.33;0.36 | 8.13;0.48 | 7.15;0.37 |
| 7C | 7.01 ; 1.12 | 6.62;0.31 | 6.64;0.58 | 6.40;0.70 | 7.72;1.06 | 7.43;0.43 | 7.39;0.56 | 6.39;0.29 | 6.10;0.08 | 7.04;0.88 | 7.17;0.89 | 7.83;0.64 | 7.29;0.10 |
| 7D | 7.81 ; 1.46 | 7.38;0.44 | 7.87;0.42 | 6.36;1.23 | 8.54;0.86 | 8.11;0.53 | 7.67;0.95 | 7.31;1.06 | 6.79;0.57 | 8.08;1.02 | 8.69;1.08 | 8.71;0.93 | 7.95;0.42 |
| 7E | 7.37 ; 1.02 | 6.83;0.73 | 6.82;0.60 | 6.73;0.63 | 7.83;0.81 | 7.48;0.24 | 7.22;0.70 | 7.27;0.41 | 6.91;1.24 | 7.92;0.48 | 7.40;0.84 | 8.42;0.50 | 7.54;0.51 |
| 7F | 6.97 ; 1.56 | 6.00;0.62 | (3) | 6.12;1.02 | 7.17;0.71 | 7.15;0.72 | 6.64;0.44 | (6) | 6.00;0.40 | 7.78;0.80 | 7.56;0.60 | 8.28;0.84 | 6.92;0.46 |

; INDICATES PLUS OR MINUS SIGN

TABLE XXXVII (CONTINUED)
MONTHLY TLD RESULTS
RESULTS IN UNITS OF MRADS/STD. MONTH*

| STATION CODE | EQV.MO.AVG. | 78 01/07-02/04 | 78 02/04-03/05 | 78 03/05-04/01 | 78 04/01-05/06 | 78 05/06-06/03 | 78 06/03-07/02 | 78 07/02-08/05 | 78 08/05-09/03 | 78 09/03-10/01 | 78 10/01-11/05 | 78 11/05-12/02 | 79 12/02-01/06 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 20 | 8.06 ; 1.42 | 7.63;0.52 | 8.80;0.44 | 7.97;1.26 | 9.01;0.33 | 7.91;0.76 | 7.76;0.40 | 7.76;0.37 | 6.28;0.31 | 8.26;0.40 | 8.22;0.79 | 8.69;0.42 | 8.22;0.42 |
| 21B | 7.42 ; 1.82 | 7.68;0.76 | 8.09;0.60 | 7.55;0.69 | 9.29;0.42 | (4) | (4) | 6.63;0.27 | 5.81;0.40 | 7.28;0.64 | 7.12;0.62 | 7.50;0.26 | 7.14;0.30 |
| 22 | 7.03 ; 1.56 | 6.80;0.63 | 7.44;0.53 | 6.74;0.49 | 7.42;0.15 | (5) | 6.86;0.68 | 6.17;0.76 | 6.04;0.28 | (8) | ;0.62 | 8.80;0.66 | 6.84;0.31 |
| 23 | 7.10 ; 1.53 | 7.31;0.60 | 5.81;0.52 | 6.20;0.44 | 7.56;0.76 | 7.22;0.88 | 7.18;0.76 | 6.94;0.40 | 6.21;0.72 | 6.95;0.77 | 7.76;0.83 | 8.64;0.77 | 7.28;0.53 |
| 24 | 5.50 ; 0.96 | 5.43;0.44 | 5.40;0.34 | 5.13;0.39 | 5.98;0.43 | 5.40;0.85 | 5.03;0.19 | 5.21;0.69 | 4.88;0.49 | 5.70;0.33 | 5.87;0.29 | 6.61;0.43 | 5.31;0.26 |
| 26 | 7.81 ; 1.46 | 6.74;0.36 | 8.10;0.30 | 7.12;0.47 | 8.63;0.82 | 7.55;0.75 | 8.32;1.45 | 7.31;0.65 | 6.85;0.33 | 7.54;0.53 | 8.40;0.70 | 9.05;0.73 | 7.84;0.38 |
| 27 | 7.58 ; 1.33 | 6.99;0.55 | 7.18;0.11 | 6.56;0.36 | 8.36;0.67 | 7.25;0.77 | 8.68;1.84 | 7.58;0.97 | 6.59;0.43 | 7.74;0.86 | 7.77;0.20 | 8.15;0.77 | 7.80;0.32 |
| 31 | 6.91 ; 1.23 | 6.59;0.81 | 6.48;0.44 | 6.10;0.22 | 7.67;0.91 | 7.00;0.69 | 6.84;0.75 | 6.68;0.44 | 5.98;0.21 | 7.23;0.75 | 6.97;0.47 | 8.15;0.96 | 7.11;0.59 |
| 32 | 7.55 ; 1.62 | 6.99;0.35 | 6.23;0.22 | 6.41;0.37 | 8.62;0.40 | 7.50;0.60 | 7.79;0.65 | 7.87;0.27 | 6.40;0.23 | 8.04;0.66 | 7.96;0.21 | 8.38;0.34 | 7.98;0.30 |
| 33A | 5.44 ; 1.21 | 5.40;0.89 | 5.20;0.31 | 4.91;0.34 | 6.50;0.89 | 5.29;0.23 | 5.37;0.84 | 5.17;0.50 | 4.28;0.52 | 5.54;0.38 | 5.56;0.25 | 6.49;0.36 | 5.44;0.59 |
| 38 | 7.55 ; 1.29 | (2) | 7.13;0.21 | 6.77;0.30 | 7.86;0.71 | 7.06;0.57 | 7.73;0.94 | 7.85;0.95 | 6.59;0.21 | 7.61;0.28 | 7.84;0.90 | 8.94;0.92 | 7.50;0.56 |

| STATION CODE | EQV.MO.AVG. | 78 01/05-02/06 | 78 02/03-03/06 | 78 03/03-04/03 | 78 04/03-05/05 | 78 05/05-06/05 | 78 06/05-07/03 | 78 07/03-08/07 | 78 08/07-09/05 | 78 09/05-10/02 | 78 10/02-11/06 | 78 11/06-12/04 | 79 12/04-01/08 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12B | 5.51 ; 1.62 | 4.09;0.89 | 5.69;0.15 | 4.16;0.37 | 6.67;0.49 | 5.61;0.39 | 5.57;0.62 | 4.74;0.45 | 5.66;0.25 | 6.20;0.37 | 5.78;0.12 | 5.60;0.78 | 6.41;0.42 |

(1) TLDs were buried in snow at station 1J during January.
(2) Station 38 was vandalized in January and TLDs were not read.
(3) TLDs were stolen from station 19 in February.
(4) TLDs were inadvertently removed from station 21B in May and June.
(5) TLDs were stolen from station 22 in May.
(6) Station 19 was vandalized in July, and the TLDs were stolen.
(7) Stations 1C and 1I were vandalized in August, and the TLDs were stolen.
(8) Station 22 was vandalized in September, and the TLDs were stolen.
(9) TLDs were stolen from station 4K during the fourth quarter.

; INDICATES PLUS OR MINUS SIGN

TABLE XXXVIII
QUARTERLY TLD RESULTS
RESULTS IN UNITS OF MRADS/STD. MONTH*

| STATION CODE | EQV. MO. AVG. | 78 01/07-04/01 | 78 04/01-07/02 | 78 07/02-10/01 | 79 10/01-01/06 |
|---|---|---|---|---|---|
| 1A | 7.10 ; 0.77 | 6.63;0.47 | 7.26;0.36 | 6.94;0.18 | 7.51;0.54 |
| 1B | 5.44 ; 0.82 | 5.21;0.23 | 5.18;0.27 | 5.27;0.26 | 6.05;0.47 |
| 1C | 6.98 ; 1.45 | 6.25;0.49 | 6.89;0.56 | (6) | 7.70;0.56 |
| 1D | 6.33 ; 1.11 | 5.87;0.50 | 6.24;0.32 | 6.01;0.63 | 7.11;0.96 |
| 1E | 6.41 ; 0.93 | 5.81;0.34 | 6.56;0.78 | 6.29;0.69 | 6.91;0.33 |
| 1F | 7.56 ; 1.27 | 6.72;0.55 | 7.60;0.47 | 7.54;0.72 | 8.27;0.21 |
| 1G | 4.84 ; 0.96 | 4.68;0.29 | 4.71;0.23 | 4.40;0.15 | 5.52;0.54 |
| 1H | 6.37 ; 1.06 | 5.75;0.36 | 6.33;1.00 | 6.27;0.58 | 7.05;0.34 |
| 1I | 5.28 ; 0.88 | 5.13;0.21 | 4.92;0.63 | (6) | 5.76;0.42 |
| 1J | 7.58 ; 0.96 | (1) | 7.45;0.39 | 7.16;0.91 | 8.10;0.25 |
| 1K | 27.32 ;15.85 | 30.39;2.69 | 16.09;2.08 | 28.16;2.34 | 34.54;4.20 |
| 1L | 5.40 ; 1.05 | 5.62;0.36 | 4.78;0.48 | 5.19;0.10 | 5.99;0.59 |
| 1M | 3.69 ; 0.53 | 3.82;0.37 | 3.69;0.20 | 3.32;0.41 | 3.94;0.21 |
| 2 | 6.11 ; 1.31 | 5.55;0.22 | 6.09;0.60 | 5.68;0.42 | 7.00;0.19 |
| 3A | 4.85 ; 0.76 | 4.60;0.18 | 4.72;0.59 | 4.64;0.20 | 5.40;0.22 |
| 4K | 4.09 ; 0.32 | 4.28;0.43 | 4.04;0.59 | 3.97;0.43 | (8) |
| 5 | 5.97 ; 1.38 | 5.31;0.14 | 5.87;0.56 | 5.66;0.15 | 6.91;0.71 |
| 6B | 5.74 ; 0.88 | 6.16;1.35 | 5.55;0.45 | 5.21;0.69 | 6.04;0.50 |
| 14 | 6.26 ; 1.01 | 5.64;0.94 | 6.28;0.32 | 6.16;0.19 | 6.86;0.74 |
| 15 | 6.58 ; 1.32 | 5.68;0.44 | 6.75;1.18 | 6.53;0.34 | 7.26;0.31 |
| 16 | 6.47 ; 0.68 | 6.03;0.25 | 6.57;0.17 | 6.37;0.09 | 6.84;0.34 |
| 17 | 7.53 ; 0.80 | 7.19;0.56 | 7.62;0.94 | 7.22;0.75 | 8.04;0.48 |
| 18 | 7.03 ; 1.10 | 6.41;0.35 | 7.21;0.49 | 6.74;0.25 | 7.66;0.24 |
| 19 | 6.61 ; 1.56 | (3) | 6.04;0.39 | (5) | 7.15;0.39 |

; INDICATES PLUS OR MINUS SIGN

TABLE XXXVIII (CONTINUED)
QUARTERLY TLD RESULTS
RESULTS IN UNITS OF MRADS/STD. MONTH*

| STATION CODE | EQV.MO.AVG. | 78 01/07-04/01 | 78 04/01-07/02 | 78 07/02-10/01 | 79 10/01-01/06 |
|---|---|---|---|---|---|
| 20 | 7.52 ; 0.97 | 7.66;0.52 | 7.39;0.50 | 6.93;0.62 | 8.09;0.36 |
| 21B | 6.87 ; 1.53 | 7.70;0.32 | (4) | 6.19;0.71 | 6.78;0.27 |
| 22 | 6.55 ; 0.70 | 6.13;0.36 | 6.72;0.65 | (7) | 6.75;0.63 |
| 23 | 6.70 ; 1.42 | 5.77;0.45 | 6.91;0.38 | 6.54;0.62 | 7.46;0.35 |
| 24 | 5.22 ; 0.71 | 4.73;0.26 | 5.30;0.49 | 5.20;0.60 | 5.58;0.56 |
| 26 | 7.13 ; 0.69 | 6.91;0.27 | 7.10;0.43 | 6.86;0.31 | 7.61;0.27 |
| 27 | 7.06 ; 1.13 | 6.65;0.85 | 6.86;1.07 | 6.76;0.32 | 7.87;0.36 |
| 31 | 6.47 ; 1.01 | 6.09;0.62 | 6.37;0.29 | 6.16;0.53 | 7.18;0.76 |
| 32 | 6.86 ; 1.35 | 6.15;0.81 | 7.14;0.48 | 6.42;0.43 | 7.63;0.52 |
| 33A | 4.87 ; 0.80 | 4.39;0.35 | 5.02;0.31 | 4.68;0.26 | 5.31;0.58 |
| 38 | 7.16 ; 0.54 | (2) | 7.11;0.40 | 6.91;0.56 | 7.45;0.19 |

| STATION CODE | EQV.MO.AVG. | 78 01/05-04/03 | 78 04/03-07/03 | 78 07/03-10/02 | 79 10/02-01/08 |
|---|---|---|---|---|---|
| 12B | 5.16 ; 0.92 | 4.63;0.34 | 5.35;0.19 | 4.94;0.59 | 5.68;0.18 |

(1) TLDs were buried in snow at station 1J during January.
(2) Station 38 was vandalized in January and TLDs were not read.
(3) TLDs were stolen from station 19 in February.
(4) TLDs were inadvertently removed from station 21B in May and June.
(5) Station 19 was vandalized in July, and the TLDs were stolen.
(6) Stations 1C and 1I were vandalized in August, and the TLDs were stolen.
(7) Station 22 was vandalized in September, and the TLDs were stolen.
(8) TLDs were stolen from station 4K during the fourth quarter.



