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PEACH BOTTOM ATOMIC POWER STATION

ENVIRONS RADIATION MONITORING PROGRAM

January 1, 1982 through December 31, 1982

REPORT NO. 40

for

The Philadelphia Electric Company

July 1983

Chemical Waste Management, Inc.
Five Strathmore Road
Natick, MA 01760

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I. INTRODUCTION AND SUMMARY

A. 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 Peach Bottom Atomic Power Station located in Peach Bottom Township, York County, Pennsylvania. The initial loading of fuel into 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. Shutdown of Peach Bottom Unit 1 for decommissioning was on October 31, 1974. 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).

Peach Bottom Units 2 and 3 are boiling water reactors each with a power output of approximately 1050 MWe (net). First fuel was loaded into Peach Bottom Unit 2 on August 9, 1973, criticality was achieved on September 16, 1973, and full power was reached on June 16, 1974. The first fuel was loaded into Peach Bottom Unit 3 on July 5, 1974, criticality was achieved on August 7, 1974, and full power was first reached on December 21, 1974. A pre-operational summary report (2) for Units 2 and 3 has been issued previously and summarizes the results of all analyses performed on samples collected from February 5, 1966 through August 8, 1973. Detailed program description, station designation, reporting units, abbreviations, etc., are given in that report reflecting the program status at that time. Where changes had been made from the original program, they are indicated in the appropriate sections of that year's report. In general, any such changes have been made to increase the scope and specificity of the program to fulfill the program objective and to reflect the latest recommendations of various government agencies. These changes are detailed in previous reports.

This report summarizes the results of analyses performed by Chemical Waste Management on samples representing the period January 1 through December 31, 1982 in the Chemical Waste Management portion of the overall Peach Bottom program.

The laboratory responsibility for performance of the environmental radiation monitoring program has been modified several times since the Peach Bottom 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 a result of a change of ownership. During the first quarter of 1969, the program was transferred to

ICN/Tracerlab, also part of the 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. The Interex Corporation laboratory was moved to Natick, Mass. in May 1974. Interex Corporation carried out sample collection, analysis and report preparation until November 1981 when the laboratory and certain other operatins were purchased by Chemical Waste Management, Inc., which is now performing these functions. During the various change-overs and moves, extreme care was taken to insure that continuity in all aspects of the overall program was 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 those sampling stations which would be expected from various consideratons 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 wih their respective radioactive decay products, and potassium-40 (K-40). The concentrations of natural radioactivity vary with geographical location and with time and are ;rimarily dependent on the concentration 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 detonation. 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 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 depostion rates in the spring and summer months and mimimum 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 man-made radioactivity in environmental media, it is 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 man-made radionuclides into the atmosphere.

B. SUMMARY

The environs radiation monitoring program detected plant related radioactivity at very low levels in two sample types in Conowingo Pond. Cs-137, Cs-134 and Zn-65 were found in fish samples obtained from 4 locations. In addition, Co-58 and Co-60 were found in samples from two locations in the plant water discharge system. Silt samples at three locations showed Cs-137, Cs-134, Co-60 and Zn-65. The resulting doses to the maximum exposed individual were well below 10 CFR 50 Appendix I design objectives.

Samples such as soil, fish, etc, showed gross and/or net activities which are consistent with the known presence of naturally-occurring nuclides or which are most probably attributable to fallout from nuclear testing and therefore did not result from PBAPS operation.

There was no other measurable environmental radioactivity which is attributed to the operation of PBAPS.

II. PROGRAM DESCRIPTION

The program as it existed at the end of the report period is described below. Since its inception, several changes have been made 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.

B. Sampling and Analysis Program

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

A summary of the analyses performed on samples representing January 1, 1982 through December 31, 1982 is given in Table II. 3.

TABLE II.1

ENVIRONMENTAL MONITORING STATIONS
January through December 1982

Station No.	Station Name	Station Location, Direction and Distance from Peach Bottom Site	Environmental Media Collected
1	Peach Bottom Site Area	Located in Site Area	Vegetation, Small Game
1A	Peach Bottom - Weather Station 1	On Site at Weather Station, 0.3 miles SE of Units 2 &3	Air Particulate, Precipitation
1B	Peach Bottom - Weather Station 2	On Site at Weather Station 2, 0.5 miles N of Units 2 & 3	Air Particulate, Precipitation
1M	Peach Bottom - Canal Discharge	On Site at Canal Discharge 1.0 miles SE of Units 2 & 3	Discharge Water
1Q	Peach Bottom Unit 2 Intake	On Site at Unit 2 Intake, 1200' ENE of Units 2 & 3	Surface Water
1U	Peach Bottom Site - Utility Building	Well at Plant Site, 1400' S of Units 2 & 3	Well Water
1V	Peach Bottom Site - Information Center	Well at Plant Site, 1400' SSE of Units 2 & 3	Well Water
1X	Peach Bottom Site - Cooling Tower Pond B1	About 1750' ESE of Units 2 & 3	Silt and Fish (Channel Catfish and White Crappie)
1AA	Peach Bottom - Discharge Canal Bank	Located about 2400' SE of Units 2 & 3 on the Discharge Canal Bank	Soil
1BB	Peach Bottom -	On Site in the Station Discharge Canal, 3300' SE of Units 2 & 3	Silt
1EE	Peach Bottom - Discharge Canal	In the Discharge Canal anywhere between the Peach Bottom Units 2 & 3 Liquid Radwaste Discharge and Canal Exit.	Fish (Channel Catfish and White Crappie)
1LL	Peach Bottom Units 2 & 3 Intake - Composite	Continuous Sampler on Site at Units 2 & 3 Intake, 1200' ENE of Units 2 & 3	Surface Water
1MM	Peach Bottom - Canal Discharge - Composite	Continuous Sampler on Site at Canal Discharge 1.0 miles SE of Units 2 & 3	Discharge Water

Station No.	Station Name	Station Location, Direction and Distance from Peach Bottom Site	Environmental Media Collected
2	Peach Bottom Site - 130° Sector Hill	On Site, 0.9 miles SE of Units 2 & 3	Air Particulate Soil
3A	Delta, Pa. - Substation	3.6 miles SW of Units 2 & 3 0.5 miles N of Maryland border	Air Particulate Vegetation, Soil
4A	Conowingo Dam - Powerhouse Roof	8.6 miles SE of Units 2 & 3 on Powerhouse roof in Cecil County, Md.	Air Particulate
4B	Conowingo Dam - Powerhouse Roof	8.6 miles SE of Units 2 & 3 on Powerhouse roof in Cecil County, Md.	Air Particulate
4D	Conowingo Pond, Pa.	500' downstream from the Peach Bottom Station Discharge	Silt
4F	Conowingo Dam - El. 33' MSL Grab	In the Conowingo Hydro-Electric Station about 8.6 miles SE of Units 2 & 3. Water is sampled from a header which continuously draws pond water from about elevation 33' MSL.	Surface Water
4I	Conowingo Pond - Net Trap 8	Located in Conowingo Pond about 1400' N of Units 2 & 3	Fish (Channel Catfish and White Crappie)
4J	Conowingo Pond - Net Trap 15	Located in Conowingo Pond about 1.4 miles SE of Units 2 & 3	Fish (Channel Catfish and White Crappie), Silt
4L	Conowingo Dam - El. 33 (Ft.) Composite	Continuous sampler in the Conowingo Hydro-Electric Station, about 8.6 miles SE of Units 2 & 3. 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 about 8.6 miles SE of Units 2 & 3	Precipitation

Station No.	Station Name	Station Location, Direction and Distance from Peach Bottom Site	Environmental Media Collected
4N	Conowingo Dam - Environmental Station	Environmental Monitoring Station on west shore upstream of Conowingo Hydro-Electric Station about 8.6 miles SE of Units 2 & 3	Vegetation, Soil
4T	Conowingo Pond - Near Conowingo Dam	Near middle of Conowingo Pond, about 8.1 miles SE of Units 2 & 3	Silt
5	Wakefield, Pa.	4.6 miles E of Units 2 & 3	Air Particulate, Soil and Vegetation
6A	Holtwood Dam - Hydro-Electric Station	5.8 miles NW of Units 2 & 3	Surface Water (through Hydro Plant)
6B	Holtwood Dam - Hydro-Electric Station	5.8 miles NW of Units 2 & 3	Air Particulate (Hydro Powerhouse Roof)
6D	Holtwood, Pa.	5.8 miles NW of Units 2 & 3 near Holtwood Dam in Lancaster County	Vegetation
6F	Holtwood Dam - East Shore Upstream	5.9 miles NW of Units 2 & 3 in Lancaster County	Silt (above dam)
6G	Holtwood, Pa.	5.8 miles NW of Units 2 & 3 near Holtwood Dam in Lancaster County	Soil
6H	Holtwood Pond	Located in Holtwood Pond about 6.2 miles NW of Units 2 & 3	Fish
6I	Holtwood Dam - Hydro-Electric Station - composite	Continuous sampler at Holtwood Hydro-Electric Station intake about 5.8 miles NW of Units 2 & 3 Water is continually sampled and collected in a 175 gallon tank.	Surface Water
6J	Holtwood Pond	Located in Holtwood Pond near the east bank about 10.7 miles NNW of Units 2 & 3	Fish
7	Darlington, Maryland Area	9.6 miles SSE of Units 2 & 3 in Hartford County	Well Water
8	Colora, Maryland	9.9 miles ESE of Units 2 & 3 in Cecil County	Vegetation
12A	Philadelphia, Pa. 900 Sansom St.	63 miles ENE of Units 2 & 3 on the roof of 900 Sansom Street	Air Particulate

Station No.	Station Name	Station Location, Direction and Distance from Peach Bottom Site	Environmental Media Collected
12D	Philadelphia, Pa.	62 miles ENE of Units 2 & 3 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, 2.4 miles ESE of Units 2 & 3	Surface Water
13B	Chester Water Intake Pump Discharge	At Chester Water Authority Intake 2.4 miles ESE of Units 2 & 3	Surface Water
14	Peters Creek	1.9 miles ESE of Units 2 & 3	Air Particulate
15	Silver Spring Road	3.6 miles N of Units 2 & 3	Air Particulate
17	Riverview Road	4.0 miles ESE of Units 2 & 3	Air Particulate
23	Peach Bottom 150° Sector Hill	Off-site, hill 1.0 miles SSE of Units 2 & 3	Vegetation
31	Pilottown Road	4.9 miles SE of Units 2 & 3 near Pilottown Road	Air Particulate
32	Slate Hill Road	2.7 miles ENE of Units 2 & 3 near Slate Hill Road	Air Particulate
33A	Fulton Weather Station	Fulton Main Weather Station 1.7 miles ENE of Units 2 & 3	Air Particulate
38	Peach Bottom Road	3.0 miles E of Units 2 & 3 near Peach Bottom Road	Air Particulate
40	Peach Bottom Site Area	Well in Site Area about 1.5 miles SW of Units 2 & 3	Well Water
	Peach Bottom Regional Farms	Nearby Regional Farms surrounding the Peach Bottom site on the west side of Conowingo Pond are Designated G, J, and O. Intermediate distance farms on distance farms on the east side of the pond are designated D, L, M, and N. Distant regional on the west side of Conowingo Pond are designated A, B, and C, and a distant farm on the east side is designated Farm E. (1)	Milk

1. 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 Peach Bottom site.

TABLE II.2

ENVIRONMENTAL RADIATION MONITORING PROGRAM

PERIOD JANUARY THROUGH DECEMBER 1982

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. Airborne Particulate	Gross Beta	About 1 cfm continuous flow through filter paper (approx 2" diam) (4)	Filter Paper collected Weekly	Seventeen	1A, 1B, 2, 3A, 4A, 4B, 5, 6B, 12A, 12D, 14, 15 17, 31, 32 33A, 38	52 X 17
	Gamma Spectrum (Monthly)		Monthly Composite of weekly Samples	Seventeen	1A, 1B, 2, 3A, 4A, 4B, 5, 6B, 12A, 12D, 14, 15 17, 31, 32, 33A, 38	12 X 17
2. Water						
a. Precipitation	Gross Beta Sr-89, Sr-90 (Quarterly) Radioactive Cs (Quarterly)	Collected Continuously to form monthly composite sample.	Monthly	Three	1A, 1B, 4M	12 X 3
b. Surface Water	Gross Alpha(5) Gross Beta(5)	Spot; one gal.	Monthly	Four	1Q, 4F, 6A, 13A	12 X 4
			(6)	One	13B	(6)
		Continuous Composite; one gal	Monthly	Three	4L, 6I, 1LL	12 X 3
c. Discharge Water	Gross Alpha(5) Gross Beta (5)	Spot; one gal.	Monthly	One	1M	12 X 1
		Continuous Composite one gal	Monthly	One	1MM	12 X 1
d. Well Water	Gross Alpha Gross Beta Uranium Sr-89, Sr-90 (Semi-annually) Radioactive Cs (Semi-annually)	Spot; one gal.	Quarterly	Four	1U, 1V, 7, 40	4 X 4
3. Milk	Gross Beta Potassium-40 Sr-89, Sr-90 Cs-137, Cs-134 I-131	Spot; two gal.	Quarterly	Eleven	Farms A, B, C, D, E, G, O, J, L, M, N	4 X 11
					Farms A,C,G,J	4 X 4

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
4. Vegetation	Gross Beta Potassium-40 Sr-89, Sr-90 Radioactive Cs	Stems, leaves and fruit; Foods whenever available; one container full	Spring, Summer, and Fall	Seven	1,3A,4N,5, 6D,8,23	3 X 2 (7) 6 X 5
5. Fish	Gross Beta Potassium-40 Sr-89,Sr-90 (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)	Five	1X,4T,4J, 1EE,6H or 6J	32 X 5
6. Small Game	Gross Beta and Potassium-40 of muscle, soft tissue and bone separately I-131 of thyroid Sr-89, Sr-90 of bone	Rabbits, 5 at each collection (if available)	Semi-annually	One	1	10 X 1
7. Earth	Gross Beta Potassium-40 Sr-89, Sr-90 Radioactive Cs	Sunshine method; 500 grams	Semi-annually	Six	1AA,2,3A,4N, 5,6G	2 X 6
8. Silt	Gross Alpha Gross Beta Sr-89, Sr-90 Radioactive Cs Gamma Spectrum (GeLi)	Spot; 500 grams	Semi-annually	Six	1BB,1X,4J, 4D,4T,6F	2 X 6

FOOTNOTES

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. Number indicates locations shown in Figures II.1, II.2, and II.3 and described in Table II.1

4. Sample flow rate is controlled with Restricting Orifice.

5. Soluble and insoluble radionuclide separately.

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

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

TABLE II.3

SUMMARY OF ANALYSES PERFORMED ON SAMPLES COLLECTED

January 1, 1982 through December 31, 1982

Sample Type	Station Number	Number Samples	Gross Alpha	Gross Beta	Net Beta	K-40	U	Sr-89	Sr-90	I-131	Cs-134	Cs-137	Gamma Spec.	Total Analyses
Air Particulate	1A	51		51									12	63
	1B	51		51									12	63
	2	51		51									12	63
	3A	51		51									12	63
	4B	51		51									12	63
	5	51		51									12	63
	6B	51		51									12	63
	12A	49		49									12	61
	12D	50		50									12	62
	14	51		51									12	63
	15	50		50									12	62
	17	51		51									12	63
	31	51		51									12	63
	32	51		51									12	63
	33A	51		51									12	63
	38	51		51									12	63
Precipitation	1A	12		12				5	5			5		27
	1B	12		12				5	5			5		27
	4M	12		12				5	5			5		27
Surface water (Sol. & Insol.)	1LL	11	11	11										22
	1Q	11	11	11										22
	4F	12	12	12										24
	4L	12	12	12										24
	6I	11	11	11										22
	6A	12	12	12										24
	13A	12	12	12										24
	13B	9	9	9										18

TABLE II.3

SUMMARY OF ANALYSES PERFORMED ON SAMPLES COLLECTED

January 1, 1982 through December 31, 1982 (continued)

Sample Type	Station Number	Number Samples	Gross Alpha	Gross Beta	Net Beta	K-40	U	Sr-89	Sr-90	I-131	Cs-134	Cs-137	Gamma Spec.	Total Analyses
Discharge Water	1M	12	12	12										24
(Sol. & Insol.)	1MM	11	11	11										22
Well Water	1U	4	4	4			4	2	2			2		18
	1V	4	4	4			4	2	2			2		18
	7	4	4	4			4	2	2			2		18
	40	4	4	4			4	2	2			2		18
Soil	1AA	2		2	2	2		2	2			2		12
	2	2		2	2	2		2	2			2		12
	3A	2		2	2	2		2	2			2		12
	4N	2		2	2	2		2	2			2		12
	5	2		2	2	2		2	2			2		12
	6G	2		2	2	2		2	2			2		12
Silt	1BB	2	2	2				2	2			2	2	12
	1X	2	2	2				2	2			2	2	12
	4J	2	2	2				2	2			2	2	12
	4D	2	2	2				2	2			2	2	12
	4T	2	2	2				2	2			2	2	12
	6F	2	2	2				2	2			2	2	12
Fish														
Catfish	1X	18		16	16	16		4	4				18	74
Catfish	1EE	24		16	16	16		4	4				19	75
Catfish	4I	36		16	16	16		4	4				21	77
Wh. Crappie	4I	27		16	16	16		4	4				22	78
Catfish	4J	19		16	16	16		4	4				18	74
Wh. Crappie	4J	17		16	16	16		4	4				13	69
Catfish	6H	16		12	12	12		3	3				8	50
Wh. Crappie	6H	22		12	12	12		3	3				16	58

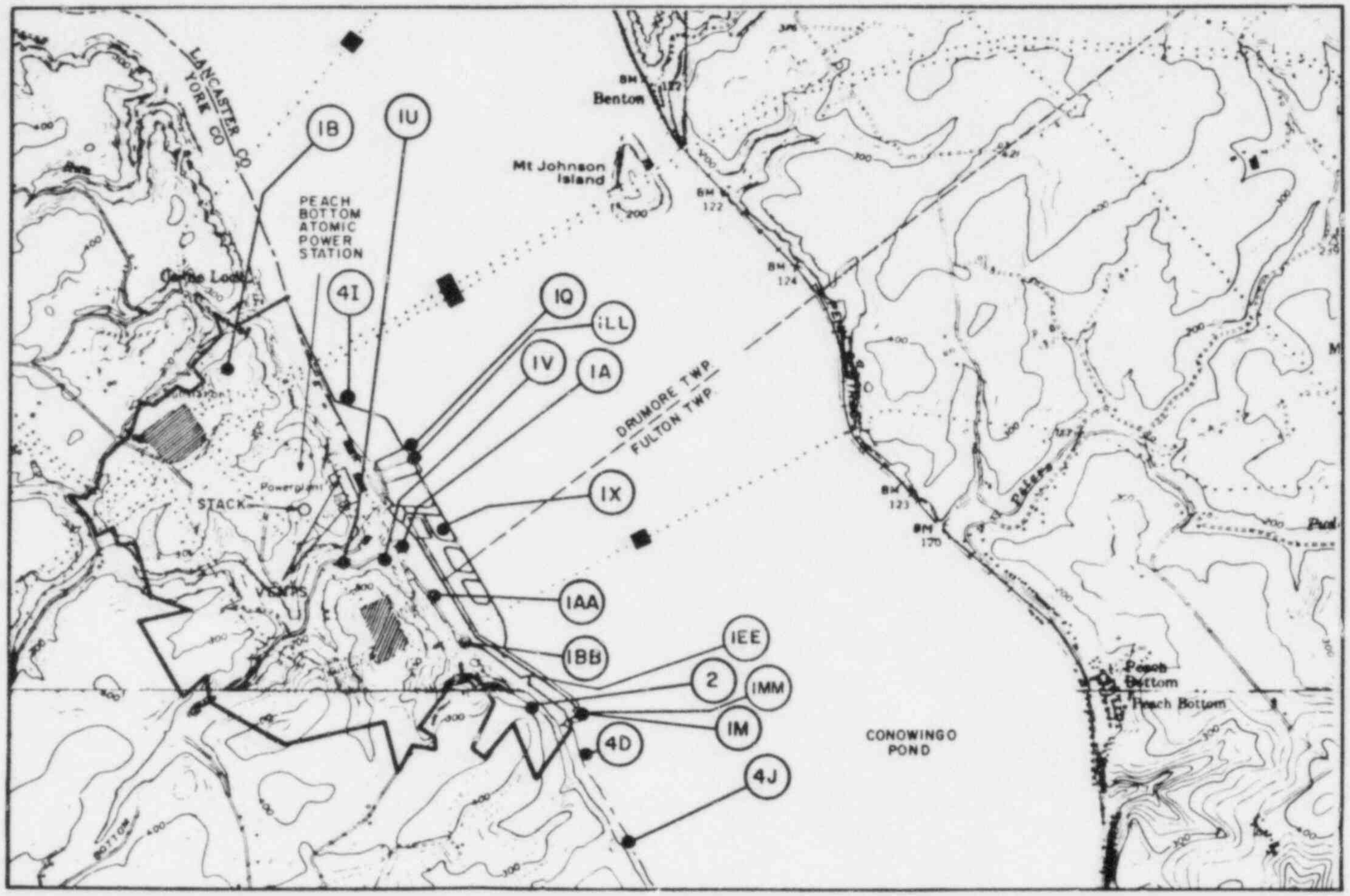
TABLE II.3

SUMMARY OF ANALYSES PERFORMED ON SAMPLES COLLECTED

January 1, 1982 through December 31, 1982 (continued)

Sample Type	Station Number	Number Samples	Gross Alpha	Gross Beta	Net Beta	K-40	U	Sr-89	Sr-90	I-131	Cs-134	Cs-137	Gamma Spec.	Total Analyses
Vegetation	1	6		6	6	6		6	6			6		36
	3A	3		3	3	3		3	3			3		18
	4N	3		3	3	3		3	3			3		18
	5	6		6	6	6		6	6			6		36
	6D	5		5	5	5		5	5			5		30
	8	6		6	6	6		6	6			6		36
	23	6		6	6	6		6	6			6		36
Milk Farm	A	4		4	4	4		4	4	4	4	4		32
	B	4		4	4	4		4	4		4	4		28
	C	4		4	4	4		4	4	4	4	4		32
	D	4		4	4	4		4	4		4	4		28
	E	4		4	4	4		4	4		4	4		28
	G	4		4	4	4		4	4	4	4	4		32
	J	4		4	4	4		4	4	4	4	4		32
	L	4		4	4	4		4	4		4	4		28
	M	4		4	4	4		4	4		4	4		28
	N	4		4	4	4		4	4		4	4		28
	O	4		4	4	4		4	4		4	4		28
Rabbit														
Bone	1	6		6	6	6		6	6					30
Muscle	1	6		6	6	6								18
Thyroid	1	6								6				6
Tissue	1	6		6	6	6								18
TOTAL ANALYSES		1283	141	1218	229	229	16	162	162	22	44	126	339	2688

(1) Cs-137 means all radioactive cesium for precipitation, well water, soil, silt, and vegetation.



LEGEND

ENVIRONMENTAL SAMPLING STATIONS

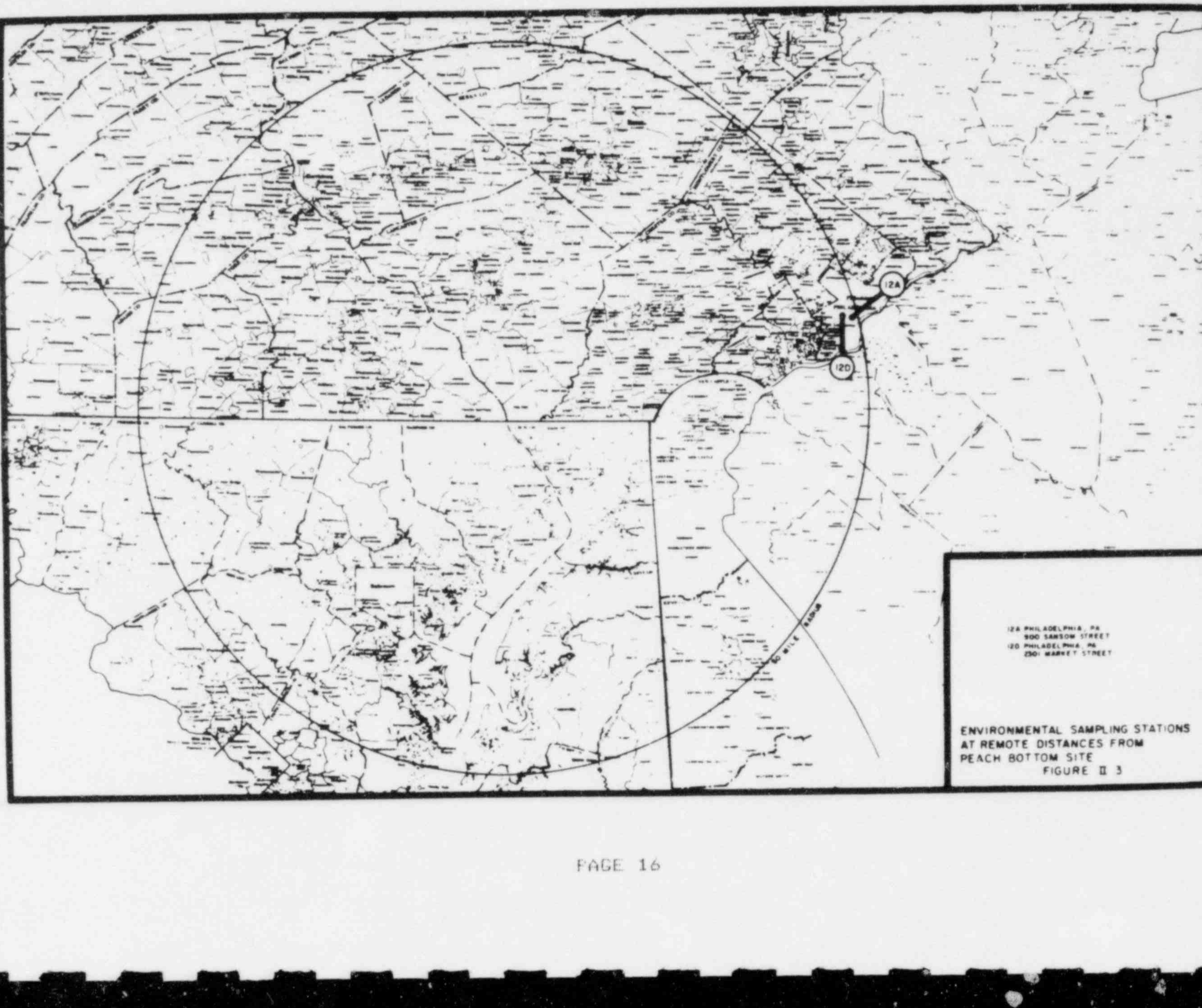
IA	PEACH BOTTOM WEATHER STATION NO.1
IB	PEACH BOTTOM WEATHER STATION NO.2
IM	PEACH BOTTOM CANAL DISCHARGE
IMM	PEACH BOTTOM CANAL DISCHARGE - COMPOSITE
ILL	PEACH BOTTOM UNITS 2&3 INTAKE - COMPOSITE
IQ	PEACH BOTTOM UNIT NO. 2 INTAKE
IU	PEACH BOTTOM SITE - UTILITY BUILDING
IV	PEACH BOTTOM SITE - INFORMATION CENTER
IX	PEACH BOTTOM SITE COOLING TOWER POND B-1
IAA	PEACH BOTTOM DISCHARGE CANAL BANK
IBB	PEACH BOTTOM DISCHARGE CANAL
IEE	PEACH BOTTOM DISCHARGE CANAL - BELOW RADWASTE DISCHARGE
2	PEACH BOTTOM SITE 130° SECTOR HILL
4D	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

3A DELTA, PA - SUBSTATION
4B CONOWINGO DAM, MARYLAND
4F CONOWINGO DAM, EL33(FT.)MSL GRAB
4H CONOWINGO DAM, TAILRACE
4L CONOWINGO DAM, EL.33(FT)COMPOSITE
4M CONOWINGO DAM, DOWNSTREAM EL 40(FT.) MSL
4N CONOWINGO DAM, ENVIRONMENTAL STATION
4T CONOWINGO POND-NEAR CONOWINGO DAM
5 WAKEFIELD, PA.
6A HOLTWOOD DAM-HYDROELECTRIC STATION - GRAB
6B HOLTWOOD DAM-HYDROELECTRIC STATION
6D HOLTWOOD, PA.
6F HOLTWOOD DAM-EAST SHORE UPSTREAM
6G HOLTWOOD, PA.
6H HOLTWOOD POND PA
6I HOLTWOOD DAM-HYDROELECTRIC STATION-COMPOSITE
6J HOLTWOOD POND, PA.
7 DARLINGTON, MARYLAND AREA
8 COLORA MARYLAND
13A CHESTER WATER INTAKE-POND
13B CHESTER WATER INTAKE - PUMP DISCHARGE
14 PETERS CREEK
15 SILVER SPRING ROAD
17 RIVERVIEW ROAD
23 PEACH BOTTOM 150° SECTORHILL OFFSITE
31 PILOTOWN ROAD
32 SLATE HILL ROAD
33A FULTON WEATHER STATION
38 PEACH BOTTOM ROAD
40 PEACH BOTTOM SITE AREA

ENVIRONMENTAL SAMPLING STATIONS
AT INTERMEDIATE DISTANCES FROM
PEACH BOTTOM SITE
FIGURE II.2



ENVIRONMENTAL SAMPLING STATIONS AT REMOTE DISTANCES FROM PEACH BOTTOM SITE
FIGURE II 3

III. PROCEDURES

Detailed sample collection and handling procedures and reporting procedures are given in a previous report (2). The sample preparation and analytical procedures as well as equipment specifications are also given in an earlier report (4). No changes were made in the analytical procedures for 1982.

TABLE III.1

TYPICAL ANALYTICAL SENSITIVITIES (1)

Sample Medium	Type of Analysis	Sample Size Analyzed	Limit of Detection (2)	Reporting Unit	Systematic Uncertainty of the Analysis (percent of) result) (4)
Air Particulate	Gross Beta	Filter	0.008 pCi/m3	pCi/m3	(5)
	Gamma Spectrum	1100-1500 m3	(3)	pCi/m3	
Precipitation	Gross Beta	500 ml	2 pCi/liter	pCi/liter, pCi/m2	+/-10
	Sr-89	1000 ml	0.3 pCi/liter	pCi/liter, pCi/m2	+/-15
	Sr-90	1000 ml	0.3 pCi/liter	pCi/liter, pCi/m2	+/-10
	Radioactive Cs	1000 ml	0.4 pCi/liter	pCi/liter, pCi/m2	+/-10
Surface Water & Discharge Water	Gross Alpha				
	Soluble	1000 ml	0.6 pCi/liter	pCi/liter	+/-20
	Insoluble	4000 ml	20 pCi/g ash	pCi/g ash	+/-20
	Gross Beta				
	Soluble	1000 ml	2 pCi/liter	pCi/liter	+/-10
	Insoluble	4000 ml	20 pCi/g ash	pCi/g ash	+/-10
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 (6)
	Sr-89	1000 ml	0.4 pCi/liter	pCi/liter	+/-15
	Sr-90	1000 ml	0.2 pCi/liter	pCi/liter	+/-10
	Radioactive Cs	1000 ml	0.3 pCi/liter	pCi/liter	+/-10
Soil, Silt	Gross Alpha	2 g dry wt.	0.8 pCi/g dry wt.	pCi/g dry wt.	+/-20
	Gross Beta	2 g dry wt.	1 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.	0.01 pCi/g dry wt.	pCi/g dry wt.	+/-15
	Sr-90	75 g dry wt.	0.006 pCi/g dry wt.	pCi/g dry wt.	+/-15
	Radioactive Cs	75 g dry wt.	0.008 pCi/g dry wt.	pCi/g dry wt.	+/-15
	Gamma Spectrum	300-1000 g dry wt.	(3)	pCi/g dry wt.	
Fish	Gross Beta	200 mg ash	10 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	0.3 pCi/g ash	pCi/g ash	+/-15
	Sr-90	5 g ash	0.1 pCi/g ash	pCi/g ash	+/-10
	Gamma Spectrum	200-1500 g orig. wt.	(3)	pCi/g	

Sample Medium	Type of Analysis	Sample Size Analyzed	Limit of Detection (2)	Reporting Unit	Systematic Uncertainty of the Analysis (percent of) result) (4)
Vegetation	Gross Beta	200 mg ash	10 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	0.2 PCi/g ash	pCi/g ash	+/-15
	Sr-90	10 g ash	0.05 pCi/g ash	pCi/g ash	+/-10
	Radioactive Cs	10 g ash	0.08 pCi/g ash	pCi/g ash	+/-10
Rabbit	Gross Beta Muscle, Soft Tissue and Bone, Separately	200 mg ash	10 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 Thyriod	6 pCi/thyroid	pCi/thyroid	(5)
	Sr-89 Bone	10 g ash	0.3 pCi/g ash	pCi/g ash	+/-15
	Sr-90 Bone	10 g ash	0.1 pCi/g ash	pCi/g ash	+/-10
Milk	Gross Beta	200 mg ash	10 pCi/g ash, 75 pCi/liter	pCi/liter	+/-10
	K-40	20 mg ash	1 pCi/g ash, 8 pCi/liter	pCi/liter	+/-10
	Sr-89	1 liter	1 pCi/liter	pCi/liter	+/-15
	Sr-90	1 liter	0.3 pCi/liter	pCi/liter	+/-10
	I-131	4 liters	0.2 pCi/liter	pCi/liter	+/-10
	Cs-137	1 liter	2 pCi/liter	pCi/liter	+/-10
	Cs-134	1 liter	2 pCi/liter	pCi/liter	+/-10

FOOTNOTES

1. Defined as the result corresponding to two standard deviations in the net counting rate assuming typical count times, yields, etc.

2. 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.

3. 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.

4. Estimated overall error of measurement at levels where the counting error is not dominant.

5. There is no significant other systematic error compared to the counting error.

6. Or 0.03 ug/liter due to the low concentrations normally found.

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. Results of analyses which are performed on ashed samples of food products are reported in units of pCi/g original sample in addition to pCi/g ash. This is done to enable one to more easily estimate doses to man by reporting concentrations of radioactivity in food products, as determined by the radiation monitoring program, in terms of the sample state which is eaten by man. The results reported in these units, however, offer poorer comparisons of data because biological variables, such as water content, greatly affect the results. Results reported as radioactivity concentrations in terms of the ashed weights eliminate these variables and put the data on a more uniform basis for comparison. For this reason, the graphs in this report which are intended to show comparisons of concentrations of radioactivity between locations and time periods illustrate data reported in terms of the ashed weight, not the original sample weight.

All results are given with an error corresponding to two standard deviations in the net count rate except for K-40 which is generally 10% when significantly above the detection limit. Results which are less than the calculated error are reported as less than (<) the value corresponding to the error.

The heading "radioactive cesium" is used to indicate total radio-cesium which is the result from beta counting the radiochemically-separated cesium fraction. Where the nuclides are measured individually it is so indicated in the heading.

In calculating averages, results reported as "less than" a value are included as that value. The average of a series of numbers which contains at least one real 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. The deviation listed with means is equal to two standard deviations of the data comprising the mean.

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 Peach Bottom Atomic Power Station (PBAPS) 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 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 IV.1.1 through IV.1.4 and are presented graphically in Figures IV.1.1 and IV.1.2. Gamma spectral analyses are given in Table IV.1.5.

For comparative purposes, stations have been divided into three groups. Group I, which is on the Peach Bottom site and closest to the plant release points, consists of Stations 1A, 1B, and 2. Group II rings the site at further distances and consists of Stations 3A, 4B, 5, 6B, 14, 15, 17, 31, 32, 33A, and 38. Group III, which is in Philadelphia, Pennsylvania serves as a reference group and consists of Stations 12A and 12D.

Gross beta radioactivity concentrations were generally below 0.05 pCi/m3 throughout the year. Values tended to be lower in the fall although the normal annual trend is becoming obscured at these low activity levels. The data are typical of that seen during the absence of recent nuclear testing.

As can be seen from Figures IV.1.1 and IV.1.2, there was no significant difference between the values obtained for the three groups of stations indicating no effects due to PBAPS operations.

Figures IV.1.3, IV.1.4 and IV.1.5 are long term plots comparing Peach Bottom data with Environmental Protection Agency (EPA) (5) data through 1978. The EPA data exhibit the same trend as the PBAPS data. Therefore, Harrisburg EPA data are no longer reported, effective with the 1979 report.

Figures IV.1.3 through IV.1.5 show comparable trends and values over the period 1966-1982 for all three groups of stations even though the composition of the groups has been changed by adding more sampling stations. This would indicate that the distribution of activity over the entire area is relatively uniform and is not affected by PBAPS.

Gamma spectrum measurements are made on monthly composite samples from each station. These samples generally consist of all weekly samples for the month from the given station taken together. Results of these analyses are given in Table IV.1.5. Naturally-occurring Be-7 was detected by GeLi gamma spectrometry in the majority of the samples as has been the case in the past. No other nuclides were detected.

No contribution from the operation of PBAPS is indicated.

B. PRECIPITATION

The concentrations and surface densities of gross beta, Sr-89, Sr-90, and Cesium radioactivity in precipitation samples collected at Stations 1A, 1B, and 4M are presented in Tables IV.2.1 and IV.2.2.

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/m2, is used in addition to concentration (pCi/1), 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 variablity between samples even when taken over limited geographical areas.

Gross beta radioactivity concentrations in individual monthly samples ranged from a few to approximately 30 pCi/l. Corresponding surface densities were mainly in the low hundreds of pCi/m2. There did not appear to be any discernible difference between locations. The values observed were similar to those seen in earlier years and are in the range of preoperational data.

The values of monthly gross beta radioactivity concentrations observed in the precipitation samples collected at Station 4M are similar to those from comparable samples from Stations 1A and 1B except that they are generally slightly lower when compared as pCi/m2. This has been the case since 1974 and was seen in several years during the pre-operational period.

Sr-89 radioactivity was barely detected in one of the samples from Station 4M. This is most likely due to counting statistics.

Sr-90 radioactivity concentrations where measurable were generally a few tenths of a pCi/l. Surface densities were generally in the low tens of pCi/m2. These levels are comparable to what has been observed in previous periods when there was no nuclear testing.

Cesium radioactivity concentrations and surface densities at Stations 1A, 1B, and 4M as given in Tables IV.2.1 and IV.2.2 are generally undetectable to a few tenths of a pCi/l. Corresponding surface density ranged up to approximately 60 pCi/m2.

The observed radioactivity concentrations at Station 1A, 1B, and 4M show the variability typical of precipitation and collectively do not indicate any contribution from the operation of PBAPS.

C. SURFACE WATER AND DISCHARGE WATER

The concentrations of gross alpha and gross beta radioactivity in the soluble and insoluble fractions of surface water and discharge water grab samples are given in Tables IV.3.1 and IV.3.3. Similar values for the composite samples from

Stations 1LL, 1MM, 4L and 6I are given in Tables IV.3.2 and IV.3.4. Mean radioactivity concentrations are given in Tables IV.3.1 through IV.3.4. Comparative monthly and annual values are presented in Figures IV.3.1 through IV.3.6.

The reporting unit for the insoluble fractions is pCi/g ash which is intended to minimize the effect of varying amounts of insoluble material in the samples.

Gross alpha radioactivity was found in the soluble fraction of a few samples at or slightly above the detectiom limit. The gross alpha radioactivity concentrations in the insoluble fraction were generally in the range of 30 to 60 pCi/g ash. These values are consistent with those seen in 1981, the only previous period for which this unit was used.

Data for gross beta radioactivity concentration in surface water and discharge water samples are shown in Figures IV.3.1 through IV.3.6. The values obtained for the soluble fraction were generally between the lower detection limit of approximately 2 pCi/l and 5 pCi/l. A few results were slightly higher. Results for the insoluble fraction were usually in the range of 40 to 70 pCi/g ash comparable to or slightly lower than seen in 1981. Occasional high values, e.g. 500 +/- 100 pCi/g ash as seen at location 4L, occur when the amount of solids in the sample is small.

Comparison of both gross alpha and gross beta radioactivity concentrations shows no significant differences between grab samples and composite samples.

The similarity of results among stations shows no indication of any measurable radioactivity in receiving water bodies due to the operation of PBAPS during the period of this report.

D. WELL WATER

Results of the analysis of well water samples for gross alpha, gross beta, Sr-89, Sr-90, and Cesium radioactivity and uranium are given in Table IV.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 changes, variations can be encountered in the flow pattern followed by the water 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 it 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 were generally found to be below the detection limit of several tenths of a pCi/1. This is consistent with data from the Units 2 and 3 preoperational period.

A few of the gross beta values were above the detection limit of 2 pCi/1. The measured values were in the range of 2 - 4 pCi/1.

Uranium was below the detection limit in all samples from both on-site and off-site locations. The levels in general are similar to or below those seen in previous periods. Uranium is naturally-occurring in most rocks and is not of plant origin.

No Sr-89 radioactivity was detected in any of the samples. Sr-90 was measured at the detection limit of 0.3 pCi/1 in one sample from a remote location.

Cesium was measured in two samples near the detection limit of 0.4 pCi/1. This is probably due to counting statistics.

Mean values as given in Table IV.4.1 show no significant differences between wells close to or on site and those at distant locations indicating no measureable radioactivity from the operation of PBAPS.

E. SOIL

The results obtained for concentrations of acid-leachable gross beta, K-40, net beta, Sr-90, Sr-89, and Cesium radioactivity in soil samples are given in Table IV. 5.1. Mean values for Sr-90, Sr-89 and Cesium are plotted in Figures IV. 5.1 through IV. 5.3.

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 atmospheric nuclear weapons testing. Specific analysis for Sr-89, Sr-90 and Cesium, which are normally present in fallout, are done to measure these nuclides in the presence of the larger quantities of naturally-occurring radioactivity.

Net beta radioactivity, which was detectable in the majority of the samples. ranged from 1 to 10 pCi/g dry weight. Most of the results were below 5 pCi/g dry weight. This is within the range of normal variability.

The majority of the Sr-90 concentrations were grouped in an approximate range of a few tenths of a pCi/g dry weight. All of the values are consistent with previous annual averages.

Sr-89 concentration was measured above the detection limit in two samples, one from a distant location.

The concentration of Cesium generally was a few tenths of a pCi/g dry weight and measurable in all samples. All values were within the range of preoperational data. Samples from Station 6G generally showed the higher values.

Values obtained from samples taken at the Peach Bottom site are comparable to the average values from the surrounding sampling stations. Overall there is no indication of measurable radioactivity in soil from PBAPS operation.

F. SILT

Table IV.6.1 gives the analytical results and annual means for concentrations of acid-leachable gross alpha, gross beta, Sr-89, Sr-90 and Cesium radioactivity for silt samples. GeLi gamma spectrum analysis results are given in Table IV.6.2. Gross beta and specific nuclide activities observed at several stations are presented in Figures IV.6.1 through IV.6.4.

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 IV.5.1 and IV.6.1, the activity levels in silt generally are similar to those found in soil.

The concentrations of gross alpha radioactivity at all sampling stations was generally a few pCi/g dry weight and are well within the range of variability observed in PBAPS Units 2 and 3 preoperational period.

Gross beta radioactivity concentration was comparable to the gross alpha concentration. The results and variations between stations are consistent with the PBAPS Units 2 and 3 preoperational period.

Sr-90 concentrations occurred within the approximate range of 0.01 to 0.05 pCi/g continuing the lower trend seen in 1981. All results are within the range of variability observed during the PBAPS Units 2 and 3 preoperational period.

Sr-89 was found in two of the samples at the detection limit. This is probably due to counting statistics.

Samples analyzed showed Cesium generally at low levels of a few hundredths to a few tenths of a pCi/g dry weight which is well within the range of PBAPS preoperational data. Any apparent discrepancy between the radio-chemistry values and gamma spectrum values most probably occurs because the gamma spectrum values given in Table IV.6.2 are more representative of the whole sample, which is inhomogenious, rather than only the aliquot analyzed. The differences between stations are discussed below under gamma spectrum analysis.

Figures IV.6.1 and IV.6.2 compare Stations 4D, 4J and 4T which are at increasing distances from the PBAPS discharge. There does not appear to be any consistent correlation of the observed levels with particular locations when normal variability is taken into account. The preoperational data show approximately the same spread in values and values of similar magnitude to those seen during this period. The observance of Cs-134 at several of the locations is discussed below.

Station 1BB, in the discharge canal down-flow the liquid rad-waste discharge, and Station 6F, above Holtwood Dam, are compared in Figures IV. 6.3 and IV. 6.4. Figure 6.3 indicates no positive addition of Sr-90 radioactivity by PBAPS operation, when normal variability is taken into account. The concentrations of radioactive Cs as shown in Figure IV. 6.4 indicate higher levels at Station 1BB, consistent with the gamma spectrum data.

Gamma spectrum analysis showed primarily the presence of K-40 and the U, Th series as represented by Ra-226 and Th-228 respectively all of which are naturally-occurring, and Cs-137. Cs-134, Co-60 and Zn-65 were found in the fall samples from Stations 1BB, 4D and 4J and are most likely from PBAPS operation because they are reactor-generated products. Co-60 and Zn-65 were also found in the fall sample from Station 1X. There was no detectable Cs-134 at Station 1X.

The overall similarity of results between locations and with the preoperational data indicates no addition of radioactivity due to the operation of PBAPS except for very small concentrations of Cs-134, Cs-137, Zn-65 and Co-60. If it is assumed that all Cesium, Co-60 and Zn-65 found at off-site locations is due to PBAPS releases, a dose calculation using the USNRC Regulatory Guide 1.109 model and assumptions results in a calculated dose of 7.06 E-3 mrem to a teenager's skin. This calculation conservatively assumes that the teenager was exposed to the maximum concentrations found for the entire exposure period.

G. FISH

The results of the analysis of fish samples for concentrations of gross beta, K-40, net beta, Sr-89 and Sr-90 radioactivity are given in Tables IV.7.1 and IV.7.2. Gamma spectrum data are presented in Table IV.7.3. Mean values are presented in Tables IV.7.1, IV.7.2, IV.7.4, and IV.7.5. Sr-90 concentrations are plotted in Figure IV.7.1.

Net beta radioactivity generally ranged from <10 to 30 pCi/g ash with an average of about 10 pCi/g ash. The values were well within the range of PBAPS preoperational data.

Radiostrontium analysis was resumed on a temporary basis during the second half of 1979 and continued through 1982 because of the possibility of release of Sr-89 and Sr-90 from a source upstream from the Peach Bottom site.

