PEACH BOTTOM ATOMIC POWER STATION

ENVIRONS RADIATION MONITORING PROGRAM

January 1, 1980 through December 31, 1980

REPORT NO. 38

for

The Philadelphia Electric Company

May 1981

INTEREX CORPORATION
3 Strathmore Road
Natick, Mass. 01760

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I. INTRODUCTION

A pre-operational environmental radioactivity survey, initiated in March 1960, was conducted by Nuclear Science & Engineering Corporation for the Philadelphia Electric Company in connection with 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 Interex on samples representing the period January 1 through December 31, 1980 in the Interex 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, which is presently carrying out sample collection, analysis and report preparation, was moved to Natick, Mass. in May 1974. 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 considerations to show maximum effects of plant operation to levels at stations remote from the site. When possible, comparison is also made to data obtained by various government agencies. Since there are both natural and man-made radioactivity present in the environment which are not related to plant operation, it is important to understand and adequately measure these contributions.

A number of radioactive elements occur in nature. The most important of these are uranium and thorium, along 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 primarily 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.

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, 1980 through December 31, 1980 is given in Table II. 3.

Two changes were made in the program during 1980. Farm O was substituted for Farm H, which is no longer in business. Also air particulate sampling at Station 4A was dropped from this portion of the program. The filters from this station are now being analyzed by another consultant working on the PBAPS program.

TABLE II. 1

ENVIRONMENTAL MONITORING STATIONS
JANUARY THROUGH DECEMBER 1980

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
2	PEACH BOTTOM SITE - 130° SECTOR HILL	ON SITE, 0.9 MILES SE OF UNITS 2 & 3	AIR PARTICULATE SOIL

STATION NO.	STATION NAME	STATION LOCATION, DIRECTION AND DISTANCE FROM PEACH BOTTOM SITE	ENVIRONMENTAL MEDIA COLLECTED
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
4H	CONOWINGO DAM - TAILRACE	TAILRACE ON WEST SIDE OF RIVER 8.6 MILES SE OF UNITS 2 & 3	FISH AMERICAN SHAD)
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
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)

STATION NO.	STATION NAME	STATION LOCATION, DIRECTION AND DISTANCE FROM PEACH BOTTOM SITE	ENVIRONMENTAL MEDIA COLLECTED
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	5.8 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
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

STATION NO.	STATION NAME	STATION LOCATION, DIRECTION AND DISTANCE FROM PEACH BOTTOM SITE	ENVIRONMENTAL MEDIA COLLECTED
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 AREAS	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, O, AND J. INTERMEDIATE DISTANCE FARMS ON THE EAST SIDE OF THE POND ARE DESIGNATED D, L, M, AND N. DISTANT REGIONAL FARMS 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 1980

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) CS-137 (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) CS-137 (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 FARMS A, C, G, J	4 X 11
4. VEGETATION	GROSS BETA POTASSIUM-40 SR-89, SR-90 CS-137	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) AMERICAN SHAD FOUR FISH (IF AVAILABLE)	QUARTERLY (NO SAMPLE WHEN ICE CONDITIONS PREVAIL) ANNUALLY IN SPRING	FIVE ONE	1X, 4I, 4J, 1EE, 6H OR 6J 4H	32 X 5 4 X 1
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 CS-137	SUNSHINE METHOD; 500 GRAMS	SEMI-ANNUALLY	SIX	1AA, 2, 3A, 4N, 5, 6G	2 X 6
8. SILT	GROSS ALPHA GROSS BETA CS-137 GAMMA SPECTRUM (GELI)	SPOT; 500 GRAMS	SEMI-ANNUALLY	SIX	1BB, 1X, 4J, 4D, 4T, 6F	2 X 6

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, 1980 through December 31, 1980

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	52		52									12	64
	1B	51		51									12	63
	2	49		49									12	61
	3A	51		51									12	63
	4A	6		6									1	7
	4B	52		52									12	64
	5	48		48									12	60
	6B	50		50									12	62
	12A	52		52									12	64
	12D	52		52									12	64
	14	48		48									12	60
	15	50		50									12	62
	17	51		51									12	63
	31	49		49									12	61
	32	50		50									12	62
	33A	51		51									12	63
	38	51		51									12	63
Precipitation	1A	12		12				4	4			4		24
	1B	12		12				4	4			4		24
	4M	11		11				4	4			4		23
Surface water (Sol. & Insol.)	1LL	12	12	12										24
	1Q	12	12	12										24
	4F	12	12	12										24
	4L	12	12	12										24
	6I	12	12	12										24
	6A	12	12	12										24
	13A	12	12	12										24
	13B	1	1	1										2

TABLE II.3

SUMMARY OF ANALYSES PERFORMED ON SAMPLES COLLECTED
January 1, 1980 through December 31, 1980 (continued)

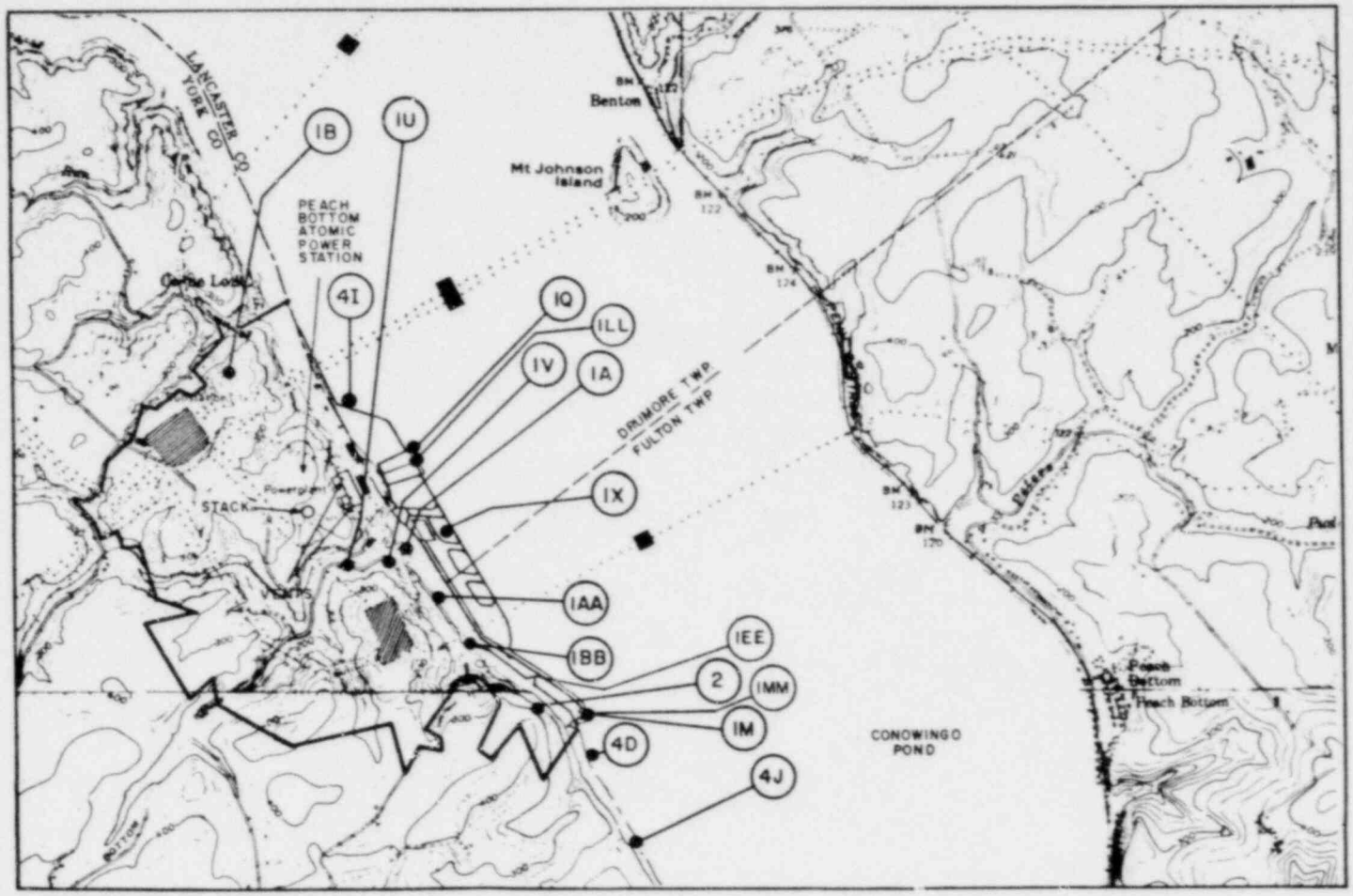
Sample Type	Station Number	Number Samples	Gross Alpha	Gross Beta	Net Beta	K-40	U	Sr-89	Sr-90	I-131	Cs-134	Cs-137	Gamma Spec.	Total Analyses
Discharge Water	1M	12	12	12										24
(Sol. & Insol.)	1MM	12	12	12										24
Well Water	1U	4	4	4			4	2	2			2		18
	1V	4	4	4			4	2	2			2		18
	7	4	4	4			4	2	2			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	37		16	16	16		4	4				4	60
Catfish	1EE	44		16	16	16		4	4				4	60
Catfish	4I	23		13	13	13		4	4				4	51
Wh. Crappie	4J	25		12	12	12		3	3				3	45
Catfish	4J	31		16	16	16		5	5				4	62
Wh. Crappie	4J	20		10	10	10		3	3				3	39
Catfish	6H	22		16	16	16		4	4				4	60
Wh. Crappie	6H	14		10	10	10		4	4				4	42
Am. Shad	4H	4		4	4	4							1	13

TABLE II.3

SUMMARY OF ANALYSES PERFORMED ON SAMPLES COLLECTED
January 1, 1980 through December 31, 1980 (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	6		6	6	6		6	6			6		36
	8	6		6	6	6		6	6			5		36
	23	3		3	3	3		3	3			3		18
Milk Farm	A	4		4	4	4		4	4	3	4	4		31
	B	4		4	4	4		4	4		4	4		28
	C	4		4	4	4		4	4	3	4	4		31
	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	2	4	4		30
	J	4		4	4	4		4	4	2	4	4		30
	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	10		10	10	10		10	10					50
Muscle	1	10		10	10	10								30
Thyroid	1	10								10				10
Tissue	1	10		10	10	10								30
TOTAL ANALYSES		1334	137	1217	232	232	16	162	162	20	44	121	236	2579

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



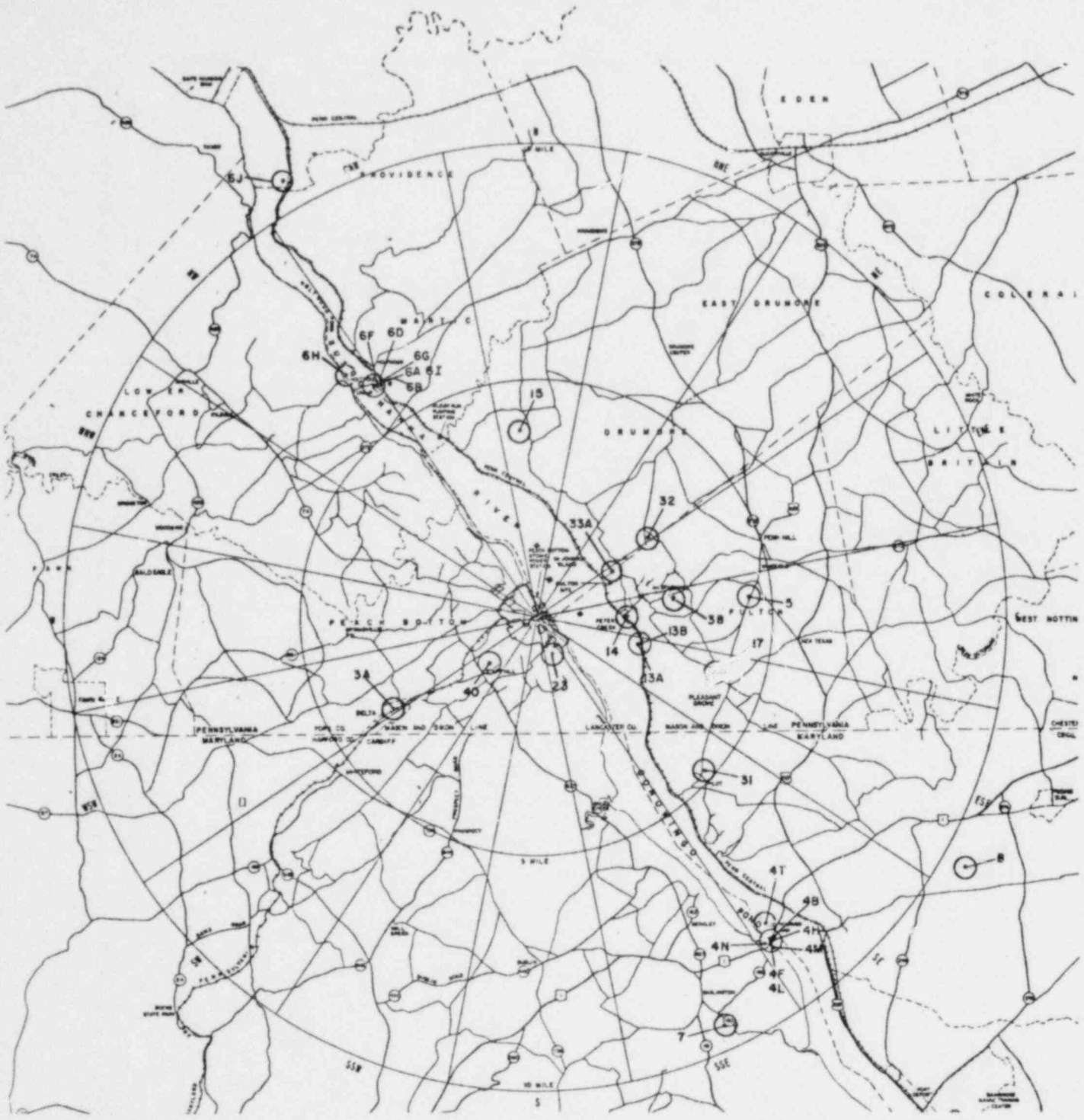
LEGEND

ENVIRONMENTAL SAMPLING STATIONS

1A	PEACH BOTTOM WEATHER STATION NO.1
1B	PEACH BOTTOM WEATHER STATION NO.2
1M	PEACH BOTTOM CANAL DISCHARGE
1MM	PEACH BOTTOM CANAL DISCHARGE - COMPOSITE
1LL	PEACH BOTTOM UNITS 2&3 INTAKE - COMPOSITE
1Q	PEACH BOTTOM UNIT NO. 2 INTAKE
1U	PEACH BOTTOM SITE - UTILITY BUILDING
1V	PEACH BOTTOM SITE - INFORMATION CENTER
1X	PEACH BOTTOM SITE COOLING TOWER POND B-1
1AA	PEACH BOTTOM DISCHARGE CANAL BANK
1BB	PEACH BOTTOM DISCHARGE CANAL
1EE	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

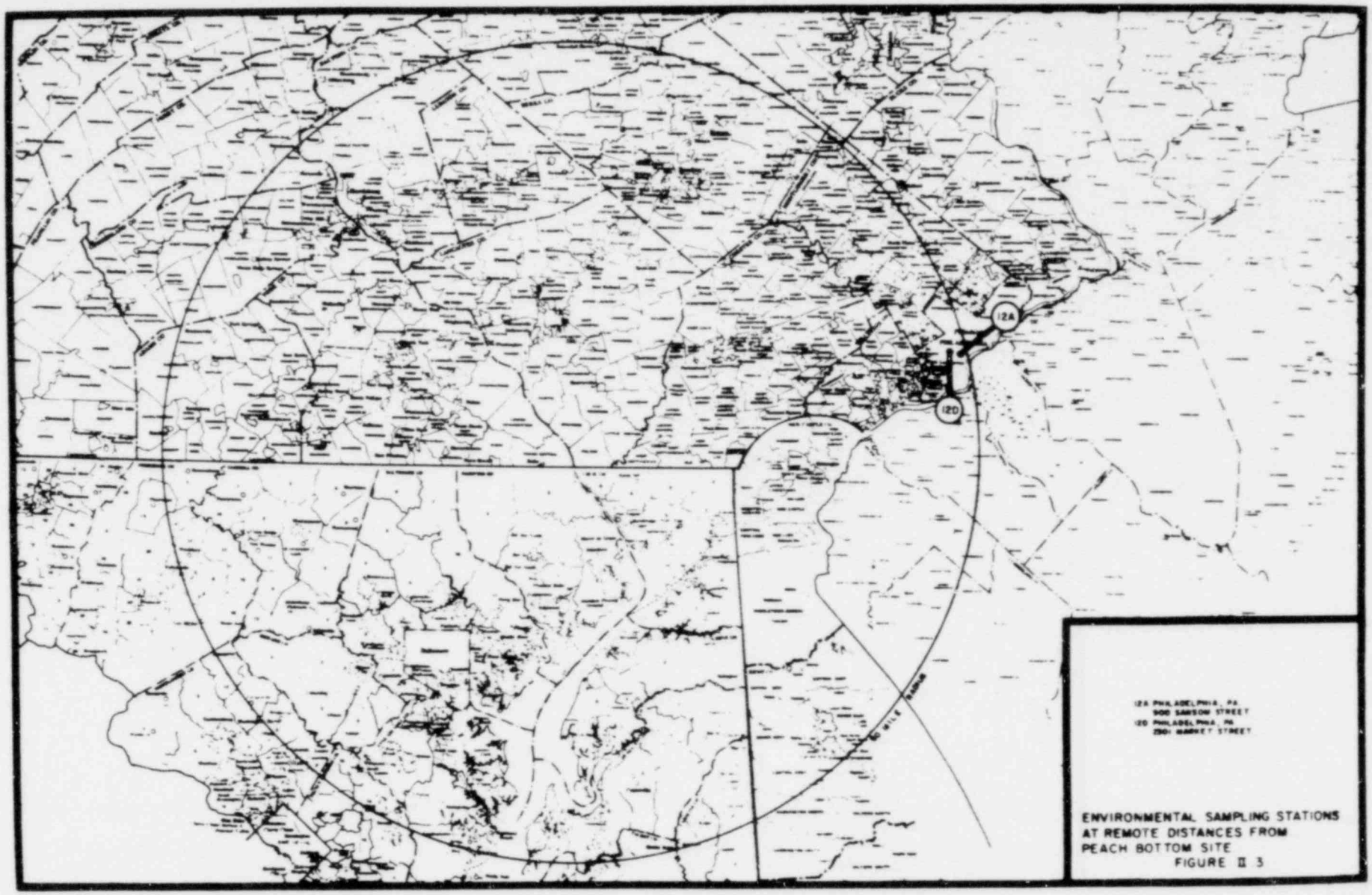


3A DELTA, PA – SUBSTATION
4B CONOWINGO DAM, MARYLAND
4F CONOWINGO DAM, EL33(FT.)MSL GRAB
4H CONOWINGO DAM, TAILRACE
4L CONOWINGO DAM, EL.33(FT) COMPOSITE
4M CONOWINGO DAM, DOWNSTREAM EL 40(FT.) MSL
4N CONOWINGO DAM, ENVIRONMENTAL STATION
4T CONOWINGO POND–NEAR CONOWINGO DAM
5 WAKEFIELD, PA.

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). Only one change was made in the analytical procedures for 1980.

Starting with the first milk samples of 1980 the final precipitate in the milk iodine procedure was changed from palladium iodide to copper iodide. The remainder of the procedure remained the same.

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
	CS-137	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	0.1 PCI/LITER	PCI/LITER	+/-20
	GROSS BETA				
	SOLUBLE	1000 ML	2 PCI/LITER	PCI/LITER	+/-10
	INSOLUBLE	4000 ML	0.5 PCI/LITER	PCI/LITER	+/-10
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
	CS-137	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
	CS-137	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
	CS-137	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. In this report, results of analyses which are performed on ashed samples 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.

A change in the column heading for reporting cesium data has been instituted starting with this report. 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.

An atmospheric nuclear test by the Peoples Republic of China on October 16, 1980 injected new debris into the atmosphere. This new material was seen in the PBAPS program.

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 relatively uniform throughout most of the year and were similar at all locations. Until November monthly mean values for the groups were in the approximate range of 0.02 - 0.04 pCi/m3 which is similar to levels seen in 1976 and 1979 in the absence of any recent nuclear testing. In November, fallout from the October Chinese test began to appear and caused a general rise in individual values and in monthly mean values. For December monthly mean values were in the vicinity of 0.1 pCi/m3. The high limit of detection for Station 12D during the last week of December was the result of a short sampling period caused by a power trip.

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 1966-1980 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. Other than naturally-occurring Be-7 almost no nuclides were detected by GeLi gamma spectrometry prior to November. The other positive values prior to November are probably the result of counting statistics. In November and December Nb-95 and Zr-95 from the Chinese test were seen at a few stations. Measurable

values were similar at all locations.

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/l), because it tends to minimize the effect of sample volume. Lack of complete correlation with air particulate values comes about because rainfall generally does not occur at frequent intervals. The dependence of the activity levels on the precise conditions occurring at the start of each rainfall can cause wide variablity between samples even when taken over limited geographical areas.

Similar to air particulate values, the gross beta radioactivity concentrations in samples collected at Stations 1A and 1B were relatively constant until the end of the year and were lower than found when there was nuclear testing. Individual monthly results ranged from a few to 30 pCi/l. The latter value was measured in a sample of very small volume. Corresponding surface densities ranged from a few hundred to several hundred pCi/m2. No sample was available for December when higher values would have been anticipated. 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. The December sample had values of 42 pCi/l and 440 pCi/m2 reflecting the higher activity levels seen in air particulates.

No Sr-89 radioactivity concentration was detected in any of the samples. This is consistent with the absence of fresh nuclear weapons test debris when the samples were collected as evidenced by the air particulate data.

Sr-90 radioactivity concentrations where measurable were generally a few tenths of a pCi/l. Surface densities were a few tens of pCi/m2. These levels are comparable to or lower than

of 0.2 +/- 0.2 pCi/l. Because of the small net count rate it was not possible to confirm the Y-90 decay so the concentration may not be real.

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 measure 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 approximately half of the samples, ranged from 1 to 4 pCi/g dry weight. This is within the range of normal variability.

The majority of the Sr-90 concentrations were grouped in a 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 one sample. This probably is an artifact caused when the Sr-89 value is much smaller than the Sr-90 value. When this occurs, the counting error underestimates the overall systematic error.

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.

Values obtained from samples taken at the Peach Bottom site are comparable to or lower than the average values from the surrounding sampling stations indicating no 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 somewhat higher than 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 0.14 pCi/g. All results are within the range of variability observed during the PBAPS Units 2 and 3 preoperational period.

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

Samples analyzed showed Cesium generally at low levels of a few tenths of a pCi/g dry weight which is well within the range of PBAPS preoperational data. Two samples from Station 4T had values slightly above 1 pCi/g dry weight. Any apparent discrepancy between the radio-chemistry values and gamma spectrum values must 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 Cesium values at Station 1BB tend to be higher than at Station 6F

indicating probable contribution from PBAPS operation as discussed below.

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 was found in several samples from Stations 1X, 1BB, 4J and 4T and is most likely from PBAPS operation because it is a reactor-generated product. Co-60 found in fall samples from Stations 1X and 1BB is also a reactor-generated product and is probably from PBAPS operation.

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 and Co-60. If it is assumed that all Cesium 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 7.39 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 40 pCi/g ash with the majority of the results below 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 1980 because of the possibility of release of Sr-89 and Sr-90 from a source above the Peach Bottom site.

Sr-89 was found in three of the samples at a few tenths of a pCi/g ash. Two of the samples were from Station 6H.

Sr-90 radioactivity concentration as determined in samples from all locations was generally a few tenths to a few 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 IEE, 1X, 4I and 4J.

Examination of data from all stations 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 0.81 mrem to a teenager's liver. The actual dose due to PBAPS operations is much less than 0.81 mrem 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 100 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 a few 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 35 pCi/g ash with the majority of values between 1 and 10 pCi/g ash. 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. As can be seen from the annual mean values shown in Figure IV.8.1 there is no significant difference between station groups.

Sr-89 was detected in several samples. The considerations discussed previously also apply here, however the results for the November samples may reflect the October Chinese test.

Cesium radioactivity was measured at concentrations from a few tenths to a few pCi/g ash. The corresponding average values were a few hundredths to a few tenths of a pCi/g original sample. As was the case in previous years, wild vegetation tended to have values above the overall average. The annual mean

values shown in Figure IV.8.2 indicate similar results at both groups of sample stations.

There is no indication of a contribution to the radioactivity in vegetation from the operation of PBAPS as can readily be seen in Tables IV.8.1 and IV.8.2 and Figures IV.8.1 and IV.8.2 comparing potentially affecteo stations with unaffected stations. Wide variability is to be expected between sample types because of differences in growing season and conditions.

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 1100 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 Sr-90 radioactivity concentration for all farms was in the range of about 2 to 8 pCi/l with the majority of samples approximately 3 pCi/l. This range is similar to or slightly lower than the ranges for 1975 through 1979. 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 4 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 two of the samples analyzed at levels

up to 1.1 pCi/l. These values are probably due to counting statistics and not related to PBAPS operation since they are similar to "less than" values in all groups of farms.

Values for Cs-137 radioactivity concentration range from about 2 to 10 pCi/l, similar to the range seen in 1979. 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.

No Cs-134 was detected in any samples indicating 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 20 to 70 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 ranged from <10 to 30 pCi/g ash decreasing by a factor of 3-5 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 3 to 11 pCi/g ash similar to the range seen in previous periods. The pCi/g original sample values are a factor of 3-6 lower.

Sr-89 was possibly detected in a few rabbit bones. The considerations discussed earlier apply to these results also.

No I-131 was measurable in any of the thyroids analyzed.

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

V. SUMMARY

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

As indicated by the radioactivity concentrations measured in air particulate and precipitation samples taken before November, fallout from previous nuclear testing had decreased to levels seen before testing resumed in fall of 1976. A Chinese nuclear weapons test in October 1980 caused levels to increase greatly toward the end of the year.

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 earlier 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.

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
80	12/28-01/06	.037 ; .007	.038 ; .007	.033 ; .007
	01/06-01/12	.06 ; .01	.07 ; .01	.06 ; .01
	01/12-01/19	.034 ; .009	.032 ; .009	.029 ; .009
	01/19-01/26	.043 ; .008	.037 ; .008	.033 ; .008
	01/26-02/03	.035 ; .008	.029 ; .008	.036 ; .009
	02/03-02/09	.03 ; .01	.03 ; .01	.03 ; .01
	02/09-02/17	.042 ; .007	.040 ; .007	.046 ; .007
	02/17-02/23	.035 ; .009	.026 ; .009	.025 ; .009
	02/23-03/01	.039 ; .008	.045 ; .008	.040 ; .008
	03/01-03/09	.027 ; .008	.025 ; .008	.026 ; .008
	03/09-03/15	.042 ; .009	.036 ; .009	.035 ; .009
	03/15-03/22	.019 ; .007	.024 ; .007	.022 ; .007
	03/22-03/29	.019 ; .009	.016 ; .008	.021 ; .009
	03/29-04/05	.015 ; .009	.019 ; .008	.015 ; .009
	04/05-04/12	.028 ; .009	.024 ; .009	.025 ; .009
	04/12-04/20	.026 ; .008	.028 ; .008	.022 ; .008
	04/20-04/26	.027 ; .009	.015 ; .009	.028 ; .009
	04/26-05/04	.019 ; .008	.029 ; .008	.016 ; .008
	05/04-05/10	.03 ; .01	.03 ; .01	(A)
	05/10-05/17	.029 ; .009	.025 ; .009	.020 ; .009
	05/17-05/24	.032 ; .008	.035 ; .008	.038 ; .008
	05/24-05/31	.041 ; .009	.034 ; .009	.038 ; .009
	05/31-06/07	.040 ; .008	.041 ; .008	.046 ; .008
	06/07-06/14	.033 ; .009	.029 ; .009	.037 ; .009
	06/14-06/22	.059 ; .008	.046 ; .008	.030 ; .008
	06/22-06/28	.060 ; .009	.059 ; .009	.049 ; .008
	06/28-07/05	.074 ; .009	.047 ; .009	.051 ; .009
	07/05-07/12	.051 ; .008	.044 ; .009	.042 ; .009
	07/12-07/20	.04 ; .02	.038 ; .009	.035 ; .008
	07/20-07/26	.03 ; .01	.034 ; .009	.028 ; .009
	07/26-08/03	.053 ; .008	.043 ; .008	.043 ; .008
	08/03-08/09	.041 ; .009	.039 ; .009	.045 ; .009
	08/09-08/17	.025 ; .007	.023 ; .008	.023 ; .007
	08/17-08/23	.03 ; .01	.01 ; .01	.02 ; .01
	08/23-08/30	.051 ; .009	.025 ; .009	(B)
	08/30-09/06	.045 ; .009	.040 ; .009	.044 ; .009
	09/06-09/14	.044 ; .007	.038 ; .007	.033 ; .007
	09/14-09/21	.032 ; .007	.036 ; .008	.034 ; .008
	09/21-09/28	.036 ; .009	.03 ; .01	.029 ; .009
	09/28-10/04	.04 ; .01	.04 ; .01	.04 ; .01
	10/04-10/12	.026 ; .007	.023 ; .007	.027 ; .007
	10/12-10/19	.044 ; .008	.035 ; .007	.040 ; .008
	10/19-10/26	.033 ; .007	.030 ; .007	.033 ; .007
	10/26-11/01	.038 ; .009	.033 ; .008	.032 ; .008
	11/01-11/09	.049 ; .007	.047 ; .007	.051 ; .007
	11/09-11/15	.081 ; .009	.065 ; .009	.075 ; .009
	11/15-11/23	.060 ; .007	.052 ; .006	.053 ; .007
	11/23-11/30	.058 ; .008	.045 ; .007	.050 ; .007
	11/30-12/06	.08 ; .01	(B)	(B)
	12/06-12/13	.097 ; .009	.094 ; .008	.092 ; .008
	12/13-12/20	.094 ; .008	.082 ; .008	.075 ; .008
	12/20-12/27	.058 ; .008	.096 ; .009	.084 ; .009
	ANNUAL MEAN	.043 ; .036	.038 ; .035	.038 ; .033

NOTES:SEMICOLON INDICATES A PLUS OR MINUS SIGN.
(A) SAMPLE NOT ANALYZED BECAUSE OF INSUFFICIENT VOLUME.
(B) NO SAMPLE AVAILABLE,PUMP 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	4A	4B	5	6B	14
80	12/28-01/06	.029 ; .007	.034 ; .007	.037 ; .007	.032 ; .007	.034 ; .007	.039 ; .007
	01/06-01/12	.05 ; .01	.06 ; .01	.05 ; .01	.06 ; .01	.06 ; .01	.06 ; .01
	01/12-01/19	.031 ; .009	.028 ; .009	.027 ; .009	.031 ; .009	.037 ; .009	.035 ; .009
	01/19-01/26	.029 ; .008	.036 ; .008	.032 ; .008			
	01/19-01/27				.028 ; .007	.032 ; .007	.025 ; .007
	01/26-02/03	.040 ; .008	.030 ; .006	.028 ; .008			
	01/27-02/03				.032 ; .009	.034 ; .009	.029 ; .009
	02/03-02/09	.03 ; .01	.03 ; .01	.03 ; .01	.04 ; .01	.03 ; .01	.037 ; .009
	02/09-02/16				.041 ; .008	.041 ; .007	.047 ; .008
	02/09-02/17	.044 ; .007	(A)	.035 ; .007			
	02/16-02/24				.024 ; .007	.030 ; .007	.026 ; .007
	02/17-02/23	.028 ; .009		.030 ; .009			
	02/23-03/01	.037 ; .008		.040 ; .008			
	02/24-03/01				.047 ; .009	.037 ; .009	.042 ; .009
	03/01-03/09	.027 ; .008		.025 ; .008	.016 ; .008	.028 ; .008	.026 ; .008
	03/09-03/15	.033 ; .009		.028 ; .008			
	03/09-03/16				.025 ; .008	.029 ; .008	.033 ; .008
	03/15-03/22	.028 ; .007		.021 ; .007			
	03/16-03/23				.016 ; .007	.024 ; .007	.020 ; .007
	03/22-03/29	.015 ; .008		.019 ; .008			
	03/23-03/29				.03 ; .01	.02 ; .01	.02 ; .01
	03/29-04/05	.018 ; .009		.019 ; .009	.014 ; .009	.019 ; .008	.014 ; .008
	04/05-04/12	.029 ; .009		.033 ; .009	.025 ; .009	.023 ; .009	.029 ; .009
	04/12-04/20	.025 ; .008		.030 ; .008	.021 ; .008	.021 ; .008	.031 ; .008
	04/20-04/26	.026 ; .009		.026 ; .009			
	04/20-04/27				.024 ; .008	.024 ; .008	.031 ; .008
	04/26-05/04	.021 ; .008		.020 ; .008			
	04/27-05/04				.022 ; .009	.020 ; .009	.021 ; .008
	05/04-05/10	.03 ; .01		.03 ; .01			
	05/04-05/11				.022 ; .008	.029 ; .009	(B)
	05/10-05/17	.024 ; .009		.021 ; .009			
	05/11-05/18				.025 ; .009	.021 ; .009	(B)
	05/17-05/24	.033 ; .008		.029 ; .008			
	05/18-05/25				.025 ; .008	.038 ; .008	(B)
	05/24-05/31	.040 ; .009		.036 ; .009			
	05/25-05/31				< .010	.04 ; .01	.04 ; .01
	05/31-06/07	.038 ; .008		.038 ; .008	< .007	.035 ; .008	.049 ; .008
	06/07-06/14	.034 ; .009		.028 ; .009	.026 ; .008	.023 ; .008	.021 ; .008
	06/14-06/22	.038 ; .008		.035 ; .008	.032 ; .008	.045 ; .008	.020 ; .009
	06/22-06/28	.034 ; .008		.046 ; .008			
	06/22-06/29				.036 ; .007	.054 ; .007	.063 ; .009
	06/28-07/05	.038 ; .009		.040 ; .009			
	06/29-07/05						.05 ; .01
	06/29-07/06				.035 ; .009	.042 ; .009	
	07/05-07/12	.033 ; .009		.047 ; .009			
	07/06-07/12				< .02	.04 ; .01	.040 ; .009
	07/12-07/19				(B)	.039 ; .009	.04 ; .01
	07/12-07/20	.034 ; .008		.037 ; .008			
	07/19-07/26				(B)	.033 ; .007	.033 ; .007
	07/20-07/26	.039 ; .009		.021 ; .009			
	07/26-08/03	.040 ; .008		.039 ; .008	.030 ; .010	.041 ; .008	.028 ; .007
	08/03-08/09	.032 ; .009		.042 ; .009	.04 ; .02	.031 ; .009	.040 ; .009
	08/09-08/17	.024 ; .007		.024 ; .008	(C)	.016 ; .007	.025 ; .007
	08/17-08/23	.02 ; .01		.04 ; .01			
	08/17-08/24				.012 ; .007	.025 ; .008	.020 ; .007
	08/23-08/30	.046 ; .009		.041 ; .009			
	08/24-08/31				< .02	.046 ; 009	.052 ; .009
	08/30-09/06	.04 ; .01		.043 ; .009			
	08/31-09/06				.07 ; .02	.02 ; .01	.04 ; .01
	09/06-09/14	.033 ; .007		.038 ; .007	.032 ; .008	.035 ; .007	.037 ; .007
	09/14-09/21	.034 ; .008		.030 ; .008	< .007	(C)	< .007
	09/21-09/28	.03 ; .01		.010 ; .009	.07 ; .01	.052 ; .009	.062 ; .009
	09/28-10/04	.04 ; .01		.07 ; .01			
	09/28-10/05				.040 ; .009	.038 ; .009	.038 ; .009
	10/04-10/12	.030 ; .007		.030 ; .007			
	10/05-10/12				.028 ; .008	.036 ; .008	.023 ; .008
	10/12-10/19	.031 ; .008		.043 ; .008	.032 ; .008	.035 ; .008	.037 ; .007
	10/19-10/26	.030 ; .007		.032 ; .007	.027 ; .007	.029 ; .007	.027 ; .007
	10/26-11/01	.030 ; .009		.039 ; .009	.036 ; .008	.034 ; .008	.021 ; .008
	11/01-11/09	.040 ; .007		.053 ; .007	(D)	(D)	(D)
	11/01-11/16				.057 ; .004	.053 ; .004	.067 ; .004
	11/09-11/15	.089 ; .009		.071 ; .009			
	11/15-11/23	.052 ; .007		.057 ; .007			
	11/16-11/23				.052 ; .007	.058 ; .007	.066 ; .008
	11/23-11/29				.047 ; .009	.047 ; .009	.045 ; .009
	11/23-11/30	.048 ; .007		.045 ; .007			
	11/29-12/06				.086 ; .008	.085 ; .008	.077 ; .008
	11/30-12/06	(C)		.08 ; .01			
	12/06-12/13	.100 ; .009					
	12/06-12/14			.096 ; .008	.102 ; .008	.105 ; .008	.100 ; 008
	12/13-12/20	.081 ; .008					
	12/14-12/20			.07 ; .01	.09 ; .01	.08 ; .01	.07 ; .01
	12/20-12/27	.087 ; .009		.090 ; .009	.086 ; .009	.113 ; .009	.091 ; .009
	ANNUAL MEAN	.038 ; .034	.036 ; .024	.039 ; .036	.036 ; .044	.039 ; .044	.040 ; .039

NOTES: SEMICOLON INDICATES A PLUS OR MINUS SIGN.
(A) SAMPLE TRANSFERRED TO ANOTHER CONSULTANT EFFECTIVE FEBRUARY, 1980.
(B) SAMPLE NOT ANALYZED BECAUSE OF INSUFFICIENT VOLUME.
(C) NO SAMPLE AVAILABLE, PUMP OUT OF SERVICE.
(D) NO SAMPLE DUE TO SAMPLING ERROR.