; INDICATES PLUS OR MINUS SIGN

TABLE XXXIX
MEAN MONTHLY AND QUARTERLY TLD RESULTS FOR THE SITE
BOUNDARY, MIDDLE, AND OUTER RINGS

RESULTS IN UNITS OF MRAD/STD. MONTH ± 2 SIGMA DEVIATION OF THE DATA

| SAMPLE TYPE | EXPOSURE PERIOD | SITE | MIDDLE RING | OUTER RING |
|---|---|---|---|---|
| Monthly | Jan/78-Feb/78 | 6.08 ± 1.95 | 6.31 ± 1.70 | 6.33 ± 2.55 |
| | Feb/78-Mar/78 | 6.29 ± 1.79 | 6.56 ± 1.86 | 6.91 ± 2.66 |
| | Mar/78-Apr/78 | 5.86 ± 2.14 | 6.07 ± 1.69 | 6.29 ± 2.65 |
| | Apr/78-May/78 | 6.91 ± 2.57 | 7.42 ± 2.11 | 7.66 ± 2.39 |
| | May/78-Jun/78 | 6.55 ± 2.61 | 6.65 ± 2.02 | 6.83 ± 2.11 |
| | Jun/78-Jul/78 | 6.51 ± 2.31 | 6.75 ± 2.50 | 6.60 ± 2.17 |
| | Jul/78-Aug/78 | 6.38 ± 2.52 | 6.48 ± 2.11 | 6.33 ± 2.33 |
| | Aug/78-Sep/78 | 6.01 ± 2.50 | 5.85 ± 1.78 | 5.95 ± 1.24 |
| | Sep/78-Oct/78 | 6.92 ± 2.46 | 6.88 ± 2.14 | 7.16 ± 1.87 |
| | Oct/78-Nov/78 | 6.75 ± 2.56 | 7.02 ± 2.32 | 7.02 ± 1.78 |
| | Nov/78-Dec/78 | 7.64 ± 2.78 | 7.79 ± 2.21 | 7.56 ± 2.21 |
| | Dec/78-Jan/79 | 6.75 ± 2.56 | 6.86 ± 1.92 | 6.98 ± 1.84 |
| Quarterly | Jan/78-Apr/78 | 5.53 ± 1.62 | 5.78 ± 1.78 | 6.19 ± 2.70 |
| | Apr/78-Jul/78 | 5.96 ± 2.46 | 6.27 ± 2.06 | 6.31 ± 1.80 |
| | Jul/78-Oct/78 | 5.71 ± 2.50 | 5.98 ± 1.99 | 6.06 ± 1.63 |
| | Oct/78-Jan/79 | 6.69 ± 2.51 | 6.98 ± 1.71 | 6.82 ± 1.87 |



Site Boundary Ring Stations - 1B, 1C, 1D, 1E, 1F, 1G, 1H, 1J, 1L, 1M, 2

Middle Ring Stations - 3A, 4K, 5, 6B, 14, 15, 17, 22, 23 26, 27, 31, 32 33A, 38

Outer Ring Stations - 12B , 16, 18, 19, 20, 21B, 24

* Correction for fading was not included in monthly and quarterly results

TABLE XL

GAMMA SPECTROMETRY OF ALL MEDIA

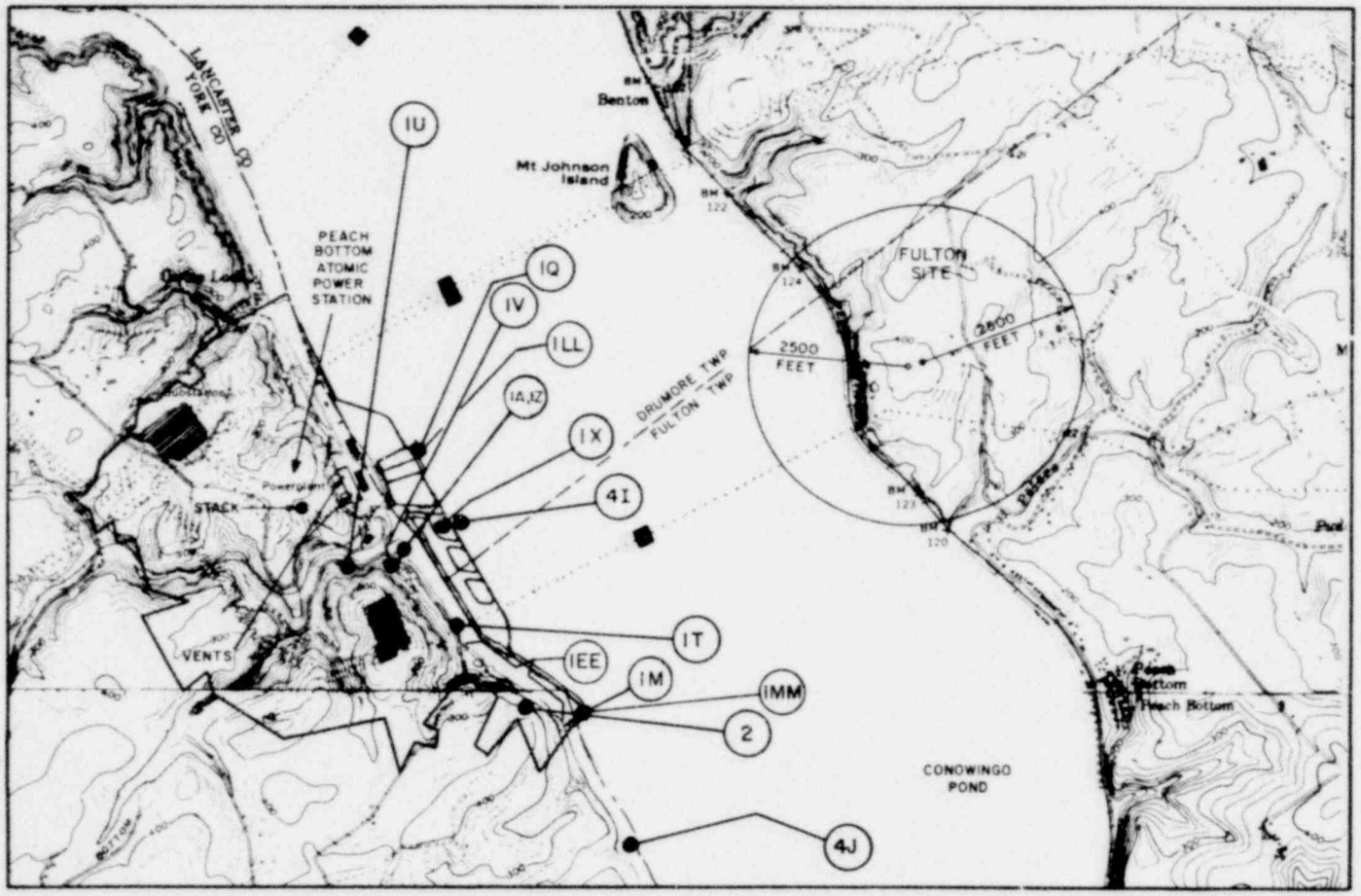
TYPICAL MINIMUM DETECTABLE LEVELS OF NUCLIDES SEARCHED FOR BUT NOT FOUND

| NUCLIDE | SURFACE WATER (pCi/l) | DISCHARGE WATER (pCi/l) | RAIN WATER (pCi/l) | AIR PARTICULATES ($10^{-3}$ pCi/$m^3$) | MILK (pCi/l) | SOIL (pCi/g-dry) |
|---|---|---|---|---|---|---|
| Ce-144 | 3.0 | 2.0 | 4.0 | 4.0 | 2.0 | 0.1 |
| I-131 | 0.4 | 0.4 | 0.6 | 0.6 | 0.6 | 0.02 |
| Cs-137 | 0.5 | 0.5 | 0.7 | - | - | - |
| ZrNb-95 | 0.4 | 0.4 | 0.7 | 1.0 | 0.7 | 0.03 |
| Th-232 | 2.0 | 2.0 | 3.0 | 3.0 | 3.0 | - |
| Co-60 | 0.6 | 0.6 | 0.9 | 0.9 | 0.9 | 0.02 |
| Te-132 | 0.3 | 0.3 | 0.5 | 0.5 | 0.5 | 0.01 |
| Na-22 | 0.4 | 0.4 | 0.6 | 0.6 | 0.7 | 0.02 |
| Ag-110m | 0.4 | 0.4 | 0.9 | 2.0 | 0.7 | 0.06 |
| Cs-134 | 0.5 | 0.5 | 0.6 | 0.6 | 0.9 | 0.03 |
| Fe-59 | 0.9 | 0.9 | 1.0 | 1.0 | 2.0 | 0.04 |
| K-40 | 6.0 | 6.0 | 8.0 | 10 | - | - |
| Cr-51 | 3.0 | 3.0 | 5.0 | 5.0 | 5.0 | 0.1 |
| RuRh-106 | 3.0 | 4.0 | 6.0 | 7.0 | 5.0 | 0.2 |
| Te-129m | 7.0 | 7.0 | 10.0 | 9.0 | 10 | 0.3 |
| Co-58 | 0.5 | 0.5 | 0.6 | 0.5 | 0.8 | 0.02 |
| Cs-136 | 0.7 | 0.6 | 0.8 | 0.9 | 1.0 | 0.02 |
| BaLa-140 | 0.6 | 0.5 | 0.8 | 1.0 | 0.6 | 0.03 |
| Ra-226 | 0.9 | 0.8 | 1.0 | 2.0 | 1.0 | - |
| I-133 | 0.5 | 0.5 | 0.6 | 0.6 | 0.5 | 0.02 |
| Mo-99 | 3.0 | 3.0 | 4.0 | 4.0 | 4.0 | 0.1 |
| Mn-54 | 0.5 | 0.4 | 0.6 | 0.5 | 0.8 | 0.02 |
| Zn-65 | 1.0 | 1.0 | 1.0 | 1.0 | 2.0 | 0.04 |
| Sb-125 | * | * | 0.9 | 2.0 | * | 0.05 |
| Ce-141 | * | * | 0.6 | 0.8 | * | 0.03 |
| Ru-103 | * | * | 0.4 | 0.6 | * | 0.02 |
| Be-7 | * | * | - | - | * | 0.2 |

* Minimum detectable levels of these nuclides were not calculated for these media.

Dash (-) indicates a positive concentration was measured in all samples analyzed.

VI. FIGURES



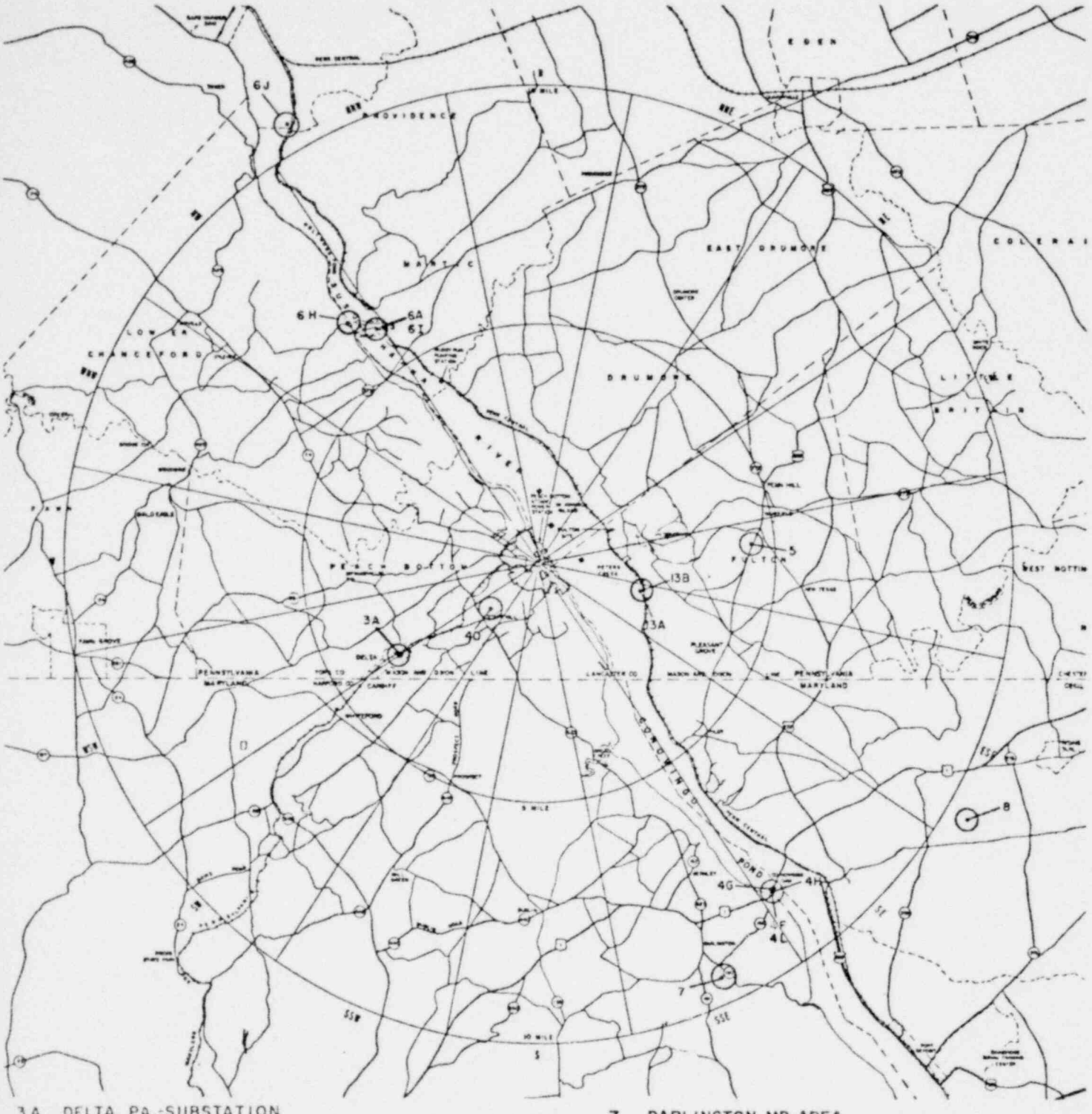

## LEGEND

- ● ENVIRONMENTAL SAMPLING STATIONS

| | |
|---|---|
| 1A | PEACH BOTTOM WEATHER STATION NO. 1 |
| 1LL | PEACH BOTTOM UNITS 2 & 3 INTAKE - COMPOSITE |
| 1M | PEACH BOTTOM CANAL DISCHARGE |
| 1MM | PEACH BOTTOM CANAL DISCHARGE - COMPOSITE |
| 1Q | PEACH BOTTOM UNIT NO. 2 INTAKE |
| 1T | PEACH BOTTOM DISCHARGE CANAL - 2200 ( FT. ) |
| 1U | PEACH BOTTOM SITE-UTILITY BUILDING |
| 1V | PEACH BOTTOM SITE-INFORMATION CENTER |
| 1X | PEACH BOTTOM SITE - COOLING TOWER POND B-1 |
| 1Z | PEACH BOTTOM WEATHER STATION NO. 1 |
| 1EE | PEACH BOTTOM DISCHARGE CANAL - BELOW RADWASTE DISCHARGE |
| 2 | PEACH BOTTOM 130° SECTOR HILL |
| 4I | CONOWINGO POND, PA. - NET TRAP NO. 8 |
| 4J | CONOWINGO POND, PA. - NET TRAP NO. 15 |

ENVIRONMENTAL SAMPLING STATIONS ON OR NEAR PEACH BOTTOM SITE.