Sr-89 was barely detectable in a few of the samples at a few tenths of a pCi/g ash.

Sr-90 radioactivity concentration as determined in samples from all locations was generally several tenths to 1 pCi/g ash corresponding to several hundredths of a pCi/g original sample.

Stations 1EE and 4J, as a group of stations which could be affected by PBAPS operation, and Station 6H which is above Holtwood Dam and therefore unaffected by PBAPS, are compared in Figure IV.7.1. There is essentially no difference in the range of concentrations for Sr-90 radioactivity in fish from these locations.

Gamma spectrum analyses as shown in Table IV.7.3 generally indicates the presence of only naturally-occurring K-40 and Cs-137 from atmospheric nuclear weapons test fallout. Cs-134 and Zn-65, most probably from PBAPS, were found in several samples from Conowingo Pond as well as in samples from the plant water discharge system. These nuclides were found at Stations 1EE, 1X, 4I and 4J. In addition, Co-60 and Co-58 were found in samples from Stations 1EE and 1X. These locations are in the plant water discharge system.

Examination of data indicates essentially no difference other than normal variability between off-site stations for all nuclides except Cs-134 and Zn-65. The maximum dose calculated using the USNRC Regulatory Guide 1.109 model and assumptions is 3.69 E-01 mrem to a teenager's liver. The actual dose due to PBAPS operations is much less than that since only some fish were found to contain Zn-65 and Cs-134 and Cs-137 is present at all stations from sources other than PBAPS.

H. VEGETATION

The concentrations of gross beta, net beta, K-40, Sr-89, Sr-90, and Cesium radioactivity are given in Tables IV.8.1 and IV.8.2 for vegetation samples. Mean values are in Tables IV.8.1 and IV.8.2. Figures IV.8.1 and IV.8.2 show annual mean values for Sr-90 and Cesium radioactivity concentrations.

The concentrations of net beta radioactivity are similar for all stations and appear to have approximately the same spread. Measurable values ranged from about 20 to 120 pCi/g ash. All results are in the range measured during the PBAPS Units 2 and 3 preoperational period. Corresponding values were in the general range of several tenths to about 3 pCi/g original sample. The raw weight to ashed weight ratio varies markedly between samples

as would be expected from the different water content of various types of vegetables and vegetation.

Measurable Sr-90 radioactivity concentrations had a range from about 1 to approximately 30 pCi/g ash with the majority of values between 1 and 10 pCi/g ash. Wild vegetation tended to have higher values probably due to greater accumulation of fallout because of the longer growing season. The higher values for apple samples from Station 23 are probably due to the high water content, since the values are not high when compared on a pCi/g original sample basis. These concentrations are well within the range of PBAPS preoperational data. The corresponding values in terms of pCi/g original sample showed a similar range from a few hundredths to a few tenths of a pCi/g. The annual mean values shown in Figure IV.8.1 differ by approximately a factor of 2. This difference disappears when the values are compared on a pCi/g original sample basis.

Sr-89 was detected in several samples possibly due to residual debris from the Chinese test in October of 1980. This could also be due to counting statistics, since there is a relatively large amount of Sr-90 present.

Cesium radioactivity was generally measured at concentrations from a few tenths to a few pCi/g ash. The higher values again tended to be seen at remote Station 3A. The corresponding average values were a several thousandths to a few hundredths of a pCi/g original sample similar to previous values. The annual mean values shown in Figure IV.8.2 are comparable to each other.

There is no indication of a contribution to the radioactivity in vegetation from the operation of PBAPS.

I. MILK

The concentrations of gross beta, K-40, net beta, Sr-89, Sr-90, Cs-134, Cs-137, and I-131 radioactivity are given in Table IV.9.1 Mean values are presented in Tables IV 9.1 and IV 9.2. Mean concentrations of Sr-90, Cs-137, and I-131 are plotted in Figures IV.9.1 through IV.9.3.

For purposes of data comparison, farms have been divided into three groups: one containing Farms G, J, and O, which are regional farms near the Peach Bottom site; a second consisting of Farms A, B, C and E, which encircle the Peach Bottom site at remote distances; and a third consisting of Farms D, L, M, and N, which are at intermediate distances from the Peach Bottom site.

The concentration of net beta radioactivity generally ranges from undetectable to a few hundred pCi/l as has been the case during and since the preoperational period. The major beta activity in milk is due to the presence of naturally-occurring K-40 at concentrations of approximately 900 pCi/l. The residual

net beta values are most probably the result of the difference between two types of measurements and are not real. The gross beta radioactivity is measured directly on milk ash while the K-40 value is calculated from chemical measurement of potassium on dissolved ash. From the known metabolic process of cows, it is unlikely that any radioactive nuclides from a nuclear power plant other than those of strontium, cesium, barium-lanthanum, hydrogen or iodine would be present in milk. The low values for gross beta and K-40 radioactivity concentrations in some of the July samples is apparently a systematic analytical error related to the ashing procedure.

The Sr-90 radioactivity concentration for all farms was in the range of about 2 to 7 pCi/l. This range is similar to the ranges for 1975 through 1981. These concentrations are well within the range of PBAPS preoperational data.

The annual mean values of Sr-90 for each farm group as shown in Figure IV.9.1 generally lie between 3 and 5 pCi/l and do not show any consistent difference between groups. The overall values are similar to those obtained during the PBAPS Units 2 and 3 preoperational period.

Sr-89 was found in a three of the samples at the detection limit, most likely due to counting statistics.

Measurable values for Cs-137 radioactivity concentration range from about 3 to 13 pCi/l, similar to the range seen earlier. No significant difference was observed among the three farm groups as can be seen from Figure IV.9.2. The results are similar to those measured during Units 2 and 3 preoperational period.

Cs-134 was not detected in any samples. The absence of Cs-134 indicates that the Cs-137 is due to atmospheric nuclear weapons testing.

I-131 radioactivity concentration results, corrected for decay to date of sampling, are presented in Table IV.9.1. I-131 not detected in any of the samples analyzed.

None of the samples contained radioactivity which can be attributed to the operation of PBAPS.

J. RABBITS

Tables IV. 10.1 through IV. 10.2 present the analytical data and mean values obtained from the analysis for gross beta, K-40, and net beta radioactivity concentrations in rabbit bone, soft tissue, and muscle, and Sr-89 and Sr-90 in bone. Iodine-131 concentrations in rabbit thyroids are also given. Quarterly mean values for net beta and Sr-90 radioactivity concentrations are shown in Figures IV. 10.1 and IV. 10.2.

Measureable net beta radioactivity concentration in muscle and soft tissue ranged from 30 to 60 pCi/g ash indicating again that the majority of the activity is due to K-40. Corresponding values are about a factor of 100 lower as pCi/g original sample. For bone, values generally ranged from <10 to 20 pCi/g ash decreasing by a factor of 2-5 as pCi/g original sample. These values are consistent with the values seen during the PBAPS Units 2 and 3 preoperational period.

Sr-90 radioactivity values in bone ranged from about 4 to 13 pCi/g ash similar to the range seen in previous periods. The pCi/g original sample values are a factor of 3-7 lower.

Sr-89 was not detected in any of the bone samples.

I-131 was measurable in one of the thyroids analyzed, probably due to counting statistics. The relatively high value and error are the result of decay between time of collection and time of analysis.

There is no indication of radioactivity in rabbits which can be attributed to operation of PBAPS.

REFERENCES

1. Pre-operational Environs Radioactivity Survey Summary Report, March, 1960 through January, 1966. (September 1967)

2. Peach Bottom Atomic Power Station Environs Radiation Monitoring Program Pre-operational Summary Report, Units 2 and 3, February 5, 1966 through August 8, 1973. (June 1977)

3. Peach Bottom Atomic Power Station Regional Environs Radiation Monitoring Program. January 1, 1978 through December 31, 1978. (May 1979)

4. Peach Bottom Atomic Power Station Regional Environs Radiation Monitoring Program. January 1, 1975 through December 31, 1975. July 1976)

5. Environmental Radiation Data, U.S. Environmental Protection Agency

6. USNRC Regulatory Guide 4.8, Branch Technical Position, Revision 1, October 1979.

TABLE IV.1.1
ANALYTICAL DATA FOR AIR-PARTICULATE SAMPLES
CONCENTRATIONS OF GROSS BETA RADIOACTIVITY (PCI/M3)

GROUP I - PEACH BOTTOM SITE

COLLECTION PERIOD	1A	1B	2
01/03-01/09	.038 ; .009	.045 ; .009	.038 ; .009
01/09-01/16	.044 ; .007	.045 ; .007	.043 ; .008
01/16-01/24	.048 ; .007	.039 ; .006	.045 ; .007
01/24-01/30	.061 ; .009	.054 ; .009	.052 ; .009
01/30-02/06	.033 ; .008	.027 ; .008	.034 ; .008
02/06-02/13	.050 ; .008	.046 ; .008	.050 ; .008
02/13-02/20	.052 ; .008	.046 ; .008	.044 ; .008
02/20-02/28	.040 ; .007	.035 ; .007	.032 ; .007
02/28-03/06	.048 ; .009	.030 ; .009	.036 ; .009
03/06-03/14	.043 ; .007	.039 ; .007	.043 ; .007
03/14-03/20	.025 ; .009	.026 ; .009	.022 ; .009
03/20-03/27	.031 ; .008	.028 ; .008	.018 ; .008
03/27-04/03	.035 ; .008	.034 ; .007	.036 ; .008
04/03-04/10	.041 ; .006	.038 ; .005	.040 ; .006
04/10-04/18	.039 ; .007	.032 ; .006	.035 ; .007
04/18-04/24	.031 ; .009	.034 ; .009	.031 ; .009
04/24-05/02	.034 ; .007	.038 ; .006	.032 ; .007
05/02-05/08	.034 ; .009	.034 ; .008	.033 ; .008
05/08-05/16	.030 ; .007	.033 ; .006	.034 ; .007
05/16-05/23	.035 ; .007	.033 ; .007	.033 ; .007
05/23-05/30	.015 ; .008	.013 ; .007	.012 ; .007
05/30-06/05	.027 ; .009	.021 ; .008	.025 ; .009
06/05-06/12	.019 ; .007	.016 ; .007	.019 ; .007
06/12-06/19	.023 ; .008	.021 ; .007	.022 ; .007
06/19-06/27	.029 ; .007	.028 ; .006	.031 ; .007
06/27-07/03	.02 ; .01	.020 ; .009	.025 ; .009

GROUP I - PEACH BOTTOM SITE

COLLECTION PERIOD	1A	1B	2
07/03-07/10	.031 ; .007	.026 ; .007	.025 ; .007
07/10-07/18	.029 ; .007	.034 ; .007	.019 ; .007
07/18-07/24	.025 ; .009	.038 ; .009	.027 ; .009
07/24-07/31	.035 ; .008	.043 ; .008	.035 ; .008
07/31-08/07	.043 ; .008	.042 ; .007	.035 ; .007
08/07-08/15	.017 ; .007	.021 ; .007	.028 ; .007
08/15-08/21	.041 ; .008	.035 ; .008	.041 ; .008
08/21-08/28	.041 ; .008	.033 ; .007	.032 ; .008
08/28-09/04	.026 ; .008	.026 ; .007	.030 ; .008
09/04-09/11	.032 ; .008	.026 ; .007	.024 ; .007
09/11-09/18	.054 ; .008	.047 ; .008	.046 ; .008
09/18-09/25	.020 ; .008	.021 ; .007	.020 ; .007
09/25-10/02	.027 ; .007	.019 ; .007	.021 ; .006
10/02-10/09	.049 ; .008	.049 ; .007	.044 ; .008
10/09-10/16	.030 ; .008	.026 ; .008	.024 ; .007
10/16-10/23	.022 ; .007	.011 ; .007	.017 ; .007
10/23-10/30	.044 ; .008	.048 ; .008	.033 ; .008
10/30-11/06	.040 ; .008	.034 ; .007	.033 ; .007
11/06-11/13	.047 ; .008	.048 ; .008	.055 ; .008
11/13-11/20	(A)	.024 ; .007	.028 ; .007
11/20-11/27	.028 ; .007	.033 ; .008	.024 ; .007
11/27-12/04	.020 ; .006	.020 ; .006	.023 ; .006
12/04-12/11	.032 ; .007	.033 ; .008	.024 ; .007
12/11-12/18	.038 ; .006	.033 ; .006	.037 ; .006
12/18-12/24	.03 ; .01	.026 ; .008	.032 ; .008
ANNUAL MEAN	.034 ; .021	.032 ; .020	.032 ; .019

NOTES: SEMICOLON INDICATES A PLUS OR MINUS SIGN.
(A) NO SAMPLE, SAMPLEP OUT OF SERVICE.

TABLE IV.1.2
ANALYTICAL DATA FOR AIR-PARTICULATE SAMPLES
CONCENTRATIONS OF GROSS BETA RADIOACTIVITY (PCI/M3)

GROUP II - INTERMEDIATE DISTANCE LOCATIONS

COLLECTION PERIOD	3A	4D	5	6B	14
82 01/02-01/08			.03[illegible] ; .007	.041 ; .008	.038 ; .008
01/03-01/09	.034 ; .009	.043 ; .009			
01/09-01/16	.046 ; .007	.050 ; .008	.038 ; .007	.038 ; .008	.043 ; .008
01/16-01/23		.051 ; .007	.043 ; .007	.050 ; .008	.056 ; .008
01/16-01/24	.039 ; .007				
01/23-01/30		.042 ; .008	.042 ; .008	.050 ; .008	.053 ; .008
01/24-01/30	.050 ; .008				
01/30-02/06	.030 ; .008	.039 ; .008	.028 ; .008	.029 ; .008	.043 ; .009
02/06-02/13	.060 ; .008	.049 ; .008	.043 ; .008	.055 ; .009	.042 ; .008
02/13-02/20	.045 ; .007	.040 ; .007			
02/13-02/21			.027 ; .006	.035 ; .006	.037 ; .007
02/20-02/28	.036 ; .007	.041 ; .007			
02/21-02/27			.025 ; .009	.03 ; .01	.04 ; .01
02/27-03/06			.028 ; .008	.036 ; .008	.040 ; .008
02/28-03/06	.031 ; .009	.05 ; .01			
03/06-03/13			.032 ; .007	.050 ; .008	.045 ; .008
03/06-03/14	.042 ; .007	.038 ; .007			
03/13-03/21			.020 ; .007	.021 ; .007	.024 ; .007
03/14-03/20	.022 ; .009	.018 ; .009			
03/20-03/27	.015 ; .007	.025 ; .008			
03/21-03/28			.021 ; .008	.027 ; .008	.027 ; .008
03/27-04/03	.037 ; .008	.041 ; .008			
03/28-04/03			.024 ; .008	.036 ; .009	.032 ; .009
04/03-04/10	.035 ; .006	.034 ; .006	.029 ; .006	.039 ; .006	.039 ; .006
04/10-04/18	.035 ; .007	.036 ; .007	.024 ; .006	.033 ; .007	.035 ; .007
04/18-04/24	.031 ; .009	.039 ; .009	.028 ; .009	.027 ; .009	.035 ; .009
04/24-05/02	.031 ; .007	.039 ; .007	.036 ; .007	.036 ; .007	.034 ; .006
05/02-05/07			.028 ; .009	.04 ; .01	.036 ; .009
05/02-05/08	.038 ; .009	.043 ; .009			
05/07-05/16			.028 ; .006	.032 ; .006	.033 ; .006
05/08-05/16	.032 ; .007	.035 ; .007			
05/16-05/22			.031 ; .008	.029 ; .008	.036 ; .008
05/16-05/23	.035 ; .007	.038 ; .007			
05/22-05/29			.011 ; .007	.016 ; .007	.017 ; .007
05/23-05/30	.012 ; .007	.017 ; .008			
05/29-06/05			.021 ; .007	.023 ; .007	.023 ; .007
05/30-06/05	.021 ; .009	.024 ; .009			
06/05-06/12	.023 ; .007	.018 ; .007	.028 ; .007	.021 ; .007	.014 ; .006
06/12-06/19	.025 ; .007	.030 ; .008	.020 ; .007	.021 ; .007	.027 ; .007
06/19-06/26			.021 ; .007	.043 ; .008	.024 ; .007
06/19-06/27	.023 ; .007	.036 ; .007			
06/26-07/03			.032 ; .008	.019 ; .007	.017 ; .007
06/27-07/03	.021 ; .009	.016 ; .009			
07/03-07/10	.026 ; .007	.034 ; .008	.029 ; .007	.027 ; .007	.021 ; .007
07/10-07/17			.023 ; .008	.035 ; .008	.032 ; .008
07/10-07/18	.031 ; .007	.038 ; .007			
07/17-07/24			.024 ; .007	.029 ; .008	.034 ; .007
07/18-07/24	.031 ; .009	.036 ; .009			
07/24-07/31	.041 ; .008	.042 ; .008	.034 ; .008	.035 ; .007	.030 ; .007
07/31-08/07	.041 ; .008	.039 ; .008	.048 ; .008	.042 ; .008	.042 ; .007
08/07-08/14			.022 ; .008	.025 ; .008	.019 ; .007
08/07-08/15	.030 ; .007	.022 ; .007			
08/14-08/21			.031 ; .007	.029 ; .007	.036 ; .007
08/15-08/21	.028 ; .008	.048 ; .009			
08/21-08/28	.038 ; .008	.037 ; .008	.030 ; .007	.030 ; .007	.034 ; .007
08/28-09/04	.022 ; .008	.029 ; .008	.023 ; .007	.025 ; .007	.026 ; .007
09/04-09/11	.027 ; .007	.028 ; .008	.029 ; .007	.024 ; .007	.022 ; .007
09/11-09/18	.045 ; .008	.052 ; .008	.054 ; .008	.053 ; .008	.053 ; .008
09/18-09/25	.025 ; .008	.020 ; .007			
09/18-09/26			.019 ; .006	.018 ; .006	.019 ; .006
09/25-10/02	.017 ; .007	.024 ; .007			
09/26-10/02			.010 ; .008	.018 ; .008	.018 ; .008
10/02-10/09	.044 ; .007	.034 ; .007	.049 ; .008	.044 ; .008	.043 ; .007
10/09-10/16	.026 ; .007	.026 ; .007			
10/09-10/17			.026 ; .006	.022 ; .006	.020 ; .006
10/16-10/23	.014 ; .007	.009 ; .007			
10/17-10/23			.016 ; .008	.016 ; .008	.019 ; .008
10/23-10/30	.035 ; .008	.023 ; .007			
10/23-10/31			.035 ; .007	.031 ; .006	.042 ; .007
10/30-11/06	.029 ; .007	.043 ; .007			
10/31-11/06			.020 ; .009	.034 ; .008	.022 ; .009
11/06-11/13	.037 ; .008	.042 ; .008			
11/06-11/14			.032 ; .007	.036 ; .007	.041 ; .007
11/13-11/20	.031 ; .007	.036 ; .007			
11/14-11/21			.020 ; .007	.044 ; .008	.031 ; .008
11/20-11/27	.027 ; .007	.026 ; .007			
11/21-11/27			.023 ; .009	.030 ; .009	.025 ; .009
11/27-12/04	.019 ; .006	.017 ; .006	.016 ; .006	.018 ; .006	.016 ; .006
12/04-12/11	.024 ; .007	.037 ; .008			
12/04-12/12			.028 ; .007	.022 ; .006	.027 ; .007
12/11-12/18	.040 ; .006	.034 ; .006			
12/12-12/18			.036 ; .007	.032 ; .007	.033 ; .007
12/18-12/24	.027 ; .008	.035 ; .008	.031 ; .008	.024 ; .008	.014 ; .008
ANNUAL MEAN	.032 ; .019	.034 ; .021	.028 ; .018	.032 ; .020	.032 ; .021

NOTES: SEMICOLON INDICATES A PLUS OR MINUS SIGN

TABLE IV.1.2 (CONTINUED)
ANALYTICAL DATA FOR AIR-PARTICULATE SAMPLES
CONCENTRATIONS OF GROSS BETA RADIOACTIVITY (PCI/M3)

GROUP II - INTERMEDIATE DISTANCE LOCATIONS

	COLLECTION PERIOD	15	17	31	32	33A	38
82	01/02-01/09	.041 ; .008	.035 ; .008	.040 ; .008	.040 ; .008	.038 ; .008	.044 ; .008
	01/09-01/16	.042 ; .007	.045 ; .007	.046 ; .008	.043 ; .007	.043 ; .007	.045 ; .008
	01/16-01/23	.047 ; .007	.047 ; .007	.048 ; .007	.044 ; .007	.045 ; .007	.047 ; .008
	01/23-01/30	.046 ; .008	.050 ; .008	.056 ; .008	.045 ; .008	.042 ; .008	.048 ; .008
	01/30-02/06	.022 ; .008	.036 ; .008	.030 ; .008	.039 ; .008	.021 ; .008	.025 ; .008
	02/06-02/13	.051 ; .008	.040 ; .008	.049 ; .008	.039 ; .008	.055 ; .008	.050 ; .008
	02/13-02/21	.033 ; .006	.038 ; .006	.042 ; .007	.033 ; .006	.039 ; .006	.043 ; .007
	02/21-02/27	.037 ; .009	.030 ; .009	.04 ; .01	.036 ; .009	.04 ; .01	.047 ; .009
	02/27-03/06	.022 ; .008	.037 ; .008	.035 ; .008	.038 ; .008	.037 ; .008	.045 ; .008
	03/06-03/13	.038 ; .007	.040 ; .007	.047 ; .008	.040 ; .007	.039 ; .008	.056 ; .008
	03/13-03/21	.022 ; .007	.021 ; .007	.024 ; .007	.019 ; .007	.015 ; .007	.029 ; .007
	03/21-03/28	.026 ; .008	.028 ; .008	.028 ; .008	.025 ; .008	.026 ; .008	.026 ; .008
	03/28-04/03	.044 ; .009	.039 ; .008	.037 ; .009	.034 ; .009	.031 ; .009	.041 ; .009
	04/03-04/10	.033 ; .006	.034 ; .006	.039 ; .006	.034 ; .006	.035 ; .006	.041 ; .006
	04/10-04/18	.033 ; .006	.033 ; .006	.037 ; .007	.030 ; .006	.033 ; .007	.038 ; .007
	04/18-04/24	.031 ; .009	.030 ; .009	.029 ; .009	.026 ; .009	.032 ; .009	.027 ; .009
	04/24-05/02	.040 ; .007	.032 ; .007	.032 ; .007	.036 ; .007	.033 ; .007	.039 ; .007
	05/02-05/07	.05 ; .01	.04 ; .01	.04 ; .01	.04 ; .01	.03 ; .01	.04 ; .01
	05/07-05/16	.032 ; .006	.024 ; .006	.031 ; .006	.028 ; .006	.024 ; .006	.027 ; .006
	05/16-05/22	.035 ; .009	.035 ; .009	.033 ; .009	.032 ; .008	.033 ; .009	.037 ; .009
	05/22-05/29	.020 ; .009	.033 ; .009	.014 ; .007	.014 ; .007	.016 ; .007	.016 ; .007
	05/29-06/05	.017 ; .008	.020 ; .008	.030 ; .008	.017 ; .007	.022 ; .008	.027 ; .008
	06/05-06/12	.015 ; .007	.019 ; .007	.027 ; .007	.017 ; .007	.024 ; .007	.020 ; .007
	06/12-06/19	.025 ; .007	.029 ; .008	.027 ; .008	.029 ; .007	.027 ; .008	.024 ; .007
	06/19-06/26	.020 ; .007	.028 ; .008	.029 ; .008	.024 ; .008	.028 ; .008	.027 ; .008
	06/26-07/03	.024 ; .009	.027 ; .008	.024 ; .008	.018 ; .007	.016 ; .008	.025 ; .008
	07/03-07/10	.029 ; .007	.030 ; .007	.027 ; .007	.028 ; .007	.026 ; .007	.028 ; .007
	07/10-07/17	.034 ; .008	.033 ; .008	.023 ; .008	.040 ; .008	.030 ; .008	.026 ; .008
	07/17-07/24	.025 ; .008	.027 ; .008	.027 ; .008	.028 ; .008	.035 ; .008	.033 ; .008
	07/24-07/31	.033 ; .008	.032 ; .008	.026 ; .008	.031 ; .007	.034 ; .008	.044 ; .008
	07/31-08/07	.041 ; .008	.043 ; .008	.036 ; .008	.041 ; .008	.037 ; .008	.037 ; .008
	08/07-08/14	.026 ; .008	.030 ; .008	.028 ; .008	.020 ; .007	.031 ; .008	[illegible] .008
	08/14-08/21	.036 ; .007	.035 ; .007	.042 ; .007	.033 ; .007	.039 ; .008	.035 ; .007
	08/21-08/28	.031 ; .007	.031 ; .008	.037 ; .008	.034 ; .007	.031 ; .008	.035 ; .008
	08/28-09/04	< .007	.019 ; .008	.018 ; .008	.020 ; .007	.027 ; .008	.019 ; .007
	09/04-09/11	(A)	.027 ; .008	.029 ; .008	.016 ; .007	.023 ; .008	.032 ; .008
	09/11-09/18	.039 ; .009	.051 ; .008	.053 ; .008	.066 ; .008	.048 ; .008	.048 ; .008
	09/18-09/26	.023 ; .006	.025 ; .007	.027 ; .007	.022 ; .006	.017 ; .007	.028 ; .007
	09/26-10/02	.016 ; .008	.018 ; .009	.016 ; .008	.016 ; .008	.020 ; .009	.013 ; .008
	10/02-10/09	.044 ; .007	.036 ; .008	.048 ; .008	.041 ; .008	.047 ; .008	.046 ; .008
	10/09-10/17	.017 ; .007	.015 ; .006	.024 ; .006	.011 ; .006	.028 ; .006	.020 ; .006
	10/17-10/23	.020 ; .009	.023 ; .008	.056 ; .009	.030 ; .008	.016 ; .008	.024 ; .008
	10/23-10/31	.040 ; .007	.041 ; .007	.039 ; .007	.038 ; .007	.035 ; .006	.040 ; .007
	10/31-11/06	.032 ; .009	.032 ; .009	.031 ; .009	.028 ; .009	.036 ; .009	.026 ; .009
	11/06-11/14	.036 ; .007	.039 ; .007	.031 ; .007	.038 ; .007	.047 ; .007	.045 ; .007
	11/14-11/21	.035 ; .008	.037 ; .008	.021 ; .007	.029 ; .007	.030 ; .007	.034 ; .008
	11/21-11/27	.037 ; .009	.047 ; .009	.031 ; .009	.026 ; .009	.029 ; .009	.026 ; .009
	11/27-12/04	.017 ; .006	.013 ; .006	.020 ; .006	.017 ; .006	.022 ; .006	.022 ; .006
	12/04-12/12	.027 ; .007	.028 ; .006	.026 ; .007	.020 ; .006	.028 ; .006	.025 ; .007
	12/12-12/18	.034 ; .007	.036 ; .007	.040 ; .007	.033 ; .007	.036 ; .007	.037 ; .007
	12/18-12/24	.024 ; .008	.030 ; .008	.028 ; .008	.028 ; .008	.024 ; .008	.031 ; .008
	ANNUAL MEAN	.031 ; .020	.032 ; .018	.033 ; .020	.031 ; .021	.031 ; .018	.034 ; .020

NOTES: SEMICOLON INDICATES A PLUS OR MINUS SIGN
(A) PUMP OUT OF SERVICE

TABLE IV.1.3
ANALYTICAL DATA FOR AIR-PARTICULATE SAMPLES
CONCENTRATIONS OF GROSS BETA RADIOACTIVITY (PCI/M3)

GROUP III - DISTANT LOCATIONS

	COLLECTION PERIOD	12A	12D
82	01/04-01/11	.043 ; .006	.043 ; .008
	01/11-01/18	.043 ; .007	.036 ; .007
	01/18-01/25	.046 ; .007	.043 ; .007
	01/25-02/01	.047 ; .008	.042 ; .007
	02/01-02/08	.036 ; .008	.037 ; .008
	02/08-02/16	.051 ; .007	.051 ; .007
	02/16-02/22	.042 ; .009	.038 ; .008
	02/22-03/01	.053 ; .009	.031 ; .008
	03/01-03/08	.045 ; .008	.033 ; .008
	03/08-03/15	.042 ; .008	.039 ; .007
	03/15-03/22	.019 ; .008	.015 ; .007
	03/22-03/29	.027 ; .008	.027 ; .008
	03/29-04/05	.035 ; .008	.039 ; .008
	04/05-04/12	.044 ; .006	.041 ; .006
	04/12-04/19	.037 ; .008	.039 ; .007
	04/19-04/26	.028 ; .008	.034 ; .008
	04/26-05/03	.038 ; .007	.040 ; .007
	05/03-05/10	.029 ; .007	.039 ; .007
	05/10-05/17	.024 ; .007	.021 ; .007
	05/17-05/24	.031 ; .007	.031 ; .007
	05/24-06/01	.025 ; .007	.015 ; .006
	06/01-06/07	.022 ; .009	.018 ; .008
	06/07-06/14	.029 ; .007	.028 ; .007
	06/14-06/21	.030 ; .008	.023 ; .007
	06/21-06/28	.033 ; .008	.029 ; .007
	06/28-07/06	.025 ; .007	.017 ; .006
	07/06-07/12	.032 ; .009	.028 ; .008
	07/12-07/19	032 ; .008	.034 ; .008
	07/19-07/26	.030 ; .008	.028 ; .007
	07/26-08/02	.029 ; .008	.027 ; .007
	08/02-08/09	.037 ; .008	.040 ; .008
	08/09-08/16	.020 ; .007	.020 ; .007
	08/16-08/23	.027 ; .007	.033 ; .007
	08/23-08/30	.037 ; .009	.033 ; .007
	08/30-09/07	.026 ; .007	.021 ; .006
	09/07-09/13	.039 ; .009	.042 ; .009
	09/13-09/20	.048 ; .008	.037 ; .008
	09/20-09/27	.017 ; .007	.023 ; .007
	09/27-10/04	.021 ; .007	.011 ; .007
	10/04-10/12	.039 ; .007	.042 ; .007
	10/12-10/18	.021 ; .009	.015 ; .008
	10/18-10/25	.013 ; .007	.009 ; .007
	10/25-11/01	.039 ; .008	.042 ; .008
	11/01-11/08	.033 ; .007	.027 ; .008
	11/08-11/15	(A)	.025 ; .008
	11/15-11/22	.024 ; .007	.033 ; .008
	11/22-11/29	.026 ; .007	.040 ; .008
	11/29-12/06	.018 ; .006	.022 ; .006
	12/06-12/13	.039 ; .008	.029 ; .008
	12/13-12/20	.023 ; .006	.029 ; .006
	12/20-12/27	.029 ; .007	.037 ; .007
	ANNUAL MEAN	.032 ; .019	.031 ; .019

NOTE: SEMICOLON INDICATES A PLUS OR MINUS SIGN
(A) SAMPLER OUT OF SERVICE

TABLE IV.1.4

MONTHLY MEAN VALUES OF WEEKLY AIR PARTICULATE SAMPLES

CONCENTRATIONS OF GROSS BETA RADIOACTIVITY (pCi/m^3)

Collection Period	GROUP I STATIONS (a) Min.	Max.	Mean	Collection Period	GROUP II STATIONS (b) Min.	Max.	Mean	Collection Period	GROUP III STATIONS (c) Min.	Max.	Mean
01/03/82-01/30/82	.038	.061	.046$\pm$.014	01/02/82-01/30/82	.032	.056	.044$\pm$.011	01/04/82-02/01/82	.036	.047	.043$\pm$.006
01/30/82-02/28/82	.027	.052	.041$\pm$.017	01/30/82-02/28/82	.021	.060	.038$\pm$.018	02/01/82-03/01/82	.031	.053	.042$\pm$.016
02/28/82-03/27/82	.018	.048	.032$\pm$.019	02/27/82-03/28/82	.015	.056	.031$\pm$.020	03/01/82-03/29/82	.015	.045	.031$\pm$.022
03/27/82-04/24/82	.031	.041	.036$\pm$.007	03/27/82-04/24/82	.024	.044	.034$\pm$.010	03/29/82-04/26/82	.028	.044	.037$\pm$.010
04/24/82-05/30/82	.012	.038	.030$\pm$.017	04/24/82-05/30/82	.011	.050	.030$\pm$.018	04/26/82-06/01/82	.015	.040	.029$\pm$.016
05/30/82-06/27/82	.016	.031	.023$\pm$.009	05/29/82-06/27/82	.014	.043	.024$\pm$.011	06/01/82-06/28/82	.018	.033	.026$\pm$.010
06/27/82-07/31/82	.019	.043	.029$\pm$.014	06/26/82-07/31/82	.016	.044	.029$\pm$.013	06/28/82-07/26/82	.017	.034	.028$\pm$.011
07/31/82-08/28/82	.017	.043	.034$\pm$.017	07/31/82-08/28/82	.019	.048	.034$\pm$.014	07/26/82-08/30/82	.020	.040	.030$\pm$.014
08/28/82-09/25/82	.020	.054	.031$\pm$.023	08/28/82-09/26/82	<.007	.066	.030$\pm$.027	08/30/82-09/27/82	.017	.048	.032$\pm$.022
09/25/82-10/30/82	.011	.049	.031$\pm$.026	09/25/82-10/31/82	.009	.056	.028$\pm$.024	09/27/82-11/01/82	.009	.042	.025$\pm$.027
10/30/82-11/27/82	.024	.055	.036$\pm$.021	10/30/82-11/27/82	.020	.047	.032$\pm$.014	11/01/82-11/29/82	.024	.040	.030$\pm$.012
11/27/82-12/24/82	.020	.038	.029$\pm$.012	11/27/82-12/24/82	.013	.040	.027$\pm$.015	11/29/82-12/27/82	.018	.039	.028$\pm$.014
Overall	.011	.061	.034$\pm$.021		<.007	.066	.032$\pm$.020		.009	.053	.032$\pm$.019

(a) Group I consists of Stations 1A, 1B, and 2

(b) Group II consists of Stations 3A, 4B, 5, 6B, 14, 16, 17, 31, 32, 33A, and 38

(c) Group III consists of Stations 12A and 12D

TABLE IV 1.5

ANALYTICAL DATA FOR MONTHLY COMPOSITE AIR PARTICULATE SAMPLES

GAMMA SPECTRUM ANALYSIS

NUCLIDE CONCENTRATION (pCi/m^3)

Collection Period	Station	Be-7	Cs-137	I-131	Ba-140	Nb-95	K-40	Cr-51	Co-60	Cs-134	Zr-95
01/02,03/82-	1A	.13±.09	<.007	<.4	<.4	<.02	<.1	<.2	<.01	<.008	<.02
01/30/82	1B	.10±.09	<.01	<.3	<.3	<.02	<.06	<.2	<.009	<.008	<.02
	2	.12±.08	<.007	<.3	<.3	<.02	<.09	<.1	<.007	<.008	<.02
	3A	.15±.09	<.008	<.4	<.4	<.02	<.09	<.2	<.01	<.008	<.02
	4B	.10±.09	<.007	<.5	<.4	<.02	<.1	<.2	<.008	<.009	<.02
	5	.12±.09	<.008	<.4	<.4	<.02	<.08	<.2	<.009	<.008	<.02
	6B	.14±.09	<.008	<.4	<.4	<.02	<.1	<.2	<.01	<.008	<.02
	14	.10±.07	<.009	<.4	<.4	<.02	<.09	<.1	<.009	<.008	<.02
	15	.09±.08	<.009	<.4	<.3	<.02	<.08	<.2	<.009	<.009	<.02
	17	<.1	<.007	<.4	<.3	<.02	<.07	<.1	<.008	<.007	<.02
	31	<.1	<.009	<.3	<.4	<.02	<.08	<.2	<.01	<.008	<.02
	32	.08±.08	<.008	<.4	<.3	<.02	<.1	<.1	<.008	<.006	<.02
	38	.13±.09	<.007	<.4	<.4	<.02	<.09	<.2	<.007	<.009	<.02
	33A	.12±.08	<.007	<.4	<.3	<.02	<.1	<.2	<.009	<.008	<.02
01/04/82 -	12A	.11±.08	<.007	<.4	<.4	<.02	<.09	<.1	<.009	<.008	<.02
02/01/82	12D	<.1	<.008	<.4	<.3	<.02	<.08	<.2	<.007	<.008	<.02
01/30/82 -	1A	.11±.09	<.007	<.3	<.3	<.01	<.1	<.2	<.01	<.007	<.02
02/27,28/82	1B	.19±.08	<.008	<.2	<.2	<.01	<.09	<.1	<.008	<.007	<.02
	2	.12±.08	<.007	<.3	<.3	<.01	<.08	<.1	<.009	<.008	<.02
	3A	.12±.09	<.008	<.3	<.3	<.01	<.08	<.1	<.009	<.008	<.02
	4B	.13±.08	<.007	<.2	<.3	<.01	<.08	<.1	<.009	<.008	<.02
	5	.15±.08	<.008	<.3	<.3	<.02	<.08	<.2	<.009	<.008	<.02
	6B	.12±.09	<.008	<.3	<.4	<.02	<.06	<.2	<.009	<.009	<.02
	14	.14±.08	<.007	<.3	<.3	<.01	<.08	<.1	<.008	<.007	<.02
	15	.12±.08	<.01	<.3	<.3	<.01	<.08	<.2	<.009	<.008	<.02
	17	.09±.08	<.006	<.3	<.3	<.02	<.09	<.1	<.009	<.007	<.02
	31	.15±.08	<.009	<.3	<.3	<.02	<.09	<.2	<.009	<.008	<.02
	32	.10±.08	<.007	<.3	<.3	<.02	<.09	<.1	<.008	<.008	<.02
	38	.14±.09	<.008	<.3	<.4	<.01	<.1	<.2	<.01	<.009	<.02
	33A	.11±.08	<.006	<.3	<.2	<.02	<.08	<.1	<.008	<.007	<.02
02/01/82 -	12A	.1±.1	<.009	<.3	<.3	<.02	<.1	<.2	<.009	<.009	<.02
03/01/82	12D	.09±.08	<.008	<.2	<.3	<.02	<.09	<.1	<.008	<.008	<.02

TABLE IV 1.5
ANALYTICAL DATA FOR MONTHLY COMPOSITE AIR PARTICULATE SAMPLES
GAMMA SPECTRUM ANALYSIS
NUCLIDE CONCENTRATION (pCi/m^3)

Collection Period	Station	Be-7	Cs-137	I-131	Ba-140	Nb-95	K-40	Cr-51	Co-60	Cs-134	Zr-95
02/27,28/82	1A	.08±.07	<.009	<.1	<.2	<.01	<.08	<.1	<.009	<.009	<.02
3/27,28/82	1B	<.08	<.007	<.08	<.1	<.01	<.08	<.09	<.009	<.007	<.02
	2	.10±.08	<.01	<.1	<.2	<.02	<.08	<.1	<.01	<.01	<.02
	3A	<.1	<.007	<.1	<.2	<.02	<.09	<.1	<.009	<.009	<.02
	4B	.11±.08	<.009	<.1	<.2	<.01	<.1	<.1	<.01	<.008	<.02
	5	.08±.07	<.007	<.1	<.2	<.01	<.09	<.1	<.009	<.009	<.02
	6B	<.1	<.007	<.2	<.2	<.02	<.08	<.1	<.009	<.008	<.02
	14	.10±.06	<.009	<.2	<.2	<.01	<.1	<.1	<.009	<.008	<.02
	15	.12±.07	<.007	<.2	<.2	<.02	<.1	<.1	<.009	<.008	<.02
	17	.11±.08	<.008	<.2	<.2	<.02	<.07	<.1	<.007	<.008	<.02
	31	.08±.08	<.009	<.2	<.2	<.01	<.1	<.1	<.01	<.007	<.02
	32	.08±.07	<.008	<.2	<.2	<.02	<.1	<.1	<.008	<.008	<.02
	38	<.1	<.008	<.2	<.2	<.01	<.1	<.1	<.01	<.009	<.02
	33A	<.09	<.006	<.2	<.2	<.02	<.07	<.1	<.009	<.008	<.02
03/01/82 -	12A	.10±.08	<.01	<.2	<.2	<.01	<.09	<.1	<.009	<.008	<.02
03/29/82	12D	.12±.07	<.007	<.2	<.2	<.02	<.1	<.1	<.008	<.009	<.02
03/27,28/82 -	1A	.14±.07	<.005	<.2	<.2	<.01	<.06	<.1	<.007	<.007	<.01
05/02/82	1B	.11±.06	<.006	<.2	<.2	<.01	<.05	<.1	<.006	<.005	<.01
	2	.16±.08	<.007	<.3	<.2	<.02	<.05	<.1	<.006	<.006	<.02
	3A	.14±.06	<.006	<.3	<.3	<.01	<.07	<.1	<.006	<.006	<.01
	4B	.12±.08	<.008	<.3	<.3	<.01	<.08	<.1	<.007	<.006	<.02
	5	.13±.07	<.007	<.3	<.3	<.02	<.07	<.1	<.007	<.007	<.02
	6B	.14±.06	<.006	<.2	<.3	<.02	<.07	<.1	<.006	<.007	<.02
	14	.12±.07	<.006	<.2	<.2	<.01	<.08	<.1	<.006	<.006	<.01
	15	.18±.07	<.005	<.2	<.3	<.01	<.08	<.1	<.006	<.006	<.02
	17	.13±.07	<.006	<.3	<.3	<.02	<.04	<.1	<.006	<.007	<.02
	31	.15±.07	<.007	<.2	<.3	<.01	<.08	<.1	<.007	<.006	<.02
	32	.13±.07	<.007	<.3	<.3	<.01	<.07	<.1	<.008	<.006	<.02
	38	.12±.07	<.005	<.3	<.2	<.01	<.06	<.1	<.007	<.006	<.02
	33A	.16±.08	<.007	<.3	<.2	<.02	<.06	<.1	<.008	<.007	<.02
03/29/82 -	12A	.11±.07	<.006	<.3	<.3	<.01	<.07	<.1	<.005	<.006	<.02
05/03/82	12D	.15±.06	<.005	<.2	<.2	<.01	<.06	<.1	<.006	<.005	<.01

TABLE IV 1.5
ANALYTICAL DATA FOR MONTHLY COMPOSITE AIR PARTICULATE SAMPLES
GAMMA SPECTRUM ANALYSIS
NUCLIDE CONCENTRATION (pCi/m^3)

Collection Period	Station	Be-7	Cs-137	I-131	Ba-140	Nb-95	K-40	Cr-51	Co-60	Cs-134	Zr-95
05/02/82 -	1A	.13±.09	<.007	<.3	<.3	<.02	<.07	<.1	<.009	<.008	<.02
05/29,30/82	1B	.10±.07	<.006	<.2	<.3	<.02	<.08	<.1	<.008	<.008	<.02
	2	.09±.08	<.008	<.3	<.3	<.02	<.08	<.1	<.007	<.008	<.02
	3A	<.1	<.007	<.3	<.3	<.02	<.07	<.1	<.008	<.008	<.02
	4B	<.1	<.009	<.3	<.3	<.02	<.07	<.2	<.008	<.008	<.02
	5	.10±.07	<.008	<.3	<.3	<.02	<.1	<.1	<.008	<.008	<.02
	6B	<.1	<.009	<.3	<.3	<.02	<.07	<.1	<.007	<.008	<.02
	14	.11±.08	<.008	<.2	<.3	<.02	<.1	<.1	<.007	<.007	<.02
	15	.13±.08	<.007	<.3	<.3	<.02	<.08	<.1	<.008	<.008	<.02
	17	<.09	<.008	<.3	<.3	<.02	<.08	<.1	<.009	<.008	<.02
	31	.10±.09	<.009	<.3	<.4	<.02	<.1	<.1	<.009	<.008	<.03
	32	.13±.08	<.007	<.3	<.3	<.02	<.09	<.1	<.007	<.008	<.02
	38	.11±.09	<.008	<.3	<.3	<.02	<.06	<.2	<.008	<.008	<.02
	33A	.12±.09	<.008	<.3	<.3	<.02	<.07	<.1	<.008	<.007	<.02
05/03/82 -	12A	.10±.08	<.007	<.3	<.3	<.02	<.09	<.1	<.008	<.007	<.02
06/01/82	12D	.12±.07	<.008	<.3	<.3	<.02	<.09	<.1	<.008	<.006	<.02
05/29,30/82 -	1A	.09±.06	<.007	<.1	<.2	<.01	<.09	<.09	<.007	<.007	<.02
07/03/82	1B	.09±.06	<.005	<.1	<.2	<.01	<.06	<.08	<.006	<.005	<.01
	2	.08±.06	<.006	<.2	<.2	<.01	<.07	<.1	<.007	<.006	<.02
	3A	<.08	<.005	<.2	<.2	<.01	<.07	<.1	<.006	<.006	<.02
	4B	.10±.06	<.007	<.2	<.2	<.01	<.08	<.1	<.007	<.006	<.02
	5	.10±.06	<.007	<.2	<.2	<.01	<.06	<.1	<.007	<.007	<.01
	6B	.09±.07	<.007	<.2	<.2	<.02	<.07	<.1	<.006	<.007	<.02
	14	.06±.05	<.006	<.2	<.2	<.01	<.05	<.1	<.006	<.005	<.02
	15	.11±.07	<.006	<.3	<.2	<.01	<.06	<.1	<.007	<.006	<.02
	17	.07±.06	<.006	<.2	<.2	<.01	<.07	<.1	<.007	<.006	<.02
	31	.12±.06	<.006	<.2	<.2	<.02	<.08	<.1	<.007	<.007	<.02
	32	.09±.07	<.007	<.3	<.3	<.02	<.08	<.1	<.007	<.007	<.02
	38	.08±.07	<.007	<.3	<.3	<.02	<.08	<.1	<.008	<.006	<.02
	33A	<.09	<.006	<.3	<.3	<.02	<.06	<.1	<.008	<.007	<.02
06/01/82 -	12A	.07±.06	<.006	<.2	<.2	<.01	<.08	<.1	<.006	<.006	<.02
07/06/82	12D	.05±.05	<.006	<.2	<.2	<.01	<.08	<.1	<.006	<.006	<.02

TABLE IV 1.5
ANALYTICAL DATA FOR MONTHLY COMPOSITE AIR PARTICULATE SAMPLES
GAMMA SPECTRUM ANALYSIS
NUCLIDE CONCENTRATION (pCi/m^3)

