

MAINE YANKEE ATOMIC POWER COMPANY
ANNUAL RADIOLOGICAL ENVIRONMENTAL MONITORING REPORT
JANUARY 1, 1980 - DECEMBER 31, 1980

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I. INTRODUCTION

This report contains a summary and analysis of the radiological environmental data collected during 1980 by the Environmental Studies Laboratory of the Maine Yankee Atomic Power Company.

Direct gamma radiation around the plant environs is measured with LiF TLD chips. Maine Yankee personnel prepare, distribute, measure and calibrate these dosimeters. All the environmental samples were processed by the Nuclear Services Division Environmental Laboratory, located in Westborough, Massachusetts.

Section II of this report contains a list of all sampling stations used in 1980, as well as a tabulation of the media sampled at each station. Figures 1 through 8 indicate the location of the plant site, its topography, and the locations of the sampling stations.

Section III summarizes the environmental data. A computer program, ERMAL, produces a digest of the 1980 measurements. Each environmental media appears according to the alphabetical order of its media code. At the top of each page, ERMAL lists the units of measurement for each media. The left-hand column contains the radionuclide which is being reported, total number of sample analyses of that radionuclide, and the number of measurements which exceeds ten times the yearly average background value. The latter are classified as "non-routine" measurements. The next column lists the nominal lower limit of detection (LLD) for each radionuclide.

Those sampling stations which are adjacent to the plant and which

could conceivably be affected by the operation of Maine Yankee are called "indicator" or "Zone I" stations. Distant stations which are beyond plant influence are called "control" or "Zone II" stations.

ERMAP calculates a set of statistical parameters for each radionuclide. This set of statistical parameters includes separate analyses for (1) the indicator stations, (2) the control stations, and (3) the station having the highest annual mean concentration. For each of these three groups of data, ERMAR calculates:

- 1) The mean value of all concentrations including negative values and values below MDL.
- 2) The square root of the mean square deviation. This is an estimate of the sample variance.
- 3) The lowest and highest calculated concentration.
- 4) The number of detectable measurements (activity which is three times greater than the standard deviation) divided by the total number of measurements.

Section IV of this report contains the semi-annual results of the milk cow survey. Section V discusses the quality assurance program, which includes EPA results, and Section VI discusses fallout from a Chinese atmospheric nuclear test blast.

In the final sections, we analyze the results of our efforts in 1980, calculate environmental radiation doses, and present our conclusions.

STATION INPUT DATA FOR 86 STATIONS

STATION	ZONE	MEDIA CODES	STATION IDENTIFICATION		
11	1	WF	PLANT INTAKE	0.0 KM	ONSITE MAINE
20	2	WF	KENNEBEC RIVER	10.9 KM	SW MAINE
11	1	WD	EATON FARM	0.5 KM	W MAINE
12	1	WD	RAILEY FARM(FSL)	0.6 KM	NE MAINE
13	1	WD	WESTPORT FIREHOUSE	1.8 KM	S MAINE
28	2	WD	DRESDEN SUR.	19.8 KM	NNW MAINE
11	1	WC	MONTSWEG BROOK	2.7 KM	NW MAINE
12	1	WC	WISCASSET RES.	0.6 KM	NNE MAINE
13	1	WG	ENV. STUDIES LARIESL	10.7 KM	NE MAINE
20	2	WG	HORSE WELL	9.8 KM	W MAINE
11	1	AP C	MONTSWEG BROOK	2.7 KM	NW MAINE
15	1	AP C	EDGECOMB FIREHOUSE	5.6 KM	NE MAINE
12	1	AP C	EATON FARM	0.5 KM	W MAINE
13	1	AP C	RAILEY FARM(FSL)	0.6 KM	NE MAINE
10	1	AP C	MASON STEAM STA	0.8 KM	NNE MAINE
16	1	AP C	WESTPORT FIREHOUSE	1.8 KM	S MAINE
17	1	AP C	HARRISON'S TRAILER	6.0 KM	SSW MAINE
28	2	AP C	BATH SUBSTA.	10.9 KM	SW MAINE
20	2	AP C	DRESDEN SUBSTA.	20.0 KM	NNW MAINE
15	1	SS	AREA 5	0.3 KM	SW MAINE
12	1	SS	AREA 2	0.3 KM	ENE MAINE
16	1	SS	AREA 6	0.8 KM	SW MAINE
18	1	SS	AREA 8	0.7 KM	S MAINE
20	2	SS	ROUTHWAY HARBOR	12.5 KM	SSE MAINE
16	1	M	BAKER FARM	7.2 KM	W MAINE
20	2	M	KNIGHTS DAIRY	9.8 KM	WNW MAINE
11	1	FD	HODGSON FARM	2.1 KM	N MAINE
12	1	FD	RAILEY FARM(FSL)	0.6 KM	NE MAINE
23	2	FD	LITCHFIELD, ME.	32.2 KM	NW MAINE
11	1	VT	RAILEY FARM(FSL)	0.6 KM	NE MAINE
12	1	VT	EATON FARM	0.5 KM	W MAINE
13	2	VT	HORSE FARM	9.8 KM	W MAINE
20	2	VT	DRESDEN SUR.	19.8 KM	NNW MAINE
15	1	VT	BAKER FARM	7.2 KM	W MAINE
26	2	VT	KNIGHTS FARM	9.8 KM	WNW MAINE
11	1	SE VA	LONG LEDGE	0.8 KM	184 DEGREES MAINE

OFFSITE ENVIRONMENTAL RADIOLOGICAL MONITORING R1/03/23. PAGE 3
SUMMARY FOR THE PERIOD 12/28/79 - 12/31/80

STATION	ZONE	MEDIA CODES	STATION IDENTIFICATION			
12	1	SF VA	SEAL ROCK, WISCASSET	5.0 KM	35 DEGREES	MAINE
23	2	SF VA	ROUTHRAY HARBOR	12.6 KM	162 DEGREES	MAINE
11	1	AR	FERRY CROSSING	1.3 KM	45 DEGREES	MAINE
12	1	AR	CROMWELL DOCK	0.8 KM	147 DEGREES	MAINE
13	1	AR	HARRISON DOCK	6.4 KM	208 DEGREES	MAINE
24	2	AR	SHEEPSHUT R.	11.2 KM	186 DEGREES	MAINE
11	1	FI	LONG LEDGE	1.1 KM	184 DEGREES	MAINE
23	2	FI	EDGECONR BRIDGE	6.4 KM	30 DEGREES	MAINE
12	1	FI	PLANT INTAKE	0.5 KM	102 DEGREES	MAINE
15	1	WE	PLANT OUTFALL	0.0 KM	ONSITE	MAINE

Direct Radiation - TLD Dosimeter Sites

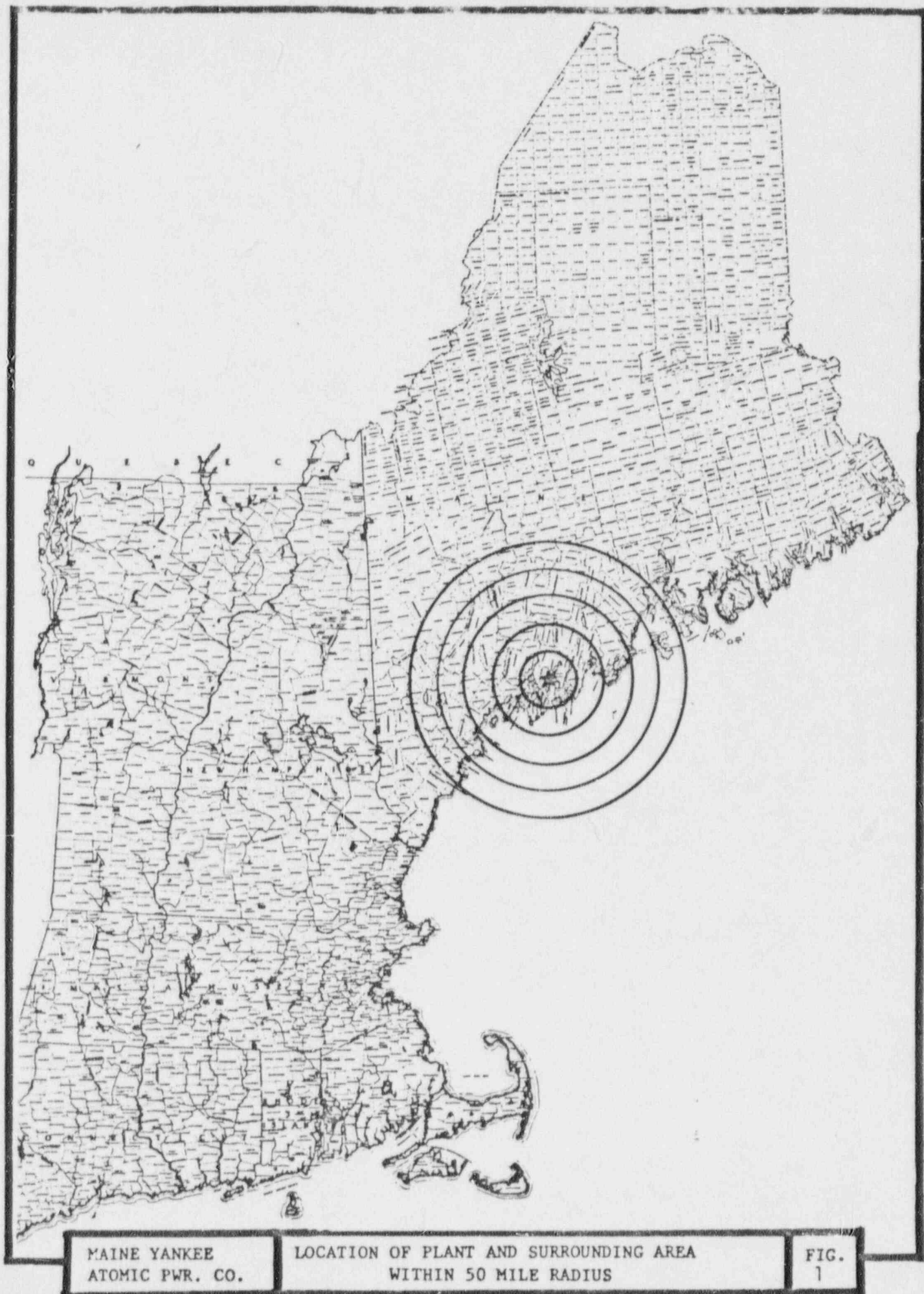
Sampling and Analysis Frequency - Monthly