FIGURE 1

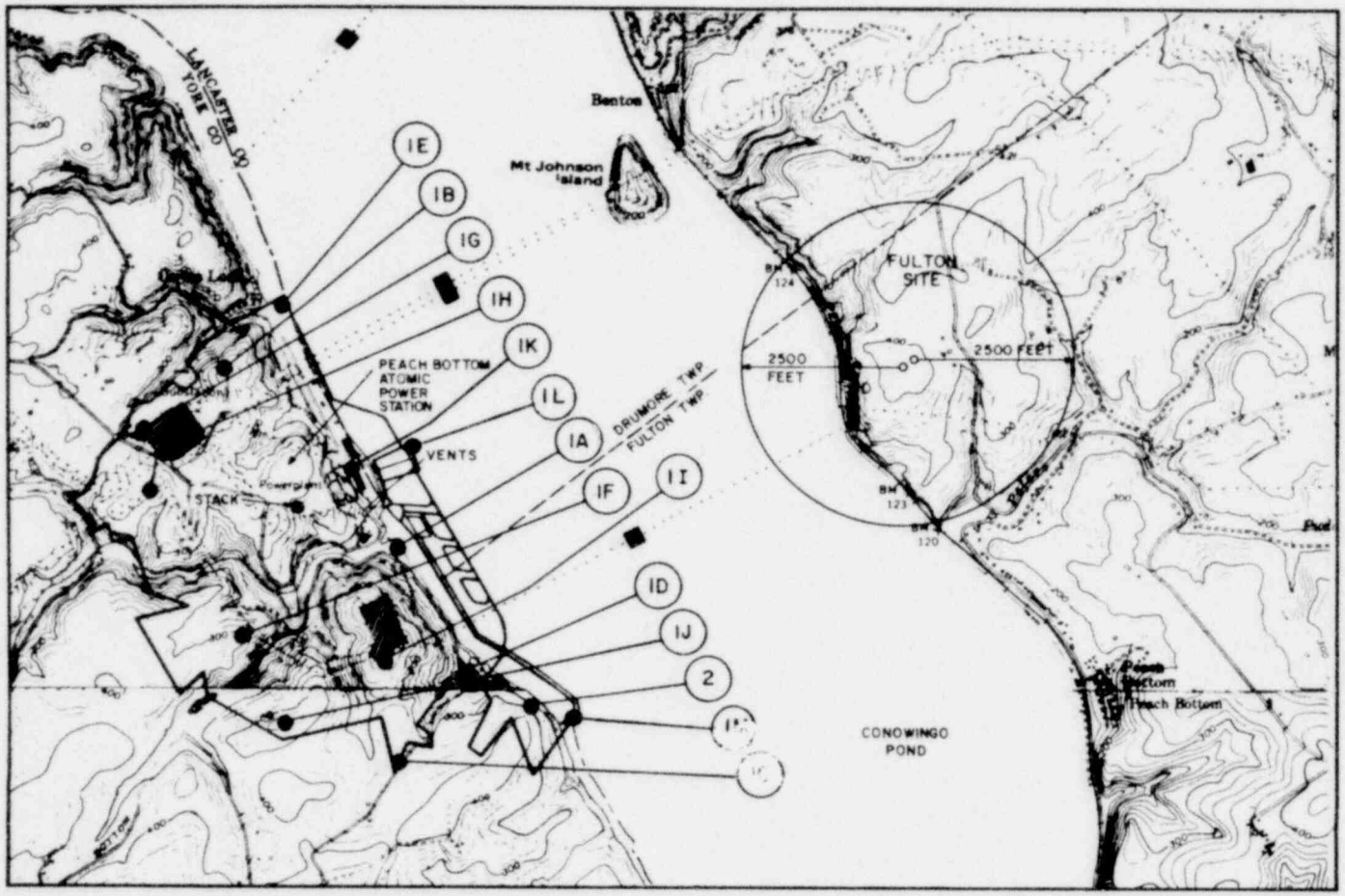



3A DELTA PA.-SUBSTATION
4F CONOWINGO DAM - EL. 33 (FT.) MSL GRAB
4G CONOWINGO DAM - SURFACE
4H CONOWINGO DAM - TAILFACE
4L CONOWINGO DAM - EL. 33 (FT.) MSL COMPOSITE
5 WAKEFIELD
6A HOLTWOOD DAM - HYDROELECTRIC STATION - GRAB
6H HOLTWOOD POND
6I HOLTWOOD DAM - HYDROELECTRIC STATION - COMPOSITE
6J HOLTWOOD POND, PA.
7 DARLINGTON, MD. AREA
8 COLORA, MD.
13A CHESTER WATER INTAKE - POND
13B CHESTER WATER INTAKE - PUMP DISCHARGE
40 PEACH BOTTOM SITE AREA

ENVIRONMENTAL SAMPLING STATIONS
AT INTERMEDIATE DISTANCES FROM PEACH BOTTOM SITE

**FIGURE 2**

2339 290




## LEGEND

- ● GAMMA DOSIMETER STATIONS

| | |
|---|---|
| IA | PEACH BOTTOM WEATHER STATION #1 |
| IB | PEACH BOTTOM WEATHER STATION #2 |
| IC | PEACH BOTTOM SOUTH SUBSTATION RD |
| ID | PEACH BOTTOM 140° SECTOR SITE BOUNDARY |
| IE | PEACH BOTTOM 350° SECTOR SITE BOUNDARY |
| IF | PEACH BOTTOM SITE – 200° SECTOR HILL |
| IG | PEACH BOTTOM NORTH SUBSTATION |
| IH | PEACH BOTTOM SITE – 270° SECTOR HILL |
| II | PEACH BOTTOM SOUTH SUBSTATION |
| IJ | PEACH BOTTOM SITE – 180° SECTOR HILL |
| IK | PEACH BOTTOM UNITS 2 & 3 ADMIN BLDG |
| IL | PEACH BOTTOM UNITS 2 & 3 INTAKE |
| IM | PEACH BOTTOM CANAL DISCHARGE |
| 2 | PEACH BOTTOM 130° SECTOR HILL |

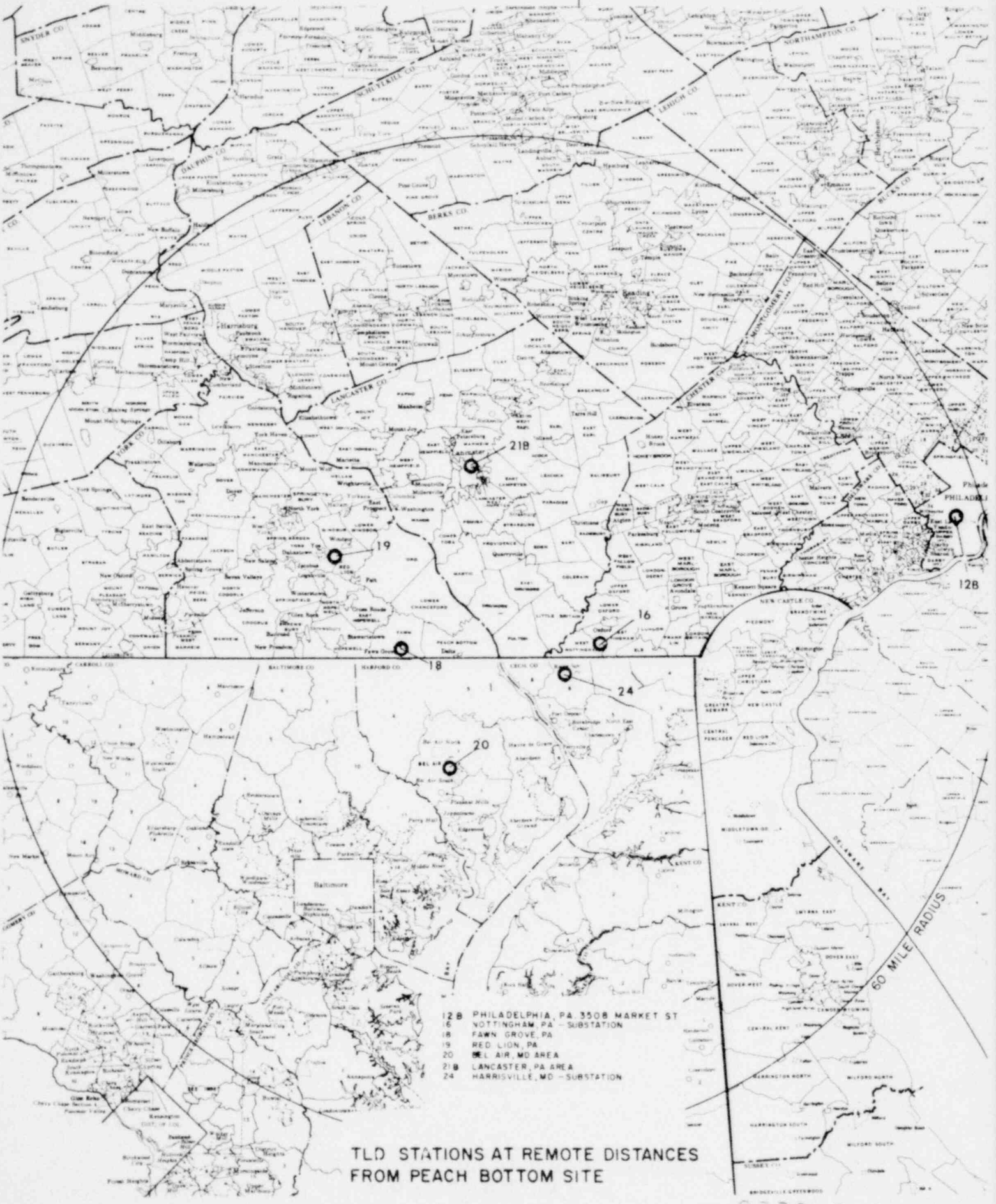
TLD STATIONS ON PEACH BOTTOM SITE

FIGURE 3


| | |
|---|---|
| 3A | DELTA, PA. - SUBSTATION |
| 4K | CONOWINGO DAM - POWERHOUSE ROOF |
| 5 | WAKEFIELD, PA. |
| 6B | HOLTWOOD DAM - HYDROELECTRIC STATION |
| 14 | PETERS CREEK |
| 15 | SILVER SPRING ROAD |
| 17 | RIVERVIEW ROAD |
| 22 | EAGLE ROAD |
| 23 | PEACH BOTTOM - 150° SECTOR OFF SITE |
| 26 | SLAB ROAD |
| 27 | NORTH COOPER ROAD |
| 31 | PILOTOWN ROAD |
| 32 | SLATE HILL ROAD |
| 33A | FULTON WEATHER STATION |
| 38 | PEACH BOTTOM ROAD |

TLD STATIONS AT INTERMEDIATE
DISTANCES FROM PEACH BOTTOM SITE
FIGURE 4

2337 292




TLD STATIONS AT REMOTE DISTANCES FROM PEACH BOTTOM SITE

FIGURE 5

A COMPARISON OF AQUEOUS TRITIUM CONCENTRATION IN SURFACE WATER

AT CONOWINGO AND HOLTWOOD DAMS (TOTAL SAMPLE - COMPOSITE)

Station 6I (PB-SW-33F4) - Holtwood Dam

Station 4L (PB-SW-14F5) - Conowingo Dam - EL 33' MSL (Composite)

