PRELIMINARY

PEACH BOTTOM ATOMIC POWER STATION
ENVIRONS RADIATION MONITORING PROGRAM

PREOPERATIONAL SUMMARY REPORT
Units 2 and 3

February 5, 1966 through August 8, 1973

50-277

for

The Philadelphia Electric Company

January 1974

INTEREX CORPORATION
66 WOERD AVENUE
WALTHAM, MASSACHUSETTS 02154

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I. INTRODUCTION

A pre-operational environmental radioactivity survey, initiated in March, 1960, was conducted by Nuclear Science & Engineering Corporation for the Philadelphia Electric Company in connection with the Peach Bottom Atomic Power Station located in Peach Bottom Township, York County, Pennsylvania. The initial loading of fuel into the Unit 1, a 40 MWe (net) high temperature, gas-cooled reactor, was started on February 5, 1966, and initial criticality was achieved on March 3, 1966. For the purposes of this monitoring program, the beginning of the operational period for Unit 1 is February 5, 1966. A summary of the Unit 1 pre-operational monitoring program is presented in a previous report (1).

This report presents and summarizes the results of all analyses performed on samples collected from February 5, 1966 through August 8, 1973, since the first fuel was loaded into Unit 2 on August 9, 1973, and criticality was achieved on September 16, 1973. As such it serves as the pre-operational report for Units 2 and 3, boiling water reactors each with a power output of about 1050 MWe (net). Program description, station designations, reporting units, abbreviations, etc., as given in this report reflect the present program status. Where changes have been made from the original program they are indicated in the appropriate section of this report. In general any such changes have been made to increase the scope and specificity of the program to fulfill the program objective.

In 1967 site preparation for Units 2 and 3 at the Peach Bottom site was undertaken which has resulted in certain physical changes which required moving to some degree some sampling stations. Also beginning in 1971, several sampling stations of significance to Units 2 and 3 were added to the program. In 1973, some additions and changes were made in the analytical requirements to reflect the latest recommendations of various government agencies.

The responsibility for performance of the environmental radiation monitoring program has been modified several times since the Unit 1 pre-operational program was first undertaken in 1960. From the start of the program until the first quarter of 1969, a single laboratory located in Pittsburgh, Pa., was used. This was initially called Nuclear Science and Engineering Corporation and later became Nuclear Science Division, International Chemical and Nuclear Corporation as the result of a change of ownership. During the first quarter of 1969, the program was transferred to ICN/Tracerlab, also part of International Chemical and Nuclear Corporation, and was performed by ICN in the Waltham, Mass., laboratory until the end of the first quarter of 1972. At this time the program was transferred to Interex Corporation laboratories in Waltham, Mass., which is presently carrying-out sample collection, analysis and report preparation. During the various change-overs, extreme care was taken to insure that continuity in all aspects of the overall program were maintained. For example, samples were collected by the same individual throughout the entire period.

The objective of this program is to acquire quantitative data for the concentrations of radioactivity in environmental media in the vicinity of the reactor site prior to and during operation of the reactor plant. These data are then examined to determine the extent of the impact of the plant or plants on the environment as reflected by any changes in the radioactivity levels from those observed during the pre-operational survey. Generally, this is done by comparing the observed levels at sampling stations which would be expected from various considerations to show maximum effects of plant operation to levels at stations remote from the site. When possible, comparison is also made to data obtained by various government agencies. Since there are both natural and man-made radioactivity present in the environment which are not related to plant operation, it is important to understand and adequately measure these contributions.

A number of radioactive elements occur in nature. The most important of these are uranium and thorium, along with their respective radioactive decay products, and potassium-40 (K-40). The concentrations of natural radioactivities vary with geographical location and are primarily dependent on the concentrations of the respective elements in the constituents of the lithosphere. Therefore, environmental radioactivity measurements must be performed at a number of locations representative of the general geographical area of interest.

Other radionuclides have been introduced into the biosphere as a result of the detonation of nuclear devices in the atmosphere. A significant fraction of these nuclides is generally disseminated throughout the upper atmosphere with the fine particulate debris from the detonations. Varying fractions of the nuclear debris eventually are deposited at ground level, principally in conjunction with precipitation. After their arrival at ground level, the radionuclides enter soil or bodies of water, and varying fractions may enter drinking water supplies or be assimilated by edible plants or animals and thus enter the human food chain. Natural radioactivities are also introduced into the human diet by analogous ecological processes.

The deposition patterns of nuclear debris depend on many factors, including latitude, proximity to detonation sites, annual accumulation of precipitation, and the frequency, magnitude, location, and altitude of the detonations. In the absence of detonations, seasonal variations have been noted for several years, including maximum deposition rates in the spring and summer months and minimum rates in the late fall or early winter. Distinct variations have also been noted in individual precipitations. These latter variations have been attributed to variations of meteorological conditions prevailing during the respective precipitation events.

Since significant geographical and temporal variations are expected in the concentrations of both natural and artificial radioactivities in environmental media, it was necessary to acquire experimental values for their concentrations over a period of several years to achieve statistically-significant data. Such an approach also provides data for seasonal or annual trends in the temporal behavior of these concentrations and permits correlations of these trends with meteorological or climatological factors or with known injections of artificial radionuclides into the atmosphere.

II. PROGRAM DESCRIPTION

The program as it existed on August 8, 1973, the end of the preoperational period, is described below. Since its inception, several changes have been made which expanded the program to better accomplish the program goals.

A. Environmental Monitoring Stations and Media Collected

The Environmental monitoring stations are described in Table II.1 and are shown in Figures II.1 through II.3. In general, stations have not been moved significantly since the start of the program. Beginning in 1971, several new stations were added based on the changes in water flow patterns, etc., to be caused by construction of Units 2 and 3. Also sampling stations were given more specific numbers and descriptions to define more precisely each location.

II. B. <u>Sampling and Analysis Program</u>

The types of analyses performed, the frequency of sampling and analysis, the locations sampled, and the number of samples per station scheduled for each location as of August, 1973, are given in Table II.2.

The history of the type of sample, sampling location, and type of analysis for the program is given in Table II.3. Beginning in 1972 Philadelphia Electric Co. modified the numbering system for sampling locations to more clearly define the areas of collection. In this process several large areas previously designated by a single station number were broken-up into an A, B, C, etc., station. Therefore, the locations now listed in Table II.3 as, for example, Station 4N is the same location called Station 4 in previous reports. In this respect those fish sampling locations near the Peach Bottom site are now designated 1W, 1X, 1T, etc. These were previously called Station 4, which formerly was used to designate the entire Conowingo Pond.

TABLE II.1

ENVIRONMENTAL MONITORING STATIONS

February 5, 1966 - August 8, 1973

Station No.	Station Name	Station Location, Direction and Distance from Site	Environmental Media Collection
1	Peach Bottom Site Area	Located in Site Area	Vegetation, Small Game
1A	Peach Bottom - Weather Station #1	On Site at Weather Station #1, 0.1 miles ESE of Unit #1	Ambient Radiation, Air Particulate, Rain Water
1B	Peach Bottom - Weather Station #2	On Site at Weather Station #2, 0.6 miles NNW of Unit #1	Ambient Radiation, Air Particulate, Rain Water
1M	Peach Bottom - Canal Discharge	On Site at Canal Discharge 0.9 miles SE of Unit #1	Discharge Water
1P	Peach Bottom - Unit #1 Intake	On Site at Unit #1 Intake, 1350' ENE of Unit #1	Surface Water
1Q	Peach Bottom Unit #2 Intake	On Site at Unit #2 Intake, 1500' NNE of Unit #1	Surface Water
1R	Peach Bottom Unit #1 Discharge	Unit #1 Screen Well from which discharge pipe exits, about 350 ft. ENE of Unit #1	Discharge Water
1T	Peach Bottom Discharge Canal-2200 Ft.	On Site in the Station Discharge Canal, 0.4 miles S.E. of Unit #1, 2200 ft. from Unit #1 Intake	Discharge Water (a), Fish(Channel Catfish and White Crappie)
1U	Peach Bottom Site - Utility Building	Well at Plant Site, 450' SW of Unit #1	Well Water
1V	Peach Bottom Site - Information Center	Well at Plant Site, 450' SE of Unit #1	Well Water
1W	Peach Bottom Unit #1 Discharge Pond A-1	About 800 ft. ENE of Unit #1	Silt and Fish (b) (Channel Catfish & White Crappie)
1X	Peach Bottom Site - Cooling Tower Pond B-1	About 1100 ft. ENE of Unit #1	Silt and Fish (b) (Channel Catfish & White Crappie)
1Y	Peach Bottom Discharge Canal - Net Trap #9	Located in the Discharge Canal about 950' ESE of Unit #1	Fish (Channel Catfish & White Crappie) (a)
1AA	Peach Bottom - Discharge Canal Bank	Located about 1400' SE of Unit #1 on the Discharge Canal Bank	Soil
1BB	Peach Bottom - Discharge Canal	On Site in the Station Discharge Canal, 2250' SE of Unit #1	Silt (a)
1CC	Peach Bottom - Conowingo Pond	On Site in Conowingo Pond, near shore, 950' NNE (upstream) of Unit #1	Silt(c)
1DD	Peach Bottom Site - Old Hotel	On Site about ' of Unit #1	Well Water(d)

TABLE II.1 (cont'd)

Station No.	Station Name	Station Location, Direction and Distance from Site	Environmental Media Collection
2	Peach Bottom Site - 130° Sector Hill	On Site, 0.7 miles SE of Unit #1	Air Particulate
3A	Delta, Pa. - Substation	3.6 miles SW of Unit #1 0.5 miles N of Maryland border	Air Particulate, Vegetation, Soil
4A	Conowingo Dam - Powerhouse Roof	8.4 miles SE of Unit #1 on Power House roof in Cecil County, Md.	Air Particulate
4B	Conowingo Dam - Powerhouse Roof	8.4 miles SE of Unit #1 on Power House roof in Cecil County, Md.	Air Particulate
4C	Conowingo Pond, Pa.	1,000 ft. downstream from the Peach Bottom Station discharge	Silt
4D	Conowingo Pond, Pa.	500 ft. downstream from the Peach Bottom Station Discharge	Silt
4E	Conowingo Pond, Pa.	Near location of canal discharge 0.9 miles SE of Unit #1.	Silt
4F	Conowingo Dam - El. 33' MSL Grab	In the Conowingo Hydro-Electric Station about 8.4 miles SE of Unit #1. Water is sampled from a header which continuously draws pond water from about elevation 33' MSL.	Surface Water
4H	Conowingo Dam - Tailrace	Tailrace on west side of river 8.5 miles SE of Unit #1	Fish (American Shad)
4I	Conowingo Pond - Net Trap #8	Located in Conowingo Pond about 1450 ft. E of Unit #1	Fish (Channel Catfish and White Crappie)
4J	Conowingo Pond Net Trap #15	Located in Conowingo Pond about 6400 ft. SE of Unit #1	Fish (Channel Catfish and White Crappie)
4L	Conowingo Dam - El. 33(Ft.) Composite	Continuous sampler in the Conowingo Hydro-Electric Station, about 8.4 miles SE of Unit #1. Water is continuously sampled from a header which draws pond water from about elevation 33' MSL.	Surface Water
4M	Conowingo Dam - Downstream El. 40(Ft) MSL	West bank downstream of Conowingo Hydro-Electric Station 8.5 miles SE of Unit #1	Rain Water

TABLE II.1 (cont'd)

Station No.	Station Name	Station Location, Direction and Distance from Site	Environmental Media Collection
4N	Conowingo Dam - Environmental Station	Environmental Monitoring Station on west shore upstream of Conowingo Hydro-Electric Station about 8.4 miles SE of Unit #1	Vegetation, Soil
4P	Conowingo Pond - Trawl Zone 6	Eastern half of Conowingo Pond from southern tip of Mt. Johnson Island to Peters Creek	Fish(Channel Catfish and White Crappie)
4Q	Conowingo Pond - Trawl Zone 5	Western half of Conowingo Pond from Peach Bottom Unit #2 Inlet to Burkin's Run (Station 4J)	Fish(Channel Catfish and White Crappie)
4R	Conowingo Pond - Trawl Transect 2	From a point off Peach Bottom Atomic Station Inlet to a point just S of Mt. Johnson Island	Fish(Channel Catfish and White Crappie)
4S	Conowingo Pond - Net Trap #1	2.4 miles N of Unit #1, 200' above the mouth of Fishing Creek	Fish(Channel Catfish and White Crappie)
5	Wakefield, Pa.	4.5 miles E of Unit #1	Air Particulate, Soil, and Vegetation
6A	Holtwood Dam - Hydro-Electric Station	5.9 miles NW of Unit #1	Surface Water (through Hydro Plant)
6B	Holtwood Dam - Hydro-Electric Station	5.9 miles NW of Unit #1	Air Particulate (Hydro Power House Roof)
6C	Holtwood Pond, Pa.	6.2 Miles NW of Unit #1 near SW shore of pond just above Holtwood Dam in York County	Fish (Channel Catfish and White Crappie)
6D	Holtwood, Pa.	6.0 miles NW of Unit #1 near Holtwood Dam in Lancaster County	Vegetation
6F	Holtwood Dam - East Shore Upstream	5.9 miles NW of Unit #1 in Lancaster county	Silt (above dam)
6G	Holtwood, Pa.	6.0 miles NW of Unit #1 near Holtwood Dam in Lancaster County	Soil
7	Darlington, Maryland Area	9.4 miles SSE of Unit #1 in Harford County	Well Water
8	Colora, Maryland	9.9 miles ESE of Unit #1 in Cecil County	Well Water
9	Tolchester, Maryland	38 miles south of Unit #1 on the east side of the Chesapeake Bay	Shellfish (Oysters)
10	Hacketts Point, Maryland	56 miles S of Unit #1 on the west side of the Chesapeake Bay	Shellfish (Oysters)

TABLE II.1 (cont'd)

Station No.	Station Name	Station Location, Direction and Distance from Site	Environmental Media Collection
11	Swan Point Bar, Maryland	44 miles S of Unit #1 on east side of the Chesapeake Bay	Shellfish(Oysters)
12A	Philadelphia, Pa. 900 Sansom Street	63 miles ENE of Unit #1 on the roof of 900 Sansom St.	Air Particulate
12D	Philadelphia, Pa. 2301 Market Street	62 miles ENE of Unit #1 on the roof of 2301 Market Street	Air Particulate
13A	Chester Water Intake Pond	On the east shore of Conowingo Pond at Chester Water Authority Intake, 2.8 miles SE of Unit #1	Surface Water
13B	Chester Water Intake Pump Discharge	At Chester Water Authority Intake 2.8 miles SE of Unit #1	Surface Water
14	Peters Creek	2.3 miles W of Unit #1	Air Particulate
15	Silver Spring Road	3.8 miles N of Unit #1	Air Particulate
17	Riverview Road	4.4 miles ESE of Unit #1	Air Particulate
25A	Pequea Creek	In Pequea Creek, 10.8 miles NNW of Unit #1 near PP&L recreational area	Fish(White Sucker)
25B	Pequea Creek	In Pequea Creek, 12.4 miles N of Unit #1 near Creek and School Roads	Fish(White Sucker)
25C	Pequea Creek	In Pequea Creek, 12.2 miles N of Unit #1 near Byerland Church Road	Fish(White Sucker)
25D	Pequea Creek	In Pequea Creek, 13.3 miles N of Unit #1 near Radcliff Rd.	Fish(White Sucker)
28	Peach Bottom Site Area	Well in Site Area about 1.2 miles SW of Unit #1	Well Water
30A	Peters Creek	In Peters Creek, 2.7 Miles ENE of Unit #1	Fish(White Sucker)
31	Pilottown Road	4.8 Miles SE of Unit #1 near Pilottown Rd.	Air Particulate
32	Slate Hill Road	2.8 miles NE of Unit #1 near Slate Hill Road	Air Particulate
	Peach Bottom Regional Farms	Distant Regional Farms A, B & C are on the west side of Conowingo Pond and D on the east side. Nearby farms surrounding the site on the west side of the pond are designated F, G, H, I & J and on the east side is K.(e)	Milk

(a) These stations were exposed to Unit #1 discharge water after 12/6/72. Prior to this date only surface water was present.

(b) These stations were exposed to Unit #1 discharge water until 12/6/72.

(c) Station 1CC was covered with landfill during the construction of Units #2 and #3.

(d) Station 1DD was covered with landfill during the construction of Unit #1.

(e) The precise farms involved in the program have changed in some cases due to circumstances beyond control of the program. The replacement farms are in the same general locations distributed so as to encircle the site close to and further away from the site.

TABLE II.2

ENVIRONMENTAL RADIATION MONITORING PROGRAM

August 1973

Media	Type and Frequency of Analysis (1)	Type and Quantity of Sample	Sample Collection Frequency (2)	Number of Locations	Station Number (3)	Scheduled Samples Per Year
1. Ambient Radiation	Gamma	Continuous recording(4)	Monitor read weekly; Charts scanned for max and min values monthly.	Two	1A, 1B.	52 x 2
2. Airborne Particulate	Gross Beta	About 1 cfm continuous flow through filter paper (approx 2" diam)(5)	Filter Paper Collected Weekly	Fifteen	1A, 1B, 2, 3A, 4A, 4B, 5, 6B, 12A, 12D, 14, 15, 17, 31, 32	52 x 15
	Gamma Spectrum (Monthly)		Monthly Composite of Weekly Samples	Fifteen	1A, 1B, 2, 3A, 4A, 4B, 5, 6B, 12A, 12D, 14, 15, 17, 31, 32	12 x 15
3. Water						
a. Fallout Water	Gross Beta Sr-89,Sr-90 (Quarterly) Cs-137 (Quarterly)	Collected continuously to form monthly composite sample.	Monthly	Three	1A, 1B, 4M	12 x 3
b. Surface Water	Gross Alpha(6) Gross Beta(6) Gamma Spectrum (6)	Spot; one gal	Monthly	Six	1P, 1Q, 4F, 6A, 13A 13B	12 x 5 (7)
		Continuous Composite; one gal	Monthly	One	4L	12 x 1
c. Discharge Water	Gross Alpha(6) Gross Beta(6) Gamma Spectrum (6)	Spot; one gal	Monthly	Three	1R, 1T, 1M,	12 x 3

TABLE II.2 (CONT'D)

Media	Type and Frequency of Analysis (1)	Type and Quantity of Sample	Sample Collection Frequency (2)	Number of Locations	Station Number (3)	Scheduled Samples Per Year
3. Water (cont'd) d. Well Water	Gross Alpha Gross Beta Uranium Sr-89, Sr-90 (Semi-annually) Cs-137 (Semi-annually) Gamma Spectrum (Semi-annually)	Spot; one gal	Quarterly	Five	28, 1U, 1V, 7, 8	4 x 5
4. Milk	Gross Beta Potassium-40 Sr-89, Sr-90 I-131 Cs-137	Spot; one gal	Quarterly	Ten	Farms A, B, C, D, F, G, H, I, J, K	10 x 4
5. Vegetation	Gross Alpha Gross Beta Potassium-40 Sr-89, Sr-90 Cs-137	Stems, leaves and fruit; Foods whenever available; one container full	Spring, Summer and Fall	Five	1, 5, 6D 3A, 4N	4 x 3(8) 2 x 3
6. Fish	Gross Alpha (one fish of each species) Gross Beta Potassium-40 Sr-89, Sr-90 (one fish of each species) Cs-137 (one fish of each species) Gamma Spectrum (all fish of each species as one sample)	Channel catfish and White Crappie, four fish each (if available)	Quarterly (no sample when ice conditions prevail)	Six	1X, 1Y, 4I, 4J, 6C 1W	32 x 5 32 x 1(9)
		White Sucker four fish (if available)	Quarterly (no sample when ice conditions prevail)	Two	30A 25A, 25B, 25C, 25D(11)	4 x 4 4 x 4
		American Shad Four fish (if available)	Annually in Spring	One	4H	4 x 1

TABLE II.2 (CONT'D)

Media	Type and Frequency of Analysis (1)	Type and Quantity of Sample	Sample Collection Frequency (2)	Number of Locations	Station Number (3)	Scheduled Samples Per Year
7. Shellfish	Gross Beta and Potassium-40 of Shell and Tissue Separately; Sr-89,Sr-90 of Shell(Semi-annually) Cs-137 of Shell (Semi-Annually) I-131 of Tissue (Annually) Sr-89,Sr-90 of Tissue(Semi-annually) Cs-137 of Tissue (Semi-annually) Gamma Spectrum of Tissue (Semi-annually)	Oysters; appx. 8 per sample	Quarterly (no sample when ice conditions prevail)	Three in independent beds	9(10), 10 11	4 x 3
8. Small Game	Gross Beta and Potassium-40 of muscle, soft tissue and bone, separately I-131 of Thyroid	Rabbits, 5 at each collection (if available)	Semi-annually	One	1	10 x 1
9. Earth	Gross Alpha Gross Beta Potassium-40 Sr-89,Sr-90 (Semi-annually) Cs-137(Semi-annually)	Sunshine Method; 500 grams	Quarterly	Five	1AA, 3A, 4N 5, 6G	4 x 5
10. Silt	Gross Alpha Gross Beta Sr-89,Sr-90 Cs-137 Gamma Spectrum	Spot; 500 grams	Semi-annually	Seven	1BB, 1X, 4C, 4D, 4E, 6F 1W	6 x 2 1 x 2(9)

TABLE II.2 (CONT'D)

NOTES:

1) Frequency of each type of analysis is the same as the frequency of sample collection except where noted.

2) Sampling is conducted on the specified frequency unless unusual conditions, such as an equipment malfunction or an act of nature, prevent a specific sample from being obtained or analyzed.

3) Numbers indicate locations shown in Figures II.1, II.2 and II.3 and described in Table II.1. Numbers are those used in the present numbering system and may be different from those previously used.

4) Instrument used is NMC Gamma Scintillation Monitor, Model GA-2A.

5) Sampler used is Gelman Pump Catalog no. 13400 or Bell & Gossett Pump Model SYC 19-1, Gast Model BF-10-M100X or equivalent with Restricting Orifice.

6) Soluble and insoluble radionuclides separately.

7) A monthly sample will be obtained only during those months in which the Chester Water Authority withdraws water from the pond.

8) Two kinds of vegetation during harvest at all locations except Delta and Conowingo.

9) This location may be discontinued since the Peach Bottom Unit No. 1 Discharge was removed from Pond A1 on December 6, 1972.

10) The oyster beds in this location were destroyed by Hurricane Agnes in June, 1972. It is anticipated that only small samples, if any, from this location will be available.

11) Fish are taken from one or more of the four stations depending on availability.

TABLE II.3

HISTORY OF RADIATION MONITORING PROGRAM SAMPLING AND ANALYSIS

Media	Type of Analysis	Station No.	Date of First Sample	Date of Last Sample
Airborne Particulate	Gross Beta	1A	3/26/60	
		1B	8/5/67	
		2	5/12/60	
		3A	3/26/60	
		4A	3/26/60	
		4B	5/5/62	
		5	3/29/60	
		6B	3/25/60	
		12A	4/6/62	
		12D	3/20/72	
		14	6/10/72	
		15	6/25/72	
		17	6/4/72	
		31	7/22/73	
		32	7/22/73	
	Gamma Spectrum - Monthly Composite	1A	7/29/73	
		1B	7/29/73	
		2	7/29/73	
		3A	7/29/73	
		4A	7/29/73	
		4B	7/29/73	
		5	7/29/73	
		6B	7/29/73	
		12A	7/27/73	
		12D	7/27/73	
		14	7/29/73	
		15	7/29/73	
		17	7/29/73	
		31	7/29/73	
		32	7/29/73	
Fallout Water	Gross Beta	1A	7/5/60	
		1B	11/30/67	
		4M	7/5/60	
	Sr-89	1A	6/28/73	
		1B	6/28/73	
		4M	7/1/73	
	Sr-90	1A	7/5/60	
		1B	11/30/67	
		4M	7/5/60	
	Cs-137	1A	4/1/71	
		1B	4/1/71	
		4M	4/3/71	

TABLE II 3 (Cont'd)

Media	Type of Analysis	Station No.	Date of First Sample	Date of Last Sample
Surface Water	Gross Alpha	1P	5/25/71	
		1Q	5/25/71	
		4F	3/29/60	
		4L	12/4/72	
		6A	3/29/60	
		13A	5/25/71	
		13B	6/21/71	
	Gross Beta	1P	5/25/71	
		1Q	5/25/71	
		4F	3/29/60	
		4L	12/4/72	
		6A	3/29/60	
		13A	5/25/71	
		13B	6/21/71	
	Gamma Spectrum	1P	5/25/71	
		1Q	5/25/71	
		4F	5/2/71	
		4L	12/4/72	
		6A	5/2/71	
		13A	5/25/71	
		13B	6/21/71	
Discharge Water	Gross Alpha	1R	5/25/71	
		1T	5/25/71	
		1M	8/5/73	
	Gross Beta	1R	5/25/71	
		1T	5/25/71	
		1M	8/5/73	
	Gamma Spectrum	1R	5/25/71	
		1T	5/25/71	
		1M	8/5/73	
Well Water	Gross Alpha	1DD	4/11/60	2/17/62
		1U	5/9/71	
		1V	5/9/71	
		7	4/10/60	
		8	4/10/60	
		28	4/14/62	
	Gross Beta	1DD	4/11/60	2/17/62
		1U	5/9/71	
		1V	5/9/71	
		7	4/10/60	
		8	4/10/60	
		28	4/14/62	
	Uranium	1DD	4/11/60	2/17/62
		1U	5/9/71	
		1V	5/9/71	
		7	4/10/60	
		8	4/10/60	
		28	4/14/62	

TABLE II.3 (Cont'd)

Media	Type of Analysis	Station No.	Date of First Sample	Date of Last Sample
Well Water (Cont'd)	Sr-89	1DD		
		1U	10/7/73	
		1V	10/7/73	
		7	10/7/73	
		8	10/7/73	
		28	10/7/73	
	Sr-90	1DD	4/11/60	2/17/62
		1U	5/9/71	
		1V	5/9/71	
		7	4/10/60	
		8	4/10/60	
		28	4/14/62	
	Gamma Spectrum	1U	5/9/71	
		1V	5/9/71	
		7	5/9/71	
		8	5/2/71	
		28	5/2/71	
	Cs-137	1U	5/9/71	
		1V	5/9/71	
		7	5/9/71	
		8	5/2/71	
		28	5/2/71	
Milk	Gross Beta	Farm Group A	4/25/60	4/62
		" " B	4/25/60	4/62
		" " C	4/25/60	4/62
		" " D	10/18/61	4/62
		Farm A	4/62	8/25/70
		" A a)	12/10/70	
		Farm B	4/62	9/29/67
		" B	11/17/67	12/10/70
		" B a)	3/12/71	
		Farm C	4/62	5/8/67
		" C a)	9/29/67	
		Farm D	4/62	
		" F	5/6/71	
		" G	5/6/71	
		" H	5/6/71	
		" I	3/14/73	
		" J	3/14/73	
		" K	6/13/73	
	K-40	Farm Group A	4/25/60	4/62
		" " B	4/25/60	4/62
		" " C	4/25/60	4/62
		" " D	10/18/61	4/62
		Farm A	4/62	8/25/70
		" A a)	12/10/70	
		Farm B	4/62	9/29/67
		" B	11/17/67	12/10/60
		" B a)	3/12/71	

a) These stations chang[illegible] [illegible]cations on the dates indicated, but retained the same station nu[illegible]

TABLE II.3 (Cont'd)

Media	Type of Analysis	Station No.	Date of First Sample	Date of Last Sample
Milk (Cont'd)	K-40 (Cont'd)	Farm C	4/62	5/8/67
		" C a)	9/29/67	
		Farm D	4/62	
		" F	5/6/71	
		" G	5/6/71	
		" H	5/6/71	
		" I	3/14/73	
		" J	3/14/73	
		" K	6/13/73	
	Sr-89	Farm A	8/20/73	
		" B	8/20/73	
		" C	8/20/73	
		" D	8/20/73	
		" F	8/20/73	
		" G	8/20/73	
		" H	8/20/73	
		" J	8/20/73	
		" K	8/20/73	
	Sr-90	Farm Group A	7/31/60	4/62
		" " B	7/31/60	4/62
		" " C	7/31/60	4/62
		" " D	10/18/61	4/62
		Farm A	4/62	8/25/70
		" A a)	12/10/70	
		Farm B	4/62	9/29/67
		" B	11/17/67	12/10/70
		" B a)	3/12/71	
		Farm C	4/62	6/8/67
		" C a)	9/29/67	
		Farm D	4/62	
		" F	5/6/71	
		" G	5/6/71	
		" H	5/6/71	
		" I	3/14/73	
		" J	3/14/73	
		" K	6/13/73	
	Cs-137	Farm A	5/6/71	
		" B	5/6/71	
		" C	5/6/71	
		" D	5/6/71	
		" F	5/6/71	
		" G	5/6/71	
		" H	5/6/71	
		" I	3/14/73	
		" J	3/14/73	
		" K	6/13/73	
	I-131	Farm Group A	10/18/61	4/62
		" " B	10/18/61	4/62
		" " C	10/18/61	4/62
		" " D	10/18/61	4/62

a) These stations changed locations on the dates indicated, but retained the same station number.

TABLE II.3 (Cont'd)

Media	Type of Analysis	Station No.	Date of First Sample	Date of Last Sample
Milk (Cont'd)	I-131 (Cont'd)	Farm A	4/62	8/25/70
		" A	a) 12/10/70	
		Farm B	4/62	9/29/67
		" B	11/17/67	12/10/70
		" B	a) 3/12/71	
		Farm C	4/62	6/8/67
		" C	a) 9/29/67	
		Farm D	4/62	
		" F	5/6/71	
		" G	5/6/71	
		" H	5/6/71	
		" I	3/14/73	
		" J	3/14/73	
		" K	6/13/73	
Vegetation	Gross Alpha	1	7/2/60	
		2	5/20/61	9/10/61
		3A	7/2/60	
		4N	7/2/60	
		5	7/2/60	
		6D	7/2/60	
	Gross Beta	1	7/2/60	
		2	5/20/61	9/10/61
		3A	7/2/60	
		4N	7/2/60	
		5	7/2/60	
		6D	7/2/60	
	K-40	1	7/2/60	
		2	5/20/61	9/10/61
		3A	7/2/60	
		4N	7/2/60	
		5	7/2/60	
		6D	7/2/60	
	Sr-89	1	9/1/73	
		3A	9/1/73	
		4N	9/1/73	
		5	9/1/73	
		6D	9/1/73	
	Sr-90	1	7/2/60	
		2	9/10/61	9/10/61
		3A	7/2/60	
		4N	7/2/60	
		5	7/2/60	
		6D	7/2/60	
	Cs-137	1	5/1/71	
		3A	5/2/71	
		4N	5/2/71	
		5	5/2/71	
		6D	5/2/71	

a) These stations changed locations on the dates indicated, but retained the same station number.

TABLE II.3 (Cont'd)

Media	Type of Analysis	Station No.		Date of First Sample	Date of Last Sample
Fish Channel Catfish & White Crappie	Gross Alpha	1T		3/31/60	11/1/68
		1W		3/18/69	
		1X		6/17/69	
		1Y		7/17/70	
		4G		8/60	7/17/61
		4I		3/25/69	
		4J		7/17/70	
		4P		6/7/68	6/7/68
		4Q	b)	6/17/69	6/17/69
		4R	b)	7/8/69	7/8/69
		4S		7/2/68	7/2/68
		6C		7/21/61	
	Gross Beta	1T		3/31/60	11/1/68
		1W		3/18/69	
		1X		6/17/69	
		1Y		7/17/70	
		4G		8/60	7/17/61
		4I		3/25/69	
		4J		7/17/70	
		4P		6/7/68	6/7/68
		4Q	b)	6/17/69	6/17/69
		4R	b)	7/8/69	7/8/69
		4S		7/2/68	7/2/68
		6C		7/21/61	
	K-40	1T		3/31/60	11/1/68
		1W		3/18/69	
		1X		6/17/69	
		1Y		7/17/70	
		4G		3/60	7/17/61
		4I		3/25/69	
		4J		7/17/70	
		4P		6/7/68	6/7/68
		4Q	b)	6/17/69	6/17/69
		4R	b)	7/8/69	7/8/69
		4S		7/2/68	7/2/68
		6C		7/21/61	
	Sr-89	1W		12/3/73	
		1X		12/4/73	
		1Y		c)	
		4I		9/5/73	
		4J		11/27/73	
		6C		9/18/73	

b) Channel catfish only.

c) No sample collected between initiation of Sr-89 analysis and printing of this report.

TABLE II.3 (Cont'd)

Media	Type of Analysis	Station No.	Date of First Sample	Date of Last Sample
Fish (Cont'd) Channel Catfish & White Crappie	Sr-90	1T	3/31/60	11/1/60
		1W	3/18/69	
		1X	6/17/69	
		1Y	7/17/70	
		4G	8/60	7/17/61
		4I	3/25/69	
		4J	7/17/70	
		4P	6/7/68	6/7/68
		4Q b)	6/17/69	6/17/69
		4R b)	7/8/69	7/8/69
		4S	7/2/68	7/2/68
		6C	7/21/61	
	Cs-137	1W	8/31/72	
		1X	8/31/72	
		1Y	9/3/71	
		4I	9/3/71	
		4J	6/8/71	
		6C	5/24/71	
	Gamma Spectrum	1W	8/31/72	
		1X	8/31/72	
		1Y	9/3/71	
		4I	9/3/71	
		4J	9/3/71	
		6C	5/24/71	
Fish White Sucker	Gross Alpha	25C	9/14/72	
		30A	8/8/72	
	Gross Beta	25C	9/14/72	
		30A	8/8/72	
	K-40	25C	9/14/72	
		30A	8/8/72	
	Sr-89	25C	9/24/73	
		30A	9/24/73	
	Sr-90	25C	9/14/72	
		30A	8/8/72	
	Cs-137	25C	9/14/72	
		30A	8/8/72	
	Gamma Spectrum	25C	9/14/72	
		30A	8/8/72	
Fish American Shad	Gross Alpha	4H	6/5/72	
	Gross Beta	4H	6/5/72	
	K-40	4H	6/5/72	

b) Channel catfish only.

TABLE II.3 (Cont'd)

Media	Type of Analysis	Station No.	Date of First Sample	Date of Last Sample
Fish (Cont'd) American Shad	Sr-89	4H	c)	
	Sr-90	4H	6/5/72	
	Cs-137	4H	6/5/72	
	Gamma Spectrum	4H	6/10/73	
Shellfish (Tissue)	Gross Beta	9	4/21/60	
		10	4/21/60	
		11	4/21/60	
	K-40	9	4/21/60	
		10	4/21/60	
		11	4/21/60	
	I-131	9	5/17/60	
		10	5/19/60	
		11	5/17/60	
	Cs-137	9	6/16/71	
		10	6/16/71	
		11	6/16/71	
	Sr-89	9	9/18/73	
		10	9/18/73	
		11	9/18/73	
	Sr-90	9	6/16/71	
		10	6/16/71	
		11	6/16/71	
	Gamma Spectrum	9	6/16/71	
		10	6/16/71	
		11	6/16/71	
Shellfish (Shell)	Gross Beta	9	4/21/60	
		10	4/21/60	
		11	4/21/60	
	K-40	9	4/21/60	
		10	4/21/60	
		11	4/21/60	
	Sr-89	9	9/18/73	
		10	9/18/73	
		11	9/18/73	
	Sr-90	9	4/21/60	
		10	11/6/67	11/6/67*
		10	6/16/71	
		11	6/16/71	
	Cs-137	9	6/16/71	
		10	6/16/71	
		11	6/16/71	

c) No sample collected between initiation of Sr-89 analysis and printing of this report.

* One Sample this date; Sr-90 analysis resumed 6/16/71

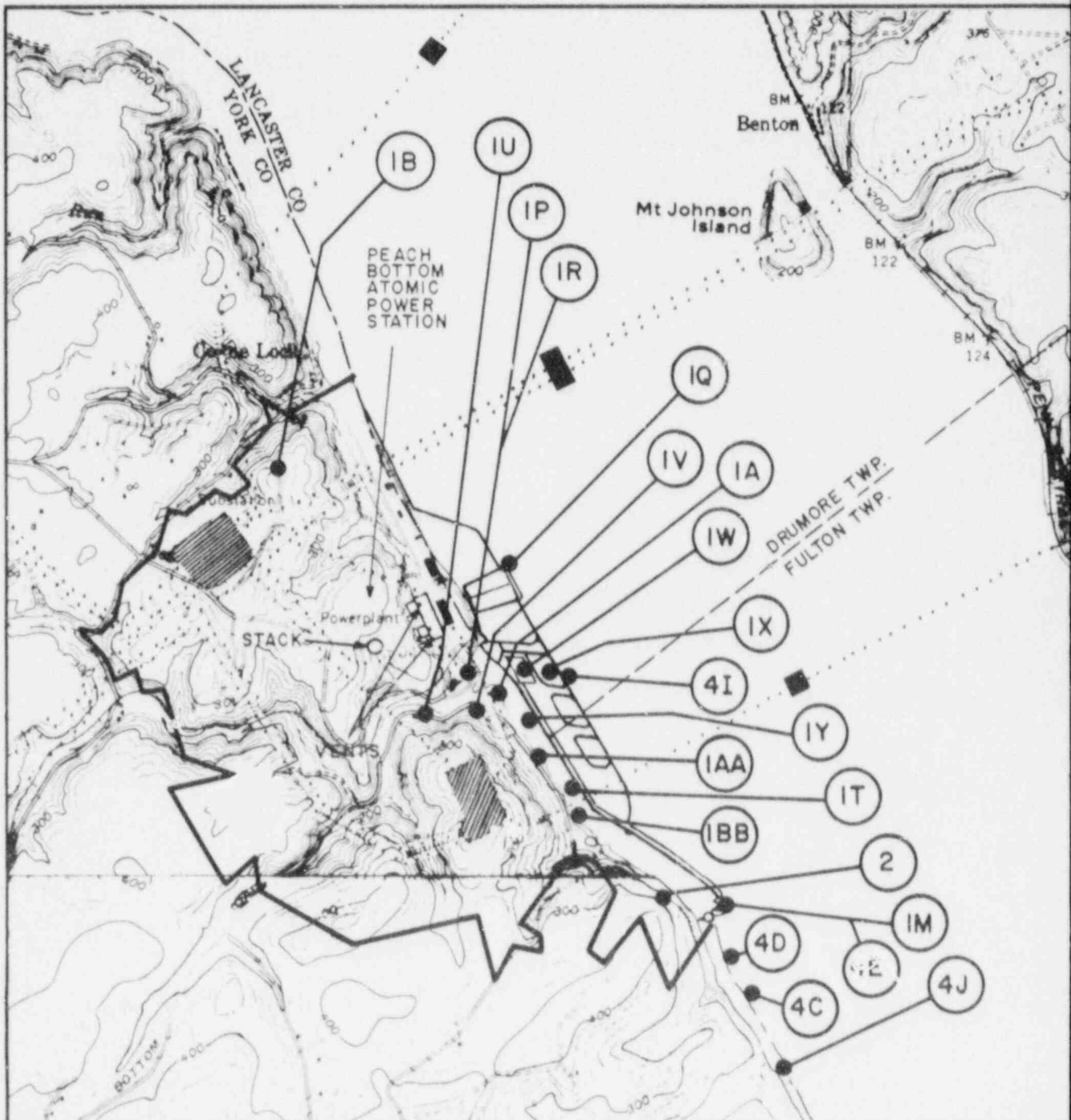
TABLE II.3 (Cont'd)

Media	Type of Analysis	Station No.	Date of First Sample	Date of Last Sample
Small Game (Muscle)	Gross Beta	1	4/1/61	
	K-40	1	4/1/61	
Small Game (Soft Tissue)	Gross Beta	1	4/1/61	
	K-40	1	4/1/61	
Small Game (Bone)	Gross Beta	1	4/1/61	
	K-40	1	4/1/61	
Small Game (Thyroid)	I-131	1	4/1/61	
Soil	Gross Alpha	1AA	4/4/60	
		2	2/26/61	8/19/61
		3A	4/4/60	
		4N	4/4/60	
		5	4/4/60	
		6G	4/4/60	
	Gross Beta	1AA	4/4/60	
		2	2/26/61	8/19/61
		3A	4/4/60	
		4N	4/4/60	
		5	4/4/60	
		6G	4/4/60	
	K-40	1AA	4/4/60	
		2	2/26/61	8/19/61
		3A	4/4/60	
		4N	4/4/60	
		5	4/4/60	
		6G	4/4/60	
	Sr-89	1AA	10/14/73	
		3A	10/14/73	
		4N	10/14/73	
		5	10/14/73	
		6G	10/14/73	
	Sr-90	1AA	5/1/71	
		3A	7/2/60	
		4N	11/12/61	11/12/61**
		4N	5/2/71	
		5	11/12/61	11/12/61**
		5	5/2/71	
		6G	7/2/60	
	Cs-137	1AA	5/1/71	
		3A	5/2/71	
		4N	5/2/71	
		5	5/2/71	
		6G	5/2/71	

** One Sample this date; Sr-90 analysis resumed 5/2/71.

TABLE II.3 (Cont'd)

Media	Type of Analysis	Station No.	Date of First Sample	Date of Last Sample
Silt	Gross Alpha	1BB	3/29/60	11/12/61
		1CC	4/8/62	10/22/66
		1BB	4/8/67	
		1W	3/14/72	
		1X	3/14/72	
		4C	12/3/71	
		4D	3/14/72	
		4E	12/14/69	12/3/71
		6F	3/29/60	
	Gross Beta	1BB	3/29/60	11/12/61
		1CC	4/8/62	10/22/66
		1BB	4/8/67	
		1W	3/14/72	
		1X	3/14/72	
		4C	12/3/71	
		4D	3/14/72	
		4E	12/14/69	12/3/71
		6F	3/29/60	
	K-40	1BB	11/5/60	11/12/61
		6F	11/4/60	11/12/61
	Sr-89	1BB	10/14/73	
		1W	12/13/73	
		1X	12/13/73	
		4C	12/13/73	
		4D	12/13/73	
		6F	10/14/73	
	Sr-90	1BB	11/5/60	11/12/61
		1BB	4/8/67	
		1CC	4/8/62	10/22/66
		1W	3/14/72	
		1X	3/14/72	
		4C	12/3/71	
		4D	3/14/72	
		4E	12/14/69	12/3/71
		6F	11/4/60	
	Cs-137	1BB	5/1/71	
		1W	3/14/72	
		1X	3/14/72	
		4C	12/3/71	
		4D	3/14/72	
		4E	12/14/69	12/3/71
		6F	5/2/71	
	Gamma Spectrum	1BB	5/1/71	
		1W	3/14/72	
		1X	3/14/72	
		4C	12/3/71	
		4D	3/14/72	
		4E	12/14/69	12/3/71
		6F	5/2/71	
Ambient Radiation	Gamma	1A	9/11/61	
		1B	10/22/67	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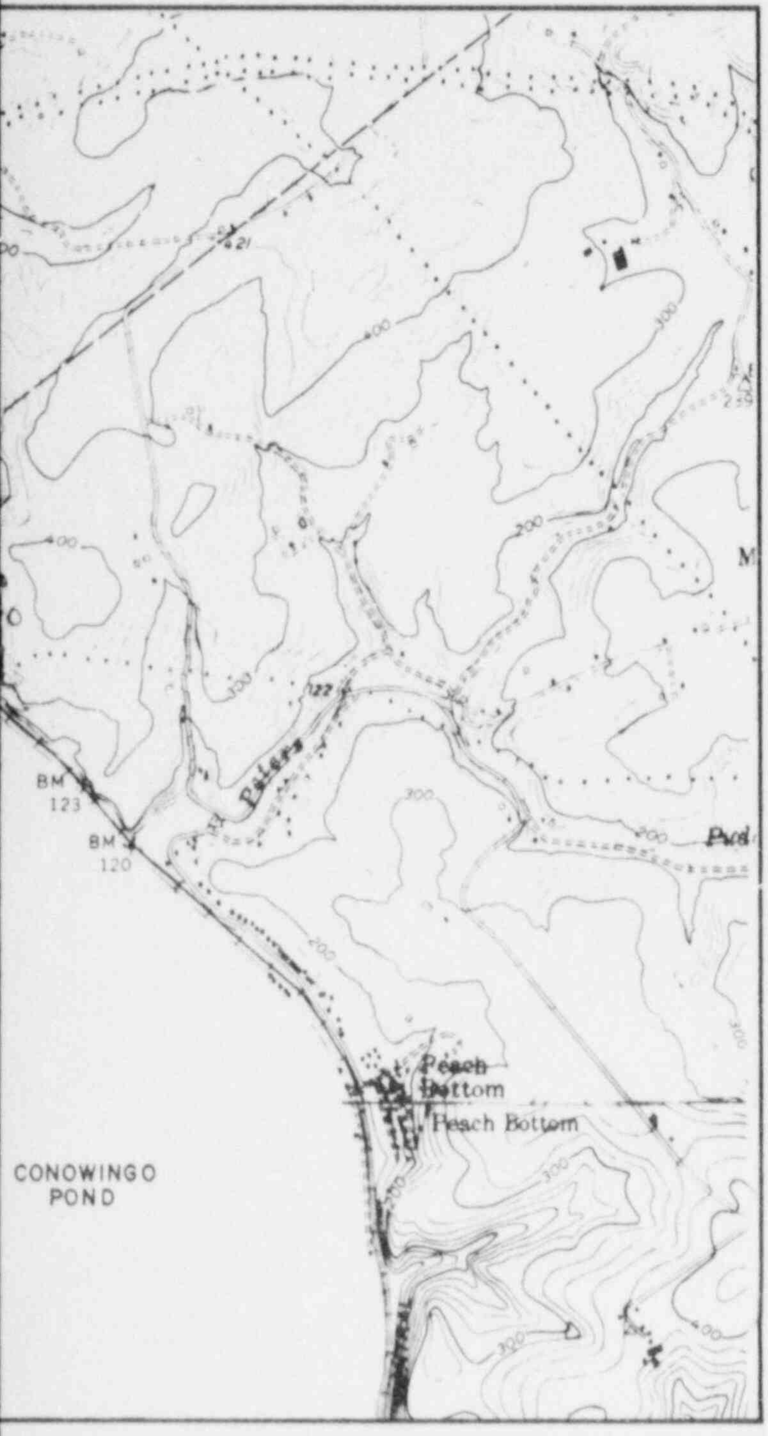

LEGEND

ENVIRONMENTAL SAMPLING STATIONS

IA	PEACH BOTTOM WEATHER STATION NO.1
IB	PEACH BOTTOM WEATHER STATION NO.2
IM	PEACH BOTTOM CANAL DISCHARGE
IP	PEACH BOTTOM UNIT NO.1 INTAKE
IQ	PEACH BOTTOM UNIT NO.2 INTAKE
IR	PEACH BOTTOM UNIT NO.1 DISCHARGE
IT	PEACH BOTTOM DISCHARGE CANAL - 2200 (FT)
IU	PEACH BOTTOM SITE - UTILITY BUILDING
IV	PEACH BOTTOM SITE - INFORMATION CENTER
IW	PEACH BOTTOM UNIT NO.1 DISCHARGE POND A-1
IX	PEACH BOTTOM SITE COOLING TOWER POND B-1
IY	PEACH BOTTOM DISCHARGE CANAL - NET-TRAP NO.9
IAA	PEACH BOTTOM DISCHARGE CANAL BANK
IBB	PEACH BOTTOM DISCHARGE CANAL
2	PEACH BOTTOM SITE 130° SECTOR HILL
4C	CONOWINGO POND, PA.
4D	CONOWINGO POND, PA.
4E	CONOWINGO POND, PA.
4I	CONOWINGO POND NET TRAP NO.8
4J	CONOWINGO POND NET TRAP NO.15

ENVIRONMENTAL SAMPLING STATIONS ON OR NEAR PEACH BOTTOM SITE.

FIGURE II.1

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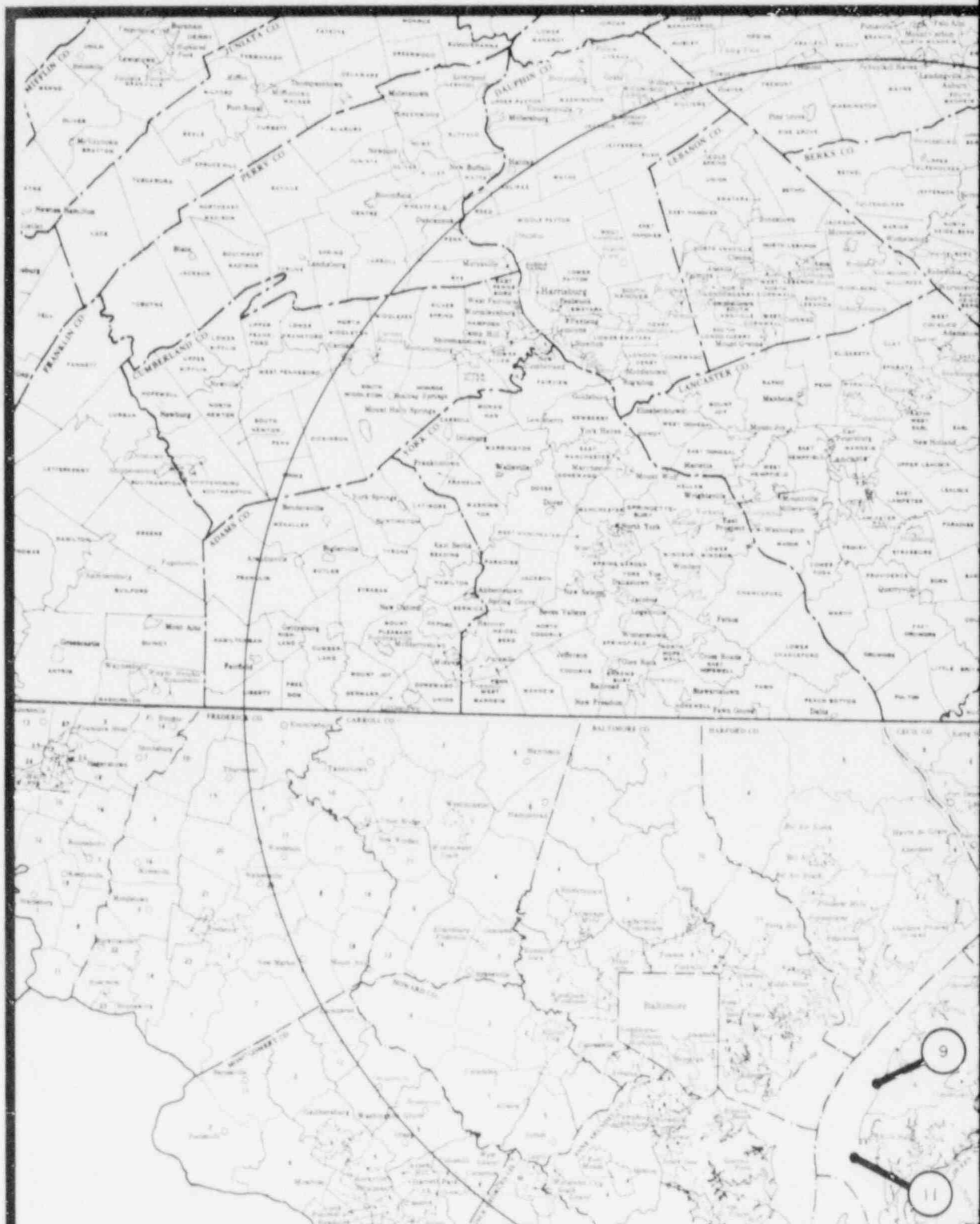
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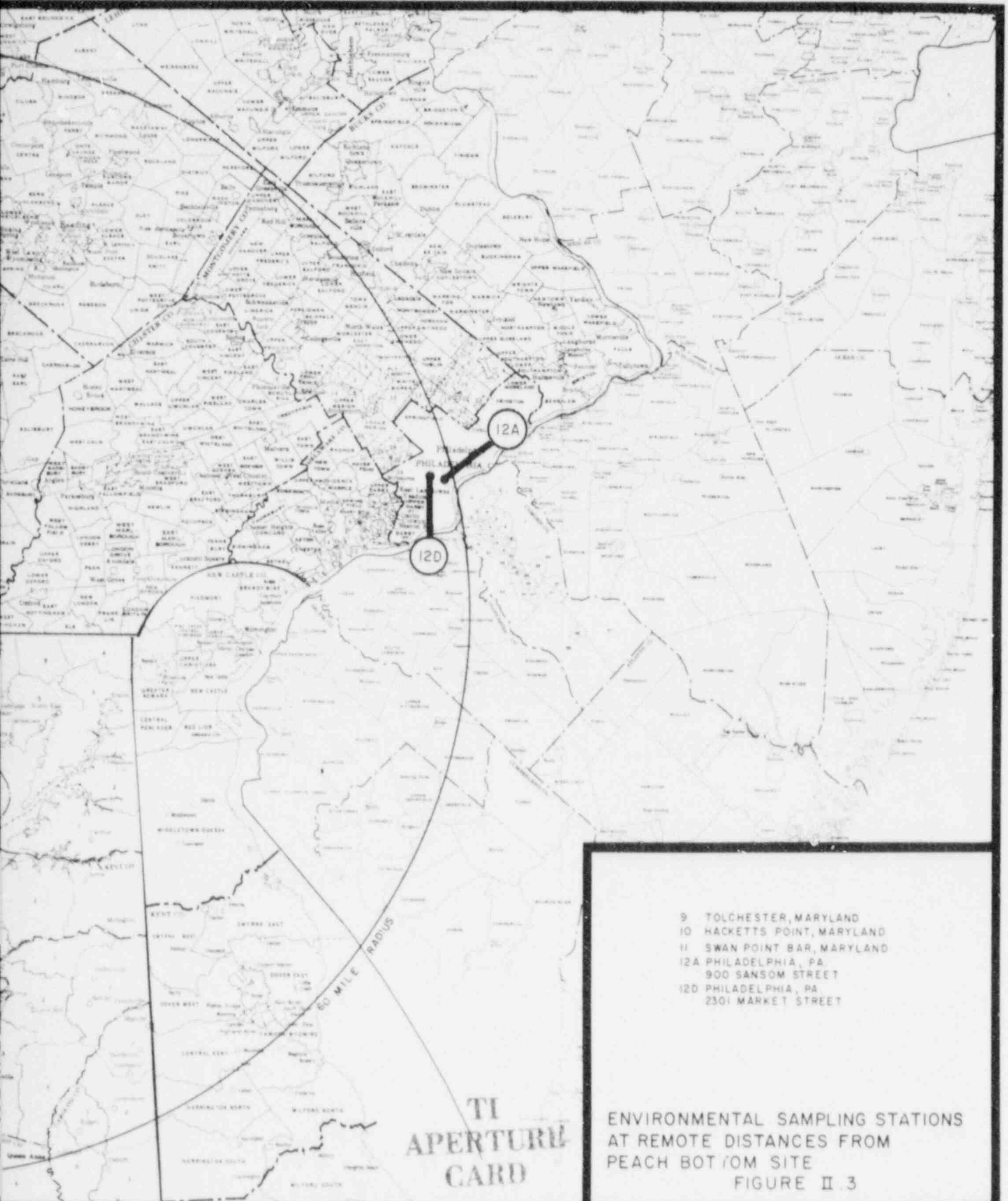

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12D PHILADELPHIA, PA. 2301 MARKET STREET

ENVIRONMENTAL SAMPLING STATIONS AT REMOTE DISTANCES FROM PEACH BOTTOM SITE

FIGURE II.3

III. PROCEDURES

The procedures used to obtain the various sample types, how the samples are handled and analyzed, the methods used to calculate final results, reporting procedures and analytical sensitivities are described in this section.

III.A Sample Collection Procedures

The methods used in sample collection and ambient gamma radiation measurements are described below. An attempt is made to adhere to the sampling schedule unless unusual conditions prevail.

All samples are labeled with sample type and location as well as collection date prior to shipment to the laboratory for analysis.

1. Gamma Radiation Monitoring

Gamma radiation is monitored with a Nuclear Measurement Corporation Model GA-2A scintillation system with a Leeds and Northrup or equivalent strip chart recorder which records the gamma dose rate continuously. Each monitor is read weekly by the sample collector and its entire chart when removed is sent to Interex for examination to insure that the weekly readings are representative of the entire period. The range of values is also read and reported.

On June 19, 1973, the instrument at Station 1A was moved about 120 feet to a new weather station building from its original wooden structure.

Prior to February 1962, a recording ionization chamber system (Victoreen Model 712) was used with a Texas Instrument recorder.

2. Air Particulates

Air particulate samples are obtained using a system consisting of a pump (Gast 1VBS-10-M100X), a Gelman 1220 filter paper holder with a 35mm diameter orifice and a running time meter to indicate the total period of operation. Each air sampler is fitted with a limiting orifice to maintain a constant flow rate of approximately 1 cfm during the sampling period. The volume sampled for the period is determined from the known flow rate and the running time. A typical unit is shown in Figure III.1.

The filter paper used is Gelman Type E glass fiber 47 mm diameter. Prior to 1966, Hollingsworth and Voss HV-70 2 inch diameter paper was used.

Previously various other equivalent pumps such as Bell and Gossett SYC-19-1, Gelman 13400 or Gast 1VSF were used at the various locations and a Schmidt constant flow air sampler Model 2-AXP was used at Station 12A.

Starting in 1970 the samplers were equipped with a filter holder with a 35 mm diameter orifice rather than the 44.5 mm orifice previously used.

At the end of each weekly air particulate collection period, the air sampling unit is stopped, the filter is removed from the holder, placed in an individual envelope and identified. A new filter is placed into the filter holder and the air sampling unit returned to operation. The total sampling interval, the date of collection, the flow rate, and the sampling location are recorded on a special air sample data form which is attached to the appropriate sample. Special notations are made on the data form of any unusual conditions in the equipment or of weather conditions at the sampling station which may have affected the samples. The collector also maintains a log sheet on each air sampling station containing a duplicate record of the information appearing on the weekly air sample data form. The samples at Stations 12A and 12D are collected by Philadelphia Electric personnel.

Beginning in June 1973, approximately every six months or when a pump is replaced, units at all stations are calibrated, after replacing the particulate laden filter, for true air flow volume using a dry gas meter. This is done by Philadelphia Electric Co. personnel. During calibration, a measured amount of air is drawn through the system at a constant flow rate. Pressure within the meter is measured with a vacuum gauge. By application of Boyle's law and using the measured pressure differential (to correct the dry gas meter reading to atmospheric pressure), the elapsed sampling time and the measured volume of air pulled through the filter during calibration, the flow rate through the filter is calculated. The temperature is assumed to be constant during the calibration.

Prior to June 1973, air particulate monitors at all stations except 12A and 12D were calibrated by the sample collector using the same method. At Stations 12A and 12D the calibration was performed by Philadelphia Electric Co. using the above procedure since June 1972. Prior to this date, a wet gas meter was used.

3. Precipitation

Precipitation samples are collected in rain gauges. Collector areas at Stations 1A and 1B and Station 4M are 0.0327 m^2. These are emptied weekly by Philadelphia Electric Co. personnel into appropriate sized plastic bottles which are given to the sample collector for transmittal to Interex. The entire volume for the given period constitutes a sample. Since August 1972, plastic inserts in the metal rain gauges have been used at Stations 1A and 1B to collect the rain samples.

4. Surface Water

Each surface water grab sample consists of 1 gallon of water obtained in a 1 gallon plastic bottle.

At Station 4L a monthly composite sample is obtained using the sampler shown in Figure III.2. The apparatus samples at a rate of approximately 46 ml/minute giving a 7-day sample of approximately 140 gallons. The tank capacity is 175 gallons, the volume of a 10-day sample at this flow rate. A one-quart sample is removed from the tank weekly after a few minutes of stirring to mix any insoluble material in the tank and put into a 1- or 2-gallon bottle. The tank is then drained and rinsed. At the end of each month the collection bottle is sent to Interex.

5. Well Water

Each well water sample consists of 1 gallon of well water obtained as a grab sample.

Before sampling from wells, sufficient water is allowed to run to drain the pipes or is run for approximately 5 minutes if the well is not used frequently.

6. Soil

For each soil sample the Sunshine Method is used. Three 2" plugs of soil 4-6 inches deep are taken from a 4 square foot area and mixed in a plastic bag. The composite is placed in a plastic bottle and consists of approximately 1000 g.

7. Silt

Silt samples at Stations 1BB and 6F are obtained in a manner similar to soil samples under approximately two feet of water by the Interex sample collector. The composited sample consisting of approximately 1000 g is placed in a plastic bottle for shipment.

At Stations 1W, 1X, 4C and 4D silt samples are collected in a similar manner by Icthyological Associates, a Philadelphia Electric Co. limnological consultant using a Ponar dredge.

8. Fish

Fish samples are obtained by trapping or by hook and line. Each sample generally consists of 4 fish of the same type whenever available. The fish are placed in a plastic bottle for shipment or are placed in plastic bags and shipped in dry ice.

Presently the fish from Holtwood Pond, Station 6C, are collected by the Interex sample collector using hook and line. All other fish samples are collected by Icthyological Associates, a Philadelphia Electric Co. marine biology consultant. At Conowingo Pond stations including the berm ponds and discharge canal, Stations 4I, 4J, 1X, 1Y and 1W, fish are caught by net trapping. In Peter's Creek, Station 3A and Pequea Creek, Stations 25A through D, fish are caught by seine or by electro-shocking techniques. Shad in the Conowingo Dam tailrace, Station 4H, are caught by hook and line or a fish trap.

Prior to 1968 all fish were obtained by the program sample collector using hook and line.

9. Shellfish

Shellfish (oysters) consist of approximately 8 oysters from each location shipped in formaldehyde in a plastic bottle. The shellfish are obtained by personnel of the Chesapeake Bay Institute, Johns Hopkins University, and are shipped to Interex.

10. Vegetation

Samples of approximately 500 grams of cut grass and wild greens are placed in polyethylene bags and sealed for shipment. Crops, when available, are also shipped in plastic bottles.

11. Small Game (Rabbits)

Small game (rabbits) obtained in the area are frozen and shipped in dry ice. Five rabbits are collected as a sampling if available. Prior to 1971, 10 rabbits were collected as a sampling.

12. Milk

Each sample consists of 2 gallons of milk removed from the bulk dairy tank at a given farm. It is thus a composite of all the cows in the herd for one to three milkings.

Prior to April 1962, each sample from a farm group consisted of about 400 ml of milk from each of five separate farms composited into a two liter sample.

III.B Handling and Reporting Procedures

Samples when received are logged into a notebook specifically used for Philadelphia Electric environmental samples and a sample number is assigned. At this time a carbon copy of the log entry is generated and submitted to the laboratory supervisor who verifies the analyses to be performed and assigns the analyses to laboratory personnel. In addition, the log sheet is checked against the transmittal sheet submitted by the sample collector to insure that all samples were received and against the program schedule to ascertain that all samples required for the period have been taken.

When analytical results are obtained, they are checked against the analytical requirements to verify that all of the required analyses have been performed. The results are then compared to previous data to determine if the value is within normal limits.

A data sheet giving the details of the analytical results including gross counts, count time, counter efficiency, sample volume, etc., is submitted to Philadelphia Electric Company upon completion of the sample analysis. There is immediate notification of any unusual result.

Representative portions of samples when possible are saved for at least six months after submission of the report containing the results of the sample analyses.

III.C Sample Preparation and Analytical Procedures and Equipment

The procedures and equipment described below are presently being used in the analysis of samples obtained in this program. There have been no changes from previous procedures or equipment that would be expected to affect the comparability of the results obtained. Where changes in a procedure have been made they are referred to in a note at the end of the procedure. "ICN" refers to differences in procedures between those now in use and those used by ICN. "NSEC" is used similarly for differences between Interex and Nuclear Science and Engineering Corporation. Counting procedures and equipment are described separately.

As a result of the changes in laboratories and in analytical requirements, several general changes were made that pertain to numerous procedures. The counting equipment is different, as is described in section III.C.2, and the reporting units were changed from uuc to pCi. Since these are general changes, they are inferred and not restated for each procedure.

Sample aliquot size, chemical concentrations etc. are for the sample as generally encountered and may be varied somewhat to accommodate special situations.

III.C.1 Sample Preparation and Analytical Procedures

The following pages describe the procedures used for each type of sample medium collected.

Toward the end of the period covered by this report, Sr-89 analysis was initiated on all samples which previously required only Sr-90 determination. In the procedures given below, the addition of Sr-85 is omitted if it is necessary to determine Sr-89.

Cesium-137 measurements were also started in some samples during the report period. Where cesium was not determined the addition of cesium carrier and the cesium separation steps were omitted.

1.1 Air Particulates

At least 72 hours is allowed to elapse between sample collection and processing to allow for the decay of any radon and thoron radioactivities.

a. Procedure for Gross Beta Analysis

(1) The air filters are placed on 2 inch diameter planchets and beta counted in the counter described in section III.C.2.1.

(2) The concentrations of gross beta activities are calculated using conversion factors obtained from the sampler flow rates, the running time of the air sampling pumps, the sample counting rates and the efficiency factor of the beta counter determined using a Cs-137 standard. The concentrations of beta activity are reported in terms of picocuries per cubic meter (pCi/m^3) of air.

(ICN and NSEC - A Sr-90 - Y-90 standard was used)

b. Procedure for Gamma Spectrum Analysis

(1) All air filter papers from a given month from a given location are placed in a Petri dish, pressed flat with extra paper on the side opposite the counter and counted on the gamma spectrometer described in section III.C.2.4.

(2) Results are given in pCi/m^3 using standards of the isotope being measured. The sum of the individual air volumes are used.

1.2 Precipitation

a. Procedure for Gross Beta Analysis

The total volume of the monthly precipitation sample from each sampling location is measured to the nearest 10 ml. A 250-ml or larger aliquot including uniformly suspended solids is evaporated nearly to dryness, transferred quantitatively to a tared 2 inch diameter planchet, evaporated to dryness, weighed, and beta counted in the counter described in section III.C.2.1. The gross beta activity concentrations are calculated for each sample from the volume of the aliquot used, the counter efficiency based on a Cs-137 standard and the area of the sample collector. The data are reported in units of picocuries per liter (pCi/1) and picocuries per square meter (pCi/m^2).

b. Procedure for Strontium and Cesium

(1) Strontium (40 mg as $Sr(NO_3)_2$) and cesium (35 mg as CsCl) carriers and a known amount of Sr-85 are added to a measured quantity of the unfiltered sample remaining after removal of the gross beta aliquot. The liquid is evaporated to near dryness.

(2) The liquid and any residue are treated with acid several times by boiling to near dryness after addition of 4N HNO_3. The solution is cooled, diluted to 50 ml with 0.1 N HNO_3, filtered and the filter paper is washed combining the wash with the filtrate. Alternatively the dried aliquot is fused with sodium carbonate and leached with dilute HNO_3.

(3) Ammonium molybdophosphate (AMP) is added, the solution is made basic and then acid to precipitate cesium. The cesium

precipitate is separated and cesium determined as given in section 1.12. The supernate is saved for strontium determination.

(4) The remainder of the strontium procedure is given in section 1.11 starting with step 2.

(5) Data are reported as pCi/l and pCi/m^2 for each isotope based on standards for the specific isotope being measured.

(NSEC - A 250 ml aliquot was used, and the residue in step 2 was filtered, fused with sodium carbonate, water leached, dissolved in HNO_3 and combined with the filtrate before proceeding with step 3.)

1.3 Surface Water

a. Insoluble Matter

(1) Procedure for Gross Alpha Activity

(a) A 1-liter aliquot of the surface water sample is filtered through a membrane filter (Millipore, type HA, 47 mm diameter, 0.45 micron mean pore size) to collect the insoluble particulate matter.

(b) The filter membrane is transferred to a tared 2 inch diameter planchet, ignited to remove any organic material, weighed and alpha counted in the counter described in section III.C.2.1.

(c) Concentrations are reported in picocuries per liter based on a uranium standard.

(ICN , prior to May 1971, and NSEC - a 250 ml aliquot and Millipore, type RA 47 mm diameter 1.2 micron filter paper was used.)

(2) Procedure for Gross Beta Analysis

(a) The planchet containing the ignited sample obtained as described above is beta counted in the counter described in section III.C.2.1. Concentrations are reported in picocuries per liter based on a Cs-137 standard.

(3) Procedure for Gross Gamma and Gamma Spectrum Analysis

(a) The planchet containing the ignited sample is counted on the gamma spectrometer described in section III.C.2.4.

(b) Results are given in cpm/l and pCi/l using standards of the isotope being measured.

b. Soluble Matter

(1) Procedure for Gross Alpha Activity

(a) The filtrate obtained from a 1-liter surface water aliquot is evaporated to dryness in a beaker at low heat.

(b) The residue is transferred to a tared 2 inch diameter planchet with the aid of dilute nitric acid.

(c) The sample is evaporated to dryness and the weight of the residue determined to permit correction for self absorption.

(d) The sample is then alpha counted in the counter described in section III.C.2.1. Results are reported in terms of pCi/l based on a uranium standard.

(ICN - A 250 ml aliquot was used in Step a.)

(NSEC - The residue was wet ashed with HNO_3 and H_2O_2, evaporated and a weighed 200 mg aliquot of the residue was counted.)

(2) Procedure for Gross Beta Analysis

(a) The planchet obtained from the gross alpha procedure is beta counted on the counter described in section III.C.2.1. Results are reported in terms of pCi/l based on a Cs-137 standard.

(3) Procedure for Gross Gamma and Gamma Spectrum Analysis

(a) A 4 liter aliquot of filtered sample is placed into a Marinelli beaker and counted on the gamma spectrometer described in section III.C.2.4.

(b) Results are given in cpm/l and pCi/l using standards of the isotope being measured.

1.4 Well Water

a. Procedure for Gross Alpha Analysis

The same procedure is used as is given above for surface water soluble activity except that the sample is not filtered. The sample therefore contains both soluble and insoluble activity.

b. Procedure for Gross Beta Analysis

The sample procedure is used as is given above for surface water soluble activity except that the sample is not filtered.

(NSEC - The sample procedures used were as given in the notations to the surface water soluble activity procedures.)

c. Procedures for Uranium Analysis

(1) A 1-liter aliquot of sample is evaporated to 25 ml and 1.5 ml conc. HNO_3 and 50 ml conc. HCl are added.

(2) The solution is passed through a Dowex 1 x 10, 100-200 mesh column.

(3) The column is washed with 75 ml of 8N HCl and uranium is eluted with 150 ml of 1N HCl.

(4) The solution is evaporated to dryness and taken-up in dilute HNO_3.

(5) One-half of this solution is transferred to a platinum dish and evaporated. The residue is fused with a sodium fluoride - lithium fluoride pellet.

(6) The fluorescence in the fused sample is measured with a Turner Model 110 fluorimeter calibrated against known amounts of uranyl nitrate solution which have been fused as in Step 5.

(7) The concentrations of uranium are reported in units of micrograms per liter (ug/l).

(ICN - a 250 ml aliquot of unfiltered sample was evaporated to dryness, the residue dissolved by treating several times with 4N HNO_3 and then diluted to 5.0 ml with water. A 0.2 ml aliquot was treated as in step 5 above and the fluorescence measured with a Jarrell-Ash fluorimeter calibrated as given above in Step 6.)

(NSEC - The residue was wet ashed with HNO_3 and H_2O_2 and dissolved in 1M HNO_3. The uranium was extracted into ether, the water phase discarded and the ether layer evaporated on a water bath. The residue was taken up in 1M HNO_3 and diluted to 5 ml. A 0.2 ml aliquot was treated as in step 5 above and the fluorescence measured with a Jarrell-Ash fluorimeter calibrated as given above in Step 6.)

d. Procedure for Strontium and Cesium

(1) Strontium (40 mg as $Sr(NO_3)_2$) and cesium (35 mg as CsCl) carriers and a known amount of Sr-85 are added to a 1-liter aliquot and cesium is separated by precipitation with AMP. The remainder of the procedure is as given above in section 1.2.b at step 3.

(NSEC - Procedural changes are as noted above for precipitation.)

e. Procedure for Gross Gamma and Gamma Spectrum Analysis

(1) A 4 liter aliquot of unfiltered sample is placed into a Marinelli beaker and counted on the gamma spectrometer described in section III.C.2.4.

(2) Results are given in cpm/l and pCi/l using standards of the isotope being measured.

1.5 Soil and Silt

a. Procedure for Gross Alpha Analysis

(1) 20 to 25 g of the sample of soil or silt is dried by heating at 110°C.

(2) The dried sample is crushed and a weighed 10 g of the material transferred to a beaker.

(3) The sample is leached twice with 10 ml of 2N HNO_3, and the leachings are composited and filtered. The residue is washed with 0.1N HNO_3.

(4) The filtrate is evaporated to approximately 5 ml, transferred to a volumetric flask, and diluted to 10 ml with 4N HNO_3.

(5) A 2 ml aliquot of the solution (equivalent to 2 g of dry soil) is evaporated onto a tared planchet, weighed and alpha counted in the counter described in section III.C.2.1. The concentrations of extractable gross alpha activity are reported in units of pCi/g dry wt. based on a uranium standard.

(NSEC - The leaching was done with concentrated HNO_3 and the filtrate was diluted with 0.1N HNO_3 prior to treating as in step 5.)

b. Procedure for Gross Beta Activity

(1) The planchet from the gross alpha analysis is beta counted in the counter described in section III.C.2.1. The concentrations of extractable gross beta activity are expressed in units of pCi/g dry wt. based on a K-40 standard for soil and a Cs-137 standard for silt.

c. Procedure for Potassium-40 Analysis

(1) A 1-ml aliquot of the sample solution used to prepare the alpha sample is diluted to 100 ml in a volumetric flask.

(2) The potassium content is determined using a Coleman Model 21 flame photometer and Model 22 Galvanometer. The instrument is calibrated using known amounts of potassium for each series of measurements. The beta radioactivity resulting from K-40 is calculated using the known specific beta activity of K-40 in potassium (1780 betas/min/g K). The contribution of K-40 beta activity to the concentration of the gross beta activity in the sample is reported in units of pCi/g dry wt.

(NSEC - Potassium was measured using a Beckman Model DU spectrophotometer with a flame attachment at a wavelength of 766.5 mu.)

d. Procedure for Net Beta Activity

(1) The concentration of K-40 in each sample, as determined above, is subtracted from the concentration of the gross beta activity, and the net beta activity concentration is expressed as pCi/g dry wt.

e. Procedure for Gross Gamma and Gamma Spectrum Analysis

(1) The remaining dried sample is weighed and placed into a Marinelli beaker and counted on the gamma spectrometer described in section III.C.2.4.

(2) Results are given in cpm/g and pCi/g using standards of the isotope being measured.

f. Procedure for Strontium and Cesium

(1) A 75 gram sample of oven dried soil is weighed into a tared beaker. Strontium (40 mg as $Sr(NO_3)_2$) and cesium (35 mg as CsCl) carriers and a known amount of Sr-85 are added.

(2) The sample is leached twice with 200 ml portions of 4N HCl by heating for at least 1 hour on a hot plate, stirring frequently.

(3) The combined supernates are evaporated to 200 ml and any residue filtered off.

(4) Approximately 1 g of AMP is added and the sample is mechanically stirred for 1 hour. The AMP is allowed to settle and removed for cesium purification as given in section 1.1.2.

(5) 12N NaOH is added to the supernate with stirring until any precipitate that forms just barely dissolves (pH approx. 2). If no precipitate tends to form more NaOH is added until the pH is 5 and 20 ml of saturated $(NH_4)_2C_2O_4$ is added to precipitate the oxalates. One 40 ml cone is centrifuged and the supernate tested for completeness of precipitation. This is repeated until no precipitate is formed in the supernate when more $(NH_4)_2C_2O_4$ is added. If a precipitate forms at pH 5 when NaOH is added, the solution is acidified and few grams of $(NH_4)_2C_2O_4$ are added. The pH is then readjusted to pH 5. This is repeated until no brown precipitate is obtained at pH 5. The objective is to complex any iron as the oxalate so that it does not precipitate at pH 5 with the alkaline earth oxalates.

(6) The solution is gravity filter and the oxalates converted to carbonates by ignition muffle furnace. The residue is dissolved in 30-50 ml 8N HNO_3.

(7) The solution is transferred to a 250 ml beaker and 150 ml of fuming HNO_3 added to precipitate nitrates. The precipitate is allowed to settle and centrifuged.

(8) The remainder of the procedure is given in section 1.11 starting with step 4.

(9) Results are reported in pCi/g dry weight using standards of the isotope being measured.

(NSEC - 50 gram samples were leached with HNO_3 and treated starting with step 2.

1.6 <u>Fish</u>

a. <u>Procedure for Gross Alpha Analysis</u>

(1) A single fish is rinsed with tap water and then with distilled water to free it of any adhering mud or slime, weighed and placed in a beaker.

(2) The sample is wet ashed using concentrated HNO_3, evaporated and then ashed in a muffle furnace at 600°C.

(3) A weighed 200 mg aliquot of the ash is transferred to a 2 inch diameter planchet and alpha counted in the counter described in section III.C.2.1. The concentration of gross alpha activity is reported in pCi/g ash based on a uranium standard.

b. <u>Procedure for Gross Beta Analysis</u>

(1) The planchet obtained from the gross alpha analysis is beta counted. The concentrations of gross beta activity are reported in pCi/g ash based on a K-40 standard.

c. <u>Procedure for Potassium-40 Analysis</u>

(1) 10 to 20 mg of white ash from the alpha procedure is weighed, transferred quantitatively to a 100-ml volumetric flask and dissolved in HNO_3. The solution is diluted to 100 ml with water.

(2) The potassium concentration is determined using a Coleman 21 flame photometer and Model 21 galvanometer. Potassium chloride (KCl) standard solutions are used for calibration of the instrument prior to each series of measurements.

(3) The beta activity resulting from K-40 is calculated using the natural abundance of K-40 in potassium. The contribution of K-40 beta activity to the concentration of gross beta activity is reported in units of pCi/g ash.

(NSEC - Potassium was measured using a Beckman Model DU spectrophotometer with a flame attachment at a wavelength of 766.5 mu.)

d. Procedure for Net Beta Activity

(1) The concentration of K-40 in each sample, as determined above, is subtracted from the concentration of the gross beta activity. The net beta activity concentration is expressed as pCi/g of ash.

e. Procedure for Gross Gamma and Gamma Spectrum Analysis

(1) Prior to performing any analysis, and after washing, all fish of the same species from a sample are weighed and placed together in a Marinelli beaker and counted on the gamma spectrometer described in section III.C.2.4.

(2) Results are given in cpm/g and pCi/g using standards of the isotope being measured.

f. Procedure for Strontium and Cesium

(1) Strontium (40 mg as $Sr(NO_3)_2$) and cesium (35 mg as CsCl) carriers and a known amount of Sr-85 are added to the weighed ash remaining after the removal of the aliquots for gross beta and K-40.

(2) Approximately 150 ml of 8N HNO_3 is added to the sample and the sample is heated until the ash dissolves. The solution is evaporated to a small volume.

(3) Approximately 1 g of AMP is added and cesium precipitated by making the solution basic and then acid. The AMP precipitate is separated for cesium purification as given in section 1.12.

(4) The supernate is processed for strontium as given in section 1.11 starting at step 2.

(5) Concentrations are reported in units of pCi/g ash using standards of the isotope being measured.

1.7 Shellfish

a. Procedure for Gross Beta Analysis of Shells

(1) The oysters are scrubbed free of dirt.

(2) After opening the shells and separating them from the soft tissues, the shells are weighed and then ashed in a muffle furnace at 600°C until a white ash is produced. It has been found that the weight of shell is essentially unchanged by ashing.

(3) The ash is crushed, and a weighed 1 gm of ash digested with concentrated HNO_3.

(4) The volume of the resulting solution is reduced and then the solution adjusted to a volume of 10 ml with 1.0 M HNO_3. An aliquot of the solution equivalent to 200 mg of shell ash is trans-

ferred to a tared 2 inch diameter planchet, dried, weighted, and beta counted in the counter described in section III.C.2.1.

(5) The concentrations of gross beta activity are expressed in terms of pCi/g shell ash based on a K-40 standard.

b. Procedure for Potassium-40 Analysis of Shells

(1) A volume of the above solution equivalent to 200 mg of shell ash is diluted to 10 ml with 1.0 M HNO_3.

(2) The potassium content is determined as described above for fish in section 1.6.c. The concentration of K-40 is reported in units of pCi/g shell ash.

c. Procedure for Net Beta Analysis of Shells

The K-40 concentration is subtracted from the concentration of the gross beta activity. The net beta activity concentrations are reported in units of pCi/g shell ash.

d. Procedure for Strontium and Cesium in Shells

(1) Strontium (40 mg as $Sr(NO_3)_2$) and cesium (35 mg as CsCl) carriers and a known amount of Sr-85 are added to a weighed 10 g aliquot of the shell ash, digested with HNO_3 and filtered through filter paper.

(2) The remainder of the procedure is given in section 1.6.f starting at step 3.

(3) The nuclide concentrations are reported in units of pCi/g of shell ash using standards of the isotope being measured.

e. Procedure for Gross Beta Analysis of Soft Tissue

(1) A weighed portion of the tissues obtained from the initial part of the analysis are macerated in a homogenizer. All of the tissue is used except when I-131 is to be determined in which case approximately half is used. The homogenized material is evaporated to dryness and the dry tissue transferred to a beaker.

(2) The tissue is ashed in a muffle furnace at 600°C until a light brown ash is obtained.

(3) A weighed 200-mg aliquot of the ash is transferred to a 2 inch diameter planchet and beta counted in the counter described in section III.C.2.1.

(4) The gross beta activity concentration is expressed in units of pCi/g soft tissue ash based on a K-40 standard.

f. Procedure for Potassium-40 Analysis of Soft Tissue

(1) The potassium concentration is determined as given for fish in section 1.6.c and results are reported in units of pCi/g soft tissue ash.

g. Procedure for Net Beta Activity of Soft Tissue

(1) The K-40 concentrations are subtracted from the corresponding gross beta activity concentrations. The concentrations of the net beta activity are reported in units of pCi/g soft tissue ash.

h. Procedure for Gross Gamma and Gamma Spectrum Analysis in Soft Tissue

This procedure is the same as used for fish, section 1.6.e.

i. Procedure for Strontium and Cesium in Soft Tissue

This procedure is as given above for shells using the largest aliquot of ash available after gross beta measurement.

j. Procedure for Iodine-131 in Oyster Soft Tissue

(1) A weighed portion of soft tissue obtained from the initial portion of the gross beta analyses is macerated in a homogenizer.

(2) Iodide carrier (20 mg as NaI) is added to the sample and the sample made basic with NaOH.

(3) Sodium bisulfite ($NaHSO_3$) or sulfurous acid is added to prevent oxidation of the iodide.

(4) The solution is evaporated at low heat and the evaporated residue ashed in a muffle furnace at 600°C.

(5) The ash is cooled, water leached, and filtered.

(6) The leach solution is transferred to a separatory funnel, acidified in the presence of carbon tetrachloride (CCl_4), and oxidized to iodine with sodium nitrite ($NaNO_2$).

(7) The iodine is extracted into the CCl_4 phase.

(8) The iodine is then reduced to iodide with $NaHSO_3$ or sulfurous acid and back-extracted into the water phase.

(9) The water phase is transferred to a beaker and acidified with HNO_3.

(10) Silver nitrate is added to the beaker, and silver iodide precipitated.

(11) The AgI is filtered, weighed, and mounted (Note 1) for counting in the counter described in section III.C.2.2. If there

is activity present above the counter background, the sample is re-counted 3-4 days later. If decay has occurred, counting is continued for at least two half lives.

(12) The I-131 data are calculated as given in section III.C.3 expressed in units of pCi/g ash.

(Note 1. The mount consists of an inverted nylon cup on which the filter paper containing the precipitate is placed. The precipitate and paper are then covered with two layers of household plastic wrap squares with sides approximately 1 inch larger than the diameter of the mount. The plastic is held down by placing a nylon slip ring over the plastic and around the sides of the cup. The excess plastic at the bottom is then trimmed-off.)

1.8 Vegetation and Crops

a. Procedure for Gross Alpha Analysis

(1) A 40 to 50 g aliquot of sample is dried at 110°C for 12 to 24 hours.

(2) After drying, the sample is weighed, wet ashed with HNO_3, evaporated and then ashed in a muffle furnace at 600°C.

(3) After reduction of the ash to a fine powder in mortar, a weighed 200 mg of the ash is placed in a 2 inch diameter planchet and alpha counted in the counter described in section III.C.2.1

(4) The concentrations of gross alpha activity are reported in units of pCi/g vegetation or crop ash based on a uranium standard.

(NSEC - 10-15 g samples were ashed over an open flame and then ashed in a muffle furnace. A 250 mg aliquot was planchetted and counted.)

b. Procedure for Gross Beta Analysis

(1) The planchet from the gross alpha analysis is beta counted. The concentrations of gross beta activity are reported in pCi/g ash based on a K-40 standard.

c. Procedure for Potassium-40 Analysis

(1) The potassium concentration is determined as described in the procedure for fish as described in section 1.6.c. The results are expressed in units of pCi/g vegetation or crop ash.

d. Procedure for Net Beta Activity

(1) Net beta activity concentrations are determined by subtracting the K-40 activity from the gross beta activity. Results are expressed in units of pCi/g vegetation or crop ash.

e. Procedure for Strontium and Cesium

(1) Strontium (40 mg as $Sr(NO_3)_2$) and cesium (35 mg as CsCl) carriers and a known amount of Sr-85 are added to a weighed amount of vegetation or crop ash remaining from the gross beta and K-40 measurement.

(2) The ash is acid leached by boiling with several aliquots of HNO_3 and filtered.

(3) The remainder of the procedure is given in section 1.6.f starting at step 3.

(4) The concentrations are reported in units of pCi/g vegetation or crop ash using standards of the isotope being measured.

(NSEC - The ash was fused with sodium carbonate and water leached. The residue was dissolved in HNO_3 and treated as in step 3.)

1.9 Rabbit

a. Procedure for Gross Beta Activity in Muscle or Soft Tissue

(1) Leg muscle or soft tissue from the body is dissected from each rabbit, weighed, transferred to a crucible and dried. The dried sample is ashed in a muffle furnace at 600°C.

(2) A weighed 200 mg aliquot of the ash is transferred to a 2 inch diameter planchet and beta counted in the counter described in section III.C.2.1.

(3) The concentrations of gross beta activity are expressed in units of pCi/g muscle ash or soft tissue ash based on a K-40 standard.

(NSEC - The sample was wet ashed with HNO_3 and H_2O_2 evaporated and wet ashed. A 250 mg aliquot was counted.)

b. Procedure for Gross Beta Activity in Bone

(1) A leg bone (femur) is taken and the adhering tissue removed.

(2) The bone is weighed, placed into a crucible and ashed in a muffle furnace at 600°C.

(3) A weighed 200 mg aliquot of ash is transferred to a 2 inch diameter planchet and beta counted in the counter described in section III.C.2.1. The gross beta activity concentration is expressed in units of pCi/g bone ash based on a K-40 standard.

c. Procedure for Determination of K-40 Activity in Each Anatomical Section of the Rabbit Specimen

(1) The potassium concentration is determined as given in the procedure for fish in section 1.6.c. The results are expressed in units of pCi/g muscle, soft tissue or bone ash.

d. Procedure for Net Beta Activity in Each Anatomical Section of the Rabbit Specimen

(1) The K-40 concentration values obtained for muscle, soft tissue or bone are subtracted from the respective values for gross beta activity concentrations. The concentrations of net beta activity are reported in units of pCi/g muscle, soft tissue or bone ash.

e. Procedure for Iodine-131 in Rabbit Thyroid

(1) The rabbit thyroid is dissected, placed into a counting vial and covered with alcohol.

(2) The I-131 in the sample is measured with a well-type sodium iodide crystal and a single-channel, pulse-height analyzer as described in section III.C.2.3 which was previously calibrated with an I-131 standard. The data are corrected for decay after sample collection.

(3) The I-131 concentrations are expressed in units of pCi/thyroid based on an I-131 standard.

(NSEC - Prior to May 1, 1968, the thyroid was weighed and concentrations were in units of pCi/g. After that time the above procedure was used.)

1.10 Milk

a. Procedure for Gross Beta Analysis

(1) A 50 ml sample of raw milk is evaporated to dryness and ashed to whiteness in a muffle furnace at 600°C.

(2) The total ash is weighed and represents the entire 50 ml of milk.

(3) A 200 mg portion of the ash is weighed onto a tared 2 inch diameter planchet and beta counted in the counter described in section III.C.2.1.

(4) The concentrations of gross beta activity are expressed in units of pCi/l milk based on a K-40 standard.

(NSEC - 250 ml aliquot was used in step 1.)

b. Procedure for Potassium-40 Analysis

(1) The potassium concentration was determined as given in the procedure for fish in section 1.6.c. The results are expressed in units of pCi/l milk.

c. Procedure for Net Beta Activity

(1) Net beta activity concentrations are determined as given in the procedure for fish in section 1.6.d and are reported in units of pCi/l milk.

d. Procedure for Strontium and Cesium

(1) Strontium (40 mg as $Sr(NO_3)_2$) and cesium (35 mg as CsCl) carriers and a known amount of Sr-85 are added to 1 liter of raw milk and the sample is wet ashed using HNO_3.

(2) The residue is ashed in a muffle furnace at 600°C. The ash is leached with 4N HNO_3 and filtered.

(3) The remainder of the procedure is given in section 1.6.f starting at step 3.

(4) The nuclide concentrations are expressed in units of pCi/l milk using standards of the isotope being measured.

(ICN - A 400 ml aliquot was used. Until May, 1971, strontium results were also reported in units of pCi/g Ca assuming a liter of milk contained 1.17 g Ca.)

(NSEC - The carrier and tracer were added to 2 g of the milk ash; the ash was fused with sodium carbonate, water leached and dissolved in HNO_3. The resolution was then treated as in step 3.)

e. Procedure for Iodine-131 in Milk

(1) Prepare an ion exchange column 2 cm in diameter by 10 cm long and fill to a height of 5 cm with Dowex 1 x 8, 20-50 mesh, Cl^- form. Add the resin from a water slurry.

(2) Add iodide carrier (20 mg as NaI) to a 4-liter milk sample and stir thoroughly. Accurately measure and record exact volume of carrier added. Pass through the column at a flow rate of about 30 ml per minute and discard effluent.

(3) Wash the column with 500 ml hot (50°C) distilled water, followed by 100 ml of 2M NaCl. Discard washes.

(4) Transfer the resin to a 250-ml beaker using 50 ml of 5-6% NaOCl.

(5) Place a magnetic stirring bar in the beaker and stir vigorously for 5 minutes on a magnetic stirrer to elute the iodide from the resin column.

(6) Filter the resin slurry through a suction filter and retain the NaOCl solution.

(7) Reextract the resin by repeating steps 4, 5, and 6.

(8) Discard the resin, combine the two 50-ml solutions and carefully add 20 ml of conc. HNO_3.

(9) Pour the acidified NaOCl solution into a 250-ml separatory funnel and add 50 ml of CCl_4.

(10) Add 1.5 gm of hydroxylamine hydrochloride and shake to oxidize iodide to iodine. Extract the iodine into the organic phase (about 2 min. equilibration.)

(11) Drain lower organic phase into a clean 250-ml separatory funnel and save.

(12) Add 50 ml CCl_4 and 1 gm hydroxylamine hydrochloride to maintain oxidizing conditions to the aqueous phase in the first separatory funnel and reextract.

(13) Add 25 ml H_2O and 10 drops of freshly prepared 1M $NaHSO_3$ to the separatory funnel containing the combined CCl_4 and shake to reduce the iodine to iodide. Equilibrate for 2 minutes. Discard organic (lower) phase.

(14) Transfer the aqueous (upper) phase into a clean 50-ml centrifuge tube and add 1 ml of conc. HNO_3 and 10 ml of $PdCl_2$ solution to precipitate PdI_2. Stir and let stand for 5 minutes.

(15) Centrifuge PdI_2 precipitate discarding supernate. Wash precipitate by stirring with 10 ml of H_2O.

(16) Using a filter funnel setup, filter with suction through a tared glass fiber paper (2.8 cm diameter), using a water wash bottle to effect the transfer.

(17) Dry precipitate for 20 minutes in an oven set at 110°C and weigh to the nearest 0.1 milligram. The yield is calculated from the precipitate weight and the known amount of iodide added.

(18) Mount the filter paper containing the precipitate for low-level beta counting as described in section 1.7 j.

(19) Count in a low-background counter described in section III.C.2.2 for 900 minutes.

(20) If net counting rate of sample is greater than 0.3 cpm, recount after 7-8 days.

(21) Calculate as picocuries I-131 per liter of milk at time of sampling as described in section III.C.3.

(Interex, prior to August 1973, and ICN starting with May 1971 Iodide carrier was added to a 1 liter aliquot of raw milk made basic with NaOH. ICN prior to May 1971 - A 300-400 ml aliquot was used. NSEC-A 100-200 ml aliquot was used. For all laboratories the remainder of the procedure was as given in section 1.6.j starting at Step 4)

1.11 <u>Procedure for Strontium</u>

The following procedure is used with slight modifications in the early steps of the procedure to accommodate the various sample types.

(1) Acid leach any insoluble material by boiling several times with 4<u>N</u> HNO_3. Cool, filter, and wash filter paper combining wash with filtrate.

(2) Adjust volume of filtrate to approximately 50 ml and add 150 ml of fuming HNO_3 to precipitate alkaline earth nitrates. Let settle, centrifuge and discard supernate.

(3) For samples with large amounts of calcium, treat precipitate with 10 times the precipitate volume of hot, concentrated HNO_3, centrifuge and discard supernate. This removes some of the calcium nitrate. If only strontium-90 is required, repeat this step several times until most of the calcium is removed. Then go to steps 3A through 13A listed below.

(4) Dissolve the precipitate in water, make basic with NH_4OH and precipitate the alkaline earth carbonates with a slight excess of saturated $(NH_4)_2CO_3$.

(5) Centrifuge, discard the supernate, and dissolve the precipitate containing strontium carbonate in a minimum volume of conc. HCl. Heat to expel carbon dioxide.

(6) Add 250 ml of 0.1 M EDTA (ethylenediaminetetraacetic acid) solution (pH 4.8) and adjust pH to 4.8 using NH_4OH and a pH meter. This complexes the alkaline earths.

(7) Pass the solution through a column of Dowex 50W x 8, 50-100 mesh resin (NH_4 + form) (Note 1) at a rate of 3-10 ml/min.

(8) Elute calcium using approximately 250 ml of 0.1 M EDTA solution (pH 5.25). Check pH of eluate, which rises from 4.8 to 5.25 when elution is complete, and add more solution if necessary. Discard eluate containing the calcium.

(9) Elute strontium using 250 ml of 0.1M EDTA solution (pH 6.0). Regenerate column using 200 ml of 0.1M EDTA solution (pH 9.0).

(10) Evaporate the eluate from step 9 to dryness and place in a muffle furnace at 600°C for 3-4 hours to remove the EDTA. Allow to cool.