Zone I

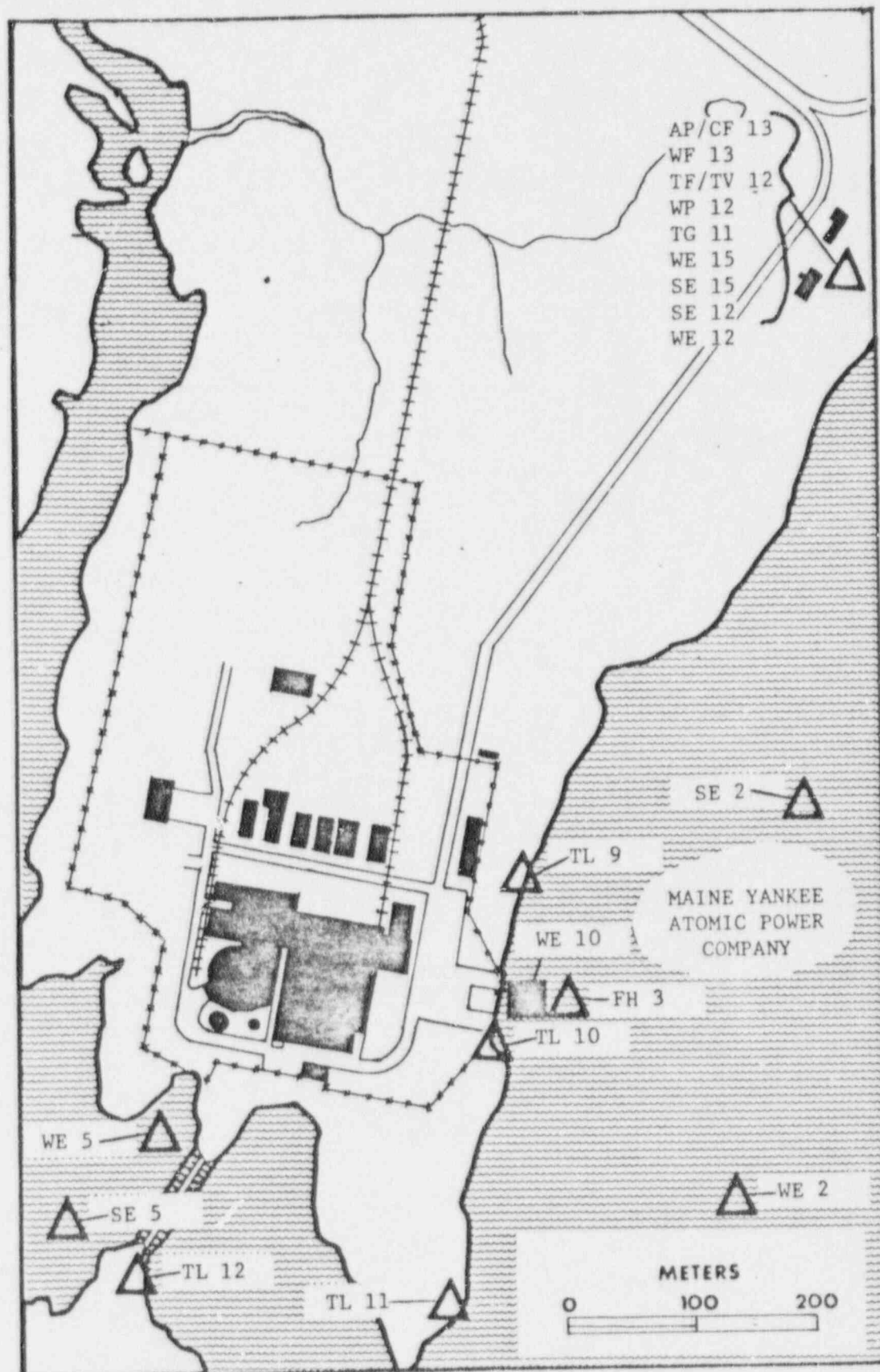
	<u>Sample Station Locations</u>	<u>Distance (Km) from Plant</u>	<u>Site Quadrant</u>
TL 1	Montsweag Brook	2.7	NW
TL 2	Eaton Farm	.5	W
TL 3	Environmental Studies Lab. (Bailey Farm)	.6	NE
TL 4	Central Maine Power Company Mason Steam Station	4.8	NE
TL 5	Edgecomb Firehouse	5.6	ENE
TL 6	Westport Firehouse	1.8	S
TL 7	Harrison's Trailer	6.4	SW
TL 8	Restricted Boundary Site (See Figure 2)	2.2	NNE
TL 9	Restricted Boundary Site (See Figure 2)	.20	ENE
TL 10	Restricted Boundary Site (See Figure 2)	.18	ESE
TL 11	Restricted Boundary Site (See Figure 2)	.32	SSE
TL 12	Restricted Boundary Site (See Figure 2)	.29	SSW
TL 13	Restricted Boundary Site (See Figure 2)	.75	WSW
TL 14	Restricted Boundary Site (See Figure 2)	.64	WNW
TL 15	Restricted Boundary Site (See Figure 2)	1.00	NNW

Zone II

TL 16	Morse Farm	10.0	W
TL 17	Dresden Substation	19.8	NNW



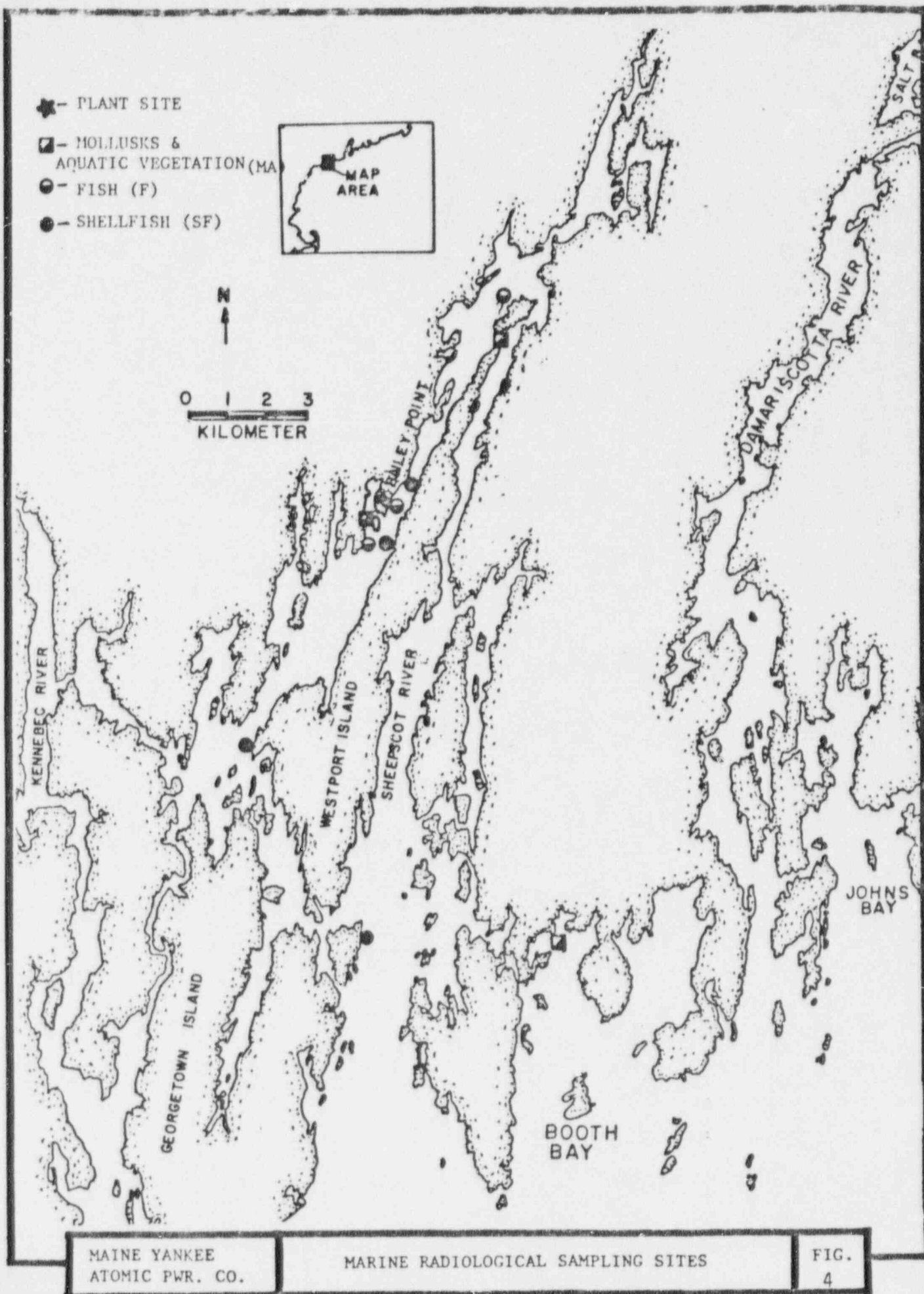




MAINE YANKEE
ATOMIC PWR. CO.