If More Than One Value The Same

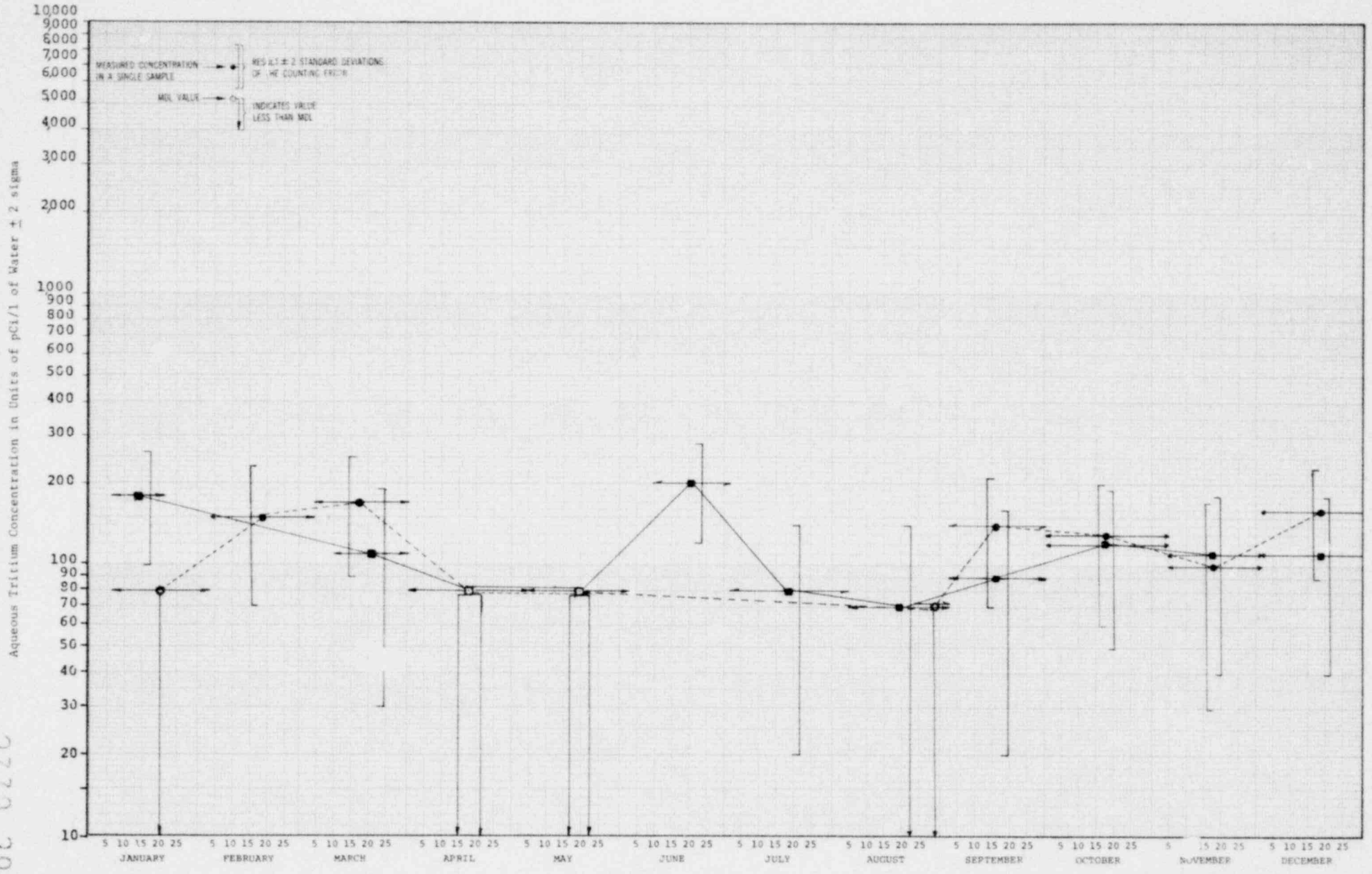



FIGURE 6

2279 294

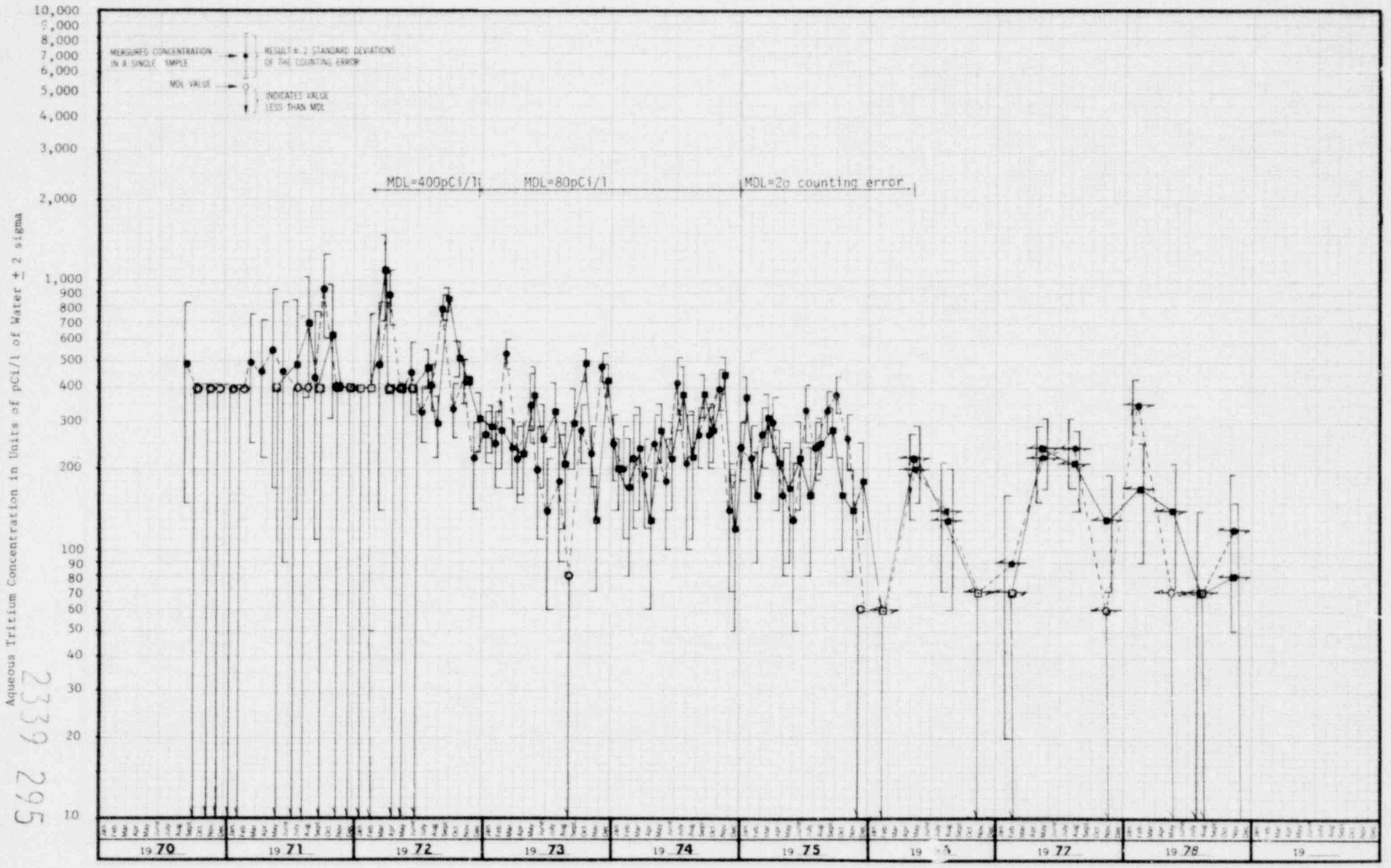
A COMPARISON OF AQUEOUS TRITIUM CONCENTRATIONS IN SURFACE WATER

AT CONOWINGO AND HOLTWOOD DAM (TOTAL SAMPLE - COMPOSITE)

Station 6A (PB-SW-33F1) - Holtwood Dam

Station 4 F (PB-SW-14F2) - Conowingo Dam

Both Values The Same




2339 295

FIGURE 7

A COMPARISON OF GROSS BETA CONCENTRATIONS IN SURFACE WATER

AT CONOWINGO AND HOLTWOOD DAMS (SOLUBLE FRACTION - GRAB)

Station 4F - (PB-SW-33F1) - Conowingo Dam - EL 33' MSL (Grab)

Station 6A (PB-SW-33F1) - Holtwood Dam

Station 4G (PB-SW-14F3) Conowingo Dam-Surface

If More Than One Value the Same

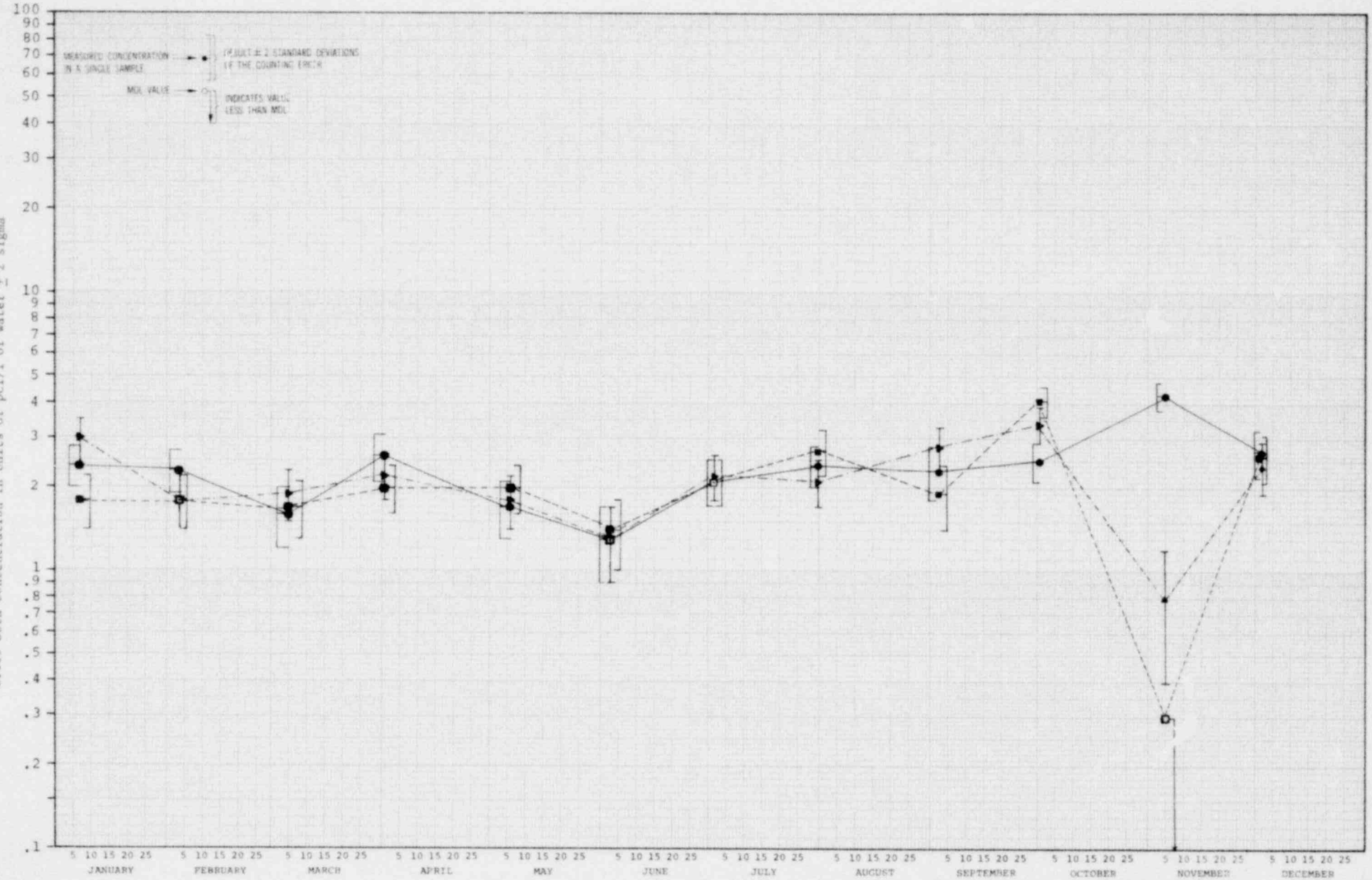



FIGURE 8

2339 296

A COMPARISON OF GROSS BETA CONCENTRATIONS IN SURFACE WATER

AT CONOWINGO AND HOLTWOOD DAMS (INSOLUBLE FRACTION - GRAB)

Station 4F (PB-SW-33F1) - Conowingo Dam - EL 33' MSL (Grab)
Station 4G (PB-SW-14F3) Conowingo Dam-Surface
Station 6A (PB-SW-33F1) - Holtwood Dam
If More Than One Value The Same

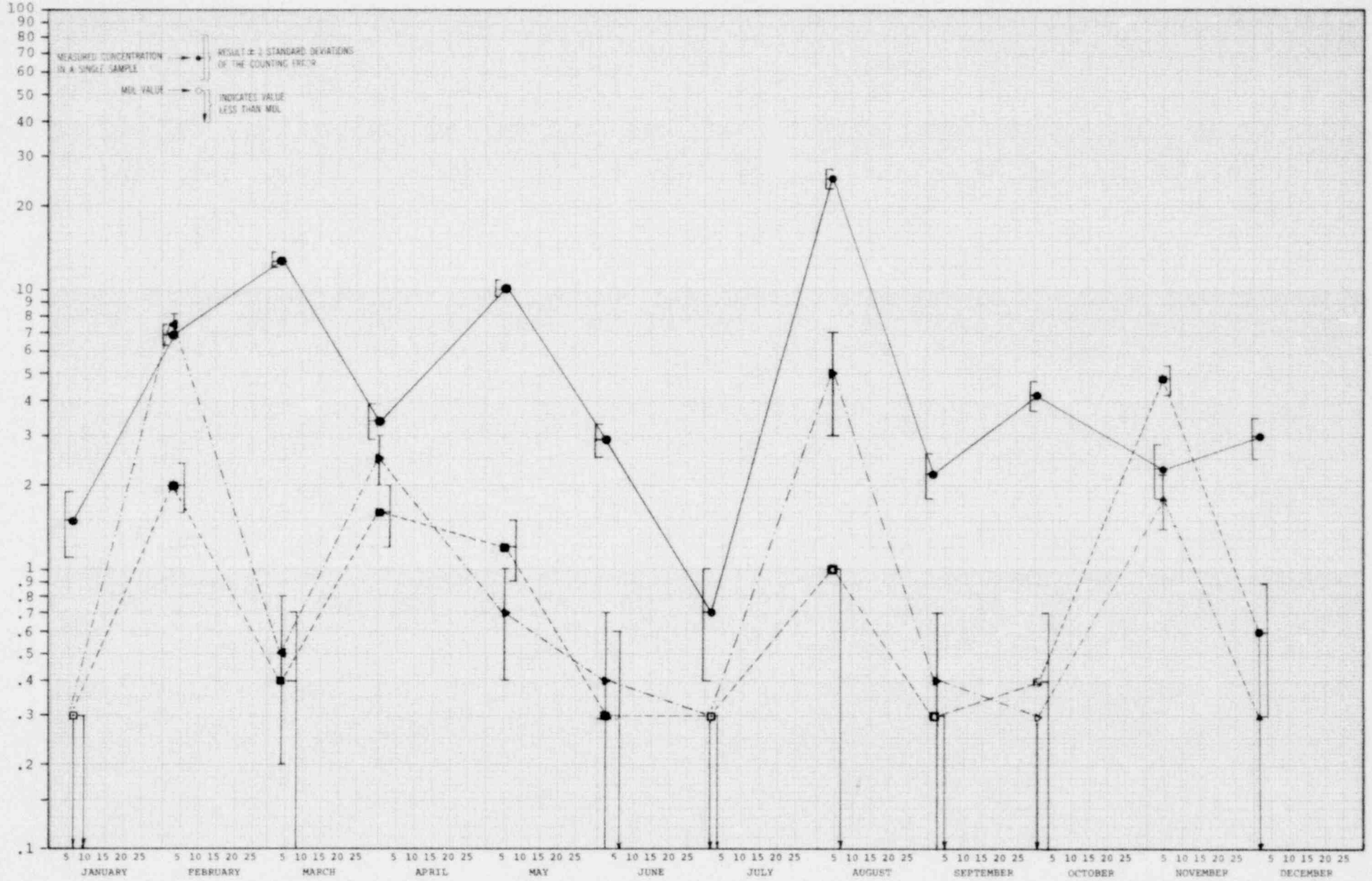



FIGURE 9

A COMPARISON OF AQUEOUS TRITIUM CONCENTRATIONS IN WATER

AT PEACH BOTTOM UNITS #2 AND #3 INTAKE AND DISCHARGE (TOTAL SAMPLE - COMPOSITE)

Station 1LL (PB-SW-6S3) - PB Units 2 and 3 Intake
Station 1MM (PB-DW-13S2) - PB Canal Discharge
If More Than One Value The Same

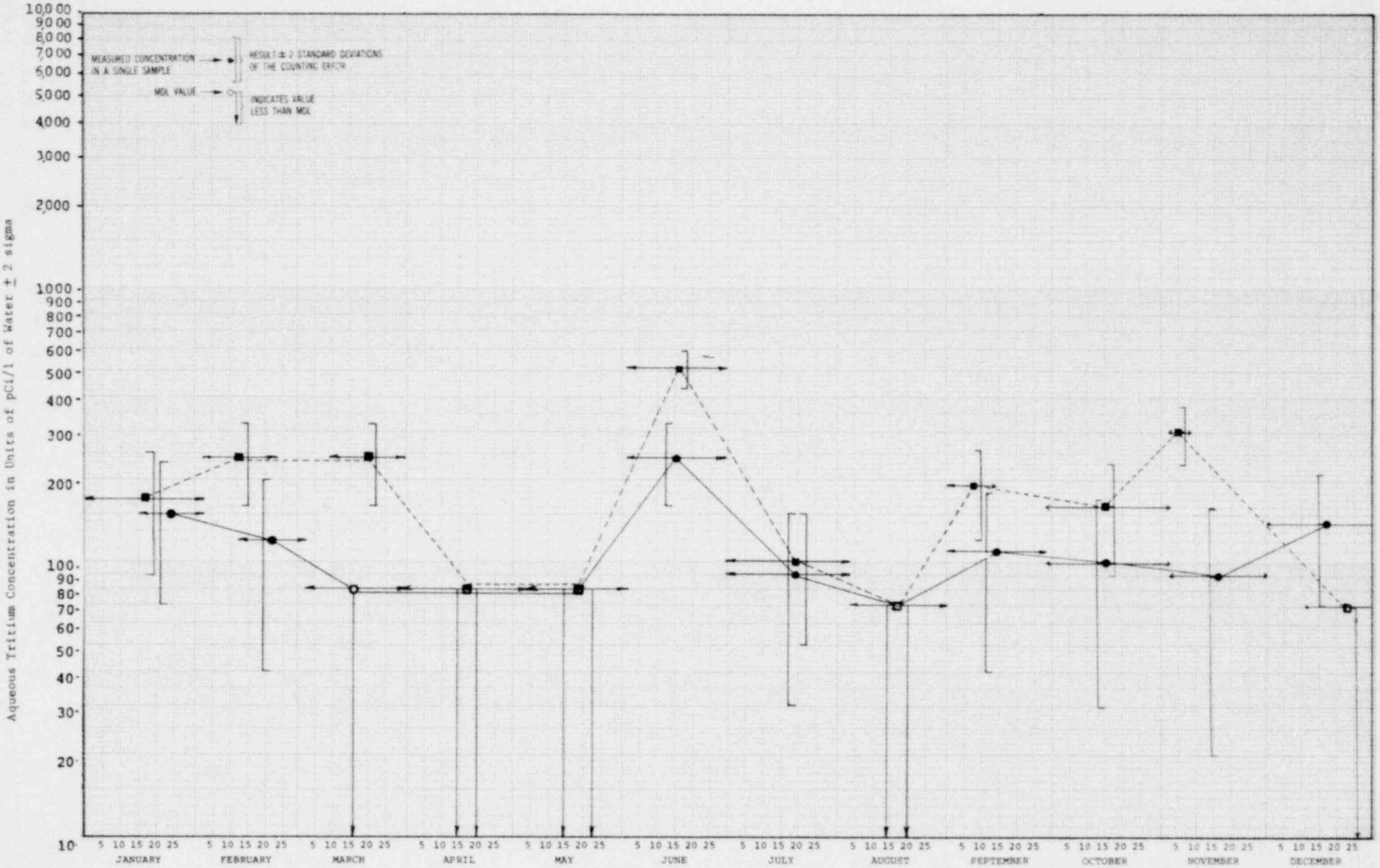



FIGURE 10

A COMPARISON OF GROSS BETA CONCENTRATIONS IN WATER

IN PEACH BOTTOM UNITS #2 AND #3 INTAKE AND DISCHARGE (SOLUBLE FRACTION - COMPOSITE)