(11) Dissolve the residue in 30 ml of water plus a minimum of 6N HNO_3.

(12) Add 10 mg of Fe carrier.

(13) Make basic with carbonate free NH_4OH, heat, and centrifuge. Discard $Fe(OH)_3$ precipitate and transfer supernate to small beaker. If supernate is not clear, filter. Record time. The ferric hydroxide scavenges the solution of unwanted ions and also removes any yttrium which is present. The separation marks the start of Y-90 grow-in.

(14) Heat to boiling and add 15 ml of 10% Na_2CO_3 to precipitate $SrCO_3$. Avoid supersaturation.

(15) Digest until precipitation of $SrCO_3$ is complete.

(16) Centrifuge and wash twice with 10 ml H_2O.

(17) Dissolve with a minimum amount of 1N HNO_3, dilute to 15 ml and heat to drive off CO_2.

(18) Transfer with water to a storage bottle and add 20 mg Y carrier as $Y(NO_3)_3$. If only Sr-90 is required and therefore Sr-85 has been added, gamma count the Sr-85 gamma ray and determine the Sr yield by comparing the amount of Sr-85 found to that originally added.

(19) Allow two weeks for Y grow-in and go to step 20.

(20) Again gamma count sample for Sr-85 as in step 18 to verify Sr yield if Sr-90 only is required.

(21) Transfer sample to a 40 ml centrifuge cone.

(22) Precipitate $Y(OH)_3$ by adding concentrated NH_4OH.

(23) Centrifuge, decant supernate into a beaker, make acid with HNO_3 and save for step 30. If only Sr-90 is desired, return the supernate to the storage bottle.

(24) To purify the Y dissolve precipitate with HCl and precipitate $Y(OH)_3$ again with NH_4OH.

(25) Centrifuge, discard supernate.

(26) Make acid with HCl and again precipitate $Y(OH)_3$ with NH_4OH. Discard supernate.

(27) Dissolve precipitate with 0.5 ml concentrated HCl and transfer to a beaker.

(28) Dilute to 15 ml with water, warm solution and add 20 ml saturated ammonium oxalate to precipitate yttrium oxalate. Cool.

(29) Filter through tared glass fiber filter paper, wash with water, dry at 110°C, reweigh to determine yttrium yield, and mount for low-level beta counting of Y-90 as described in section 1.7.j, Note 1. Count as given in III.C.2.2.

(ICN - Filter through Whatman 42 paper, wash with H_2O, ignite to oxide in Pt crucible over a burner, transfer dry to a tared filter paper, weigh and mount for low-level beta counting.)

(30) If Sr-89 is required, make supernate from step 23 basic with NH_4OH, heat to boiling add 15 ml of 10% Na_2CO_3, digest and allow to cool.

(31) Centrifuge, discarding supernate. Transfer precipitate to tared glass fiber filter paper with water, wash with water, dry at 110°C, weigh and mount for low level beta counting as described in section 1.7.j, Note 1

Note 1. Wash new resin with 300 ml of almost saturated NH_4Cl at approximately 5 ml/min. Then wash with 200 ml of 0.01 M EDTA solution (pH 9.0). If the resin has been used, it is regenerated in step 9 of the procedure.

(3A) Dissolve precipitate in 8-40 ml of water depending on amount of precipitate. If any significant insoluble residue is present, filter, wash paper, and combine wash with filtrate.

(4A) Add four times as much fuming HNO_3 as the volume of solution obtained from step 4 to precipitate alkaline earth nitrates and allow to settle. Centrifuge and discard supernate.

(5A) Dissolve precipitate in about 30 ml of H_2O. Heat in a water bath for 10 minutes with stirring.

(6A) Add 10 mg Fe carrier.

(7A) Precipitate $Fe(OH)_3$ with 6N NH_4OH to scavenge solution. Centrifuge and pour supernate into a 150 ml beaker.

(8A) To supernate, add approximately 30 mg Ba carrier and 3 drops of 0.1% methyl red solution.

(9A) Neutralize with concentrated HAc and buffer with 6M NH_4Ac. Solution should be orange rather than yellow. (pH5)

(10A) Heat nearly to boiling point in steam bath.

(11A) Add 1 ml of 1.5N Na_2CrO_4 dropwise with stirring to precipitate chromates of barium and radium.

(12A) Digest on hot plate for 10 minutes.

(13A) Centrifuge and discard $BaCrO_4$ precipitate which contains any barium and radium activity. Go to step 12 above and stop after step 29.

(NSEC-Strontium-90 analyses were performed by radiochemical separation and purification of Sr-90 and the measurement of the Y-90 decay product which had grown into the purified strontium in a known period of time. The following special procedures were used:

(1.) The samples were dried and ashed, and the mass of each sample was measured.

(2.) The samples were treated with HNO_3 and strontium carrier and Sr-85 tracer were added.

(3.) The sample was digested and filtered.

(4.) The filtrate was reserved. The residue was ashed, fused with Na_2CO_3, in a platinum crucible to metathesize insoluble salts to the carbonate, and the melt was leached with water.

(5.) The supernate from the leach was discarded and the residue, containing the metathesized strontium as the carbonate, was digested with dilute HNO_3.

(6.) The resulting solution was combined with the filtrate of the original sample before continuing with the analysis.

(7.) The solution was then made basic to phenolphthalein with $NH_4)_2CO_3$ was added.

(8.) The supernate was decanted and discarded after centrifugation, and the precipitate was dissolved in a minimum amount of concentrated HNO_3.

(9.) An equal volume of 90% HNO_3 was added.

(10.) The sample was cooled in an ice bath, and the precipitate was centrifuged, washed with concentrated HNO_3, and dissolved in a minimum amount of water.

(11.) A few drops of ferric carrier (5-10 mg) were added to this solution which was made basic with carbonate-free NH_4OH.

(12.) The solution was centrifuged, and the precipitate discarded.

(13.) The supernate was acidified, and the ferric hydroxide ($Fe(OH)_3$) scavenging was repeated.

(14.) The time of the second Fe $(OH)_3$precipitation was taken as zero time for Sr-90-Y-90 equilibration.

(15.) A few drops of barium carrier (5-10 mg) were added, the solution was adjusted to a pH of 5.5 with acetic acid and ammonium acetate, and barium chromate was precipitated from the hot solution by the slow addition of 1.5 M $Na_2Cr_2O_7$.

(16.) The precipitate was filtered and discarded.

(17.) The filtrate was made basic with NH_4OH. The $SrCO_3$was precipitated by the addition of a saturated solution of $(NH_4)_2CO_3$, was filtered and dried, and the Sr-85 in the sample was measured.

(18.) The ratio of the Sr-85 activity recovered to that added was used as the strontium chemical yield.

(19.) The precipitate was quantitatively dissolved in acid and stored.

(20.) After approximately two weeks (to allow for equilibration between Y-90 and Sr-90), standard yttrium carrier (~50 mg) was added to the acid solution of $SrCO_3$ and sequential precipitations of $Y(OH)_3$ were made with CO_2-free NH_4OH.

(21.) The time of the first $Y(OH)_3$precipitation was taken as the time of the Y-90 - Sr-90 separation.

(22.) The second $Y(OH)_3$ precipitate was dissolved in acid, and the yttrium was precipitated as the oxalate at a pH of 1.

(23.) The $Y_2(C_2O_4)_3$ was filtered, washed, and ignited to the oxide which was weighed to determine the yttrium chemical yield.

(24.) The weighed Y_2O_3 was placed on a micarta semi-cylinder (0.75-inch I.D., 2.5-inches long) and mixed with an aqueous solution of agar-agar.

(25.) The mixture was spread over an area of 2 to 5 cm^2 to produce a sample of uniform thickness.

(26.) The sample was dried, covered with a thin membrane (0.5 mg/cm^2), and beta counted for Y-90 in the counter described in section III.C.2.2.

1.12 Determination of Cesium

The cesium procedure given below assumes that cesium has been initially separated from the sample as cesium molybdophosphate.

(1) Dissolve the precipitate in 6N NaOH (3-4 ml) heating to aid dissolution. (The yellow precipitate should dissolve and the solution should be clear and colorless. If a white precipitate is obtained and the solution is colorless, dilute to approximately 20 ml, centrifuge and discard the precipitate of molybdenum oxide.

(2) Dilute to approximately 20 ml with water and add HAc to pH5 (3-5 ml) using methyl red indicator.

(3) Add 1 g $NaNO_2$ and heat 10 min. in hot H_2O bath to remove any oxidants. Discard any precipitate.

(4) Cool under cold water tap. To precipitate cesium cobaltinitrite add fresh sodium cobaltinitrite solution with stirring until solution is brown. Let stand 30 min. in ice bath or overnight at room temperature.

(5) Centrifuge. Dissolve precipitate in 4 ml 6N HCl. Heat over flame until yellow precipitate dissolves and solution turns blue (not green). This assumes all of the yellow precipitate is dissolved.

(6) Dilute to 20 ml, cool and remove by centrifuging any white precipitate.

(7) To solution, add 10 drops H_2PtCl_6 precipitating $CsPtCl_6$. Stir and let settle (about 1 hour).

(8) Filter through glass fiber paper, dry, weigh, and mount for low level counting as given in section 1.7.j, Note 1. Count as described in section III.C.2.2.

III.C.2 Counting Procedures and Equipment

The detectors used are described in detail since they are most significant. Supporting electronics are standard and are mentioned only briefly. The procedures used to calculate results from the counting data are given in section III.C.3.

2.1 Alpha and Beta

The counting system described in this section is used for alpha and/or beta counting the following sample types: air particulate, precipitation, surface and discharge water (soluble and insoluble fractions), well water, soil, silt, fish, shellfish (shells and tissue), vegetation, milk and rabbits.

A Nuclear Chicago Model 480 flow detector is used for alpha and beta counting by operating at the proper high voltage and input sensitivities. The detector has a window approximately 150 ug/cm^2 thick and is approximately 2 inches in diameter. The Nuclear Chicago Model 1150 sample changer places the sample approximately 1 cm from the counter window. Argon-methane proportional gas is used.

The Nuclear Chicago Model 8712 scaler, timer, and high voltage supply with lister provides an output of sample number, counting time and total counts accumulated.

Samples are counted at least twice for a total accumulated time of at least 60 minutes. Backgrounds are counted for at least 180 min. A KCl counter standard is included with each batch of standards to insure proper operation. Counter efficiencies are based on natural uranium for alpha, K-40 for beta where net beta is required and Cs-137 for samples where only gross beta is desired.

(ICN - The detector used for alpha and beta was a Tracerlab FD-2 gas flow counter with FDW-2 Mono Mol window approximately 150 ug/cm^2 thick and approximately 2 inches in diameter. An automatic sample changer (Tracerlab SC-100) was used and positioned the sample approximately 1 cm from the counter window.

For alpha counting, argon-methane proportional counting gas was used and the counter operated in the alpha region. For beta counting the same gas was used and the counter operated in the beta region or helium-isobutane Geiger gas was used and the counter operated on the beta plateau. The detectors in all cases were the same. Supporting electronics included a pre-amplifier (where required), scaler, timer and printer which gave sample number, total counts accumulated, and time counted.

Samples were counted at least twice for a total accumulated time of at least 60 minutes. A counter standard was included in each set of samples counted to insure proper counter operation. Counter efficiencies were based on natural uranium for alpha, K-40 for milk, fish and rabbit samples which required net beta and Sr-90 - Y-90 for other samples. Until the third quarter of 1970, Sr-90 - Y-90 was used for all samples.)

(NSEC - Prior to Apr. 1962, two types of beta counters were used. One type was an end-window, methane flow proportional counter (Atomic Model 821 "Microthin" End-Window, Methane Flow Proportional Counter) with associated scaler and timer. The second type was a scintillation counter consisting of a specially adapted Nuclear Chicago DS5 probe, a high voltage supply and a scaler.

In Apr. 1962 a Nuclear Chicago (Model D-47) end-window, argon flow-proportional detector was substituted for the other flow counter and was used for all samples except for air particulates which were scintillation counted. The Model D-47 was used with 1 inch diameter, 5/16 inch deep planchets. Calibration was done using K-40 and Tl-204.

Until Apr. 1962, alpha counting was done using either a low-background alpha proportional detector (Atomic Model 952 windowless flow counter) or a specially adapted Nuclear Chicago DS5 scintillation probe and associated electronics. Starting in Apr. 1962, the Nuclear Chicago Model D-47 detector described above was used for alpha counting. Standardization was done with natural uranium.)

2.2 Low-Level Beta

These detectors are used to count Sr-89, Sr-90, Y-90, Cs-137, and I-131 which have been chemically separated from samples and purified prior to counting.

The low background beta detectors are LND Model 49301 flow-type G-M. These consist of a guard counter with a 4 1/2" x 4 1/2" x 3/8" counting volume positioned directly above the 1 1/4" diameter sample counter. A manual sample changer places the sample approximately 2mm from the counter window. Helium-isobutane gas is used.

The associated high voltage supplies, anti-coincidence circuits, and registers were custom built. Counter efficiencies are determined as a function of the weight of the precipitate being counted using Y-90, I-131, Sr-89, Sr-90 and Cs-137 standards. Cs-137 counter standards are counted periodically to verify counter efficiencies. Backgrounds are counted over each weekend.

It has been found that the background generally remains constant within ± 10%.

Sr-89 and Sr-90 as strontium carbonate are counted as soon as possible after milking to minimize the amount of Y-90 in the carbonate, generally at the same time as the corresponding Y-90 counting time.

Y-90 is counted as soon as possible after milking. Generally at least two counts are taken within the first 48 hours and additional counts are obtained on the third and fifth day. These data are plotted and examined to insure decay with the proper half-life. If necessary, additional points are obtained.

A similar procedure is followed for I-131 except that longer intervals are taken between counts due to the longer half-life. Cs-137 is counted at two different times to verify the validity of the count. The total count and total counting time are used for calculation.

(ICN - The low-level beta flow counters were Isotopes, Inc. Model LLD. These have the same dimensions as given above. Counting procedures were as described above.)

(NSEC - The detectors used were cylindrical, thin-walled, gas flow Geiger counters which accommodated samples mounted on a semi-cylinder 3/4" I.D. and 2 1/2" long. The counter was operated in anti-coincidence with an umbrella of cylindrical G-M counters each approximately 1" diameter and 2 ft. long. The counting procedures were basically as described above.)

2.3 Gamma Well

For gamma counting of I-131 in thyroids, a Packard Model 5052 NaI(Tl) scintillation detector is used. This detector is 2" in diameter and 2" high with a 0.730" diameter well 1 34/64" deep. Wall thickness of the well is 0.010" of aluminum. The pulses from the detector are fed into a Packard 5000 Series Auto-Gamma Spectrometer, which has two channels. Channels are set for the 0.28 and 0.36 MeV I-131 gamma rays. Backgrounds are measured for at least 60 minutes in between sample counts.

(ICN - A Tracerlab P-51LW-1 detector was used. This consisted of a 2" x 2" cylindrical NaI(Tl) scintillation crystal with a 23/32" diameter x 1 9/16" deep well, an RCA 6342A photomultiplier and the required socket assembly. Pulses were fed through a single-channel analyzer set for the I-131 gamma rays.)

2.4 Gamma Spectrometer

The gamma spectrometer system is used to measure gross gamma and gamma spectra on air particulates, surface water (soluble and insoluble fractions), well water, fish, shellfish tissue and tissue.

The detectors used are 3" x 3" NaI(Tl) crystals Bichron #3M3. These are connected to Nuclear Data ND520 amplifiers and through a mixer - router system to an ND2200 ADC and ND2400 Multichannel Analyzer. Each detector uses 256 channels. Output in counts per channel is by teletype which also punches paper tape for computer input.

Backgrounds are measured for 40,000 seconds each night. Samples are counted for known times, generally 6,000 sec.

(ICN - A 3" x 3" NaI(Tl) detector was connected to a Nuclear Data Model 130A 512 channel analyzer using 256 channels. Output was on a typewriter.)

III.C.3 General Calculation Procedure

Results are reported as calculated from the following general equation:

$$\frac{\text{Net cpm}}{2.22 \times E \times A \times Y \times DF \times GF} = \text{pCi/unit}$$

where

E = Counter efficiency for the weight of sample counted, determined from a standard. The self-absorption factor is therefore included for all but air particulates for which a constant efficiency is used.

A = Aliquot counted or from which a nuclide is separated.

Y = Chemical yield.

DF = Decay factor to correct result from time of counting to time of sampling.

GF = Growth factor to correct for non-equilibrium between Y-90 and Sr-90 at time of separation.

For gross counts, Y and DF are 1 and the net cpm value is that obtained at the time of counting.

For Sr-90 determination, the Y-90 decay curve obtained by counting yttrium oxalate is extrapolated to the time of the first count and DF corrects to the time of yttrium separation. Y contains both the strontium and yttrium yields.

For Sr-89 determination, the count rate obtained from counting strontium carbonate is used. This count rate includes that due to Sr-89, Sr-90 and any Y-90 which has grown-in between the time of counting and the time of separation. The Sr-90 contribution to the count rate is calculated from the known Sr-90 content of the sample previously determined from the Y-90 decay curve as described above, correcting for efficiency and yield. The Y-90 count rate is calculated from the known relative Y-90 and Sr-90 efficiencies and the Sr-90 count rate. The net count rate after subtraction of the Sr-90 and Y-90 contributions is used to calculate the Sr-89 concentration.

The net cpm for I-131 is determined by extrapolation of the decay curve to the time of the first count.

For gross gamma the spectrum counts are integrated between 120 keV and 2.0 MeV.

The error reported is two standard deviations calculated as

$$2\ S.D. = \frac{2\sqrt{N}}{t} = 2\sqrt{\frac{R}{t}}$$

where

N = Total gross sample counts

R = Gross sample count rate

t = time sample was counted.

In all cases the background is counted long enough so that its contribution to the error in the net count rate is assumed negligible.

III.C.4 Gamma Spectrum

Gamma spectrum analysis is performed by computer processing of the data using a program which subtracts linear portions of the net sprectrum thereby accentuating non-linear portions i.e. photopeaks. Output is signal-to-noise ratio as a function of channel number. Energy and nuclide identification and quantification is performed by the analyst.

In analyzing the gamma scans, a specific nuclide is considered to be present when the signal-to-noise ratio is greater than 3.0 at the correct energy, or energies, for the specific nuclide within ± two channels after compensation for channel shifting due to the instrument and/or nuclide mixture considerations. The quantities of radioactivity in a sample for such nuclides are reported in pCi/l or pCi/gm based on an empirical curve developed for the equipment used and based on prepared standards. If the signal-to-noise ratio is greater than 3.0 but the energy does not correspond to that for any specific nuclide within ± two channels, identification is made, if possible, based on the nuclides which might be present, the half-life of the nuclides, the degree of interference from natural occurring nuclides expected for the given sample media and the relative quantity of other nuclides present. Based on the above considerations and providing that the smearing or channel shifting is consistent with the various factors, the nuclide will be reported with a notation to indicate the possible presence in trace quantities.

III.D Sensitivities and Accuracy

The analytical sensitivities and accuracy generally obtained in the program at the present time are given in Table III.3, as of August 1973. To some extent, these have varied over the history of the program reflecting the levels of activity actually present in the environment and the requirements imposed by plant operating specifications.

For example in May 1971 when gamma radioactivity measurement was started on surface and discharge water, a 4 liter aliquot was filtered rather than a 250 ml aliquot giving a significant increase in the sensitivity in the insoluble fraction. The technique to measure I-131 in milk has also been modified recently to permit measurement of 0.5 pC/l at sample time. A 4 liter rather than a 1 liter aliquot of milk is used and the radioactivity measurement is made within one half-life of sample time. This is made possible by shipping by air-freight and use of an ion-exchange technique. Before May 1971, an even smaller aliquot of 100-400 ml was used.

On a particular analysis, the sensitivity and accuracy may vary from the numbers given in Table III.3. Factors which can cause such changes are aliquot size, chemical yield, self-absorption corrections, nuclide decay, etc. Every effort is made to maintain or better the values presented in the table. Occasionally answers will therefore be obtained which are lower than the sensitivity stated or with errors which vary from the stated value.

TABLE III.1

ANALYTICAL SENSITIVITIES (a)

AUGUST 1973

Sample Medium	Type of Analysis	Sample Size Analyzed	Limit of Detection(b)	Reporting Unit	Systematic Uncertainty of the Analysis (Percent of Result)(d)
Air Particulate	Gross Beta	Filter	2 pCi/filter	pCi/m^3	(f)
Fallout Water	Gross Beta	500 ml	3 pCi/liter	pCi/liter, pCi/m^3	± 10
	Sr-89	1000 ml	0.4 pCi/liter	pCi/liter, pCi/m^3	± 15
	Sr-90	1000 ml	0.3 pCi/liter	pCi/liter, pCi/m^3	± 10
	Cs-137	1000 ml	0.3 pCi/liter	pCi/liter, pCi/m^3	± 10
Surface Water	Gross Alpha				
	Soluble	1000 ml	0.5 pCi/liter	pCi/liter	± 20
	Insoluble	4000 ml	0.3 pCi/liter	pCi/liter	± 20
	Gross Beta				
	Soluble	1000 ml	2 pCi/liter	pCi/liter	± 10
	Insoluble	4000 ml	0.5 pCi/liter	pCi/liter	± 10
	Gamma Spectrum	4000 ml	(c)	pCi/liter	
Well Water	Gross Alpha	1000 ml	0.5 pCi/liter	pCi/liter	± 20
	Gross Beta	1000 ml	2 pCi/liter	pCi/liter	± 10
	Uranium	1000 ml	0.03 ug/liter	ug/liter	± 10 (g)
	Sr-89	1000 ml	0.4 pCi/liter	pCi/liter	± 15
	Sr-90	1000 ml	0.3 pCi/liter	pCi/liter	± 10
	Cs-137	1000 ml	0.3 pCi/liter	pCi/liter	± 10
	Gamma Spectrum	4000 ml	(c)	pCi/liter	
Soil, Silt	Gross Alpha	2 g dry wt.	0.2 pCi/g dry wt.	pCi/g dry wt	± 20
	Gross Beta	2 g dry wt.	0.8 pCi/g dry wt.	pCi/g dry wt	± 15
	K-40	1 g dry wt.	0.04 pCi/g dry wt.	pCi/g dry wt	± 15
	Sr-89	75 g dry wt.	0.008 pCi/g dry wt.	pCi/g dry wt	± 15
	Sr-90	75 g dry wt.	0.004 pCi/g dry wt.	pCi/g dry wt	± 15
	Cs-137	75 g dry wt.	0.006 pCi/g dry wt.	pCi/g dry wt	± 15
	Gamma Spectrum	300-1000 g dry wt.	(c)	pCi/g dry wt	

TABLE III.1

(Cont.)

Sample Medium	Type of Analysis	Sample Size Analyzed	Limit of Detection(b)	Reporting Unit	Systematic Uncertainty of the Analysis (Percent of Result)(d)
Fish	Gross Alpha	200 mg ash	0.8 pCi/g ash	pCi/g ash	± 20
	Gross Beta	200 mg ash	8 pCi/g ash	pCi/g ash	± 10
	K-40	10-20 mg ash	1 pCi/g ash	pCi/g ash	± 10
	Sr-89	5 g ash	0.07 pCi/g ash	pCi/g ash	± 15
	Sr-90	5 g ash	0.05 pCi/g ash	pCi/g ash	± 10
	Cs-137	5 g ash	0.08 pCi/g ash	pCi/g ash	± 10
	Gamma Spectrum	200-1500 g original wt.	(c)	pCi/g	
Shellfish	Gross Beta Shell and soft tissue, separately	200 mg ash	8 pCi/g ash	pCi/g ash	± 10
	K-40 Shell	200 mg ash	0.1 pCi/g ash	pCi/g ash	± 10(e)
	K-40 Soft Tissue	20 mg ash	1 pCi/g ash	pCi/g ash	± 10
	Sr-89	10 g ash	0.07 pCi/g ash	pCi/g ash	± 15
	Sr-90 Shell	10 g ash	0.05 pCi/g ash	pCi/g ash	± 10
	Cs-137 Shell	10 g ash	0.08 pCi/g ash	pCi/g ash	± 10
	I-131 Soft Tissue	1 g ash	0.8 pCi/g ash	pCi/g ash	± 10
	Sr-89 Soft Tissue	10 g ash	0.2 pCi/g ash	pCi/g ash	± 15
	Sr-90 Soft Tissue	1 g ash	0.1 pCi/g ash	pCi/g ash	± 10
	Cs-137 Soft Tissue	1 g ash	0.2 pCi/g ash	pCi/g ash	± 10
	Gamma Spectrum of tissue	50-100 g original wt.	(c)	pCi/g	
Vegetation	Gross Alpha	200 mg ash	0.8 pCi/g ash	pCi/g ash	± 10
	Gross Beta	200 mg ash	8 pCi/g ash	pCi/g ash	± 10
	K-40	20 mg ash	1 pCi/g ash	pCi/g ash	± 10
	Sr-89	10 g ash	0.07 pCi/g ash	pCi/g ash	± 15
	Sr-90	10 g ash	0.05 pCi/g ash	pCi/g ash	± 10
	Cs-137	10 g ash	0.08 pCi/g ash	pCi/g ash	± 10

TABLE III.1

(Cont.)

Sample Medium	Type of Analysis	Sample Size Analyzed	Limit of Detection(b)	Reporting Unit	Systematic Uncertainty of the Analysis (Percent of Result)(d)
Rabbit	Gross Beta muscle, soft tissue and bone, separately	200 mg ash	8 pCi/g ash	pCi/g ash	± 10
	K-40 muscle, soft tissue and bone	20 mg ash	1 pCi/g ash	pCi/g ash	± 10
	I-131 thyroid	Total Thyroid	8 pCi/thyroid	pCi/thyroid	(f)
Milk	Gross Beta	200 mg ash	8 pCi/g ash, 60 pCi/l	pCi/liter	± 10
	K-40	20 mg ash	1 pCi/g ash, 8 pCi/l	pCi/liter	± 10
	Sr-89	1000 ml			± 15
	Sr-90	1000 ml	0.2 pCi/liter	pCi/liter	± 10
	I-131	4000 ml	0.5 pCi/liter	pCi/liter	± 10
	Cs-137	1000 ml	0.4 pCi/liter	pCi/liter	± 10

(a) Defined as the result corresponding to 2 standard deviations in the net counting rate assuming typical count times, yields, etc.

(b) Limits of detection are a function of sample volume, analytical methods, and instrument sensitivity. The values stated above are typical of those obtainable under the procedures used. Chemical yields, solids content etc. will vary between samples and cause the sensitivity to change.

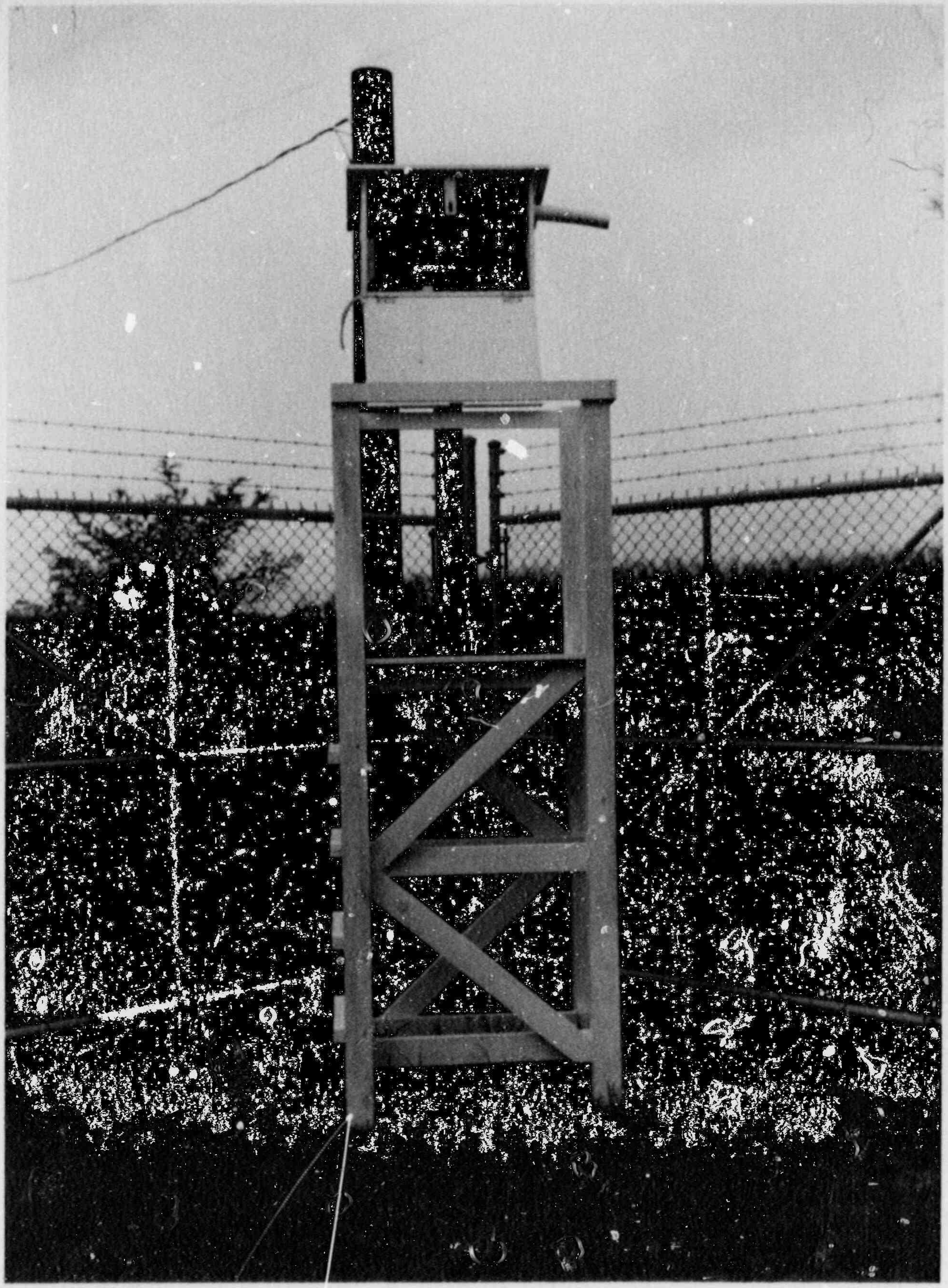
(c) Limit of detection varies with sample size and type (i.e. geometry and internal absorption), with the specific nuclide in question, and with the mixture of nuclides present.

(d) Estimated overall error of measurement at levels where the counting error is not dominant.

(e) Or 0.1 pCi/g due to the low concentrations of K-40 normally found in shells.

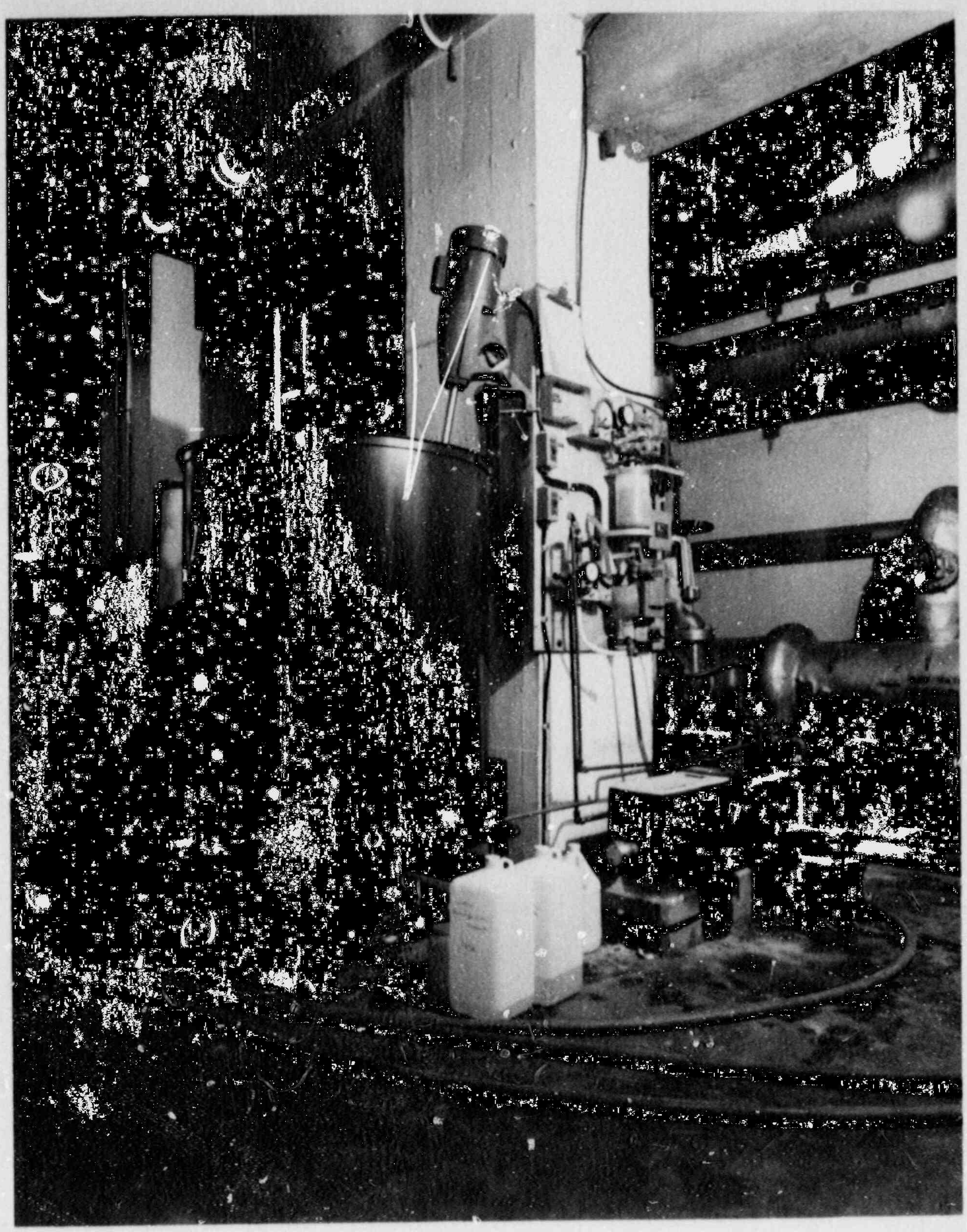
(f) There is no significant other systematic error compared to the counting error.

(g) Or 0.03 ug/liter due to the low concentrations normally found.



A TYPICAL AIR PARTICULATE MONITORING STATION

FIGURE III. 1



AUTOMATIC COMPOSITE WATER SAMPLER AT CONOWINGO DAM
FIGURE III. 2

IV DISCUSSION OF RESULTS

The results obtained from the program are presented in the data tables and figures following this section and are discussed below according to sample type. For the purpose of this report all results have been recalculated from the original data sheets and are given with an error corresponding to two standard deviations in the net count rate. Results which are not greater than the error are reported as less than (<) the value corresponding to the error. In previous reports, results were generally reported with an error of one standard deviation and less than values were reported as NSA (No Significant Activity).

In presenting averages, the average of a series of numbers which contains at least one number not a "less than" number is given as a real number. If all of the numbers in a series to be averaged are "less than" numbers, the average value is given as a "less than" value.

In many cases new locations have been added to the program, as described in Table II.3. Data from these stations have been included in averages, figures and tables as they become available. For 1966 and 1973 samples collected between the dates covered by the report period are included in annual averages. Also new analyses have been added and the frequency of analysis has been changed in some cases. Results are again included when initiated. Where no value is given for a result and there is no footnote, the analysis was not performed.

In the discussion of data, general trends in the data are stressed as are comparisons of results from stations which would most likely be affected by Unit #1 operation with data from those which are more remote from the site. Because of the presence of generally lower levels of radioactivity in the environment compared to earlier periods of major atmospheric nuclear testing, precise trends tend to become obscured in the normal variability of data.

A. Air Particulates

The values of the concentrations of gross beta radioactivity observed in air particulate samples are listed in Tables 1.1 through 1.10 and are presented graphically in Figures 1.1 through 1.3.

For comparative purposes, stations have been divided into three groups. Group I, which is on site and closest to the plant, consists of Stations 1A, 1B, and 2. Group II rings the site at further distances and consists of stations 3A, 4A, 4B, 5, 6B, 14, 15, 17, 31, and 32. Group III, which is in Philadelphia, Pa., serves as a reference group, and consists of Stations 12A and 12D. Not all of these stations have always been in the program, as indicated in Table II.3. As data from new stations became available they have been included in the group averages.

As compared to the 1962-1965 period, 1966 and 1967 showed generally decreasing values with the majority of samples below 0.1 pCi/m^3. This reflected the earlier cessations of the major atmospheric nuclear testing and the resulting decreases in the amount of radioactivity present in the atmosphere.

For Group I the annual average decreased from 0.08 pCi/m^3 in 1966 to 0.07 in 1967. For Group II the corresponding decrease was 0.09 to 0.06 pCi/m^3 and for Group III was 0.08 to 0.04 pCi/m^3. An atmospheric test in December 1967 reversed this trend and caused 1968 averages for the three groups to rise to 0.14, 0.13, and 0.14 pCi/m^3 respectively. Additional testing in December 1968 and October 1970 caused the annual averages to rise progressively through 1971. The 1969, 1970, and 1971 annual averages for Group I were 0.19, 0.26, and 0.41 pCi/m^3, for Group II were .20, .26, and .41 pCi/m^3 and for Group III were 0.19, 0.29, and .42 pCi/m^3.

The October 1970 test caused an abrupt rise in the values for the week ending November 8, 1970. The second passage of the debris was seen during the first week in 1971 indicating the extreme sensitivity of the surveillance system. A test in January 1972 was seen in the system during the middle of the month. Measurable quantities of radioactivity from November 1971 and March 1973 tests did not reach this part of the country.

Due to the general lack of testing, the prevailing weather patterns and the gradual decrease in the amount of debris in the atmosphere, the monthly average levels of activity have decreased to below 0.08 pCi/m^3 in 1973.

Superimposed on the gradual increase and decline in yearly averages is the cycle seen during most yearly periods. Values obtained in winter are generally low compared to the increasingly larger values seen until mid-year. Values then decline through fall and reach the lower winter values. The magnitude of the rise depends on the amount of radioactivity from weapons testing that is in the troposphere either from direct injection or by transfer from the stratosphere. The observed cycle is the result of the yearly variation in such transfer and the prevailing wind patterns.

While not included in the period covered by this report, the data obtained for the period 1960 through 1965 dramatically illustrates the annual cycle and the effect of nuclear device testing. In 1960 and early 1961, for the then existing stations near the Peach Bottom site, monthly mean values of net beta radioactivity concentrations ranged from a high of 0.12 pCi/m^3 in April 1960 to lows of 0.03 pCi/m^3 in December 1960 and August 1961. In the fall of 1961 atmospheric testing started to increase causing the maximum monthly values to increase greatly to approximately 2.6 pCi/m^3 in November 1961, 4.7 pCi/m^3 in April 1962 and 8.7 pCi/m^3 in April 1963.

A decrease in testing then caused the values to decline gradually to the values seen at the beginning of the report period. The annual cycle was quite evident as can be seen by comparing minimum monthly values of approximately 1.8 and 0.6 pCi/m^3 seen in the fall and winter months in 1962 and 1963, respectively, with the maximum values given above.

A comparison of the data from the three groups as shown in Tables 1.9 and 1.10 and Figures 1.1, 1.2, and 1.3 indicates the great similarity between groups. No measurable contribution to air particulate activity in the environs from the operation of the Peach Bottom facility is indicated.

For comparison, data from the Environmental Health and Protection Agency (EPA) are presented in Table 1.11 and shown on Figures 1.1 and 1.3. It is evident that the data from the Peach Bottom surveillance program are generally consistent with the EPA data. Precise comparison with EPA data after mid-1967 is difficult. At that time, the EPA procedure was changed in a manner which caused it to be very dependent on the concentration of naturally occurring thoron. This can be seen in the sudden rise in the monthly values at Harrisburg and Trenton in August 1967. Since July 1968, EPA data are reported to the nearest integer which masks any of the fine-structure seen in this program. The winter lows and summer highs are still evident however.

B. Precipitation

The concentrations and surface densities of gross beta, Sr-90, and Cs-137 radioactivity in precipitation samples collected at

Stations 1A, 1B, and 4M are reported in Tables 2.1, 2.2, and 2.3. Gross beta and Sr-90 radioactivity annual averages and ranges are presented graphically in Figures 2.1 through 2.6 with available comparable EPA data.

In general, the amount of radioactivity present in precipitation samples tends to follow the amount present in the troposphere as reflected by the data obtained for air particulate samples. Most of the radioactivity in precipitation samples is in the form of particulates which are washed out of the air by rainfall and collected in sample containers. Since most of the particulate material is washed out in the initial part of a rainfall, the surface density, i.e. pCi/m^2, is used in addition to concentration (pCi/l) because it tends to minimize the effect of sample volume. Lack of complete correlation with air particulate values comes about because rainfall generally does not occur at frequent intervals. The dependence of the activity levels on the precise conditions occurring at the start of each rainfall can cause wide variability between samples even taken over limited geographical areas. The higher values in mid-year samples, preceded and followed by low values, can be seen to some extent in the monthly values as given in Tables 2.1 and 2.2 similar to air particulate activity trends.

The period 1966 through 1969 generally showed essentially constant or slightly decreasing annual average amounts of gross radioactivity based on both surface density and concentration measurements as given in Table 2.3 and plotted in Figures 2.1 and 2.3. Increased levels of approximately a factor of 2 were noted in 1970 and 1971 followed by decreases in 1972 and 1973 to levels generally lower than the levels seen in 1969. An examination of Figures 2.1 and 2.3 shows that the average levels at Stations 1A and 1B are similar to those at Station 4M and have approximately the same range in monthly values. This again indicates that there is no contribution to radioactivity in precipitation from the operation of Unit 1.

Table 2.2 and 2.4 which show EPA results from Baltimore, Md. and, when available, from Harrisburg, Pa. indicates somewhat the same trends of activity although at higher levels of activity. The EPA data rely on field measurements which are made using detectors much less sensitive than those used in this program. For the EPA measurements this has the effect of overemphasizing small detector responses and not detecting low levels of radioactivity.

The yearly average levels of Sr-90 measured at Stations 1A, 1B, and at Station 4M are given in Table 2.3 and are plotted in Figures 2.5 and 2.6. The same general trends seen for gross beta radioactivity are somewhat evident here, especially in the surface density plot (Figure 2.6). Again Stations 1A and 1B exhibit values and trends consistent with those at Station 4M and no plant effects are measurable.

C. Surface Water and Discharge Water

The concentrations of gross alpha, gross beta and gross gamma radioactivity in the soluble and insoluble fractions of surface water and discharge water are given in Tables 2.1 through 3.10. Comparative averages are presented in Figures 3.1 through 3.8.

Figures 3.1 through 3.4 present a comparison of Station 6A, which is at the inlet to Conowingo Pond and Station 4F which is at the Pond outlet. Any radioactivity introduced into Conowingo Pond would be reflected as difference in radioactivity measured at the two stations.

The concentrations of gross alpha radioactivity in the soluble fraction as shown in Figure 3.1 decreased from the 1967 annual mean values of 4 pCi/l at both stations to 0.5 and 0.6 pCi/l for Stations 6A and 4F respectively in 1970. Since that time the annual mean values have remained in the 0.4 to 0.6 pCi/l range. Higher monthly values of 2 and 1.4 pCi/l were seen at Stations 4F and 6A respectively in April 1973 probably due to spring runoff. The gross alpha radioactivity concentration in the insoluble fraction as presented in Table 3.7 and Figure 3.2 show essentially the same temporal behavior reaching relatively constant levels of 0.3 to 0.5 pCi/l in 1971, 1972, and 1973. This is a decline from levels of 1 to 2 pCi/l in the 1966-1968 period. Both stations exhibited similar trends.

The gross beta radioactivity concentrations in the soluble fraction is shown in Tables 3.3 and 3.4 and Figure 3.3. Annual mean values at Stations 4F and 6A have remained roughly constant in the 1967 through 1970 period in the range of 9 to 15 pCi/l. The average for both stations in 1967 was approximately 11 pCi/l. The 1970 value for Station 4F and the 1971 values for both stations are slightly higher because of single monthly samples which showed values in the region of 78 to 120 pCi/l. These values fluctuate within the range of values seen in the 1960-1965 period. Annual mean values in the 1972-1973 period are between 3 and 5 pCi/l. The January 1972 sample from Station 4F was again somewhat higher at 30 pCi/l.

Annual mean insoluble gross beta radioactivity concentrations have shown an overall decrease from approximately 18 pCi/l in 1966 to 1.3 pCi/l in 1973 as presented in Table 3.8 and Figure 3.4. The decrease was interrupted by rises in the 1969-1971 period corresponding to some degree with periods of increased fallout from weapons testing. The higher values for the samples obtained early in each year may reflect the washout of debris from testing which occurred in the fall or early winter of the previous year.

The similarity of values and trends obtained from analysis of samples from Stations 4F and 6A indicates that no change in radioactivity concentration which would have resulted from Unit 1 operation has been detected.

This is further confirmed by comparison of gross beta radioactivity concentrations for Unit 1 Intake (Station 1P), Unit 1 Discharge (Station 1R), and Discharge Canal (Station 1T as shown in Table 3.10 and Figures 3.5 and 3.6. Station 1T beca[illegible] discharge water sample after December 6, 1972, since the Unit [illegible] condenser discharge was modified to discharge into the discharge canal on this date. Prior to this time it was surface water only. Station 1T was not included in the comparison before it became a discharge sample. Both soluble and insoluble fractions show similar levels of radioactivity indicating that no increase was detected in the water after passing through Unit 1.

Monthly gross beta radioactivity concentrations for combined Stations 1P, 1Q, and 1T, Station 13A and Station 4F are given in Table 3.1 and Figures 3.[illegible] and 3.8 for the soluble and insoluble fractions respectively. Samples from all stations show the same levels of radioactivity and have approximately the same degree of variability. Soluble fraction radioactivity concentration has decreased somewhat from 1971 and early 1972 to values between <2 and 8 pCi/l in 1973. Numerous <2 pCi/l values have been seen since April 1972. Concentration of insoluble gross beta radioactivity has also shown a gradual decline although a precise trend is difficult to determine because of the wide range of values obtained. 1973 levels tend to lie in the <0.4 to 3 pCi/l range.

Comparison of Figures 3.3, 3.5 and 3.7 and Figures 3.4, 3.6 and 3.8, and the data in Tables 3.7, 3.8 and 3.9, indicates that the gross beta radioactivity concentrations are uniform over the entire Conowingo Pond and are independent of sampling location.

D. Well Water

The concentrations of gross alpha, gross beta, Sr-90, Cs-137, and gross gamma radioactivity and uranium in well water samples are give. in Tables 4.1 through 4.6. The annual mean concentrations of gross beta radioactivity of grouped Stations 1U, 1V, and 28 and grouped Stations 7 and 8 listed in Table 4.6 and are plotted in Figure 4.1.

Radioactivity in well water samples generally arises from the leaching of naturally occurring nuclides from the rocks and soil past which the water flows. As levels of the water table change, variations can be encountered in the flow pattern followed by water which appears in a given well. This can cause changes in the radioactivity content of the water since the leachability of the radioactivity varies as the permeability of the soil and rock encountered by the water differs. An additional factor which can change radioactivity concentration is the well usage. A well which is used at a constant rate tends to maintain a more constant radioactivity level. Lack of usage can cause buildup of radioactivity concentration if conditions very close to the well are amenable to leaching or can cause concentrations to decrease if water from the major sources of the radioactivity does not reach the well when samples are taken.

Gross alpha radioactivity concentrations have generally been undetectable at levels above a few pCi/l or since 1969 at levels above several tenths of a pCi/l. Higher individual values in the range of 7 to 26 pCi/l were seen at Stations 7, 8, and 28 in 1967 during periods when high gross beta radioactivity concentrations were seen, but have not been seen since. In the May 1971 through July 1973 period for which data are available for Stations 1U and 1V, no values above 2 pCi/l were seen. Present levels at all stations are in the 0.8 to 0.2 pCi/l range.

The annual mean concentrations of gross beta radioactivity as given in Table 4.6 and presented graphically in Figure 4.1 shows a decrease in the period 1966 through 1968 to a level of 6-7 pCi/l. This was followed by an increase to levels between 10 and 17 pCi/l in 1969, 1970, and 1971. In 1972 and 1973, most samples show less than values in the 1-3 pCi/l range. These changes in levels seem to correlate with changes in laboratories. However, there is no apparent reason why this should be the cause.

Sr-90 and Cs-137 radioactivity concentrations have generally been below the detections limit, most recently a few tenths of a pCi/l. A few samples have shown high levels. A Sr-90 concentration of 29.1 pCi/l was seen in a sample from Station 8 in October 1970 and a Cs-137 concentration of 3.5 pCi/l was measured in a sample from the same location in May 1971. The May 1971 sample from Station 28 showed a Cs-137 value of 8 pCi/l. These intermittent values may have been caused by entry of surface water from rain runoff into the wells.

Uranium concentrations have also generally been below the limit of detection of approximately 0.04 ug/l. Some positive values of a few tenths of a ug/liter were seen at various wells in 197?. This may be due to the changing water table levels described above.

From a comparison of the well water results, it would appear that there is no significant difference between wells and no indication of any increase in radioactivity concentrations of wells close to Unit 1.

E. Soil

The results obtained for concentrations of acid-leachable gross alpha, gross beta, K-40, net beta, Sr-90, and Cs-137 radioactivity in soil samples are tabulated in Tables 5.1 through 5.6 and are presented graphically in Figures 5.1 through 5.4.

Alpha and beta radioactivity are found in soil samples because of the presence of naturally occurring nuclides in the uranium and thorium series and K-40, and from nuclides present in fallout from weapons testing. Specific analyses for Sr-90 and Cs-137 which are normally present in fallout are done to measure these nuclides in the presence of the larger quantities of naturally-occurring radioactivity.

Comparison of the annual averages of gross alpha radioactivity as given in Table 5.6 indicates that the values obtained for Station 4N are generally lower than those of the overall average and those from Station 5 tend to be higher than the average. The net beta radioactivity from Station 4N is also somewhat lower than that found at other locations. This is most often the result of different soil composition at the various locations.

The temporal behavior of the annual averages of gross alpha and net beta radioactivity for Station 1AA and combined Stations 3A, 4N, 5, and 6G can be seen in Table 5.6 and Figures 5.1 and 5.2. Gross alpha activity at the combined stations remains essentially constant at about 3-4 pCi/g over the report period except for the 1973 values which average 1.1 pCi/g. The concentration at Station 1AA is similar in magnitude to that at the combined stations and is also essentially constant except for the 1973 values averaging 1.5 pCi/g and perhaps for a decline in 1967 to 4 pCi/g from the 6 pCi/g value of 1966.

Net beta activity declined generally in 1967 and continued through 1969. Annual averages from Station 1AA then remained essentially constant at a level of 3-4 pCi/g until 1973 when a level of 2.6 pCi/g was obtained. The average from the combined stations rose in 1970, then was relatively level at a concentration of approximately 4 pCi/g until the 1973 average of 2.4 pCi/g. The rise in 1970 may be caused by the increase in fallout from nuclear testing during that period.

Strontium-90 annual mean concentration values for the combined stations as shown in Table 5.6 and Figure 5.3 appear to show an overall decrease in the range of 0.6 to 0.3 pCi/g from 1967 through 1972, interrupted by a high value averaging approximately 0.9 pCi/g in 1970 corresponding to a period of high fallout. The 1973 value then rose abruptly to 0.58 pCi/g for Stations 3A and 5. The Station 1AA values averaged approximately 0.1 pCi/g in 1971 and 1972 and then rose to 0.40 in 1973.

The concentration of Cs-137 at all stations is given in Tables 5.1 through 5.5 and presented graphically in Figure 5.4. The concentrations show a general decrease over the period May 1971 through September 1972 followed by an abrupt decrease at all stations except Station 4N in March 1973 and a return to previous levels in July 1973. May 1971 values are in the range of 0.1 to 0.5 pCi/g and September 1972 values have declined to the range of 0.06 to 0.13 pCi/g except for Station 4N which is 0.43 pCi/g. For the March 1972 sample Station 4N showed a higher value of 0.78 pCi/g. March 1973 values are between <0.006 and 0.23 pCi/g except for the 0.22 pCi/g value for Station 4N. July 1973 values range from a low of 0.13 pCi/g at Station 1AA to a high of 0.97 pCi/g at Station 6G. The reason for the abnormally low values obtained in March 1973 is not known. In general, the concentration of Cs-137 at Station 1AA is lower than that for the other stations and the Station 4N value tends to be higher.

The above data indicate that the radioactivity levels at the Peach Bottom site are comparable to or lower than the average values from the surrounding sampling stations. No activity which can be attributed to the operation of Unit 1 has been found.

F. Silt

Tables 6.1 through 6.4 give the analytical results for concentrations of acid-leachable gross alpha, gross beta, gross gamma, Sr-90 and Cs-137 radioactivity for silt samples. Annual mean concentrations of gross alpha and gross beta radioactivity are graphed in Figures 6.1 and 6.2 respectively.

Silt samples are expected to contain naturally-occurring radioactivity, as discussed above for soil samples, in addition to any other activity introduced into the aquatic environment which would settle onto or be absorbed by the silt. As can be seen by comparison of the data in Tables 6.3 and 5.6, the activity levels in silt approximate those found in soil.

The concentrations of gross alpha radioactivity is similar at all sampling stations. As can be seen in Table 6.3 and Figure 6.1 where data from Stations 1BB and 6F are presented the annual averages follow roughly the same trend and appear to be decreasing in 1972 and 1973. The Station 1BB values have generally been higher than the values from Station 6F. The 1973 values are for analysis on only one sample. The annual averages for Stations 1W, 1X, 4C, and 4D of 4, 2, 5, and 3 pCi/g respectively as given in Table 6.2 are comparable to other values.

The concentration of gross beta radioactivity is generally within the range of 1-6 pCi/g with no major differences between locations. A high single value of 14 was seen at Station 4D in 1972. As can be seen from Figure 6.2, the concentration of activity tends to be higher at Station 1BB as compared to Station 6F and may have been showing a rising annual average until the single 1973 values were obtained.

Sr-90 annual mean concentrations as given in Table 6.2 are generally similar for all stations in the range of <0.02 to 0.30 pCi/g with most values below 0.15 pCi/g. As plotted in Figure 6.3, the values for Station 1BB and Station 6F follow the same general trend and show no significant difference. Somewhat lower values were obtained in 1966 and 1968 as compared to the value obtained 1967. After a rise in 1969, there may be a decreasing trend in **the period** 1971 through 1973.

Annual mean concentrations of Cs-137 radioactivity as given in Table 6.2 are also comparable between stations. Station 1BB tended to have lower averages in 1971 and 1972. The values for individual samples for Station 1BB and 6F are given Table 6.1 and plotted in Figure 6.4. Except for the June 1973 and May 1971 samples, the values obtained from samples taken at Station 1BB tend to be much lower than those from Station 6F.

Gross gamma radioactivity concentrations are also comparable between the various stations in the range of 0.6 - 1.8 cpm/g.

A comparison of the limited data from Stations 1W and 1X with those from the other stations shows no increase in radioactivity concentration at Stations 1W and 1X caused by the discharge from Unit 1.

G. Fish

The results of the analysis of fish samples for concentrations of gross alpha, gross beta, K-40, net beta, Sr-90, Cs-137 and gross gamma radioactivity are given in Tables 7.1 through 7.11. Net beta and Sr-90 data are plotted in Figures 7.1 through 7.4.

A comparison of annual average gross alpha radioactivity concentrations as given in Table 7.11 for all stations indicates similar temporal behavior over the period of the report. Higher annual average values of 10 pCi/g ash at Station 6C and 6 pCi/g ash at Station 1T in 1967 decrease gradually to approximately 2 pCi/g ash at all stations in the 1971-1973 period. Most of the individual values are less than values indicating generally no detectable gross alpha radioactivity in the fish samples.

Annual average net beta radioactivity concentrations for all stations are given in Table 7.11. The annual averages for Station 6C, Holtwood Pond, and for two groups of combined stations are plotted in Figure 7.1. Stations 1T, 1Y, 4I, 4J, 4P, 4O, 4R and 4S, which have been combined as one group, are those locations in Conowingo Pond which would not be expected to be effected by Unit 1 discharge for the periods indicated in the footnotes on Figure 7.1. In contrast, Stations 1T, 1W, 1X, 1Y and 4T, which have been combined as one group for the periods indicated, are those stations exposed to Unit 1 discharge.

The majority of the beta radioactivity in fish samples is due to naturally occurring K-40 as can be seen from Tables 7.1 through 7.9 showing the individual values. The net beta result typically 20 ± 10 pCi/g ash is thus the difference between two numbers of approximately equal values and has a large associated error. As a result, trends in the averages are difficult to determine unless they are of large magnitude.

The annual averages for the two groups of combined stations and Station 6C generally lie in the range of 10-20 pCi/g ash for the period 1967 through 1973. The combined stations not under the influence of Unit 1 discharge had a value of 8 pCi/g ash in 1968 which is slightly below this range. 1966 values for Stations 6C and the combined stations under the influence of Unit 1 discharge were 30 and 40 pCi/g ash respectively. Many of the individual values are again below the limit of detection. A net beta concentration of 300 pCi/g ash was seen in a single channel catfish sample collected from Station 4T in October, 1970. Gamma spectrum measurements on the ashed sample showed that the activity was essentially all Cs-137, most probably due to the ingestion of particulate matter from nuclear device testing which contained a large amount of Cs-137. The absence of the radioactivity in the other fish caught at the same time would indicate that the radioactivity seen was not due to a general increase of the Cs-137 radioactivity concentration in Conowingo Pond.

Annual mean Sr-90 radioactivity concentrations for Station 6C and the two groups of combined stations are plotted in Figure 7.2. Except for the low value of <0.2 pCi/g ash obtained at the combined stations in 1967, the annual mean values have been in the range of 1.0-3.1 pCi/g ash with the majority of the values between 1.2 and 2.1 pCi/g ash. The highest annual average value of 3.1 pCi/g ash was seen at Station 6C, Holtwood, in 1969. There is general overlap of ranges of the individual values at all stations. There may be a trend in the annual averages showing a slight decrease from 1966 to 1968 followed by a rise in 1969 and a decrease and leveling after 1969 at the 1.2-2.1 pCi/g ash level.

The similarity of the values for the various types of radioactivity concentrations measured at Station 6C and the groups of combined stations indicates that the discharge from Unit 1 has had no measurable effect on the levels of radioactivity in Conowingo Pond and that the levels in Conowingo Pond are similar to those seen in Holtwood Pond, which is upstream from the Peach Bottom Site.

The results of radioactivity concentration measurements on white sucker samples from Pequea Creek, which empties into Holtwood Pond, and Peters Creek, which empties into Conowingo Pond, are given in Table 7.9. Gross alpha radioactivity concentrations are all less than values, generally <2 to <4 pCi/g ash, again indicating the absence of measurable alpha radioactivity in fish samples.

Comparison of the individual net beta radioactivity concentration values given in Table 7.9 and the quarterly average values presented in Figure 7.3 indicate similarity of values between the two stations. The net beta concentration values may be somewhat higher than those seen in Holtwood and Conowingo Ponds, however, the ranges of individual values show overlap. There is not yet sufficient data to determine if there is a difference between creek fish and pond fish, a difference between species, or if all values are the same within the limits of the measurement.

Sr-90 radioactivity concentration values presented in Table 7.9 and the quarterly average values plotted in Figure 7.4 generally lie within the same range for both creek stations and for the pond stations as shown in Figure 7.2.

Cs-137 annual mean radioactivity concentrations are given in Table 7.11 are generally comparable between all stations and tend to be a few tenths of a pCi/g ash. Values from individual samples as given in Tables 7.2 through 7.9 have ranged from approximately 0.08 to 2.8 pCi/g ash, however, the majority of the values are below 1 pCi/g ash.

Comparison of all radioactivity concentration data from fish samples indicates no measureable radioactivity which can be attributed to the operation of Unit 1.

H. <u>Shellfish</u>

The results of the measurement of concentrations of gross beta, K-40, net beta, Sr-90, and Cs-137 radioactivity in oyster shells and soft tissue and of I-131 in soft tissue are given in Tables 8.1 through 8.5 for Stations 9, 10, and 11. Annual mean values of net beta radioactivity and Sr-90 are plotted in Figures 8.1, 8.2, and 8.3.

The oyster bed at Station 9, Tolchester, Pa., and to a lesser extent the bed at Station 11, Swan Point, Pa., were severely damaged by floods in June 1972 caused by hurricane Agnes which has made finding samples somewhat difficult.

As can be seen from Figure 8.1, the concentration of net beta radioactivity in soft tissue samples from all three stations follow essentially the same pattern over the period and tend to range between the lower limit of detection of about 7-8 pCi/g ash to 40-50 pCi/g ash. The annual mean values vary over approximately the same range. Since the net beta value is determined from the difference between the gross beta radioactivity measurement and the chemical measurement of potassium, it is difficult to determine whether the increases and decreases seen in the annual mean values are really significant, or due to inherent differences in the measuring techniques used over the period of this report.

Except for the early part of the report period, the net beta radioactivity concentration in oyster shells has been below the detection limit of 6-10 pCi/g ash. Since the oyster shells contain primarily calcium, it is to be expected that there would be little if any K-40 or other naturally-occurring nuclides present. The slightly higher values of approximately 10-30 pCi/g ash seen in 1966 may be due to residual foreign matter on the shells which are generally difficult to clean thoroughly.

Sr-90 radioactivity concentrations in oyster shells are given in Tables 8.1, 8.2 and 8.3. The annual mean values have been relatively constant over the period at approximately 0.2-0.4 pCi/g ash. Since very little weight is lost in ashing the sample, this is essentially the concentration in the original shell. Because Sr-90 would tend to concentrate in the shell due to its chemical similarity to calcium and the ready availability of large quantities of shell, this analysis should detect any significant changes in radioactivity level which would be below the level detectable in tissue.

Results for the analysis of Sr-90 and Cs-137 radioactivity concentrations in oyster tissue are given in Tables 8.1 through 8.3. From the values obtained it would appear that Sr-90 concentration is very similar to that found in shells, i.e., a few tenths of a pCi per gram ash. This would be expected if the ash consisted primarily of calcium salts, and there was no recent increase in the Sr-90 present in the river water. This would be equivalent to approximately a few ten thousandths of a pCi/g of raw sample. The relatively high value of 2 ± 1 pCi/g ash seen at Station 9 in March 1973 was obtained using a small aliquot of sample due to conditions at the oyster bed. Cs-137 concentration is also a few tenths of a pCi/g ash, barely above the detection limit.

No I-131 has been detected in oyster tissue samples.

The overall similarity between locations even though they are at different distances from the Peach Bottom site and the relative constancy of radioactivity levels would indicate that the concentrations seen are due to general environmental conditions and are not the result of operation of Unit 1.

I. Vegetation

The concentrations of gross alpha, gross beta, net beta, K-40, Sr-90, and Cs-137 radioactivity are given in Tables 9.1 through 9.6 for vegetation samples. Gross alpha, net beta, Sr-90, and Cs-137 data for Station 1 and combined Stations 3A, 4N, 5, and 6D are plotted in Figures 9.1 through 9.4.

Gross alpha radioactivity concentrations are essentially the same for all stations and show the same degree of variability. The temporal behavior of the annual mean values is similar between Station 1 and the combined stations as can be seen from Table 9.6 and Figure 9.1. There is a general decreasing trend from approximately 10 pCi/g ash for Station 1 in 1966 and 1967 and 15 and 17 pCi/g ash at the combined stations in 1966 and 1967, respectively, to levels of 3 and 4 pCi/g ash for Station 1 in 1969 and 1970, respectively, and 5 pCi/g ash for the combined stations in both years. This is followed by levelling in 1971 and 1972 followed by a rise to 7 pCi/g ash for Station 1 and 11 pCi/g ash at the combined stations in the samples taken in June 1973.

The concentrations of net beta radioactivity are also similar for all stations and appear to have approximately the same spread. As shown in Table 9.6 and Figure 9.2, the annual mean values are comparable between Station 1 and the combined stations. Low averages of 40 pCi/g ash at Station 1 and 50 pCi/g ash at the combined stations were seen in 1968 , compared to values of approximately 80 and 140 pCi/g ash at Station 1 and 80 and 90 at the combined stations in 1966 and 1967, respectively. This apparent decrease was followed by a return to previous levels in 1969 and 1970 and then a slight decline in 1971. Values in 1972 and 1973 were approximately 100 and 80 pCi/g ash at Station 1 and 70 and 80 at the combined stations. Based on the variability between sample types and individual results, it is difficult to determine an exact trend. There is no distinction between stations which indicates no measurable radioactivity has been introduced by Unit 1 operation.

Strontium-90 annual mean radioactivity concentrations are presented in Table 9.6 and Figure 9.3. Except for low values of approximately <0.5 pCi/g ash for Station 1 in 1966 and <0.6 pCi/g ash for Station 1 and <0.4 pCi/g ash for the combined stations in 1967, the Sr-90 concentration seems to be decreasing over the 1966 through 1973 period. The annual average of approximately 12 pCi/g ash for Station 1 and 11 pCi/g ash for the combined stations in 1968 has decreased to values of 2.9 and 5 pCi/g ash for Station 1 and the combined stations in 1973. The range between values has become greater since 1971 probably reflecting the wider variety of crops and vegetation being sampled. There is no significant difference between stations.

The concentrations of Cs-137 radioactivity are given in Tables 9.1 through 9.5 and Figure 9.4. Where more than one sample was taken on the same date at a given station, the average is plotted in Figure 9.4. There may be a trend toward decreasing concentrations over the total report period from values between the high 10.1 pCi/g ash value obtained at Station 6D and the low of 0.5 pCi/g ash from Station 1 in the May 1971 samples to the range between 1.6 pCi/g ash at Station 1 and 0.049 pCi/g ash at Station 3A for the June 1973 samples. For Stations 1, 5 and 6D and possibly 3A concentrations tend to rise in the fall of 1972 as compared to the June values. A similar effect is not seen at Station 4N. In general the individual values from Station 5 tend to be lower than the majority of the values and those from 4N tend to be higher.

The general comparability of concentrations of net beta, gross alpha, Sr-90, and Cs-137 radioactivity over the period measured for Station 1 and the combined Stations 3A, 4N, 5, and 6D would indicate that there is no significant difference in radioactivity concentrations between the on-site and off-site locations and therefore no increase in radioactivity in the environment due to the operation of Unit 1.

J. Milk

The concentrations of gross beta, K-40, net beta, Sr-90, Cs-137, and I-131 radioactivity are given in Tables 10.1 and 10.2. Table 10.2 also contains EPA results for Sr-90 and Cs-137 concentrations. Sr-90 annual average concentrations and Cs-137 concentrations are shown graphically in Figures 10.1 and 10.2, respectively.

The concentration of net beta radioactivity has essentially remained constant throughout the 1966-1973 period in the general range <100 to 500 pCi/l. The major beta activity in milk is due to the presence of naturally-occurring K-40 at concentrations of approximately 1200 pCi/l. The residual net beta values are most probably the result of the difference between two types of measurements. The gross beta radioactivity is measured directly on milk ash while the K-40 value is calculated from chemical measurement of potassium. From the known metabolic process of cows, it is unlikely that any nuclides other than those of Strontium, Cesium, Barium-Lanthanum, or Iodine would be present in milk. The absence of I-131 and the comparability of the concentration of Sr-90 and Cs-137 from this program with those measured by the EPA make it unlikely that any real net beta radioactivity is present.

The annual mean concentrations of Sr-90 from this program and comparative EPA data are given in Table 10.2 and are plotted in Figure 10.1. Farms have been divided into two groups, one containing Farms F, G, H, I, and J which are regional farms near the site and the other consisting of Farms A, B, C, D, and K which encircle the site at greater distances. The latter group, for which data are available from 1966 through the present indicate an overall rise in the annual average concentration from the 6 and 4 pCi/l values seen in 1966 and 1967, respectively, to values between 7 and 9 pCi/l seen in the 1968-1973 period. The 1971 through 1973 concentrations from the nearby farm group are similar to those seen for the more remote farm group.

Values for Cs-137 radioactivity concentration for the two farm groups are given in Table 10.2 and plotted in Figure 10.2 with comparable EPA values. The mean values for both farm groups are in the range of 8 to 12 pCi/l from the May 6, 1971, samples through the March 3, 1972, samples. Both farm groups show an increase for the June 13, 1972, samples to 17.4 and 15.4 pCi/l for the nearby and more remote farms respectively. This is generally consistent with the usual increase in fallout from weapons testing in summer. The value for the remote farm group continued to rise to 18.8 pCi/l for the September 16, 1972, samples while the value for the nearby farm group decreased to 9.2 pCi/l. The former higher value is due to an individual milk sample from Farm A which showed a value of 51 pCi/l. Values are then relatively constant from November 5, 1972, through June 13, 1973, with mean values in the 5.7 to 10.1 pCi/l range. The two farm groups follow the same trend and have essentially the same concentrations.

A comparison of the Sr-90 and Cs-137 concentrations from this program with the values obtained by the EPA for Philadelphia, Pa., Trenton, N.J., and Baltimore, Md., as given in Table 10.2 and Figures 10.1 and 10.2, indicates that the program values and the EPA values are similar.

Annual mean concentrations of I-131 radioactivity are given in Table 10.2 and presented graphically in Figure 10.3. Most of the values are less than values and the apparent decrease in I-131 radioactivity concentration is due to changes in aliquot size and analytical procedures as indicated in Figure 10.3 and improvement in the time allowed to elapse between sample collection and analysis. The several slightly positive values for I-131 concentration obtained in 1972 and 1973 are based on very low count rates and low chemical yields. The further change in the I-131 analysis procedure instituted in the second half of 1973 will permit analysis to levels as low as 0.5 pCi/l.

The agreement of the radioactivity concentration values between nearby and distant farm groups and with the available EPA values indicates relatively uniform radioactivity concentration in milk throughout the region, and no detectable addition of radioactivity due to the operation of Unit 1.

K. Rabbits

Tables 11.1 and 11.2 present the analytical data obtained from the analysis for gross beta, K-40, and net beta radioactivity in rabbit bone, soft tissue, and muscle. Iodine-131 concentrations in rabbit thyroids are also given. The annual average concentrations of net beta radioactivity for each anatomical section are plotted in Figures 11.1, 11.2 and 11.3.

As can be seen in Figure 11.1 and in Table 11.2, net beta radioactivity in muscle averages in the range of 30 to 80 pCi/g with a general, but erratic rising trend over the 1966 through 1972 period. Based on the single sampling thus far in 1973, the trend may be reversing.

The annual average concentration of net beta radioactivity in soft tissue is presented in Table 11.2 and in Figure 11.2. The value declined in 1967 and 1968 from the 1966 level of 80 pCi/g and remained essentially constant in 1969 at about 30 pCi/g. This was followed by a gradual increase to 60 pCi/g in 1972 and then a decrease in the 1973 value to less than 10 pCi/g. The long term trend tends to be downward.

Rabbit bones as shown in Table 11.2 and in Figure 11.3 tend to show an overall pattern for annual average concentration of net beta radioactivity similar to that seen for soft tissue. There is a decrease from a value of 60 pCi/g in 1966 to 20 pCi/g in 1969 followed by an increase in 1970 and 1971 to 38 and 33 pCi/g respectively. In 1972 and 1973 the values decreased slightly. The rise in 1972 and relatively large decrease in 1973 which was seen in muscle and soft tissue was not seen in bone.

Yearly averages for I-131 in rabbit thyroids are given in Table 11.2 and Figure 11.4. What might appear to be a decreasing trend is a result of differences in the time allowed to elapse between sampling and sample counting time. Presently samples are generally counted within two weeks of collection while prior to 1968 several weeks had been allowed to elapse. This results in a higher less than values since results are decayed to the time of sampling. As can be seen in Table 11.2 one rabbit in June 1969 showed a level of 10 ± 10 pCi/thyroid and one in May 1971 showed a value of 3 ± 3 pCi/thyroid. These values are barely statistically significant.

L. External Gamma Radiation

The dose rate readings and ranges from the Nuclear Measurement Corporation gamma radiation monitors at Station 1A and 1B are given in Tables 12.1 and 12.2. The ranges for a period are obtained by scanning the entire chart for that period at a later time. Instrument readings are made by the sample collector on a weekly basis. Mean annual values are presented graphically in Figure 12.1.

The monitor at Station 1A has exhibited essentially constant annual averages at approximately 0.017 mR/hr over the 1967 through 1973 period. Examination of the recorder charts for the summer indicates the presence of a 24 hour cycle with maximum readings during the day and minimum readings during the night. The monitors are known to be temperature sensitive in a manner consistent with the observed response. Because of its outdoor location prior to June 1973, the monitor is subject to wide temperature changes. On that date, the detector was moved into a small, heated (and air-conditioned) building similar to the installation used for Station 1B.

The annual mean values obtained from Station 1B have varied from a low of 0.012 mR/hr in 1969 to values of 0.019 mR/hr for 1971 and 1972 and a value of 0.026 mR/hr in 1973. Temperature dependence is also indicated from the chart readings especially during the spring and summer of 1973. The apparent increases in the readings at Station 1B appear to be related to times when the instrument was calibrated indicating a possible downward drift between calibrations. The readings obtained at Stations 1A and 1B are of the same order of magnitude as the values of 0.009 to 0.012 mR/hr reported for 10 locations in Pennsylvania in 1966 which are the latest comparable readings (2).

M. Gamma Spectrum

The gamma spectra data from the analysis of surface water, both soluble and insoluble fractions, well water, silt, and shellfish tissue were still in preparation at the time of preparation of this report. They will be issued and discussed at a later date.

V SUMMARY

Results from the pre-operational environs radiation monitoring program for Units 2 and 3 at Peach Bottom Atomic Power Station for the period covered by this report have been presented both in tables and graphically. Comparisons of data from various locations and various groupings of locations have been done by sample and analysis type. Several general conclusions can be drawn that pertain to the program and its results as a whole.

For any given sample type, the concentration seen in the environment for each type of radioactivity is not a constant, but tends to vary between different sampling times and different sampling locations. Sometimes, as in the case of gross beta radioactivity in air particulates and precipitation, seasonal effects can be seen and, in the case of air particulates, the effects of single nuclear device tests are evident. In other types of samples, such as gross beta radioactivity in water, the body of water tends to reflect the average of the radioactivity concentration present over several months depending on water flow, fallout from weapons tests, etc. These types of samples show less short-term trends and indicate the general change in concentration over periods of several months or more. The normally-encountered variability in such samples can be seen by comparing monthly values. Soil samples tend to increase in radioactivity due to the presence of new fallout from weapons testing and loose radioactivity due to leaching in an analogous manner.

The program is designed to fulfill the difficult task of trying to measure small increases in the radioactivity in the environment in the presence of normally-encountered variability in the environment in order to detect the presence of radioactivity at levels far below those which would be of significance to the population. This is done by careful selection of the types of samples to be analyzed and the analyses to be performed.

For example, milk, vegetation and crops, fish, water, and oysters are selected because of their role in the human or animal food chains. These are analyzed for Sr-89, Sr-90, and Cs-137 in addition to gross alpha or gross beta radioactivity and in some cases are analyzed for I-131. These nuclides are potentially present in any releases from a nuclear power station in addition to their production in nuclear weapons testing. Their presence in samples from locations near a nuclear power station in concentrations significantly different from those in other locations may indicate the presence of nuclear plant-produced radioactivity. Further comparison of isotope ratios, plant release data and known nuclear device testing can aid in a determination of the source of the radioactivity. Air particulates and precipitation indicate the presence of any unusual concentrations of radioactivity in the atmosphere which could be inhaled or deposited on soil, vegetation, and water to be seen later in the data from these samples. Silt samples tend to concentrate certain insoluble or exchangeable radioisotopes in the aquatic environment.

Certain additional analyses such as the measurement of I-131 in rabbit thyroid make use of the natural bio-accumulation of iodine in the thyroid and the eating and living habits of rabbits. Similarly the measurement of Sr-89 and Sr-90 in oyster shells utilizes the bio-accumulation of strontium and calcium in the shell to permit determination at concentrations much lower than could be seen in oyster tissue, which contains much less calcium.

Within the limits imposed by analytical sensitivities, using the most sensitive techniques practical, and the natural variability in the environment there is no detectable radioactivity in the environment as the result of operation of Unit 1. Over the period covered by the report, the general radioactivity levels tend to be decreasing or essentially constant with some interruptions due to specific weapons tests. This general decrease should continue, barring new atmospheric nuclear testing, until levels are reached which are due to only naturally-occurring nuclides and the slow deposition of the present stratospheric burden from previous testing. The design and implementation of the environs radiation monitoring program at Peach Bottom should enable it to measure any radioactivity introduced into the environment by the operation of Units 2 and 3 at extremely low levels.

REFERENCES

(1) Pre-Operational Environ Radioactivity Survey Summary Report, March 1960 through January, 1966 (September, 1967)

(2) U.S. Public Health Service, Radiological Health Data and Reports, Vol. 9, No. 11 (1968).

TABLE 1.1

ANALYTICAL DATA FOR AIR PARTICULATE SAMPLES

Concentration of Gross Beta Radioactivity (pCi/m^3)

Collection Period-1966	1A	2	3A	4A	4B	5	6B
2/2 - 2/9	0.02 ± 0.02	<0.02	0.04 ± 0.02	0.03 ± 0.02	(a)	0.03 ± 0.02	0.03 ± 0.02
2/9 - 2/15	0.06 ± 0.02	0.04 ± 0.02	0.05 ± 0.02	0.06 ± 0.02	(a)	0.05 ± 0.02	0.04 ± 0.02
2/15- 2/20	0.09 ± 0.03	0.06 ± 0.03	0.05 ± 0.02	0.08 ± 0.03	0.11 ± 0.02	0.06 ± 0.03	0.05 ± 0.03
2/20- 2/26	<0.02	<0.02	0.03 ± 0.03	0.04 ± 0.02	<0.02	0.02 ± 0.02	0.03 ± 0.02
2/26- 3/5	0.04 ± 0.01	0.06 ± 0.02	0.02 ± 0.02	0.05 ± 0.02	0.06 ± 0.02	0.03 ± 0.02	0.05 ± 0.02
3/5 - 3/12	0.06 ± 0.01	0.07 ± 0.02	0.10 ± 0.02	0.08 ± 0.02	0.07 ± 0.01	0.06 ± 0.02	0.05 ± 0.02
3/12- 3/19	0.06 ± 0.02	0.07 ± 0.02	0.11 ± 0.02	0.10 ± 0.02	0.08 ± 0.02	0.10 ± 0.02	0.11 ± 0.02
3/19- 3/26	0.02 ± 0.02	0.03 ± 0.02	0.05 ± 0.02	0.05 ± 0.01	0.05 ± 0.02	0.04 ± 0.02	0.06 ± 0.02
3/26- 4/2	0.06 ± 0.01	0.06 ± 0.02	0.04 ± 0.02	0.12 ± 0.02	0.10 ± 0.02	0.09 ± 0.02	0.09 ± 0.02
4/2 - 4/10	0.03 ± 0.02	0.03 ± 0.02	0.03 ± 0.02	0.04 ± 0.02	0.03 ± 0.01	0.04 ± 0.02	0.03 ± 0.02
4/10- 4/17	0.06 ± 0.02	0.07 ± 0.02	0.07 ± 0.02	0.06 ± 0.02	0.08 ± 0.02	0.06 ± 0.02	0.05 ± 0.02
4/17- 4/23	0.08 ± 0.02	0.12 ± 0.03	0.09 ± 0.02	0.10 ± 0.02	0.11 ± 0.03	0.09 ± 0.02	0.12 ± 0.02
4/23- 4/30	0.04 ± 0.01	0.04 ± 0.02	0.05 ± 0.02	0.05 ± 0.02	0.05 ± 0.02	0.05 ± 0.02	0.06 ± 0.01
4/30- 5/7	0.09 ± 0.02	0.10 ± 0.02	0.18 ± 0.03	0.10 ± 0.02	0.12 ± 0.02	0.09 ± 0.02	0.11 ± 0.02
5/7 - 5/15	0.09 ± 0.02	0.07 ± 0.02	0.10 ± 0.02	0.11 ± 0.02	0.09 ± 0.02	0.10 ± 0.02	0.04 ± 0.02
5/15- 5/21	0.18 ± 0.03	0.16 ± 0.02	0.17 ± 0.03	0.16 ± 0.03	0.17 ± 0.02	0.16 ± 0.03	0.15 ± 0.03
5/21- 5/28	0.39 ± 0.03	0.30 ± 0.03	0.32 ± 0.02	0.28 ± 0.03	0.24 ± 0.02	0.30 ± 0.03	0.21 ± 0.02
5/28- 6/4	0.13 ± 0.02	0.12 ± 0.02	0.12 ± 0.02	0.08 ± 0.02	0.12 ± 0.02	0.12 ± 0.02	0.13 ± 0.02
6/4 - 6/10	0.37 ± 0.03	0.37 ± 0.04	0.35 ± 0.04	0.47 ± 0.03	0.27 ± 0.03	0.42 ± 0.03	0.42 ± 0.02
6/10- 6/18	0.13 ± 0.02	0.11 ± 0.02	0.13 ± 0.02	0.05 ± 0.02	0.12 ± 0.02	0.13 ± 0.02	0.14 ± 0.02
6/18- 6/24	0.22 ± 0.03	0.22 ± 0.02	0.17 ± 0.03	0.27 ± 0.02	0.17 ± 0.02	0.25 ± 0.03	0.09 ± 0.03
6/24- 7/1	0.25 ± 0.03	0.19 ± 0.04	0.20 ± 0.02	0.21 ± 0.02	0.21 ± 0.02	0.27 ± 0.02	0.20 ± 0.02
7/1 - 7/9	0.19 ± 0.02	(a)	0.19 ± 0.02	0.20 ± 0.02	0.17 ± 0.01	0.25 ± 0.02	0.18 ± 0.02
7/9 - 7/15	0.16 ± 0.02	(a)	0.15 ± 0.03	0.17 ± 0.02	0.10 ± 0.03	0.17 ± 0.03	0.12 ± 0.02
7/15- 7/23	0.19 ± 0.02	0.15 ± 0.01	0.15 ± 0.02	0.18 ± 0.03	0.17 ± 0.02	0.17 ± 0.02	0.17 ± 0.02
7/23- 7/29	0.12 ± 0.02	0.11 ± 0.03	0.12 ± 0.03	0.11 ± 0.03	0.12 ± 0.02	0.16 ± 0.02	0.23 ± 0.03
7/29- 8/5	0.08 ± 0.02	0.08 ± 0.02	0.07 ± 0.02	0.13 ± 0.02	0.09 ± 0.02	0.07 ± 0.02	0.07 ± 0.02
8/5 - 8/13	0.06 ± 0.01	0.05 ± 0.01	0.05 ± 0.02	0.08 ± 0.02	0.07 ± 0.02	0.07 ± 0.02	0.08 ± 0.02
8/13- 8/19	0.06 ± 0.02	0.06 ± 0.02	0.08 ± 0.03	0.08 ± 0.02	0.06 ± 0.02	0.05 ± 0.02	0.07 ± 0.02
8/19- 8/27	0.07 ± 0.02	0.06 ± 0.02	0.04 ± 0.02	0.03 ± 0.02	0.05 ± 0.02	0.03 ± 0.02	0.08 ± 0.02
8/27- 9/3	0.07 ± 0.02	0.08 ± 0.02	0.08 ± 0.02	(a)	0.07 ± 0.02	0.09 ± 0.02	0.08 ± 0.02
9/3 - 9/10	0.05 ± 0.02	0.03 ± 0.02	0.04 ± 0.02	0.03 ± 0.02	0.04 ± 0.01	0.03 ± 0.02	0.05 ± 0.02
9/10- 9/16	0.04 ± 0.02	0.02 ± 0.02	0.03 ± 0.02	0.05 ± 0.02	0.04 ± 0.02	0.03 ± 0.02	0.03 ± 0.02
9/16- 9/24	0.04 ± 0.01	0.03 ± 0.01	<0.02	0.04 ± 0.01	0.02 ± 0.01	0.02 ± 0.02	0.04 ± 0.02
9/24- 10/1	0.03 ± 0.02	0.04 ± 0.02	0.03 ± 0.01	0.04 ± 0.02	0.03 ± 0.02	0.02 ± 0.02	0.03 ± 0.02
10/1 - 10/8	0.03 ± 0.02	0.02 ± 0.01	0.03 ± 0.02	0.04 ± 0.02	<0.01	<0.01	0.02 ± 0.01
10/8 - 10/16	0.03 ± 0.01	<0.01	<0.01	<0.02	0.04 ± 0.01	<0.01	<0.01
10/16- 10/22	<0.02	<0.01	<0.02	<0.02	(a)	<0.02	<0.02
10/22- 10/29	0.05 ± 0.01	0.06 ± 0.01	0.04 ± 0.02	0.03 ± 0.02	0.06 ± 0.02	0.05 ± 0.02	0.04 ± 0.02
10/29- 11/6	0.02 ± 0.02	<0.02	0.03 ± 0.02	0.04 ± 0.01	<0.02	0.03 ± 0.02	<0.02
11/6 - 11/12	0.11 ± 0.02	0.05 ± 0.02	0.20 ± 0.03	0.10 ± 0.01	0.08 ± 0.02	0.08 ± 0.01	0.08 ± 0.02
11/12- 11/20	0.09 ± 0.02	(a)	0.07 ± 0.01	0.12 ± 0.02	0.11 ± 0.02	0.09 ± 0.02	0.10 ± 0.02
11/20- 11/25	0.07 ± 0.02	0.09 ± 0.02	0.11 ± 0.03	0.13 ± 0.02	0.09 ± 0.03	0.12 ± 0.03	0.08 ± 0.03
11/25- 12/2	0.05 ± 0.02	0.10 ± 0.03	0.04 ± 0.02	0.06 ± 0.02	0.04 ± 0.01	0.06 ± 0.02	0.06 ± 0.02
12/2 - 12/10	0.05 ± 0.02	0.03 ± 0.01	0.04 ± 0.02	0.04 ± 0.02	0.05 ± 0.02	0.05 ± 0.02	0.04 ± 0.01
12/10- 12/18	0.06 ± 0.02	0.05 ± 0.02	0.05 ± 0.02	0.07 ± 0.02	0.05 ± 0.02	0.06 ± 0.02	0.05 ± 0.02
12/18- 12/26	0.02 ± 0.01	0.02 ± 0.01	0.02 ± 0.01	0.02 ± 0.02	0.03 ± 0.01	0.04 ± 0.02	<0.02
12/26- 1/1	<0.02	<0.01	<0.02	0.03 ± 0.02	0.03 ± 0.02	0.04 ± 0.02	<0.02

Collection Period - 1966	12A
2/4 - 2/11	0.02 ± 0.02
2/11 - 2/18	0.06 ± 0.02
2/18 - 2/25	0.05 ± 0.02
2/25 - 3/4	0.05 ± 0.01
3/4 - 3/11	0.06 ± 0.01
3/11 - 3/18	0.07 ± 0.01
3/18 - 3/25	0.06 ± 0.01
3/25 - 4/1	0.10 ± 0.01
4/1 - 4/7	0.04 ± 0.01
4/7 - 4/15	0.04 ± 0.01
4/15 - 4/22	0.08 ± 0.01
4/22 - 4/29	0.09 ± 0.02
4/29 - 5/6	0.07 ± 0.01
5/6 - 5/13	0.10 ± 0.02
5/13 - 5/20	0.14 ± 0.02
5/20 - 5/27	0.24 ± 0.02
5/27 - 6/3	0.19 ± 0.02
6/3 - 6/10	0.30 ± 0.02
6/10 - 6/17	0.11 ± 0.01
6/17 - 6/24	0.20 ± 0.02
6/24 - 7/1	0.18 ± 0.02
7/1 - 7/8	0.17 ± 0.02
7/8 - 7/15	0.16 ± 0.02
7/15 - 7/22	0.12 ± 0.01
7/22 - 7/29	0.11 ± 0.02
7/29 - 8/5	0.09 ± 0.02
8/5 - 8/12	0.07 ± 0.01
8/12 - 8/19	0.05 ± 0.01
8/19 - 8/26	0.04 ± 0.01
8/26 - 9/2	0.07 ± 0.01
9/2 - 9/9	0.05 ± 0.01
9/9 - 9/16	0.06 ± 0.01
9/16 - 9/22	<0.01
9/22 - 9/30	0.04 ± 0.01
9/30 - 10/7	<0.01
10/7 - 10/14	0.04 ± 0.01
10/14 - 10/21	<0.01
10/21 - 10/28	0.02 ± 0.01
10/28 - 11/4	0.04 ± 0.01
11/4 - 11/10	0.07 ± 0.01
11/10 - 11/21	0.19 ± 0.02
11/21 - 11/25	<0.01
11/25 - 12/2	0.06 ± 0.01
12/2 - 12/12	0.08 ± 0.02
12/12 - 12/16	0.02 ± 0.01
12/16 - 12/23	0.03 ± 0.01
12/23 - 1/1/67	(b)

(a) Pump breakdown - no sample.

(b) No sample received.