RADIOLOGICAL SAMPLING SITES WITHIN
CLOSE PROXIMITY TO PLANT

FIG.
3











III. SUMMARY OF 1980 ENVIRONMENTAL DATA

The following pages summarize the analytical results of all the environmental samples which were collected during 1980. These pages were generated by the computer program ERMAR.

MEDIUM AIR PARTICULATE FILTERS

UNITS: PC/CU. M

RADIOISOTOPES (NO. ANALYSES) (NON-ROUTINE)*		NOMINAL LLD	INDICATOR STATIONS MEAN, RANGE, AND NO. DETECTED**		STA.	HIGHEST STATION MEAN, RANGE, AND NO. DETECTED**		CONTROL LOCATIONS MEAN, RANGE, AND NO. DETECTED**	
-----		-----	-----		-----	-----		-----	
GR-8	(48A) (0)	4.0E-03	(2.4 ± .1)E -2 (5.5 = 89.1)E -3 *(362/364)*		29	(4.0 ± 1.7)E -2 (7.7 = 893.0)E -3 *(52/ 52)*	(3.4 ± .9)E -2 (7.7 = 893.0)E -3 *(104/104)*		
BE-7	(36) (0)	2.0E-02	(4.8 ± .1)E -2 (3.2 = 6.4)E -2 *(28/ 28)*		11	(5.2 ± .6)E -2 (3.7 = 6.4)E -2 *(4/ 4)*	(5.0 ± .2)E -2 (4.1 = 5.5)E -2 *(8/ 8)*		
K-40	(36) (0)	4.0E-02	(2.9 ± .7)E -3 (-6.9 = 10.2)E -3 *(0/ 28)*		29	(5.5 ± 2.1)E -3 *(0/ 4)*	(5.2 ± 1.1)E -3 (2.5 = 11.8)E -3 *(1/ 8)*		
CR-51	(36) (0)	2.0E-02	(2.9 ± 34.8)E -5 (-3.6 = 4.2)E -3 *(0/ 28)*		13	(1.4 ± .4)E -3 *(0/ 4)*	(3.0 ± 7.3)E -4 (-4.0 = 2.6)E -3 *(0/ 8)*		
NN-54	(36) (0)	2.0E-03	(2.5 ± 3.2)E -5 (-3.1 = 8.5)E -4 *(0/ 28)*		16	(1.7 ± .7)E -4 *(0/ 4)*	(-2.3 ± 4.7)E -5 (-1.2 = 2.7)E -4 *(0/ 8)*		
CO-58	(36) (0)	2.0E-03	(-4.6 ± 37.5)E -6 (-4.7 = 5.0)E -4 *(0/ 28)*		11	(1.3 ± .7)E -4 *(0/ 4)*	(6.2 ± 6.2)E -5 (-2.0 = 3.3)E -4 *(0/ 8)*		
FE-59	(36) (0)	3.0E-03	(-6.6 ± 7.7)E -5 (-9.4 = 11.2)E -4 *(0/ 28)*		14	(2.1 ± 3.1)E -4 *(0/ 4)*	(4.4 ± 12.1)E -5 (-5.1 = 4.2)E -4 *(0/ 8)*		
CO-60	(36) (0)	2.0E-03	(5.0 ± 4.0)E -5 (-3.1 = 5.9)E -4 *(0/ 28)*		17	(2.1 ± 1.2)E -4 *(0/ 4)*	(-1.7 ± .9)E -4 (-5.8 = 1.8)E -4 *(0/ 8)*		
ZN-65	(36) (0)	4.0E-03	(3.2 ± 8.5)E -5 (-8.0 = 8.7)E -4 *(0/ 28)*		16	(2.7 ± 2.5)E -4 *(0/ 4)*	(-1.3 ± 1.4)E -4 (-6.7 = 3.4)E -4 *(0/ 8)*		

- * NON-ROUTINE REFERS TO THE NUMBER OF SEPARATE MEASUREMENTS WHICH WERE GREATER THAN TEN (10) TIMES THE AVERAGE BACKGROUND FOR THE PERIOD OF THE REPORT
- ** THE FRACTION OF SAMPLE ANALYSES YIELDING DETECTABLE MEASUREMENTS (I.E. >3SIGMA) IS INDICATED WITHIN *()*.

MEDIUM AIR PARTICULATE FILTERS

UNITS: PCI/CU. M

RADIONUCLIDES NO. ANALYSES (NON-ROUTINE)*	NOMINAL LLD	INDICATOR STATIONS MEAN, RANGE, AND NO. DETECTED**	HIGHEST STATION MEAN, RANGE, AND NO. DETECTED**	CONTROL LOCATIONS MEAN, RANGE, AND NO. DETECTED**
-----	-----	-----	-----	-----
IR-95 (36) (0)	3.0E-03	(4.8 ± 1.6)E -4 (-3.4 = 23.7)E -4 *(5/28)*	29 (5.4 ± 5.7)E -3 (-4.7 = 284.0)E -4 *(1/4)*	(3.0 ± 2.8)E -3 (-4.7 = 224.0)E -4 *(2/8)*
SD-95 (36) (0)	1.0E-02	(6.5 ± 1.8)E -4 (-2.7 = 28.8)E -4 *(6/28)*	29 (5.0 ± 5.2)E -3 (-5.5 = 205.0)E -4 *(1/4)*	(2.7 ± 2.6)E -3 (-5.5 = 205.0)E -4 *(1/8)*
AG-110M (36) (0)	2.0E-03	(1.3 ± 20.0)E -5 (-2.3 = 2.0)E -3 *(0/28)*	17 (6.7 ± 7.5)E -4 *(0/4)*	(-2.6 ± 3.8)E -4 (-2.3 = 1.1)E -3 *(0/8)*
RU-103 (36) (0)	2.0E-03	(4.6 ± 1.6)E -4 (-4.8 = 22.7)E -4 *(7/28)*	13 (6.8 ± 5.3)E -4 (1.0 = 22.7)E -4 *(1/4)*	(4.7 ± 2.8)E -4 (-1.8 = 17.5)E -4 *(2/8)*
RU-106 (36) (0)	2.0E-02	(8.5 ± 30.1)E -5 (-3.7 = 3.9)E -3 *(0/28)*	12 (7.9 ± 4.7)E -4 *(0/4)*	(-3.0 ± 5.2)E -4 (-1.9 = 2.7)E -3 *(0/8)*
I-131 (36) (0)	3.0E-03	(6.6 ± 15.9)E -5 (-1.5 = 2.5)E -3 *(0/28)*	12 (4.9 ± 3.0)E -4 *(0/4)*	(-2.2 ± 2.5)E -4 (-1.1 = 1.2)E -3 *(0/8)*
CS-134 (36) (0)	2.0E-03	(-8.7 ± 3.3)E -5 (-4.0 = 2.6)E -4 *(0/28)*	11 (8.4 ± 6.1)E -5 *(0/4)*	(-1.9 ± .6)E -4 (-4.8 = 0.0)E -4 *(0/8)*
CS-137 (36) (0)	2.0E-03	(2.4 ± .3)E -4 (2.3 = 482.0)E -6 *(3/28)*	15 (4.2 ± 1.3)E -4 (1.7 = 6.8)E -4 *(1/4)*	(3.2 ± .8)E -4 (-1.3 = 6.2)E -4 *(3/8)*
BA-140 (36) (0)	5.0E-03	(2.3 ± 1.5)E -4 (-1.3 = 2.4)E -3 *(0/28)*	16 (9.2 ± 3.3)E -4 *(0/4)*	(-2.4 ± 4.5)E -4 (-2.5 = 1.6)E -3 *(0/8)*
CE-141 (36) (0)	3.0E-03	(3.5 ± 1.6)E -4 (-4.6 = 23.6)E -4 *(7/28)*	29 (1.3 ± 1.6)E -3 (-8.0 = 60.0)E -4 *(1/4)*	(8.4 ± 7.7)E -4 (-8.0 = 60.0)E -4 *(2/8)*

* NON-ROUTINE REFERS TO THE NUMBER OF SEPARATE MEASUREMENTS WHICH WERE GREATER THAN TEN (10) TIMES THE AVERAGE BACKGROUND FOR THE PERIOD OF THE REPORT

** THE FRACTION OF SAMPLE ANALYSES YIELDING DETECTABLE MEASUREMENTS (I.E. >3SIGMA) IS INDICATED WITHIN *()*.

MEDIUM: AIR PARTICULATE FILTERS

UNITS: PCICU. M

RADIONUCLIDES (NO. ANALYSES) NOMINAL (NON-ROUTINE)* LLD	INDICATOR STATIONS MEAN, RANGE, AND NO. DETECTED**	STA.	HIGHEST STATION MEAN, RANGE, AND NO. DETECTED**	CONTROL LOCATIONS MEAN, RANGE, AND NO. DETECTED**
CE-144 (36) (0)	2.0E-02 (3.5 ± 1.1)E =4 (-6.0 = 15.7)F =4 *(0 / 28)*	29	(1.1 ± 1.1)E =3 (-0.5 = 43.5)F =4 *(1 / 4)*	(5.9 ± 5.6)F =4 (-8.5 = 47.5)F =4 *(1 / 8)*
TH-234 (36) (0)	9.0E-03 (-5.6 ± 12.4)E =5 (-1.6 = 1.9)F =3 *(0 / 28)*	29	(6.8 ± 5.1)E =4 *(0 / 4)*	(5.2 ± 2.6)F =4 (-2.7 = 20.5)E =4 *(0 / 8)*

- * NON-ROUTINE REFERS TO THE NUMBER OF SEPARATE MEASUREMENTS WHICH WERE GREATER THAN TEN (10) TIMES THE AVERAGE BACKGROUND FOR THE PERIOD OF THE REPORT
- ** THE FRACTION OF SAMPLE ANALYSES YIELDING DETECTABLE MEASUREMENTS (I.E. >3SIGMA) IS INDICATED WITHIN *()*.