Station 1LL (PB-SW-6S3) - PB Units 2 and 3 Intake
Station 1MM (PB-DW-13S2) - PB Canal Discharge

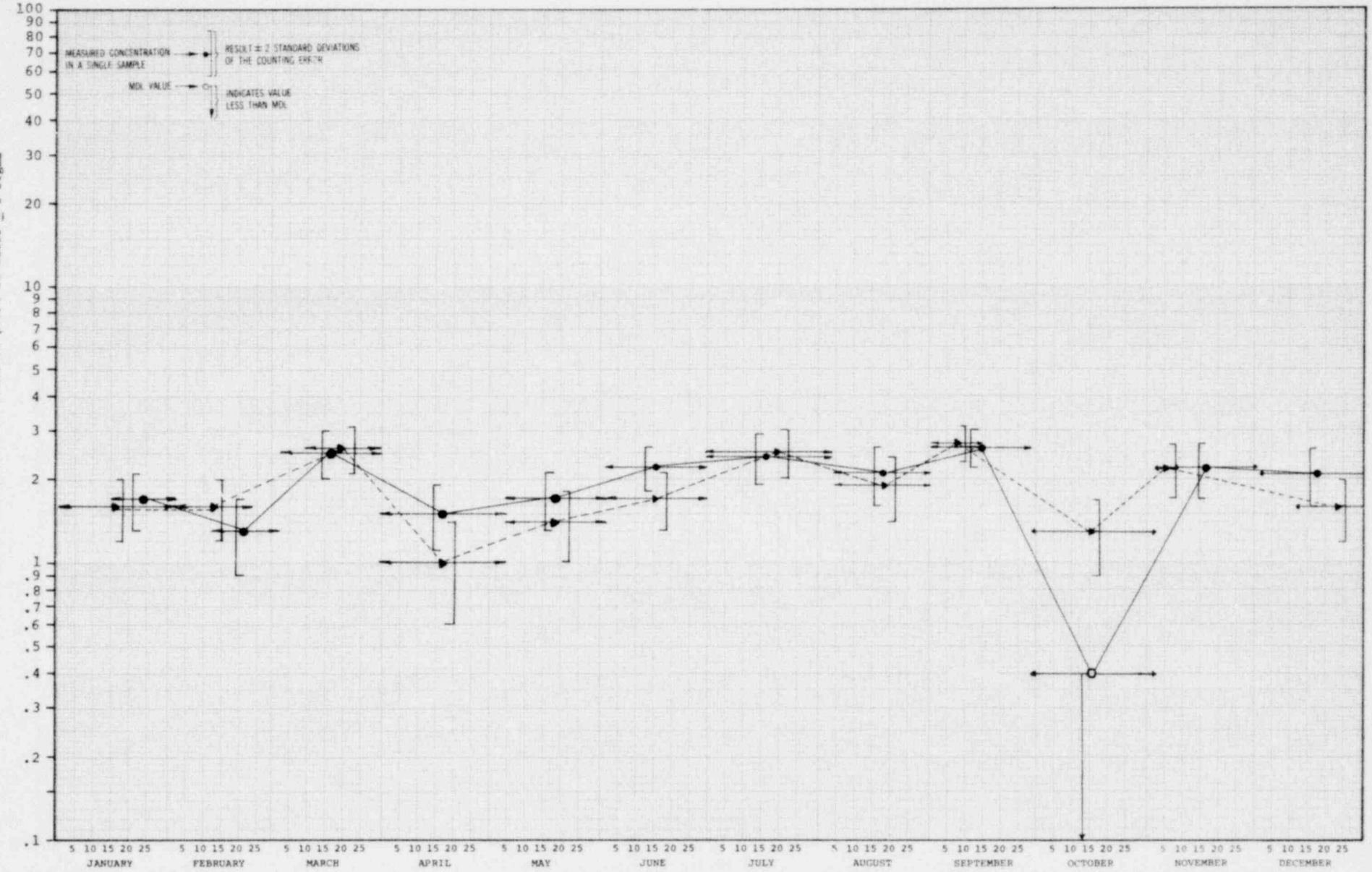



FIGURE 11

A COMPARISON OF GROSS BETA CONCENTRATIONS IN WATER

AT PEACH BOTTOM UNITS #2 AND #3 INTAKE AND DISCHARGE (INSOLUBLE FRACTION - COMPOSITE)

Station 1LL (PB-SW-6S3) - PB Units 2 and 3 Intake
Station 1MM (PB-DW-13S2) - PB Canal Discharge
If More Than One Value The Same

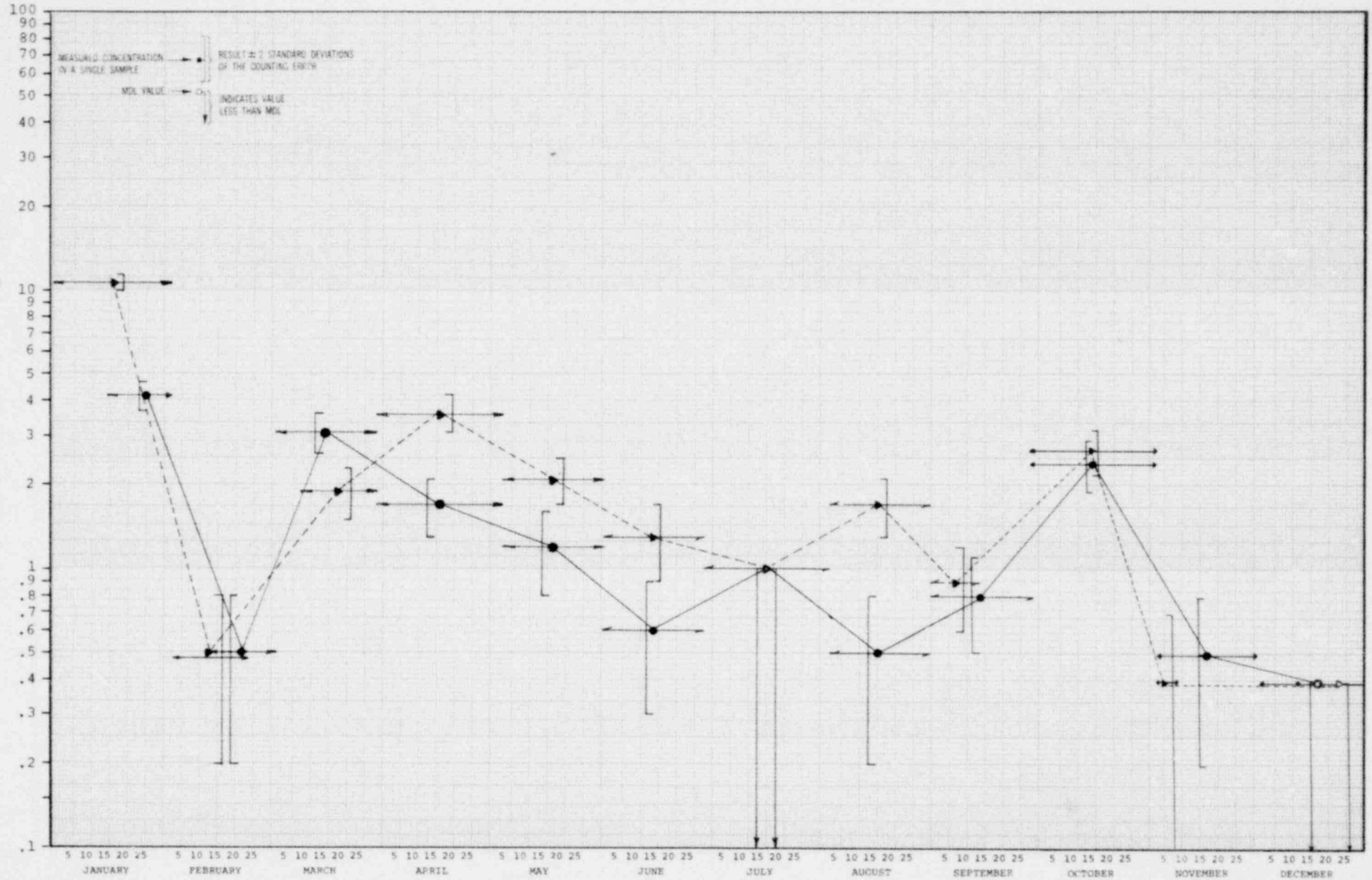



FIGURE 12

2239 00

A COMPARISON OF AVERAGE AQUEOUS TRITIUM CONCENTRATIONS IN WELL WATER

AT ON-SITE WELLS, SITE AREA WELLS, AND DISTANT WELLS (TOTAL SAMPLE-GRAB)

Station 1U (PB-WW-15S2) - PB Site - Utility Bldg.
Station 1V (PB-WW-12S2) - PB Site - Info. Center
Station 40 (PB-WW-21B2) - PB Site Area
Station 7 (PB-WW-16F1) - Darlington, Md. Area
Station 8 (PB-WW-12F1) - Colora, Md.

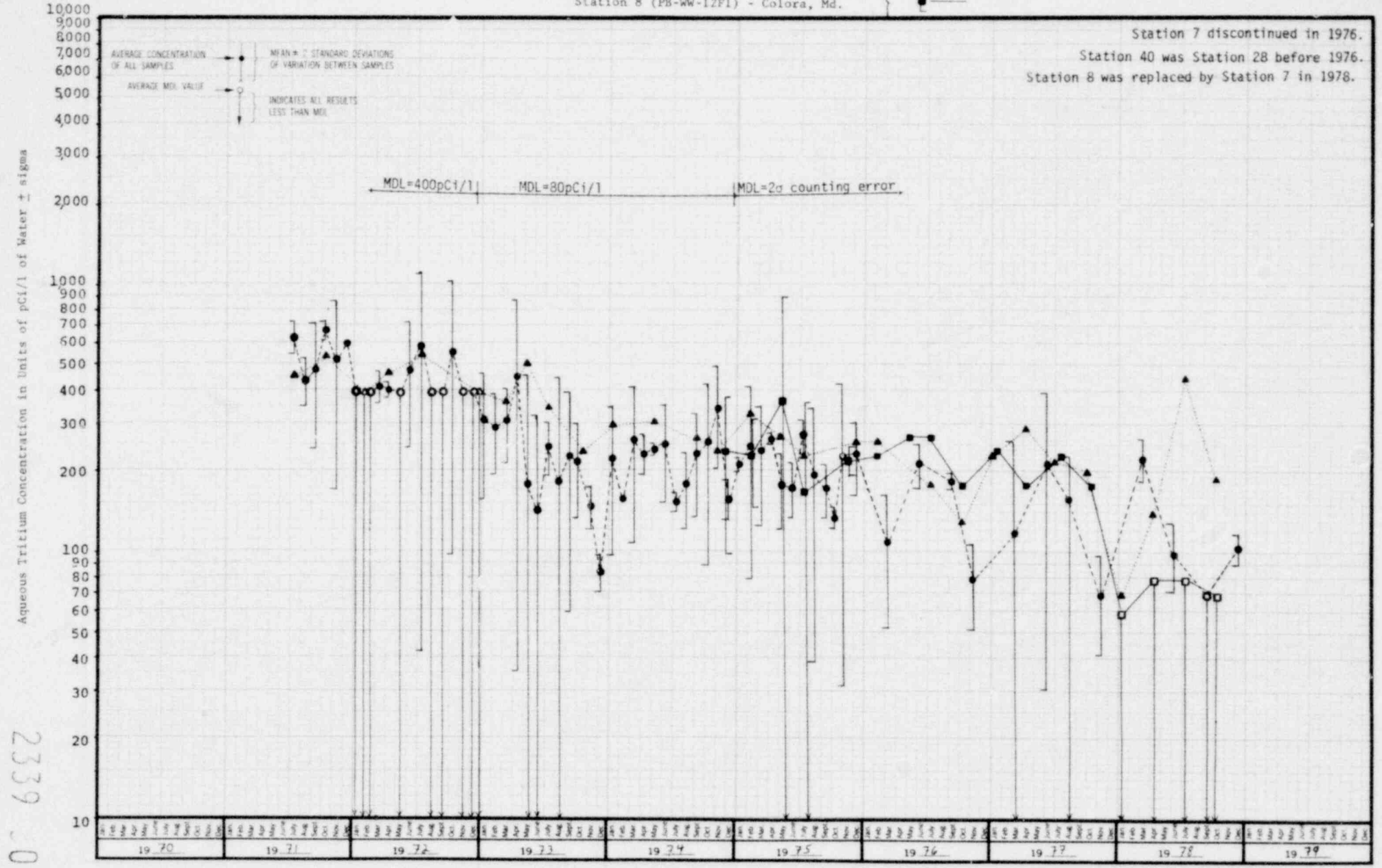



FIGURE 13

A Comparison of Average Aqueous Tritium Concentrations in Milk
at Near, Intermediate and Distant Farms

Near Farms (F, G, H, I, J)
Intermediate Farms (D, K, L, M, N)
Distant Farms (A, B, C, E)
If More Than One Value The Same