Collection Period	Station	Be-7	Cs-137	I-131	Ba-140	Nb-95	K-40	Cr-51	Co-60	Cs-134
07/03/82-	1A	.15±.09	<.008	<.2	<.3	<.02	<.05	<.1	<.008	<.008
07/31/82	1B	.16±.07	<.007	<.2	<.2	<.01	<.07	<.1	<.007	<.006
	2	.12±.08	<.008	<.2	<.3	<.02	<.08	<.1	<.01	<.008
	3A	.11±.07	<.006	<.2	<.2	<.01	<.07	<.1	<.007	<.008
	4B	.22±.09	<.008	<.2	<.2	<.02	<.09	<.1	<.008	<.008
	5	.14±.07	<.008	<.2	<.2	<.01	<.09	<.1	<.008	<.007
	6B	.10±.08	<.006	<.2	<.2	<.01	<.08	<.1	<.007	<.006
	14	.15±.08	<.006	<.2	<.3	<.02	<.07	<.1	<.008	<.008
	15	.18±.08	<.007	<.3	<.2	<.02	<.07	<.1	<.007	<.008
	17	.11±.07	<.008	<.2	<.3	<.02	<.09	<.1	<.008	<.008
	31	.14±.09	<.007	<.2	<.3	<.01	<.1	<.2	<.009	<.008
	32	<.1	<.008	<.2	<.2	<.01	<.08	<.1	<.007	<.007
	38	.11±.08	<.008	<.2	<.3	<.02	<.06	<.1	<.009	<.008
	33A	.11±.08	<.008	<.2	<.2	<.02	<.07	<.1	<.007	<.007
07/06/82-	12A	.09±.07	<.007	<.2	<.3	<.02	<.1	<.1	<.007	<.008
08/02/82	12D	.14±.09	<.008	<.2	<.3	<.01	<.09	<.1	<.009	<.008
07/31/82-	1A	.11±.06	<.007	<.08	<.2	<.01	<.08	<.09	<.008	<.007
08/28/82	1B	.12±.07	<.007	<.09	<.1	<.01	<.06	<.1	<.007	<.008
	2	.07±.07	<.006	<.09	<.1	<.01	<.07	<.09	<.007	<.006
	3A	.11±.07	<.009	<.1	<.2	<.01	<.07	<.1	<.007	<.008
	4B	.11±.07	<.007	<.08	<.1	<.01	<.09	<.1	<.007	<.007
	5	.11±.07	<.007	<.09	<.2	<.01	<.09	<.1	<.008	<.008
	6B	.11±.07	<.008	<.1	<.1	<.01	<.1	<.1	<.008	<.007
	14	.09±.07	<.006	<.09	<.1	<.01	<.06	<.1	<.008	<.006
	15	.09±.06	<.007	<.09	<.1	<.01	<.06	<.09	<.009	<.007
	17	.12±.07	<.009	<.1	<.2	<.01	<.1	<.1	<.01	<.008
	31	.08±.06	<.006	<.09	<.1	<.01	<.08	<.1	<.008	<.008
	32	.11±.06	<.007	<.1	<.1	<.01	<.09	<.08	<.009	<.008
	38	<.09	<.007	<.1	<.1	<.01	<.07	<.09	<.006	<.007
	33A	.10±.07	<.008	<.1	<.2	<.02	<.07	<.1	<.009	<.007
08/02/82-	12A	.12±.07	<.007	<.1	<.2	<.01	<.09	<.1	<.009	<.007
08/30/82	12D	.11±.07	<.007	<.1	<.2	<.01	<.07	<.1	<.008	<.007

TABLE IV 1.5
ANALYTICAL DATA FOR MONTHLY COMPOSITE AIR PARTICULATE SAMPLES
GAMMA SPECTRUM ANALYSIS
NUCLIDE CONCENTRATION (pCi/m^3)

Collection Period	Station	Be-7	Cs-137	I-131	Ba-140	Nb-95	K-40	Cr-51	Co-60	Cs-134	Zr-95
08/28/82-10/02/82	1A	.07±.06	<.007	<.2	<.2	<.01	<.07	<.1	<.007	<.006	<.02
	1B	.07±.05	<.006	<.1	<.2	<.009	<.06	<.09	<.006	<.005	<.01
	2	<.07	<.007	<.1	<.2	<.01	<.07	<.1	<.007	<.005	<.01
	3A	<.07	<.006	<.1	<.2	<.01	<.08	<.1	<.006	<.006	<.01
	4B	<.08	<.006	<.2	<.2	<.01	<.06	<.09	<.008	<.006	<.02
	5	.05±.05	<.006	<.1	<.2	<.01	<.06	<.08	<.007	<.006	<.01
	6B	<.08	<.006	<.1	<.2	<.01	<.08	<.1	<.006	<.005	<.01
	14	<.06	<.006	<.1	<.1	<.01	<.08	<.08	<.006	<.006	<.01
	15	.09±.08	<.008	<.2	<.2	<.02	<.1	<.1	<.008	<.009	<.02
	17	<.07	<.006	<.2	<.2	<.01	<.05	<.09	<.006	<.006	<.01
	31	.07±.06	<.006	<.1	<.2	<.02	<.07	<.09	<.007	<.006	<.02
	32	.07±.06	<.005	<.1	<.2	<.01	<.06	<.09	<.006	<.005	<.01
	38	<.07	<.007	<.2	<.2	<.01	<.05	<.1	<.006	<.006	<.02
	33A	.06±.05	<.006	<.1	<.1	<.009	<.07	<.1	<.006	<.006	<.01
08/30/82-10/04/82	12A	.08±.06	<.007	<.1	<.2	<.01	<.07	<.09	<.007	<.006	<.02
	12D	.09±.05	<.005	<.1	<.2	<.01	<.06	<.09	<.007	<.006	<.02
10/02/82-10/30,31/82-	1A	.10±.07	<.007	<.09	<.2	<.01	<.09	<.09	<.007	<.008	<.02
	1B	<.08	<.007	<.08	<.1	<.01	<.09	<.1	<.007	<.007	<.01
	2	.09±.07	<.008	<.1	<.1	<.02	<.06	<.09	<.009	<.009	<.02
	3A	.07±.06	<.007	<.09	<.1	<.01	<.09	<.09	<.009	<.007	<.02
	4B	.10±.08	<.007	<.09	<.2	<.01	<.1	<.1	<.009	<.008	<.02
	5	.09±.07	<.008	<.08	<.2	<.01	<.06	<.1	<.009	<.008	<.02
	6B	<.08	<.007	<.08	<.1	<.01	<.09	<.1	<.007	<.006	<.01
	14	.07±.06	<.006	<.08	<.1	<.01	<.08	<.09	<.007	<.008	<.01
	15	.09±.07	<.008	<.09	<.1	<.01	<.08	<.1	<.008	<.008	<.02
	17	.07±.06	<.006	<.08	<.1	<.01	<.09	<.1	<.008	<.007	<.02
	31	.13±.07	<.008	<.09	<.1	<.01	<.09	<.1	<.008	<.007	<.02
	32	.06±.06	<.007	<.08	<.1	<.01	<.07	<.08	<.008	<.007	<.02
	38	.09±.06	<.008	<.08	<.1	<.02	<.07	<.09	<.009	<.008	<.02
	33A	.07±.06	<.007	<.08	<.1	<.01	<.11	<.08	<.007	<.007	<.02
10/04/82-11/01/82	12A	.07±.07	<.008	<.1	<.2	<.01	<.08	<.1	<.009	<.008	<.02
	12D	.10±.07	<.007	<.09	<.1	<.01	<.09	<.1	<.008	<.007	<.01

TABLE IV 1.5
ANALYTICAL DATA FOR MONTHLY COMPOSITE AIR PARTICULATE SAMPLES
GAMMA SPECTRUM ANALYSIS
NUCLIDE CONCENTRATION (pCi/m^3)

Collection Period	Station	Be-7	Cs-137	I-131	Ba-140	Nb-95	K-40	Cr-51	Co-60	Cs-134	Zr-95
10/30,31/82-	1A	.11±.08	<.008	<.1	<.2	<.02	<.09	<.1	<.009	<.009	<.02
11/27/82	1B	.10±.07	<.009	<.08	<.1	<.01	<.1	<.09	<.009	<.007	<.02
	2	.10±.06	<.007	<.07	<.1	<.01	<.1	<.07	<.007	<.007	<.02
	3A	<.08	<.007	<.09	<.2	<.01	<.09	<.1	<.009	<.007	<.02
	4B	.13±.06	<.007	<.08	<.1	<.01	<.08	<.08	<.007	<.007	<.02
	5	<.1	<.008	<.09	<.1	<.01	<.08	<.09	<.009	<.009	<.02
	6B	<.09	<.007	<.08	<.2	<.01	<.1	<.1	<.008	<.008	<.02
	14	<.09	<.008	<.09	<.2	<.01	<.1	<.1	<.009	<.008	<.02
	15	.13±.07	<.008	<.09	<.2	<.01	<.09	<.1	<.01	<.008	<.02
	17	.10±.07	<.007	<.08	<.1	<.01	<.1	<.08	<.007	<.007	<.02
	31	.15±.07	<.008	<.1	<.2	<.01	<.1	<.1	<.009	<.008	<.02
	32	<.09	<.009	<.08	<.1	<.01	<.06	<.1	<.01	<.007	<.02
	38	.12±.07	<.008	<.09	<.1	<.01	<.09	<.1	<.009	<.008	<.02
	33A	.10±.08	<.008	<.1	<.2	<.01	<.1	<.1	<.01	<.008	<.02
11/01/82-	12A	<.1	<.009	<.1	<.2	<.01	<.1	<.1	<.01	<.01	<.02
11/29/82	12D	.09±.07	<.009	<.09	<.1	<.01	<.08	<.1	<.009	<.006	<.02
11/27/82-	1A	.10±.06	<.006	<.06	<.1	<.01	<.06	<.08	<.008	<.007	<.01
01/01/83	1B	.07±.05	<.006	<.05	<.09	<.009	<.08	<.06	<.007	<.006	<.01
	2	.07±.06	<.006	<.06	<.09	<.03	<.07	<.08	<.007	<.007	<.01
	3A	.08±.05	<.006	<.05	<.08	<.008	<.07	<.07	<.006	<.006	<.01
	4B	.07±.05	<.006	<.06	<.09	<.01	<.08	<.07	<.007	<.007	<.02
	5	.10±.05	<.006	<.05	<.08	<.01	<.07	<.06	<.006	<.006	<.01
	6B	.06±.06	<.007	<.06	<.1	<.01	<.06	<.08	<.008	<.006	<.01
	14	.05±.05	<.007	<.05	<.09	<.008	<.06	<.07	<.008	<.005	<.01
	15	.07±.06	<.006	<.07	<.1	<.01	<.08	<.08	<.006	<.007	<.01
	17	.06±.05	<.006	<.05	<.09	<.009	<.08	<.07	<.007	<.006	<.01
	31	.11±.06	<.006	<.06	<.1	<.01	<.07	<.07	<.007	<.007	<.01
	32	.07±.05	<.006	<.04	<.1	<.009	<.06	<.07	<.007	<.006	<.01
	38	.06±.06	<.005	<.06	<.1	<.01	<.08	<.08	<.005	<.007	<.01
	33A	.07±.05	<.005	<.06	<.1	<.009	<.09	<.07	<.006	<.006	<.01
11/29/82-	12A	.08±.06	<.007	<.06	<.1	<.007	<.09	<.08	<.007	<.007	<.01
01/03/83	12D	.08±.05	<.005	<.05	<.09	<.009	<.07	<.07	<.007	<.005	<.01

TABLE IV.2.1
ANALYTICAL DATA FOR PRECIPITATION SAMPLES
CONCENTRATION (PC/L)

STATION CODE		COLLECTION PERIOD	VOLUME (LITERS)	G.BETA	SR-89	SR-90	RADIOACTIVE CESIUM
1A	82	01/09-02/06	2.10	26 ; 2	< 4	.7 ; .5	< .6
		02/06-03/06	.65	14 ; 4			
		03/06-04/03	1.6	6 ; 2			
		04/03-05/02	2.90	< 2			
		05/02-06/05	3.20	< 2	< .4	< .2	< .4
		06/05-07/10	4.95	2 ; 2			
		07/10-08/07	.650	7 ; 3			
		08/07-09/11	2.40	5 ; 2	< .4	< .2	< .2
		09/11-10/09	2.17	4 ; 2	< .6	< .2	< .4
		10/09-11/06	1.75	3 ; 2	< 2	< .5	.9 ; .6
		11/06-12/04	2.0	< 2			
		12/04-01/08	.780	< 4			
		ANNUAL MEAN		6 ; 14	< 1.5	.4 ; .5	.5 ; .5
1B	82	01/09-02/06	2.10	12 ; 2	< 5	< .5	< 1
		02/06-03/06	.65	21 ; 4			
		03/06-04/03	1.55	8 ; 2			
		04/03-05/02	2.65	7 ; 2			
		05/02-06/05	3.05	7 ; 2	< .4	< .2	.4 ; .4
		06/05-07/10	5.0	2 ; 2			
		07/10-08/07	.600	15 ; 3			
		08/07-09/11	2.15	13 ; 2	< .5	.4 ; .3	< .2
		09/11-10/09	2.25	3 ; 2	< .7	< .3	< .3
		10/09-11/06	1.70	14 ; 2	< 2	.8 ; .4	.7 ; .6
		11/06-12/04	1.0	3 ; 2			
		12/04-01/08	.300	< 6			
		ANNUAL MEAN		9 ; 12	< 1.7	.4 ; .5	.5 ; .6
4M	82	01/09-02/06	1.65	8 ; 2	5 ; 4	< .4	< .9
		02/06-03/06	1.55	3 ; 2			
		03/06-04/03	1.1	< 2			
		04/03-05/02	3.65	2 ; 2			
		05/02-06/05	2.90	3 ; 2	< .4	.3 ; .2	< .3
		06/05-07/10	3.75	< 2			
		07/10-08/07	1.070	10 ; 2			
		08/07-09/11	2.10	3 ; 2	< .6	< .3	< .2
		09/11-10/09	2.03	5 ; 2	< .7	< .3	< .4
		10/09-11/06	2.10	3 ; 2	< 1	.4 ; .3	1.0 ; .6
		11/06-12/04	2.0	< 2			
		12/04-01/08	1.500	< 2			
		ANNUAL MEAN		4 ; 5	1.5 ; 3.9	.3 ; .1	.6 ; .7
		MEAN (1A,1B)		8 ; 13	< 1.6	.4 ; .4	.5 ; .6
		MEAN-ALL STATIONS		6 ; 11	1.6 ; 3.4	.4 ; .4	.5 ; .6

NOTE: SEMICOLON INDICATES A PLUS OR MINUS SIGN

TABLE IV.2.2
ANALYTICAL DATA FOR PRECIPITATION SAMPLES
CONCENTRATION (PC/SQ. M)

STATION CODE		COLLECTION PERIOD	VOLUME (LITERS)	G.BETA	SR-89	SR-90	RADIOACTIVE CESIUM
1A	82	01/09-02/06	2.10	1600 ; 100	< 400	50 ; 30	< 40
		02/06-03/06	.65	280 ; 80			
		03/06-04/03	1.6	300 ; 100			
		04/03-05/02	2.90	< 200			
		05/02-06/05	3.20	< 200	< 40	< 20	< 40
		06/05-07/10	4.95	300 ; 300			
		07/10-08/07	.650	140 ; 60			
		08/07-09/11	2.40	400 ; 100	< 30	< 20	< 10
		09/11-10/09	2.17	200 ; 100	< 40	< 20	< 30
		10/09-11/06	1.75	140 ; 90	< 100	< 30	50 ; 30
		11/06-12/04	2.0	< 100			
		12/04-01/08	.780	< 100			
		ANNUAL MEAN		330 ; 820	< 122	28 ; 26	34 ; 30
1B	82	01/09-02/06	2.10	800 ; 100	< 300	< 30	< 70
		02/06-03/06	.65	420 ; 80			
		03/06-04/03	1.55	400 ; 100			
		04/03-05/02	2.65	600 ; 200			
		05/02-06/05	3.05	700 ; 200	< 40	< 20	40 ; 40
		06/05-07/10	5.0	300 ; 300			
		07/10-08/07	.600	280 ; 60			
		08/07-09/11	2.15	900 ; 100	< 30	20 ; 20	< 10
		09/11-10/09	2.25	200 ; 100	< 50	< 20	< 20
		10/09-11/06	1.70	700 ; 100	< 90	40 ; 20	40 ; 30
		11/06-12/04	1.0	100 ; 60			
		12/04-01/08	.300	< 60			
		ANNUAL MEAN		442 ; 584	< 102	26 ; 18	36 ; 46
4M	82	01/09-02/06	1.65	400 ; 100	300 ; 200	< 20	< 50
		02/06-03/06	1.55	150 ; 90			
		03/06-04/03	1.1	< 60			
		04/03-05/02	3.65	300 ; 200			
		05/02-06/05	2.90	300 ; 200	< 40	30 ; 20	< 30
		06/05-07/10	3.75	< 200			
		07/10-08/07	1.070	320 ; 70			
		08/07-09/11	2.10	200 ; 100	< 40	< 20	< 20
		09/11-10/09	2.03	300 ; 100	< 40	< 20	< 20
		10/09-11/06	2.10	200 ; 100	< 80	30 ; 20	60 ; 40
		11/06-12/04	2.0	< 100			
		12/04-01/08	1.500	< 90			
		ANNUAL MEAN		218 ; 212	100 ; 226	24 ; 11	36 ; 36
		MEAN (1A,1B)		382 ; 692	< 112	27 ; 21	35 ; 37
		MEAN-ALL STATIONS		329 ; 597	108 ; 241	26 ; 18	35 ; 35

NOTE: SEMICOLON INDICATES A PLUS OR MINUS SIGN

TABLE IV.3.1
ANALYTICAL DATA FOR SURFACE WATER GRAB SAMPLES
CONCENTRATION (PC/L)

STATION CODE	COLLECTION DATE	G.ALPHA SOLUBLE	G.ALPHA INSOLUBLE (A)	G.BETA SOLUBLE	G.BETA INSOLUBLE (A)
1Q	82 01/09	< .7	50 ; 20	3 ; 2	60 ; 40
	02/06	< .7	21 ; 8	< 2	60 ; 10
	03/06	1 ; 1	80 ; 50	< 2	< 100
	04/03	< .8	70 ; 20	< 2	60 ; [illegible]
	05/02	< .8	40 ; 20	< 2	< 40
	06/05	< .8	20 ; 10	< 2	50 ; 20
	07/10	< 1	60 ; 40	< 2	< 70
	08/07	< 1	< 30	< 2	< 80
	09/11	< .4	< 10	3 ; 2	< 100
	10/09	< .9	30 ; 30	3 ; 2	< 100
	11/06	< .9	30 ; 20	7 ; 3	40 ; 40
	ANNUAL MEAN	.8 ; .4	40 ; 24	3 ; 3	69 ; 46
4F	82 01/09	1.0 ; .9	50 ; 20	7 ; 2	60 ; 30
	02/06	< 1	29 ; 9	4 ; 2	60 ; 10
	03/06	< .7	50 ; 40	3 ; 2	< 100
	04/03	< .7	40 ; 20	< 2	60 ; 20
	05/02	< .7	30 ; 10	< 2	51 ; 9
	06/05	< .8	20 ; 10	< 3	50 ; 20
	07/10	< 1	26 ; 9	4 ; 2	60 ; 9
	08/07	< 1	30 ; 10	< 2	50 ; 20
	09/11	< .8	20 ; 9	3 ; 2	20 ; 20
	10/09	< .9	40 ; 20	< 2	60 ; 40
	11/06	< .8	13 ; 9	5 ; 2	40 ; 20
	12/04	< .7	20 ; 10	< 2	70 ; 30
	ANNUAL MEAN	.8 ; .3	31 ; 24	3 ; 3	57 ; 37
6A	82 01/09	< .8	40 ; 20	4 ; 3	60 ; 40
	02/06	< 1	23 ; 8	2 ; 2	60 ; 7
	03/06	< 1	60 ; 50	< 2	< 100
	04/03	1 ; 1	50 ; 20	< 2	50 ; 20
	05/02	< .6	30 ; 20	< 2	40 ; 30
	06/05	< .6	20 ; 10	< 3	60 ; 20
	07/10	< .9	20 ; 10	< 2	30 ; 30
	08/07	< 1	40 ; 20	3 ; 2	< 50
	09/11	< .7	30 ; 20	3 ; 2	< 80
	10/09	< .9	< 20	< 2	< 100
	11/06	< .7	30 ; 20	3 ; 2	< 40
	12/04	< .8	20 ; 10	2 ; 2	70 ; 40
	ANNUAL MEAN	.8 ; .3	32 ; 26	2 ; 1	62 ; 45
13A	82 01/09	1 ; 1	40 ; 20	3 ; 2	60 ; 30
	02/06	< .7	30 ; 9	3 ; 2	60 ; 10
	03/06	< .7	70 ; 60	< 2	< 200
	04/03	< 1	60 ; 10	< 2	60 ; 10
	05/02	< .9	50 ; 30	< 2	70 ; 50
	06/05	< .6	40 ; 20	< 3	60 ; 30
	07/10	< 1	30 ; 20	< 2	120 ; 50
	08/07	< .9	30 ; 20	3 ; 2	< 70
	09/11	< .8	90 ; 30	5 ; 2	< 80
	10/09	< .8	30 ; 30	3 ; 2	< 100
	11/06	< 1	20 ; 20	6 ; 2	< 60
	12/04	< .7	20 ; 20	< 2	100 ; 100
	ANNUAL MEAN	.8 ; .3	42 ; 43	3 ; 3	87 ; 82
13B (B)	82 01/25	< .7	30 ; 20	3 ; 2	80 ; 70
	03/15	< 1	30 ; 10	< 2	70 ; 20
	04/14	< .6	50 ; 30	< 2	< 60
	05/17	< 1	20 ; 10	< 3	40 ; 20
	07/14	< .9	< 50	< 2	< 200
	10/14	< .9	20 ; 10	3 ; 2	< 30
	10/19	< .8	30 ; 10	5 ; 2	60 ; 20
	11/30	< .5	13 ; 6	< 2	60 ; 10
	12/09	< .7	10 ; 5	3 ; 2	38 ; 5
	ANNUAL MEAN	.8 ; .4	28 ; 29	3 ; 2	71 ; 102
MEAN-POTENTIALLY AFFECTED STATIONS (1Q,4F,13A)		< 1.	38 ; 38	3 ; 3	71 ; 62
MEAN (1Q,4F,6A,13A)		< 1.	36 ; 36	3 ; 2	68 ; 58

NOTES: SEMICOLON INDICATES A PLUS OR MINUS SIGN
(A) GROSS ALPHA INSOLUBLE AND GROSS BETA INSOLUBLE ARE IN UNITS OF PC/GRAM.
(B) STATION 13B SAMPLES ARE TAKEN ONLY WHEN THE PUMPING STATION IS OPERATED.

TABLE IV.3.2
ANALYTICAL DATA FOR SURFACE WATER COMPOSITE SAMPLES
CONCENTRATION (PC/L)

STATION CODE		COLLECTION PERIOD	G.ALPHA SOLUBLE	G.ALPHA INSOLUBLE (A)	G.BETA SOLUBLE	G.BETA INSOLUBLE (A)
1LL	82	01/08-02/05	< 1	30 ; 10	4 ; 2	70 ; 20
		02/05-03/05	< 1	60 ; 20	4 ; 2	50 ; 20
		03/05-04/02	< .9	50 ; 20	< 2	50 ; 20
		04/02-04/30	< .6	23 ; 9	< 2	50 ; 10
		04/30-06/04	< .9	20 ; 10	3 ; 3	60 ; 30
		06/04-07/09	< .9	40 ; 20	2 ; 2	60 ; 30
		07/09-08/06	< .9	50 ; 20	< 2	40 ; 30
		08/06-09/10	< .8	30 ; 10	< 2	< 40
		09/10-10/08	< 1	50 ; 20	7 ; 2	< 80
		10/08-11/05	< 1	20 ; 20	4 ; 2	< 40
		11/05-12/03	(B)	(B)	(B)	(B)
		12/03-01/07	< .9	< 20	2 ; 2	< 60
		ANNUAL MEAN	< .9	36 ; 30	3 ; 3	54 ; 26
4L	82	01/09-02/06	< .9	40 ; 30	< 2	< 80
		02/06-03/06	< .9	40 ; 30	< 2	< 90
		03/06-04/03	< 1	70 ; 30	< 2	40 ; 40
		04/03-05/02	< .5	60 ; 30	< 2	< 50
		05/02-06/05	< .7	40 ; 20	< 3	90 ; 40
		06/05-07/10	< 1	60 ; 50	< 2	< 100
		07/10-08/07	< 1	50 ; 20	< 2	50 ; 40
		08/07 09/11	< .5	20 ; 10	2 ; 2	< 30
		09/11-10/09	< .8	40 ; 30	< 2	< 100
		10/09-11/06	< .7	20 ; 20	6 ; 2	< 80
		11/06-12/04	< .9	30 ; 20	4 ; 3	500 ; 100
		12/04-01/08	< .8	< 20	4 ; 2	< 100
		ANNUAL MEAN	< .8	41 ; 34	3 ; 3	109 ; 251
6I	82	01/09-02/06	< .9	40 ; 30	3 ; 2	< 100
		02/06-03/06	< .7	60 ; 20	< 2	70 ; 50
		03/06-04/03	< 1	50 ; 30	< 2	60 ; 50
		04/03-05/02	1 ; 1	60 ; 30	< 2	90 ; 50
		05/02-06/05	< .8	< 30	< 3	< 90
		06/05-07/10	< .8	40 ; 10	4 ; 2	50 ; 20
		07/10-08/07	< 1	< 40	3 ; 2	< 200
		08/07-09/11	< .8	20 ; 20	< 2	< 90
		09/11-10/09	< 1	60 ; 50	< 2	< 200
		10/09-11/06	< 1	< 30	6 ; 3	< 100
		11/06-12/04	(B)	(B)	(B)	(B)
		12/04-01/0[illegible]	< 1	< 20	4 ; 2	< 200
		ANNUAL MEAN	.9 ; .2	41 ; 30	3 ; 2	114 ; 115

NOTES: SEMICOLON INDICATES A PLUS OR MINUS SIGN.
(A) GROSS ALPHA INSOLUBLE AND GROSS BETA INSOLUBLEARE IN UNITS OF PC/ASH
(B) COMPOSITE SAMPLE LOST IN SHIPPING

TABLE IV.3.3
ANALYTICAL DATA FOR DISCHARGE WATER GRAB SAMPLES
CONCENTRATION (PC/L)

STATION CODE	COLLECTION DATE	G.ALPHA SOLUBLE	G.ALPHA INSOLUBLE (A)	G.BETA SOLUBLE	G.BETA INSOLUBLE (A)
1M	82 01/09	< .5	40 ; 20	< 2	70 ; 40
	02/06	< .7	18 ; 7	< 2	70 ; 10
	03/06	< 1	70 ; 30	3 ; 2	80 ; 60
	04/03	< 1	70 ; 30	< 2	70 ; 40
	05/02	< .7	60 ; 20	< 2	50 ; 30
	06/05	< .6	40 ; 10	< 3	60 ; 20
	07/10	< 1	50 ; 20	< 2	60 ; 30
	08/07	< 1	40 ; 20	< 2	90 ; 40
	09/11	< .8	30 ; 10	< 2	< 40
	10/09	< 1	20 ; 20	< 2	< 80
	11/06	< .7	< 10	< 2	40 ; 40
	12/04	< .6	< 10	< 2	220 ; 70
	ANNUAL MEAN	< .8	38 ; 43	2 ; 1	78 ; 95

TABLE IV.3.4
ANALYTICAL DATA FOR DISCHARGE WATER COMPOSITE SAMPLES
CONCENTRATION (PC/L)

STATION CODE	COLLECTION PERIOD	G.ALPHA SOLUBLE	G.ALPHA INSOLUBLE (A)	G.BETA SOLUBLE	G.BETA INSOLUBLE (A)
1MM	82 01/19-02/05	< 1	50 ; 20	6 ; 2	100 ; 40
	02/05-03/05	< 1	40 ; 20	3 ; 2	80 ; 50
	03/05-04/02	< .8	70 ; 30	< 2	180 ; 50
	04/02-04/30	< .7	50 ; 20	< 2	90 ; 30
	04/30-06/04	< .8	30 ; 20	< 3	100 ; 40
	06/04-07/09	< 1	50 ; 30	2 ; 2	70 ; 50
	07/09-08/06	< 1	20 ; 20	3 ; 2	110 ; 50
	08/06-09/10	< .6	30 ; 10	3 ; 2	50 ; 20
	09/10-10/08	< .8	< 30	3 ; 2	< 200
	10/08-11/05	2 ; 1	40 ; 20	8 ; 3	130 ; 70
	11/05-12/03	(B)	(B)	(B)	
	12/03-01/07	2 ; 1	< 20	4 ; 2	< 90 (B)
	ANNUAL MEAN	1.1 ; 1.0	39 ; 30	4 ; 4	109 ; 90

NOTES: SEMICOLON INDICATES A PLUS OR MINUS SIGN
(A) GROSS ALPHA INSOLUBLE AND GROSS BETA INSOLUBLE ARE IN UNITS OF PC/G ASH
(B) SAMPLER OUT OF SERVICE

TABLE IV 4.1
ANALYTICAL DATA FOR WELL WATER SAMPLES
CONCENTRATION (PC/L)

STATION CODE	COLLECTION DATE	G.ALPHA	G.BETA	SR-89	SR-90	RADIOACTIVE CESIUM	URANIUM (A)
1U	82 02/06	2 ; 1	3 ; 2	< .5	< .2	< .2	< .2
	04/03	< .9	< 2				< .1
	07/10	< .7	< 2	< .6	< .3	< .4	< .4
	10/09	< .5	< 2				< .03
	ANNUAL MEAN	1. ; 1.3	2 ; 1	< .6	< .2	< .3	< .2
1V	82 01/09	< .6	3 ; 2	< .5	< .2	< .4	< .3
	04/03	< .8	< 2				< .2
	07/10	< .6	< 2	< .5	< .2	< .5	< .5
	10/09	< .5	< 2				< .03
	ANNUAL MEAN	< .6	2 ; 1	< .5	< .2	< .4	< .3
7	82 01/10	< .5	< 2	< .5	< .3	< .4	< .3
	04/05	< 1	< 2				< .1
	07/11	< .7	< 2	< .5	< .3	.5 ; .4	< .5
	10/10	< .5	4 ; 2				< .03
	ANNUAL MEAN	< .7	2 ; 2	< .5	< .3	. ; .1	< .2
40	82 01/09	< .6	2 ; 2	< .5	< .3	< .3	< .05
	04/03	< .9	< 2				< .1
	07/10	< .8	< 2	< .6	.3 ; .3	.5 ; .5	< .4
	10/09	< .6	< 2				< .03
	ANNUAL MEAN	< .7	< 2	< .6	< .3	.4 ; .3	< .1
	MEAN (1U,1V)	.8 ; 1.1	2 ; 1	< .5	< .2	< .4	< .2
MEAN-ALL STATIONS		.8 ; .8	2 ; 1	< .5	.3 ; .1	.4 ; .2	< .2

NOTES: SEMICOLON INDICATES A PLUS OR MINUS SIGN.
(A) URANIUM CONCENTRATION IN UG/LITER

TABLE IV.5.1
ANALYTICAL DATA FOR SOIL SAMPLES
CONCENTRATION (PC/G DRY)

STATION CODE	COLLECTION DATE	G.BETA	K-40	N.BETA	SR-89	SR-90	RADIOACTIVE CESIUM
1AA	82 04/18	2 ; 1	.12 ; .04	1 ; 1	< .01	.085 ; .006	.19 ; .01
	10/30	5 ; 1	.16 ; .04	5 ; 1	< .01	.084 ; .005	.14 ; .01
	ANNUAL MEAN	4 ; 4	.14 ; .06	3 ; 6	< .01	.084 ; .001	.17 ; .07
2	82 04/18	5 ; 1	.18 ; .04	5 ; 1	.06 ; .03	.300 ; .009	.26 ; .01
	10/30	7 ; 2	.19 ; .04	7 ; 2	< .03	.119 ; .008	.279 ; .008
	ANNUAL MEAN	6 ; 3	.18 ; .01	6 ; 3	.04 ; .04	.210 ; .256	.27 ; .27
3A	82 04/18	2 ; 1	.20 ; .04	2 ; 1	< .02	.217 ; .008	.17 ; .01
	10/30	10 ; 1	.18 ; .04	10 ; 1	< .02	.158 ; .007	[illegible] ; .007
	ANNUAL MEAN	6 ; 11	.19 ; .03	6 ; 11	< .02	.188 ; .083	.22 ; .14
4N	82 04/18	< 1	.15 ; .04	< 1	< .02	.239 ; .009	.27 ; .01
	10/30	3 ; 1	.25 ; .04	2 ; 1	< .02	.095 ; .006	.136 ; .005
	ANNUAL MEAN	2 ; 3	.20 ; .14	2 ; 1	< .02	.167 ; .204	.20 ; .19
5	82 04/18	2 ; 1	.19 ; .04	2 ; 1	.04 ; .02	.073 ; .008	.14 ; .01
	10/31	3 ; 1	.21 ; .04	3 ; 1	< .02	.114 ; .008	.222 ; .006
	ANNUAL MEAN	2 ; 1	.20 ; .03	2 ; 1	.03 ; .03	.094 ; .058	.18 ; .12
6G	82 04/18	3 ; 1	.25 ; .04	3 ; 1	< .02	.244 ; .008	.42 ; .02
	10/31	5 ; 1	.27 ; .04	4 ; 1	< .02	.274 ; .008	.285 ; .007
	ANNUAL MEAN	4 ; 3	.26 ; .03	4 ; 1	< .02	.259 ; .042	.35 ; .19
MEAN-ONSITE STATIONS (1AA,2)		5 ; 4	.16 ; .06	4 ; 5	.03 ; .05	.147 ; .206	.22 ; .13
MEAN-DISTANT STATIONS (3A,4N,5,6G)		4 ; 6	.21 ; .08	3 ; 6	.02 ; .01	.177 ; .153	.23 ; .19
MEAN-ALL STATIONS		4 ; 5	.19 ; .09	4 ; 5	.02 ; .03	.167 ; .166	.23 ; .16

NOTE: SEMICOLON INDICATES A PLUS OR MINUS SIGN.

TABLE IV.6.1
ANALYTICAL DATA FOR SILT SAMPLES
CONCENTRATION (PC/G DRY)

STATION CODE	COLLECTION DATE	G.ALPHA	G.BETA	SR-89	SR-90	RADIOACTIVE CESIUM
1BB	82 06/08	3.3 ; .9	1 ; 1	< .009	.004 ; .004	.12 ; .01
	10/19	1.2 ; .7	2 ; 1	< .01	.018 : .007	.338 ; .007
	ANNUAL MEAN	2.5 ; 3.0	2 ; 1	< .01	.011 , .020	.23 ; .31
1X	82 06/08	3.1 ; .9	2 ; 1	< .01	.017 ; .004	.18 ; .01
	10/19	1.4 ; .6	4 ; 1	< .01	.012 ; .004	.085 ; .004
	ANNUAL MEAN	2.2 ; 2.4	3 ; 3	< .01	.015 ; .007	.13 ; .13
4D	82 06/08	3.0 ; .9	< 1	< .01	.012 ; .004	.043 ; .007
	10/19	1.0 ; .5	1 ; 1	< .01	.023 ; .005	.284 ; .007
	ANNUAL MEAN	2.0 ; 2.8	< 1	< .01	.018 ; .016	.16 ; .34
4J	82 06/08	2.0 ; .8	< 1	.01 ; .01	.041 ; .005	.34 ; .02
	10/19	1.1 ; .4	< 1	< .02	.033 ; .007	.266 ; .006
	ANNUAL MEAN	1.6 ; 1.3	< 1	.02 ; .01	.037 ; .011	.30 ; .10
4T	82 06/08	1.9 ; .9	4 ; 1	.02 ; .02	.043 ; .005	.43 ; .02
	10/19	1.6 ; .8	4 ; 1	< .02	.068 ; .004	.303 ; .007
	ANNUAL MEAN	1.8 ; .4	4 ; 0	< .02	.055 ; .035	.37 ; .18
6F	82 06/08	2.0 ; .7	< .9	< .02	.016 ; .009	.037 ; .003
	10/19	.7 ; .4	2 ; 1	< .01	.020 ; .004	.042 ; .004
	ANNUAL MEAN	1.4 ; 1.8	1 ; 2	< .02	.018 ; .007	.04 ; .01
MEAN-ALL STATIONS		1.8 ; 1.7	2 ; 2	.01 ; .01	.026 ; .036	.21 ; .28

NOTE: SEMICOLON INDICATES A PLUS OR MINUS SIGN.

TABLE IV 6.2

ANALYTICAL DATA FOR SILT
GAMMA SPECTRUM ANALYSIS (GeLi)

(pCi/g dry)

Station	Collection Date	Cs-137	Cs-134	K-40	Ra-226	Th-228	Be-7	Co-60	I-131	Cr-51	Ba-140
IBB	06/08/82	.08±.04	<.05	21±1	.55±.08	1.0±.1	<.6	<.05	<.9	<.8	<1
	10/19/82 (d)	.16±.05	.16±.05	21±1	.59±.09	.6±.1	<.5	.31±.06	<.3	<.6	<.5
	MEAN	.12±.11	.11±.16	21±0	.57±.06	.8±.6	<.6	.18±.37	<.6	<.7	<.8
IX	06/08/82	.14±.04	<.04	16.5±.9	.47±.08	.7±.1	<.5	<.05	<.8	<.8	<.9
	10/19/82 (a)	.07±.04	<.06	17±1	.52±.09	.6±.1	<.5	.23±.05	<.3	<.6	<.5
	MEAN	.11±.10	<.05	16.8±.7	.50±.07	.7±.1	<.5	.14±.25	<.6	<.7	<.7
4D	06/08/82	<.09	<.1	19±2	1.3±.2	1.3±.3	<1	<.09	<2	<2	<2
	10/19/82 (b)	.31±.05	.08±.04	8.9±.8	.52±.09	.5±.1	<.5	.16±.05	<.3	<.6	<.5
	MEAN	.2±.3	.09±.03	14.0±14.3	.91±1.10	.9±1.1	<.8	.13±.10	<1	<1	<1
4J	06/08/82	.53±.08	<.08	18±1	1.1±.1	1.2±.2	<.9	<.07	<1	<1	<2
	10/19/82 (c)	.33±.05	.18±.05	13.4±.9	.50±.08	.6±.1	<.5	.15±.04	<.3	<.6	<.5
	MEAN	.43±.28	.13±.14	15.7±6.5	.8±.8	.9±.8	<.7	.11±.11	<.7	<.8	<1
4T	06/08/82	.8±.2	.3±.2	26±4	1.5±.4	2.1±.5	<2	<.2	<4	<3	<5
	10/19/82	.7±.1	.2±.1	23±2	1.0±.2	1.2±.3	<1	<.1	<.6	<1	<1
	MEAN	.8±.1	.3±.1	24.5±4.2	1.3±.7	1.7±1.3	<2	<.2	<2	<2	<3
6F	06/08/82	.07±.05	<.06	15±1	1.0±.1	1.1±.2	<.7	<.06	<1	<1	<1
	10/19/82	.07±.04	<.05	8.3±.9	.8±.1	.9±.1	<.5	<.04	<.3	<.7	<.6
	MEAN	.07±0	<.06	11.7±9.5	.9±.3	1.0±.3	<.6	<.05	<.7	<.9	<.8

(a) Zn-65 .7±.1
(b) Zn-65 .3±.1
(c) Zn-65 .4±.1
(d) Zn-65 1.0±.1

TABLE IV.7.1
ANALYTICAL DATA FOR FISH SAMPLES
CONCENTRATION (PC/G ASH)

STATION CODE	MEDIA	COLLECTION DATE	ID	G.BETA	K-40	N.BETA	SR-89	SR-90
1EE	CATFISH 82	03/18	5A4276	120 ; 10	87 ; 9	30 ; 10	< .3	.79 ; .09
			5B4276	40 ; 10	40 ; 4	< 10		
			5C4276	40 ; 10	33 ; 3	< 10		
			5D4276	40 ; 10	31 ; 3	< 10		
		06/09	5A4334	39 ; 8	33 ; 3	< 9	.3 ; .3	.49 ; .08
			5B4334	36 ; 8	39 ; 4	< 9		
			5C4334	31 ; 8	35 ; 3	< 9		
			5D4334	42 ; 8	33 ; 3	< 9		
		09/29	5A4439	50 ; 10	35 ; 3	< 10	< .2	.66 ; .04
			5B4439	30 ; 10	36 ; 4	< 10		
			5C4439	30 ; 10	30 ; 3	< 10		
			5D4439	80 ; 10	68 ; 7	< 10		
		11/15	5A4500	30 ; 10	35 ; 3	< 10	< .2	.57 ; .06
			5B4500	50 ; 10	37 ; 4	20 ; 10		
			5C4500	50 ; 10	40 ; 4	< 10		
			5D4500	40 ; 10	37 ; 4	< 10		
			ANNUAL MEAN	46 ; 46	40 ; 30	12 ; 11	.2 ; .1	.63 ; .26
1X	CATFISH 82	03/19	5A4277	90 ; 10	72 ; 7	20 ; 10	< .3	.94 ; .09
			5B4277	100 ; 10	86 ; 9	20 ; 10		
			5C4277	110 ; 10	84 ; 8	30 ; 10		
			5D4277	100 ; 10	80 ; 8	20 ; 10		
		06/09	5A4339	50 ; 10	36 ; 4	20 ; 10	< .2	.62 ; .05
			5B4339	44 ; 8	41 ; 4	< 9		
			5C4339	49 ; 8	44 ; 4	< 9		
			5D4339	90 ; 10	72 ; 7	20 ; 10		
		09/29	5A4438	40 ; 10	39 ; 4	< 10	< .2	.50 ; .06
			5B4438	50 ; 10	33 ; 3	10 ; 10		
			5C4438	60 ; 10	30 ; 3	30 ; 10		
			5D4438	50 ; 10	40 ; 4	10 ; 10		
		11/15	5A4499	40 ; 10	39 ; 4	< 10	< .4	1.2 ; .1
			5B4499	50 ; 10	34 ; 3	20 ; 10		
			5C4499	30 ; 10	38 ; 4	< 10		
			5D4499	60 ; 10	40 ; 4	20 ; 10		
			ANNUAL MEAN	63 ; 51	50 ; 40	17 ; 14	< .3	.82 ; .63

NOTE: SEMICOLON INDICATES A PLUS OR MINUS SIGN.

TABLE IV.7.1 (CONTINUED)
ANALYTICAL DATA FOR FISH SAMPLES
CONCENTRATION (PC/G ASH)

STATION CODE	MEDIA	COLLECTION DATE	ID	G.BETA	K-40	N.BETA	SR-89	SR-90
4I	CATFISH 82	03/23	5C4280	20 ; 10	19 ; 2	< 10		
			5D4280	20 ; 10	23 ; 2	< 10		
		03/24	5A4280	20 ; 10	23 ; 2	< 10	< .2	.98 ; .07
			5B4280	10 ; 10	19 ; 2	< 10		
		05/24	5B4337	36 ; 8	41 ; 4	< 9		
		06/14	5D4337	31 ; 8	33 ; 3	< 9		
		06/16	5A4337	34 ; 8	38 ; 4	< 9	< .2	.85 ; .06
			5C4337	36 ; 8	32 ; 3	< 9		
		09/27	5A4434	40 ; 10	28 ; 3	< 10	.5 ; .4	1.1 ; .1
			5B4434	40 ; 10	35 ; 4	< 10		
		09/30	5C4434	50 ; 10	38 ; 4	< 10		
			5D4434	40 ; 10	39 ; 4	< 10		
		11/01	5A4495	40 ; 10	31 ; 3	< 10	< .2	.78 ; .04
			5C4495	30 ; 10	35 ; 4	< 10		
		11/02	5B4495	60 ; 10	37 ; 4	20 ; 10		
			5D4495	30 ; 10	28 ; 3	< 10		
			ANNUAL MEAN	34 ; 24	31 ; 14	10 ; 5	.3 ; .3	.93 ; .28
4I	CRAPPIE 82	03/23	5A4279	40 ; 10	36 ; 4	< 10	.3 ; .2	.58 ; .06
			5B4279	30 ; 10	39 ; 4	< 10		
			5C4279	40 ; 10	34 ; 3	< 10		
			5D4279	50 ; 10	40 ; 4	< 10		
		04/26	5C4338	40 ; 10	40 ; 4	< 10		
			5D4338	26 ; 8	32 ; 3	< 8		
		05/24	5A4338	29 ; 8	35 ; 3	< 9	< .2	.66 ; .05
			5B4338	18 ; 8	33 ; 3	< 8		
		09/27	5A4435	40 ; 10	44 ; 4	< 10	< .1	.82 ; .04
			5B4435	70 ; 10	46 ; 5	20 ; 10		
			5C4435	50 ; 10	45 ; 4	< 10		
			5D4435	70 ; 10	42 ; 4	20 ; 10		
		10/05	5A4496	40 ; 10	39 ; 4	< 10	< .3	.69 ; .06
			5B4496	50 ; 10	49 ; 5	< 10		
			5C4496	50 ; 10	49 ; 5	< 10		
			5D4496	50 ; 10	46 ; 5	< 10		
			ANNMUAL MEAN	43 ; 28	40 ; 11	11 ; 7	.2 ; .2	.69 ; .20

NOTE: SEMICOLON INDICATES A PLUS OR MINUS SIGN.