MEDIUM: ARTHROPODS

UNITS: PCI/KG WET

RADIOISOTOPES (NON-ROUTINE)*	ANALYSES	NOMINAL LLD	INDICATOR STATIONS		STA.	HIGHEST STATION		CONTROL LOCATIONS	
			MEAN, RANGE, AND NO. DETECTED**			MEAN, RANGE, AND NO. DETECTED**		MEAN, RANGE, AND NO. DETECTED**	
BE-7	(20) (0)	.2	(7.7 ± 27.0)E 0 (-1.5 - 2.5)E 2 *(0 / 13)*		12	(7.8 ± 6.7)E 1 *(0 / 4)*		(1.5 ± 4.3)E 1 (-2.3 - 1.0)E 2 *(0 / 7)*	
K-40	(20) (0)	.5	(1.4 ± .2)E 3 (6.9 - 30.7)E 2 *(0 / 13)*		24	(1.8 ± .3)E 3 (7.4 - 31.6)E 2 *(7 / 7)*		(1.8 ± .3)E 3 (7.4 - 31.6)E 2 *(7 / 7)*	
CR-51	(20) (0)	3.2E+02	(-6.7 ± 8.7)E 1 (-4.7 - 2.0)E 2 *(0 / 13)*		24	(6.8 ± 8.1)E 1 *(0 / 7)*		(6.8 ± 8.1)E 1 (-2.7 - 3.7)E 2 *(0 / 7)*	
MN-54	(20) (0)	2.0E+02	(2.1 ± 8.2)E 0 (-2.6 - 2.3)E 1 *(0 / 13)*		12	(6.4 ± 5.6)E 0 *(0 / 4)*		(-9.0 ± 6.2)E 0 (-6.2 - .6)E 1 *(0 / 7)*	
CO-58	(20) (0)	2.0E+02	(-9.5 ± 5.2)E 0 (-3.6 - 2.4)E 1 *(0 / 13)*		24	(3.8 ± 9.3)E 0 *(0 / 7)*		(3.8 ± 9.3)E 0 (-3.4 - 4.3)E 1 *(0 / 7)*	
FE-59	(20) (0)	3.0E+01	(-3.3 ± 7.8)E 0 (-4.1 - 6.0)E 1 *(0 / 13)*		11	(7.6 ± 10.7)E 0 *(0 / 4)*		(-1.4 ± 1.7)E 1 (-6.7 - 6.5)E 1 *(0 / 7)*	
CO-60	(20) (0)	2.0E+02	(-5.8 ± 4.7)E 0 (-4.8 - 1.9)E 1 *(0 / 13)*		11	(2.1 ± 3.9)E 0 *(0 / 4)*		(-3.9 ± 5.7)E 0 (-3.1 - 1.3)E 1 *(0 / 7)*	
ZN-65	(20) (0)	6.7E+01	(-1.6 ± 1.1)E 1 (-8.3 - 7.2)E 1 *(0 / 13)*		24	(-1.1 ± 2.0)E 1 *(0 / 7)*		(-1.1 ± 2.0)E 1 (-9.4 - 7.1)E 1 *(0 / 7)*	
ZR-95	(20) (0)	4.0E+02	(-4.2 ± 73.3)E -1 (-4.2 - 6.7)E 1 *(0 / 13)*		24	(1.7 ± 1.4)E 1 *(0 / 7)*		(1.7 ± 1.4)E 1 (-4.0 - 6.6)E 1 *(0 / 7)*	

* NON-ROUTINE REFERS TO THE NUMBER OF SEPARATE MEASUREMENTS WHICH WERE GREATER THAN TEN (10) TIMES THE AVERAGE BACKGROUND FOR THE PERIOD OF THE REPORT

** THE FRACTION OF SAMPLE ANALYSES YIELDING DETECTABLE MEASUREMENTS (I.E., >3SIGMA) IS INDICATED WITHIN *()*,

OFFSITE ENVIRONMENTAL RADIOLOGICAL MONITORING
SUMMARY FOR THE PERIOD 12/28/79 - 12/31/80

MAINE YANKEE

MEDIUM ARTHROPODS

UNITS: DCI/KG KEV

RADIOISOTOPES (NO. ANALYSES) (NON-ROUTINE)*	NOMINAL LLO	INDICATOR STATIONS		HIGHEST STATION		CONTROL LOCATIONS	
		MEAN, RANGE, AND NO. DETECTED**	NO. DETECTED**	MEAN, RANGE, AND NO. DETECTED**	NO. DETECTED**	MEAN, RANGE, AND NO. DETECTED**	NO. DETECTED**
MB-95 (20) (0)	3.0E+01	(-1.3 ± 61.7)E -1 (-0.5 - 4.7)E 1 *(0/ 13)*	24	(9.0 ± 6.0)E 0 *(0/ 7)*	0	(9.0 ± 6.0)E 0 (-1.6 - 2.9)E 1 *(0/ 7)*	0
AG-110M (20) (0)	2.5E+02	(1.2 ± 2.9)E 1 (-1.5 - 1.6)E 2 *(0/ 13)*	11	(6.4 ± 5.1)E 1 *(0/ 4)*	1	(2.5 ± 3.3)E 1 (-7.1 - 16.5)E 1 *(0/ 7)*	1
RU-103 (20) (0)	2.0E+02	(1.4 ± 3.9)E 0 (-1.8 - 4.0)E 1 *(0/ 13)*	13	(8.3 ± 9.0)E 0 *(0/ 5)*	0	(4.7 ± 10.2)E -2 (-1.5 - 1.7)E 1 *(0/ 7)*	-2
RU-106 (20) (0)	.2	(2.1 ± 4.2)E 1 (-2.3 - 2.1)E 2 *(0/ 13)*	20	(5.9 ± 5.5)E 1 *(0/ 7)*	1	(5.9 ± 5.5)E 1 (-1.1 - 3.2)E 2 *(0/ 7)*	1
I-131 (20) (0)	0.	(-6.0 ± 40.2)E 0 (-3.0 - 2.9)E 2 *(0/ 13)*	20	(1.4 ± 1.0)E 2 *(0/ 7)*	2	(1.4 ± 1.0)E 2 (-6.0 - 68.2)E 1 *(0/ 7)*	2
CS-134 (20) (0)	2.0E+02	(-0.3 ± 4.6)E 0 (-3.2 - 2.5)E 1 *(0/ 13)*	11	(-3.1 ± 4.0)E 0 *(0/ 4)*	0	(-7.7 ± 6.0)E 0 (-2.9 - 2.1)E 1 *(0/ 7)*	0
CS-137 (20) (0)	2.0E+02	(-5.4 ± 4.2)E 0 (-3.6 - 1.3)E 1 *(0/ 13)*	20	(8.1 ± 5.2)E 0 *(0/ 7)*	0	(8.1 ± 5.2)E 0 (-7.7 - 29.9)E 0 *(0/ 7)*	0
SA-140 (20) (0)	8.0E+02	(-1.0 ± .5)E 2 (-4.8 - .8)E 2 *(0/ 13)*	24	(6.8 ± 5.8)E 1 *(0/ 7)*	1	(6.8 ± 5.8)E 1 (-2.3 - 47.9)E 1 *(0/ 7)*	1
CE-144 (20) (0)	.2	(2.8 ± 18.0)E 0 (-1.3 - .8)E 2 *(0/ 13)*	12	(3.9 ± 1.5)E 1 *(0/ 4)*	1	(9.1 ± 17.1)E 0 (-7.2 - 3.8)E 1 *(0/ 7)*	0
RA-226 (20) (0)	.1	(3.1 ± 8.0)E 1 (-5.0 - 6.5)E 2 *(0/ 13)*	20	(2.1 ± 1.2)E 2 *(0/ 7)*	2	(2.1 ± 1.2)E 2 (-1.8 - 8.0)E 2 *(0/ 7)*	2

* NONROUTINE REFERS TO THE NUMBER OF SEPARATE MEASUREMENTS WHICH WERE GREATER THAN TEN (10) TIMES THE AVERAGE BACKGROUND FOR THE PERIOD OF THE REPORT

** THE FRACTION OF SAMPLE ANALYSES VIOLATING DETECTABLE MEASUREMENTS (I.E. DESIGNA) IS INDICATED WITHIN *()*

MEDIUM: ARTHROPODS

UNITS: PC1/KG WET

RADIOISOTOPES		INDICATOR STATIONS		HIGHEST STATION		CONTROL LOCATIONS	
NO. ANALYSES*	NOMINAL	MEAN, RANGE, AND		MEAN, RANGE, AND		MEAN, RANGE, AND	
(NON-ROUTINE)**	LLD	NO. DETECTED**	STA.	NO. DETECTED**		NO. DETECTED**	
-----	-----	-----	---	-----	-----	-----	-----
H-228 (26)	2.0E-02	(1.3 ± 1.2)E 1	11	(2.6 ± 2.0)F 1	(-1.3 ± 1.7)F 1		
(0)		(-9.4 - 8.3)F 1		*(0/ 4)*	(-8.9 - 8.5)F 1		
		(0/ 13)			*(0/ 7)*		

* NON-ROUTINE REFERS TO THE NUMBER OF SEPARATE MEASUREMENTS WHICH WERE GREATER THAN TEN (10) TIMES THE AVERAGE BACKGROUND FOR THE PERIOD OF THE REPORT

** THE FRACTION OF SAMPLE ANALYSES YIELDING DETECTABLE MEASUREMENTS (I.E. >3SIGMA) IS INDICATED WITHIN *()%.

MAINE YANKEE

OFFSITE ENVIRONMENTAL RADIOLOGICAL MONITORING
SUMMARY FOR THE PERIOD 12/28/79 - 12/31/80

81/03/23. PAGE 11

MEDIUM: CHARCOAL FILTERS

UNITS: PCI/CU. M

RADIONUCLIDES (NO. ANALYSES) NOMINAL (NON-ROUTINE)* LLD		INDICATOR STATIONS MEAN, RANGE, AND NO. DETECTED**	STA.	HIGHEST STATION MEAN, RANGE, AND NO. DETECTED**	CONTROL LOCATIONS MEAN, RANGE, AND NO. DETECTED**
I-131	(N68) 3.0E-03 (0)	(-7.7 ± 83.6)E -5 (-2.9 - 2.2)E -2 *(0/364)*	14	(1.6 ± 1.0)E -4 *(0/ 52)*	(2.3 ± 6.9)E -4 (-1.1 - 1.6)E -2 *(0/104)*

- * NON-ROUTINE REFERS TO THE NUMBER OF SEPARATE MEASUREMENTS WHICH WERE GREATER THAN TEN (10) TIMES THE AVERAGE BACKGROUND FOR THE PERIOD OF THE REPORT
- ** THE FRACTION OF SAMPLE ANALYSES YIELDING DETECTABLE MEASUREMENTS (I.E. >3SIGMA) IS INDICATED WITHIN *()*.