TABLE 1.2
ANALYTICAL DATA FOR AIR PARTICULATE SAMPLES
Concentration of Gross Beta Radioactivity (pCi/m^3)

Collection Period-1967	1A	1B	2	3A	4A	4B	5	6B
1/1 - 1/8	0.99 ± 0.04		0.88 ± 0.04	0.95 ± 0.04	2.18 ± 0.07	1.03 ± 0.05	0.84 ± 0.03	0.33 ± 0.03
1/8 - 1/14	0.07 ± 0.02		0.04 ± 0.02	0.35 ± 0.03	0.07 ± 0.02	0.08 ± 0.02	0.06 ± 0.02	0.03 ± 0.02
1/14- 1/21	0.11 ± 0.02		0.18 ± 0.02	0.16 ± 0.02	0.39 ± 0.03	0.13 ± 0.02	0.16 ± 0.02	(a)
1/21- 1/28	0.09 ± 0.02		0.10 ± 0.02	0.08 ± 0.02	0.08 ± 0.02	0.08 ± 0.02	0.10 ± 0.02	(a)
1/28- 2/4	0.14 ± 0.01		0.13 ± 0.02	0.15 ± 0.02	0.26 ± 0.02	0.15 ± 0.07	0.12 ± 0.02	(a)
2/4 - 2/11	0.08 ± 0.02		0.06 ± 0.02	0.07 ± 0.02	0.08 ± 0.02	0.07 ± 0.02	0.09 ± 0.02	(a)
2/11- 2/19	0.07 ± 0.02		0.06 ± 0.02	0.08 ± 0.02	0.08 ± 0.02	0.08 ± 0.02	0.08 ± 0.02	(a)
2/19- 2/26	0.05 ± 0.02		0.08 ± 0.02	0.06 ± 0.02	0.04 ± 0.02	0.05 ± 0.02	0.06 ± 0.02	0.08 ± 0.02
2/26- 3/4	(a)		0.09 ± 0.02	<0.02	0.09 ± 0.03	0.10 ± 0.02	0.09 ± 0.03	0.11 ± 0.03
3/4 - 3/11	0.09 ± 0.02		0.07 ± 0.02	(a)	0.10 ± 0.02	0.09 ± 0.02	0.08 ± 0.02	0.09 ± 0.02
3/11- 3/18	0.08 ± 0.02		0.13 ± 0.04	0.07 ± 0.02	0.10 ± 0.02	0.09 ± 0.02	0.12 ± 0.02	0.09 ± 0.02
3/18- 3/25	0.04 ± 0.02		<0.02	0.03 ± 0.02	0.05 ± 0.02	0.03 ± 0.02	0.04 ± 0.02	<0.02
3/25- 3/31	0.05 ± 0.02		0.05 ± 0.02	0.04 ± 0.02	0.07 ± 0.02	0.05 ± 0.02	0.05 ± 0.02	0.03 ± 0.02
3/31- 4/8	0.11 ± 0.02		0.10 ± 0.02	0.11 ± 0.02	0.10 ± 0.02	0.10 ± 0.02	0.11 ± 0.07	0.10 ± 0.02
4/8 - 4/15	0.12 ± 0.02		0.12 ± 0.02	<0.12(b)	0.11 ± 0.02	0.08 ± 0.02	0.14 ± 0.02	0.09 ± 0.02
4/.. - 4/22	0.04 ± 0.02		0.04 ± 0.02	0.03 ± 0.02	0.05 ± 0.02	0.05 ± 0.02	0.05 ± 0.02	0.04 ± 0.02
4/22- 4/29	0.09 ± 0.02		0.09 ± 0.02	0.07 ± 0.02	0.12 ± 0.02	0.08 ± 0.02	0.08 ± 0.02	0.09 ± 0.02
4/29- 5/5	0.08 ± 0.02		0.06 ± 0.03	0.08 ± 0.03	0.08 ± 0.03	0.09 ± 0.03	0.06 ± 0.02	0.07 ± 0.02
5/5 - 5/12	<0.02		<0.02	<0.02	<0.02	<0.01	0.03 ± 0.02	0.04 ± 0.02
5/12- 5/20	0.02 ± 0.02		0.02 ± 0.02	0.02 ± 0.02	0.02 ± 0.02	<0.02	<0.02	<0.02
5/20- 5/27	0.04 ± 0.02		0.04 ± 0.02	<0.02	0.02 ± 0.02	0.03 ± 0.02	0.04 ± 0.02	0.04 ± 0.02
5/27- 6/3	0.04 ± 0.02		0.02 ± 0.02	<0.02	0.03 ± 0.02	0.02 ± 0.02	<0.02	<0.02
6/3 - 6/11	0.03 ± 0.02		0.05 ± 0.02	0.03 ± 0.02	0.02 ± 0.02	0.04 ± 0.02	0.04 ± 0.02	<0.02
6/11- 6/19	<0.02		<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
6/19- 6/24	<0.03		<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
6/24- 6/30	<0.02		0.03 ± 0.02	<0.02	<0.02	0.04 ± 0.02	0.02 ± 0.02	<0.02
6/30- 7/7	<0.01		<0.01	<0.01	0.02 ± 0.02	<0.01	<0.01	0.02 ± 0.02
7/7 - 7/15	<0.01		<0.01	<0.01	0.02 ± 0.01	.2 ± 0.01	0.02 ± 0.01	<0.01
7/15- 7/21	0.05 ± 0.02		0.04 ± 0.02	0.05 ± 0.02	0.02 ± 0.02	.04 ± 0.02	0.03 ± 0.02	0.02 ± 0.02
7/21- 7/31	0.035 ± 0.009		0.03 ± 0.01	0.04 ± 0.01	0.05 ± [illegible]	0.023± 0.009	0.04 ± 0.01	0.04 ± 0.01
7/31- 8/5	0.04 ± 0.02		0.07 ± 0.02	<0.02	0.03 ± 0.02	0.04 ± 0.02	0.07 ± 0.02	[illegible]
8/5 - 8/12	<0.01	0.02 ± 0.01	0.05 ± 0.02	0.018± 0.009	<0.01	0.03 ± 0.01	0.03 ± 0.01	0.03 ± 0.01
8/12- 8/20	0.05 ± 0.01	0.03 ± 0.01	0.04 ± 0.02	0.02 ± 0.01	0.03 ± 0.01	0.03 ± 0.02	0.02 ± 0.01	0.02 ± 0.01
8/20- 8/26	0.02 ± 0..2	0.02 ± 0.01	0.03 ± 0.02	0.02 ± 0.02	<0.02	<0.02	0.02 ± 0.02	0.02 ± 0.02
8/26- 9/2	<0.01	0.02 ± 0.01	0.02 ± 0.02	<0.01	0.08 ± 0.02	0.02 ± 0.01	0.03 ± 0.01	0.04 ± 0.02
9/2 - 9/8	0.06 ± 0.02	0.04 ± 0.02	0.05 ± 0.02	0.05 ± 0.02	0.03 ± 0.02	0.06 ± 0.02	0.05 ± 0.02	0.06 ± 0.02
9/8 - 9/17	0.02 ± 0.01	0.027± 0.008	0.04 ± 0.01	0.09 ± 0.04	0.02 ± 0.01	0.05 ± 0.01	0.05 ± 0.01	0.03 ± 0.01
9/17- 9/23	0.02 ± 0.02	0.03 ± 0.02	0.40 ± 0.04	0.05 ± 0.02	0.05 ± 0.02	0.03 ± 0.01	0.03 ± 0.01	0.05 ± 0.02
9/23- 9/30	0.03 ± 0.01	0.07 ± 0.03	0.04 ± 0.02	0.04 ± 0.02	0.02 ± 0.02	0.02 ± 0.02	0.02 ± 0.02	<0.02
9/30- 10/7	0.05 ± 0.02	0.10 ± 0.02	0.04 ± 0.02	0.05 ± 0.02	0.05 ± 0.02	0.05 ± 0.01	0.05 ± 0.01	0.05 ± 0.02
10/7 - 10/15	0.04 ± 0.01	0.12 ± 0.02	0.04 ± 0.02	0.06 ± 0.02	0.05 ± 0.02	0.05 ± 0.02	0.05 ± 0.02	0.06 ± 0.02
10/15- 10/22	0.05 ± 0.02	0.05 ± 0.02	0.05 ± 0.02	0.05 ± 0.02	0.06 ± 0.02	0.05 ± 0.02	0.04 ± 0.02	0.03 ± 0.02
10/22- 10/29	0.04 ± 0.01	0.029± 0.008	0.05 ± 0.02	0.04 ± 0.02	0.03 ± 0.01	0.03 ± 0.02	0.06 ± 0.02	0.05 ± 0.02
10/29- 11/5	0.03 ± 0.02	0.03 ± 0.02	0.06 ± 0.02	0.06 ± 0.02	0.15 ± 0.02	0.05 ± 0.02	0.06 ± 0.02	0.04 ± 0.02
11/5 - 11/12	0.04 ± 0.02	0.26 ± 0.02	0.06 ± 0.02	0.11 ± 0.02	0.06 ± 0.02	0.07 ± 0.02	0.06 ± 0.02	0.06 ± 0.02
11/12- 11/18	0.05 ± 0.02	0.05 ± 0.02	0.04 ± 0.02	0.05 ± 0.02	0.05 ± 0.02	0.04 ± 0.02	0.05 ± 0.02	0.03 ± 0.02
11/18- 11/26	0.04 ± 0.02	0.03 ± 0.01	0.04 ± 0.02	0.05 ± 0.02	0.03 ± 0.02	0.04 ± 0.01	0.04 ± 0.02	0.03 ± 0.01
11/26- 12/3	0.02 ± 0.02	0.10 ± 0.02	0.03 ± 0.02	0.11 ± 0.03	0.08 ± 0.02	0.08 ± 0.02	0.08 ± 0.03	0.05 ± 0.03
12/3 - 12/10	0.09 ± 0.02	0.05 ± 0.02	0.07 ± 0.02	0.03 ± 0.01	0.04 ± 0.01	0.03 ± 0.01	0.04 ± 0.01	0.06 ± 0.01
12/10- 12/16	0.02 ± 0.02	<0.02	0.02 ± 0.02	0.02 ± 0.02	0.04 ± 0.02	0.03 ± 0.01	0.04 ± 0.02	0.03 ± 0.02
12/16- 12/24	0.04 ± 0.01	0.07 ± 0.01	0.06 ± 0.01	0.06 ± 0.03	0.05 ± 0.02	0.07 ± 0.01	0.12 ± 0.02	0.04 ± 0.01
12/24- 12/29	0.07 ± 0.02	0.17 ± 0.03	(a)	0.05 ± 0.03	0.17 ± 0.03	0.05 ± 0.02	0.04 ± 0.02	0.03 ± 0.02

Collection Period-1967	12A
1/1 - 1/6	
1/6 - 1/13	0.03 ± 0.01
1/13 - 1/20	0.12 ± 0.01
1/20 - 1/27	0.07 ± 0.01
1/27 - 2/3	0.08 ± 0.01
2/3 - 2/10	0.10 ± 0.01
2/10 - 2/17	0.06 ± 0.01
2/17 - 2/24	0.04 ± 0.01
2/24 - 3/3	0.05 ± 0.01
3/3 - 3/10	0.03 ± 0.01
3/10 - 3/17	0.06 ± 0.01
3/17 - 3/23	0.03 ± 0.01
3/23 - 3/31	(a)
3/31 - 4/7	0.08 ± 0.01
4/7 - 4/14	0.08 ± 0.01
4/14 - 4/21	0.03 ± 0.01
4/21 - 4/28	0.06 ± 0.01
4/28 - 5/5	0.05 ± 0.01
5/5 - 5/12	0.03 ± 0.02
5/12 - 5/19	0.03 ± 0.02
5/19 - 5/26	(a)
5/26 - 6/2	(a)
6/2 - 6/9	0.02 ± 0.01
6/9 - 6/16	<0.01
6/16 - 6/23	0.02 ± 0.01
6/23 - 6/30	0.02 ± 0.01
6/30 - 7/7	0.018± 0.009
7/7 - 8/9	(a)
8/9 - 8/11	0.014± 0.009
8/11 - 8/25	(a)
8/2[illegible] - 8/26	0.10 ± 0.01
8/26 - 9/1	(a)
9/1 - 9/8	<0.01
9/8 - 9/15	<0.009
9/15 - 10/2	(a)
10/2 - 10/6	0.02 ± 0.01
10/6 - 10/13	0.03 ± 0.01
10/13 - 10/20	<0.01
10/20 - 10/27	0.015± 0.009
10/27 - 11/3	0.04 ± 0.01
11/3 - 11/10	0.04 ± 0.01
11/10 - 11/17	0.04 ± 0.01
11/17 - 11/24	0.055± 0.009
11/24 - 12/1	0.04 ± 0.01
12/1 - 12/8	0.04 ± 0.01
12/8 - 12/14	0.02 ± 0.01
12/14 - 12/21	0.03 ± 0.01
12/21 - 12/29	0.03 ± 0.01

(a) Pump breakdown - no sample.

(b) Sample represents less than one-half of the normal weekly volume due to equipment malfunction.

TABLE 1.3

ANALYTICAL DATA FOR AIR PARTICULATE SAMPLES

Concentration of Gross Beta Radioactivity (pCi/m^3)

Collection Period-1968	1A	1B	2	3A	4A	4B	5	6B	Collection Period-1968	12A
12/29 - 1/6	0.05 ± 0.01	0.054 ± 0.009	(a)	0.44 ± 0.03	0.43 ± 0.03	0.16 ± 0.02	0.05 ± 0.01	0.08 ± 0.02	12/29 - 1/5	0.08 ± 0.02
1/6 - 1/14	0.06 ± 0.01	0.13 ± 0.02	(a)	0.08 ± 0.02	0.07 ± 0.02	0.06 ± 0.01	0.10 ± 0.02	0.05 ± 0.02	1/5 - 1/12	0.07 ± 0.01
1/14 - 1/21	0.16 ± 0.02	0.20 ± 0.02	0.07 ± 0.02	0.17 ± 0.02	0.15 ± 0.02	0.19 ± 0.02	0.13 ± 0.02	0.10 ± 0.02	1/12 - 1/19	0.24 ± 0.02
1/21 - 1/27	0.14 ± 0.02	0.23 ± 0.02	0.18 ± 0.03	0.12 ± 0.02	0.14 ± 0.02	0.14 ± 0.02	0.11 ± 0.02	0.18 ± 0.03	1/19 - 1/26	0.16 ± 0.01
1/27 - 2/3	0.29 ± 0.03	0.13 ± 0.03	0.09 ± 0.02	0.13 ± 0.02	0.14 ± 0.02	0.13 ± 0.02	0.16 ± 0.02	0.12 ± 0.02	1/26 - 2/2	0.21 ± 0.02
2/3 - 2/11	0.12 ± 0.02	0.12 ± 0.02	(a)	0.19 ± 0.02	0.19 ± 0.01	0.10 ± 0.02	0.12 ± 0.02	0.14 ± 0.02	2/2 - 2/9	0.15 ± 0.01
2/11 - 2/17	0.15 ± 0.02	0.14 ± 0.02	0.17 ± 0.02	0.19 ± 0.03	0.16 ± 0.02	0.18 ± 0.02	0.12 ± 0.02	0.11 ± 0.02	2/9 - 2/16	0.08 ± 0.01
2/17 - 2/24	0.16 ± 0.02	0.24 ± 0.03	0.23 ± 0.03	0.12 ± 0.02	0.18 ± 0.02	0.22 ± 0.03	0.16 ± 0.02	0.15 ± 0.02	2/16 - 2/23	0.14 ± 0.02
2/24 - 3/2	0.32 ± 0.02	0.27 ± 0.03	0.38 ± 0.03	0.32 ± 0.03	0.25 ± 0.02	0.34 ± 0.03	0.28 ± 0.03	0.27 ± 0.03	2/23 - 3/1	0.34 ± 0.02
3/2 - 3/10	0.17 ± 0.02	0.17 ± 0.02	0.15 ± 0.02	0.25 ± 0.02	0.16 ± 0.01	0.19 ± 0.02	0.19 ± 0.02	0.16 ± 0.02	3/1 - 3/8	0.17 ± 0.02
3/10 - 3/15	0.09 ± 0.02	0.12 ± 0.02	0.12 ± 0.02	0.08 ± 0.02	0.1[illegible] ± 0.02	0.12 ± 0.02	0.15 ± 0.03	0.14 ± 0.02	3/8 - 3/11	0.18 ± 0.03
3/15 - 3/22	0.08 ± 0.02	0.07 ± 0.01	0.05 ± 0.02	0.08 ± 0.02	0.05 ± 0.02	0.10 ± 0.02	0.08 ± 0.02	0.09 ± 0.02	3/11 - 3/22	0.08 ± 0.01
3/22 - 3/30	0.26 ± 0.02	0.30 ± 0.03	0.30 ± 0.03	0.24 ± 0.02	0.24 ± 0.02	0.23 ± 0.02	0.22 ± 0.02	0.26 ± 0.02	3/22 - 3/29	0.20 ± 0.02
3/30 - 4/6	0.26 ± 0.02	0.24 ± 0.02	0.27 ± 0.02	0.27 ± 0.02	0.18 ± 0.02	0.22 ± 0.02	0.30 ± 0.03	0.21 ± 0.02	3/29 - 4/5	0.23 ± 0.02
4/6 - 4/12	0.23 ± 0.03	0.27 ± 0.03	0.25 ± 0.03	0.22 ± 0.03	0.25 ± 0.03	0.25 ± 0.02	0.22 ± 0.02	0.20 ± 0.03	4/5 - 4/11	0.18 ± 0.01
4/12 - 4/20	0.27 ± 0.02	0.30 ± 0.07	0.27 ± 0.01	0.29 ± 0.02	0.28 ± 0.02	0.30 ± 0.02	0.29 ± 0.01	0.30 ± 0.02	4/11 - 4/19	0.33 ± 0.02
4/20 - 4/27	0.10 ± 0.02	0.08 ± 0.02	0.13 ± 0.02	0.12 ± 0.02	0.15 ± 0.02	0.10 ± 0.02	0.12 ± 0.02	0.12 ± 0.01	4/19 - 4/26	0.15 ± 0.02
4/27 - 5/4	0.20 ± 0.02	0.18 ± 0.02	0.23 ± 0.02	0.24 ± 0.02	0.22 ± 0.02	0.18 ± 0.02	0.25 ± 0.03	0.21 ± 0.03	4/26 - 5/3	0.20 ± 0.01
5/4 - 5/10	0.18 ± 0.03	0.18 ± 0.02	0.20 ± 0.03	0.20 ± 0.02	0.25 ± 0.02	0.22 ± 0.02	0.25 ± 0.03	0.17 ± 0.03	5/3 - 5/10	0.24 ± 0.01
5/10 - 5/18	0.16 ± 0.02	0.14 ± 0.02	0.14 ± 0.02	0.14 ± 0.02	0.12 ± 0.01	0.13 ± 0.02	0.07 ± 0.02	0.11 ± 0.03	5/10 - 5/17	0.18 ± 0.02
5/18 - 5/25	0.13 ± 0.02	0.05 ± 0.02	0.16 ± 0.02	0.11 ± 0.02	0.13 ± 0.02	0.14 ± 0.02	0.12 ± 0.02	0.12 ± 0.02	5/17 - 5/25	0.14 ± 0.01
5/25 - 6/1	0.12 ± 0.02	0.12 ± 0.02	0.11 ± 0.02	0.13 ± 0.02	[illegible] ± 0.02	0.11 ± 0.02	0.08 ± 0.02	0.08 ± 0.02	5/27 - 5/31	0.13 ± 0.02
6/1 - 6/8	0.16 ± 0.02	0.11 ± 0.02	0.07 ± 0.02	0.14 ± 0.02	0.13 ± 0.01	0.11 ± 0.02	0.09 ± 0.02	0.13 ± 0.02	5/31 - 6/7	0.14 ± 0.02
6/8 - 6/16	0.12 ± 0.02	0.09 ± 0.02	0.15 ± 0.02	0.14 ± 0.02	0.09 ± 0.02	0.12 ± 0.02	0.13 ± 0.02	0.15 ± 0.02	6/7 - 6/14	[illegible] 16 ± 0.02
6/16 - 6/24	0.20 ± 0.02	0.24 ± 0.02	0.27 ± 0.03	0.21 ± 0.02	0.27 ± 0.02	0.26 ± 0.02	0.25 ± 0.02	0.24 ± 0.03	6/14 - 6/20	[illegible].16 ± 0.02
6/24 - 6/29	0.09 ± 0.02	0.07 ± 0.02	0.06 ± 0.02	0.10 ± 0.03	0.10 ± 0.03	0.13 ± 0.03	0.10 ± 0.03	0.08 ± 0.03	6/20 - 6/28	0.18 ± 0.02
6/29 - 7/7	0.21 ± 0.02	0.20 ± 0.02	0.22 ± 0.02	0.21 ± 0.02	0.21 ± 0.02	0.22 ± 0.01	0.20 ± 0.02	0.21 ± 0.02	6/28 - 7/5	0.19 ± 0.02
7/7 - 7/13	0.23 ± 0.03	0.22 ± 0.02	0.24 ± 0.03	0.23 ± 0.02	0.24 ± 0.03	0.26 ± 0.03	0.22 ± 0.03	0.28 ± 0.03	7/5 - 7/12	0.22 ± 0.02
7/13 - 7/21	0.12 ± 0.02	0.13 ± 0.03	0.13 ± 0.02	0.11 ± 0.02	0.10 ± 0.01	0.11 ± 0.02	0.12 ± 0.02	0.12 ± 0.02	7/12 - 7/18	0.10 ± 0.02
7/21 - 7/27	0.18 ± 0.02	0.19 ± 0.03	0.19 ± 0.03	0.17 ± 0.02	0.14 ± 0.02	0.19 ± 0.03	0.14 ± 0.03	0.14 ± 0.03	7/18 - 7/26	0.14 ± 0.02
7/27 - 8/3	0.18 ± 0.02	0.19 ± 0.02	0.16 ± 0.03	0.17 ± 0.03	0.14 ± 0.02	0.16 ± 0.03	0.13 ± 0.02	0.15 ± 0.02	7/26 - 8/2	0.16 ± 0.02
8/3 - 8/10	0.09 ± 0.02	0.09 ± 0.02	0.11 ± 0.02	0.12 ± 0.02	0.13 ± 0.02	0.16 ± 0.02	0.11 ± 0.02	0.10 ± 0.02	8/2 - 8/9	0.12 ± 0.01
8/10 - 8/16	0.18 ± 0.02	0.19 ± 0.02	0.18 ± 0.02	0.19 ± 0.02	0.14 ± 0.02	0.20 ± 0.02	0.20 ± 0.02	0.15 ± 0.02	8/9 - 8/16	0.11 ± 0.01
8/16 - 8/23	0.10 ± 0.02	0.24 ± 0.03	0.12 ± 0.02	0.10 ± 0.02	0.11 ± 0.02	0.10 ± 0.02	0.09 ± 0.02	0.08 ± 0.02	8/16 - 8/23	0.12 ± 0.02
8/23 - 8/30	0.11 ± 0.01	0.11 ± 0.01	0.14 ± 0.02	0.10 ± 0.02	0.09 ± 0.02	0.10 ± 0.02	0.12 ± 0.02	0.09 ± 0.02	8/23 - 8/30	0.08 ± 0.01
8/30 - 9/8	0.11 ± 0.02	0.11 ± 0.01	0.14 ± 0.02	0.04 ± 0.01	0.13 ± 0.02	0.15 ± 0.02	0.10 ± 0.02	0.13 ± 0.02	8/30 - 9/9	(b)
9/8 - 9/13	0.09 ± 0.02	0.09 ± 0.01	0.09 ± 0.02	0.09 ± 0.01	0.11 ± 0.02	0.09 ± 0.02	0.09 ± 0.02	0.11 ± 0.02	9/9 - 9/13	0.12 ± 0.02
9/13 - 9/20	0.16 ± 0.02	0.16 ± 0.02	0.11 ± 0.02	0.12 ± 0.02	0.08 ± 0.02	0.13 ± 0.02	0.09 ± 0.02	0.12 ± 0.02	9/13 - 9/20	0.14 ± 0.02
9/20 - 9/27	0.15 ± 0.02	0.16 ± 0.02	0.14 ± 0.02	0.06 ± 0.01	0.13 ± 0.02	0.12 ± 0.01	0.17 ± 0.02	0.14 ± 0.02	9/20 - 9/27	0.16 ± 0.01
9/27 - 10/4	0.10 ± 0.02	0.08 ± 0.01	0.13 ± 0.02	0.11 ± 0.02	0.10 ± 0.02	0.12 ± 0.02	0.11 ± 0.02	0.12 ± 0.02	9/27 - 10/4	0.13 ± 0.01
10/4 - 10/11	0.05 ± 0.02	0.02 ± 0.01	0.04 ± 0.02	0.03 ± 0.02	0.05 ± 0.02	0.03 ± 0.02	0.04 ± 0.02	0.05 ± 0.02	10/4 - 10/11	0.05 ± 0.01
10/11 - 10/19	0.04 ± 0.02	0.06 ± 0.01	0.11 ± 0.02	0.06 ± 0.02	0.04 ± 0.01	0.08 ± 0.02	0.05 ± 0.02	0.06 ± 0.02	10/11 - 10/18	0.08 ± 0.01
10/19 - 10/27	(a)	0.07 ± 0.01	0.07 ± 0.01	0.05 ± 0.01	0.07 ± 0.01	0.10 ± 0.02	0.07 ± 0.02	0.06 ± 0.02	10/18 - 10/25	0.10 ± 0.01
10/27 - 11/2	0.06 ± 0.02	0.03 ± 0.02	0.06 ± 0.02	0.07 ± 0.02	0.05 ± 0.02	0.06 ± 0.02	0.05 ± 0.02	0.04 ± 0.02	10/25 - 11/1	0.06 ± 0.01
11/2 - 11/10	0.07 ± 0.01	(a)	0.07 ± 0.01	0.07 ± 0.01	0.07 ± 0.01	0.08 ± 0.01	0.05 ± 0.01	0.07 ± 0.02	11/1 - 11/8	0.10 ± 0.01
11/10 - 11/16	0.03 ± 0.02	0.05 ± 0.01	0.08 ± 0.02	<.02	0.04 ± 0.02	0.02 ± 0.02	0.04 ± 0.02	0.03 ± 0.02	11/8 - 11/15	0.03 ± 0.01
11/16 - 11/23	0.06 ± 0.01	(a)	0.04 ± 0.01	0.05 ± 0.01	0.04 ± 0.02	0.06 ± 0.02	0.05 ± 0.02	0.06 ± 0.02	11/15 - 11/22	0.02 ± 0.01
11/23 - 11/29	0.05 ± 0.02	0.06 ± 0.02	0.05 ± 0.02	0.06 ± 0.02	0.07 ± 0.02	0.05 ± 0.02	0.07 ± 0.02	0.06 ± 0.02	11/22 - 11/29	0.05 ± 0.01
11/29 - 12/8	0.04 ± 0.01	0.02 ± 0.01	0.03 ± 0.01	0.03 ± 0.01	0.03 ± 0.01	0.04 ± 0.01	0.04 ± 0.01	0.04 ± 0.01	11/29 - 12/6	0.03 ± 0.01
12/8 - 12/14	0.10 ± 0.02	0.12 ± 0.02	0.14 ± 0.03	0.10 ± 0.02	0.07 ± 0.02	0.10 ± 0.02	0.07 ± 0.02	0.12 ± 0.02	12/6 - 12/13	0.05 ± 0.01
12/14 - 12/23	0.08 ± 0.01	0.08 ± 0.02	0.09 ± 0.02	0.07 ± 0.02	0.08 ± 0.02	0.07 ± 0.02	0.07 ± 0.02	0.09 ± 0.01	12/13 - 12/20	0.12 ± 0.01
12/23 - 12/30	0.07 ± 0.02	0.06 ± 0.02	0.07 ± 0.02	0.06 ± 0.02	0.07 ± 0.02	0.06 ± 0.02	0.05 ± 0.02	0.05 ± 0.02	12/20 - 12/27	0.04 ± 0.01

(a) Pump breakdown - no sample.

(b) No sample received.

TABLE 1.4

ANALYTICAL DATA FOR AIR PARTICULATE SAMPLES

Concentration of Gross Beta Radioactivity (pCi/m³)

Collection Period-1969	1A	1B	2	3A	4A	4B	5	6B
12/30 - 1/5	0.06 ± 0.02	0.07 ± 0.02	0.08 ± 0.02	0.06 ± 0.03	0.08 ± 0.03	0.11 ± 0.02	0.12 ± 0.03	0.09 ± 0.03
1/5 - 1/11	0.09 ± 0.03	0.06 ± 0.02	0.08 ± 0.02	0.08 ± 0.02	0.08 ± 0.02	0.09 ± 0.02	0.08 ± 0.02	0.06 ± 0.02
1/11 - 1/18	0.06 ± 0.02	0.07 ± 0.02	0.06 ± 0.02	0.07 ± 0.02	0.05 ± 0.02	0.06 ± 0.02	0.04 ± 0.02	0.06 ± 0.01
1/18 - 1/26	0.09 ± 0.02	0.08 ± 0.02	<.01	0.08 ± 0.02	0.08 ± 0.02	0.09 ± 0.02	0.09 ± 0.02	0.05 ± 0.02
1/26 - 2/2	0.05 ± 0.02	0.04 ± 0.02	0.03 ± 0.02	0.05 ± 0.01	0.04 ± 0.01	0.05 ± 0.02	0.03 ± 0.02	0.04 ± 0.02
2/2 - 2/8	0.09 ± 0.02	0.03 ± 0.01	0.08 ± 0.02	0.078 ± 0.004	0.07 ± 0.02	0.10 ± 0.03	0.04 ± 0.02	0.07 ± 0.02
2/8 - 2/15	0.07 ± 0.01	0.09 ± 0.01	0.06 ± 0.01	0.07 ± 0.01	0.07 ± 0.01	0.07 ± 0.02	(a)	0.03 ± 0.01
2/15 - 2/22	0.06 ± 0.01	0.05 ± 0.01	0.07 ± 0.01	0.07 ± 0.01	0.05 ± 0.01	0.06 ± 0.01	0.07 ± 0.01	0.05 ± 0.01
2/22 - 3/2	0.06 ± 0.01	0.06 ± 0.01	0.05 ± 0.01	0.06 ± 0.01	0.06 ± 0.01	0.06 ± 0.01	0.06 ± 0.01	0.05 ± 0.01
3/2 - 3/9	0.11 ± 0.01	0.14 ± 0.01	0.11 ± 0.01	0.10 ± 0.01	0.09 ± 0.01	0.15 ± 0.01	0.11 ± 0.01	0.09 ± 0.01
3/9 - 3/15	0.08 ± 0.01	0.08 ± 0.01	0.09 ± 0.01	0.11 ± 0.01	0.07 ± 0.01	0.10 ± 0.01	0.07 ± 0.01	0.09 ± 0.01
3/15 - 3/23	0.13 ± 0.01	0.12 ± 0.01	0.20 ± 0.01	0.13 ± 0.01	0.11 ± 0.01	0.16 ± 0.01	0.11 ± 0.01	0.11 ± 0.01
3/23 - 3/30	0.07 ± 0.01	0.06 ± 0.01	0.07 ± 0.01	0.07 ± 0.01	0.06 ± 0.01	0.08 ± 0.01	0.08 ± 0.01	0.06 ± 0.01
3/30 - 4/7	0.12 ± 0.01	0.11 ± 0.01	0.12 ± 0.01	0.11 ± 0.01	0.10 ± 0.01	0.12 ± 0.01	0.11 ± 0.01	0.11 ± 0.01
4/7 - 4/13	0.16 ± 0.01	0.14 ± 0.01	0.17 ± 0.02	0.16 ± 0.02	0.14 ± 0.01	0.16 ± 0.01	0.16 ± 0.01	0.12 ± 0.01
4/13 - 4/20	0.12 ± 0.01	0.12 ± 0.01	0.12 ± 0.01	0.13 ± 0.01	0.10 ± 0.01	0.14 ± 0.01	0.09 ± 0.01	0.10 ± 0.01
4/20 - 4/27	0.14 ± 0.01	0.15 ± 0.01	0.14 ± 0.01	0.15 ± 0.01	0.08 ± 0.01	0.17 ± 0.01	0.68 ± 0.02	0.11 ± 0.01
4/27 - 5/3	0.17 ± 0.01	0.17 ± 0.01	0.22 ± 0.02	0.18 ± 0.01	(a)	0.47 ± 0.03	0.13 ± 0.01	0.13 ± 0.01
5/3 - 5/11	0.21 ± 0.01	0.24 ± 0.01	0.13 ± 0.01	0.25 ± 0.01	0.23 ± 0.01	0.44 ± 0.02	0.20 ± 0.01	0.27 ± 0.04
5/11 - 5/18	0.20 ± 0.01	0.20 ± 0.01	0.26 ± 0.02	0.23 ± 0.01	0.20 ± 0.01	0.24 ± 0.01	0.18 ± 0.01	0.27 ± 0.02
5/18 - 5/25	0.23 ± 0.01	0.21 ± 0.01	0.23 ± 0.01	0.24 ± 0.01	0.22 ± 0.01	0.25 ± 0.01	0.21 ± 0.01	0.23 ± 0.01
5/25 - 5/31	0.54 ± 0.02	0.54 ± 0.02	0.55 ± 0.02	0.540 ± 0.002	0.50 ± 0.02	0.60 ± 0.02	0.39 ± 0.02	0.51 ± 0.02
5/31 - 6/7	0.43 ± 0.02	0.44 ± 0.02	0.42 ± 0.02	0.48 ± 0.02	0.38 ± 0.02	0.48 ± 0.02	0.34 ± 0.02	0.43 ± 0.02
6/7 - 6/13	0.43 ± 0.02	0.47 ± 0.02	0.45 ± 0.02	0.43 ± 0.02	0.40 ± 0.02	0.47 ± 0.02	0.35 ± 0.02	0.41 ± 0.02
6/13 - 6/20	0.43 ± 0.02	0.42 ± 0.02	0.44 ± 0.02	0.45 ± 0.02	0.37 ± 0.02	(a)	0.33 ± 0.02	0.40 ± 0.02
6/20 - 6/27	0.47 ± 0.01	0.47 ± 0.01	0.47 ± 0.01	0.48 ± 0.02	0.51 ± 0.02	0.53 ± 0.01	0.39 ± 0.01	0.48 ± 0.01
6/27 - 7/5	0.38 ± 0.02	0.34 ± 0.01	0.35 ± 0.02	0.36 ± 0.02	0.32 ± 0.01	0.36 ± 0.01	0.73 ± 0.01	0.31 ± 0.01
7/5 - 7/13	0.27 ± 0.01	0.27 ± 0.01	0.27 ± 0.01	0.26 ± 0.01	0.19 ± 0.01	0.17 ± 0.01	0.20 ± 0.01	0.27 ± 0.01
7/13 - 7/19	0.36 ± 0.02	0.38 ± 0.02	0.39 ± 0.02	0.36 ± 0.02	0.33 ± 0.02	0.36 ± 0.02	0.25 ± 0.01	0.33 ± 0.02
7/19 - 7/28	0.23 ± 0.01	0.23 ± 0.01	0.22 ± 0.01	0.11 ± 0.01	0.20 ± 0.01	0.24 ± 0.01	0.20 ± 0.01	0.23 ± 0.01
7/28 - 8/4	0.28 ± 0.02	0.35 ± 0.02	0.39 ± 0.02	(a)	0.34 ± 0.02	0.41 ± 0.02	0.29 ± 0.01	0.37 ± 0.02
8/4 - 8/11	(a)	0.50 ± 0.02	0.49 ± 0.02	0.52 ± 0.02	0.38 ± 0.02	0.48 ± 0.02	0.36 ± 0.02	0.42 ± 0.02
8/11 - 8/18	(a)	0.24 ± 0.01	0.29 ± 0.02	0.28 ± 0.02	0.24 ± 0.01	0.27 ± 0.01	0.21 ± 0.01	0.25 ± 0.01
8/18 - 8/23	(a)	0.32 ± 0.02	0.37 ± 0.02	0.39 ± 0.03	0.31 ± 0.02	0.34 ± 0.02	0.28 ± 0.02	0.32 ± 0.02
8/23 - 8/31	(a)	0.43 ± 0.01	0.43 ± 0.01	0.47 ± 0.02	0.48 ± 0.06	0.42 ± 0.02	0.38 ± 0.01	0.43 ± 0.02
8/31 - 9/6	0.30 ± 0.01	0.33 ± 0.01	0.34 ± 0.01	0.29 ± 0.01	0.30 ± 0.01	0.39 ± 0.01	0.26 ± 0.01	0.32 ± 0.01
9/6 - 9/13	0.24 ± 0.01	0.26 ± 0.01	0.29 ± 0.02	0.24 ± 0.01	0.25 ± 0.01	0.46 ± 0.02	0.19 ± 0.01	0.24 ± 0.01
9/13 - 9/19	0.23 ± 0.01	0.26 ± 0.01	0.26 ± 0.02	0.25 ± 0.02	0.24 ± 0.02	0.25 ± 0.02	0.20 ± 0.01	0.25 ± 0.02
9/19 - 9/27	0.26 ± 0.01	0.24 ± 0.01	0.25 ± 0.01	0.25 ± 0.01	0.26 ± 0.02	0.27 ± 0.01	0.20 ± 0.01	0.24 ± 0.01
9/27 - 10/5	0.13 ± 0.01	0.13 ± 0.01	0.11 ± 0.01	0.16 ± 0.01	0.15 ± 0.01	0.13 ± 0.01	0.10 ± 0.01	0.11 ± 0.01
10/5 - 10/11	(a)	0.17 ± 0.01	0.17 ± 0.01	0.17 ± 0.02	0.18 ± 0.01	0.16 ± 0.01	0.13 ± 0.01	0.16 ± 0.01
10/11 - 10/19	0.13 ± 0.01	0.14 ± 0.01	0.14 ± 0.01	0.15 ± 0.01	0.14 ± 0.01	0.14 ± 0.01	0.11 ± 0.01	0.12 ± 0.01
10/19 - 10/25	0.13 ± 0.01	0.13 ± 0.01	0.14 ± 0.01	0.13 ± 0.01	0.14 ± 0.01	0.13 ± 0.01	0.11 ± 0.01	0.11 ± 0.01
10/25 - 11/1	0.11 ± 0.01	0.12 ± 0.01	0.12 ± 0.01	0.11 ± 0.01	0.13 ± 0.01	0.13 ± 0.01	0.10 ± 0.01	(a)
11/1 - 11/8	0.06 ± 0.01	0.05 ± 0.01	0.06 ± 0.01	0.05 ± 0.01	0.07 ± 0.01	0.05 ± 0.01	0.05 ± 0.01	(a)
11/8 - 11/16	0.08 ± 0.01	0.08 ± 0.01	0.08 ± 0.01	0.08 ± 0.01	0.09 ± 0.01	0.08 ± 0.01	0.06 ± 0.01	(a)
11/16 - 11/23	0.11 ± 0.01	0.11 ± 0.01	0.10 ± 0.01	0.11 ± 0.01	0.11 ± 0.01	0.11 ± 0.01	0.08 ± 0.01	(a)
11/23 - 11/30	0.10 ± 0.01	0.090 ± 0.005	0.10 ± 0.01	0.09 ± 0.01	0.09 ± 0.01	0.10 ± 0.01	0.06 ± 0.01	(a)
11/30 - 12/7	0.08 ± 0.01	0.09 ± 0.01	0.09 ± 0.01	0.10 ± 0.01	0.09 ± 0.01	0.09 ± 0.01	0.03 ± 0.01	(a)
12/7 - 12/14	0.08 ± 0.01	0.06 ± 0.01	0.08 ± 0.01	0.08 ± 0.01	0.08 ± 0.01	0.07 ± 0.01	0.03 ± 0.01	(a)
12/14 - 12/21	0.08 ± 0.01	0.08 ± 0.01	0.10 ± 0.01	0.09 ± 0.01	0.09 ± 0.01	0.09 ± 0.01	(a)	(a)
12/21 - 12/29	0.10 ± 0.01	0.09 ± 0.01	0.06 ± 0.02	0.10 ± 0.01	0.08 ± 0.01	0.09 ± 0.01	0.10 ± 0.01	(a)

Collection Period-1969	12A
12/28 - 1/3	0.05 ± 0.01
1/3 - 1/10	0.10 ± 0.02
1/10 - 1/17	0.06 ± 0.01
1/17 - 1/24	0.08 ± 0.01
1/24 - 1/31	0.04 ± 0.01
1/31 - 2/7	0.06 ± 0.01
2/7 - 2/14	0.05 ± 0.01
2/14 - 2/21	0.045 ± 0.009
2/21 - 2/28	0.06 ± 0.01
2/28 - 3/7	0.12 ± 0.01
3/7 - 3/14	0.09 ± 0.01
3/14 - 3/21	0.12 ± 0.02
3/21 - 3/28	0.078 ± 0.009
3/28 - 4/3	0.12 ± 0.01
4/3 - 4/11	0.124 ± 0.009
4/11 - 4/18	0.15 ± 0.01
4/18 - 4/25	0.089 ± 0.009
4/25 - 5/2	0.18 ± 0.01
5/2 - 5/9	0.26 ± 0.01
5/9 - 5/16	0.16 ± 0.01
5/16 - 5/23	0.27 ± 0.01
5/23 - 5/29	0.30 ± 0.01
5/29 - 6/6	0.46 ± 0.01
6/6 - 6/13	0.46 ± 0.01
6/13 - 6/20	0.44 ± 0.01
6/20 - 6/27	0.46 ± 0.01
6/27 - 7/3	0.43 ± 0.01
7/3 - 7/11	0.36 ± 0.01
7/11 - 7/18	0.34 ± 0.01
7/18 - 7/25	0.41 ± 0.01
7/25 - 8/1	0.29 ± 0.01
8/1 - 8/8	0.305 ± 0.009
8/8 - 8/11	0.39 ± 0.02
8/11 - 8/15	0.183 ± 0.007
8/15 - 8/22	0.212 ± 0.008
8/22 - 8/29	(a)
8/29 - 9/5	0.34 ± 0.01
9/5 - 9/12	0.21 ± 0.01
9/12 - 9/19	0.29 ± 0.01
9/19 - 9/26	0.27 ± 0.01
9/26 - 10/3	0.131 ± 0.005
10/3 - 10/10	0.151 ± 0.008
10/10 - 10/17	0.112 ± 0.006
10/17 - 10/24	0.14 ± 0.01
10/24 - 10/31	0.116 ± 0.009
10/31 - 11/7	0.08 ± 0.01
11/7 - 11/14	0.038 ± 0.006
11/14 - 11/21	0.122 ± 0.005
11/21 - 11/28	0.09 ± 0.01
11/28 - 12/5	0.081 ± 0.006
12/5 - 12/12	0.078 ± 0.008
12/12 - 12/19	0.083 ± 0.005
12/19 - 12/26	0.061 ± 0.008
12/26 - 1/2/70	0.153 ± 0.008

(a) No sample due to equipment malfunction.

TABLE 1.5

ANALYTICAL DATA FOR AIR PARTICULATE SAMPLES

Concentration of Gross Beta Radioactivity (pCi/m^3)

Collection Period-1970	1A	1B	2	3A	4A	4B	5	6B
12/29 - 1/4	0.10 ± 0.01	0.10 ± 0.01		0.10 ± 0.01	0.08 ± 0.01	0.10 ± 0.01	0.13 ± 0.01	(a)
1/4 - 1/11	0.12 ± 0.01	0.10 ± 0.01	0.11 ± 0.01	0.11 ± 0.01	0.12 ± 0.01	0.11 ± 0.01	0.10 ± 0.01	(a)
1/11 - 1/18	0.10 ± 0.01	0.10 ± 0.01	0.10 ± 0.01	0.11 ± 0.01	0.11 ± 0.01	0.10 ± 0.01	0.10 ± 0.01	(a)
1/18 - 1/25	0.08 ± 0.01	0.089 ± 0.008	0.07 ± 0.01	0.09 ± 0.01	0.09 ± 0.01	0.08 ± 0.01	0.08 ± 0.01	(a)
1/25 - 2/1	0.084 ± 0.008	0.086 ± 0.008	0.09 ± 0.01	0.07 ± 0.01	0.08 ± 0.01	0.08 ± 0.01	0.08 ± 0.01	(a)
2/1 - 2/8	0.125 ± 0.008	0.125 ± 0.008	0.118 ± 0.008	0.12 ± 0.01	0.14 ± 0.01	0.122 ± 0.008	0.125 ± 0.009	(a)
2/8 - 2/14	0.098 ± 0.008	0.102 ± 0.008	0.099 ± 0.008	0.10 ± 0.01	0.10 ± 0.01	0.103 ± 0.008	0.098 ± 0.009	(a)
2/14 - 2/21	0.140 ± 0.008	0.132 ± 0.006	0.149 ± 0.008	0.136 ± 0.008	0.15 ± 0.01	0.140 ± 0.008	0.148 ± 0.009	(a)
2/21 - 2/28	0.16 ± 0.01	0.16 ± 0.01	0.157 ± 0.008	0.16 ± 0.01	0.16 ± 0.01	0.16 ± 0.01	0.16 ± 0.01	(a)
2/28 - 3/7	0.4 ± 0.1(b)	0.13 ± 0.01	0.12 ± 0.01	(a)	0.16 ± 0.01	0.10 ± 0.01	0.12 ± 0.01	(a)
3/7 - 3/14	<1(b)	0.23 ± 0.01	0.26 ± 0.01	(a)	0.24 ± 0.01	(a)	0.23 ± 0.01	0.22 ± 0.01
3/14 - 3/21	0.16 ± 0.01	0.17 ± 0.01	0.17 ± 0.01	0.34 ± 0.05(b)	0.18 ± 0.01	0.17 ± 0.01	0.18 ± 0.01	0.15 ± 0.01
3/21 - 3/27	0.15 ± 0.01	0.17 ± 0.01	0.16 ± 0.01	0.21 ± 0.02	0.16 ± 0.01	0.14 ± 0.01	0.18 ± 0.01	0.16 ± 0.01
3/27 - 4/5	0.155 ± 0.008	0.146 ± 0.008	0.14 ± 0.008	0.102 ± 0.009	0.154 ± 0.009	0.150 ± 0.008	0.144 ± 0.008	0.141 ± 0.007
4/5 - 4/11	0.20 ± 0.02	0.23 ± 0.01	0.27 ± 0.01	0.25 ± 0.01	0.25 ± 0.01	0.25 ± 0.01	0.26 ± 0.01	0.24 ± 0.01
4/11 - 4/19	0.3 ± 0.1(b)	0.200 ± 0.008	0.20 ± 0.01	0.19 ± 0.02(b)	0.21 ± 0.01	0.23 ± 0.01	0.22 ± 0.01	0.22 ± 0.01
4/19 - 4/26	0.16 ± 0.07(b)	0.22 ± 0.01	0.22 ± 0.01	0.21 ± 0.03(b)	0.22 ± 0.01	0.24 ± 0.01	0.20 ± 0.01	0.22 ± 0.01
4/26 - 5/2	0.47 ± 0.07(b)	(a)	0.25 ± 0.01	1.0 ± 0.3(b)	0.27 ± 0.01	0.29 ± 0.01	0.27 ± 0.01	0.26 ± 0.01
5/2 - 5/10	0.31 ± 0.01	0.33 ± 0.01	0.319 ± 0.008	0.28 ± 0.01	0.32 ± 0.01	0.31 ± 0.01	0.32 ± 0.01	0.33 ± 0.01
5/10 - 5/17	0.28 ± 0.01	(a)	0.29 ± 0.01	0.24 ± 0.01	0.28 ± 0.01	0.27 ± 0.01	0.25 ± 0.01	0.28 ± 0.01
5/17 - 5/24	0.35 ± 0.01	0.34 ± 0.01	0.41 ± 0.02	0.35 ± 0.01	0.37 ± 0.02	0.38 ± 0.02	0.36 ± 0.02	0.38 ± 0.02
5/24 - 5/30	0.22 ± 0.01	0.21 ± 0.01	0.21 ± 0.02	0.19 ± 0.02	0.20 ± 0.02	0.22 ± 0.02	0.22 ± 0.02	0.20 ± 0.01
5/30 - 6/6	0.44 ± 0.01	0.43 ± 0.01	0.43 ± 0.02	0.45 ± 0.02	0.49 ± 0.02	0.50 ± 0.02	0.51 ± 0.02	0.50 ± 0.02
6/6 - 6/13	0.43 ± 0.02	0.50 ± 0.02	0.47 ± 0.02	0.42 ± 0.02	0.43 ± 0.02	0.42 ± 0.02	0.36 ± 0.02	0.38 ± 0.02
6/13 - 6/19	0.50 ± 0.02	0.56 ± 0.02	0.58 ± 0.02	0.52 ± 0.02	0.42 ± 0.02	0.53 ± 0.02	0.42 ± 0.02	0.59 ± 0.02
6/19 - 6/26	0.77 ± 0.02	0.82 ± 0.02	0.90 ± 0.02	0.78 ± 0.02	0.88 ± 0.02	0.85 ± 0.02	0.60 ± 0.02	0.83 ± 0.02
6/26 - 7/5	0.47 ± 0.01	0.50 ± 0.01	0.51 ± 0.01	0.40 ± 0.01	0.51 ± 0.02	0.48 ± 0.02	0.32 ± 0.01	0.54 ± 0.02
7/5 - 7/11	0.56 ± 0.02	0.40 ± 0.02	0.58 ± 0.02	0.48 ± 0.02	0.62 ± 0.02	0.56 ± 0.01	0.51 ± 0.02	0.57 ± 0.02
7/11 - 7/18	0.54 ± 0.02	0.42 ± 0.01	0.59 ± 0.02	0.42 ± 0.02	0.47 ± 0.02	0.40 ± 0.02	0.48 ± 0.02	0.54 ± 0.02
7/18 - 7/25	0.34 ± 0.01	0.33 ± 0.01	0.37 ± 0.02	0.31 ± 0.02	0.38 ± 0.02	0.35 ± 0.02	0.34 ± 0.02	0.38 ± 0.02
7/25 - 8/1	0.30 ± 0.01	0.31 ± 0.02	0.33 ± 0.01	0.25 ± 0.02	0.33 ± 0.02	0.30 ± 0.02	0.26 ± 0.01	0.31 ± 0.01
8/1 - 8/8	0.45 ± 0.02	0.49 ± 0.01	0.32 ± 0.02	0.39 ± 0.02	0.50 ± 0.02	0.47 ± 0.02	0.51 ± 0.02	0.38 ± 0.01
8/8 - 8/17	0.45 ± 0.01	0.49 ± 0.01	0.51 ± 0.01	0.39 ± 0.02	0.7 ± 0.2	0.49 ± 0.02	0.47 ± 0.01	0.48 ± 0.01
8/17 - 8/23	0.31 ± 0.02	0.15 ± 0.02	0.31 ± 0.02	0.29 ± 0.02	0.33 ± 0.02	0.24 ± 0.02	0.29 ± 0.02	0.30 ± 0.02
8/23 - 8/26	0.25 ± 0.02	0.24 ± 0.03(b)	0.27 ± 0.02	0.18 ± 0.02	0.28 ± 0.02	0.22 ± 0.03	0.24 ± 0.02	0.28 ± 0.02
8/28 - 9/5	0.169 ± 0.008	0.25 ± 0.01	0.26 ± 0.01	0.22 ± 0.01	0.26 ± 0.01	0.26 ± 0.01	0.24 ± 0.01	0.28 ± 0.01
9/5 - 9/12	(a)	0.22 ± 0.01	0.11 ± 0.01	0.20 ± 0.02	0.29 ± 0.01	0.19 ± 0.01	0.18 ± 0.01	0.22 ± 0.01
9/12 - 9/19	0.25 ± 0.01	0.29 ± 0.01	(a)	0.21 ± 0.01	0.30 ± 0.01	0.37 ± 0.01	0.26 ± 0.01	0.32 ± 0.01
9/19 - 9/26	0.17 ± 0.01	0.17 ± 0.01	0.20 ± 0.01	0.15 ± 0.01	0.17 ± 0.01	0.17 ± 0.01	0.15 ± 0.01	0.15 ± 0.01
9/26 - 10/2	0.20 ± 0.01	0.20 ± 0.01	0.23 ± 0.01	0.066 ± 0.008	0.156 ± 0.009	0.21 ± 0.01	0.183 ± 0.009	0.21 ± 0.01
10/2 - 10/10	0.22 ± 0.01	0.25 ± 0.01	0.26 ± 0.02	0.07 ± 0.06	(a)	0.26 ± 0.06(b)	0.21 ± 0.02	0.25 ± 0.02
10/10 - 10/18	0.16 ± 0.01	0.17 ± 0.01	0.15 ± 0.01	(a)	0.17 ± 0.01	0.17 ± 0.01	0.15 ± 0.01	0.16 ± 0.01
10/18 - 10/25	0.086 ± 0.008	0.09 ± 0.01	(a)	0.09 ± 0.01	0.10 ± 0.01	0.10 ± 0.01	0.10 ± 0.01	0.090 ± 0.009
10/25 - 11/1	0.100 ± 0.008	0.09 ± 0.01	0.09 ± 0.01	0.10 ± 0.01	0.14 ± 0.01	0.32 ± 0.03(b)	0.13 ± 0.01	0.13 ± 0.01
11/1 - 11/8	0.33 ± 0.02	0.38 ± 0.02	0.37 ± 0.02	0.30 ± 0.02	0.38 ± 0.02	0.38 ± 0.02	0.32 ± 0.02	0.36 ± 0.02
11/8 - 11/15	0.19 ± 0.01	0.20 ± 0.01	0.20 ± 0.01	0.20 ± 0.01	0.17 ± 0.01	0.17 ± 0.01	0.16 ± 0.01	0.19 ± 0.01
11/15 - 11/22	0.24 ± 0.01	0.16 ± 0.01	0.18 ± 0.01	0.16 ± 0.01	0.17 ± 0.01	0.16 ± 0.01	0.14 ± 0.01	0.15 ± 0.01
11/22 - 11/30	0.127 ± 0.008	0.14 ± 0.01	0.13 ± 0.01	0.12 ± 0.01	0.13 ± 0.01	0.13 ± 0.01	0.14 ± 0.01	0.13 ± 0.01
11/30 - 12/6	0.11 ± 0.01	[illegible] ± 0.01	0.15 ± 0.01	0.11 ± 0.01	0.14 ± 0.01	0.15 ± 0.01	0.13 ± 0.01	0.14 ± 0.01
12/6 - 12/13	0.12 ± 0.01	0.12 ± 0.01	0.13 ± 0.01	0.12 ± 0.01	0.11 ± 0.01	0.11 ± 0.01	0.13 ± 0.01	0.11 ± 0.01
12/13 - 12/19	0.09 ± 0.01	0.10 ± 0.01	0.09 ± 0.01	0.11 ± 0.01	0.11 ± 0.01	0.09 ± 0.01	0.08 ± 0.01	0.09 ± 0.01
12/19 - 12/28	0.19 ± 0.01	0.18 ± 0.01	0.21 ± 0.01	0.19 ± 0.01	0.18 ± 0.01	0.18 ± 0.01	0.19 ± 0.01	0.18 ± 0.01

Collection Period-1970	12A
1/2 - 1/9	0.085 ± 0.006
1/9 - 1/16	0.092 ± 0.006
1/16 - 1/23	0.078 ± 0.009
1/23 - 1/30	0.084 ± 0.009
1/30 - 2/6	0.088 ± 0.005
2/6 - 2/13	0.093 ± 0.005
2/13 - 2/20	0.123 ± 0.009
2/20 - 2/27	0.160 ± 0.008
2/27 - 3/6	0.120 ± 0.006
3/6 - 3/13	0.192 ± 0.009
3/13 - 3/20	0.20 ± 0.01
3/20 - 3/26	0.14 ± 0.01
3/26 - 4/3	0.205 ± 0.008
4/3 - 4/10	0.27 ± 0.01
4/10 - 4/17	0.22 ± 0.01
4/17 - 4/24	0.24 ± 0.01
4/24 - 5/1	0.32 ± 0.01
5/1 - 5/8	0.32 ± 0.01
5/8 - 5/15	0.60 ± 0.02
5/15 - 5/22	0.478 ± 0.008
5/22 - 5/28	0.49 ± 0.01
5/28 - 6/6	0.39 ± 0.01
6/6 - 6/12	0.42 ± 0.01
6/12 - 6/19	0.70 ± 0.01
6/19 - 6/26	0.94 ± 0.02
6/26 - 7/2	0.69 ± 0.02
7/2 - 7/10	0.59 ± 0.01
7/10 - 7/17	0.65 ± 0.02
7/17 - 7/24	0.52 ± 0.02
7/24 - 7/31	0.25 ± 0.01
7/31 - 8/7	0.48 ± 0.01
8/7 - 8/14	0.67 ± 0.02
8/14 - 8/21	0.34 ± 0.01
8/21 - 8/28	0.39 ± 0.01
8/28 - 9/4	0.29 ± 0.01
9/4 - 9/11	0.141 ± 0.009
9/11 - 9/18	0.19 ± 0.01
9/18 - 9/25	0.17 ± 0.01
9/25 - 10/2	0.21 ± 0.01
10/2 - 10/9	0.25 ± 0.01
10/9 - 10/16	0.20 ± 0.01
10/16 - 10/23	0.19 ± 0.01
10/23 - 10/30	0.073 ± 0.007
10/30 - 11/6	0.26 ± 0.01
11/6 - 11/12	0.17 ± 0.01
11/12 - 11/20	0.102 ± 0.008
11/20 - 11/27	0.117 ± 0.008
11/27 - 12/3	[illegible] ± 0.01
12/3 - 12/11	0.16 ± 0.01
12/11 - [illegible]	0.064 ± 0.007
12/18 - 12/24	0.13 ± 0.01
12/24 - 12/31	0.40 ± 0.01

(a) No sample due to equipment malfunction

(b) Sample represents less than one-half of the normal weekly volume due to equipment malfunction.

TABLE 1.6

ANALYTICAL DATA FOR AIR PARTICULATE SAMPLES

Concentration of Gross Beta Radioactivity (pCi/m^3)

Collection Period-1971	1A	1B	2	3A	4A	4B	5	6B	Collection Period-1971	12A
12/28 - 1/3	0.31 ± 0.02	0.33 ± 0.02	0.32 ± 0.02	0.32 ± 0.02	0.32 ± 0.02	0.30 ± 0.02	0.30 ± 0.02	0.31 ± 0.02	1/1 - 1/8	0.121 ± 0.008
1/3 - 1/9	0.10 ± 0.01	0.10 ± 0.01	0.12 ± 0.01	0.11 ± 0.01	0.12 ± 0.01	0.09 ± 0.01	0.10 ± 0.01	0.[illegible] ± 0.01	1/8 - 1/15	0.11 ± 0.01
1/9 - 1/17	0.10 ± 0.01	0.14 ± 0.01	0.10 ± 0.01	0.12 ± 0.01	0.11 ± 0.01	0.11 ± 0.01	0.11 ± 0.01	0.[illegible] ± 0.01	1/15 - 1/22	(b)
1/17 - 1/23	0.11 ± 0.01	0.13 ± 0.01	0.11 ± 0.01	0.13 ± 0.04(c)	0.12 ± 0.01	0.12 ± 0.01	0.12 ± 0.01	0.12 ± 0.01	1/22 - 1/29	0.107 ± 0.008
1/23 - 1/30	0.14 ± 0.01	0.15 ± 0.01	0.14 ± 0.01	0.13 ± 0.02	0.15 ± 0.01	0.15 ± 0.01	0.15 ± 0.0[illegible]	0.15 ± 0.01	1/29 - 2/5	0.16 ± 0.01
1/30 - 2/6	0.13 ± 0.01	0.14 ± 0.01	0.13 ± 0.01	0.13 ± 0.01	0.13 ± 0.01	0.13 ± 0.01	0.15 ± 0.01	0.14 ± 0.01	2/5 - 2/11	0.10 ± 0.01
2/6 - 2/14	0.17 ± 0.01	0.18 ± 0.01	0.15 ± 0.01	0.18 ± 0.01	0.16 ± 0.01	0.15 ± 0.01	0.17 ± 0.01	0.15 ± 0.01	2/11 - 2/19	0.19 ± 0.01
2/14 - 2/21	0.15 ± 0.01	0.16 ± 0.01	0.75 ± 0.01	0.18 ± 0.01	0.17 ± 0.01	0.15 ± 0.01	0.17 ± 0.01	0.15 ± 0.01	2/19 - 2/26	0.13 ± 0.01
2/21 - 2/27	0.13 ± 0.01	0.17 ± 0.01	0.14 ± 0.01	0.17 ± 0.01	0.13 ± 0.01	0.16 ± 0.01	0.17 ± 0.0[illegible]	0.13 ± 0.01	2/26 - 3/5	0.28 ± 0.01
2/27 - 3/7	0.24 ± 0.01	0.28 ± 0.01	0.27 ± 0.01	0.24 ± 0.01	0.24 ± 0.01	0.26 ± 0.01	0.27 ± 0.0[illegible]	0.28 ± 0.01	3/5 - 3/12	0.28 ± 0.01
3/7 - 3/13	0.22 ± 0.01	0.24 ± 0.02	0.24 ± 0.02	0.24 ± 0.02	0.22 ± 0.02	0.24 ± 0.02	0.25 ± 0.02	0.23 ± 0.02	3/12 - 3/19	0.31 ± [illegible]01
3/13 - 3/21	0.25 ± 0.01	0.27 ± 0.01	0.24 ± 0.01	0.23 ± 0.01	0.243 ± 0.009	0.25 ± 0.01	0.[illegible]5 ± 0.01	0.25 ± 0.01	3/19 - 3/26	0.27 ± 0.01
3/21 - 3/27	0.31 ± 0.02	0.32 ± 0.02	0.29 ± 0.02	0.31 ± 0.02	0.30 ± 0.02	0.31 ± 0.02	0.[illegible] ± 0.01	0.30 ± 0.0[illegible]	3/26 - 4/2	0.46 ± 0.01
3/27 - 4/3	0.37 ± 0.02	0.50 ± 0.02	0.43 ± 0.02	0.49 ± 0.02	0.47 ± 0.02	0.48 ± 0.02	0.50 ± 0.02	0.47 ± 0.02	4/2 - 4/7	0.46 ± 0.02
4/3 - 4/10	0.52 ± 0.01	0.56 ± 0.02	0.50 ± 0.02	0.53 ± 0.02	0.52 ± 0.01	0.62 ± 0.02	0.56 ± 0.02	0.54 ± 0.01	4/7 - 4/16	0.75 ± 0.0[illegible]
4/10 - 4/17	0.91 ± 0.02	0.91 ± 0.02	0.83 ± 0.02	0.84 ± 0.02	0.87 ± 0.02	0.92 ± 0.02	0.88 ± 0.02	0.92 ± 0.02	4/16 - 4/23	0.76 ± 0.02
4/17 - 4/24	0.67 ± 0.02	0.81 ± 0.02	0.76 ± 0.02	0.70 ± 0.02	0.[illegible]4 ± 0.02	0.82 ± 0.02	0.78 ± 0.02	0.83 ± 0.02	4/23 - 4/29	0.33 ± 0.01
4/24 - 5/2	0.12 ± 0.01	0.27 ± 0.01	0.20 ± 0.01	0.24 ± 0.01	0.25 ± 0.01	0.27 ± 0.01	0.22 ± 0.01	0.24 ± 0.01	4/29 - 5/7	0.76 ± 0.01
5/2 - 5/9	1.17 ± 0.03	0.96 ± 0.02	0.78 ± 0.02	0.82 ± 0.02	0.93 ± 0.02	1.37 ± 0.03	1.04 ± 0.02	1.09 ± 0.03	5/7 - 5/14	1.00 ± 0.02
5/9 - 5/15	0.89 ± 0.02	0.97 ± 0.02	0.80 ± 0.02	0.90 ± 0.02	0.93 ± 0.02	0.93 ± 0.02	0.94 ± 0.02	0.94 ± 0.02	5/14 - 5/21	0.97 ± 0.02
5/15 - 5/22	0.98 ± 0.02	1.02 ± 0.02	0.95 ± 0.02	0.98 ± 0.03	0.96 ± 0.02	1.07 ± 0.03	0.96 ± 0.02	1.09 ± 0.02	5/21 - 5/28	0.88 ± 0.02
5/22 - 5/29	0.70 ± 0.02	0.80 ± 0.02	0.74 ± 0.02	0.68 ± 0.02	0.72 ± 0.02	0.79 ± 0.02	0.76 ± 0.02	0.78 ± 0.02	5/28 - 6/4	0.66 ± 0.02
5/29 - 6/5	0.86 ± 0.02	0.96 ± 0.02	0.81 ± 0.02	0.79 ± 0.02	0.80 ± 0.02	0.67 ± 0.02	0.96 ± 0.02	0.91 ± 0.02	6/4 - 6/11	1.17 ± 0.02
6/5 - 6/11	0.99 ± 0.02	1.18 ± 0.03	1.08 ± 0.03	0.95 ± 0.02	1.02 ± 0.02	1.08 ± 0.02	0.80 ± 0.02	1.15 ± 0.02	6/11 - 6/18	0.73 ± 0.02
6/11 - 6/20	0.73 ± 0.02	0.75 ± 0.02	0.69 ± 0.02	0.74 ± 0.02	0.72 ± 0.02	0.79 ± 0.02	0.80 ± 0.02	0.75 ± 0.02	6/18 - 6/27	0.83 ± 0.02
6/20 - 6/25	0.99 ± 0.02	0.99 ± 0.03	1.02 ± 0.03	0.94 ± 0.03	0.94 ± 0.03	0.97 ± 0.03	0.99 ± 0.03	1.03 ± 0.03	6/27 - 7/2	0.88 ± 0.02
6/25 - 7/2	0.72 ± 0.02	0.76 ± 0.02	0.75 ± 0.02	0.69 ± 0.02	0.74 ± 0.02	0.77 ± 0.02	1.01 ± 0.02	0.76 ± 0.02	7/2 - 7/9	1.29 ± 0.02
7/2 - 7/11	1.14 ± 0.02	1.25 ± 0.02	1.25 ± 0.03	1.21 ± 0.02	1.26 ± 0.02	1.27 ± 0.02	17 ± 7(c)	1.18 ± 0.02	7/9 - 7/16	1.05 ± 0.02
7/11 - 7/18	0.82 ± 0.02	0.88 ± 0.02	0.92 ± 0.02	0.87 ± 0.02	0.95 ± 0.02	0.87 ± 0.02	0.91 ± 0.02	0.92 ± 0.02	7/16 - 7/25	0.95 ± 0.02
7/18 - 7/26	0.67 ± 0.02	0.74 ± 0.02	0.74 ± 0.02	0.67 ± 0.02	0.74 ± 0.02	0.75 ± 0.02	0.77 ± 0.02	0.75 ± 0.02	7/25 - 7/30	0.52 ± 0.01
7/26 - 8/2	0.27 ± 0.01	0.31 ± 0.01	0.33 ± 0.01	0.025 ± 0.001	0.31 ± 0.01	0.31 ± 0.01	0.32 ± 0.01	0.32 ± 0.02	7/30 - 8/9	0.46 ± 0.01
8/2 - 8/9	0.56 ± 0.02	0.56 ± 0.02	0.62 ± 0.02	0.50 ± 0.02	0.56 ± 0.02	0.55 ± 0.02	0.55 ± 0.02	0.57 ± 0.02	8/9 - 8/13	0.73 ± 0.02
8/9 - 8/16	0.56 ± 0.01	0.60 ± 0.02	0.66 ± 0.02	0.56 ± 0.02	0.53 ± 0.02	0.61 ± 0.02	0.58 ± 0.02	0.61 ± 0.02	8/13 - 8/20	0.54 ± 0.01
8/16 - 8/22	0.44 ± 0.01	0.47 ± 0.02	0.49 ± 0.02	0.43 ± 0.02	0.06 ± 0.02	0.48 ± 0.02	0.42 ± 0.02	0.45 ± 0.02	8/20 - 8/27	0.48 ± 0.01
8/22 - 8/29	0.43 ± 0.02	0.47 ± 0.02	0.47 ± 0.02	0.44 ± 0.02	0.45 ± 0.02	0.47 ± 0.02	0.44 ± 0.02	0.47 ± 0.02	8/27 - 9/3	0.36 ± 0.01
8/29 - 9/4	0.31 ± 0.02	0.36 ± 0.03(c)	0.35 ± 0.02	0.32 ± 0.02	0.35 ± 0.02	0.34 ± 0.02	0.30 ± 0.02	0.27 ± 0.02	9/3 - 9/10	0.34 ± 0.01
9/4 - 9/11	0.21 ± 0.01	0.28 ± 0.02	0.28 ± 0.02	0.45 ± 0.02	0.27 ± 0.01	0.23 ± 0.01	0.26 ± 0.01	0.28 ± 0.02	9/10 - 9/17	0.15 ± 0.01
9/11 - 9/18	0.15 ± 0.01	0.16 ± 0.01	0.[illegible] ± 0.02	0.14 ± 0.01	0.16 ± 0.01	0.14 ± 0.01	0.15 ± 0.01	0.16 ± 0.02	9/17 - 9/24	0.12 ± 0.01
9/18 - 9/26	0.14 ± 0.01	0.14 ± 0.01	0.15 ± 0.01	0.13 ± 0.01	0.16 ± 0.01	0.18 ± 0.01	0.14 ± 0.01	0.14 ± 0.01	9/24 - 10/1	0.170 ± 0.009
9/26 - 10/3	0.17 ± 0.01	0.18 ± 0.01	0.19 ± 0.02	0.16 ± 0.01	0.18 ± 0.01	0.18 ± 0.01	0.16 ± 0.01	0.19 ± 0.01	10/1 - 10/8	0.13 ± 0.01
10/3 - 10/10	0.141 ± 0.008	0.15 ± 0.01	0.14 ± 0.01	0.13 ± 0.01	0.15 ± 0.01	0.16 ± 0.01	0.14 ± 0.01	0.15 ± 0.01	10/8 - 10/15	0.202 ± 0.008
10/10 - 10/17	0.22 ± 0.01	0.23 ± 0.01	0.25 ± 0.01	0.21 ± 0.01	0.21 ± 0.01	0.23 ± 0.01	0.22 ± 0.01	0.25 ± 0.01	10/15 - 10/22	0.15 ± 0.01
10/17 - 10/24	0.16 ± 0.01	0.16 ± 0.01	0.14 ± 0.01	0.14 ± 0.01	0.15 ± 0.01	0.16 ± 0.01	0.16 ± 0.01	0.15 ± 0.01	10/22 - 10/29	0.074 ± 0.008
10/24 - 10/30	0.06 ± 0.01	0.07 ± 0.01	0.06 ± 0.01	0.05 ± 0.01	0.05 ± 0.01	9.05 ± 0.01	0.05 ± 0.01	0.07 ± 0.01	10/29 - 11/5	0.12 ± 0.01
10/30 - 11/7	0.14 ± 0.01	0.15 ± 0.01	0.14 ± 0.01	0.13 ± 0.01	0.13 ± 0.01	0.14 ± 0.01	0.14 ± 0.01	0.19 ± 0.01	11/5 - 11/12	0.09 ± 0.01
11/7 - 11/14	0.13 ± 0.01	0.14 ± 0.01	0.14 ± 0.01	0.13 ± 0.01	0.12 ± 0.01	0.13 ± 0.01	0.13 ± 0.01	0.13 ± 0.01	11/12 - 11/19	0.10 ± 0.01
11/14 - 11/21	0.14 ± 0.01	0.16 ± 0.01	0.15 ± 0.01	0.13 ± 0.01	0.13 ± 0.01	0.15 ± 0.01	0.15 ± 0.01	(a)	11/19 - 11/26	0.074 ± 0.008
11/21 - 11/27	0.09 ± 0.01	0.10 ± 0.01	0.07 ± 0.01	0.11 ± 0.01	0.09 ± 0.01	0.11 ± 0.01	0.08 ± 0.01	0.10 ± 0.01	11/26 - 12/3	0.10 ± 0.01
11/27 - 12/5	0.10 ± 0.01	0.12 ± 0.01	(a)	0.10 ± 0.01	0.05 ± 0.01	0.12 ± 0.01	0.10 ± 0.01	0.10 ± 0.01	12/3 - 12/10	0.113 ± 0.008
12/5 - 12/11	0.11 ± 0.01	0.13 ± 0.01	(a)	0.13 ± 0.01	(a)	0.13 ± 0.01	0.12 ± 0.01	0.13 ± 0.01	12/10 - 12/17	0.14 ± 0.02
12/11 - 12/18	0.14 ± 0.01	0.16 ± 0.01	0.16 ± 0.01	0.14 ± 0.01	0.16 ± 0.01	0.15 ± 0.01	0.16 ± 0.01	0.16 ± 0.01	12/17 - 12/23	0.13 ± 0.01
12/18 - 12/27	0.105 ± 0.008	0.12 ± 0.01	0.12 ± 0.01	0.11 ± 0.01	0.12 ± 0.01	0.15 ± 0.01	0.13 ± 0.01	0.12 ± 0.01	12/23 - 12/30	0.110 ± 0.009

(a) No sample due to equipment malfunction.

(b) Sample volume unknown due to equipment malfunction.

(c) Sample represents less than one-half of the normal weekly volume due to equipment malfunction.

TAB

ANALYTICAL DATA FOR
Concentration of Gross

Collection Period-1972	1A	1B	2	3A	4A	4b	
12/27 - 1/2	0.12 ± 0.01	0.12 ± 0.01	0.13 ± 0.01	0.13 ± 0.01	0.12 ± 0.01	0.13 ± 0.01	0.1
1/2 - 1/9	0.09 ± 0.01	0.08 ± 0.01	0.08 ± 0.01	0.08 ± 0.01	0.08 ± 0.01	0.10 ± 0.01	0.0
1/9 - 1/15	0.18 ± 0.01	0.57 ± 0.01	0.16 ± 0.02	0.76 ± 0.02	0.23 ± 0.02	0.32 ± 0.02	0.1
1/15 - 1/22	0.46 ± 0.07	0.60 ± 0.02	0.19 ± 0.01	0.19 ± 0.01	0.17 ± 0.01	0.18 ± 0.01	0.0
1/22 - 1/30	0.184 ± 0.008	0.142 ± 0.008	0.19 ± 0.01	0.19 ± 0.01	0.171 ± 0.008	0.145 ± 0.008	0.1
1/30 - 2/6	0.18 ± 0.01	0.17 ± 0.01	0.22 ± 0.01	0.16 ± 0.01	0.21 ± 0.01	0.23 ± 0.01	0.2
2/6 - 2/12	0.134 ± 0.008	0.15 ± 0.01	0.16 ± 0.01	0.14 ± 0.01	0.16 ± 0.01	0.17 ± 0.01	0.4
2/12 - 2/21	0.101 ± 0.006	0.110 ± 0.008	0.11 ± 0.01	0.106 ± 0.008	0.103 ± 0.008	0.105 ± 0.008	0.1
2/21 - 2/27	0.18 ± 0.01	0.18 ± 0.02	0.18 ± 0.02	0.17 ± 0.02	0.17 ± 0.01	0.16 ± 0.02	0.1
2/27 - 3/5	0.13 ± 0.01	0.15 ± 0.01	0.13 ± 0.01	0.14 ± 0.01	0.16 ± 0.01	0.13 ± 0.01	0.1
3/5 - 3/12	0.15 ± 0.01	0.15 ± 0.01	0.19 ± 0.01	0.16 ± 0.01	0.16 ± 0.01	0.15 ± 0.01	0.1
3/12 - 3/18	0.09 ± 0.01	0.10 ± 0.01	0.07 ± 0.01	0.08 ± 0.01	0.09 ± 0.01	0.10 ± 0.01	0.0
3/18 - 3/26	0.12 ± 0.01	0.12 ± 0.01	0.17 ± 0.01	0.12 ± 0.01	0.12 ± 0.01	0.12 ± 0.01	0.1
3/26 - 3/31	0.07 ± 0.01	0.06 ± 0.01	0.08 ± 0.01	0.09 ± 0.02	0.06 ± 0.01	0.07 ± 0.01	0.0
3/31 - 4/9	0.076 ± 0.008	0.082 ± 0.008	0.083 ± 0.008	0.072 ± 0.008	0.073 ± 0.008	0.080 ± 0.008	0.0
4/9 - 4/16	0.08 ± 0.01	0.08 ± 0.01	0.81 ± 0.02	0.08 ± 0.01	0.08 ± 0.01	0.08 ± 0.01	0.0
4/16 - 4/23	0.26 ± 0.01	0.17 ± 0.01	0.11 ± 0.01	0.35 ± 0.01	0.12 ± 0.01	0.12 ± 0.01	0.1
4/23 - 4/30	0.76 ± 0.02	0.13 ± 0.01	0.14 ± 0.01	0.73 ± 0.02	0.14 ± 0.01	0.18 ± 0.01	0.1
4/30 - 5/7	0.07 ± 0.01	0.14 ± 0.01	0.13 ± 0.01	0.11 ± 0.01	0.17 ± 0.01	0.14 ± 0.01	0.1
5/7 - 5/14	0.17 ± 0.01	0.18 ± 0.01	0.44 ± 0.02	0.264 ± 0.006	0.16 ± 0.01	0.15 ± 0.01	0.1
5/14 - 5/20	0.08 ± 0.01	0.10 ± 0.01	0.12 ± 0.01	0.10 ± 0.01	0.09 ± 0.01	0.09 ± 0.01	0.1
5/20 - 5/28	0.10 ± 0.01	0.11 ± 0.01	0.14 ± 0.01	0.23 ± 0.01	0.16 ± 0.01	0.12 ± 0.01	0.1
5/28 - 6/4	0.18 ± 0.01	0.19 ± 0.01	0.21 ± 0.01	0.22 ± 0.01	0.21 ± 0.01	0.19 ± 0.02	0.2
6/4 - 6/10	0.22 ± 0.01	0.27 ± 0.02	0.31 ± 0.02	0.23 ± 0.02	0.23 ± 0.01	0.23 ± 0.01	0.2
6/10 - 6/17	0.30 ± 0.02	0.26 ± 0.02	0.31 ± 0.01	0.26 ± 0.01	0.29 ± 0.01	0.24 ± 0.01	0.2
6/17 - 6/25	0.092 ± 0.008	0.11 ± 0.01	0.13 ± 0.02	0.09 ± 0.01	0.087 ± 0.008	0.11 ± 0.01	0.0
6/25 - 7/2	0.12 ± 0.01	0.14 ± 0.01	(a)	0.30 ± 0.08	0.12 ± 0.01	0.13 ± 0.01	0.1
7/2 - 7/10	0.19 ± 0.01	0.08 ± 0.01	0.33 ± 0.03	(a)	0.10 ± 0.01	0.20 ± 0.01	0.0
7/10 - 7/16	0.18 ± 0.01	0.17 ± 0.01	0.16 ± 0.01	0.13 ± 0.02	0.16 ± 0.01	0.16 ± 0.01	0.1
7/16 - 7/23	0.10 ± 0.01	0.13 ± 0.01	0.11 ± 0.01	0.13 ± 0.01	0.10 ± 0.01	0.12 ± 0.01	0.1
7/23 - 7/29	0.17 ± 0.01	0.15 ± 0.01	0.17 ± 0.01	0.17 ± 0.01	0.16 ± 0.01	0.17 ± 0.01	0.1
7/29 - 8/5	0.15 ± 0.01	0.14 ± 0.01	0.16 ± 0.01	0.17 ± 0.01	0.14 ± 0.01	0.13 ± 0.01	0.1
8/5 - 8/13	0.109 ± 0.008	0.107 ± 0.008	0.114 ± 0.008	0.13 ± 0.01	0.109 ± 0.008	0.121 ± 0.008	0.1
8/13 - 8/19	0.09 ± 0.01	0.11 ± 0.01	0.12 ± 0.01	0.09 ± 0.01	0.12 ± 0.01	0.12 ± 0.01	0.1
8/19 - 8/27	0.088 ± 0.008	0.099 ± 0.008	0.092 ± 0.008	0.102 ± 0.008	0.104 ± 0.008	0.125 ± 0.008	0.0
8/27 - 9/3	0.09 ± 0.01	0.09 ± 0.01	0.10 ± 0.01	0.08 ± 0.01	0.08 ± 0.01	0.08 ± 0.01	0.1
9/3 - 9/10	0.102 ± 0.008	0.11 ± 0.01	0.10 ± 0.01	0.11 ± 0.01	0.11 ± 0.01	0.11 ± 0.01	0.0
9/10 - 9/17	0.094 ± 0.008	0.09 ± 0.01	0.099 ± 0.008	0.11 ± 0.01	0.029 ± 0.008	0.09 ± 0.01	0.1
9/17 - 9/24	0.053 ± 0.008	0.060 ± 0.008	0.06 ± 0.01	0.052 ± 0.008	<0.008	0.04 ± 0.01	0.0
9/24 - 10/1	0.06 ± 0.01	0.02 ± 0.01	0.051 ± 0.006	0.049 ± 0.006	0.065 ± 0.008	0.054 ± 0.006	0.0
10/1 - 10/8	0.061 ± 0.008	(a)	0.10 ± 0.01	0.061 ± 0.008	0.072 ± 0.008	0.07 ± 0.01	0.0
10/8 - 10/15	0.07 ± 0.01	0.060 ± 0.008	0.07 ± 0.01	0.062 ± 0.008	0.059 ± 0.009	0.08 ± 0.01	0.0
10/15 - 10/22	0.07 ± 0.01	0.057 ± 0.008	0.053 ± 0.008	0.057 ± 0.008	0.055 ± 0.008	0.07 ± 0.01	0.0
10/22 - 10/29	0.055 ± 0.008	0.051 ± 0.008	0.050 ± 0.008	0.041 ± 0.006	0.048 ± 0.008	0.048 ± 0.008	0.0
10/29 - 11/5	0.06 ± 0.01	0.063 ± 0.008	0.06 ± 0.01	0.056 ± 0.008	0.064 ± 0.008	0.06 ± 0.01	0.0
11/5 - 11/12	0.033 ± 0.008	0.032 ± 0.008	0.028 ± 0.008	0.022 ± 0.008	0.036 ± 0.008	0.030 ± 0.008	0.0
11/12 - 11/19	0.039 ± 0.006	0.032 ± 0.006	0.045 ± 0.008	0.030 ± 0.006	0.045 ± 0.006	0.048 ± 0.006	0.0
11/19 - 11/26	0.065 ± 0.008	0.055 ± 0.008	0.059 ± 0.006	0.055 ± 0.008	0.049 ± 0.006	0.063 ± 0.008	0.0
11/26 - 12/3	0.049 ± 0.006	0.049 ± 0.006	0.045 ± 0.008	0.050 ± 0.006	0.055 ± 0.008	0.044 ± 0.008	0.0
12/3 - 12/10	0.056 ± 0.008	0.06 ± 0.01	0.046 ± 0.008	0.044 ± 0.008	0.048 ± 0.008	0.047 ± 0.008	[illegible]
12/10 - 12/17	0.056 ± 0.008	0.063 ± 0.008	0.063 ± 0.008	0.059 ± 0.008	0.056 ± 0.008	0.055 ± 0.008	0.
12/17 - 12/24	0.038 ± 0.008	0.028 ± 0.008	0.06 ± 0.01	0.044 ± 0.008	0.044 ± 0.008	0.039 ± 0.008	[illegible]
12/24 - 12/31	0.04 ± 0.02	0.026 ± 0.008	0.04 ± 0.02	0.044 ± 0.008	0.032 ± 0.008	0.02 ± 0.01	0.0

(a) No sample due to equipment malfunction.

LE 1.7

AIR-PARTICULATE SAMPLES
Beta Radioactivity (pCi/m^3)

5	6B	14	15	17	Collection Period 1972	12A	12D
3 ± 0.01	0.13 ± 0.01						
8 ± 0.01	0.08 ± 0.01				12/31 - 1/7	0.12 ± 0.01	
6 ± 0.01	0.18 ± 0.02				1/7 - 1/14	0.088 ± 0.008	
3 ± 0.01	0.2[illegible] ± 0.01				1/14 - 1/21	0.29 ± 0.01	
9 ± 0.01	0.158 ± 0.008				1/21 - 1/31	0.136 ± 0.006	
C ± 0.01	0.21 ± 0.01				1/31 - 2/4	0.17 ± 0.02	
6 ± 0.02	0.17 ± 0.02				2/4 - 2/10	0.150 ± 0.009	
26 ± 0.008	0.103 ± 0.008				2/10 - 2/17	0.19 ± 0.01	
7 ± 0.02	0.20 ± 0.02				2/17 - 2/25	0.124 ± 0.007	
7 ± 0.01	0.15 ± 0.01				2/25 - 3/3	0.12 ± 0.01	
7 ± 0.01	0.16 ± 0.01				3/3 - 3/10	0.16 ± 0.01	
9 ± 0.01	0.10 ± 0.01				3/10 - 3/20	0.098 ± 0.005	
2 ± 0.01	0.11 ± 0.01				3/20 - 3/24	0.[illegible]4 ± 0.01	0.13 ± 0.01
8 ± 0.01	0.07 ± 0.01				3/24 - 3/30	0.14 ± 0.01	0.26 ± 0.0[illegible]
9 ± 0.01	0.08 ± 0.01				3/30 - 4/7	0.087 ± 0.008	0.097 ± 0.008
8 ± 0.01	0.08 ± 0.01				4/7 - 4/14	0.081 ± 0.008	0.090 ± 0.008
1 ± 0.01	0.26 ± 0.01				4/14 - 4/23	0.074 ± 0.008	0.088 ± 0.008
4 ± 0.0[illegible]	0.1[illegible] ± 0.01				4/23 - 4/29	0.13 ± 0.01	0.13 ± 0.01
6 ± 0.01	0.14 ± 0.01				4/28 - 5/5	0.21 ± 0.01	0.34 ± 0.01
5 ± 0.01	0.16 ± 0.01				5/5 - 5/14	0.117 ± 0.008	0.104 ± 0.008
0 ± 0.01	0.16 ± 0.01				5/14 - 5/22	0.121 ± 0.008	0.130 ± 0.006
7 ± 0.01	0.10 ± 0.04				5/22 - 5/26	0.12 ± 0.01	0.19 ± 0.01
1 ± 0.01	0.16 ± 0.02				5/26 - 6/2	0.140 ± 0.008	0.24 ± 0.01
5 ± 0.02	0.26 ± 0.02			0.36 ± 0.01	6/2 - 6/13	0.184 ± 0.006	0.239 ± 0.008
8 ± 0.0[illegible]	0.37 ± 0.02	0.31 ± 0.01		0.39 ± 0.01	6/13 - 6/16	0.26 ± 0.02	0.37 ± 0.02
9 ± 0.01	0.17 ± 0.01	0.124 ± 0.008		0.10 ± 0.01	6/16 - 6/26	0.077 ± 0.006	0.080 ± 0.006
5 ± 0.01	0.12 ± 0.01	0.15 ± 0.01	0.16 ± 0.02	0.19 ± 0.01	6/26 - 6/30	0.12 ± 0.01	0.14 ± 0.01
8 ± 0.01	0.06 ± 0.01	0.23 ± 0.01	0.1[illegible] ± 0.01	0.24 ± 0.01	6/30 - 7/10	0.200 ± 0.008	0.262 ± 0.008
7 ± 0.01	0.17 ± 0.01	0.167 ± 0.008	0.183 ± 0.008	0.171 ± 0.008	7/10 - 7/14	0.15 ± 0.01	0.18 ± 0.01
2 ± 0.01	0.12 ± 0.01	0.106 ± 0.006	0.121 ± 0.008	0.110 ± 0.006	7/14 - 7/23	0.083 ± 0.006	0.107 ± 0.006
9 ± 0.01	0.17 ± 0.01	0.20 ± 0.01	0.20 ± 0.01	0.18 ± 0.01	7/23 - 7/29	0.136 ± 0.008	0.19 ± 0.01
7 ± 0.01	0.15 ± 0.01	0.169 ± 0.008	0.161 ± 0.008	0.148 ± 0.008	7/29 - 8/4	0.156 ± 0.008	0.179 ± 0.008
1 ± 0.01	0.108 ± 0.008	0.114 ± 0.006	0.117 ± 0.006	0.115 ± 0.006	8/4 - 8/11	0.101 ± 0.006	0.137 ± 0.008
0 ± 0.01	0.12 ± 0.01	0.104 ± 0.008	0.115 ± 0.008	0.101 ± 0.008	8/11 - 8/19	0.080 ± 0.006	0.108 ± 0.006
97 ± 0.008	0.093 ± 0.008	0.097 ± 0.006	0.098 ± 0.006	0.094 ± 0.006	8/19 - 8/27	0.064 ± 0.008	0.098 ± 0.008
0 ± 0.01	0.09 ± 0.01	0.090 ± 0.006	0.090 ± 0.006	0.093 ± 0.006	8/27 - 9/3	0.07 ± 0.01	0.13 ± 0.01
9 ± 0.01	0.10 ± 0.01	0.103 ± 0.008	0.108 ± 0.008	0.028 ± 0.008	9/3 - 9/10	0.096 ± 0.006	0.101 ± 0.008
0 ± 0.01	0.10 ± 0.01	0.093 ± 0.006	0.091 ± 0.006	0.090 ± 0.006	9/10 - 9/15	0.081 ± 0.008	0.094 ± 0.008
7 ± 0.01	0.05 ± 0.01	0.064 ± 0.008	0.058 ± 0.008	0.062 ± 0.008	9/15 - 9/24	0.048 ± 0.006	0.069 ± 0.006
59 ± 0.008	0.060 ± 0.008	0.048 ± 0.006	0.053 ± 0.006	0.050 ± 0.006	9/24 - 9/29	0.047 ± 0.006	0.060 ± 0.008
6 ± 0.01	0.07 ± 0.01	0.057 ± 0.006	0.054 ± 0.006	0.055 ± 0.006	9/29 - 10/6	0.048 ± 0.008	0.060 ± 0.008
8 ± 0.01	0.09 ± 0.01	0.068 ± 0.006	0.066 ± 0.006	0.064 ± 0.006	10/6 - 10/13	0.048 ± 0.008	0.057 ± 0.008
7 ± 0.01	0.07 ± 0.01	0.057 ± 0.006	0.052 ± 0.006	0.056 ± 0.006	10/13 - 10/20	0.039 ± 0.006	0.056 ± 0.008
5 ± 0.01	0.053 ± 0.008	0.046 ± 0.006	0.039 ± 0.006	0.040 ± 0.006	10/20 - 10/27	0.046 ± 0.008	0.034 ± 0.006
6 ± 0.01	0.06 ± 0.01	0.055 ± 0.006	0.049 ± 0.006	0.054 ± 0.006	10/27 - 11/3	0.041 ± 0.008	0.044 ± 0.008
3 ± 0.01	0.03 ± 0.01	0.024 ± 0.004	0.026 ± 0.004	0.026 ± 0.004	11/3 - 11/10	0.030 ± 0.006	0.06 ± 0.01
34 ± 0.008	0.035 ± 0.008	0.042 ± 0.006	0.032 ± 0.004	0.035 ± 0.004	11/10 - 11/17	0.020 ± 0.002	0.022 ± 0.004
58 ± 0.008	0.06 ± 0.01	0.052 ± 0.006	0.046 ± 0.004	0.047 ± 0.004	11/17 - 11/24	0.036 ± 0.004	0.040 ± 0.006
5 ± 0.01	0.038 ± 0.006	0.040 ± 0.006	0.037 ± 0.004	0.040 ± 0.006	11/24 - 12/1	0.034 ± 0.004	0.041 ± 0.004
5 ± 0.01	0.05 ± 0.01	0.050 ± 0.006	0.041 ± 0.006	0.042 ± 0.006	12/1 - 12/10	0.041 ± 0.006	0.047 ± 0.006
8 ± 0.01	0.06 ± 0.01	0.052 ± 0.006	0.034 ± 0.006	0.050 ± 0.006	12/10 - 12/17	0.060 ± 0.008	0.046 ± 0.006
5 ± 0.01	0.05 ± 0.01	0.039 ± 0.006	0.040 ± 0.006	0.030 ± 0.006	12/17 - 12/24	0.044 ± 0.008	0.054 ± 0.008
4 ± 0.01	0.04 ± 0.01	0.036 ± 0.006	0.034 ± 0.006	0.028 ± 0.006	12/24 - 12/31	0.044 ± 0.006	0.027 ± 0.006

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ANALYTICAL DA
Concentration of

Collection Period-1973	1A	1B	2	3A	4A	4B	
12/31- 1/7	.044 ± .009	.032 ± .009	.046 ± .009	.030 ± .008	.038 ± .008	<.03	.06
1/7 - 1/14	.06 ± .01	.052 ± .008	.06 ± .01	.051 ± .008	.07 ± .01	.017 ± .008	.06
1/14- 1/21	.07 ± .01	.06 ± .01	.06 ± .01	.046 ± .006	.045 ± .008	(a)	.05
1/21- 1/28	(b)	.053 ± .009	.053 ± .009	.040 ± .006	.028 ± .008	(b)	.05
1/28- 2/4	.037 ± .009	.044 ± .009	.038 ± .009	.031 ± .008	(c)	.032 ± .008	.043
2/4 - 2/11	.039 ± .009	.041 ± .009	.044 ± .009	.042 ± .008	(c)	.048 ± .008	.06
2/11- 2/16	.05 ± .01	.06 ± .01	.06 ± .01	.05 ± .01	(b)	.06 ± .01	.05
2/16- 2/24	.070 ± .009	.047 ± .008	.057 ± .009	.050 ± .008	.051 ± .008	.056 ± .008	.06
2/24- 3/4	.050 ± .008	.053 ± .008	.057 ± .006	.056 ± .008	.044 ± .008	.046 ± .008	.054
3/4 - 3/11	.036 ± .008	.033 ± .008	.038 ± .008	.035 ± .006	.044 ± .009	.038 ± .008	.05
3/11- 3/17	.04 ± .01	.05 ± .01	.04 ± .01	.040 ± .006	.05 ± .01	.04 ± .01	.05
3/17- 3/25	.036 ± .008	.038 ± .008	.037 ± .008	.042 ± .008	.036 ± .008	.034 ± .008	.04
3/25- 4/1	.046 ± .008	.034 ± .008	.048 ± .008	.038 ± .008	.035 ± .008	.041 ± .008	.044
4/1 - 4/8	.043 ± .008	.036 ± .008	.037 ± .008	.029 ± .008	.035 ± .008	.037 ± .008	.04
4/8 - 4/14	.04 ± .01	.04 ± .01	.054 ± .012	.05 ± .01	.04 ± .01	.04 ± .01	.045
4/14- 4/20	.05 ± .01	.05 ± .01	.06 ± .01	.057 ± .009	.06 ± .01	.06 ± .01	.09
4/20- 4/27	.038 ± .008	.051 ± .009	.054 ± .009	.044 ± .008	.042 ± .008	.044 ± .008	.04
4/27- 5/6	.022 ± .007	.037 ± .007	.046 ± .007	.048 ± .007	.045 ± .007	.036 ± .007	.052
5/6 - 5/13	.046 ± .009	.043 ± .009	.048 ± .009	.042 ± .008	.050 ± .008	.014 ± .009	.05
5/13- 5/20	.039 ± .009	.042 ± .008	.043 ± .009	.041 ± .008	.051 ± .008	.014 ± .008	.05
5/20- 5/27	.058 ± .009	.031 ± .009	.060 ± .009	.025 . .008	.036 ± .009	.023 ± 006	.04
5/27- 6/3	.041 ± .009	.047 ± .009	.038 ± .008	.037 ± .008	.053 ± .009	.042 ± .006	.04
6/3 - 6/8	.05 ± .01	.05 ± .01	.04 ± .01	.04 ± .01	.05 ± .01	.046 ± .008	.05
6/8 - 6/16	.054 ± .008	.055 ± .008	.053 ± .008	.046 ± .007	.047 ± .008	.049 ± .006	.05
6/16- 6/23	.028 ± .009	.034 ± .009	.019 ± .009	.032 ± .008	.029 ± .009	.028 ± .006	.04
6/23- 7/1	.036 ± .007	.042 ± .007	.04 ± .01	.034 ± .007	.036 ± .008	.032 ± .005	.059
7/1 - 7/6	.063 ± .008	.06 ± .01	.07 ± .01	.06 ± .01	.08 ± .01	.053 ± .007	.07
7/6 - 7/15	.068 ± .005	.078 ± .008	.064 ± .008	.079 ± .007	.073 ± .008	.067 ± .005	.08
7/15- 7/22	.062 ± .008	.062 ± .009	.059 ± .008	.059 ± .008	.06 ± .01	.063 ± .006	.07
7/22- 7/29(d)	.036 ± .006	.052 ± .008	.052 ± .008	.047 ± .007	.053 ± .009	.045 ± .006	.05
7/29- 8/5	.046 ± .006	.048 ± .006	.010 ± .005	.053 ± .008	.042 ± .006	.053 ± .007	.046

(a) Pump breakdown - no sample.

(b) No sample - pumps changed.

(c) No sample received.

(d) Station 31 and 32 began operation. Their values not included in monthly averages.