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
80	12/28-01/06	.033 ; .007	.040 ; .007	.035 ; .007	.040 ; .007	.033 ; .007	.043 ; .007
	01/06-01/12	.05 ; .01	.06 ; .01	.06 ; .01	.05 ; .01	.06 ; .01	.07 ; .01
	01/12-01/19	.030 ; .009	.03 ; .01	.034 ; .009	.048 ; .009	.031 ; .009	.05 ; .01
	01/19-01/27	.030 ; .007	.042 ; .007	.031 ; .007	.037 ; .007	.035 ; .007	.039 ; .007
	01/27-02/03	.034 ; .009	.03 ; .01	.035 ; .009	.037 ; .009	.032 ; .009	.042 ; .009
	02/03-02/09	.02 ; .01	.02 ; .01	.02 ; .01	.02 ; .01	.02 ; .01	.02 ; .01
	02/09-02/16	.027 ; .007	.040 ; .008	.044 ; .008	.048 ; .007	.042 ; .008	.044 ; .008
	02/16-02/24	.021 ; .006	.024 ; .007	.024 ; .007	.026 ; .007	.022 ; .007	.020 ; .007
	02/24-03/01	.039 ; .009	.034 ; .009	.041 ; .009	.043 ; .009	.041 ; .009	.035 ; .009
	03/01-03/09	.022 ; .007	.019 ; .008	.027 ; .008	< .01	.018 ; .008	.023 ; .008
	03/09-03/16	.028 ; .007	.032 ; .008	.029 ; .008	.01 ; .01	.029 ; .008	.029 ; .008
	03/16-03/23	.022 ; .007	.022 ; .007	.015 ; .007	.03 ; .01	.016 ; .007	.022 ; .007
	03/23-03/29	.016 ; .009	.01 ; .01	.01 ; .01	.02 ; .01	.02 ; .01	.02 ; .01
	03/29-04/05	.018 ; .008	.019 ; .009	.015 ; .008	.03 ; .01	.022 ; .009	.023 ; .009
	04/05-04/12	.028 ; .008	.024 ; .009	.029 ; .009	.04 ; .01	.033 ; .009	.029 ; .009
	04/12-04/20	.027 ; .008	.025 ; .008	.025 ; .008	.04 ; .01	.024 ; .008	.027 ; .008
	04/20-04/27	.025 ; .007	.023 ; .008	.026 ; .008	.025 ; .008	.027 ; .008	.027 ; .008
	04/27-05/04	.022 ; .008	.023 ; .009	.029 ; .009	.022 ; .009	.018 ; .009	.020 ; .008
	05/04-05/11	.020 ; .008	.027 ; .009	.029 ; .009	.028 ; .009	.032 ; .009	.024 ; .008
	05/11-05/18	.025 ; .009	.020 ; .009	.027 ; .009	.024 ; .009	.031 ; .009	.026 ; .009
	05/18-05/25	.033 ; .008	.025 ; .008	.032 ; .008	.030 ; .008	.039 ; .008	.035 ; .008
	05/25-05/31	.04 ; .01	.04 ; .01	.04 ; .01	.03 ; .01	.03 ; .01	.04 ; .01
	05/31-06/07	.033 ; .007	.034 ; .008	.046 ; .008	.041 ; .008	.038 ; .008	.036 ; .008
	06/07-06/14	.025 ; .008	.030 ; .008	.035 ; .008	.027 ; .008	.031 ; .008	.030 ; .008
	06/14-06/22	.030 ; .008	.036 ; .008	.045 ; .008	.028 ; .008	.029 ; .008	.029 ; .008
	06/22-06/29	.046 ; .007	.039 ; .007	.043 ; .007	.051 ; .007	.040 ; .007	.040 ; .007
	06/29-07/06	.039 ; .009	.041 ; .008	.039 ; .009	.039 ; .009	.035 ; .009	.033 ; .009
	07/06-07/12	.04 ; .01	.04 ; .01	.04 ; .01	.04 ; .01	.04 ; .01	.04 ; .01
	07/12-07/19	.03 ; .01	.03 ; .01	.035 ; .009	.028 ; .009	.032 ; .009	.036 ; .009
	07/19-07/26	.035 ; .007	.038 ; .007	.032 ; .007	.033 ; .007	.037 ; .007	.040 ; .007
	07/26-08/03	.072 ; .008	.038 ; .008	.037 ; .008	.043 ; .008	.039 ; .008	.039 ; .008
	08/03-08/09	.046 ; .009	.027 ; .009	(A)	.031 ; .009	.024 ; .009	.037 ; .009
	08/09-08/17	.018 ; .007	.025 ; .008	.027 ; .007	< .007	< .007	.027 ; .008
	08/17-08/24	.023 ; .008	.018 ; .008	.018 ; .007	(A)	.021 ; .008	.017 ; .007
	08/24-08/31	.045 ; .009	.043 ; .009	(A)	.042 ; .009	.046 ; .009	.044 ; .009
	08/31-09/06	.04 ; .01	.04 ; .01	.04 ; .01	.04 ; .01	.04 ; .01	.04 ; .01
	09/06-09/14	.033 ; .007	.029 ; .007	.034 ; .007	.034 ; .007	.028 ; .007	.037 ; .007
	09/14-09/21	(A)	< .007	.009 ; .007	< .007	.008 ; .007	< .007
	09/21-09/28	.048 ; .009	.058 ; .009	.059 ; .009	.058 ; .009	.059 ; .009	.057 ; .009
	09/28-10/05	.028 ; .008	.030 ; .009	.038 ; .009	.029 ; .009	.037 ; .009	.045 ; .009
	10/05-10/12	.031 ; .008	.032 ; .008	.033 ; .008	.038 ; .008	.026 ; .008	.034 ; .008
	10/12-10/19	.027 ; .007	.031 ; .008	.027 ; .008	.012 ; .007	.040 ; .008	.036 ; .008
	10/19-10/26	.033 ; .007	.033 ; .007	.039 ; .008	.025 ; .007	.027 ; .007	.032 ; .007
	10/26-11/01	.033 ; .008	.036 ; .008	.039 ; .008	.033 ; .008	.030 ; .008	.032 ; .008
	11/01-11/09	(B)	(B)	(B)	(B)	(B)	(B)
	11/01-11/16	.060 ; .004	.056 ; .004	.059 ; .004	.026 ; .004	.245 ; .007	.064 ; .004
	11/16-11/23	.060 ; .008	.052 ; .007	.053 ; .008	.056 ; .007	.117 ; .009	.061 ; .008
	11/23-11/29	.042 ; .009	.054 ; .009	.048 ; .009	.043 ; .009	.048 ; .008	.052 ; .009
	11/29-12/06	.076 ; .008	.077 ; .008	.072 ; .008	.077 ; .008	.081 ; .008	.089 ; .008
	12/06-12/14	.093 ; .008	.097 ; .008	.111 ; .008	.104 ; .008	.094 ; .008	.103 ; .008
	12/14-12/20	.09 ; .01	.084 ; .009	.11 ; .01	.11 ; .01	.078 ; .009	.10 ; .01
	12/20-12/27	.100 ; .009	.085 ; .009	.089 ; .009	.103 ; .009	.088 ; .009	.091 ; .009
	ANNUAL MEAN	.038 ; .039	.037 ; .038	.039 ; .042	.038 ; .043	.042 ; .072	.040 ; .041

NOTES: SEMICOLON INDICATES A PLUS OR MINUS SIGN.
(A) SAMPLE NOT ANALYZED BECAUSE OF INSUFFICIENT VOLUME.
(B) NO SAMPLE DUE TO SAMPLING ERROR.

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
80	12/31-01/07	.046 ; .009	.045 ; .009
	01/07-01/14	.06 ; .01	.06 ; .01
	01/14-01/21	.033 ; .009	.034 ; .009
	01/21-01/28	.036 ; .008	.034 ; .008
	01/28-02/04	.05 ; .01	.045 ; .009
	02/04-02/11	.027 ; .009	.030 ; .009
	02/11-02/19	.040 ; .007	.047 ; .007
	02/19-02/25	.024 ; .009	.028 ; .009
	02/25-03/03	.043 ; .008	.034 ; .008
	03/03-03/10	.029 ; .009	.023 ; .009
	03/10-03/17	.030 ; .008	.029 ; .008
	03/17-03/24	.021 ; .007	.020 ; .007
	03/24-03/31	.014 ; .009	.019 ; .008
	03/31-04/07	036 ; .009	.029 ; .009
	04/07-04/14	.032 ; .009	.025 ; .009
	04/14-04/21	.023 ; .009	.031 ; .009
	04/21-04/28	.024 ; .008	.015 ; .007
	04/28-05/05	.035 ; .009	.033 ; .009
	05/05-05/12	.033 ; .009	.029 ; .009
	05/12-05/19	.030 ; .009	.031 ; .009
	05/19-05/28	.037 ; .006	.048 ; .006
	05/28-06/02	.04 ; .01	.05 ; .01
	06/02-06/09	.044 ; .008	.040 ; .008
	06/09-06/16		.036 ; .009
	06/09-06/17	.027 ; .008	
	06/16-06/23		.039 ; .009
	06/17-06/23	.04 ; .01	
	06/23-06/30	.049 ; .008	.040 ; .007
	06/30-07/07	.033 ; .009	.036 ; .009
	07/07-07/14	.042 ; .009	.038 ; .009
	07/14-07/21	.042 ; .009	.037 ; .009
	07/21-07/28	.034 ; .008	.036 ; .008
	07/28-08/04	.051 ; .009	.050 ; .009
	08/04-08/11	.041 ; .008	.035 ; .008
	08/11-08/18	.032 ; .009	.027 ; .009
	08/18-08/25	.029 ; .008	.032 ; .008
	08/25-09/02	.049 ; .008	.053 ; .008
	09/02-09/08	.06 ; .01	.05 ; .01
	09/08-09/15	.041 ; .008	.040 ; .008
	09/15-09/22	.031 ; .008	.024 ; .008
	09/22-09/29	.031 ; .009	.028 ; .009
	09/29-10/06	.033 ; .009	.039 ; .009
	10/06-10/14	.028 ; .007	.027 ; .007
	10/14-10/20	.038 ; .009	.041 ; .009
	10/20-10/27	.023 ; .007	.026 ; .007
	10/27-11/03	.035 ; .008	.031 ; .007
	11/03-11/10	.062 ; .008	.076 ; .008
	11/10-11/17	.061 ; .008	.055 ; .008
	11/17-11/24	.062 ; .008	.053 ; .008
	11/24-12/01	.047 ; .008	.046 ; .008
	12/01-12/08	.098 ; .009	.104 ; .009
	12/08-12/15	.081 ; .009	.082 ; .009
	12/15-12/22	.081 ; .009	.068 ; .008
	12/22-12/29	.100 ; .009	< .3
	ANNUAL MEAN	.042 ; .036	.045 ; .079

NOTE: SEMICOLON INDICATES A PLUS OR MINUS SIGN.

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	GROUP II STATIONS (b) Min.	Max.	Mean	Collection Period	GROUP III STATIONS (c) Min.	Max.	Mean
12/28/79-02/03/80	.029	.070	.040±.025	.025	.070	.039±.022	12/31/79-02/04/80	.033	.060	.044±.020
02/03/80-03/01/80	.025	.046	.036±.015	.020	.048	.033±.018	02/04/80-03/03/80	.024	.047	.034±.017
03/01/80-03/29/80	.016	.042	.026±.016	.010	.033	.022±.013	03/03/80-03/31/80	.014	.030	.023±.012
03/29/80-04/27/80	.015	.028	.023±.011	.014	.040	.025±.013	03/31/80-04/28/80	.015	.036	.027±.013
04/26/80-05/31/80	.016	.041	.030±.015	<.010	.040	.028±.014	04/28/80±06/02/80	.029	.050	.037±.015
05/31/80-06/29/80	.029	.060	.044±.022	<.007	.049	.033±.017	06/02/80-06/30/80	.027	.049	.039±.013
06/28/80-07/26/80	.028	.074	.043±.025	.020	.063	.038±.014	06/30/80-07/28/80	.033	.042	.037±.007
07/26/80-08/30/80	.010	.053	.034±.026	<.007	.072	.032±.025	07/28/80-08/25/80	.027	.051	.037±.019
08/30/80-09/28/80	.029	.045	.037±.011	<.007	.070	.036±.036	08/25/80-09/29/80	.024	.060	.041±.024
09/28/80-11/01/80	.023	.044	.034±.012	.012	.070	.033±.015	09/29/80-11/03/80	.023	.041	.032±.012
11/01/80-11/30/80	.045	.081	.057±.023	.026	.25	.061±.071	11/03/80-12/01/80	.046	.076	.058±.019
11/30/80-12/27/80	.058	.097	.085±.024	.070	.11	.090±.023	12/01/80-12/29/80	.068	<.3	.11±.15
Overall	.010	.097	.040±.035	<.007	.25	.039±.043		.014	<.3	.043±.061

(a) Group I consists of Stations 1A, 1B, and 2
(b) Group II consists of Stations 3A, 4B, 5, 6B, 14, 15, 17, 31, 32, 33A, and 38
(c) Group III consists of Stations 12A and 12D

CM/tms 12/8

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
12/28/79	1A	.11±.06	<.005	<.06	<.08	<.008	<.09	<.06	<.005	<.005	<.01
02/03/80	1B	.14±.06	<.004	<.08	<.1	<.01	<.08	<.08	<.006	<.005	<.01
	2	.10±.08	<.005	<.07	<.1	<.01	<.08	<.07	<.006	<.005	<.01
	3A	.14±.07	<.005	<.08	<.1	<.01	<.08	<.08	<.006	<.005	<.01
	4A	.09±.06	<.005	<.07	<.1	<.008	<.09	<.07	<.005	<.005	<.01
	4B	<.07	<.005	<.07	<.1	<.008	<.08	<.07	<.005	<.005	<.01
	5	.10±.07	<.004	<.07	<.1	<.009	<.09	<.08	<.005	<.004	<.01
	6B	.11±.06	<.005	<.08	<.1	<.009	<.08	<.08	<.004	<.005	<.01
	14	.11±.06	<.005	<.07	<.1	<.01	<.1	<.07	<.005	<.004	<.01
	15	.09±.06	<.004	<.08	<.1	<.009	<.07	<.07	<.005	<.004	<.01
	17	.10±.07	<.005	<.08	<.1	<.01	<.08	<.07	<.005	<.005	<.01
	31	.16±.07	<.006	<.08	<.1	<.009	<.08	<.07	<.005	<.004	<.01
	32	.14±.05	<.005	<.08	<.1	<.008	<.08	<.07	<.005	<.005	<.009
	38	.14±.06	<.005	<.09	<.1	<.008	<.09	<.07	<.005	<.005	<.01
	33A	.15±.06	<.005	<.09	<.1	<.008	<.08	<.08	<.005	<.005	<.01
12/31/79	12A	.10±.06	<.005	<.1	<.1	<.009	<.08	<.08	<.006	<.005	<.01
01/04/80	12D	.12±.07	<.005	<.08	<.1	<.01	<.08	<.08	<.005	<.005	<.01
02/03/80	1A	.10±.07	<.008	<.05	<.09	<.009	<.1	<.08	<.008	<.007	.01±.01
03/01/80	1B	.10±.07	<.006	<.05	<.07	<.01	<.1	<.07	<.008	<.007	<.01
	2	.14±.08	<.007	<.06	<.08	<.009	<.1	<.08	<.007	<.007	<.01
	3A	.11±.06	<.006	<.05	<.08	<.01	<.1	<.07	<.007	<.006	<.01
	4B	.17±.08	<.006	<.05	<.1	<.009	<.1	<.08	<.006	<.006	<.01
	5	.09±.07	<.006	<.05	<.09	<.01	<.1	<.07	<.006	<.006	<.01
	6B	<.08	<.006	<.05	<.1	<.009	<.1	<.08	<.008	<.007	<.01
	14	.11±.07	<.007	<.05	<.09	<.01	<.1	<.08	<.006	<.006	<.02
	15	.08±.07	<.006	<.05	<.1	<.01	<.1	<.08	<.007	<.006	<.01
	17	.12±.08	<.005	<.05	<.08	<.01	<.1	<.07	<.007	<.006	<.01
	31	.15±.08	<.007	<.05	<.09	<.01	<.1	<.09	<.008	<.007	<.02
	32	.10±.07	<.006	<.05	<.09	<.008	<.1	<.07	<.007	<.006	<.01
	38	.13±.07	<.007	<.05	<.09	<.009	<.1	<.08	<.008	<.006	<.02
	33A	.13±.07	<.006	<.05	<.1	<.01	<.1	<.08	<.008	<.006	<.01
02/04/80	12A	.13±.08	<.007	<.05	<.09	<.01	<.1	<.08	<.007	<.006	<.01
03/03/80	12D	.15±.07	<.007	<.06	<.1	<.01	<.1	<.08	<.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	Zr-95
03-01-80	1A	.16±.08	<.007	<.08	<.1	<.01	<.1	<.1	<.007	<.007	<.02
03-29-80	1B	.09±.07	<.006	<.07	<.1	<.01	<.1	<.08	<.006	<.006	<.02
	2	.16±.08	<.006	<.07	<.1	<.01	<.1	<.09	<.006	<.007	<.01
	3A	.12±.08	<.008	<.09	<.1	<.009	<.1	<.1	<.007	<.006	<.01
	4B	.12±.07	<.006	<.08	<.1	<.01	<.1	<.09	<.007	<.006	<.01
	5	<.07	<.006	<.09	<.1	<.01	<.1	<.09	<.008	<.008	<.01
	6B	<.07	<.006	<.08	<.1	<.01	<.1	<.09	<.008	<.006	<.01
	14	.11±.08	<.006	<.09	<.1	<.01	<.1	<.1	<.007	<.006	<.01
	15	.12±.08	<.006	<.07	<.1	<.008	<.1	<.08	<.006	<.007	<.01
	17	<.09	<.008	<.09	<.1	<.01	<.1	<.09	<.009	<.007	<.02
	31	.08±.07	<.006	<.08	<.1	<.01	<.1	<.09	<.006	<.006	<.01
	32	<.1	<.009	<.1	<.2	<.02	<.2	<.1	<.008	<.01	<.02
	38	.10±.08	<.006	<.08	<.1	<.01	<.1	<.09	<.007	<.006	<.02
	33A	.12±.08	<.005	<.09	<.1	<.01	<.1	<.09	<.007	<.006	<.02
03-03-80	12A	.09±.08	<.007	<.08	<.1	<.01	<.1	<.08	<.007	<.005	<.02
03-31-80	12D	.10±.08	<.006	<.08	<.1	<.01	<.1	<.	<.006	<.006	<.02
03-29-80	1A	.10±.08	<.005	<.07	<.1	<.01	<.1	<.08	<.007	<.006	<.01
04-26,27-80	1B	.11±.07	<.008	<.07	<.1	<.01	<.1	<.08	<.006	<.007	<.01
	2	.11±.08	<.007	<.08	<.1	<.01	<.1	<.09	<.008	<.006	<.01
	3A	.17±.08	<.006	<.07	<.1	<.009	<.1	<.08	<.007	<.007	<.01
	4B	.16±.08	<.006	<.07	<.1	<.01	<.1	<.1	<.007	<.007	<.01
	5	.15±.07	<.006	<.07	<.1	<.009	<.1	<.08	<.006	<.006	<.01
	6B	.09±.07	<.007	<.08	<.1	<.01	<.1	<.09	<.005	<.006	<.01
	14	.11±.06	<.005	<.06	<.1	<.009	<.1	<.07	<.005	<.006	<.01
	15	.17±.08	<.005	<.07	<.1	<.01	<.1	<.08	<.006	<.004	<.01
	17	.12±.07	<.006	<.07	<.1	<.01	<.1	<.08	<.007	<.006	<.01
	31	.13±.06	<.006	<.06	<.1	<.01	<.1	<.08	<.006	<.007	<.009
	32	.17±.09	<.008	<.07	<.1	<.01	<.1	<.1	<.008	<.006	<.02
	38	.13±.07	<.006	<.07	<.1	<.01	<.1	<.08	<.007	<.005	<.01
	33A	<.08	<.006	<.07	<.1	<.008	<.1	<.07	<.007	<.006	<.01
03-31-80	12A	.11±.08	<.006	<.08	<.1	<.01	<.1	<.08	<.007	<.006	<.02
04-28-80	12D	.10±.08	<.007	<.07	<.1	<.01	<.1	<.09	<.008	<.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	Zr-95
04-26,27-80	1A	.15±.06	<.006	<.07	<.1	<.009	<.08	<.08	<.007	<.005	<.01
05-31-80	1B	.11±08	<.005	<.07	<.1	<.009	<.09	<.06	<.006	<.005	<.01
	2	<.1	<.007	<.07	<.1	<.01	<.1	<.09	<.005	<.006	<.01
	3A	.14±.06	<.006	<.07	<.1	<.01	<.08	<.07	<.006	<.005	<.01
	4B	.15±.07	<.005	<.07	<.1	<.008	<.09	<.08	<.006	<.005	<.01
	5	.10±.06	<.005	<.07	<.1	<.009	<.09	<.07	<.005	<.005	<.01
	6B	.13±.07	<.004	<.1	<.1	<.008	<.09	<.08	<.006	<.005	<.01
	14	.1 ±.1	<.009	<.1	<.2	<.02	<.2	<.1	<.009	<.009	<.02
	15	.12±.07	<.005	<.07	<.1	<.008	<.09	<.07	<.005	<.005	<.01
	17	.13±.07	<.005	<.07	<.1	<.008	<.09	<.07	<.006	<.005	<.01
	31	.12±.07	<.006	<.08	<.1	<.01	<.09	<.08	<.006	<.005	<.01
	32	.10±.06	<.005	<.08	<.1	<.009	<.1	<.07	<.005	<.005	<.01
	38	.13±.07	<.005	<.08	<.1	<.01	<.09	<.08	<.005	<.006	<.01
	33A	.14±.07	<.005	<.08	<.1	<.01	<.09	<.07	<.006	<.005	<.01
04-28-80	12A	.15±.07	<.005	<.08	<.1	<.01	<.09	<.08	<.005	<.005	<.01
06-02-80	12D	.14±.07	<.005	<.07	<.1	<.009	<.1	<.07	<.005	<.005	<.01
05-31-80	1A	.13±.09	<.007	<.09	<.2	<.01	<.1	<.09	<.007	<.006	<.01
06-28,29-80	1B	.19±.08	<.007	<.06	<.1	<.01	<.1	<.08	<.007	<.007	<.01
	2	.13±.08	<.007	<.06	<.1	<.01	<.1	<.07	<.006	<.006	<.01
	3A	.16±.08	<.005	<.09	<.1	<.009	<.1	<.09	<.008	<.006	<.01
	4B	.21±.08	<.007	<.06	<.1	<.01	<.1	<.08	<.007	<.007	<.02
	5	.15±.08	<.006	<.09	<.1	<.01	<.1	<.09	<.007	<.007	<.01
	6B	.14±.07	<.007	<.06	<.1	<.01	<.1	<.07	<.007	<.006	<.01
	14	.18±.08	<.006	<.06	<.1	<.01	<.1	<.07	<.008	<.007	<.02
	15	.16±.07	<.005	<.05	<.1	<.01	<.1	<.08	<.006	<.006	<.01
	17	.12±.07	<.007	<.05	<.1	<.01	<.1	<.08	<.007	<.006	<.01
	31	.13±.08	<.007	<.05	<.1	<.009	<.1	<.08	<.006	<.006	<.01
	32	.18±.08	<.006	<.08	<.1	<.01	<.1	<.08	<.006	<.006	<.01
	38	.16±.08	<.006	<.06	<.1	<.01	<.1	<.08	<.007	<.005	<.02
	33A	.20±.08	<.007	<.08	<.1	<.01	<.1	<.08	<.007	<.006	<.01
06-02-80	12A	.20±.09	<.007	<.09	<.1	<.01	<.1	<.08	<.008	<.006	<.01
06-30-80	12D	.16±.08	<.007	<.07	<.1	<.01	<.1	<.09	<.007	<.007	<.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
06-28,29-80	1A	.2 ±.1	<.01	<.1	<.2	.01±.01	<.1	<.1	<.01	<.008	<.02
07-26-80	1B	.17±.09	<.007	.06±.06	<.2	<.01	<.1	<.09	<.008	<.007	<.01
	2	.21±.08	<.006	<.09	<.1	<.01	<.1	<.09	<.008	<.006	<.02
	3A	.12±.08	<.007	<.1	<.1	<.01	<.1	<.1	<.007	<.007	<.01
	4B	.2 ±.1	<.007	<.1	<.1	<.01	<.1	<.1	<.007	<.007	<.02
	5	<.2	<.01	<.2	<.4	<.03	<.2	<.2	<.01	<.02	<.03
	6B	.12±.09	<.006	<.1	<.1	<.01	<.1	<.09	<.009	<.007	<.02
	14	.18±.09	<.008	<.1	<.2	<.01	<.1	<.1	<.008	<.007	<.02
	15	.18±.09	<.007	<.1	<.2	<.01	<.1	<.1	<.007	<.006	<.02
	17	.15±.09	<.007	<.1	<.2	<.01	<.1	<.1	<.007	<.007	<.02
	31	.13±.08	<.007	<.09	<.1	<.01	<.1	<.09	<.007	<.007	<.02
	32	.19±.09	<.007	<.1	<.2	<.01	<.1	<.1	<.008	<.006	<.02
	38	.18±.08	<.006	<.1	<.1	<.01	<.1	<.1	<.007	<.006	<.02
	33A	.2 ±.1	<.007	<.1	<.2	<.01	<.1	<.1	<.008	<.006	<.02
06-30-80	2A	.22±.09	<.006	<.1	<.2	<.01	<.1	<.1	<.007	<.006	<.01
07-28-80	12D	.2 ±.1	<.007	<.1	<.2	<.01	<.1	<.1	<.006	<.007	<.02
07-26-80	1A	.07±.07	<.005	<.09	<.1	.010±.008	<.09	<.07	<.005	<.005	<.01
08-23,24-80	1B	.08±.06	<.006	<.1	<.1	<.01	<.1	<.09	<.006	<.005	<.01
	2	<.08	<.006	<.1	<.2	<.01	<.1	<.1	<.007	<.006	<.01
	3A	.09±.06	<.005	<.1	<.1	<.01	<.1	<.08	<.005	<.005	<.01
	4B	.14±.07	<.005	<.1	<.1	<.01	<.1	<.08	<.005	<.005	<.01
	5	<.1	<.01	<.2	<.3	<.02	<.2	<.1	<.01	<.009	<.02
	6B	.14±.07	<.005	<.1	<.1	<.009	<.09	<.09	<.005	<.004	<.01
	14	.11±.06	<.005	<.1	<.1	<.008	<.09	<.07	<.006	<.005	<.01
	15	.11±.06	<.005	<.1	<.1	<.009	<.09	<.07	<.006	<.004	<.01
	17	.14±.07	<.006	<.1	<.1	<.01	<.1	<.09	<.005	<.005	<.01
	31	<.1	<.008	<.2	<.2	<.02	<.1	<.1	<.008	<.007	<.02
	32	<.08	<.006	<.1	<.2	<.01	<.1	<.09	<.007	<.006	<.02
	38	.07±.06	<.004	<.1	<.1	<.009	<.1	<.07	<.005	<.005	<.01
	33A	<.06	<.005	<.1	<.1	<.01	<.1	<.08	<.004	<.005	<.01
07-28-80	12A	.14±.09	<.006	<.2	<.2	<.01	<.1	<.1	<.006	<.006	<.02
09-02-80	12D	.2 ±.1	<.008	<.2	<.2	<.01	<.1	<.1	<.007	<.007	<.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
08-23,24-80	1A	.10±.07	<.006	<.06	<.1	<.01	<.1	<.08	<.006	<.006	<.01
09-28-80	1B	.07±.07	<.006	<.06	<.09	<.01	<.1	<.07	<.006	<.006	<.01
	2	.19±.07	<.006	<.06	<.1	<.01	<.1	<.08	<.008	<.006	<.02
	3A	.09±.08	<.006	<.06	<.1	<.01	<.1	<.08	<.006	<.006	<.01
	4B	.13±.08	<.006	<.07	<.1	<.01	<.1	<.08	<.007	<.006	<.01
	5	.09±.09	<.007	<.09	<.1	<.01	<.1	<.1	<.008	<.008	<.01
	6B	.12±.08	.008±.007	<.09	<.1	<.01	<.1	<.08	<.007	<.006	<.01
	14	.08±.07	<.006	<.07	<.1	<.01	<.09	<.09	<.007	<.006	<.01
	15	.09±.07	<.006	<.07	<.1	<.01	<.1	<.09	<.006	<.006	<.01
	17	.12±.08	<.007	<.08	<.1	<.01	<.1	<.09	<.007	<.006	<.01
	31	.10±.07	<.007	<.08	<.1	<.01	<.1	<.08	<.007	<.006	<.02
	32	<.08	<.006	<.1	<.1	<.01	<.1	<.09	<.006	<.007	<.01
	38	.16±.08	<.007	<.1	<.1	<.01	<.1	.08±.07	<.007	<.007	<.01
	33A	<.08	<.006	<.1	<.1	<.009	<.1	<.1	<.007	<.005	<.01
09-02-80	12A	.10±.08	<.006	<.1	<.2	<.01	<.1	<.08	<.007	<.007	<.02
09-29-80	12D	<.09	<.006	<.1	<.2	<.01	<.09	<.1	<.007	<.007	<.02
09-28-80	1A	.11±.07	<.007	<.1	<.2	<.01	<.1	<.1	<.007	<.008	<.02
11-01-80	1B	.10±.07	<.005	<.09	<.1	<.01	<.08	<.08	<.005	<.006	<.01
	2	<.07	<.005	<.08	<.1	<.01	<.1	<.08	<.006	<.006	<.01
	3A	.10±.07	<.006	<.1	<.1	<.008	<.09	<.09	<.005	<.005	<.01
	4B	.10±.07	<.005	<.08	<.1	<.01	<.09	<.07	<.006	<.005	<.01
	5	.07±.06	<.005	<.08	<.1	<.01	<.09	<.08	<.005	<.005	<.01
	6B	.09±.08	<.005	<.4	<.3	<.01	<.09	<.1	<.006	<.006	<.01
	14	.08±.07	<.005	<.09	<.1	<.01	<.07	<.07	<.005	<.005	<.01
	15	.07±.06	<.005	<.08	<.1	<.01	<.09	<.07	<.005	<.005	<.01
	17	.10±.06	<.005	<.09	<.1	<.009	<.09	<.09	<.006	<.004	<.01
	31	.06±.06	<.005	<.08	<.1	<.009	<.08	<.07	<.004	<.005	<.01
	32	.13±.07	<.006	<.09	<.07	<.01	<.08	<.09	<.006	<.005	<.01
	38	<.06	<.006	<.09	<.1	<.01	<.08	<.08	<.006	<.006	<.01
	33A	.09±.07	<.005	<.1	<.1	<.009	<.1	<.07	<.005	<.005	<.01
09-29-80	12A	.09±.07	<.006	<.1	<.1	<.01	<.1	<.08	<.006	<.005	<.01
11-03-80	12D	<.07	<.005	<.09	<.1	<.009	<.09	<.08	<.007	<.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
11-01-80	1A	.14±.05	<.006	<.09	<.1	<.01	<.1	<.09	<.006	<.007	<.02
11-29,30-80	1B	.08±.07	<.005	<.07	<.1	<.01	<.1	<.08	<.006	<.006	<.01
	2	<.08	<.006	<.08	<.1	<.01	<.09	<.09	<.006	<.006	<.02
	3A	.08±.07	<.007	<.08	<.1	<.01	<.1	<.09	<.006	<.006	<.01
	4B	.13±.08	<.006	<.08	<.1	<.01	<.1	<.09	<.007	<.006	<.01
	5	.10±.08	<.006	<.08	<.1	<.01	<.1	<.08	<.009	<.006	<.02
	6B	<.08	<.007	<.1	<.2	<.01	<.1	.1±.1	<.008	<.008	<.02
	14	.11±.08	<.005	<.09	<.1	<.01	<.1	<.09	<.008	<.006	<.02
	15	.09±.07	<.008	<.09	<.2	<.01	<.1	<.09	<.008	<.006	<.02
	17	.08±.08	<.006	<.09	<.1	<.01	<.1	<.09	<.008	<.006	<.02
	31	.09±.08	<.007	<.1	<.1	<.01	<.1	<.1	<.007	<.007	<.02
	32	<.08	<.007	<.08	<.1	<.01	<.1	<.1	<.007	<.007	<.01
	38	<.09	<.007	<.1	<.2	.06±.02	<.1	<.1	<.006	<.007	.05±.02
	33A	<.07	<.007	<.09	<.1	<.01	<.1	<.09	<.007	<.006	<.01
11-03-80	12A	<.08	<.007	<.08	<.2	<.01	<.1	<.1	<.008	<.006	<.02
12-01-80	12D	.12±.07	<.006	<.09	<.1	<.01	<.1	<.08	<.008	<.007	<.02
11-29,30-80	1A	.10±.08	<.007	<.07	<.1	<.01	<.1	<.08	<.007	<.007	<.02
12-27-80	1B	.13±.09	<.008	<.09	<.2	<.01	<.1	<.1	<.007	<.008	<.02
	2	.1 ±.1	<.008	<.1	<.2	<.02	<.1	<.1	<.008	<.008	<.02
	3A	<.1	<.008	<.08	<.1	<.02	<.1	<.1	<.009	<.008	<.02
	4B	.11±.09	<.007	<.08	<.1	<.01	<.1	<.09	<.007	<.006	<.02
	5	<.08	<.006	<.07	<.1	<.01	<.1	<.09	<.006	<.007	<.02
	6B	.09±.08	<.007	<.1	<.1	.02±.01	<.1	<.1	<.007	<.008	<.02
	14	<.07	<.008	<.08	<.1	<.02	<.1	<.09	<.007	<.006	<.02
	15	.09±.08	<.007	<.08	<.1	<.01	<.1	<.1	<.007	<.007	<.02
	17	<.08	<.006	<.07	<.1	<.01	<.1	<.07	<.008	<.007	<.01
	31	.14±.08	<.008	<.07	<.1	<.01	<.1	<.09	<.007	<.007	<.02
	32	<.08	<.004	<.08	<.1	.02±.01	<.1	<.09	<.009	<.007	<.02
	38	.09±.07	<.006	<.09	<.1	<.01	<.1	<.09	<.007	<.006	<.01
	33A	.10±.09	<.006	<.1	<.2	<.02	<.1	<.1	<.006	<.006	.02±.02
12-01-80	12A	<.09	<.007	<.1	<.2	<.01	<.1	<.1	<.007	<.006	.02±.02
12-29-80	12D	<.1	<.008	<.2	<.2	.02±.02	<.2	<.1	<.009	<.009	<.01

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

STATION CODE		COLLECTION PERIOD	VOLUME (LITER)	G.BETA	SR-89	SR-90	RADIOACTIVE CESIUM
1A	80	01/06-02/03	1.15	< 5			
		02/03-03/01	0.205	30 ; 20			
		03/01-04/05	4.50	4 ; 2	< .4	< .2	3.2 ; .3
		04/05-05/04	3.80	3 ; 2			
		05/04-05/31	2.30	7 ; 2			
		05/31-07/12	2.95	2 ; 2	< .3	.2 ; .2	1.0 ; .6
		07/12-08/09	1.60	6 ; 2			
		08/09-09/06	2.30	4 ; 2			
		09/06-10/12	1.35	5 ; 3	< .9	< .4	< .6
		10/12-11/01	2.0	< 2			
		11/01-12/06	2.15	12 ; 2			
		12/06-01/10	(A)				
		ANNUAL MEAN		7 ; 16	< .53	.27 ; .23	1.6 ; 2.8
1B	80	01/06-02/03	1.00	5 ; 5			
		02/03-03/01	0.2	30 ; 20			
		03/01-04/05	4.50	< 2	< .3	< .2	< .4
		04/05-05/04	3.85	2 ; 2			
		05/04-05/31	1.90	5 ; 2			
		05/31-07/12	2.70	< 2	< .3	< .2	< .5
		07/12-08/09	1.10	9 ; 4			
		08/09-09/06	2.15	8 ; 2			
		09/06-10/12	1.25	12 ; 3	< 1	< .4	< .6
		10/12-11/01	2.0	5 ; 2			
		11/01-12/06	2.05	12 ; 2			
		12/06-01/10	(A)				
		ANNUAL MEAN		8 ; 16	< .53	< .27	< .50
4M	80	01/06-02/03	0.285	< 20			
		02/03-03/01	(A)				
		03/01-04/05	2.45	7 ; 2	< .4	.4 ; .2	.3 ; .3
		04/05-05/04	1.20	6 ; 3			
		05/04-05/31	.84	14 ; 5			
		05/31-07/12	3.85	2 ; 2	< .5	< .2	< .5
		07/12-08/09	2.05	3 ; 2			
		08/09-09/06	1.55	5 ; 2			
		09/06-10/12	1.10	8 ; 3	< 1	< .5	< .8
		10/12-11/01	1.15	4 ; 2			
		11/01-12/06	1.20	4 ; 2			
		12/06-01/10	.340	42 ; 6			
		ANNUAL MEAN		10 ; 23	< .63	.37 ; .30	.53 ; .50
		MEAN (1A,1B)		8 ; 16	< .53	.27 ; .21	1.1 ; 2.1
		MEAN-ALL STATIONS		9 ; 18	< .57	.30 ; .24	0.9 ; 1.8

NOTES: SEMICOLON INDICATES A PLUS OR MINUS SIGN.
(A) NO SIGNIFICANT PRECIPITATION.