MEDIUM: FOOD/GARDEN CROPS

UNITS: PCI/KG WET

RADIOISOTOPES (NO. ANALYSES) NOMINAL (NON-ROUTINE)* LLN			INDICATOR STATIONS MEAN, RANGE, AND NO. DETECTED**			STA.	HIGHEST STATION MEAN, RANGE, AND NO. DETECTED**			CONTROL LOCATION MEAN, RANGE, AND NO. DETECTED**		
-----			-----				-----			-----		
BE-7	(6) (0)	.2	(8.7 ± 3.8)E 1 (1.4 = 14.4)E 1 *(0/ 3)*			11	(1.4 ± .8)E 2 *(0/ 1)*			(-5.3 ± .8)E 1 (-6.1 = 0.0)E 1 *(0/ 3)*		
K-40	(6) (0)	.5	(2.9 ± .9)E 3 (1.1 = 4.0)E 3 *(3/ 3)*			12	(3.8 ± .2)E 3 (3.6 = 4.0)E 3 *(2/ 2)*			(2.3 ± 1.0)E 3 (6.1 = 40.1)E 2 *(3/ 3)*		
CR-51	(3) (0)	3.2E+02	(-6.2 ± 6.4)E 1 (-1.8 = .4)E 2 *(0/ 3)*			23	(-2.9 ± 1.0)E 1 *(0/ 3)*			(-2.9 ± 1.0)E 1 (-4.9 = 0.0)E 1 *(0/ 3)*		
MN-54	(6) (0)	2.0E+02	(8.0 ± 3.0)E 0 (3.9 = 10.6)E 0 *(0/ 3)*			12	(9.2 ± 5.6)E 0 *(0/ 2)*			(8.7 ± 80.3)E -1 (-1.2 = 1.6)E 1 *(0/ 3)*		
CO-58	(6) (0)	2.9E+02	(-8.6 ± 8.0)E 0 (-2.2 = .6)E 1 *(0/ 3)*			23	(-5.7 ± 57.1)E -1 *(0/ 3)*			(-5.7 ± 57.1)E -1 (-1.0 = .9)E 1 *(0/ 3)*		
FE-59	(6) (0)	3.0E+01	(9.7 ± 30.0)E 0 (-3.3 = 7.7)E 1 *(0/ 3)*			12	(2.2 ± 5.5)E 1 *(0/ 2)*			(-3.6 ± 5.8)E 0 (-1.4 = .6)E 1 *(0/ 3)*		
CO-60	(6) (0)	2.0E+02	(-9.3 ± 10.1)E 0 (-2.0 = 1.1)E 1 *(0/ 3)*			11	(1.1 ± 1.3)E 1 *(0/ 1)*			(1.1 ± .9)E 1 (8.8 = 283.0)E -1 *(0/ 3)*		
ZN-65	(6) (0)	6.7E+01	(-7.1 ± 14.2)E 0 (-3.3 = 1.7)E 1 *(0/ 3)*			11	(1.7 ± 2.5)E 1 *(0/ 1)*			(-6.5 ± 16.4)E 0 (-3.1 = 2.5)E 1 *(0/ 3)*		
ZR-95	(6) (0)	4.0E+02	(2.9 ± 11.8)E 0 (-2.1 = 1.5)E 1 *(0/ 3)*			11	(1.5 ± 1.6)E 1 *(0/ 1)*			(-5.9 ± 11.3)E 0 (-2.8 = .8)E 1 *(0/ 3)*		

* NON-ROUTINE REFERS TO THE NUMBER OF SEPARATE MEASUREMENTS WHICH WERE GREATER THAN TEN (10) TIMES THE AVERAGE BACKGROUND FOR THE PERIOD OF THE REPORT

** THE FRACTION OF SAMPLE ANALYSES YIELDING DETECTABLE MEASUREMENTS (I.E., >3SIGMA) IS INDICATED WITHIN * ()%.

MEDIUM: FOOD/GARDEN CROPS

UNITS: PCI/KG WET

RADIOISOTOPES (NO. ANALYSES) (NON-ROUTINE)*	NOMINAL LLD	INDICATOR STATIONS MEAN, RANGE, AND NO. DETECTED**	STA.	HIGHEST STATION MEAN, RANGE, AND NO. DETECTED**	CONTROL LOCATIONS MEAN, RANGE, AND NO. DETECTED**
NB-95 (6) (0)	3.9E+01	(-1.1 ± 7.8)E 0 (-1.5 - 1.3)E 1 *(0/ 3)*	11	(1.3 ± 1.2)E 1 *(0/ 1)*	(-1.3 ± 7.9)E 0 (-1.6 - 1.2)E 1 *(0/ 3)*
AG-110M (6) (0)	2.5E+02	(3.2 ± 7.9)E 1 (-1.1 - 1.6)E 2 *(0/ 3)*	11	(4.5 ± 8.0)E 1 *(0/ 1)*	(4.3 ± 1.6)E 1 (1.4 - 7.0)E 1 *(0/ 3)*
RU-103 (6) (0)	2.0E+02	(-5.0 ± 8.5)E 0 (-1.5 - 1.2)E 1 *(0/ 3)*	23	(1.3 ± 2.2)E 0 *(0/ 3)*	(1.3 ± 2.2)E 0 (-3.1 - 3.9)E 0 *(0/ 3)*
RU-106 (6) (0)	.2	(-1.7 ± 3.9)E 1 (-9.1 - 4.3)E 1 *(0/ 3)*	11	(-2.4 ± 85.7)E 0 *(0/ 1)*	(-5.1 ± 5.4)E 1 (-1.1 - .6)E 2 *(0/ 3)*
I-131 (6) (0)	0.	(-3.2 ± 1.1)E 1 (-5.3 - 0.0)E 1 *(0/ 3)*	23	(3.6 ± 77.5)E -1 *(0/ 3)*	(3.6 ± 77.5)E -1 (-1.5 - .9)E 1 *(0/ 3)*
CS-134 (6) (0)	2.0E+02	(-2.2 ± .7)E 1 (-3.1 - 0.0)E 1 *(0/ 3)*	11	(-8.3 ± 10.6)E 0 *(0/ 1)*	(-1.5 ± .6)E 1 (-2.7 - 0.0)E 1 *(0/ 3)*
CS-137 (6) (0)	2.0E+02	(5.1 ± 2.1)E 0 (2.3 - 10.2)E 0 *(0/ 3)*	11	(1.0 ± 1.1)E 1 *(0/ 1)*	(1.0 ± 2.4)E 0 (-1.9 - 5.8)E 0 *(0/ 3)*
BA-140 (6) (0)	8.0E+02	(-2.5 ± 30.2)E 0 (-4.0 - 5.7)E 1 *(0/ 3)*	23	(1.0 ± 1.1)E 1 *(0/ 3)*	(1.0 ± 1.1)E 1 (-1.3 - 2.3)E 1 *(0/ 3)*
CE-144 (6) (0)	.2	(6.3 ± 818.3)E -1 (-8.3 - 4.8)E 1 *(0/ 3)*	11	(3.7 ± 5.4)E 1 *(0/ 1)*	(1.8 ± 5.0)E 1 (-4.8 - 11.5)E 1 *(0/ 3)*
RA-226 (6) (0)	.1	(-2.5 ± 1.5)E 2 (-5.3 - 0.0)E 2 *(0/ 3)*	23	(9.6 ± 9.7)E 1 *(0/ 3)*	(9.6 ± 9.7)E 1 (-9.1 - 23.1)E 1 *(0/ 3)*

* NON-ROUTINE REFERS TO THE NUMBER OF SEPARATE MEASUREMENTS WHICH WERE GREATER THAN TEN (10) TIMES THE AVERAGE BACKGROUND FOR THE PERIOD OF THE REPORT

** THE FRACTION IF SAMPLE ANALYSES YIELDING DETECTABLE MEASUREMENTS (I.E. >3SIGMA) IS INDICATED WITHIN *()*.

UNITS: PCI/KG WET

MEDIUM: FOOD/GARDEN CROPS

RADIONUCLIDES (NO. ANALYSES) NOMINAL (NON-ROUTINE)* LLD	INDICATOR STATIONS MEAN, RANGE, AND NO. DETECTED**	STA.	HIGHEST STATION MEAN, RANGE, AND NO. DETECTED**	CONTROL LOCATIONS MEAN, RANGE, AND NO. DETECTED**
TH-232 (6) 2.0E-02 (0)	(=1.0 ± .5)E 1 (=1.6 ± 0.0)E 1 *(0/ 3)*	23	(=1.5 ± 20.6)E 0 *(0/ 3)*	(=1.5 ± 20.6)E 0 (=2.6 ± 3.9)E 1 *(0/ 3)*

- * NON-ROUTINE REFERS TO THE NUMBER OF SEPARATE MEASUREMENTS WHICH WERE GREATER THAN TEN (10) TIMES THE AVERAGE BACKGROUND FOR THE PERIOD OF THE REPORT
- ** THE FRACTION OF SAMPLE ANALYSES YIELDING DETECTABLE MEASUREMENTS (I.E. >3SIGMA) IS INDICATED WITHIN *()*.