	7/22 - 7/29	7/29 - 8/5
Station 31	.048 ± .006	.043 ± .006
Station 32	.052 ± .006	.041 ± .005

TABLE 1.8
TA FOR AIR PARTICULATE SAMPLES
Gross Beta Radioactivity (pCi/m^3)

5	6B	14	15	17	Collection Period-197	12A	12D
± .01	.04 ± .01	.006 ± .006	.029 ± .006	.028 ± .006	12/31- 1	.030 ± .006	.037 ± .006
± .01	.08 ± .01	.061 ± .006	.059 ± .008	.040 ± .006	1/7 - 1/14	.044 ± .007	.062 ± .003
± .01	.055 ± .008	.048 ± .006	.047 ± .006	.010 ± .004	1/14- 1/21	.035 ± .007	.045 ± .007
± .01	.05 ± .01	.038 ± .004	.044 ± .006	(b)	1/19- 1/26	.016 ± .006	.044 ± .006
± .008	.040 ± .008	.035 ± .006	.036 ± .006	.030 ± .006	1/26- 2/5	.035 ± .006	.034 ± .005
± .01	.06 ± .01	.039 ± .006	.046 ± .008	.047 ± .008	2/4 - 2/10	.041 ± .009	.050 ± .005
± .01	.06 ± .01	.050 ± .008	.040 ± .008	.05 ± .01	2/10- 2/15	.034 ± .007	.049 ± .007
± .01	.06 ± .01	.053 ± .006	.051 ± .006	.048 ± .008	2/15- 2/23	.041 ± .007	.046 ± .006
± .008	.052 ± .008	.040 ± .006	.045 ± .006	.043 ± .008	2/23- 3/2	.038 ± .006	.057 ± .007
± .01	.04 ± .01	.032 ± .006	.032 ± .006	.046 ± .008	3/2 - 3/5	.05 ± .02	.032 ± .006
± .01	.05 ± .01	.036 ± .006	.029 ± .006	.036 ± .006	3/11- 3/16	.036 ± .006	.047 ± .007
± .01	.05 ± .01	.034 ± .006	.029 ± .006	.040 ± .008	3/16- 3/23	.027 ± .026	.024 ± .006
± .008	.047 ± .008	.041 ± .006	.033 ± .004	.033 ± .006	3/23- 3/30	.037 ± .006	.05[illegible] ± .008
± .01	.047 ± .010	.039 ± .006	.029 ± .006	.027 ± .008	3/30- 4/6	.020 ± .006	.026 ± .006
± .012	.047 ± .012	.044 ± .006	.024 ± .006	.048 ± .008	4/6 - 4/13	.034 ± .006	.043 ± .006
± .01	.07 ± .01	.054 ± .007	.03 ± .01	.048 ± .009	4/13- 4/19	.046 ± .007	.046 ± .007
± .01	.06 ± .01	.046 ± .006	.12 ± .02	.040 ± .007	4/19- 4/27	.033 ± .005	.040 ± .006
± .008	.045 ± .003	.040 ± .005	.08 ± .01	.040 ± .006	4/27- 5/7	.026 ± .004	.052 ± .007
± .01	.05 ± .01	.046 ± .007	.06 ± .02	.035 ± .008	5/7 - 5/11	.03 ± .01	.041 ± .006
± .01	.05 ± .01	.040 ± .006	.06 ± .01	.038 ± .007	5/11- 5/18	.032 ± .006	.037 ± .006
± .01	.03 ± .01	.033 ± .006	.05 ± .01	.034 ± .007	5/18- 5/29	.016 ± .004	.025 ± .004
± .01	.04 ± .01	.044 ± .007	.08 ± .01	.038 ± .008	5/29- 6/1	.03 ± .05	.04 ± .01
± .01	.05 ± .01	.045 ± .008	.08 ± .02	.05 ± .01	6/4 - 6/8	.05 ± .01	.033 ± .007
± .01	.060 ± .009	.046 ± .006	.10 ± .01	.044 ± .007	6/8 - 6/15	.036 ± .006	.049 ± .007
± .01	.04 ± .01	.026 ± .005	.06 ± .01	.024 ± .007	6/15- 6/22	.018 ± .006	.033 ± .006
± .009	.04 ± .01	.022 ± .005	.06 ± .01	.028 ± .006	6/22- 7/2	.022 ± .004	.034 ± .005
± .01	.07 ± .01	.062 ± .008	.11 ± .02	.06 ± .01	7/2 - 7/9	.042 ± .006	.058 ± .006
± .01	.074 ± .008	.059 ± .005	.13 ± .01	.068 ± .007	7/9 - 7/13	.11 ± .01	.07 ± .01
± .01	.06 ± .01	.057 ± .006	.11 ± .02	.051 ± .007	7/13- 7/20	.051 ± .007	.061 ± .007
± .01	.050 ± .009	.046 ± .006	.10 ± .02	.036 ± .007	7/20- 7/27	.046 ± .007	.055 ± .007
± .006	.045 ± .005	.043 ± .006	.052 ± .007	.052 ± .006	7/27- 8/3	.045 ± .006	.053 ± .007

Revised June 1974

TABLE 1.9

ANALYTICAL DATA FOR AIR PARTICULATE SAMPLES

Concentration of Gross Beta Radioactivity (pCi/m^3)

Monthly Averages(d)

Collection Period	Group I (a) Min.	Group I (a) Max.	Group I (a) Mean	Group II (b) Min.	Group II (b) Max.	Group II (b) Mean	Collection Period	Group III (c) Min.	Group III (c) Max.	Group III (c) Mean
2/2 - 2/26/66	<0.02	0.09	0.04	<0.02	0.11	0.04	2/4 - 3/4/66	0.02	0.06	0.04
2/26 - 4/2	0.02	0.07	0.06	0.02	0.12	0.07	3/4 - 4/1	0.05	0.10	0.07
4/2 - 4/30	0.03	0.12	0.06	0.03	0.12	0.06	4/1 - 4/29	0.04	0.09	0.06
4/30 - 5/28	0.07	0.39	0.18	0.04	0.32	0.16	4/29 - 6/3	0.07	0.24	0.14
5/28 - 7/1	0.11	0.37	0.21	0.05	0.47	0.21	6/3 - 7/1	0.11	0.30	0.20
7/1 - 7/29	0.11	0.19	0.14	0.10	0.25	0.16	7/1 - 7/29	0.11	0.17	0.14
7/29 - 9/3	0.05	0.08	0.07	0.03	0.13	0.07	7/29 - 9/2	0.04	0.09	0.06
9/3 - 10/1	0.02	0.05	0.04	0.02	0.05	0.03	9/2 - 9/[illegible]	<0.01	0.06	0.04
10/1 - 10/29	<0.01	0.06	0.03	<0.01	0.06	0.03	9/30 - 10/28	<0.01	0.04	0.02
10/29 - 12/2	<0.02	0.11	0.06	<0.02	0.20	0.08	10/28 - 12/2	<0.01	0.19	0.07
12/2 - 1/1/67	<0.01	0.06	0.03	<0.02	0.07	0.04	12/2 - 1/1/67	0.02	0.03	0.04
1/1 - 1/28	0.04	0.99	0.31	0.03	2.18	0.39	1/1 - 2/3	0.03	0.12	0.07
1/28 - 2/26	0.05	0.14	0.08	0.04	0.26	0.09	2/3 - 3/3	0.04	0.10	0.07
2/26 - 3/31	<0.02	0.13	0.07	<0.02	0.12	0.07	3/3 - 3/31	0.03	0.05	0.04
3/31 - 4/29	0.04	0.12	0.09	0.03	0.14	0.08	3/31 - 4/28	0.03	0.08	0.06
4/29 - 6/3	<0.02	0.08	0.04	<0.01	0.09	0.03	4/28 - 6/2	0.03	0.05	0.04
6/3 - 6/30	<0.02	0.05	0.03	<0.02	0.04	0.02	6/2 - 6/30	<0.01	0.02	0.02
6/30 - 7/31	<0.01	0.05	0.02	<0.01	0.05	0.02	6/30 - 8/9	0.018	0.018	0.018
7/31 - 9/2	<0.01	0.07	0.03	<0.01	0.08	0.03	8/9 - 9/1	0.014	0.10	0.06
9/2 - 9/30	0.02	0.40	0.07	<0.02	0.09	0.04	9/1 - 10/2	<0.01	<0.01	<0.01
9/30 - 10/29	0.03	0.12	0.05	0.03	0.06	0.05	10/2 - 11/3	<0.01	0.10	0.04
10/29 - 12/3	0.02	0.26	0.06	0.03	0.15	0.06	11/3 - 12/1	0.04	0.06	0.04
12/3 - 12/29	<0.02	0.17	0.06	0.02	0.17	0.05	12/1 - 12/29	0.02	0.04	0.03
12/29 - 2/3/68	0.05	0.29	0.13	0.05	0.44	0.14	12/29 - 2/2/68	0.07	0.24	0.15
2/3 - 3/2	0.12	0.38	0.21	0.10	0.34	[illegible]	2/2 - 3/1	0.08	0.34	0.18
3/2 - 3/30	0.05	0.30	0.16	0.05	0.26	[illegible]	3/1 - 3/29	0.08	0.20	0.16
3/30 - 4/27	0.08	0.30	0.22	0.10	0.30	[illegible]	3/29 - 4/26	0.15	0.33	0.22
4/27 - 6/1	0.09	0.23	0.16	0.07	0.25	0.16	4/26 - 5/31	0.13	0.24	0.18
6/1 - 6/29	0.06	0.27	0.14	0.08	0.27	0.15	5/31 - 6/28	0.14	0.18	0.16
6/29 - 8/3	0.12	0.24	0.19	0.10	0.28	0.17	6/28 - 8/2	0.10	0.22	0.16
8/3 - 8/30	0.09	0.24	0.14	0.08	0.20	0.12	8/2 - 8/30	0.08	0.12	0.11
8/30 - 9/27	0.09	0.16	0.12	0.04	0.17	0.11	8/30 - 9/27	0.12	0.16	0.14
9/27 - 11/2	0.02	0.13	0.06	0.03	0.12	0.07	9/27 - 11/1	0.05	0.13	0.08
11/2 - 11/29	0.03	0.08	0.06	<0.02	0.08	0.06	11/1 - 11/29	0.02	0.10	0.05
11/29 - 12/30	0.02	0.14	0.07	0.03	0.12	0.06	11/29 - 12/27	0.03	0.12	0.06
12/30 - 2/2/69	<0.01	0.09	0.06	0.03	0.12	0.07	12/28 - 1/31/69	0.04	0.10	0.07
2/2 - 3/2	0.03	0.09	0.06	0.03	[illegible]	0.06	1/31 - 2/28	0.045	0.06	0.05
3/2 - 3/30	0.06	0.20	[illegible]	0.06	[illegible]	0.10	2/28 - 4/3	0.078	0.12	0.10
3/30 - 4/27	0.11	0.17	0.13	0.08	0.68	0.15	4/3 - 5/2	0.089	0.18	0.14
4/27 - 5/31	0.13	0.55	0.27	0.13	0.06	0.30	5/2 - 5/29	0.16	0.30	0.25
5/31 - 6/27	0.42	0.47	0.44	0.33	0.53	0.43	5/29 - 6/27	0.44	0.46	0.46
6/27 - 7/28	0.22	0.39	0.31	0.11	0.36	0.26	6/27 - 8/1	0.29	0.43	0.37
7/28 - 8/31	0.24	0.50	0.35	0.21	0.52	0.36	8/1 - 8/29	0.183	0.39	0.27
8/31 - 9/27	0.23	0.34	0.27	0.19	0.46	0.27	8/29 - 9/26	0.21	0.34	0.28
9/27 - 11/1	0.11	0.17	0.13	0.10	0.18	0.13	9/26 - 10/31	0.112	0.151	0.13
11/1 - 11/29	0.05	0.11	0.08	0.05	0.11	0.08	10/31 - 11/28	0.038	0.122	0.08

11/1 - 11/30	0.05	0.11	[illegible]	0.05	0.11	0.08	[illegible]	[illegible]	[illegible]	[illegible]
11/30 - 12/29	0.06	0.10	0.08	0.03	0.10	0.08	11/28 - 1/2/70	0.061	0.153	0.090
12/29 - 2/1/70	0.07	0.12	0.10	0.07	0.13	0.10	1/2 - 1/30	0.078	0.092	0.085
2/1 - 2/28	0.098	0.16	0.13	0.092	0.16	0.13	1/30 - 2/27	0.088	0.160	0.116
2/28 - 3/27	0.12	0.26	0.17	0.10	0.24	0.18	2/27 - 4/3	0.120	0.205	0.17
3/27 - 5/2	0.146	0.27	0.20	0.102	0.29	0.21	4/3 - 5/1	0.22	0.32	0.26
5/2 - 5/30	0.21	0.41	0.30	0.19	0.38	0.29	5/1 - 5/28	0.32	0.60	0.47
5/30 - 6/26	0.43	0.90	0.57	0.36	0.88	0.55	5/28 - 7/2	0.39	0.94	0.63
6/26 - 8/1	0.30	0.59	0.44	0.25	0.62	0.42	7/2 - 7/31	0.25	0.65	0.50
8/1 - 8/28	0.15	0.52	0.38	0.18	0.70	0.36	7/31 - 8/28	0.34	0.67	0.47
8/28 - 10/2	0.11	0.29	0.21	0.066	0.37	0.22	8/28 - 10/2	0.141	0.29	0.20
10/2 - 11/1	0.086	0.26	0.15	0.09	0.25	0.14	10/2 - 10/30	0.073	0.25	0.18
11/1 - 11/30	0.127	0.38	0.22	0.12	0.38	0.20	10/30 - 12/3	0.102	0.26	0.16
11/30 - 12/28	0.09	0.21	0.14	0.08	0.19	0.13	12/3 - 12/31	0.064	0.40	0.19
12/28 - 1/30/71	0.10	0.33	0.16	0.09	0.32	0.16	1/1 - 1/29/71	0.107	0.121	0.11
1/30 - 2/27	0.13	0.18	0.15	0.13	0.18	0.15	1/29 - 2/26	0.10	0.19	0.14
2/27 - 4/3	0.22	0.50	0.30	0.22	0.50	0.31	2/26 - 4/2	0.27	0.46	0.32
4/3 - 5/2	0.12	0.91	0.59	0.22	0.92	0.61	4/2 - 4/29	0.33	0.76	0.58
5/2 - 5/29	0.70	1.17	0.90	0.68	1.37	0.93	4/29 - 6/4	0.66	1.00	0.85
5/29 - 7/2	0.69	1.18	0.89	0.67	1.15	0.87	6/4 - 7/2	0.73	1.17	0.90
7/2 - 8/2	0.27	1.25	0.78	0.025	1.27	0.75	7/2 - 7/30	0.52	1.29	0.95
8/2 - 8/29	0.43	0.66	0.53	0.06	0.61	0.49	7/30 - 9/3	0.36	0.73	0.51
8/29 - 10/3	0.14	0.36	0.22	0.13	0.45	0.22	9/3 - 10/1	0.12	0.34	0.20
10/3 - 10/30	0.06	0.25	0.15	0.05	0.25	0.14	10/1 - 10/29	0.074	0.[illegible]02	0.14
10/30 - 11/27	0.07	0.16	0.13	0.08	0.19	0.13	10/29 - 12/3	0.074	0.12	0.10
11/27 - 12/27	0.10	0.16	0.13	0.05	0.10	0.12	12/3 - 12/30	0.110	0.14	0.12
12/27 - 1/30/72	0.08	0.60	0.22	0.03	0.76	0.17	12/31 - 1/31/72	0.088	0.29	0.16
1/30 - 2/27	0.101	0.22	0.16	0.103	0.23	0.16	1/31 - 2/25	0.124	0.19	0.16
2/27 - 3/31	0.06	0.19	0.11	0.06	0.17	0.12	2/25 - 3/30	0.098	0.26	0.16
3/31 - 4/30	0.076	0.81	0.23	0.072	0.73	0.15	3/30 - 4/28	0.074	0.13	0.10
4/30 - 5/28	0.07	0.44	0.15	0.09	0.264	0.14	4/28 - 6/2	0.104	0.34	0.17
5/28 - 7/2	0.092	0.31	0.20	0.087	0.37	0.20	6/2 - 6/30	0.077	0.37	0.18
7/2 - 7/29	0.08	0.33	0.16	0.06	0.24	0.15	6/30 - 7/29	0.083	0.262	0.16
7/29 - 8/27	0.088	0.16	0.11	0.09	0.17	0.12	7/29 - 9/3	0.064	0.179	0.11
8/27 - 10/1	0.02	0.11	0.08	<0.008	0.11	0.07	9/3 - 9/29	0.047	0.101	0.074
10/1 - 10/29	0.05	0.10	0.06	0.039	0.09	0.06	9/29 - 11/3	0.034	0.060	0.047
10/29 - 11/26	0.032	0.065	0.05	0.022	0.064	0.04	11/3 - 12/1	0.020	0.06	0.04
11/26 - 12/31	0.026	0.063	0.05	0.02	0.08	0.045	12/1 - 12/31	0.027	0.060	0.046
12/31 - 1/28/73	0.032	0.07	0.05	0.006	0.08	0.04	12/31 - 1/26/73	0.016	0.062	0.037
1/28 - 3/4	0.037	0.070	0.05	0.030	0.06	0.05	1/26 - 3/2	0.034	0.057	0.042
3/4 - 4/1	0.033	0.05	0.04	0.029	0.051	0.04	3/2 - 3/30	0.024	0.054	0.04
4/1 - 4/27	0.036	0.06	0.04	0.024	0.12	0.05	3/30 - 4/27	0.020	0.048	0.036
4/27 - 6/3	0.022	0.060	0.046	0.014	0.08	0.04	4/27 - 6/1	0.016	0.03	0.04
6/3 - 7/1	0.019	0.055	0.04	0.022	0.10	0.05	6/1 - 7/2	0.013	0.053	0.04
7/1 - 7/29	0.052	0.078	0.06	0.036	0.13	0.07	7/2 - 7/27	0.042	0.11	0.06
7/29 - 8/5	0.010	0.048	0.035	0.042	0.053	0.048	7/27 - 8/3	0.045	0.055	0.050

(a) Group I consists of Stations 1A, 1B, and 2. Collections at Station 1B started on August 5, 1967.

(b) Group II consists of Stations 3A, 4A, 4B, 5, 6B, 14, 15, and 17. Collections at Station 14 started on June 10, 1972. Collections at Station 15 started on June 25, 1972. Collection at Station 17 started on June 4, 1972.

(c) Group III consists of Stations 12A and 12D. Collections at Station 12D started on March 20, 1972.

(d) When no weekly data is available due to pump-breakdown, etc., average is calculated with remaining data. In cases where the sample represents less than 1/2 the normal weekly volume due to equipment malfunction, the values do not enter into the monthly averages, or the maximum, minimum values.

TABLE 1.10
ANALYTICAL DATA FOR AIR PARTICULATE SAMPLES

Concentrations of Gross Beta Radioactivity (pCi/m^3)
Yearly Averages

Year	Group I			Group II			Group III		
	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean
1966	<0.01	0.39	0.08	<0.01	0.47	0.09	<0.01	0.30	0.08
1967	<0.01	0.99	0.07	<0.01	2.18	0.06	<0.009	0.12	0.04
1968	0.02	0.38	0.14	<0.02	0.44	0.13	0.02	0.34	0.14
1969	<0.01	0.55	0.19	0.03	0.68	0.20	0.038	0.46	0.19
1970	0.07	0.90	0.26	0.066	0.88	0.26	0.064	0.94	0.29
1971	0.06	1.25	0.41	0.025	1.37	0.41	0.074	1.29	0.42
1972	0.02	0.81	0.13	<0.008	0.76	0.12	0.020	0.37	0.11
1973	0.010	0.078	0.05	0.006	0.13	0.05	0.016	0.11	0.04

STATION NUMBER:

	1A	1B	2	3A	4A	4B	5	6B	12A	12D	14	15	17
Overall	.16	.19	.18	.17	.17	.18	.21	.17	.17	.09	.07	.07	.08

TABLE 1.11
COMPARATIVE EPA DATA FOR GROSS
BETA RADIOACTIVITY FOR AIR PARTICULATES

	Collection Period	Harrisburg, Pa. Min.	Harrisburg, Pa. Max.	Harrisburg, Pa. Mean	Trenton, N.J. Min.	Trenton, N.J. Max.	Trenton, N.J. Mean	Baltimore, Md. Min.	Baltimore, Md. Max.	Baltimore, Md. Mean
1966	February	<0.10	<0.10	<0.10	<0.10	0.14	<0.10	<0.10	0.12	<0.10
	March	<0.10	0.14	<0.10	<0.10	0.17	<0.11	<0.10	0.19	<0.12
	April	<0.10	0.13	<0.10	<0.10	0.19	<0.11	<0.10	0.14	<0.10
	May	<0.10	0.80	<0.19	<0.10	1.25	<0.23	<0.10	1.48	<0.23
	June	<0.10	0.43	<0.21	<0.10	0.46	<0.24	<0.10	0.60	0.35
	July	<0.10	0.24	<0.12	<0.10	0.26	<0.17	<0.10	0.30	<0.19
	August	<0.10	<0.10	<0.10	<0.10	0.14	<0.10	<0.10	0.15	<0.11
	September	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
	October	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
	November	<0.10	0.50	<0.18	<0.10	0.95	<0.21	<0.10	1.34	<0.27
	December	<0.10	0.11	<0.10	<0.10	0.13	<0.10	<0.11	0.15	<0.11
	Mean			<0.13			<0.14			0.16
1967	January	0.03	29.95	1.27	0.02	14.21	0.86	0.00	38.81	1.73
	February	0.06	0.24	0.13	0.06	0.31	0.16	0.06	0.32	0.19
	March	0.02	0.35	0.11	0.01	0.37	0.12	0.01	0.32	0.14
	April	0.01	0.20	0.11	0.00	0.25	0.12	0.02	0.28	0.17
	May	0.02	0.13	0.06	0.01	0.14	0.07	0.03	0.26	0.11
	June	0.01	0.10	0.04	0.01	0.07	0.04	0.02	0.08	0.05
	July	0.00	0.05	0.03	0.01	0.05	0.02	0.02	0.07	0.04
	August	0.85	4.24	1.66	0.19	0.58	0.29	0.19	2.81	0.66
	September	0.53	3.27	1.36	0.21	1.06	0.47	0.19	3.47	1.19
	October	0.57	4.02	1.27	0.16	1.12	0.35	0.26	2.29	1.00
	November	0.32	1.68	0.77	0.12	0.51	0.21	0.31	2.38	0.69
	December	0.41	6.92	1.23	0.00	4.92	0.56	0.00	0.75	0.38
	Mean			0.67			0.27			0.53
1968	January	0.28	2.02	1.02	0.21	1.87	0.56	0.00	1.46	0.67
	February	0.40	4.65	1.08	0.20	2.83	0.64	0.26	4.07	0.99
	March	0.26	2.26	0.94	0.10	0.83	0.33	0.00	4.88	0.85
	April	0.60	3.84	1.28	0.04	1.24	0.61	0.26	1.56	0.98
	May	0.38	3.05	1.12	0.19	1.80	0.74	0.34	4.07	1.25
	June	0.21	1.50	0.40	0.39	2.54	0.74	0.35	2.94	0.96
	July	1(a)	2	2	0	3	1	0	2	1
	August	(b)	(b)	(b)	1	4	2	0	2	1
	September	0	3	1	0	3	2	0	2	1
	October	0	2	1	0	4	2	0	2	1
	November	0	3	1	0	3	1	0	2	0
	December	0	1	0	0	1	0	0	1	0
1969	January	0	1	0	0	1	0	0	1	0
	February	0	0	0	0	0	0	0	1	0
	March	0	1	0	0	1	0	0	1	0
	April	0	1	1	0	2	1	0	2	1
	May	0	0	0	0	3	1	0	1	0
	June	(b)	(b)	(b)	0	2	1	0	3	1
	July	0	2	1	0	3	1	0	2	1
	August	0	2	1	0	2	1	0	2	1
	September	0	3	1	0	3	1	0	3	1
	October	0	2	1	0	3	1	0	1	1
	November	0	1	1	0	1	0	0	1	1
	December	0	0	0	0	1	0	0	1	0

	Collection Period	Harrisburg, Pa. Min.	Harrisburg, Pa. Max.	Harrisburg, Pa. Mean	Trenton, N.J. Min.	Trenton, N.J. Max.	Trenton, N.J. Mean	Baltimore, Md. Min.	Baltimore, Md. Max.	Baltimore, Md. Mean
1970	January	0	0	0	0	0	0	0	1	0
	February	0	1	0	0	1	0	0	1	0
	March	0	1	0	0	1	0	0	1	0
	April	0	1	0	0	3	1	0	1	1
	May	0	2	1	0	3	1	0	1	1
	June	0	2	1	0	2	1	0	2	1
	July	0	1	1	0	2	1	0	2	1
	August	0	3	1	0	2	1	0	2	1
	September	0	3	1	0	3	1	0	3	1
	October	0	2	1	0	3	1	0	[illegible]	1
	November	0	1	0	0	1	0	0	2	1
	December	0	1	0	0	1	0	0	2	1
1971	Janaury	0	0	0	0	0	0	0	1	0
	February	0	0	0	0	1	0	0	1	0
	March	0	0	0	0	1	0	0	2	0
	April	0	3	1	0	2	1	0	2	1
	May	1	2	1	0	2	1	1	2	1
	June	0	3	1	0	2	1	0	2	1
	July	0	2	1	0	2	1	0	[illegible]	1
	August	0	3	1	0	3	1	0	3	1
	September	0	1	1	0	1	0	0	2	1
	October	0	2	0	0	1	0	0	2	0
	November	0	1	0	0	1	0	0	2	0
	December	0	1	0	0	1	0	0	1	0
1972	January	0	1	0	0	1	0	0	1	0
	February	0	1	0	0	1	0	0	2	0
	March	0	1	0	0	1	0	0	2	1
	April	0	1	0	0	2	0	0	2	0
	May	0	2	0	0	1	0	0	2	0
	June	0	2	1	0	1	0	0	1	0
	July	0	2	1	0	2	0	0	2	1
	August	0	2	1	0	2	1	0	2	1
	September	0	4	1	0	3	1	0	3	1
	October	0	3	1	0	2	0	0	3	1
	November	0	1	0	0	1	0	0	1	0
	December	0	1	0	0	1	0	0	1	0
1973	January	0	2	0	0	1	0	0	3	0
	February	0	1	0	0	1	0	0	1	0
	March	0	1	0	0	1	0	0	2	0
	Arpil	0	1	0	0	1	0	0	1	0
	May	0	1	0	0	1	0	0	1	0

(a) EPA data after June 1968 are reported to the nearest integer.

(b) No data available.

TABLE 2.1
ANALYTICAL DATA FOR PRECIPITATION SAMPLES
Concentration in pCi/l

Collection Period	Station 1A Volume (Liters)	Station 1A Beta	Station 1A Sr-90	Station 1A Cs-137	Station 1B Volume (Liters)	Station 1B Beta	Station 1B Sr-90	Station 1B Cs-137
2/1 - 3/3/66	3.060	18 ± 8						
3/3 - 3/31	.600	43 ± 9						
4/1 - 5/5	2.750	46 ± 9	3.2 ± 0.6					
5/5 - 6/2	2.110	80 ± 10						
6/2 - 6/30	.790	120 ± 10						
6/30 - 8/4	.540	70 ± 10	<8					
8/4 - 9/1	.400	60 ± 10						
9/1 - 9/29	4.000	45 ± 9						
9/29 - 11/3	3.240	20 ± 8	<0.6					
11/3 - 12/1	1.500	38 ± 9						
12/1 - 1/5/67	.800	14 ± 8						
1/5 - 2/2	.900	160 ± 20	<0.4					
2/2 - 3/2	.250	200 ± 20						
3/2 - 4/6	2.680	28 ± 9						
4/6 - 5/4	.430	50 ± 10	<6					
5/4 - 6/1	2.650	25 ± 9						
6/1 - 6/29	.400	26 ± 9	<10					
6/29 - 8/3	4.420	12 ± 8						
8/3 - 8/31	4.000	<6						
8/31 - 9/30	(a)							
9/30 - 11/2	(a)							
11/2 - 11/30	.535	<6						
11/30 - 1/10/68	2.760	50 ± 10	<0.5					
1/10 - 2/1	.800	28 ± 9			.780	14 ± 8		
2/1 - 2/29	.186	70 ± 10			.029	<20		
2/29 - 4/4	2.060	23 ± 9	<0.4		1.810	22 ± 9		
4/4 - 5/2	.820	50 ± 10			.340	21 ± 9		
5/2 - 5/30	.830	71 ± 9			1.340	35 ± 6		
5/30 - 6/27	4.030	37 ± 8	2.3 ± 0.4		4.250	8 ± 6	2.3 ± 0.4	
6/27 - 8/1	.690	70 ± 10			1.050	44 ± 8		
8/1 - 9/5	2.640	<5			2.270	<5		
9/5 - 10/3	3.100	<5	0.5 ± 0.3		2.900	<5	<0.7	
10/3 - 10/30	2.320	10 ± 6			2.400	<5		
10/30 - 12/5	2.960	<6			2.660	<6		
12/5 - 1/2/69	1.100	8 ± 6	2 ± 1		.460	32 ± 8	<5	
1/2 - 1/30	.480	21 ± 8			(a)			
1/30 - 2/27	.700	22 ± 6			.300	30 ± 6		
2/27 - 4/7	.330	30 ± 20	1.2 ± 0.8		.960	26 ± 9	2.6 ± 0.5	
4/7 - 5/1	1.430	25 ± 6			1.310	20 ± 6		
5/1 - 6/5	.880	37 ± 8			.740	41 ± 8		
6/5 - 7/3	.500	70 ± 20	4 ± 1		1.760	43 ± 6	2.4 ± 0.5	
7/3 - 8/4	3.100	40 ± 10			4.090	40 ± 10		
8/4 - 9/4	1.200	18 ± 6			.810	16 ± 6		
9/4 - 10/2	.970	10 ± 6	0.8 ± 0.3		1.000	25 ± 6	<0.7	
10/2 - 10/30	.560	42 ± 6			.490	17 ± 6		
10/30 - 12/4	.800	29 ± 6			.810	10 ± 6		
12/4 - 1/1/70	3.000	17 ± 6	<1.0		2.550	14 ± 6	1.0 ± 0.3	
1/1 - 2/5	.300	99 ± 8			(a)			
2/5 - 3/5	.920	24 ± 5			.810	39 ± 5		
3/5 - 4/2	.600	33 ± 5	3.8 ± 0.9		.370	45 ± 5	5 ± 1	
4/2 - 4/30	1.700	50 ± 8			.350	122 ± 9		
4/30 - 6/4	.500	130 ± 9			1.300	123 ± 9		
6/4 - 7/3	2.900	80 ± 10	3.7 ± 0.1		4.150	80 ± 10	3.4 ± 0.1	
7/3 - 7/30	1.400	100 ± 10			2.050	50 ± 10		
7/30 - 9/3	.950	14 ± 9	1.1 ± 0.4		.900	23 ± 9	1.6 ± 0.4	
9/3 - 10/1	.600	60 ± 30			.450	90 ± 30		
10/1 - 11/5	1.200	9 ± 9			.550	40 ± 10		
11/5 - 12/3	2.100	12 ± 9	<0.09		2.000	12 ± 9	0.8 ± 0.3	
12/3 - 12/31	1.400	140 ± 10			1.550	480 ± 20		
12/31 - 2/4/71	1.050	34 ± 9			1.100	31 ± 9		
2/4 - 3/4	2.300	37 ± 9	3.1 ± 0.2		2.700	50 ± 10	1.0 ± 0.2	
3/4 - 4/1	1.310	80 ± 10			1.380	70 ± 10		
4/1 - 4/29	0.620	50 ± 10	<2	2.2 ± 0.6	0.390	40 ± 20	<2	17 ± 2
4/29 - 6/3	5.000	60 ± 10			5.000	40 ± 10		
6/3 - 7/1	1.000	80 ± 10			0.950	130 ± 10		
7/1 - 7/29	0.535	300 ± 20	5 ± 1	4 ± 1	0.545	200 ± 10	7 ± 1	3.7 ± 0.7
7/29 - 9/2	7.610	8 ± 4			8.[illegible]10	24 ± 4		
9/2 - 9/30	1.970	15 ± 4			2.750	32 ± 5		
9/30 - 11/4	2.650	23 ± 4	0.5 ± 0.2	<0.8	2.800	22 ± 4	0.5 ± 0.7	0.5 ± 0.2
11/4 - 12/2	1.700	25 ± 4			1.500	15 ± 4		
12/2 - 12/30	2.500	30 ± 4			0.250	28 ± 8		
12/30 - 2/3/72	0.875	66 ± 6	2 ± 2	1.5 ± 0.9	0.900	58 ± 6	3 ± 2	<1
2/3 - 3/2	2.350	25 ± 4			2.000	25 ± 4		
3/2 - 3/30	1.540	8 ± 3			1.090	7 ± 3		
3/30 - 5/4	1.550	5 ± 4	3.6 ± 0.9	1.4 ± 0.7	1.520	21 ± 5	4 ± 1	2.0 ± 0.7
5/4 - 6/1	2.070	8 ± 2			2.100	15 ± 3		
6/1 - 6/29	5.960	8 ± 2			6.670	9 ± 2		
6/29 - 8/3	2.400	5 ± 3	2.4 ± 0.3	<0.5	2.470	10 ± 3	1.8 ± 0.2	1.0 ± 0.4
8/3 - 8/31	0.500	68 ± 5			1.000	34 ± 4		
8/31 - 10/5	0.650	<4			2.250	7 ± 2		
10/5 - 11/2	2.000	3 ± 2	<0.1	<0.4	2.000	2 ± 2	<0.1	0.6 ± 0.5
11/2 - 11/30	2.750	<2			3.[illegible]30	2 ± 2		
11/30 - 1/4/73	2.000	3 ± 2			3.250	3 ± 2		
1/4 - 2/1	2.000	<3	0.3 ± 0.2	<0.4	2.000	7 ± 3	<0.1	0.4 ± 0.3
2/1 - 3/1	3.000	3 ± 2			3.000	11 ± 2		
3/1 - 3/29	2.000	13 ± 3			2.000	8 ± 2		
3/29 - 5/3	2.000	3 ± 2	0.4 ± 0.3	0.5 ± 0.5	4.000	11 ± 2	0.8 ± .3	0.8 ± 0.5
5/3 - 5/31	2.860	23 ± 2			3.820	8 ± 2		
5/31 - 6/28	2.730	10 ± 1			3.000	6 ± 1		
6/28 - 8/2	2.890	5 ± 1	1.1 ± 0.3(b)	<0.3	2.000	7 ± 1	0.6 ± 0.4(b)	0.3 ± 0.2

Collection Period	Station 4M Volume (Liters)	Station 4M Beta	Station 4M Sr-90	Station 4M Cs-137
2/2 - 3/5/66	3.260	30 ± 8		
3/5 - 4/2	.560	33 ± 8		
4/2 - 5/7	3.330	30 ± 9	1.4 ± 0.3	
5/7 - 6/4	1.800	70 ± 10		
6/4 - 7/1	.250	100 ± 10		
7/1 - 8/5	1.400	40 ± 10	12 ± 4	
8/5 - 9/3	2.000	47 ± 9		
9/3 - 10/1	4.500	60 ± 10		
10/1 - 11/4	3.030	23 ± 8	<0.9	
11/4 - 12/2	1.530	21 ± 9		
12/2 - 1/7/67	2.300	35 ± 9		
1/7 - 2/4	.900	24 ± 9	<0.4	
2/4 - 3/3	1.000	60 ± 30		
3/3 - 4/8	2.510	34 ± 9		
4/8 - 5/5	1.200	26 ± 5	<3	
5/5 - 6/3	2.400	33 ± [illegible]		
6/3 - 6/30	2.190	16 ± 8	<4	
6/30 - 8/5	0.700	21 ± 8		
8/5 - 9/2	4.700	<6		
9/2 - 10/8	.750	<6	<7	
10/8 - 11/4	3.155	<6		
11/4 - 12/1	.450	18 ± 8		
12/1 - 1/14/68	4.460	60 ± 10	0.4 ± 0.2	
1/14 - 2/3	1.700	<8		
2/3 - 3/2	(a)			
3/2 - 4/6	3.550	23 ± 9	2.1 ± 0.5	
4/6 - 5/4	1.350	90 ± 10		
5/4 - 6/1	3.820	36 ± 6		
6/1 - 6/29	2.950	<6	0.7 ± 0.5	
6/29 - 8/3	1.060	210 ± 20		
8/3 - 9/6	1.880	17 ± 6		
9/6 - 10/4	2.960	17 ± 6	0.5 ± 0.3	
10/4 - 11/2	2.530	13 ± 6		
11/2 - 12/8	3.850	14 ± 6		
12/8 - 1/5/69	1.220	14 ± 6	<2	
1/5 - 2/2	1.500	<5		
2/2 - 3/2	.540	20 ± 6		
3/2 - 4/7	.860	38 ± 9	<2	
4/7 - 5/3	1.840	31 ± 6		
5/3 - 6/7	1.310	[illegible] ± 9		
6/7 - 7/5	(a)			
7/5 - 8/4	3.800	30 ± 10		
8/4 - 9/6	4.120	22 ± 5		
9/6 - 10/5	.760	20 ± 6	1.4 ± 0.8	
10/5 - 11/1	.930	22 ± 6		
11/1 - 12/7	1.010	22 ± 6		
12/7 - 1/4/70	3.000	14 ± 6	<0.2	
1/4 - 2/8	.900	35 ± 6		
2/8 - 3/7	1.330	44 ± 5		
3/7 - 4/5	2.800	33 ± 5	4.1 ± 0.4	
4/5 - 5/2	2.500	68 ± 8		
5/2 - 6/6	5.300	67 ± 8		
6/6 - 7/5	4.000	70 ± 10	2.43 ± 0.08	
7/5 - 8/1	2.700	110 ± 10		
8/1 - 9/5	3.900	38 ± 9	1.27 ± 0.06	
9/5 - 10/4	.700	70 ± 30		
10/4 - 11/8	3.800	25 ± 9		
11/8 - 12/6	[illegible].750	21 ± 9	0.9 ± 0.4	
12/6 - 1/3/71	[illegible]30	200 ± 10		
1/3 - 2/6	[illegible].800	50 ± 10		
2/6 - 3/7	3.600	50 ± 10	1.8 ± 0.2	
3/7 - 4/3	1.200	150 ± 10		
4/3 - 5/2	1.280	39 ± 9	0.7 ± 0.4	1.0 ± 0.4
5/2 - 6/5	[illegible].600	41 ± 9		
6/5 - 7/2	0.800	130 ± 10		
7/2 - 7/29	0.950	80 ± 10	2.9 ± 0.6	2.4 ± 0.4
7/29 - 9/4	8.680	9 ± 4		
9/4 - 10/3	3.300	61 ± 6		
10/3 - 11/7	3.450	6 ± 3	0.2 ± 0.2	<0.5
11/7 - 12/5	2.750	5 ± 3		
12/5 - 1/2/72	0.950	20 ± 4		
1/2 - 2/6	2.050	19 ± 4	2 ± 2	<0.4
2/6 - 3/5	1.600	22 ± 4		
3/5 - 3/31	1.870	16 ± 3		
3/31 - 5/7	4.000	12 ± 2	1.4 ± 0.3	1.0 ± 0.3
5/7 - 6/4	2.080	10 ± 2		
6/4 - 7/2	3.900	8 ± 2		
7/2 - 8/3	0.370	100 ± 20	<2	9.5 ± 0.8
8/3 - 9/3	0.750	17 ± 3		
9/3 - 10/8	0.900	<4		
10/8 - 11/5	1.750	<2	<0.3	<0.3
11/5 - 12/3	6.000	5 ± 2		
12/3 - 1/7/73	3.000	<2		
1/7 - 2/4	3.000	3 ± 1	<0.1	<0.3
2/4 - 3/4	1.000	39 ± 5		
3/4 - 4/1	2.000	<2		
4/1 - 5/6	3.000	<3	<0.3	<0.3
5/6 - 6/3	1.340	26 ± 3		
6/3 - 7/1	2.490	4 ± 1		
7/1 - 8/3	3.100	6 ± 1	3 ± 1(b)	<0.2

(a) No sample collected.

(b) Sr-89 analysis was performed on these samples. Sr-89 values are:
1A - <3 ; 1B - <3 ; 4M - 0.5 ± 0.2.

TABLE 2.2
ANALYTICAL DATA FOR PRECIPITATION SAMPLES
Surface Density in pCi/m²

Collection Period	STATION 1A Beta	STATION 1A Sr-90	STATION 1A Cs-137	STATION 1B Beta	STATION 1B Sr-90	STATION 1B Cs-137	Collection Period	STATION 4H Beta	STATION 4H Sr-90	STATION 4H Cs-137
2/1 - 3/3/66	1700 ± 700						2/1 - 3/5/66	3000 ± 800		
3/3 - 3/31	800 ± 200						3/5 - 4/2	900 ± 200		
4/1 - 5/5	3900 ± 700	270 ± 50					4/2 - 5/7	3200 ± 900	150 ± 40	
5/5 - 6/2	5000 ± 700						5/7 - 6/4	3600 ± 600		
6/2 - 6/30	2800 ± 300						6/4 - 7/1	800 ± 100		
6/30 - 8/4	1100 ± 200	<100					7/1 - 8/5	1800 ± 500	500 ± 200	
8/4 - 9/1	700 ± 100						8/5 - 9/3	2900 ± 500		
9/1 - 9/29	6000 ± 1000						9/3 - 10/1	8000 ± 1000		
9/29 - 11/3	1900 ± 700	<60					10/1 - 11/4	2200 ± 700	<90	
11/3 - 12/1	1700 ± 400						11/4 - 12/2	1000 ± 400		
12/1 - 1/5/67	300 ± 200						12/2 - 1/7/67	2400 ± 600		
1/5 - 2/2	4300 ± 500	<10					1/7 - 2/4	700 ± 200	<10	
2/2 - 3/2	1500 ± 100						2/4 - 3/3	1800 ± 300		
3/2 - 4/6	2300 ± 700						3/3 - 4/8	1800 ± 700		
4/6 - 5/4	1600 ± 100	<70					4/8 - 5/5	1000 ± 300	<30	
5/4 - 6/1	2000 ± 700						5/5 - 6/3	2400 ± 600		
6/1 - 6/29	300 ± 100	<200					6/3 - 6/30	1000 ± 500	<70	
6/29 - 8/3	2000 ± 1000						6/30 - 8/5	6000 ± 2000		
8/3 - 8/31	<800						8/5 - 9/2	<900		
8/31 - 9/30	(a)						9/2 - 10/8	<100	<200	
9/30 - 11/2	(a)						10/8 - 11/4	<600		
11/2 - 11/30	100 ± 100						11/4 - 12/1	220 ± 90		
11/30 - 1/10/68	4100 ± 800	<40					12/1 - 1/14/68	8000 ± 1000	60 ± 30	
1/10 - 2/1	700 ± 100			300 ± 200			1/14 - 2/3	<400		
2/1 - 2/29	380 ± 80			<60			2/3 - 3/2	(a)		
2/29 - 4/4	1500 ± 600	<30		1200 ± 500	<40		3/2 - 4/6	2000 ± 1000	230 ± 70	
4/4 - 5/2	1200 ± 300			220 ± 70			4/6 - 5/4	3600 ± 500		
5/2 - 5/30	1800 ± 200			1400 ± 300			5/4 - 6/1	4200 ± 700		
5/30 - 6/27	4600 ± 900	280 ± 50		1000 ± 800	300 ± 50		6/1 - 6/29	<600	60 ± 50	
6/27 - 8/1	1500 ± 200			1400 ± 200			6/29 - 8/3	6700 ± 600		
8/1 - 9/5	<400			<300			8/3 - 9/6	1000 ± 400		
9/5 - 10/3	<500	50 ± 40		<400	<70		9/6 - 10/4	1500 ± 600	50 ± 40	
10/3 - 10/30	700 ± 400			<400			10/4 - 11/2	1000 ± 500		
10/30 - 12/5	<600			<500			11/2 - 12/8	1700 ± 700		
12/5 - 1/2/69	300 ± 200	50 ± 40		500 ± 100	<50		12/8 - 1/5/69	500 ± 200	<70	
1/2 - 1/30	300 ± 100			(a)			1/5 - 2/2	<300		
1/30 - 2/27	500 ± 100			280 ± 60			2/2 - 3/2	600 ± 200		
2/27 - 4/7	300 ± 200	12 ± 8		800 ± 200	80 ± 20		3/2 - 4/7	1000 ± 200	<50	
4/7 - 5/1	1100 ± 300			800 ± 300			4/7 - 5/3	1800 ± [illegible]00		
5/1 - [illegible]/5	1000 ± 200			[illegible] ± 200			5/3 - 6/7	1400 ± 500		
6/5 - [illegible]	1100 ± 200	60 ± 20		2300 ± 300	130 ± 30		6/7 - 7/5	(a)		
7/[illegible] - [illegible]	4000 ± 1000			5000 ± 1000			7/5 - 8/4	3000 ± 1000		
[illegible] - [illegible]/4	700 ± 200			400 ± 200			8/4 - 9/6	2800 ± 800		
[illegible] - 10/2	300 ± 200	24 ± 9		800 ± 200	<20		9/6 - 10/5	500 ± 100	30 ± 20	
10/[illegible] - 10/30	700 ± 100			260 ± 90			10/5 - 11/1	600 ± 200		
10/30 - 12/4	700 ± 200			200 ± 200			11/1 - 12/7	700 ± 200		
12/4 - 1/1/70	170 ± 60	<180		170 ± 70	80 ± 20		12/7 - 1/4/70	90 ± 40	<30	
1/1 - 2/5	910 ± 70			(a)			1/4 - 2/8	1000 ± 200		
2/5 - 3/5	700 ± 100			1000 ± 100			2/8 - 3/7	700 ± 200		
3/5 - 4/2	610 ± 90	70 ± 20		510 ± 60	30 ± 10		3/7 - 4/5	2800 ± 400	350 ± 30	
4/2 - 4/30	2600 ± 400			1310 ± 90			4/5 - 5/2	5200 ± 600		
4/30 - 6/4	2000 ± 100			4900 ± 400			5/2 - 6/6	11000 ± 1000		
6/4 - 7/3	7000 ± 1000	328 ± 9		10000 ± 2000	430 ± 10		6/6 - 7/5	9000 ± 1000	297 ± 9	
7/3 - 7/30	4400 ± 500			3400 ± 700			7/5 - 8/1	9000 ± 1000		
7/30 - 9/3	400 ± 300	30 ± 10		600 ± 200	40 ± 10		8/1 - 9/5	5000 ± 1000	151 ± 7	
9/3 - 10/1	1000 ± 600			1300 ± 400			9/5 - 10/4	1600 ± 700		
10/1 - 11/5	300 ± 300			600 ± 200			10/4 - 11/8	3000 ± 1000		
11/[illegible] - 12/3	800 ± 400	<6		700 ± 500	50 ± 20		11/8 - 12/6	1100 ± 500	50 ± 20	
12/3 - 12/31	6100 ± 500			22800 ± 800			12/6 - 1/3/71	14000 ± 900		
12/31 - 2/4/71	1100 ± 300			1000 ± 300			1/3 - 2/6	2900 ± 600		
2/4 - 3/4	2600 ± 600	220 ± 10		3900 ± 800	60 ± 20		2/6 - 3/7	5000 ± 1000	200 ± 20	
3/4 - 4/1	3300 ± 400			3000 ± 400			3/7 - 4/3	5400 ± 400		
4/1 - 4/29	1000 ± 200	<10	40 ± 10	500 ± 200	<20	200 ± 20	4/3 - 5/2	1500 ± 300	30 ± 10	40 ± 20
4/29 - 6/3	10000 ± 2000			7000 ± 2000			5/2 - 6/5	8000 ± 2000		
6/3 - 7/1	2400 ± 300			3700 ± 300			6/5 - 7/2	3100 ± 300		
7/1 - 7/29	5000 ± 300	80 ± 20	60 ± 20	3300 ± 200	120 ± 20	60 ± 10	7/2 - 7/29	2300 ± 300	80 ± 20	70 ± 10
7/29 - 9/2	1800 ± 900			6000 ± 1000			7/29 - 9/4	2000 ± 1000		
9/2 - 9/30	900 ± 300			2300 ± 400			9/4 - 10/3	6200 ± 600		
9/30 - 11/4	1900 ± 300	30 ± 10	<60	1900 ± 300	40 ± 10	40 ± 30	10/3 - 11/7	600 ± 300	20 ± 20	<50
11/4 - 12/2	1300 ± 200			700 ± 200			11/7 - 12/5	500 ± 300		
12/2 - 12/30	460 ± 60			210 ± 60			12/5 - 1/2/72	600 ± 100		
12/30 - 2/3/72	1800 ± 200	<30	40 ± 20	1600 ± 200	90 ± 50	<30	1/2 - 2/6	1200 ± 200	100 ± 100	<30
2/3 - 3/2	1800 ± 300			1500 ± 200			2/6 - 3/5	1100 ± 200		
3/2 - 3/30	400 ± 200			200 ± 100			3/5 - 3/31	900 ± 200		
3/30 - 5/4	200 ± 200	170 ± 40	70 ± 30	1000 ± 200	180 ± 50	90 ± 30	3/31 - 5/7	1400 ± 200	170 ± 40	120 ± 40
5/4 - 6/1	500 ± 100			1000 ± 100			5/7 - 6/4	600 ± 100		
6/1 - 6/29	1700 ± 400			1800 ± 400			6/4 - 7/2	900 ± 200		
6/29 - 8/3	400 ± 200	180 ± 20	<40	800 ± 200	140 ± 20	30 ± 30	7/2 - 8/5	1800 ± 300	<30	170 ± 10
8/3 - 8/31	1050 ± 80			1000 ± 100			8/5 - 9/3	400 ± 70		
8/31 - 10/5	<80			500 ± 100			9/3 - 10/8	<100		
10/5 - 11/2	200 ± 100	<6	<20	100 ± 100	<20	40 ± 30	10/8 - 11/5	<100	<20	<20
11/2 - 11/30	<200			200 ± 200			11/5 - 12/3	900 ± 400		
11/30 - 1/4/73	200 ± 100			300 ± 200			12/3 - 1/7/73	<200		
1/4 - 2/1	<200	20 ± 10	<20	400 ± 200	<6	20 ± 20	1/7 - 2/4	300 ± 300	<9	<30
2/1 - 3/1	300 ± 200			1000 ± 200			2/4 - 3/4	1200 ± 200		
3/1 - 3/29	800 ± 200			500 ± 100			3/4 - 4/1	<100		
3/29 - 5/3	300 ± 100	20 ± 20	30 ± 30	1300 ± 200	100 ± 40	100 ± 60	4/1 - 5/6	<300	<30	<30
5/3 - 5/31	2000 ± 200			900 ± 200			5/6 - 6/3	1200 ± 100		
5/31 - 6/28	900 ± 100			600 ± 100			6/3 - 7/1	300 ± 100		
6/28 - 8/2	500 ± 100	100 ± 40(b)	<20	410 ± 90	140 ± 20(b)	20 ± 10	7/1 - 8/5	500 ± 100	300 ± 100(b)	<20

(a) No sample collected.

(b) Sr-89 analysis was performed on these samples. Sr-89 values are:
1A - <300 ; 1B - <200 ; 4H - 50 ± 20.

TABLE 2.3

PRECIPITATION
CONCENTRATION pCi/l
YEARLY AVERAGES

Year	Station 1A & 1B Beta	Station 1A & 1B Sr-90	Station 1A & 1B Cs-137	Station 4M Beta	Station 4M Sr-90	Station 4M Cs-137
1966	50(a)	4(a)		40	5	
1967	60(a)	<5(a)		20	<3	
1968	30	2		40	1	
1969	30	2		20	1	
1970	80	2		60	2.2	
1971	60	3	5	50	1.4	1.3
1972	18	2	1	20	1	2.8
1973	9	0.6	0.4	12	1	0.3
Overall	40	2	2	40	2	1.6

SURFACE DENSITY pCi/m^2

Year	Station 1A & 1B Beta	Station 1A & 1B Sr-90	Station 1A & 1B Cs-137	Station 4M Beta	Station 4M Sr-90	Station 4M Cs-137
1966	2300(a)	140(a)		2700	250	
1967	2400(a)	90(a)		1500	<80	
1968	900	110		2100	100	
1969	1000	70		1200	40	
1970	3200	120		5300	200	
1971	2700	80	80	3200	80	50
1972	800	100	50	800	80	80
1973	700	60	40	600	100	30
Overall	1700	100	50	2300	100	60

(a) During 1966 and 1967 samples were taken at station 1A only.

TABLE 2.4
COMPARATIVE EPA DATA FOR GROSS
BETA RADIOACTIVITY FOR PRECIPITATION(g)

	Collection Period	Harrisburg, Pa. Mean concentration pCi/l	Harrisburg, Pa. Mean Surface Density pCi/m²	Trenton, N.J. Mean concentration pCi/l	Trenton, N.J. Mean Surface Density pCi/m²	Baltimore, Md. Mean concentration pCi/l	Baltimore, Md. Mean Surface Density pCi/m²
1966	February	<210	<10,000	<200	<5,000	<200	<10,000
	March	<200	<10,000	<200	<3,000	<200	< 6,000
	April	<200	<10,000	<200	<2,000	<200	<10,000
	May	200	1,000	<200	<8,000	<300	<22,000
	June	(a)	(a)	<200	<1,000	<200	< 8,000
	July	<250	< 2,000	<200	<1,000	<200	< 3,000
	August	<200	< 6,000	<300	<1,000	<200	< 2,000
	September	<200	< 8,000	<200	<10,000	<200	<14,000
	October	<210	<11,000	<200	<7,000	<200	< 9,000
	November	<200	<11,000	<200	<2,000	<200	< 6,000
	December	<200	< 5,000	<200	<4,000	<200	< 9,000
	Mean (b)	200	7,000	<200	<4,000	<200	< 9,000
1967	January	350	15,000	<600	<3,000	<400	< 4,000
	February	(a)	(a)	<200	<3,000	<200	< 6,000
	March	<200	<17,000	<200	<[illegible],000	<200	< 9,000
	April	<200	< 4,000	<200	<3,000	<200	< 3,000
	May	<200	<16,000	<200	<4,000	<210	<11,000
	June	(a)	(a)	<200	<3,000	<200	< 3,000
	July	<200	<10,000	<200	<12,000	<210	<10,000
	August	<200	<20,000	<200	<9,000	<200	<29,000
	September	(a)	(a)	<500	<1,000	<500	< 1,000
	October	<200	< 8,000	<200	<3,000	<200	< 5,000
	November	(a)	(a)	1000	8,000	730	16,000
	December	(b)	(b)	350	23,000	360	18,000
	Mean	200	13,000	300	7,000	300	10,000
1968	January	(c)	(c)	2,160	108,000	810	25,000
	February			0(<250)	0(<1,000)	1,100	11,000
	March			0(<7)	0(<1,000)	10	11,000
	April			0(<50)	0(<1,000)	440	11,000
	May			1,140	180,000	300	7,000
	June	0(<30)(i)	0(<1,000)	(a)	(a)	0(<250)	0(<1,000)
	July			290	16,000	400	12,000
	August			460	37,000	60	3,000
	September			1,200	13,000	100	2,000
	October			300	7,000	200	6,000
	November			320	29,000	310	17,000
	December			580	28,000	0(<40)	0(<1,000)
	Mean	<30	<1,000	600	38,000	400	9,000
1969	January	(e)	(e)	540	29,000	430	15,000
	February			400	29,000	0(<50)	0(<1,000)
	March			450	22,000	400	12,000
	April			(d)	(d)	580	31,000
	May			0(<70)	0(<1,000)	600	12,000
	June			410	31,000	950	19,000
	July			120	20,000	530	21,000
	August			150	12,000	1,200	40,000
	September			20	3,000	230	11,000
	October			30	1,000	0(<40)	0(<1,000)
	Mean			40	2,000	100	5,000
	December	100	[illegible]	70	1,000	600	30,000
			1,000	200	14,000	500	17,000

	Collection Period	Harrisburg, Pa. Mean Concentration pCi/l	Harrisburg, Pa. Mean Surface Density pCi/m²	Trenton, N.J. Mean Concentration pCi/l	Trenton, N.J. Mean Surface Density pCi/m²	Baltimore, Md. Mean Concentration pCi/l	Baltimore, Md. Mean Surface Density pCi/m²
1970	January	300	7,000	0(<60)	0(<1,000)	0(<80)	0(<1,000)
	February	200	9,000	0(<20)	0(<1,000)	0(<30)	0(<1,000)
	March	300	6,000	70	7,000	350	24,000
	April	300	16,000	80	9,000	280	21,000
	May	100	2,000	160	15,000	380	13,000
	June	270	11,000	150	16,000	240	15,000
	July	200	4,000	80	2,000	40	2,000
	August	220	10,000	40	4,000	30	1,000
	September	100	2,000	70	2,000	0(<300)	0(<1,000)
	October	200	4,000	90	7,000	0(<40)	0(<1,000)
	November	100	3,000	10	1,000	0(<20)	0(<1,000)
	December	100	1,000	30	2,000	0(<40)	0(<1,000)
	Mean	200	6,000	70	6,000	200	7,000
1971	January	(f)	(f)	.0	1,000	0(<30)	0(<1,000)
	February			40	4,000	0(<20)	0(<1,000)
	March			90	9,000	0(<30)	0(<1,000)
	April			80	5,000	0(<40)	0(<1,000)
	May			150	13,000	610	11,000
	June			200	9,000	0(<20)	0(<1,000)
	July			100	9,000	0(<20)	0(<1,000)
	August			70	2,000	0(<20)	0(<1,000)
	September			40	2,000	0(<30)	0(<1,000)
	October			0(<10)	0(<1,000)	0(<30)	0(<1,000)
	November			50	5,000	0(<30)	0(<1,000)
	December			40	1,000	0(<80)	0(<1,000)
	Mean			70	5,000	80	7,000
1972	January			0(<10)	0(<1,000)	0(<20)	0(<1,000)
	February			20	2,000	0(<20)	0(<1,000)
	March	200	5,000	40	4,000	0(<20)	0(<1,000)
	April	200	4,000	160	13,000	0(<20)	0(<1,000)
	May	400	3,000	60	7,000	0(<20)	0(<1,000)
	June	320	14,000	40	8,000	0(<20)	0(<1,000)
	July	100	2,000	20	2,000	100	4,000
	August	200	4,000	40	2,000	730	19,000
	September			30	1,000	0(<40)	0(<1,000)
	October			7	1,000	0(<20)	0(<1,000)
	November	160	16,000	20	3,000	0(<20)	0(<1,000)
	December	100	2,000	30	4,000	0(<10)	0(<1,000)
	Mean	200	6,000	40	4,000	90	3,000
1973	January			30	2,000	0(<30)	0(<1,000)
	February			10	1,000	0(<20)	0(<1,000)
	March			20	2,000	0(<20)	0(<1,000)
	April			30	6,000	0(<10)	0(<1,000)
	May			30	3,000	0(<20)	0(<1,000)
	Mean			20	3,000	<20	<1,000

(a) Data not available.

(b) Zero precipitation at this location in December.

(c) The only value reported for Harrisburg, Pa., in 1968 was for June.

(d) No sample collected.

(e) The only values reported for Harrisburg, Pa., in 1969 were for December.

(f) No values reported for Harrisburg, Pa., in 1971.

(g) EPA data are reported to the nearest nCi/m².

(h) In calculating annual mean values, monthly values reported as 0 have been included as <1000 pCi/m², which is the lowest positive value reported by EPA.

(i) Calculated using the actual sample volume and a lower limit of <1000 pCi/m².

TABLE 3.1
SURFACE WATER
GROSS ALPHA RADIOACTIVITY
Concentrations in pCi/l
Years 1966 to 1971

Collection Period	Conowingo Dam - El. 33' MSL (4F)		Holtwood Dam - Hydro. Sta. (6A)	
	Soluble	Insoluble	Soluble	Insoluble
2/2/66	<3	<1	<2	3 ± 2
3/5	<1	<1	<1	<1
4/2	<2	<1	<2	<1
5/7	<1	<2	<1	<3
6/4	7 ± 4	5 ± 4	8 ± 5	6 ± 4
7/1	10 ± 4	<1	<4	<2
8/5	<3	<1	<4	<3
9/3	<2	<2	<3	<1
10/1	<2	<0.6	<3	<1
11/4	10 ± 6	3 ± 2	<3	3 ± 2
12/2	4 ± 4	<3	6 ± 5	<3
1/7/67	<3	<2	5 ± 4	<2
2/4	<2	<2	2 ± 2	4 ± 3
3/3	<3	<1	<2	<1
4/8	<1	2 ± 1	8 ± 4	2 ± 2
5/5	8 ± 5	<2	6 ± 5	3 ± 2
6/3	9 ± 5	2 ± 2	13 ± 8	2 ± 1
7/5	8 ± 5	5 ± 3	<2	6 ± 3
8/5	<2	6 ± 4	<3	<1
9/2	<2	<1	<4	2 ± 2
10/11	<2	<2	<2	<0.5
11/4	<4	<2	<3	<2
12/1	<3	<2	<3	<1
1/14/68	<3	<3	<4	<0.9
2/3	<2	<1	<2	<1
3/2	<3	<0.9	<4	<0.6
4/6	7 ± 4	<1	<2	1 ± 1
5/4	<2	<2	<3	<1
6/1	<2	<2	<2	2 ± 2

Collection Period	Conowingo Dam - El. 33' MSL (4F)		Holtwood Dam - Hydro. Sta. (6A)	
	Soluble	Insoluble	Soluble	Insoluble
7/3/68	<1	<0.5	<2	<1
8/3	<4	<1	<3	<1
9/6	<2	<1	<2	<1
10/4	<4	<1	<3	<0.7
11/2	<4	<0.7	<4	<1
12/8	<4	4 ± 2	<3	<1
1/5/69	<2	<1	<3	3 ± 2
2/2	4 ± 4	<1	<2	<0.7
3/2	<0.6	1 ± 1	<0.6	<1
4/7	<0.4	3 ± 2	<0.4	1 ± 1
5/3	<0.6	<2	<1	<1
6/7	<0.4	1 ± 1	<0.6	1 ± 1
7/5	<2	<1	<0.8	<1
8/4	<0.8	<1	<0.8	1 ± 1
9/6	<0.4	<0.6	1.3 ± 0.8	<0.2
10/5	<0.6	<0.4	<0.6	<0.6
11/1	1 ± 1	<0.8	<0.4	<0.4
12/7	<0.6	<0.8	<0.6	<0.4
1/4/70	<0.4	<0.8	<0.6	<0.6
2/8	<0.8	2 ± 1	<0.6	<1
3/7	<0.7	1 ± 1	<0.8	<0.8
4/5	<0.8	<0.9	<0.7	<0.9
5/2	<0.4	2.0 ± 0.9	<0.4	<0.4
6/6	<0.2	0.9 ± 0.6	<0.4	<0.4
7/5	<0.5	<0.4	<0.5	<0.7
8/1	<0.7	0.6 ± 0.6	<0.5	<0.6
9/5	<0.4	<0.7	<0.4	<0.6
10/4	<0.3	<0.3	<0.4	<0.3
11/8	<0.6	1 ± 1	<0.6	<0.5
12/6	<0.9	<0.7	<0.6	<0.5

TABLE 3.2
SURFACE AND DISCHARGE WATER
GROSS ALPHA RADIOACTIVITY
Concentrations in pCi/l
Years 1971 to present

Collection Period	Peach Bottom - Unit #1 Intake (1P)		Peach Bottom - Unit #2 Intake (1Q)		Peach Bottom - Unit #1 Disc. (1R)		Peach Bottom Disc. Canal - 2200' (1T) (a)		Conowingo Dam - El. 33' MSL (4F)		Holtwood Dam - Hydro. Sta. (6A)		Chester Water Intake Pond (13A)	
	Soluble	Insoluble	Soluble	Insoluble	Soluble	Insoluble	Soluble	Insoluble	Soluble	Insoluble	Soluble	Insoluble	Soluble	Insoluble
1/3/71									<0.4	0.9 ± 0.8	1.2 ± 0.7	<0.6		
2/6									<0.6	<1	<0.7	<0.7		
3/7									<0.7	<0.6	<0.6	<0.6		
4/3									<0.4	<0.9	<0.2	<0.4		
5/2									<0.8	<0.7	<0.3	<0.6		
5/25(b)	<0.3	<0.4	<0.3	0.5 ± 0.3	<0.2	0.4 ± 0.4	<0.3	0.7 ± 0.6	<0.6	0.5 ± 0.2	0.9 ± 0.9	0.3 ± 0.1	<0.2	<0.4
7/2	<0.3	1.4 ± 0.7	<0.3	0.3 ± 0.1	<0.8	0.2 ± 0.1	<0.6	0.3 ± 0.1	<0.3	0.5 ± 0.5	<0.3	<0.3	<0.7	<0.6
7/29	<0.5	0.26 ± 0.08	0.7 ± 0.5	0.26 ± 0.08	<0.3	0.17 ± 0.07	<0.5	0.26 ± 0.08	<0.4	0.18 ± 0.05	<0.4	0.34 ± 0.07	<0.5	0.23 ± [illegible]
9/4	<0.5	0.20 ± 0.07	<0.4	0.28 ± 0.06	<0.4	0.29 ± 0.06	<0.4	0.27 ± 0.06	<0.5	0.17 ± 0.07	<0.4	1.10 ± 0.[illegible]	<0.4	0.36 ± [illegible]
10/3	<0.3	0.23 ± 0.09	<0.2	0.23 ± 0.09	<0.3	0.2 ± 0.1	<0.2	0.2 ± 0.1	<0.3	0.19 ± 0.09	<0.3	0.15 ± 0.08	<0.2	0.3 ± 0.1
11/7	<0.4	0.2 ± 0.1	<0.5	0.1 ± 0.1	<0.4	0.3 ± 0.1	<0.4	0.2 ± 0.1	<0.6	0.2 ± 0.1	<0.4	0.2 ± 0.1	<0.6	0.4 ± 0.1
12/5	<0.5	0.3 ± 0.1	<0.4	0.2 ± 0.1	<0.5	0.3 ± 0.1	0.6 ± 0.6	0.2 ± 0.1	<0.4	0.5 ± 0.1	<0.5	0.08 ± 0.08	<0.4	0.13 ± [illegible]
1/2/72	<0.3	0.2 ± 0.1	<0.7	0.1 ± 0.1	<0.3	0.2 ± 0.1	<0.3	0.2 ± 0.1	<0.4	0.2 ± 0.1	<0.4	0.1 ± 0.1	<0.4	<0.1
2/6	<0.3	0.4 ± 0.1	<0.3	0.I3 ± 0.06	<0.3	0.21 ± 0.08	<0.2	<0.2	<0.4	0.5 ± 0.1	<0.3	0.23 ± 0.08	<0.4	0.13 ± 0.06
3/5	<0.3	0.3 ± 0.1	<0.2	0.5 ± 0.1	<0.4	0.4 ± 0.1	<0.3	0.3 ± 0.1	<0.3	0.5 ± 0.1	<0.3	0.7 ± 0.1	<0.3	0.5 ± 0.1
3/31	<0.2	1.1 ± 0.6	<0.2	0.4 ± 0.3	<2	1.[illegible] ± 0.2	<0.5	0.4 ± 0.3	<0.2	0.4 ± 0.4	<0.2	0.8 ± 0.4	<0.2	0.5 ± 0.2
5/7	<0.2	<0.1	<0.1	0.4 ± 0.4	<0.3	0.[illegible] ± 0.4	<0.2	0.4 ± 0.2	<0.2	0.9 ± 0.6	<0.2	0.7 ± 0.5	<0.2	1.2 ± [illegible]
6/4	<0.2	0.6 ± 0.3	<0.5	0.3 ± 0.2	<0.4	0.[illegible] ± 0.3	<0.4	0.3 ± 0.2	<0.4	0.5 ± 0.2	<0.4	0.2 ± 0.2	<0.1	[illegible]
7/[illegible]	1.1 ± 0.7	1.1 ± 0.5	1.8 ± 0.8	0.7 ± 0.4	<0.2	0.9 ± 0.4	<0.4	1.2 ± 0.5	0.7 ± 0.6	0.9 ± 0.4	<0.2	<0.2	<0.2	[illegible] ± 0.7
8/5	<0.5	0.8 ± 0.5	1.0 ± 0.9	0.5 ± 0.2	<0.5	0.6 ± 0.4	<0.3	0.4 ± 0.2	<0.5	<0.2	<0.5	<0.3	<2	0.6 ± 0.4
9/10	<0.7	0.5 ± 0.3	<0.8	0.3 ± 0.2	<0.7	0.3 ± 0.[illegible]	<0.4	0.5 ± 0.2	<0.8	0.7 ± 0.4	<0.4	0.2 ± 0.2	<0.4	0.3 ± 0.3
10/8	<0.9	0.7 ± 0.4	1 ± 1	0.4 ± 0.2	<0.4	0.5 ± 0.4	<1	0.9 ± 0.4	<0.2	<0.1	<0.4	0.3 ± 0.3	<0.4	0.5 ± 0.4
11/15	<0.7	0.8 ± 0.3	<0.4	0.3 ± 0 2	<0.2	0.7 ± 0.3	<0.2	0.7 ± 0.3	<0.7	0.2 ± 0.1	<0.8	<0.2	<0.2	[illegible] ± 0.3
12/3	<0.2	0.3 ± 0.2	<0.2	<0.2	<0.1	0.9 ± 0.4	<0.2	1.1 ± 0.4	<0.2	0.3 ± 0.2	<0.5	0.2 ± 0.2	<0.2	0.3 ± 0.3
1/7/73	<0.1	0.8 ± 0.3	<0.1	0.4 ± 0.2	<0.1	1.0 ± 0.3	<0.1	1.2 ± 0.4	<0.1	0.5 ± 0.3	<0.1	0.4 ± 0.2	<0.1	[illegible]
2/4	<0.5	0.6 ± 0.3	<0.2	1.2 ± 0.5	<0.5	<0.2	<0.5	0.2 ± 0.2	:0.5	0.3 ± 0.3	<0.2	1.8 ± 0.9	<0.2	0.4 ± 0.3
3/4	<0.2	<0.1	<0.3	0.2 ± 0.2	<0.2	<0.1	<0.5	<0.5	<0.1	<0.2	<0.1	<0.1	<0.3	0.1 ± [illegible]
4/1	1.1 ± 0.8	0.3 ± 0.2	<0.3	0.1 ± 0.1	<0.4	0.2 ± 0.2	<0.5	0.2 ± 0.2	2 ± 1	0.1 ± 0.1	1.4 ± 0.8	0.2 ± 0.2	<0.2	0.5 ± [illegible]
5/6	<0.3	0.2 ± 0.2	<0.4	0.2 ± 0.2	<0.6	<0.2	<0.5	0.2 ± 0.2	<0.3	<0.2	<0.5	0.6 ± 0.2	<0.4	0.2 ± [illegible]
6/3	<0.4	0.4 ± 0.2	<0.4	<0.2	<0.4	0.5 ± 0.2	0.5 ± 0.5	0.3 ± 0.2	0.9 ± 0.6	0.4 ± 0.3	0.7 ± 0.6	0.4 ± 0.3	<0.2	0.2 ± [illegible]
7/1	<0.5	0.6 ± 0.5	0.6 ± 0.6	0.3 ± 0.2	<0.6	0.7 ± 0.5	<0.4	1.1 ± 0.6	<0.9	0.3 ± 0.2	<0.2	0.3 ± 0.3	<0.6	0.3 ± 0.3
8/5(c)	<0.3	0.4 ± 0.2	<0.4	0.2 ± 0.2	<0.3	0.4 ± 0.3	<0.4	0.5 ± 0.3	<0.2	0.5 ± 0.3	<0.4	<0.2	<0.4	0.3 ± [illegible]

(a) Station 1T became a discharge water station on 12/6/72.

(b) Collection period for Stations 4F and 6A was 6/5/71.

(c) Collection from Station 1[illegible] began on this date. The values are: Soluble - <0.[illegible]; Insoluble - 0.4 ± 0.2

TABLE 3.3
SURFACE WATER
GROSS BETA RADIOACTIVITY
Concentrations in pCi/l
Years 1966 to 1971

Collection Period	Conowingo Dam - El. 33' MSL (4F) Soluble	Conowingo Dam - El. 33' MSL (4F) Insoluble	Holtwood Dam - Hydro. Sta. (6A) Soluble	Holtwood Dam - Hydro. Sta. (6A) Insoluble
2/2/66	9 ± 6	<6	21 ± 8	<6
3/5	<6	<6	<6	<6
4/2	16 ± 6	13 ± 6	11 ± 6	<6
5/7	10 ± 6	11 ± 6	11 ± 6	8 ± 6
6/4	11 ± 6	9 ± 6	11 ± 6	12 ± 6
7/1	33 ± 8	25 ± 8	32 ± 8	34 ± 8
8/5	37 ± 4	31 ± 8	36 ± 9	33 ± 8
9/3	54 ± 9	30 ± 8	48 ± 9	44 ± 9
10/1	15 ± 8	21 ± 8	20 ± 8	16 ± 8
11/4	14 ± 6	11 ± 6	18 ± 8	13 ± 6
12/2	11 ± 8	21 ± 9	21 ± 9	28 ± 9
1/7/67	16 ± 8	19 ± 8	50 ± 10	22 ± 9
2/4	<6	<8	<6	<8
3/3	<8	<8	<8	<7
4/8	11 ± 8	14 ± 8	12 ± 8	<8
5/5	23 ± 9	11 ± 8	11 ± 8	18 ± 8
6/3	13 ± 8	<8	9 ± 3	<8
7/5	<8	<8	<8	11 ± 8
8/5	<6	<8	<8	<8
9/2	<6	<6	<6	<8
10/11	<8	<8	<6	<6
11/4	8 ± 8	<6	<6	<6
12/1	<6	<6	9 ± 8	<6
1/14/68	9 ± 8	<6	9 ± 6	11 ± 8
2/3	14 ± 8	<6	<6	<6
3/2	<7	<6	<6	<6
4/6	25 ± 9	<8	11 ± 8	<8
5/4	9 ± 8	<8	30 ± 9	<6
6/1	5 ± 5	11 ± 6	<5	<5

Collection Period	Conowingo Dam - El. 33' MSL (4F) Soluble	Conowingo Dam - El. 33' MSL (4F) Insoluble	Holtwood Dam - Hydro. Sta. (6A) Soluble	Holtwood Dam - Hydro. Sta. (6A) Insoluble
7/3/68	<5	<5	<6	<5
8/3	13 ± 6	<6	<6	<6
9/6	<5	<5	<6	<6
10/4	<5	<5	<5	<5
11/2	<6	<6	<6	<6
12/8	<6	<6	20 ± 6	20 ± 6
1/5/69	<6	<6	<6	<6
2/2	<6	<6	13 ± 6	<6
3/2	13 ± 8	7 ± 6	37 ± 8	<6
4/7	12 ± 8	6 ± 6	36 ± 8	9 ± 6
5/3	36 ± 8	20 ± 6	13 ± 8	<6
6/7	38 ± 8	19 ± 6	13 ± 8	<6
7/5	8 ± 8	<8	<8	<8
8/4	<8	<8	<8	<8
9/6	7 ± 6	17 ± 3	10 ± 6	18 ± 8
10/5	11 ± 8	<8	9 ± 6	<6
11/1	10 ± 8	<6	8 ± 6	<6
12/7	15 ± 8	<8	6 ± 6	<6
1/4/70	<6	21 ± 6	<6	15 ± 6
2/8	78 ± 6	7 ± 6	9 ± 6	16 ± 6
3/7	11 ± 5	16 ± 5	12 ± 6	13 ± 6
4/5	8 ± 6	10 ± 2	8 ± 5	21 ± 5
5/2	8 ± 5	16 ± 6	3 ± 5	<6
6/6	11 ± 5	16 ± 5	21 ± 5	1.9 ± 0.3
7/5	<9	10 ± 10	<9	<10
8/1	<9	<10	<9	<10
9/5	12 ± 9	20 ± 9	9 ± 9	9 ± 9
10/4	<6	<6	11 ± 6	18 ± 6
11/8	<9	<9	<9	<9
12/6	14 ± 9	<9	<9	<9

TABLE 3.4
SURFACE AND DISCHARGE WATER
GROSS BETA RADIOACTIVITY
Concentrations in pCi/l
Years 1971 to present

Collection Period	Peach Bottom - Unit #1 Intake (1P)		Peach Bottom - Unit #2 Intake (1Q)		Peach Bottom Unit #1 Disc. (1R)		Peach Bottom Disc. Canal - 2200' (1T) (a)		Conowingo Dam - El. 33' MSL (4F)		Holtwood Dam - Hydro. Sta. (6A)		Chester Water Intake Pond (13A)	
	Soluble	Insoluble	Soluble	Insoluble	Soluble	Insoluble	Soluble	Insoluble	Soluble	Insoluble	Soluble	Insoluble	Soluble	Insoluble
1/3/71									110 ± 10	11 ± 9	120 ± 10	<9		
2/6									9 ± 9	38 ± 9	10 ± 9	18 ± 9		
3/7									25 ± 9	26 ± 9	10 ± 9	16 ± 9		
4/3									<9	<9	16 ± 8	<9		
5/2									40 ± 9	<8	9 ± 9	<8		
5/25(b)	9 ± 4	<4	10 ± 4	<4	6 ± 4	<4	5 ± 4	<4	17 ± 9	13.6 ± 0.9	<9	1.5 ± 0.6	6 ± 4	<4
7/2	9 ± 4	5 ± 4	12 ± 9	2.0 ± 0.6	<9	1.2 ± 0.6	<9	1.8 ± 0.6	9 ± 4	4 ± 4	<4	<4	9 ± 9	<9
7/29	7 ± 4	1.6 ± 0.6	<4	1.1 ± 0.6	8 ± 4	2.5 ± 0.6	9 ± 4	..1 ± 0.6	5 ± 4	2.6 ± 0.5	<4	2.3 ± 0.5	41 ± 4	0.6 ± 0.6
9/4	11 ± 4	1.3 ± 0.6	<4	1.8 ± 0.5	12 ± 4	1.8 ± 0.5	11 ± 4	1.0 ± 0.5	9 ± 4	1.4 ± 0.6	12 ± 4	0.9 ± 0.6	5 ± 4	<0.6
10/3	6 ± 4	1.4 ± 0.6	6 ± 4	0.9 ± 0.6	12 ± 4	<0.6	8 ± 4	0.8 ± 0.6	8 ± 4	0.9 ± 0.6	10 ± 4	1.0 ± 0.6	10 ± 4	1.0 ± 0.6
11/7	5 ± 4	1.0 ± 0.5	<4	1.5 ± 0.5	<4	0.5 ± 0.5	<4	2.4 ± 0.5	4 ± 4	2.2 ± 0.5	10 ± 4	1.1 ± 0.5	6 ± 4	6.8 ± 0.6
12/5	5 ± 4	1.6 ± 0.5	7 ± 4	0.9 ± 0.5	8 ± 4	2.0 ± 0.5	6 ± 4	2.3 ± 0.5	8 ± 4	4.3 ± 0.5	<4	1.0 ± 0.5	5 ± 4	0.6 ± 0.5
1/2/72	4 ± 4	2.0 ± 0.5	4 ± 4	1.5 ± 0.5	7 ± 4	2.1 ± 0.5	8 ± 4	2.2 ± 0.5	30 ± 5	2.1 ± 0.5	<4	1.1 ± 0.5	<4	1.9 ± 0.5
2/4	5 ± 4	2.6 ± 0.6	<4	0.7 ± 0.6	<4	0.9 ± 0.6	6 ± 4	0.9 ± 0.6	10 ± 4	6.6 ± 0.7	4 ± 4	1.3 ± 0.6	9 ± 4	0.6 ± 0.6
3/5	26 ± 5	8.2 ± 0.7	10 ± 4	11.3 ± 0.8	<3	6.3 ± 0.6	4 ± 4	7.5 ± 0.7	6 ± 4	9.6 ± 0.7	<4	15.5 ± 0.9	9 ± 4	12.8 ± 0.8
3/31	<2	3.0 ± 0.6	<2	1.2 ± 0.5	<2	2.6 ± 0.6	2 ± 2	1.6 ± 0.6	<2	1.9 ± 0.6	<2	<0.5	<2	0.7 ± 0.5
5/7	<2	1.1 ± 0.5	2 ± 2	<0.5	<2	<0.5	3 ± 2	<0.4	2 ± 2	3.1 ± 0.6	3 ± 2	1.9 ± 0.6	2 ± 2	3.2 ± 0.7
6/4	<2	<0.5	<2	1.5 ± 0.5	<2	<0.5	<2	<0.4	<2	7.2 ± 0.6	<2	<0.5	<2	0.8 ± 0.5
7/2	2 ± 2	2.3 ± 0.5	5 ± 2	4.1 ± 0.6	<2	2.1 ± 0.6	<2	1.3 ± 0.7	2 ± 2	1.2 ± 0.5	2 ± 2	1.7 ± 0.5	2 ± 2	4.9 ± 0.7
8/5	<2	1.8 ± 0.6	3 ± 2	<0.4	5 ± 2	<0.4	<2	<0.4	<2	0.9 ± 0.5	<2	<0.5	4 ± 2	0.7 ± 0.5
9/10	2 ± 2	0.9 ± 0.5	<2	<0.5	<2	0.3 ± 0.5	2 ± 2	<0.4	<2	3.8 ± 0.6	2 ± 2	0.4 ± 0.4	<2	1.0 ± 0.5
10/8	3 ± 2	0.5 ± 0.5	<2	<0.5	2 ± 2	1.0 ± 0.5	<2	0.7 ± 0.5	<2	<0.4	<2	<0.6	<2	2.0 ± 0.6
11/15	<2	0.6 ± 0.5	3 ± 2	<0.4	<2	0.8 ± 0.5	<2	1.0 ± 0.5	2 ± 2	<0.4	<2	0.8 ± 0.5	4 ± 2	<0.5
12/3	<2	0.5 ± 0.5	<2	<0.4	<2	1.1 ± 0.5	<2	2.4 ± 0.5	<2	0.5 ± 0.5	<2	0.7 ± 0.5	<2	<0.5
1/7/73	5.0 ± 0.2	1.2 ± 0.6	8 ± 2	4.1 ± 0.5	<2	1.4 ± 0.5	<2	1.9 ± 0.5	8 ± 2	3.8 ± 0.6	6 ± 2	1.2 ± 0.5	<2	1.1 ± 0.5
2/4	<2	1.2 ± 0.5	<2	2.6 ± 0.6	<2	1.3 ± 0.5	<2	0.7 ± 0.5	<2	1.3 ± 0.5	<2	4.9 ± 0.6	<2	1.5 ± 0.5
3/4	<2	0.6 ± 0.5	<2	<0.4	<2	<0.4	<2	<0.4	<2	0.6 ± 0.5	<2	<0.4	<2	0.9 ± 0.5
4/1	11 ± 2	0.8 ± 0.5	<2	0.5 ± 0.4	3 ± 2	0.7 ± 0.4	2 ± 2	<0.4	8 ± 2	1.0 ± 0.5	7 ± 2	0.7 ± 0.4	<2	1.1 ± 0.5
5/6	3 ± 2	<0.5	5 ± 2	<0.5	2 ± 2	<0.4	3 ± 2	<0.4	5 ± 2	<0.5	2 ± 2	<0.4	4 ± 2	0.6 ± 0.5
6/3	<2	<0.4	3 ± 2	0.9 ± 0.5	<2	<0.4	<2	<0.4	8 ± 2	0.7 ± 0.5	9 ± 2	<0.4	<2	0.5 ± 0.4
7/1	4 ± 2	2.5 ± 0.6	2 ± 2	1.9 ± 0.5	7 ± 2	3.2 ± 0.6	2 ± 2	2.5 ± 0.6	<2	2.9 ± 0.5	<2	0.5 ± 0.5	0.3 ± 0.2	<0.5
8/5(c)	<2	0.9 ± 0.5	4 ± 2	<0.4	<1	0.6 ± 0.5	2 ± 2	0.7 ± 0.5	5 ± 2	1.0 ± 0.5	2 ± 2	<0.4	<1	<0.4

(a) Station 1T became a discharge water station on 12/6/72.

(b) Collection period for Stations 4F and 6A was 6/5/71.

(c) Collections from Station 1M began on this date. The values are: Soluble - <1; Insoluble - 0.5±0.5

TABLE 3.5
SURFACE WATER
COMPOSITE SAMPLES
COLLECTED FROM STATIONS 13B AND 4L

COLLECTED FROM CHESTER WATER INTAKE PUMP DISCHARGE
Station 13B

Date Collected	Concentrations pCi/liter				Concentrations Net cpm/liter	
	Gross Alpha Radioactivity		Gross Beta Radioactivity		Gross Gamma	
	Sol.	Insol.	Sol.	Insol.	Sol.	Insol.
6/21/71	<0.4	0.4 ± 0.1	9 ± 4	3.2 ± 0.7	<0.9	<0.9
10/ 8/71	<0.3	0.6 ± 0.1	11 ± 4	4.8 ± 0.7	<1	12 ± 1
Annual Mean	<0.4	0.5	10	4.0	<1	6

COLLECTED FROM CONOWINGO DAM
Station 4L

Date Collected	Concentratior Ci/liter				Concentrations Net cpm/liter	
	Gross Alpha Radioactivity		Gross Beta Radioactivity		Gross Gamma	
	Sol.	Insol.	Sol.	Insol.	Sol.	Insol.
1/ 7/73	<0.2	2 ± 1	<2	6 ± 2	3.9 ± 0.8	1.6 ± 0.8
2/ 4/73	<0.5	0.2 ± 0.2	<2	<2	<0.8	<0.8
3/ 4/73	<0.2	0.4 ± 0.2	<2	0.8 ± 0.5	<0.8	<0.8
4/ 1/73	<0.5	0.4 ± 0.2	3 ± 2	0.5 ± 0.4	<0.8	<0.8
5/ 6/73	<0.4	0.2 ± 0.2	3 ± 2	0.6 ± 0.4	<0.8	<0.8
6/ 3/73	<0.5	<0.2	<2	<0.4	<0.8	<0.8
7/ 1/73	<0.5	0.3 ± 0.2	<2	<0.4	1.2 ± 0.9	<0.8
8/ 5/73	<0.2	0.4 ± 0.3	3 ± 2	<0.4	1.3 ± 0.8	<0.8
Annual Mean	<0.4	0.5	2	1	1.3	0.9

TABLE 3.6
SURFACE AND DISCHARGE WATER
GROSS GAMMA RADIOACTIVITY
Concentrations in Net cpm/l

Collection Period	Peach Bottom - Unit #1 Intake (1P)			Peach Bottom - Unit #2 Intake (1Q)		
	Liters Scanned	Soluble	Insoluble	Liters Scanned	Soluble	Insoluble
5/25/71	3.4	<1	<1	3.4	<1	<1
6/ 5/71						
7/ 2/71	3.5	<0.9	<0.9	3.8	<0.9	<0.9
7/29/71	4.0	<0.8	<0.8	4.0	1.2 ± 0.8	<0.8
9/ 4/71	4.0	0.8 ± 0.8	<0.8	4.0	<0.8	<0.8
10/ 3/71	4.0	0.8 ± 0.8	1.5 ± 0.8	4.0	<0.8	0.9 ± 0.8
11/ 7/71	4.0	2.8 ± 0.8	1.0 ± 0.8	4.0	<0.8	9.0 ± 0.8
12/ 5/71	4.0	<0.8	<0.8	4.0	<0.8	<0.8
1/ 2/72	4.0	<0.8	<0.8	4.0	2.9 ± 0.8	<0.8
2/ 6/72	4.0	<0.8	<0.8	4.0	<0.8	1.6 ± 0.8
3/ 5/72	4.0	2.3 ± 0.8	4.7 ± 0.8	3.7	1.2 ± 0.9	1.5 ± 0.9
3/31/72	3.9	<0.9	1.3 ± 0.9	3.85	<0.9	1.9 ± 0.9
5/ 7/72	3.95	<0.8	1.0 ± 0.8	3.9	1.5 ± 0.9	<0.9
6/ 4/72	3.95	<0.8	<0.8	3.9	<0.9	<0.9
7/ 2/72	3.9	<0.9	<0.9	3.95	0.9 ± 0.8	<0.8
8/ 5/72	3.95	<0.8	1.0 ± 0.8	4.0	1.3 ± 0.8	<0.8
9/10/72	4.0	<0.8	<0.8	4.0	<0.8	<0.8
10/ 8/72	3.95	2.7 ± 0.8	1.8 ± 0.8	3.95	<0.8	<0.8
11/13/72	4.0	<0.8	<0.8	4.0	2.8 ± 0.8	<0.8
12/ 3/72	4.0	<0.8	1.1 ± 0.8	4.0	<0.8	<0.8
1/ 7/73	4.0	7.8 ± 0.8	2.6 ± 0.8	4.0	0.8 ± 0.8	1.2 ± 0.8
2/ 4/73	4.0	<0.8	1.0 ± 0.8	4.0	<0.8	1.2 ± 0.8
3/ 4/73	4.0	<0.8	<0.8	4.0	2.2 ± 0.8	<0.8
4/ 1/73	4.0	<0.8	1.2 ± 0.8	4.0	<0.8	<0.8
5/ 6/73	4.0	1.0 ± 0.8	<0.8	4.0	1.1 ± 0.8	1.1 ± 0.8
6/ 3/73	4.0	<0.8	1.3 ± 0.8	4.0	<0.8	<0.8
7/ 1/73	4.0	<0.8	<0.8	4.0	<0.8	<0.8
8/ 5/73(b)	4.0	<0.8	<0.8	4.0	<0.8	<0.8

Collection Period	Peach Bottom - Unit #1 Disc. (1R)			Peach Bottom Disc. Canal - 2200' (1T) (a)		
	Liters Scanned	Soluble	Insoluble	Liters Scanned	Soluble	Insoluble
5/25/71	3.4	<1	<1	3.4	6 ± 1	<1
6/ 5/71						
7/ 2/71	3.7	<0.9	<0.9	3.7	<0.9	1.2 ± 0.9
7/29/71	4.0	<0.8	<0.8	4.0	1.8 ± 0.8	5.2 ± 0.8
9/ 4/71	4.0	1.3 ± 0.8	<0.8	4.0	1.2 ± 0.8	<0.8
10/ 3/71	3.0	<1	<1	4.0	2.3 ± 0.8	0.8 ± 0.8
11/ 7/71	4.0	<0.8	<0.8	4.0	<0.8	<0.8
12/ 5/71	4.0	<0.8	<0.8	4.0	<0.8	<0.8
1/ 2/72	4.0	0.9 ± 0.8	<0.8	4.0	<0.8	<0.8
2/ 6/72	4.0	<0.8	<0.8	4.0	<0.8	<0.8
3/ 5/72	4.0	7.3 ± 0.8	<0.8	4.0	<0.8	1.7 ± 0.8
3/31/72	3.85	1.4 ± 0.9	1.5 ± 0.9	3.85	<0.9	<0.9
5/ 7/72	3.9	<0.9	<0.9	3.84	1.0 ± 0.9	<0.9
6/ 4/72	3.85	1.2 ± 0.9	1.3 ± 0.9	3.9	0.9 ± 0.9	1.2 ± 0.9
7/ 2/72	3.9	<0.9	<0.9	3.9	<0.9	1.6 ± 0.9
8/ 5/72	4.0	<0.8	<0.8	4.0	<0.8	1.7 ± 0.8
9/10/72	4.0	<0.8	<0.8	4.0	<0.8	<0.8
10/ 8/72	3.95	<0.8	<0.8	3.95	<0.8	1.2 ± 0.8
11/13/72	4.0	<0.8	<0.8	4.0	<0.8	<0.8
12/ 3/72	4.0	0.8 ± 0.8	<0.8	4.0	<0.8	1.5 ± 0.8
1/ 7/73	4.0	<0.8	2.4 ± 0.8	4.0	<0.8	<0.8
2/ 4/73	4.0	<0.8	<0.8	4.0	<0.8	1.1 ± 0.8
3/ 4/73	4.0	<0.8	<0.8	4.0	1.2 ± 0.8	<0.8
4/ 1/73	4.0	<0.8	<0.8	4.0	1.0 ± 0.8	1.9 ± 0.8
5/ 6/73	4.0	<0.8	<0.8	4.0	<0.8	<0.8
6/ 3/73	4.0	<0.8	<0.8	4.0	1.0 ± 0.8	<0.8
7/ 1/73	4.0	<0.8	<0.8	4.0	1.1 ± 0.8	0.9 ± 0.8
8/ 5/73(b)	[illegible]	<0.8	<0.8	4.0	<0.8	<0.8

Collection Period	Conowingo Dam - El. 33' MSL (4F)			Holtwood Dam - Hydro. Sta. (6A)			Chester Water Intake Pond (13A)		
	Liters Scanned	Soluble	Insoluble	Liters Scanned	Soluble	Insoluble	Liters Scanned	Soluble	Insoluble
5/25/71	1.0	6 ± 3	4 ± 3	1.0	5 ± 3	5 ± 3	3.5	<0.9	<0.9
6/ 5/71	3.5	<0.9	<0.9	3.5	<0.9	<0.9			
7/ 2/71	3.5	<0.9	<0.9	3.5	<0.9	2.4 ± 0.9	3.8	2.2 ± 0.9	<0.9
7/29/71	4.0	<0.8	1.8 ± 0.8	4.0	<0.8	2.5 ± 0.8	4.0	<0.8	1.5 ± 0.8
9/ 4/71	4.0	1.0 ± 0.8	<0.8	4.0	1.0 ± 0.8	<0.8	4.0	<0.8	<0.8
10/ 3/71	3.0	<1	2 ± 1	3.0	3 ± 1	<1	3.0	<1	<1
11/ 7/71	4.0	2.3 ± 0.8	1.4 ± 0.8	4.0	0.8 ± 0.8	<0.8	4.0	1.8 ± 0.8	<0.8
12/ 5/71	4.0	<0.8	1.4 ± 0.8	4.0	<0.8	1.1 ± 0.8	4.0	<0.8	<0.8
1/ 2/72	4.0	<0.8	6.0 ± 0.8	4.0	<0.8	<0.8	4.0	1.2 ± 0.8	1.1 ± 0.8
2/ 6/72	4.0	<0.8	<0.8	4.0	<0.8	<0.8	4.0	<0.8	<0.8
3/ 5/72	3.5	4.2 ± 0.9	3.0 ± 0.9	3.7	4.8 ± 0.9	3.4 ± 0.9	4.0	2.5 ± 0.8	1.6 ± 0.8
3/31/72	3.9	<0.9	<0.9	3.9	<0.9	<0.9	3.9	1.3 ± 0.9	1.1 ± 0.9
5/ 7/72	3.9	1.6 ± 0.9	1.0 ± 0.9	3.9	<0.9	0.9 ± 0.9	3.9	<0.9	<0.9
6/ 4/72	4.0	4.1 ± 0.8	2.8 ± 0.8	3.9	<0.9	2.6 ± 0.9	3.9	2.8 ± 0.9	<0.9
7/ 2/72	3.85	2.5 ± 0.9	<0.9	3.95	3.5 ± 0.8	<0.8	3.95	2.6 ± 0.8	<0.8
8/ 5/72	3.9	<0.9	0.9 ± 0.9	3.93	2.0 ± 0.8	<0.8	4.0	2.5 ± 0.8	<0.8
9/10/72	4.0	<0.8	<0.8	4.0	3.0 ± 0.8	<0.8	4.0	<0.8	<0.8
10/ 8/72	3.95	2.5 ± 0.8	2.4 ± 0.8	3.95	1.6 ± 0.8	<0.8	3.95	<0.8	<0.8
11/13/72	4.0	<0.8	<0.8	4.0	<0.8	1.2 ± 0.8	4.0	2.4 ± 0.8	<0.8
12/ 3/72	4.0	<0.8	2.2 ± 0.8	4.0	2.1 ± 0.8	1.7 ± 0.8	4.0	<0.8	1.6 ± 0.8
1/ 7/73	4.0	5.3 ± 0.8	2.3 ± 0.8	4.0	<0.8	<0.8	4.0	<0.8	1.3 ± 0.8
2/ 4/73	4.0	1.2 ± 0.8	2.4 ± 0.8	4.0	<0.8	1.3 ± 0.8	4.0	<0.8	0.9 ± 0.8
3/ 4/73	4.0	<0.8	<0.8	4.0	<0.8	<0.8	4.0	<0.8	<0.8
4/ 1/73	4.0	<0.8	<0.8	4.0	<0.8	<0.8	4.0	<0.8	<0.8
5/ 6/73	4.0	<0.8	<0.8	4.0	<0.8	<0.8	4.0	<0.8	<0.8
6/ 3/73	4.0	<0.8	<0.8	4.0	<0.8	<0.8	4.0	<0.8	<0.8
7/ 1/73	4.0	<0.8	<0.8	4.0	<0.8	<0.8	4.0	<0.8	<0.8
8/ 5/73(b)	4.0	1.8 ± 0.8	<0.8	4.0	1.4 ± 0.8	<0.8	4.0	0.9 ± 0.8	<0.8

(a) Station 1T became a discharge water station on 12/6/72.