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

STATION CODE		COLLECTION PERIOD	VOLUME (LITER)	G.BETA	SR-89	SR-90	RADIOACTIVE CESIUM
1A	80	01/06-02/03	1.15	< 200			
		02/03-03/01	0.205	200 ; 100			
		03/01-04/05	4.50	600 ; 300	< 50	< 30	440 ; 40
		04/05-05/04	3.80	400 ; 200			
		05/04-05/31	2.30	500 ; 100			
		05/31-07/12	2.95	200 ; 200	< 30	20 ; 20	90 ; 50
		07/12-08/09	1.60	300 ; 100			
		08/09-09/06	2.30	300 ; 100			
		09/06-10/12	1.35	200 ; 100	< 40	< 20	< 20
		10/12-11/01	2.0	< 100			
		11/01-12/06	2.15	800 ; 100			
		12/06-01/10	(A)				
		ANNUAL MEAN		350 ; 420	< 40	23 ; 12	180 ; 450
1B	80	01/06-02/03	1.00	200 ; 200			
		02/03-03/01	0.2	200 ; 100			
		03/01-04/05	4.50	< 300	< 50	< 30	< 50
		04/05-05/04	3.85	300 ; 200			
		05/04-05/31	1.90	300 ; 100			
		05/31-07/12	2.70	< 200	< 30	< 10	< 40
		07/12-08/09	1.10	300 ; 100			
		08/09-09/06	2.15	500 ; 100			
		09/06-10/12	1.25	500 ; 100	< 40	< 20	< 20
		10/12-11/01	2.0	300 ; 100			
		11/01-12/06	2.05	700 ; 100			
		12/06-01/10	(A)				
		ANNUAL MEAN		350 ; 310	< 40	< 20	< 37
4M	80	01/06-02/03	0.285	< 100			
		02/03-03/01	(A)				
		03/01-04/05	2.45	500 ; 100	< 30	30 ; 20	20 ; 20
		04/05-05/04	1.20	200 ; 100			
		05/04-05/31	.84	300 ; 100			
		05/31-07/12	3.85	300 ; 200	< 5(	< 30	< 60
		07/12-08/09	2.05	200 ; 100			
		08/09-09/06	1.55	220 ; 90			
		09/06-10/12	1.10	300 ; 100	< 40	< 20	< 30
		10/12-11/01	1.15	130 ; 60			
		11/01-12/06	1.20	140 ; 60			
		12/06-01/10	.340	440 ; 60			
		ANNUAL MEAN		260 ; 250	< 40	27 ; 12	37 ; 42
		MEAN (1A,1B)		350 ; 360	< 40	22 ; 15	110 ; 330
		MEAN-ALL STATIONS		320 ; 340	< 40	23 ; 14	90 ; 270

NOTES: SEMICOLON INDICATES A PLUS OR MINUS SIGN.
(A) NO SIGNIFICANT PRECIPITATION.

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

STATION CODE		COLLECTION DATE	G.ALPHA SOLUBLE	G.ALPHA INSOLUBLE	G.BETA SOLUBLE	G.BETA INSOLUBLE
1Q	80	01/06	< .5	< .07	< 2	.9 ; .6
		02/03	< .5	< .06	3 ; 2	< .5
		03/01	< .6	< .07	< 2	< .5
		04/05	< .6	1.4 ; .4	< 2	1.9 ; .6
		05/04	< .7	3 ; 1	3 ; 2	3 ; 2
		05/31	3 ; 1	.6 ; .2	10 ; 2	4.9 ; .6
		07/12	< .9	.2 ; .2	5 ; 2	10.1 ; .7
		08/09	< 1	< .2	< 3	< .4
		09/06	< 1	.9 ; .3	7 ; 2	4.0 ; .5
		10/12	3 ; 2	.8 ; .3	5 ; 2	.6 ; .5
		11/01	< .6	.2 ; .1	3 ; 2	1.2 ; .4
		12/06	< .3	< .06	2 ; 2	1.1 ; .5
		ANNUAL MEAN	1.1 ; 1.9	0.6 ; 1.7	3.9 ; 4.9	2.4 ; 5.7
4F	80	01/06	< .4	.5 ; .2	< 2	1.8 ; .7
		02/03	< .5	< .1	9 ; 2	2.4 ; .6
		03/01	< .6	< .1	3 ; 2	2.2 ; .5
		04/05	< .5	5 ; 1	< 2	10 ; 1
		05/04	< .8	3 ; 1	3 ; 2	5 ; 2
		05/31	< .8	1.4 ; .5	< 2	2.8 ; .6
		07/12	< 1	.2 ; .1	< 2	< .5
		08/09	< .8	< .1	6 ; 3	10. ; .6
		09/06	< .9	.3 ; .2	4 ; 2	1.3 ; .5
		10/12	3 ; 2	2.4 ; .7	3 ; 2	2.9 ; .7
		11/01	< .6	.3 ; .2	< 2	1.5 ; .5
		12/06	< .4	.2 ; .2	4 ; 2	2.7 ; .5
		ANNUAL MEAN	0.9 ; 1.4	1.1 ; 3.1	3.5 ; 4.2	3.6 ; 6.4
6A	80	01/06	< .4	< .06	< 2	< .6
		02/03	< .5	< .06	4 ; 2	1.2 ; .5
		03/01	< .5	.8 ; .2	6 ; 2	25 ; 1
		04/05	< .5	2.2 ; .6	< 2	6.1 ; .7
		05/04	< .8	5 ; 2	3 ; 2	5 ; 2
		05/31	< .7	.2 ; .2	< 2	.8 ; .5
		07/12	< 3	< .1	< 4	.8 ; .5
		08/09	< 1	< .2	10 ; 3	1.4 ; .5
		09/06	< 1	< .2	5 ; 2	.8 ; .4
		10/12	7 ; 3	< .1	5 ; 3	< .4
		11/01	< .6	.2 ; .1	2 ; 2	.9 ; .4
		12/06	< .5	< .07	3 ; 2	1.2 ; .5
		ANNUAL MEAN	1.4 ; 3.8	0.8 ; 2.9	4.0 ; 4.7	4 ; 14
13A	80	01/06	< .5	.4 ; .2	< 2	3.0 ; .7
		02/03	< .3	< .05	< 2	< .5
		03/01	< .6	< .08	< 2	.9 ; .5
		04/05	< .6	5 ; 2	< 2	13 ; 1
		05/04	< .8	7 ; 2	< 2	10 ; 2
		05/31	< .7	.6 ; .3	2 ; 2	1.3 ; .5
		07/12	< .5	2.6 ; .9	< 2	5.5 ; .9
		08/09	< .7	1.6 ; .6	5 ; 3	7.1 ; .7
		09/06	1 ; 1	.4 ; .2	< 2	1.0 ; .5
		10/12	3 ; 2	8 ; 2	3 ; 2	11 ; 1
		11/01	< .5	.5 ; .2	3 ; 2	.9 ; .5
		12/06	< .6	.2 ; .1	< 2	1.0 ; .5
		ANNUAL MEAN	0.8 ; 1.4	2.2 ; 5.7	2.4 ; 1.8	4.6 ; 9.2
13B	80	11/13	< .7	< .06	4 ; 3	2.4 ; .5
MEAN-POTENTIALLY AFFECTED STATIONS (1Q,4F,13A)			0.9 ; 1.5	1.3 ; 4.0	3.3 ; 4.0	3.5 ; 7.3
MEAN-ALL STATIONS			1.0 ; 2.3	1.2 ; 3.8	3.5 ; 4.2	3.6 ; 9.2

NOTE: SEMICOLON INDICATES A PLUS OR MINUS SIGN.

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

STATION CODE		COLLECTION PERIOD	G.ALPHA SOLUBLE	G.ALPHA INSOLUBLE	G.BETA SOLUBLE	G.BETA INSOLUBLE
1LL	80	01/04-02/01	< .5	< .07	2 ; 2	< .6
		02/01-02/29	< .5	.1 ; .1	3 ; 2	1.9 ; .6
		02/29-04/03	< .7	1.1 ; .4	< 3	1.7 ; .6
		04/03-05/02	1 ; 1	4 ; 2	5 ; 2	6 ; 2
		05/02-05/30	< .7	1.0 ; .4	2 ; 2	1.5 ; .6
		05/30-07/04	< 1	.3 ; .2	< 2	< .6
		07/04-08/08	< .4	.5 ; .3	< 2	5.2 ; .6
		08/08-09/05	< 1	1.0 ; .4	4 ; 2	5.1 ; .6
		09/05-10/10	< 1	1.6 ; .5	< 2	1.8 ; .6
		10/10-10/31	< .6	< .08	5 ; 2	1.6 ; .6
		10/31-12/05	< .7	< .06	4 ; 3	1.4 ; .5
		12/05-01/09	< .6	.3 ; .2	< 2	.5 ; .5
		ANNUAL MEAN	.73 ; .44	0.8 ; 2.2	3.0 ; 2.4	2.3 ; 3.9
4L	80	01/06-02/03	< .4	< .08	< 2	< .6
		02/03-03/01	< .5	< .08	< 2	.7 ; .6
		03/01-04/05	< .7	.7 ; .3	< 3	.9 ; .5
		04/05-05/04	< .8	4 ; 1	5 ; 2	6 ; 2
		05/04-05/31	< .7	< .2	3 ; 2	< .6
		05/31-07/05	< 1	.1 ; .1	< 2	< .5
		07/05-08/09(A)	< 1	< .2	< 3	< .7
		08/09-09/06	< 1	< .1	7 ; 2	1.3 ; .6
		09/06-10/04	3 ; 2	< .3	3 ; 2	< .8
		10/04-11/01	< .5	< .07	< 2	6.6 ; .6
		11/01-12/06	< .6	< .06	4 ; 3	.9 ; .5
		12/06-01/10	< .6	< .1	2 ; 2	.5 ; .4
		ANNUAL MEAN	0.9 ; 1.4	0.5 ; 2.2	3.2 ; 3.1	1.7 ; 4.4
6I	80	01/06-02/03	1.2 ; .9	< .07	< 2	3.2 ; .6
		02/03-03/01	< .5	< .07	2 ; 2	< .6
		03/01-04/05(B)	1 ; 1	.5 ; .2	< 2	< .6
		04/05-05/04	< .8	3 ; 1	< 2	2 ; 2
		05/04-05/31(B)	< .7	< .2	< 2	< .8
		05/31-07/06	< .7	< .09	< 2	< .5
		07/06-08/09	< .6	< .1	< 2	< .4
		08/09-09/06	< .8	< .1	< 2	4.5 ; .6
		09/06-10/05	3 ; 2	1.5 ; .5	< 2	2.0 ; .7
		10/05-11/01	< .6	< .07	< 2	.6 ; .5
		11/01-12/06	< .7	< .04	< 3	< .5
		12/06-01/10	< .5	< .09	< 2	< .4
		ANNUAL MEAN	0.9 ; 1.4	0.5 ; 1.8	2.1 ; 0.6	1.3 ; 2.7

NOTES: SEMICOLON INDICATES A PLUS OR MINUS SIGN.
(A) SAMPLER OUT OF SERVICE 7/20-8/3/80
(B) SAMPLER OUT OF SERVICE 3/23-3/29/80 AND 5/18-5/25/80.

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

STATION CODE	COLLECTION DATE	G.ALPHA SOLUBLE	G.ALPHA INSOLUBLE	G.BETA SOLUBLE	G.BETA INSOLUBLE
1M 80	01/06	< .5	< .07	< 2	.7 ; .6
	02/03	< .5	< .06	8 ; 2	2.6 ; .6
	03/01	< .4	< .06	< 2	< .5
	04/05	< .5	1.4 ; .4	< 2	2.0 ; .6
	05/04	< .6	2 ; 1	2 ; 2	3 ; 2
	05/31	< .8	.5 ; .2	< 2	1.7 ; .5
	07/12	< .9	.7 ; .3	< 2	25.4 ; .9
	08/09	< 2	< .2	< 3	.6 ; .5
	09/06	2 ; 1	.5 ; .2	5 ; 2	1.4 ; .5
	10/12	1 ; 1	.3 ; .2	3 ; 2	< .5
	11/01	< .4	< .07	3 ; 2	.6 ; .4
	12/06	< .4	< .06	< 2	< .5
	ANNUAL MEAN	0.8 ; 1.2	0.5 ; 1.2	3.0 ; 3.6	3 ; 14

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

STATION CODE	COLLECTION PERIOD	G.ALPHA SOLUBLE	G.ALPHA INSOLUBLE	G.BETA SOLUBLE	G.BETA INSOLUBLE
1MM 80	01/04-02/01	< .4	< .07	< 2	< .6
	02/01-02/29	< .5	< .07	4 ; 2	.7 ; .5
	02/29-04/03	< .9	1.0 ; .3	< 3	2.8 ; .6
	04/03-05/02	< .8	3 ; 1	< 2	6 ; 2
	05/02-05/30	1 ; 1	.8 ; .3	15 ; 2	3.6 ; .6
	05/30-07/04	< .9	.3 ; .2	< 2	< .6
	07/03-08/08	< 1	< .2	< 2	1.8 ; .5
	08/08-09/05	2 ; 1	.7 ; .3	< 2	1.1 ; .5
	09/05-10/10	1 ; 1	< .09	3 ; 2	< .5
	10/10-10/31	< .5	< .09	4 ; 2	1.8 ; .6
	10/31-12/05	< .6	< .04	24 ; 3	3.9 ; .5
	12/05-12/26(A)	< .7	< .1	< 2	< .5
	ANNUAL MEAN	.86 ; .84	0.5 ; 1.7	5 ; 14	2.0 ; 3.5

NOTES: SEMICOLON INDICATES A PLUS OR MINUS SIGN.
(A) SAMPLER OUT OF SERVICE 12/26/80-1/9/81

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	80 01/06	.9 ; .7	< 2	< .3	< .2	< .5	.09
	04/05	< .6	< 2				.04
	07/12	< 1	< 2	< .2	< .1	< .5	< .03
	10/1.	2 ; 1.0	4 ; 2				< .03
	ANNUAL MEAN	1.1 ; 1.2	2.5 ; 2.0	< .25	< .15	< .50	.05 ; .06
1V	80 01/06	< .3	< 2	< .4	< .2	< .3	.09
	04/05	< .4	< 2				.04
	07/12	< .8	< 2	< .4	.2 ; .2	< .5	< .03
	10/12	< .4	< 2				< .03
	ANNUAL MEAN	< .48	< 2.0	< .40	.20	< .40	.05 ; .06
7	80 01/06	< .3	3 ; 2	< .4	< .2	< .5	.19
	04/05	< .6	< 2				< .03
	07/12	< .9	< 2	< .4	< .2	< .5	< .03
	10/12	< .8	< 2				< .16
	ANNUAL MEAN	< .65	2.3 ; 1.0	< .40	< .20	< .50	.10 ; .17
40	80 01/06	< .4	2 ; 2	< .4	< .2	< .5	.12
	04/05	< .5	< 2				.04
	07/12	< 1	< 2	< .4	< .2	< .4	< .03
	10/12	< .8	< 2				< .12
	ANNUAL MEAN	< .68	2.0	< .40	< .20	< .45	.08 ; .10
	MEAN (1U,1V)	0.8 ; 1.1	2.3 ; 1.4	< .33	.18 ; .10	< .45	.05 ; .05
MEAN-ALL STATIONS		.73 ; .83	2.2 ; 1.1	< .36	.19 ; .07	< .46	.07 ; .11

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	80 05/31	1 ; 1	2.7 ; .3	< 1	.02 ; .01	.094 ; .004	.084 ; .008
	11/01	3 ; 1	.20 ; .04	3 ; 1	< .01	.075 ; .004	.077 ; .004
	ANNUAL MEAN	2.0 ; 2.8	1.5 ; 3.5	2.0 ; 2.8	.015 ; .014	.085 ; .027	.081 ; .010
2	80 05/31	1 ; 1	2.7 ; .3	< 1	< .03	.20 ; .01	.12 ; .01
	11/01	4 ; 1	.36 ; .04	4 ; 1	< .02	.5[illegible] ; .01	.90 ; .02
	ANNUAL MEAN	2.5 ; 4.2	1.5 ; 3.3	2.5 ; 4.2	< .025	.38 ; .49	0.5 ; 1.1
3A	80 05/31	1 ; 1	2.6 ; .3	< 1	< .02	.180 ; .008	.21 ; .01
	11/01	3 ; 1	.08 ; .04	3 ; 1	< .02	.178 ; .006	.18 ; .01
	ANNUAL MEAN	2.0 ; 2.8	1.3 ; 3.6	2.0 ; 2.8	< .020	.179 ; .003	.20 ; .04
4N	80 05/31	< 1	2.6 ; .3	< 1	< .01	.121 ; .005	.30 ; .01
	11/01	3 ; 1	.32 ; .04	3 ; 1	< .01	.126 ; .005	.73 ; .01
	ANNUAL MEAN	2.0 ; 2.8	1.5 ; 3.2	2.0 ; 2.8	< .010	.124 ; .007	.52 ; .61
5	80 05/31	2 ; 1	3.3 ; .3	< 1	< .02	.023 ; .009	.14 ; .01
	11/01	4 ; 1	.52 ; .05	4 ; 1	< .01	.084 ; .005	.18 ; .01
	ANNUAL MEAN	3.0 ; 2.8	1.9 ; 3.9	2.5 ; 4.2	< .015	.054 ; .086	.16 .06
6G	80 05/31	< 1	2.6 ; .3	< 1	< .02	.203 ; .008	.44 ; .02
	11/01	2.1 ; .9	.32 ; .04	1.8 ; .9	< .02	.099 ; .006	.116 ; .005
	ANNUAL MEAN	1.[illegible] ; 1.6	1.5 ; 3.2	1.4 ; 1.1	< .020	.15 ; .15	.28 ; .46
	MEAN-ONSITE STATIONS (1AA,2)	2.3 ; 3.0	1.5 ; 2.8	2.3 ; 3.0	.020 ; .016	.23 ; .44	.30 ; .81
	MEAN-DISTANT STATIONS (3A,4N,5,6G)	2.1 ; 2.5	1.5 ; 2.7	2.0 ; 2.4	< .016	.13 ; .12	.29 ; .41
	MEAN-ALL STATIONS	2.2 ; 2.4	1.5 ; 2.6	2.1 ; 2.5	.018 ; .012	.16 ; .27	.29 ; .54

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	80 06/09	1 ; 1	3 ; 1	< .02	.019 ; .007	.330 ; .007
	09/22	< .1	1.3 ; .9	< .02	.010 ; .005	.22 ; .01
	ANNUAL MEAN	0.6 ; 1.3	2.2 ; 2.4	< .020	.015 ; .013	.28 ; .16
1X	80 06/09	3 ; 1	5 ; 1	< .03	.136 ; .009	.348 ; .008
	09/22	1.2 ; .5	1.6 ; .9	< .02	.043 ; .005	.30 ; .02
	ANNUAL MEAN	2.1 ; 2.5	3.3 ; 4.8	< .025	.09 ; .13	.32 ; .07
4D	80 06/09	1.7 ; .9	3 ; 1	< .03	.04 ; .01	.518 ; .009
	09/22	< .4	< 1	< .01	.013 ; .004	.25 ; .01
	ANNUAL MEAN	1.1 ; 1.8	2.0 ; 2.8	< .020	.027 ; .038	.38 ; .38
4J	80 06/09	2.7 ; .9	2 ; 1	< .03	< .02	.151 ; .005
	09/22	.3 ; .2	< .8	.03 ; .03	< .009	.44 ; .02
	ANNUAL MEAN	1.5 ; 3.4	1.4 ; 1.7	.030	< .015	.30 ; .41
4T	80 06/09	4 ; 1	6 ; 1	< .02	.037 ; .004	1.32 ; .03
	09/22	1.4 ; .6	3 ; 1	.02 ; .02	.009 ; .006	1.03 ; .03
	ANNUAL MEAN	2.7 ; 3.7	4.5 ; 4.2	.020	.023 ; .040	1.18 ; .41
6F	80 06/09	2 ; 1	2 ; 1	< .02	.032 ; .007	.182 ; .006
	09/22	< .3	< 1	.02 ; .01	.013 ; .004	.082 ; .009
	ANNUAL MEAN	1.2 ; 2.4	1.5 ; 1.4	.020	.023 ; .027	.13 ; .14
MEAN-ALL STATIONS		1.5 ; 2.5	2.5 ; 3.3	.02 ; .01	.032 ; .070	.43 ; .75

NOTE: SEMICOLON INDICATES PLUS OR MINUS SIGN.

TABLE IV.6.2

ANALYTICAL DATA FOR SILT
GAMMA SPECTRUM ANALYSIS (GeLi)

Station	Collection Date	Cs-137	Cs-134	K-40	Ra-226	Th-228	Be-7	Co-60	I-131	Cr-51	Ba-140
1BB	06-09-80	<.07	.22±.06	20±1	<.1	<.2	<.9	<.08	< 2	<1	<2
	09-22-80	.13±.05	.10±.05	19±1	.7±.1	.8±.2	1.4±.4	.12±.05	<.9	<.8	<1
	Mean	.10±.08	.16±.17	20±1.4	.4±.8	.5±.8	1.2±.7	.10±.06	<1.45	<.9	<1.5
1X	06-09-80	.6 ±.1	<.1	19±2	1.1±.2	1.1±.3	<1	<.09	<3	<2	<3
	09-22-80	.10±.03	.07±.03	6.0±.6	.26±.06	.25±.08	<.3	.05±.03	<.5	<.5	<.6
	Mean	.4 ±.7	.09±.04	10±20	.7±1.2	.7±1.2	<.7	.07±.06	<2	<1	<2
4D	06-09-80	<.2	<.1	20±2	<.3	<.4	<2	<.1	<5	<3	<4
	09-22-80	.36±.07	<.06	19±1	1.1±.1	1.1±.2	<.7	<.05	<1	<1	<1
	Mean	.3 ±.2	<.08	20±1	.7±1.1	.8±1.0	<1	<.08	<3	<2	<3
4J	06-09-80	.11±.03	.07±.04	14.7±.9	.39±.07	.5±.1	<.4	<.04	<.7	<.6	<.8
	09-22-80	.22±.05	.12±.05	16±1	.72±.06	.5±.1	<.5	<.05	<.8	<.8	<.9
	Mean	.17±.16	.10±.07	15.4±1.8	.56±.47	....	<.5	<.05	<.8	<.7	<.9
4T	06-09-80	1.0 ±.2	.5 ±.1	18±2	.9±.3	1.1±.4	<1	<.1	<4	<2	<3
	09-22-80	1.1 ±.1	.6 ±.1	19±2	.9±.2	1.2±.3	<1	<.1	<2	<2	<2
	Mean	1.1 ±.1	.6 ±.1	19±1	.9±0	1.2±.1	<1	<.1	<3	<2	<3
6F	06-09-80	<.1	<.09	16±1	<.2	<.4	<2	<.1	<4	<2	<3
	09-22-80	.14±.06	<.06	9±1	.9±.1	.9±.2	<.6	<.05	<1	<.9	<1
	Mean	.12±.06	<.08	13±10	.6±1.0	.7±.7	<1.3	<.08	<3	<1.5	<2

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

STATION CODE	MEDIA	COLLECTION DATE	ID	FISH NUMBER	G.BETA	K-40	N.BETA	SR-89	SR-90
1EE	CHANNEL CATFISH 80	03/19	5A3658	80000101	50 ; 10	50 ; 5	< 10		
			5B3658	80000100	50 ; 10	54 ; 5	< 10	< .3	.91 ; .07
			5C3658	80000067	50 ; 10	56 ; 6	< 10		
			5D3658	80000098	50 ; 10	54 ; 5	< 10		
		06/02	5A3755	80002216	30 ; 10	20 ; 2	< 10	< .5	1.1 ; .1
			5B3755	80002218	110 ; 10	40 ; 4	70 ; 10		
			5C3755	80002217	40 ; 10	40 ; 4	< 10		
			5D3755	80002213	50 ; 10	20 ; 2	20 ; 10		
		09/08	5A3831	80004397	40 ; 10	42 ; 4	< 10	< .2	.67 ; .05
			5B3831	80004396	60 ; 10	28 ; 3	30 ; 10		
			5C3831	80004399	80 ; 10	56 ; 6	20 ; 10		
			5D3831	80004398	50 ; 10	66 ; 7	< 10		
		10/13	5A3900	80004462	10 ; 10	38 ; 4	< 10	< .5	.9 ; .1
			5B3900	80004461	80 ; 10	77 ; 8	< 10		
			5C3900	80004463	< 10	32 ; 3	< 10		
			5D3900	80004465	20 ; 10	36 ; 4	< 10		
				ANNUAL MEAN	49 ; 52	44 ; 32	16 ; 31	< .38	.90 ; .35
1X	CHANNEL CATFISH 80	03/19	5A3657	80000134	40 ; 10	54 ; 5	< 10	< .1	.72 ; .04
			5B3657	80000131	40 ; 10	54 ; 5	< 10		
			5C3657	80000132	40 ; 10	50 ; 5	< 10		
			5D3657	80000129	30 ; 10	50 ; 5	< 10		
		06/02	5A3758	80002204	30 ; 10	20 ; 2	< 10	< .3	1.45 ; .07
			5B3758	80002206	50 ; 10	20 ; 2	20 ; 10		
			5C3758	80002205	40 ; 10	40 ; 4	< 10		
			5D3758	80002207	30 ; 10	30 ; 3	< 10		
		09/22	5A3829	80004403	50 ; 10	34 ; 3	10 ; 10	< .3	.82 ; .07
			5B3829	80004404	30 ; 10	38 ; 4	< 10		
			5C3829	80004405	30 ; 10	100 ; 10	< 10		
			5D3829	80004402	30 ; 10	30 ; 3	< 10		
		10/13	5A3905	80004459	20 ; 10	34 ; 3	< 10	< .5	.7 ; .1
			5B3905	80004460	60 ; 10	36 ; 4	20 ; 10		
			5C3905	80004458	10 ; 10	36 ; 4	< 10		
			5D3905	80004457	20 ; 10	34 ; 3	< 10		
				ANNUAL MEAN	34 ; 25	41 ; 38	11 ; 7	< .30	.92 ; .71
4H	AMERICAN SHAD 80	04/27	5A3759	80000621	130 ; 10	110 ; 10	20 ; 20		
			5B3759	80000618	160 ; 10	120 ; 10	50 ; 20	< .9	< .1
			5C3759	80000616	120 ; 10	120 ; 10	< 20		
			5D3759	80000619	130 ; 10	110 ; 10	20 ; 20		
				ANNUAL MEAN	140 ; 30	120 ; 10	28 ; 30	< .9	< .1

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	FISH NUMBER	G.BETA	K-40	N.BETA	SR-89	SR-90
4I	CHANNEL CATFISH 80	03/26	5A3677	80000225	< 10	22 ; 2	< 10	< .6	1.0 ; .2
		06/19	5A3753	80004276	40 ; 10	30 ; 3	< 10	< .2	.82 ; .06
			5D3753	80004277	60 ; 10	30 ; 3	30 ; 10		
		06/23	5B3753	80004273	60 ; 10	60 ; 6	< 10		
			5C3753	80004274	40 ; 10	40 ; 4	< 10		
		09/08	5A3835	80004376	30 ; 10	36 ; 4	< 10	< .3	.66 ; .05
			5B3835	80004373	40 ; 10	93 ; 9	< 10		
			5C3835	80004375	40 ; 10	30 ; 3	< 10		
			5D3835	80004372	40 ; 10	36 ; 4	< 10		
		10/07	5A3903	80004444	40 ; 10	54 ; 5	< 10		
		10/21	5B3903	80004479	90 ; 10	56 ; 6	30 ; 10	< 1	.8 ; .2
		10/22	5C3903	80004509	120 ; 10	73 ; 7	40 ; 10		
			5D3903	80004508	80 ; 10	71 ; 7	< 10		
				ANNUAL MEAN	53 ; 58	49 ; 43	15 ; 21	< .53	.82 ; .28
	WHITE CRAPPIE 80	05/05	5A3754	80000397	30 ; 10	30 ; 3	< 10	< .5	.34 ; .07
		05/19	5B3754	80000273	30 ; 10	30 ; 3	< 10		
		06/11	5C3754	80004229	40 ; 10	60 ; 6	< 10		
			5D3754	80004230	30 ; 10	30 ; 3	< 10		
		09/08	5A3834	80004369	50 ; 10	38 ; 4	< 10	< .3	.70 ; .05
			5B3834	80004367	40 ; 10	36 ; 4	< 10		
			5C3834	80004371	40 ; 10	36 ; 4	< 10		
			5D3834	80004370	40 ; 10	36 ; 4	< 10		
		10/21	5C3904	80004478	20 ; 10	34 ; 5	< 10		
		10/22	5A3904	80004506	50 ; 10	58 ; 6	< 10	< .3	.65 ; .05
			5B3904	80004507	20 ; 10	52 ; 5	< 10		
			5D3904	80004505	60 ; 10	62 ; 6	< 10		
				ANNUAL MEAN	38 ; 24	44 ; 25	< 10	< .37	.56 ; .39

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	FISH NUMBER	G.BETA	K-40	N.BETA	SR-89	SR-90
4J	CHANNEL CATFISH 80	03/26	5A3656	80000194	30 ; 10	36 ; 4	< 10	< .2	.95 ; .07
			5B3656	80000193	100 ; 10	81 ; 8	20 ; 20		
			5C3656	80000195	30 ; 10	30 ; 3	< 10		
			5D3656	80000196	40 ; 10	56 ; 6	< 10		
		04/21	5A3751	80000366	50 ; 10	80 ; 8	< 10	< .5	1.7 ; .2
			5B3751	80000369	50 ; 10	50 ; 5	< 10		
			5C3751	80000367	40 ; 10	30 ; 3	< 10		
			5D3751	80000368	60 ; 10	30 ; 4	20 ; 10		
		09/08	5A3833	80004389	40 ; 10	66 ; 7	< 10	< .3	.94 ; .06
			5B3833	80004387	40 ; 10	38 ; 4	< 10		
			5C3833	80004390	40 ; 10	100 ; 10	< 10		
			5D3833	80004384	40 ; 10	66 ; 7	< 10		
		10/06	5A3901	80004435	20 ; 10	36 ; 4	< 10	< 2	2.8 ; .3
		10/07	5B3901	80004438	20 ; 10	52 ; 5	< 10	< .9	.9 ; .1
			5D3901	80004437	120 ; 10	79 ; 8	40 ; 10		
		10/22	5C3901	80004499	60 ; 10	54 ; 5	< 10		
				ANNUAL MEAN	49 ; 54	55 ; 43	13 ; 16	< .78	1.3 ; 1.6
	WHITE CRAPPIE 80	05/05	5B3752	80000384	40 ; 10	30 ; 3	< 10		
		06/11	5A3752	80004240	40 ; 10	30 ; 3	< 10	< .2	.66 ; .04
			5C3752	80004244	50 ; 10	30 ; 3	20 ; 10		
			5D3752	80004245	40 ; 10	40 ; 4	< 10		
		09/24	5A3828	80004417	40 ; 10	30 ; 3	10 ; 10	.4 ; .3	.49 ; .07
			5B3828	80004416	50 ; 10	36 ; 4	< 10		
		10/06	5A3902	80004433	50 ; 10	54 ; 5	< 10	< .4	.60 ; .05
			5B3902	80004432	90 ; 10	67 ; 7	20 ; 10		
			5C3902	80004431	60 ; 10	36 ; 4	20 ; 10		
			5D3902	80004430	60 ; 10	58 ; 6	< 10		
				ANNUAL MEAN	52 ; 31	41 ; 27	13 ; 10	.33 ; .23	.58 ; .17

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	FISH NUMBER	G.BETA	K-40	N.BETA	SR-89	SR-90
6H	CHANNEL CATFISH 80	03/19	5A3659	80000166	50 ; 10	56 ; 6	< 10	< .2	1.1 ; .2
			5B3659	80000163	50 ; 10	54 ; 5	< 10		
		80 03/19	5C3659	80000165	30 ; 10	38 ; 4	< 10		
			5D3659	80000167	50 ; 10	38 ; 4	< 10		
		06/02	5A3756	80000282	60 ; 10	50 ; 5	< 10	< .3	1.51 ; .06
			5B3756	80000281	40 ; 10	50 ; 5	< 10		
			5C3756	80000283	40 ; 10	60 ; 6	< 10		
			5D3756	80000284	40 ; 10	50 ; 5	< 10		
		09/08	5A3832	80004395	40 ; 10	32 ; 3	< 10	< .3	.81 ; .06
			5B3832	80004392	30 ; 10	22 ; 2	< 10		
			5C3832	80004391	60 ; 10	100 ; 10	< 10		
			5D3832	80004394	40 ; 10	93 ; 9	< 10		
		10/27	5A3906	80004517	20 ; 10	52 ; 5	< 10	.7 ; .4	.84 ; .09
			5B3906	80004515	50 ; 10	38 ; 4	10 ; 10		
			5C3906	80004518	20 ; 10	54 ; 5	< 10		
			5D3906	80004511	< 8	32 ; 3	< 9		
				ANNUAL MEAN	39 ; 29	51 ; 41	9.9 ; 0.5	.38 ; .44	1.1 ; 0.6
	WHITE CRAPPIE 80	03/19	5A3660	80000161	30 ; 10	54 ; 5	< 10	< .1	.50 ; .03
			5B3660	80000162	40 ; 10	62 ; 6	< 10		
		06/02	5A3757	80000280	30 ; 10	30 ; 3	< 10	< .2	.84 ; .05
			5B3757	80000275	30 ; 10	30 ; 3	< 10		
			5D3757	80000278	30 ; 10	30 ; 3	< 10		
		06/04	5C3757	80002236	20 ; 10	30 ; 3	< 10		
		09/16	5A3830	80004400	30 ; 10	93 ; 9	< 10	.7 ; .5	1.0 ; .1
			5B3830	80004401	30 ; 10	42 ; 4	< 10		
		10/14	5A3907	80004477	30 ; 10	56 ; 6	< 10	< .5	1.63 ; .09
		10/27	5B3907	80004510	30 ; 10	52 ; 5	< 10		
				ANNUAL MEAN	30 ; 9	48 ; 40	< 10	.38 ; .55	.99 ; .95
				ANNUAL MEAN-CATFISH	44 ; 46	48 ; 40	13 ; 18	.49 ; .84	1.1 ; 1.0
				ANNUAL MEAN-CRAPPIE	40 ; 29	44 ; 31	11 ; 6	.36 ; .36	.74 ; 7.3