MEDIUM FISH

UNITS: PCI/KG WET

RADIOISOTOPES (NO. ANALYSES) (NON-ROUTINE)*			NOMINAL LLD	INDICATOR STATIONS MEAN, RANGE, AND NO. DETECTED**		STA.	HIGHEST STATION MEAN, RANGE, AND NO. DETECTED**		CONTROL LOCATIONS MEAN, RANGE, AND NO. DETECTED**
-----			-----	-----		-----	-----		-----
SE-7	(1) (0)	.2	(1.2 ± 1.2)E 2	11	(1.2 ± 1.2)E 2			NO DATA	
			(0 / 1)		*(0 / 1)*				
K-40	(1) (0)	.5	(2.9 ± .3)E 3	11	(2.9 ± .3)E 3			NO DATA	
			(1 / 1)		*(1 / 1)*				
CR-51	(1) (0)	3.7E+02	(1.7 ± 1.7)E 2	11	(1.7 ± 1.7)E 2			NO DATA	
			(0 / 1)		*(0 / 1)*				
MN-54	(1) (0)	2.0E+02	(8.2 ± 100.0)E 0	11	(8.2 ± 100.0)E 0			NO DATA	
			(0 / 1)		*(0 / 1)*				
CO-58	(1) (0)	2.0E+02	(-2.1 ± 1.0)E 1 (-2.1 ± 0.0)E 1	11	(-2.1 ± 1.0)E 1			NO DATA	
			(0 / 1)		*(0 / 1)*				
FE-59	(1) (0)	3.0E+01	(1.4 ± 3.1)E 1	11	(1.4 ± 3.1)E 1			NO DATA	
			(0 / 1)		*(0 / 1)*				
CO-60	(1) (0)	2.0E+02	(9.4 ± 13.3)E 0	11	(9.4 ± 13.3)E 0			NO DATA	
			(0 / 1)		*(0 / 1)*				
ZN-65	(1) (0)	6.7E+01	(2.3 ± 2.3)E 1	11	(2.3 ± 2.3)E 1			NO DATA	
			(0 / 1)		*(0 / 1)*				
ZR-95	(1) (0)	4.0E+02	(9.8 ± 22.3)E 0	11	(9.8 ± 22.3)E 0			NO DATA	
			(0 / 1)		*(0 / 1)*				

* NON-ROUTINE REFERS TO THE NUMBER OF SEPARATE MEASUREMENTS WHICH WERE GREATER THAN TEN (10) TIMES THE AVERAGE BACKGROUND FOR THE PERIOD OF THE REPORT

** THE FRACTION OF SAMPLE ANALYSES YIELDING DETECTABLE MEASUREMENTS (I.E., >3SIGMA) IS INDICATED WITHIN *()*.

MEDIUM: FISH

UNITS: PCI/KG WET

RADIOISOTOPES (NO. ANALYSES) (NON-ROUTINE)*		NOMINAL LLD	INDICATOR STATIONS MEAN, RANGE, AND NO. DETECTED**		STA.	HIGHEST STATION MEAN, RANGE, AND NO. DETECTED**		CONTROL LOCATIONS MEAN, RANGE, AND NO. DETECTED**
-----		-----	-----		----	-----		-----
NB-95	(1) (0)	3.9E+01	(4.8 ± 11.0)E 0 *(0/ 1)*	0	11	(4.8 ± 11.0)E 0 *(0/ 1)*	NO DATA	
AG-110M	(1) (0)	2.5E+02	(-2.1 ± 82.0)E 0 (-2.1 - 0.0)E 0 *(0/ 1)*	0	11	(-2.1 ± 82.0)E 0 *(0/ 1)*	NO DATA	
RU-103	(1) (0)	2.0E+02	(-3.3 ± 1.7)E 1 (-3.3 - 0.0)E 1 *(0/ 1)*	1	11	(-3.3 ± 1.7)E 1 *(0/ 1)*	NO DATA	
RU-106	(1) (0)	.2	(-0.5 ± 8.8)E 1 (-0.5 - 0.0)E 1 *(0/ 1)*	1	11	(-0.5 ± 8.8)E 1 *(0/ 1)*	NO DATA	
I-131	(1) (0)	0.	(9.6 ± 20.9)E 1 *(0/ 1)*	1	11	(9.6 ± 20.9)E 1 *(0/ 1)*	NO DATA	
CS-134	(1) (0)	2.0E+02	(-1.3 ± 1.0)E 1 (-1.3 - 0.0)E 1 *(0/ 1)*	1	11	(-1.3 ± 1.0)E 1 *(0/ 1)*	NO DATA	
CS-137	(1) (0)	2.0E+02	(-9.1 ± 9.0)E 0 (-9.1 - 0.0)E 0 *(0/ 1)*	0	11	(-9.1 ± 9.0)E 0 *(0/ 1)*	NO DATA	
BA-140	(1) (0)	8.0E+02	(2.6 ± 7.9)E 1 *(0/ 1)*	1	11	(2.6 ± 7.9)E 1 *(0/ 1)*	NO DATA	
CE-144	(1) (0)	.2	(-5.5 ± 5.7)E 1 (-5.5 - 0.0)E 1 *(0/ 1)*	1	11	(-5.5 ± 5.7)E 1 *(0/ 1)*	NO DATA	
RA-226	(1) (0)	.1	(-1.8 ± 2.5)E 2 (-1.8 - 0.0)E 2 *(0/ 1)*	2	11	(-1.8 ± 2.5)E 2 *(0/ 1)*	NO DATA	

* NON-ROUTINE REFERS TO THE NUMBER OF SEPARATE MEASUREMENTS WHICH WERE GREATER THAN TEN (10) TIMES THE AVERAGE BACKGROUND FOR THE PERIOD OF THE REPORT

** THE FRACTION OF SAMPLE ANALYSES YIELDING DETECTABLE MEASUREMENTS (I.E. >3SIGMA) IS INDICATED WITHIN *()*.

MEDIUM: FISH

UNITS: PCI/KG WET

RADIONUCLIDES (NO. ANALYSES) NOMINAL (NON-ROUTINE)* LLD	INDICATOR STATIONS MEAN, RANGE, AND NO. DETECTED**	HIGHEST STATION MEAN, RANGE, AND NO. DETECTED**	CONTROL LOCATIONS MEAN, RANGE, AND NO. DETECTED**
-----	-----	-----	-----
TH-228 (1) 2.0E-02 (0)	(-1.0 ± 4.8)E 1 (-1.0 - 0.0)E 1 *(0 / 1)*	11 (-1.0 ± 4.8)E 1 *(0 / 1)*	NO DATA

- * NON-ROUTINE REFERS TO THE NUMBER OF SEPARATE MEASUREMENTS WHICH WERE GREATER THAN TEN (10) TIMES THE AVERAGE BACKGROUND FOR THE PERIOD OF THE REPORT
- ** THE FRACTION OF SAMPLE ANALYSES YIELDING DETECTABLE MEASUREMENTS (I.E. >3SIGMA) IS INDICATED WITHIN *()*.

UNITS: PCI/LITER

MEDIUM: MILK

RADIOISOTOPES (NO. ANALYSES) (NON-ROUTINE)*		NOMINAL LLD	INDICATOR STATIONS MEAN, RANGE, AND NO. DETECTED**	STA.	HIGHEST STATION MEAN, RANGE, AND NO. DETECTED**	CONTROL LOCATIONS MEAN, RANGE, AND NO. DETECTED**
-----		-----	-----	-----	-----	-----
SR-89 (24) (0)	4.	(1.0 ± .4)E 0 (-8.7 - 44.9)E -1 *(1/ 12)*	16	(1.0 ± .4)E 0 (-8.7 - 44.9)E -1 *(1/ 12)*	(3.4 ± 1.9)E -1 (-4.6 - 13.1)E -1 *(0/ 12)*	
SR-90 (24) (0)	8.	(1.4 ± .1)E 1 (1.2 - 1.9)E 1 *(12/ 12)*	16	(1.4 ± .1)E 1 (1.2 - 1.9)E 1 *(12/ 12)*	(3.3 ± .2)E 0 (2.6 - 4.9)E 0 *(12/ 12)*	
BE-7 (24) (0)	8.0E+01	(6.9 ± 308.4)E -2 (-2.6 - 1.3)E 1 *(0/ 12)*	16	(6.9 ± 308.4)E -2 *(0/ 12)*	(-1.4 ± 2.6)E 1 (-1.3 - 1.3)E 1 *(0/ 12)*	
K-40 (24) (0)	2.0E+02	(1.3 ± .1)E 3 (1.0 - 1.8)E 3 *(12/ 12)*	24	(1.4 ± .0)E 3 (1.3 - 1.6)E 3 *(12/ 12)*	(1.4 ± .0)E 3 (1.3 - 1.6)E 3 *(12/ 12)*	
CR-51 (24) (0)	-1.0-100	(3.0 ± 3.1)E 0 (-1.7 - 1.7)E 1 *(0/ 12)*	16	(3.0 ± 3.1)E 0 *(0/ 12)*	(-4.7 ± 21.9)E -1 (-2.1 - .8)E 1 *(0/ 12)*	
MN-54 (24) (0)	8.	(7.3 ± 31.9)E -2 (-2.3 - 1.3)E 0 *(0/ 12)*	16	(7.3 ± 31.9)E -2 *(0/ 12)*	(-1.9 ± 2.3)E -1 (-1.3 - 1.1)E 0 *(0/ 12)*	
CO-58 (24) (0)	8.	(-3.7 ± 3.5)E -1 (-2.7 - 1.5)E 0 *(0/ 12)*	24	(-2.1 ± 2.9)E -1 *(0/ 12)*	(-2.1 ± 2.9)E -1 (-1.6 - 2.1)E 0 *(0/ 12)*	
FE-59 (24) (0)	1.0E+01	(-5.4 ± 6.2)E -1 (-5.1 - 2.1)E 0 *(0/ 12)*	24	(-5.3 ± 6.9)E -1 *(0/ 12)*	(-5.3 ± 6.9)E -1 (-3.9 - 3.2)E 0 *(0/ 12)*	
CO-60 (24) (0)	8.	(8.8 ± 31.6)E -2 (-2.6 - 1.8)E 0 *(0/ 12)*	16	(8.8 ± 31.6)E -2 *(0/ 12)*	(-5.9 ± 272.9)E -3 (-1.3 - 1.7)E 0 *(0/ 12)*	