(b) Collections from station [illegible] began on this date. The values are:

Liters Scanned	Soluble	Insoluble
4.0	1.6±0.8	<0.8

TABLE 3.7
SURFACE AND DISCHARGE WATER
GROSS ALPHA RADIOACTIVITY
Concentrations in pCi/l
Yearly Averages

Collection Period	Conowingo Dam - El. 33' MSL (4T) Min. Sol.	Min. Insol.	Max. Sol.	Max. Insol.	Mean Sol.	Mean Insol.	Holtwood Dam - Hydro. Stn. (6A) Min. Sol.	Min. Insol.	Max. Sol.	Max. Insol.	Mean Sol.	Mean Insol.	Chester Water Intake Pond (13A) Min. Sol.	Min. Insol.	Max. Sol.	Max. Insol.	Mean Sol.	Mean Insol.
1966	<1	<0.6	10	5	4	2	<1	<1	8	6	3	7						
1967	<1	<1	9	6	4	2	<2	<0.5	13	6	4	2						
1968	<1	<0.5	7	4	3	2	<2	<0.6	<4	2	<3	1						
1969	<0.4	<0.4	4	3	1	1	<0.4	<0.2	<3	3	<1	1						
1970	<0.2	<0.3	<0.9	2	0.6	0.5	<0.4	<0.3	<0.8	<1	<0.5	<0.6						
1971	<0.3	0.17	<0.8	<1	0.5	<0.5	<0.2	0.08	1.2	1.10	0.5	0.4	<0.2	0.06	<0.7	0.6	<0.5	0.3
1972	<0.2	<0.1	<0.8	0.9	0.4	0.4	<0.2	0.10	0.8	0.8	0.4	0.3	<0.1	<0.1	2	1.6	0.4	0.6
1973	<0.1	<0.2	2	0.3	0.6	0.3	<0.1	<0.1	1.4	1.8	0.4	0.5	<0.1	0.1	<0.6	0.5	<0.3	0.3
Overall					2	1					2	1					0.4	0.4

Collection Period	Peach Bottom - Unit #1 Intake (1P) Min. Sol.	Min. Insol.	Max. Sol.	Max. Insol.	Mean Sol.	Mean Insol.	Peach Bottom - Unit #2 Intake (1Q) Min. Sol.	Min. Insol.	Max. Sol.	Max. Insol.	Mean Sol.	Mean Insol.
1971	<0.3	0.2	<0.3	1.4	<0.4	0.4	<0.2	0.09	0.7	0.3	0.4	0.2
1972	<0.2	<0.1	1.1	1.1	0.5	0.6	<0.4	0.1	1.4	0.7	0.6	0.4
1973	<0.1	<0.1	1.1	0.5	0.4	0.4	<0.1	<0.2	0.6	1.2	0.3	0.4
Overall					0.4	0.5					0.5	0.3

Collection Period	Peach Bottom - Unit #1 Disc. (1R) Min. Sol.	Min. Insol.	Max. Sol.	Max. Insol.	Mean Sol.	Mean Insol.	Peach Bottom Disc. Canal - 2200' (1T) Min. Sol.	Min. Insol.	Max. Sol.	Max. Insol.	Mean Sol.	Mean Insol.
1971	<0.3	0.17	<0.8	0.3	<0.4	0.2	<0.2	0.2	0.6	0.1	[illegible]	[illegible]
1972	<0.1	0.2	<2	1.6	<0.5	0.4	<0.2	<0.2	<1	1.2	[illegible]	[illegible]
1973	<0.1	<0.1	<0.6	1.0	<0.4	0.4	<0.1	<0.05	0.5	1.2	[illegible]	[illegible]
Overall					0.4	0.5					0.4	0.3

TABLE 3.8
SURFACE AND DISCHARGE WATER
GROSS BETA RADIOACTIVITY
Concentrations in pCi/l
Yearly Averages

Collection Period	Conowingo Dam - El. 33' MSL (4P) Min. Sol.	Min. Insol.	Max. Sol.	Max. Insol.	Mean Sol.	Mean Insol.	Holtwood Dam - Hydro. Sta. (6A) Min. Sol.	Min. Insol.	Max. Sol.	Max. Insol.	Mean Sol.	Mean Insol.	Chester Water Intake Pond (13A) Min. Sol.	Min. Insol.	Max. Sol.	Max. Insol.	Mean Sol.	Mean Insol.
1966	<6	<6	37	54	20	17	<6	<6	48	44	21	19						
1967	<6	<6	23	19	10	9	<6	<6	50	22	12	10						
1968	<5	<5	25	11	9	6	<5	<5	30	20	10	8						
1969	<6	<6	38	20	14	10	<6	<6	37	18	14	8						
1970	<6	<6	78	21	15	12	<6	1.9	21	21	10	11						
1971	<4	0.9	3	38	21	10	<4	0.9	120	18	18	6	5	<0.6	41	<9	13	<3
1972	<2	<0.4	30	9.6	3	3.1	<2	0.4	4	15.5	7	2.1	<2	<0.5	9	12.8	4	2.5
1973	<2	<0.5	8	3.8	3	1.5	<2	<0.4	9	4.9	4	1.1	0.3	<0.4	4	1.5	2	0.3
Overall					12	7					10	6					5	2

Collection Period	Peach Bottom - Unit #1 Intake (1P) Min. Sol.	Min. Insol.	Max. Sol.	Max. Insol.	Mean Sol.	Mean Insol.	Peach Bottom - Unit #2 Intake (1Q) Min. Sol.	Min. Insol.	Max. Sol.	Max. Insol.	Mean Sol.	Mean Insol.	Peach Bottom - Unit #1 Ta.. (1R) Min. Sol.	Min. Insol.	Max. Sol.	Max. Insol.	Mean Sol.	Mean Insol.	Peach Bottom Disc. Canal - 2209' (1T) Min. Sol.	Min. Insol.	Max. Sol.	Max. Insol.	Mean Sol.	Mean Insol.
1971	3	1.0	11	5	7	2	<4	0.9	12	2.0	4	1.4	<4	0.5	12	2.5	9	1.4	[illegible]	[illegible]	11	2.4	8	1.6
1972	<2	<0.5	36	5.2	4	2.0	<2	<0.4	10	11.3	3	1.9	<2	<0.4	7	6.3	3	1.6	[illegible]	<0.4	[illegible]	7.8	3	1.0
1973	<2	<0.4	11	2.8	4	1.0	<2	<0.4	8	4.1	4	1.4	<1	<0.4	7	3.2	3	[illegible]	[illegible]	[illegible]	3	[illegible]	2	0.9
Overall					5	2					4	1.8					4	1.5					4	1.5

TABLE 3.9
SURFACE AND DISCHARGE WATER
GROSS GAMMA RADIOACTIVITY
Concentrations in Net cpm/l
Yearly Averages

Collection Period	Peach Bottom - Unit #1 Intake (1P) Min. Sol.	Min. Insol.	Max. Sol.	Max. Insol.	Mean Sol.	Mean Insol.	Peach Bottom - Unit #2 Intake (1Q) Min. Sol.	Min. Insol.	Max. Sol.	Max. Insol.	Mean Sol.	Mean Insol.
1971	<0.8	<0.8	2.8	1.5	1.1	1.0	<0.8	<0.8	1.2	9.0	0.9	2.0
1972	<0.8	<0.8	2.7	4.7	1.1	1.3	<0.8	<0.8	2.9	1.9	1.3	1.1
1973	<0.8	<0.8	7.8	2.6	1.7	1.2	<0.8	<0.8	2.2	1.2	1.0	0.9
Overall					1	1					1	1

Collection Period	Peach Bottom - Unit #1 Disc. (1R) Min. Sol.	Min. Insol.	Max. Sol.	Max. Insol.	Mean Sol.	Mean Insol.	Peach Bottom Disc. Canal - 2200' (1T) Min. Sol.	Min. Insol.	Max. Sol.	Max. Insol.	Mean Sol.	Mean Insol.
1971	<0.8	<0.8	1.2	<1	1.0	<0.9	[illegible]	0.8	6	3.2	2	1.3
1972	<0.8	<0.8	7.3	1.9	1.4	[illegible]	0.3	0.8	1.0	1.7	0.8	1.2
1973	<0.8	<0.8	<0.8	2.4	<0.8	1.0	[illegible]	[illegible]	1.2	1.9	0.9	1.0
Overall					1	1					1	1

Collection Period	Conowingo Dam - El. 33' MSL (4F) Min. Sol.	Min. Insol.	Max. Sol.	Max. Insol.	Mean Sol.	Mean Insol.	Holtwood Dam - Hydro. Sta. (6A) Min. Sol.	Min. Insol.	Max. Sol.	Max. Insol.	Mean Sol.	Mean Insol.	Chester Water Intake Pond (13A) Min. Sol.	Min. Insol.	Max. Sol.	Max. Insol.	Mean Sol.	Mean Insol.
1971	<0.8	<0.8	6	6	2	2	<0.8	<0.8	5	5	2	2	<0.8	<0.8	2.2	1.5	1.2	[illegible]
1972	<0.8	<0.8	6.1	6.0	1.9	1.9	<0.8	<0.8	4.8	3.4	1.8	1.3	<0.8	<0.8	2.8	1.6	1.6	[illegible]
1973	<0.8	<0.8	5.3	2.4	1.5	1.2	<0.8	<0.8	1.4	1.3	0.9	0.9	<0.8	<0.8	0.9	1.5	[illegible]	[illegible]
Overall					2	2					2	1					1	1

TABLE 3.10
SURFACE WATER
GROSS BETA RADIOACTIVITY
Concentrations (pCi/l)
Comparative Monthly Values

Collection Date	Combined Intake Stations (1P, 1Q and 1T)(a)		Conowingo Dam - El. 33' MSL (4F)		Chester Water Intake Pond (13A)	
	Soluble	Insoluble	Soluble	Insoluble	Soluble	Insoluble
5/25/71	8	<4	17	13.6	6	<4
7/2	10	2.9	9	4	9	<9
7/29	7	1.3	5	2.6	41	0.6
9/4	9	1.4	9	1.4	5	<0.6
10/3	7	1.0	8	0.9	10	1.0
11/7	4	1.6	4	2.2	6	6.8
12/5	6	1.6	8	4.3	5	0.6
Annual Mean	7	1.9	9	4	12	3
1/2/72	5	1.9	30	2.1	<4	1.9
2/6	5	1.4	10	6.6	9	0.6
3/5	13	9.0	6	9.6	9	12.8
3/31	2	1.9	<2	1.9	<2	0.7
5/7	2	0.7	2	3.1	2	3.2
6/4	2	0.8	<2	7.2	<2	0.8
7/2	3	2.6	2	1.2	2	4.9
8/6	2	0.9	<2	0.9	4	0.7
9/10	2	0.6	<2	3.8	<2	1.0
10/8	2	0.6	<2	<0.4	<2	2.0
11/15	2	0.7	2	<0.4	4	<0.5
12/3	2	1.1	<2	0.5	<2	<0.5
Annual Mean	4	1.8	5	3.1	4	2.5
1/7/73	6	2.6	8	3.8	<2	1.1
2/4	<2	1.9	<2	1.3	<2	1.5
3/4	<2	0.5	<2	0.6	<2	0.9
4/1	6	0.6	8	1.0	<2	1.1
5/[illegible]	4	<0.5	5	<0.5	4	0.6
6/3	2	0.6	8	0.7	<2	0.5
7/1	3	2.3	<2	2.9	0.3	<0.5
8/5	3	0.6	5	1.0	<1	<0.4
Annual Mean	4	1.1	5	1.5	2	0.8

(a) Station 1T was included as an Intake Station until 12/3/72, when it changed to a discharge station.

TABLE 3.11
SURFACE AND DISCHARGE WATER SAMPLES
GAMMA SPECTRUM ANALYSIS
Soluble Fraction

To Be Issued

TABLE 3.12
SURFACE AND DISCHARGE WATER SAMPLES
GAMMA SPECTRUM ANALYSIS
Insoluble Fraction

To Be Issued

TABLE 4.1
WELL WATER SAMPLES
COLLECTED FROM PEACH BOTTOM SITE - UTILITY BUILDING
Station 1U

Collection Date	Concentrations (pCi/liter) Gross Alpha Radioactivity	Gross Beta Radioactivity	Sr-90	Cs-137	Uranium Concentrations µg/liter
5/ 9/71	<2	<20	<0.3	<0.4	<0.04
6/30/71		3 ± 2			<0.04
7/30/71	2.0 ± 0.9	<9			
10/ 7/71	0.6 ± 0.4	8 ± 4	0.4 ± 0.3	<0.3	<0.04
11/ 7/71	0.4 ± 0.3	5 ± 4			<0.04
1/ 2/72	1.4 ± 0.9	6 ± 3			<0.04
3/31/72	<0.5	<2	<0.1	<0.1	<0.03
7/ 2/72	<0.7	<2	<0.1	0.3 ± 0.2	0.08
10/ 8/72	<0.2	<2			<0.03
11/15/72	<0.2	<2			<0.03
1/21/73	<0.3	<2	<0.8	0.4 ± 0.1	
3/ 4/73	<0.2	<2			<0.0
7/ 1/73	<0.4	<1	<0.2	<0.3	<0.03

COLLECTED FROM PEACH BOTTOM SITE - INFORMATION CENTER
Station 1V

Collection Date	Gross Alpha Radioactivity	Gross Beta Radioactivity	Sr-90	Cs-137	Uranium Concentrations µg/liter
5/ 9/71	2 ± 1	<9	<0.2	<0.6	<0.04
7/ 2/71	0.1 ± 0.1	<2			
7/30/71	<0.6	11 ± 9			
10/ 3/71	<0.7	40 ± 3	0.7 ± 0.5	<0.4	<0.04
11/ 7/71	0.4 ± 0.3	4 ± 4			<0.04
1/ 2/72	<0.3	<3			<0.04
3/31/72	<0.008	<2	0.36 ± 0.04	<0.2	<0.03
7/ 2/72	<1	<2	<0.1	<0.3	0.11
10/ 8/72	<0.3	<1			<0.03
11/15/72	<0.3	<2			<0.03
1/21/73	<0.3	<2	<0.3	<0.2	
3/ 4/73	<0.4	<1			<0.03
7/ 1/73	<0.4	<1	<0.7	1.0 ± 0.6	0.25

TABLE 4.2
WELL WATER SAMPLES
COLLECTED FROM PEACH BOTTOM SITE AREA
Station 28

Collection Date	Concentrations (pCi/liter) Gross Alpha Radioactivity	Gross Beta Radioactivity	Sr-90	Cs-137	Uranium Concentrations µg/liter
2/20/66	<1	6 ± 6			<0.04
5/ 7/66	<2	20 ± 6	<4		<0.04
9/10/66	<3	44 ± 9			<0.04
12/ 2/66	<0.4	11 ± 8	<2		<0.04
2/26/67	<2	8 ± 8			<0.04
5/ 5/67	8 ± 5	11 ± 8	<3		<0.04
8/12/67	<2	9 ± 8			<0.04
12/10/67	<1	<6	<1		<0.04
2/24/68	<3	<6			<0.04
5/ 4/68	<1	9 ± 8	<3		<0.04
7/21/68	<3	<6			<0.04
12/ 8/68	<3	<6	<4		<0.04
3/ 2/69	<3	17 ± 8			<0.04
6/13/69	<1	<8	<2		<0.04
8/18/69	<0.4	<6			<0.04
12/14/69	<0.6	36 ± 8	<0.7		<0.04
3/ 4/70	<0.8	<8			<0.04
5/ 2/70	0.6 ± 0.5	22 ± 8	<0.3		<0.04
7/26/70	1 ± 1	<10			<0.04
10/18/70	<0.9	<20	<0.4		<0.04
5/ 2/71	<3	20 ± 20	<2	8 ± 2	<0.04
7/ 2/71	0.3 ± 0.2	3 ± 2			
10/ 3/71	<0.7	32 ± 3	<0.5	<0.5	<0.04
11/ 7/71	0.4 ± 0.4	9 ± 4			<0.04
1/ 2/72	<0.4	<3			<0.04
3/31/72	<0.6	<2	<0.1	<0.1	<0.03
7/ 2/72	<0.4	<2	<0.1	0.2 ± 0.2	<0.04
12/24/72	<0.4	<2			<0.03
3/20/73	<0.5	<2	<0.4	<0.3	<0.03
5/ 6/73	<0.4	<2			<0.03
7/ 1/73	<0.4	< 2	<0.2	<0.3	0.11

Revised June 1974

TABLE 4.3
WELL WATER SAMPLES
COLLECTION FROM DARLINGTON, MD.
Station 7

Collection Date	Concentrations (pCi/liter) Gross Alpha Radioactivity	Gross Beta Radioactivity	Sr-90	Cs-137	Uranium Concentrations µg/liter
2/21/66	<3	<6			<0.04
5/15/66	<2	16 ± 6	4		<0.04
8/15/66	<2	49 ± 9			<0.04
10/25/66	<2	37 ± 9	<0.6		<0.04
2/26/67	9 ± 5	11 ± 8			<0.04
6/ 7/67	7 ± 5	16 ± 8	<4		<0.04
8/ 4/67	<3	9 ± 8			<0.04
11/12/67	<3	<6	<2		<0.04
2/26/68	<2	<6			<0.04
5/ 4/68	(a)				
7/20/68	<1	<6			<0.04
12/18/68	<3	<6	<3		<0.04
3/15/69	<3	18 ± 8			<0.04
6/13/69	<1	<8	<3		<0.04
8/18/69	<0.4	<6			<0.04
12/14/69	<1	13 ± 8	<0.4		<0.04
3/15/70	<0.8	12 ± 6			<0.04
5/ 2/70	<0.5	6 ± 6	<0.6		<0.04
7/25/70	<0.5	<10			<0.04
10/18/70	<0.9	<20	<0.4		<0.04
5/ 9/71	<0.9	<9	<0.1	0.5 ± 0.3	<0.04
6/25/71		<2			<0.04
10/ 6/71	<0.5	18 ± 3	<0.2	<0.3	<0.04
11/ 7/71	0.3 ± 0.3	8 ± 4			<0.04
1/ 2/72	<0.3	<3			<0.04
3/31/72	<0.1	2 ± 2	<0.1	0.3 ± 0.1	<0.03
8/ 5/72	<0.4	3 ± 2	<0.3	<0.2	<0.03
11/19/72	<0.6	<2			0.07
3/20/73	<0.4	<2	<0.2	<0.03	<0.03
5/ 6/73	<0.8	3 ± 2			0.28
7/ 1/73	<0.4	2 ± 1	<0.2	<0.3	0.35

TABLE 4.4
WELL WATER SAMPLES
COLLECTION FROM COLORA, MD.
Station 8

Collection Date	Concentrations (pCi/liter) Gross Alpha Radioactivity	Gross Beta Radioactivity	Sr-90	Cs-137	Uranium Concentrations µg/liter
2/20/66	<3	<6			<0.04
5/21/66	<3	12 ± 6	<4		<0.04
8/ 5/66	3 ± 3	28 ± 8			<0.04
11/11/66	<2	16 ± 8	<7		<0.04
2/19/67	26 ± 8	37 ± 9			<0.04
5/12/67	10 ± 6	14 ± 8	<3		<0.04
8/12/67	<3	<8			<0.04
12/10/67	<2	<6	<3		<0.04
2/24/68	<3	<6			<0.04
5/ 4/68	<2	9 ± 8	<2		<0.04
7/21/68	<1	<6			<0.04
12/18/68	<2	<6	<3		<0.04
3/15/69	<3	9 ± 8			<0.04
6/13/69	<0.7	9 ± 8	<2		<0.04
8/18/69	<0.7	11 ± 5			<0.04
12/14/69	<0.8	<8	<0.2		<0.04
2/20/70	<0.4	<8			<0.04
5/ 2/70	<0.5	9 ± 6	<1		<0.04
7/25/70	<0.6	<10			<0.04
10/18/70	1 ± 1	<20	29.1 ± 0.4		<0.04
5/ 2/71	<0.8	38 ± 8	<2	3.5 ± 0.8	<0.04
7/ 2/71	0.1 ± 0.1	2 ± 2			
10/ 6/71	<0.6	26 ± 3	<0.4	<0.4	<0.04
11/ 7/71	0.6 ± 0.4	<4			<0.04
1/ 2/72	<0.3	<3			<0.04
3/31/72	<0.6	<2	0.10 ± 0.09	0.8 ± 0.2	<0.03
8/ 5/72	<0.2	<2	<0.5	<0.6	0.05
11/19/72	<0.5	<2			0.08
3/20/73	<0.4	<2	<0.5	1.7 ± 0.5	.14
5/ 6/73	<0.6	<2			<0.03
7/ 1/73	<0.5	2 ± 2	<0.3	<0.5	0.18

TABLE 4.5
WELL WATER SAMPLES
GROSS GAMMA RADIOACTIVITY

Location	Station No.	Collection Date	Volume Scanned (l)	Net cpm/l
Colora, Md.	8	5/ 2/71	0.9	4 ± 4
		10/ 6/71	4.0	7.3 ± 0.8
		3/31/72	1.97	<2
		8/ 5/72	4.0	1.3 ± 0.8
		7/ 1/73	3.86	1.9 ± 0.9
Peach Bottom Si[illegible]	28	5/ 2/71	1.0	<3
		10/ 3/71	3.9	6.0 ± 0.9
		3/31/72	2.0	<2
		7/ 2/72	2.0	6 ± 2
		7/ 1/73	4.0	0.9 ± 0.8
Peach Bottom Utility Building	1U	5/ 9/71	1.0	<3
		3/31/72	2.0	<2
		7/ 2/72	2.0	<2
		1/21/73	4.0	2.5 ± 0.8
		7/ 1/73	3.8	<0.9
Peach Bottom Information Center	1V	5/ 9/71	1.0	<3
		10/ 3/71	2.9	6 ± 1
		3/31/72	2.0	2 ± 2
		7/ 2/72	2.0	<2
		1/21/73	4.0	1.8 ± 0.8
		7/ 1/73	3.8	<0.9
Darlington, Md.	7	5/ 9/71	1.0	<3
		10/ 6/71	4.0	7.3 ± 0.8
		3/31/72	2.0	<2
		8/ 5/72	4.0	1.2 ± 0.8
		7/ 1/73	3.85	1.8 ± 0.9

TABLE 4.6
WELL WATER
YEARLY AVERAGES
Concentrations in pCi/liter

	Darlington, Md. Station 7			
Year	Gross Alpha Radioactivity	Gross Beta Radioactivity	Sr-90	Cs-137
1966	<2	27	2	
1967	6	10	<3	
1968	<2	<6	<3	
1969	<1	11	<2	
1970	<0.7	8	<0.5	
1971	0.6	9	<0.2	0.4
1972	<0.4	2	<0.2	0.2
1973	<0.5	2	<0.2	<0.2
Overall	2	10	1	0.3

	Colora, Md. Station 8			
Year	Gross Alpha Radioactivity	Gross Beta Radioactivity	Sr-90	Cs-137
1966	3	20	<6	
1967	10	16	<3	
1968	<2	7	<2	
1969	<1	9	<1	
1970	0.6	11	15	
1971	0.5	18	<1	2.0
1972	<0.4	<2	0.3	0.7
1973	<0.5	2	<0.4	1.1
Overall	2	10	4	1.2

	Peach Bottom Site Station 28			
Year	Gross Alpha Radioactivity	Gross Beta Radioactivity	Sr-90	Cs-137
1966	<2	16	<3	
1967	3	8	<2	
1968	<2	7	<4	
1969	<1	17	<1	
1970	0.8	15	<4	
1971	1	16	<1	4
1972	<0.4	<2	<0.[illegible]	0.2
1973	<0.4	2	<0.[illegible]	0.3
Overall	1	10	1	2

	Peach Bottom - Utility Building Station 1U			
Year	Gross Alpha Radioactivity	Gross Beta Radioactivity	Sr-90	Cs-137
1971	1	9	0.4	0.[illegible]
1972	0.6	3	<0.1	0.2
1973	<0.3	2	<0.5	0.4
Overall	0.7	5	0.3	0.3

	Peach Bottom - Information Center Station 1V			
Year	Gross Alpha Radioactivity	Gross Beta Radioactivity	Sr-90	Cs-137
1971	0.8	13	0.4	<0.5
1972	<0.4	<2	0.2	<0.2
1973	<0.4	<1	<0.5	0.1
Overall	0.5	6	0.4	0.3

	Combined Yearly Averages For Gross Beta Radioactivity	
Year	Stations 1U, 1V & 28	Stations 7 & 8
1966	16	21
1967	8	13
1968	7	6
1969	17	10
1970	15	10
1971	12	13
1972	2	2
1973	2	2
Overall	9	10

TABLE 4.7
WELL WATER SAMPLES
GAMMA SPECTRUM ANALYSIS

To Be Issued

TABLE 5.1
SOIL SAMPLES
COLLECTION FROM PEACH BOTTOM SITE
Station 1AA

Collection Date	Concentrations (pCi/g dry wt.) Gross Alpha Radioactivity	Gross Beta Radioactivity	K-40	Net Beta Radioactivity	Sr-90	Cs-137
2/16/66	3 ± 1	3.0 ± 0.9	0.29 ± 0.04	2.8 ± 0.9		
5/ 7/66	7 ± 1	3.6 ± 0.9	0.30 ± 0.04	3.3 ± 0.9		
8/ 5/66	9 ± 2	16 ± 2	0.30 ± 0.04	16 ± 2		
10/22/66	4 ± 2	5 ± 1	0.30 ± 0.04	5 ± 1		
2/ 4/67	3 ± 1	6 ± 1	0.20 ± 0.04	6 ± 1		
4/ 8/67	3 ± 1	[illegible] ± 1	0.20 ± 0.04	5 ± 1		
7/21/67	6 ± 2	4 ± 1	0.10 ± 0.04	4 ± 1		
10/22/67	4 ± 1	2 ± 1	0.20 ± 0.04	2 ± 1		
2/ 3/68	5 ± 2	4 ± 1	0.20 ± 0.04	4 ± 1		
4/ 6/68	5 ± 2	5 ± 1	0.30 ± 0.04	5 ± 1		
7/13/68	3 ± 1	3.9 ± 0.8	0.20 ± 0.04	3.7 ± 0.8		
10/27/68	3 ± 1	2.2 ± 0.8	0.20 ± 0.04	2.0 ± 0.8		
2/ 2/69	1.0 ± 0.8	3.9 ± 0.9	0.30 ± 0.04	3.6 ± 0.9		
5/11/69	3.7 ± 0.9	2.5 ± 0.8	1.0 ± 0.1	1.5 ± 0.8		
8/18/69	6 ± 1	4.4 ± 0.9	0.90 ± 0.09	3.5 ± 0.9		
11/ 1/69	3 ± 1	1.4 ± 0.9	0.10 ± 0.04	1.3 ± 0.9		
2/28/70	5 ± 1	2.8 ± 0.9	0.30 ± 0.04	2.5 ± 0.9		
5/ 2/70	2.0 ± 0.9	3.5 ± 0.3	0.20 ± 0.04	3.3 ± 0.8		
7/25/70	3.3 ± 0.9	4 ± 1	0.10 ± 0.04	4 ± 1		
10/18/70	0.3 ± 0.3	1.2 ± 0.9	0.30 ± 0.04	0.9 ± 0.9		
2/21/71	1.8 ± 0.9	4 ± 1	0.20 ± 0.04	4 ± 1		
5/ 1/71	6 ± 2	2.0 ± 0.8	0.10 ± 0.04	1.9 ± 0.8	0.098 ± 0.008	0.128 ± 0.008
7/18/71	[illegible] ± 2	3.8 ± 0.8	0.10 ± 0.04	3.7 ± 0.8		
10/ [illegible]/71	1.[illegible] ± 0.6	2.1 ± 0.8	0.14 ± 0.04	2.0 ± 0.8		
1/ 2/72	10 ± 2	4.4 ± 0.7	0.06 ± 0.04	4.3 ± 0.7		
3/31/72	1.2 ± 0.5	1.6 ± 0.9	0.26 ± 0.04	1 ± 1	0.061 ± 0.004	[illegible]
9/24/72	2.0 ± 0.8	<1	<0.04	<1	0.13 ± 0.01	0.060 ± 0.005
11/19/72	3.8 ± 0.8	3.9 ± 0.9	0.12 ± 0.04	3.8 ± 0.9		
3/ 4/73	1.4 ± 0.4	2.7 ± 0.8	0.08 ± 0.04	2.7 ± 0.8	0.72 ± 0.03	<0.008
5/ 6/73	1.9 ± 0.5	1.1 ± 0.8	0.06 ± 0.04	1.1 ± 0.8		
7/ 1/73	1.2 ± 0.4	4.0 ± 0.8	0.36 ± 0.09	3.2 ± 0.8	0.09 ± 0.03	0.13 ± 0.01

TABLE 5.2
SOIL SAMPLES
COLLECTION FROM DELTA, PA.
Station 3A

Collection Date	Gross Alpha Radioactivity	Gross Beta Radioactivity	K-40	Net Beta Radioactivity	Sr-90	Cs-137
	Concentrations (pCi/g dry wt.)					
2/16/66	2 ± 1	6 ± 1	0.30 ± 0.04	6 ± 1		
5/ ?/66	3 ± 1	4.1 ± 0.9	0.40 ± 0.04	3.7 ± 0.9	0.32 ± 0.06	
8/ 5/66	4 ± 1	13 ± 2	0.90 ± 0.09	12 ± 2		
10/22/66	1.5 ± 0.9	5 ± 1	0.30 ± 0.04	5 ± 1		
2/ 4/67	5 ± 2	8 ± 1	0.40 ± 0.04	3 ± 1		
4/ 8/67	5 ± 2	4 ± 1	0.30 ± 0.04	4 ± 1	0.9 ± 0.4	
7/21/67	1 ± 1	6 ± 1	0.10 ± 0.04	6 ± 1		
10/22/67	3 ± 1	5 ± 1	0.20 ± 0.04	5 ± 1		
2/ 3/68	2 ± 2	4 ± 1	0.20 ± 0.04	4 ± 1		
4/ 6/68	3 ± 1	4 ± 1	0.40 ± 0.04	4 ± 1	0.6 ± 0.2	
7/13/68	2.0 ± 0.7	5.0 ± 0.9	0.20 ± 0.04	4.8 ± 0.9		
10/27/68	2 ± 1	4.1 ± 0.8	0.10 ± 0.04	4.0 ± 0.8		
2/ 2/69	3 ± 1	4.0 ± 0.9	0.30 ± 0.04	3.7 ± 0.9		
5/11/69	5 ± 2	4.2 ± 0.9	1.0 ± 0.1	3.2 ± 0.9	0.28 ± 0.05	
8/18/69	4.1 ± 0.9	6 ± 1	0.80 ± 0.08	5 ± 1		
11/ 1/69	3 ± 1	2.7 ± 0.9	0.20 ± 0.04	2.5 ± 0.9		
2/28/70	3 ± 1	3.2 ± 0.9	0.20 ± 0.04	3.0 ± 0.9		
5/ 2/70	2 ± 1	6.0 ± 0.9	0.20 ± 0.04	5.3 ± 0.9	0.63 ± 0.02	
7/26/70	5 ± 1	5 ± 1	0.10 ± 0.04	5 ± 1		
10/18/70	4.2 ± 0.9	7 ± 1	0.20 ± 0.04	7 ± 1		
2/21/71	3 ± 1	5 ± 1	0.20 ± 0.04	5 ± 1		
5/ 2/71	5 ± 1	4.2 ± 0.9	0.20 ± 0.04	4.0 ± 0.9	0.47 ± 0.02	0.4[illegible] ± 0.02
7/13/71	4 ± 1	3.3 ± 0.8	0.10 ± 0.04	3.2 ± 0.8		
10/ 3/71	1.3 ± 0.5	1.8 ± 0.8	0.12 ± 0.04	1.7 ± 0.8		
1/ 2/72	4 ± 1	6.9 ± 0.7	0.16 ± 0.04	6.7 ± 0.7		
3/31/72	0.9 ± 0.5	4 ± 1	0.23 ± 0.04	4 ± 1	0.46 ± 0.07	0.37 ± 0.02
9/24/72	0.7 ± 0.4	5 ± 1	0.40 ± 0.04	4 ± 1	0.25 ± 0.02	0.124 ± 0.009
11/19/72	2.9 ± 0.7	5 ± 1	0.12 ± 0.04	5 ± 1		
3/ 4/73	1.1 ± 0.5	4.3 ± 0.8	0.12 ± 0.04	4.2 ± 0.8	1.13 ± 0.04	0.023 ± 0.007
5/ ?/73	1.6 ± 0.5	1.4 ± 0.8	0.06 ± 0.04	1.4 ± 0.8		
7/ 1/73	0.7 ± 0.3	2.7 ± 0.7	1.1 ± 0.1	1.7 ± 0.7	0.20 ± 0.04	0.52 ± 0.01

TABLE 5.3
SOIL SAMPLES
COLLECTION FROM CONOWINGO, PA.
Station 4N

Collection Date	Concentrations (pCi/g dry wt.) Gross Alpha Radioactivity	Gross Beta Radioactivity	K-40	Net Beta Radioactivity	Sr-90	Cs-137
2/15/66	<0.7	1.6 ± 0.8	1.0 ± 0.1	<0.8		
5/ 7/66	4 ± 2	4.1 ± 0.9	1.1 ± 0.1	3.0 ± 0.9		
8/ 5/66	<0.7	9 ± 1	1.4 ± 0.1	8 ± 1		
10/22/66	<0.5	3.9 ± 0.9	1.6 ± 0.2	2.3 ± 0.9		
2/ 4/67	5 ± 2	3 ± 1	1.6 ± 0.2	1 ± 1		
4/ 8/67	5 ± 2	6 ± 1	1.4 ± 0.1	5 ± 1		
7/21/67	<2	6 ± 1	0.80 ± 0.08	5 ± 1		
10/21/67	2 ± 1	3 ± 1	0.30 ± 0.04	3 ± 1		
2/ 3/68	<2	1.2 ± 0.9	1.3 ± 0.1	<0.9		
4/ 6/68	1 ± 1	3 ± 1	0.20 ± 0.04	3 ± 1		
7/13/68	<0.5	4.3 ± 0.8	1.6 ± 0.2	2.7 ± 0.8		
10/27/68	<0.5	1.8 ± 0.8	0.90 ± 0.09	0.9 ± 0.8		
2/ 2/69	0.5 ± 0.5	2.8 ± 0.8	1.9 ± 0.2	0.9 ± 0.8		
5/11/69	0.6 ± 0.5	<0.8	0.40 ± 0.04	<0.8		
8/18/69	1.8 ± 0.7	2.5 ± 0.9	1.1 ± 0.1	1.4 ± 0.9		
11/ 1/69	0.6 ± 0.5	1.7 ± 0.9	0.80 ± 0.08	0.9 ± 0.9		
2/28/70	<0.6	5.5 ± 0.9	5.0 ± 0.5	<1		
5/ 2/70	1.1 ± 0.7	1.6 ± 0.9	0.10 ± 0.04	1.5 ± 0.9		
7/25/70	2.1 ± 0.7	6 ± 1	1.0 ± 0.1	5 ± 1		
10/18/70	0.8 ± 0.5	4.6 ± 0.9	0.90 ± 0.09	3.7 ± 0.9		
2/21/71	0.8 ± 0.7	6 ± 1	1.2 ± 0.1	5 ± 1		
5/ 2/71	<0.7	3.0 ± 0.8	0.50 ± 0.05	2.5 ± 0.8	0.28 ± 0.01	0.49 ± 0.01
7/18/71	3 ± 1	3.4 ± 0.3	0.10 ± 0.04	3.3 ± 0.8		
10/ 3/71	<0.3	1.1 ± 0.8	0.12 ± 0.04	1.0 ± 0.8		
1/ 2/72	0.7 ± 0.6	2.8 ± 0.8	0.12 ± 0.04	2.7 ± 0.8		
3/31/72	<0.6	4 ± 1	2.6 ± 0.3	2 ± 1	0.090 ± 0.006	0.784 ± 0.005
9/23/72	0.6 ± 0.4	<0.7	0.40 ± 0.04	<0.7	0.15 ± 0.01	0.43 ± 0.01
11/19/72	0.7 ± 0.5	1 ± 1	0.08 ± 0.04	1 ± 1		
3/ 4/73	0.5 ± 0.3	1.1 ± 0.8	0.13 ± 0.04	1.0 ± 0.8	0.79 ± 0.03	0.22 ± 0.01
5/ 6/73	0.4 ± 0.3	2.4 ± 0.8	0.06 ± 0.04	2.3 ± 0.8		
7/ 1/73	<0.2	2.2 ± 0.7	0.52 ± 0.05	1.7 ± 0.7	(a)	0.42 ± 0.02

(a) Analysis in process.

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TABLE 5.4
SOIL SAMPLES
COLLECTION FROM WAKEFIELD, PA.
Station 5

Collection Date	Gross Alpha Radioactivity	Gross Beta Radioactivity	K-40	Net Beta Radioactivity	Sr-90	Cs-137
	Concentrations (pCi/g dry wt.)					
2/15/66	11 ± 4	8 ± 1	0.20 ± 0.04	8 ± 1		
5/ 7/66	6 ± 2	5 ± 1	0.20 ± 0.04	5 ± 1		
8/ 5/66	6 ± 2	10 ± 1	0.30 ± 0.04	10 ± 1		
10/22/66	7 ± 2	6 ± 1	0.30 ± 0.04	6 ± 1		
2/ 4/67	<0.4	3 ± 1	0.20 ± 0.04	3 ± 1		
4/ 8/67	4 ± 1	3 ± 1	0.50 ± 0.05	3 ± 1		
7/21/67	4 ± 2	5 ± 1	0.10 ± 0.04	5 ± 1		
10/21/67	5 ± 1	2 ± 1	0.40 ± 0.04	2 ± 1		
2/ 3/68	5 ± 2	3.5 ± 0.9	0.30 ± 0.04	3.2 ± 0.9		
4/ 6/68	6 ± 2	9 ± 1	0.60 ± 0.06	8 ± 1		
7/13/68	5 ± 1	5.3 ± 0.9	0.10 ± 0.04	5.2 ± 0.9		
10/27/68	4 ± 1	4.6 ± 0.9	0.10 ± 0.04	4.5 ± 0.9		
2/ 2/69	3 ± 1	6 ± 1	0.30 ± 0.04	6 ± 1		
5/11/69	9 ± 1	7.7 ± 0.9	1.1 ± 0.1	6.6 ± 0.9		
8/18/69	8 ± 1	5.0 ± 0.9	0.80 ± 0.08	4.2 ± 0.9		
11/ 1/69	[illegible] ± 1	2.3 ± 0.9	0.10 ± 0.04	2.2 ± 0.9		
2/28/70	2 ± 1	4.3 ± 0.9	0.70 ± 0.07	3.6 ± 0.9		
5/ 2/70	4 ± 1	3.1 ± 0.8	0.20 ± 0.04	2.9 ± 0.8		
7/25/70	5 ± 1	6 ± 1	0.20 ± 0.04	6 ± 1		
10/18/70	7 ± 1	4.6 ± 0.9	0.20 ± 0.04	4.4 ± 0.9		
2/21/71	6 ± 1	6 ± 1	0.20 ± 0.04	6 ± 1		
5/ [illegible]/71	8 ± 2	4.8 ± 0.9	0.20 ± 0.04	4.6 ± 0.9	0.17 ± 0.02	0.21 ± 0.01
7/18/71	5 ± 1	4.0 ± 0.8	0.10 ± 0.04	3.9 ± 0.8		
10/ 3/71	3.1 ± 0.8	3.7 ± 0.9	0.12 ± 0.04	3.6 ± 0.9		
1/ 2/72	10 ± 2	5.3 ± 0.7	0.10 ± 0.04	5.2 ± 0.7		
3/31/72	2.0 ± 0.3	5 ± 1	0.41 ± 0.04	4 ± 1	0.177 ± 0.006	0.15 ± 0.01
9/23/72	2.1 ± 0.6	6 ± 1	2.8 ± 0.3	3 ± 1	0.15 ± 0.02	0.117 ± 0.009
11/19/72	10.1 ± 0.7	10 ± 1	0.27 ± 0.04	10 ± 1		
3/ 4/73	1.2 ± 0.4	2.7 ± 0.3	0.17 ± 0.04	2.5 ± 0.8	0.80 ± 0.03	0.011 ± 0.006
5/ 6/73	2.5 ± 0.6	2.6 ± 0.8	0.13 ± 0.04	2.5 ± 0.8		
7/ 1/73	1.1 ± 0.4	4.0 ± 0.8	2.5 ± 0.2	1.6 ± 0.8	0.20 ± 0.02	0.31 ± 0.01

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TABLE 5.5
SOIL SAMPLES
COLLECTION FROM HOLTWOOD, PA.
Station 6G

Collection Date	Concentrations (pCi/g dry wt.) Gross Alpha Radioactivity	Gross Beta Radioactivity	K-40	Net Beta Radioactivity	Sr-90	Cs-137
2/15/66	2 ± 1	5 ± 1	0.40 ± 0.04	5 ± 1		
5/ 7/66	4 ± 2	4.2 ± 0.9	0.40 ± 0.04	3.8 ± 0.9	0.22 ± 0.04	
8/ 5/66	5 ± 2	12 ± 2	0.60 ± 0.06	11 ± 2		
10/22/66	4 ± 2	7 ± 1	0.30 ± 0.04	7 ± 1		
2/ 4/67	4 ± 2	4 ± 1	0.40 ± 0.04	4 ± 1		
4/ 8/67	4 ± 1	4 ± 1	0.80 ± 0.08	3 ± 1	0.3 ± 0.2	
7/21/67	4 ± 2	7 ± 1	0.20 ± 0.04	7 ± 1		
10/21/67	3 ± 1	3 ± 1	0.20 ± 0.04	3 ± 1		
2/ 3/68	5 ± 4	5 ± 1	0.10 ± 0.04	5 ± 1		
4/ 6/68	4 ± 2	4 ± 1	0.50 ± 0.04	4 ± 1	0.25 ± 0.05	
7/13/68	2.0 ± 0.7	9 ± 1	1.6 ± 0.2	7 ± 1		
10/27/68	1.2 ± 0.9	3.2 ± 0.8	0.20 ± 0.04	3.0 ± 0.8		
2/ 2/69	1.2 ± 0.8	5.2 ± 0.9	0.50 ± 0.05	4.7 ± 0.9		
5/11/69	4 ± 1	2.0 ± 0.9	1.0 ± 0.1	2.0 ± 0.9	0.40 ± 0.02	
8/18/69	7 ± 1	8 ± 1	4.1 ± 0.4	4 ± 1		
11/ 2/69	3 ± 1	3.1 ± 0.9	0.40 ± 0.04	2.7 ± 0.9		
2/28/70	4 ± 1	3.2 ± 0.9	0.30 ± 0.04	2.9 ± 0.9		
5/ 2/70	4 ± 1	4.0 ± 0.9	0.20 ± 0.04	3.8 ± 0.9	1.15 ± 0.02	
7/25/70	4 ± 1	10 ± 1	0.20 ± 0.04	10 ± 1		
10/18/70	11 ± 1	11 ± 1	0.20 ± 0.04	11 ± 1		
2/21/71	2 ± 1	6 ± 1	0.40 ± 0.04	6 ± 1		
5/ 2/71	5 ± 1	3.6 ± 0.8	0.40 ± 0.04	3.2 ± 0.8	0.380 ± 0.004	0.47 ± 0.03
7/18/71	5 ± 1	5.2 ± 0.9	0.20 ± 0.04	5.0 ± 0.9		
10/ 3/71	2.0 ± 0.6	4.8 ± 0.9	0.20 ± 0.04	4.6 ± 0.9		
1/ 2/72	5 ± 1	4.8 ± 0.7	0.28 ± 0.04	4.5 ± 0.7		
3/31/72	0.7 ± 0.4	2.2 ± 0.9	0.36 ± 0.04	1.8 ± 0.9	0.66 ± 0.03	0.31 ± 0.02
9/23/72	1.8 ± 0.5	2.9 ± 0.8	0.65 ± 0.06	2.2 ± 0.8	0.31 ± 0.01	0.127 ± 0.008
11/19/72	3.3 ± 0.7	4.2 ± 0.9	0.10 ± 0.04	4.1 ± 0.9		
3/ 4/73	1.7 ± 0.6	3.5 ± 0.8	0.29 ± 0.04	3.2 ± 0.8	1.93 ± 0.06	<0.006
5/ 6/73	0.9 ± 0.4	2.2 ± 0.8	0.13 ± 0.04	2.1 ± 0.8		
7/ 1/73	1.3 ± 0.5	3.9 ± 0.8	2.3 ± 0.2	1.7 ± 0.8	(a)	0.97 ± 0.04

(a) Analysis in process.

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TABLE 5.6
SOIL SAMPLES
YEARLY AVERAGES

Concentrations in pCi/g dry wt.

Peach Bottom - Disc. Canal, Station 1AA

Year	Net Beta Radioactivity	Sr-90	Cs-137	Gross Alpha Radioactivity
1966	7			6
1967	4			4
1968	4			4
1969	2.5			3
1970	3			3
1971	3	0.098	0.128	4
1972	3	0.10	0.061	4
1973	2.3	0.40	0.07	1.5
Overall	3	0.22	0.08	4

Delta, Pa. - Substation, Station 3A

Year	Net Beta Radioactivity	Sr-90	Cs-137	Gross Alpha Radioactivity
1966	7	0.32		3
1967	6	0.9		4
1968	4	0.6		2
1969	4	0.28		4
1970	5	0.63		4
1971	3	0.47	0.48	3
1972	5	0.36	0.25	2
1973	2.4	0.66	0.27	1.1
Overall	5	0.5	0.30	3

Conowingo Dam - Environmental Station, Station 4N

Year	Net Beta Radioactivity	Sr-90	Cs-137	Gross Alpha Radioactivity
1966	4			2
1967	4			4
1968	2			1
1969	1.0			0.9
1970	3			1.2
1971	3	0.28	0.49	1
1972	2	0.12	0.61	0.6
1973	1.7	0.79	0.32	0.4
Overall	2	0.33	0.47	1

Wakefield, Pa., Station 5

Year	Net Beta Radioactivity	Sr-90	Cs-137	Gross Alpha Radioactivity
1966	7			8
1967	3			2
1968	5			5
1969	5			6
1970	4			4
1971	4	0.17	0.21	6
1972	6	0.16	0.13	6
1973	2.2	0.50	0.16	1.6
Overall	5	0.30	0.16	5

Holtwood, Pa., Station 6G

Year	Net Beta Radioactivity	Sr-90	Cs-137	Gross Alpha Radioactivity
1966	7	0.22		4
1967	4	0.3		4
1968	5	0.25		3
1969	3	0.40		4
1970	7	1.15		6
1971	5	0.36	0.47	4
1972	3	0.49	0.22	3
1973	2.4	1.93	0.49	1.3
Overall	5	0.6	0.38	4

Combined Yearly Average of Stations 3A, 4N, 5, 6G

Year	Net Beta Radioactivity	Sr-90	Cs-137	Gross Alpha Radioactivity
1966	6	0.27		4
1967	4	0.6		4
1968	4	0.4		3
1969	3	0.34		4
1970	5	0.89		4
1971	4	0.32	0.41	3
1972	4	0.28	0.30	3
1973	2.2	0.84	0.31	1.1
Overall	4	0.4	0.33	3

TABLE 6.1
ANALYTICAL DATA FOR SILT SAMPLES

Location	Station No.	Collection Date	Concentrations (pCi/g) Gross Alpha Radioactivity	Gross Beta Radioactivity	Sr-90	Cs-137	Gross Gamma Weight Scanned (in g)	Net cpm/g
Peach Bottom - Discharge Canal	1BB	4/ 8/67	2 ± 1	4 ± 1	<0.04			
		10/22/67	2 ± 1	<0.9				
		4/ ?/68	8 ± 3	1.8 ± 0.9	<0.02			
		10/27/68	3 ± 1	3.3 ± 0.9				
		5/11/69	3 ± 1	4.0 ± 0.9	0.10 ± 0.02			
		11/ 1/69	3 ± 1	3.1 ± 0.9				
		5/ 2/70	3 ± 1	2.9 ± 0.8	0.10 ± 0.01			
		10/18/70	6 ± 1	6 ± 1				
		5/ 1/71	5 ± 1	3 ± 1	0.13 ± 0.01	0.027 ± 0.006	774	1.700 ± 0.004
		10/ 3/71	3.1 ± 0.8	3.2 ± 0.9	<0.05	0.05 ± 0.02	738	1.100 ± 0.004
		5/ 7/72	1.8 ± 0.8	5 ± 1	0.046 ± 0.006	0.063 ± 0.006	724	1.064 ± 0.004
		11/19/72	<0.3	8 ± 1	0.018 ± 0.003	0.025 ± 0.003	1397	1.000 ± 0.002
		6/ 3/73	0.4 ± 0.3	<1	(a)	0.105 ± 0.008	1300	0.950 ± 0.002
Holtwood Dam - E. Shore Upstream	6F	5/ 7/66	3 ± 1	3.4 ± 0.9	0.13 ± 0.03			
		10/22/66	1.5 ± 0.9	3.2 ± 0.9				
		4/ 8/67	1.6 ± 0.9	3 ± 1	0.05 ± 0.03			
		10/21/67	1.6 ± 0.8	<0.9				
		4/ 6/68	3 ± 1	4 ± 1	0.04 ± 0.02			
		10/27/68	1.2 ± 0.9	2.4 ± 0.8				
		5/11/69	3 ± 1	<0.9	0.11 ± 0.02			
		11/ 2/69	1.7 ± 0.8	1.3 ± 0.9				
		5/ 2/70	1.3 ± 0.6	3.2 ± 0.8	0.10 ± 0.01			
		10/18/70	2.4 ± 0.7	7 ± 1				
		5/ 2/71	3 ± 1	1 ± 1	0.029 ± 0.004	0.039 ± 0.006	660	1.600 ± 0.005
		10/ 3/71	0.9 ± 0.6	1.3 ± 0.8	<0.05	0.17 ± 0.02	593	0.600 ± 0.006
		5/ 7/72	1.0 ± 0.6	2 ± 1	0.185 ± 0.004	0.21 ± 0.01	481	1.198 ± 0.007
		11/19/72	<0.4	6 ± 1	0.046 ± 0.004	0.25 ± 0.07	710	0.893 ± 0.005
		6/ 3/73	0.3 ± 0.3	<1		0.092 ± 0.006	850	0.957 ± 0.004
Peach Bottom Conowingo Pond	1CC	5/ 7/66	11 ± 3	3.6 ± 0.9	<0.03			
		10/22/66	3 ± 1	6 ± 1				
Peach Bottom - Unit #1 Discharge Pond A-1	1W	3/14/72	1.8 ± 0.8	5 ± 1	0.062 ± 0.006	0.37 ± 0.01	384	1.076 ± 0.009
		7/19/72	6 ± 1	7 ± 1	0.146 ± 0.006	0.55 ± 0.04	621	1.461 ± 0.005
Peach Bottom - Cooling Tower Pond B-1	1Z	3/14/72	1.6 ± 0.7	3 ± 1	0.034 ± 0.002	0.13 ± 0.01	590	1.202 ± 0.006
		7/19/72	3 ± 1	4 ± 1	0.16 ± 0.01	0.44 ± 0.02	636	1.237 ± 0.005
Conowingo Pond - 1000 ft. from Station Discharge	4C	12/ 3/71	5 ± 1	6.2 ± 0.8	<0.09	0.43 ± 0.05	498	1.400 ± 0.007
		3/14/72	2.2 ± 0.8	6 ± 1	0.198 ± 0.007	0.57 ± 0.02	246	1.11 ± 0.01
		7/19/72	4 ± 1	3 ± 1	0.090 ± 0.006	0.16 ± 0.01	817	1.032 ± 0.004
Conowingo Pond - 500 ft. from Station Discharge	4D	3/14/72	2.2 ± 0.8	14 ± 1	3.47 ± 0.03	0.43 ± 0.02	235	1.82 ± 0.01
		7/19/72	4 ± 1	5 ± 1	0.14 ± 0.01	0.33 ± 0.02	687	1.310 ± 0.005
Conowingo Pond - End of Discharge Canal	4E	12/14/69	8 ± 2	4.0 ± 0.7	0.021 ± 0.004	0.48 ± 0.02		
		12/ 3/71	3 ± 1	2.7 ± 0.8	<0.06	0.30 ± 0.04	906	0.800 ± 0.004

(a) Analysis in process

TABLE 6.2
SILT SAMPLES
YEARLY AVERAGES

Peach Bottom - Discharge Canal Station 1BB

Year	Concentrations - pCi/g				Concentrations - Net cpm/g
	Gross Alpha Radioactivity	Gross Beta Radioactivity	Sr-90	Cs-137	Gross Gamma
1966					
1967	2	2	<0.04		
1968	6	2.6	<0.02		
1969	3	3.7	0.10		
1970	4	4	0.10		
1971	4	3	0.09	0.04	1.400
1972	1.0	6	0.032	0.04	1.032
1973	0.4	<1		0.105	0.950
Overall	3	4	0.06	0.05	1.163

Holtwood Dam E. Shore Upstream Station 6F

Year	Concentrations - pCi/g				Concentrations - Net cpm/g
	Gross Alpha Radioactivity	Gross Beta Radioactivity	Sr-90	Cs-137	Gross Gamma
1966	2	3.3	0.13		
1967	1.6	2	0.05		
1968	2	3	0.04		
1969	2	1.1	0.11		
1970	1.8	5	0.10		
1971	2	1	0.04	0.10	1.100
1972	0.7	4	0.116	0.23	1.046
1973	0.5	<1		0.092	0.957
Overall	2	3	0.08	0.15	1.050

Peach Bottom - Unit #1 Disc. Pond A-1 Station 1W

Year	Concentrations - pCi/g				Concentrations - Net cpm/g
	Gross Alpha Radioactivity	Gross Beta Radioactivity	Sr-90	Cs-137	Gross Gamma
1971	4	6	0.104	0.46	1.268

Peach Bottom - Cooling Tower Pond Station 1X

Year	Concentrations - pCi/g				Concentrations - Net cpm/g
	Gross Alpha Radioactivity	Gross Beta Radioactivity	Sr-90	Cs-137	Gross Gamma
1971 / 1972	2	4	0.10	0.29	1.220

Conowingo Pond - 1000' from Station Disc. Station 4C

Year	Concentrations - pCi/g				Concentrations - Net cpm/g
	Gross Alpha Radioactivity	Gross Beta Radioactivity	Sr-90	Cs-137	Gross Gamma
1971	5	6.2	<0.09	0.43	1.400
1972	3	4	0.144	0.36	1.07
Overall	4	5	0.13	0.39	1.18

Conowingo Pond - 500' from Station Disc. Station 4D

Year	Concentrations - pCi/g				Concentrations - Net cpm/g
	Gross Alpha Radioactivity	Gross Beta Radioactivity	Sr-90	Cs-137	Gross Gamma
1971	3	10	0.30	0.38	1.36

Peach Bottom Conowingo Pond Station 1CC

Year	Concentrations - pCi/g				Concentrations -Net cpm/g
	Gross Alpha Radioactivity	Gross Beta Radioactivity	Sr-90	Cs-137	Gross Gamma
1966	5	5	<0.03		

Conowingo Pond - End of Disc. Canal Station 4E

Year	Concentrations - pCi/g				Concentrations - Net cpm/g
	Gross Alpha Radioactivity	Gross Beta Radioactivity	Sr-90	Cs-137	Gross Gamma
1966	5	4.0	0.021	0.43	
1971	3	2.7	<0.06	0.30	0.800
Overall	4	3.4	0.05	0.37	[illegible]

TABLE 6.3
SILT SAMPLES
GAMMA SPECTRUM ANALYSIS

To Be Issued

TABLE 7.1
FISH SAMPLES
COLLECTIONS FROM PEACH BOTTOM DISCHARGE CANAL - 2200'
STATION 1T

Type	Collection Date	Fish No.	Concentrations in pCi/g ash: Gross Alpha Radioactivity	Gross Beta Radioactivity	K-40	Net Beta Radioactivity	Sr-90	Cs-137
	5/22/66	1	<4	21 ± 9	13 ± 1	<9	1.1 ± 0.4	
		2	<5	42 ± 9	13 ± 1	29 ± 9		
		3	<5	33 ± 9	9.0 ± 0.9	24 ± 9		
		4	<5	47 ± 9	30 ± 3	17 ± 9		
	7/8/66	1	10 ± 9	70 ± 10	15 ± 2	60 ± 10	1.0 ± 0.4	
		2	<7	60 ± 10	21 ± 2	40 ± 10		
		3	<7	90 ± 10	31 ± 3	60 ± 10		
		4	<5	90 ± 10	25 ± 2	60 ± 10		
	7/25/66	1	7 ± 7	60 ± 10	24 ± 2	40 ± 10	2.8 ± 0.8	
		2	<7	90 ± 10	57 ± 6	30 ± 10		
		3	<9	70 ± 10	18 ± 2	50 ± 10		
		4	10 ± 10	80 ± 10	21 ± 2	60 ± 10		
	11/6/66	1	5 ± 5	50 ± 10	24 ± 2	30 ± 10	1.3 ± 0.5	
		2	<5	60 ± 10	29 ± 3	30 ± 10		
		3	<5	70 ± 10	42 ± 4	30 ± 10		
		4	<4	40 ± 10	39 ± 4	<10		
	6/1/67	1	<7	60 ± 10	27 ± 3	30 ± 10	<0.2	
		2	<5	40 ± 10	32 ± 3	<10		
		3	<7	60 ± 10	34 ± 3	30 ± 10		
		4	<5	30 ± 10	14 ± 1	20 ± 10		
	10/31/67	1	<5	22 ± 8	19 ± 2	<8	<0.2	
		2	<4	27 ± 9	14 ± 1	13 ± 9		
		3	<7	29 ± 9	15 ± 2	14 ± 9		
		4	<5	60 ± 10	35 ± 4	20 ± 10		
Channel Catfish	8/8/68	1	10 ± 10	36 ± 8	24 ± 2	12 ± 8	0.5 ± 0.5	
		2	<3	18 ± 7	29 ± 3	<8		
		3	<4	29 ± 9	25 ± 2	<9		
		4	<5	24 ± 8	16 ± 2	8 ± 8		
White Crappie	8/8/68	1	<4	37 ± 8	17 ± 2	20 ± 8	0.4 ± 0.4	
		2	<5	<8	12 ± 1	<8		
		3	<4	26 ± 8	15 ± 2	11 ± 8		
		4	<4	19 ± 8	12 ± 1	<8		
White Crappie	9/3/68	1	<4	22 ± 8	23 ± 2	<8		
		2	<5	19 ± 8	20 ± 2	<8		
		3	<5	34 ± 8	38 ± 4	<9		
		4	<3	38 ± 9	32 ± 3	<9		
Channel Catfish	10/10/68	1	<7	18 ± 8	25 ± 2	<8		
		2	<5	13 ± 8	23 ± 2	<8		
		3	<4	24 ± 8	32 ± 3	<8		
		4	<5	20 ± 8	17 ± 2	<8		
Channel Catfish	11/1/68	1	<5	20 ± 10	24 ± 2	<10	0.8 ± 0.2	
		2	<5	31 ± 9	35 ± 4	<10		
		3	<4	27 ± 9	28 ± 3	<8		
		4	<5	25 ± 8	32 ± 3	<8		

TABLE 7.2
FISH SAMPLES
COLLECTIONS FROM PEACH BOTTOM UNIT #1 -
DISCHARGE POND A-1
STATION 1W

Type	Collection Date	Fish No.	Concentrations in pCi/g ash: Gross Alpha Radioactivity	Gross Beta Radioactivity	K-40	Net Beta Radioactivity	Sr-90	Cs-137
White Crappie	3/18/69	1	<1	20 ± 10	16 ± 2	<10	1.88 ± 0.09	
White Crappie	4/22/69	1	9 ± 5	40 ± 10	23 ± 2	20 ± 10	1.9 ± 0.1	
White Crappie	9/12/69	1	<1	17 ± 9	25 ± 2	<9	3.3 ± 0.3	
Channel Catfish	9/24/69	1	<1	37 ± 9	35 ± 4	<10	1.8 ± 0.7	
White Crappie	8/4/70	1	<2	9 ± 8	15 ± 2	<8		
		2	2 ± 2	13 ± 8	12 ± 1	<8		
		3	<2	<8	9.0 ± 0.9	<8	2.4 ± 0.2	
Channel Catfish	8/3/70	1	<2	41 ± 9	41 ± 4	<10		
		2	<1	29 ± 9	38 ± 4	<10		
		3	<2	18 ± 8	29 ± 3	<8	1.6 ± 0.4	
Channel Catfish	8/18/70	1	<2	28 ± 8	27 ± 3	<8		
		2	<3	32 ± 8	24 ± 2	8 ± 8		
		3	<2	36 ± 9	32 ± 3	<9		
		4	<2	42 ± 9	25 ± 2	17 ± 9	1.7 ± 0.4	
White Crappie	8/18/70	1	<2	25 ± 8	22 ± 2	<8		
		2	<3	37 ± 8	25 ± 2	12 ± 8		
		3	<2	38 ± 8	31 ± 3	<8		
		4	<2	31 ± 8	15 ± 2	16 ± 8	1.3 ± 0.1	
White Crappie	9/4/70	1	<2	19 ± 8	20 ± 2	<8		
		2	<2	32 ± 9	26 ± 3	<9		
		3	<2	34 ± 9	24 ± 2	10 ± 9		
		4	<3	28 ± 8	25 ± 2	<8	1.8 ± 0.2	
Channel Catfish	9/4/70	1	<2	74 ± 9	42 ± 4	30 ± 10		
		2	<3	51 ± 8	28 ± 3	23 ± 8		
		3	<3	24 ± 8	27 ± 3	<8		
		4	<3	46 ± 9	35 ± 4	10 ± 10	2.0 ± 0.6	
White Crappie	10/28/70	1	<2	42 ± 9	31 ± 3	11 ± 9		
		2	<2	41 ± 9	36 ± 4	<10		
		3	<3	57 ± 9	27 ± 3	30 ± 9		
		4	<2	46 ± 9	28 ± 3	18 ± 9	2.6 ± 0.2	
Channel Catfish	10/28/70	1	<3	66 ± 9	29 ± 3	37 ± 9		
		2	<2	30 ± 8	21 ± 2	9 ± 8		
		3	<3	36 ± 8	26 ± 3	10 ± 8	1.3 ± 0.1	
White Crappie	1/19/71	1		28 ± 8	23 ± 2	<8		
		2		31 ± 8	28 ± 3	<8		
		3		37 ± 8	29 ± 3	8 ± 8		
		4	<2	29 ± 8	13 ± 1	16 ± 8	0.75 ± 0.02	
Channel Catfish	1/20/71	1		41 ± 9	26 ± 3	15 ± 9		
		2	<1	43 ± 9	13 ± 1	30 ± 9	1.4 ± 0.2	
White Crappie	2/26/71	1		36 ± 8	30 ± 3	<8		
		2		46 ± 9	28 ± 3	12 ± 9		
		3		38 ± 8	27 ± 3	11 ± 8		
		4	<1	40 ± 8	23 ± 2	17 ± 8	0.98 ± 0.04	
White Crappie	8/31/72	1	<0.8	23 ± 9	20 ± 2	<9		
		2	<0.8	57 ± 9	34 ± 3	23 ± 9		
		3	<0.8	20 ± 9	23 ± 2	<9		
		4	<2	60 ± 10	18 ± 2	40 ± 10	2.13 ± 0.07	0.36 ± 0.07
Channel Catfish	8/31/72	1	<2	28 ± 9	27 ± 3	<9	(a)	(a)
		2	<3	30 ± 9	18 ± 2	12 ± 9		
		3	<0.8	26 ± 9	20 ± 2	<9		
		4	<2	27 ± 9	23 ± 2	<9		
Channel Catfish	11/21/72	1	<2	39 ± 9	37 ± 4	<10	1.7 ± 0.1	0.65 ± 0.05
		2		70 ± 10	55 ± 6	20 ± 10		
		3		24 ± 9	44 ± 4	<10		
Channel Catfish	11/22/72	1	<2	45 ± 9	34 ± 3	10 ± 10	1.68 ± 0.03	0.43 ± 0.06

(a) Aliquot lost in processing

TABLE 7.3
FISH SAMPLES
COLLECTIONS FROM PEACH BOTTOM SITE -
COOLING TOWER POND B-1
STATION 1X

Type	Collection Date	Fish No.	Concentrations in pCi/g ash: Gross Alpha Radioactivity	Gross Beta Radioactivity	K-40	Net Beta Radioactivity	Sr-90	Cs-137
White Crappie	6/17/69	1	<1	10 ± 10	10 ± 1	<10	2.4 ± 0.5	
		2	<2	30 ± 10	20 ± 2	10 ± 10		
		3	<2	40 ± 10	20 ± 2	20 ± 10		
		4	<2	20 ± 10	18 ± 2	<10		
White Crappie	7/15/69	1	<1	80 ± 10	65 ± 6	20 ± 10	2.7 ± 0.4	
		2	<1	47 ± 8	32 ± 3	15 ± 8		
		3	<1	43 ± 8	20 ± 2	23 ± 8		
		4	<1	49 ± 9	29 ± 3	20 ± 9		
Channel Catfish	7/30/69	1	<3	42 ± 9	24 ± 2	18 ± 9	2.1 ± 0.2	
White Crappie	7/30/69	1	<3	29 ± 9	27 ± 3	<9	1.4 ± 0.2	
White Crappie	10/9/69	1	<2	60 ± 10	28 ± 3	30 ± 10	2.8 ± 0.1	
Channel Catfish	10/9/69	1	<3	42 ± 9	29 ± 3	13 ± 9	1.8 ± 0.2	
White Crappie	3/31/70	1	<0.9	66 ± 4	50 ± 5	16 ± 6	1.4 ± 0.3	
Channel Catfish	3/31/70	1	<0.9	64 ± 4	35 ± 4	29 ± 6	2.4 ± 0.3	
White Crappie	5/8/70	1	4 ± 3	50 ± 10	39 ± 4	10 ± 10		
		2	<2	60 ± 10	39 ± 4	20 ± 10		
		3	<2	40 ± 10	29 ± 3	10 ± 10	0.5 ± 0.1	
Channel Catfish	5/9/70	1	<1	70 ± 10	51 ± 5	20 ± 10		
		2	<3	70 ± 10	49 ± 5	20 ± 10		
		3	<2	50 ± 10	43 ± 4	<10	0.6 ± 0.1	
White Crappie	8/31/72	1	<2	51 ± 9	37 ± 4	10 ± 10		
		2	<2	50 ± 9	19 ± 2	31 ± 9		
		3	<3	51 ± 9	36 ± 4	10 ± 10		
		4	<0.8	58 ± 9	34 ± 3	24 ± 9	1.4 ± 0.1	0.48 ± 0.05
White Crappie	11/10/72	1	<2	27 ± 9	20 ± 2	<9	1.68 ± 0.03	0.19 ± 0.06
		2		27 ± 9	36 ± 4	<10		
		3		43 ± 9	41 ± 4	<10		
		4		22 ± 9	22 ± 2	<9		

TABLE 7.4
FISH SAMPLES
COLLECTIONS FROM PEACH BOTTOM DISCHARGE CANAL -
NET TRAP #9
STATION 1Y

			Concentrations in pCi/g ash					
Type	Collection Date	Fish No.	Gross Alpha Radioactivity	Gross Beta Radioactivity	K-40	Net Beta Radioactivity	Sr-90	Cs-137
Channel Catfish	7/17/70	1	<0.7	40 ± 9	35 ± 4	<10		
		2	2 ± 2	49 ± 9	21 ± 2	28 ± 9	1.6 ± 0.2	
		3	<2	13 ± 8	9.0 ± 0.9	<8		
White Crappie	9/3/71	1	<2	41 ± 7	35 ± 4	<8	2.45 ± 0.06	0.12 ± 0.08
		2		25 ± 8	30 ± 3	<8		
		3		28 ± 8	29 ± 3	<8		
White Crappie	9/30/71	1	<1	54 ± 9	34 ± 3	20 ± 9	1.93 ± 0.06	0.23 ± 0.09
		2		38 ± 9	33 ± 3	<9		
		3		50 ± 9	36 ± 4	10 ± 10		
		4		44 ± 9	36 ± 4	<10		
Channel Catfish	9/30/71	1	<3	40 ± 10	26 ± 3	10 ± 10	<2	0.8 ± 0.3
		2		30 ± 10	19 ± 2	10 ± 10		
		3		30 ± 10	24 ± 2	<10		
		4		40 ± 10	38 ± 4	<10		
White Crappie	12/1/71	1	<2	22 ± 6	21 ± 2	<6	1.98 ± 0.05	0.08 ± 0.05
		2		17 ± 8	22 ± 2	<8		
		3		13 ± 8	14 ± 1	<8		
		4		36 ± 9	22 ± 2	14 ± 9		
White Crappie	3/3/72	1	<2	34 ± 7	27 ± 3	<8	2.8 ± 0.2	0.6 ± 0.2
		2		33 ± 7	26 ± 3	<8		
		3		37 ± 7	28 ± 3	9 ± 8		
		4		32 ± 7	22 ± 2	10 ± 7		
White Crappie	6/8/72	1	<2	35 ± 9	28 ± 3	<9	1.8 ± 0.1	0.57 ± 0.06
		2	<2	35 ± 9	34 ± 3	<9		
		3	6 ± 4	40 ± 9	42 ± 4	<10		
		4	<3	47 ± 9	24 ± 2	23 ± 9		
Channel Catfish	8/4/72	1	<2	70 ± 10	60 ± 6	10 ± 10	1.4 ± 0.2	0.4 ± 0.1
Channel Catfish	9/1/72	1	<2	30 ± 9	24 ± 2	<9		
		2	<0.8	35 ± 9	35 ± 3	<9		
		3	<2	35 ± 9	37 ± 4	<10		
		4	<2	190 ± 10	170 ± 20	<20	1.6 ± 0.1 (a)	0.68 ± 0.04 (a)
White Crappie	9/15/72	1	<3	31 ± 9	32 ± 3	<9		
		2	<3	16 ± 9	19 ± 2	<9		
		3	<0.8	22 ± 9	19 ± 2	<9		
		4	<3	25 ± 9	21 ± 2	<9		
White Crappie	11/21/72	1	<2	32 ± 9	20 ± 2	12 ± 9	2.2 ± 0.2	1.1 ± 0.2
		2		32 ± 9	29 ± 3	<9		
		3		29 ± 9	27 ± 3	<9		
		4		39 ± 9	34 ± 3	<9		

(a) Aliquot lost in processing

TABLE 7.5
FISH [illegible]
COLLECTIONS FROM [illegible]
NET TRAP [illegible]
STATION 41

Type	Collection Date	Fish No.	Gross Alpha Radioactivity	Gross Beta Radioactivity	K-40	Net Beta Radioactivity	Sr-90	Cs-137
			Concentrations in pCi/g ash					
Channel Catfish	3/25/69	1	<2	20 ± 10	16 ± 2	<10	1.7 ± 0.1	
White Crappie	5/28/69	1	<2	20 ± 10	18 ± 2	<10	1.5 ± 0.1	
Channel Catfish	5/28/69	1	<3	130 ± 10	130 ± 10	<20	1.4 ± 0.1	
White Crappie	12/9/69	1	<1	[illegible] ± 10	36 ± 4	10 ± 10	2.35 ± 0.07	
Channel Catfish	12/9/69	1	<1	40 ± 10	35 ± 4	<10	1.40 ± 0.09	
Channel Catfish	4/20/70	1	<1	40 ± 10	33 ± 3	<10		
		2	<2	80 ± 10	39 ± 4	40 ± 10		
		3	<1	13 ± 9	7.0 ± 0.7	< 9	1.1 ± 0.2	
White Crappie	10/12/70	1	<2	41 ± 9	30 ± 3	11 ± 9		
		2	<2	41 ± 9	34 ± 3	<9		
		3	<3	40 ± 9	30 ± 3	10 ± 9		
		4	<3	38 ± 9	20 ± 2	18 ± 9	1.5 ± 0.2	
Channel Catfish	10/12/70	1	3 ± 3	34 ± 9	28 ± 3	<9		
		2	<2	28 ± 8	22 ± 2	<8		
		3	<2	35 ± 9	16 ± 2	19 ± 9		
		4	<3	330 ± 10	31 ± 3	300 ± 10	0.65 ± 0.09	
Channel Catfish	9/3/71	1	<1	46 ± 7	36 ± 4	10 ± 8	1.60 ± 0.04	0.28 ± 0.06
		2		37 ± 9	30 ± 3	<9		
		3		47 ± 9	38 ± 4	<10		
		4		36 ± 9	37 ± 4	<10		
White Crappie	9/3/71	1	<2	45 ± 7	35 ± 4	10 ± 8	2.21 ± 0.08	0.28 ± 0.08
		2		41 ± 9	34 ± 3	<9		
		3		42 ± 9	30 ± 3	12 ± 9		
		4		25 ± 8	29 ± 3	<8		
Channel Catfish	9/30/71	1	<2	30 ± 10	29 ± 3	<10	1.7 ± 0.2	<0.4
		2		40 ± 10	31 ± 3	<10		
		3		30 ± 10	38 ± 4	<10		
		4		50 ± 10	38 ± 4	10 ± 10		
White Crappie	9/30/71	1	4 ± 3	49 ± 9	24 ± 2	25 ± 9	1.48 ± 0.09	0.6 ± 0.2
		2		30 ± 10	23 ± 2	<10		
		3		50 ± 10	[illegible] ± 4	<10		
		4		50 ± 10	40 ± 4	10 ± 10		
Channel Catfish	12/1/71	1	<1	10 ± 6	13 ± 1	<8	2.7 ± 0.2	<0.2
		2		31 ± 8	15 ± 2	16 ± 8		
		3		21 ± 8	23 ± 2	<8		
		4		21 ± 8	14 ± 1	<8		
White Crappie	12/1/71	1	<2	24 ± 7	22 ± 2	<7	2.48 ± 0.06	0.15 ± 0.07
		2		23 ± 8	23 ± 2	<8		
		3		15 ± 8	18 ± 2	<8		
		4		26 ± 8	21 ± 2	<8		
Channel Catfish	3/3/72	1	<1	28 ± 7	27 ± 3	<8	1.56 ± 0.09	0.31 ± 0.09
		2		31 ± [illegible]	27 ± 3	<8		
		3		34 ± [illegible]	27 ± 3	<8		
		4		42 ± 7	33 ± 3	9 ± 8		
White Crappie	3/3/72	1	1 ± 1	26 ± 7	25 ± 3	<8	1.79 ± 0.06	0.20 ± 0.05
		2		25 ± 7	23 ± 2	<7		
		3		26 ± 7	16 ± 2	10 ± 7		
		4		27 ± 7	24 ± 2	<7		
White Crappie	6/9/72	1	<2	37 ± 9	42 ± 4	<10		
		2	<2	37 ± 9	25 ± 2	12 ± 9	1.33 ± 0.09	0.22 ± 0.35
		3	<0.8	80 ± 10	64 ± 6	10 ± 10		
		4	<0.8	29 ± 9	25 ± 2	<9		
White Crappie	8/31/72	1	<0.8	52 ± 9	35 ± 3	17 ± 9		
		2	<0.8	58 ± 9	34 ± 3	24 ± 9		
		3	<0.8	50 ± 9	27 ± 3	23 ± 9		
		4	<3	50 ± 9	29 ± 3	21 ± 9	1.32 ± 0.09	0.36 ± 0.06
Channel Catfish	8/31/72	1	<0.8	56 ± 9	35 ± 3	22 ± 9	2.8 ± 0.2	1.0 ± 0.4
Channel Catfish	11/9/72	1	<2	29 ± 9	21 ± 2	<9	1.56 ± 0.05	0.28 ± 0.04
		2		30 ± 9	29 ± 3	<9		
		3		31 ± 9	31 ± 3	<9		
White Crappie	11/9/72	1	<2	29 ± 9	40 ± 4	<10	1.44 ± 0.06	0.3 ± 0.2
		2		42 ± 9	42 ± 4	<10		
		3		70 ± 10	43 ± 4	30 ± 10		
		4		51 ± 9	41 ± 4	<10		
Channel Catfish	11/10/72	1	<2	39 ± 9	38 ± 4	<10	1.38 ± 0.02	1.00 ± 0.06
White Crappie	3/8/73	1	<3	29 ± 9	21 ± 2	<9	(a)	0.10 ± 0.02
		2		56 ± 9	32 ± 3	24 ± 9		
Channel Catfish	3/9/73	1	<2	27 ± 9	38 ± 4	<10	4.7 ± 0.9	0.4 ± 0.1
		2		33 ± 9	32 ± 3	<9		
		3		51 ± 9	31 ± 3	21 ± 9		
		4		26 ± 9	35 ± 3	<9		
White Crappie	3/23/73	1	<3	33 ± 9	32 ± 3	<9	1.08 ± 0.07	0.31 ± 0.05
		2		29 ± 9	25 ± 2	<9		
		3		44 ± 9	27 ± 3	17 ± 9		
		4		41 ± 9	28 ± 3	14 ± 9		
		5		49 ± 9	25 ± 2	25 ± 9		
Channel Catfish	6/26/73	1	<2	22 ± [illegible]	33 ± 3	<9		
		2	<3	28 ± 9	33 ± 3	<9	(a)	<0.6
		3	<2	27 ± 9	35 ± 4	<10		
		4	<2	26 ± 9	22 ± 2	<9		
		5	<3	20 ± 9	22 ± 2	<9		
White Crappie	6/27/73	1	<2	34 ± 9	40 ± 4	<10	(a)	(a)
		2	<2	46 ± 9	32 ± 3	14 ± 9		
		3	<2	38 ± 9	38 ± 4	<10		
		4	<3	37 ± 9	3[illegible] ± 3	<9		

(a) Analysis in process

TABLE 7.6
FISH SAMPLES
COLLECTIONS FROM CONOWINGO POND -
NET TRAP #15
STATION 4J

Type	Collection Date	Fish No.	Gross Alpha Radioactivity	Gross Beta Radioactivity	K-40	Net Beta Radioactivity	Sr-90	Cs-137
			Concentrations in pCi/g ash					
White Crappie	7/17/70	1	<2	10 ± 8	14 ± 1	<8		
		2	2 ± 2	14 ± 8	21 ± 2	<8		
		3	<1	20 ± 8	18 ± 2	<8	2.1 ± 0.2	
White Crappie	6/8/71	1	<2	20 ± 8	12 ± 1	8 ± 8		
		2		13 ± 8	12 ± 1	<8		
		3		15 ± 8	14 ± 1	<8		
		4		26 ± 8	17 ± 2	9 ± 8	1.8 ± 0.8	0.18 ± 0.06
Channel Catfish	6/8/71	1	<2	14 ± 8	11 ± 1	<8		
		2		18 ± 8	12 ± 1	<8		
		3		20 ± 8	9.0 ± 0.9	11 ± 8	0.7 ± 0.3	0.33 ± .08
Channel Catfish	9/3/71	1	<1	47 ± 7	36 ± 4	11 ± 8	1.24 ± 0.04	0.6 ± 0.3
White Crappie	9/3/71	1	<2	45 ± 7	27 ± 3	18 ± 8	1.73 ± 0.02	0.20 ± 0.04
		2		42 ± 9	31 ± 3	11 ± 9		
		3		31 ± 8	29 ± 3	<8		
		4		34 ± 9	28 ± 3	<9		
White Crappie	9/30/71	1	<1	80 ± 10	46 ± 5	30 ± 10	2.6 ± 0.2	<0.4
		2		52 ± 9	39 ± 4	10 ± 10		
		3		54 ± 9	33 ± 3	21 ± 9		
		4		48 ± 9	39 ± 4	<10		
Channel Catfish	9/30/71	1	<1	30 ± 10	16 ± 2	20 ± 10	3.1 ± 0.1	0.3 ± 0.1
		2		30 ± 10	29 ± 3	<10		
		3		40 ± 10	30 ± 3	10 ± 10		
		4		60 ± 10	40 ± 4	20 ± 10		
Channel Catfish	12/1/71	1	3 ± 2	16 ± 7	8.0 ± 0.8	8 ± 7	2.3 ± 0.5	<0.9
		2		<8	11 ± 1	<8		
		3		17 ± 8	18 ± 2	<8		
		4		<8	17 ± 2	<8		
White Crappie	12/1/71	1	<2	<6	10 ± 1	<6	2.4 ± 0.4	<0.9
		2		12 ± 8	17 ± 2	<8		
		3		20 ± 8	19 ± 2	<8		
		4		22 ± 8	20 ± 2	<8		
Channel Catfish	3/3/72	1	<1	26 ± 7	19 ± 2	<7	1.94 ± 0.06	0.40 ± 0.04
		2		28 ± 7	23 ± 2	<7		
		3		31 ± 7	21 ± 2	10 ± 7		
		4		35 ± 7	29 ± 3	<8		
White Crappie	3/3/72	1	<1	30 ± 7	35 ± 4	<8	2.1 ± 0.1	0.2 ± 0.1
		2		30 ± 7	27 ± 3	<8		
		3		36 ± 7	26 ± 3	10 ± 8		
		4		26 ± 7	25 ± 2	<8		
White Crappie	6/30/72	1	<2	38 ± 9	19 ± 2	19 ± 9	1.83 ± 0.05	0.19 ± 0.05
		2	<0.8	40 ± 9	24 ± 2	16 ± 9		
		3	<2	21 ± 9	20 ± 2	<9		
		4	<2	23 ± 9	15 ± 2	<9	1.8 ± 0.2	
White Crappie	11/9/72	1	<2	50 ± 10	28 ± 3	20 ± 10	1.3 ± 0.1	<0.04
		2		49 ± 9	33 ± 3	20 ± 10		
		3		37 ± 9	51 ± 5	<10		
		4		26 ± 9	30 ± 3	<10		
Channel Catfish	11/9/72	1	<3	20 ± 9	20 ± 2	<9	1.50 ± 0.03	1.49 ± 0.09
		2		19 ± 9	16 ± 2	<9		
		3		40 ± 9	25 ± 2	15 ± 9		
Channel Catfish	11/21/72	1	<2	34 ± 9	29 ± 3	<10	1.90 ± 0.09	1.32 ± 0.05
		2		42 ± 9	33 ± 3	<10		
		3		39 ± 9	23 ± 2	16 ± 9		
		4		21 ± 9	16 ± 2	<9		
		5		38 ± 9	30 ± 3	<10		
Channel Catfish	3/8/73	1		32 ± 9	23 ± 2	<9		
		2		43 ± 9	23 ± 2	20 ± 9	0.78 ± 0.06	0.24 ± 0.07
		3		34 ± 9	25 ± 2	9 ± 9		
		4		50 ± 9	25 ± 2	26 ± 9		
		5	<3	58 ± 9	22 ± 2	36 ± 9		
White Crappie	3/8/73	1		42 ± 9	41 ± 9	<10		
		2		40 ± 9	35 ± 3	<9	1.0 ± 0.2	0.20 ± 0.04
		3	<3	36 ± 9	34 ± 3	<9		
		4		46 ± 9	39 ± 4	<10		
White Crappie	6/26/73	1	<2	25 ± 9	36 ± 4	<10		
		2	<3	41 ± 9	38 ± 4	<10	(a)	0.30 ± 0.09
		3	<2	35 ± 9	41 ± 4	<10		
		4	<2	43 ± 9	44 ± 4	<10		
Channel Catfish	6/27/73	1	<2	40 ± 9	44 ± 4	<10		
		2	<2	16 ± 9	32 ± 3	<9	(a)	1.0 ± 0.3
		3	<2	37 ± 9	57 ± 6	<10		
		4	<2	38 ± 9	48 ± 5	<10		
		5	<3	50 ± 9	42 ± 4	<10		

(a) Analysis in process

Revised June 1974

TABLE 7.7
FISH SAMPLES
COLLECTIONS FROM CONOWINGO DAM - TAILRACE
STATION 4H

Type	Collection Date	Fish No.	Gross Alpha Radioactivity	Gross Beta Radioactivity	K-40	Net Beta Radioactivity	Sr-90	Cs-137
			Concentrations in pCi/g ash					
American Shad	6/5/72	1	<2	80 ± 10	69 ± 7	<10	0.08 ± 0.02	0.53 ± 0.05
	6/6/72	1	<0.8	90 ± 10	85 ± 8	<10		
American Shad	6/10/73	1	<2	90 ± 10	100 ± 10	<10	2.0 ± 0.3	2.0 ± 0.3
		2		42 ± 9	87 ± 9	<10		

COLLECTIONS FROM CONOWINGO POND -
TRAWL ZONE 6
STATION 4P

Type	Collection Date	Fish No.	Gross Alpha Radioactivity	Gross Beta Radioactivity	K-40	Net Beta Radioactivity	Sr-90	Cs-137
White Crappie	6/7/68	1	8 ± 8	25 ± 7	26 ± 3	<8	1.7 ± 0.3	
Channel Catfish		2	<3	70 ± 10	68 ± 7	<10	0.9 ± 0.3	

COLLECTIONS FROM CONOWINGO POND -
TRAWL ZONE 5
STATION 4Q

Type	Collection Date	Fish No.	Gross Alpha Radioactivity	Gross Beta Radioactivity	K-40	Net Beta Radioactivity	Sr-90	Cs-137
Channel Catfish	6/17/69	1	<3	30 ± 10	26 ± 3	<10	2.0 ± 0.2	
		2	<2	30 ± 10	26 ± 3	<10		
		3	<3	10 ± 10	12 ± 1	<10		
		4	<3	20 ± 10	18 ± 2	<10		

COLLECTIONS FROM CONOWINGO POND -
TRAWL TRANSECT 2
STATION 4R

Type	Collection Date	Fish No.	Gross Alpha Radioactivity	Gross Beta Radioactivity	K-40	Net Beta Radioactivity	Sr-90	Cs-137
Channel Catfish	7/8/69	1	<1	36 ± 9	22 ± 2	14 ± 9	1.7 ± 0.2	
		2	<0.6	42 ± 8	20 ± 2	22 ± 8		
		3	<1	32 ± 9	14 ± 1	18 ± 9		
		4	<1	50 ± 8	20 ± 2	30 ± 8		

COLLECTIONS FROM CONOWINGO POND -
NET TRAP #1
STATION 4S

Type	Collection Date	Fish No.	Gross Alpha Radioactivity	Gross Beta Radioactivity	K-40	Net Beta Radioactivity	Sr-90	Cs-137
White Crappie	7/2/68	1	<3	9 ± 6	11 ± 1	<6	1.9 ± 0.4	
Channel Catfish		2	<9	10 ± 6	11 ± 1	<6	1.7 ± 0.4	

TABLE 7.8
FISH SAMPLES
COLLECTIONS FROM HOLTWOOD PD., PA.
STATION 6C

Type	Collection Date	Fish No.	Concentrations in pCi/g ash: Gross Alpha Radioactivity	Gross Beta Radioactivity	K-40	Net Beta Radioactivity	Sr-90	Cs-137
	5/15/66	1	<5	49 ± 9	20 ± 2	29 ± 9	3.5 ± 0.9	
		2	<5	37 ± 9	15 ± 2	22 ± 9		
		3	<7	41 ± 9	21 ± 2	20 ± 9		
		4	10 ± 9	32 ± 9	10 ± 1	22 ± 9		
	7/8/66	1	<7	70 ± 10	22 ± 2	50 ± 10	<0.08	
		2	<5	60 ± 10	15 ± 2	40 ± 10		
		3	<9	70 ± 10	10 ± 1	60 ± 10		
		4	20 ± 10	60 ± 10	18 ± 2	40 ± 10		
	7/25/66	1	<5	50 ± 10	18 ± 2	30 ± 10	2.2 ± 0.6	
		2	10 ± 9	70 ± 10	21 ± 2	50 ± 10		
		3	7 ± 7	60 ± 10	19 ± 2	40 ± 10		
		4	10 ± 9	70 ± 10	28 ± 3	40 ± 10		
	11/ 6/66	1	<5	80 ± 10	43 ± 4	40 ± 10	2 ± 1	
		2	<5	70 ± 10	42 ± 4	30 ± 10		
		3	<5	60 ± 10	31 ± 3	30 ± 10		
		4	<5	70 ± 10	56 ± 6	10 ± 10		
	6/2/67	1	10 ± 10	40 ± 10	28 ± 3	10 ± 10	<3	
		2	<5	50 ± 10	34 ± 3	20 ± 10		
		3	<7	40 ± 10	18 ± 2	20 ± 10		
		4	<5	30 ± 10	17 ± 2	10 ± 10		
	10/30/67	1	<5	40 ± 10	32 ± 3	<10	0.2 ± 0.2	
		2	<4	50 ± 10	38 ± 4	10 ± 10		
		3	<8	100 ± 10	45 ± 4	60 ± 10		
		4	<9	60 ± 10	40 ± 4	20 ± 10		
	4/28/68	1	<7	23 ± 8	17 ± 2	<8		
		2	<5	38 ± 8	28 ± 3	10 ± 8		
		3	<4	20 ± 8	12 ± 1	8 ± 8		
		4	<4	23 ± 8	17 ± 2	<8		
		5	<4	16 ± 8	17 ± 2	<8	1.3 ± 0.3	
Channel Catfish	8/14/68	1	<3	<8	14 ± 1	<8	<0.8	
•		2	<4	26 ± 8	25 ± 2	<8		
		3	<5	44 ± 9	59 ± 6	<10		
		4	<3	29 ± 8	23 ± 2	<8		
Channel Catfish	6/12/69	1	<2	20 ± 10	13 ± 1	<10	4.4 ± 0.3	
Channel Catfish	7/12/69	1	<1	47 ± 9	27 ± 3	20 ± 9	2.0 ± 0.2	
		2	<1	33 ± 9	13 ± 1	20 ± 9		
		3	2 ± 2	50 ± 10	11 ± 1	40 ± 10		
		4	<1	47 ± 9	24 ± 2	23 ± 9		
	9/11/69	1	<2	38 ± 9	36 ± 4	<10	2.8 ± 0.2	
Channel Catfish	5/4/70	1	3 ± 2	55 ± 5	30 ± 3	25 ± 6	1.6 ± 0.5	
	8/14/70	1	<1	17 ± 8	12 ± 1	<8		
		2	<2	34 ± 9	24 ± 2	10 ± 9		
		3	<1	40 ± 9	38 ± 4	<10	2.0 ± 0.4	
Channel Catfish	10/29/70	1	<2	30 ± 8	17 ± 2	13 ± 8		
		2	<2	51 ± 9	25 ± 2	26 ± 9	1.9 ± 0.1	
Channel Catfish	11/17/70	1	<2	43 ± 9	29 ± 3	14 ± 9		
		2	<3	38 ± 8	40 ± 4	<9		
		3	<3	41 ± 9	24 ± 2	17 ± 9		
		4	<2	47 ± 9	40 ± 4	<10	1.3 ± 0.1	
Channel Catfish	5/24/71	1		54 ± 9	40 ± 4	16 ± 10		
		2		42 ± 9	36 ± 4	<10		
		3		52 ± 9	38 ± 4	10 ± 10		
		4	<2	35 ± 8	30 ± 3	<8	1.97 ± 0.06	0.21 ± 0.08
Channel Catfish	8/20/71	1	<2	44 ± 7	29 ± 3	15 ± 8	1.41 ± 0.06	2.3 ± 0.6
		2		34 ± 9	24 ± 2	10 ± 9		
		3		33 ± 9	27 ± 3	<10		
Channel Catfish	9/29/71	1	<2	60 ± 10	38 ± 4	20 ± 10	2.4 ± 0.2	<0.8
		2		50 ± 10	40 ± 4	10 ± 10		
		3		40 ± 10	43 ± 4	<10		
		4		40 ± 10	31 ± 3	<10		
Channel Catfish	11/19/71	1	<2	22 ± 7	6.2 ± 0.6	16 ± 7	1.73 ± 0.08	0.39 ± 0.07
		2		13 ± 8	[illegible]0 ± 1	<8		
Channel Catfish	6/20/72	1	7 ± 5	40 ± 10	[illegible]0 ± 4	<10		
		2	<0.8	40 ± 10	28 ± 3	10 ± 10	1.01 ± 0.09	0.64 ± 0.05
Channel Catfish	8/2/72	1	<4	24 ± 9	13 ± 2	<9	1.7 ± 0.2	0.39 ± 0.07
		2	6 ± 4	23 ± 9	12 ± 1	11 ± 9		
		3	<1	37 ± 9	20 ± 2	17 ± 9		
		4	<2	55 ± 9	35 ± 4	20 ± 10		
Channel Catfish	8/14/72	1	<0.8	29 ± 9	22 ± 2	<9	1.8 ± 0.2	(a)
		2	<0.8	30 ± 9	27 ± 3	<9		
		3	<3	29 ± 9	20 ± 2	<9		
		4	4 ± 4	33 ± 9	16 ± 2	17 ± 9		
Channel Catfish	6/.1/ 3	1	<2	15 ± 9	8.9 ± 0.9	<9	1.2 ± 0.5	0.30 ± 0.03
		2		21 ± 9	24 ± 2	<9		
		3		<7	8.5 ± 0.9	<7		
		4		46 ± 9	24 ± 2	22 ± 9	1.40 ± 0.06	0.97 ± 0.04
Carp	6/1./73	1		58 ± 9	33 ± 3	25 ± 9	1.01 ± 0.08	0.63 ± 0.09
Sunfish	6/11/73	1		25 ± 9	25 ± 3	<9		

(a) Aliquot lost in processing

TABLE 7.10
FISH SAMPLES
GROSS GAMMA RADIOACTIVITY
Concentrations in Net cpm/g

Location	Station No.	Collection Date	Type	Weight Scanned (in g)	Net cpm/g
Peach Bottom Unit #1 - Discharge Pond	1W	8/31/72	White Crappie	235	0.07 ± 0.01
		8/31/72	Channel Catfish	443	0.044 ± 0.007
		11/21/72	Channel Catfish	155	0.06 ± 0.02
		11/22/72	Channel Catfish	160	0.03 ± 0.02
Peach Bottom Site - Cooling Tower Pond B-1	1X	8/31/72	White Crappie	151	0.07 ± 0.02
		11/10/72	White Crappie	348	0.08 ± 0.01
Peach Bottom Discharge Canal	1Y	9/ 3/71	White Crappie	302	0.08 ± 0.01
		9/30/71	Channel Catfish	1446	0.020 ± 0.002
		9/30/71	White Crappie	467	<0.007
		12/ 1/71	White Crappie	382	0.020 ± 0.009
		3/ 3/72	White Crappie	403	<0.008
		6/ 8/72	White Crappie	599	0.021 ± 0.005
		8/ 4/72	Channel Catfish	48	0.23 ± 0.07
		9/ 1/72	Channel Catfish	1546	0.016 ± 0.002
		9/15/72	White Crappie	110	0.18 ± 0.03
		11/21/72	White Crappie	142	0.07 ± 0.02
Conowingo Pond - Net Trap #15	4J	6/ 8/71	Channel Catfish	424	<0.08
		6/ 8/71	White Crappie	220	<0.02
		9/ 3/71	Channel Catfish	404	0.040 ± 0.008
		9/ 3/71	White Crappie	453	0.040 ± 0.007
		9/30/71	Channel Catfish	486	0.020 ± 0.007
		9/30/71	White Crappie	255	0.04 ± 0.01
		12/ 1/71	Channel Catfish	227	0.01 ± 0.01
		12/ 1/71	White Crappie	238	0.01 ± 0.01
		3/ 3/72	Channel Catfish	430	0.020 ± 0.008
		3/ 3/72	White Crappie	352	<0.009
		6/30/72	White Crappie	302	0.05 ± 0.01
		11/ 9/72	Channel Catfish	331	0.05 ± 0.01
		11/ 9/72	White Crappie	271	0.06 ± 0.01
		11/21/72	Channel Catfish	382	0.044 ± 0.008
		3/ 8/73	Channel Catfish	267	<0.01
		3/ 8/73	White Crappie	300	<0.01
		6/26/73	White Crappie	312	0.02 ± 0.01
		6/27/73	Channel Catfish	271	0.07 ± 0.01
Conowingo Pond - Net Trap #8	4I	9/ 3/71	Channel Catfish	460	0.030 ± 0.007
		9/ 3/71	White Crappie	390	0.050 ± 0.009
		9/30/71	Channel Catfish	1511	0.020 ± 0.002
		9/30/71	White Crappie	486	0.010 ± 0.007
		12/ 1/71	Channel Catfish	248	0.03 ± 0.01
		12/ 1/71	White Crappie	407	0.020 ± 0.008
		3/ 3/72	Channel Catfish	403	0.050 ± 0.008
		3/ 3/72	White Crappie	392	0.100 ± 0.008
		6/ 9/72	White Crappie	294	0.07 ± 0.01
		8/31/72	White Crappie		0.07 ± 0.02
		8/31/72	Channel Catfish	45	0.09 ± 0.07
		11/ 9/72	Channel Catfish	118	0.04 ± 0.03
		11/ 9/72	White Crappie	305	0.08 ± 0.01
		11/10/72	Channel Catfish	225	0.06 ± 0.01
		3/ 8/73	White Crappie	149	<0.02
		3/ 9/73	Channel Catfish	224	<0.02
		[illegible]2/73	White Crappie	376	0.015 ± 0.009
		6/2[illegible]/73	Channel Catfish	205	0.07 ± 0.02
		6/27/73	White Crappie	287	0.09 ± 0.01
Conowingo Dam - Tailrace	4H	6/ 5/72	American Shad	601	0.060 ± 0.006
		6/ 6/72	American Shad	744	0.054 ± 0.005
		6/10/73	American Shad	2422	0.022 ± 0.001
Holtwood Pond, Pa.	6C	5/24/71	Channel Catfish	102	0.03 ± 0.03
		8/20/71	Channel Catfish	166	0.03 ± 0.02
		9/30/71	Channel Catfish	255	0.03 ± 0.02
		11/19/71	Channel Catfish	341	0.03 ± 0.01
		6/20/72	Channel Catfish	468	0.068 ± 0.007
		8/ 2/72	Channel Catfish	321	0.05 ± 0.01
		8/14/72	Channel Catfish	355	0.056 ± 0.009
		6/11/73	Channel Catfish	380	<0.02[illegible]
Pequea Creek	25C	9/14/72	Sucker	712	0.032 ± 0.005
		3/23/73	Sucker	1583	0.019 ± 0.002
		6/28/73	Sucker	941	0.034 ± 0.003
Peters Creek	30A	8/ 8/72	Sucker	285	0.09 ± 0.01
		9/14/72	Sucker	728	0.037 ± 0.005
		12/20/72	Sucker	142	0.05 ± 0.02
		3/23/73	Sucker	631	0.026 ± 0.005
		6/ 7/73	Sucker	623	0.028 ± 0.005

TABLE 7.11
FISH
YEARLY AVERAGES
Concentrations in pCi/g ash(a)

Peach Bottom Discharge Canal - 2200
Station 1Y

Year	Gross Alpha Radioactivity	Net Beta Radioactivity	Sr-90	Cs-137	Gross Gamma
1966	6	40	1.6		
1967	<6	20	<0.2		
1968	5	9	0.6		
1969					
1970					
1971					
1972					
1973					
Overall	5	20	0.9		

Peach Bottom Unit #1 Discharge Pond A-1
Station 1W

Year	Gross Alpha Radioactivity	Net Beta Radioactivity	Sr-90	Cs-137	Gross Gamma
1969	3	10	2.2		
1970	2	10	1.8		
1971	<1	13	1.0		
1972	<2	10	1.8	0.48	0.05
1973	(b)				
Overall	2	10	1.8	0.48	0.35

Holtwood Pond, Pa.
Station 6C

Year	Gross Alpha Radioactivity	Net Beta Radioactivity	Sr-90	Cs-137	Gross Gamma
1966	10	[illegible]	2		
1967	10	20	2		
1968	<4	10	1.0		
1969	2	20	3.1		
1970	2	10	1.7		
1971	<2	10	1.9	0.9	0.03
1972	3	10	1.5	0.52	0.06
1973	<2	14	1.2	0.63	<0.009
Overall	4	20	2	[illegible]	.04

Peach Bottom Site - Cooling Tower Pond
Station 1[illegible]

Year	Gross Alpha Radioactivity	Net Beta Radioactivity	Sr-90	Cs-137	Gross Gamma
1969	<2	20	2.2		
1970	2	20	1.2		
1971	(b)				
1972	<2	10	1.5	0.34	0.08
1973	(b)				
Overall	2	20	1.8	0.34	0.08

Peach Bottom Discharge Canal - Net Trap #7
Station 1Y

Year	Gross Alpha Radioactivity	Net Beta Radioactivity	Sr-90	Cs-137	Gross Gamma
1970	2	20	1.6		
1971	<2	10	2	0.3	0.03
1972	2	10	2.0	0.7	0.10
1973	(b)				
Overall	2	10	2	0.5	0.37

Conowingo Pond - Net Trap #[illegible]
Station 4[illegible]

Year	Gross Alpha Radioactivity	Net Beta Radioactivity	Sr-90	Cs-137	Gross Gamma
1969	<2	10	1.7		
1970	2	40	1.1		
1971	2	10	2.0	0.3	0.03
1972	3	10	1.7	0.5	[illegible]
1973	<2	10	1.5	0.5	0.04
Overall	2	20	1.8	0.4	0.05

Conowingo Pond - Net Trap #15
Station 4J

Year	Gross Alpha Radioactivity	Net Beta Radioactivity	Sr-90	Cs-137	Gross Gamma
1969					
1970	2	<8	2.1		
1971	2	10	2.0	0.5	0.03
1972	<2	10	1.8	0.6	0.04
1973	<2	10	0.9	0.4	0.03
Overall	2	10	1.8	0.5	0.03

Conowingo Dam - Tailrace
Station 4H

Year	Gross Alpha Radioactivity	Net Beta Radioactivity	Sr-90	Cs-137	Gross Gamma
1972	<1	<10	0.08	0.53	0.057
1973	<2	<10	2.0	2.0	0.022
Overall	<2	<10	1.0	1.3	0.045

Conowingo Pond - Trawl Zone 5
Station 4Q

Year	Gross Alpha Radioactivity	Net Beta Radioactivity	Sr-90	Cs-137	Gross Gamma
1969	<3	<10	2.0		

Conowingo Pond - Trawl Zone 6
Station 4P

Year	Gross Alpha Radioactivity	Net Beta Radioactivity	Sr-90	Cs-137	Gross Gamma
1968	6	<9	1.3		
1969					

Conowingo Pond - Trawl Transect 2
Station 4R

Year	Gross Alpha Radioactivity	Net Beta Radioactivity	Sr-90	Cs-137	Gross Gamma
1969	<1	21	1.7		

Conowingo Pond - Net Trap #1
Station 4S

Year	Gross Alpha Radioactivity	Net Beta Radioactivity	Sr-90	Cs-137	Gross Gamma
1968	<6	<6	1.8		

Pequea Creek
Station 25C

Year	Gross Alpha Radioactivity	Net Beta Radioactivity	Sr-90	Cs-137	Gross Gamma
1972	<2	60	1.22	0.23	0.032
1973	<2	20	0.35	0.2	0.026
Overall	<2	40	0.78	0.2	0.028

Peters Creek
Station 30A

Year	Gross Alpha Radioactivity	Net Beta Radioactivity	Sr-90	Cs-137	Gross Gamma
1972	<2	30	9	1.6	0.06
1973	<2	20	1.8	0.22	0.027
Overall	<2	20	7	1.0	0.05

(a) For Gross Gamma Radioactivity, concentrations are in Net cpm/g.
(b) No fish available for this period.