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	FISH NUMBER	G.BETA	K-40	N.BETA	SR-89	SR-90
1EE	CHANNEL CATFISH 80	03/19	*A3658	80000101	3.5 ; .9	3.4 ; .3	< .9		
			*B3658	80000100	3.1 ; .7	3.1 ; .3	< .8	< .02	.052 ; .004
			*C3658	80000067	2.6 ; .7	3.0 ; .3	< .7		
			*D3658	80000098	3.7 ; .9	3.9 ; .4	< 1		
		06/02	*A3755	80002216	1.9 ; .7	1.5 ; .1	< .8	< .03	.071 ; .007
			*B3755	80002218	2.6 ; .3	.87 ; .08	1.8 ; .3		
			*C3755	80002217	1.6 ; .5	1.8 ; .2	< .6		
			*D3755	80002213	2.0 ; .5	1.1 ; .1	.9 ; .5		
		09/08	*A3831	80004397	2.2 ; .6	2.5 ; .3	< .7	< .01	.040 ; .003
			*B3831	80004396	3.4 ; .7	1.7 ; .2	1.7 ; .7		
			*C3831	80004399	2.4 ; .4	1.7 ; .2	.7 ; .4		
			*D3831	80004398	2.9 ; .6	3.9 ; .4	< .7		
		10/13	*A3900	80004462	.6 ; .4	1.7 ; .2	< .5	< .02	.039 ; .004
			*B3900	80004461	2.1 ; .3	2.1 ; .2	< .4		
			*C3900	80004463	< .6	1.9 ; .2	< .6		
			*D3900	80004465	.9 ; .6	2.0 ; .2	< .6		
				ANNUAL MEAN	2.6 ; 2.0	2.7 ; 1.9	.84 ; .78	< .020	.051 ; .030
1X	CHANNEL CATFISH 80	03/19	*A3657	80000134	2.1 ; .7	3.1 ; .3	< .8	< .007	.042 ; .002
			*B3657	80000131	2.0 ; .7	3.0 ; .3	< .7		
			*C3657	80000132	2.7 ; .8	3.3 ; .3	< .9		
			*D3657	80000129	1.9 ; .7	2.9 ; .3	< .8		
		06/02	*A3758	80002204	1.5 ; .6	1.2 ; .1	< .6	< .02	.071 ; .003
			*B3758	80002206	2.4 ; .5	1.2 ; .1	1.2 ; .5		
			*C3758	80002205	2.5 ; .8	2.2 ; .2	< .8		
			*D3758	80002207	1.7 ; .7	2.1 ; .2	< .7		
		09/22	*A3829	80004403	2.2 ; .5	1.6 ; .2	.6 ; .5	< .01	.038 ; .003
			*B3829	80004404	1.3 ; .5	1.8 ; .2	< .5		
			*C3829	80004405	1.7 ; .5	4.9 ; .5	< .7		
			*D3829	80004402	2.0 ; .6	1.8 ; .2	< .6		
		10/13	*A3905	80004459	.9 ; .5	1.7 ; .2	< .5	< .03	.036 ; .005
			*B3905	80004460	2.9 ; .5	1.8 ; .2	1.1 ; .5		
			*C3905	80004458	.6 ; .4	1.7 ; .2	< .5		
			*D3905	80004457	1.1 ; .5	1.7 ; .2	< .5		
				ANNUAL MEAN	1.8 ; 1.3	2.3 ; 1.9	.72 ; .42	< .017	.047 ; .033
4H	AMERICAN SHAD 80	04/27	*A3759	80000621	2.8 ; .3	2.4 ; .2	.4 ; .4		
			*B3759	80000618	3.5 ; .3	2.6 ; .3	1.0 ; .4	< .02	< .003
			*C3759	80000616	3.7 ; .4	3.8 ; .4	< .6		
			*D3759	80000619	3.3 ; .3	2.7 ; .3	.6 ; .4		
				ANNUAL MEAN	3.3 ; 0.8	2.9 ; 1.3	.65 ; .50	< .02	< .003

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	FISH NUMBER	G.BETA	K-40	N.BETA	SR-89	SR-90
6H	CHANNEL CATFISH 80	03/19	*A3659	80000166	2.4 ; .6	2.7 ; .3	< .7	< .009	.05 ; .01
			*B3659	80000163	2.3 ; .6	2.6 ; .3	< .7		
		03/19	*C3659	80000165	1.7 ; .7	2.1 ; .2	< .7		
			*D3659	80000167	3.3 ; .8	2.6 ; .3	< .9		
		06/02	*A3756	80000282	2.7 ; .5	2.4 ; .2	< .6	< .01	.067 ; .003
			*B3756	80000281	1.9 ; .6	2.5 ; .3	< .6		
			*C3756	80000283	2.1 ; .6	2.6 ; .3	< .6		
			*D3756	80000284	2.3 ; .6	2.6 ; .3	< .7		
		09/08	*A3832	80004395	2.0 ; .6	1.8 ; .2	< .6	< .02	.045 ; .003
			*B3832	80004392	1.6 ; .5	1.1 ; .1	< .5		
			*C3832	80004391	3.2 ; .6	5.4 ; .5	< .8		
			*D3832	80004394	1.9 ; .5	4.2 ; .4	< .6		
		10/27	*A3906	80004517	1.0 ; .5	2.7 ; .3	< .6	.04 ; .02	.044 ; .004
			*B3906	80004515	2.4 ; .5	1.8 ; .2	.5 ; .5		
			*C3906	80004518	1.1 ; .5	2.7 ; .3	< .6		
			*D3906	80004511	< .5	1.8 ; .2	< .5		
			ANNUAL MEAN		2.0 1.5	2.6 ; 2.0	.64 ; .22	.020 ; .029	.052 ; .021
	WHITE CRAPPIE 80	03/19	*A3660	80000161	1.8 ; .8	3.6 ; .4	< .9	< .007	.034 ; .002
			*B3660	80000162	2.3 ; .8	3.9 ; .4	< .9		
		06/02	*A3757	80000280	2.2 ; .8	2.2 ; .2	< .9	< .02	.061 ; .004
			*B3757	80000275	2.3 ; .9	2.1 ; .2	< .9		
			*D3757	80000278	2.1 ; .8	2.2 ; .2	< .8		
		06/04	*C3757	80002236	1.7 ; .8	2.5 ; .3	< .9		
		09/16	*A3830	80004400	1.9 ; .6	5.3 ; .5	< .8	.04 ; .03	.059 ; .006
			*B3830	80004401	1.2 ; .4	1.6 ; .2	< .4		
		10/14	*A3907	80004477	1.2 ; .5	2.5 ; .3	< .5	< .02	.074 ; .004
		10/27	*B3907	80004510	1.7 ; .5	2.6 ; .3	< .6		
			ANNUAL MEAN		1.8 ; 0.8	2.9 ; 2.2	<.76	.022 ; .027	.057 ; .033
			ANNUAL MEAN-CATFISH		2.0 ; 1.6	2.3 ; 2.1	.69 ; .53	.021 ; .027	.050 ; .027
			ANNUAL MEAN-CRAPPIE		2.2 ; 1.0	2.5 ; 1.6	.73 ; .39	.022 ; .022	.044 ; .032

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	FISH NUMBER	G.BETA	K-40	N.BETA	SR-89	SR-90
4I	CHANNEL CATFISH 80	03/26	*A3677	80000225	< .3	.55 ; .05	< .3	< .02	.026 ; .006
		06/19	*A3753	80004276	1.8 ; .6	1.7 ; .2	< .6	< .01	.043 ; .003
			*D3753	80004277	2.5 ; .5	1.4 ; .1	1.1 ; .5		
		06/23	*B3753	80004273	.5 ; .1	.60 ; .06	< .1		
			*C3753	80004274	2.2 ; .6	1.9 ; .2	< .6		
		09/08	*A3835	80004376	1.4 ; .5	1.7 ; .2	< .5	< .01	.032 ; .002
			*B3835	80004373	2.0 ; .5	4.5 ; .5	< .7		
			*C3835	80004375	1.9 ; .6	1.6 ; .2	< .6		
			*D3835	80004372	1.9 ; .6	1.9 ; .2	< .6		
		10/07	*A3903	80004444	1.6 ; .4	2.0 ; .2	< .4		
		10/21	*B3903	80004479	2.5 ; .3	1.6 ; .2	.9 ; .4	< .03	.023 ; .005
		10/22	*C3903	80004509	2.8 ; .3	1.7 ; .2	1.0 ; .3		
			*D3903	80004508	2.0 ; .3	1.8 ; .2	< .3		
			ANNUAL MEAN		1.8 ; 1.5	1.8 ; 1.9	.59 ; .57	< .018	.031 ; .018
	WHITE CRAPPIE 80	05/05	*A3754	80000397	2 ; 1	2.3 ; .2	< 1	< .04	.028 ; .006
		05/19	*B3754	80000273	2.5 ; .9	2.2 ; .2	< 1		
		06/11	*C3754	80004229	2.4 ; .8	3.5 ; .4	< .8		
			*D3754	80004230	2.1 ; .8	2.2 ; .2	< .8		
		09/08	*A3834	80004369	2.7 ; .6	2.2 ; .2	< .7	< .02	.041 ; .003
			*B3834	80004367	2.1 ; .6	2.1 ; .2	< .6		
			*C3834	80004371	2.5 ; .7	2.3 ; .2	< .7		
			*D3834	80004370	2.3 ; .6	2.0 ; .2	< .6		
		10/21	*C3904	80004478	1.2 ; .5	2.9 ; .3	< .6		
		10/22	*A3904	80004506	2.8 ; .6	3.1 ; .3	< .6	< .02	.035 ; .003
			*B3904	80004507	1.3 ; .5	2.8 ; .3	< .6		
			*D3904	80004505	2.6 ; .4	2.7 ; .3	< .5		
			ANNUAL MEAN		2.2 ; 1.0	2.5 ; 0.9	< .71	< .027	.035 ; .013

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	FISH NUMBER	G.BETA	K-40	N.BETA	SR-89	SR-90
4J	CHANNEL CATFISH 80	03/26	*A3656	80000194	2.2 ; .8	2.3 ; .2	< .8	< .01	.062 ; .004
			*B3656	80000193	2.7 ; .4	2.2 ; .2	.4 ; .4		
			*C3656	80000195	2.0 ; .8	2.0 ; .2	< .8		
			*D3656	80000196	4 ; 1	5.6 ; .6	< 1		
		04/21	*A3751	80000366	1.9 ; .5	3.2 ; .3	< .6	< .02	.068 ; .006
			*B3751	80000369	2.3 ; .5	2.2 ; .2	< .5		
			*C3751	80000367	2.1 ; .7	1.7 ; .2	< .7		
			*D3751	80000368	2.9 ; .6	1.8 ; .2	1.2 ; .6		
		09/08	*A3833	80004389	1.9 ; .5	3.3 ; .3	< .6	< .02	.047 ; .003
			*B3833	80004387	2.1 ; .6	2.0 ; .2	< .6		
			*C3833	80004390	2.1 ; .5	4.6 ; .5	< .7		
			*D3833	80004384	1.9 ; .5	3.4 ; .3	< .6		
		10/06	*A3901	80004435	.6 ; .3	1.3 ; .1	< .4	< .06	.10 ; .01
		10/07	*B3901	80004438	1.1 ; .5	2.6 ; .3	< .6	< .04	.043 ; .006
			*D3901	80004437	1.4 ; .1	.93 ; .09	.5 ; .2		
		10/22	*C3901	80004499	3.1 ; .6	2.9 ; .3	< .6		
				ANNUAL MEAN	2.1 ; 1.6	2.6 ; 2.4	.66 ; .42	< .030	.064 ; .045
	WHITE CRAPPIE 80	05/05	*B3752	80000384	2.7 ; .8	2.2 ; .2	< .8		
		06/11	*A3752	80004240	2.6 ; .8	2.3 ; .2	< .8	< .01	.045 ; .003
			*C3752	80004244	3.0 ; .7	1.9 ; .2	1.1 ; .7		
			*D3752	80004245	2.7 ; .7	2.1 ; .2	< .7		
		09/24	*A3828	80004417	2.5 ; .6	1.7 ; .2	.8 ; .6	.02 ; .02	.027 ; .004
			*B3828	80004416	2.5 ; .6	2.0 ; .2	< .6		
		10/06	*A3902	80004433	2.8 ; .6	2.9 ; .3	< .6	< .02	.033 ; .003
			*B3902	80004432	2.4 ; .3	1.9 ; .2	.6 ; .4		
			*C3902	80004431	2.7 ; .5	1.6 ; .2	1.1 ; .5		
			*D3902	80004430	1.5 ; .2	1.3 ; .1	< .3		
				ANNUAL MEAN	2.5 ; 0.8	2.0 ; 0.9	.74 ; .48	.017 ; .012	.035 ; .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	Ru-226	Th-228	Be-7	Ba-140
1EE	03-19-80	Channel Catfish	.38±.02	.27±.02	<.007	<.008	.016±.008	<.02	.13±.02	<.05	<.1	1.8±.2	<.02	<.02	<.09	<.08
	06-02-80	Channel Catfish	.23±.02	.14±.02	<.01	<.01	<.01	<.04	.09±.03	<.6	<.2	2.3±.3	<.02	<.03	<.4	<.4
	09-08-80	Channel Catfish	<.008	<.01	<.007	<.01	<.006	<.03	<.01	<.9	<.2	2.6±.2	<.02	<.02	<.1	<.6
	10-13-80	Channel Catfish	.10±.01	.06±.01	<.009	<.01	<.008	<.04	.19±.03	<2	<.3	2.3±.2	<.01	<.02	<.1	<.9
1X	03-19-80	Channel Catfish	.14±.02	.10±.02	<.02	<.02	.08±.02	<.04	.25±.04	<.07	.2±.2	2.0±.4	<.03	<.04	<.1	<.1
	06-02-80	Channel Catfish	.13±.01	.08±.01	<.01	<.01	<.01	<.04	<.03	<.7	<.2	3.0±.3	<.02	<.03	<.1	<.5
	09-22-80	Channel Catfish	.09±.01	.08±.01	<.009	<.01	<.008	<.03	.15±.03	<.2	<.2	2.3±.2	<.02	<.02	<.1	<.2
	10-13-80	Channel Catfish	.04±.01	.02±.01	<.01	<.01	<.009	<.05	.08±.03	<2	<.3	2.5±.2	<.02	<.02	.2±.1	<.8
4H	04-27-80	American Shad	.045±.006	.018±.006	<.006	<.009	<.006	<.04	<.02	<5	<.3	4.1±.2	<.01	<.01	<.1	<1
4I	03-26-80	Channel Catfish	<.02	<.02	.02±.02	<.02	<.02	<.06	<.04	<.1	<.2	<.4	<.03	<.05	<.2	<.3
	05-25-80	White Crappie	.10±.01	.07±.01	<.009	<.01	<.009	<.04	<.02	<1	<.2	2.6±.2	<.02	<.02	<.1	<.6
	06-21-80	Channel Catfish	.032±.009	.011±.[illegible]	<.009	<.009	<.009	<.03	<.02	<.07	<.1	2.7±.2	<.02	<.02	<.09	<.1
	09-08-80	White Crappie	.07±.01	.03±.0[illegible]	<.01	<.01	<.009	<.05	.14±.03	<.9	<.2	2.9±.3	<.02	<.03	<.1	<.6
	09-08-80	Channel Catfish	.023±.009	<.01	<.01	<.01	<.01	<.04	<.02	<.7	<.2	2.1±.3	<.02	.05±.02	.1±.1	<.5
	10-14-80	Channel Catfish	.038±.005	.020±.005	<.005	<.007	<.004	<.02	.04±.01	<.8	<.1	2.1±.1	<.008	<.01	<.07	<.4
	10-22-80	White Crappie	.03±.01	<.01	<.01	<.01	<.01	<.04	.09±.03	<1	<.3	2.5±.3	<.02	<.02	<.1	<.7
4J	03-26-80	Channel Catfish	.11±.01	.07±.01	<.007	<.007	<.008	<.02	<.02	<.02	<.07	1.6±.2	<.02	<.02	.08±.07	<.03
	04-21-80	Channel Catfish	.16±.01	.12±.01	<.009	<.01	<.008	<.06	.03±.02	<1	<.5	2.5±.2	<.02	<.02	<.2	<3
	05-25-80	White Crappie	.11±.01	.07±.01	<.008	<.01	<.008	<.04	<.02	<.9	<.2	2.7±.2	<.01	<.02	<.1	<.5
	09-08-80	Channel Catfish	.14±.01	.10±.01	<.009	<.01	<.008	<.04	.13±.03	<.5	<.2	2.2±.2	.09±.01	<.02	<.1	<.4
	09-24-80	White Crappie	.05±.02	<.03	.03±.03	<.03	<.02	<.1	.09±.07	<.6	<.4	2.6±.6	<.04	<.07	<.3	<.7
	10-06-80	White Crappie	.039±.007	.019±.007	<.007	<.01	<.006	<.03	.11±.07	<2	<.2	2.3±.2	<.01	<.02	<.1	<.9
	10-14-80	Channel Catfish	.073±.008	.036±.008	<.007	<.01	<.007	<.04	.09±.02	<2	<.2	2.7±.2	<.01	<.02	<.1	<.7
6E	03-19-80	Channel Catfish	<.01	<.01	<.01	<.01	<.01	<.03	<.03	<.04	<.1	1.7±.3	<.02	<.03	<.1	<.08
	03-19-80	White Crappie	<.02	<.02	<.01	<.02	<.02	<.04	<.04	<.05	<.1	2.2±.4	<.03	<.04	<.1	<.1
	06-02-80	Channel Catfish	.012±.007	<.[illegible]7	<.007	<.009	<.007	<.03	<.02	<.4	<.1	2.8±.2	<.01	<.02	<.09	<.3
	06-03-80	White Crappie	.017±.008	<.0[illegible]9	<.009	<.01	<.009	<.04	<.02	<.5	<.2	2.7±.2	<.02	<.02	<.1	<.3
	09-08-80	Channel Catfish	.009±.007	<.008	<.008	<.01	<.007	<.03	<.02	<.7	<.2	2.4±.2	<.01	<.02	<.1	<.4
	09-16-80	White Crappie	<.01	<.01	[illegible]	<.02	<.01	<.04	<.03	<.5	<.2	2.1±.3	<.02	<.03	<.2	<.4
	10-21-80	White Crappie	<.02	<.02	<.02	<.03	<.02	<.08	<.04	<2	<.4	1.1±.4	<.03	<.05	<.3	<1
	10-27-80	Channel Catfish	<.006	<.006	<.007	<.008	<.006	<.03	<.02	<.4	<.1	1.9±.2	<.01	<.02	<.08	<.3

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	3/19-3/26	50±44	52±30	11±7	<.25	.93±.06
6H (b)	Quarter	3/19	42±20	50±20	<10	<.15	.80±.85
1EE & 4J (a)	2nd	4/21-6/11	50±41	37±32	18±34	<.40	1.2±1.0
6H (b)	Quarter	6/2-6/4	36±24	41±25	<10	<.25	1.2±0.9
1EE & 4J (a)	3rd	9.8-9/24	48±26	53±45	13±13	<.30	0.7±.45
6H	Quarter	9/8-9/16	38±23	64±71	<10	<0.5	.91±.27
1EE & 4J (a)	4th	10/6-10/22	50±70	52±33	14±18	<1.1	1.5±2.2
6H (b)	Quarter	10/14-10/27	26±28	47±20	<10	<0.6	1.2±1.1
1EE & 4J (a)	Annual Mean	3/19-10/22	50±48	48±37	14±22	<.55	1.1±1.3
6H (b)	Annual Mean	3/19-10/27	36±25	50±40	<10	<.38	1.0±.76
Overall Mean		3/19-10/27	43±39	50±40	12±[illegible]	<0.5	1.1±1.2

(a) Potentially Affected Stations
(b) Unaffected Station

TABLE IV.7.5
MEAN RADIOACTIVITY IN CHANNEL CATFISH AND WHITE CRAPPIE
(pCi/g Original Sample)

Environmental Station No.	Period	Collection Date	G. Beta	K-40	N. Beta	Sr-89	Sr-90
1EE & 4J (a)	1st	3/19-3/26	2.9±1.4	3.2±2.3	.80±.39	<.015	.057±.012
6H (b)	Quarter	3/19	2.3±1.1	2.9±1.4	<.80	<.008	.042±.023
1EE & 4J (a)	2nd	4/21-6/11	2.4±0.9	1.9±1.2	.88±.71	<.020	.061±.029
6H (b)	Quarter	6/2-6/4	2.2±0.6	2.4±0.4	<.75	<.015	.064±.008
1EE & 4J (a)	3rd	9/8-9/24	2.4±0.9	2.7±2.1	.77±.69	.02±.01	.038±.020
6H (b)	Quarter	9/8-9/16	2.0±1.3	3.2±3.9	<.62	<.030	.052±.020
1EE & 4J (a)	4th	10/16-10/22	1.7±1.9	1.9±1.3	.57±.39	.04±.04	.061±.068
6H (b)	Quarter	10/14-10/27	1.3±1.3	2.4±0.9	<.55	<.030	.059±.042
1EE & 4J (a)	Annual Mean	3/19-10/22	2.3±1.6	2.3±2.0	.75±.60	.02±.03	.054±.040
6H (b)	Annual Mean	3/19-10/27	2.0±1.3	2.7±2.0	<.68	<.021	.054±.027
Overall Mean		3/19-10/27	2.1±1.4	2.5±2.0	.69±.38	.02±.03	.055±.036

(a) Potentially Affected Stations
(b) Unaffected Station

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	80 08/09	CABBAGE	130 ; 10	110 ; 10	30 ; 20	< 2	5.6 ; .7	.27 ; .01
		CORN	220 ; 10	170 ; 20	40 ; 20	< .5	2.1 ; .2	2.4 ; .4
	09/14	BEETS	250 ; 10	170 ; 20	70 ; 20	< .2	2.45 ; .09	1.1 ; .1
		CABBAGE	180 ; 10	130 ; 10	40 ; 20	.7 ; .3	4.30 ; .09	.42 ; .03
	11/01	CABBAGE	140 ; 10	110 ; 10	30 ; 20	< .3	< .1	< .9
		GREEN PEPPERS	240 ; 10	170 ; 20	70 ; 20	< .1	< .08	.2 ; .2
3A	80 08/09	WILD VEG	230 ; 10	130 ; 10	100 ; 20	< 2	13.6 ; .7	4.4 ; .4
	09/14	APPLE LEAVES	190 ; 10	110 ; 10	80 ; 20	< .5	9.9 ; .2	1.7 ; .3
	11/01	WILD VEG	170 ; 10	100 ; 10	70 ; 20	< 2	21.4 ; .7	.3 ; .3
4N	80 08/09	WILD VEG	230 ; 10	180 ; 20	60 ; 20	< .7	6.8 ; .3	3.1 ; .3
	09/14	WILD VEG	240 ; 10	170 ; 20	70 ; 20	< .3	7.2 ; .1	1.6 ; .1
	11/01	WILD VEG	90 ; 10	69 ; 7	20 ; 10	< .2	3.36 ; .06	.67 ; .03
5	80 08/09	CORN	180 ; 10	140 ; 10	40 ; 20	< .3	2.5 ; .1	2.1 ; .3
		RHUBARB	210 ; 10	170 ; 20	40 ; 20	< .3	1.91 ; .08	.38 ; .08
	09/14	CORN	230 ; 10	160 ; 20	70 ; 20	< .2	< .09	.8 ; .3
		HAY	180 ; 10	130 ; 10	50 ; 20	< .6	5.1 ; .2	.9 ; .2
	11/01	BEETS	200 ; 10	140 ; 10	60 ; 20	.3 ; .2	2.15 ; .08	.25 ; .04
		CABBAGE	110 ; 10	64 ; 6	50 ; 10	< 2	15.8 ; .4	.14 ; .09
6D	80 08/09	GRAPES	220 ; 10	130 ; 10	90 ; 20	< 3	36 ; 1	< 3
		PEACHES	200 ; 10	130 ; 10	70 ; 20	< 5	16 ; 2	2 ; 2
	09/14	PEA VINES	200 ; 10	140 ; 10	60 ; 20	.2 ; .1	2.79 ; .06	1.06 ; .05
		STRING BEANS	170 ; 10	110 ; 10	60 ; 20	1.0 ; .6	9.4 ; .2	.74 ; .07
	11/01	CABBAGE	180 ; 10	110 ; 10	80 ; 20	4 ; 2	25.6 ; .5	.22 ; .07
		TURNIPS	220 ; 10	130 ; 10	100 ; 20	2 ; 1	9.7 ; .2	.8 ; .1
8	80 08/09	BEAN VINE	70 ; 10	120 ; 10	< 20	< .2	6.16 ; .08	.37 ; .03
		CABBAGE	130 ; 10	100 ; 10	30 ; 20	< .1	2.74 ; .04	< 1
	09/14	CORN	270 ; 20	190 ; 20	70 ; 20	< .1	.63 ; .06	.3 ; .1
		SQUASH	240 ; 10	170 ; 20	70 ; 20	2.5 ; .5	7.2 ; .2	.2 ; .1
	11/01	CABBAGE	200 ; 10	180 ; 20	30 ; 20	< .2	< .07	.5 ; .4
		TURNIPS	120 ; 10	73 ; 7	50 ; 10	< .3	4.04 ; .09	.51 ; .05
23	80 08/09	PEACHES	230 ; 10	190 ; 20	30 ; 20	< .2	4.13 ; .08	.8 ; .1
	09/14	PEACHES	270 ; 20	160 ; 20	110 ; 20	< .5	11.9 ; .2	.9 ; .3
	11/01	APPLES	300 ; 10	180 ; 20	110 ; 20	2 ; 1	10.1 ; .3	1.0 ; .1
		MEAN-SITE AREA STATIONS (1, 23)	220 ; 110	150 ; 60	59 ; 66	0.7 ; 1.5	4.5 ; 8.3	0.9 ; 1.3
		MEAN-DISTANT STATIONS (3A,4N,5,6D,8)	190 ; 100	130 ; 70	60 ; 45	1.2 ; 2.7	9 ; 18	1.1 ; 2.2
		MEAN- ALL STATIONS	200 ; 110	140 ; 70	60 ; 50	1.0 ; 2.5	8 ; 16	1.1 ; 2.0

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	80	08/09	CABBAGE	4.1 ; .4	3.3 ; .3	.8 ; .5	< .07	.17 ; .02	.0082 ; .000
			CORN	.52 ; .03	.42 ; .04	.10 ; .05	< .002	.010 ; .001	.011 ; .002
		09/14	BEETS	3.8 ; .2	2.7 ; .3	1.1 ; .4	< .003	.038 ; .001	.018 ; .002
			CABBAGE	5.0 ; .4	3.7 ; .4	1.3 ; .5	.020 ; .007	.122 ; .003	.0118 ; .0009
		11/01	CABBAGE	1.5 ; .1	1.2 ; .1	.3 ; .2	< .003	< .001	< .01
			GREEN PEPPERS	9.1 ; .5	6.4 ; .6	2.7 ; .8	< .006	< .003	.008 ; .006
3A	80	08/09	WILD VEG	.98 ; .06	.57 ; .06	.41 ; .08	< .01	.058 ; .003	.018 ; .002
		09/14	APPLE LEAVES	3.1 ; .2	1.7 ; .2	1.3 ; .3	< .008	.161 ; .003	.028 ; .006
		11/01	WILD VEG	1.5 ; .1	.89 ; .09	.6 ; .1	< .02	.193 ; .006	1 ; 1
4N	80	08/09	WILD VEG	3.3 ; .2	2.5 ; .3	.8 ; .3	< .01	.096 ; .004	.044 ; .005
		09/14	WILD VEG	6.1 ; .4	4.3 ; .4	1.7 ; .6	< .007	.182 ; .003	.040 ; .003
		11/01	WILD VEG	4.6 ; .6	3.8 ; .4	.8 ; .7	< .01	.183 ; .003	.037 ; .002
5	80	08/09	CORN	.52 ; .04	.40 ; .04	.12 ; .05	< .002	.0166 ; .0009	.014 ; .002
			RHUBARB	1.39 ; .09	1.1 ; .1	.2 ; .1	< .003	.0207 ; .0008	.0041 ; .0009
		09/14	CORN	1.46 ; .09	1.0 ; .1	.4 ; .1	< .002	< .0006	.005 ; .002
			HAY	4.8 ; .4	3.4 ; .3	1.3 ; .5	< .02	.138 ; .007	.025 ; .005
		11/01	BEETS	7.0 ; .5	4.9 ; .5	2.1 ; .7	.010 ; .008	.076 ; .003	.009 ; .001
			CABBAGE	2.9 ; .3	1.6 ; .2	1.3 ; .3	< .04	.400 ; .009	.004 ; .002
6D	80	08/09	GRAPES	.70 ; .04	.42 ; .04	.28 ; .06	< .009	.113 ; .004	< .009
			PEACHES	2.3 ; .1	1.5 ; .2	.8 ; .2	< .0[illegible]	.18 ; .02	.03 ; .02
		09/14	PEA VINES	3.2 ; .2	2.2 ; .2	1.0 ; .3	.003 ; .002	.0450 ; .0009	.0170 ; .0008
			STRING BEANS	6.7 ; .5	4.3 ; .4	2.4 ; .7	.04 ; .02	.367 ; .008	.029 ; .003
		11/01	CABBAGE	0 ; .4	3.4 ; .3	2.6 ; .5	.11 ; .07	.84 ; .02	.007 ; .002
			TURNIPS	5.1 ; .3	2.9 ; .3	2.2 ; .4	.05 ; .02	.222 ; .005	.017 ; .002
8	80	08/09	BEAN VINE	3.3 ; .5	5.6 ; .6	< .8	< .01	.293 ; .004	.018 ; .001
			CABBAGE	5.6 ; .5	4.4 ; .4	1.2 ; .7	< .005	.119 ; .002	< .06
		09/14	CORN	2.8 ; .2	2.0 ; .2	.7 ; .3	< .002	.0065 ; .0007	.004 ; .001
			SQUASH	3.6 ; .2	2.6 ; .3	1.0 ; .3	.037 ; .008	.107 ; .003	.003 ; .002
		11/01	CABBAGE	2.6 ; .2	2.3 ; .2	.3 ; .3	< .002	< .0009	.006 ; .005
			TURNIPS	5.6 ; .5	3.4 ; .3	2.2 ; .6	< .01	.188 ; .004	.024 ; .002
23	8	08/09	PEACHES	2.3 ; .1	2.0 ; .2	.3 ; .2	< .002	.0422 ; .0008	.008 ; .001
		09/14	PEACHES	2.4 ; .1	1.5 ; .1	1.0 ; .2	< .005	.105 ; .002	.008 ; .003
		11/01	APPLES	1.19 ; .06	.74 ; .07	.46 ; .09	.007 ; .004	.040 ; .001	.0041 ; .0005
		MEAN-SITE ARE STATIONS (1, 23)		3.3 ; 5.2	2.4 ; 3.7	0.9 ; 1.6	.013 ; .044	.06 ; .12	.010 ; .008
		MEAN-DISTANT STATIONS (3A,4N,5,6D,8)		3.5 ; 3.9	2.5 ; 3.0	1.1 ; 1.5	.020 ; .051	.17 ; .36	.019 ; .031
		MEAN-ALL STATIONS		3.5 ; 4.2	2.5 ; 3.2	1.0 ; 1.5	.018 ; .049	.14 ; .33	.017 ; .029

NOTE: SEMICOLON INDICATES A PLUS OR MINUS SIGN.

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

NEARBY FARMS

STATION CODE	COLLECTION DATE	I-131	G.BETA	K-40	N.BETA	SR-89	SR-90	CS-134	CS-137
G	80 01/28	(A)	1000 ; 100	930 ; 90	< 100	< .8	6.3 ; .4	< 3	3 ; 2
	03/31	< .1	1600 ; 100	1400 ; 100	200 ; 200	1.1 ; .8	4.5 ; .4	< 3	< 3
	05/26	(A)	1000 ; 80	830 ; 80	200 ; 100	< .9	5.7 ; .4	< 3	5 ; 3
	10/20	< .02	1140 ; 80	840 ; 80	300 ; 100	< 1	3.3 ; .4	< 3	4 ; 3
	ANNUAL MEAN	<.060	1200 ; 600	1000 ; 500	200 ; 160	.95 ; .26	5.0 ; 2.7	< 3.0	3.8 ; 1.9
J	80 01/28	(A)	900 ; 100	1000 ; 100	< 100	< 1	7.5 ; .6	< 3	3 ; 2
	03/31	< .2	1700 ; 100	1400 ; 100	300 ; 200	< .9	7.9 ; .4	< 6	10 ; 6
	05/26	(A)	1060 ; 90	850 ; 90	200 ; 100	< 1	7.9 ; .4	< 3	5 ; 3
	10/20	<.04	1090 ; 90	870 ; 90	200 ; 100	< 1	4.4 ; .4	< 3	3 ; 2
	ANNUAL MEAN	<.12	1200 ; 700	1000 ; 500	200 ; 160	<.98	6.9 ; 3.9	< 3.8	5.3 ; 6.6
O	80 01/28		1000 ; 100	900 ; 90	< 100	< 1	3.1 ; .4	< 3	3 ; 3
	03/31		1700 ; 100	1400 ; 100	200 ; 200	< .7	3.2 ; .4	< 7	< 7
	05/26		960 ; 90	880 ; 90	< 130	< .8	2.5 ; .4	< 3	3 ; 3
	10/20		1080 ; 90	900 ; 90	200 ; 100	< 1	2.3 ; .4	< 3	4 ; 3
	ANNUAL MEAN		1200 ; 700	1000 ; 500	160 100	<.88	2.8 ; 0.9	< 4	4.3 ; 3.8

NOTE: SEMICOLON INDICATES A PLUS OR MINUS SIGN.
(A) SAMPLE LOST IN ANALYSIS

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	80	01/28	(A)	1000 ; 100	1000 ; 100	< 100	< .8	4.5 ; .4	< 3	5 ; 3
		03/31	< .1	750 ; 90	1000 ; 100	< 100	< .8	3.7 ; .4	< 3	4 ; 3
		05/26	< .2	1200 ; 100	1000 ; 100	200 ; 100	< .9	3.4 ; .4	< 3	< 2
		10/20	< .2	940 ; 80	780 ; 80	200 ; 100	< 1	2.5 ; .3	< 4	< 4
		ANNUAL MEAN	< .17	970 ; 370	950 ; 220	150 ; 120	< .88	3.5 ; 1.7	< 3.3	3.8 ; 2.5
B	80	01/28		1200 ; 100	1200 ; 100	< 200	< .8	2.1 ; .3	< 3	3 ; 2
		03/31		1290 ; 90	1200 ; 100	< 200	< .7	3.3 ; .3	< 3	< 3
		05/26		1700 ; 100	940 ; 90	300 ; 100	< .8	3.6 ; .3	< 4	10 ; 4
		10/20		1 9 ; 80	880 ; 90	200 ; 100	< 1	3.0 ; .3	< 3	< 3
		ANNUAL MEAN		1200 ; 200	1100 ; 300	230 ; 100	< .83	3.0 ; 1.3	< 3.3	4.8 ; 7.0
C	80	01/28	(A)	1200 ; 100	1000 ; 100	200 ; 200	< .8	4.7 ; .4	< 3	4 ; 2
		03/31	< .2	1160 ; 90	940 ; 90	200 ; 100	< .7	4.2 ; .3	< 4	< 3
		05/26	< .09	820 ; 80	780 ; 80	< 110	< 1	6.3 ; .5	< 10	< 8
		10/20	< .09	1220 ; 90	890 ; 90	300 ; 100	< .8	3.3 ; .3	< 4	< 3
		ANNUAL MEAN		1100 ; 400	900 ; 190	200 ; 160	< .83	4.6 ; 2.5	< 5.3	4.5 ; 4.8
E	80	01/28		1200 ; 100	930 ; 90	200 ; 100	< .8	3.1 ; .4	< 3	< 2
		03/31		1500 ; 100	1300 ; 100	200 ; 200	< .6	3.5 ; .3	< 2	5 ; 2
		05/26		1060 ; 90	620 ; 90	100 ; 100	< .7	2.5 ; .3	< 3	< 2
		10/20		1150 ; 90	1000 ; 100	200 ; 100	< .8	3.4 ; .4	< 3	4 ; 3
		ANNUAL MEAN		1200 ; 400	960 ; 560	180 ; 100	<.73	3.1 ; 0.9	< 2.8	3.3 ; 3.0

NOTE:SEMICOLON INDICATES PLUS OR MINUS SIGN.
(A) SAMPLE LOST IN ANALYSIS.