0 NON-ROUTINE REFERS TO THE NUMBER OF SEPARATE MEASUREMENTS WHICH WERE GREATER THAN TEN (10) TIMES THE AVERAGE BACKGROUND FOR THE PERIOD OF THE REPORT

** THE FRACTION OF SAMPLE ANALYSES YIELDING DETECTABLE MEASUREMENTS (I.E. >3SIGMA) IS INDICATED WITHIN *()*.

UNITS: PCI/LITER

MEDIUM: MILK

RADIOISOTOPE (NO. ANALYSES) (NON-ROUTINE)*	NOMINAL LLD	INDICATOR STATIONS MEAN, RANGE, AND NO. DETECTED**	Sta.	HIGHEST STATION MEAN, RANGE, AND NO. DETECTED**	CONTROL LOCATIONS MEAN, RANGE, AND NO. DETECTED**
EN-93 (24) (0)	1.0-100	(-7.2 ± 8.0)E -1 (-6.3 = 3.0)E 0 *(0/ 12)*	24	(-1.8 ± 5.4)E -1 *(0/ 12)*	(-1.8 ± 5.4)E -1 (-3.4 = 2.7)E 0 *(0/ 12)*
ER-95 (24) (0)	1.0E+01	(-2.1 ± 5.2)E -1 (-2.3 = 3.3)E 0 *(0/ 12)*	24	(-2.9 ± 5.9)E -1 *(0/ 12)*	(-2.9 ± 5.9)E -1 (-2.0 = 5.2)E 0 *(0/ 12)*
NR-95 (24) (0)	1.0-100	(-3.2 ± 2.4)E -1 (-1.1 = 1.9)E 0 *(0/ 12)*	24	(-5.2 ± 2.1)E -1 *(0/ 12)*	(-5.2 ± 2.1)E -1 (-9.9 = 16.9)E -1 *(0/ 12)*
AG-110 (24) (0)	1.0-100	(-2.1 ± 2.0)E 0 (-1.4 = .8)E 1 *(0/ 12)*	16	(-2.1 ± 2.0)E 0 *(0/ 12)*	(-2.5 ± 2.7)E 0 (-2.1 = 1.8)E 1 *(0/ 12)*
RU-103 (24) (0)	8.	(-7.5 ± 3.1)E -1 (-2.0 = 1.2)E 0 *(0/ 12)*	24	(-6.9 ± 3.1)E -1 *(0/ 12)*	(-6.9 ± 2.1)E -1 (-1.9 = .4)E 0 *(0/ 12)*
RU-106 (24) (0)	8.0E+01	(-4.3 ± 8.0)E -1 (-5.1 = 5.6)E 0 *(0/ 12)*	16	(-4.3 ± 8.4)E -1 *(0/ 12)*	(-2.0 ± 2.4)E 0 (-1.7 = 1.2)E 1 *(0/ 12)*
I-131 (24) (2)	.5	(-1.2 ± .7)E -1 (-1.1 = 73.4)E -2 *(2/ 12)*	16	(-1.2 ± .7)E -1 (-1.1 = 73.4)E -2 *(2/ 12)*	(-1.7 ± 1.1)E -2 (-1.4 = 11.2)E -2 *(2/ 12)*
CS-134 (24) (0)	9.	(-5.6 ± 1.4)E -1 (-1.5 = .0)E 0 *(0/ 12)*	16	(-5.6 ± 1.4)E -1 *(0/ 12)*	(-1.1 ± .0)E 0 (-3.3 = .5)E 0 *(0/ 12)*
CS-137 (24) (0)	9.	(-1.9 ± .2)E 1 (-8.2 = 30.2)E 0 *(12/ 12)*	16	(-1.9 ± .2)E 1 (-8.2 = 30.2)E 0 *(12/ 12)*	(-6.5 ± .6)E 0 (-2.4 = 8.7)E 0 *(11/ 12)*
BA-140 (24) (0)	1.5E+01	(-2.0 ± 2.6)E -1 (-1.6 = 1.5)E 0 *(0/ 12)*	16	(-2.0 ± 2.6)E -1 *(0/ 12)*	(-1.2 ± .7)E 0 (-5.9 = 1.7)E 0 *(0/ 12)*

* NON-ROUTINE REFERS TO THE NUMBER OF SEPARATE MEASUREMENTS WHICH WERE GREATER THAN TEN (10) TIMES THE AVERAGE BACKGROUND FOR THE PERIOD OF THE REPORT

** THE FRACTION OF SAMPLE ANALYSES YIELDING DETECTABLE MEASUREMENTS (I.E. SIGMA) IS INDICATED WITHIN * () *.

MEDIUM: MILK

UNITS: PCI/LITER

RADIOISOTOPES (NO. ANALYSES, NOMINAL (NON-ROUTINE)* LLD)	INDICATOR STATIONS MEAN, RANGE, AND NO. DETECTED**	STA.	HIGHEST STATION MEAN, RANGE, AND NO. DETECTED**	CONTROL LOCATIONS MEAN, RANGE, AND NO. DETECTED**
-----	-----	----	-----	-----
CE-144 (24) (0)	8.0E+01 (1.0 ± 1.4)E 0 (=7.3 - 10.2)E 0 *(0/ 12)*	24	(2.5 ± 1.4)E 0 *(0/ 12)*	(2.5 ± 1.4)E 0 (=1.0 - 1.1)E 1 *(0/ 12)*
RA-226 (24) (0)	6.0E+01 (4.5 ± 7.5)E 0 (=4.2 - 8.6)E 1 *(0/ 12)*	16	(4.5 ± 7.5)E 0 *(0/ 12)*	(=9.5 ± 48.6)E -1 (=2.9 - 3.3)E 1 *(0/ 12)*
TH-228 (24) (0)	1.0E+01 (=1.2 ± .9)E 0 (=5.5 - 3.6)E 0 *(0/ 12)*	24	(3.5 ± 7.2)E -1 *(0/ 12)*	(3.5 ± 7.2)E -1 (=5.8 - 8.5)E 0 *(0/ 12)*

- * NON-ROUTINE REFERS TO THE NUMBER OF SEPARATE MEASUREMENTS WHICH WERE GREATER THAN TEN (10) TIMES THE AVERAGE BACKGROUND FOR THE PERIOD OF THE REPORT
- ** THE FRACTION OF SAMPLE ANALYSES YIELDING DETECTABLE MEASUREMENTS (I.E. >381GMA) IS INDICATED WITHIN *()*.

MEDIUM: SHELLFISH

UNITS: PCI/KG WET

RADIOISOTOPES (NO. ANALYSES) (NON-ROUTINE)*			NOMINAL LID	INDICATOR STATIONS MEAN, RANGE, AND NO. DETECTED**		STA.	HIGHEST STATION MEAN, RANGE, AND NO. DETECTED**		CONTROL LOCATIONS MEAN, RANGE, AND NO. DETECTED**	
-----			-----	-----		-----	-----		-----	
BE-7	(R)	.2	(5.4 ± 4.8)E 1	11	(1.3 ± .8)E 2	(3.5 ± 3.7)E 1				
	(O)		(-6.2 = 18.1)E 1			(-6.4 = 11.0)E 1				
			(0 / 4)		*(0 / 1)*	*(0 / 4)*				
K-40	(R)	.5	(1.1 ± .1)E 3	11	(1.1 ± .2)E 3	(1.1 ± .1)E 3				
	(O)		(8.6 = 18.6)E 2			(8.5 = 13.5)E 2				
			(4 / 4)		*(1 / 1)*	*(4 / 4)*				
CR-51	(R)	3.2E+02	(-4.7 ± 3.2)E 1	23	(6.6 ± 4.6)E 1	(6.6 ± 4.6)E 1				
	(O)		(-1.2 = .4)E 2			(-3.6 = 17.9)E 1				
			(0 / 4)		*(0 / 4)*	*(0 / 4)*				
MN-54	(R)	2.0E+02	(3.9 ± 3.6)E 0	12	(3.9 ± 5.1)E 0	(-4.1 ± 3.9)E 0				
	(O)		(-5.7 = 11.8)E 0			(-1.0 = .7)E 1				
			(0 / 4)		*(0 / 3)*	*(0 / 4)*				
CO-58	(R)	2.0E+02	(-6.7 ± 4.7)E 0	23	(4.8 ± 4.0)E 0	(4.8 ± 4.0)E 0				
	(O)		(-2.0 = .3)E 1			(-6.2 = 11.2)E 0				
			(0 / 4)		*(0 / 4)*	*(0 / 4)*				
FE-59	(R)	3.0E+01	(-4.0 ± 7.7)E 0	11	(-6.5 ± 21.5)E 0	(-1.3 ± .5)E 1				
	(O)		(-2.4 = 1.2)E 1			(-2.5 = 0.0)E 1				
			(0 / 4)		*(0 / 1)*	*(0 / 4)*				
CO-60	(R)	2.0E+02	(-2.3 ± 3.4)E 0	23	(-5.2 ± 34.9)E -1	(-5.2 ± 34.9)E -1				
	(O)		(-1.1 = .5)E 1			(-8.9 = 8.1)E 0				
			(0 / 4)		*(0 / 4)*	*(0 / 4)*				
ZN-65	(R)	6.7E+01	(-5.4 ± 9.1)E 0	23	(8.3 ± 11.8)E 0	(8.3 ± 11.8)E 0				
	(O)		(-2.7 = 1.4)E 1			(-1.8 = 2.9)E 1				
			(0 / 4)		*(0 / 4)*	*(0 / 4)*				
ZR-95	(R)	4.0E+02	(3.3 ± 8.4)E 0	23	(9.8 ± 2.4)E 0	(9.8 ± 2.4)E 0				
	(O)		(-1.9 = 2.0)E 1			(5.2 = 14.5)E 0				
			(0 / 4)		*(0 / 4)*	*(0 / 4)*				