TABLE IV.7.1 (CONTINUED)
ANALYTICAL DATA FOR FISH SAMPLES
CONCENTRATION (PC/G ASH)

STATION CODE	MEDIA	COLLECTION DATE	ID	G.BETA	K-40	N.BETA	SR-89	SR-90
4J	CATFISH 82	03/23	5A4281	100 ; 10	80 ; 8	20 ; 20	< .3	.7 ; .1
			5B4281	40 ; 10	31 ; 3	< 10		
			5C4281	50 ; 10	31 ; 3	20 ; 10		
			5D4281	30 ; 10	26 ; 3	< 10		
		04/26	5A4335	35 ; 8	41 ; 4	< 9	< .9	1.1 ; .1
			5B4335	60 ; 9	66 ; 7	< 10		
			5C4335	70 ; 9	75 ; 7	< 10		
			5D4335	78 ; 9	79 ; 8	< 10		
		09/28	5A4436	110 ; 10	88 ; 9	20 ; 10	< .2	.60 ; .06
			5B4436	30 ; 10	32 ; 3	< 10		
			5C4436	50 ; 10	34 ; 3	10 ; 10		
			5D4436	40 ; 10	39 ; 4	< 10		
		11/01	5A4497	40 ; 10	36 ; 4	< 10	.3 ; .2	.67 ; .05
			5B4497	40 ; 10	42 ; 4	< 10		
			5C4497	90 ; 10	84 ; 8	< 10		
			5D4497	110 ; 10	83 ; 8	30 ; 10		
			ANNUAL MEAN	61 ; 57	54 ; 47	13 ; 12	.4 ; .6	.76 ; .45
	CRAPPIE 82	03/23	5A4282	50 ; 10	39 ; 4	10 ; 10	< .2	.95 ; .05
			5B4282	40 ; 10	39 ; 4	< 10		
			5C4282	60 ; 10	40 ; 4	20 ; 10		
			5D4282	50 ; 10	43 ; 4	< 10		
		04/26	5A4336	27 ; 8	35 ; 4	< 9	< .4	.85 ; .08
			5B4336	29 ; 8	40 ; 4	< 9		
			5C4336	43 ; 9	45 ; 4	< 10		
			5D4336	53 ; 9	49 ; 5	< 10		
		09/27	5A4437	60 ; 10	36 ; 4	20 ; 10	< .1	.82 ; .03
			5B4437	60 ; 10	42 ; 4	10 ; 10		
			5C4437	50 ; 10	41 ; 4	< 10		
			5D4437	50 ; 10	45 ; 4	< 10		
		11/01	5A4498	70 ; 10	66 ; 7	< 10	< .2	.66 ; .04
			5B4498	70 ; 10	62 ; 6	< 10		
			5C4498	60 ; 10	62 ; 6	< 10		
			5D4498	60 ; 10	66 ; 7	< 10		
			ANNUAL MEAN	52 ; 25	47 ; 22	11 ; 7	< .2	.82 ; .24

NOTE: SEMICOLON INDICATES A PLUS OR MINUS SIGN.

TABLE IV.7.1 (CONTINUED)
ANALYTICAL DATA FOR FISH SAMPLES
CONCENTRATION (PC/G ASH)

STATION CODE	MEDIA	COLLECTION DATE	ID	G.BETA	K-40	N.BETA	SR-89	SR-90
6H	CATFISH 82	06/16	5B4340	26 ; 8	34 ; 3	< 9		
			5D4340	27 ; 8	33 ; 3	< 9		
		06/17	5A4340	36 ; 8	36 ; 4	< 9	< .2	.65 ; .05
			5C4340	29 ; 8	37 ; 4	< 9		
		09/27	5A4440	50 ; 10	39 ; 4	10 ; 10	< .2	.74 ; .06
			5C4440	40 ; 10	25 ; 3	< 10		
		09/29	5B4440	30 ; 10	39 ; 4	< 10		
		09/30	5D4440	110 ; 10	87 ; 9	20 ; 10		
		11/10	5A4501	50 ; 10	36 ; 4	< 10	< .2	.84 ; .06
			5B4501	< 10	19 ; 2	< 10		
			5C4501	30 ; 10	30 ; 3	< 10		
			5D4501	80 ; 10	68 ; 7	10 ; 10		
			ANNUAL MEAN	43 ; 54	40 ; 38	10 ; 6	< .2	.74 ; .19
	CRAPPIE 82	03/24	5A4278	30 ; 10	31 ; 3	< 10	< .2	.85 ; .06
			5B4278	40 ; 10	38 ; 4	< 10		
			5C4278	40 ; 10	33 ; 3	< 10		
			5D4278	40 ; 10	30 ; 3	< 10		
		06/16	5A4341	28 ; 8	34 ; 3	< 9	< .2	.74 ; .05
			5B4341	40 ; 10	39 ; 4	< 10		
			5C4341	27 ; 8	37 ; 4	< 9		
			5D4341	32 ; 8	37 ; 4	< 9		
		09/23	5B4441	50 ; 10	43 ; 4	< 10		
			5C4441	50 ; 10	41 ; 4	< 10		
		09/27	5A4441	40 ; 10	42 ; 4	< 10	< .2	.51 ; .05
			5D4441	50 ; 10	41 ; 4	10 ; 10		
			ANNUAL MEAN	39 ; 17	37 ; 9	10 ; 1	< .2	.70 ; .35
		ANNUAL MEAN-CATFISH		50 ; 52	44 ; 38	12 ; 11	.3 ; .3	.78 ; .41
		ANNUAL MEAN-CRAPPIE		45 ; 26	42 ; 17	11 ; 6	.2 ; .2	.74 ; .26

NOTE: SEMICOLON INDICATES A PLUS OR MINUS SIGN.

TABLE IV.7.2
ANALYTICAL DATA FOR FISH SAMPLES
CONCENTRATION (PC/GRAM ORIGINAL SAMPLE)

STATION CODE	MEDIA	COLLECTION DATE	ID	G.BETA	K-40	N.BETA	SR-89	SR-90
1EE	CATFISH 82	03/18	*A4276	3.1 ; .3	2.3 ; .2	.8 ; .4	< .007	.021 ; .003
			*B4276	1.9 ; .5	1.7 ; .2	< .5		
			*C4276	1.9 ; .5	1.6 ; .2	< .5		
			*D4276	2.3 ; .7	2.0 ; .2	< .7		
		06/09	*A4334	2.1 ; .4	1.7 ; .2	< .5	.02 ; .01	.026 ; .004
			*B4334	1.8 ; .4	2.0 ; .2	< .5		
			*C4334	1.7 ; .4	1.9 ; .2	< .5		
			*D4334	2.2 ; .5	1.8 ; .2	< .5		
		09/29	*A4439	2.4 ; .6	1.8 ; .2	< .6	< .009	.034 ; .002
			*B4439	1.4 ; .6	1.9 ; .2	< .6		
			*C4439	1.6 ; .5	1.4 ; .1	< .5		
			*D4439	2.3 ; .3	2.0 ; .2	< .4		
		11/15	*A4500	1.8 ; .6	1.8 ; .2	< .6	< .007	.020 ; .002
			*B4500	2.4 ; .5	1.7 ; .2	.7 ; .5		
			*C4500	2.2 ; .5	1.9 ; .2	< .5		
			*D4500	1.8 ; .5	1.8 ; .2	< .5		
			ANNUAL MEAN	2.0 ; .8	1.8 ; .4	.6 ; .2	.01 ; .01	.025 ; .013
1X	CATFISH 82	03/19	*A4277	2.5 ; .3	1.9 ; .2	.6 ; .4	< .008	.025 ; .002
			*B4277	2.3 ; .3	1.9 ; .2	.4 ; .3		
			*C4277	2.4 ; .3	1.8 ; .2	.6 ; .3		
			*D4277	1.7 ; .2	1.3 ; .1	.4 ; .2		
		06/09	*A4339	2.3 ; .4	1.6 ; .2	.7 ; .5	< .009	.027 ; .002
			*B4339	1.8 ; .3	1.7 ; .2	< .4		
			*C4339	1.9 ; .3	1.7 ; .2	< .4		
			*D4339	2.3 ; .3	1.8 ; .2	.5 ; .3		
		09/29	*A4438	2.1 ; .6	2.0 ; .2	< .6	< .01	.026 ; .003
			*B4438	2.8 ; .7	2.0 ; .2	.8 ; .7		
			*C4438	4.3 ; .8	2.0 ; .2	2.3 ; .8		
			*D4438	2.5 ; .5	1.9 ; .2	.6 ; .5		
		11/15	*A4499	.8 ; .2	.84 ; .08	< .2	< .01	.026 ; .003
			*B4499	2.5 ; .5	1.6 ; .2	.9 ; .5		
			*C4499	1.4 ; .5	1.9 ; .2	< .5		
			*D4499	2.4 ; .4	1.6 ; .2	.8 ; .5		
			ANNUAL MEAN	2.2 ; 1.5	1.7 ; .6	.7 ; .9	< .01	.026 ; .002

NOTE: SEMICOLON INDICATES A PLUS OR MINUS SIGN.

TABLE IV.7.2 (CONTINUED)
ANALYTICAL DATA FOR FISH SAMPLES
CONCENTRATION (PC/GRAM ORIGINAL SAMPLE)

STATION CODE	MEDIA	COLLECTION DATE	ID	G.BETA	K-40	N.BETA	SR-89	SR-90
4I	CATFISH 82	03/23	*C4280	1.3 ; .7	1.3 ; .1	< .8		
			*D4280	1.3 ; .7	1.4 ; .1	< .7		
		03/24	*A4280	1.2 ; .6	1.3 ; .1	< .6	< .01	.056 ; .004
			*B4280	.7 ; .7	1.3 ; .1	< .7		
		05/24	*B4337	1.6 ; .4	1.8 ; .2	< .4		
		06/14	*D4337	1.7 ; .4	1.8 ; .2	< .5		
		06/16	*A4337	1.7 ; .4	1.9 ; .2	< .5	< .009	.042 ; .003
			*C4337	2.1 ; .5	1.9 ; .2	< .5		
		09/27	*A4434	2.5 ; .7	1.8 ; .2	< .7	.03 ; .03	.070 ; .009
			*B4434	2.3 ; .7	2.2 ; .2	< .7		
		09/30	*C4434	3.3 ; .7	2.5 ; .3	< .8		
			*D4434	2.3 ; .6	2.0 ; .2	< .6		
		11/01	*A4495	2.4 ; .7	1.9 ; .2	< .7	< .01	.048 ; .002
			*C4495	1.5 ; .5	1.6 ; .2	< .5		
		11/02	*B4495	3.3 ; .6	2.0 ; .2	1.3 ; .6		
			*D4495	1.8 ; .7	1.8 ; .2	< .7		
			ANNUAL MEAN	1.9 ; 1.4	1.8 ; .7	.7 ; .4	.02 ; .02	.054 ; .024
4I	CRAPPIE 82	03/23	*A4279	2.7 ; .7	2.2 ; .2	< .7	.019 ; .009	.035 ; .003
			*B4279	1.8 ; .6	2.3 ; .2	< .7		
			*C4279	2.3 ; .7	2.1 ; .2	< .7		
			*D4279	2.8 ; .6	2.3 ; .2	< .7		
		04/26	*C4338	2.2 ; .5	1.9 ; .2	< .5		
			*D4338	1.4 ; .4	1.7 ; .2	< .5		
		05/24	*A4338	1.7 ; .5	2.0 ; .2	< .5	< .01	.038 ; .003
			*B4338	1.1 ; .5	2.0 ; .2	< .5		
		09/27	*A4435	2.4 ; .6	2.4 ; .2	< .6	< .008	.044 ; .002
			*B4435	3.2 ; .6	2.3 ; .2	.9 ; .6		
			*C4435	2.9 ; .6	[illegible] ; .2	< .7		
			*D4435	3.5 ; .6	2.3 ; .2	1.3 ; .6		
		10/05	*A4496	2.3 ; .5	2.0 ; .2	< .6	< .02	.037 ; .003
			*B4496	2.4 ; .5	2.3 ; .2	< .6		
			*C4496	2.5 ; .5	2.3 ; .2	< .5		
			*D4496	2.4 ; .5	2.3 ; .2	< .6		
			ANNUAL MEAN	2.4 ; 1.2	2.2 ; .4	.6 ; .4	.01 ; .01	.039 ; .008

NOTE: SEMICOLON INDICATES A PLUS OR MINUS SIGN.

TABLE IV.7.2 (CONTINUED)
ANALYTICAL DATA FOR FISH SAMPLES
CONCENTRATION (PC/GRAM ORIGINAL SAMPLE)

STATION CODE	MEDIA	COLLECTION DATE	ID	G.BETA	K-40	N.BETA	SR-89	SR-90
4J	CATFISH 82	03/23	*A4281	2.3 ; .3	1.8 ; .2	.5 ; .4	< .008	.015 ; .002
			*B4281	2.3 ; .7	1.7 ; .2	< .7		
			*C4281	2.5 ; .7	1.6 ; .2	.9 ; .7		
			*D4281	2.0 ; .7	1.8 ; .2	< .7		
		04/26	*A4335	.8 ; .2	.91 ; .09	< .2	< .02	.023 ; .003
			*B4335	1.9 ; .3	2.1 ; .2	< .4		
			*C4335	1.7 ; .2	1.8 ; .2	< .3		
			*D4335	.71 ; .09	.72 ; .07	< .1		
		09/28	*A4436	3.0 ; .3	2.4 ; .2	.7 ; .4	< .006	.016 ; .002
			*B4436	2.3 ; .7	2.1 ; .2	< .7		
			*C4436	3.2 ; .7	2.3 ; .2	.9 ; .8		
			*D4436	2.2 ; .6	2.1 ; .2	< .6		
		11/01	*A4497	2.1 ; .5	1.8 ; .2	< .6	.01 ; .01	.032 ; .003
			*B4497	1.9 ; .5	2.0 ; .2	< .5		
			*C4497	2.5 ; .3	2.2 ; .2	< .4		
			*D4497	3.1 ; .3	2.4 ; .2	.8 ; .4		
			ANNUAL MEAN	2.1 ; 1.4	1.8 ; .9	.6 ; .5	.01 ; .01	.022 ; .016
4J	CRAPPIE 82	03/23	*A4282	2.6 ; .5	2.0 ; .2	.8 ; .6	< .008	.049 ; .003
			*B4282	1.7 ; .5	1.7 ; .2	< .6		
			*C4282	3.1 ; .7	2.2 ; .2	.9 ; .7		
			*D4282	2.8 ; .7	2.3 ; .2	< .7		
		04/26	*A4336	1.6 ; .5	2.0 ; .2	< .5	< .03	.049 ; .004
			*B4336	1.5 ; .4	2.1 ; .2	< .5		
			*C4336	2.1 ; .4	2.2 ; .2	< .5		
			*D4336	2.3 ; .4	2.1 ; .2	< .4		
		09/27	*A4437	3.3 ; .6	2.1 ; .2	1.2 ; .7	< .009	.047 ; .002
			*B4437	2.9 ; .6	2.1 ; .2	.8 ; .6		
			*C4437	2.6 ; .6	2.1 ; .2	< .6		
			*D4437	2.2 ; .5	2.1 ; .2	< .5		
		11/01	*A4498	3.4 ; .5	3.0 ; .3	< .6	< .006	.022 ; .001
			*B4498	3.0 ; .5	2.6 ; .3	< .5		
			*C4498	2.6 ; .5	2.9 ; .3	< .6		
			*D4498	2.7 ; .5	2.8 ; .3	< .6		
			ANNUAL MEAN	2.5 ; 1.2	2.3 ; .7	.6 ; .4	< .02	.042 ; .026

NOTE: SEMICOLON INDICATES A PLUS OR MINUS SIGN.

TABLE IV.7.2 (CONTINUED)
ANALYTICAL DATA FOR FISH SAMPLES
CONCENTRATION (PC/GRAM ORIGINAL SAMPLE)

STATION CODE	MEDIA	COLLECTION DATE	ID	G.BETA	K-40	N.BETA	SR-89	SR-90
6H	CATFISH 82	06/16	*B4340	1.5 ; .4	1.9 ; .2	< .5		
			*D4340	1.3 ; .4	1.6 ; .2	< .4		
		06/17	*A4340	1.7 ; .4	1.7 ; .2	< .4	< .008	.031 ; .003
			*C4340	1.1 ; .3	1.4 ; .1	< .3		
		09/27	*A4440	2.4 ; .5	1.8 ; .2	.6 ; .6	< .009	.035 ; .003
			*C4440	2.4 ; .7	1.7 ; .2	< .7		
		09/29	*B4440	1.9 ; .6	2.2 ; .2	< .6		
		09/30	*D4440	2.9 ; .3	2.4 ; .2	.5 ; .4		
		11/10	*A4501	2.1 ; .5	1.6 ; .2	< .5	< .008	.038 ; .003
			*B4501	< .8	1.6 ; .2	< .8		
			*C4501	1.5 ; .5	1.5 ; .2	< .6		
			*D4501	2.2 ; .3	1.9 ; .2	.4 ; .4		
			ANNUAL MEAN	1.8 ; 1.2	1.8 ; .6	.5 ; .3	< .01	.035 ; .007
	CRAPPIE 82	03/24	*A4278	2.0 ; .6	1.8 ; .2	< .7	< .01	.049 ; .003
			*B4278	2.2 ; .6	2.1 ; .2	< .6		
			*C4278	2.6 ; .7	2.0 ; .2	< .7		
			*D4278	2.3 ; .7	1.9 ; .2	< .7		
		06/16	*A4341	1.6 ; .4	1.9 ; .2	< .5	< .01	.042 ; .003
			*B4341	2.3 ; .5	2.1 ; .2	< .6		
			*C4341	1.5 ; .4	2.0 ; .2	< .5		
			*D4341	1.9 ; .5	2.1 ; .2	< .5		
		09/23	*B4441	2.7 ; .6	2.5 ; .3	< .7		
			*C4441	3.1 ; .7	2.5 ; .2	< .7		
		09/27	*A4441	2.2 ; .6	2.3 ; .2	< .6	< .008	.028 ; .003
			*D4441	3.2 ; .7	2.4 ; .2	.8 ; .7		
			ANNUAL MEAN	2.3 ; 1.0	2.1 ; .5	.6 ; .2	< .01	.040 ; .021
		ANNUAL MEAN-CATFISH		2.1 ; 1.3	1.8 ; .7	.6 ; .5	.01 ; .012	.032 ; .028
		ANNUAL MEAN-CRAPPIE		2.4 ; 1.2	2.2 ; .6	.6 ; .4	.01 ; .012	.040 ; .018

NOTE: SEMICOLON INDICATES A PLUS OR MINUS SIGN.

TABLE IV 7.3

ANALYTICAL DATA FOR FISH
GAMMA SPECTRUM ANALYSIS (GELI)
(pCi/g ORIGINAL SAMPLE)

Station	Collection date	Type	Cs-137	Cs-134	Mn-54	Co-58	Co-60	Fe-59	Zn-65	I-131	Cr-51	K-40	Ra-226	Th-228	Be-7	Ba-140
1 EE	03/18/82	Channel Catfish	.08±.01	.034±.009	<.008	<.01	<.008	<.03	.06±.02	<.1	<.1	2.7±.2	<.01	.03±.02	<.09	<.2
	06/09/82	Channel Catfish	.29±.01	.19±.01	<.009	<.01	.047±.009	<.02	.82±.04	<.1	<.1	2.3±.2	<.02	<.02	.1±.1	<.1
	09/29/82	Channel Catfish	.018±.008	.011±.009	<.008	<.009	.012±.008	<.02	.17±.03	<.04	<.09	2.2±.2	<.01	<.02	<.08	<.08
	11/15/82	Channel Catfish	.09±.01	.05±.01	<.009	.017±.011	.06±.01	<.02	.91±.04	<.09	.1±.1	2.7±.2	<.02	.03±.02	<.09	<.1
1X	03/19/82	Channel Catfish	.037±.008	<.008	<.007	<.008	<.007	<.02	.04±.02	<.1	<.1	3.4±.2	<.01	<.02	<.08	<.1
	06/09/82	Channel Catfish	.025±.008	.009±.008	<.008	<.01	<.008	<.03	<.02	<.2	<.1	1.6±.2	<.01	<.02	<.09	<.2
	09/29/82	Channel Catfish	.19±.01	.12±.01	<.01	.01±.01	.05±.01	<.02	1.48±.06	<.06	<.1	2.2±.2	<.02	.04±.03	<.1	<.1
	11/15/82	Channel Catfish	.010±.008	<.009	<.008	<.008	.030±.009	<.02	<.02	<.03	<.08	2.1±.2	<.01	<.02	<.07	<.06
4I	03/23/82	White Crappie	.012±.008	<.008	<.008	<.009	<.008	<.02	<.02	<.1	<.1	2.9±.2	<.01	<.02	<.09	<.1
	03/24/82	Channel Catfish	<.01	<.01	<.01	<.01	<.01	<.03	<.02	<.1	<.2	2.4±.3	<.02	.03±.03	<.1	<.2
	05/24/82	White Crappie	.020±.007	<.008	<.007	<.01	<.007	<.03	<.02	<.7	<.2	3.8±.2	<.01	<.02	<.1	<.4
	06/16/82	Channel Catfish	.016±.007	<.007	<.007	<.008	<.007	<.02	<.02	<.05	<.08	2.7±.2	<.01	<.02	<.07	<.08
	09/27/82	Channel Catfish	<.02	<.02	<.02	<.02	<.02	<.05	.08±.04	<.09	<.2	1.5±.4	<.03	<.05	<.2	<.2
	09/27/82	White Crappie	.020±.007	.011±.007	<.007	<.007	<.006	<.02	.26±.03	<.03	<.07	2.3±.2	<.01	<.02	<.06	<.06
	10/05/82	White Crappie	.033±.007	.016±.008	<.008	<.01	<.007	<.03	.42±.03	<1	<.2	2.9±.2	<.01	<.02	<.1	<.7
	11/02/82	Channel Catfish	<.02	<.02	<.02	<.02	<.02	<.06	.08±.04	<.3	<.3	2.5±.4	<.03	<.04	<.2	<.4
4J	03/23/82	Channel Catfish	.01±.01	<.01	<.01	<.01	<.009	<.03	<.02	<.2	<.2	2.3±.3	<.02	.04±.03	<.1	<.2
	03/23/82	White Crappie	.028±.006	<.006	<.006	<.007	<.006	<.02	.02±.01	<.09	<.09	2.7±.2	<.01	.02±.02	<.07	<.1
	04/26/82	Channel Catfish	.045±.008	.018±.008	<.007	<.01	<.007	<.04	<.02	<3	<.3	3.3±.2	<.01	<.01	<.1	<1
	04/26/82	White Crappie	.028±.006	<.006	<.006	<.01	<.006	<.04	<.02	<3	<.3	2.5±.2	<.01	<.01	.1±.1	<1
	09/27/82	White Crappie	.039±.008	.022±.009	<.008	<.008	<.007	<.02	.53±.03	<.04	<.08	2.9±.2	<.01	<.02	<.07	<.08
	09/28/82	Channel Catfish	.049±.007	.026±.007	<.006	<.007	<.006	<.02	.16±.02	<.03	<.07	2.0±.2	<.01	<.02	<.06	<.06
	11/01/82	Channel Catfish	.042±.009	.017±.009	<.008	<.009	<.008	<.02	.21±.03	<.09	<.1	2.7±.2	<.01	<.02	<.08	<.1
	11/01/82	White Crappie	.026±.007	<.007	<.007	<.009	<.007	<.02	.35±.03	<.2	<.1	1.9±.2	<.01	<.02	<.08	<.2
6H	03/24/82	White Crappie	.02±.01	<.01	<.01	<.01	<.01	<.03	<.02	<.1	<.1	2.9±.3	<.02	.05±.03	<.1	<.2
	06/16/82	Channel Catfish	<.008	<.009	<.009	<.01	<.009	<.03	<.02	<.1	<.1	2.9±.2	<.01	<.02	<.09	<.2
	06/16/82	White Crappie	<.008	<.01	<.009	<.01	<.009	<.03	<.02	<.1	<.1	2.9±.2	<.02	<.02	<.1	<.2
	09/23/82	White Crappie	<.006	<.007	<.007	<.007	<.006	<.02	<.02	<.08	<.09	2.5±.2	<.01	<.02	<.07	<.1
	09/27/82	Channel Catfish	.013±.006	<.007	<.007	<.007	<.006	<.02	<.01	<.06	<.08	2.2±.2	<.01	.02±.02	<.07	<.09
	11/10/82	Channel Catfish	.009±.006	<.007	<.006	<.007	<.007	<.02	<.02	<.05	<.08	2.5±.2	<.01	<.02	<.07	<.08

TABLE IV.7.4

MEAN RADIOACTIVITY IN CHANNEL CATFISH AND WHITE CRAPPIE

(pCi/g Ash)

Environmental Station No.	Period	Collection Dates	G. Beta	K-40	N. Beta	Sr-89	Sr-90
1EE & 4J (a)	1st	3/18-3/23	55±54	43±39	14±13	.27±.11	.81±.25
6H (b)	Quarter	3/24	38±10	33± 7	<10	<.20	.85
1EE & 4J (a)	2nd	4/26-6/9	45±33	48±33	9 ± 1	.53±.64	.81±.61
6H (b)	Quarter	6/16-6/17	31±10	36± 4	9 ± 1	<.20	.70±.13
1EE & 4J (a)	3rd	9/27-9/29	53±46	43±34	12± 8	.17±.11	.69±.23
6H (b)	Quarter	9/23-9/30	52±49	45±36	11± 7	<.20	.62±.32
1EE & 4J (a)	4th	11/1-11/15	59±46	54±37	12±12	.23±.11	.63±.11
6H (b)	Quarter	11/10	42±60	38±42	10	<.20	.84
1EE & 4J (a)	Annual Mean	3/18-11/15	53±45	47±36	12±10	.30±.41	.74±.34
6H (b)	Annual Mean	3/24-11/10	41±40	39±27	10± 4	<.20	.72±.25
Overall Mean		3/18-11/10	49±45	44±34	11± 9	.27±.34	.73±.31

(a) Potentially Affected Stations

(b) Unaffected Stations

TABLE IV.7.5

MEAN RADIOACTIVITY IN CHANNEL CATFISH AND WHITE CRAPPIE

(pCi/g Original Sample)

Environmental Station No.	Period	Collection Dates	G. Beta	K-40	N. Beta	Sr-89	Sr-90
1EE & 4J (a)	1st	3/18-3/23	2.4±0.9	1.9±0.5	.69±.29	<.008	.028±.036
6H (b)	Quarter	3/24	2.6±0.5	2.0±0.2	<.68	<.010	.049
1EE & 4J (a)	2nd	4/26-6/09	1.7±1.0	1.8±1.0	<.41	.023±.011	.033±.028
6H (b)	Quarter	6/16-6/17	1.6±0.7	1.8±0.5	.46±.18	<.009	.036±.015
1EE & 4J (a)	3rd	9/27-9/29	2.4±1.2	2.0±0.5	.68±.43	<.008	.032±.031
6H (b)	Quarter	9/23-9/30	2.6±0.9	2.2±0.6	.65±.18	<.009	.032±.009
1EE & 4J (a)	4th	11/01-11/15	2.4±1.0	2.2±1.0	.58±.21	.008±.004	.025±.013
6H (b)	Quarter	11/10	1.6±1.3	1.6±0.3	.58±.34	<.008	.038±.010
1EE & 4J (a)	Annual Mean	3/18-11/15	2.2±1.2	2.0±0.8	.59±.38	.012±015	.030±.025
6H (b)	Annual Mean	3/24-11/15	2.0±1.2	2.0±0.6	.58±.26	.009±.002	.037±.015
Overall Mean		3/18-11/15	2.2±1.2	2.0±0.8	.58±.34	.011±.012	.032±.023

(a) Potentially Affected Stations

(b) Unaffected Stations

TABLE IV.8.1
ANALYTICAL DATA FOR VEGETATION SAMPLES
CONCENTRATION (PC/G ASH)

STATION CODE		COLLECTION DATE	SAMPLE TYPE	G.BETA	K-40	N.BETA	SR-89	SR-90	RADIOACTIVE CESIUM
1	82	07/11	CABBAGE	120 ; 10	93 ; 9	20 ; 10	1.4 ; .4	5.3 ; .1	.35 ; .05
			CORN	160 ; 10	170 ; 20	< 20	< .6	6.0 ; .2	.[illegible] ; .2
		08/07	CORN	230 ; 10	200 ; 20	30 ; 20	< .5	3.2 ; .2	1.0 ; .2
			STRING BEANS	170 ; 10	120 ; 10	60 ; 20	3 ; 2	27.6 ; .5	1.5 ; .7
		09/11	CABBAGE	140 ; 10	89 ; 9	50 ; 10	< .5	9.5 ; .2	.35 ; .04
			CORN	250 ; 10	170 ; 20	70 ; 20	< .6	3.1 ; .3	.4 ; .1
		ANNUAL MEAN		178 ; 102	140 ; 92	42 ; 43	1.1 ; 2.0	9.3 ; 18.6	.8 ; .9
3A	82	07/10	WILD VEG.	130 ; 10	65 ; 6	70 ; 10	.7 ; .3	9.7 ; .1	2.07 ; .09
		08/07	WILD VEG.	180 ; 10	110 ; 10	70 ; 20	2.0 ; .4	13.2 ; .1	1.3 ; .1
		09/11	WILD VEG.	190 ; 10	100 ; 10	100 ; 20	< 2	34.1 ; .8	1.2 ; .1
		ANNUAL MEAN		167 ; 64	92 ; 47	80 ; 35	1.6 ; 1.5	19.0 ; 26.4	1.5 ; .9
4N	82	07/10	WILD VEG.	220 ; 10	170 ; 20	60 ; 20	.9 ; .4	5.3 ; .2	.7 ; .1
		08/07	WILD VEG.	240 ; 10	170 ; 20	70 ; 20	< .4	7.9 ; .2	.5 ; .1
		09/11	WILD VEG.	170 ; 10	94 ; 9	70 ; 20	< .4	8.03 ; .09	.71 ; .06
		ANNUAL MEAN		210 ; 72	145 ; 88	67 ; 12	.6 ; .6	7.1 ; 3.1	.6 ; .2
5	82	07/10	CABBAGE	110 ; 10	86 ; 9	20 ; 10	.6 ; .3	3.1 ; .1	.41 ; .06
			SWISS CHARD	180 ; 10	150 ; 20	30 ; 20	< .1	.96 ; .05	.37 ; .07
		08/07	BEANS	230 ; 10	170 ; 20	60 ; 20	.6 ; .4	7.8 ; .1	.7 ; .1
			CAULIFLOWER	120 ; 10	100 ; 10	20 ; 20	.4 ; .2	4.97 ; .09	.33 ; .06
		09/11	BEETS	200 ; 10	130 ; 10	60 ; 20	.5 ; .4	3.7 ; .1	.17 ; .07
			TURNIPS	260 ; 10	210 ; 20	50 ; 20	< .2	1.84 ; .06	.27 ; .05
		ANNUAL MEAN		183 ; 119	141 ; 92	40 ; 38	.4 ; .4	3.7 ; 4.9	.4 ; .4
6D	82	07/10	RHUBARB	150 ; 10	140 ; 10	< 20	1.3 ; .4	8.1 ; .1	.6 ; .1
		08/09	CORN & BEANS	170 ; 10	84 ; 8	80 ; 20	< .2	2.31 ; .07	.51 ; .05
			CUCUMBER VINES	90 ; 10	75 ; 7	20 ; 10	.1 ; .1	1.44 ; .04	.22 ; .04
		09/11	CORN	200 ; 10	160 ; 20	40 ; 20	< 2	5.6 ; .4	3.1 ; .9
			STRING BEANS	140 ; 10	110 ; 10	30 ; 20	< .3	3.1 ; .2	.25 ; .07
		ANNUAL MEAN		150 ; 81	114 ; 72	38 ; 50	.8 ; 1.7	4.1 ; 5.4	.9 ; 2.4
8	82	07/10	BEANS	40 ; 10	17 ; 2	20 ; 10	< 2	1.2 ; .5	.36 ; .03
			CABBAGE	30 ; 10	21 ; 2	10 ; 10	< 2	1.8 ; .5	.42 ; .03
		08/07	CORN	70 ; 10	35 ; 4	30 ; 10	.11 ; .09	.58 ; .03	.24 ; .02
			CORN & BEANS	50 ; 10	36 ; 4	10 ; 10	< 2	1.0 ; .6	.25 ; .02
		09/11	BROCCOLI	170 ; 10	110 ; 10	60 ; 20	1.3 ; .7	3.9 ; .2	.20 ; .06
			STRING BEANS	220 ; 10	180 ; 20	50 ; 20	< .1	1.56 ; .04	.25 ; .04
		ANNUAL MEAN		97 ; 158	66 ; 130	30 ; 42	1.3 ; 1.8	1.7 ; 2.3	.29 ; .17
23	82	07/10	APPLES	250 ; 10	160 ; 20	80 ; 20	2 ; 1	17.2 ; .5	.7 ; .3
			PEACHES	250 ; 10	200 ; 20	60 ; 20	.4 ; .4	6.1 ; .1	.7 ; .1
		08/07	APPLES	280 ; 10	160 ; 20	120 ; 20	< 1	19.1 ; .4	1.0 ; .2
			PEACHES	330 ; 20	200 ; 20	130 ; 30	< .5	9.5 ; .1	.7 ; .1
		09/11	APPLES	210 ; 10	130 ; 10	90 ; 20	< .6	17.2 ; .2	.6 ; .1
			PEACH LEAVES	220 ; 10	140 ; 10	80 ; 20	< .6	12.8 ; .2	.28 ; .06
		ANNUAL MEAN		257 ; 87	165 ; 59	93 ; 53	.8 ; 1.2	13.7 ; 10.2	.7 ; .5
		MEAN-SITE AREA STATIONS (1,23)		218 ; 122	153 ; 78	68 ; 71	1.0 ; 1.6	11.5 ; 15.0	.7 ; .7
		MEAN-DISTANCE STATIONS (3A,4N,5,6D,8)		154 ; 131	110 ; 108	46 ; 50	.9 ; 1.5	5.7 ; 14.1	.6 ; 1.4
		MEAN-ALL STATIONS		176 ; 140	124 ; 105	53 ; 61	.9 ; 1.5	7.7 ; 15.2	.7 ; 1.2

NOTE: SEMICOLON INDICATES A PLUS OR MINUS SIGN.

TABLE IV.8.2
ANALYTICAL DATA FOR VEGETATION SAMPLES
CONCENTRATION (PC/GRAM ORIGINAL SAMPLE)

STATION CODE		COLLECTION DATE	SAMPLE TYPE	G.BETA	K-40	N.BETA	SR-89	SR-90	RADIOACTIVE CESIUM
1	82	07/11	CABBAGE	3.5 ; .3	2.8 ; .3	.7 ; .4	.04 ; .01	.191 ; .004	.011 ; .002
			CORN	1.06 ; .07	1.1 ; .1	< .1	< .004	.039 ; .001	.006 ; .001
		08/07	CORN	2.5 ; .2	2.1 ; .2	.4 ; .3	< .005	.034 ; .002	.011 ; .003
			STRING BEANS	1.19 ; .09	.81 ; .08	.4 ; .1	.02 ; .01	.188 ; .007	.010 ; .005
		09/11	CABBAGE	4.5 ; .4	2.9 ; .3	1.6 ; .5	< .02	.311 ; .007	.011 ; .001
			CORN	3.4 ; .2	2.4 ; .2	1.0 ; .3	< .008	.043 ; .004	.004 ; .002
		ANNUAL MEAN		2.7 ; 2.7	2.0 ; 1.8	.7 ; 1.1	.02 ; .03	.134 ; .228	.009 ; .005
3A	82	07/10	WILD VEG.	6.9 ; .6	3.3 ; .3	3.5 ; .7	.03 ; .01	.500 ; .005	.107 ; .005
		08/07	WILD VEG.	4.6 ; .3	2.9 ; .3	1.7 ; .4	.05 ; .01	.331 ; .004	.033 ; .003
		09/11	WILD VEG.	3.1 ; .2	1.5 ; .2	1.5 ; .3	< .03	.54 ; .01	.019 ; .002
		ANNUAL MEAN		4.9 ; 3.8	2.6 ; 1.9	2.2 ; 2.2	.04 ; .02	.457 ; .222	.053 ; .095
4N	82	07/10	WILD VEG.	3.7 ; .2	2.7 ; .3	.9 ; .4	.015 ; .007	.088 ; .003	.011 ; .002
		08/07	WILD VEG.	4.7 ; .3	3.3 ; .3	1.4 ; .4	< .008	.152 ; .003	.010 ; .002
		09/11	WILD VEG.	4.9 ; .4	2.8 ; .3	2.1 ; .5	< .01	.234 ; .003	.021 ; .002
		ANNUAL MEAN		4.4 ; 1.3	2.9 ; .6	1.5 ; 1.2	.01 ; .01	.158 ; .146	.014 ; .012
5	82	07/10	CABBAGE	2.7 ; .2	2.1 ; .2	.6 ; .2	.014 ; .008	.075 ; .003	.010 ; .002
			SWISS CHARD	4.7 ; .3	4.1 ; .4	.7 ; .5	< .003	.025 ; .001	.010 ; .002
		08/07	BEANS	3.7 ; .2	2.7 ; .3	1.0 ; .4	.009 ; .007	.127 ; .002	.011 ; .002
			CAULIFLOWER	4.9 ; .5	4.0 ; .4	.9 ; .6	.018 ; .009	.199 ; .004	.013 ; .002
		09/11	BEETS	2.2 ; .1	1.5 ; .1	.7 ; .2	.005 ; .004	.041 ; .001	.0019 ; .0008
			TURNIPS	5.3 ; .3	4.3 ; .4	1.0 ; .5	< .004	.038 ; .001	.006 ; .001
		ANNUAL MEAN		5.3 ; 2.5	3.1 ; 2.4	.8 ; .3	.009 ; .012	.084 ; .134	.009 ; .008
6D	82	07/10	RHUBARB	2.0 ; .1	1.9 ; .2	< .2	.018 ; .006	.112 ; .002	.008 ; .002
		08/09	CORN & BEANS	5.7 ; .5	2.9 ; .3	2.8 ; .6	< .006	.079 ; .002	.018 ; .002
			CUCUMBER VINES	2.7 ; .3	2.2 ; .2	.5 ; .4	.004 ; .004	.043 ; .001	.007 ; .001
		09/11	CORN	1.02 ; .07	.81 ; .08	.2 ; .1	< .008	.028 ; .002	.016 ; .004
			STRING BEANS	4.1 ; .3	3.3 ; .3	.8 ; .5	< .009	.091 ; .005	.007 ; .002
		ANNUAL MEAN		3.1 ; 3.7	2.2 ; 1.9	.9 ; 2.2	.01 ; .01	.071 ; .069	.011 ; .011
8	82	07/10	BEANS	7 ; 2	3.0 ; .3	4 ; 2	< .3	.22 ; .09	.065 ; .006
			CABBAGE	4 ; 1	2.6 ; .3	2 ; 1	< .2	.23 ; .06	.053 ; .004
		08/07	CORN	7 ; 1	3.9 ; .4	3 ; 1	.01 ; .01	.064 ; .003	.026 ; .002
			CORN & BEANS	5 ; 1	3.9 ; .4	1 ; 1	< .2	.10 ; .06	.027 ; .002
		09/11	BROCCOLI	3.6 ; .3	2.4 ; .2	1.2 ; .4	.03 ; .01	.083 ; .005	.004 ; .001
			STRING BEANS	9.5 ; .6	7.5 ; .7	2.0 ; .9	< .005	.066 ; .002	.011 ; .002
		ANNUAL MEAN		6.0 ; 4.5	3.9 ; 3.8	2.2 ; 2.3	.12 ; .25	.127 ; .154	.031 ; .047
23	82	07/10	APPLES	1.27 ; .07	.84 ; .08	.4 ; .1	.010 ; .007	.088 ; .003	.003 ; .001
			PEACHES	2.9 ; .2	2.3 ; .2	.7 ; .3	.005 ; .004	.071 ; .001	.008 ; .001
		08/07	APPLES	1.21 ; .06	.70 ; .07	.51 ; .09	< .005	.083 ; .002	.004 ; .001
			PEACHES	3.0 ; .1	1.8 ; .2	1.2 ; .2	< .004	.085 ; .001	.007 ; .001
		09/11	APPLES	2.1 ; .1	1.3 ; .1	.8 ; .2	< .006	.171 ; .002	.006 ; .01
			PEACH LEAVES	6.0 ; .4	3.7 ; .4	2.2 ; .5	< .02	.350 ; .006	.008 ; .002
		ANNUAL MEAN		2.7 ; 3.5	1.8 ; 2.2	1.0 ; 1.3	.01 ; .01	.141 ; .217	.006 ; .004
		MEAN-SITE AREA STATIONS (1,23)		2.7 ; 3.0	1.9 ; 1.9	.8 ; 1.2	.01 ; .02	.138 ; .212	.008 ; .005
		MEAN-DISTANCE STATIONS (3A,4N,5,6D,8)		4.5 ; 3.8	3.0 ; 2.6	1.5 ; 2.1	.04 ; .16	.151 ; .282	.022 ; .048
		MEAN-ALL STATIONS		3.9 ; 3.9	2.6 ; 2.6	1.2 ; 1.9	.03 ; .13	.146 ; .257	.017 ; .041

NOTE: SEMICOLON INDICATES A PLUS OR MINUS SIGN.

TABLE IV.9.1
ANALYTICAL DATA FOR MILK SAMPLES
CONCENTRATION (PC/L)

NEAF 3Y FARMS

STATION CODE	COLLECTION DATE	I-131	G.BETA	K-40	N.BETA	SR-89	SR-90	CS-134	CS-137
G	82 01/18	< .06	740 ; 90	730 ; 70	< 100	< 1	7.2 ; .5	< 3	6 ; 3
	05/03	< .02	740 ; 80	560 ; 60	200 ; 100	< .9	6.7 ; .4	< 9	8 ; 7
	07/12	< .1	530 ; 70	550 ; 60	< 90	< .9	4.5 ; .4	< 9	13 ; 8
	11/01	< .1	1270 ; 90	1100 ; 100	200 ; 100	< 1	5.3 ; .3	< 2	< 2
	ANNUAL MEAN	< .07	820 ; 632	735 ; 514	148 ; 122	< 1.	5.9 ; 2.5	< 6	7 ; 9
J	82 01/18	< .03	1080 ; 90	1000 ; 100	< 100	< 1	7.3 ; .4	< 9	10 ; 8
	05/03	< .09	850 ; 80	650 ; 70	200 ; 100	< 1	5.3 ; .5	< 4	4 ; 3
	07/12	< .1	1900 ; 200	1900 ; 200	< 300	< 1	5.9 ; .5	< 4	< 3
	11/01	< .08	940 ; 80	930 ; 90	< 100	< .8	4.5 ; .3	< 3	< 3
	ANNUAL MEAN	< .08	1192 ; 962	1120 ; 1083	175 ; 191	< 1.	5.8 ; 2.4	< 5	5 ; 7
O	82 01/18		1000 ; 100	900 ; 90	< 100	< 1	4.2 ; .5	< 4	< 4
	05/03		810 ; 90	590 ; 60	200 ; 100	< .8	2.9 ; .2	< 3	4 ; 2
	07/12		560 ; 70	559 ; 60	< 90	< 1	3.6 ; .4	< 3	< 2
	11/01		870 ; 70	780 ; 80	< 100	< .8	3.0 ; .3	< 3	< 2
	ANNUAL MEAN		810 ; 369	705 ; 328	122 ; 104	< .9	3.4 ; 1.2	< 3	3 ; 2

NOTE: SEMICOLON INDICATES A PLUS OR MINUS SIGN.

TABLE IV.9.1 (CONTINUED)
ANALYTICAL DATA FOR MILK SAMPLES
CONCENTRATION (PC/L)

INTERMEDIATE DISTANCE FARMS

STATION CODE	COLLECTION DATE	I-131	G.BETA	K-40	N.BETA	SR-89	SR-90	CS-134	CS-137
D	82 01/18		920 ; 90	820 ; 80	< 100	< 1	3.8 ; .4	< 2	< 2
	05/03		1100 ; 100	780 ; 80	300 ; 100	< 1	3.4 ; .5	< 6	6 ; 5
	07/12		530 ; 60	560 ; 60	< 90	< 1	4.4 ; .5	< 3	< 3
	11/01		1140 ; 90	1400 ; 100	< 200	< .9	3.0 ; .3	< 3	< 2
	ANNUAL MEAN		922 ; 557	890 ; 717	172 ; 197	< 1.	3.6 ; 1.2	< 4	3 ; 4
L	82 01/18		1050 ; 90	1100 ; 100	< 100	< .9	3.7 ; .4	< 3	6 ; 3
	05/03		1090 ; 90	830 ; 80	300 ; 100	< 1	3.3 ; .4	< 3	3 ; 3
	07/12		640 ; 70	610 ; 60	< 90	< .8	4.8 ; .3	< 3	6 ; 3
	11/01		1300 ; 100	1200 ; 100	200 ; 200	< .9	3.3 ; .4	< 4	< 3
	ANNUAL MEAN		1020 ; 552	935 ; 534	172 ; 197	< .9	3.8 ; 1.4	< 3	4 ; 3
M	82 01/18		900 ; 100	870 ; 90	< 100	< 1	5.2 ; .4	< 8	< 7
	05/03		1000 ; 100	880 ; 90	200 ; 100	< 1	4.2 ; .3	< 4	4 ; 3
	07/12		490 ; 60	540 ; 50	< 80	1 ; 1	5.7 ; .5	< 5	< 4
	11/01		1100 ; 100	1200 ; 100	< 200	< 1	3.8 ; .3	< 4	6 ; 4
	ANNUAL MEAN		872 ; 536	872 ; 539	145 ; 128	< 1.	4.7 ; 1.7	< 5	5 ; 3
N	82 01/18		850 ; 90	820 ; 80	< 100	< 1	6.3 ; .4	< 3	< 3
	05/03		960 ; 90	750 ; 80	200 ; 100	< .6	3.7 ; .2	< 4	< 4
	07/12		520 ; 60	550 ; 50	< 80	< .9	6.0 ; .4	< 2	< 2
	11/01		1280 ; 90	1200 ; 100	< 100	< .9	4.3 ; .4	< 3	< 3
	ANNUAL MEAN		902 ; 627	830 ; 544	120 ; 108	< .8	5.0 ; 2.5	< 3	< 3

NOTE: SEMICOLON INDICATES A PLUS OR MINUS SIGN.