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	80 01/28		1100 ; 100	1000 ; 100	< 100	< .7	2.9 ; .3	< 2	< 2
	03/31		1310 ; 90	1000 ; 100	300 ; 100	< .7	2.8 ; .3	< 3	8 ; 3
	05/26		920 ; 80	800 ; 80	100 ; 100	< .8	3.7 ; .4	< 3	< 3
	10/20		970 ; 90	840 ; 80	100 ; 100	< 1	3.6 ; .4	< 3	< 3
	ANNUAL MEAN		1100 ; 300	910 ; 210	150 ; 200	< .80	3.3 ; 0.9	< 2.8	4.0 ; 5.4
L	80 01/28		1100 ; 100	1300 ; 100	< 200	< .8	2.9 ; .4	< 2	2 ; 2
	03/31		1200 ; 100	1000 ; 100	< 100	< .7	3.4 ; .4	< 3	< 3
	05/26		1100 ; 100	1000 ; 100	100 ; 100	1.0 ; 1.0	3.9 ; .3	< 2	4 ; 3
	10/20		950 ; 80	800 ; 80	200 ; 100	< 1	3.1 ; .4	< 3	< 3
	ANNUAL MEAN		1100 ; 210	1000 ; 400	150 ; 120	.88 ; .30	3.3 ; 0.9	< 2.5	3.0 ; 1.6
M	80 01/28		1100 ; 100	1100 ; 100	< 200	< .8	4.4 ; .4	< 4	< 3
	03/31		1150 ; 90	1000 ; 100	200 ; 100	< .8	3.3 ; .4	< 3	< 3
	05/26		1100 ; 100	910 ; 90	200 ; 100	< .9	4.1 ; .3	< 5	6 ; 5
	10/20		900 ; 80	800 ; 80	< 100	< .8	3.1 ; .3	< 3	< 3
	ANNUAL MEAN		1100 ; 200	950 ; 260	180 ; 100	< .83	3.7 ; 1.2	< 3.8	3.8 ; 3.0
N	80 01/28		1300 ; 100	1100 ; 100	200 ; 200	< 1	6.3 ; .5	< 3	5 ; 3
	03/31		1300 ; 100	1200 ; 100	< 200	< .9	4.9 ; .3	< 3	< 3
	05/26		920 ; 90	810 ; 80	100 ; 100	< .9	6.3 ; .4	< 3	< 3
	10/20		1150 ; 80	820 ; 80	300 ; 100	< 2	5.7 ; .6	< 3	< 3
	ANNUAL MEAN		1200 ; 400	980 ; 400	230 ; 160	<1.2	5.8 ; 1.3	< 3	3.5 ; 2.0

NOTE:SEMICOLON INDICATES PLUS OR MINUS SIGN.

TABLE IV.9.2
1980 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	1/28	1200±200	1000±200	180±100	<.80	3.6±2.5	<3.0	3.5±2.6	-
Farms	3/31	1200±600	1100±300	180±100	<.70	3.7±.08	<3.0	3.8±1.9	<.15
(A,B,C,E)	5/26	1100±400	800±300	180±190	<.85	4.0±3.3	<5.0	5.5±8.2	<.15
	10/20	1100±240	900±180	230±100	.90±.23	3.1±0.8	<4.0	3.7±1.2	<.15
Annual Mean	1/28-10/20	1120±370	970±340	190±120	.81±.23	3.7±2.0	<3.7	4.1±4.5	<.15
Nearby	1/28	970±120	940±100	<100	<.93	5.6±4.5	<3.0	3.0±0.0	-
Farms	3/31	1700±100	1400	230±120	.90±.40	5.2±4.9	<5.3	6.7±7.0	<.15
(G,J,O)	5/26	1000±100	850±50	180±80	<.90	5.4±5.4	<3.0	4.3±2.3	-
	10/20	1100±60	870±60	230±120	1.0±0.0	3.3±2.1	<3.0	3.5±1.4	<.03
Annual Mean	1/28-10/20	1190±600	1020±470	190±140	.93±.23	4.9±4.2	<3.7	4.5±4.5	<.09
Intermed.	1/28	1200±200	1100±300	180±100	<.83	4.1±3.2	<2.8	3.0±2.8	-
Farms	3/31	1200±160	1100±200	200±160	<.78	3.6±1.8	<3.0	4.3±5.0	-
(D,L,M,N)	5/26	1000±200	880±190	130±100	.90±.16	4.5±2.4	<3.3	4.0±2.8	-
	10/20	1000±220	820±40	180±190	1.2±1.1	3.9±2.5	<3.0	3.0±0.0	-
Annual Mean	1/28-10/20	1100±270	970±310	170±140	.93±.61	4.0±2.4	<3.0	3.6±3.1	-
Overall Mean	1/28-10/20	1130±410	1000±360	180±130	.89±.42	4.1±3.0	<3.0	4.0±4.0	<.12

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
80 06/11	BONE	5B3719	20 ; 10	25 ; 2	< 10	.8 ; .8	4.8 ; .3
	SOFT TISSUE	5T3719	110 ; 10	140 ; 10	< 20		
	MUSCLE	5M3719	120 ; 10	94 ; 9	20 ; 10		
06/12	BONE	5B3720	< 9	17 ; 2	< 9	< .4	5.5 ; .2
		5B3721	20 ; 10	30 ; 3	< 10	< .8	2.2 ; .4
		5B3722	20 ; 10	12 ; 1	10 ; 10	.6 ; .4	6.4 ; .2
		5B3723	20 ; 10	12 ; 1	10 ; 10	< .7	10.6 ; .3
	SOFT TISSUE	5T3720	190 ; 10	160 ; 20	30 ; 20		
		5T3721	160 ; 10	150 ; 10	< 20		
		5T3722	140 ; 10	140 ; 10	< 20		
		5T3723	70 ; 10	46 ; 5	20 ; 10		
	MUSCLE	5M3720	220 ; 10	210 ; 20	< 20		
		5M3721	180 ; 10	190 ; 20	< 20		
		5M3722	110 ; 10	130 ; 10	< 20		
		5M3723	110 ; 10	66 ; 7	40 ; 10		
07/09	BONE	5B3746	30 ; 10	10 ; 1	20 ; 10	< .4	4.7 ; .2
	SOFT TISSUE	5T3746	160 ; 10	130 ; 10	40 ; 20		
	MUSCLE	5M3746	150 ; 10	120 ; 10	30 ; 20		
07/10	BONE	5B3747	30 ; 10	16 ; 2	10 ; 10	< .4	3.4 ; .2
		5B3748	20 ; 10	8 ; 1	20 ; 10	< .3	5.8 ; .2
		5B3749	30 ; 10	20 ; 2	10 ; 10	< .4	6.6 ; .2
		5B3750	40 ; 10	8 ; 1	30 ; 10	< .6	8.3 ; .3
	SOFT TISSUE	5T3747	170 ; 10	130 ; 10	50 ; 20		
		5T3748	180 ; 10	120 ; 10	60 ; 20		
		5T3749	200 ; 10	130 ; 10	60 ; 20		
		5T3750	210 ; 10	140 ; 10	60 ; 20		
	MUSCLE	5M3747	130 ; 10	120 ; 10	20 ; 20		
		5M3748	170 ; 10	130 ; 10	40 ; 20		
		5M3749	230 ; 10	170 ; 10	60 ; 20		
		5M3750	220 ; 10	140 ; 10	70 ; 20		
	ANNUAL MEAN						
	BONE		24 ; 17	16 ; 15	14 ; 14	.54 ; .38	5.8 ; 4.8
	SOFT TISSUE		160 ; 90	130 ; 60	38 ; 36		
	MUSCLE		160 ; 90	140 ; 90	34 ; 37		

NOTE:SEMICOLON INDICATES A PLUS OR MINUS SIGN.

TABLE IV.10.2
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
80 06/11	BONE	*B3719	3 ; 1		3.3 ; .3	< 2	.1 ; .1	1.65 ; .04
	THYROID	503719		< 9				
	SOFT TISSUE	*T3719	2.3 ; .2		2.9 ; .3	< .4		
	MUSCLE	*M3719	5.6 ; .5		4.5 ; .4	1.1 ; .7		
06/12	BONE	*B3720	< 3		5.5 ; .5	< 3	< .1	1.71 ; .06
		*B3721	4 ; 2		5.0 ; .5	< 2	< .1	.37 ; .06
		*B3722	7 ; 3		3.8 ; .4	4 ; 3	.2 ; .1	1.96 ; .05
		*B3723	5 ; 2		2.8 ; .3	2 ; 2	< .1	2.40 ; .06
	THYROID	503720		< 8				
		503721		< 8				
		503722		< 8				
		503723		< 8				
	SOFT TISSUE	*T3720	2.7 ; .2		2.2 ; .2	.4 ; .3		
		*T3721	2.5 ; .2		2.3 ; .2	< .3		
		*T3722	2.4 ; .2		2.5 ; .2	< .3		
		*T3723	4.9 ; .7		3.3 ; .3	1.6 ; .8		
	MUSCLE	*M3720	3.3 ; .2		3.3 ; .3	< .4		
		*M3721	2.9 ; .2		2.9 ; .3	< .3		
		*M3722	3.1 ; .3		3.5 ; .4	< .5		
		*M3723	3.0 ; .3		2.9 ; .2	1.1 ; .4		
07/09	BONE	*B3746	6 ; 3		2.5 ; .3	10 ; 3	< .1	1.20 ; .04
	THYROID	503746		< 6				
	SOFT TISSUE	*T3746	2.5 ; .2		1.9 ; .2	.6 ; .3		
	MUSCLE	*M3746	3.5 ; .3		2.7 ; .3	.8 ; .4		
07/10	BONE	*B3747	6 ; 2		3.2 ; .3	3 ; 2	< .08	.69 ; .03
		*B3748	6 ; 3		2.0 ; .2	4 ; 3	< .08	1.42 ; .04
		*B3749	6 ; 2		3.6 ; .4	3 ; 2	< .07	1.20 ; .04
		*B3750	10 ; 3		2.2 ; .3	8 ; 3	< .2	2.26 ; .07
	THYROID	503747		< 5				
		503748		< 5				
		503749		< 5				
		503750		< 5				
	SOFT TISSUE	*T3747	2.5 ; .2		1.9 ; .2	.7 ; .3		
		*T3748	2.6 ; .2		1.8 ; .2	.9 ; .3		
		*T3749	2.5 ; .2		1.7 ; .2	.8 ; .2		
		*T3750	2.9 ; .2		2.0 ; .2	.9 ; .3		
	MUSCLE	*M3747	2.6 ; .3		2.3 ; .2	.3 ; .3		
		*M3748	3.8 ; .3		2.9 ; .3	.9 ; .4		
		*M3749	3.5 ; .2		2.6 ; .3	.9 ; .3		
		*M3750	3.4 ; .2		2.3 ; .2	1.1 ; .3		
ANNUAL MEAN	BONE		5.6 ; 4.1		3.4 ; 2.3	4.1 ; 5.5	.11 ; .09	1.5 ; 1.3
	THYROID			<6.7				
	SOFT TISSUE		2.8 ; 1.5		2.3 ; 1.0	.49 ; .79		
	MUSCLE		3.5 ; 1.6		2.9 ; 1.5	.74 ; .67		

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

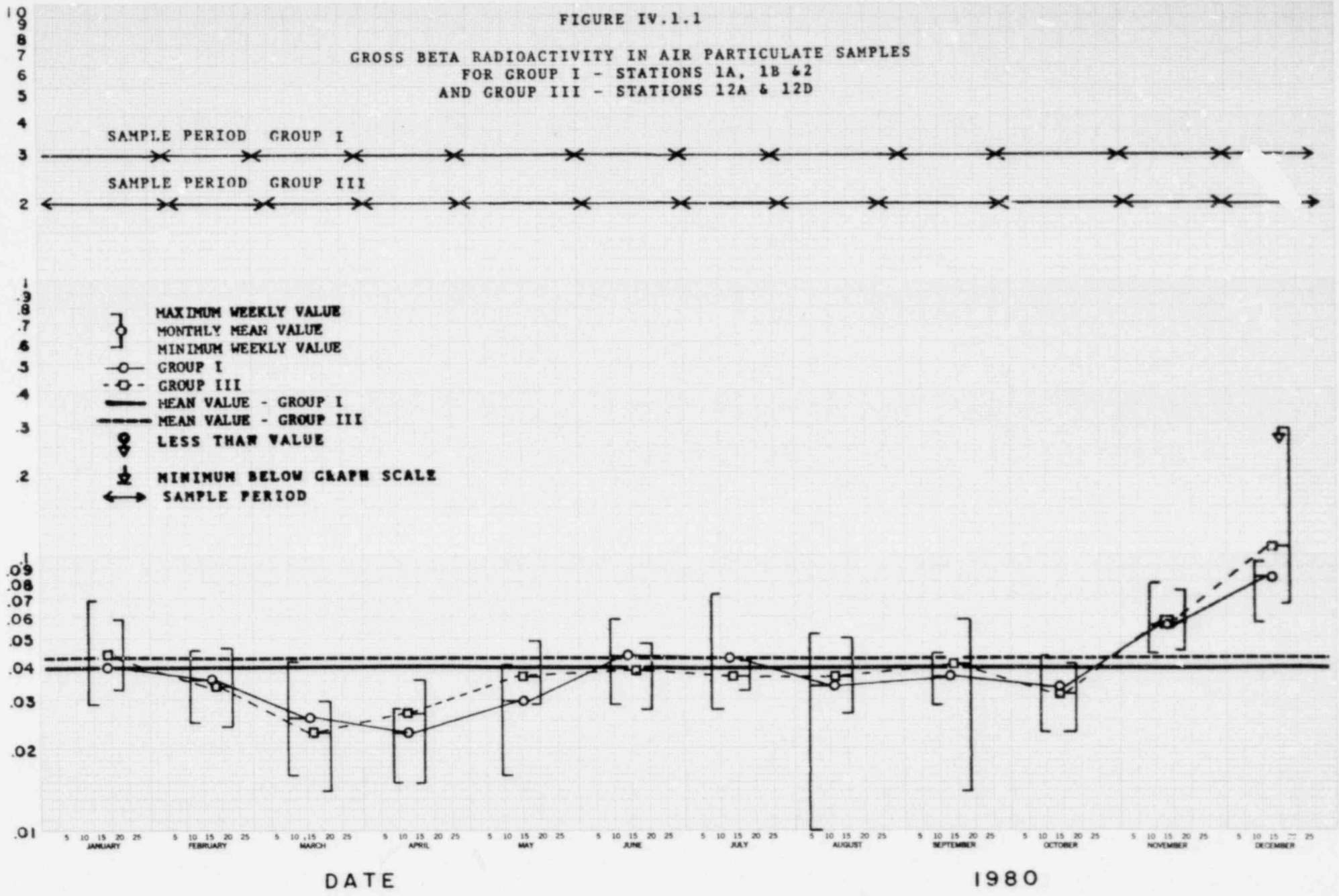


FIGURE IV.1.2

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

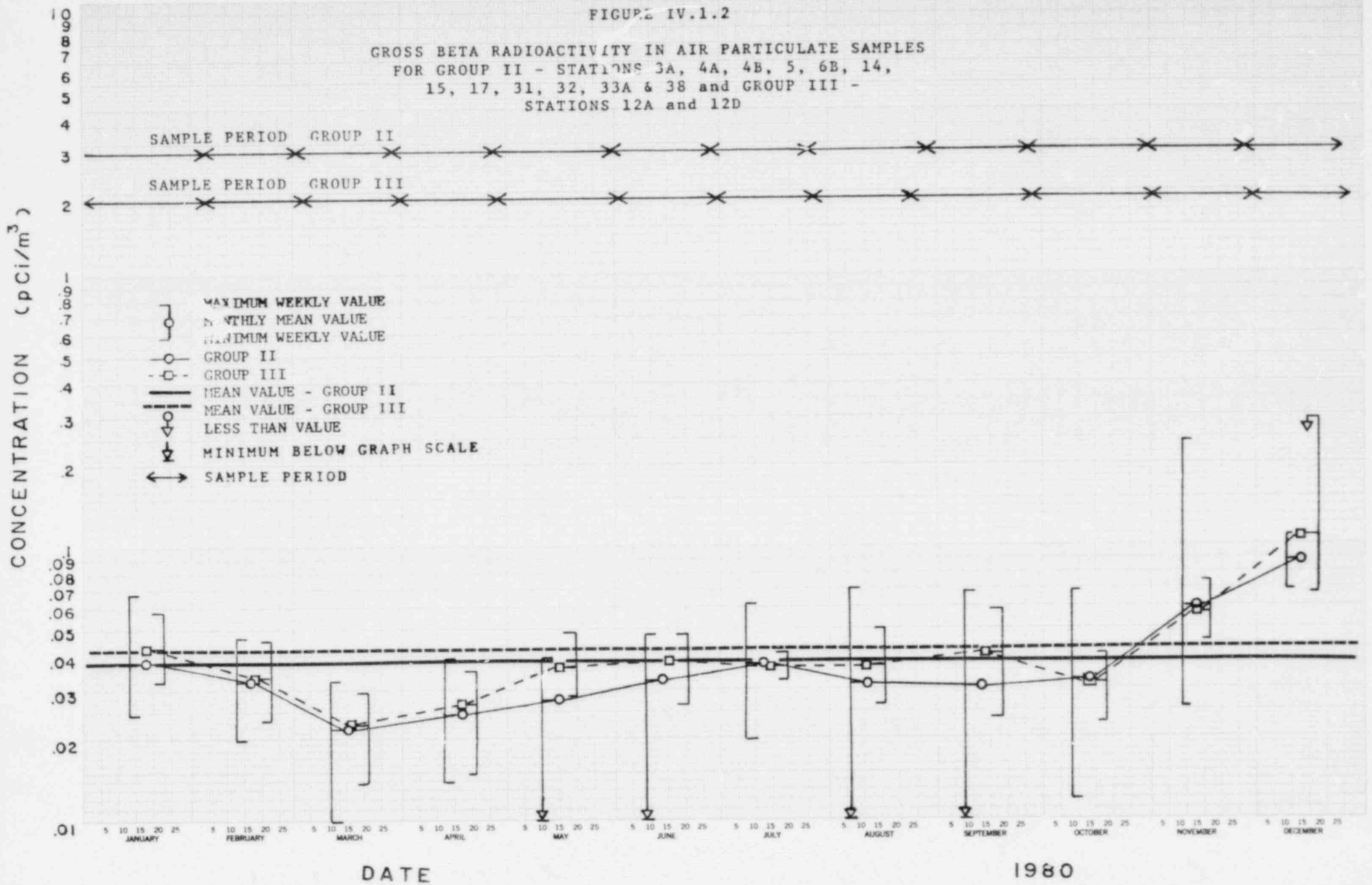
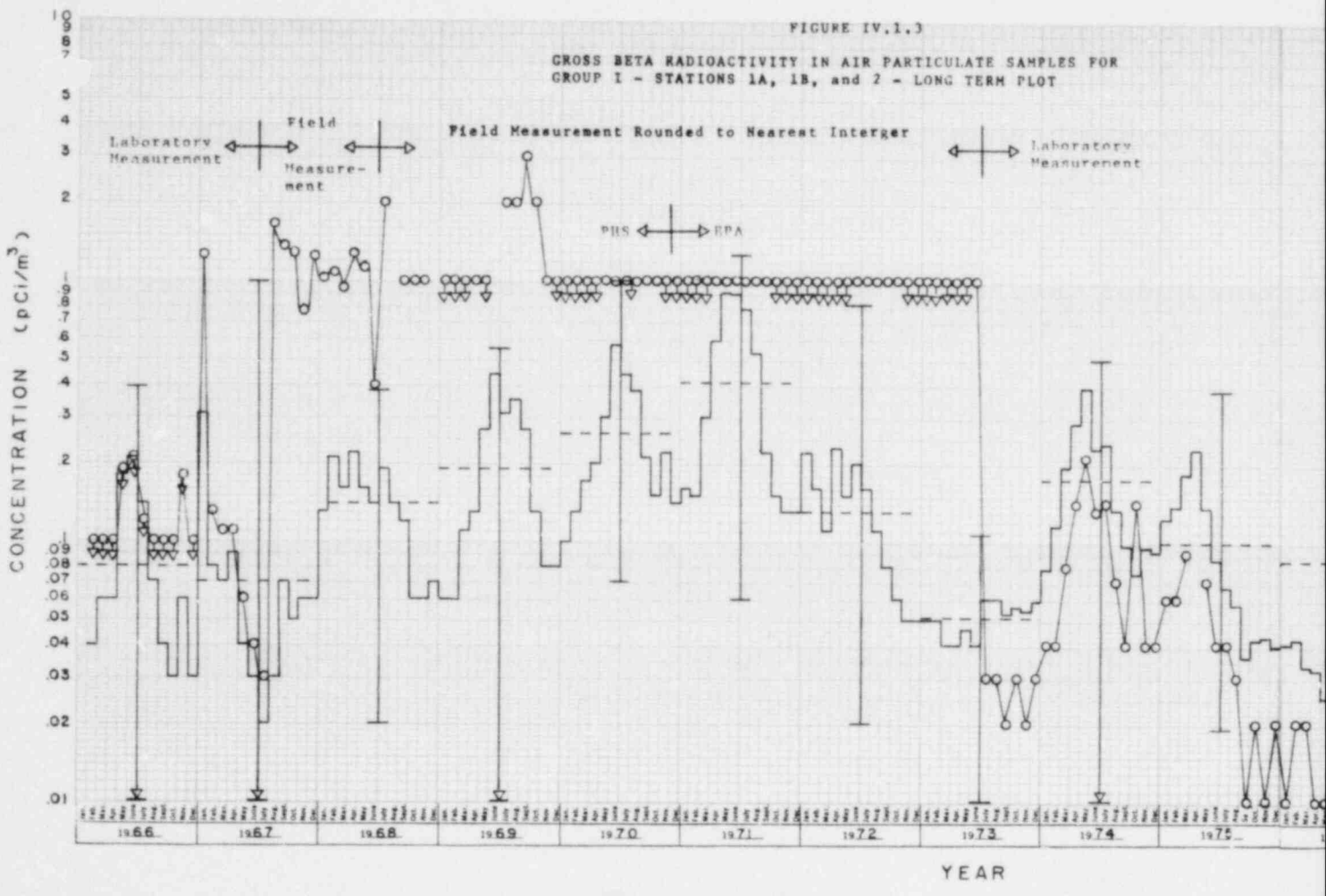


FIGURE IV.1.3

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



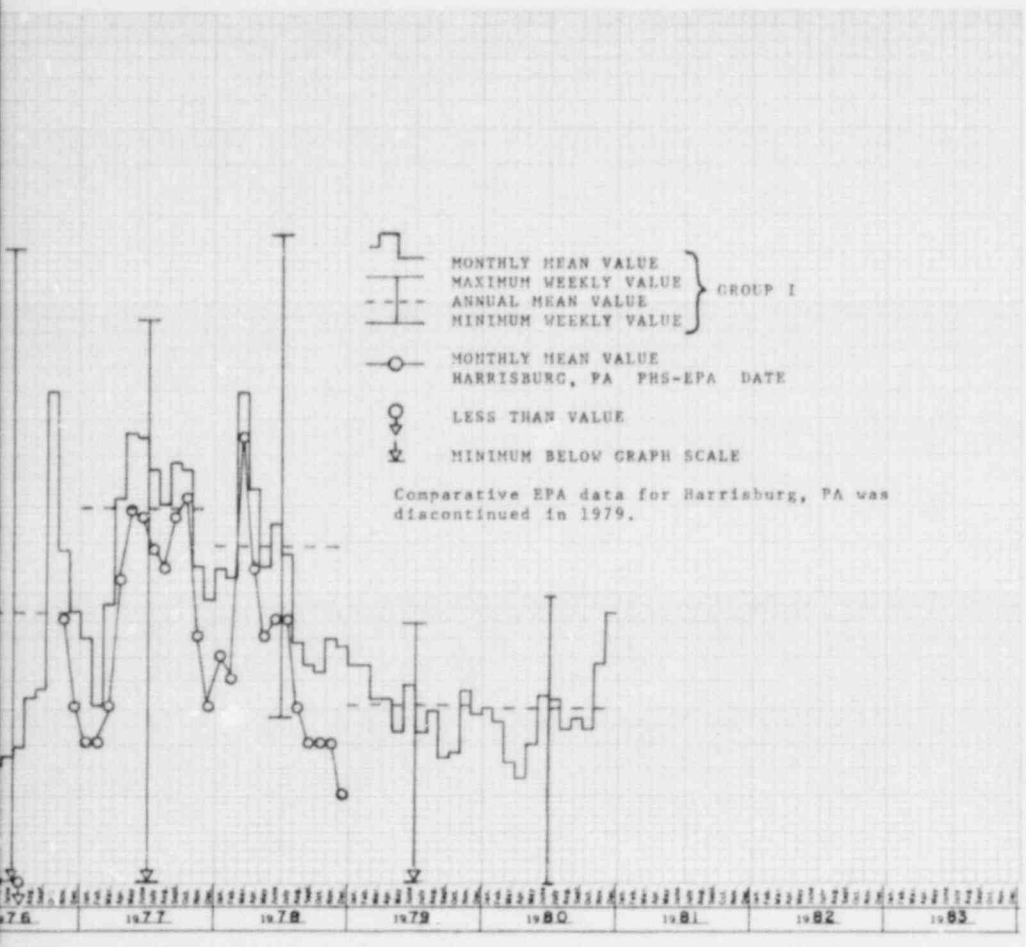
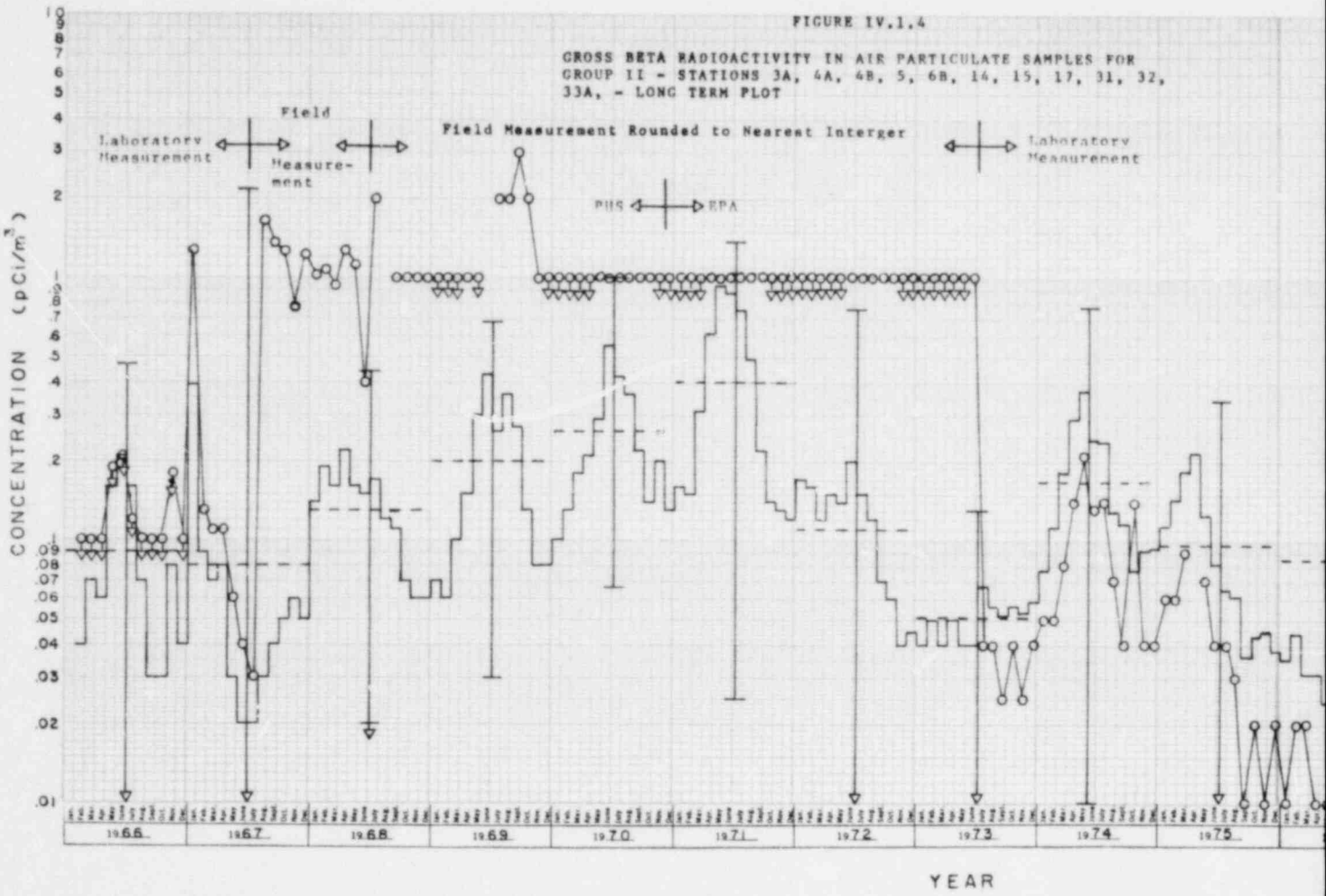

MONTHLY MEAN VALUE
MAXIMUM WEEKLY VALUE
ANNUAL MEAN VALUE
MINIMUM WEEKLY VALUE
GROUP I
MONTHLY MEAN VALUE
HARRISBURG, PA PRS-EPA DATE
LESS THAN VALUE
MINIMUM BELOW GRAPH SCALE
Comparative EPA data for Harrisburg, PA was discontinued in 1979.
1976
1977
1978
1979
1980
1981
1982
1983

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



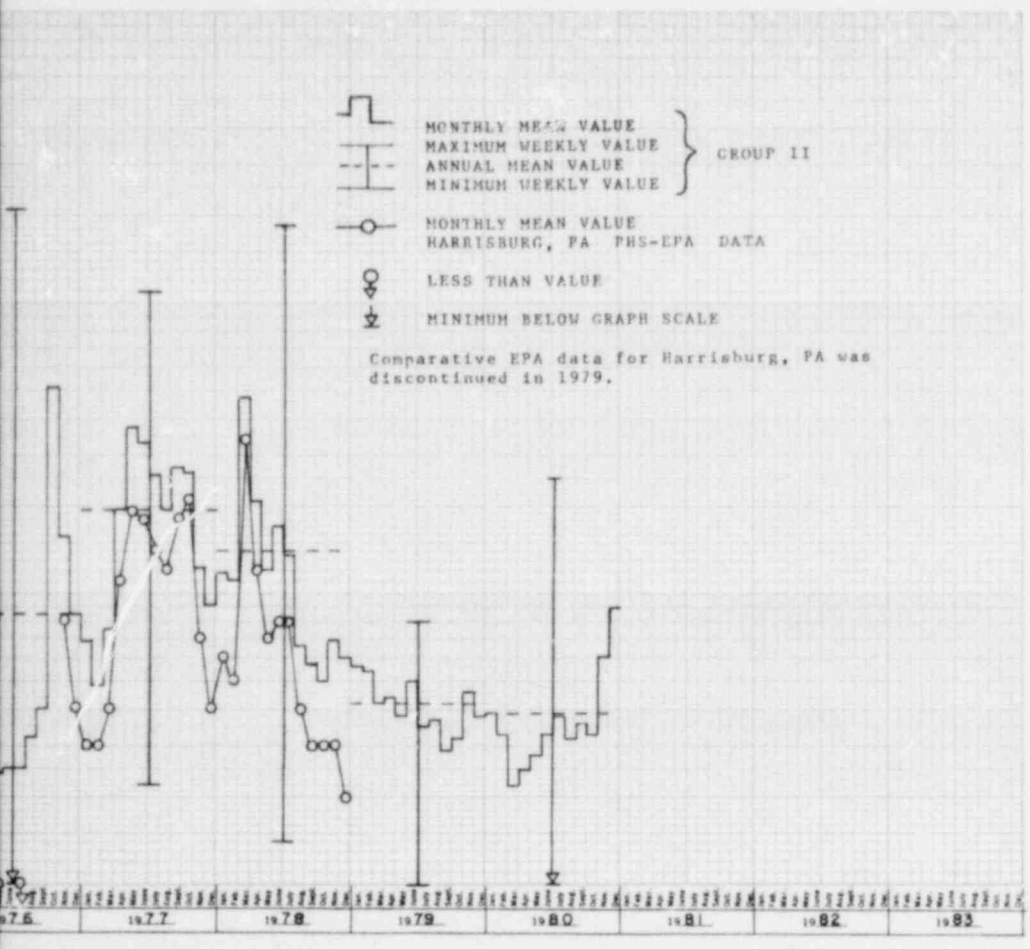
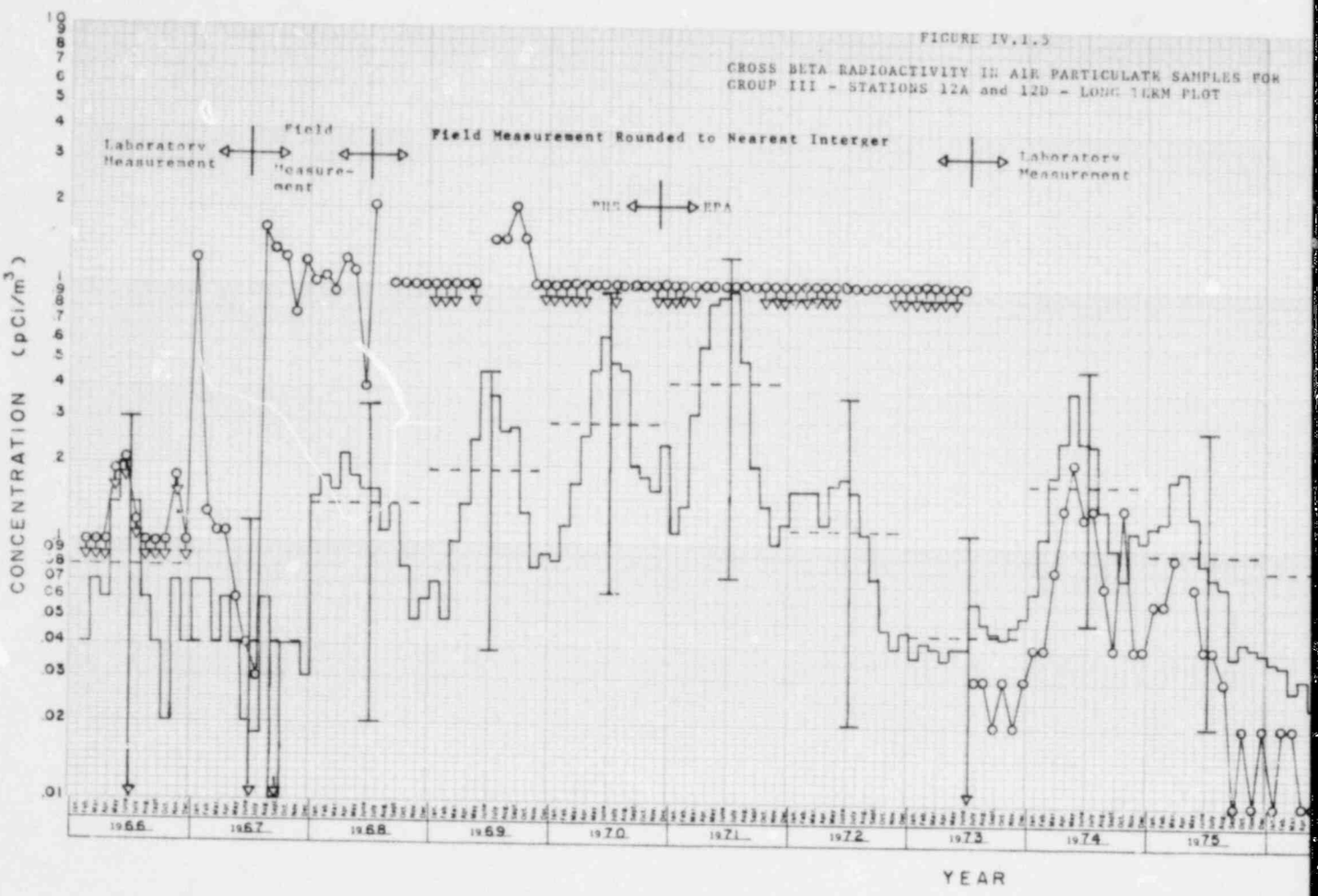