TABLE 7.12
FISH SAMPLES
GAMMA SPECTRUM ANALYSIS

To Be Issued

TABLE 8.1
ANALYTICAL DATA FOR SHELLFISH SAMPLES
COLLECTED FROM TOLCHESTER, PA. - STATION 9

Collection Date	Concentrations (pCi/g ash) Gross Beta Radioactivity	K-40	Net Beta Radioactivity	Sr-90	Cs-137	I-131(d)
			SHELLS			
3/ 2/66	<8	0.4 ± 0.1	<8	0.85 ± 0.09		
6/ 1/66	17 ± 9	0.2 ± 0.1	17 ± 9	0.13 ± 0.04		
9/ 8/66	26 ± 9	0.2 ± 0.1	26 ± 9	<0.02		
11/15/66	<8	0.3 ± 0.1	<8	0.24 ± 0.08		
3/13/67	<9	0.3 ± 0.1	<9	0.03 ± 0.01		
7/24/67	<8	0.6 ± 0.1	<8	<0.02		
11/ 6/67	<7	0.4 ± 0.1	<7	0.6 ± 0.3		
2/23/68	(a)					
6/26/68	<6	0.4 ± 0.1	<6	0.50 ± 0.09		
9/27/68	<6	0.5 ± 0.1	<6	0.40 ± 0.08		
12/18/68	<8	<0.1	<8	0.17 ± 0.05		
	No Samples Collected in 1969.					
9/28/70	<9	0.3 ± 0.1	<9	0.55 ± 0.02		
12/17/70	<10	0.2 ± 0.1	<10	0.40 ± 0.02		
3/18/71	<10	<0.1	<10	0.05 ± 0.02		
6/16/71	<8	<0.1	<8	(b)	0.009 ± 0.005	
7/ 8/71	<8	0.1 ± 0.1	<8			
10/25/71	<7	0.3 ± 0.1	<7	0.34 ± 0.04	<0.3	
3/29/72	<6	0.2 ± 0.1	<6	0.55 ± 0.04	<0.5	
6/27/72	<7	0.4 ± 0.1	<7			
9/19/72	(a)	(a)	(a)	(a)	(a)	
12/19/72	<7	0.6 ± 0.1	<7			
3/ 6/73	<9	0.2 ± 0.1	<9	0.39 ± 0.03	<0.03	
6/ 6/73	<8	0.6 ± 0.1	<8	<0.04	(d)	
			SOFT TISSUE			
3/ 2/66	40 ± 9	45 ± 4	<10			
6/ 1/66	60 ± 10	22 ± 2	30 ± 10			<30
9/ 8/66	60 ± 10	35 ± 4	20 ± 10			
11/15/66	60 ± 10	32 ± 3	30 ± 10			<3
3/13/67	120 ± 10	72 ± 7	40 ± 10			(c)
7/24/67	50 ± 10	45 ± 4	<10			(c)
11/ 6/67	21 ± 9	16 ± 2	<9			(c)
2/23/68	(a)					
6/26/68	24 ± 8	<1	24 ± 8			<0.01
9/27/68	36 ± 8	51 ± 5	<9			
12/18/68	42 ± 6	65 ± 6	<8			<3
	No Samples Collected in 1969.					
9/28/70	60 ± 10	19 ± 2	40 ± 10			<0.1
12/17/70	60 ± 10	33 ± 3	20 ± 10			<0.1
3/18/71	31 ± 8	43 ± 4	<9			
6/16/71	52 ± 9	32 ± 3	20 ± 9	(b)	<0.3	<0.5
7/ 8/71	33 ± 8	9 ± 1	24 ± 8	0.5 ± 0.3	<0.4	
10/25/71	27 ± 7	13 ± 1	15 ± 7	(b)	0.6 ± 0.4	
3/29/72	22 ± 7	13 ± 1	9 ± 7	<1	0.5 ± 0.3	<3
6/27/72	13 ± 9	10 ± 1	<9			
9/19/72	(a)	(a)	(a)	(a)		
12/19/72	22 ± 9	26 ± 3	<9			
3/ 6/73	21 ± 9	7 ± 1	14 ± 9	2 ± 1	<1	
6/ 6/73	53 ± 9	47 ± 5	<10	5 ± 1	0.7 ± 0.4	

(a) No sample collected.
(b) Aliquot lost in processing.
(c) Analysis not performed.
(d) Analysis in process

TABLE 8.2
ANALYTICAL DATA FOR SHELLFISH SAMPLES
COLLECTED FROM HACKETT'S POINT, PA. - STATION 10

Collection Date	Gross Beta Radioactivity	K-40	Net Beta Radioactivity	Sr-90	Cs-137	I-131(c)
	Concentrations (pCi/g ash)					
			SHELLS			
3/ 2/66	<8	0.6 ± 0.1	<8			
6/ 1/66	27 ± 9	0.6 ± 0.1	27 ± 9			
9/ 8/66	36 ± 9	0.5 ± 0.1	35 ± 9			
11/15/66	<7	0.2 ± 0.1	<7			
3/13/67	<9	0.2 ± 0.1	<9			
7/24/67	<8	0.6 ± 0.1	<8			
11/ 6/67	<8	0.3 ± 0.1	<8			
2/23/68	14 ± 9	0.5 ± 0.1	14 ± 9			
6/26/68	<6	0.5 ± 0.1	<6			
9/27/68	<6	0.6 ± 0.1	<6			
12/18/68	8 ± 8	<0.1	8 ± 8			
	No Samples Collected in 1969.					
9/22/70	<10	0.4 ± 0.1	<10			
12/17/70	<10	0.2 ± 0.1	<10			
3/18/71	<1	<0.1	<1			
6/16/71	<8	0.1 ± 0.1	<8	(a)	0.004 ± 0.003	
7/ 8/71	<8	0.1 ± 0.1	<8			
10/25/71	<7	0.3 ± 0.1	<7	0.23 ± 0.02	<0.2	
3/29/72	<6	0.2 ± 0.1	<6	0.33 ± 0.03	<0.1	
6/27/72	<7	0.4 ± 0.1	<7			
9/19/72	<7	<0.1	<7	(b)	(b)	
12/19/72	<7	0.3 ± 0.1	<7			
3/ 5/73	<9	0.4 ± 0.1	<9	0.32 ± 0.03	<0.03	
6/ 6/73	<8	0.1 ± 0.1	<8	<0.03	(c)	
			SOFT TISSUE			
3/ 2/66	40 ± 9	39 ± 4	<10			
6/ 1/66	90 ± 10	53 ± 5	30 ± 10			<30
9/ 8/66	70 ± 10	53 ± 5	20 ± 10			
11/15/66	60 ± 10	26 ± 3	40 ± 10			<3
3/13/67	50 ± 10	52 ± 5	<10			(b)
7/24/67	50 ± 10	49 ± 5	<10			(b)
11/ 6/67	50 ± 10	47 ± 5	<10			(b)
2/23/68	40 ± 10	39 ± 4	<10			
6/26/68	<7	16 ± 2	<7			<0.01
9/27/68	50 ± 10	60 ± 6	<10			
12/18/68	42 ± 6	62 ± 6	<8			<3
	No Samples Collected in 1969.					
9/22/70	40 ± 10	15 ± 2	20 ± 10			<0.1
12/17/70	60 ± 10	32 ± 3	30 ± 10			<0.1
3/18 71	32 ± 8	39 ± 4	<9			
6/16/71	45 ± 9	30 ± 3	15 ± 9	(a)	0.1 ± 0.1	<0.5
7/ 8/71	15 ± 8	7 ± 1	<8	0.3 ± 0.2	0.6 ± 0.2	
10/25/71	22 ± 7	9 ± 1	13 ± 7	0.9 ± 0.1	<0.3	
3/29/72	41 ± 7	26 ± 3	15 ± 8	0.6 ± 0.3	0.2 ± 0.2	<3
6/27/72	24 ± 9	30 ± 3	<9			
9/19/72	12 ± 9	14 ± 1	<9	(b)	(b)	
12/19/72	17 ± 9	20 ± 2	<9			
3/ 5/73	29 ± 9	5 ± 1	24 ± 9	0.23 ± 0.06	0.3 ± 0.1	
6/ 6/73	47 ± 9	30 ± 3	17 ± 9	0.8 ± 0.2	<0.2	

(a) Aliquot lost in processing.
(b) Analysis not performed.
(c) Analysis in process.

TABLE 8.3
ANALYTICAL DATA FOR SHELLFISH SAMPLES
COLLECTED FROM SWAN POINT, PA. - STATION 11

Collection Date	Concentrations (pCi/g ash) Gross Beta Radioactivity	K-40	Net Beta Radioactivity	Sr-90	Cs-137	I-131(c)
			SHELLS			
3/ 2/66	10 ± 8	0.5 ± 0.1	10 ± 8			
6/ 1/66	21 ± 9	0.4 ± 0.1	21 ± 9			
9/ 8/66	27 ± 9	0.2 ± 0.1	27 ± 9			
11/15/66	<9	1.4 ± 0.1	<9			
3/13/67	<8	0.2 ± 0.1	<8			
7/24/67	21 ± 9	0.3 ± 0.1	21 ± 9			
11/ 6/67	<8	0.3 ± 0.1	<8			
2/23/68	<9	0.6 ± 0.1	<9			
6/26/68	<6	0.4 ± 0.1	<6			
9/27/68	<6	0.5 ± 0.1	<6			
12/18/68	8 ± 8	<0.1	8 ± 8			
	No Samples Collected in 1969.					
9/28/70	<9	0.6 ± 0.1	<9			
12/17/70	<10	0.3 ± 0.1	<10			
3/18/71	<10	<0.1	<10			
6/16/71	<8	0.1 ± 0.1	<8	(a)	0.004 ± 0.002	
7/ 8/71	<8	0.3 ± 0.1	<8			
10/25/71	<7	0.2 ± 0.1	<7	0.31 ± 0.03	<0.3	
3/29/72	<6	0.2 ± 0.1	<6	0.43 ± 0.04	<0.1	
6/27/72	<7	0.5 ± 0.1	<7			
9/19/72	<7	<0.1	<7	(b)	(b)	
12/19/72	<7	0.6 ± 0.1	<7			
3/ 5/73	<9	0.1 ± 0.1	<9	0.30 ± 0.03	<0.03	
6/ 6/73	<8	0.2 ± 0.1	<8	<0.03	- (c)	
			SOFT TISSUE			
3/ 2/66	40 ± 10	53 ± 5	<10			
6/ 1/66	60 ± 10	48 ± 5	<10			<30
9/ 8/66	50 ± 10	25 ± 2	20 ± 10			
11/15/66	50 ± 10	26 ± 3	30 ± 10			<3
3/13/67	60 ± 10	57 ± 6	<10			(b)
7/24/67	60 ± 10	41 ± 4	10 ± 10			(b)
11/ 6/67	30 ± 10	32 ± 3	<10			(b)
2/23/67	23 ± 9	27 ± 3	<9			
6/26/68	40 ± 10	42 ± 4	<10			<0.04
9/27/68	25 ± 8	29 ± 3	<8			
12/18/68	40 ± 6	53 ± 5	<8			<3
	No Samples Collected in 1969.					
9/28/70	50 ± 10	10 ± 1	40 ± 10			<0.1
12/17/70	50 ± 10	24 ± 2	30 ± 10			<0.2
3/18/71	42 ± 8	40 ± 4	<9			
6/16/71	29 ± 8	25 ± 2	<8	(a)	0.2 ± 0.2	<0.5
7/ 8/71	34 ± 8	15 ± 2	19 ± 8	0.4 ± 0.3	0.3 ± 0.3	
10/25/71	30 ± 7	15 ± 2	15 ± 7	0.70 ± 0.08	0.6 ± 0.3	
3/29/72	22 ± 7	16 ± 2	<7	0.6 ± 0.5	0.3 ± 0.3	<3
6/27/72	46 ± 9	31 ± 3	15 ± 9			
9/19/72	21 ± 9	16 ± 2	<9	(b)	(b)	
12/19/72	14 ± 9	16 ± 2	<9			
3/ 5/73	36 ± 9	6 ± 1	30 ± 9	0.21 ± 0.08	<0.02	
6/ 6/73	60 ± 10	25 ± 3	40 ± 10	0.2 ± 0.2	<0.03	

(a) Aliquot lost in processing.
(b) Analysis not performed.
(c) Analysis in process.

TABLE 8.4
SHELLFISH SAMPLES
GROSS GAMMA RADIOACTIVITY
Concentrations in Net cpm/g

Location	Station No.	Collection Date	Volume Scanned (1)	Net cpm/1
Tolchester	9	6/16/71	98	0.05 ± 0.03
		7/ 8/71	59	<0.06
		10/25/71	67	0.10 ± 0.05
		3/29/72	74	<0.04
		9/19/72	(a)	
		3/ 6/73	28.5	<0.1
Hackett Pt. Bar	10	6/16/71	88	<0.04
		7/ 8/71	69	<0.04
		10/25/71	59	0.30 ± 0.06
		3/29/72	92	0.17 ± 0.04
		9/19/72	182	<0.02
		3/ 6/73	256	<0.01
Swan Pt. Bar	11	6/16/71	103	0.07 ± 0.03
		7/ 8/71	85	<0.04
		10/25/71	65	0.10 ± 0.05
		3/29/72	72	<0.05
		9/19/72	166	0.02 ± 0.02
		3/ 5/73	236	<0.01

(a) No sample collected

TABLE 8.5
SHELLFISH SAMPLES
YEARLY AVERAGES

SHELLS

Tolchester, Pa. Station 9

Year	Concentrations pCi/g ash Net Beta Radioactivity	Sr-90	Cs-137
1966	15	0.31	
1967	<8	0.2	
1968	<7	0.36	
1969	(a)	(a)	
1970	<10	0.48	
1971	<8	0.20	0.2
1972	<7	0.55	0.5
1973	<8	0.22	<0.03
Overall	9	0.3	0.2

Hackett Point Bar, Pa. Station 10

Year	Concentrations pCi/g ash Net Beta Radioactivity	Sr-90	Cs-137
1966	19		
1967	<8		
1968	<8		
1969	(a)		
1970	<10		
1971	<6	0.23	0.1
1972	<7	0.33	<0.1
1973	<8	0.18	<0.03
Overall	10	0.14	0.1

Swan Point Bar, Pa. Station 11

Year	Concentrations pCi/g ash Net Beta Radioactivity	Sr-90	Cs-137
1966	17		
1967	12		
1968	7		
1969	(a)		
1970	<10		
1971	6	0.31	0.15
1972	<7	0.43	<0.1
1973	<8	0.16	<0.03
Overall	10	0.27	0.1

SOFT TISSUE

Tolchester, Pa. Station 9

Year	Concentrations - pCi/g ash Net Beta Radioactivity	Sr-90	Cs-137	I-131	Concentrations - Net cpm/g Gross Gamma
1966	25			<16	
1967	23			(c)	
1968	14			<1.5	
1969	(a)				
1970	35			<0.1	
1971	17	0.5	0.4	<0.5	0.07
1972	9	<1	0.5	<3	<0.04
1973	12	4	1		<0.1
Overall	20	2	0.6	5	.07

Hackett Point Bar, Pa. Station 10

Year	Concentrations - pCi/g ash Net Beta Radioactivity	Sr-90	Cs-137	I-131	Concentrations - Net cpm/g Gross Gamma
1966	22			<15	
1967	<10			(b)	
1968	< 9			<1.5	
1969	(a)				
1970	20			<0.1	
1971	11	0.6	0.3	<0.5	0.13
1972	12	0.6	0.2	<3	0.10
1973	20	0.51	0.2		<0.01
Overall	14	0.6	0.3	5	.10

Swan Point Bar, Pa. Station 11

Year	Concentrations - pCi/g ash Net Beta Radioactivity	Sr-90	Cs-137	I-131	Concentrations - Net cpm/g Gross Gamma
1966	15			<16	
1967	13			(b)	
1968				<1.5	
1969	(a)				
1970	35			<0.2	
1971	13	0.6	0.4	<0.5	0.07
1972	10	0.6	0.3	<3	0.54
1973	40	0.2	0.2		<0.01
Overall	20	0.4	0.3	5	.05

TABLE 8.6
SHELLFISH SAMPLES
TISSUE
GAMMA SPECTRUM ANALYSIS

To Be Issued

TABLE 9.1
VEGETATION SAMPLES
COLLECTION FROM PEACH BOTTOM SITE
STATION 1

Sample Type	Collection Date	Concentrations (pCi/g ash) Gross Alpha Radioactivity	Gross Beta Radioactivity	K-40	Net Beta Radioactivity	Sr-90	Cs-137
	5/ 7/66	10 ± 10	210 ± 20	130 ± 10	80 ± 20	<0.5	
	10/22/66	10 ± 10	100 ± 10	20 ± 2	80 ± 10		
	4/ 8/67	20 ± 10	200 ± 20	73 ± 7	130 ± 20	<0.6	
	10/22/67	<9	180 ± 20	36 ± 4	140 ± 20		
	4/ 6/68	<7	230 ± 20	170 ± 20	60 ± 30	13 ± 4	
	10/27/68	<5	52 ± 9	62 ± 6	<10		
	5/11/69	4 ± 3	110 ± 10	31 ± 3	80 ± 10	5.2 ± 0.2	
	11/ 1/69	2 ± 2	200 ± 10	100 ± 10	100 ± 10		
	5/ 2/70	5 ± 3	136 ± 8	70 ± 7	70 ± 10	4.4 ± 0.4	
	10/18/70	2.0 ± 0.7	200 ± 10	86 ± 9	110 ± 10		
Wild Greens	5/ 1/71	8 ± 2	80 ± 9	26 ± 3	54 ± 9	16.8 ± 0.2(a)	0.5 ± 0.2
Barley(Mature)	6/30/71	13 ± 6	130 ± 10	51 ± 5	70 ± 10	0.08 ± 0.02	0.77 ± 0.02
Corn	9/ 4/71	3 ± 3	200 ± 10	190 ± 20	<20	0.42 ± 0.08	1.8 ± 0.2
Green Apples	10/ 3/71	<4	320 ± 10	280 ± 30	40 ± 30	5.9 ± 0.8	2.1 ± 0.8
Delicious Apples	10/ 3/71	<4	350 ± 10	320 ± 30	<30	7 ± 4	2 ± 1
Crops	6/17/72	5 ± 4	36 ± 9	8 ± 1	28 ± 9	0.95 ± 0.04	0.52 ± 0.02
Corn	8/ 5/72	<3	210 ± 10	200 ± 20	<20	4.5 ± 0.5	2.3 ± 0.6
Green Tomatoes	8/ 5/72	<2	290 ± 10	190 ± 20	100 ± 20	0.7 ± 0.1	1.5 ± 0.2
Applies	10/ 8/72	6 ± 5	360 ± 10	280 ± 30	80 ± 30	2.8 ± 0.3	2.3 ± 0.2
Corn	10/ 8/72	<1	490 ± 20	220 ± 20	270 ± 30	0.38 ± 0.04	1.08 ± 0.03
Clover Hay	6/23/73	<3	180 ± 10	76 ± 8	100 ± 10	2.87 ± 0.6	0.86 ± 0.06
Hay	6/23/73	17 ± 7	100 ± 10	22 ± 2	80 ± 10	(b)	4.2 ± 0.1
Beets	6/23/73	9 ± 5	60 ± 10	36 ± 4	30 ± 10	1.14 ± 0.04	1.62 ± 0.04
Grass	6/23/73	<4	260 ± 10	130 ± 10	120 ± 10	0.14 ± 0.04	0.09 ± 0.02
Cabbage	6/23/73	<3	230 ± 10	100 ± 10	130 ± 10	7.3 ± 0.1	1.14 ± 0.07

(a) Based on assumed ash % of 2.0.

(b) Analysis in process.

TABLE 9.2
VEGETATION SAMPLES
COLLECTION FROM DELTA, PA.
STATION 3A

Sample Type	Collection Date	Gross Alpha Radioactivity	Gross Beta Radioactivity	K-40	Net Beta Radioactivity	Sr-90	Cs-137
		Concentrations (pCi/g ash)					
	5/ 7/66	10 ± 9	240 ± 20	180 ± 20	60 ± 30	<0.5	
	10/22/66	20 ± 10	130 ± 10	29 ± 3	100 ± 10		
	4/ 8/67	20 ± 10	140 ± 20	32 ± 3	110 ± 20	<0.2	
	10/22/67	<7	190 ± 20	42 ± 4	150 ± 20		
	4/ 6/68	<5	300 ± 30	190 ± 20	110 ± 40	20 ± 4	
	10/27/68	<5	190 ± 20	160 ± 20	30 ± 30		
	5/11/69	<3	150 ± 10	40 ± 4	110 ± 10	5.8 ± 0.3	
	11/ 1/69	1.0 ± 0.8	230 ± 10	140 ± 10	90 ± 10		
	5/ 2/70	2 ± 2	239 ± 8	120 ± 10	120 ± 10	16 ± 1	
	10/18/70	3.8 ± 0.9	210 ± 10	91 ± 9	120 ± 10		
Wild Greens	5/ 2/71	8 ± 2	140 ± 10	47 ± 5	90 ± 10	15.3 ± 0.2(b)	5.4 ± 0.2(b)
Wild Greens	10/ 3/71	8 ± 3	200 ± 10	100 ± 10	100 ± 10	(a)	5.0 ± 0.2(b)
	6/17/72	<4	160 ± 10	82 ± 8	80 ± 10	11.2 ± 0.9	1.2 ± 0.2
Leaves	8/ 5/72	11 ± 6	210 ± 10	110 ± 10	100 ± 10	(a)	(a)
Wild	10/ 8/72	4 ± 4	240 ± 10	100 ± 10	140 ± 10	39 ± 1	1.5 ± 0.1
Wild	6/23/73	13 ± 6	260 ± 10	100 ± 10	150 ± 10	2.99 ± 0.04	.049 ± .008

(a) Aliquot lost in processing.

(b) Based on assumed ash % of 2.0.

TABLE 9.3
VEGETATION SAMPLES
COLLECTION FROM CONOWINGO DAM
STATION 4N

Sample Type	Collection Date	Concentrations (pCi/g ash) Gross Alpha Radioactivity	Gross Beta Radioactivity	K-40	Net Beta Radioactivity	Sr-90	Cs-137
	5/ 7/66	<7	140 ± 20	92 ± 9	50 ± 20	25 ± 5	
	10/22/66	20 ± 10	110 ± 10	36 ± 4	70 ± 10		
	4/ 8/67	20 ± 10	170 ± 20	76 ± 8	90 ± 20	<0.5	
	10/21/67	<9	70 ± 10	17 ± 2	50 ± 10		
	4/ 6/68	10 ± 10	110 ± 20	33 ± 3	80 ± 20	4 ± 1	
	10/27/68	<5	36 ± 8	24 ± 2	12 ± 8		
	5/11/69	<3	160 ± 10	42 ± 4	120 ± 10	6.6 ± 0.2	
	11/ 1/69	4 ± 2	250 ± 10	130 ± 10	120 ± 10		
	5/ 2/70	1 ± 1	218 ± 8	130 ± 10	90 ± 10	6.0 ± 0.3	
	10/18/70	2.6 ± 0.7	90 ± 10	40 ± 4	50 ± 10		
Wild Greens	5/ 2/71	2 ± 1	100 ± 10	30 ± 3	70 ± 10	12.0 ± 0.2(b)	2.7 ± 0.2(b)
Wild Greens	10/ 3/71	8 ± 3	210 ± 10	90 ± 9	120 ± 10	(a)	4.2 ± 0.2(b)
	6/17/72	<4	220 ± 10	170 ± 20	50 ± 20	9.0 ± 0.5	2.6 ± 0.1
Grass	8/ 5/72	7 ± 5	350 ± 10	120 ± 10	230 ± 10	(a)	(a)
Wild	10/ 8/72	6 ± 5	280 ± 10	160 ± 20	120 ± 20	23.4 ± 0.7	2.2 ± 0.1
Wild	6/23/73	4 ± 4	190 ± 10	81 ± 8	110 ± 10	6.8 ± 0.1	1.21 ± 0.05

(a) Aliquot lost in processing.

(b) Based on assumed ash % of 2.0.

TABLE 9.4
VEGETATION SAMPLES
COLLECTION FROM WAKEFIELD, PA.
STATION 5

Sample Type	Collection Date	Concentrations (pCi/g ash)					
		Gross Alpha Radioactivity	Gross Beta Radioactivity	K-40	Net Beta Radioactivity	Sr-90	Cs-137
	5/ 7/66	<7	320 ± 30	190 ± 20	130 ± 40	7 ± 2	
	10/22/66	20 ± 10	140 ± 20	51 ± 5	90 ± 20		
	4/ 8/67	20 ± 10	80 ± 10	22 ± 2	60 ± 10	<0.6	
	10/21/67	20 ± 1C	260 ± 20	100 ± 10	160 ± 20		
	4/ 6/68	<7	320 ± 30	240 ± 20	80 ± 40	19 ± 8	
	10/27/68	<9	57 ± 9	82 ± 8	<10		
	5/11/69	4 ± 3	150 ± 10	36 ± 4	110 ± 10	10.7 ± 0.5	
	11/ 1/69	2 ± 2	280 ± 10	180 ± 20	100 ± 20		
	5/ 2/70	2 ± 2	282 ± 9	180 ± 20	100 ± 20	17 ± 1	
	10/18/70	4.1 ± 0.9	280 ± 20	140 ± 10	140 ± 20		
	5/ 2/71	3 ± 2	46 ± 9	4 ± 1	42 ± 9		
Corn(immature)	6/30/71	4 ± 4	280 ± 10	190 ± 20	80 ± 20	8.7 ± 0.4(b)	3.8 ± 0.2(b)
Corn	9/ 4/71	<2	230 ± 10	240 ± 20	<20	0.72 ± 0.04	0.17 ± 0.02
Cucumber	10/ 3/71	3 ± 3	150 ± 10	130 ± 10	20 ± 10	0.5 ± 0.3	0.5 ± 0.2
Tomatoes	10/ 3/71	<3	370 ± 10	330 ± 30	40 ± 30	2.1 ± 0.2	0.2 ± 0.2
	6/17/72	12 ± 6	90 ± 10	62 ± 6	30 ± 10	0.7 ± 0.3	0.6 ± 0.3
Corn	8/ 5/72	<0.8	190 ± 10	170 ± 20	20 ± 20	1.9 ± 0.1	0.35 ± 0.01
Red Tomatoes	8/ 5/72	<3	180 ± 10	140 ± 10	40 ± 10	0.9 ± 0.1	0.9 ± 0.2
Beans	10/ 8/72	<3	320 ± 10	260 ± 30	60 ± 30	1.22 ± 0.09	0.9 ± 0.2
Corn	10/ 8/72	5 ± 5	180 ± 10	87 ± 9	90 ± 10	5.2 ± 0.3	1.0 ± 0.1
Corn(immature)	6/23/73	16 ± 7	100 ± 10	29 ± 3	70 ± 10	0.24 ± 0.05	0.25 ± 0.04
Lettuce	6/23/73	10 ± 6	120 ± 10	74 ± 7	50 ± 10	(c)	0.40 ± 0.02
						1.05 ± 0.04	0.4 ± 0.1

(a) Aliquot lost in processing.

(b) Based on assumed ash % of 2.0.

(c) Analysis in process.

TABLE 9.5
VEGETATION SAMPLES
COLLECTION FROM HOLTWOOD, PA.
STATION 6D

Sample Type	Collection Date	Gross Alpha Radioactivity	Gross Beta Radioactivity	K-40	Net Beta Radioactivity	Sr-90	Cs-137
		Concentrations (pCi/g ash)					
	5/ 7/66	<3	230 ± 20	190 ± 20	40 ± 30	(a)	
	10/22/66	20 ± 10	120 ± 20	27 ± 3	90 ± 20		
	4/ 8/67	20 ± 10	110 ± 20	34 ± 3	80 ± 20	<0.4	
	10/21/67	<7	200 ± 20	140 ± 10	60 ± 20		
	4/ 6/68	10 ± 10	70 ± 10	14 ± 1	60 ± 10	1 ± 1	
	10/27/68	<7	170 ± 20	150 ± 20	<30		
	5/11/69	7 ± 5	50 ± 10	10 ± 1	40 ± 10	2.0 ± 0.1	
	11/ 2/69	9 ± 3	90 ± 10	20 ± 2	70 ± 10		
	5/ 2/70	14 ± 4	88 ± 6	25 ± 2	63 ± 6	3.9 ± 0.2	
	10/18/70	6 ± 1	390 ± 20	140 ± 10	250 ± 20		
Wild Greens	5/ 2/71	4 ± 2	28 ± 8	2 ± 1	26 ± 8	16.1 ± 0.6(c)	10.1 ± 0.6(c)
Barley(mature)	6/30/71	10 ± 6	85 ± 9	49 ± 5	36 ± 7	0.98 ± 0.02	0.64 ± 0.04(b)
Corn	9/ 4/71	<2	220 ± 10	220 ± 20	<20	1.2 ± 0.1	0.9 ± 0.5
Delicious Apples	10/ 3/71	5 ± 5	370 ± 10	290 ± 30	80 ± 30	12 ± 3	4 ± 1
Cauliflower	10/ 3/71	<3	290 ± 10	250 ± 20	40 ± 20	2.8 ± 0.2	0.2 ± 0.2
Crops	6/17/72	11 ± 6	50 ± 10	24 ± 2	30 ± 10	3.4 ± 0.1	0.55 ± 0.06
Corn	8/ 5/72	<4	230 ± 10	220 ± 20	<20	1.2 ± 0.2	0.4 ± 0.1
Red Tomatoes	8/ 5/72	<2	190 ± 10	180 ± 20	<20	2.2 ± 0.1	2.1 ± 0.3
Cauliflower	10/ 8/72	<2	400 ± 10	280 ± 30	120 ± 30	2.7 ± 0.1	0.65 ± 0.09
Corn	10/ 8/72	<2	210 ± 10	210 ± 20	<20	0.11 ± 0.01	0.10 ± 0.02
Peas(wholeplant)	6/23/73	14 ± 6	100 ± 10	43 ± 4	60 ± 10	2.1 ± 0.2	0.38 ± 0.02
Radish(wholeplant)	6/23/73	12 ± 6	120 ± 10	66 ± 7	60 ± 10	0.17 ± 0.02	0.48 ± 0.02

(a) Aliquot lost during processing

(b) Partial sample loss.

(c) Based on assumed ash % of 2.0.

TABLE 9.6
VEGETATION SAMPLES
YEARLY AVERAGES

Concentrations in pCi/g ash

	Peach Bottom Site Area Station 1				Delta, Pa. - Substation Station 3A				Conowingo Dam - Environmental Station Station 4N			
Year	Net Beta Radioactivity	Sr-90	Cs-137	Gross Alpha Radioactivity	Net Beta Radioactivity	Sr-90	Cs-137	Gross Alpha Radioactivity	Net Beta Radioactivity	Sr-90	Cs-137	Gross Alpha Radioactivity
1966	80	<0.5		10	80	<0.5		20	60	25		10
1967	140	<0.6		10	130	<0.2		10	70	<0.5		10
1968	40	13		4	70	20		<5	50	4		10
1969	90	5.2		3	100	5.8		2	120	6.6		4
1970	90	4.4		4	120	16		3	70	6.0		2
1971	60	6	1	6	100	15.3	5.2	8	100	12.0	3.4	5
1972	100	1.9	1.5	3	110	25	1.4	6	130	16.2	2.4	6
1973	90	2.9	1.6	7	150	2.99	0.049	13	110	6.8	1.21	4
Overall	80	4	1.5	6	100	12	2.6	10	90	10	2.6	7

	Wakefield, Pa. Station 5				Holtwood, Pa. Station 6D				Combined Yearly Average of Stations 3A, 4N, 5, 6D			
Year	Net Beta Radioactivity	Sr-90	Cs-137	Gross Alpha Radioactivity	Net Beta Radioactivity	Sr-90	Cs-137	Gross Alpha Radioactivity	Net Beta Radioactivity	Sr-90	Cs-137	Gross Alpha Radioactivity
1966	110	7		10	70			10	80	11		10
1967	110	<0.6		20	70	<0.4		10	90	<0.4		15
1968	50	19		6	50	1		10	50	11		7
1969	110	10.7		3	60	2.0		8	100	6		4
1970	120	17		3	160	3.9		10	120	11		4
1971	70	2.5	1.1	3	50	7	3	5	60	6	3	5
1972	50	1.9	0.7	5	40	1.9	0.8	4	70	7	1.0	5
1973	60	1.05	0.4	13	60	1.1	0.43	13	80	2.6	0.5	11.5
Overall	70	5	0.8	7	60	3	2	8	80	8	2	8

TABLE 10.1
ANALYTICAL DATA FOR MILK SAMPLES

Location	Collection Date	Gross Beta Radioactivity (pCi/liter)	K-40 (pCi/liter)	Net Beta Radioactivity (pCi/liter)	Sr-90 (pCi/liter)	Cs-137 (pCi/liter)	I-131 (pCi/liter)
Farm A	3/12/66	1800 ± 200	1600 ± 200	<300			
	6/ 2/66	1600 ± 200	1400 ± 100	200 ± 200	1.5 ± 0.7		<90
	8/15/66	740 ± 80	590 ± 60	200 ± 100			
	11/14/66	1100 ± 100	750 ± 80	400 ± 100	10 ± 3		<200
	2/28/67	1200 ± 100	1000 ± 100	200 ± 100			
	5/ 8/67	1800 ± 200	1500 ± 200	300 ± 300	4		<4000
	9/29/67	1400 ± 200	1400 ± 100	<200			
	11/17/67	520 ± 70	540 ± 50	<90	7 ± 4		<20
	2/23/68	1200 ± 100	1200 ± 100	<100			
	5/10/68	1000 ± 200	1100 ± 100	<200	5 ± 4		<60
	8/22/68	1100 ± 100	1200 ± 100	<100			
	12/17/68	1000 ± 100	1100 ± 100	<100	13 ± 3		<90
	2/25/69	700 ± 100	780 ± 80	<100			
	6/24/69	1030 ± 90	1000 ± 100	<100	10 ± 2		<5
	9/ 9/69	950 ± [illegible]	940 ± 90	<100			
	12/18/69	940 ± 80	1000 ± 100	<100	<4		
	3/ 4/70	1190 ± 80	1000 ± 100	200 ± 100			
	5/29/70	1330 ± 70	1100 ± 100	200 ± 100	9 ± 3		<2
	8/25/70	1220 ± 80	1200 ± 100	<100			
	12/10/70	1210 ± 80	1200 ± 100	<100	8 ± 2		<2
	3/12/71	1130 ± 80	1000 ± 100	100 ± 100			
	5/ 6/71	1380 ± 90	1200 ± 100	200 ± 100	12.1 ± 0.6	6.2 ± 0.4	<0.9
	7/13/71	1170 ± 80	1000 ± 100	200 ± 100	8.4 ± 0.5	9.6 ± 0.4	<1
	12/12/71	1510 ± 80	1400 ± 100	100 ± 100	9.3 ± 0.4	15 ± 1	<70
	3/ 3/72	1260 ± 90	1300 ± 100	<100	9.5 ± 0.4	9.0 ± 0.3	<2
	6/13/72	940 ± 80	890 ± 90	<100	8.9 ± 0.3	9.7 ± 0.2	<20
	9/16/72	1010 ± 80	1000 ± 100	<100	9.2 ± 0.7	51 ± 1	<4
	11/15/72	1200 ± 80	1100 ± 100	<100	6.5 ± 0.3	5 ± 1	<0.7
	3/14/73	1090 ± 80	850 ± 80	200 ± 100	5.0 ± 0.2	5 ± 1	<1
	6/13/73	1370 ± 80	1000 ± 100	400 ± 100	9.6 ± 0.3	4.4 ± 0.4	<3
	Overall			100	8	14	300
Farm B	3/12/66	1700 ± 200	1600 ± 200	<300			
	6/ 3/66	1300 ± 100	1100 ± 100	200 ± 100			
	8/15/66	560 ± 60	340 ± 30	220 ± 70			
	11/14/66	1100 ± 100	810 ± 80	300 ± 100			
	3/ 1/67	1200 ± 100	1000 ± 100	200 ± 100			<200
	5/ 8/67	1400 ± 100	1000 ± 100	400 ± 100			
	9/29/67	1600 ± 200	1500 ± 200	<300			
	11/17/67	530 ± 80	490 ± 50	90 ± 90			
	2/23/68	1000 ± 100	1000 ± 100	<100			
	5/10/68	1100 ± 100	1100 ± 100	<100	13 ± 4		
	8/22/68	1000 ± 100	1100 ± 100	<100			<60
	12/17/68	700 ± 90	1000 ± 100	<100			
	2/25/69	800 ± 100	900 ± 90	<100			
	6/24/69	960 ± 90	1000 ± 100	<100	18 ± 2		<5
	9/ 9/69	1100 ± 60	1100 ± 100	<100			
	12/18/69	900 ± 80	910 ± 90	<100	1.4 ± 0.6		
	3/ 4/70	1150 ± 80	900 ± 90	300 ± 100			
	5/29/70	1250 ± 70	1000 ± 100	300 ± 100	4 ± 2		<0.8
	8/25/70	1270 ± 90	1100 ± 100	200 ± 100			
	12/10/70	1600 ± 100	1300 ± 100	300 ± 100	9 ± 2		<3
	3/12/71	1130 ± 80	1000 ± 100	100 ± 100			
	5/ 6/71	1150 ± 80	1100 ± 100	100 ± 100	4.8 ± 0.8	9.4 ± 0.7	<0.9
	7/13/71	1180 ± 80	1000 ± 100	200 ± 100	10.9 ± 0.7	11.1 ± 0.8	<1
	12/12/71	1330 ± 70	1200 ± 100	100 ± 100	7.2 ± 0.4	10 ± 2	<200
	3/ 3/72	1300 ± 100	1300 ± 100	<100	8.1 ± 0.4	10.5 ± 0.4	<3
	6/13/72	1400 ± 100	1500 ± 100	<100	9.3 ± 0.3	25.1 ± 0.3	<20
	9/16/72	1080 ± 80	1000 ± 100	<100	7.0 ± 0.3	9.1 ± 0.6	<3
	11/15/72	1100 ± 90	1000 ± 100	<100	5.4 ± 0.2	8.1 ± 0.6	<1
	3/14/73	1140 ± 90	1000 ± 100	200 ± 100	2.2 ± 0.2	7.7 ± 0.3	<1
	6/13/73	1260 ± 50	930 ± 90	300 ± 100	7.6 ± 0.3	6.0 ± 0.5	<2
	Overall			200	8	11	40

TABLE 10.1 (cont.)
ANALYTICAL DATA FOR MILK SAMPLES

Location	Collection Date	Gross Beta Radioactivity (pCi/liter)	K-40 (pCi/liter)	Net Beta Radioactivity (pCi/liter)	Sr-90 (pCi/liter)	Cs-137 (pCi/liter)	I-131 (pCi/liter)
Farm C	3/12/66	1400 ± 100	1500 ± 100	<100			
	6/ 3/66	1400 ± 100	1400 ± 100	<100			
	8/15/66	740 ± 90	580 ± 60	~~200 ± 100~~			
	11/14/66	1200 ± 100	860 ± 90	300 ± 100			<200
	3/ 1/67	1200 ± 100	1100 ± 100	<100			
	5/ 8/67	1300 ± 100	1000 ± 100	300 ± 100			
	9/29/67	1400 ± 200	1400 ± 100	<200			
	11/17/67	560 ± 70	490 ± 50	<90			
	2/23/68	900 ± 100	1000 ± 100	<100			
	5/10/68	1100 ± 200	1100 ± 100	<200	6 ± 3		<60
	8/22/68	1000 ± 100	1100 ± 100	<100			
	12/18/68	800 ± 80	1000 ± 100	<100			
	2/25/69	600 ± 100	850 ± 50	<100			
	6/24/69	1100 ± 90	1100 ± 100	<100	13 ± 3		<7
	9/ 9/69	1270 ± 90	1300 ± 100	<100			
	12/18/69	1050 ± 90	1000 ± 100	<100	4 ± 2		
	3/ 4/70	1130 ± 80	930 ± 90	200 ± 100			
	5/29/70	1200 ± 70	1100 ± 100	<100	6 ± 3		<2
	8/25/70	970 ± 70	1000 ± 100	<100			
	12/10/70	1200 ± 80	1100 ± 100	<100	5 ± 1		<9
	3/12/71	1220 ± 80	1[illegible]00 ± 100	200 ± 100			
	5/ 6/71	1210 ± 80	1200 ± 100	<100	8 ± 1	8.5 ± 0.8	<1
	7/13/71	1180 ± 80	1100 ± 100	<100	7.1 ± 0.5	12.8 ± 0.5	<2
	12/12/71	1200 ± 70	1300 ± 100	<100	3.5 ± 0.3	9.7 ± 0.9	<1
	3/ 3/72	1300 ± 100	1300 ± 100	<100	7.3 ± 0.4	11.1 ± 0.4	<2
	6/13/72	1200 ± 80	1100 ± 100	<100	10.86 ± 0.07	13.3 ± 0.9	11 ± 5
	9/16/72	860 ± 80	800 ± 80	<100	8.8 ± 0.4	8.1 ± 0.3	4 ± 2
	11/15/72	1400 ± 100	1300 ± 100	<100	6.6 ± 0.2	7.4 ± 0.6	<1
	3/14/73	1000 ± 80	850 ± 80	200 ± 100	6.8 ± 0.2	6.1 ± 0.7	<1
	6/13/73	1290 ± 80	920 ± 90	400 ± 100	8.1 ± 0.9	9.4 ± 0.6	10 ± 5
	Overall			100	7	9.6	20
Wakefield Vicinity	3/11/66	1800 ± 200	1600 ± 200	<300			
Farm D	6/ 1/66	1600 ± 200	1400 ± 100	<200	<1		<90
	8/15/66	1000 ± 100	730 ± 70	300 ± 100			
	11/12/66	1300 ± 100	900 ± 90	400 ± 100	10 ± 2		<200
	3/ 2/67	1500 ± 200	1500 ± 100	<200			
	5/ 7/67	1100 ± 100	860 ± 90	200 ± 100	2		<3000
	9/29/67	1700 ± 200	1300 ± 100	400 ± 200			
	11/17/67	630 ± 70	510 ± 50	120 ± 90	5 ± 4		<20
	2/23/68	1100 ± 100	1100 ± 100	<100			
	5/10/68	1400 ± 200	1200 ± 100	<200	5 ± 3		<60
	8/22/68	1000 ± 100	1100 ± 100	<100			
	12/17/68	790 ± 90	1200 ± 100	<100	9 ± 2		<90
	2/25/69	800 ± 100	900 ± 90	<100			
	6/24/69	1060 ± 80	1100 ± 100	<100	5 ± 3		<9
	9/ 9/69	1190 ± 90	1200 ± 100	<100			
	12/18/69	1170 ± 90	1100 ± 100	<100	3 ± 2		
	3/ 4/70	1130 ± 70	920 ± 90	200 ± 100			
	5/29/70	1330 ± 80	1200 ± 100	100 ± 100	9 ± 4		<0.6
	8/25/70	1230 ± 80	1200 ± 100	<100			
	12/10/70	1300 ± 90	1200 ± 100	<100	8 ± 1		<5
	3/12/71	1280 ± 80	1100 ± 100	200 ± 100			
	5/ 6/71	12[illegible]0 ± 80	1200 ± 100	<100	8.1 ± 0.7	8.2 ± 0.6	6
	7/13/71	1410 ± 90	1200 ± 100	200 ± 100	7.0 ± 0.3	15.0 ± 0.5	<0.8
	12/12/71	1270 ± 70	1300 ± 100	<100	5.9 ± 0.4	7 ± 4	<20
	3/ 3/72	1400 ± 100	1400 ± 100	<100	6.9 ± 0.5	9.8 ± 0.4	<3
	6/13/72	1400 ± 100	1500 ± 100	<100	9.27 ± 0.05	13.3 ± 0.2	<8
	9/16/72	1280 ± 90	1200 ± 100	<100	7.7 ± 0.6	7.2 ± 0.7	<0.9
	11/15/72	1600 ± 100	1500 ± 100	<100	4.8 ± 0.4	5.7 ± 0.9	<2
	3/14/73	1110 ± 80	920 ± 90	200 ± 100	5.2 ± 0.2	6.6 ± 0.2	<2
	6/13/73	1400 ± 90	930 ± 90	500 ± 100	23.[illegible] ± 0.3	5.8 ± 0.4	<3
	Overall			200	7	9	<200

Revised June 1974

TABLE 10.1 (cont.)
ANALYTICAL DATA FOR MILK SAMPLES

Location	Collection Date	Gross Beta Radioactivity (pCi/liter)	K-40 (pCi/liter)	Net Beta Radioactivity (pCi/liter)	Sr-90 (pCi/liter)	Cs-137 (pCi/liter)	I-131 (pCi/liter)
Farm F	5/ 6/71	1280 ± 90	1200 ± 100	100 ± 100	9.9 ± 0.5	4.6 ± 0.5	<0.9
	7/13/71	1140 ± 80	1100 ± 100	<100	11.8 ± 0.6	12.4 ± 0.4	<2
	12/12/71	1380 ± 70	1300 ± 100	100 ± 100	7.4 ± 0.4	11.0 ± 0.9	<2
	3/ 3/72	1300 ± 100	1300 ± 100	<100	10.1 ± 0.4	10.5 ± 0.4	<2
	6/13/72	1480 ± 90	1300 ± 100	200 ± 100	10.9 ± 0.3	10.2 ± 0.7	<20
	9/16/72	1400 ± 100	1400 ± 100	<100	8.6 ± 0.4	9.3 ± 0.9	<0.9
	11/15/72	1300 ± 100	1200 ± 100	<100	6.3 ± 0.5	5.9 ± 0.5	<1
	3/14/73	940 ± 70	700 ± 70	200 ± 100	8.8 ± 0.3	12.2 ± 0.8	<2
	6/13/73	1340 ± 80	1000 ± 100	300 ± 100	18.4 ± 0.4	8.3 ± 0.5	<3
	Overall			100	10.2	9.4	<4
Farm G	5/ 6/71	1320 ± 80	1100 ± 100	200 ± 100	18.5 ± 0.7	11.0 ± 0.9	<1
	7/13/71	1300 ± 90	1200 ± 100	100 ± 100	14.0 ± 0.9	12.8 ± 0.8	<2
	12/12/71	1500 ± 80	1300 ± 100	200 ± 100	10.0 ± 0.7	13 ± 1	<10
	3/ 3/72	1500 ± 100	1300 ± 100	200 ± 100	5.9 ± 0.4	11.0 ± 0.4	<2
	6/13/72	1140 ± 70	1300 ± 100	<100	11.98 ± 0.05	15.1 ± 0.8	20 ± 10
	9/16/72	1400 ± 100	1300 ± 100	<100	7.7 ± 0.7	9.2 ± 0.3	<0.6
	11/15/72	1400 ± 90	1300 ± 100	<100	4.3 ± 0.4	5.7 ± 0.5	<0.9
	3/14/73	840 ± 70	690 ± 70	100 ± 100	5.3 ± 0.3	10.0 ± 0.6	
	6/13/73	1210 ± 80	890 ± 90	300 ± 100	6 ± 1	5.0 ± 0.4	<1
	Overall			200	9	10	5
Farm H	5/ 6/71	1270 ± 90	1200 ± 100	100 ± 100	13.2 ± 0.6	10.4 ± 0.7	<2
	7/13/71	1140 ± 80	1000 ± 100	100 ± 100	7.7 ± 0.7	10.2 ± 0.5	<2
	12/12/71	1000 ± 80	1100 ± 100	<100	4.0 ± 0.3	6.9 ± 0.9	<20
	3/ 3/72	1400 ± 100	1300 ± 100	<100	5.6 ± 0.3	9.7 ± 0.4	<4
	6/13/72	1570 ± 90	1400 ± 100	200 ± 100	6.5 ± 0.2	27.0 ± 0.3	<30
	9/16/72	1200 ± 100	1200 ± 100	<100	7.7 ± 0.3	9.1 ± 0.3	2 ± 1
	11/15/72	1030 ± 90	950 ± 90	<100	4.4 ± 0.5	5.6 ± 0.5	<2
	3/14/73	800 ± 70	630 ± 60	170 ± 90	4.5 ± 0.4	9.5 ± 0.3	<2
	6/13/73	1280 ± 90	1000 ± 100	200 ± 100	8 ± 1	7.4 ± 0.5	<3
	Overall			100	7	10.6	7
Farm I	3/14/73	1130 ± 90	880 ± 90	200 ± 100	6.4 ± 0.5	8.9 ± 0.3	<5
	6/13/73	1290 ± 90	1100 ± 100	200 ± 100	11.4 ± 0.3	11.2 ± 0.7	2 ± 1
	Overall			200	8.9	10.0	4
Farm J	3/14/73	1260 ± 90	880 ± 90	400 ± 100	(a)	(a)	<2
	6/13/73	1460 ± 90	930 ± 90	500 ± 100	14.1 ± 0.3	7.5 ± 0.4	<2
	Overall			400	14.1	7.5	<2
Farm K	6/13/73	1500 ± 90	1000 ± 100	500 ± 100	6.4 ± 0.2	5.1 ± 0.4	6 ± 3

(a) Sample lost in process.

TABLE 10.2
MILK SAMPLES
YEARLY AVERAGES
Concentrations in pCi/liter

	I REGIONAL FARMS (Farms A, B, C, D, K)				II NEARBY REGIONAL FARMS (Farms F, G, H, I, J)			
Year	Net Beta Radioactivity	Sr-90	Cs-137	I-131	Net Beta Radioactivity	Sr-90	Cs-137	I-131
1966	200	6		<200				
1967	200	4		<2000				
1968	100	8		<70				
1969	100	7						
1970	200	7		<3				
1971	100	7.7	10.2	<25	100	10.2	10.2	<5
1972	<100	7.9	12.7	5	100	7.7	10.7	7
1973	300	8.3	6	3	300	9	8.9	2
Date								
5/6/71			8.1				8.7	
7/13/71			12.1				11.8	
12/12/71			10.4				10.3	
3/3/72			10.1				10.4	
6/13/72			15.4				17.4	
9/16/72			18.8				9.2	
11/15/72			6.6				5.7	
3/14/73			6.2				10.1	
6/13/73			6.1				7.9	

COMPARATIVE EPA DATA FOR
STRONTIUM-90 AND CESIUM-137
(pCi/liter)

	Philadelphia, Pa.		Trenton, N.J.		Baltimore, Md.	
Year	Sr-90	Cs-137	Sr-90	Cs-137	Sr-90	Cs-137
1966	12		12		13	
1967	10		10		11	
1968	9		10		10	
1969	10		9		8	
1970	9		8		8	
1971	8	6	8	8	8	7
1972	5	5	7	6	7	5
1973						

Date	Baltimore, Md. Cs-137
5/71	13
6	0
7	20
8	11
9	0
10	0
11	0
12	11
1/72	0
2	0
3	0
4	23
5	0
6	0
7	0
8	0
9	13
10	26
11	0
12	0
1/73	0
2	0
3	0
4	12
5	0

TABLE 11.1

ANALYTICAL DATA FOR RABBIT SAMPLES COLLECTED IN THE PEACH BOTTOM SITE AREA - STATION [illegible]

Collection Date	Rabbit No.	Muscles Gross Beta (pCi/g ash)	Muscles K-40 (pCi/g ash)	Muscles Net Beta (pCi/g ash)	Soft Tissue Gross Beta (pCi/g ash)	Soft Tissue K-40 (pCi/g ash)	Soft Tissue Net Beta (pCi/g ash)	Bone Gross Beta (pCi/g ash)	Bone K-40 (pCi/g ash)	Bone Net Beta (pCi/g ash)	Thyroid Concentrations in pCi/thyroid
6/ 4/66	1	220 ± 20	170 ± 20	50 ± 30	240 ± 20	160 ± 20	80 ± 30	60 ± 10	20 ± 2	40 ± 10	<10
	2	2[illegible] ± 20	180 ± 20	40 ± 30	220 ± 20	110 ± 10	110 ± 20	80 ± 10	8.0 ± 0.8	70 ± 10	<60
	3	200 ± 20	180 ± 20	<30	200 ± 20	170 ± 20	30 ± 30	60 ± 10	8.0 ± 0.8	50 ± 10	<60
	4	190 ± 20	140 ± 10	50 ± 20	190 ± 20	200 ± 20	<30	80 ± 10	13 ± 1	70 ± 10	<60
6/30/66	5	240 ± 20	220 ± 20	<30	250 ± 20	130 ± 10	130 ± 20	60 ± 10	9.0 ± 0.9	50 ± 10	
1/ 8/67	1	230 ± 20	230 ± 20	<30	160 ± 20	1[illegible]0 ± 20	<30	40 ± 10	12 ± 1	30 ± 10	<30
1/ 9/67	2	330 ± 40	260 ± 30	70 ± 50	220 ± 30	1[illegible]0 ± 20	40 ± 30	50 ± 10	12 ± 1	40 ± 10	<30
1/13/67	3	210 ± 20	210 ± 20	<30	230 ± 30	1[illegible]0 ± 20	80 ± 40	90 ± 10	25 ± 2	60 ± 10	<20
5/13/67	1	190 ± 20	190 ± 20	<30	180 ± 30	1[illegible]0 ± 20	<40	19 ± 9	1.1 ± 0.1	18 ± 9	(b)
5/31/67	2	230 ± 30	200 ± 20	<40	160 ± 50	165 ± 20	<50	16 ± 9	1.0 ± 0.1	15 ± 9	(b)
6/19/67	3	260 ± 50	180 ± 20	80 ± 50	210 ± 30	200 ± 20	<40	31 ± 9	4.4 ± 0.4	27 ± 9	<20
6/21/67	4	220 ± 30	210 ± 20	<40	170 ± 30	180 ± 20	<40	19 ± 9	4.0 ± 0.4	15 ± 9	<10
	5	280 ± 30	220 ± 20	60 ± 40	200 ± 100	160 ± 20	<100	20 ± 8	2.0 ± 0.2	18 ± 8	<8
	6	180 ± 20	190 ± 20	<30	630 ± 80	450 ± 40	180 ± 90	15 ± 9	3.0 ± 0.3	12 ± 9	<8
	7	230 ± 40	220 ± 20	<40	180 ± 50	150 ± 10	<50	13 ± 9	5.0 ± 0.5	<9	<4
6/22/67	8	240 ± 30	160 ± 20	80 ± 40	80 ± 60	80 ± 8	<60	17 ± 8	2.0 ± 0.2	15 ± 8	<10
10/31/67	1	220 ± 20	200 ± 20	<30	210 ± 20	160 ± 20	50 ± 30	22 ± 8	4.1 ± 0.4	18 ± 8	<800
	2	260 ± 40	180 ± 20	80 ± 40	170 ± 20	170 ± 20	<30	30 ± 10	1.4 ± 0.1	30 ± 10	<2000
	3	190 ± 20	200 ± 20	<30	200 ± 30	170 ± 20	<40	40 ± 10	14 ± 1	30 ± 10	<1000
	4	240 ± 20	250 ± 30	<40	180 ± 20	180 ± 20	<30	10 ± 8	3.9 ± 0.4	<8	<600
	5	240 ± 20	190 ± 20	50 ± 30	200 ± 30	130 ± 20	<40	30 ± 10	3.0 ± 0.3	30 ± 10	<700
5/ 1/68	1	110 ± 10	120 ± 10	<10	100 ± 10	91 ± 9	<10	41 ± 6	3.0 ± 0.3	8 ± 6	<6
	2	100 ± 20	110 ± 10	<20	70 ± 10	74 ± 7	<10	<8	1.9 ± 0.2	<8	<8
	3	120 ± 20	120 ± 10	<20	70 ± 10	68 ± 7	<10	16 ± 6	1.4 ± 0.1	15 ± 6	<9
	4	150 ± 20	150 ± 20	<30	80 ± 10	81 ± 8	<10	9 ± 9	2.2 ± 0.2	<9	<6
	5	130 ± 20	120 ± 10	<20	90 ± 10	100 ± 10	<10	15 ± 7	3.0 ± 0.3	12 ± 7	<6
5/ 3/68	6	<40	28 ± 3	<40	120 ± 20	120 ± 10	<20	35 ± 6	2.0 ± 0.2	33 ± 6	<9
5/ 4/68	7	130 ± 10	140 ± 10	<10	100 ± 10	100 ± 10	<10	11 ± 6	2.0 ± 0.2	9 ± 6	<7
12/ 4/68	1	80 ± 10	49 ± 5	30 ± 10	70 ± 10	33 ± 3	40 ± 10	28 ± 8	2.8 ± 0.3	25 ± 8	<20
	2	70 ± 10	34 ± 3	40 ± 10	80 ± 10	27 ± 3	50 ± 10	62 ± 9	4.0 ± 0.4	58 ± 9	<20
	3	53 ± 9	20 ± 2	33 ± 9	58 ± 9	8.0 ± 0.8	50 ± 9	31 ± 8	3.0 ± 0.3	28 ± 8	<20
	4	160 ± 20	110 ± 10	50 ± 20	110 ± 10	72 ± 7	40 ± 10	44 ± 9	3.0 ± 0.3	41 ± 9	<8
12/ 7/68	5	80 ± 10	43 ± 4	40 ± 10	80 ± 10	43 ± 4	40 ± 10	26 ± 8	2.6 ± 0.3	23 ± 8	<10
	6	80 ± 10	34 ± 3	50 ± 10	80 ± 10	41 ± 4	40 ± 10	15 ± 8	3.0 ± 0.3	12 ± 8	<10
	7	80 ± 10	59 ± 6	20 ± 10	70 ± 10	27 ± 3	50 ± 10	43 ± 6	2.0 ± 0.2	41 ± 6	<10
6/10/69	1	180 ± 10	62 ± 6	120 ± 10	140 ± 10	93 ± 9	50 ± 10	26 ± 8	9.0 ± 0.9	17 ± 8	10 ± 10
	2	260 ± 10	120 ± 10	140 ± 10	40 ± 10	36 ± 4	<10	40 ± 10	11 ± 1	30 ± 10	<8
	3	170 ± 10	110 ± 10	60 ± 10	160 ± 20	130 ± 10	30 ± 20	50 ± 10	14 ± 1	40 ± 10	<10
6/15/69	4	220 ± 10	170 ± 20	50 ± 20	90 ± 10	75 ± 8	20 ± 10	15 ± 8	4.0 ± 0.4	11 ± 8	<10
6/16/69	5	180 ± 10	160 ± 20	20 ± 20	90 ± 20	81 ± 8	<20	40 ± 10	12 ± 1	30 ± 10	<7
	6	150 ± 10	110 ± 10	40 ± 10	50 ± 10	49 ± 5	<10	70 ± 10	14 ± 1	60 ± 10	<9
6/17/69	7	220 ± 10	120 ± 10	100 ± 10	160 ± 10	93 ± 9	70 ± 10	50 ± 10	8.0 ± 0.8	40 ± 10	<7
	8	210 ± 10	170 ± 20	40 ± 20	140 ± 20	100 ± 10	40 ± 20	42 ± 8	6.0 ± 0.6	36 ± 8	<6
6/17/69	9	260 ± 10	100 ± 10	160 ± 10	170 ± 10	100 ± 10	70 ± 10	16 ± 7	7.0 ± 0.7	9 ± 7	<7
	10	200 ± 10	160 ± 20	40 ± 20	140 ± 20	100 ± 10	40 ± 20	19 ± 8	11 ± 1	8 ± 8	<7
12/23/69	1	40 ± 9	16 ± 2	24 ± 9	70 ± 10	57 ± 6	10 ± 10	38 ± 9	34 ± 3	<9	<10
	2	110 ± 10	130 ± 10	<10	130 ± 10	110 ± 10	20 ± 10	37 ± 9	40 ± 4	<10	<10
12/26/69	3	110 ± 10	56 ± 6	50 ± 10	130 ± 10	120 ± 10	<10	53 ± 9	36 ± 4	20 ± 10	<8
	4	80 ± 10	82 ± 8	<10	80 ± 10	39 ± 4	40 ± 10	26 ± 9	48 ± 5	<10	<8
	5	80 ± 10	100 ± 10	<10	170 ± 10	110 ± 10	60 ± 10	42 ± 9	40 ± 4	<10	<8
12/27/69	6	100 ± 10	100 ± 10	<10	80 ± 10	65 ± 6	20 ± 10	46 ± 9	37 ± 4	<10	[illegible]
	7	90 ± 10	100 ± 10	<10	80 ± 10	63 ± 6	20 ± 10	43 ± 9	37 ± 4	<10	<7
12/29/69	8	170 ± 10	150 ± 20	<20	90 ± 10	52 ± 5	40 ± 10	32 ± 9	48 ± 5	<10	<6
4/29/70	1	250 ± 10	140 ± 10	110 ± 10	150 ± 10	93 ± 9	60 ± 10	41 ± 8	3.0 ± 0.3	38 ± 8	<4
	2	127 ± 9	64 ± 6	60 ± 10	160 ± 10	88 ± 9	70 ± 10	69 ± 9	3.0 ± 0.3	66 ± 9	<4
4/30/70	3	87 ± 9	52 ± 5	40 ± 10	77 ± 9	50 ± 5	30 ± 10	44 ± 9	3.0 ± 0.3	41 ± 9	<4
5/ 1/70	4	121 ± 9	92 ± 9	30 ± 10	130 ± 10	100 ± 10	30 ± 10	32 ± 8	4.0 ± 0.4	28 ± 8	<4
5/ 3/70	5	94 ± 9	48 ± 5	50 ± 10	210 ± 10	140 ± 10	70 ± 10	35 ± 8	3.0 ± 0.3	32 ± 8	<3
5/ 4/70	6	94 ± 9	55 ± 6	40 ± 10	240 ± 10	150 ± 10	90 ± 10	73 ± 9	4.0 ± 0.4	69 ± 9	<4
	7	109 ± 9	86 ± 9	20 ± 10	92 ± 9	35 ± 4	60 ± 10	31 ± 8	4.0 ± 0.4	27 ± 8	<4
	8	97 ± 9	56 ± 6	40 ± 10	81 ± 9	68 ± 7	10 ± 10	48 ± 9	4.0 ± 0.4	44 ± 9	<4
	9	250 ± 10	180 ± 20	70 ± 20	71 ± 9	44 ± 4	30 ± 10	64 ± 9	3.0 ± 0.3	61 ± 9	<4
5/ 5/70	10	130 ± 10	88 ± 9	40 ± 10	88 ± 9	43 ± 4	40 ± 10	51 ± 9	4.0 ± 0.4	47 ± 9	<4
11/19/70	1	260 ± 10	200 ± 20	60 ± 20	220 ± 10	190 ± 20	30 ± 20	21 ± 8	3.0 ± 0.3	18 ± 8	<5
11/20/70	2	220 ± 10	180 ± 20	40 ± 20	200 ± 10	170 ± 20	30 ± 20	50 ± 9	5.7 ± 0.6	44 ± 9	<5
	3	260 ± 10	240 ± 20	<20	230 ± 10	180 ± 20	50 ± 20	36 ± 9	3.6 ± 0.4	32 ± 9	<5
11/21/70	4	190 ± 10	180 ± 20	<20	150 ± 10	150 ± 20	<20	20 ± 8	3.2 ± 0.3	17 ± 8	<4
	5	230 ± 10	200 ± 20	30 ± 20	220 ± 10	180 ± 20	40 ± 20	13 ± 8	4.4 ± 0.4	9 ± 8	<4
5/31/71	1	240 ± 10	200 ± 20	40 ± 20	200 ± 10	170 ± 20	30 ± 20	36 ± 8	4.8 ± 0.5	31 ± 8	<3
	2	260 ± 10	210 ± 20	50 ± 20	210 ± 10	150 ± 20	60 ± 20	45 ± 9	4.9 ± 0.5	40 ± 8	3 ± 3
	3	240 ± 10	240 ± 20	<20	170 ± 10	120 ± 10	50 ± 10	(a)	(a)	(a)	<3
	4	260 ± 10	200 ± 20	60 ± 20	190 ± 10	170 ± 20	20 ± 20	35 ± 8	4.4 ± 0.4	31 ± 8	<3
	5	260 ± 10	190 ± 20	70 ± 20	170 ± 10	130 ± 10	40 ± 10	36 ± 8	4.9 ± 0.5	31 ± 8	<3
6/26/72	1	320 ± 10	190 ± 20	130 ± 20	260 ± 10	170 ± 20	90 ± 20	32 ± 9	4.6 ± 0.5	28 ± 9	<7
	2	320 ± 10	170 ± 20	150 ± 20	270 ± 10	180 ± 20	90 ± 20	52 ± 9	5.0 ± 0.5	47 ± 9	<7
	3	260 ± 10	200 ± 20	60 ± 20	230 ± 10	170 ± 20	60 ± 20	29 ± 9	5.5 ± 0.6	23 ± 9	[illegible]
	4	260 ± 10	160 ± 20	100 ± 20	230 ± 10	180 ± 20	50 ± 20	19 ± 9	5.3 ± 0.5	13 ± 9	[illegible]
	5	270 ± 10	170 ± 20	100 ± 20	230 ± 10	190 ± 20	30 ± 20	52 ± 9	7.6 ± 0.8	45 ± 9	<2
12/30/72	1	230 ± 10	200 ± 20	30 ± 20	220 ± 10	200 ± 20	20 ± 20	46 ± 8	9.4 ± 0.9	37 ± 8	<3
	2	290 ± 10	200 ± 20	90 ± 20	270 ± 10	210 ± 20	60 ± 20	37 ± 8	10 ± 1	27 ± 8	<3
	3	150 ± 10	100 ± 10	50 ± 10	220 ± 10	150 ± 10	70 ± 10	40 ± 10	10 ± 1	30 ± 10	<3
	4	240 ± 10	170 ± 20	70 ± 20	260 ± 10	200 ± 20	60 ± 20	31 ± 8	10 ± 1	41 ± 4	<3
	5	250 ± 10	210 ± 20	40 ± 20	220 ± 10	170 ± 20	30 ± 20	140 ± 10	94 ± 9	50 ± [illegible]	<3
6/12/73	1	180 ± 10	120 ± 10	60 ± 10	90 ± 10	130 ± 10	<30	33 ± 9	5.7 ± 0.6	27 ± [illegible]	<1
	2	170 ± 10	160 ± 20	<30	80 ± 10	100 ± 10	<20	41 ± 9	14 ± 1	27 ± 9	<1
	3	160 ± 10	150 ± 20	<30	90 ± 10	110 ± 10	<20	34 ± 9	8.1 ± 0.8	26 ± 9	<1
	4	150 ± 10	150 ± 10	<30	80 ± 10	93 ± 9	<20	29 ± 9	6.5 ± 0.7	22 ± 9	<1

(a) Aliquot lost in process.
(b) Analysis not performed.

Revised June 1974

TABLE 11.2
RABBIT SAMPLES
COLLECTED FROM PEACH BOTTOM SITE AREA
YEARLY AVERAGES

	Net Beta Radioactivity (Concentrations pCi/g ash)			I-131 (Concentrations pCi/thyroid
Collection Period	Muscles	Soft Tissue	Bone	Mean
6-66	40	80	60	<50
1-67	40	50	40	<30
5-6-67	50	70	16	<10
10-67	40	40	20	<1000
5-68	<20	10	13	< 8
12-68	40	40	33	<10
6-69	80	40	30	8
12-69	20	30	10	< 8
4-5-70	50	50	45	< 4
11-70	30	30	24	< 5
5-71	50	40	33	3
6-72	110	60	31	< 7
12-72	60	50	40	< 3
6-73	30	<10	26	< 1
Overall	50	40	30	70

TABLE 12.1
GAMMA DOSE RATE
Concentrations in mR/hr

Date	STATION 1A Range	STATION 1A Reading
2/ 9/66		0.014
2/16/66		0.015
2/20/66		0.015
2/26/66		0.015
3/ 5/66		0.015
3/12/66		0.015
3/19/66		0.015
3/26/66		0.015
4/ 2/66		0.015
4/10/66		0.015
4/17/66		0.017
4/23/66		0.015
4/30/66		0.016
5/ 7/66		0.017
5/13/66		0.016
5/21/66		0.018
5/28/66		0.017
6/ 4/66		0.018
6/10/66		0.015
6/18/66		0.019
6/24/66		0.019
7/ 1/66		0.026
7/ 9/66		0.017
7/15/66		0.015
7/21/66		0.021
7/29/66		0.027
8/ 5/66		0.017
8/13/66		0.019
8/19/66		0.041
8/27/66		0.027
9/ 3/66		0.029
9/10/66		0.017
9/16/66		0.016
9/24/66		0.017
10/ 1/66		0.017
10/ 8/66		0.018
10/16/66		0.017
10/22/66		0.018
10/29/66		0.018
11/ 5/66		0.017
11/12/66		0.017
11/20/66		0.018
11/25/66		0.017
12/ 2/66		0.017
12/10/66		0.018
12/18/66		0.015
12/26/66		0.016
1/ 1/67		0.016
1/ 8/67		0.016
1/14/67		0.016
1/21/67		0.017
1/28/67		0.016
2/ 4/67		0.017
2/11/67		0.016
2/19/67		0.016
2/26/67		0.017
3/ 4/67		0.017
3/11/67		0.016
3/18/67		0.016
3/25/67		0.016
3/31/67		0.017
4/ 8/67		0.017
4/15/67		0.018
4/22/67		0.017
4/29/67		0.017
5/ 5/67		0.017
5/12/67		0.017
5/20/67		0.017
5/27/67		0.018
6/ 3/67		0.029
6/11/67		0.024
6/19/67		0.016
6/24/67		(a)

Date	STATION 1A Range	STATION 1A Reading	STATION 1B Range	STATION 1B Reading
6/30/67		0.015		
7/ 7/67		0.017		
7/15/67		0.016		
7/21/67		0.020		
7/31/67		0.018		
8/ 5/67		0.014		
8/12/67		0.016		
8/20/67		0.015		
8/26/67		0.016		
9/ 2/67		0.017		
9/ 8/67		0.016		
9/17/67		0.037		
9/23/67		0.015		
9/30/67		0.017		
10/ 7/67		0.0.6		
10/15/67		0.017		
10/22/67		0.017		0.24
10/29/67		0.017		0.25
11/ 5/67		0.017		0.24
11/12/67		0.017		0.25
11/26/67		0.017		0.025*
12/ 3/67		0.017		0.056
12/10/67		0.017		0.032
12/16/67		0.017		0.025
12/24/67		0.017		(a)
12/29/67		0.018		(a)
1/ 6/68		0.017		(a)
1/14/68		0.018		(a)
1/21/68		0.017		(a)
1/27/68		0.018		(a)
2/ 3/65		0.018		(a)
2/11/68		0.018		(a)
2/17/68		0.017		(a)
2/24/68		0.017		(a)
3/ 2/68		0.017		(a)
3/10/68		0.018		(a)
3/15/68		0.017		0.024
3/23/68		0.017		0.024
3/30/68		0.017		0.03
4/ 6/68		0.024		0.022
4/12/68		0.018		0.023
4/20/68		0.016		0.020
4/27/68		0.013		0.019
5/ 4/68		0.016		0.019
5/10/68		0.016		0.018
5/18/68		0.017		0.020
5/25/68		0.022		0.022
6/ 1/68		0.022		0.021
6/ 8/68		0.023		0.019
6/16/68		0.020		0.017
6/24/68		0.017		0.015
6/29/68		0.016		0.014
7/ 7/68		0.015		(a)
7/13/68		0.015		0.013
7/21/68		0.018		0.013
7/27/68		0.018		0.013
8/ 3/68		0.017		0.013
8/10/68		0.015		0.013
8/16/68		0.015		0.012
8/23/68		0.017		0.013
8/30/68		0.015		0.012
9/ 6/68		0.016		0.012
9/13/68		0.016		0.012
9/20/68		0.015		0.012
9/27/68		0.016		0.012
10/ 4/68		0.015		0.012
10/11/68		0.017		0.012
10/19/68		0.016		(b)
10/27/68		0.017		0.012
11/ 2/68		(b)		0.013
11/10/68		0.017		0.012
11/16/68		0.017		0.013
11/24/68		0.018		0.012
11/29/68		0.017		0.013
12/ 9/68		0.017		0.012
12/14/68		0.017		0.012
12/23/68		0.018		0.012
12/30/68		0.018		0.012

TABLE 11.1 (Cont'd)
GAMMA DOSE RATE
Concentrations in mR/hr

Date	STATION 1A Range	STATION 1A Reading	STATION 1B Range	STATION 1B Reading
1/ 5/69		0.016		0.012
1/11/69		0.017		0.013
1/18/69		0.017		0.012
1/26/69		0.017		0.012
2/ 1/69		0.018		0.012
2/ 8/69		0.018		0.012
2/15/69		0.018		0.012
2/22/69		0.018		0.012
3/ 2/69		0.016		0.012
3/ 9/69		0.017		0.013
3/15/69		0.016		0.012
3/23/69		0.017		0.012
3/30/69		0.016		0.012
4/ 7/69		0.016		0.012
4/13/69		0.017		0.013
4/20/69		0.016		0.013
4/27/69		0.016		0.011
5/ 3/69		0.016		0.012
5/11/69		0.016		0.013
5/18/69		0.016		0.012
5/25/69		0.017		0.012
5/31/69		0.023		0.011
6/ 7/69		0.016		0.012
6/13/69		0.019		0.012
6/20/69		0.017		0.011
6/28/69		0.016		0.012
7/ 5/69		0.017		0.011
7/13/69		0.017		0.012
7/19/69		0.019		0.011
7/28/69		0.015		0.012
8/ 4/69		0.016		0.012
8/11/69		0.016		0.012
8/18/69		0.018		0.012
8/23/69		0.016		0.012
8/31/69		0.019		0.012
9/ 6/69		0.017		0.011
9/13/69		0.017		0.011
9/19/69		0.016		0.012
9/27/69		0.017		0.011
10/ 5/69		0.017		0.012
10/11/69		0.016		0.012
10/19/69		0.016		0.012
10/25/69		0.018		0.012
11/ 1/69		0.018		0.012
11/ 9/69		0.015		0.012
11/16/69		0.016		0.012
11/23/69		0.017		0.012
11/30/69		0.017		0.012
12/ 7/69		0.018		0.013 (c)
12/14/69		0.018		0.016 (c)
12/21/69		0.018		0.016 (c)
12/29/69		0.018		0.012
1/ 4/70		0.019		0.012
1/11/70		0.019		0.012
1/18/70		0.018		0.013
1/25/70		0.018		0.013
2/ 1/70		0.018		0.013
2/ 8/70		0.015		0.013
2/14/70		0.016		0.012
2/21/70		0.015		0.012
2/28/70		0.017		0.012
3/ 7/70		0.017		0.012
3/14/70		0.017		0.012
3/21/70		0.018		0.012
3/27/70		0.015		0.012
4/ 5/70		0.016		0.012
4/11/70		0.016		0.012
4/19/70		0.017		0.012
4/26/70		0.016		0.012
5/ 2/70		0.016		0.012
5/10/70		0.014		(a)
5/17/70		0.016		(a)
5/24/70		0.016		(a)
5/30/70		0.017		0.014
6/ 7/70		0.016		0.014
6/13/70		0.016		0.014
6/19/70		0.017		0.014
6/26/70		0.016		

Date	STATION 1A Range(d)	STATION 1A Reading	STATION 1B Range(d)	STATION 1B Reading
7/ 5/70	0.015-0.026	0.015	0.013-0.015	0.014
7/11/70	0.015-0.023	0.016	0.013-0.015	0.014
7/19/70	0.015-0.017	0.015	0.014-0.016	0.015
7/25/70	0.016-0.026	0.019	0.015-0.017	0.016
8/ 1/70	0.015-0.033	0.019	0.014-0.016	0.015
8/ 8/70	0.015-0.025	0.017	0.014-0.016	0.015
8/17/70	0.017-0.033	0.018	0.013-0.015	0.014
8/23/70	0.017-0.027	0.017	0.014-0.017	0.015
8/28/70	0.017-0.025	0.019	0.014-0.016	0.015
9/ 5/70	0.014-0.033	0.018	0.014-0.016	0.015
9/12/70	0.013-0.023	0.017	0.014-0.016	0.013
9/19/70	0.013-0.026	0.014	0.013-0.015	0.014
9/26/70	0.013-0.028	0.015	0.015-0.016	0.013
10/ 4/70	0.013-0.017	0.015	0.014-0.020	0.015
10/10/70	0.013-0.017	0.015	0.014-0.016	0.015
10/18/70	0.013-0.017	0.015	0.014-0.016	0.015
10/25/70	0.010-0.016	0.014	0.015-0.016	0.015
11/ 1/70	0.013-0.017	0.014	0.014-0.016	0.015
11/ 7/70	0.012-0.015	0.014	0.014-0.016	0.015
11/15/70	0.010-0.017	0.015	0.014-0.017	0.015
11/22/70	0.011-0.015	0.014	0.013-0.017	0.015
11/30/70	0.010-0.015	0.015	0.013-0.015	0.014
12/ 6/70	0.010-0.015	0.013	0.014-0.016	0.015
12/13/70	(e)	(e)	(e)	(e)
12/20/70	(e)	(e)	(e)	(e)
12/28/70	(e)	(e)	(e)	(e)
12/28/70-1/21/71	(e)	(e)	(e)	(e)
1/23/71	(e)	(e)	0.015-0.021	0.018
1/30/71	(e)	(e)	0.014-0.020	0.017
2/ 6/71	(e)	(e)	(e)	(e)
2/14/71	(e)	(e)	(e)	0.017
2/21/71	(e)	(e)	0.015-0.021	0.017
2/27/71	(e)	(e)	0.015-0.021	0.017
3/ 7/71	(e)	(e)	0.015-0.022	0.018
3/14/71	(e)	(e)	0.014-0.019	0.013
3/21/71	(e)	(e)	0.014-0.017	0.015
3/27/71	(e)	(e)	0.014-0.019	0.018
4/ 3/71	(e)	(e)	0.016-0.020	0.018
4/10/71	(e)	(e)	0.015-0.022	0.018
4/19/71	(e)	(e)	0.013-0.027	0.020
4/24/71	(e)	(e)	0.016-0.026	0.021
5/ 1/71	(e)	(e)	0.014-0.024	0.019
5/ 9/71	(e)	(e)	0.013-0.024	0.018
5/15/71	(e)	(e)	0.016-0.023	0.019
5/22/71	(e)	(e)	0.012-0.025	0.012
5/29/71	(e)	(e)	0.016-0.024	0.020
6/ 5/71	(e)	(e)	0.018-0.024	0.021
6/11/71	(e)	(e)	0.018-0.028	0.023
6/20/71	(e)	(e)	0.021-0.030	0.025
6/25/71	(e)	0.040	0.019-0.026	0.025
7/ 2/71	0.011-0.044	0.014	0.021-0.026	0.023
7/11/71	0.011-0.050	0.012	0.019-0.025	0.019
7/18/71	0.011-0.036	0.032	0.017-0.026	0.019
7/26/71	0.011-0.048	0.048	0.015-0.020	0.020
8/ 2/71	0.012-0.048	0.016	0.018-0.022	0.019
8/ 9/71	0.011-0.035	0.024	0.018-0.021	0.018
8/16/71	0.011-0.037	0.023	0.016-0.021	0.019
8/22/71	0.013-0.026	0.022	0.012-0.016	0.016
8/29/71	0.016-0.042	0.016	0.010-0.015	0.014
9/ 4/71	0.016-0.048	0.030	0.012-0.11 (c)	0.070 (c)
9/11/71	0.017-0.052 (f)	0.032	0.012-0.11 (c,d)	0.017
9/18/71	(e)	0.010	(e)	0.017
9/26/71	0.010-0.016 (g)	0.010	(e)	0.015
10/ 3/71	0.011-0.016	0.012	(e)	0.027
10/10/71	0.010-0.023 (h)	0.010	(e)	0.015
10/17/71	0.011-0.026	0.011	0.011-0.025 (i)	0.018
10/24/71	(e)	0.011	0.011-0.022	0.016
10/30/71	(e)	0.010	0.011-0.023	0.016
11/ 7/71	(e)	0.010	0.011-0.019	0.017
11/14/71	0.010-0.018	0.010	0.014-0.020	0.015
11/21/71	0.010-0.015	0.010	0.015-0.016	0.015
11/27/71	0.010-0.012	0.010	0.015-0.017	0.015
12/ 3/71	0.010-0.013	0.010	0.016-0.017	0.017
12/11/71	0.010-0.013	0.011	0.016-0.017	0.017
12/19/71	0.010-0.015	0.010	0.015-0.017	0.017
12/27/71	0.010-0.013	0.011	0.015-0.016	0.015

TABLE 17.1 (Cont'd.)
GAMMA DOSE RATE
mR/hr

Date 1972	Station 1A(k) Range (d)	Station 1A(k) Reading	Station 1B(k) Range (d)	Station 1B(k) Reading
1/2	0.010-0.011	0.010	0.016-0.017	0.017
1/9	0.010-0.011	0.010	0.015-0.018	0.015
1/15	0.010-0.011	0.010	0.015-0.017	0.017
1/22	0.010-0.011	0.010	0.017-0.018	0.017
1/30	0.010-0.013	0.010	0.016-0.018	0.016
2/5	0.010-0.011	0.010	0.017-0.018(l)	0.017
2/12	0.010-0.011	0.010	(l)	0.017
2/21	0.010-0.011	0.010	0.015-0.018(l)	0.015
2/27	0.010-0.012	0.010	0.018-0.020	0.018
3/5	0.[illegible]0-0.017	0.010	0.018-0.020	0.018
3/12	0.010-0.014	0.011	0.018-0.020	0.018
3/18	0.010-0.011	0.010	0.017-0.020	0.017
3/26	0.010-0.011	0.010	0.017-0.018	0.018
3/31	0.010-0.012	0.010	0.015-0.019	0.018
4/9	0.010-0.018	0.010	0.014-0.021	0.018
4/16	0.010-0.015	0.010	0.017-0.019	0.018
4/23	0.014-0.019	0.014	0.015-0.024	0.018
4/30	0.010-0.022	0.014	0.014-0.019	0.018
5/7	0.010-0.036	0.016	0.016-0.019	0.017
5/14	0.010-0.038	0.012	0.015-0.019	0.016
5/20	0.012-0.022	0.013	0.015-0.018	0.018
5/28	0.010-0.040	0.038	0.014-0.019	0.019
6/4	0.013-0.037	0.022	0.015-0.019	0.019
6/10	0.013-0.032	0.013	0.014-0.019	0.018
6/17	0.010-0.022	0.022	0.012-0.019	0.019
6/25	0.012-0.016	0.014	0.019-0.019	0.019
7/2	0.013-0.037	0.020	0.015-0.019	0.019
7/9	0.014-0.031	0.018	0.018-0.019	0.018
7/16	0.014-0.037	0.018	0.015-0.019	0.015
7/23	0.014-0.037	0.033	0.019-0.033	0.026
7/29	0.015-0.045	0.024	0.018-0.033	0.024
8/5	0.014-0.034	0.020	0.019-0.031	0.027
8/13	0.014-0.031	0.031	0.019-0.031	0.028
8/19	0.014-0.030	0.024	0.019-0.031	0.029
8/27	0.014-0.037	0.019	0.019-0.035	0.024
9/3	0.017-0.020	0.017	0.018-0.029	0.029
9/10	0.016-0.056	0.020	0.016-0.030	0.025
9/17	0.014-0.048	0.028	0.015-0.027	0.027
9/24	0.014-0.048	0.015	0.016-0.027	0.018
10/1	0.013-0.023	0.015	0.016-0.027	0.020
10/8	0.010-0.022	0.014	0.016-0.026	0.025
10/16	0.010-0.017	0.015	0.016-0.022	0.016
10/22	0.010-0.017	0.014	0.016-0.017	0.016
10/29	0.013-0.014	0.015	0.016-0.029	0.019
11/5	0.010-0.016	0.013	0.019-0.024	0.018
11/12	0.010-0.014	0.014	0.019-0.021	0.019
11/19	0.010-0.013	0.011	0.019-0.021	0.019
11/26	0.010-0.014	0.012	0.019-0.021	0.019
12/3	0.011-0.018	0.013	0.019-0.024	0.022
12/10	0.011-0.016	0.016	0.019 0.021	0.019
12/17	0.010-0.011	0.010	0.019-0.021	0.018
12/24	0.011 0.012	0.012	0.019-0.021	0.020
12/31	0.010-0.012	0.010	0.021-0.024	0.021

Date 1973	Station 1A(k) Range (d)	Station 1A(k) Reading	Station 1B(k) Range (d)	Station 1B(k) Reading
1/7	0.010-0.012	0.011	0.014-0.016	0.014
1/14	0.011-0.013	0.011	0.011-0.014	0.014
1/21	0.011-0.012	0.011	0.013-0.015	0.014
1/28	0.011-0.013	0.012	0.013-0.018	0.014
2/4	0.010-0.012	0.011	0.017-0.018	0.018
2/11	0.010-0.011	0.011	0.017-0.026	0.021
2/16	0.010-0.011	0.010	0.017-0.028	0.024
2/24	0.010-0.011	(m)	0.017-0.018	0.019
3/4	0.010-0.011	0.010	0.018-0.040	0.024
3/11	0.010-0.012	(m)	0.018-0.031	0.020
3/17	0.010-0.012	0.010	0.017-0.036	0.017
3/25(n)	0.010-0.024	(m)	0.010-0.031	0.015
4/1	0.011-0.012	0.018	0.010-0.035	0.023
4/8	0.011-0.030	0.018	0.013-0.020(o)	.025
4/14	0.011-0.016	0.016	0.010-0.017(p)	0.017
4/20	0.011-0.033	0.017	0.012-0.044	0.019
4/27	0.012-0.080	0.014	0.012-0.049	0.016
5/6	0.012-0.040	0.018	0.010-0.062	0.035
5/13	0.012-0.058	0.014	0.011-0.068	0.016
5/20	0.012-0.033	0.018	0.010-0.060	0.034
5/27	0.013-0.039	0.018	0.017-0.066	0.027
6/3	(q)	0.025	0.017-0.059	0.035
6/8	(q)	0.041	0.028-0.054	0.051
6/16	(q)	0.021	0.032-0.063(r)	0.043
6/23	0.017-0.020	(s)	0.035-0.055(r)	(m)
7/1	0 019-0.021	(s)	0.035-0.096	0.09
7/7	0.020-0.021	(s)	(t)	(r)
7/14	0.019-0.021	(s)	(t)	(r)
7/21	0.020-0.021	(s)	(t)	(r)
7/28	0.019-0.021	(s)	(t)	(r)
8/6	0.020-0.022	(s)	0.032-0.076(t)(u)	(r)
12/31	(v)	(s)	(v)	(r)

(a) Instrument out of order.

(b) No data available.

(c) High reading due to high temperature in building - air conditioner out of service. Monitor is temperature sensitive.

(d) Range of readings recorded for the period ending on date listed.

(e) Monitor out for repairs and calibration.

(f) Recorder inoperative after 9/6/71.

(g) Recorder returned to service 9/20/71.

(h) Recorder inoperative, 10/4/71 to 10/8/71.

(i) Recorder inoperative after 9/10/71.

(j) Recorder returned to service 10/15/71.

(k) High readings apparently due to detector sensitivity to high temperatures.

(l) Recorder inoperative from 2/3 to 2/17/72.

(m) Reading not recorded.

(n) New photo multiplier tubes installed 3/21/73 and monitors recalibrated on 3/23/73.

(o) Recorder inoperative from 4/3 to 4/5/73 and 4/7 to 4/8/73.

(p) Recorder inoperative 4/8 to 4/9/73.

(q) Recorder inoperative from 5/27 to 6/13/73.

(r) A new recorder was installed on radiation monitor 1B on June 22, 1973. This recorder was moved to Peach Bottom Units 2 and 3 control room the same day. The recorder was out of service from 6/23 to 6/22/73. Weekly readings were temporarily discontinued after 7/1/73.

(s) Radiation monitor 1A was moved to the new permanent building in Peach Bottom weather station No. 1 on June 18, 1973 and a new recorder was installed in the Peach Bottom Units 2 and 3 control room on June 19, 1973. Weekly readings were temporarily discontinued at this time.