TABLE IV.9.1 (CONTINUED)
ANALYTICAL DATA FOR MILK SAMPLES
CONCENTRATION (PC/L)

DISTANT FARMS

STATION CODE	COLLECTION DATE	I-131	G.BETA	K-40	N.BETA	SR-89	SR-90	CS-134	CS-137
A	82 01/18	< .05	1070 ; 90	870 ; 90	200 ; 100	< .8	2.9 ; .3	< 3	< 2
	05/03	< .09	910 ; 80	710 ; 70	200 ; 100	< .7	2.7 ; .3	< 10	< 9
	07/12	< .09	700 ; 80	700 ; 70	< 100	< .9	2.0 ; .4	< 10	< 10
	11/01	< .1	1310 ; 90	1200 ; 100	< 200	< 1	3.7 ; .5	< 3	< 2
	ANNUAL MEAN	< .08	998 ; 515	870 ; 467	175 ; 100	< .8	2.8 ; 1.4	< 6	< 6
B	82 01/18		990 ; 90	830 ; 80	200 ; 100	< 1	4.0 ; .5	< 3	< 3
	05/03		1100 ; 100	660 ; 70	500 ; 100	< .8	2.9 ; .3	< 2	6 ; 2
	07/12		580 ; 80	660 ; 70	< 100	< 1	4.1 ; .4	< 3	4 ; 3
	11/01		1220 ; 90	1200 ; 100	< 200	1 ; 1	3.3 ; .4	< 8	< 6
	ANNUAL MEAN		972 ; 556	836 ; 509	250 ; 346	.9 ; .2	3.6 ; 1.1	< 4	5 ; 3
C	82 01/18	< .03	930 ; 90	850 ; 90	< 100	< 1	5.7 ; .6	< 3	5 ; 3
	05/03	< .06	870 ; 80	680 ; 70	200 ; 100	< .8	3.4 ; .3	< 8	< 7
	07/12	< .2	750 ; 70	650 ; 60	100 ; 90	< .9	4.2 ; .4	< 5	< 4
	11/01	< .1	1140 ; 90	1200 ; 100	< 100	< .8	3.5 ; .4	< 4	< 3
	ANNUAL MEAN	< .10	922 ; 326	845 ; 505	125 ; 100	< .9	4.2 ; 2.1	< 5	5 ; 3
E	82 01/18		890 ; 90	840 ; 80	< 100	< 1	6.5 ; .4	< 4	< 3
	05/03		890 ; 80	710 ; 70	200 ; 100	< 1	3.5 ; .5	< 3	4 ; 3
	07/12		680 ; 80	850 ; 80	< 100	< 1	5.6 ; .6	< 4	6 ; 4
	11/01		850 ; 60	800 ; 80	< 100	1 ; 1	3.8 ; .3	< 3	3 ; 3
	ANNUAL MEAN		828 ; 200	800 ; 128	125 ; 100	< 1.	4.8 ; 2.9	< 4	4 ; 3

NOTE: SEMICOLON INDICATES A PLUS OR MINUS SIGN.

TABLE IV.9.2

1982 MEAN RADIOACTIVITY CONCENTRATION IN MILK SAMPLES

(pCi/l)

Farm Groups	Collection Dates	G. Beta	K-40	N. Beta	Sr-89	Sr-90	Cs-134	Cs-137	I-131
Distant	1/18	970±157	848± 34	150±115	< 1.0	4.8±3.2	< 3.2	3.2±2.5	<.040
Farms	5/3	942±212	690± 48	275±300	< 0.8	3.1±0.8	< 5.8	6.5±4.2	<.075
(A,B,C,E)	7/12	678±142	715±185	100	< 1.0	4.0±3.0	< 5.5	6.0±5.7	<.145
	11/1	1130±398	1100±400	< 150	1.0±0.2	3.6±0.4	< 4.5	3.5±3.5	<.100
Annual Mean	1/18-11/1	930±403	838±390	169±203	0.9±0.2	3.9±2.4	< 4.8	4.8±4.7	<.090
Nearby	1/18	940±356	877±273	< 100	< 1.0	6.2±3.5	< 5.3	6.7±6.1	<.045
Farms	5/3	800±111	600± 92	200	< 0.9	5.0±3.8	< 5.3	5.3±4.6	<.055
(G,J,O)	7/12	997±1565	1000±1559	< 160	< 1.0	4.7±2.3	< 5.3	6.0±12.2	<.100
	11/1	1027±427	937±320	133±115	< 0.9	4.3±2.3	< 2.7	< 2.3	<.090
Annual Mean	1/18-11/1	941±733	853±760	148±138	< 0.9	5.0±3.0	< 4.7	5.1±7.1	<.072
Intermed.	1/18	930±170	902±268	< 100	< 1.0	4.8±2.5	< 4.0	4.5±4.8	-
Farms	5/3	1038±137	810±114	250±115	< 0.9	3.7±0.8	< 4.2	4.2±1.5	-
(D,L,M,N)	7/12	545±131	565± 62	< 85	0.9±0.2	5.2±1.5	< 3.2	3.8±3.4	-
	11/1	1205±200	1250±200	175±100	< 0.9	3.6±1.1	< 3.5	3.5±3.5	-
Annual Mean	1/18-11/1	929±522	882±532	152±152	0.9±0.2	4.3±2.0	< 3.7	4.0±3.3	-
Overall Mean	1/18-11/1	933±538	858±549	157±166	0.9±0.2	4.3±2.6	< 4.4	4.6±5.0	<.081

TABLE IV.10.1
ANALYTICAL DATA FOR RABBIT SAMPLES
CONCENTRATION (PC/G ASH)

COLLECTION DATE		ID	G.BETA	K-40	N.BETA	SR-89	SR-90
82 04/26	BONE	5B4314	< 10	1 ; 1	< 10	< .4	4.2 ; .1
	SOFT TISSUE	5T4314	180 ; 10	130 ; 10	50 ; 20		
	MUSCLE	5M4314	180 ; 10	130 ; 10	50 ; 20		
04/27	BONE	5B4313	10 ; 10	2 ; 1	10 ; 10	< .5	6.1 ; .2
	SOFT TISSUE	5T4313	80 ; 10	62 ; 6	20 ; 10		
	MUSCLE	5M4313	190 ; 10	140 ; 10	50 ; 20		
08/17	BONE	5B4430	20 ; 10	15 ; 2	< 10	< 8	7 ; 2
	SOFT TISSUE	5T4430	160 ; 10	120 ; 10	30 ; 20		
	MUSCLE	5M4430	190 ; 10	160 ; 20	40 ; 20		
09/02	BONE	5B4432	10 ; 10	8 ; 1	< 10	< .6	4.1 ; .1
	SOFT TISSUE	5T4432	150 ; 10	130 ; 10	< 20		
	MUSCLE	5M4432	210 ; 10	170 ; 20	40 ; 20		
09/07	BONE	5B4431	< 9	5 ; 1	< 9	< .8	4.5 ; .2
	SOFT TISSUE	5T4431	160 ; 10	110 ; 10	50 ; 20		
	MUSCLE	5M4431	140 ; 10	110 ; 10	30 ; 20		
09/08	BONE	5B4433	30 ; 10	7 ; 1	20 ; 10	< .9	13.4 ; .3
	SOFT TISSUE	5T4433	180 ; 10	120 ; 10	60 ; 20		
	MUSCLE	5M4433	170 ; 10	130 ; 10	40 ; 20		
	ANNUAL MEAN						
	BONE		15 ; 17	6 ; 10	12 ; 8	< 1.9	6.5 ; 7.1
	SOFT TISSUE		152 ; 74	112 ; 51	38 ; 34		
	MUSCLE		180 ; 47	140 ; 43	42 ; 15		

NOTE: SEMICOLON INDICATES A PLUS OR MINUS SIGN.

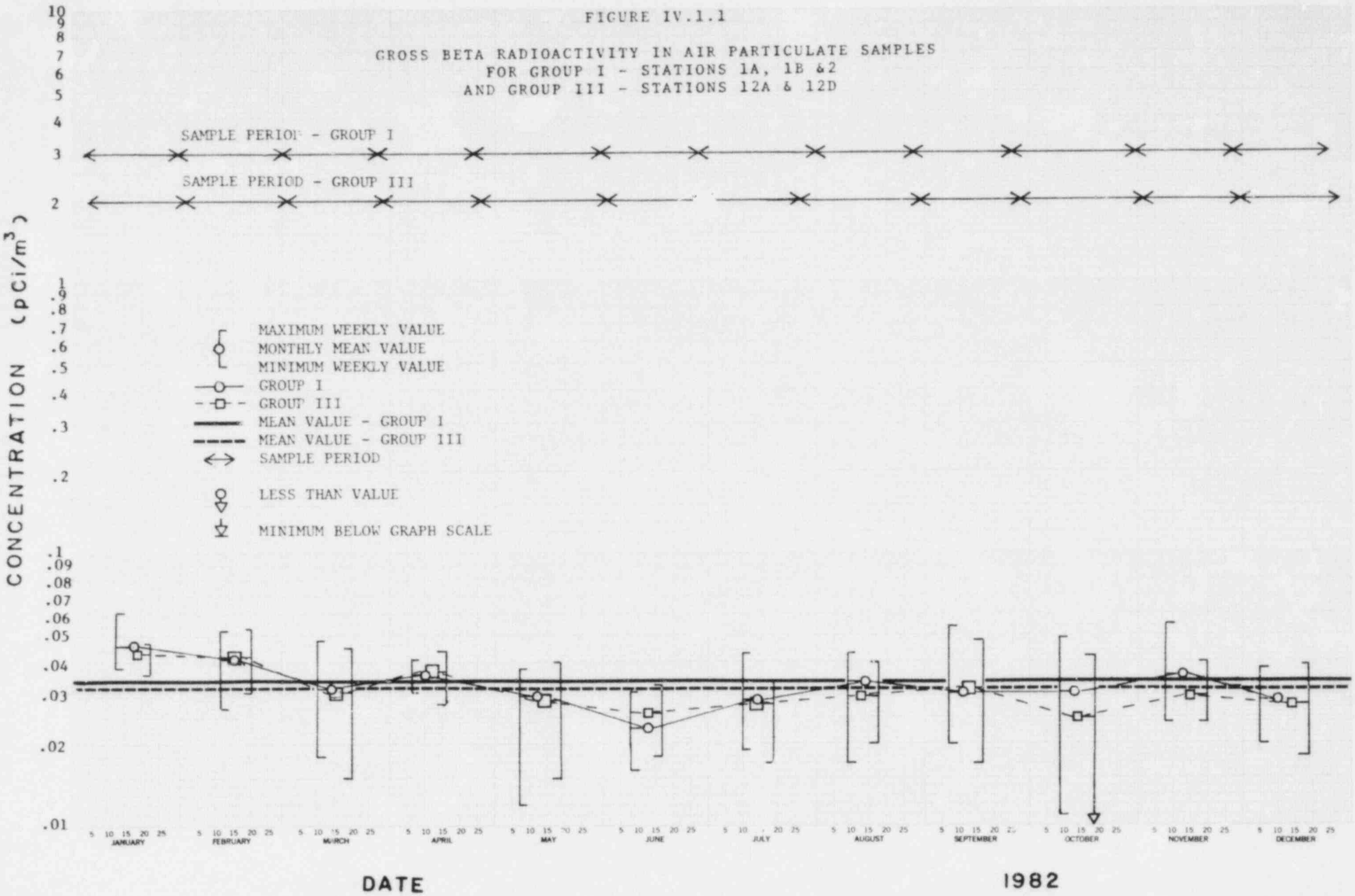
TABLE IV.10.1 (CONTINUED)
ANALYTICAL DATA FOR RABBIT SAMPLES
CONCENTRATION (PC/GRAM ORIGINAL SAMPLE)

COLLECTION DATE		ID	G.BETA	I-131 (A)	K-40	N.BETA	SR-89	SR-90
82 04/26	BONE	*B4314	< 4		.4 ; .4	< 4	< .1	1.52 ; .05
	THYROID	504314		< 11				
	SOFT TISSUE	*T4314	2.6 ; .2		1.9 ; .2	.7 ; .3		
	MUSCLE	*M4314	3.2 ; .2		2.3 ; .2	.8 ; .3		
04/27	BONE	*B4313	4 ; 3		.5 ; .3	4 ; 3	< .2	1.96 ; .05
	THYROID	504313		< 10				
	SOFT TISSUE	*T4313	4.2 ; .6		3.4 ; .3	.8 ; .7		
	MUSCLE	*M4313	3.0 ; .2		2.2 ; .2	.8 ; .3		
08/17	BONE	*B4430	3 ; 2		2.7 ; .3	< 2	< 1	1.2 ; .3
	THYROID	504430		100 ; 60				
	SOFT TISSUE	*T4430	2.9 ; .2		2.3 ; .2	.6 ; .3		
	MUSCLE	*M4430	3.0 ; .2		2.4 ; .2	.6 ; .3		
09/02	BONE	*B4432	3 ; 2		1.9 ; .3	< 2	< .2	1.05 ; .04
	THYROID	504432		< 20				
	SOFT TISSUE	*T4432	3.9 ; .3		3.4 ; .3	< .5		
	MUSCLE	*M4432	4.1 ; .3		3.3 ; .3	.8 ; .4		
09/07	BONE	*B4431	< 3		1.7 ; .3	< 3	< .3	1.46 ; .07
	THYROID	504431		< 10				
	SOFT TISSUE	*T4431	3.0 ; .2		2.1 ; .2	1.0 ; .3		
	MUSCLE	*M4431	1.6 ; .1		1.3 ; .1	.3 ; .2		
09/08	BONE	*B4433	7 ; 2		1.5 ; .2	5 ; 2	< .2	2.87 ; .06
	THYROID	504433		< 9				
	SOFT TISSUE	*T4433	2.8 ; .2		1.9 ; .2	1.0 ; .3		
	MUSCLE	*M4433	2.5 ; .2		1.9 ; .2	.6 ; .3		
	ANNUAL MEAN							
	BONE		4 ; 3		1.4 ; 1.8	3.3 ; 2.4	< .3	1.67 ; 1.33
	SOFT TISSUE		3.2 ; 1.3		2.5 ; 1.4	.8 ; .4		
	THYROID			27 ; 72				
	MUSCLE		2.9 ; 1.6		2.2 ; 1.3	< 1.		

NOTE: SEMICOLON INDICATES A PLUS OR MINUS SIGN.
(A) I-131 MEASURED IN PC/THYROID

FIGURE IV.1.1

GROSS BETA RADIOACTIVITY IN AIR PARTICULATE SAMPLES
FOR GROUP I - STATIONS 1A, 1B &2
AND GROUP III - STATIONS 12A & 12D



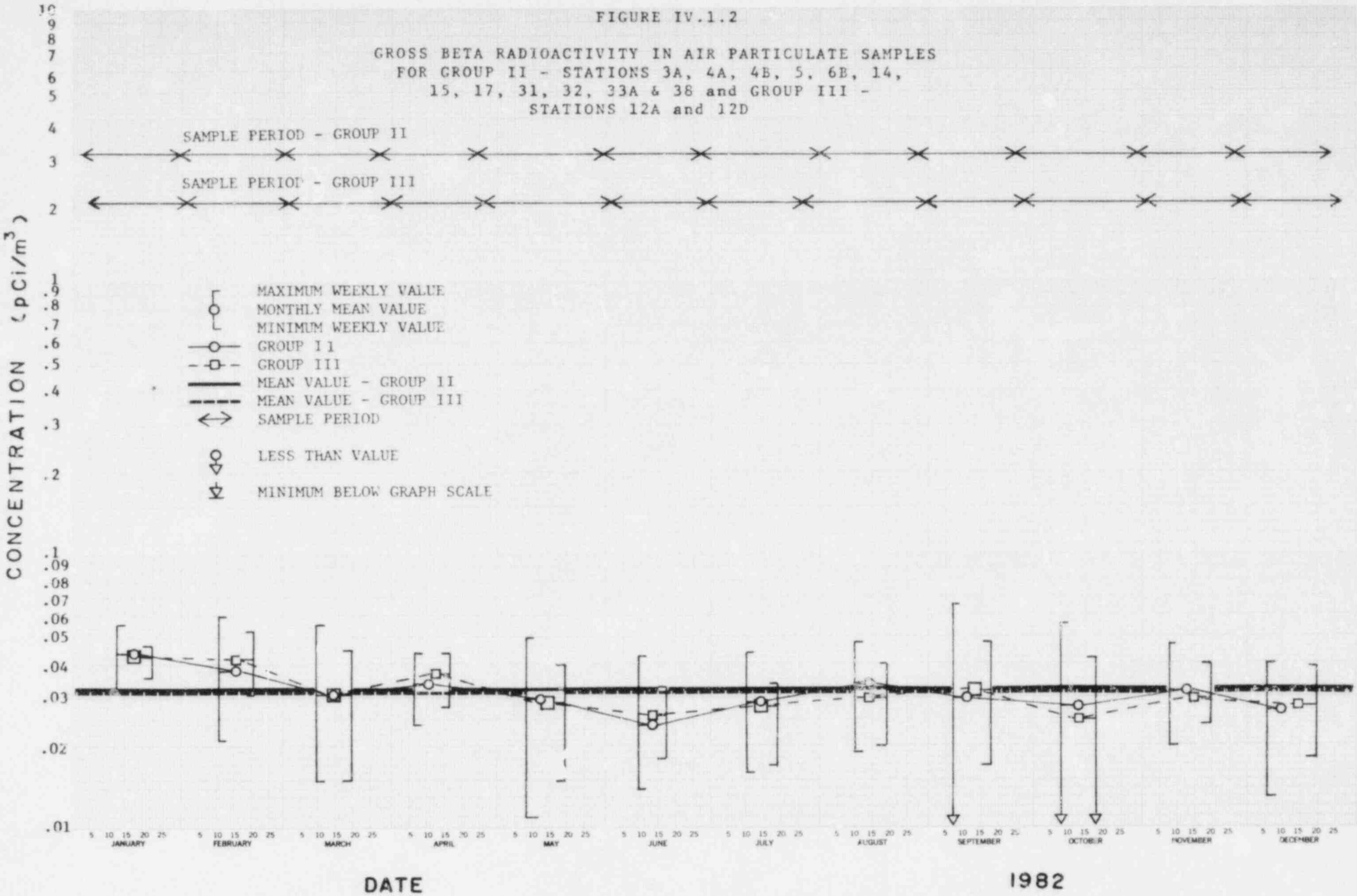
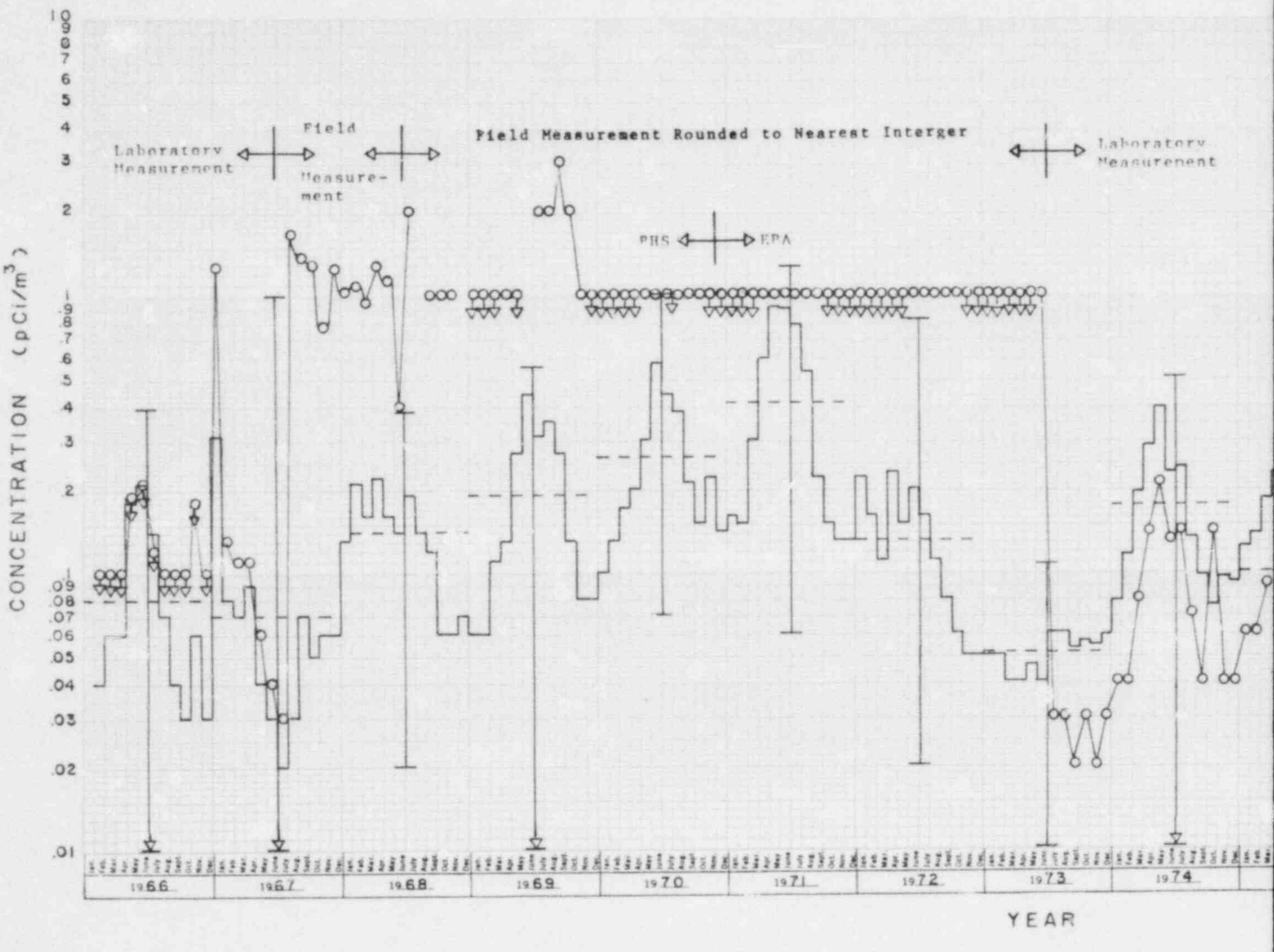
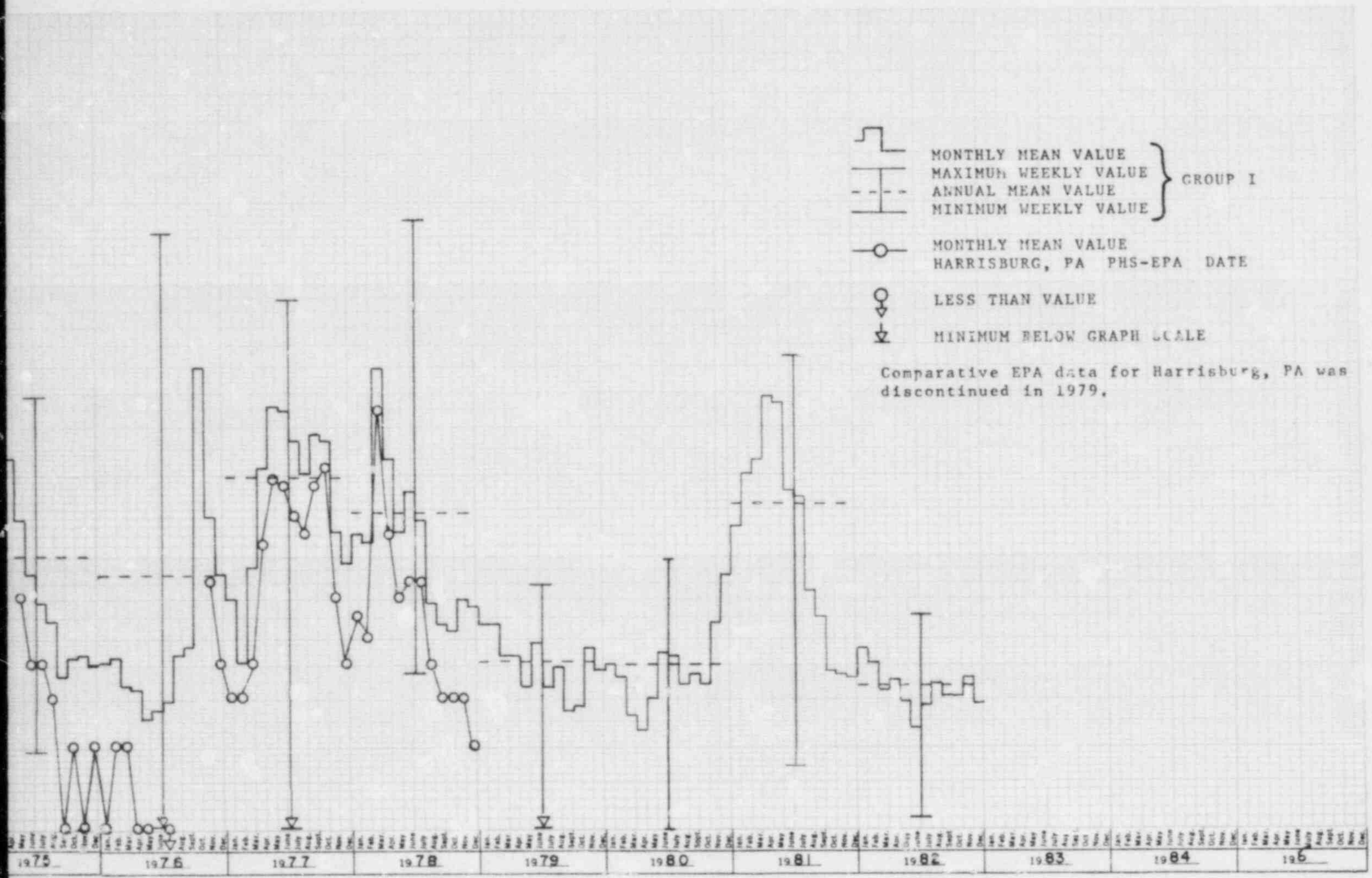


FIGURE IV.1.2
GROSS BETA RADIOACTIVITY IN AIR PARTICULATE SAMPLES
FOR GROUP II - STATIONS 3A, 4A, 4B, 5, 6B, 14,
15, 17, 31, 32, 33A & 38 and GROUP III -
STATIONS 12A and 12D
SAMPLE PERIOD - GROUP II
SAMPLE PERIOD - GROUP III
MAXIMUM WEEKLY VALUE
MONTHLY MEAN VALUE
MINIMUM WEEKLY VALUE
GROUP II
GROUP III
MEAN VALUE - GROUP II
MEAN VALUE - GROUP III
SAMPLE PERIOD
LESS THAN VALUE
MINIMUM BELOW GRAPH SCALE
CONCENTRATION (pCi/m3)
JANUARY
FEBRUARY
MARCH
APRIL
MAY
JUNE
JULY
AUGUST
SEPTEMBER
OCTOBER
NOVEMBER
DECEMBER
DATE
1982



Laboratory Measurement
Field Measurement
Field Measurement Rounded to Nearest Interger
PHS
EPA
Laboratory Measurement
CONCENTRATION (pCi/m^3)
1966
1967
1968
1969
1970
1971
1972
1973
1974
YEAR

PRC APERTURE CARD

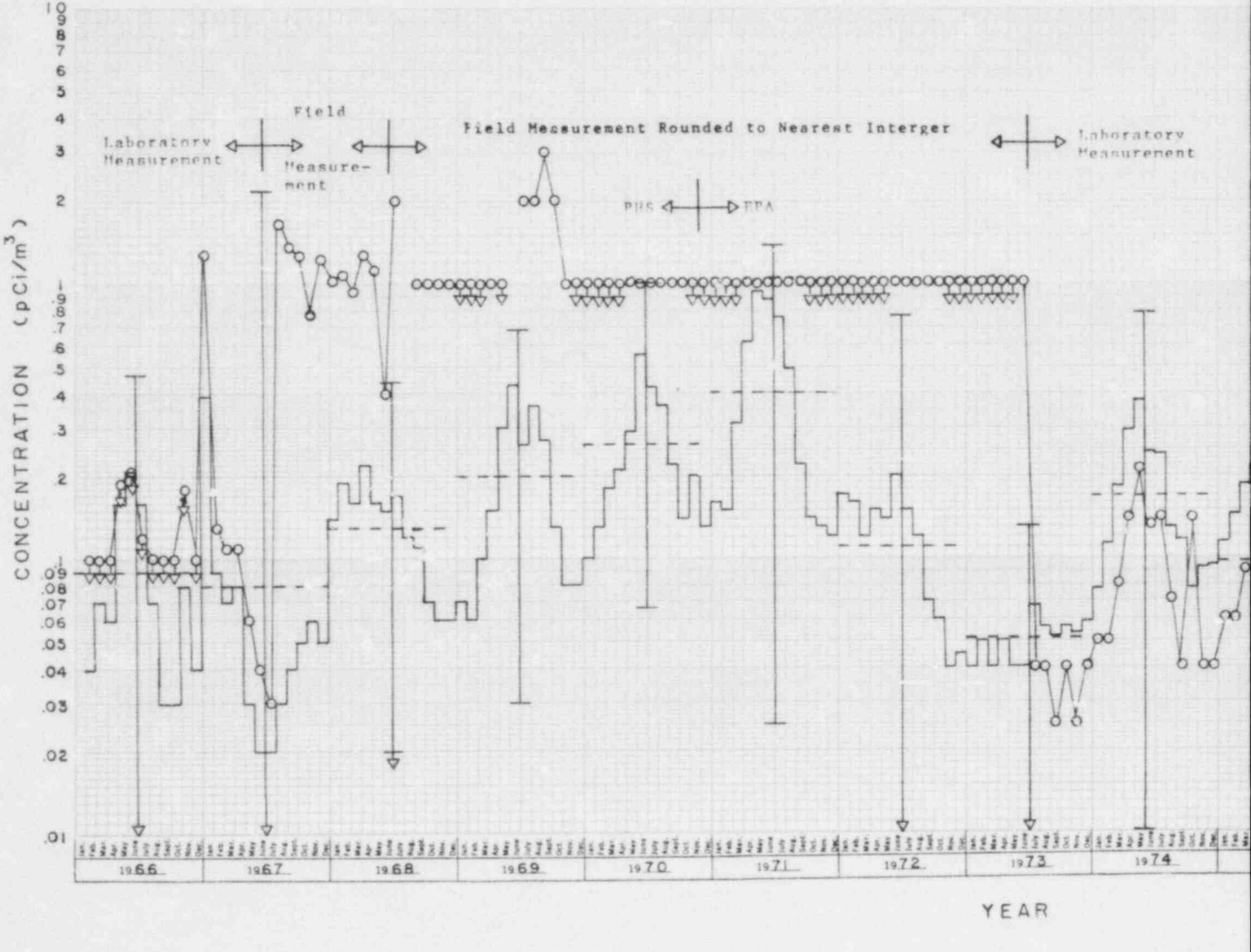


Also Available On Aperture Card

FIGURE IV.1.3

GROSS BETA RADIOACTIVITY IN AIR PARTICULATE SAMPLES FOR GROUP I - STATIONS 1A, 1B, and 2 - LONG TERM PLOT

8310120319-01


CONCENTRATION (pCi/m³)
Laboratory Measurement
Field Measurement
Field Measurement Rounded to Nearest Interger
PHS
EPA
Laboratory Measurement
1966
1967
1968
1969
1970
1971
1972
1973
1974
YEAR

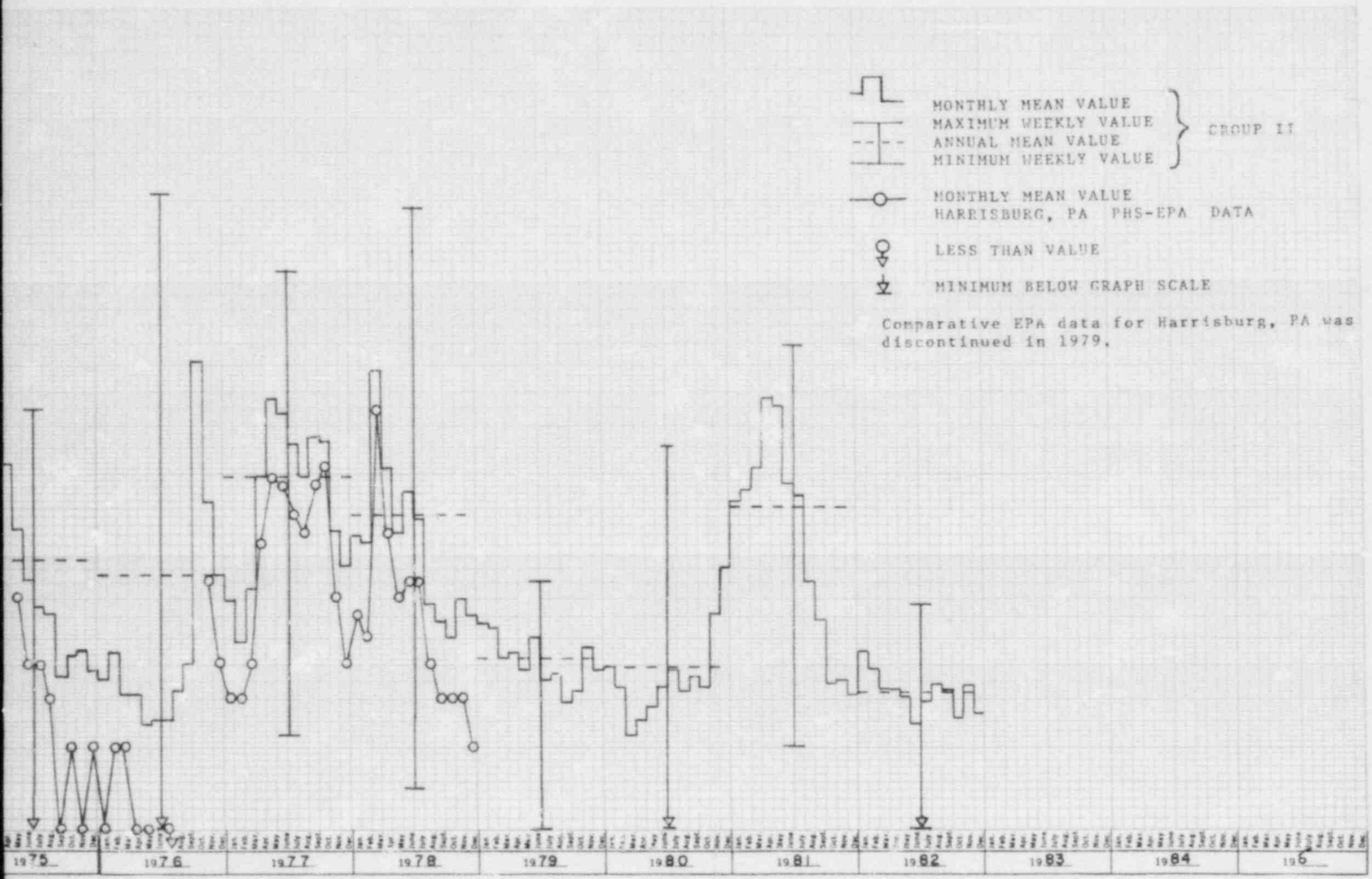
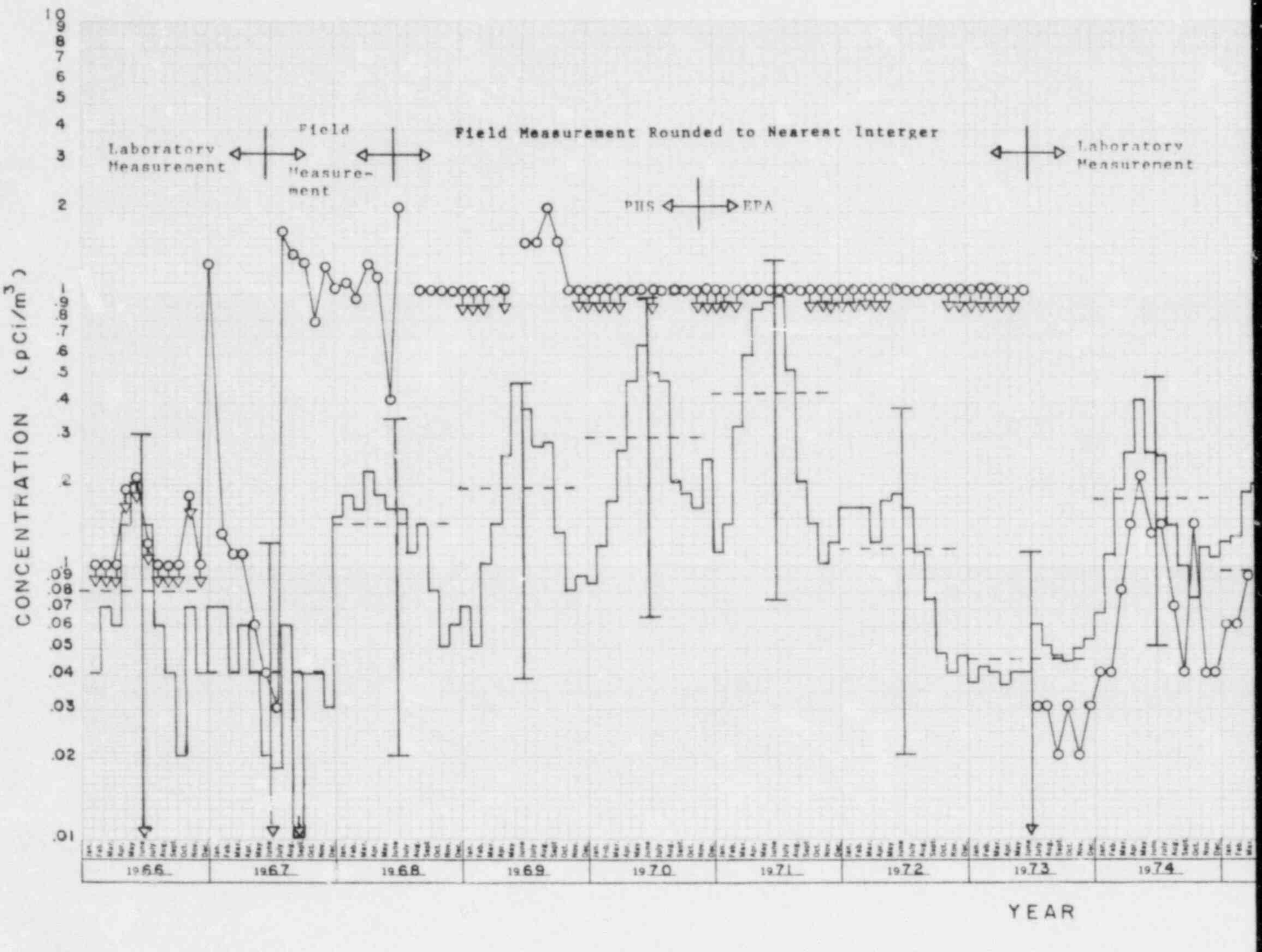


FIGURE IV.1.4

GROSS BETA RADIOACTIVITY IN AIR PARTICULATE SAMPLES FOR GROUP II - STATIONS 3A, 4A, 4B, 5, 6B, 14, 15, 17, 31, 32, 33A, - LONG TERM PLOT



CONCENTRATION (pCi/m3)
Laboratory Measurement
Field Measurement
Field Measurement Rounded to Nearest Interger
Laboratory Measurement
PHS
EPA
1966
1967
1968
1969
1970
1971
1972
1973
1974
YEAR

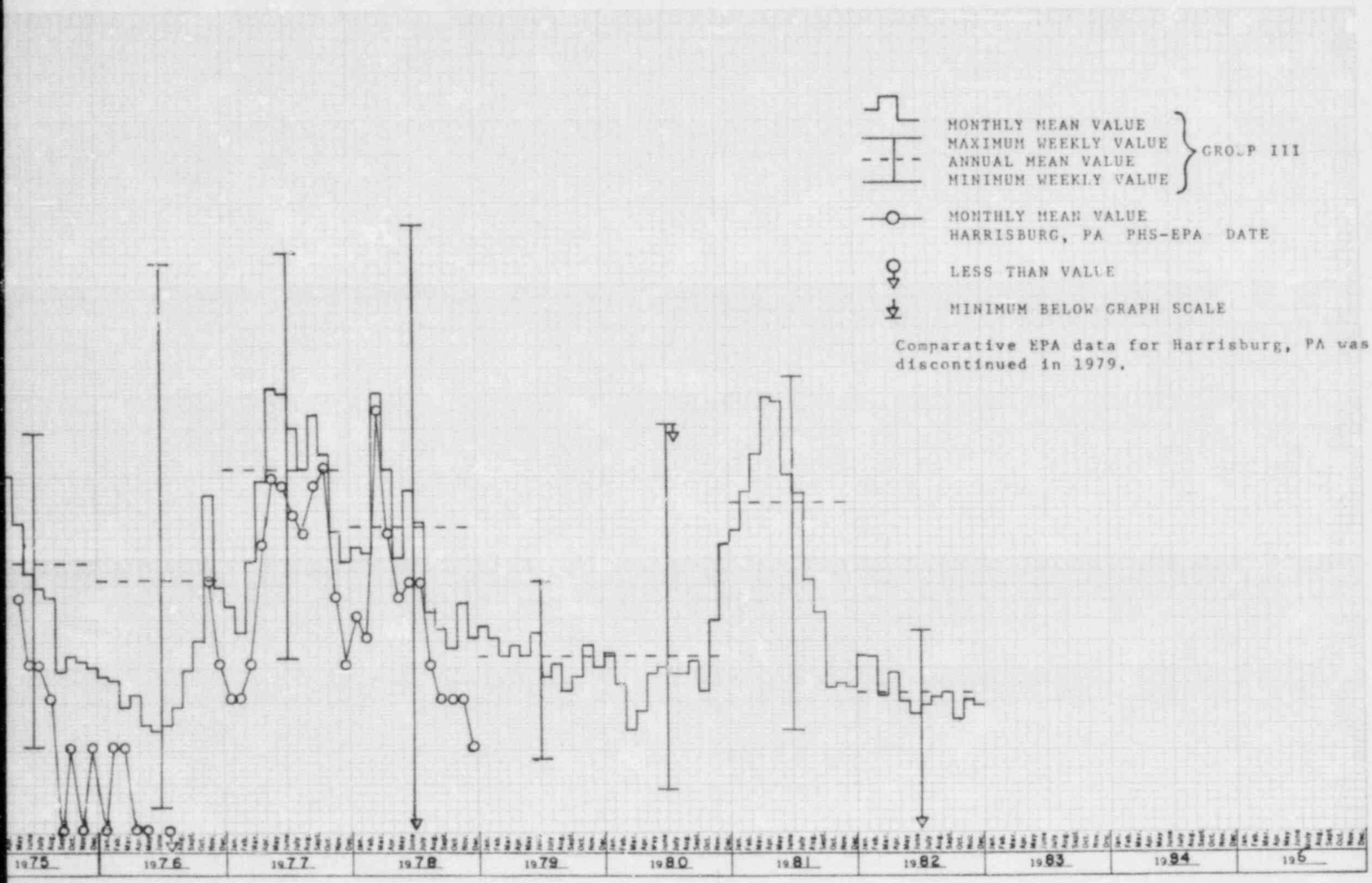
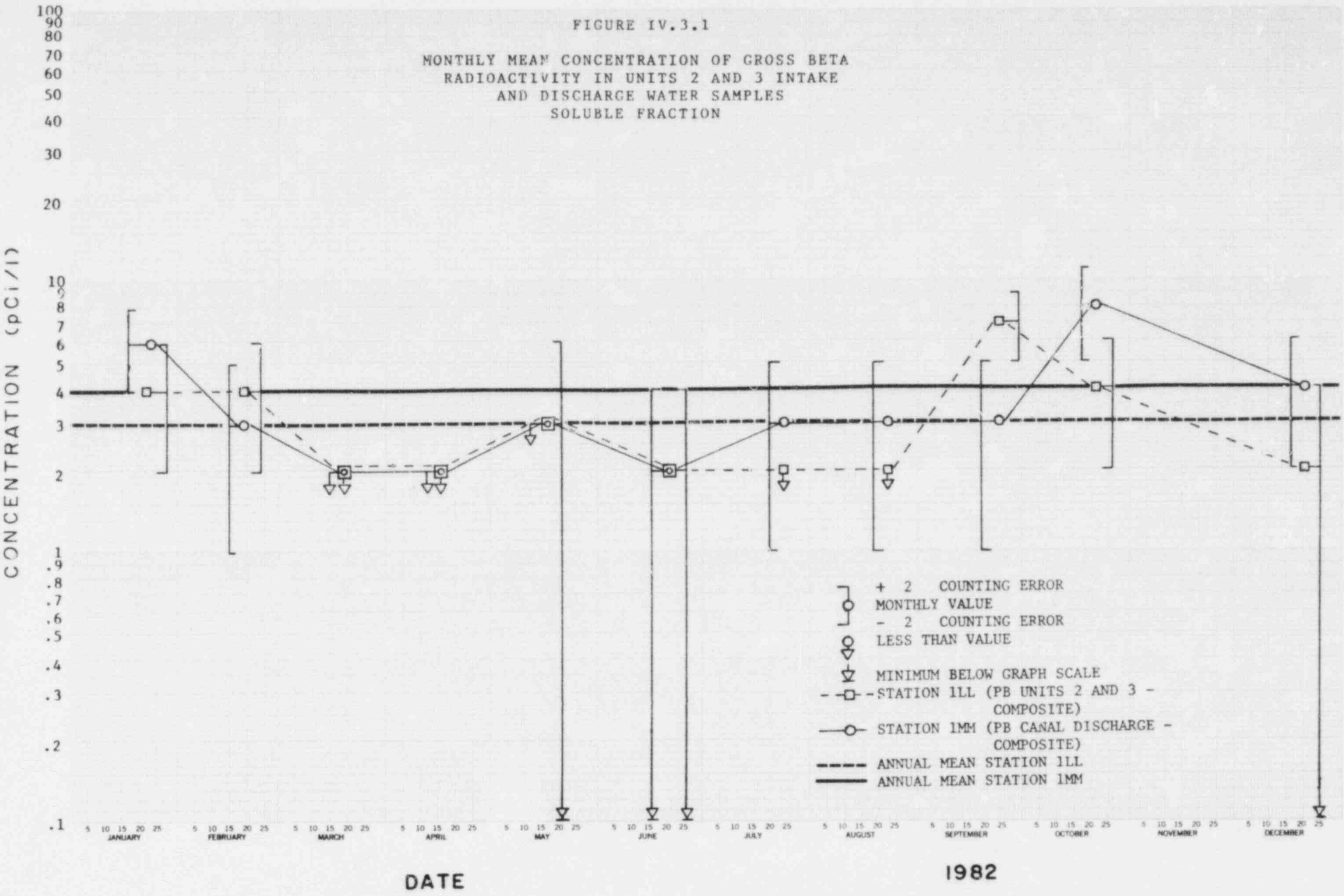


FIGURE IV.1.5

GROSS BETA RADIOACTIVITY IN AIR PARTICULATE SAMPLES FOR GROUP III - STATIONS 12A and 12D - LONG TERM PLOT

FIGURE IV.3.1

MONTHLY MEAN CONCENTRATION OF GROSS BETA RADIOACTIVITY IN UNITS 2 AND 3 INTAKE AND DISCHARGE WATER SAMPLES SOLUBLE FRACTION