MONTHLY MEAN VALUE
MAXIMUM WEEKLY VALUE
ANNUAL MEAN VALUE
MINIMUM WEEKLY VALUE
GROUP II
MONTHLY MEAN VALUE
HARRISBURG, PA PHS-EPA DATA
LESS THAN VALUE
MINIMUM BELOW GRAPH SCALE
Comparative EPA data for Harrisburg, PA was discontinued in 1979.
1976
1977
1978
1979
1980
1981
1982
1983

FIGURE IV.1.5

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



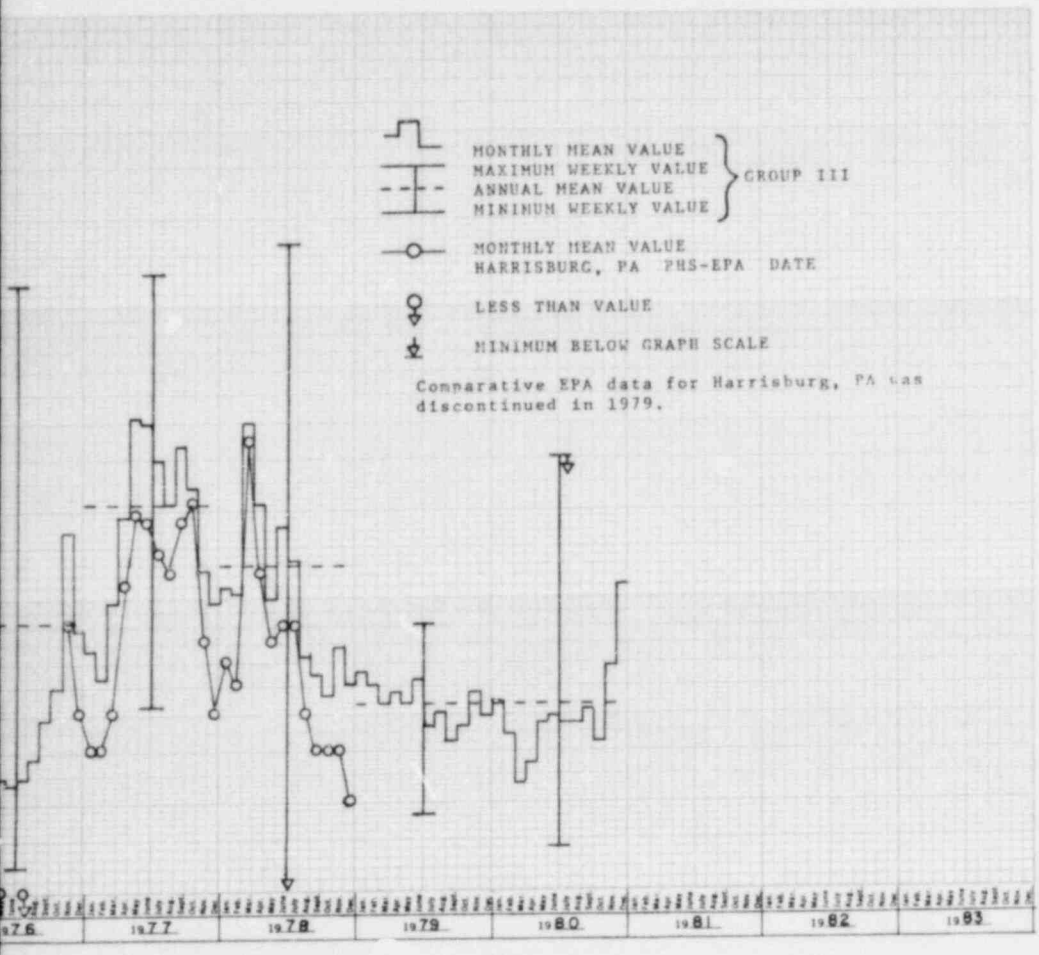

MONTHLY MEAN VALUE
MAXIMUM WEEKLY VALUE
ANNUAL MEAN VALUE
MINIMUM WEEKLY VALUE
GROUP III
MONTHLY MEAN VALUE
HARRISBURG, PA PHS-EPA DATE
LESS THAN VALUE
MINIMUM BELOW GRAPH SCALE
Comparative EPA data for Harrisburg, PA was discontinued in 1979.
1976
1977
1978
1979
1980
1981
1982
1983

FIGURE IV.3.1

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

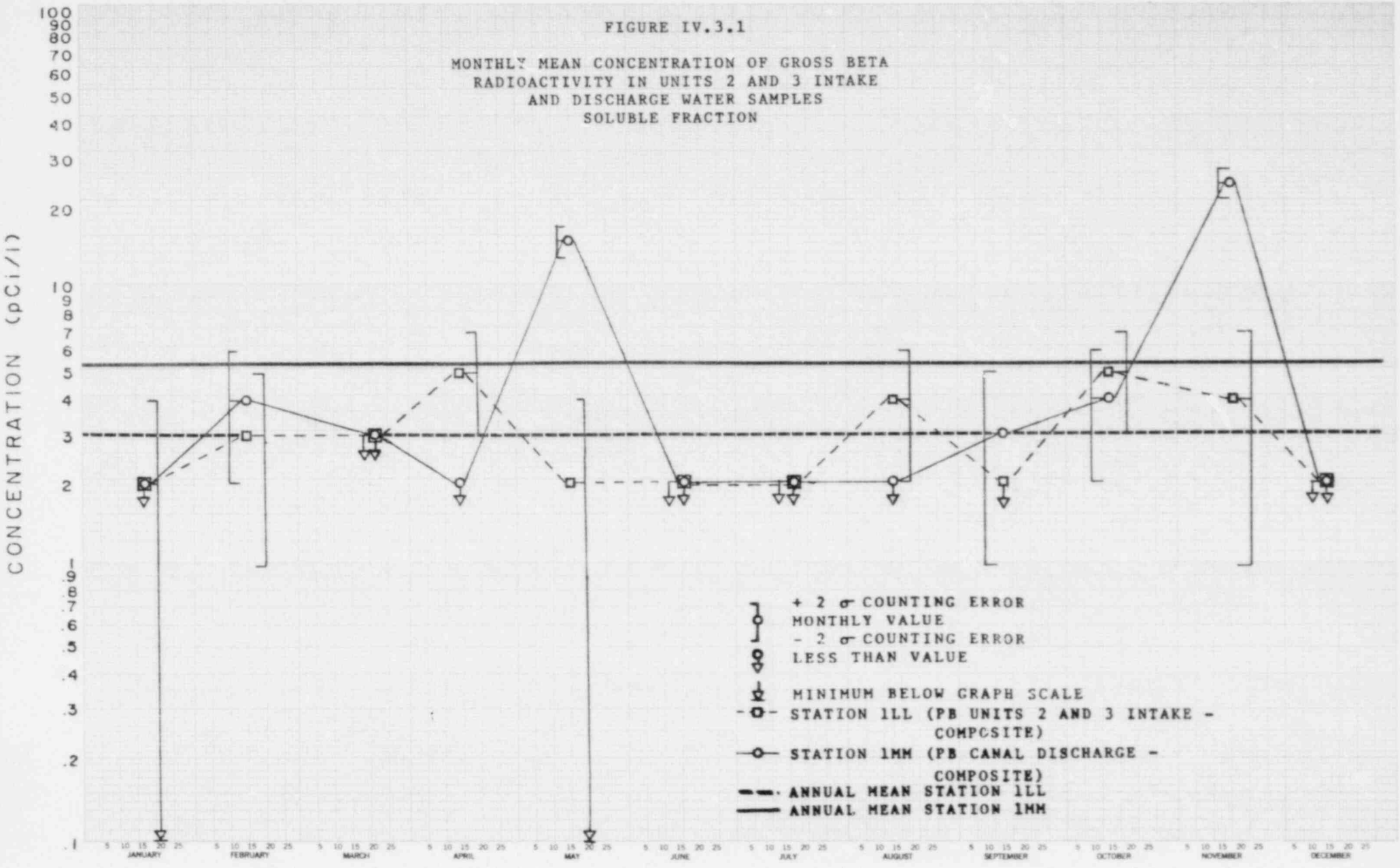


FIGURE IV.3.2

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

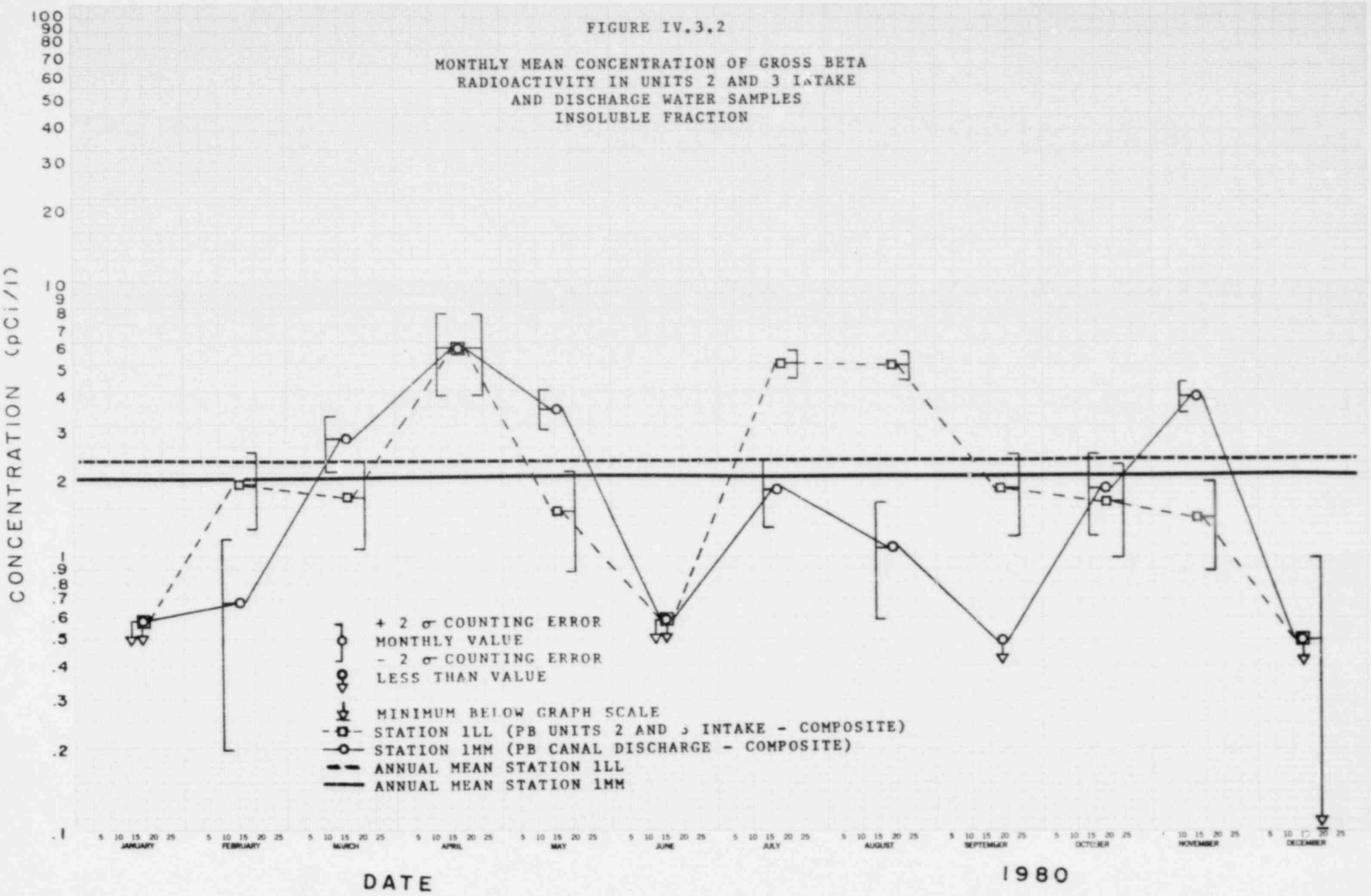


FIGURE IV.3.3

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

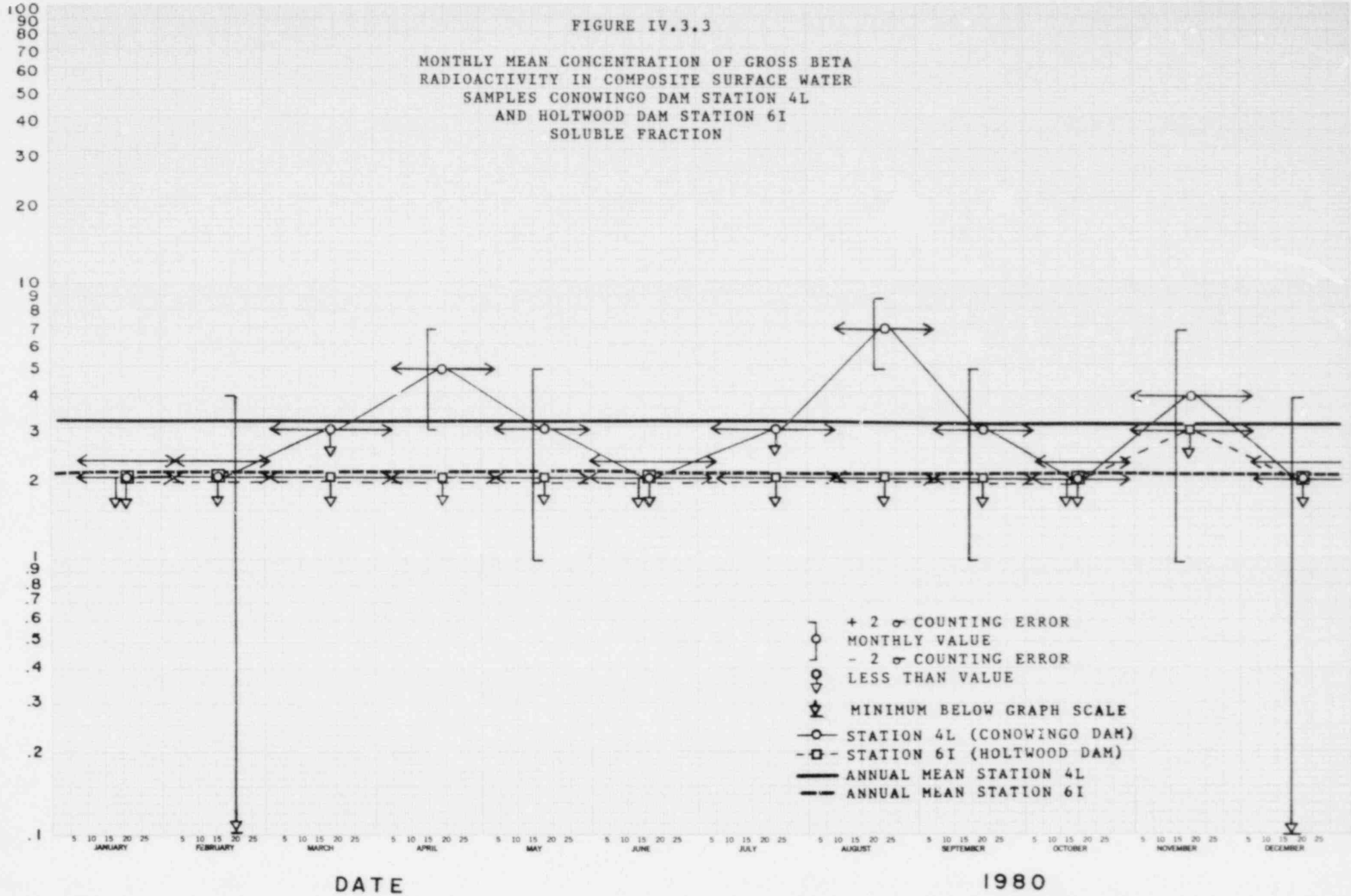


FIGURE IV.3.4

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

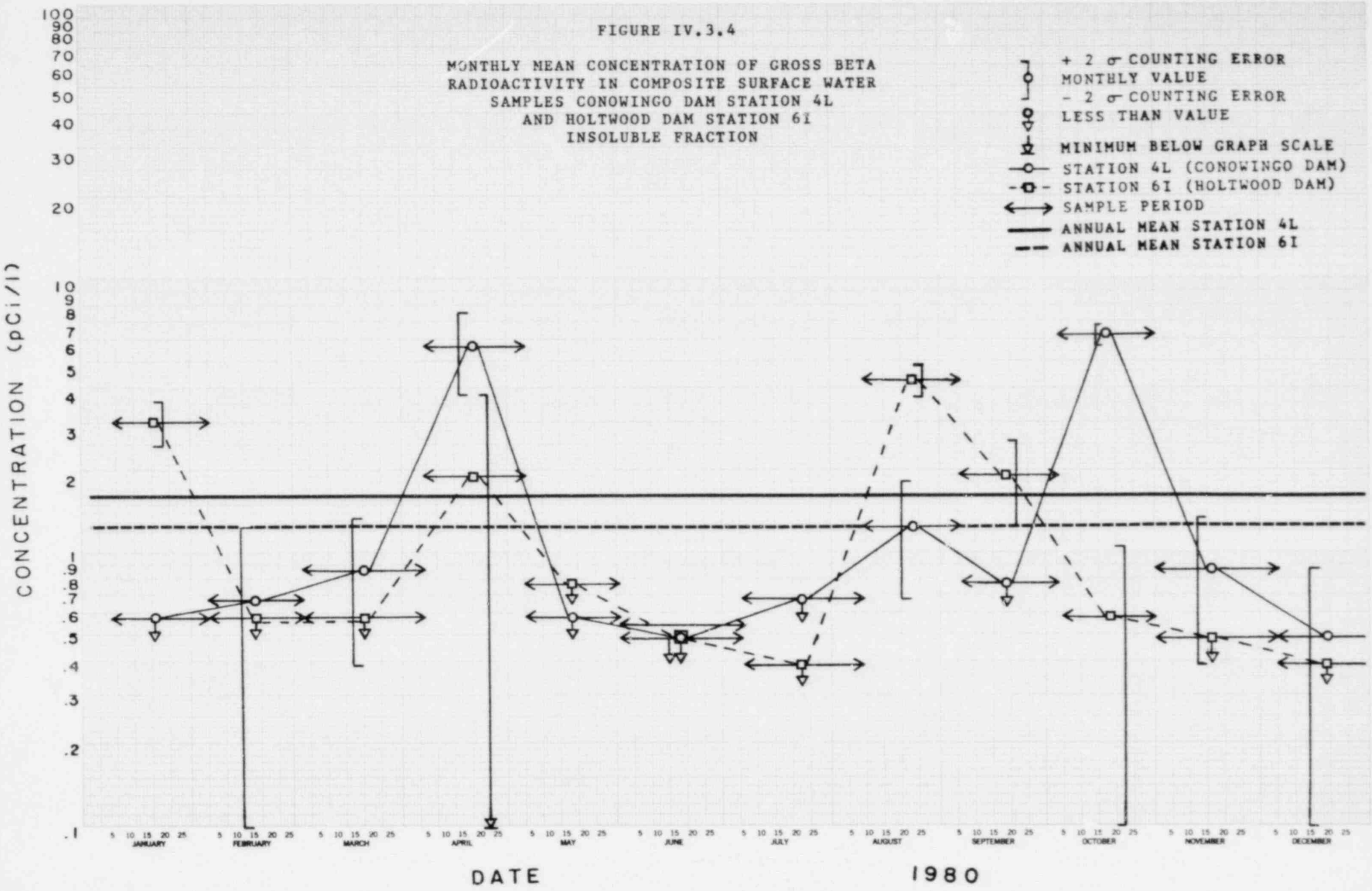
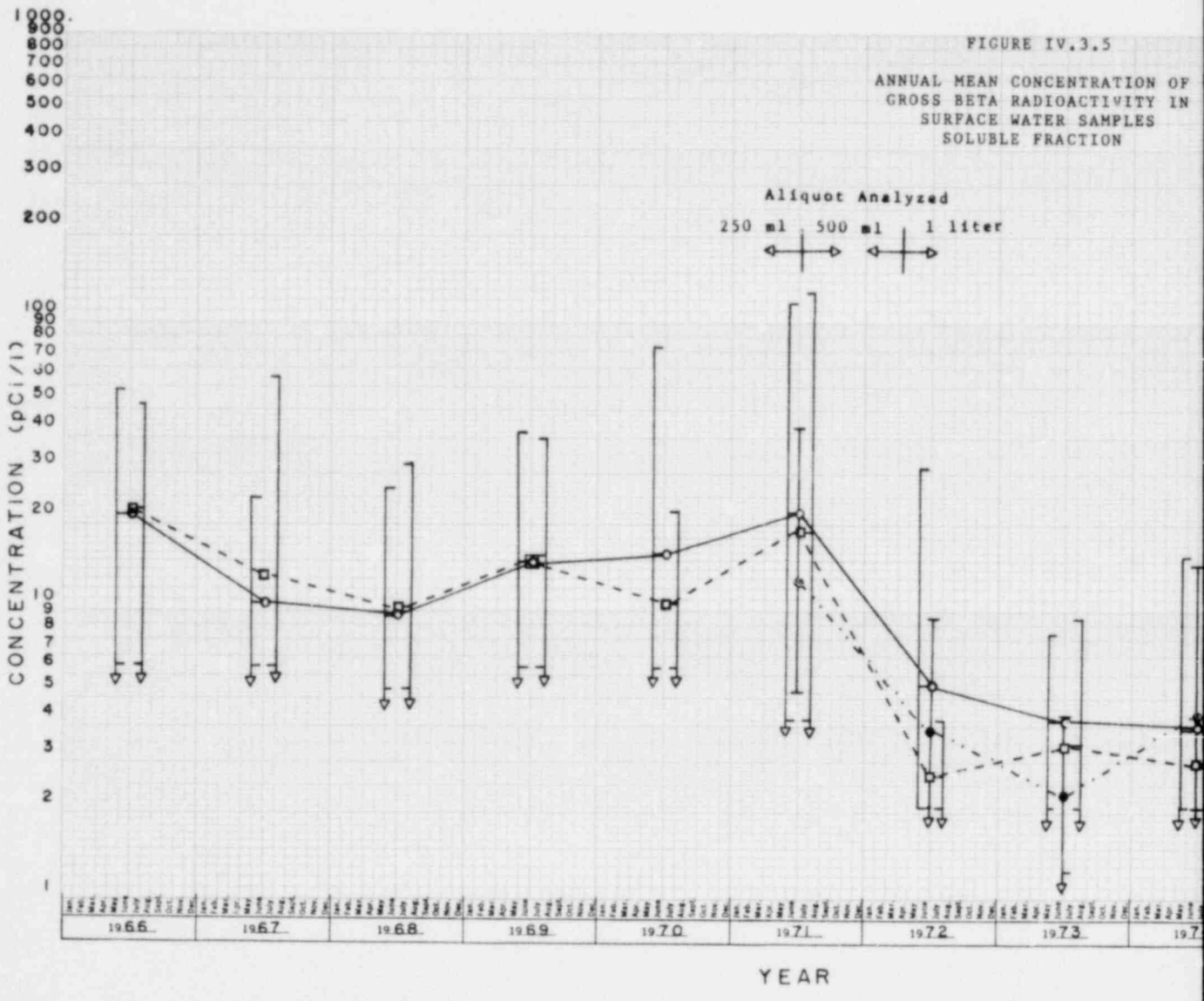


FIGURE IV.3.5

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



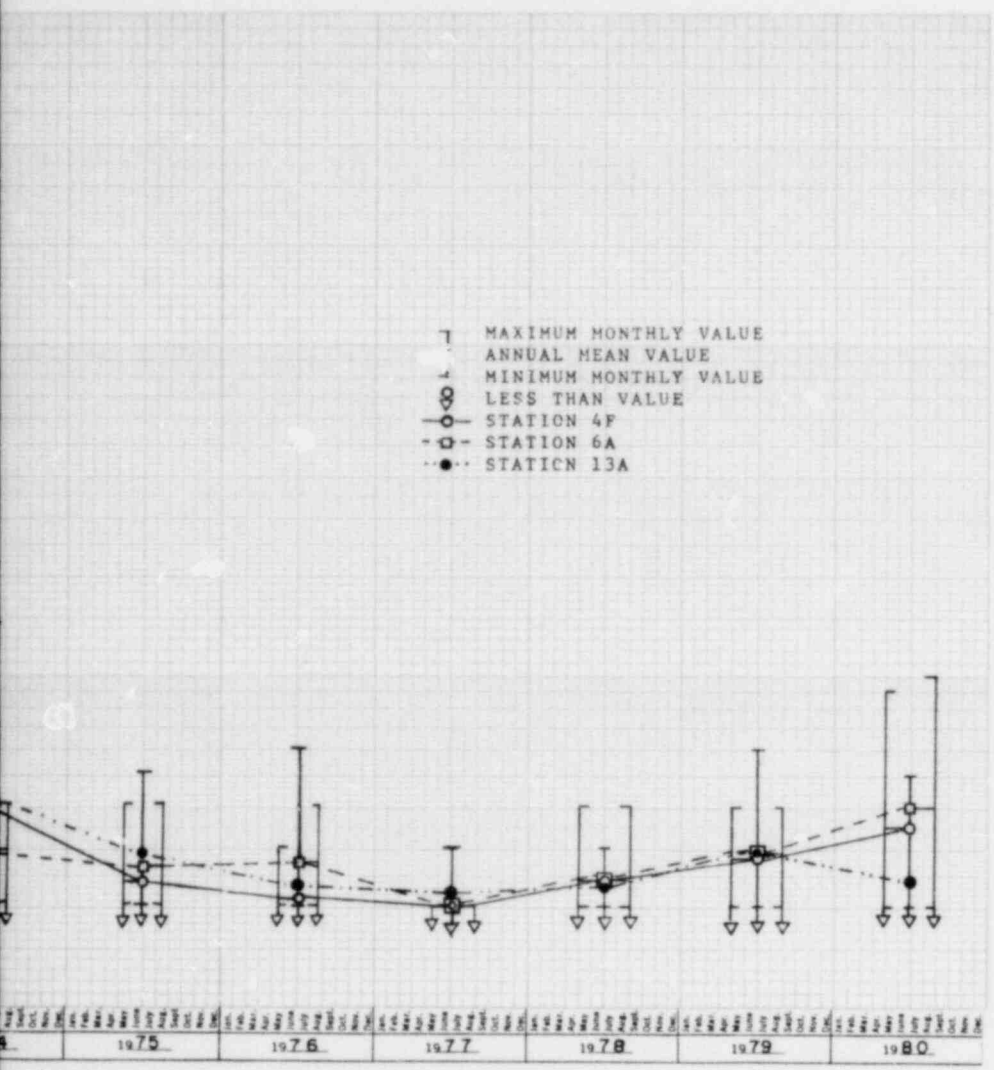
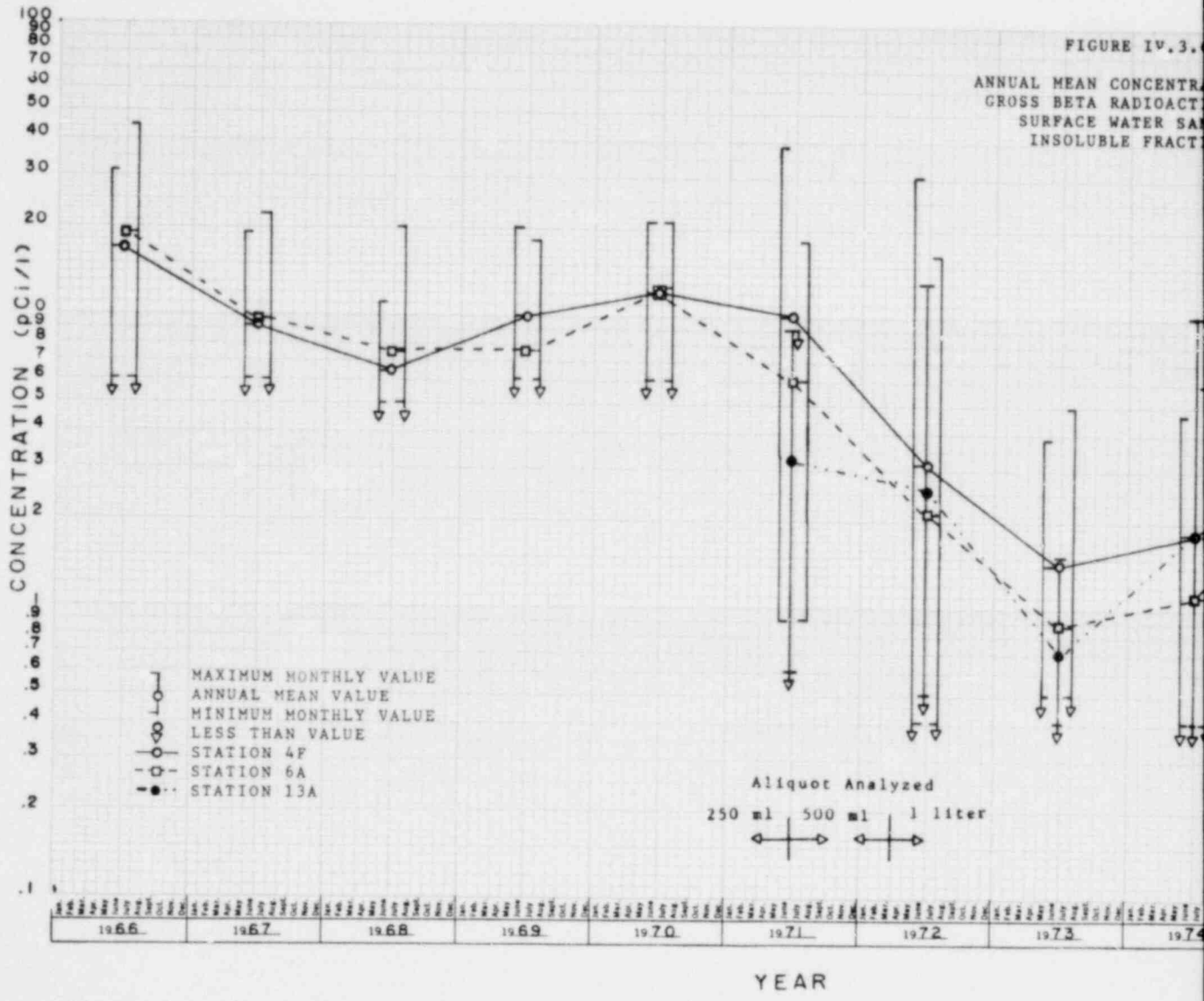

MAXIMUM MONTHLY VALUE
ANNUAL MEAN VALUE
MINIMUM MONTHLY VALUE
LESS THAN VALUE
STATION 4F
STATION 6A
STATICN 13A
1975
1976
1977
1978
1979
1980

FIGURE IV.3.

ANNUAL MEAN CONCENTRA
GROSS BETA RADIOACT
SURFACE WATER SA
INSOLUBLE FRACT



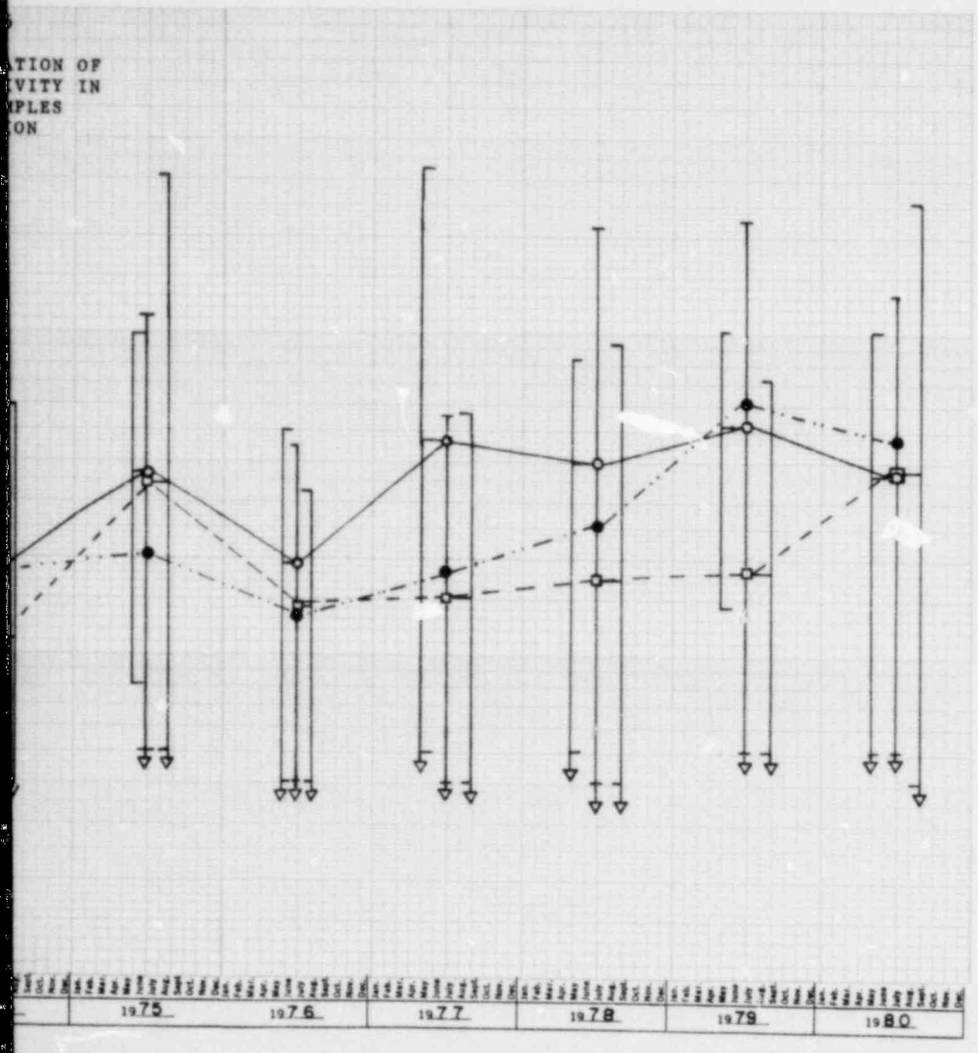
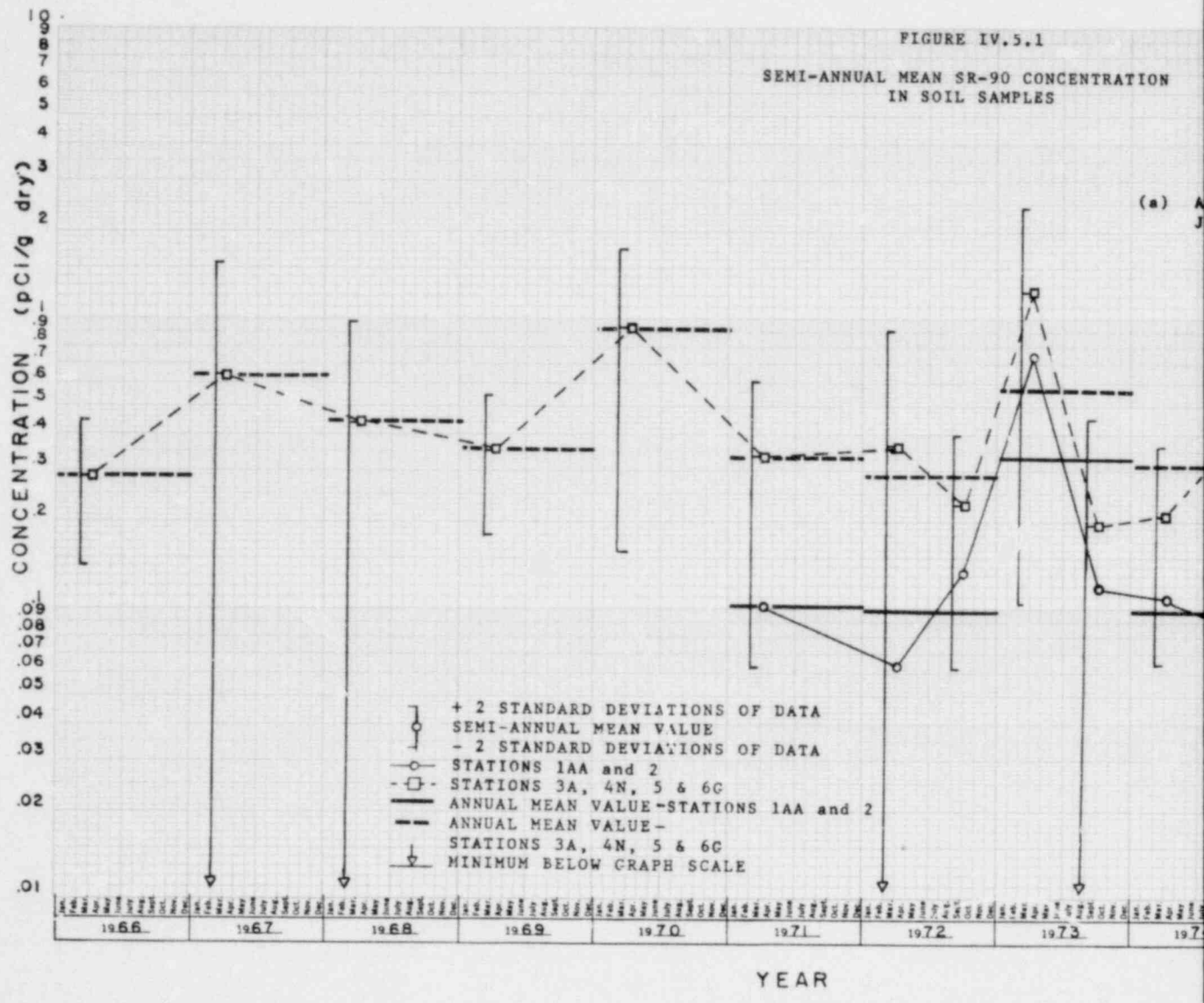

TION OF
VITY IN
PLES
ON
1975
1976
1977
1978
1979
1980

FIGURE IV.5.1

SEMI-ANNUAL MEAN SR-90 CONCENTRATION
IN SOIL SAMPLES



nalysis first performed on
une 6,1976 for Station 2.