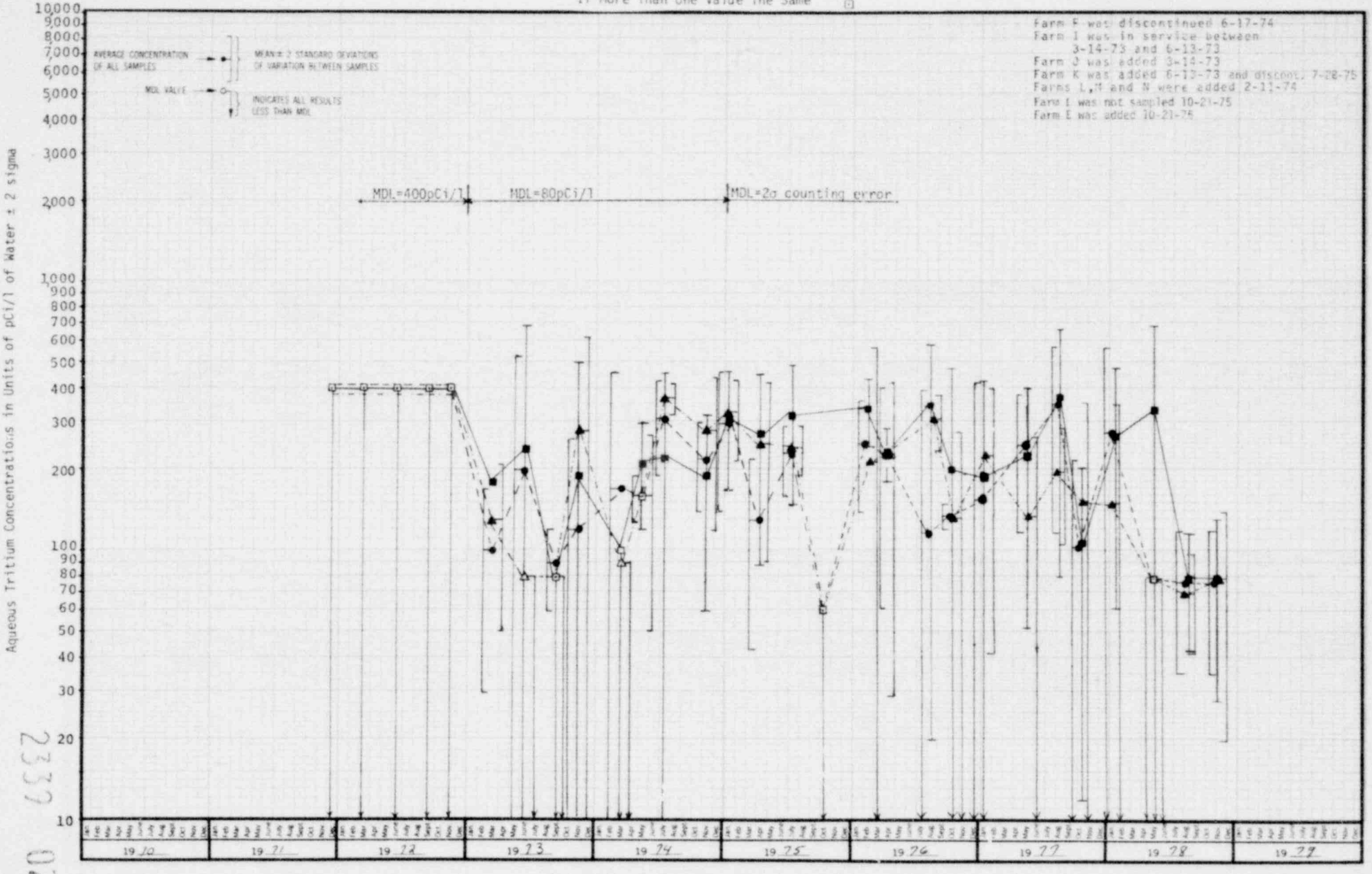



FIGURE 14

2259 02

A COMPARISON OF AVERAGE IODINE-131 CONCENTRATIONS IN MILK

AT NEAR, INTERMEDIATE AND DISTANT FARMS (TOTAL SAMPLE)

Near Farms (G, H, J)
Intermediate Farms (D, L, M, N)
Distant Farms (A, B, C, E)
If More Than One Value The Same

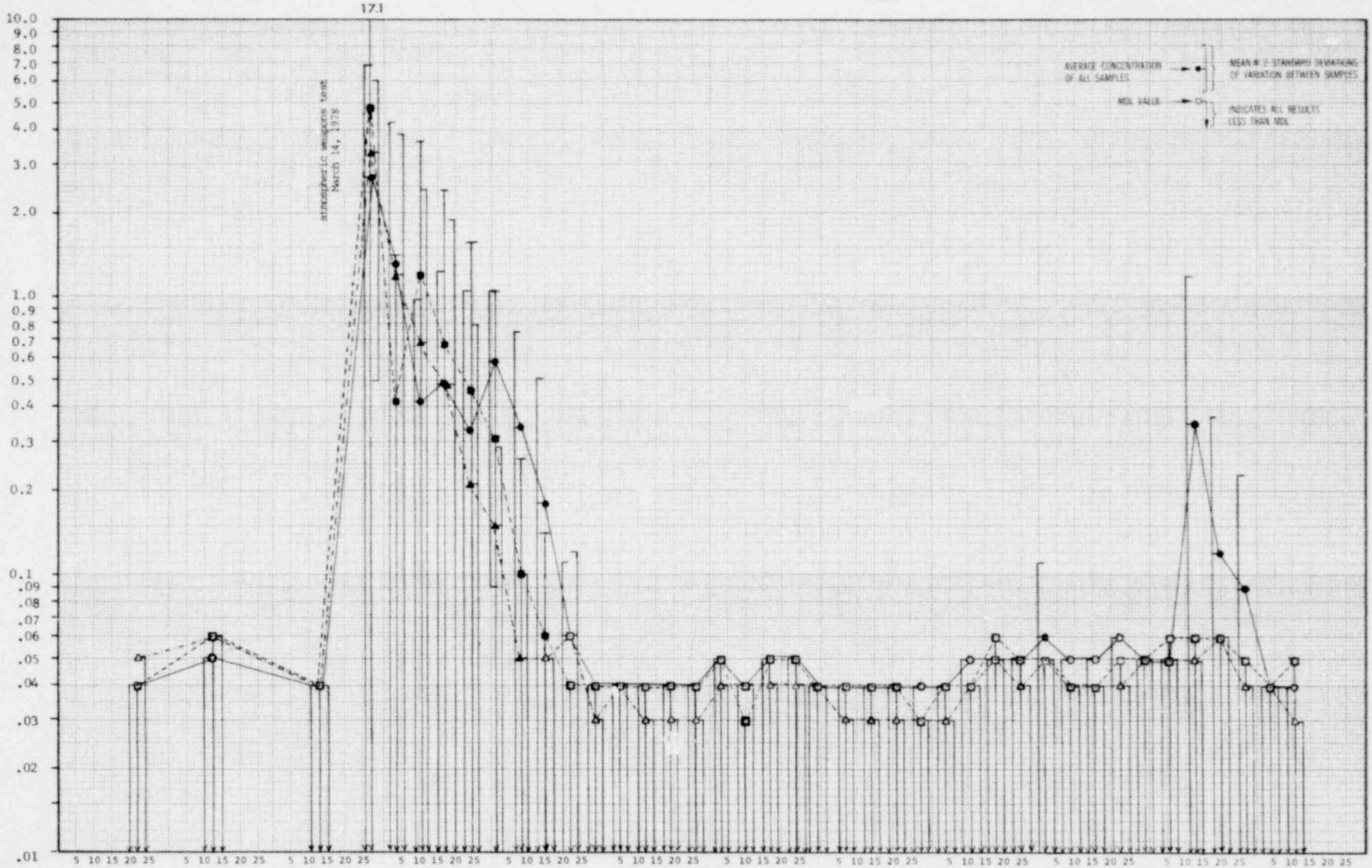



FIGURE 15

# A Comparison of Average Aqueous Tritium Concentrations in White Crappie Fish at Conowingo and Holtwood Ponds

Station 1EE (PB-AQF-13S4) - PB Discharge Canal Below Radwaste Discharge ▲ - - - -
Station 6J or Station 6H - Holtwood Pond ● - - - - -
Station 4I (PB-AQF-9A1) - Conowingo Pond Net Trap #8 }
Station 4J (PB-AQF-14B1) - Conowingo Pond Net Trap #15 } ■ ——

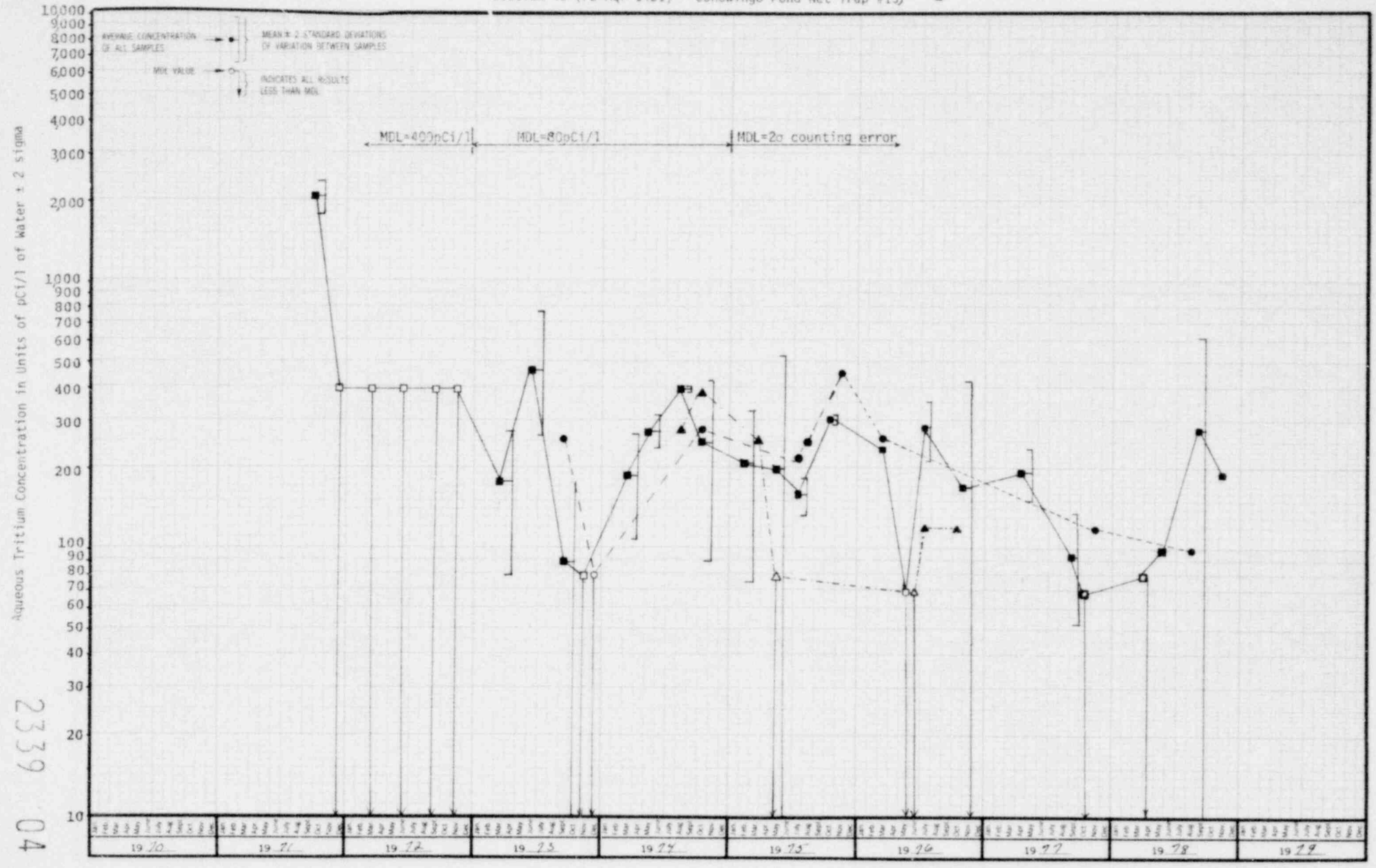



FIGURE 16

A Comparison of Average Aqueous Tritium Concentrations
In Channel Catfish at Conowingo and Holtwood Ponds

Station 1EE (PB-AQF-13S4) - PB Discharge Canal Below Radwaste Discharge ▲ - - -
Station 6H (PB-AQF-33F3) or Station 6J (PB-AQF-33G2) - Holtwood Pond ● - - - -
Station 4I (PB-AQF-9A1) - Conowingo Pond Net Trap #8
Station 4J (PB-AQF-14B1) - Conowingo Pond Net Trap #15 ● ——