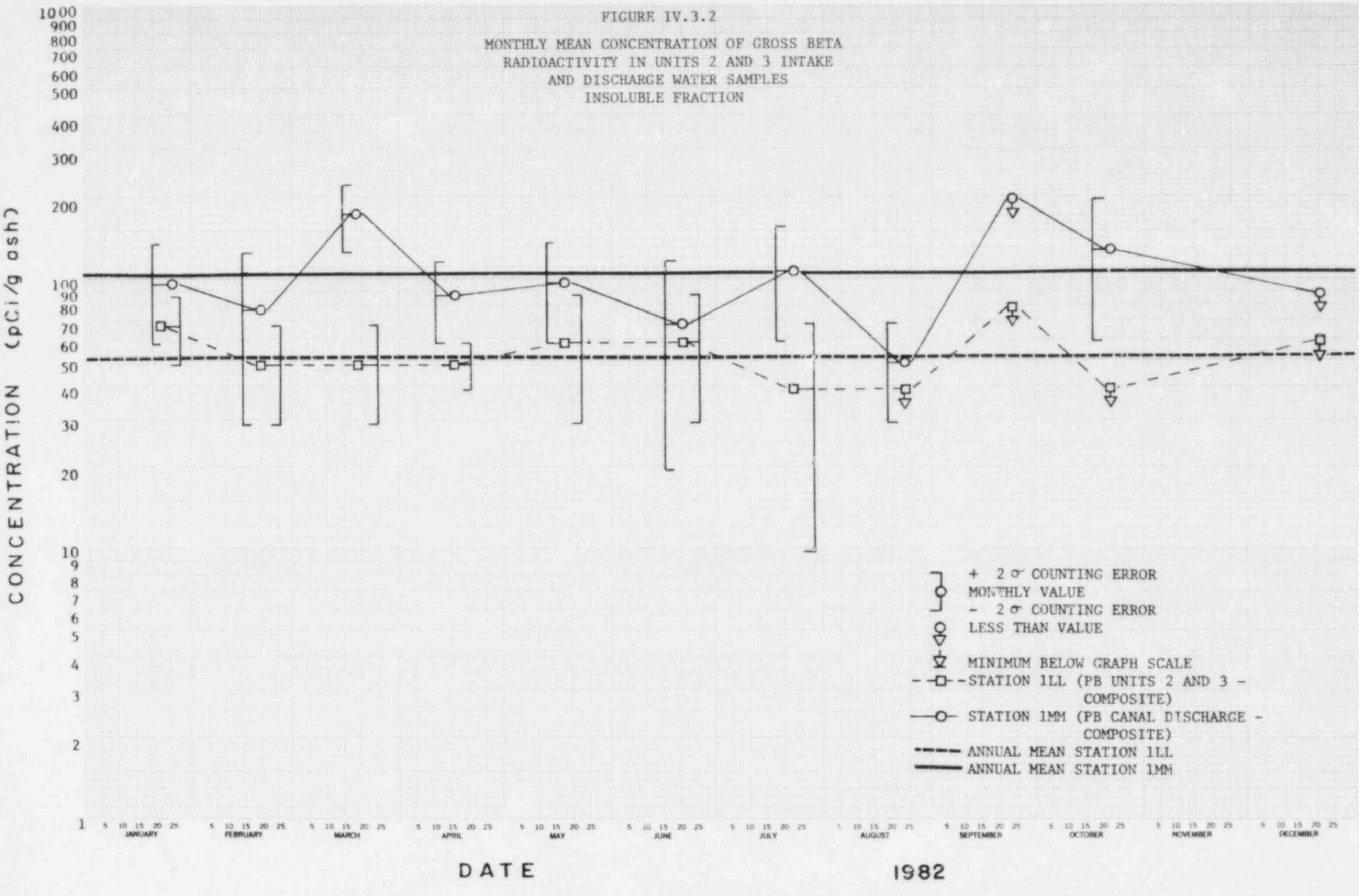
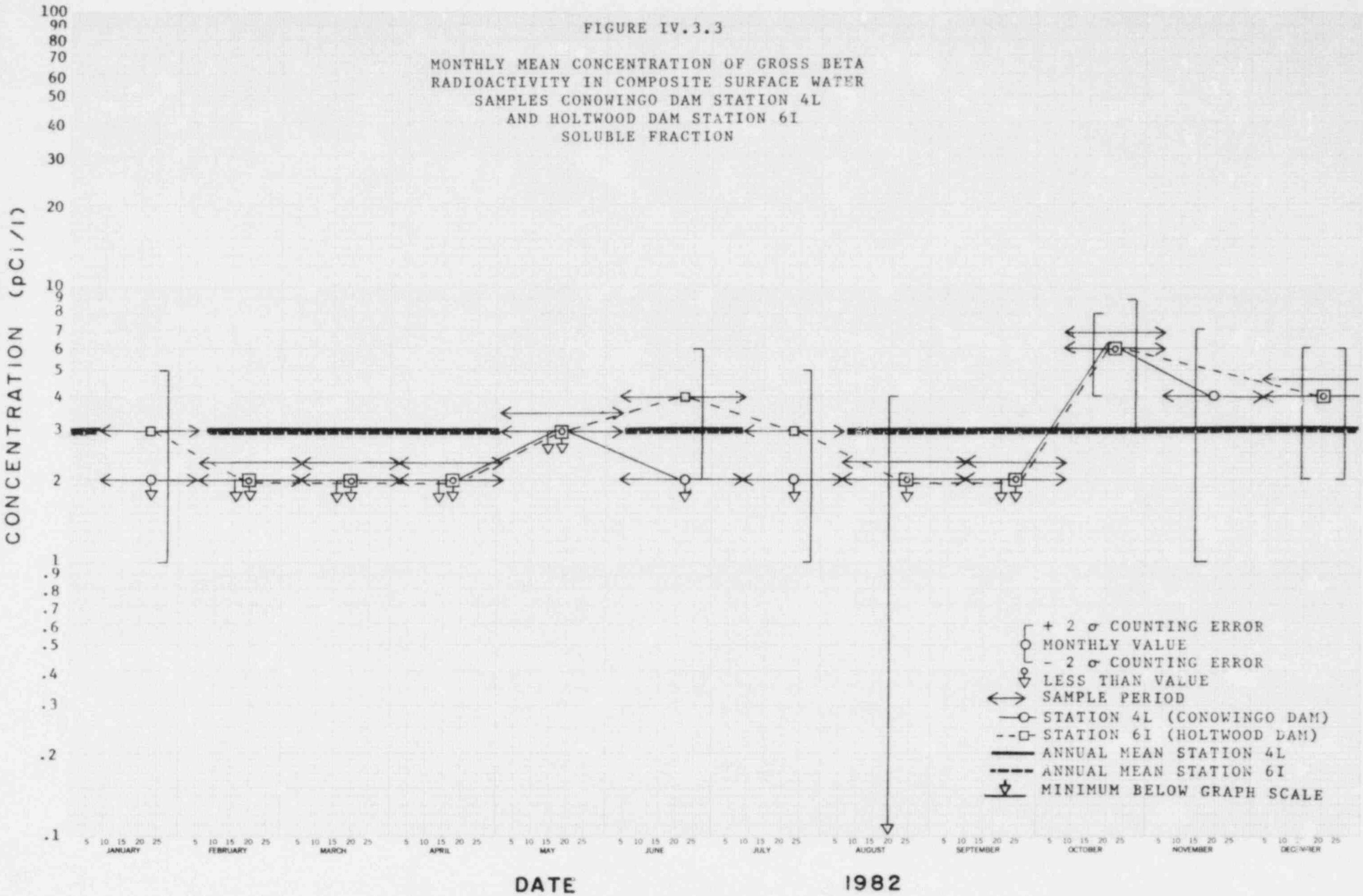


FIGURE IV.3.2
MONTHLY MEAN CONCENTRATION OF GROSS BETA
RADIOACTIVITY IN UNITS 2 AND 3 INTAKE
AND DISCHARGE WATER SAMPLES
INSOLUBLE FRACTION
CONCENTRATION (pCi/g ash)
1000
900
800
700
600
500
400
300
200
100
90
80
70
60
50
40
30
20
10
9
8
7
6
5
4
3
2
1
+ 2 σ COUNTING ERROR
MONTHLY VALUE
- 2 σ COUNTING ERROR
LESS THAN VALUE
MINIMUM BELOW GRAPH SCALE
STATION 1LL (PB UNITS 2 AND 3 - COMPOSITE)
STATION 1MM (PB CANAL DISCHARGE - COMPOSITE)
ANNUAL MEAN STATION 1LL
ANNUAL MEAN STATION 1MM
JANUARY
FEBRUARY
MARCH
APRIL
MAY
JUNE
JULY
AUGUST
SEPTEMBER
OCTOBER
NOVEMBER
DECEMBER
DATE
1982

FIGURE IV.3.3

MONTHLY MEAN CONCENTRATION OF GROSS BETA RADIOACTIVITY IN COMPOSITE SURFACE WATER SAMPLES CONOWINGO DAM STATION 4L AND HOLTWOOD DAM STATION 6I SOLUBLE FRACTION



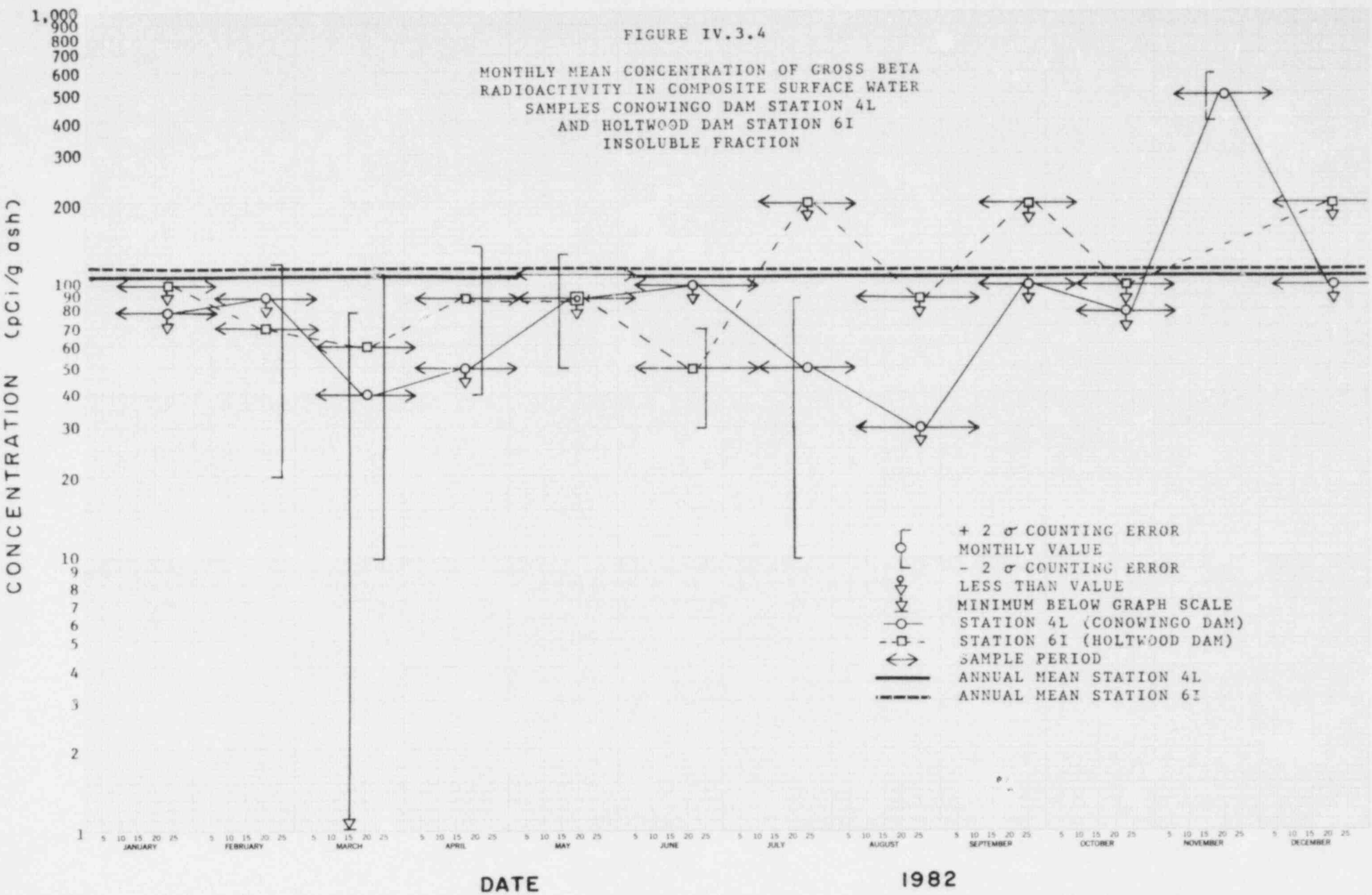
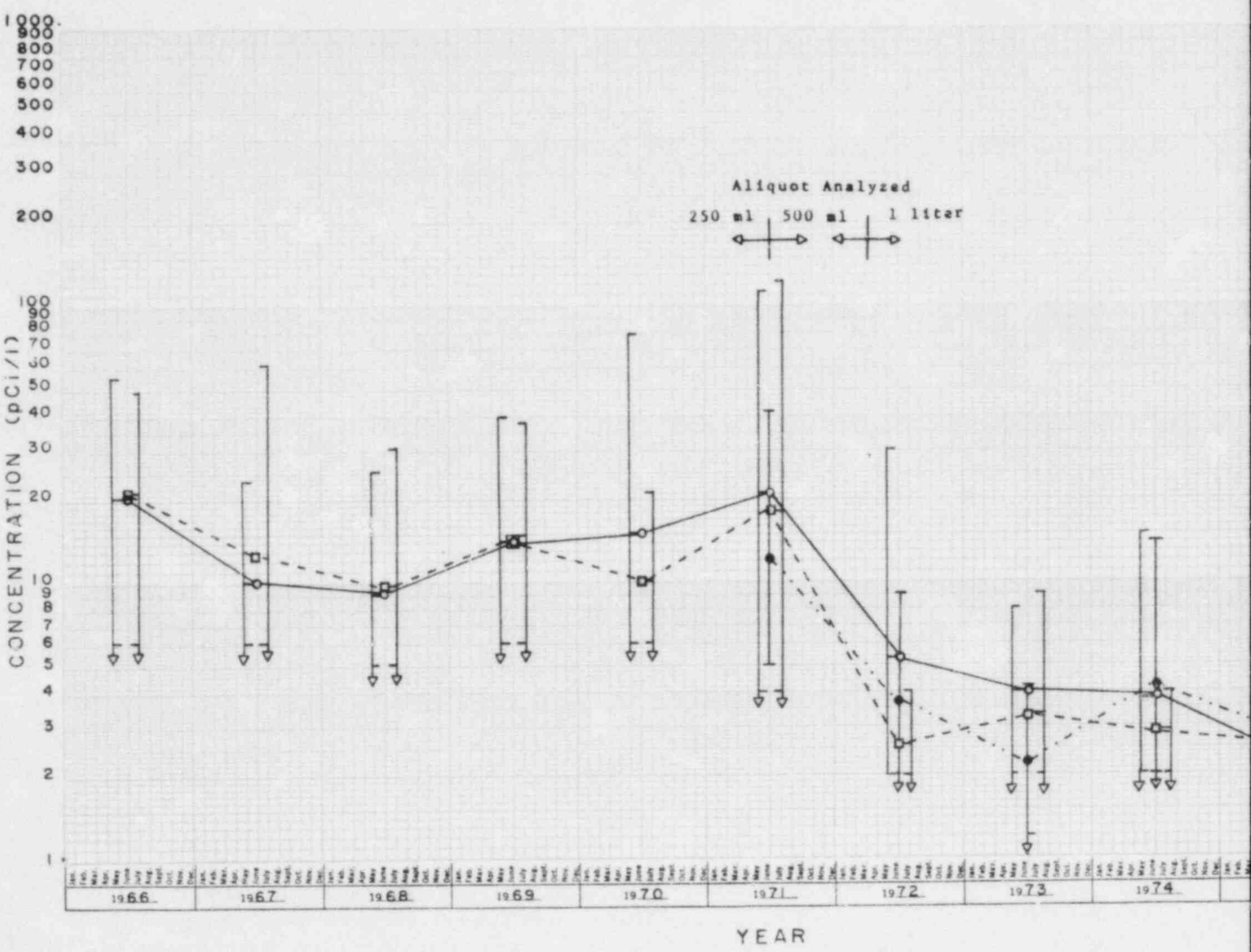
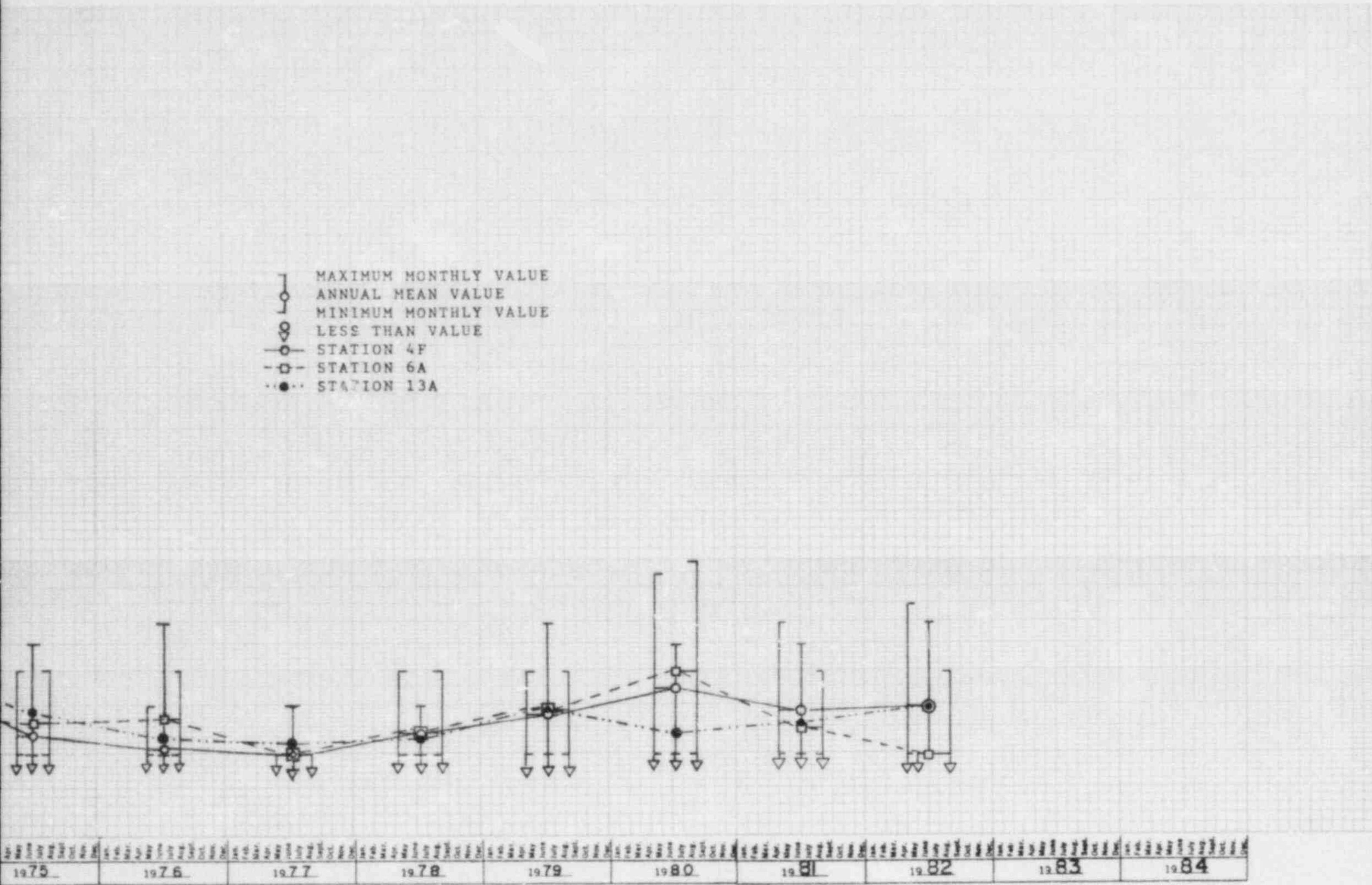


FIGURE IV.3.4
MONTHLY MEAN CONCENTRATION OF GROSS BETA RADIOACTIVITY IN COMPOSITE SURFACE WATER SAMPLES CONOWINGO DAM STATION 4L AND HOLTWOOD DAM STATION 6I INSOLUBLE FRACTION
CONCENTRATION (pCi/g ash)
1,000
900
800
700
600
500
400
300
200
100
90
80
70
60
50
40
30
20
10
9
8
7
6
5
4
3
2
1
+ 2 σ COUNTING ERROR
MONTHLY VALUE
- 2 σ COUNTING ERROR
LESS THAN VALUE
MINIMUM BELOW GRAPH SCALE
STATION 4L (CONOWINGO DAM)
STATION 6I (HOLTWOOD DAM)
SAMPLE PERIOD
ANNUAL MEAN STATION 4L
ANNUAL MEAN STATION 6I
JANUARY
FEBRUARY
MARCH
APRIL
MAY
JUNE
JULY
AUGUST
SEPTEMBER
OCTOBER
NOVEMBER
DECEMBER
DATE
1982



Aliquot Analyzed
250 ml
500 ml
1 liter
CONCENTRATION (pCi/l)
1000
900
800
700
600
500
400
300
200
100
90
80
70
60
50
40
30
20
10
9
8
7
6
5
4
3
2
1
1966
1967
1968
1969
1970
1971
1972
1973
1974
YEAR



Also Available On Aperture Card

FIGURE IV.3.5

ANNUAL MEAN CONCENTRATION OF GROSS BETA RADIOACTIVITY IN SURFACE WATER SAMPLES SOLUBLE FRACTION

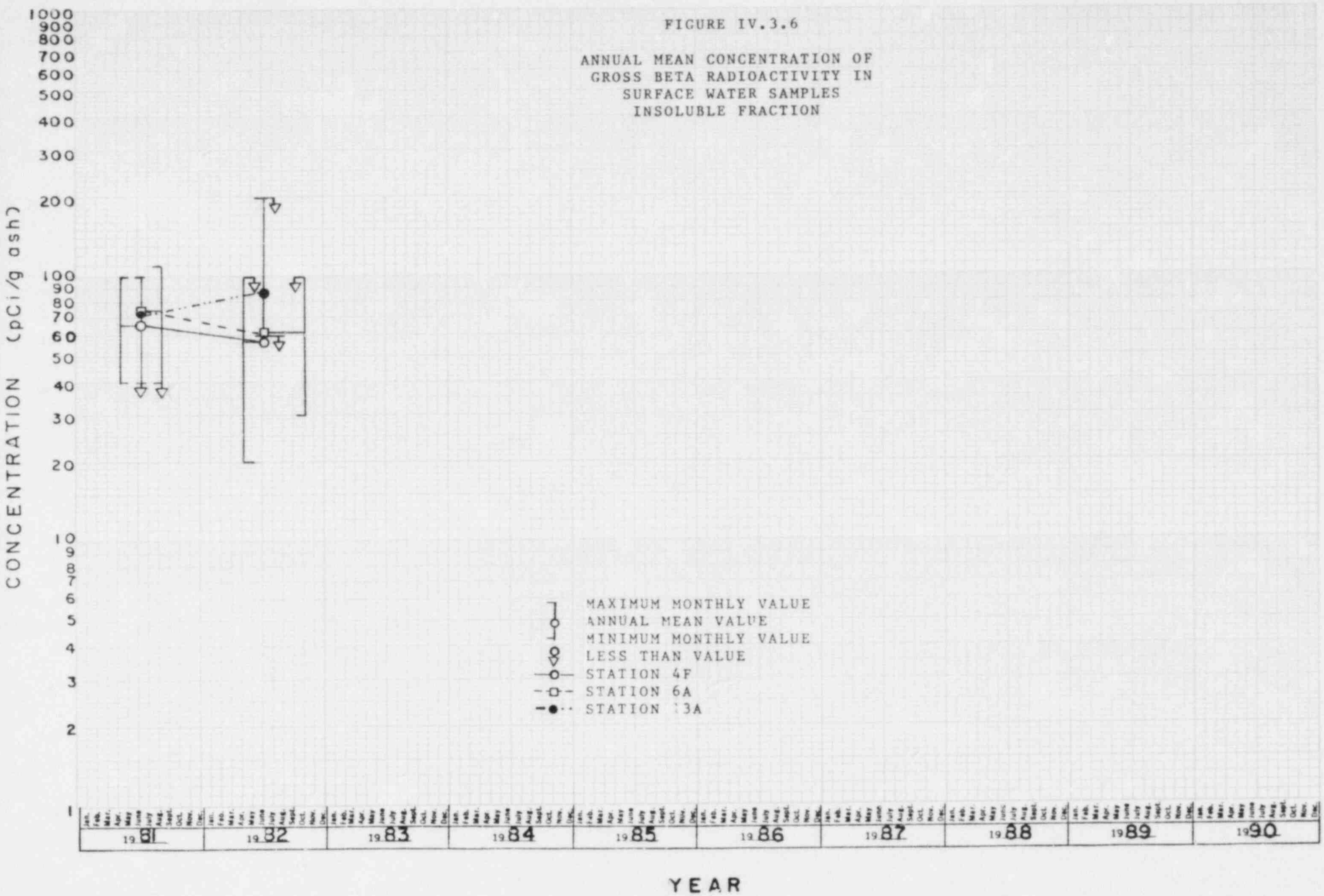
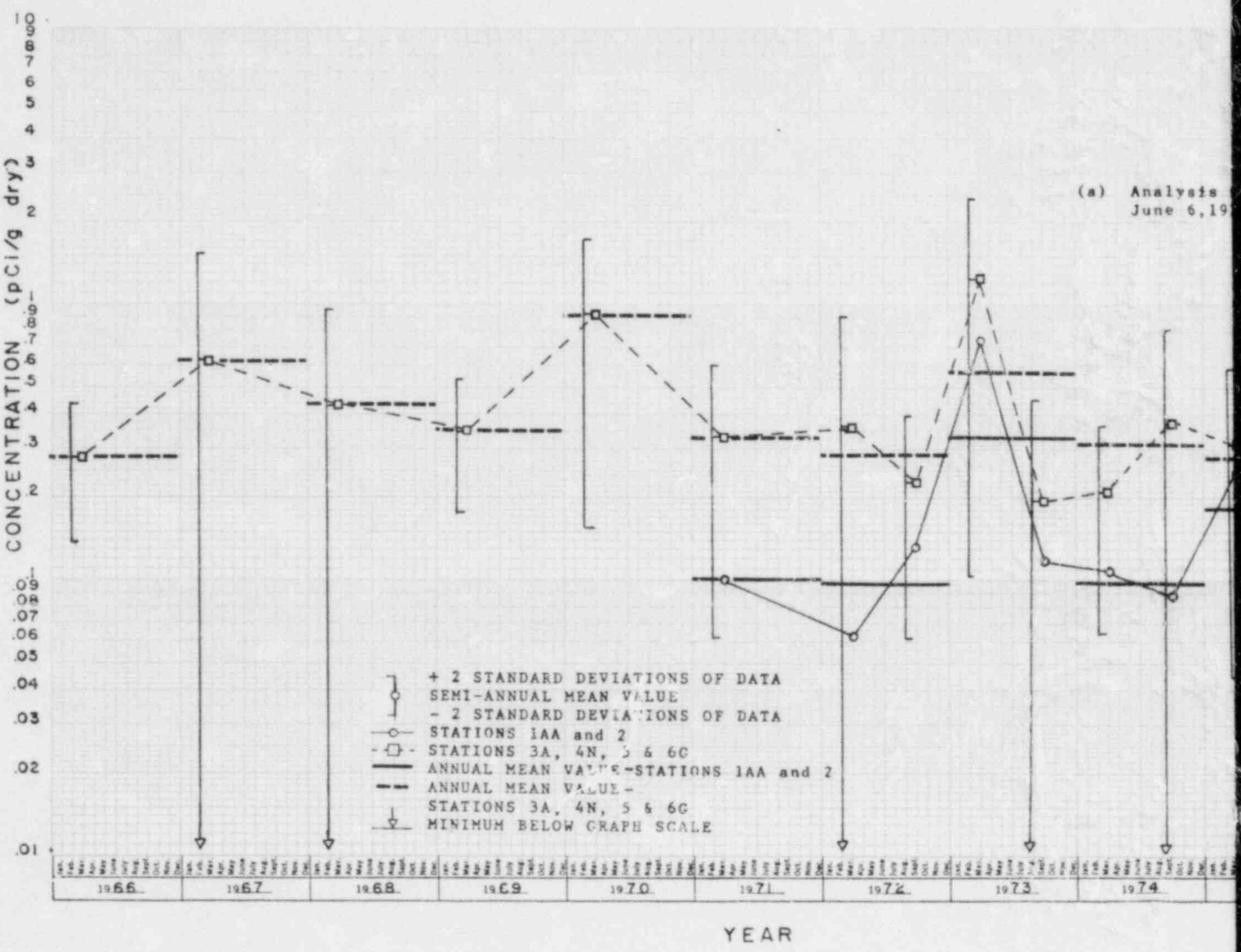


FIGURE IV.3.6

ANNUAL MEAN CONCENTRATION OF GROSS BETA RADIOACTIVITY IN SURFACE WATER SAMPLES INSOLUBLE FRACTION



CONCENTRATION (pCi/g dry)
10
9
8
7
6
5
4
3
2
1
.9
.8
.7
.6
.5
.4
.3
.2
.1
.09
.08
.07
.06
.05
.04
.03
.02
.01
(a) Analysis
June 6,19
+ 2 STANDARD DEVIATIONS OF DATA
SEMI-ANNUAL MEAN VALUE
- 2 STANDARD DEVIATIONS OF DATA
STATIONS 1AA and 2
STATIONS 3A, 4N, 5 & 6G
ANNUAL MEAN VALUE-STATIONS 1AA and 2
ANNUAL MEAN VALUE-
STATIONS 3A, 4N, 5 & 6G
MINIMUM BELOW GRAPH SCALE
1966
1967
1968
1969
1970
1971
1972
1973
1974
YEAR

irst performed on
'6 for Station 2.

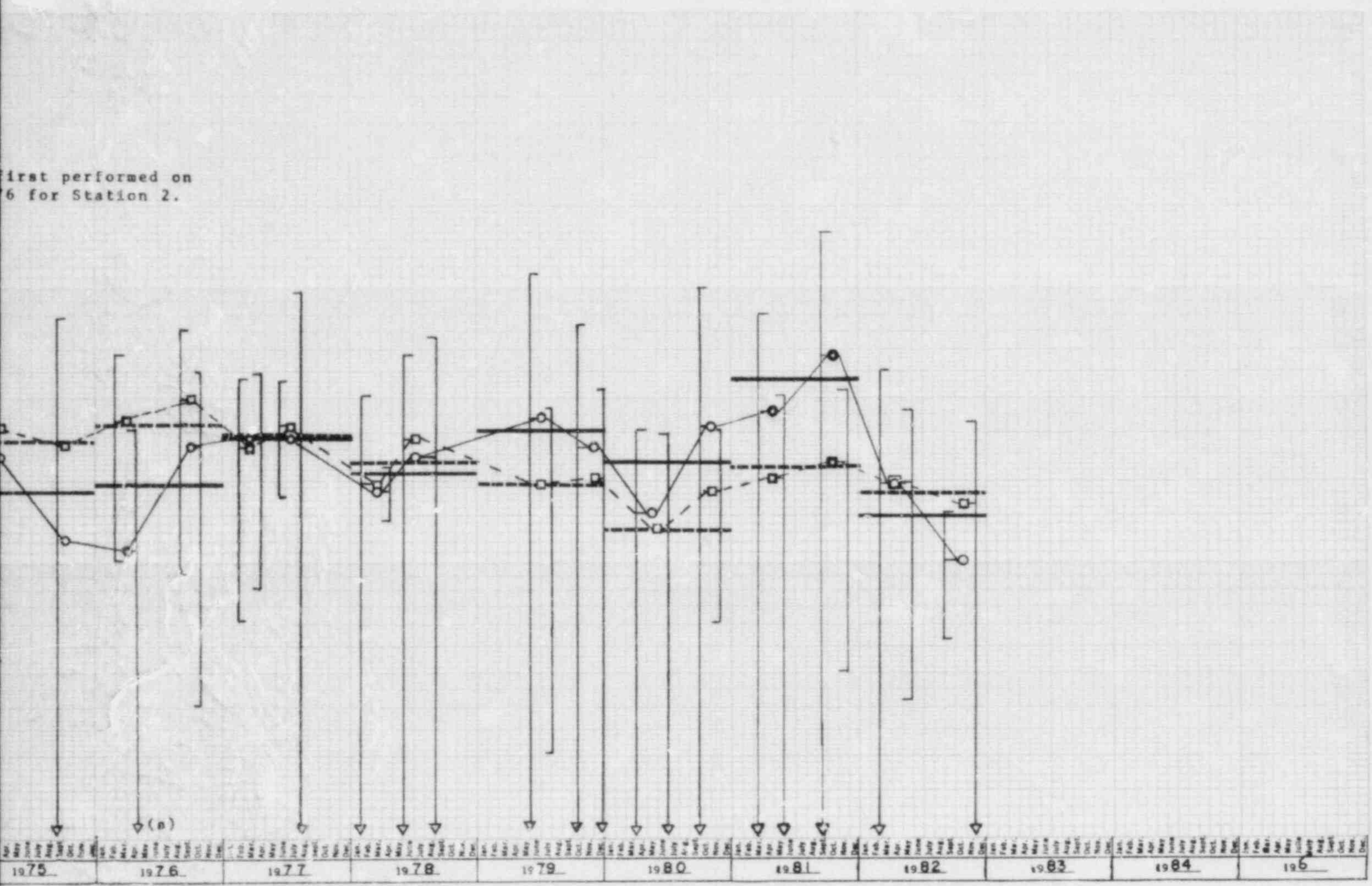


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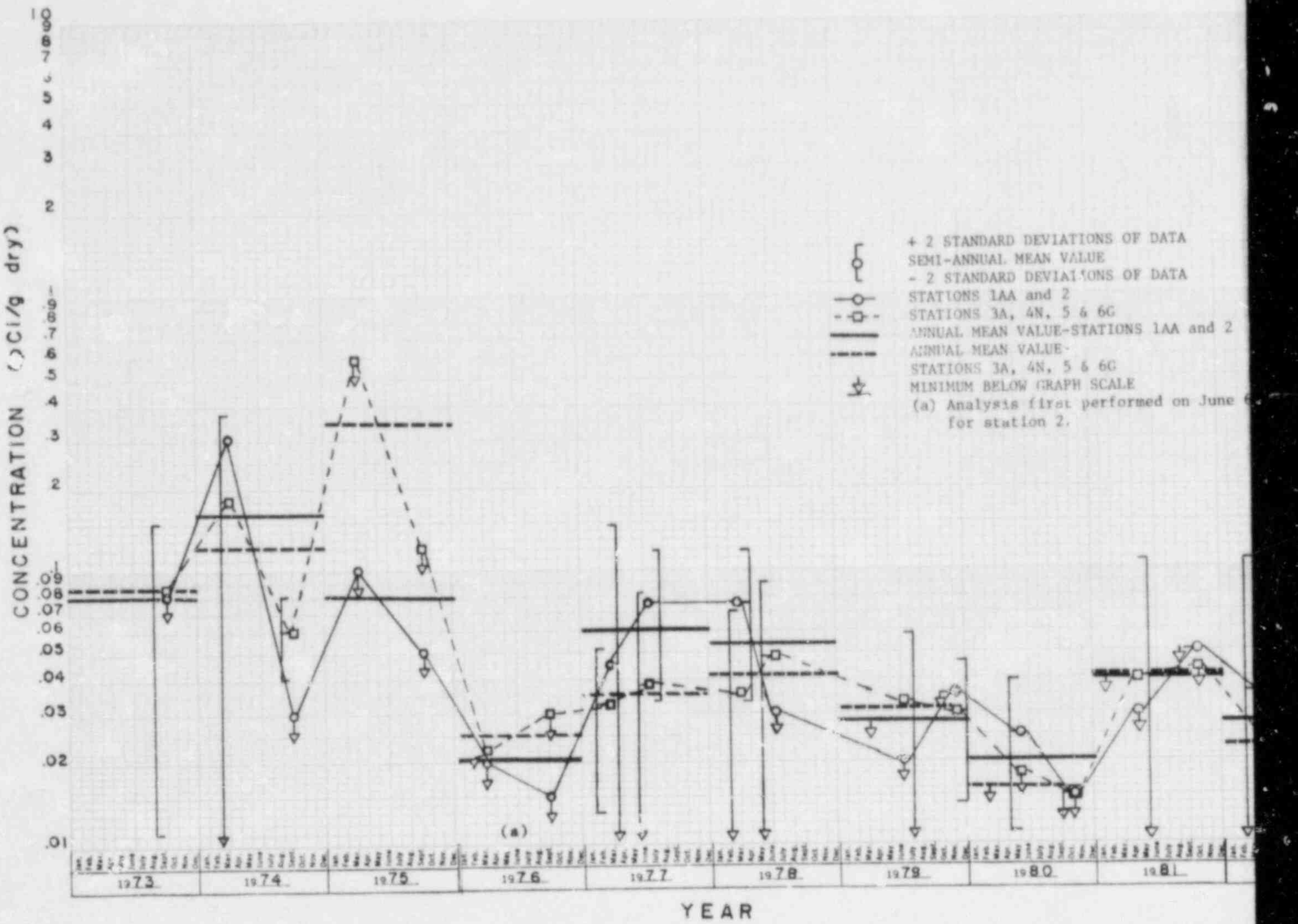
FIGURE IV.5.1

SEMI-ANNUAL MEAN SR-90 CONCENTRATION IN SOIL SAMPLES

8310120319-05


+ 2 STANDARD DEVIATIONS OF DATA
SEMI-ANNUAL MEAN VALUE
- 2 STANDARD DEVIATIONS OF DATA
STATIONS 1AA and 2
STATIONS 3A, 4N, 5 & 6G
ANNUAL MEAN VALUE-STATIONS 1AA and 2
ANNUAL MEAN VALUE-
STATIONS 3A, 4N, 5 & 6G
MINIMUM BELOW GRAPH SCALE
(a) Analysis first performed on June 6
for station 2.
CONCENTRATION (pCi/g dry)
YEAR
1973
1974
1975
1976
1977
1978
1979
1980
1981

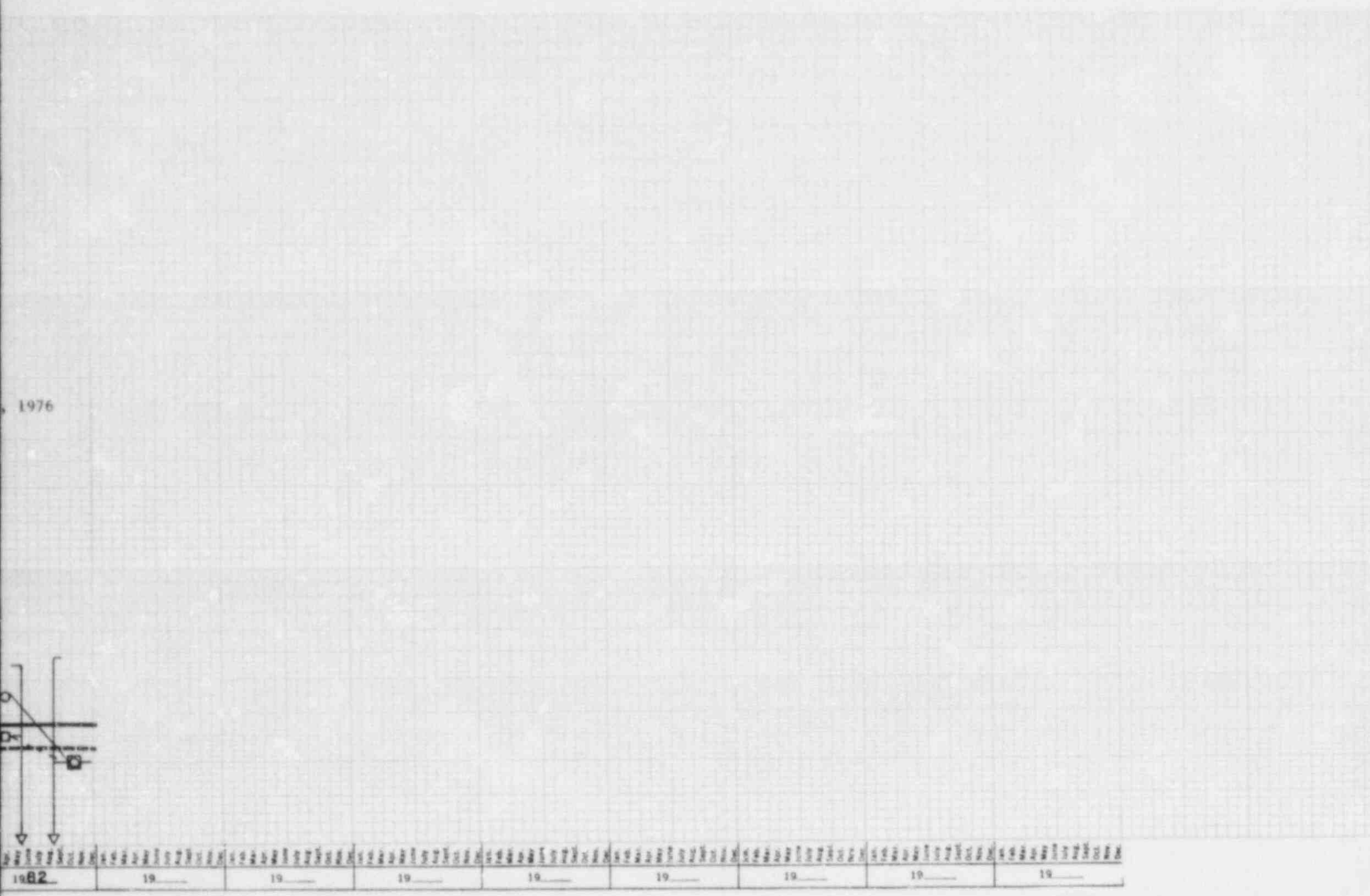
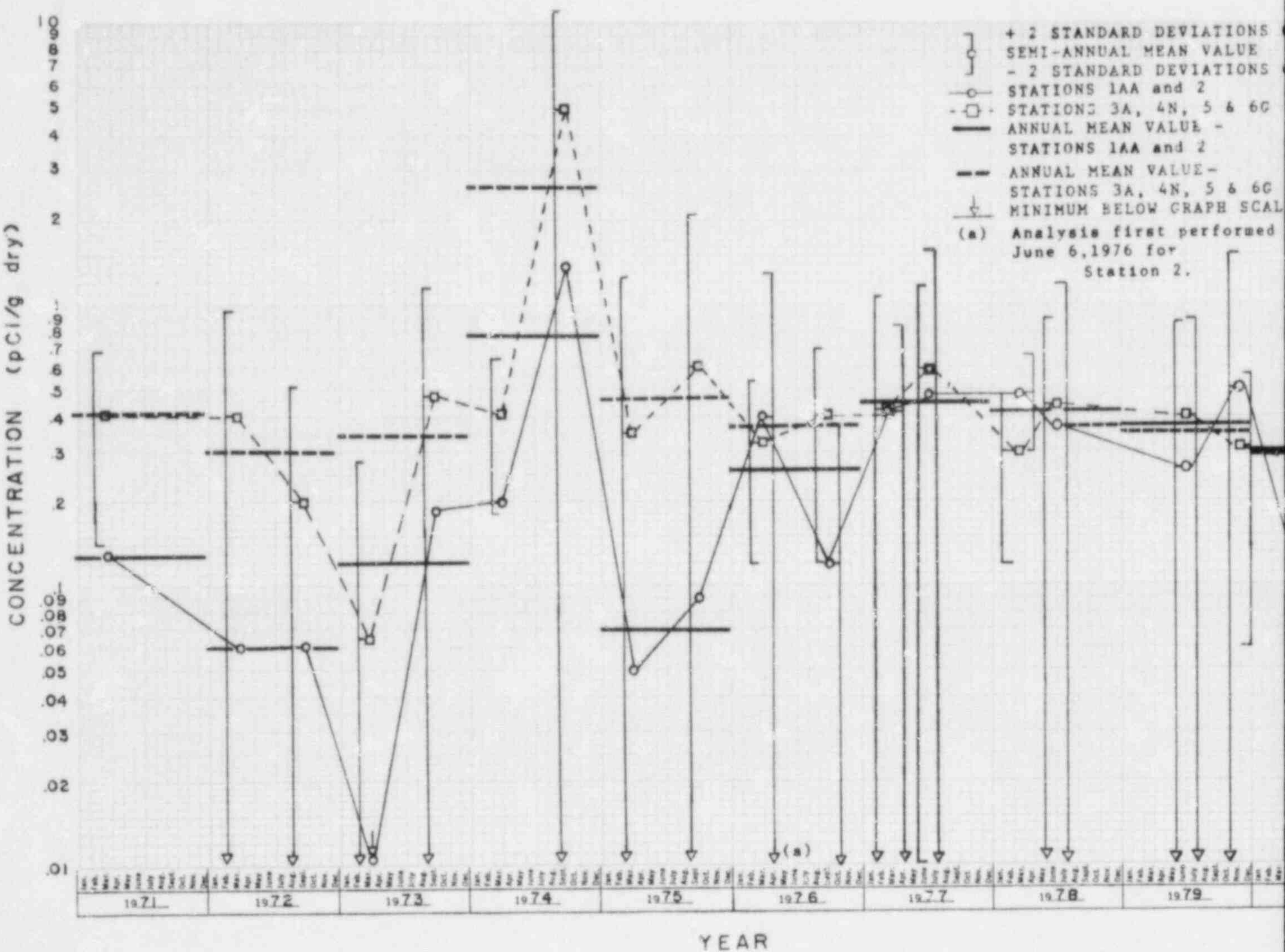
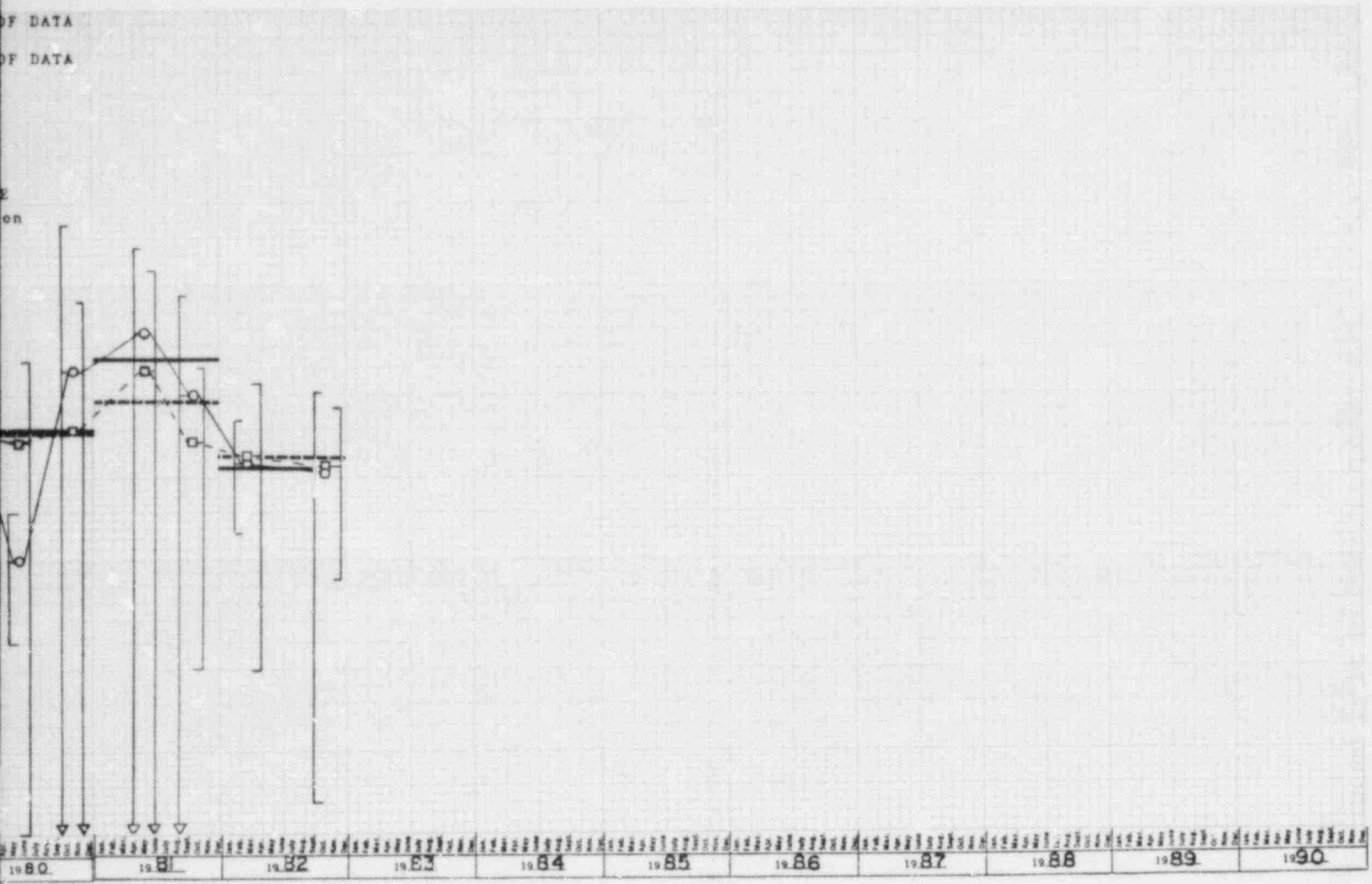