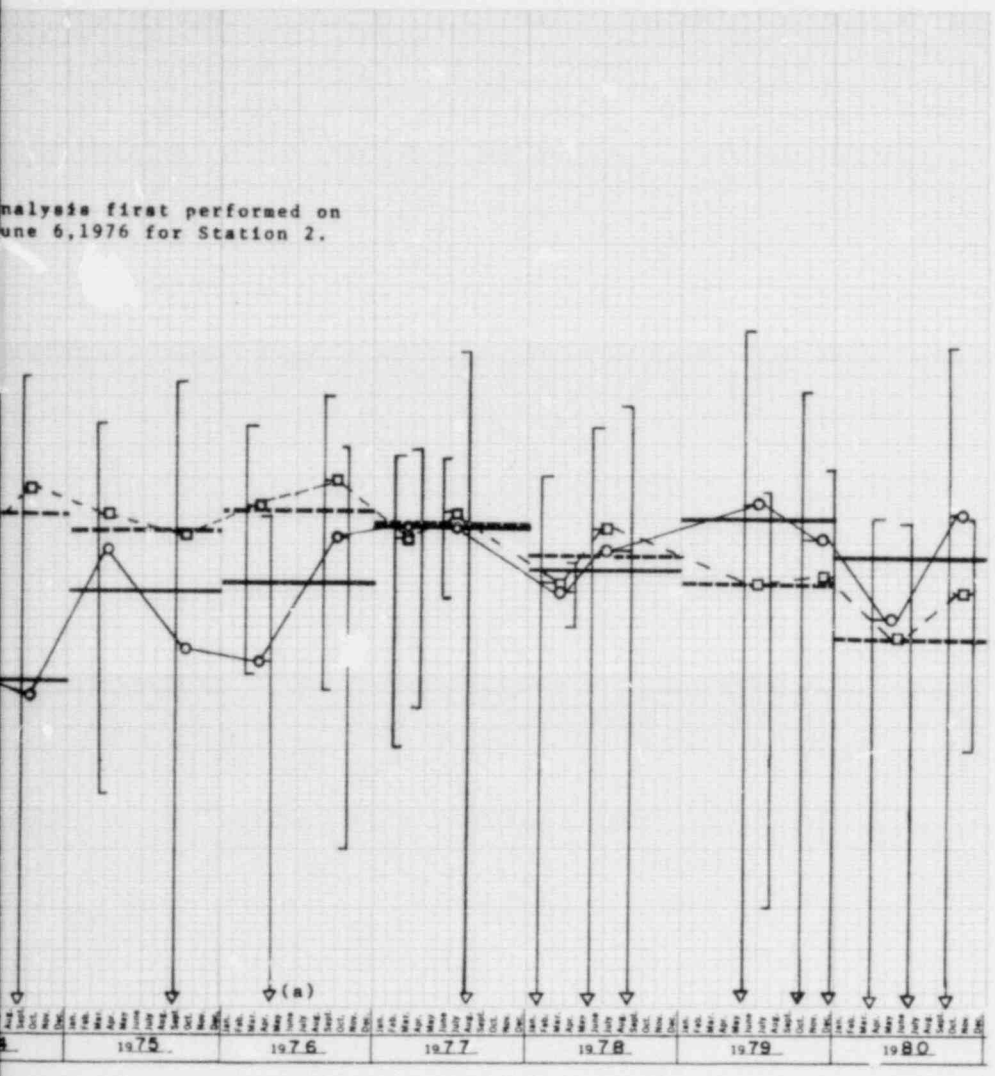


FIGURE IV.5.2

SEMI-ANNUAL MEAN SR-89 CONCENTRATION
IN SOIL SAMPLES

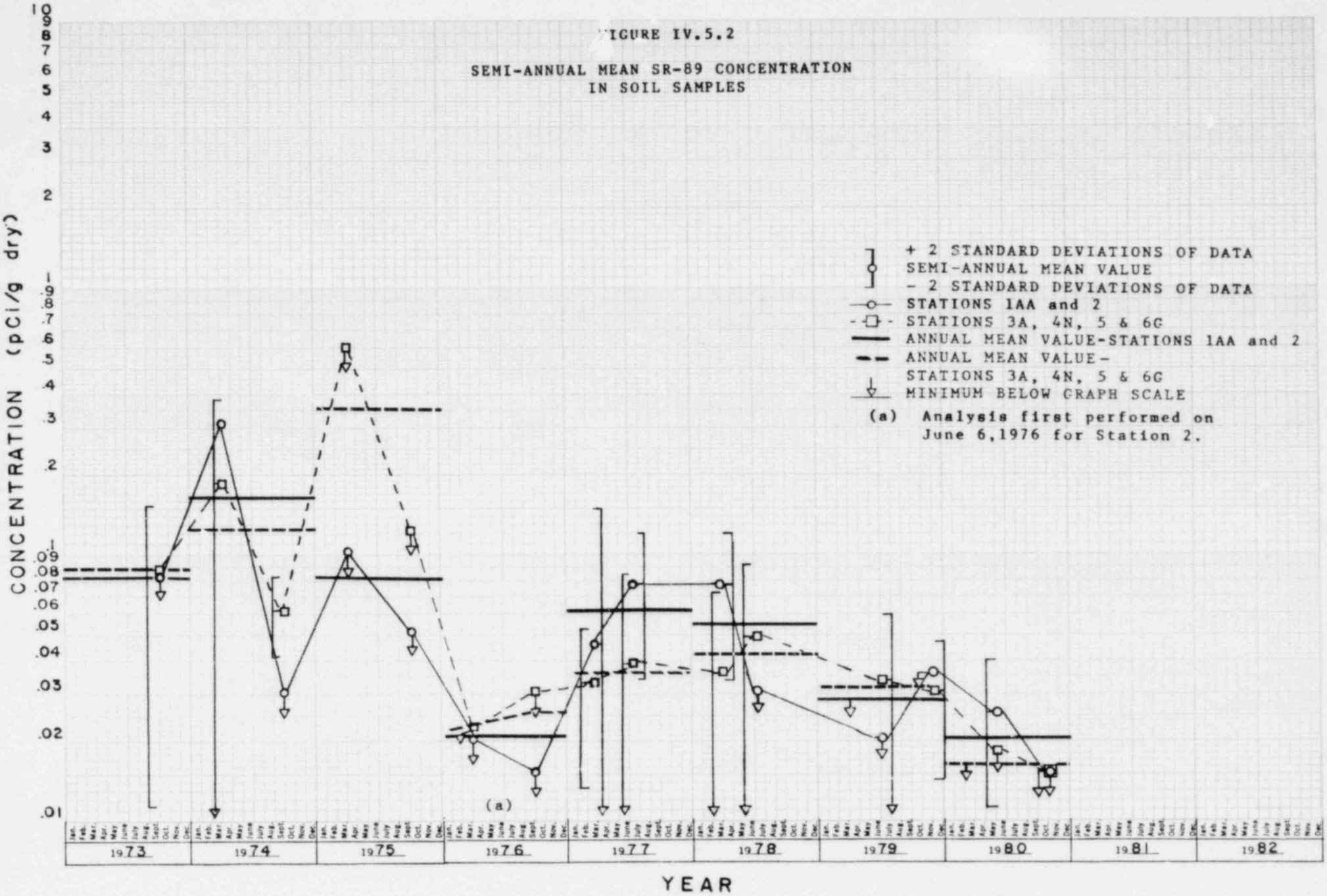


FIGURE IV.5.3

SEMI-ANNUAL CESIUM RADIOACTIVITY CONCENTRATION IN SOIL SAMPLES

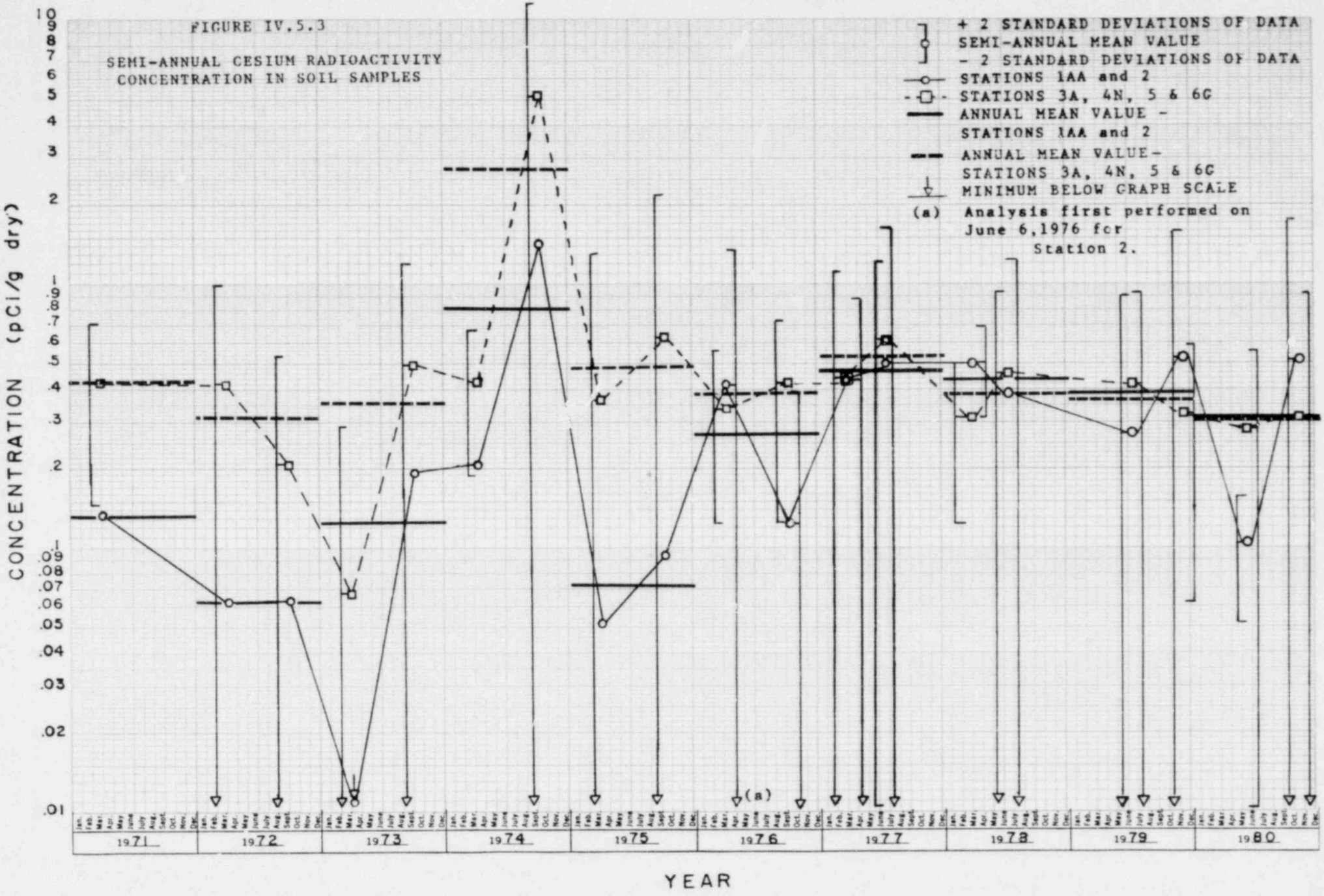
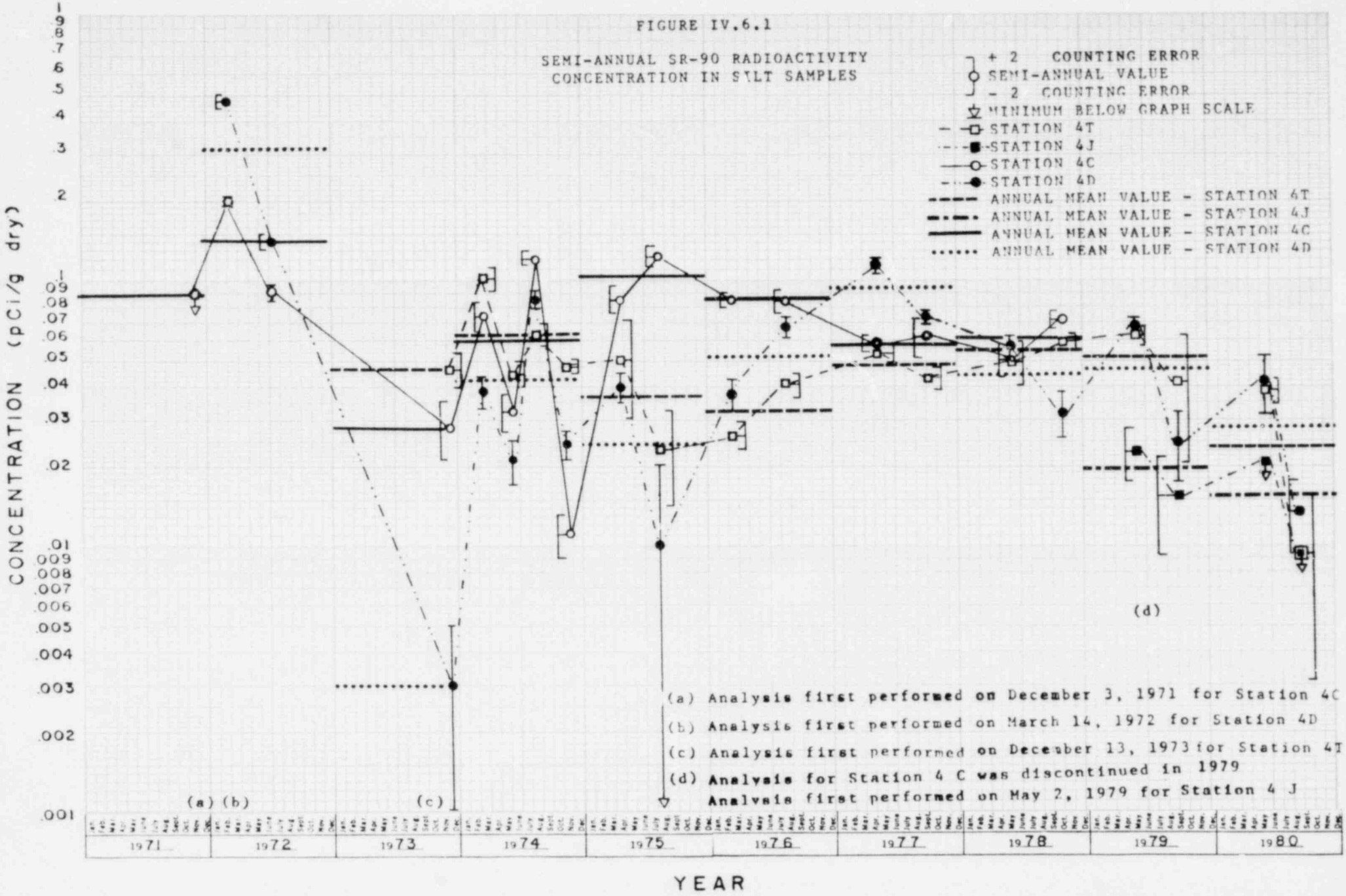


FIGURE IV.6.1

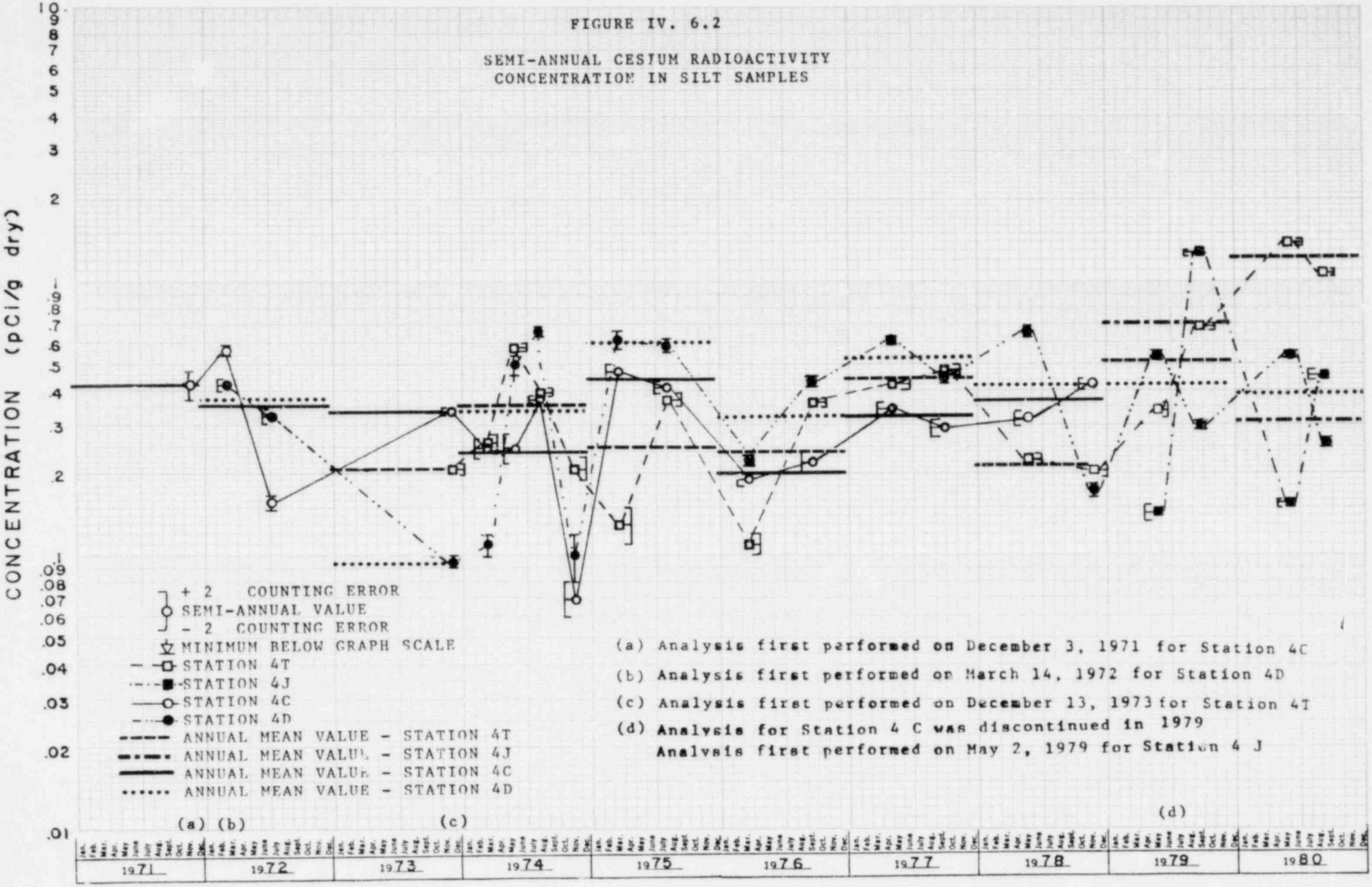
SEMI-ANNUAL SR-90 RADIOACTIVITY
CONCENTRATION IN SILT SAMPLES



(a) Analysis first performed on December 3, 1971 for Station 4C
(b) Analysis first performed on March 14, 1972 for Station 4D
(c) Analysis first performed on December 13, 1973 for Station 4T
(d) Analysis for Station 4 C was discontinued in 1979
Analysis first performed on May 2, 1979 for Station 4 J

FIGURE IV. 6.2

SEMI-ANNUAL CESIUM RADIOACTIVITY
CONCENTRATION IN SILT SAMPLES



(a) Analysis first performed on December 3, 1971 for Station 4C

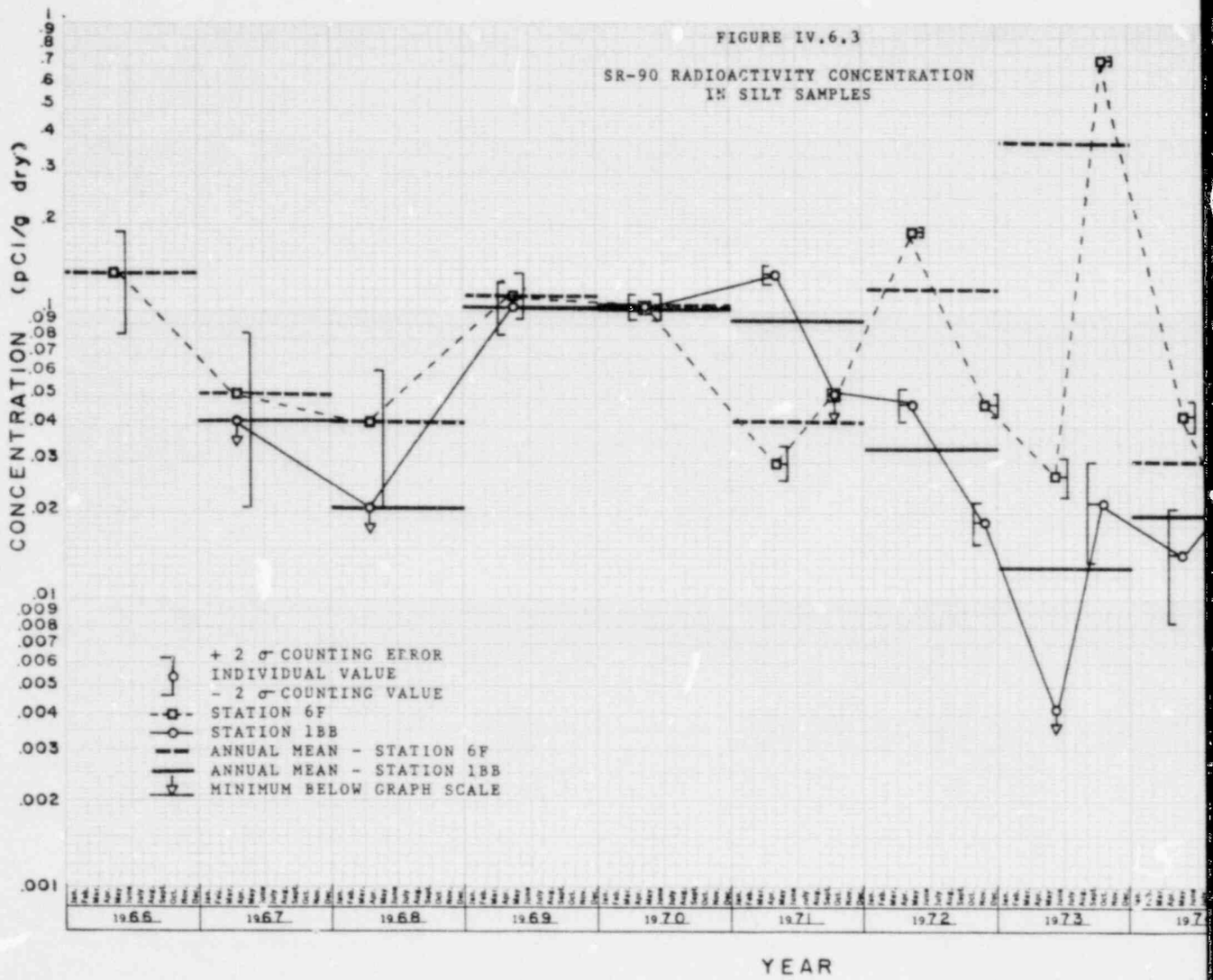
(b) Analysis first performed on March 14, 1972 for Station 4D

(c) Analysis first performed on December 13, 1973 for Station 4T

(d) Analysis for Station 4 C was discontinued in 1979
Analysis first performed on May 2, 1979 for Station 4 J

FIGURE IV.6.3

SR-90 RADIOACTIVITY CONCENTRATION
IN SILT SAMPLES



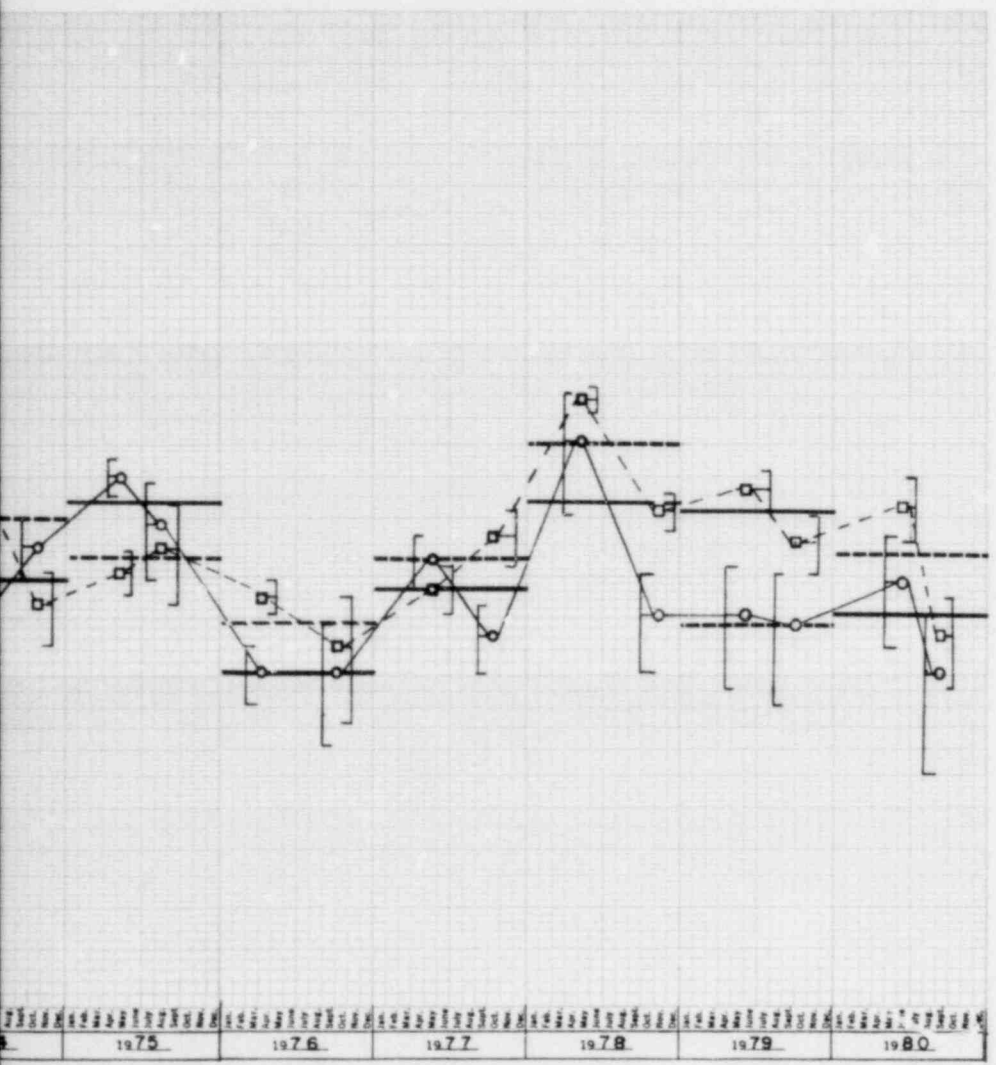

1975
1976
1977
1978
1979
1980

FIGURE IV. 6.4

SEMI-ANNUAL CESIUM RADIOACTIVITY
CONCENTRATION IN SILT SAMPLES

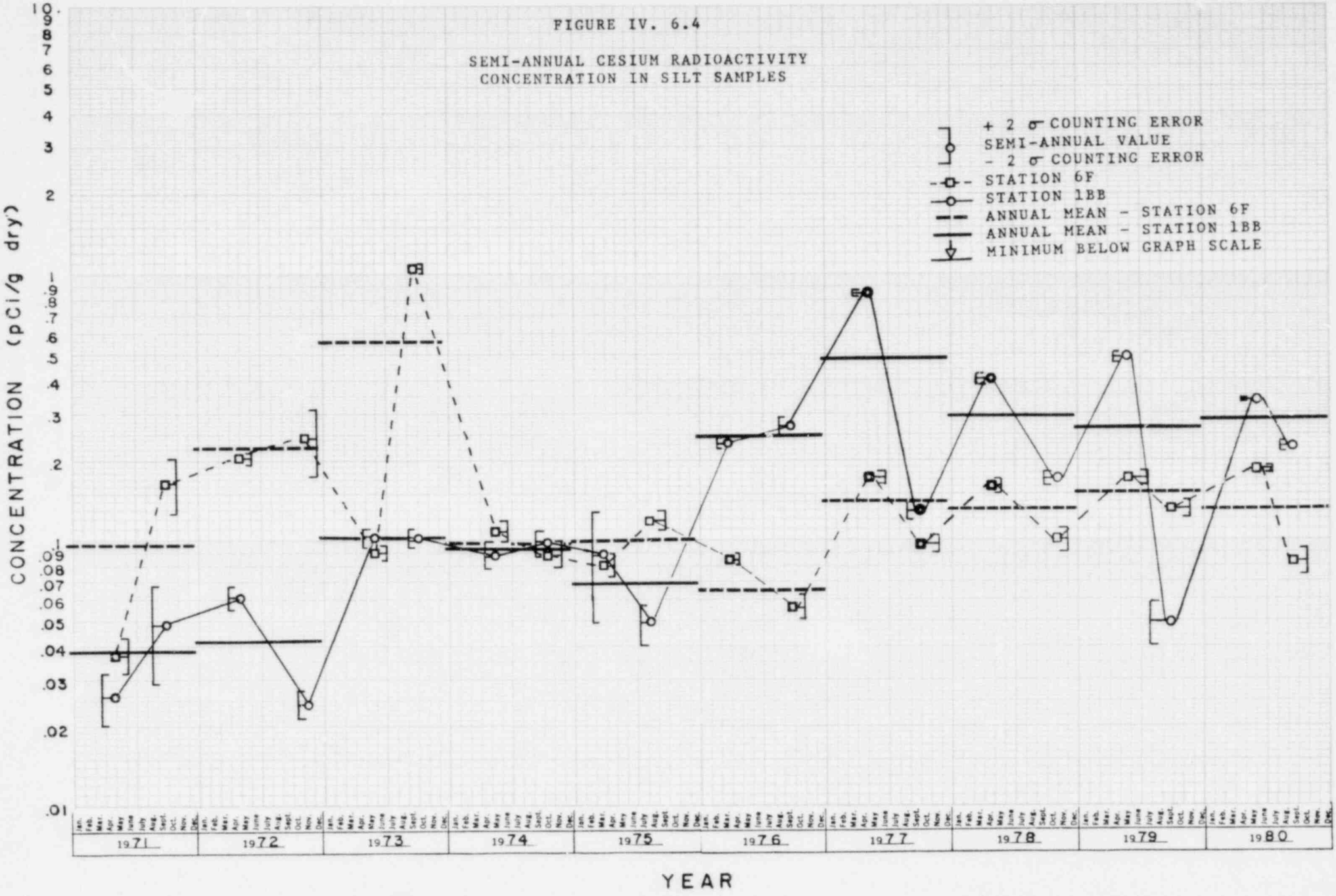
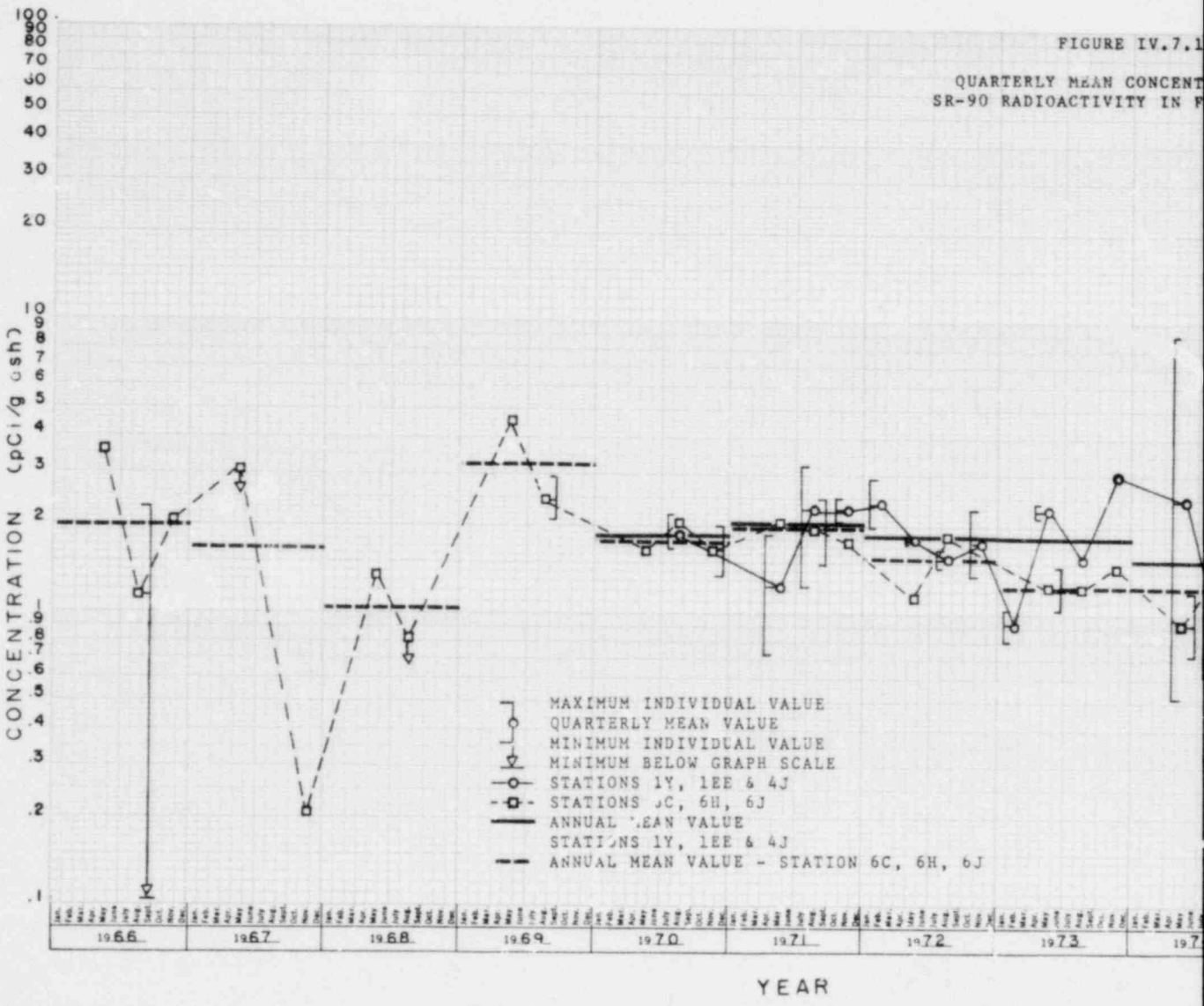