(t) Recorder out of service due to lightning damage from June 28, 1973 to July 30, 1973.

(u) Recorder was out of service from 8/2 to 8/3/73.

(v) Charts for periods after 8/6/73 were being processed at date of report.

Revised June 1974

TABLE 12.2
GAMMA RADIATION MONITORING READINGS (mR/hr)
YEARLY AVERAGES

Year	Station 1A Reading Min.	Station 1A Reading Max.	Station 1A Reading Mean	Station 1A Range Min.	Station 1A Range Max.	Station 1B Reading Min.	Station 1B Reading Max.	Station 1B Reading Mean	Station 1B Range Min.	Station 1B Range Max.
1966	0.014	0.041	0.018							
1967	0.014	0.037	0.017			0.025	0.054	0.039(a)		
1968	0.015	0.024	0.017			0.012	0.03	0.016		
1969	0.015	0.023	0.017			0.011	0.013(c)	0.012		
1970	0.013	0.019	0.016	0.010(b)	0.033(b)	0.012	0.016	0.014	0.013(b)	0.020(b)
1971	0.010	C.048	0.017(b)	0.010	0.052	0.012(d)	0.027	0.019	0.010	0.030
1972	0.010	0.038	0.015	0.C10	0.056	0.015	0.029	0.019	0.012	0.035
1973	0.010	0.041	0.016	0.000	0.080	0.014	0.09	0.026	0.010	0.068

(a) Based on 4 readings during November and December. Excludes readings from improper scale.

(b) Based on readings during second half of year.

(c) Excludes readings 12/14, 12/21 and 12/29/69.

(d) Excludes reading of 9/4/71.

FIGURE 11
GROSS BETA RADIOACTIVITY IN
AIR PARTICULATE SAMPLES
GROUP I-STATIONS 1A, 1B, 2
AND HARRISBURG, PA

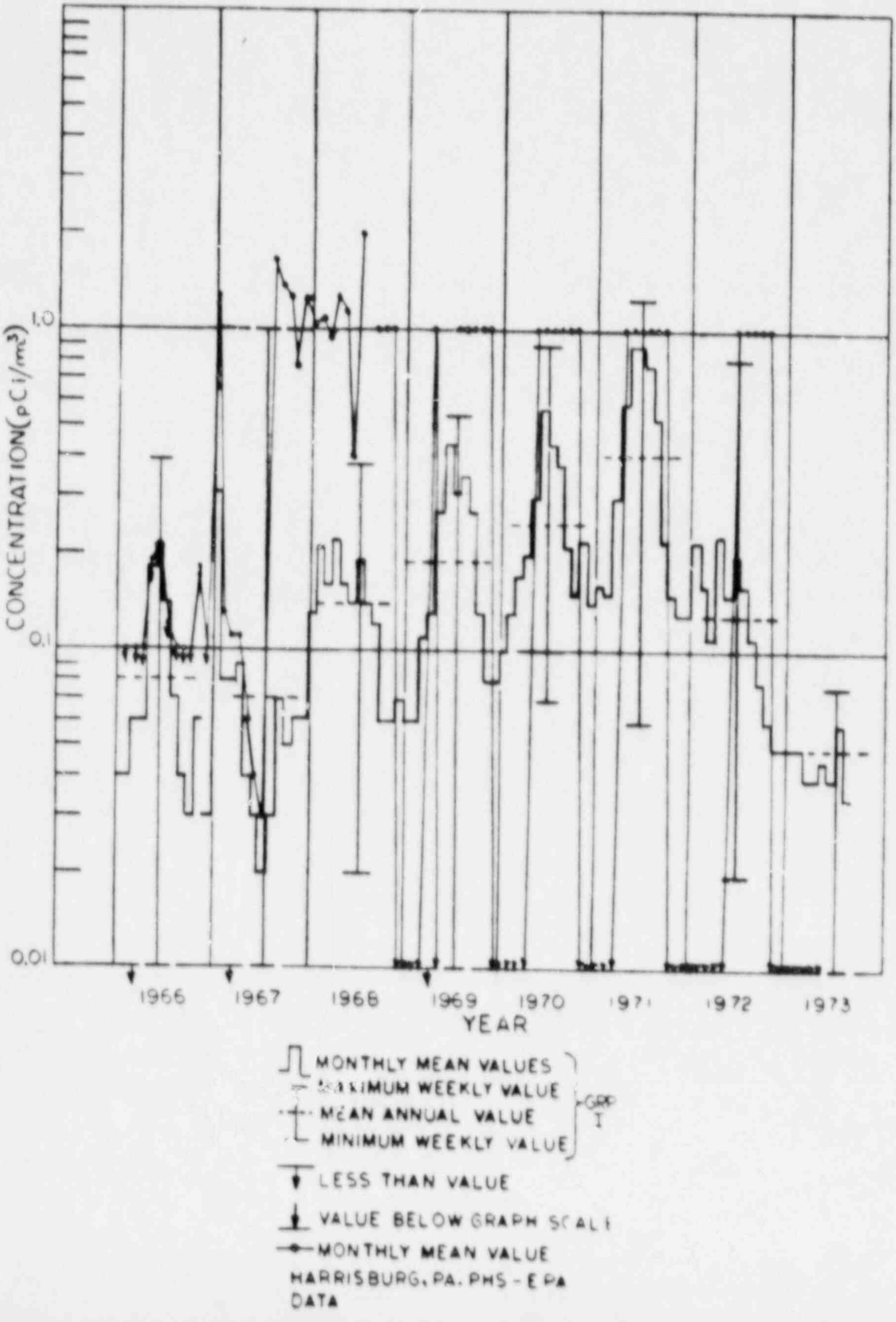


FIGURE 1.2
GROSS BETA RADIOACTIVITY IN AIR PARTICULATE SAMPLES
GROUP II - STATIONS 3A, 4A, 4B, 5, 6B, 14, 15 AND 17

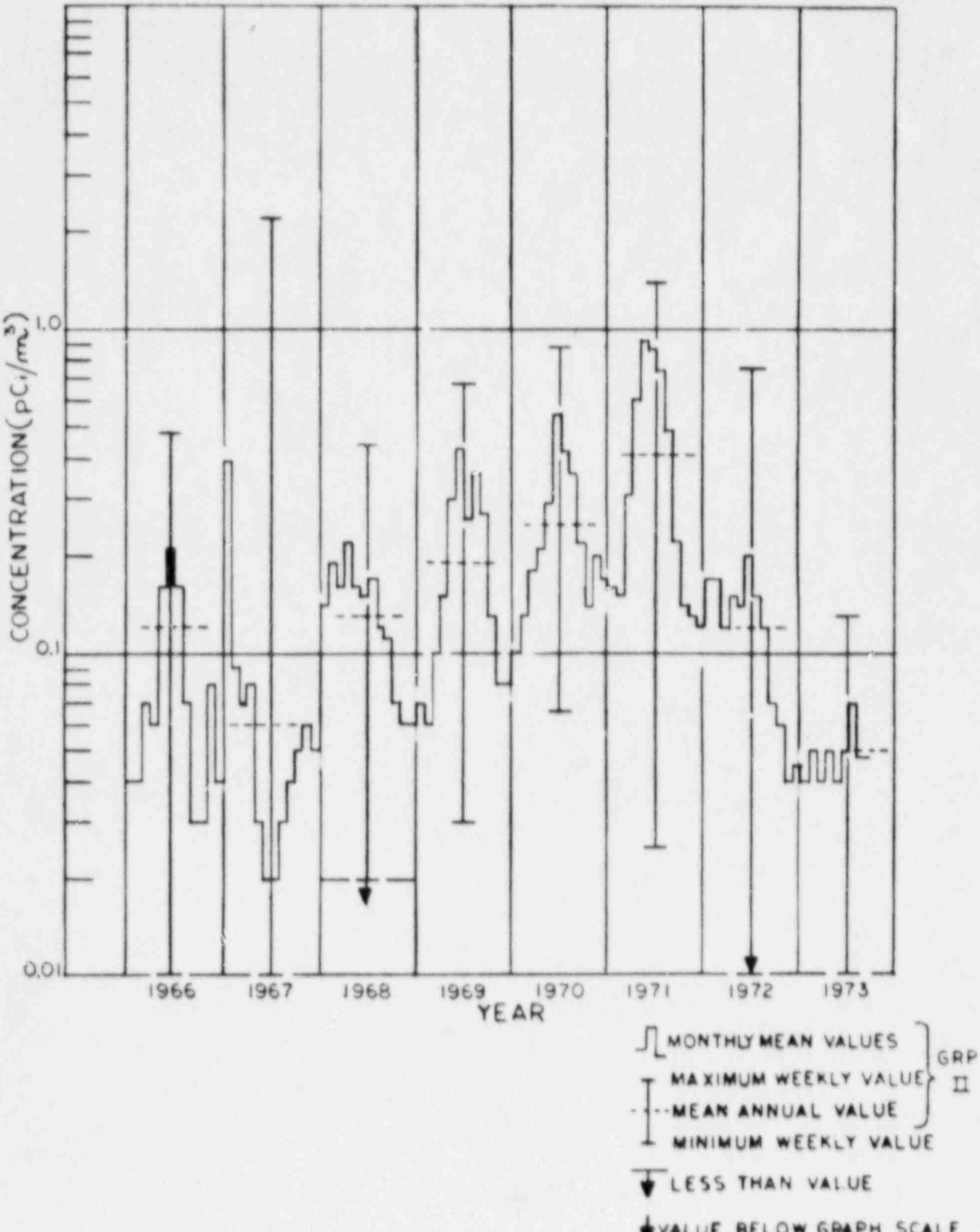
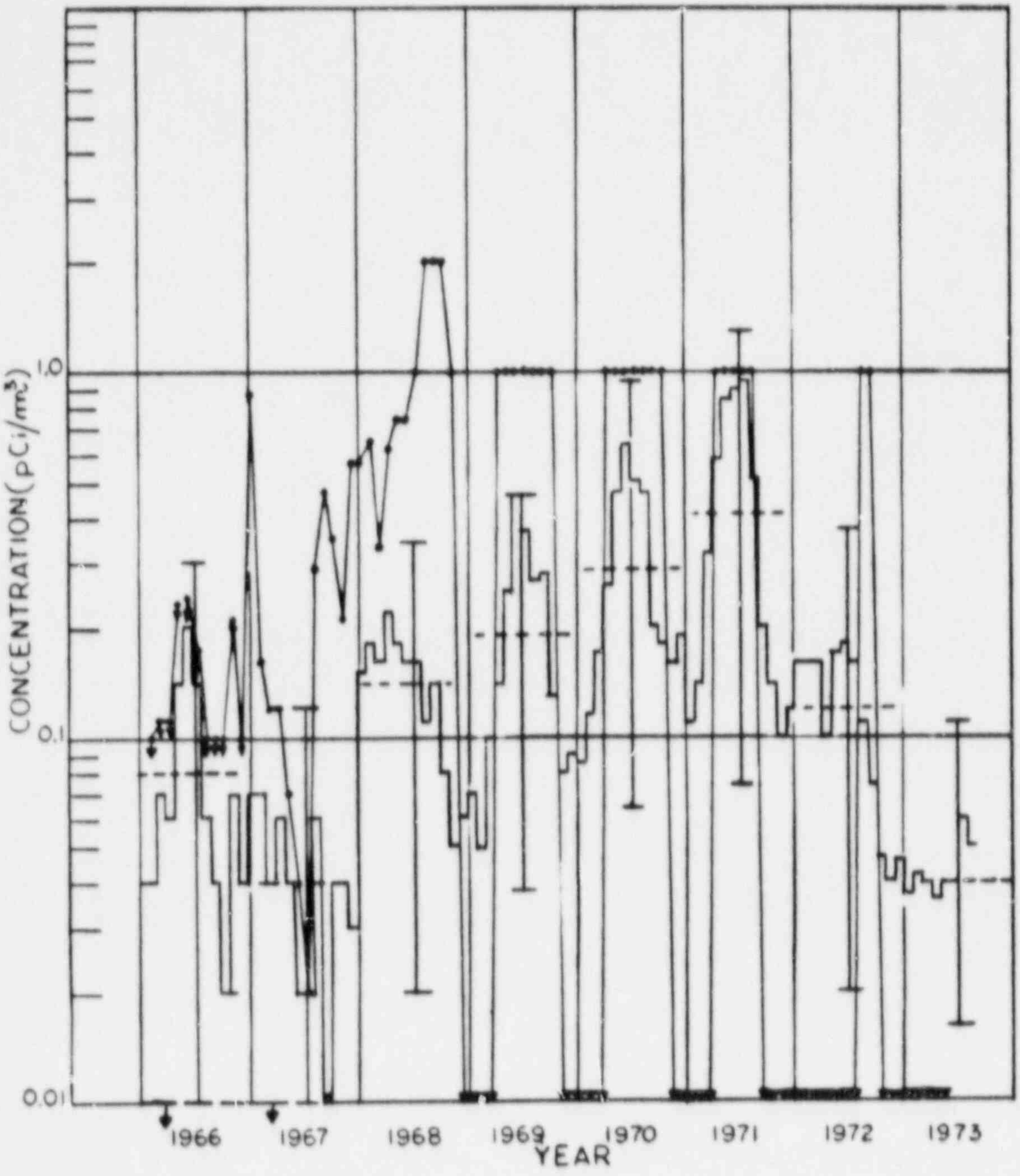


FIGURE 1.3
GROSS BETA RADIOACTIVITY IN AIR PARTICULATE SAMPLES
GROUP III - STATIONS 12A, 12D AND TRENTON, N.J.



MONTHLY MEAN VALUES } GRP III
MAXIMUM WEEKLY VALUE
MEAN ANNUAL VALUE
MINIMUM WEEKLY VALUE
LESS THAN VALUE
VALUE BELOW GRAPH SCALE
MONTHLY MEAN VALUE — TRENTON, N.J. PHS EPA DATA

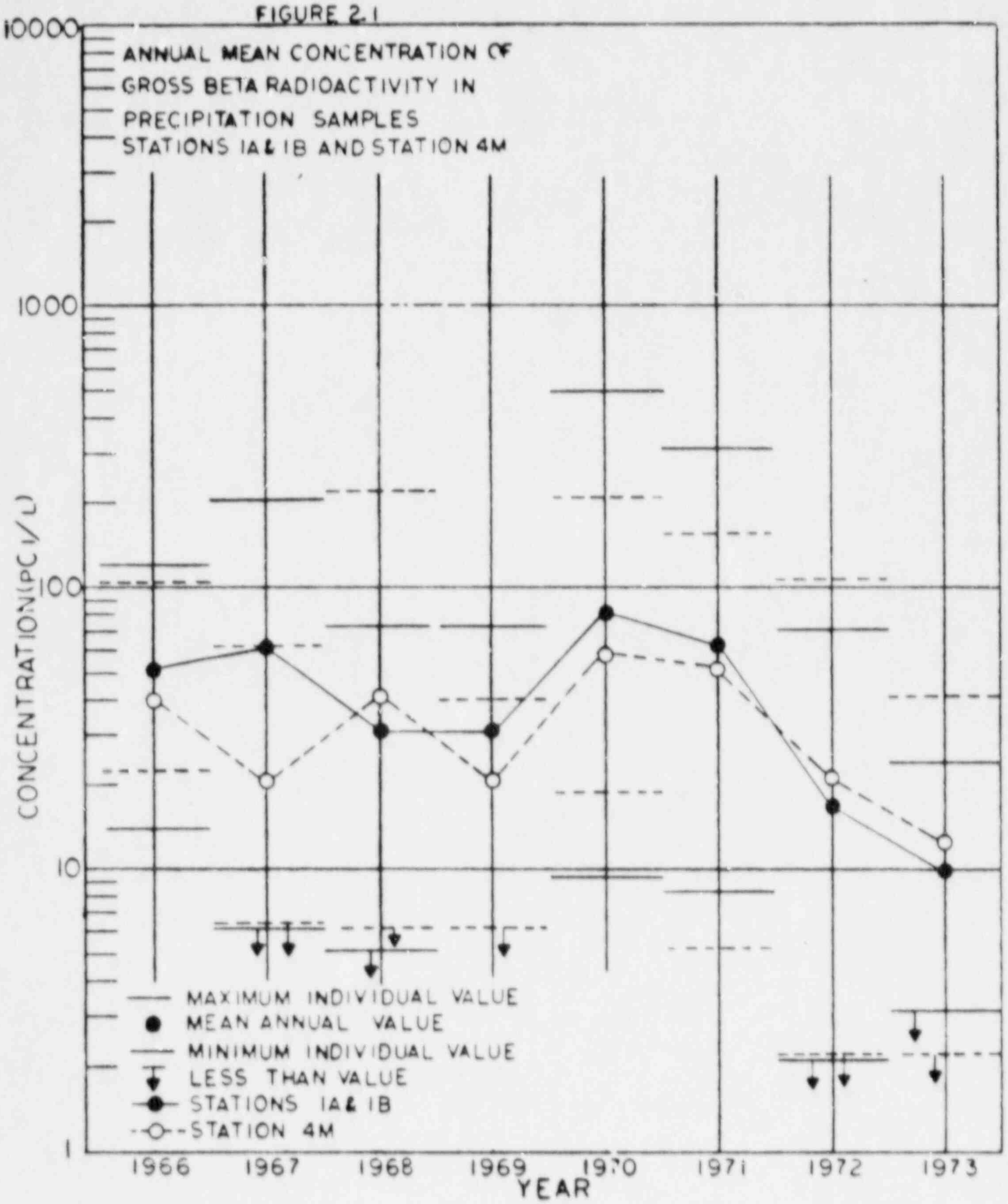


FIGURE 2.1
ANNUAL MEAN CONCENTRATION OF
GROSS BETA RADIOACTIVITY IN
PRECIPITATION SAMPLES
STATIONS 1A & 1B AND STATION 4M
10000
1000
100
10
1
CONCENTRATION (PC I/L)
MAXIMUM INDIVIDUAL VALUE
MEAN ANNUAL VALUE
MINIMUM INDIVIDUAL VALUE
LESS THAN VALUE
STATIONS 1A & 1B
STATION 4M
1966
1967
1968
1969
1970
1971
1972
1973
YEAR

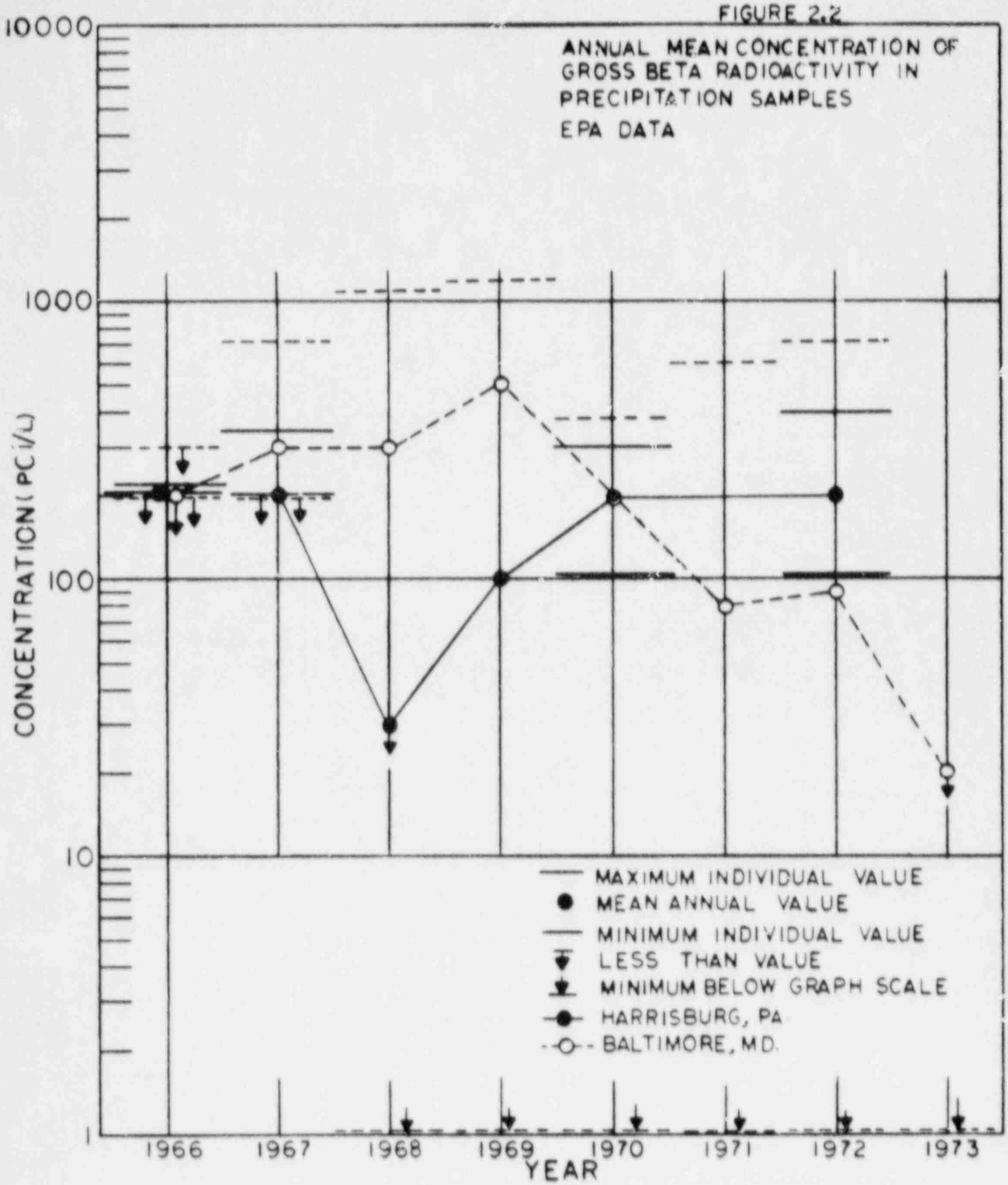


FIGURE 2.2
ANNUAL MEAN CONCENTRATION OF GROSS BETA RADIOACTIVITY IN PRECIPITATION SAMPLES
EPA DATA
10000
1000
100
10
1
CONCENTRATION (PCi/L)
1966
1967
1968
1969
1970
1971
1972
1973
YEAR
MAXIMUM INDIVIDUAL VALUE
MEAN ANNUAL VALUE
MINIMUM INDIVIDUAL VALUE
LESS THAN VALUE
MINIMUM BELOW GRAPH SCALE
HARRISBURG, PA
BALTIMORE, MD.

FIGURE 2.3

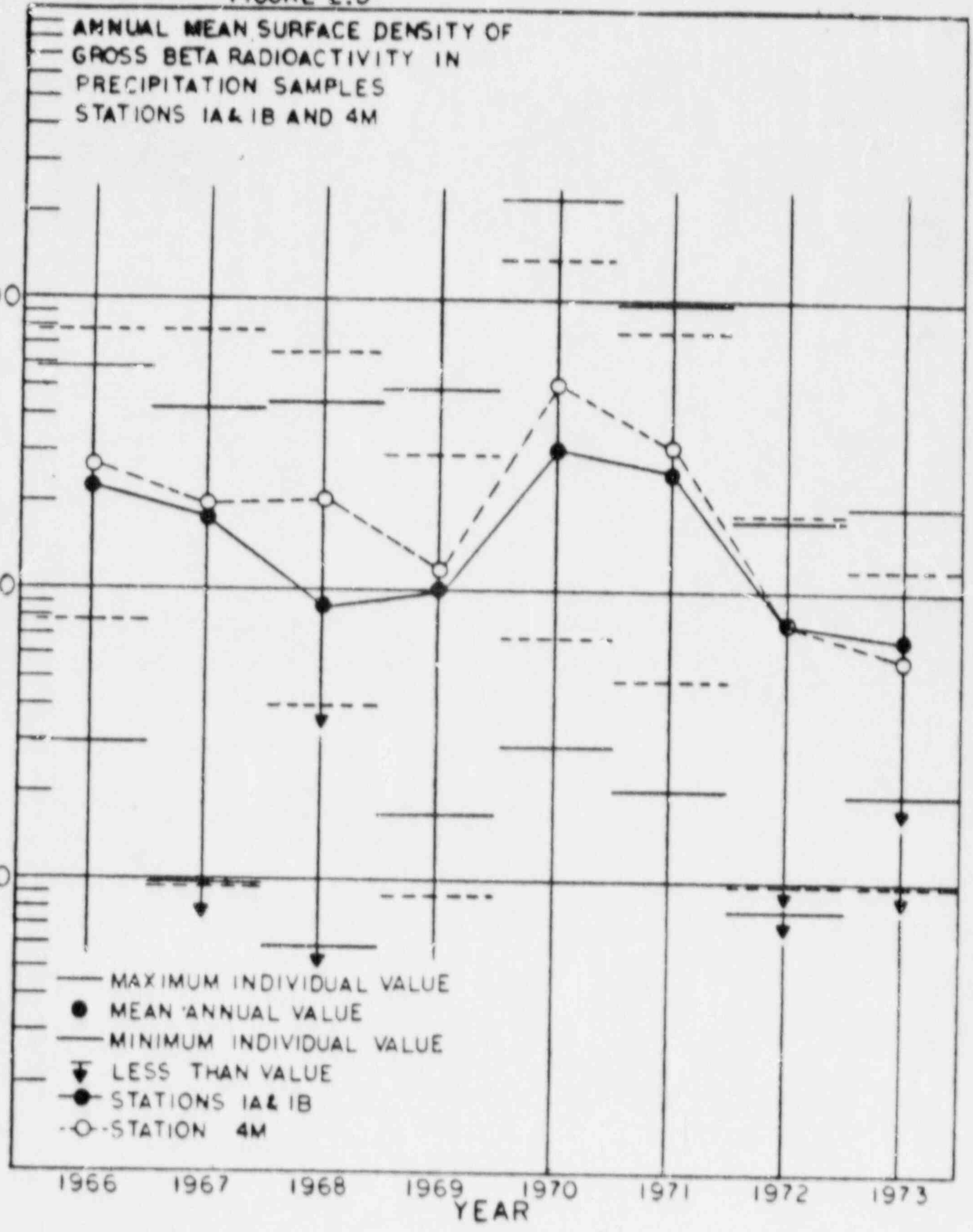

ANNUAL MEAN SURFACE DENSITY OF
GROSS BETA RADIOACTIVITY IN
PRECIPITATION SAMPLES
STATIONS 1A & 1B AND 4M
10000
1000
100
CONCENTRATION (pCi/M2)
MAXIMUM INDIVIDUAL VALUE
MEAN ANNUAL VALUE
MINIMUM INDIVIDUAL VALUE
LESS THAN VALUE
STATIONS 1A & 1B
STATION 4M
1966
1967
1968
1969
1970
1971
1972
1973
YEAR

FIGURE 2.4

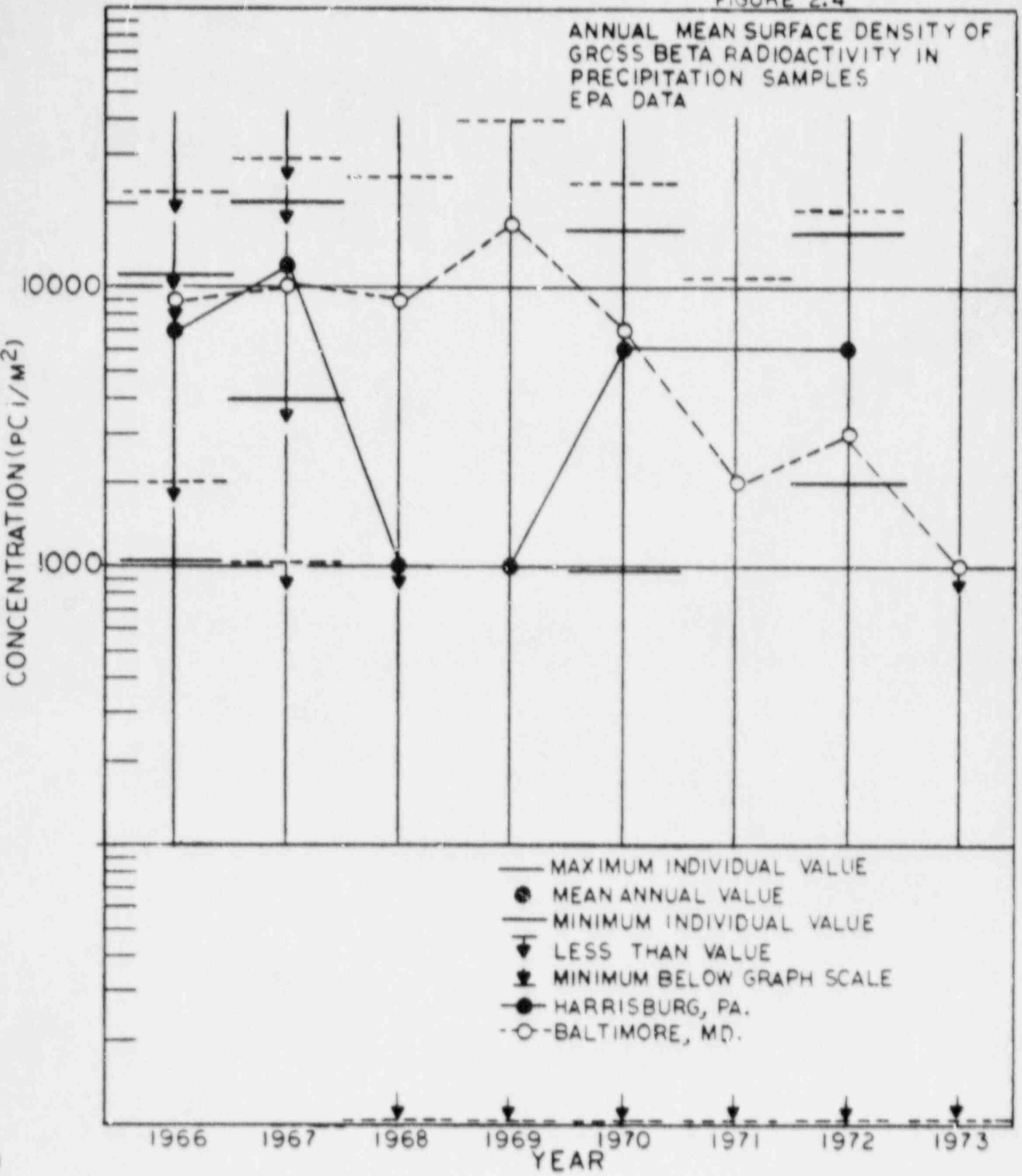
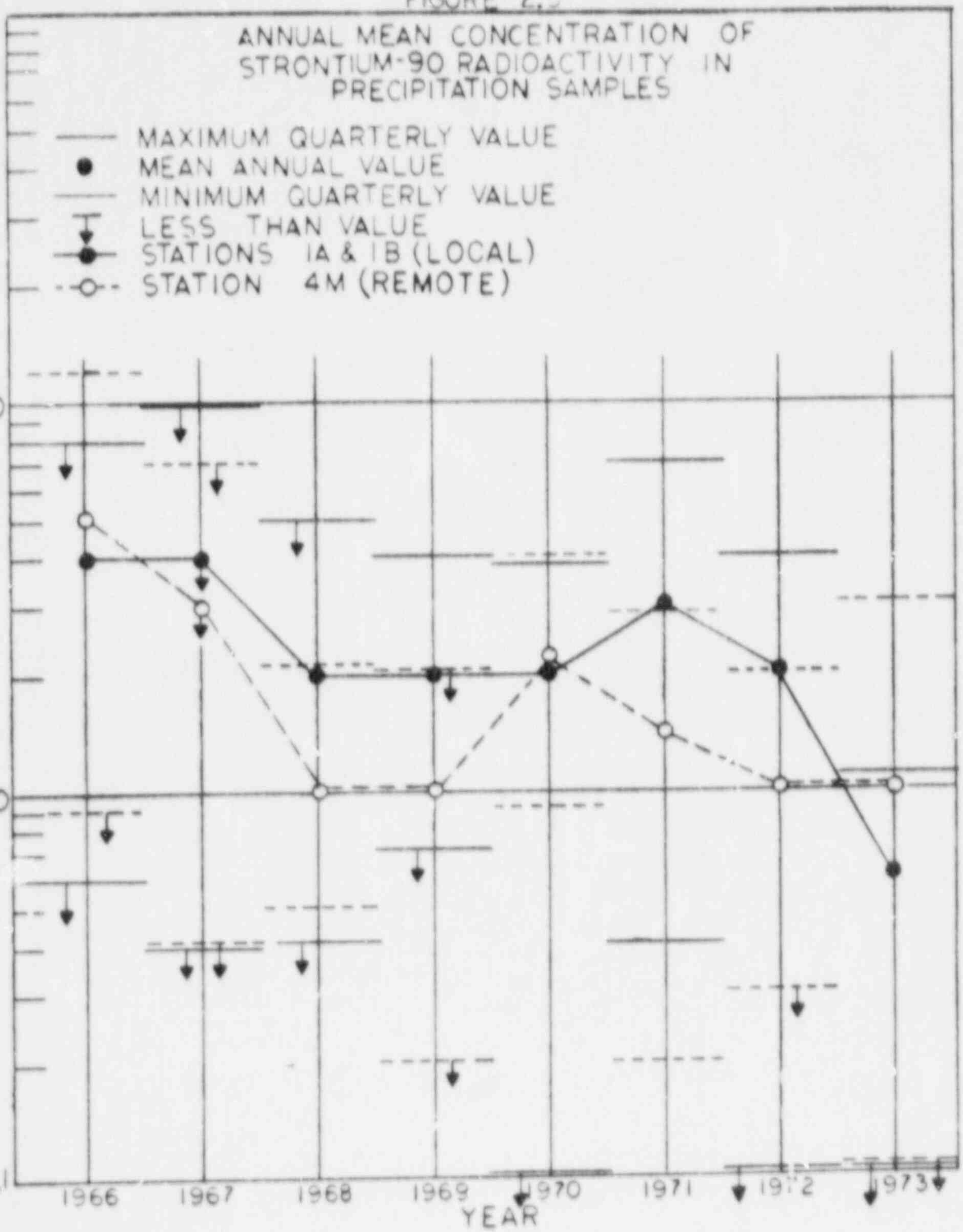
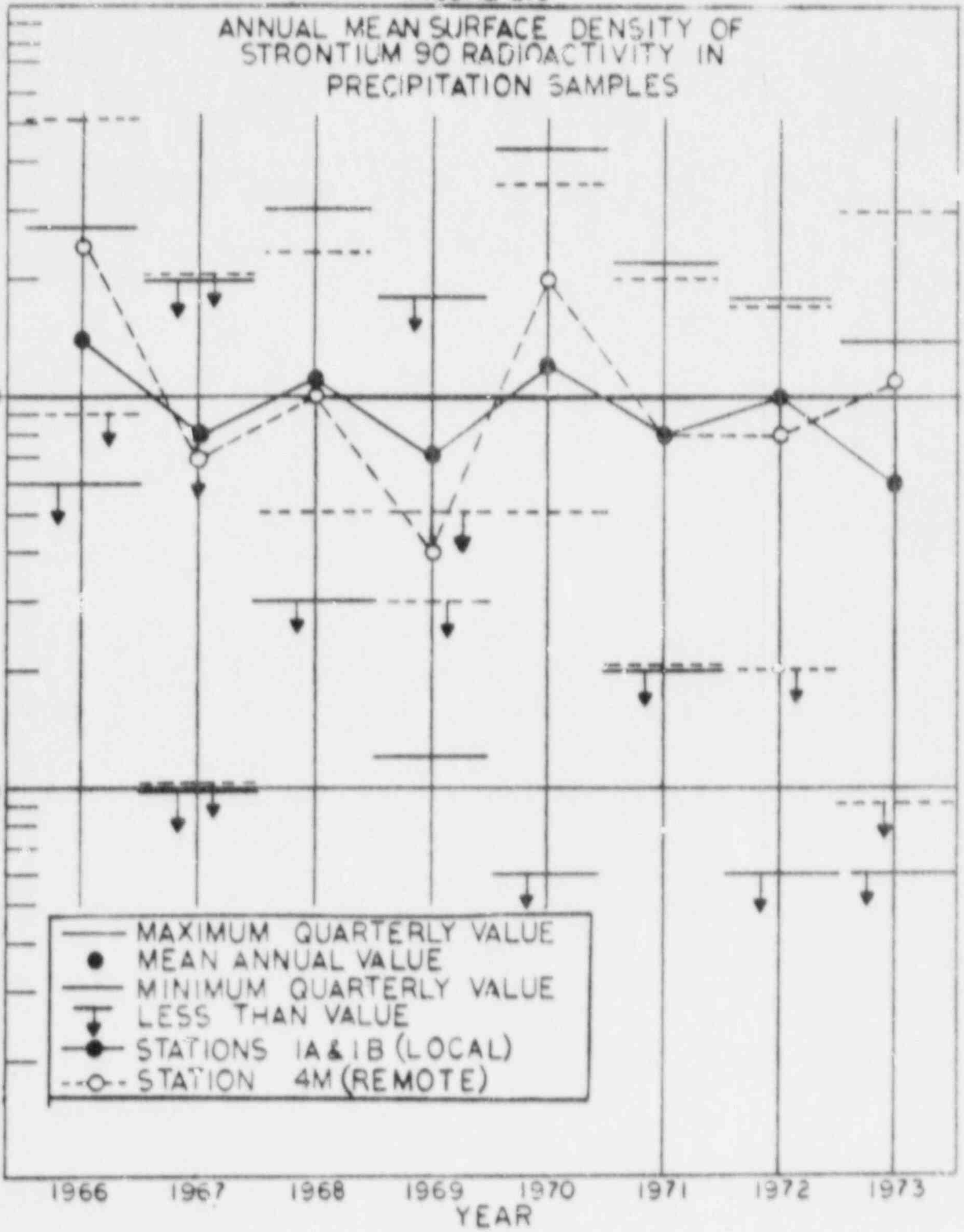

ANNUAL MEAN SURFACE DENSITY OF GROSS BETA RADIOACTIVITY IN PRECIPITATION SAMPLES EPA DATA
10000
1000
CONCENTRATION (pCi/M²)
MAXIMUM INDIVIDUAL VALUE
MEAN ANNUAL VALUE
MINIMUM INDIVIDUAL VALUE
LESS THAN VALUE
MINIMUM BELOW GRAPH SCALE
HARRISBURG, PA.
BALTIMORE, MD.
1966
1967
1968
1969
1970
1971
1972
1973
YEAR

FIGURE 2.5



ANNUAL MEAN CONCENTRATION OF STRONTIUM-90 RADIOACTIVITY IN PRECIPITATION SAMPLES
MAXIMUM QUARTERLY VALUE
MEAN ANNUAL VALUE
MINIMUM QUARTERLY VALUE
LESS THAN VALUE
STATIONS 1A & 1B (LOCAL)
STATION 4M (REMOTE)
CONCENTRATION (PCi/L)
10
1.0
0.1
1966
1967
1968
1969
1970
1971
1972
1973
YEAR

FIGURE 2.6



ANNUAL MEAN SURFACE DENSITY OF STRONTIUM 90 RADIOACTIVITY IN PRECIPITATION SAMPLES
SURFACE DENSITY (PCi/M²)
100
10
1
1966
1967
1968
1969
1970
1971
1972
1973
YEAR
MAXIMUM QUARTERLY VALUE
MEAN ANNUAL VALUE
MINIMUM QUARTERLY VALUE
LESS THAN VALUE
STATIONS 1A & 1B (LOCAL)
STATION 4M (REMOTE)

FIGURE 3.1

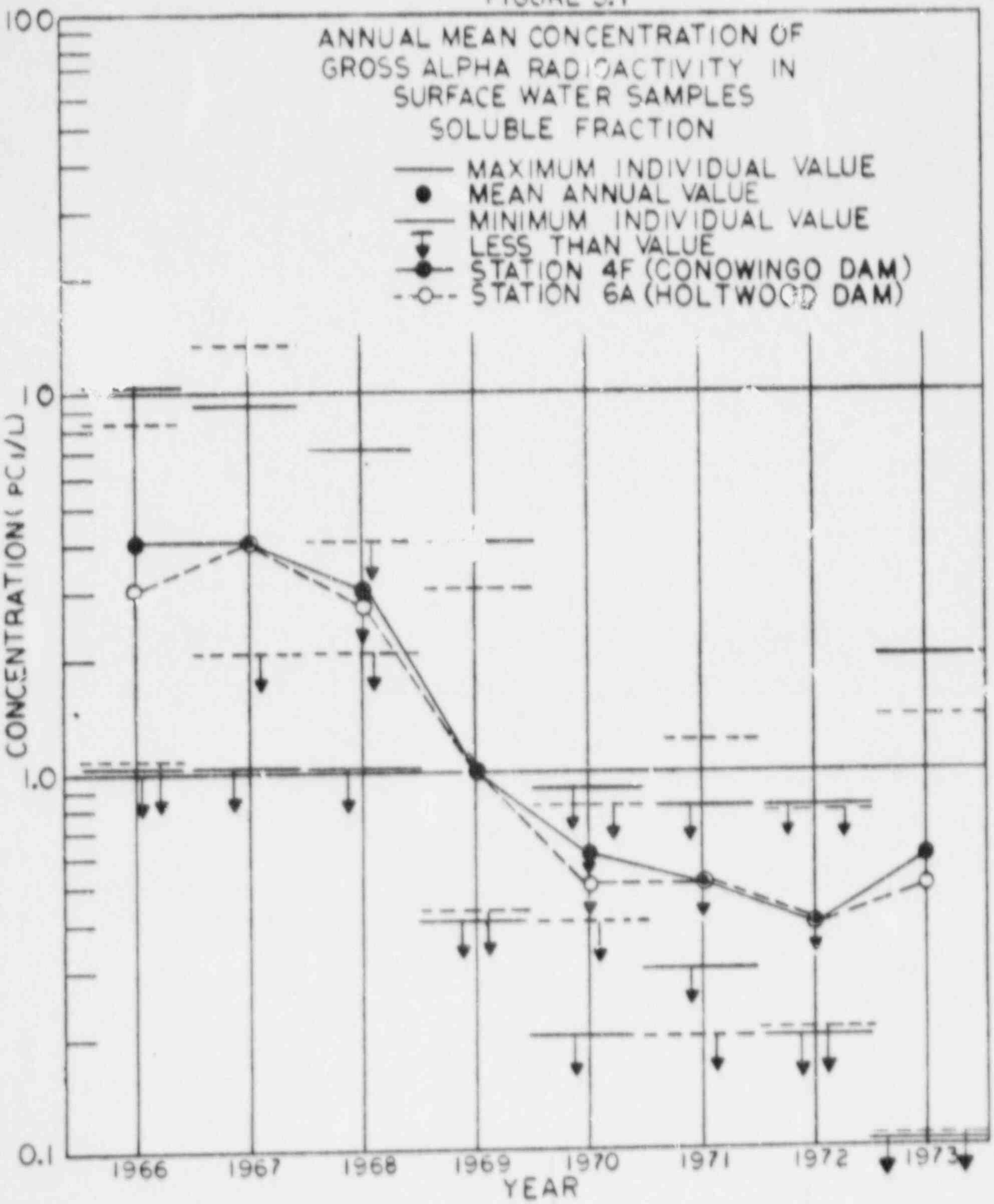

ANNUAL MEAN CONCENTRATION OF
GROSS ALPHA RADIOACTIVITY IN
SURFACE WATER SAMPLES
SOLUBLE FRACTION
MAXIMUM INDIVIDUAL VALUE
MEAN ANNUAL VALUE
MINIMUM INDIVIDUAL VALUE
LESS THAN VALUE
STATION 4F (CONOWINGO DAM)
STATION 6A (HOLTWOOD DAM)
100
1.0
0.1
CONCENTRATION (PCi/L)
1966
1967
1968
1969
1970
1971
1972
1973
YEAR

FIGURE 3.2

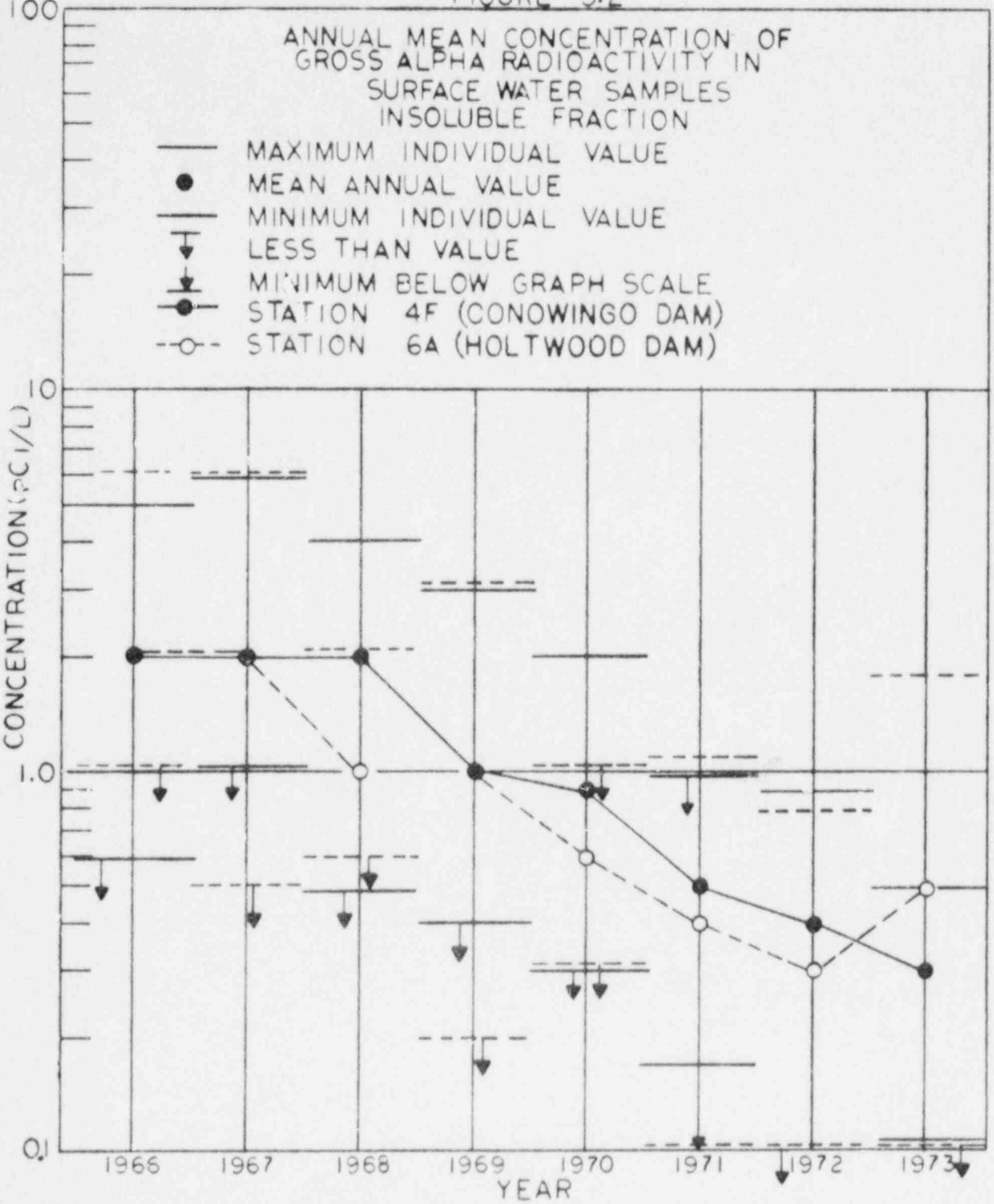

ANNUAL MEAN CONCENTRATION OF GROSS ALPHA RADIOACTIVITY IN SURFACE WATER SAMPLES INSOLUBLE FRACTION
MAXIMUM INDIVIDUAL VALUE
MEAN ANNUAL VALUE
MINIMUM INDIVIDUAL VALUE
LESS THAN VALUE
MINIMUM BELOW GRAPH SCALE
STATION 4F (CONOWINGO DAM)
STATION 6A (HOLTWOOD DAM)
100
10
1.0
0.1
CONCENTRATION (pCi/L)
1966
1967
1968
1969
1970
1971
1972
1973
YEAR

FIGURE 3.3

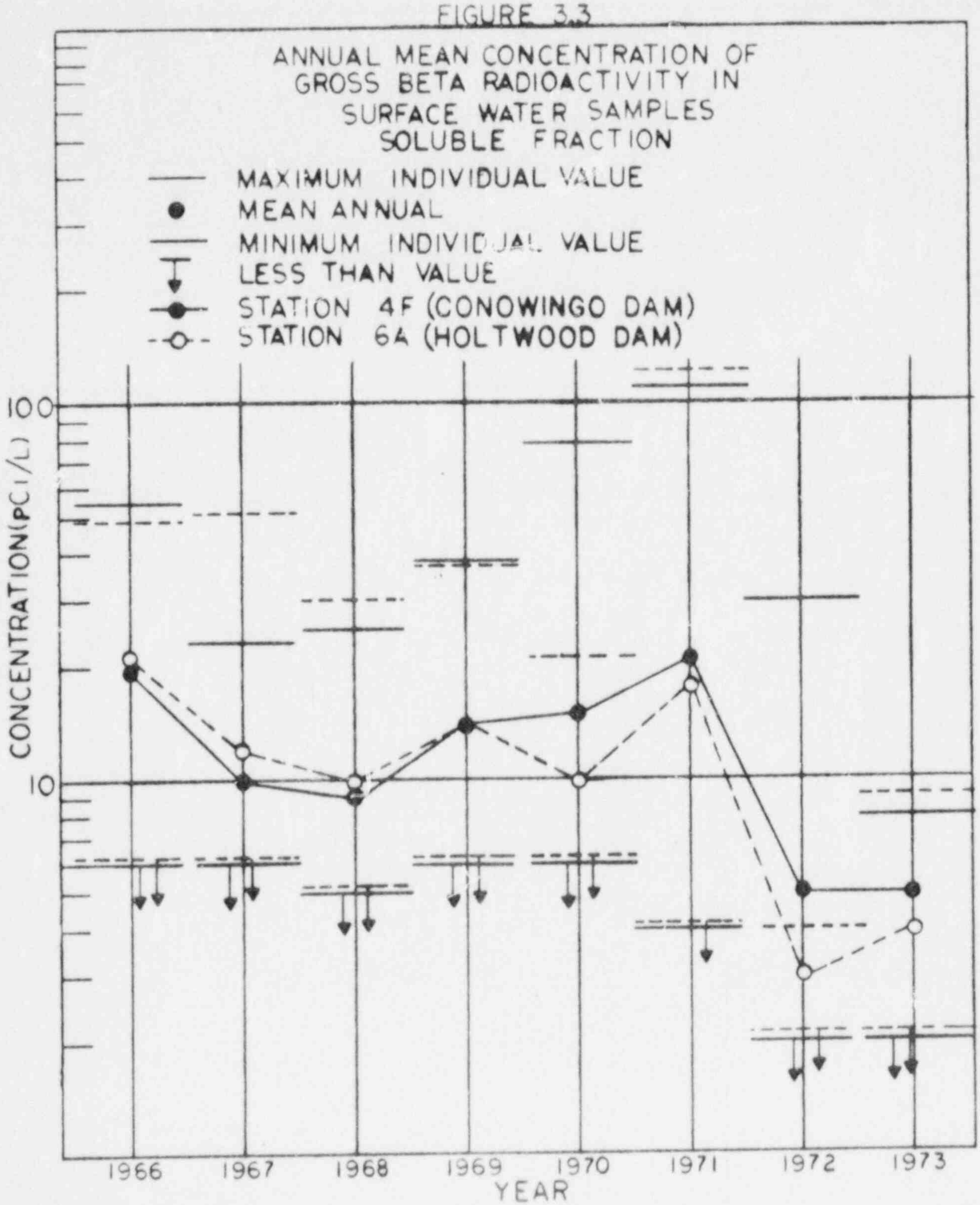
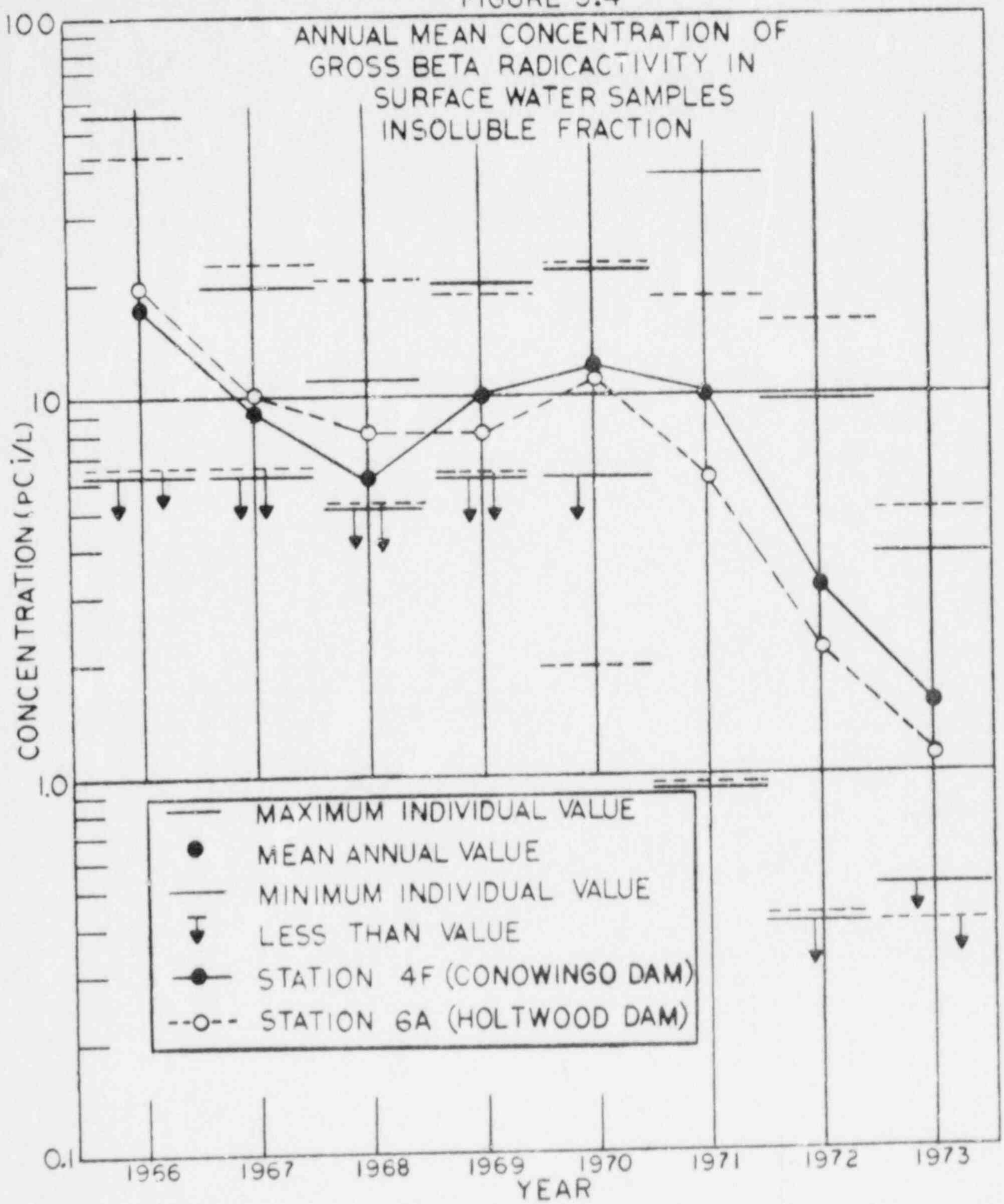

ANNUAL MEAN CONCENTRATION OF
GROSS BETA RADIOACTIVITY IN
SURFACE WATER SAMPLES
SOLUBLE FRACTION
MAXIMUM INDIVIDUAL VALUE
MEAN ANNUAL
MINIMUM INDIVIDUAL VALUE
LESS THAN VALUE
STATION 4F (CONOWINGO DAM)
STATION 6A (HOLTWOOD DAM)
100
10
CONCENTRATION (pCi/L)
1966
1967
1968
1969
1970
1971
1972
1973
YEAR

FIGURE 3.4


ANNUAL MEAN CONCENTRATION OF
GROSS BETA RADICACTIVITY IN
SURFACE WATER SAMPLES
INSOLUBLE FRACTION
100
10
1.0
0.1
CONCENTRATION (pC i/L)
1966
1967
1968
1969
1970
1971
1972
1973
YEAR
MAXIMUM INDIVIDUAL VALUE
MEAN ANNUAL VALUE
MINIMUM INDIVIDUAL VALUE
LESS THAN VALUE
STATION 4F (CONOWINGO DAM)
STATION 6A (HOLTWOOD DAM)

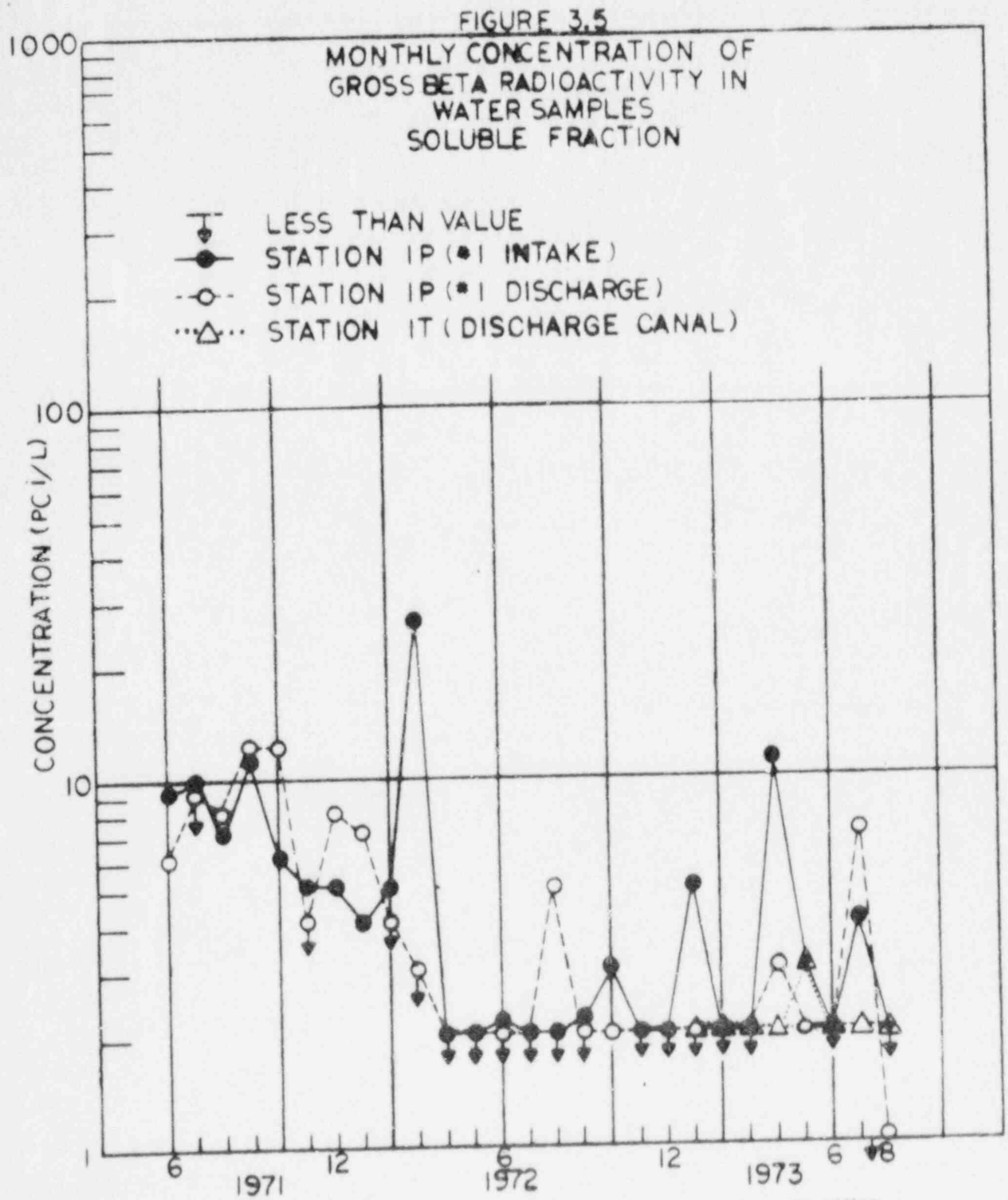


FIGURE 3.5
MONTHLY CONCENTRATION OF
GROSS BETA RADIOACTIVITY IN
WATER SAMPLES
SOLUBLE FRACTION
LESS THAN VALUE
STATION IP (#1 INTAKE)
STATION IP (#1 DISCHARGE)
STATION IT (DISCHARGE CANAL)
CONCENTRATION (PCi/L)
1000
100
10
1
6
12
6
12
6
8
1971
1972
1973

FIGURE 3.6

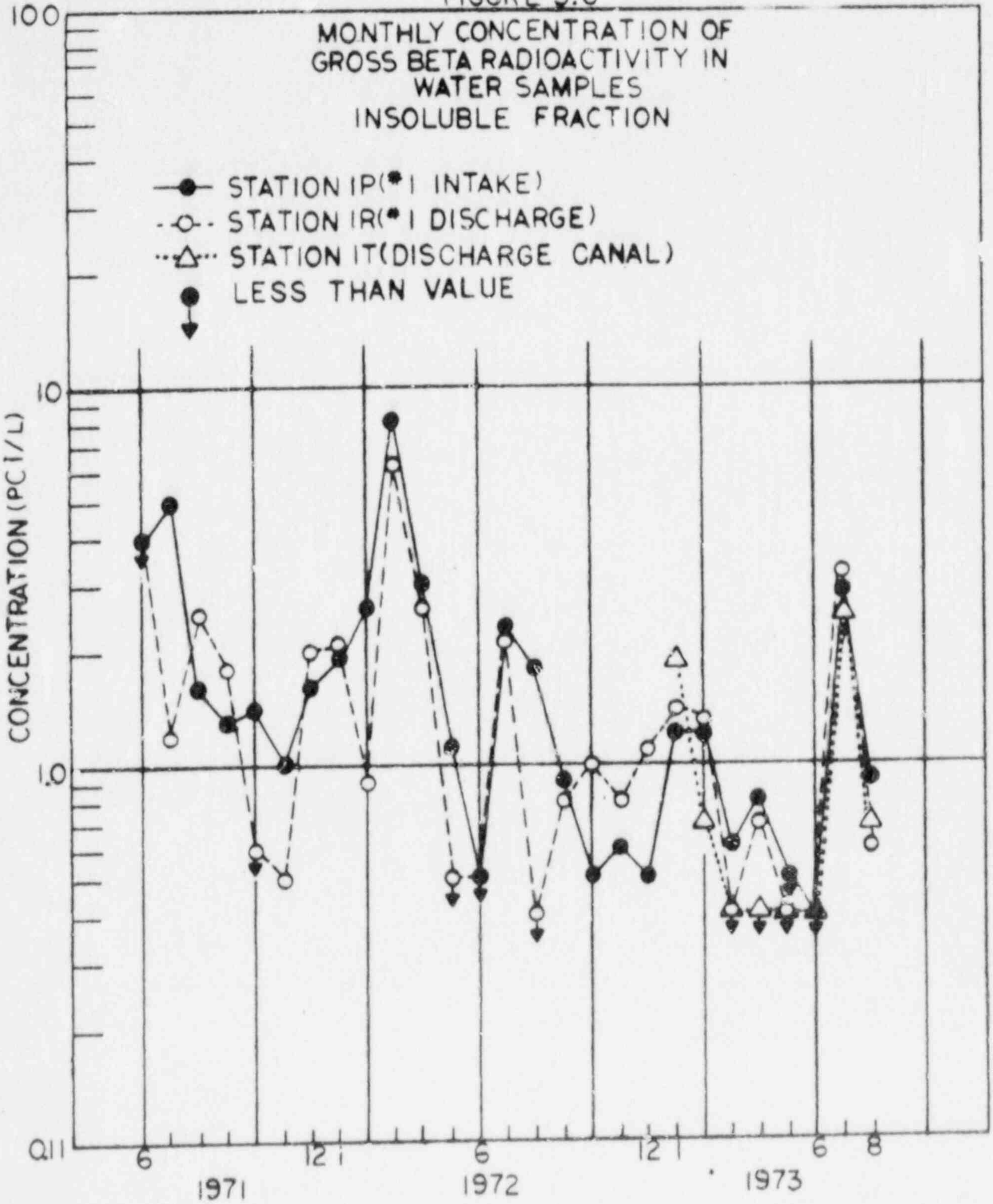
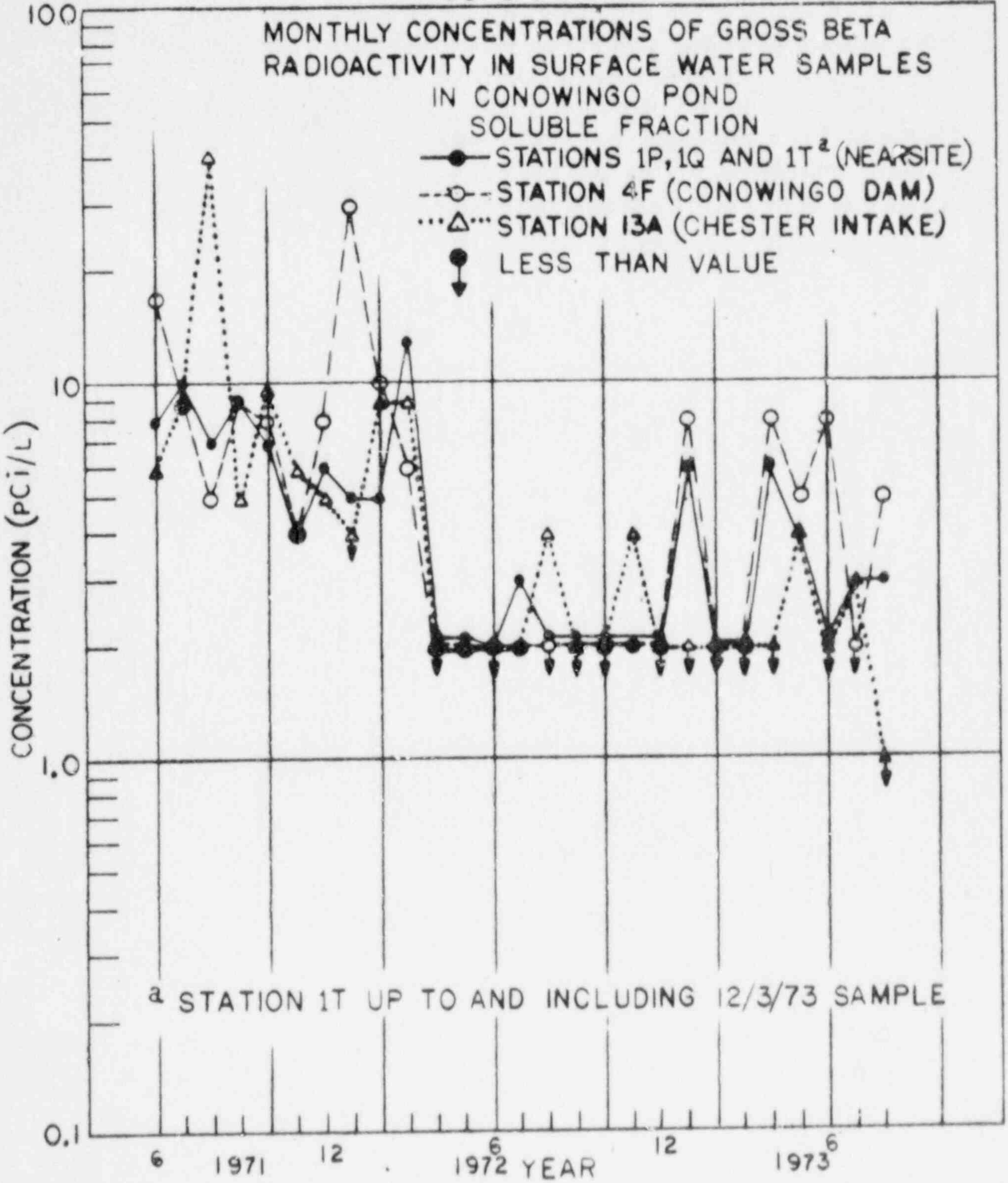
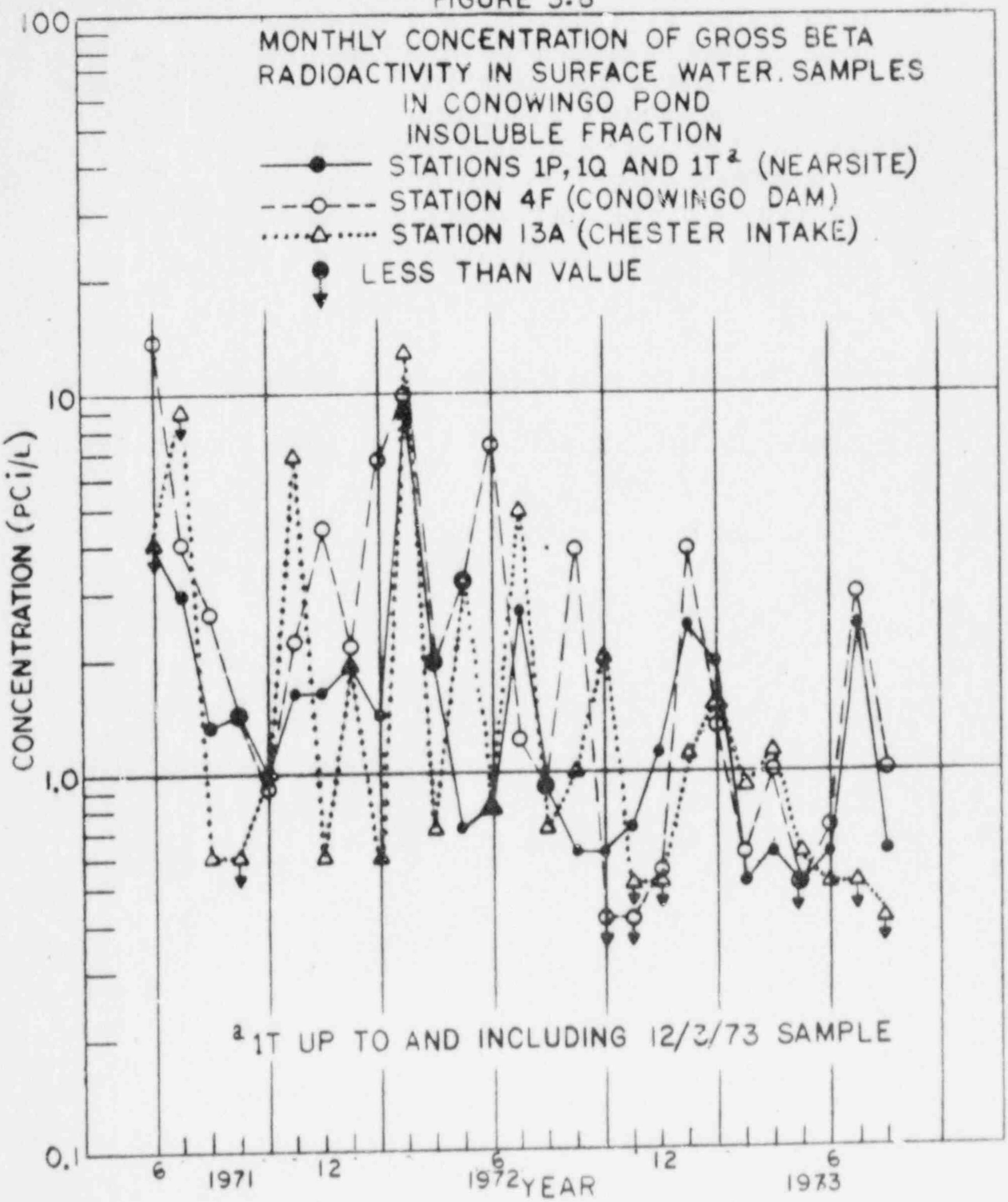

MONTHLY CONCENTRATION OF
GROSS BETA RADIOACTIVITY IN
WATER SAMPLES
INSOLUBLE FRACTION
STATION IP(#1 INTAKE)
STATION IR(#1 DISCHARGE)
STATION IT(DISCHARGE CANAL)
LESS THAN VALUE
CONCENTRATION (PCI/L)
100
10
1.0
0.1
6
12 1
6
12 1
6
8
1971
1972
1973

FIGURE 3.7



MONTHLY CONCENTRATIONS OF GROSS BETA
RADIOACTIVITY IN SURFACE WATER SAMPLES
IN CONOWINGO POND
SOLUBLE FRACTION
STATIONS 1P, 1Q AND 1T[a] (NEARSITE)
STATION 4F (CONOWINGO DAM)
STATION 13A (CHESTER INTAKE)
LESS THAN VALUE
100
10
1.0
0.1
CONCENTRATION (pCi/L)
a STATION 1T UP TO AND INCLUDING 12/3/73 SAMPLE
6
1971
12
6
1972 YEAR
12
1973
6

FIGURE 3.8



MONTHLY CONCENTRATION OF GROSS BETA RADIOACTIVITY IN SURFACE WATER. SAMPLES IN CONOWINGO POND
INSOLUBLE FRACTION
STATIONS 1P, 1Q AND 1T[a] (NEARSITE)
STATION 4F (CONOWINGO DAM)
STATION 13A (CHESTER INTAKE)
LESS THAN VALUE
[a] 1T UP TO AND INCLUDING 12/3/73 SAMPLE
100
10
1.0
0.1
CONCENTRATION (pCi/L)
6
1971
12
6
1972
YEAR
12
6
1973

FIGURE 4.1

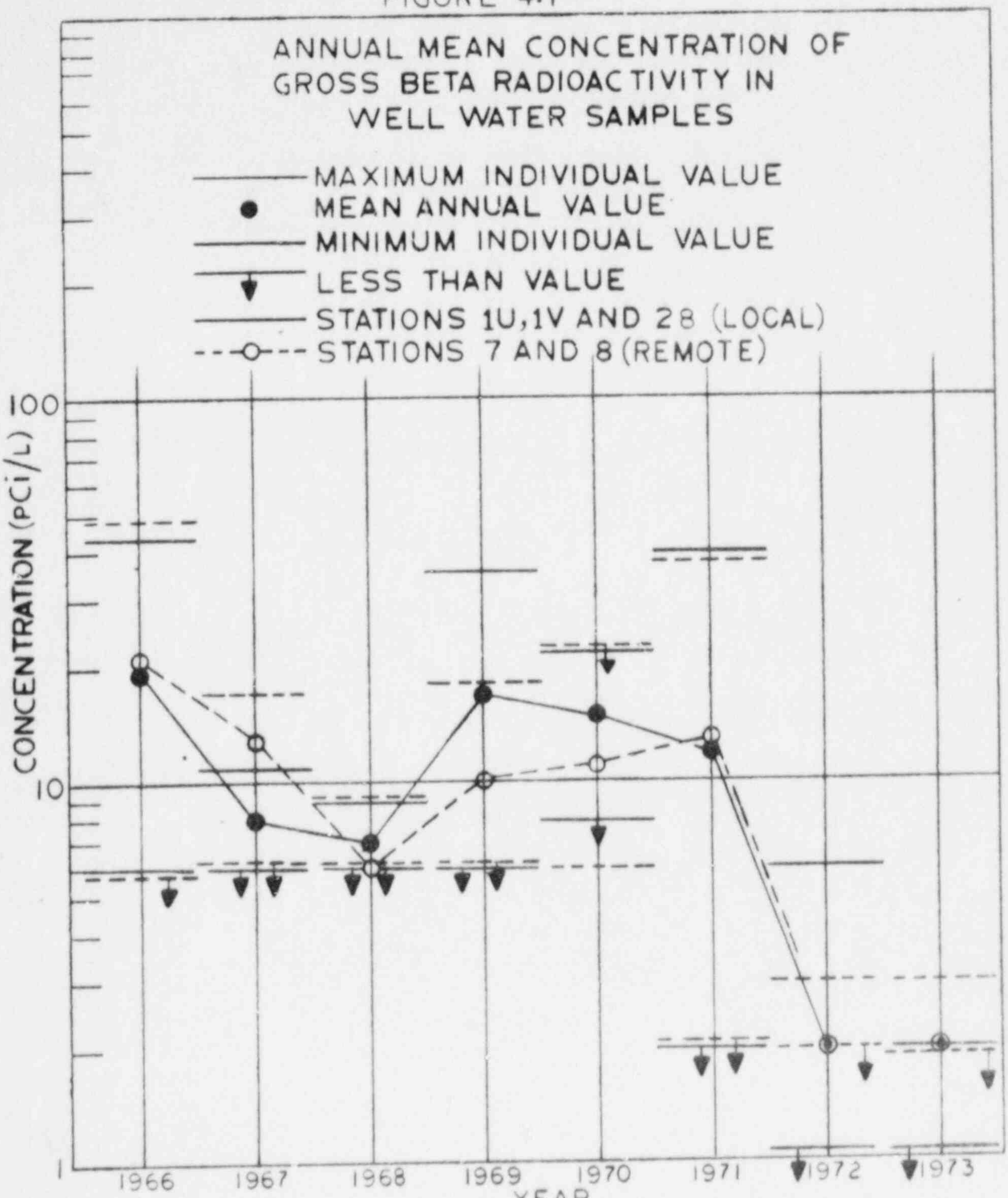

ANNUAL MEAN CONCENTRATION OF GROSS BETA RADIOACTIVITY IN WELL WATER SAMPLES
MAXIMUM INDIVIDUAL VALUE
MEAN ANNUAL VALUE
MINIMUM INDIVIDUAL VALUE
LESS THAN VALUE
STATIONS 1U, 1V AND 28 (LOCAL)
STATIONS 7 AND 8 (REMOTE)
CONCENTRATION (pCi/L)
100
10
1
1966
1967
1968
1969
1970
1971
1972
1973
YEAR

FIGURE 5.1

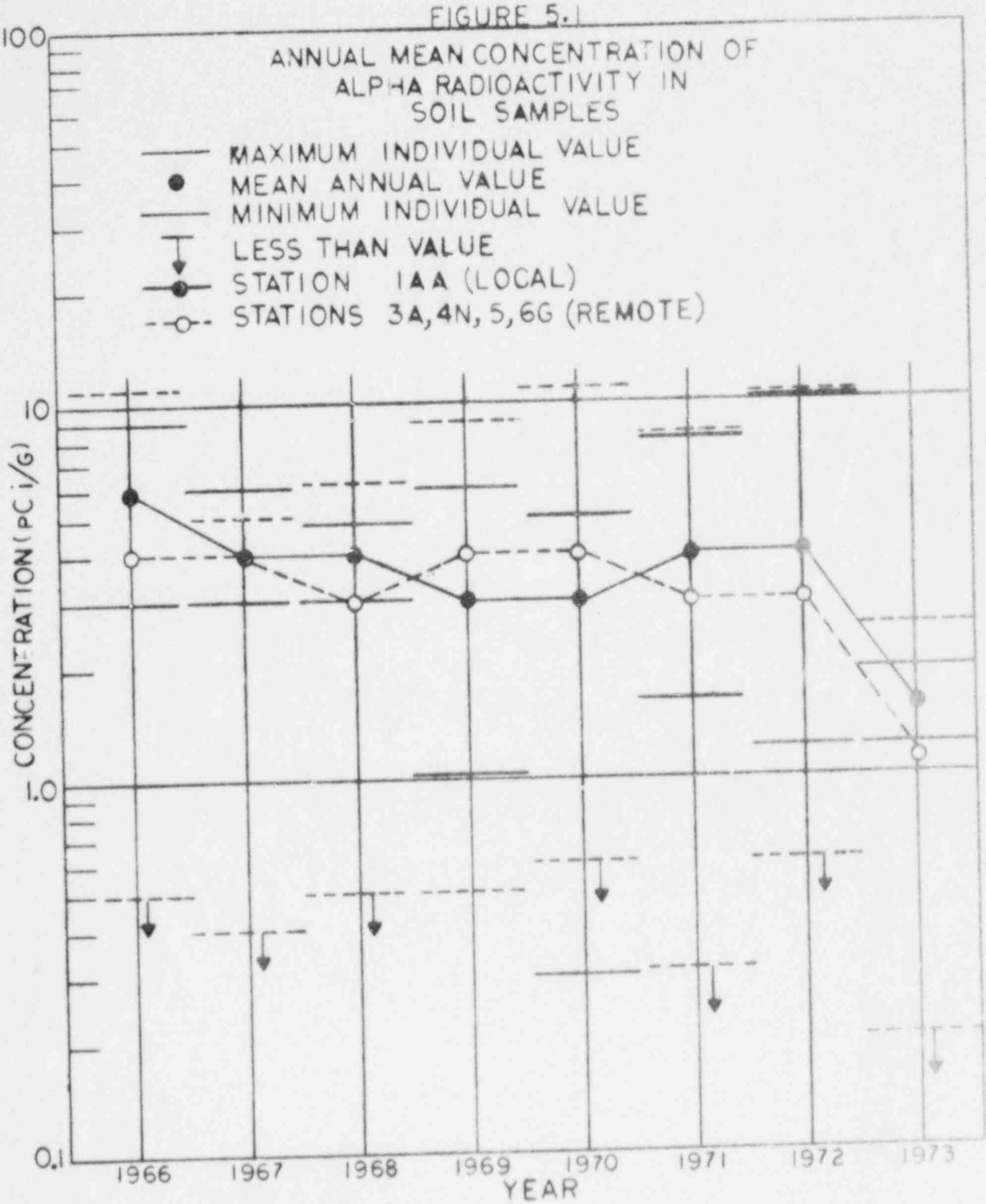
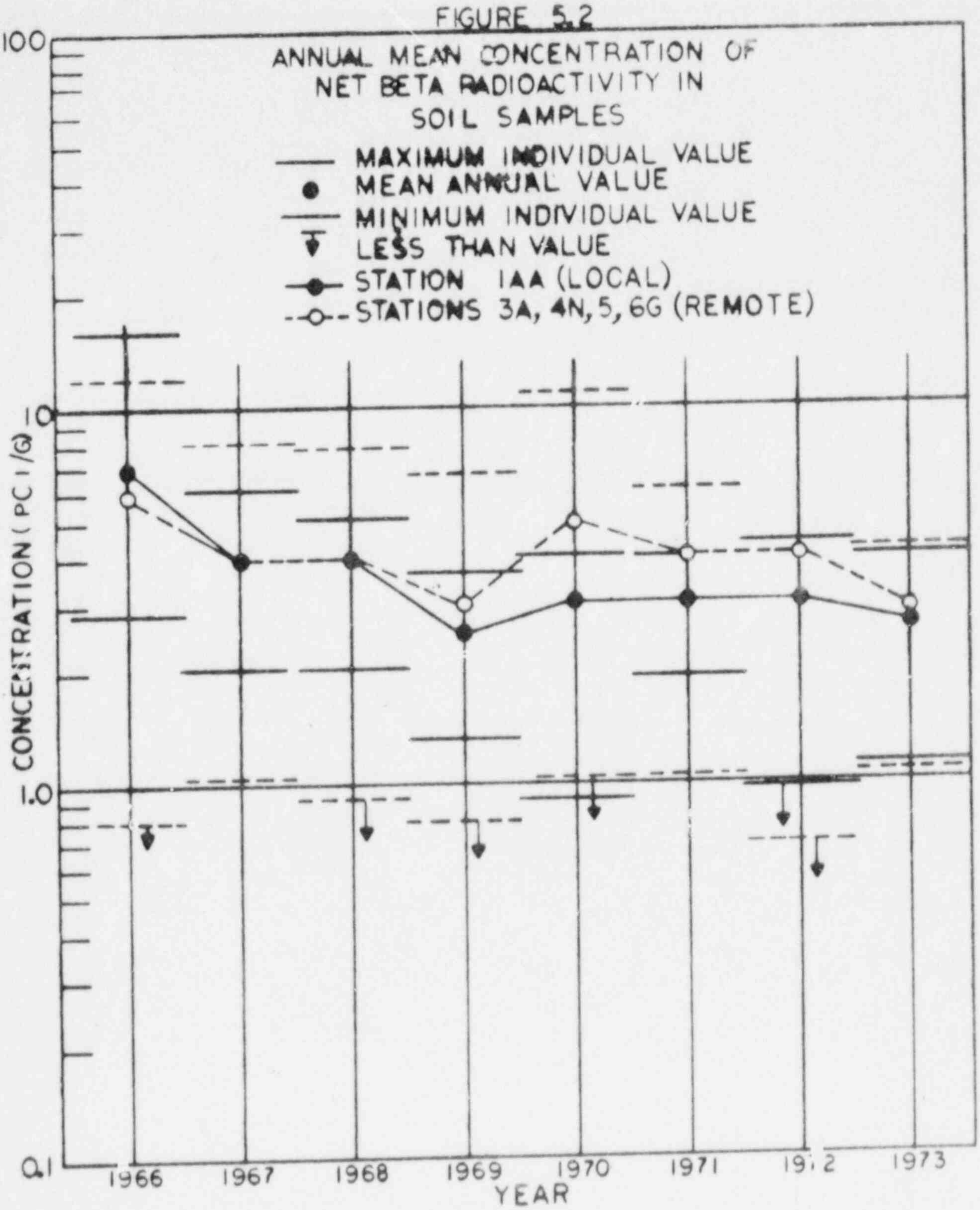

ANNUAL MEAN CONCENTRATION OF ALPHA RADIOACTIVITY IN SOIL SAMPLES
MAXIMUM INDIVIDUAL VALUE
MEAN ANNUAL VALUE
MINIMUM INDIVIDUAL VALUE
LESS THAN VALUE
STATION 1AA (LOCAL)
STATIONS 3A, 4N, 5, 6G (REMOTE)
100
10
1.0
0.1
CONCENTRATION (pC i/G)
1966
1967
1968
1969
1970
1971
1972
1973
YEAR

FIGURE 5.2



ANNUAL MEAN CONCENTRATION OF NET BETA RADIOACTIVITY IN SOIL SAMPLES
MAXIMUM INDIVIDUAL VALUE
MEAN ANNUAL VALUE
MINIMUM INDIVIDUAL VALUE
LESS THAN VALUE
STATION 1AA (LOCAL)
STATIONS 3A, 4N, 5, 6G (REMOTE)
100
10
1.0
0.1
CONCENTRATION (PC I/G)
1966
1967
1968
1969
1970
1971
1972
1973
YEAR

FIGURE 5.3

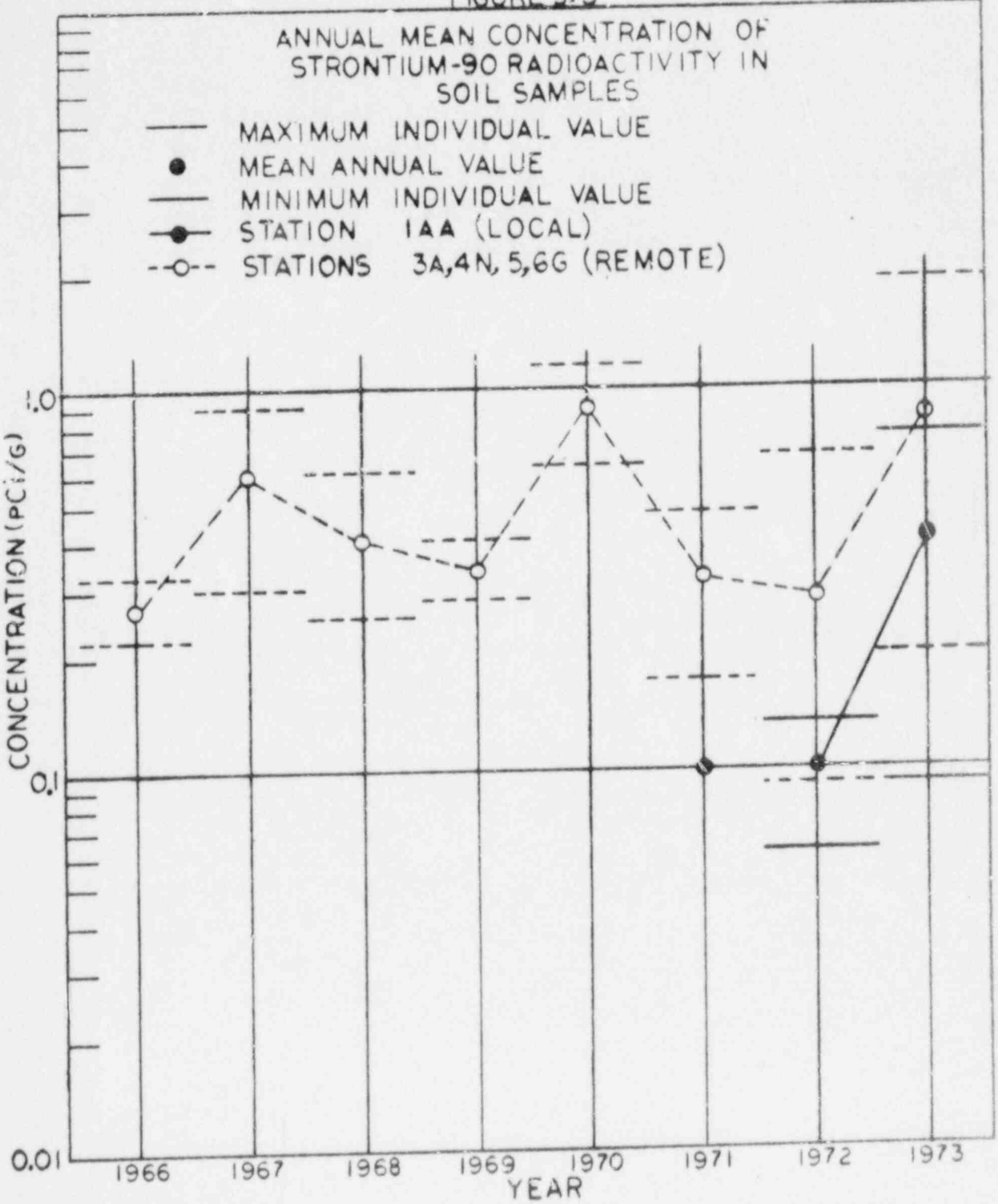

ANNUAL MEAN CONCENTRATION OF
STRONTIUM-90 RADIOACTIVITY IN
SOIL SAMPLES
MAXIMUM INDIVIDUAL VALUE
MEAN ANNUAL VALUE
MINIMUM INDIVIDUAL VALUE
STATION 1AA (LOCAL)
STATIONS 3A,4N, 5,6G (REMOTE)
CONCENTRATION (pCi/G)
1.0
0.1
0.01
1966
1967
1968
1969
1970
1971
1972
1973
YEAR

FIGURE 5.4

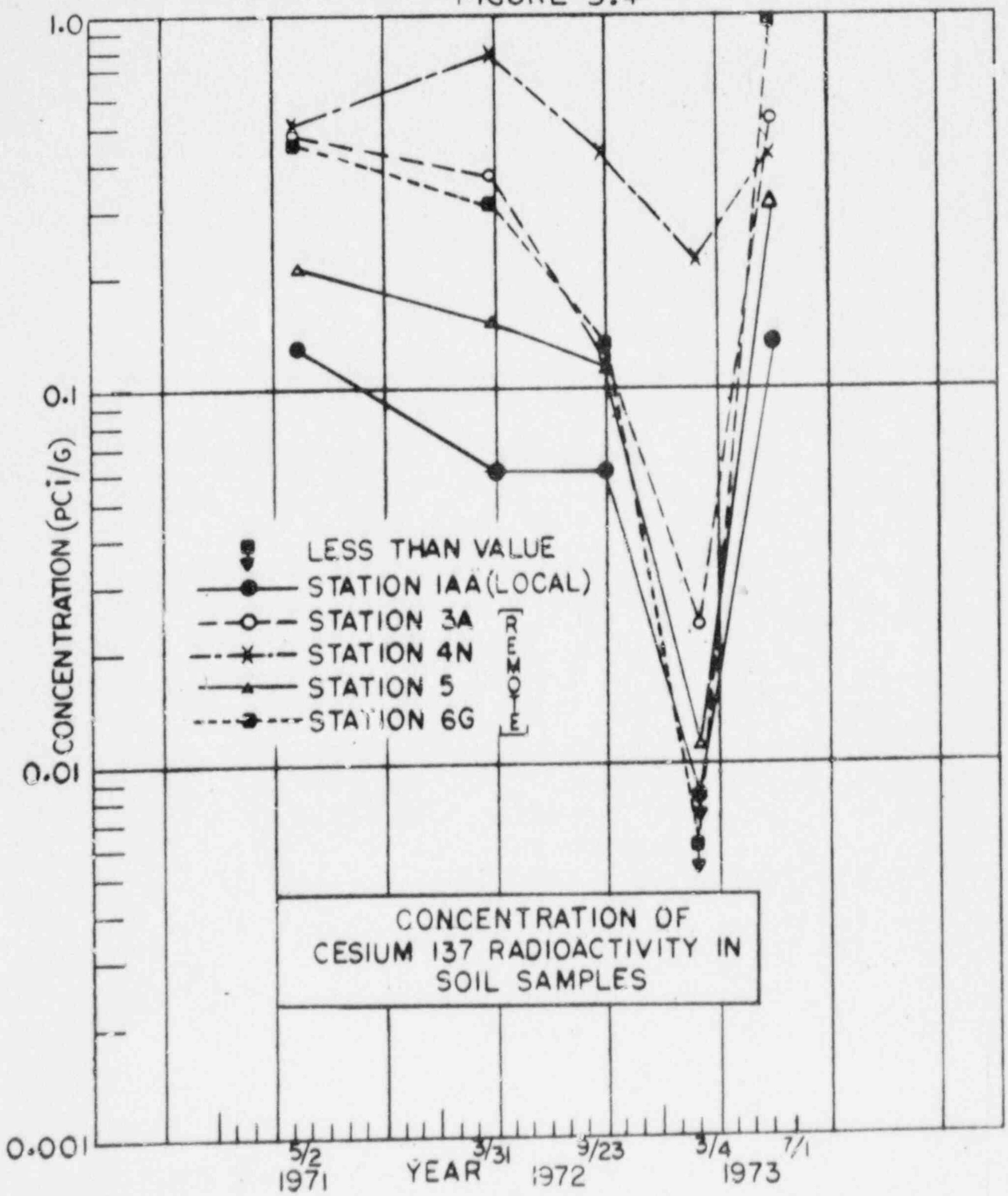

1.0
0.1
0.01
0.001
CONCENTRATION (pCi/G)
LESS THAN VALUE
STATION 1AA (LOCAL)
STATION 3A
STATION 4N
STATION 5
STATION 6G
REMOTE
CONCENTRATION OF
CESIUM 137 RADIOACTIVITY IN
SOIL SAMPLES
5/2
1971
YEAR
3/31
1972
9/23
3/4
1973
7/1