FIGURE IV.5.2

SEMI-ANNUAL MEAN SR-89 CONCENTRATION
IN SOIL SAMPLES

8310120319-06

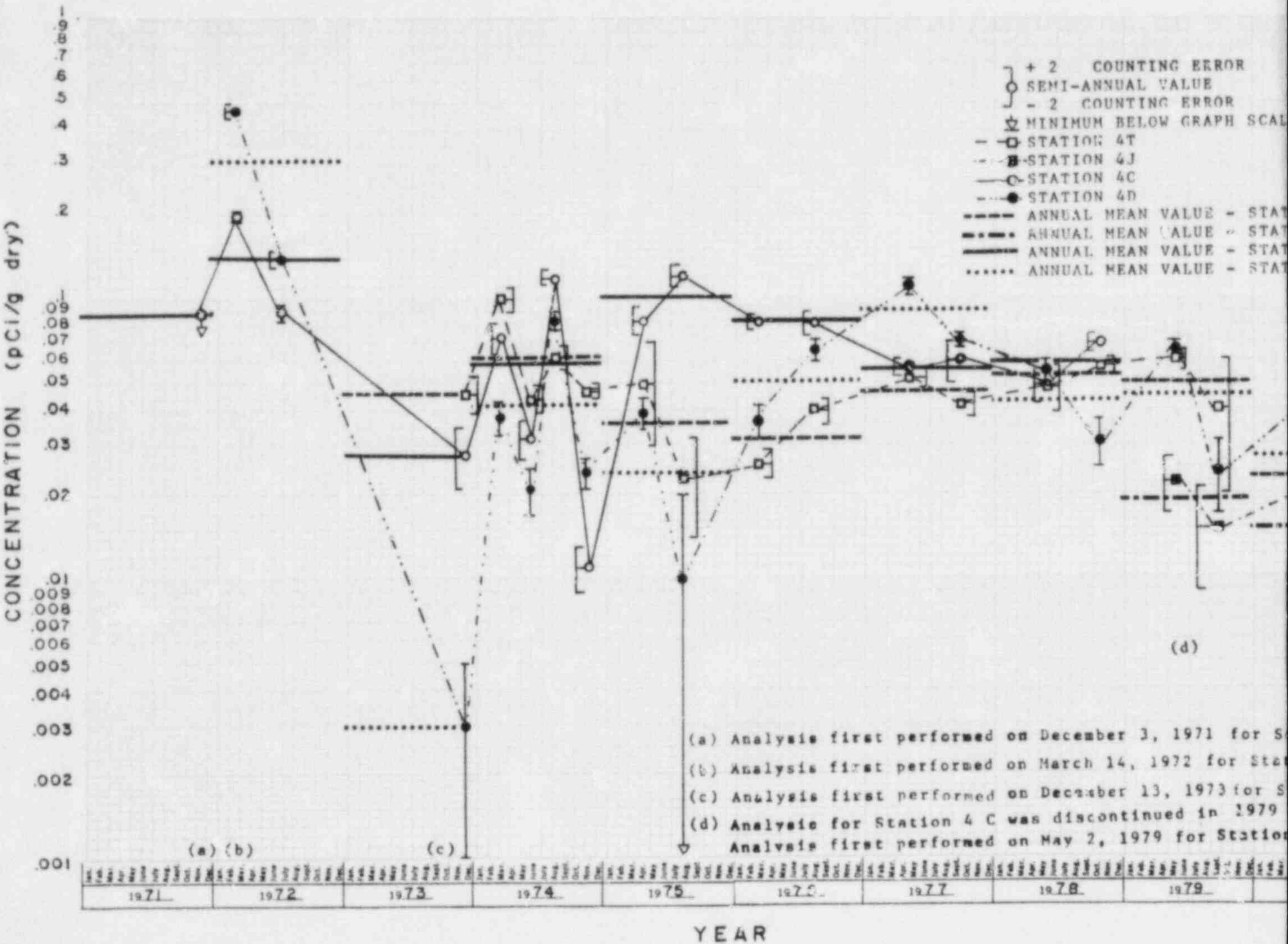

+ 2 STANDARD DEVIATIONS
SEMI-ANNUAL MEAN VALUE
- 2 STANDARD DEVIATIONS
STATIONS 1AA and 2
STATIONS 3A, 4N, 5 & 6G
ANNUAL MEAN VALUE - STATIONS 1AA and 2
ANNUAL MEAN VALUE- STATIONS 3A, 4N, 5 & 6G
MINIMUM BELOW GRAPH SCAL
(a) Analysis first performed June 6,1976 for Station 2.
CONCENTRATION (pCi/g dry)
YEAR
1971
1972
1973
1974
1975
1976
1977
1978
1979



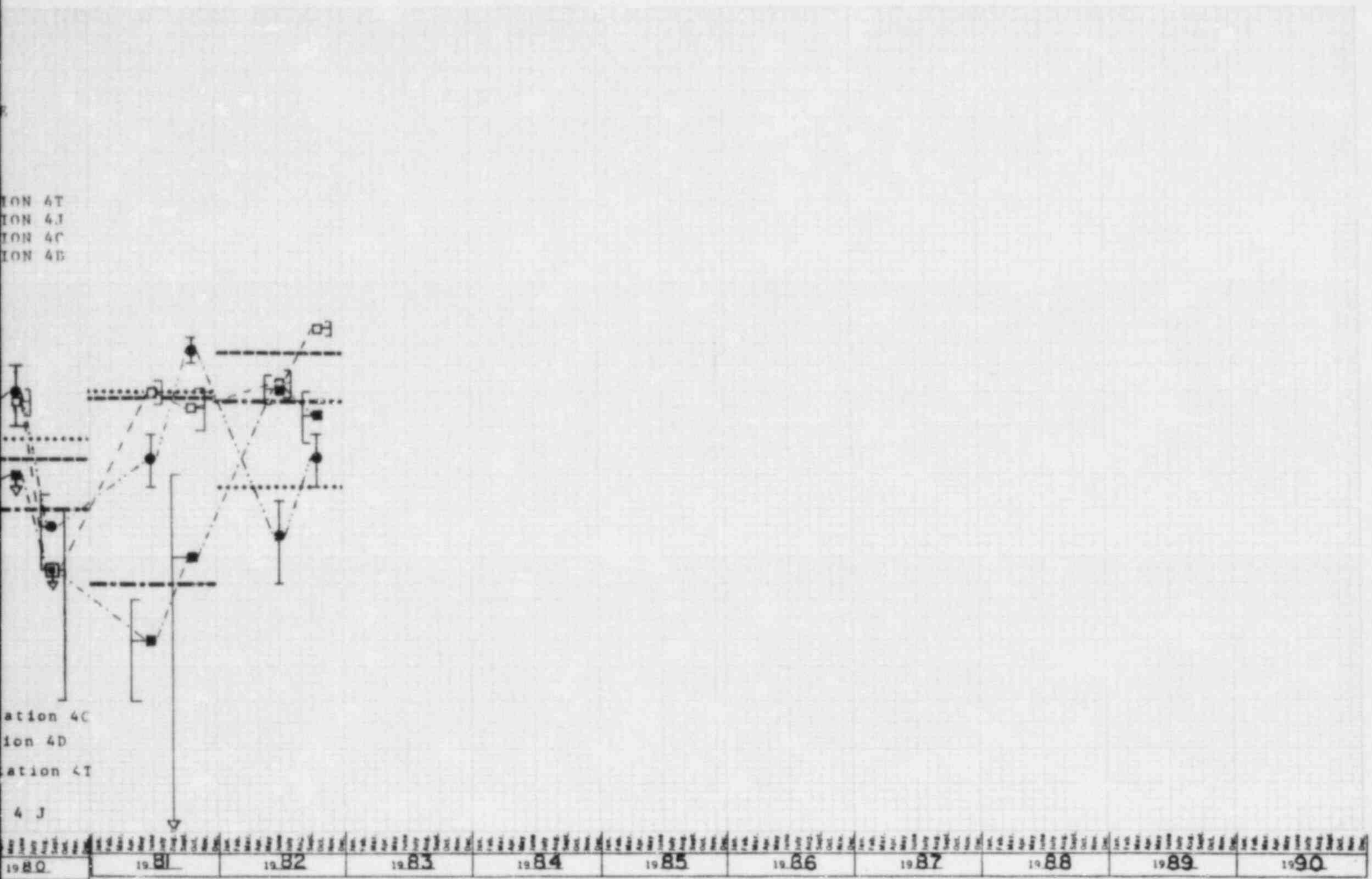
Also Available On
Aperture Card

FIGURE IV.5.3

SEMI-ANNUAL CESIUM RADIOACTIVITY
CONCENTRATION IN SOIL SAMPLES



+ 2 COUNTING ERROR
SEMI-ANNUAL VALUE
- 2 COUNTING ERROR
MINIMUM BELOW GRAPH SCAL
STATION 4T
STATION 4J
STATION 4C
STATION 4D
ANNUAL MEAN VALUE - STAT
ANNUAL MEAN VALUE - STAT
ANNUAL MEAN VALUE - STAT
ANNUAL MEAN VALUE - STAT
(d)
(a) Analysis first performed on December 3, 1971 for S
(b) Analysis first performed on March 14, 1972 for Stat
(c) Analysis first performed on December 13, 1973 for S
(d) Analysis for Station 4 C was discontinued in 1979
Analysis first performed on May 2, 1979 for Station
(a) (b)
(c)
CONCENTRATION (pCi/g dry)
1971
1972
1973
1974
1975
1977
1978
1979
YEAR



APERTURE CARD

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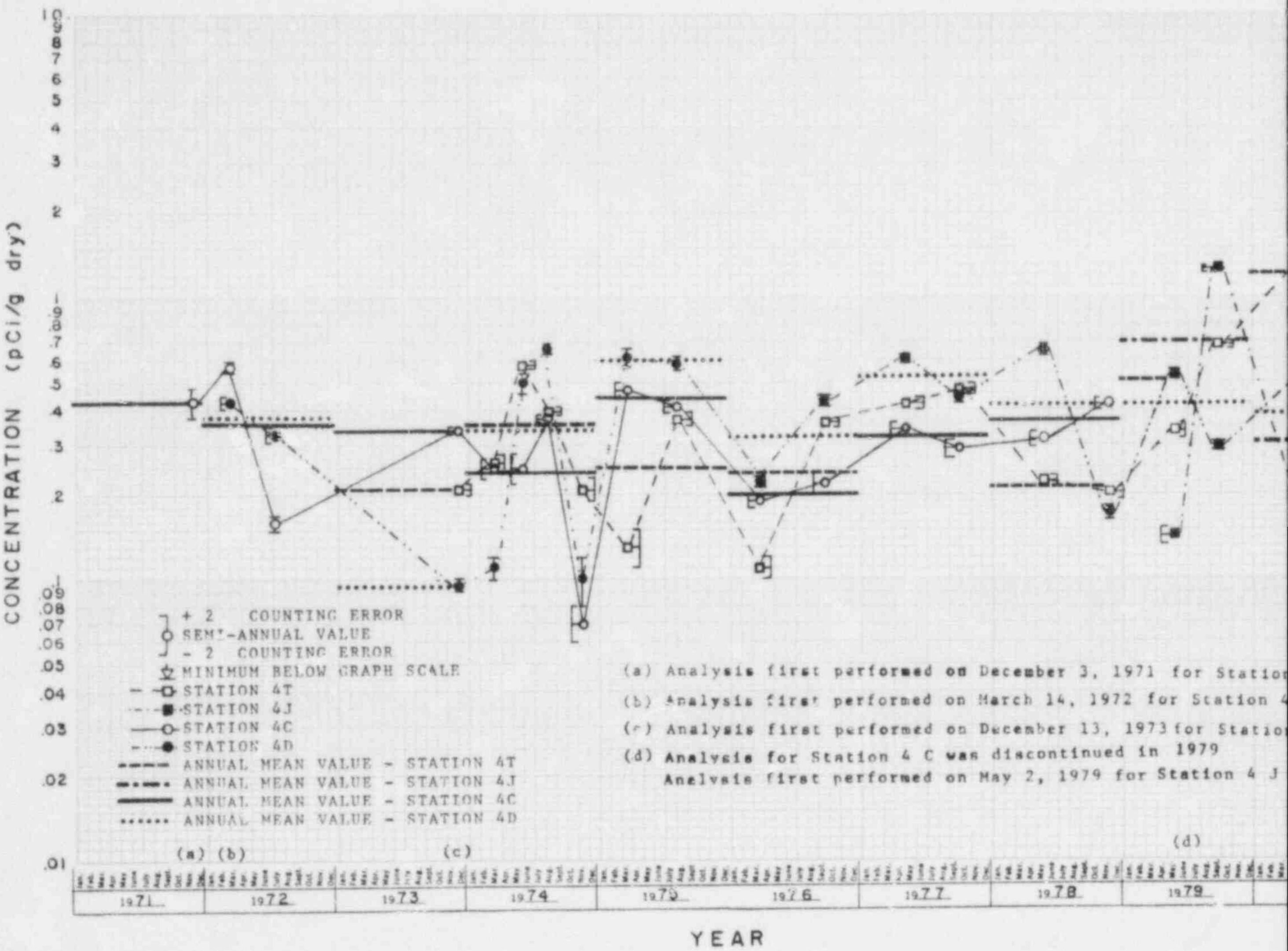
rture Card

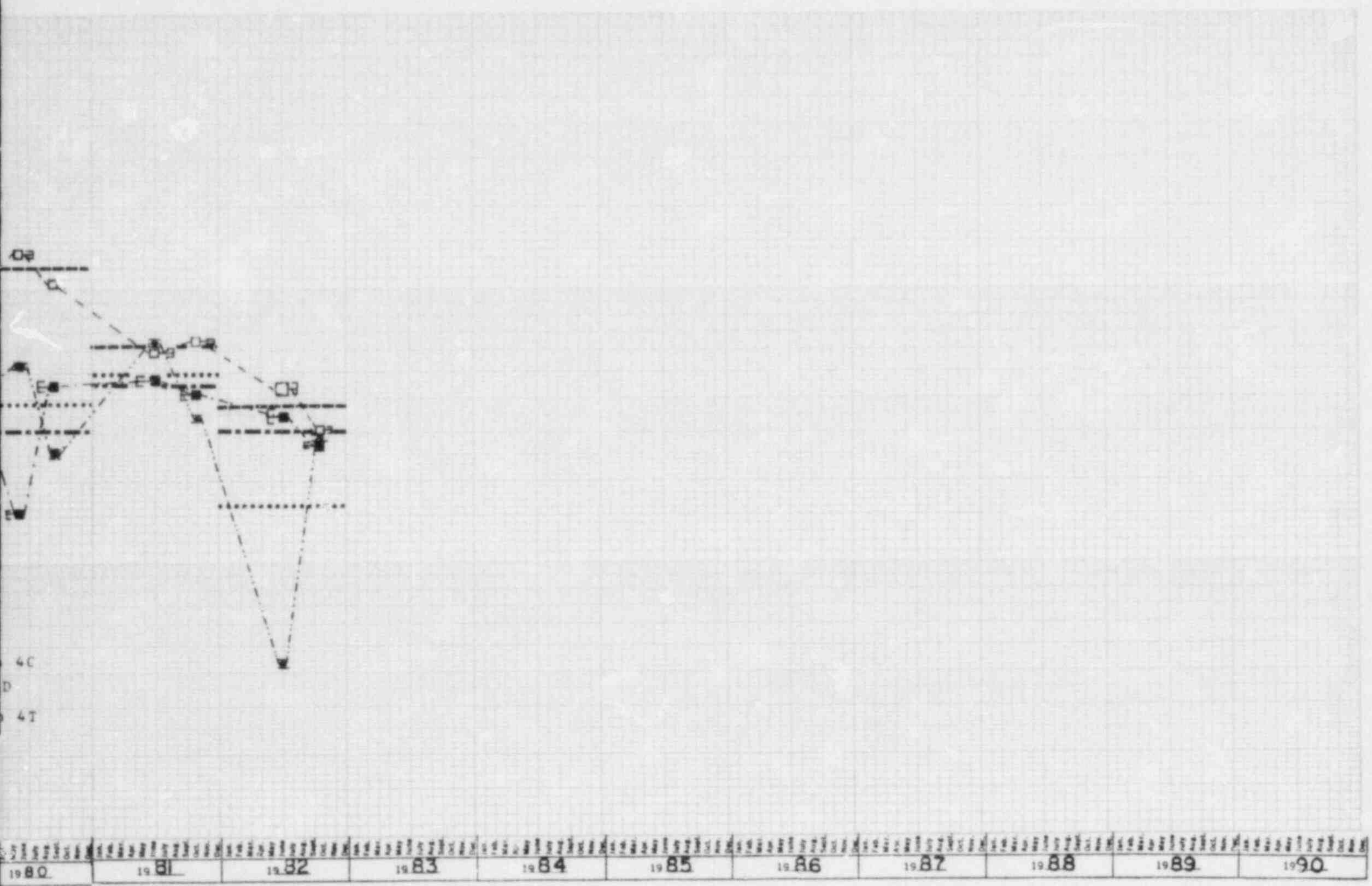
FIGURE IV.6.1

SEMI-ANNUAL SR-90 RADIOACTIVITY CONCENTRATION IN SILT SAMPLES

8310120319-08



CONCENTRATION (pCi/g dry)
10
9
8
7
6
5
4
3
2
1
.9
.8
.7
.6
.5
.4
.3
.2
.1
.09
.08
.07
.06
.05
.04
.03
.02
.01
+ 2 COUNTING ERROR
SEMI-ANNUAL VALUE
- 2 COUNTING ERROR
MINIMUM BELOW GRAPH SCALE
STATION 4T
STATION 4J
STATION 4C
STATION 4D
ANNUAL MEAN VALUE - STATION 4T
ANNUAL MEAN VALUE - STATION 4J
ANNUAL MEAN VALUE - STATION 4C
ANNUAL MEAN VALUE - STATION 4D
(a) (b)
(c)
(d)
(a) Analysis first performed on December 3, 1971 for Statio
(b) Analysis first performed on March 14, 1972 for Station 4
(c) Analysis first performed on December 13, 1973 for Statio
(d) Analysis for Station 4 C was discontinued in 1979
Analysis first performed on May 2, 1979 for Station 4 J
1971
1972
1973
1974
1975
1976
1977
1978
1979
YEAR

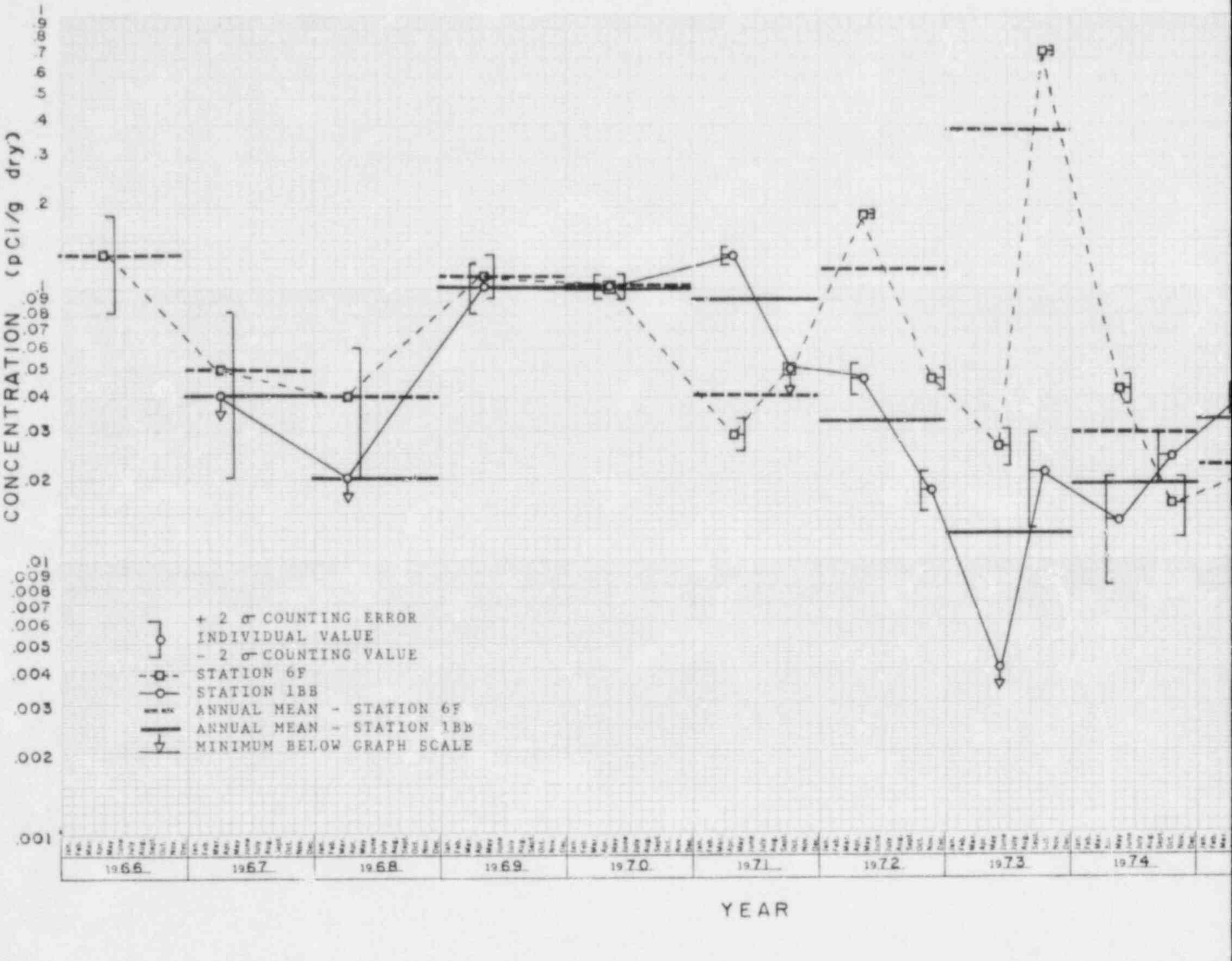


Also Available On
Aperture Card

FIGURE IV. 6.2

SEMI-ANNUAL CESIUM RADIOACTIVITY
CONCENTRATION IN SILT SAMPLES

8310120319-09



CONCENTRATION (pCi/g dry)
+ 2 σ COUNTING ERROR
INDIVIDUAL VALUE
- 2 σ COUNTING VALUE
STATION 6F
STATION 1BB
ANNUAL MEAN - STATION 6F
ANNUAL MEAN - STATION 1BB
MINIMUM BELOW GRAPH SCALE
1966
1967
1968
1969
1970
1971
1972
1973
1974
YEAR

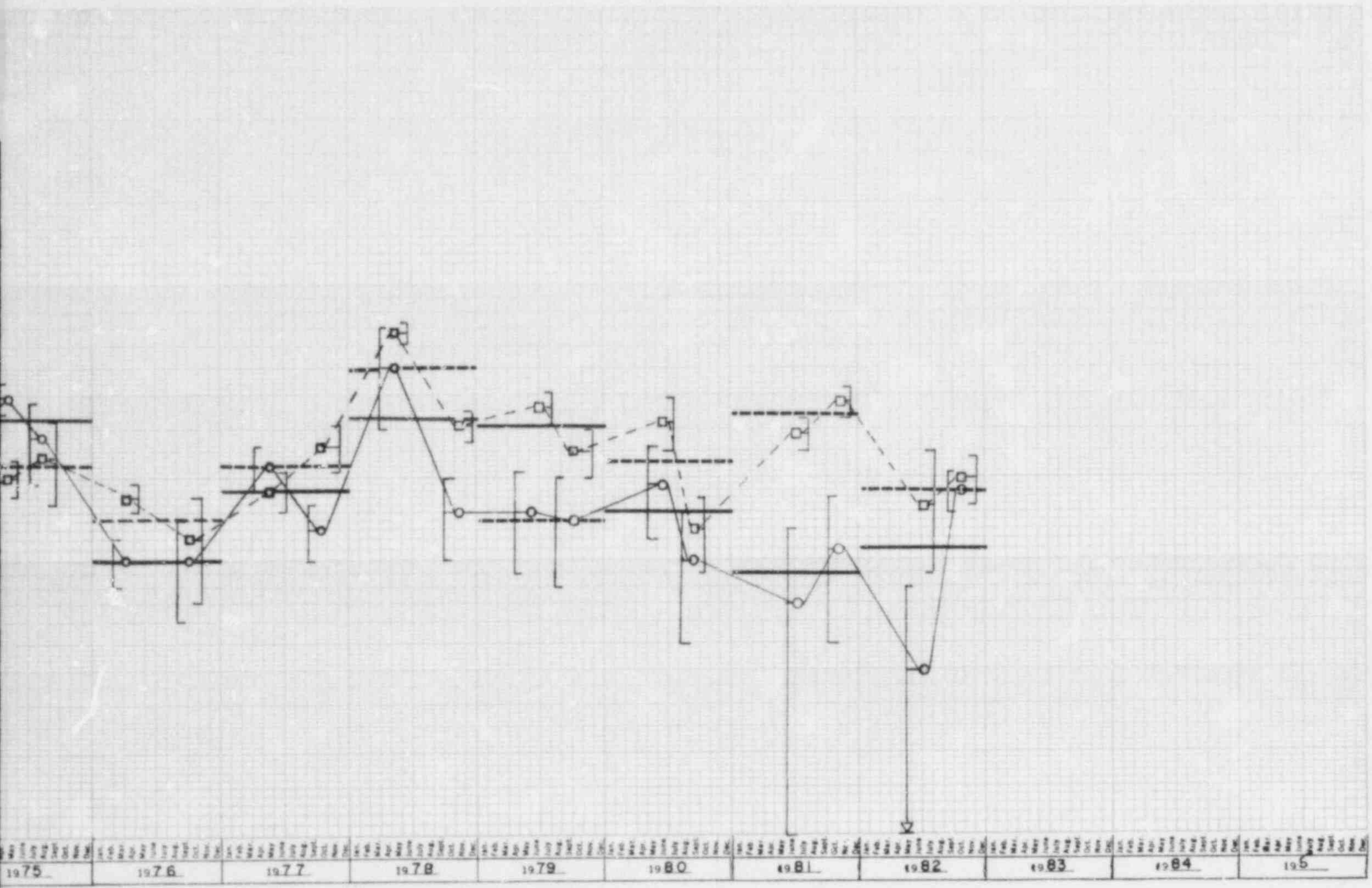
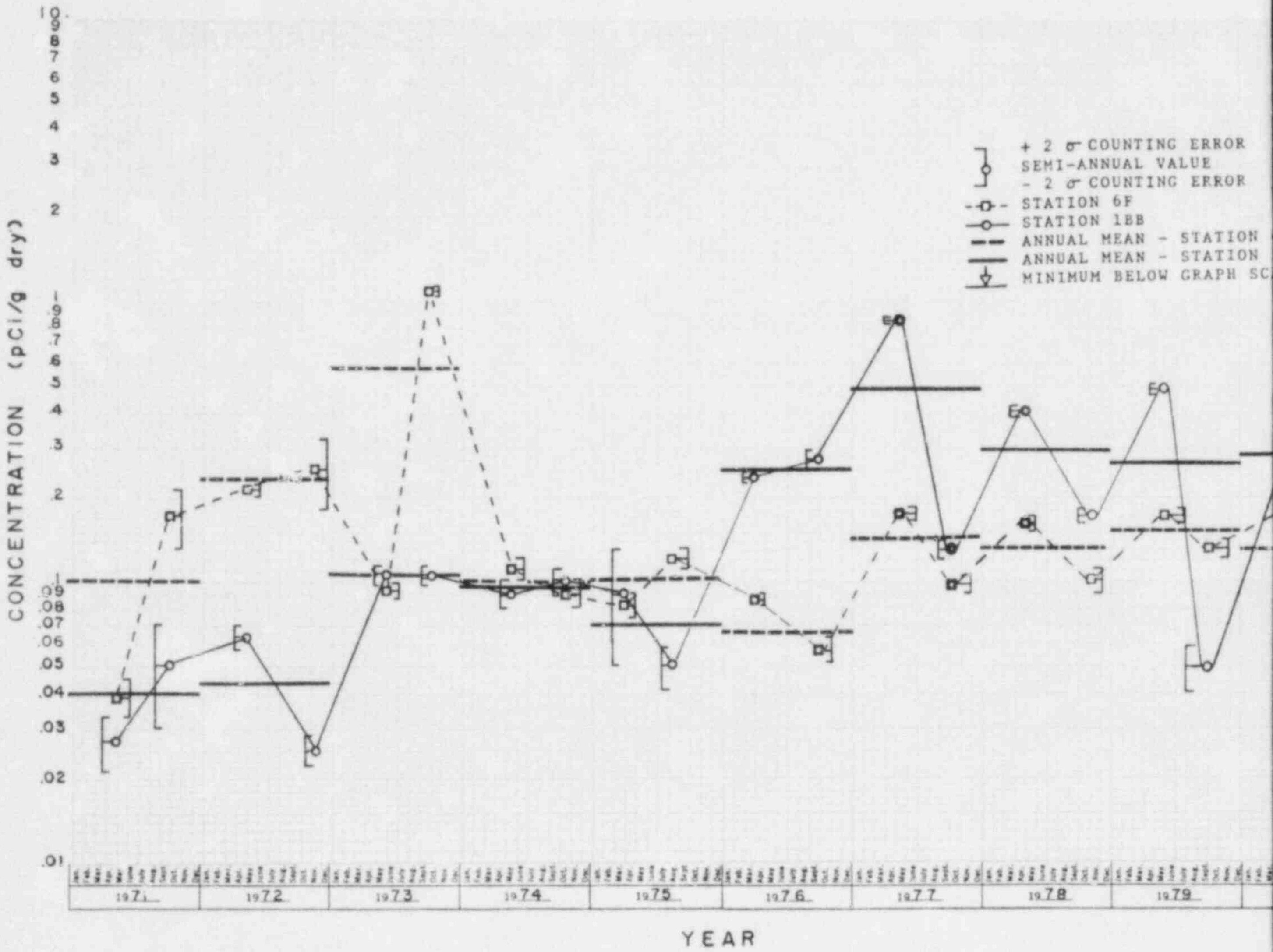
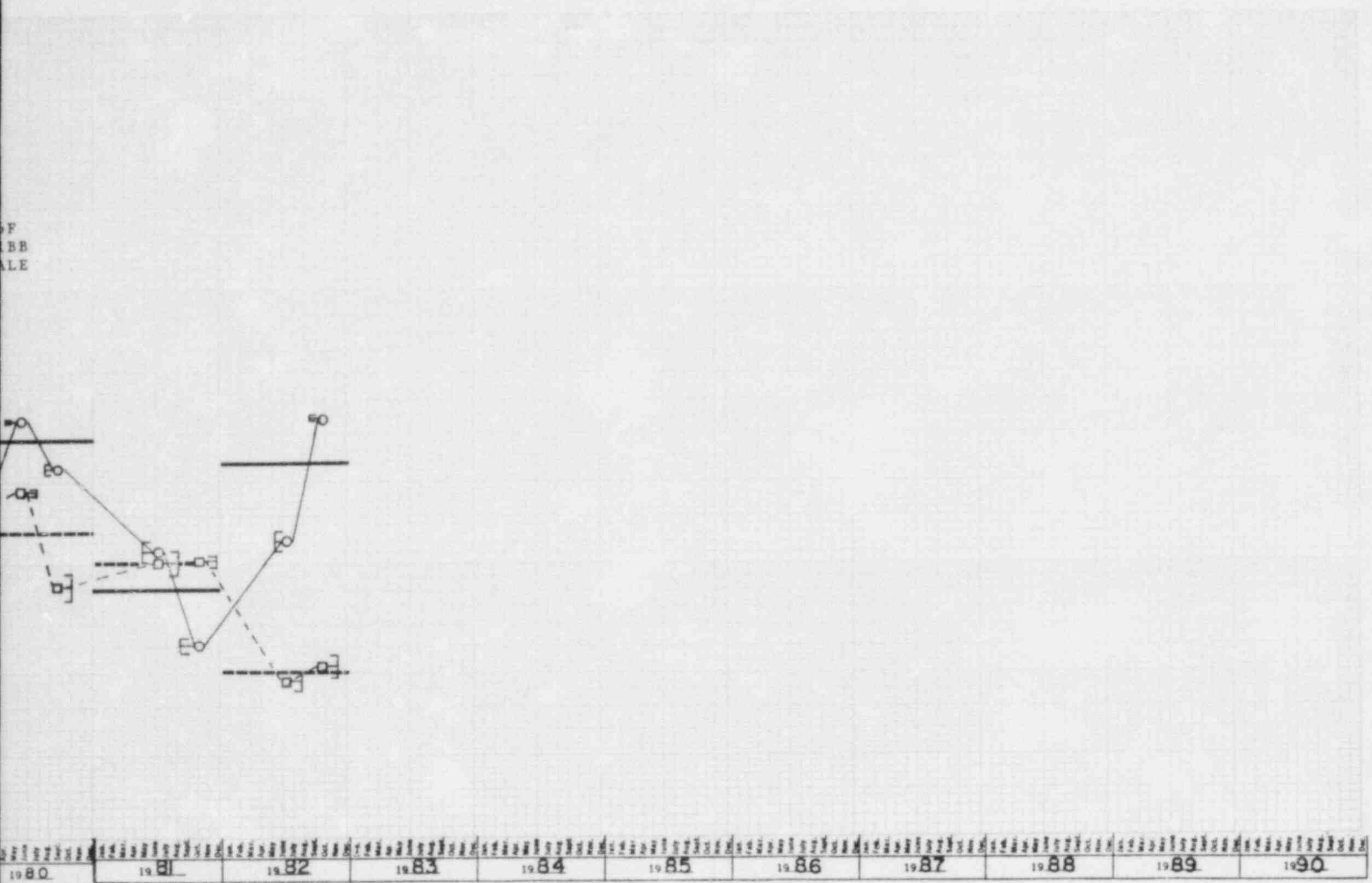


FIGURE IV.6.3

SR-90 RADIOACTIVITY CONCENTRATION
IN SILT SAMPLES

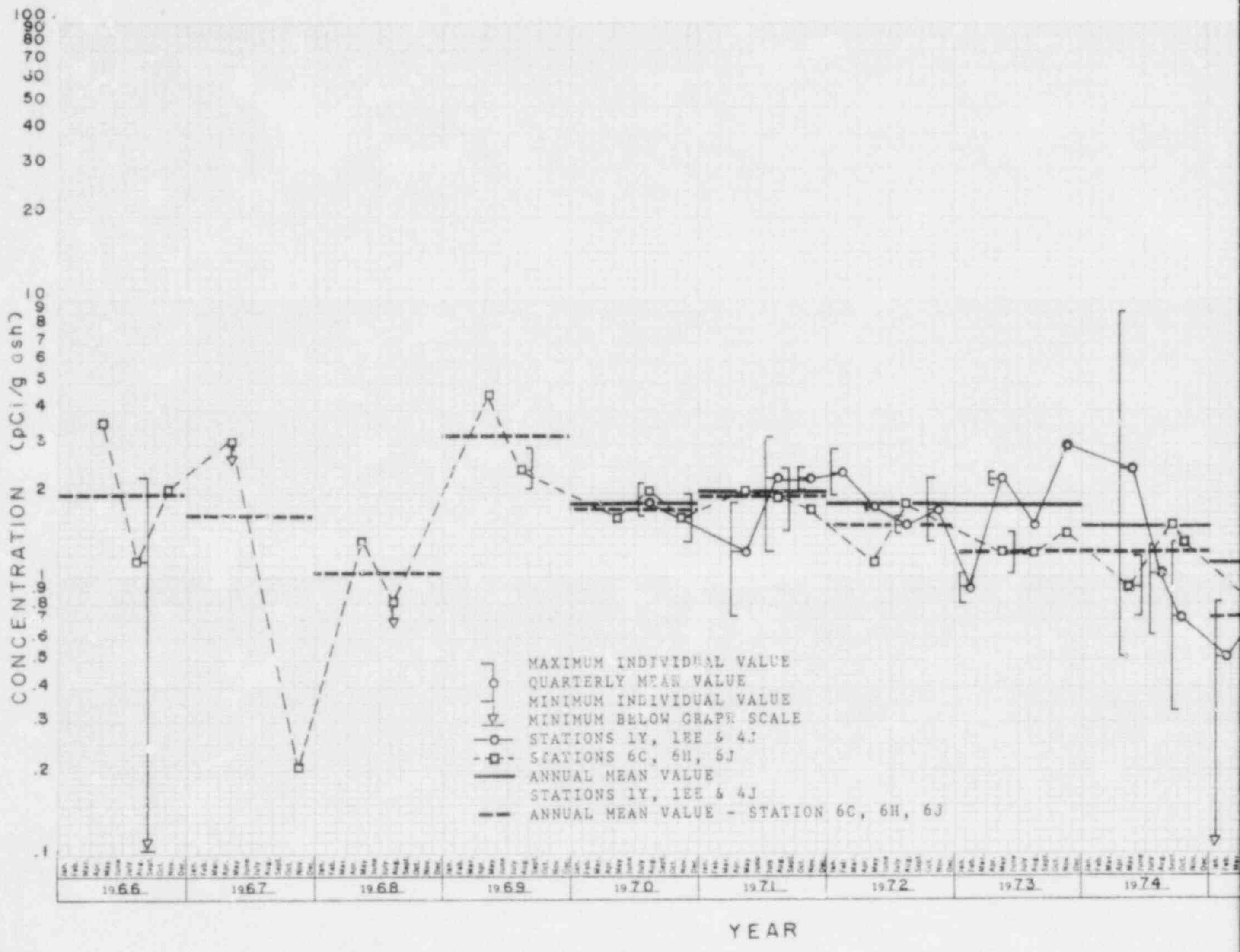

+ 2 σ COUNTING ERROR
SEMI-ANNUAL VALUE
- 2 σ COUNTING ERROR
STATION 6F
STATION 1BB
ANNUAL MEAN - STATION
ANNUAL MEAN - STATION
MINIMUM BELOW GRAPH SC
CONCENTRATION (pCi/g dry)
10.
9
8
7
6
5
4
3
2
1
.9
.8
.7
.6
.5
.4
.3
.2
.1
.09
.08
.07
.06
.05
.04
.03
.02
.01
1971
1972
1973
1974
1975
1976
1977
1978
1979
YEAR



Also Available On Aperture Card

FIGURE IV. 6.4

SEMI-ANNUAL CESIUM RADIOACTIVITY CONCENTRATION IN SILT SAMPLES


CONCENTRATION (pCi/g ash)
100
90
80
70
60
50
40
30
20
10
9
8
7
6
5
4
3
2
1
.9
.8
.7
.6
.5
.4
.3
.2
.1
MAXIMUM INDIVIDUAL VALUE
QUARTERLY MEAN VALUE
MINIMUM INDIVIDUAL VALUE
MINIMUM BELOW GRAPH SCALE
STATIONS 1Y, 1EE & 4J
STATIONS 6C, 6H, 6J
ANNUAL MEAN VALUE
STATIONS 1Y, 1EE & 4J
ANNUAL MEAN VALUE - STATION 6C, 6H, 6J
1966
1967
1968
1969
1970
1971
1972
1973
1974
YEAR

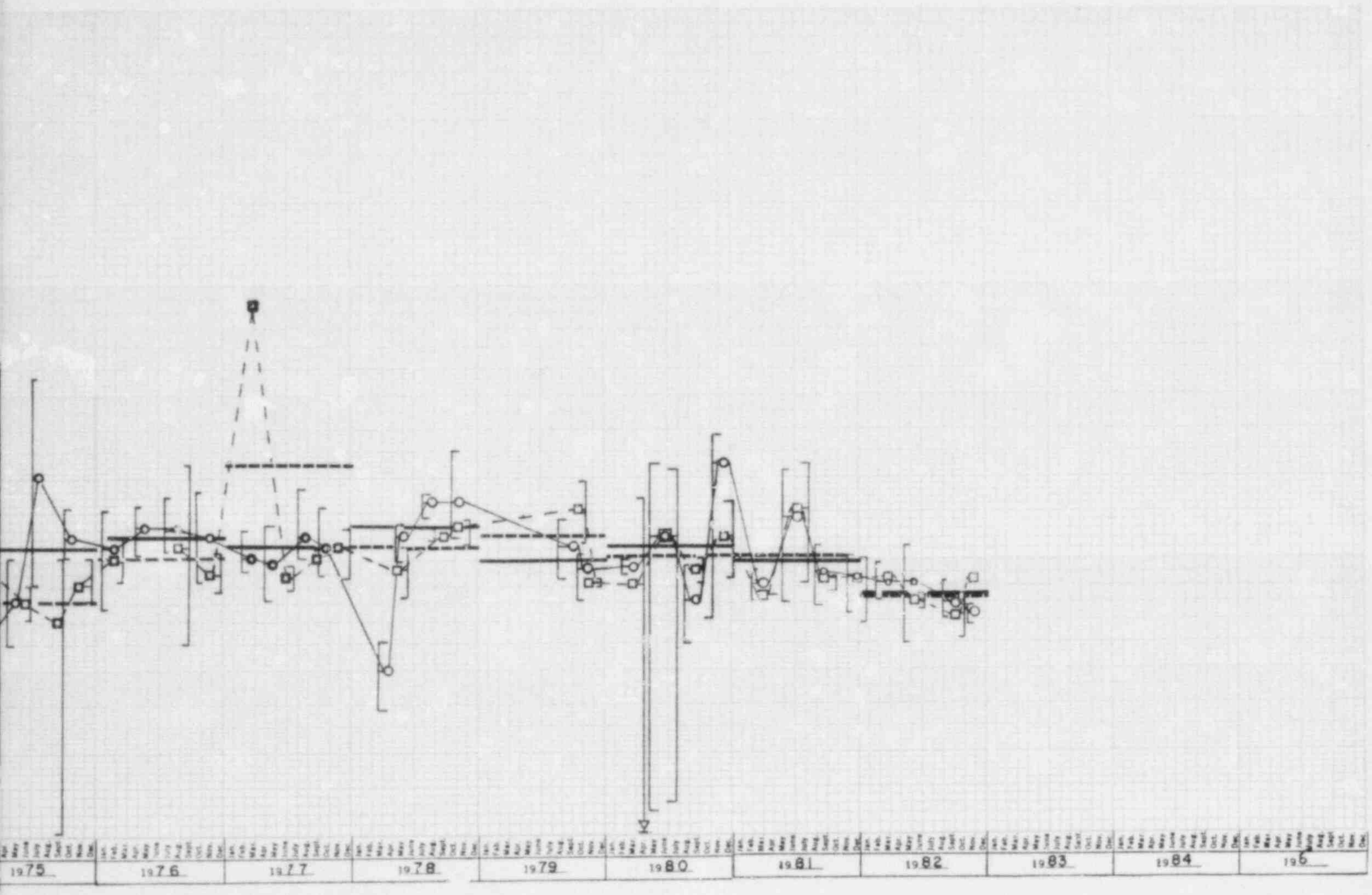
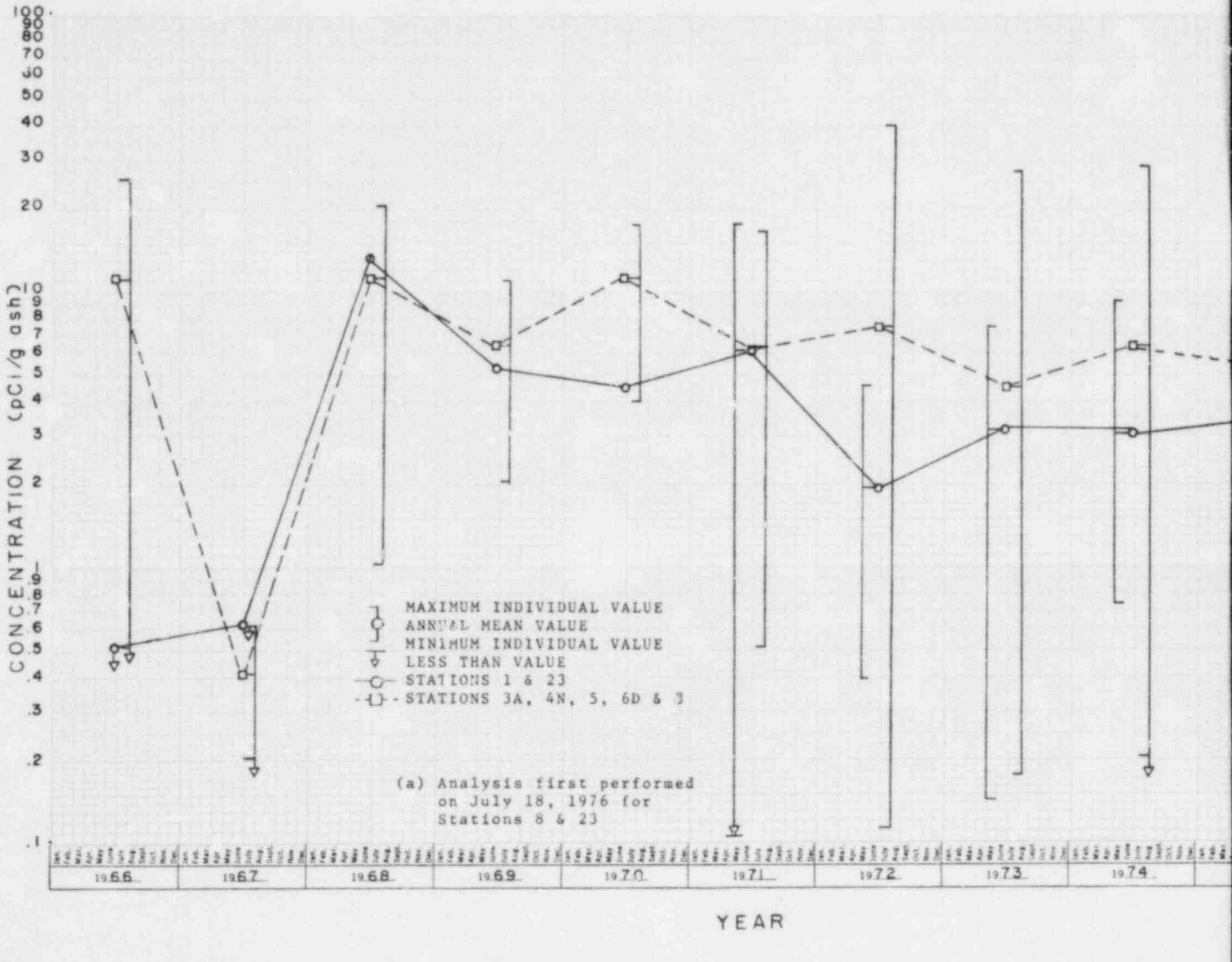