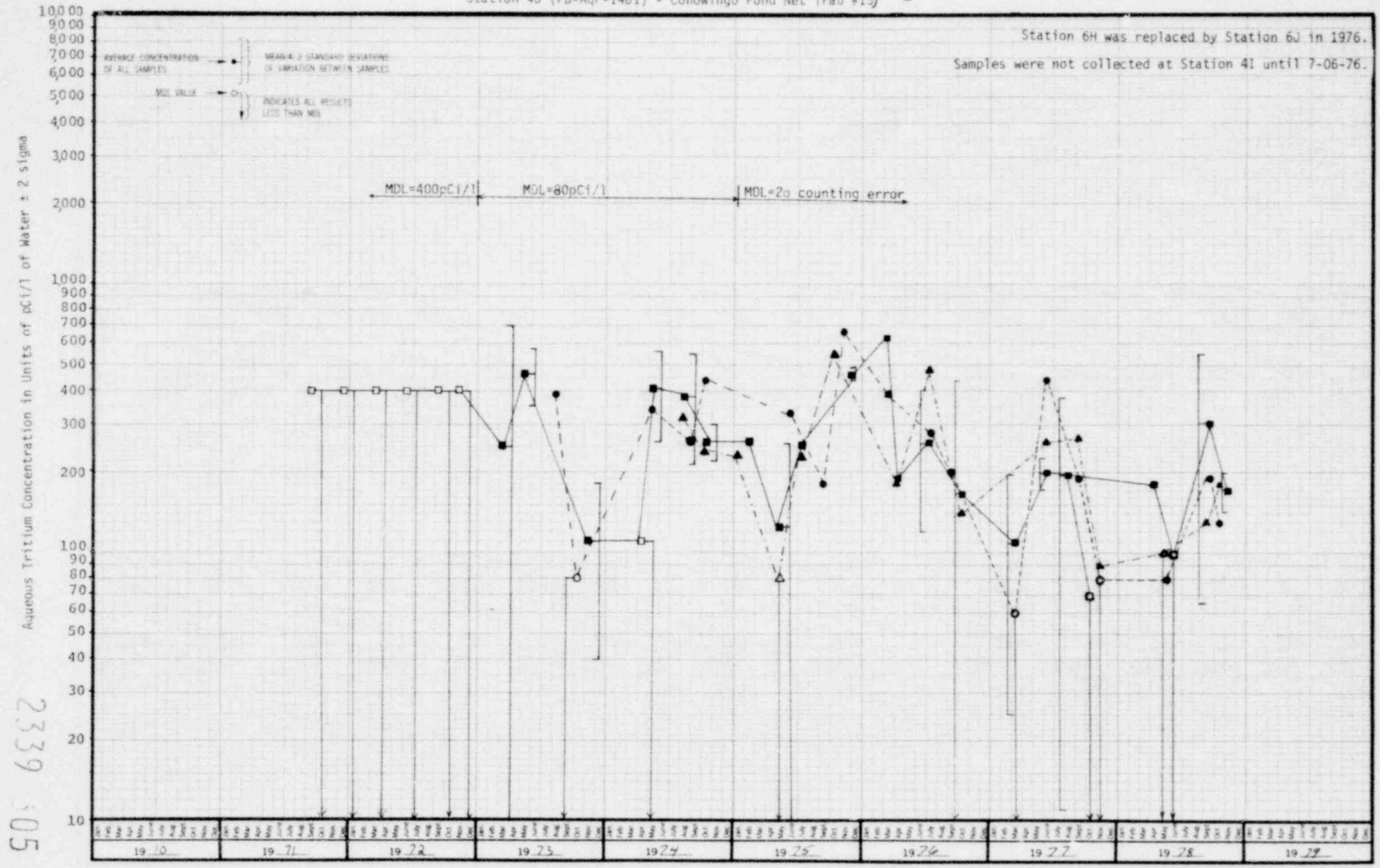



FIGURE 17

A COMPARISON OF TRITIUM CONCENTRATIONS IN VARIOUS MEDIA

Period covered in this report is January 1, 1973 to December 31, 1973

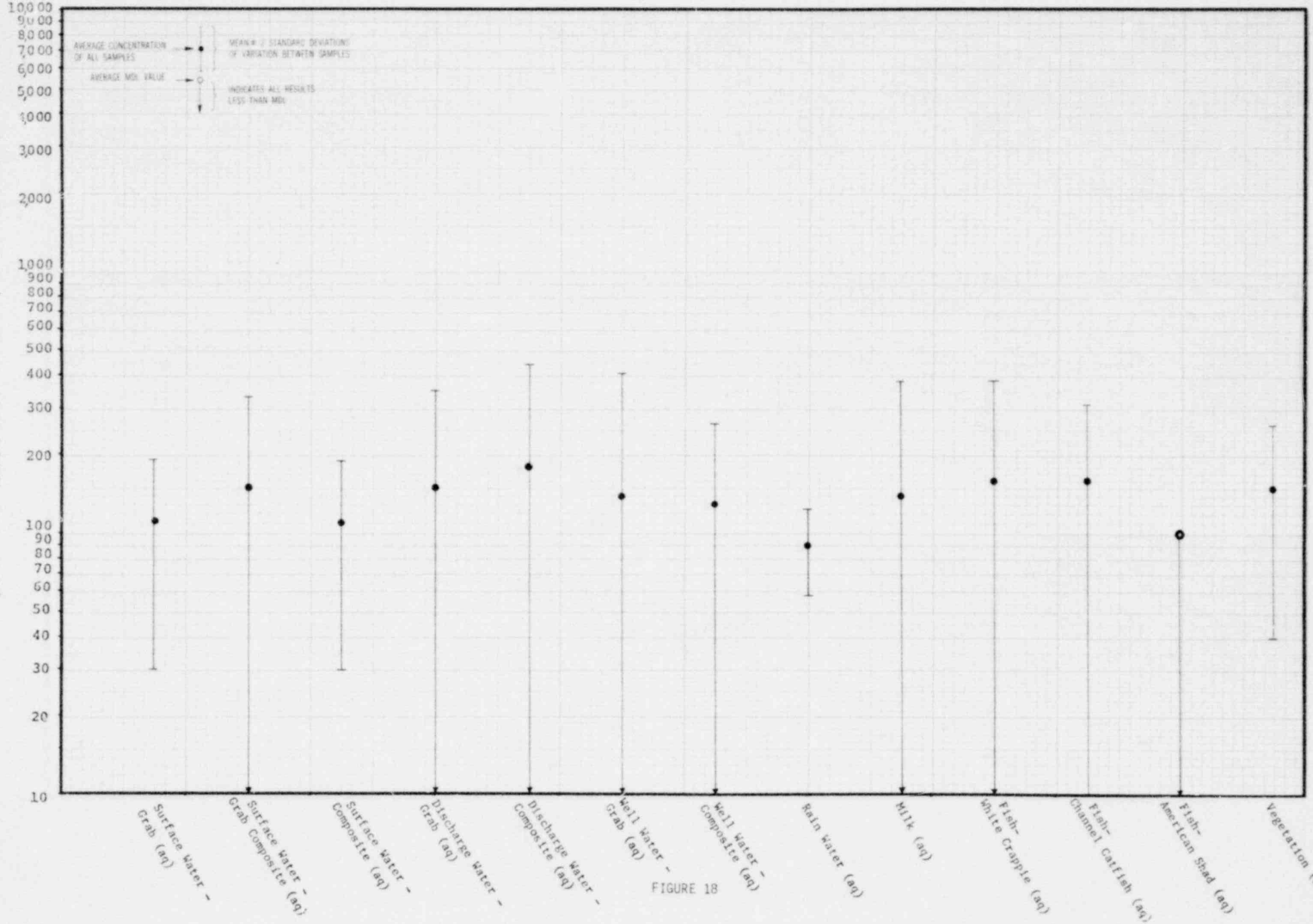



FIGURE 18

A Comparison of Average Strontium-90 Concentrations in Top One Inch
At On-Site Soil and Distant Soil Locations

Station 2 (PB-E-13S1) - PB 130 Sector Hill ● - - - -
Station 3A (PB-E-23D1) - Delta, Pa. Substation
Station 5 (PB-E-8E1) - Wakefield, Pa. ■ ——
If More Than One Value The Same ◘

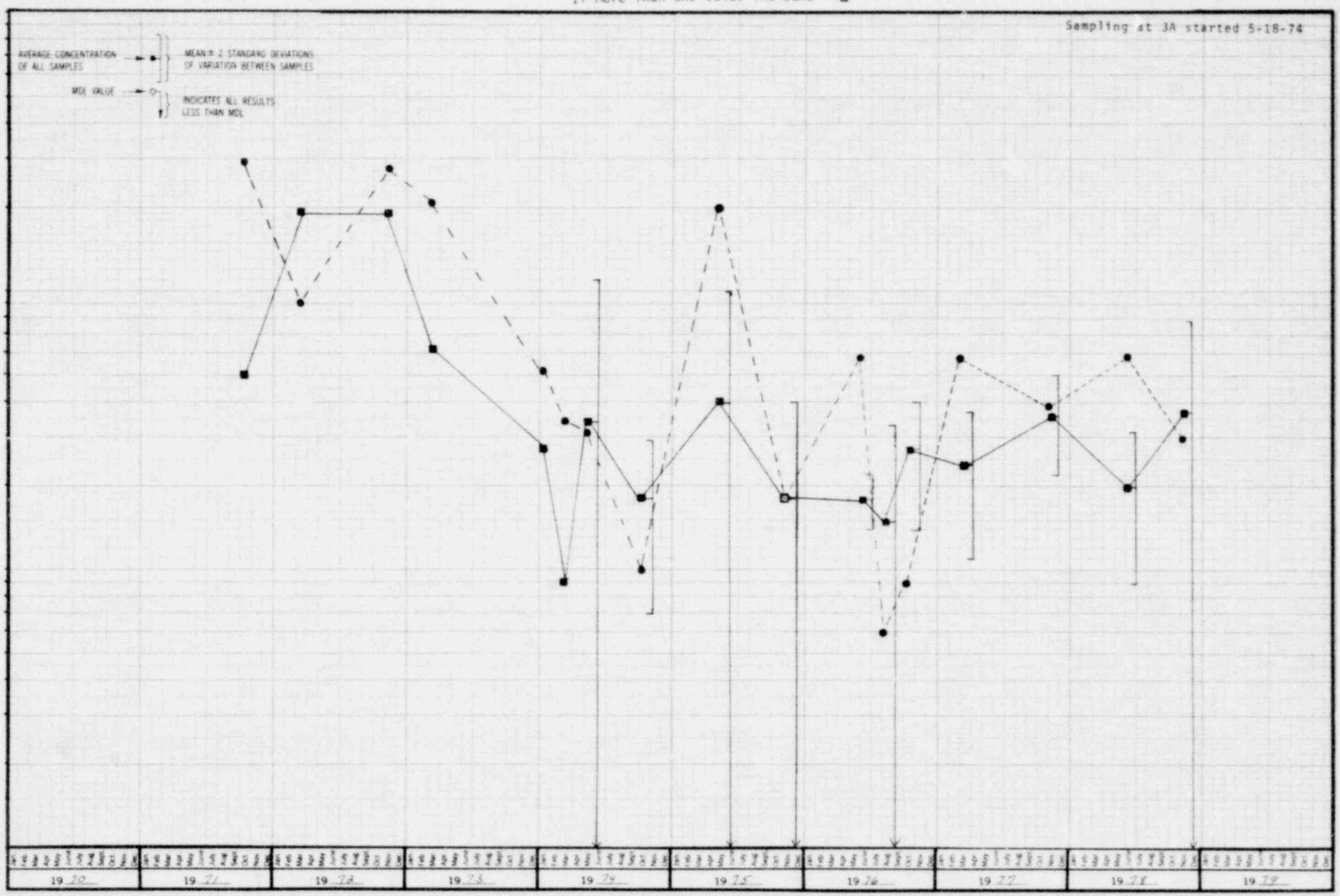



FIGURE 19

A Comparison of Average Strontium-90 Concentrations in Bottom Cut
at On-Site Soil and Distant Soil Locations

Station 2 (PB-E-13S1) - PB 130° Sector Hill ● - - - -

Station 3 A (PB-E-23D1) - Delta, Pa. substation
Station 5 (PB-E-8E1) - Wakefield, Pa. } ●—— ——

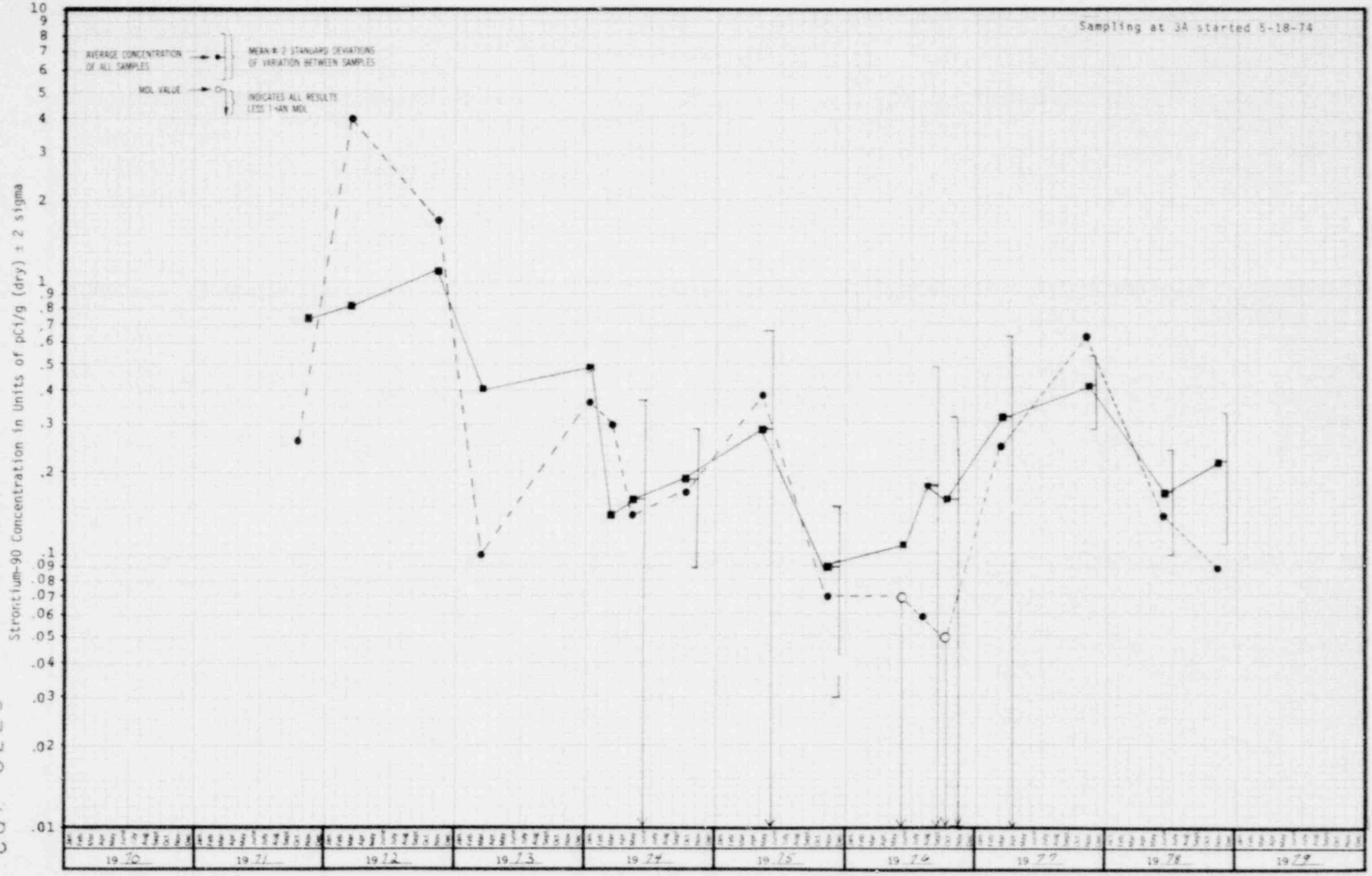



FIGURE 20

2239 003

# A Comparison of Average Cesium-137 Concentrations in Top One Inch at On-Site Soil Locations and Distant Soil Locations

Station 2 (PB-E-13S1) - FB 130° Sector Hill
Station 3A (PB-E-23D1) - Delta, Pa. Substation
Station 5 (PB-E-8E1) - Wakefield, Pa.
If More Than One Value The Same