FIGURE 6-1

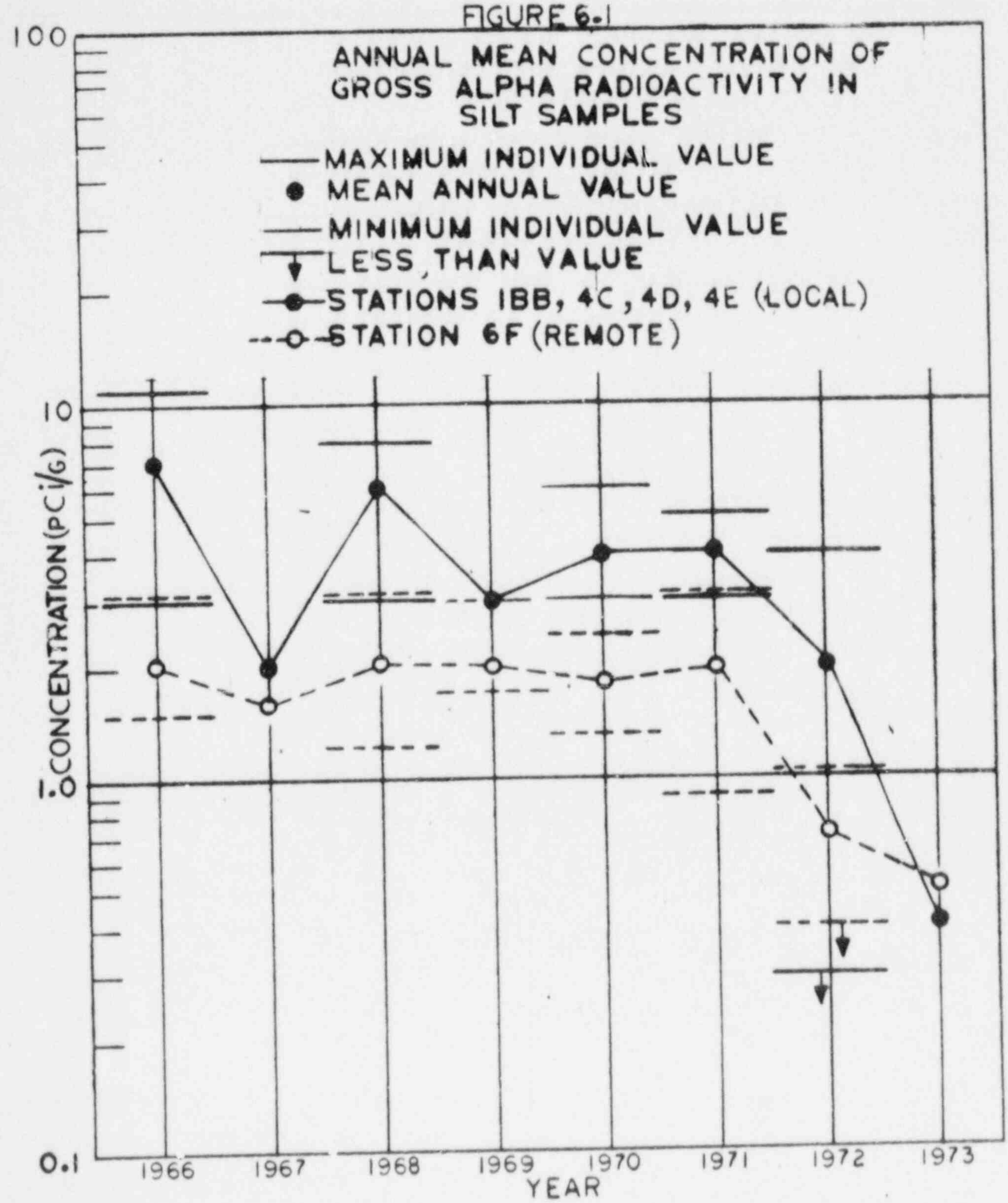

ANNUAL MEAN CONCENTRATION OF GROSS ALPHA RADIOACTIVITY IN SILT SAMPLES
MAXIMUM INDIVIDUAL VALUE
MEAN ANNUAL VALUE
MINIMUM INDIVIDUAL VALUE
LESS THAN VALUE
STATIONS 1BB, 4C, 4D, 4E (LOCAL)
STATION 6F (REMOTE)
CONCENTRATION (pCi/G)
100
10
1.0
0.1
1966
1967
1968
1969
1970
1971
1972
1973
YEAR

FIGURE 6.2

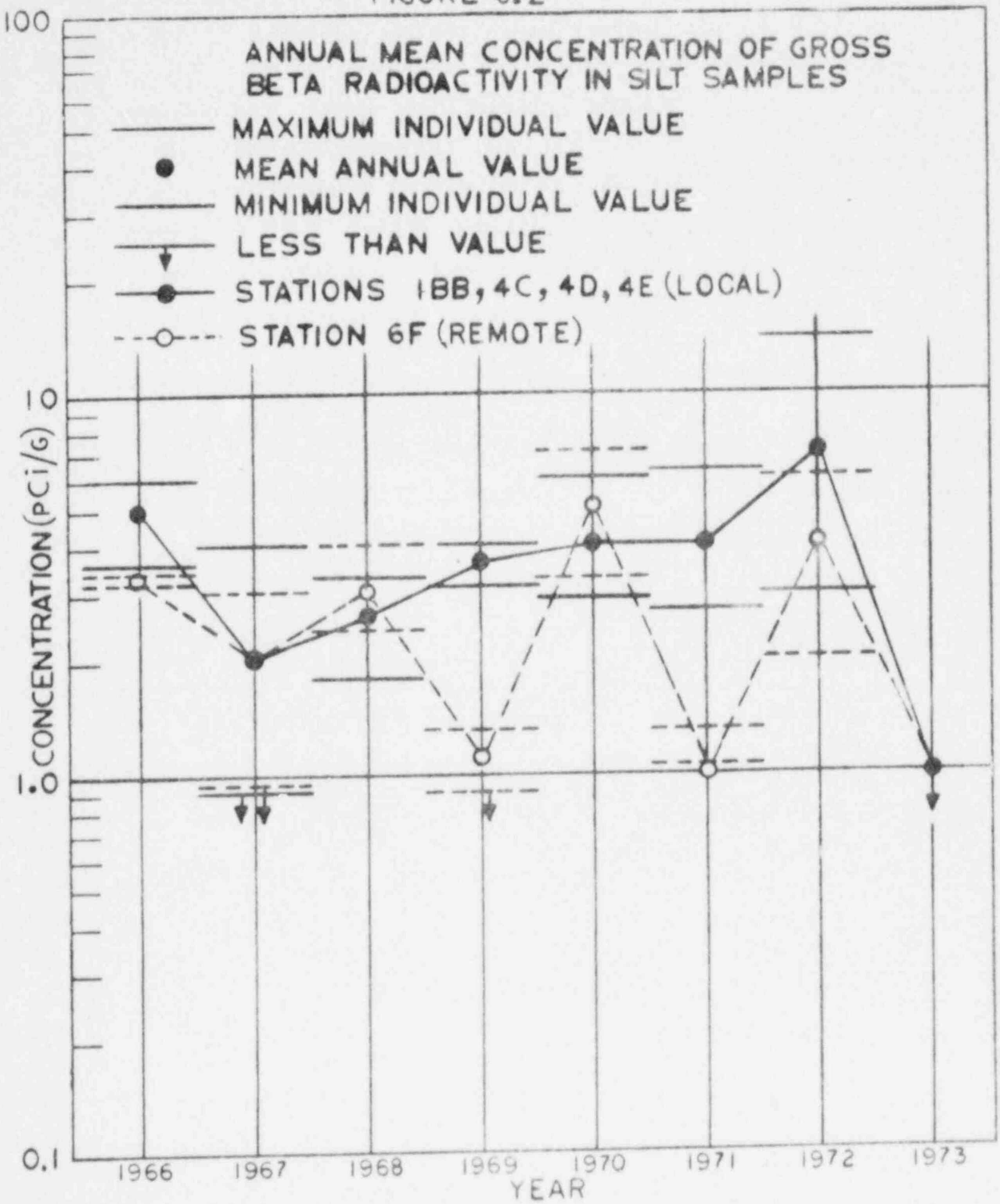

ANNUAL MEAN CONCENTRATION OF GROSS BETA RADIOACTIVITY IN SILT SAMPLES
MAXIMUM INDIVIDUAL VALUE
MEAN ANNUAL VALUE
MINIMUM INDIVIDUAL VALUE
LESS THAN VALUE
STATIONS 1BB, 4C, 4D, 4E (LOCAL)
STATION 6F (REMOTE)
100
10
1.0
0.1
CONCENTRATION (pCi/G)
1966
1967
1968
1969
1970
1971
1972
1973
YEAR

FIGURE 6.3

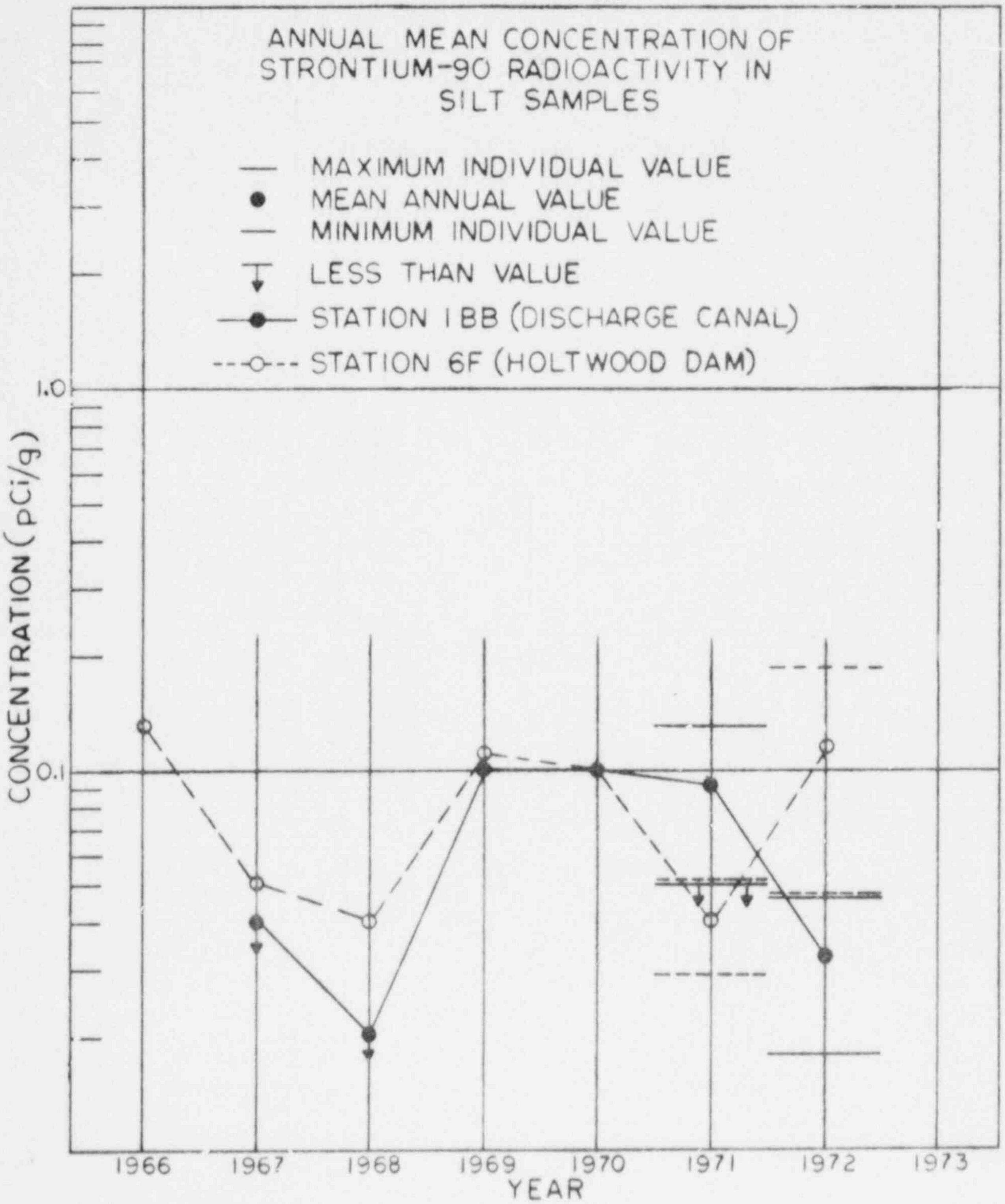
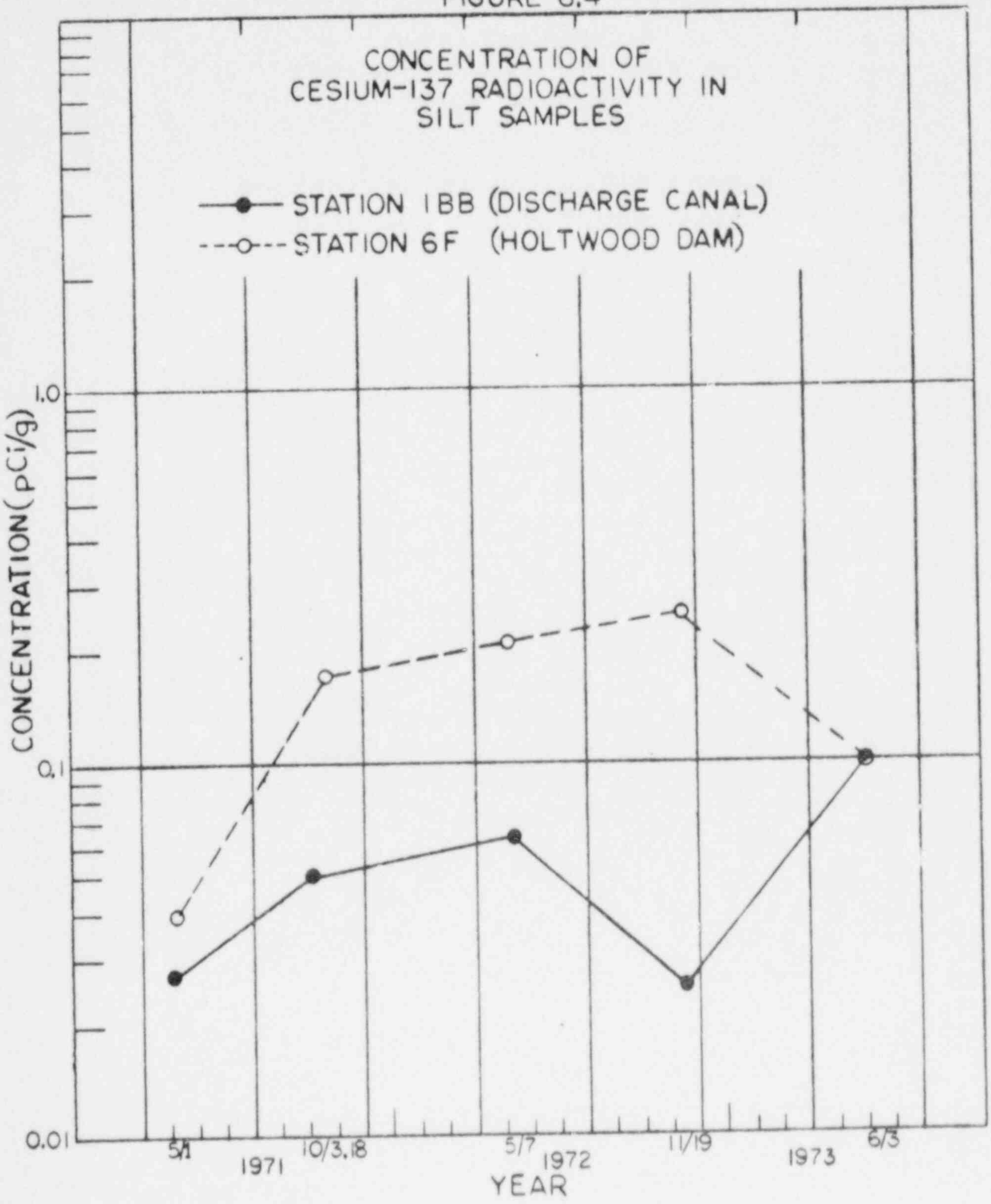

ANNUAL MEAN CONCENTRATION OF STRONTIUM-90 RADIOACTIVITY IN SILT SAMPLES
MAXIMUM INDIVIDUAL VALUE
MEAN ANNUAL VALUE
MINIMUM INDIVIDUAL VALUE
LESS THAN VALUE
STATION 1BB (DISCHARGE CANAL)
STATION 6F (HOLTWOOD DAM)
1.0
0.1
CONCENTRATION (pCi/g)
1966
1967
1968
1969
1970
1971
1972
1973
YEAR

FIGURE 6.4



CONCENTRATION OF CESIUM-137 RADIOACTIVITY IN SILT SAMPLES
STATION 1BB (DISCHARGE CANAL)
STATION 6F (HOLTWOOD DAM)
CONCENTRATION (pCi/g)
1.0
0.1
0.01
5/1
1971
10/3,18
5/7
1972
11/19
1973
6/3
YEAR

FIGURE 7.1

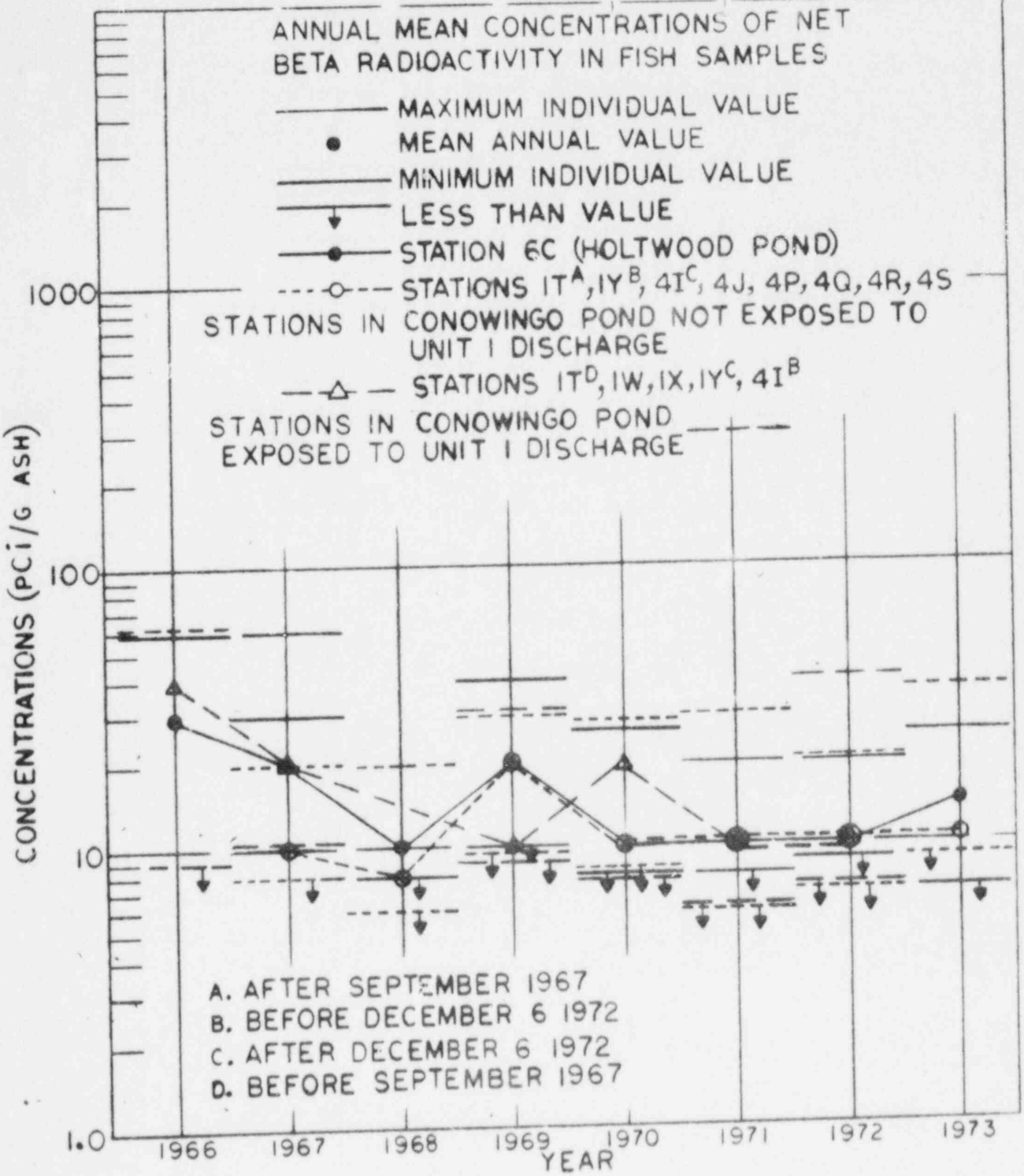

ANNUAL MEAN CONCENTRATIONS OF NET BETA RADIOACTIVITY IN FISH SAMPLES
MAXIMUM INDIVIDUAL VALUE
MEAN ANNUAL VALUE
MINIMUM INDIVIDUAL VALUE
LESS THAN VALUE
STATION 6C (HOLTWOOD POND)
STATIONS 1T^A, 1Y^B, 4I^C, 4J, 4P, 4Q, 4R, 4S
STATIONS IN CONOWINGO POND NOT EXPOSED TO UNIT 1 DISCHARGE
STATIONS 1T^D, 1W, 1X, 1Y^C, 4I^B
STATIONS IN CONOWINGO POND EXPOSED TO UNIT 1 DISCHARGE
CONCENTRATIONS (pCi/G ASH)
1000
100
10
1.0
1966
1967
1968
1969
1970
1971
1972
1973
YEAR
A. AFTER SEPTEMBER 1967
B. BEFORE DECEMBER 6 1972
C. AFTER DECEMBER 6 1972
D. BEFORE SEPTEMBER 1967

FIGURE 7.2

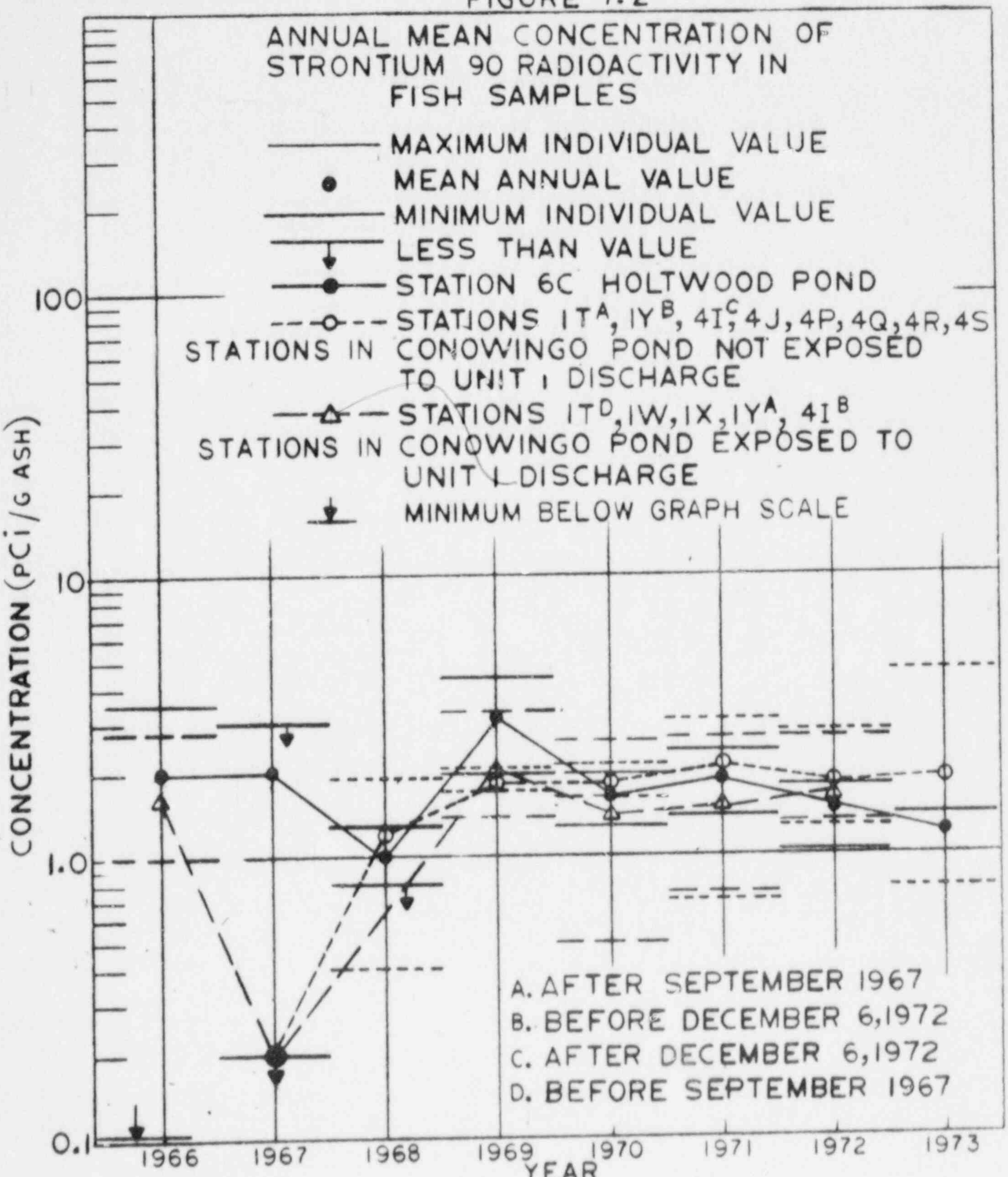

ANNUAL MEAN CONCENTRATION OF STRONTIUM 90 RADIOACTIVITY IN FISH SAMPLES
MAXIMUM INDIVIDUAL VALUE
MEAN ANNUAL VALUE
MINIMUM INDIVIDUAL VALUE
LESS THAN VALUE
STATION 6C HOLTWOOD POND
STATIONS 1T^A, 1Y^B, 4I^C, 4J, 4P, 4Q, 4R, 4S
STATIONS IN CONOWINGO POND NOT EXPOSED TO UNIT 1 DISCHARGE
STATIONS 1T^D, 1W, 1X, 1Y^A, 4I^B
STATIONS IN CONOWINGO POND EXPOSED TO UNIT 1 DISCHARGE
MINIMUM BELOW GRAPH SCALE
A. AFTER SEPTEMBER 1967
B. BEFORE DECEMBER 6,1972
C. AFTER DECEMBER 6,1972
D. BEFORE SEPTEMBER 1967
CONCENTRATION (pCi/G ASH)
100
10
1.0
0.1
1966
1967
1968
1969
1970
1971
1972
1973
YEAR

FIGURE 7.3

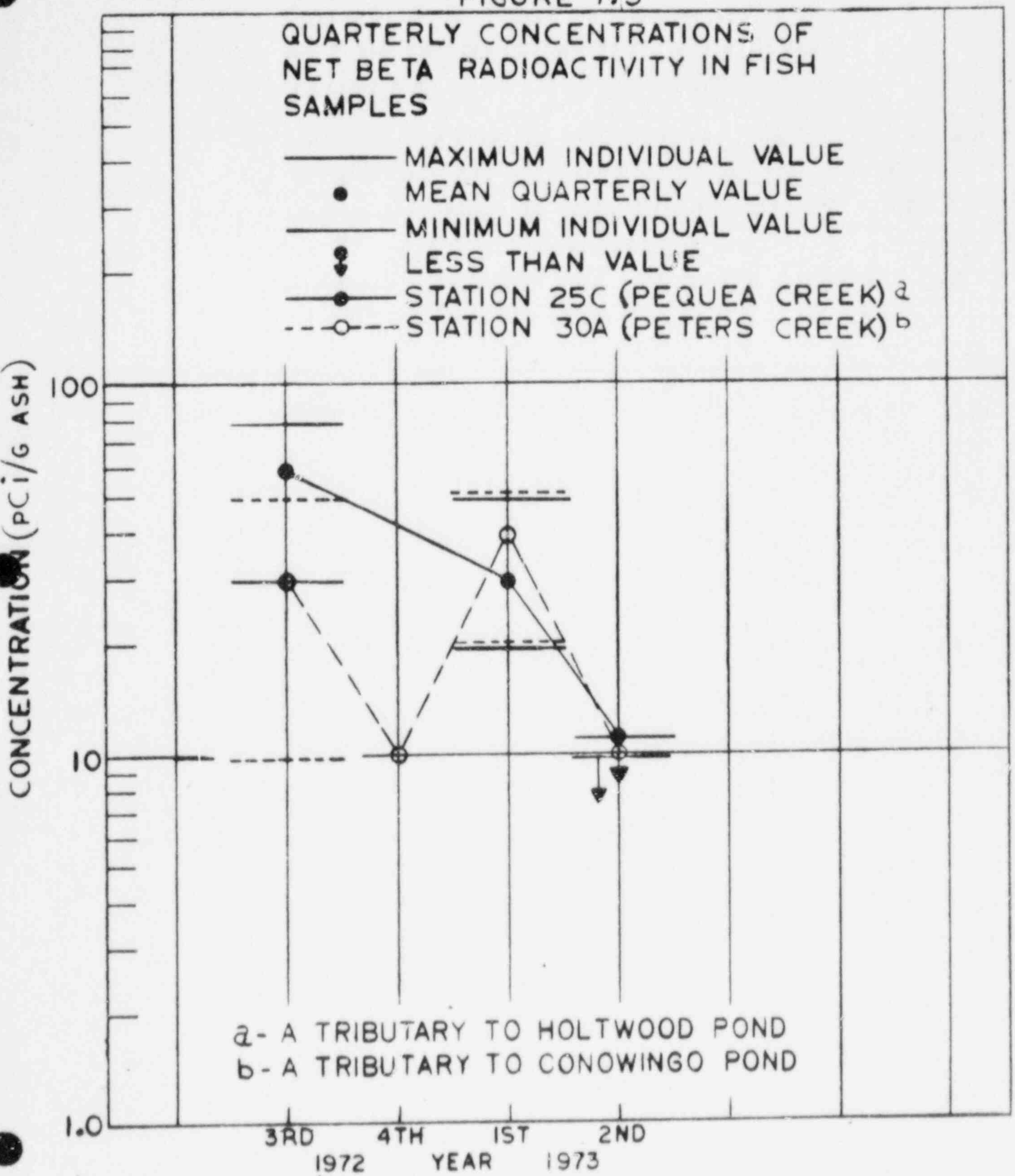

QUARTERLY CONCENTRATIONS OF NET BETA RADIOACTIVITY IN FISH SAMPLES
MAXIMUM INDIVIDUAL VALUE
MEAN QUARTERLY VALUE
MINIMUM INDIVIDUAL VALUE
LESS THAN VALUE
STATION 25C (PEQUEA CREEK) a
STATION 30A (PETERS CREEK) b
CONCENTRATION (pCi/G ASH)
100
10
1.0
a- A TRIBUTARY TO HOLTWOOD POND
b- A TRIBUTARY TO CONOWINGO POND
3RD
4TH
1ST
2ND
1972
YEAR
1973

FIGURE 7.4

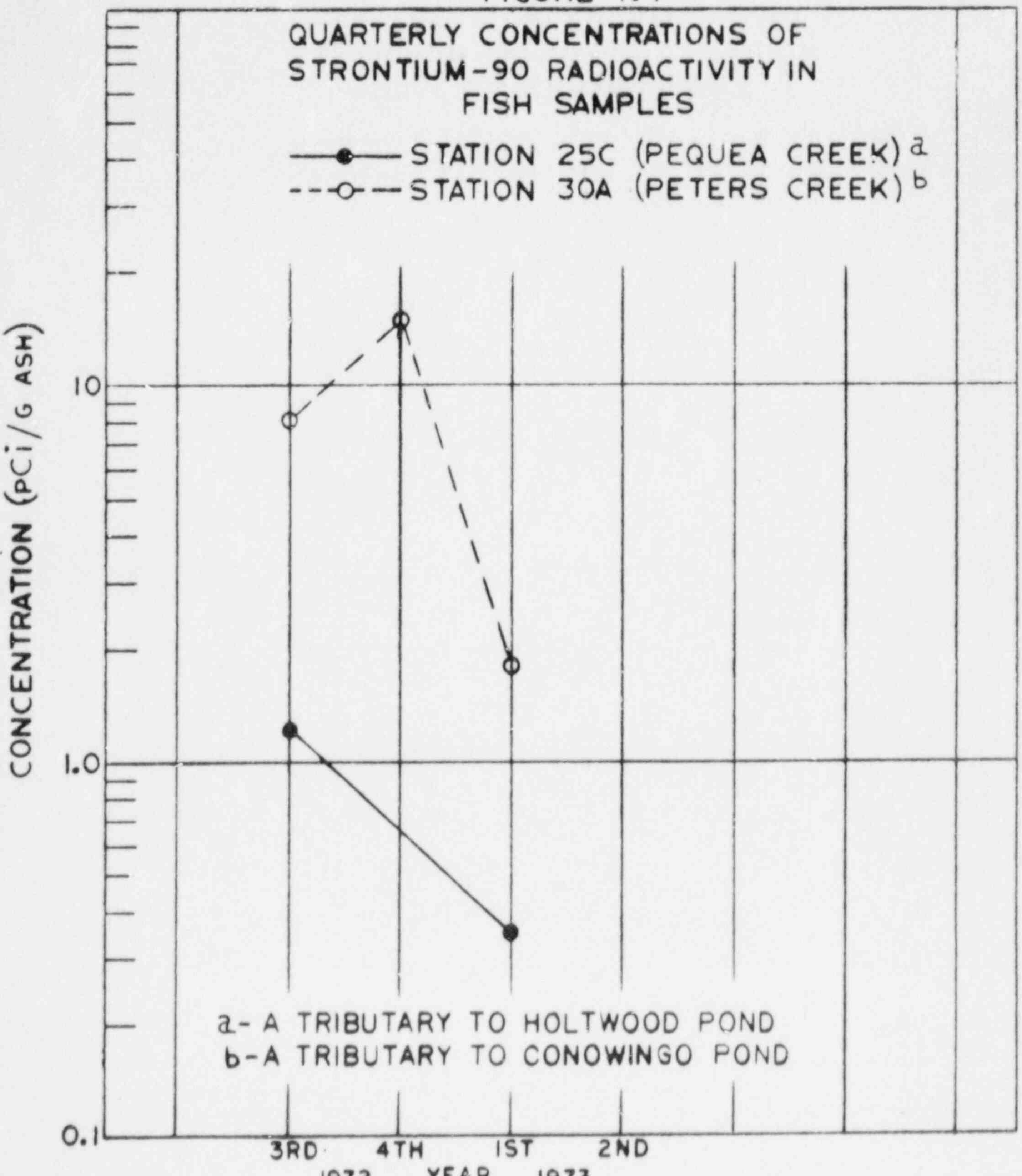

QUARTERLY CONCENTRATIONS OF
STRONTIUM-90 RADIOACTIVITY IN
FISH SAMPLES
STATION 25C (PEQUEA CREEK) a
STATION 30A (PETERS CREEK) b
a- A TRIBUTARY TO HOLTWOOD POND
b- A TRIBUTARY TO CONOWINGO POND
CONCENTRATION (pCi/G ASH)
10
1.0
0.1
3RD
4TH
1ST
2ND
1972
YEAR
1973

FIGURE 8.1

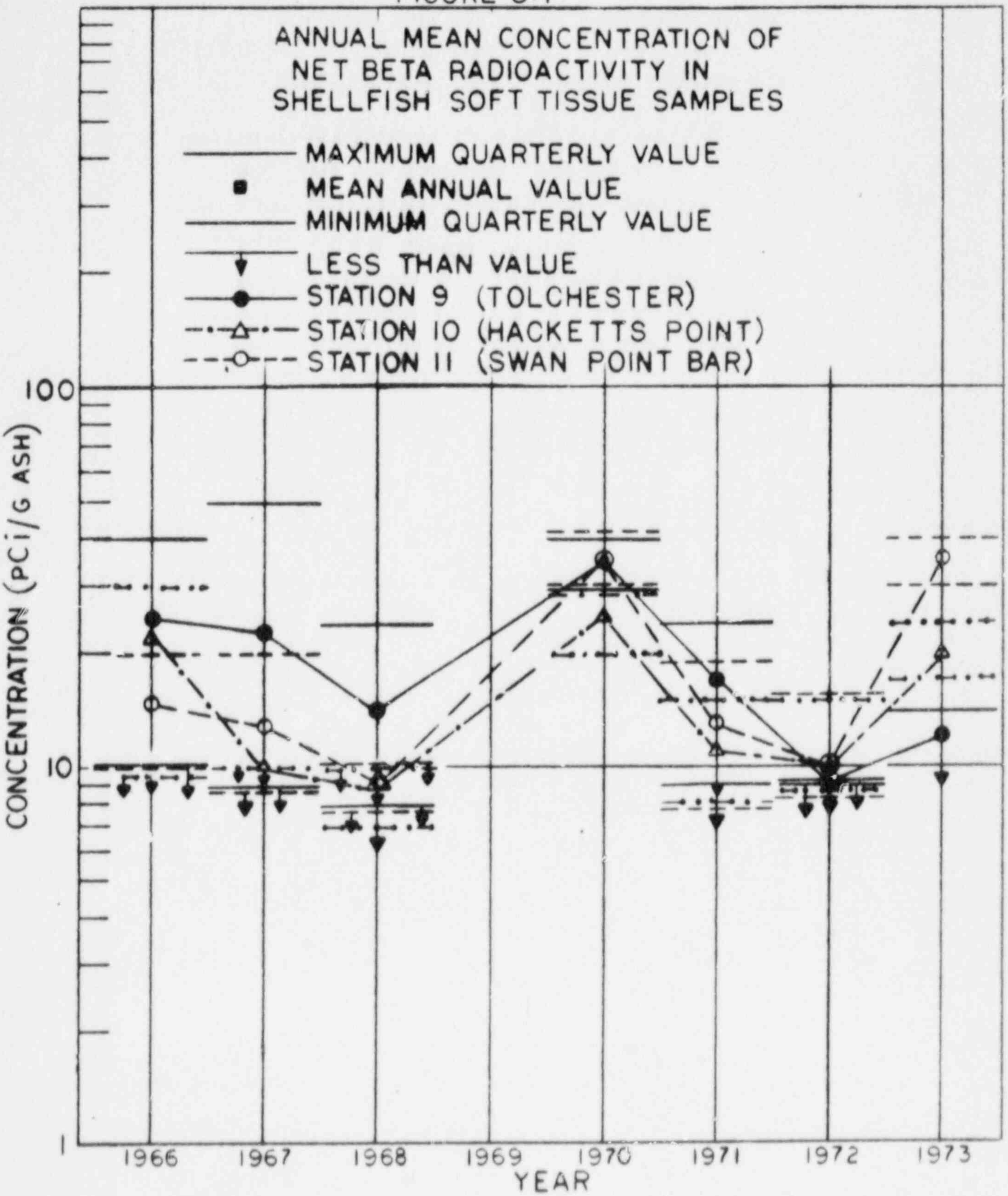

ANNUAL MEAN CONCENTRATION OF
NET BETA RADIOACTIVITY IN
SHELLFISH SOFT TISSUE SAMPLES
MAXIMUM QUARTERLY VALUE
MEAN ANNUAL VALUE
MINIMUM QUARTERLY VALUE
LESS THAN VALUE
STATION 9 (TOLCHESTER)
STATION 10 (HACKETTS POINT)
STATION 11 (SWAN POINT BAR)
CONCENTRATION (PCi/G ASH)
100
10
1
1966
1967
1968
1969
1970
1971
1972
1973
YEAR

FIGURE 8.2

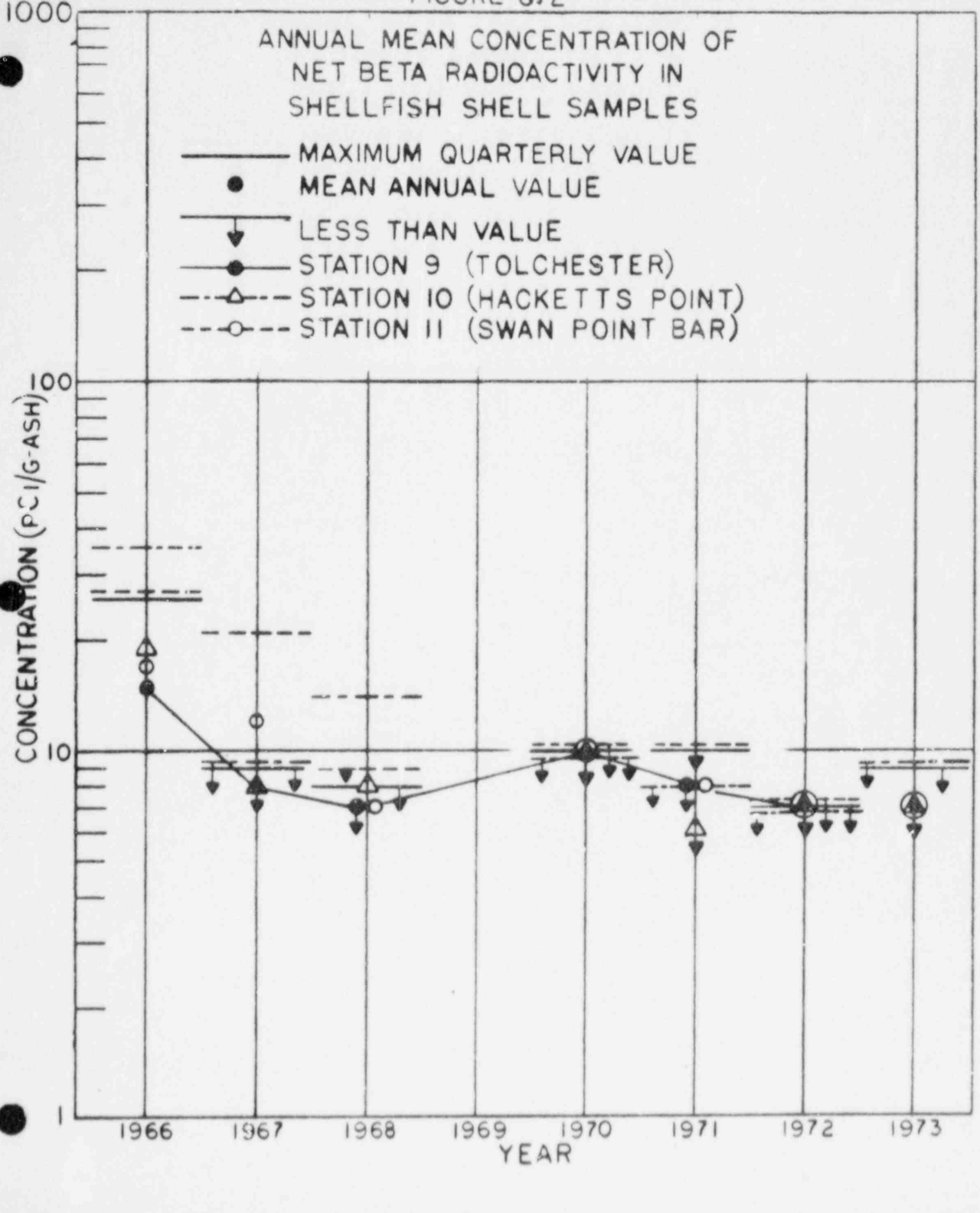

ANNUAL MEAN CONCENTRATION OF NET BETA RADIOACTIVITY IN SHELLFISH SHELL SAMPLES
MAXIMUM QUARTERLY VALUE
MEAN ANNUAL VALUE
LESS THAN VALUE
STATION 9 (TOLCHESTER)
STATION 10 (HACKETTS POINT)
STATION 11 (SWAN POINT BAR)
CONCENTRATION (PCI/G-ASH)
1000
100
10
1
1966
1967
1968
1969
1970
1971
1972
1973
YEAR

FIGURE 9.1

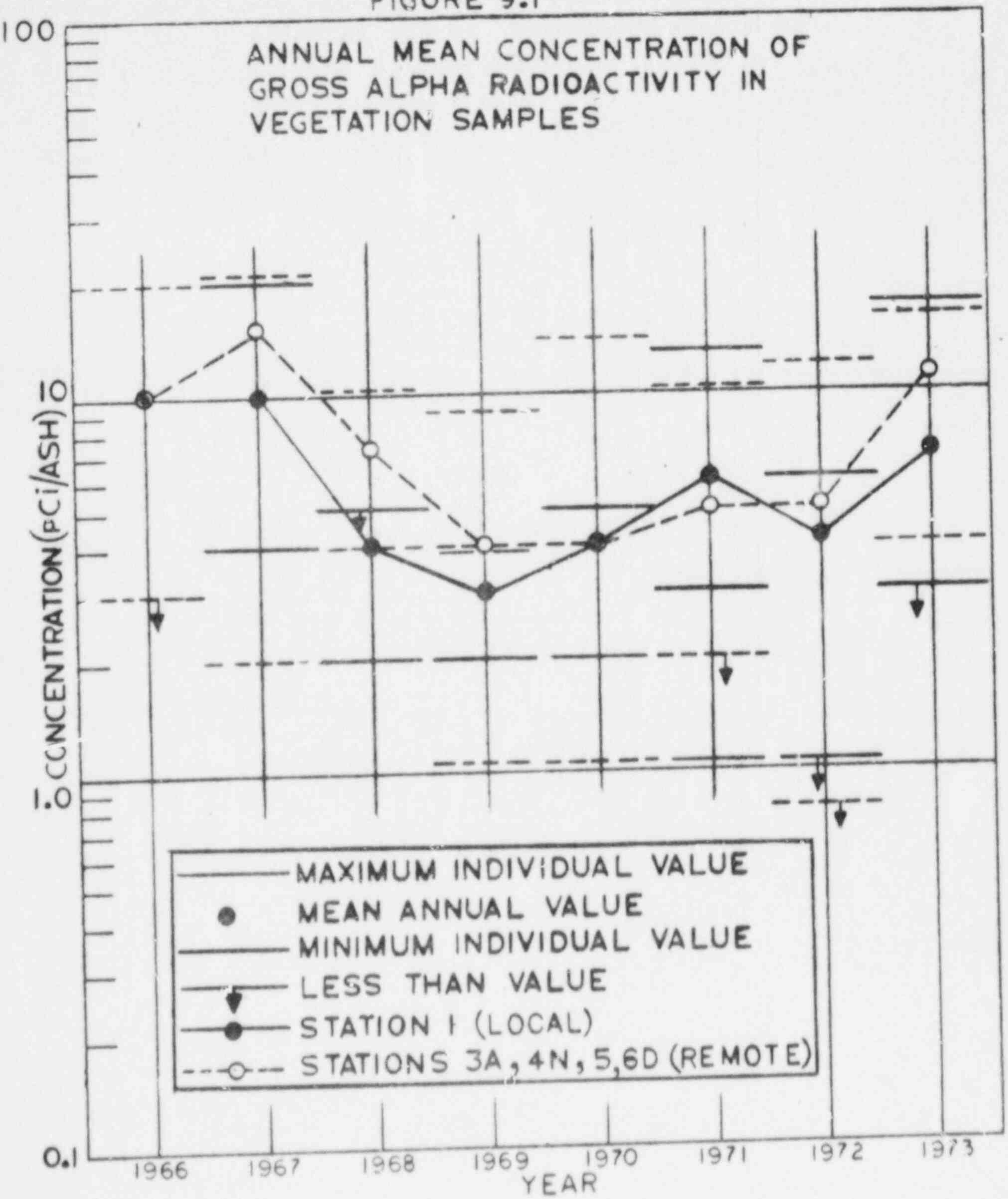

ANNUAL MEAN CONCENTRATION OF GROSS ALPHA RADIOACTIVITY IN VEGETATION SAMPLES
CONCENTRATION (pCi/ASH)
100
10
1.0
0.1
1966
1967
1968
1969
1970
1971
1972
1973
YEAR
MAXIMUM INDIVIDUAL VALUE
MEAN ANNUAL VALUE
MINIMUM INDIVIDUAL VALUE
LESS THAN VALUE
STATION 1 (LOCAL)
STATIONS 3A, 4N, 5, 6D (REMOTE)

FIGURE 9.2

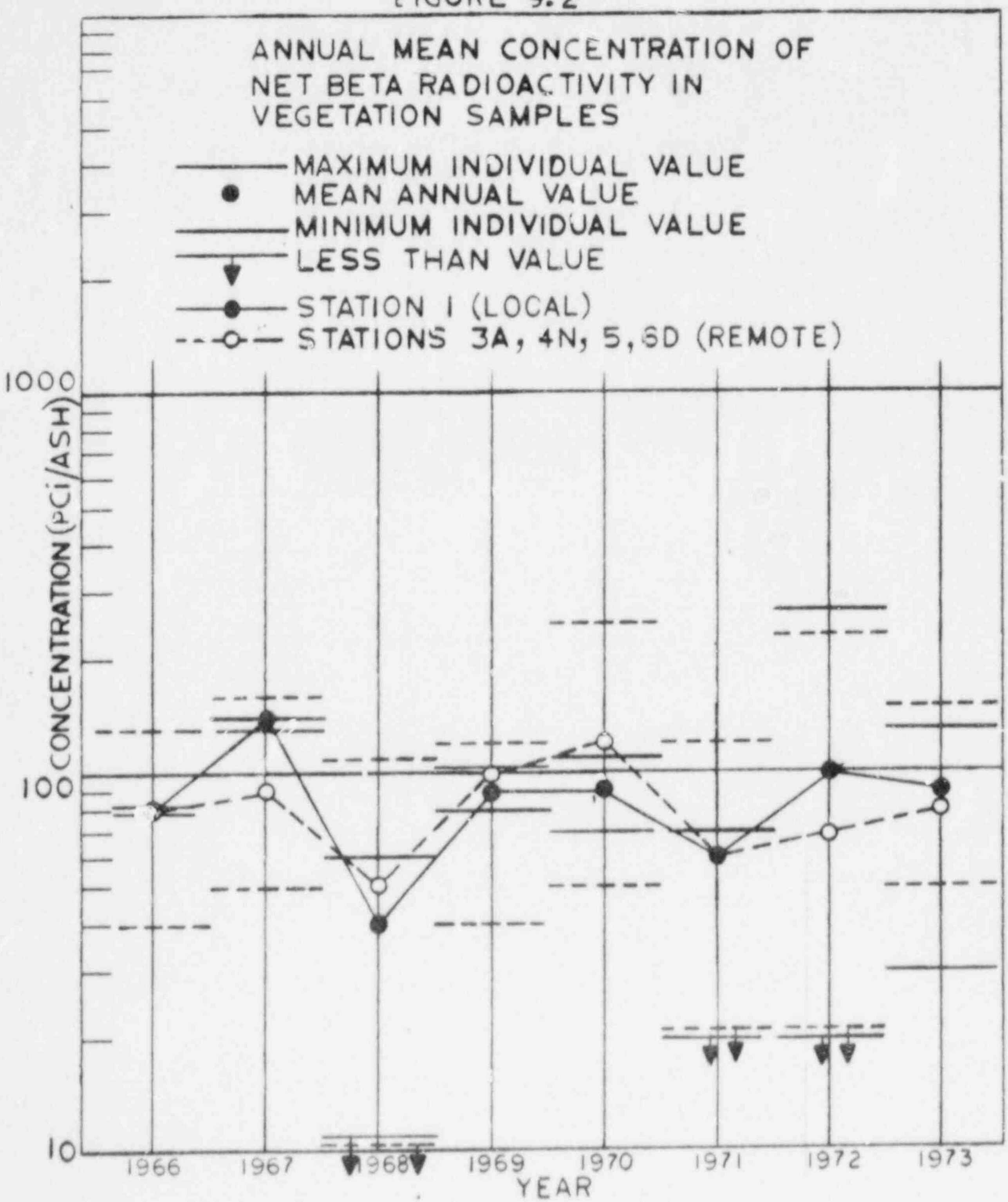

ANNUAL MEAN CONCENTRATION OF
NET BETA RADIOACTIVITY IN
VEGETATION SAMPLES
MAXIMUM INDIVIDUAL VALUE
MEAN ANNUAL VALUE
MINIMUM INDIVIDUAL VALUE
LESS THAN VALUE
STATION 1 (LOCAL)
STATIONS 3A, 4N, 5, 6D (REMOTE)
1000
100
10
CONCENTRATION (pCi/ASH)
1966
1967
1968
1969
1970
1971
1972
1973
YEAR

FIGURE 9.3

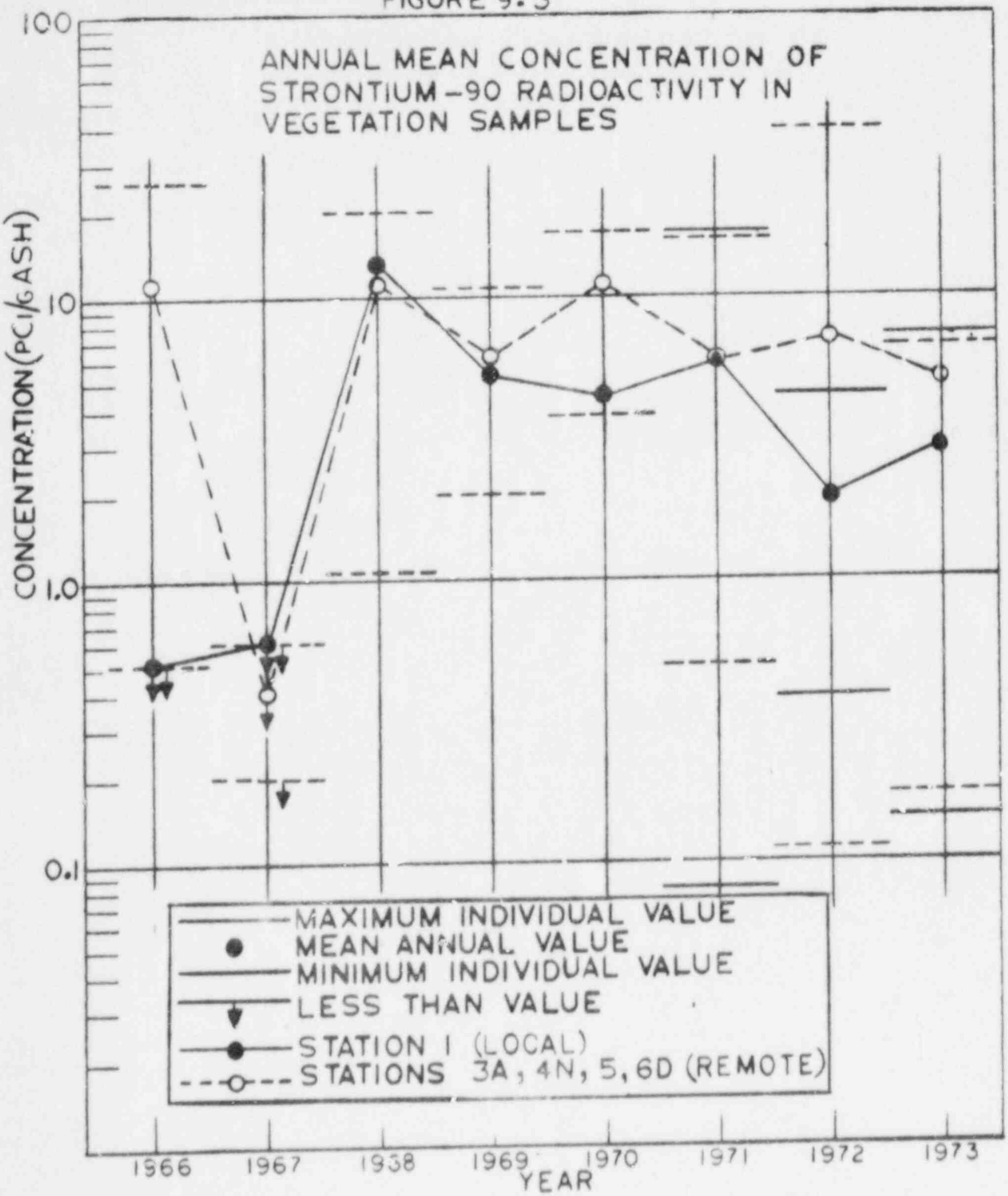

ANNUAL MEAN CONCENTRATION OF STRONTIUM-90 RADIOACTIVITY IN VEGETATION SAMPLES
CONCENTRATION (PCI/G ASH)
100
10
1.0
0.1
1966
1967
1938
1969
1970
1971
1972
1973
YEAR
MAXIMUM INDIVIDUAL VALUE
MEAN ANNUAL VALUE
MINIMUM INDIVIDUAL VALUE
LESS THAN VALUE
STATION 1 (LOCAL)
STATIONS 3A, 4N, 5, 6D (REMOTE)

FIGURE 9.4

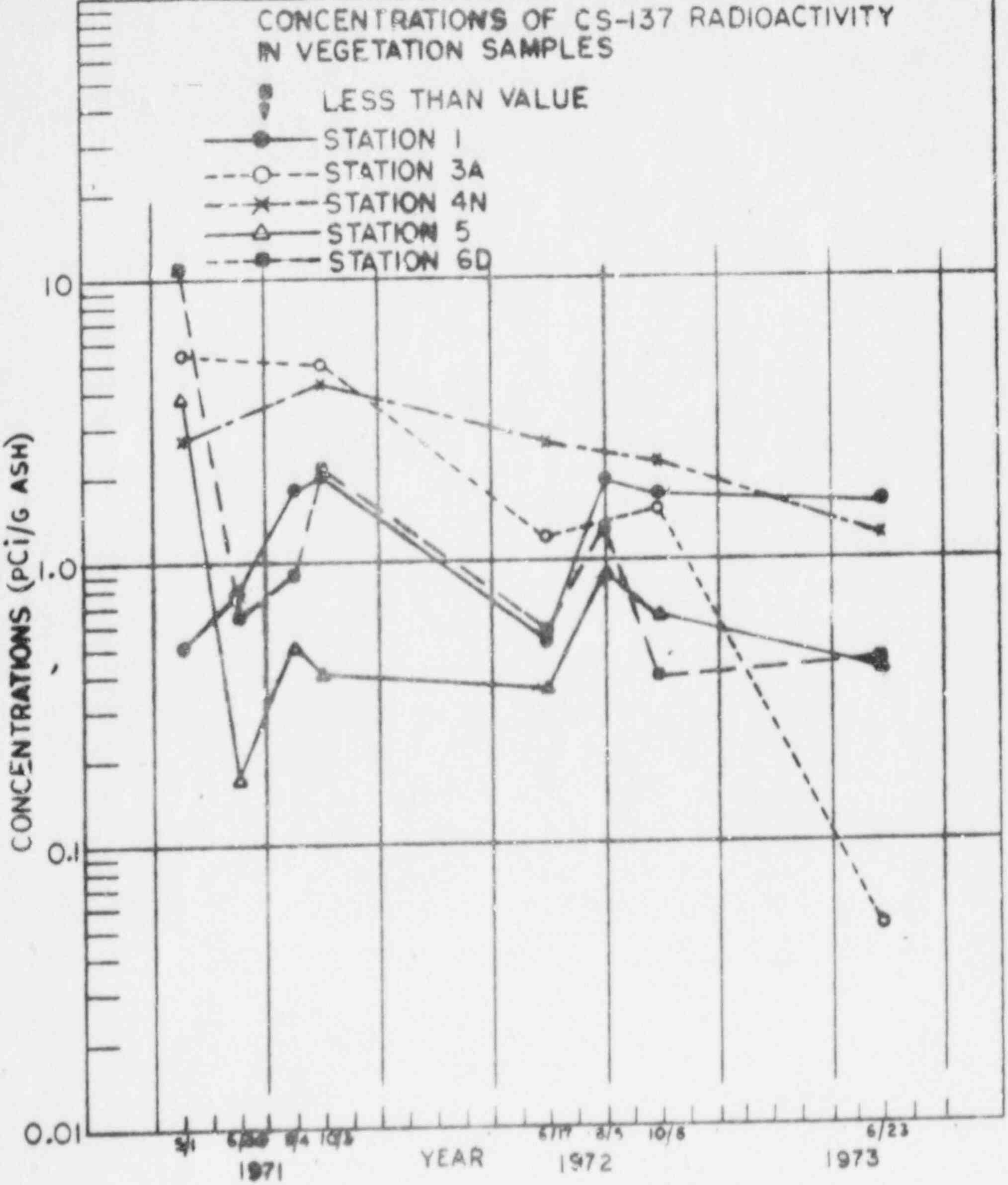

CONCENTRATIONS OF CS-137 RADIOACTIVITY IN VEGETATION SAMPLES
LESS THAN VALUE
STATION 1
STATION 3A
STATION 4N
STATION 5
STATION 6D
CONCENTRATIONS (pCi/G ASH)
10
1.0
0.1
0.01
YEAR
1971
1972
1973
6/23

FIGURE 10.1

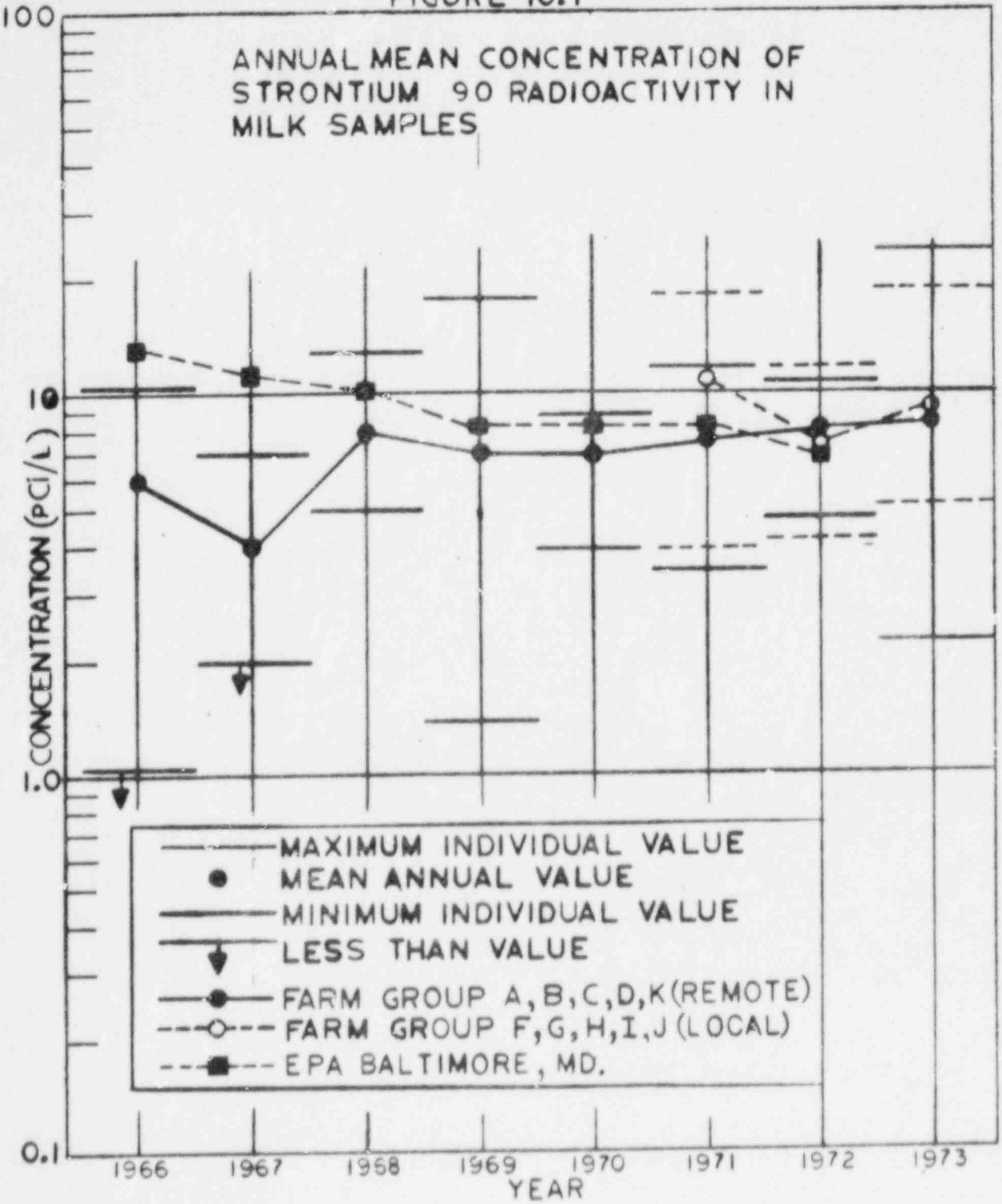

ANNUAL MEAN CONCENTRATION OF STRONTIUM 90 RADIOACTIVITY IN MILK SAMPLES
100
10
1.0
0.1
CONCENTRATION (PCI/L)
1966
1967
1968
1969
1970
1971
1972
1973
YEAR
MAXIMUM INDIVIDUAL VALUE
MEAN ANNUAL VALUE
MINIMUM INDIVIDUAL VALUE
LESS THAN VALUE
FARM GROUP A, B, C, D, K (REMOTE)
FARM GROUP F, G, H, I, J (LOCAL)
EPA BALTIMORE, MD.

FIGURE 10.2

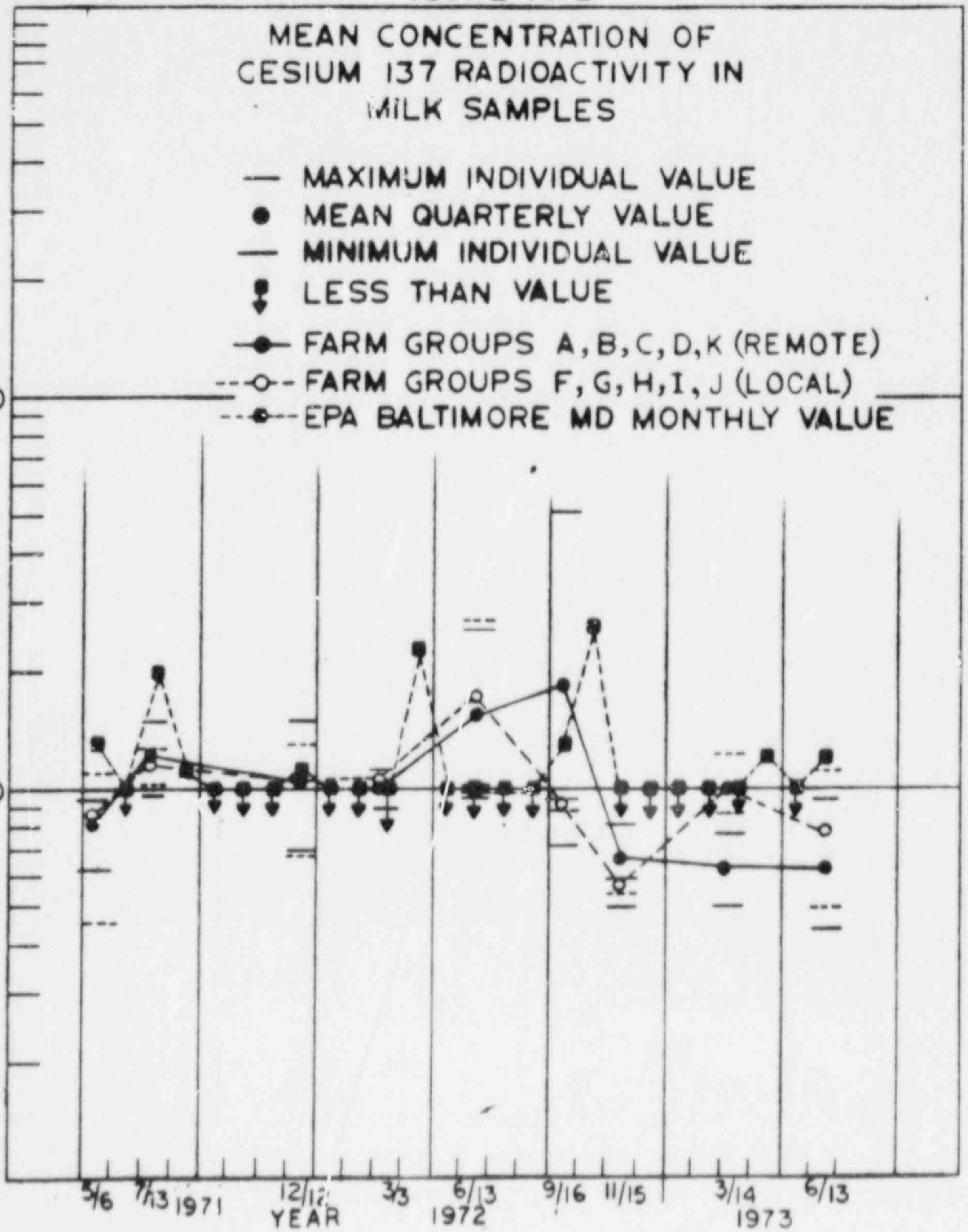

MEAN CONCENTRATION OF CESIUM 137 RADIOACTIVITY IN MILK SAMPLES
— MAXIMUM INDIVIDUAL VALUE
● MEAN QUARTERLY VALUE
— MINIMUM INDIVIDUAL VALUE
LESS THAN VALUE
FARM GROUPS A, B, C, D, K (REMOTE)
FARM GROUPS F, G, H, I, J (LOCAL)
EPA BALTIMORE MD MONTHLY VALUE
100
10
CONCENTRATION (pCi/L)
5/6
7/13
1971
12/12
YEAR
3/3
6/13
1972
9/16
11/15
3/14
1973
6/13

FIGURE 10.3

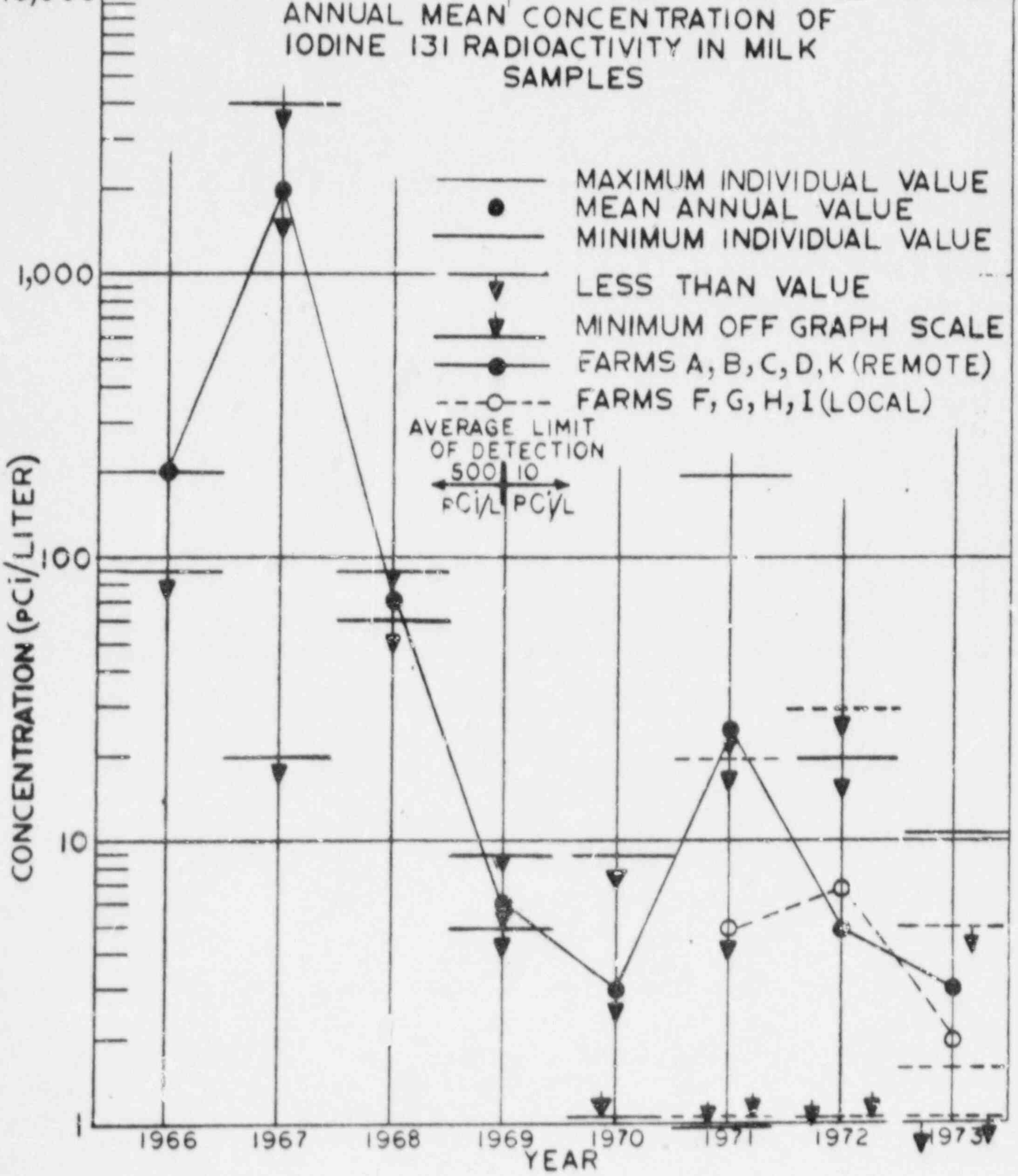

ANNUAL MEAN CONCENTRATION OF IODINE 131 RADIOACTIVITY IN MILK SAMPLES
MAXIMUM INDIVIDUAL VALUE
MEAN ANNUAL VALUE
MINIMUM INDIVIDUAL VALUE
LESS THAN VALUE
MINIMUM OFF GRAPH SCALE
FARMS A, B, C, D, K (REMOTE)
FARMS F, G, H, I (LOCAL)
AVERAGE LIMIT OF DETECTION
500 pCi/L
10 pCi/L
CONCENTRATION (pCi/LITER)
10,000
1,000
100
10
1
1966
1967
1968
1969
1970
1971
1972
1973
YEAR

FIGURE II.1

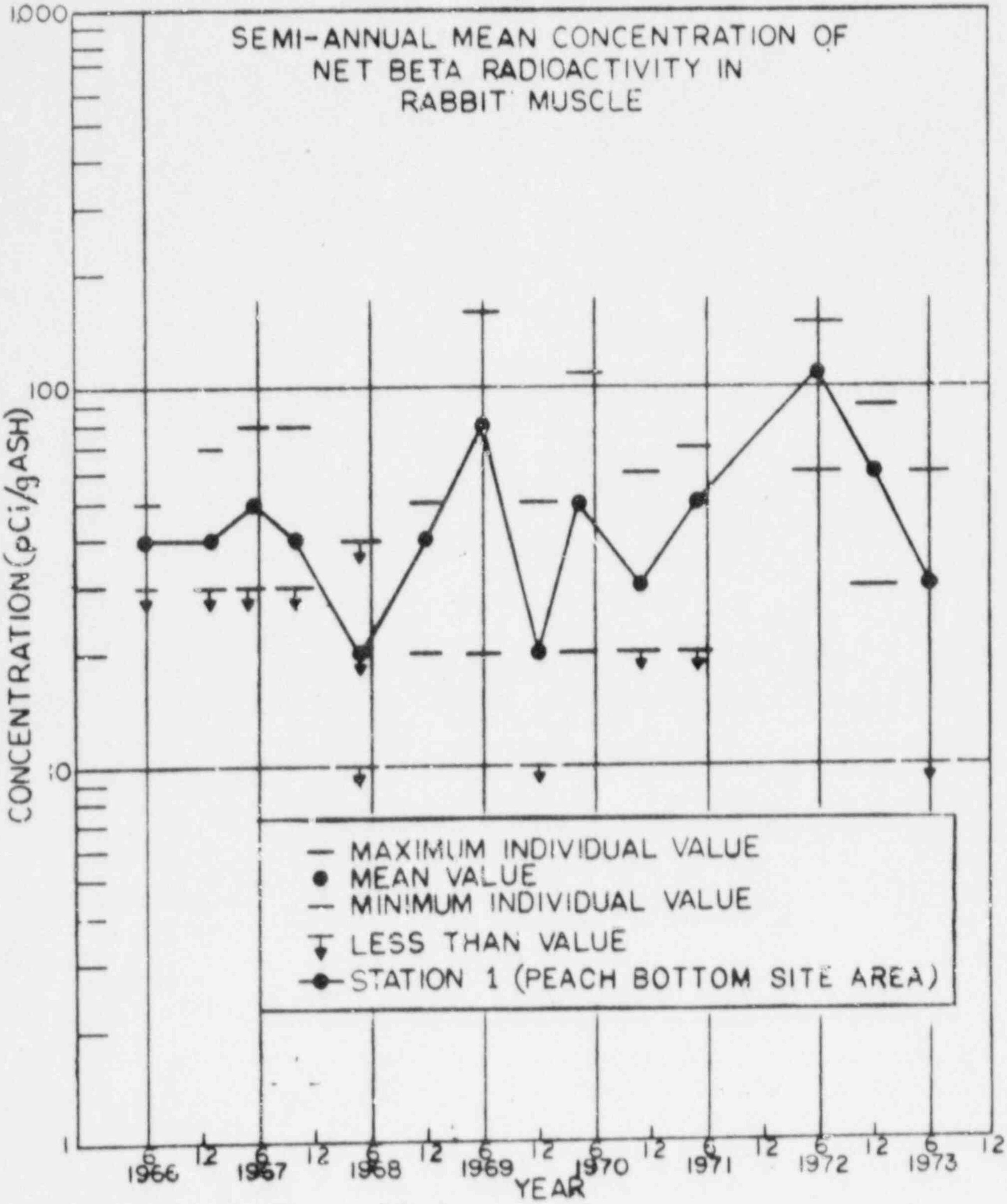

SEMI-ANNUAL MEAN CONCENTRATION OF
NET BETA RADIOACTIVITY IN
RABBIT MUSCLE
1,000
100
10
1
CONCENTRATION (pCi/g ASH)
MAXIMUM INDIVIDUAL VALUE
MEAN VALUE
MINIMUM INDIVIDUAL VALUE
LESS THAN VALUE
STATION 1 (PEACH BOTTOM SITE AREA)
6 12 6 12 6 12 6 12 6 12 6 12 6 12 6 12
1966 1967 1968 1969 1970 1971 1972 1973
YEAR

FIGURE 11.2

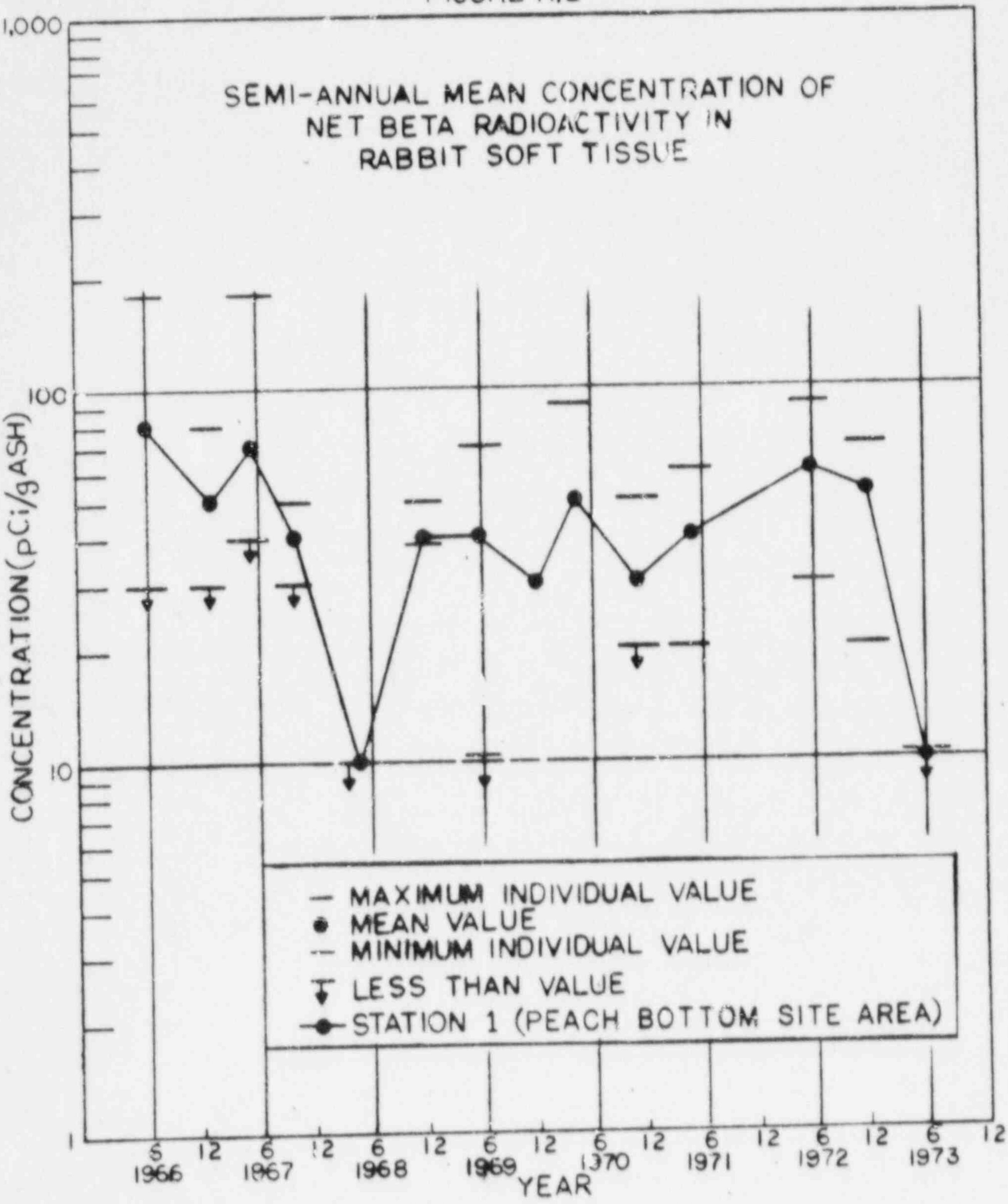

SEMI-ANNUAL MEAN CONCENTRATION OF
NET BETA RADIOACTIVITY IN
RABBIT SOFT TISSUE
1,000
100
10
1
CONCENTRATION (pCi/g ASH)
MAXIMUM INDIVIDUAL VALUE
MEAN VALUE
MINIMUM INDIVIDUAL VALUE
LESS THAN VALUE
STATION 1 (PEACH BOTTOM SITE AREA)
5 12 6 12 6 12 6 12 6 12 6 12 6 12 6 12
1966
1967
1968
1969
1370
1971
1972
1973
YEAR

FIGURE 11.3

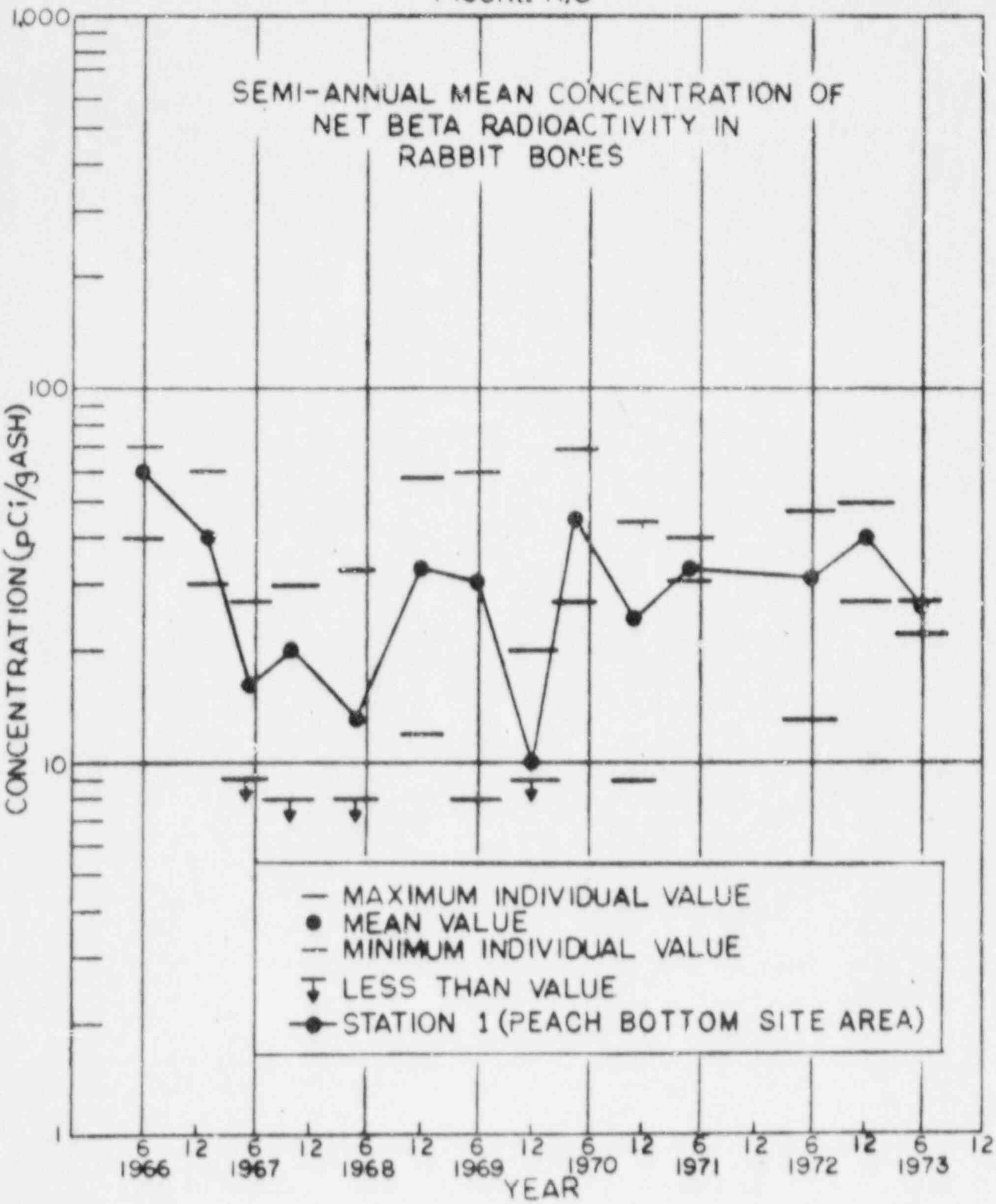
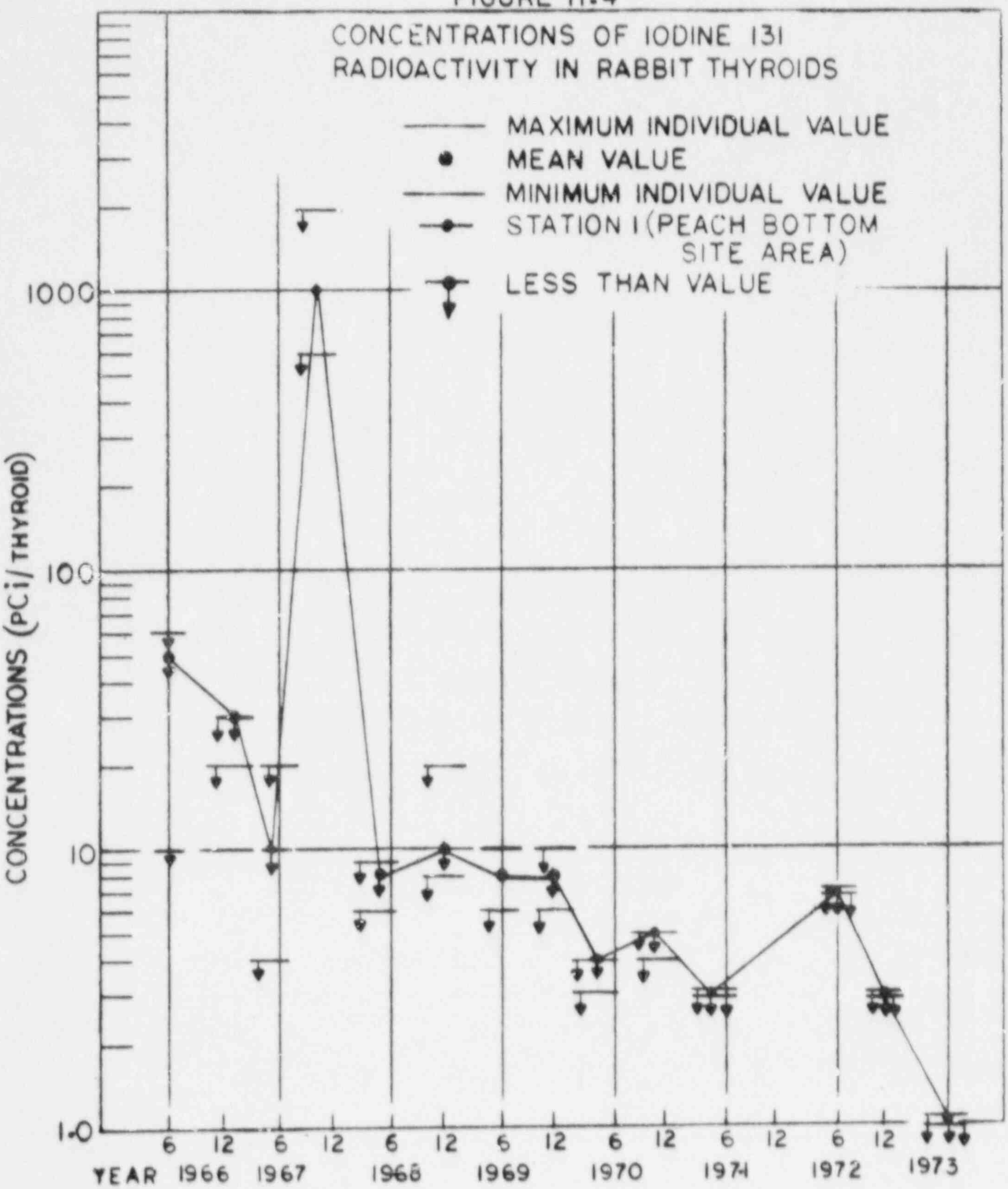
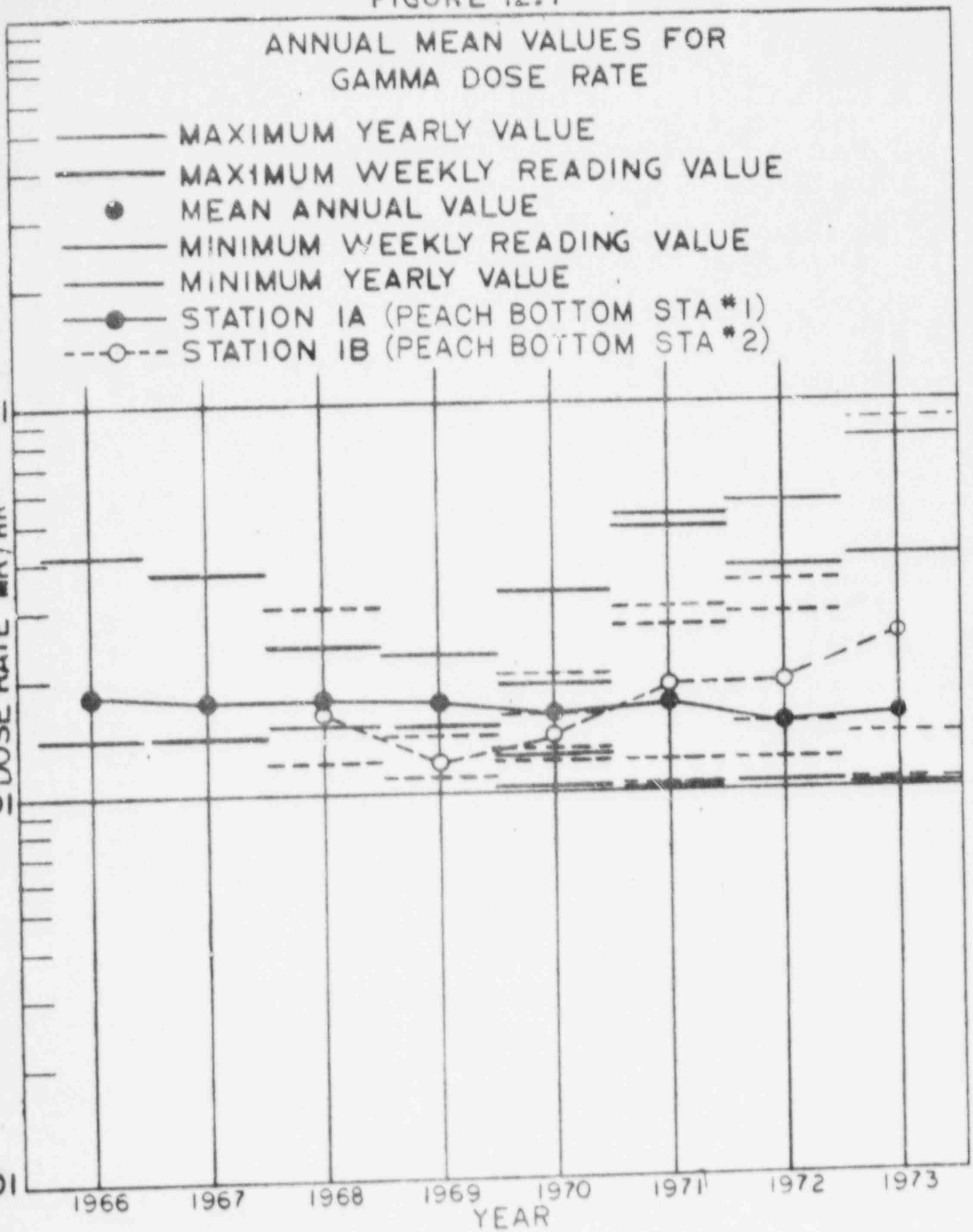

SEMI-ANNUAL MEAN CONCENTRATION OF NET BETA RADIOACTIVITY IN RABBIT BONES
CONCENTRATION (pCi/g ASH)
1,000
100
10
1
6
12
1966
1967
1968
1969
1970
1971
1972
1973
YEAR
MAXIMUM INDIVIDUAL VALUE
MEAN VALUE
MINIMUM INDIVIDUAL VALUE
LESS THAN VALUE
STATION 1 (PEACH BOTTOM SITE AREA)

FIGURE 11.4



CONCENTRATIONS OF IODINE 131
RADIOACTIVITY IN RABBIT THYROIDS
MAXIMUM INDIVIDUAL VALUE
MEAN VALUE
MINIMUM INDIVIDUAL VALUE
STATION 1 (PEACH BOTTOM SITE AREA)
LESS THAN VALUE
CONCENTRATIONS (pCi/THYROID)
1000
100
10
1.0
6 12 6 12 6 12 6 12 6 12 6 12 6 12
YEAR 1966 1967 1968 1969 1970 1971 1972 1973

FIGURE 12.1


ANNUAL MEAN VALUES FOR
GAMMA DOSE RATE
MAXIMUM YEARLY VALUE
MAXIMUM WEEKLY READING VALUE
MEAN ANNUAL VALUE
MINIMUM WEEKLY READING VALUE
MINIMUM YEARLY VALUE
STATION 1A (PEACH BOTTOM STA #1)
STATION 1B (PEACH BOTTOM STA #2)
0.1
.01
.001
DOSE RATE MR/HR
1966
1967
1968
1969
1970
1971
1972
1973
YEAR

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