FIGURE IV.7.1

QUARTERLY MEAN CONCENTRATION OF
SR-90 RADIOACTIVITY IN FISH SAMPLES



CONCENTRATION (pCi/g ash)
100
90
80
70
60
50
40
30
20
10
9
8
7
6
5
4
3
2
1
.9
.8
.7
.6
.5
.4
.3
.2
.1
MAXIMUM INDIVIDUAL VALUE
ANNUAL MEAN VALUE
MINIMUM INDIVIDUAL VALUE
LESS THAN VALUE
STATIONS 1 & 23
STATIONS 3A, 4N, 5, 6D & 8
(a) Analysis first performed on July 18, 1976 for Stations 8 & 23
1966
1967
1968
1969
1970
1971
1972
1973
1974
YEAR

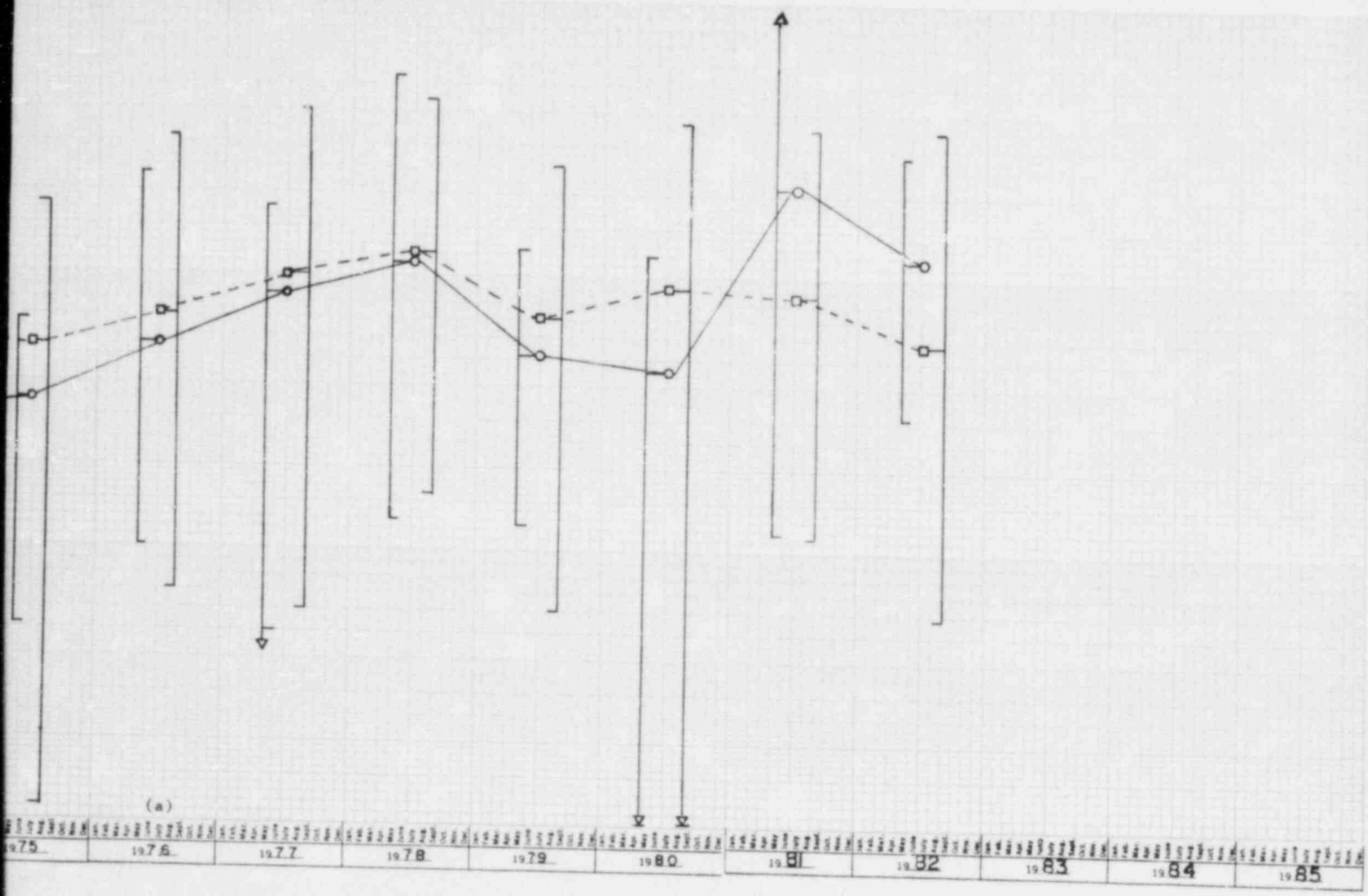
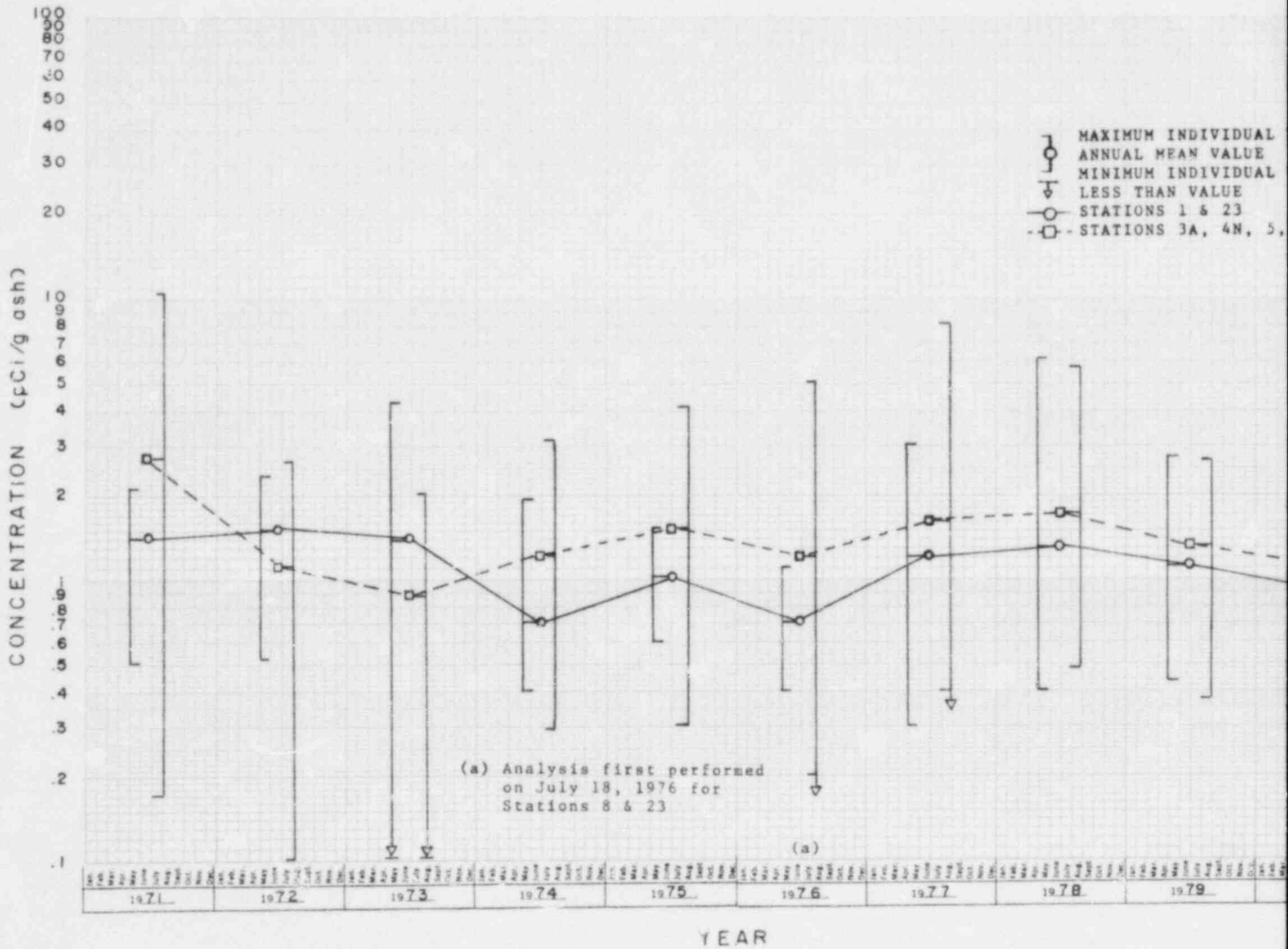


FIGURE IV.8.1

ANNUAL MEAN CONCENTRATION OF
SR-90 RADIOACTIVITY IN VEGETATION SAMPLES



MAXIMUM INDIVIDUAL
ANNUAL MEAN VALUE
MINIMUM INDIVIDUAL
LESS THAN VALUE
STATIONS 1 & 23
STATIONS 3A, 4N, 5,
CONCENTRATION (pCi/g ash)
(a) Analysis first performed on July 18, 1976 for Stations 8 & 23
(a)
1971
1972
1973
1974
1975
1976
1977
1978
1979
YEAR

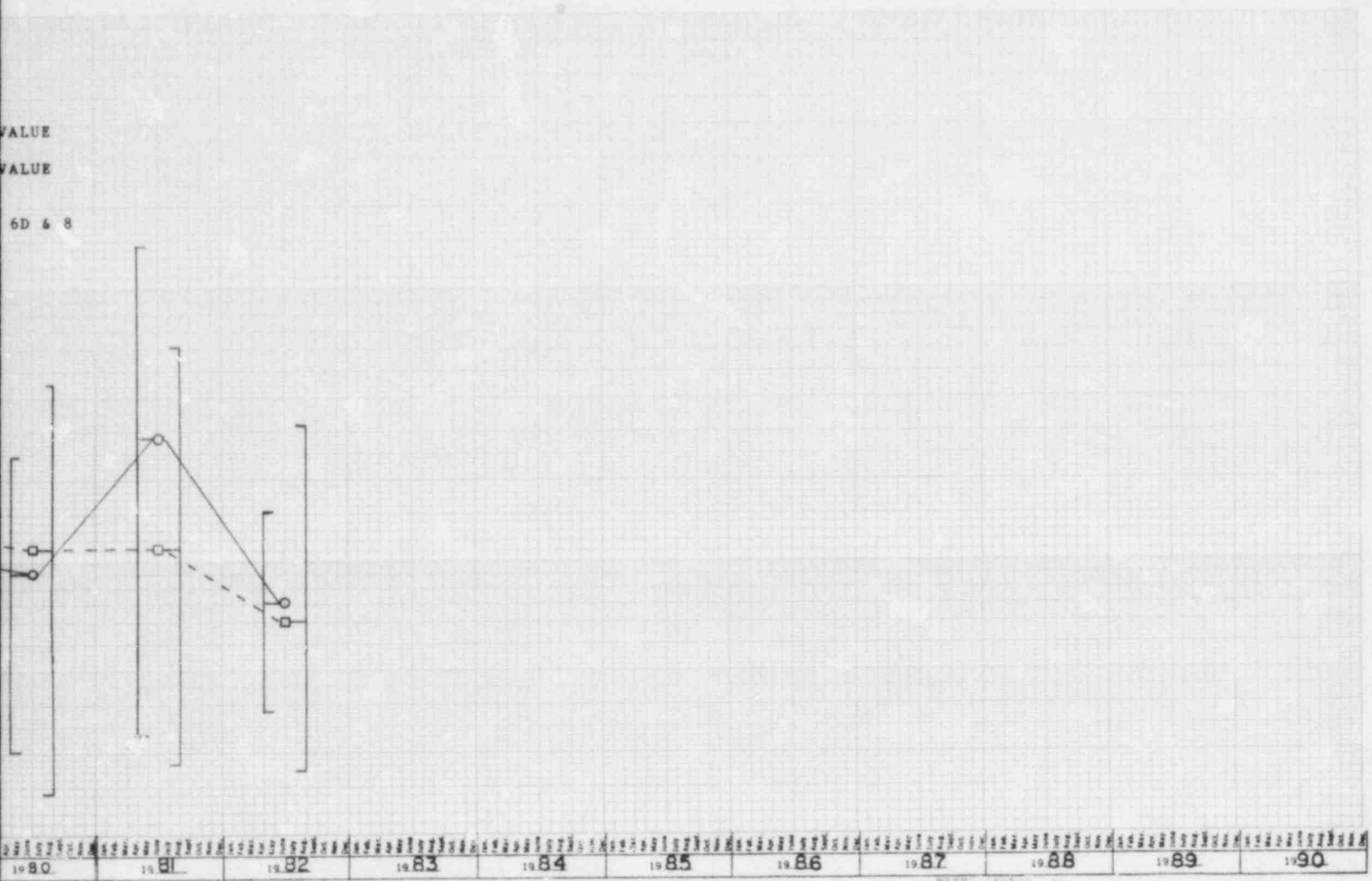
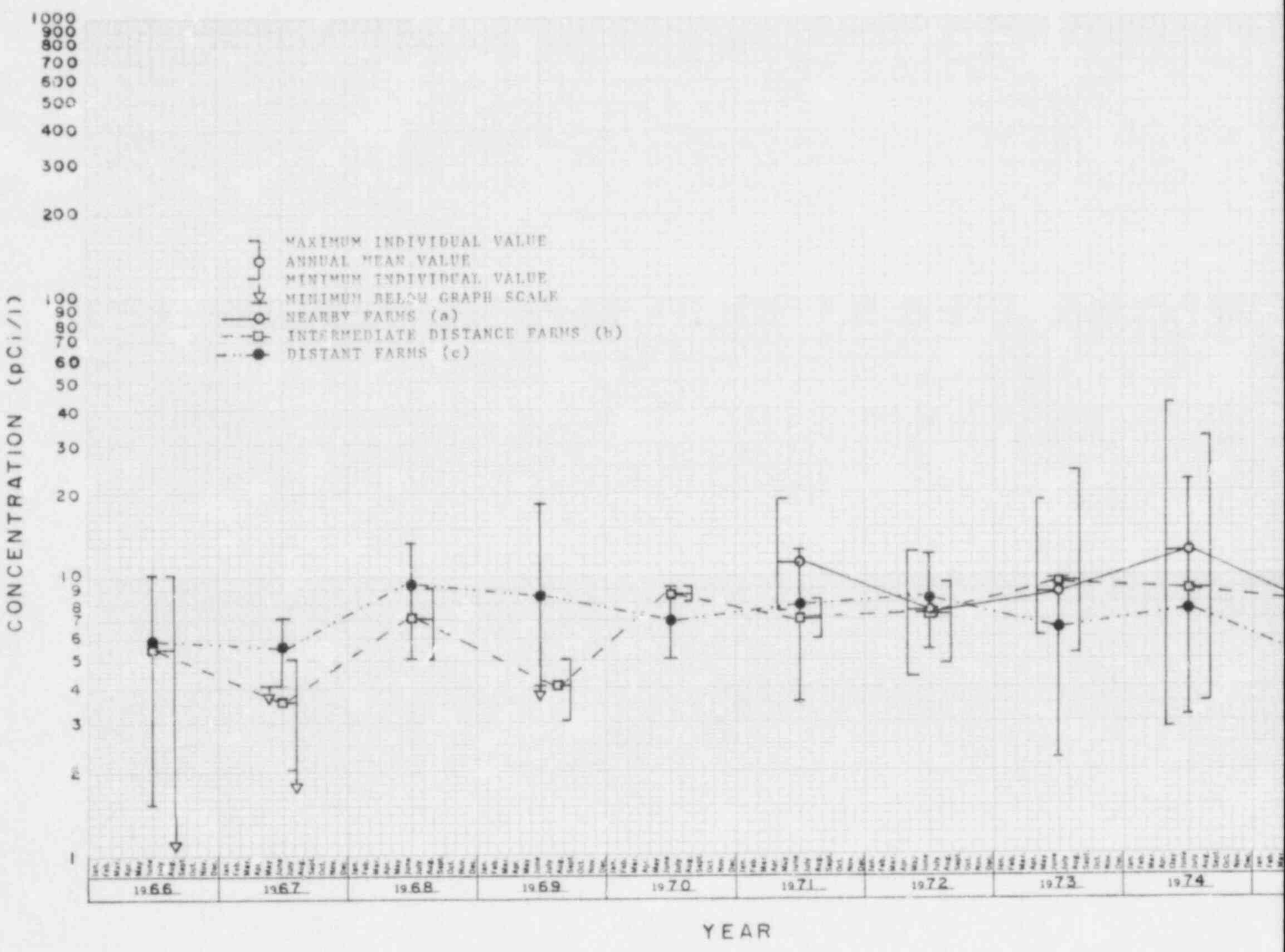


FIGURE IV. 8.2

ANNUAL MEAN CONCENTRATION OF CESIUM RADIOACTIVITY IN VEGETATION SAMPLES

8310120319-14



MAXIMUM INDIVIDUAL VALUE
ANNUAL MEAN VALUE
MINIMUM INDIVIDUAL VALUE
MINIMUM BELOW GRAPH SCALE
NEARBY FARMS (a)
INTERMEDIATE DISTANCE FARMS (b)
DISTANT FARMS (c)
CONCENTRATION (pCi/l)
1000
900
800
700
600
500
400
300
200
100
90
80
70
60
50
40
30
20
10
9
8
7
6
5
4
3
2
1
1966
1967
1968
1969
1970
1971
1972
1973
1974
YEAR

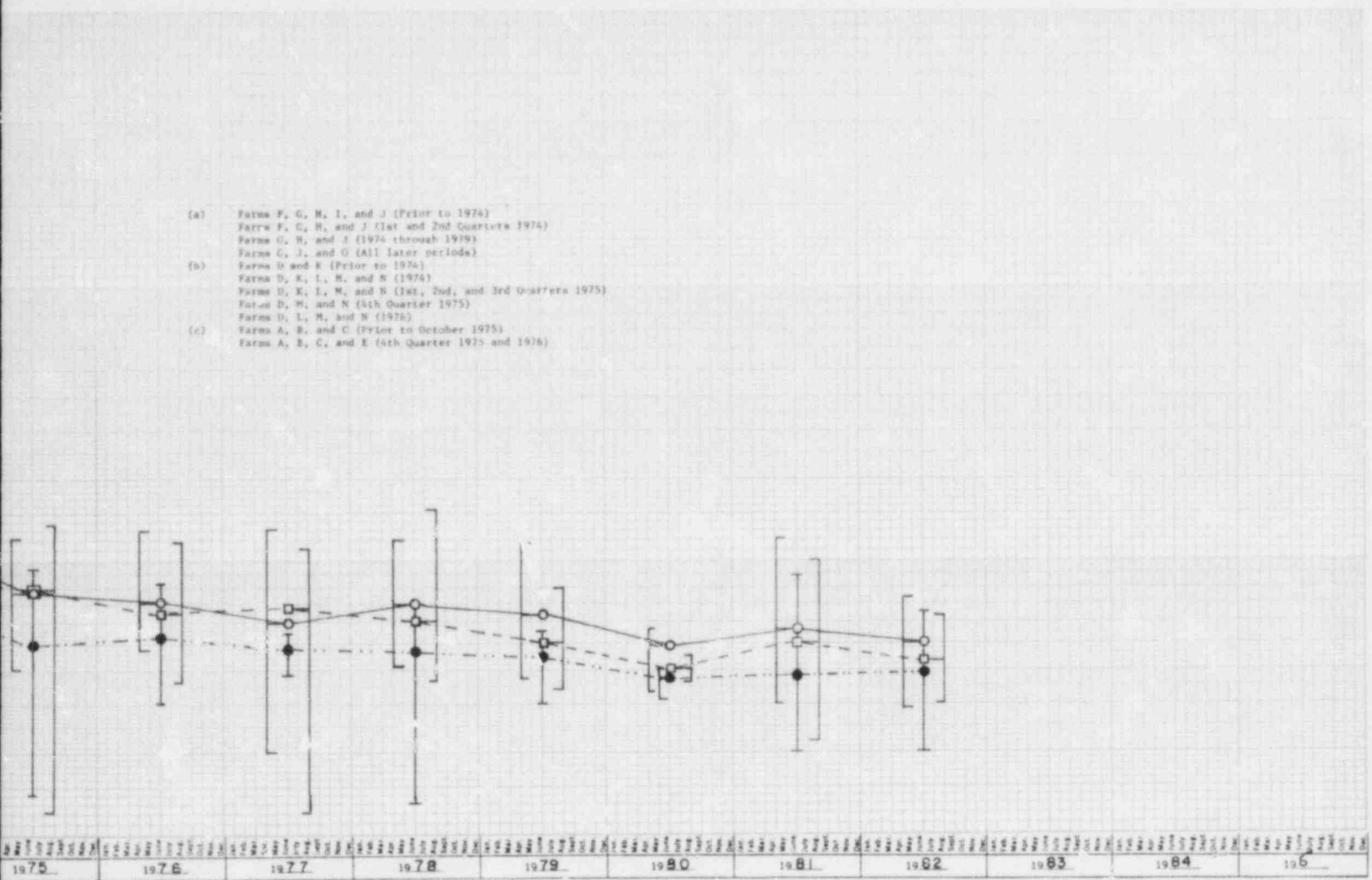
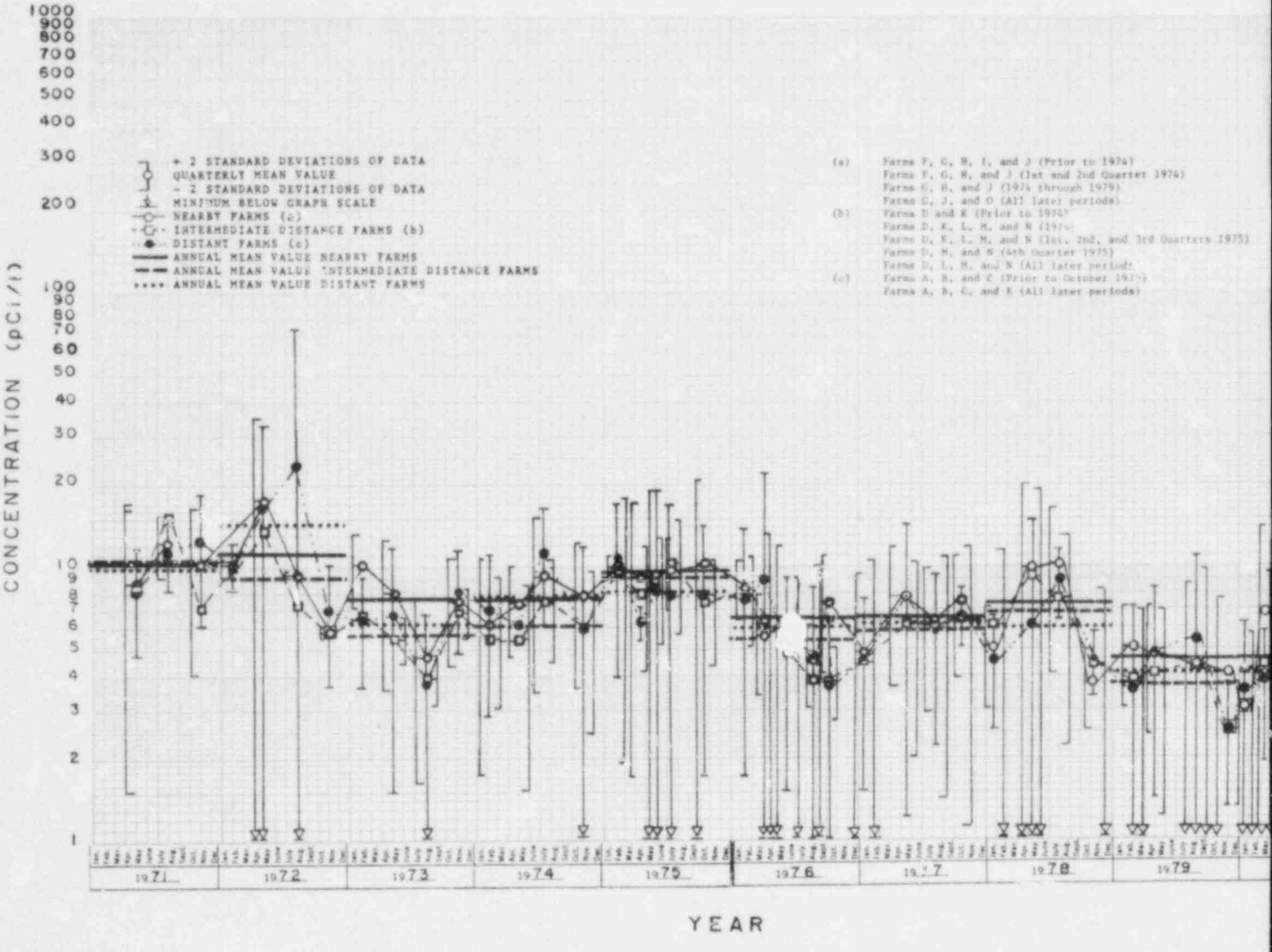


FIGURE IV.9.1

MEAN CONCENTRATION
OF SR-90 RADIOACTIVITY
IN MILK SAMPLES


CONCENTRATION (pCi/l)
+ 2 STANDARD DEVIATIONS OF DATA
QUARTERLY MEAN VALUE
- 2 STANDARD DEVIATIONS OF DATA
MINIMUM BELOW GRAPH SCALE
NEARBY FARMS (a)
INTERMEDIATE DISTANCE FARMS (b)
DISTANT FARMS (c)
ANNUAL MEAN VALUE NEARBY FARMS
ANNUAL MEAN VALUE INTERMEDIATE DISTANCE FARMS
ANNUAL MEAN VALUE DISTANT FARMS
(a) Farms F, G, H, I, and J (Prior to 1974)
Farms F, G, H, and J (1st and 2nd Quarter 1974)
Farms G, H, and J (1974 through 1979)
Farms G, J, and O (All later periods)
(b) Farms D and K (Prior to 1974)
Farms D, K, L, M, and N (1974)
Farms D, K, L, M, and N (1st, 2nd, and 3rd Quarters 1975)
Farms D, M, and N (4th Quarter 1975)
Farms D, L, M, and N (All later periods)
(c) Farms A, B, and C (Prior to October 1975)
Farms A, B, C, and E (All later periods)
1971
1972
1973
1974
1975
1976
1977
1978
1979
YEAR

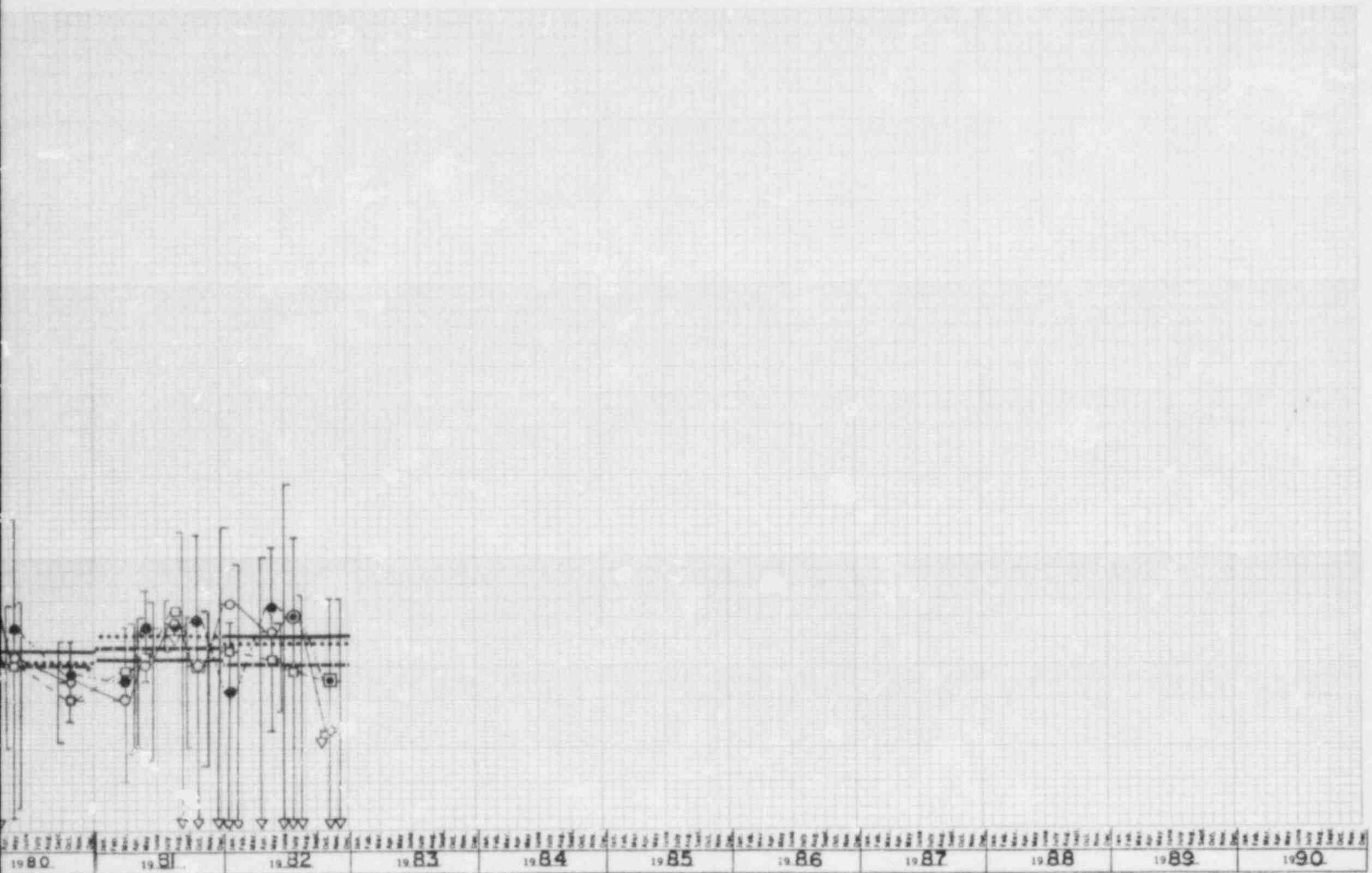
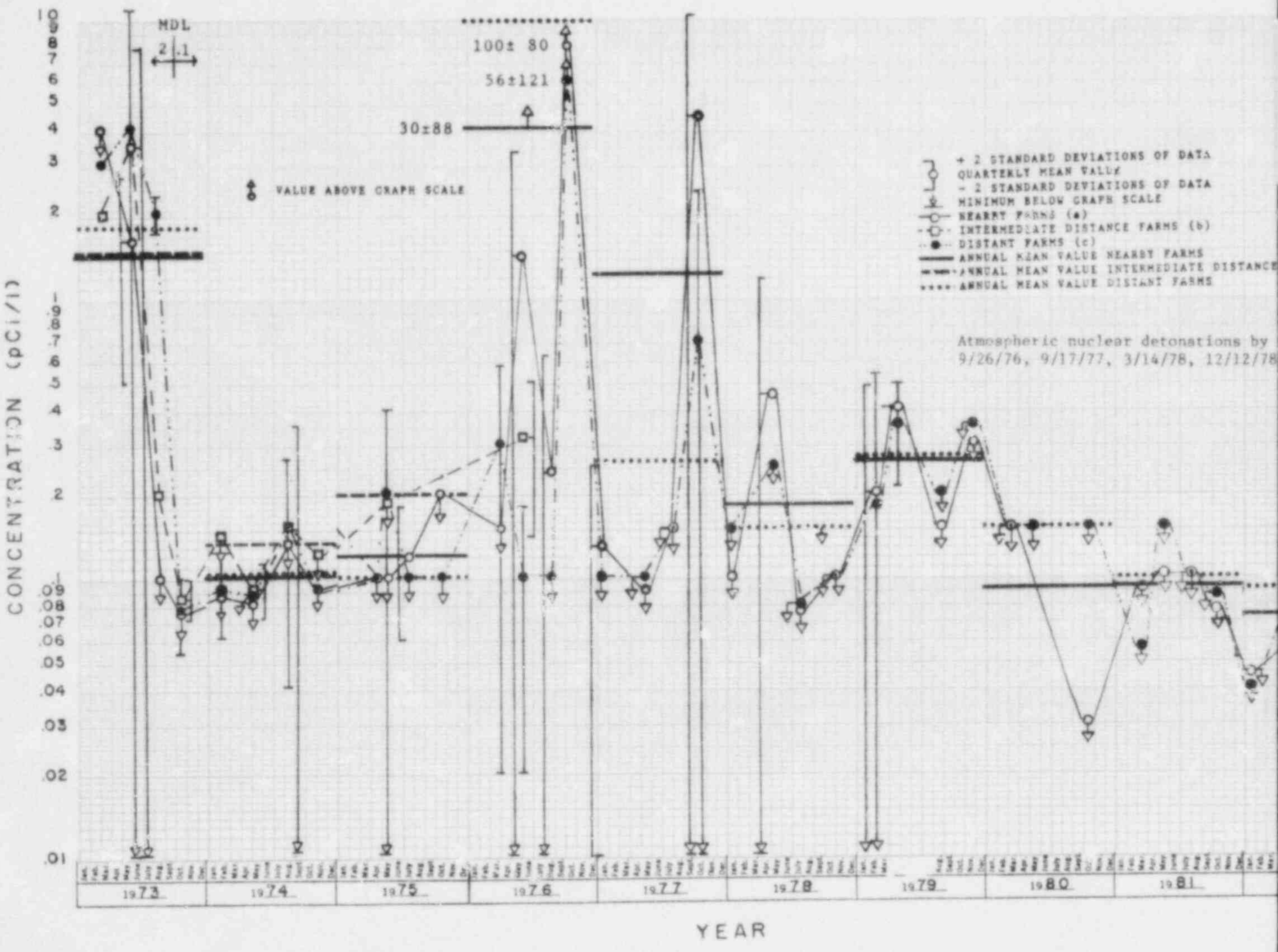


FIGURE IV.9.2

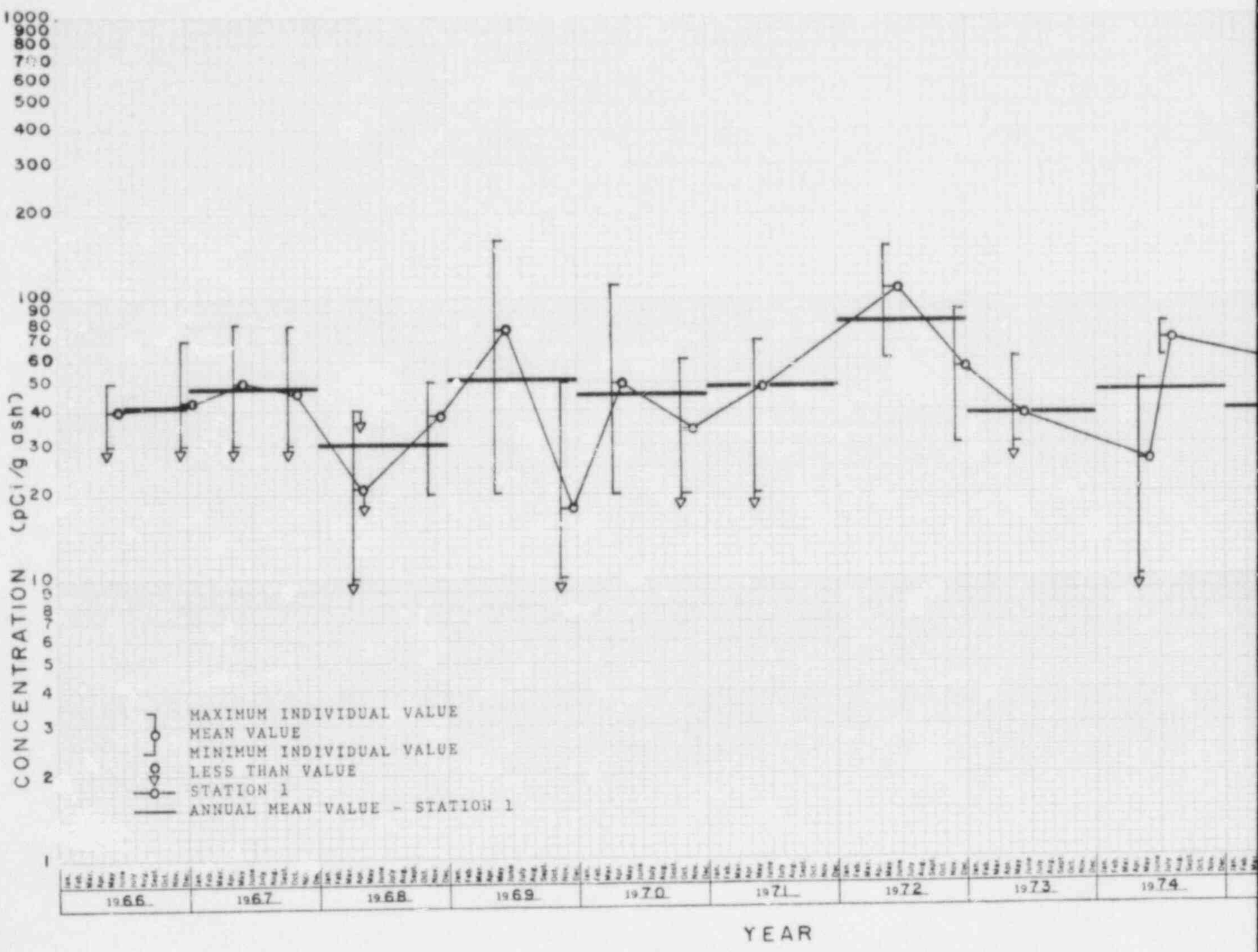
MEAN CONCENTRATION
OF CS-137 RADIOACTIVITY
IN MILK SAMPLES



MDL
2.1
VALUE ABOVE GRAPH SCALE
100± 80
56±121
30±88
+ 2 STANDARD DEVIATIONS OF DATA
QUARTERLY MEAN VALUE
- 2 STANDARD DEVIATIONS OF DATA
MINIMUM BELOW GRAPH SCALE
NEARBY FARMS (a)
INTERMEDIATE DISTANCE FARMS (b)
DISTANT FARMS (c)
ANNUAL MEAN VALUE NEARBY FARMS
ANNUAL MEAN VALUE INTERMEDIATE DISTANCE
ANNUAL MEAN VALUE DISTANT FARMS
Atmospheric nuclear detonations by
9/26/76, 9/17/77, 3/14/78, 12/12/78
CONCENTRATION (pCi/l)
1973
1974
1975
1976
1977
1978
1979
1980
1981
YEAR

FIGURE IV.9.3

MEAN CONCENTRATION OF I-131 RADIOACTIVITY IN MILK SAMPLES



1000
900
800
700
600
500
400
300
200
100
90
80
70
60
50
40
30
20
10
9
8
7
6
5
4
3
2
1
CONCENTRATION (pCi/g ash)
MAXIMUM INDIVIDUAL VALUE
MEAN VALUE
MINIMUM INDIVIDUAL VALUE
LESS THAN VALUE
STATION 1
ANNUAL MEAN VALUE - STATION 1
1966
1967
1968
1969
1970
1971
1972
1973
1974
YEAR

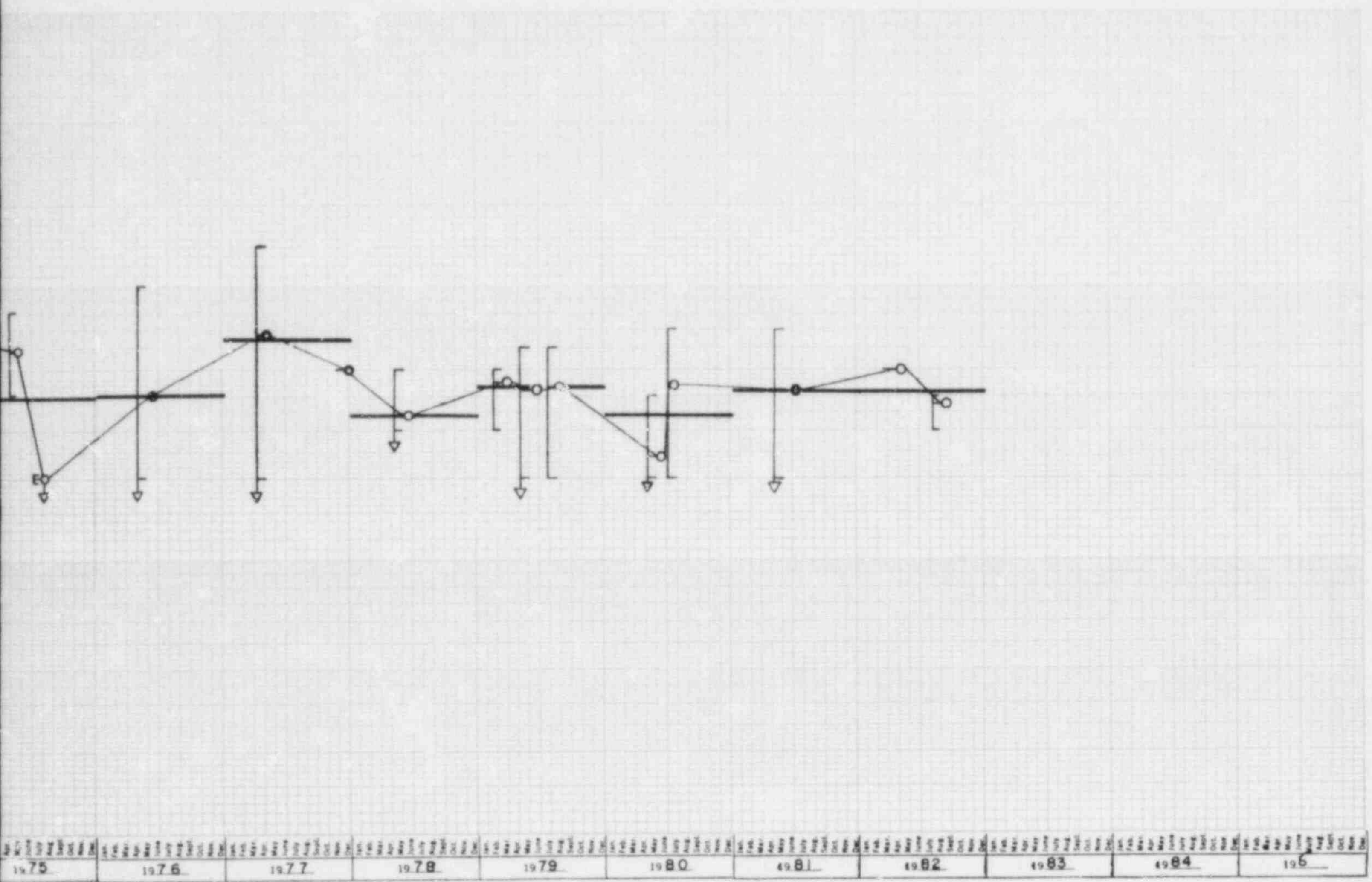


FIGURE IV.10.1

SEMI-ANNUAL MEAN CONCENTRATION
OF NET BETA RADIOACTIVITY
IN RABBIT MUSCLE SAMPLES

FIGURE IV.10.2

SEMI-ANNUAL MEAN CONCENTRATION
OF SR-90 RADIOACTIVITY
IN RABBIT BONE SAMPLES