FIGURE IV.7.1

QUARTERLY MEAN CONCENT
SR-90 RADIOACTIVITY IN F



RATION OF
ISH SAMPLES

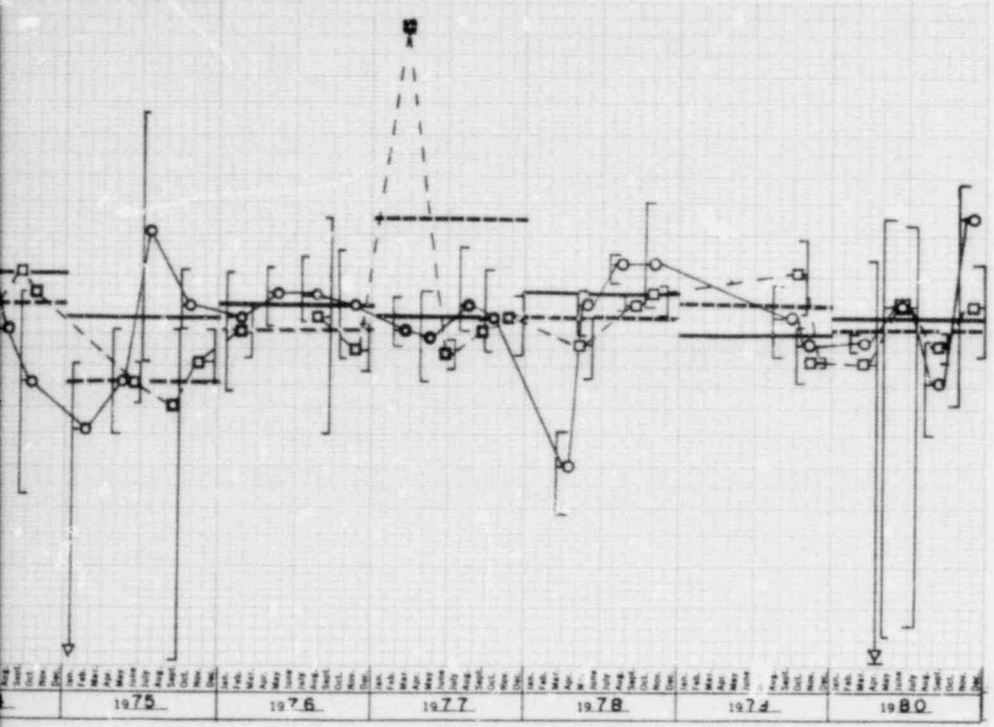
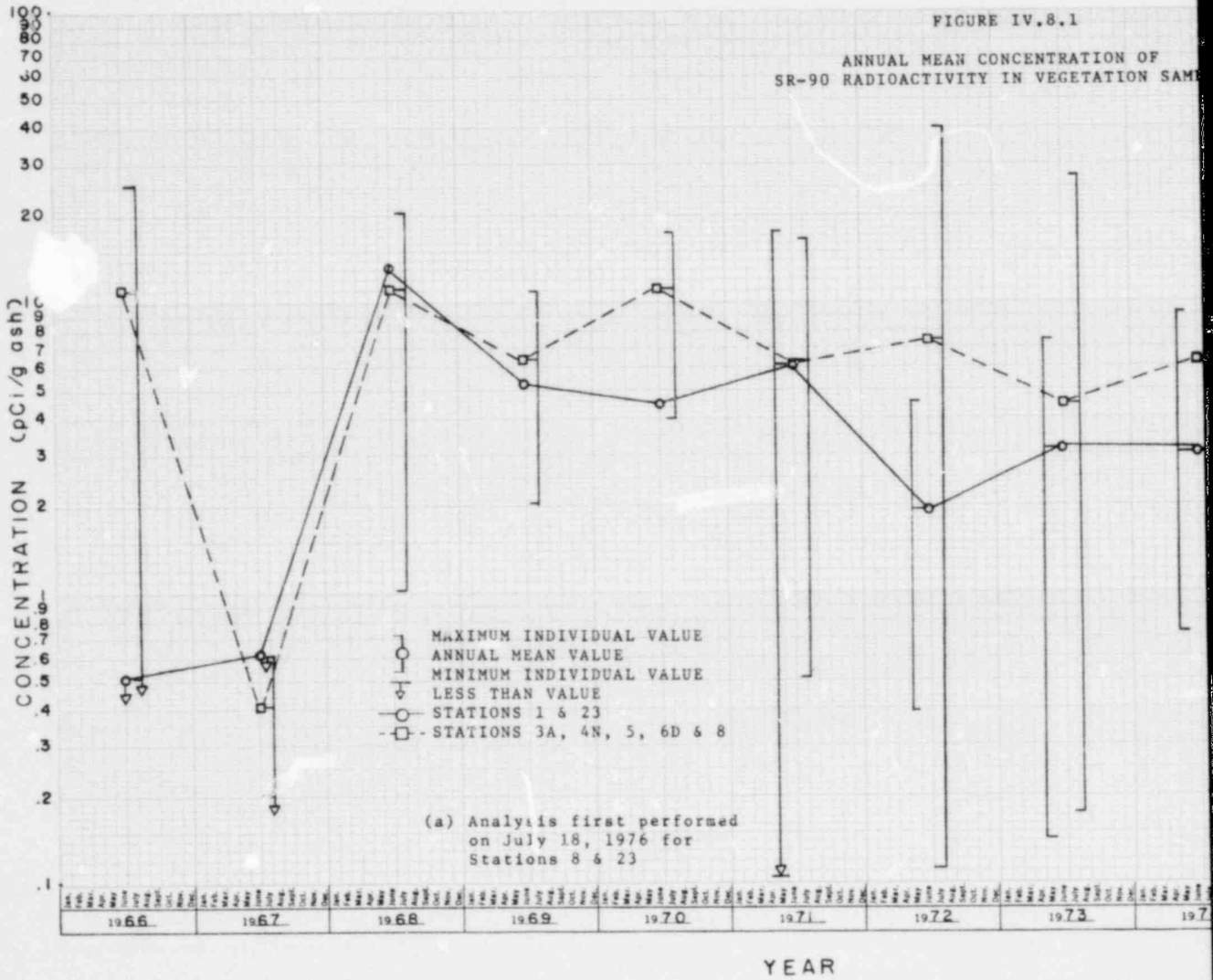


FIGURE IV.8.1

ANNUAL MEAN CONCENTRATION OF
SR-90 RADIOACTIVITY IN VEGETATION SAM



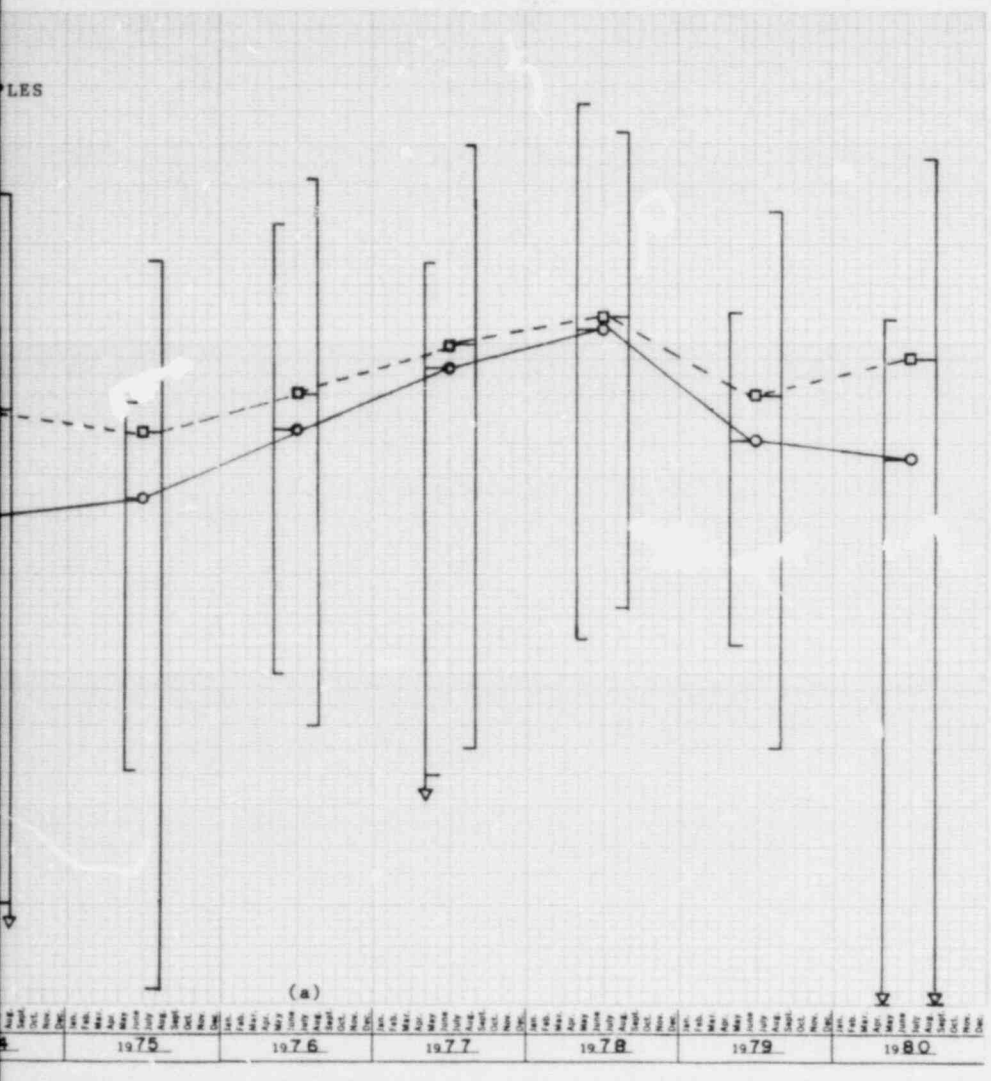

LES
(a)
1975
1976
1977
1978
1979
1980

FIGURE IV. 8.2

ANNUAL MEAN CONCENTRATION OF CESIUM
RADIOACTIVITY IN VEGETATION SAMPLES

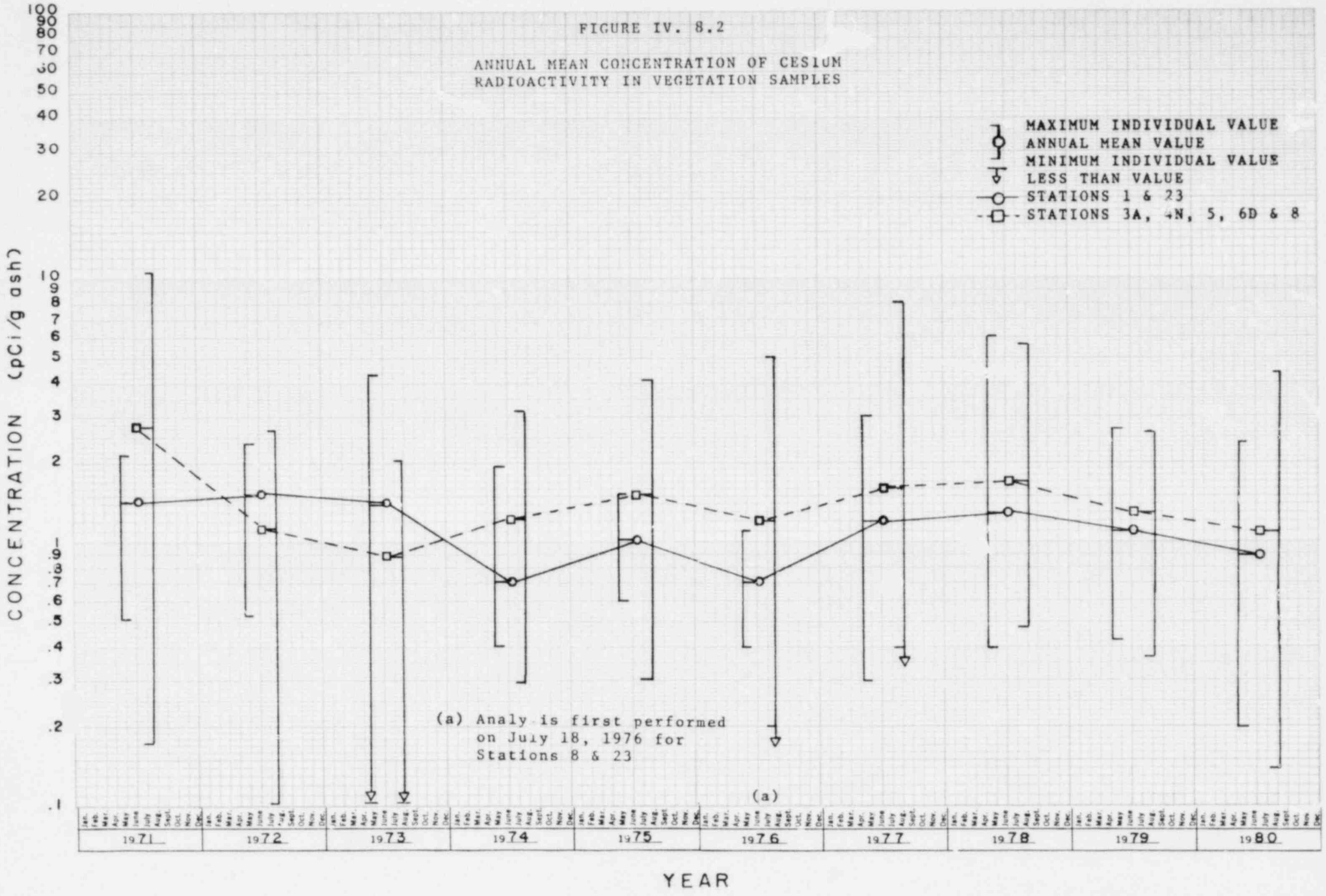
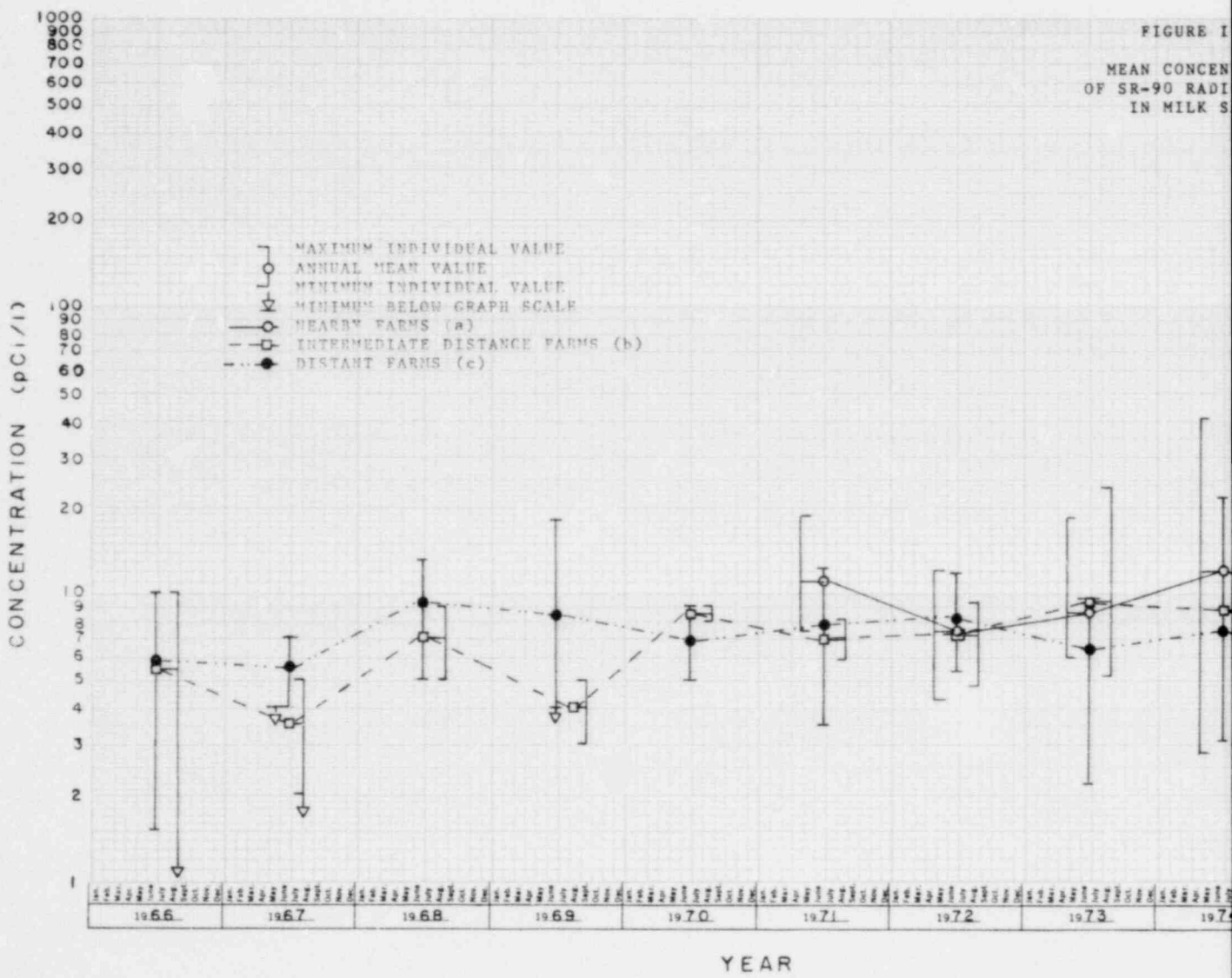


FIGURE I

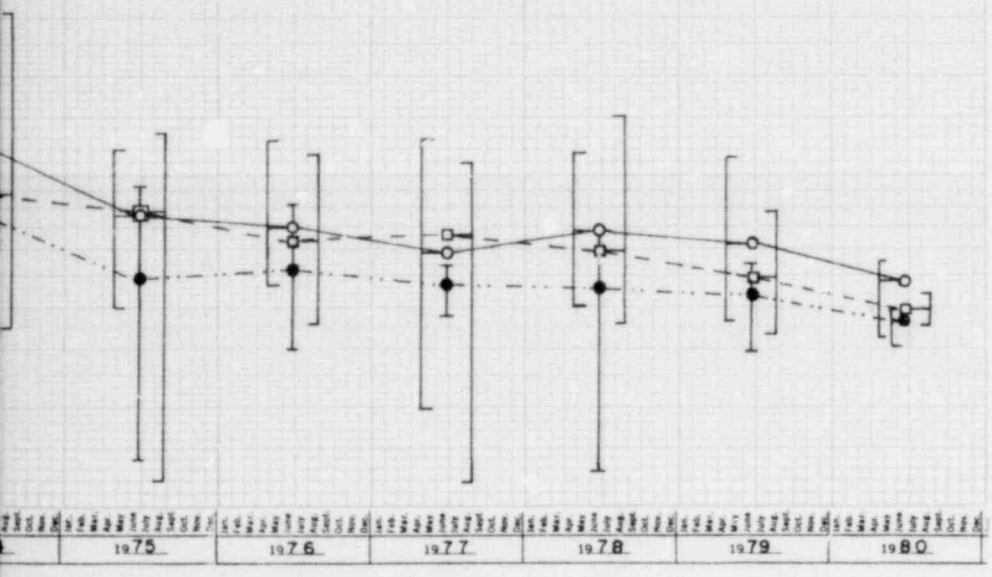
MEAN CONCEN
OF SR-90 RADI
IN MILK S



V.9.1

TRATION
DACTIVITY
AMPLES

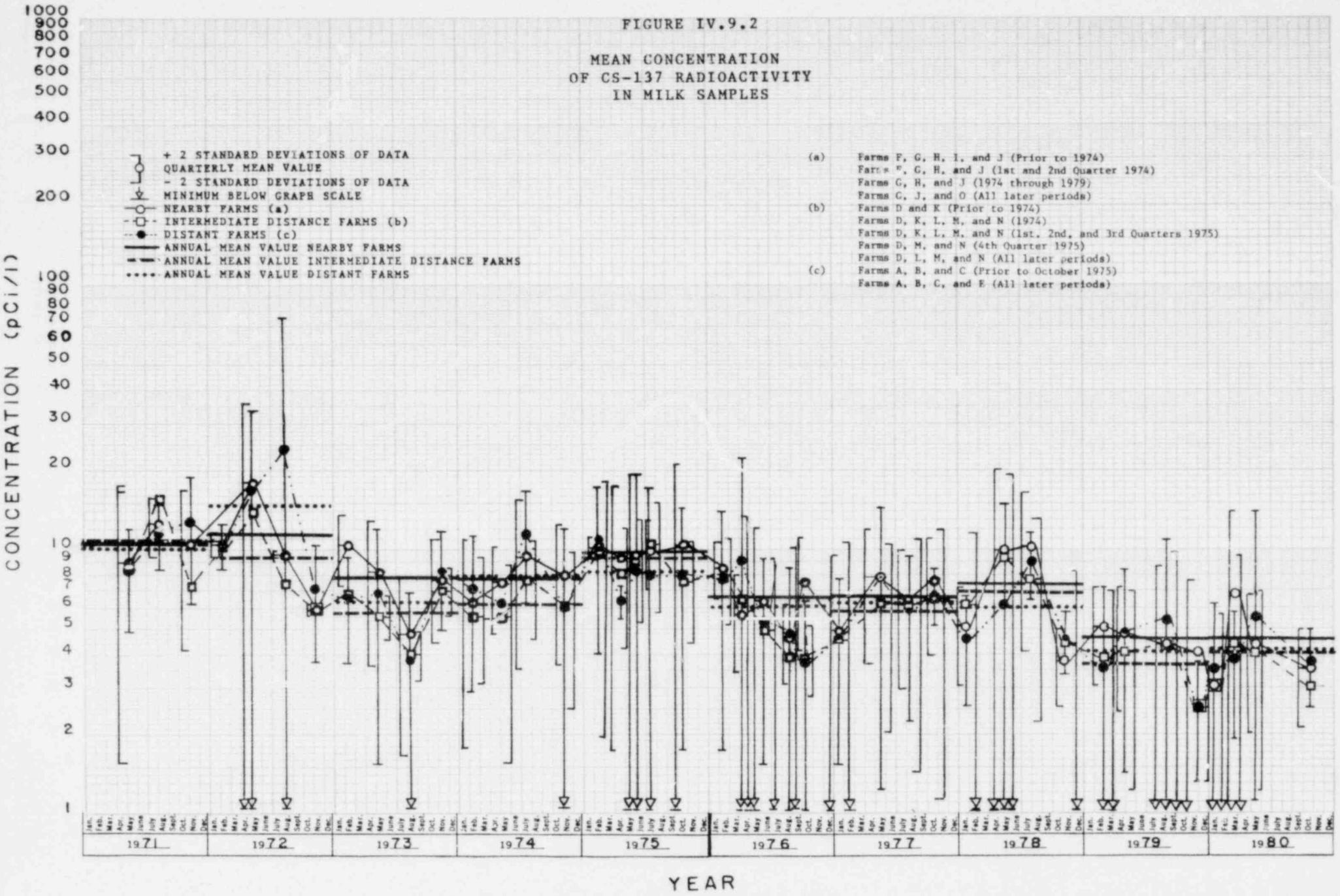
(a) Farms F, G, H, I, and J (Prior to 1974)
Farms F, G, H, and J (1st and 2nd Quarters 1974)
Farms G, H, and J (1974 through 1979)
Farms G, J, and O (All later periods)
(b) Farms D and K (Prior to 1974)
Farms D, K, L, M, and N (1974)
Farms D, K, L, M, and N (1st, 2nd, and 3rd Quarters 1975)
Farms D, M, and N (4th Quarter 1975)
Farms D, L, M, and N (1976)
(c) Farms A, B, and C (Prior to October 1975)
Farms A, B, C, and E (4th Quarter 1975 and 1976)



1975 1976 1977 1978 1979 1980

FIGURE IV.9.2

MEAN CONCENTRATION
OF CS-137 RADIOACTIVITY
IN MILK SAMPLES



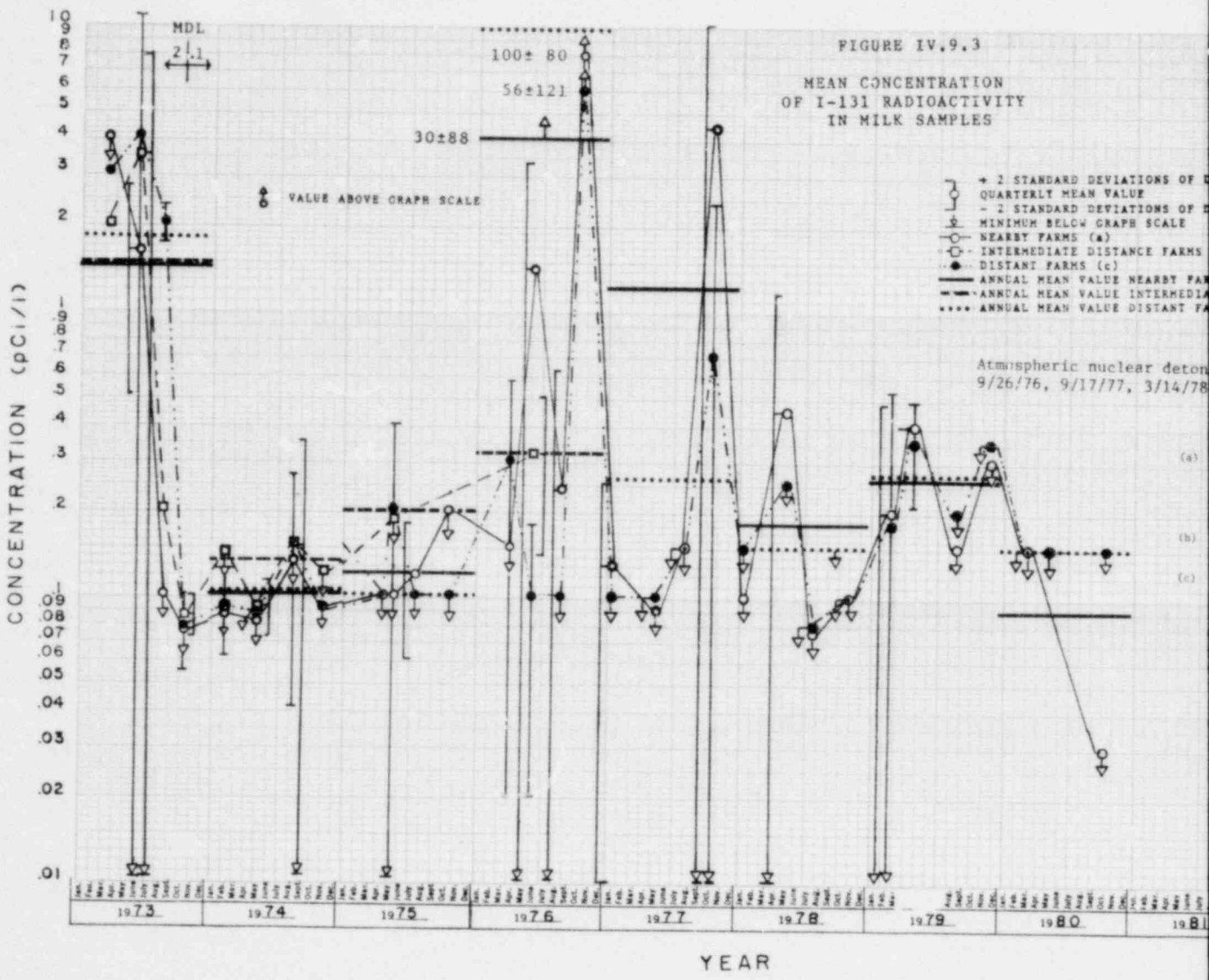


FIGURE IV.9.3
MEAN CONCENTRATION
OF I-131 RADIOACTIVITY
IN MILK SAMPLES
MDL
2 ± 1
100± 80
56±121
30±88
VALUE ABOVE GRAPH SCALE
+ 2 STANDARD DEVIATIONS OF
QUARTERLY MEAN VALUE
- 2 STANDARD DEVIATIONS OF
MINIMUM BELOW GRAPH SCALE
NEARBY FARMS (a)
INTERMEDIATE DISTANCE FARMS
DISTANT FARMS (c)
ANNUAL MEAN VALUE NEARBY FA
ANNUAL MEAN VALUE INTERMEDIA
ANNUAL MEAN VALUE DISTANT FA
Atmospheric nuclear deton
9/26/76, 9/17/77, 3/14/78
(a)
(b)
(c)
CONCENTRATION (pCi/l)
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
1973
1974
1975
1976
1977
1978
1979
1980
1981
YEAR

ATA

ATA

(b)

S

E DISTANCE FARMS

MS

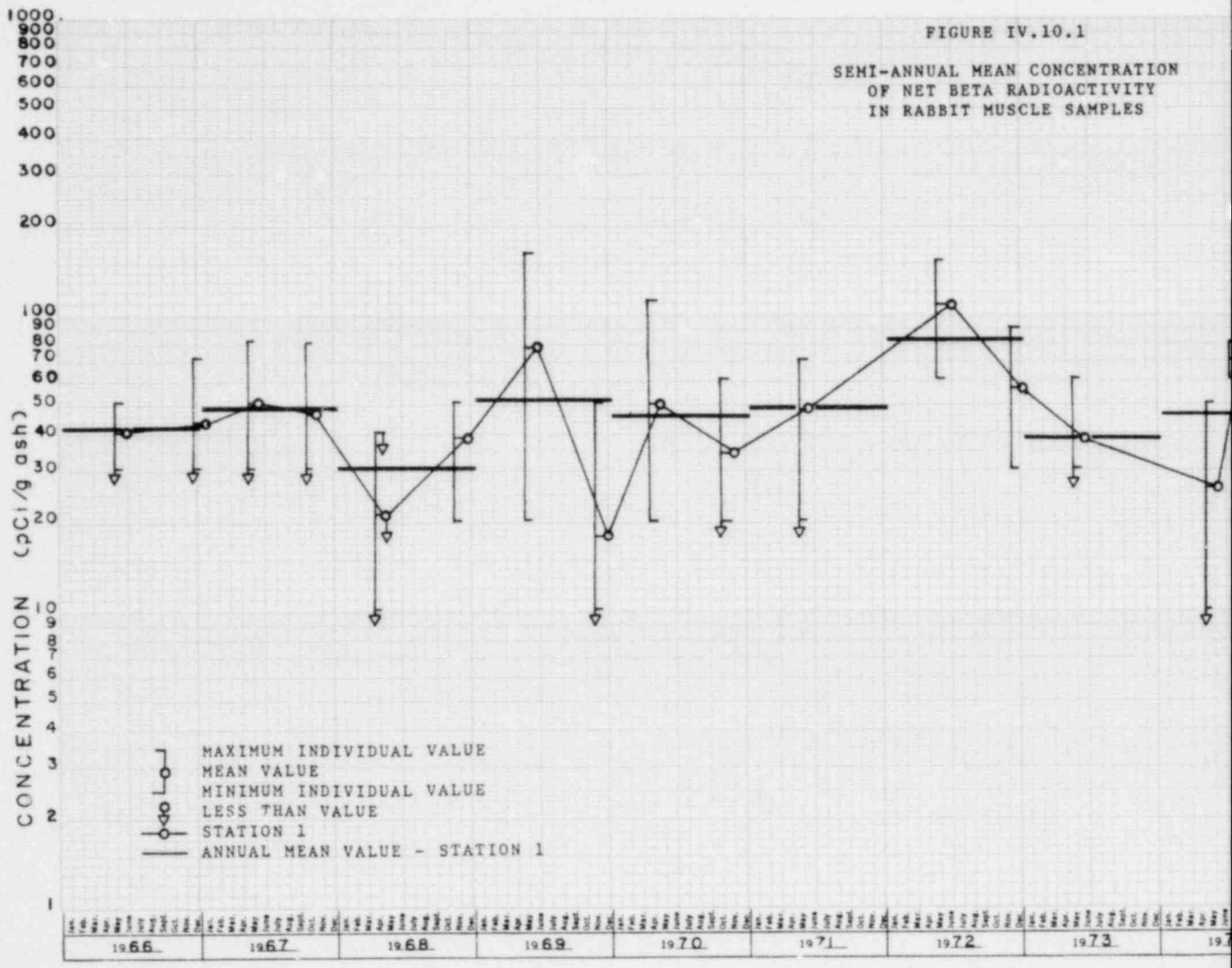
tions by the Peoples Republic of China on
12/12/78, and 10/15/80

Farms F, G, H, I, and J (Prior to 1974)
Farms G, H, and J (3rd and 4th Quarters 1974)
Farms G and J (April, July, and October 1975)
Farms G, H, and J (May 1975)
Farms G, H, and J (June 1976)
Farms G and J (All later periods)
Farms D and K (Prior to 1974)
Farms D, K, L, M, and N (1974 and May 1975)
Farms D, L, M, and N (June 1976)
Farms A, B, and C (1973 and 1974)
Farms A and C (April, July and October 1975)
Farms A, B, and C (May 1975)
Farms A, B, C, and E (June 1976)
Farms A and C (All later periods)

	1982	1983	1984	1985	1986	1987

FIGURE IV.10.1

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



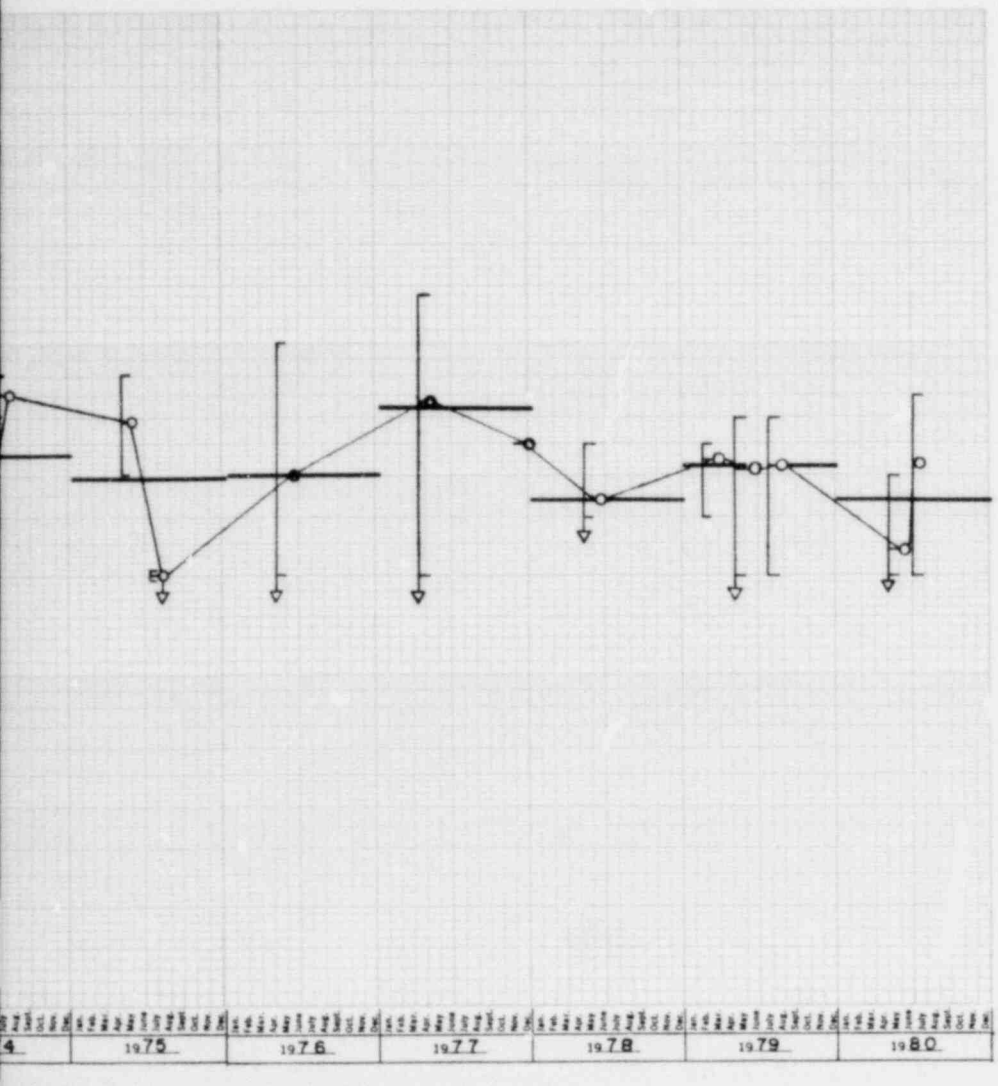

4
1975
1976
1977
1978
1979
1980

FIGURE IV.10.2

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