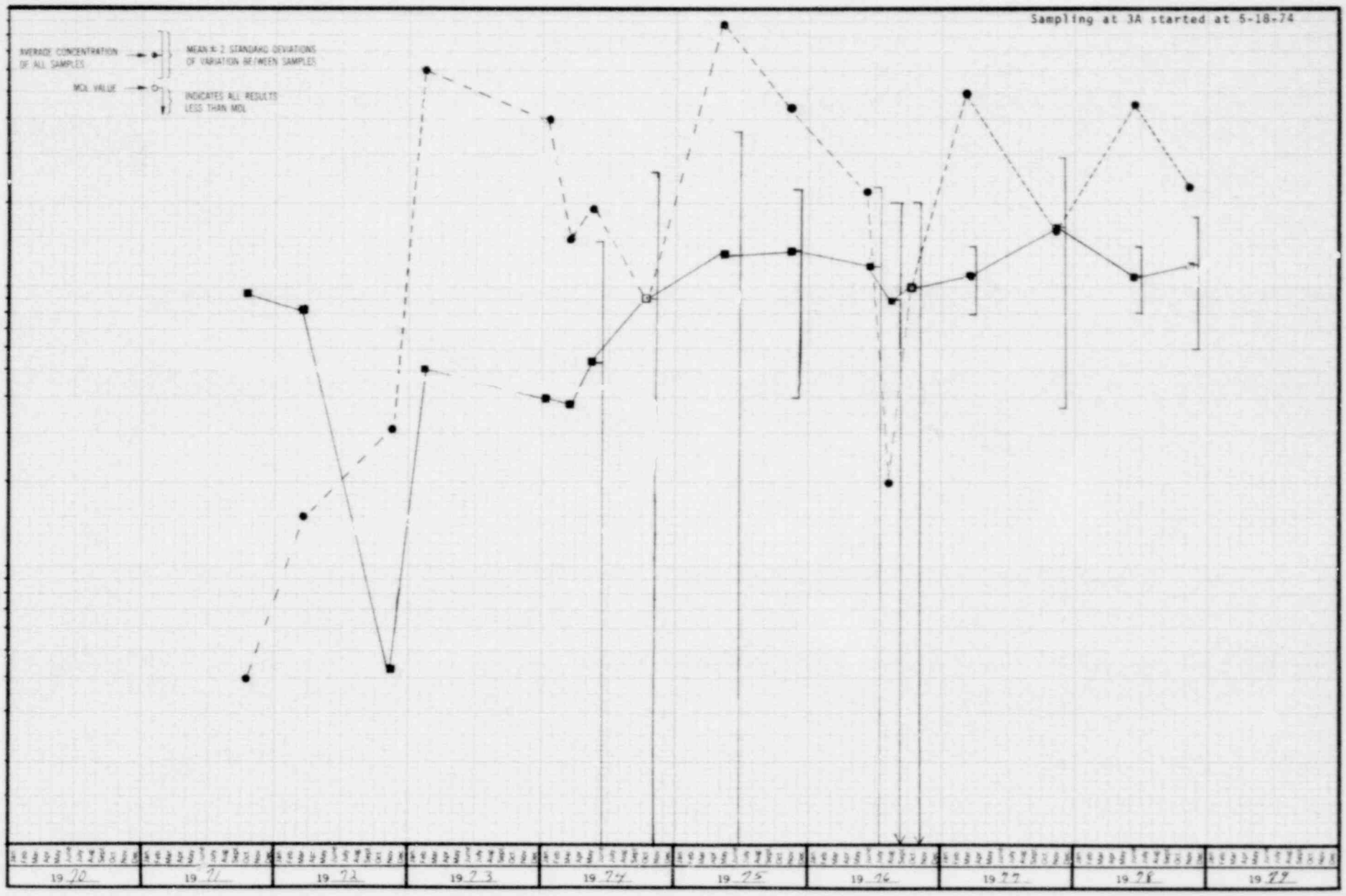



FIGURE 21

# A Comparison of Average Cesium-137 Concentrations in Bottom Cut at On-Site Soil Locations and Distant Soil Locations

Station 2 (PB-E-13S1) - PB 130 Sector Hill
Station 3A (PB-E-23D1) - Delta, Pa. Substation
Station 5 (PB-E-8E1) - Wakefield, Pa.
If More Than One Value The Same

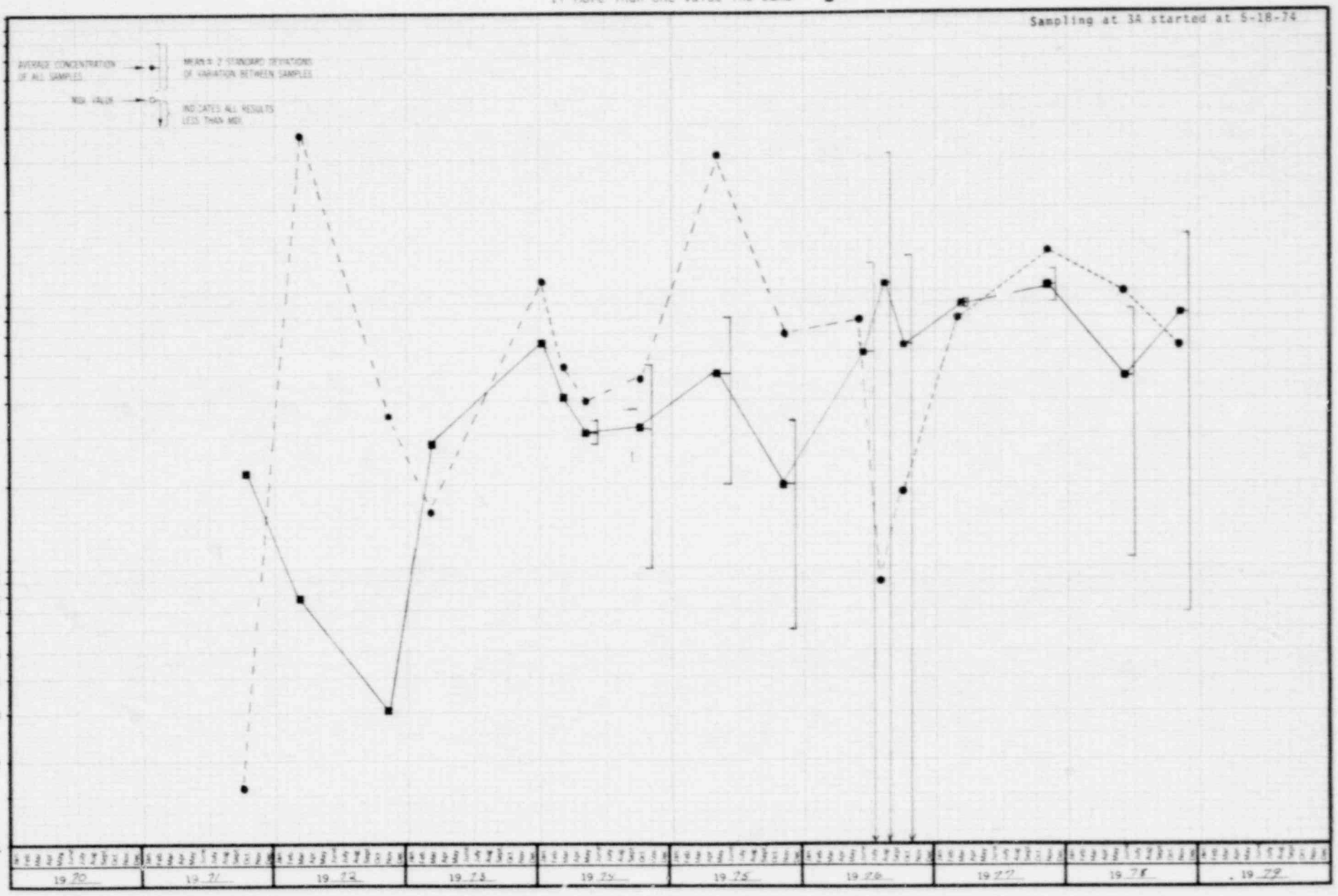



FIGURE 22

A COMPARISON OF AVERAGE MONTHLY TLD RESULTS

AT THE SITE BOUNDARY, MIDDLE, AND OUTER RINGS

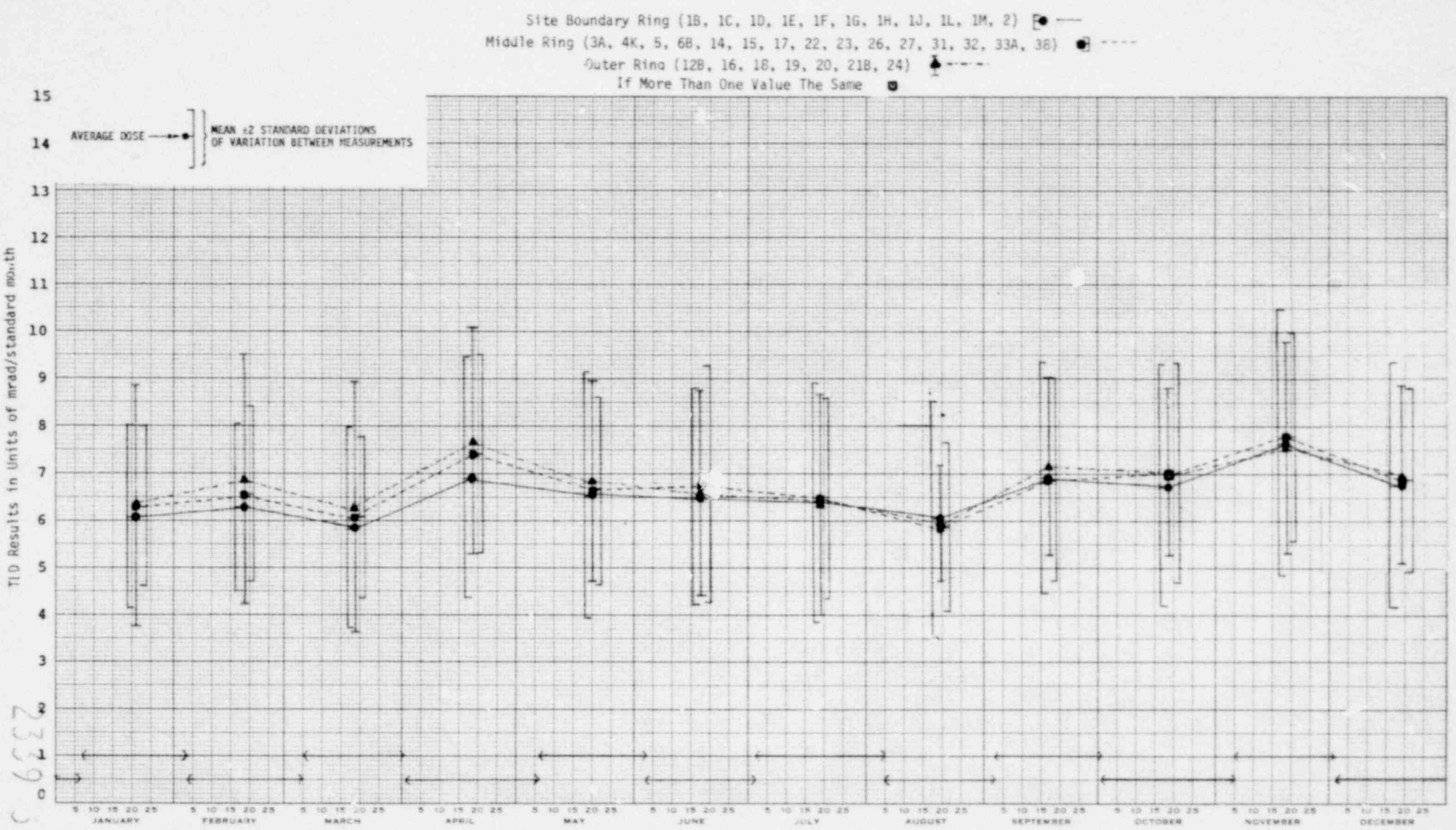



FIGURE 23

A COMPARISON OF AVERAGE QUARTERLY TLD RESULTS
AT THE SITE BOUNDARY, MIDDLE, AND OUTER RINGS

Site Boundary Ring (1B, 1C, 1D, 1E, 1F, 1G, 1H, 1J, 1L, 1M, 2)
Middle Ring (3A, 4K, 5, 6B, 14, 15, 17, 22, 23, 26, 27, 31, 32, 33A, 38)
Outer Ring (12B, 16, 18, 19, 20, 21B, 24)
If More Than One Value The Same

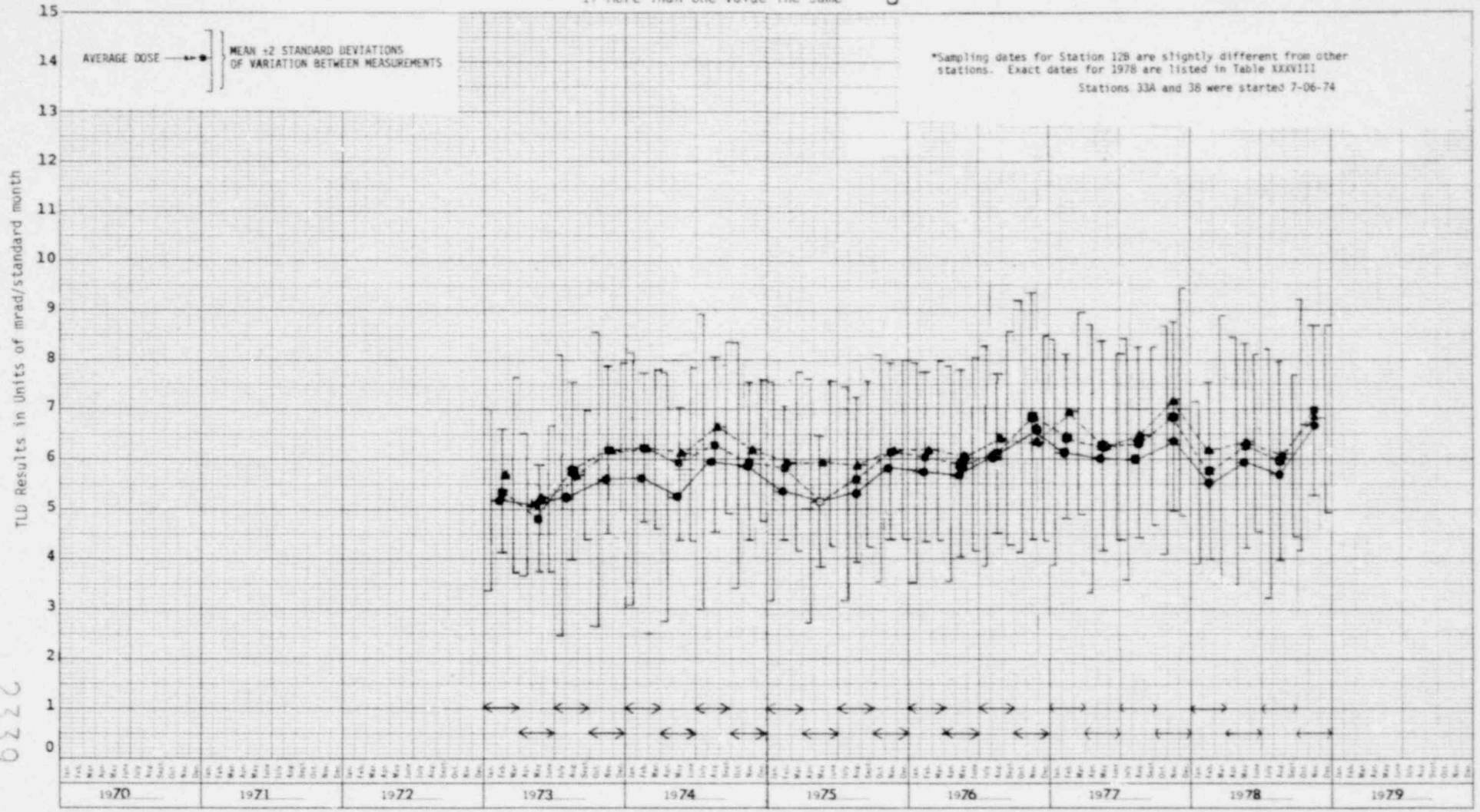



FIGURE 24