* NON-ROUTINE REFERS TO THE NUMBER OF SEPARATE MEASUREMENTS WHICH WERE GREATER THAN TEN (10) TIMES THE AVERAGE BACKGROUND FOR THE PERIOD OF THE REPORT

** THE FRACTION OF SAMPLE ANALYSES YIELDING DETECTABLE MEASUREMENTS (I.E. >3SIGMA) IS INDICATED WITHIN *()*.

UNITS: PCI/KG WET

MEDIUM: SHELLFISH

RADIOISOTOPES (NO. ANALYSES) (NON-ROUTINE)*		NOMINAL L/D	INDICATOR STATIONS MEAN, RANGE, AND NO. DETECTED**		STA.	HIGHEST STATION MEAN, RANGE, AND NO. DETECTED**		CONTROL LOCATIONS MEAN, RANGE, AND NO. DETECTED**	
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NB-95 (A) (0)	3.9E+01	(1.0 ± 7.2)E 0 (-1.2 = 1.7)E 1 *(0/ 4)*	23	(8.3 ± 4.3)E 0 *(0/ 4)*		(8.3 ± 4.3)E 0 (4.3 = 157.0)E -1 *(0/ 4)*			
AG-110M (A) (0)	2.5E+02	(-3.4 ± 3.8)E 1 (-8.8 = 7.8)E 1 *(0/ 4)*	23	(3.5 ± 2.8)E 1 *(0/ 4)*		(3.5 ± 2.8)E 1 (-3.4 = 9.9)E 1 *(0/ 4)*			
RU-103 (A) (0)	2.0E+02	(-4.7 ± 9.3)E 0 (-2.3 = 2.0)E 1 *(0/ 4)*	23	(2.6 ± 5.8)E 0 *(0/ 4)*		(2.6 ± 5.8)E 0 (-8.8 = 18.8)E 0 *(0/ 4)*			
RU-106 (A) (0)	.2	(3.3 ± 4.4)E 1 (-5.6 = 15.2)E 1 *(0/ 4)*	12	(4.3 ± 6.0)E 1 *(0/ 3)*		(-1.1 ± 6.9)E 1 (-2.2 = .8)E 2 *(0/ 4)*			
I-131 (A) (0)	0.	(-5.3 ± 20.6)E 0 (-6.6 = 2.0)E 1 *(0/ 4)*	11	(2.4 ± 3.4)E 1 *(0/ 1)*		(-1.0 ± 4.1)E 1 (-1.3 = .6)E 2 *(0/ 4)*			
CS-134 (A) (0)	2.0E+02	(-4.3 ± 3.8)E 0 (-1.4 = .5)E 1 *(0/ 4)*	12	(-4.2 ± 5.4)E 0 *(0/ 3)*		(-5.4 ± 3.5)E 0 (-9.2 = 5.2)E 0 *(0/ 4)*			
CS-137 (A) (0)	2.0E+02	(-2.8 ± 36.3)E -1 (-6.2 = 10.2)E 0 *(0/ 4)*	12	(1.7 ± 4.3)E 0 *(0/ 3)*		(-9.2 ± 3.0)E 0 (-1.7 = 0.0)E 1 *(0/ 4)*			
BA-140 (A) (0)	8.0E+02	(1.6 ± 1.1)E 1 (-1.5 = 3.2)E 1 *(0/ 4)*	11	(1.6 ± 2.7)E 1 *(0/ 1)*		(-4.5 ± 7.8)E 0 (-2.1 = 1.1)E 1 *(0/ 4)*			
CE-144 (A) (0)	.2	(-2.8 ± 1.7)E 1 (-5.8 = 1.5)E 1 *(0/ 4)*	23	(2.4 ± 3.9)E 1 *(0/ 4)*		(2.4 ± 3.9)E 1 (-7.5 = 9.4)E 1 *(0/ 4)*			
RA-226 (A) (0)	.1	(7.5 ± 8.4)E 1 (-3.7 = 17.0)E 1 *(0/ 4)*	12	(1.1 ± .3)E 2 *(0/ 3)*		(1.9 ± 15.9)E 1 (-3.8 = 3.6)E 2 *(0/ 4)*			

* NON-ROUTINE REFERS TO THE NUMBER OF SEPARATE MEASUREMENTS WHICH WERE GREATER THAN TEN (10) TIMES THE AVERAGE BACKGROUND FOR THE PERIOD OF THE REPORT

** THE FRACTION OF SAMPLE ANALYSES YIELDING DETECTABLE MEASUREMENTS (I.E. >3SIGMA) IS INDICATED WITHIN *()*.

MAINE YANKEE

OFFSITE ENVIRONMENTAL RADIOLOGICAL MONITORING
SUMMARY FOR THE PERIOD 12/28/79 - 12/31/80

01/03/23. PAGE 23

MEDIUM: SHELLFISH

UNITS: PCI/KG WET

RADIONUCLIDES (NO. ANALYSES) NOMINAL (NON-ROUTINE)* LID		INDICATOR STATIONS MEAN, RANGE, AND NO. DETECTED**	HIGHEST STATION MEAN, RANGE, AND NO. DETECTED**	CONTROL LOCATIONS MEAN, RANGE, AND NO. DETECTED**
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TH-228 (8)	2.0E-02	(5.9 ± 26.1)E 0	(1.0 ± 3.6)E 1	(8.0 ± 103.6)E -1
(0)		(-6.0 = 6.2)E 1	*(0/ 3)*	(-1.5 = 3.1)E 1
		(0/ 4)		*(0/ 4)*

- * NON-ROUTINE REFERS TO THE NUMBER OF SEPARATE MEASUREMENTS WHICH WERE GREATER THAN TEN (10) TIMES THE AVERAGE BACKGROUND FOR THE PERIOD OF THE REPORT
- ** THE FRACTION OF SAMPLE ANALYSES YIELDING DETECTABLE MEASUREMENTS (I.E. >3SIGMA) IS INDICATED WITHIN *()*.

MEDIUM: SEDIMENT/SILT

UNITS: PC1/KG DRY

RADIONUCLIDES (NO. ANALYSES) NOMINAL (NON-ROUTINE)* LID			INDICATOR STATIONS MEAN, RANGE, AND NO. DETECTED**		STA.	HIGHEST STATION MEAN, RANGE, AND NO. DETECTED**		CONTROL LOCATIONS MEAN, RANGE, AND NO. DETECTED**	
BE-7	(42) (1)	.2	(8.1 ± 4.5)E 1 (-3.9 = 7.7)E 2 *(1/ 35)*		18	(1.9 ± 1.0)E 2 (-3.4 = 7.7)E 2 *(1/ 9)*		(-2.2 ± 7.9)E 1 (-2.7 = 2.7)E 2 *(0/ 7)*	
K-40	(42) (0)	.5	(1.8 ± .0)E 4 (4.8 = 21.5)E 3 *(35/ 35)*		15	(2.0 ± .0)E 4 (1.0 = 2.2)E 4 *(8/ 8)*		(1.7 ± .1)E 4 (1.0 = 2.0)E 4 *(7/ 7)*	
CR-51	(42) (0)	3.7E+02	(-2.1 ± 5.5)E 1 (-7.4 = 5.7)E 2 *(0/ 35)*		12	(1.3 ± .8)E 2 *(0/ 8)*		(-4.3 ± 73.3)E 0 (-3.2 = 2.0)E 2 *(0/ 7)*	
MN-54	(42) (0)	2.0E+02	(1.0 ± .3)E 1 (-2.8 = 5.1)E 1 *(0/ 35)*		15	(1.5 ± .5)E 1 *(0/ 8)*		(5.8 ± 5.1)E 0 (-1.9 = 2.1)E 1 *(0/ 7)*	
CO-58	(42) (0)	2.0E+02	(-8.2 ± 4.2)E 0 (-5.9 = 4.8)E 1 *(0/ 35)*		12	(3.2 ± 95.0)E -1 *(0/ 8)*		(-1.6 ± .6)E 1 (-3.7 = .5)E 1 *(0/ 7)*	
FE-59	(42) (0)	5.0E+01	(-1.1 ± 1.3)E 1 (-1.5 = 1.4)E 2 *(0/ 35)*		18	(1.3 ± 2.6)E 1 *(0/ 9)*		(-4.9 ± 2.9)E 1 (-1.5 = .5)E 2 *(0/ 7)*	
CO-60	(42) (14)	2.0E+02	(1.8 ± .6)E 2 (-3.4 = 174.0)E 1 *(14/ 35)*		15	(3.9 ± 1.4)E 2 (-2.5 = 121.0)E 1 *(7/ 8)*		(-1.2 ± 8.0)E 0 (-3.2 = 2.7)E 1 *(0/ 7)*	
ZN-65	(42) (0)	6.8E+01	(-6.7 ± 9.0)E 0 (-1.2 = 1.0)E 2 *(0/ 35)*		12	(2.3 ± 1.4)E 1 *(0/ 8)*		(-1.0 ± 1.2)E 1 (-5.6 = 3.4)E 1 *(0/ 7)*	
ZR-95	(42) (0)	4.0E+02	(2.4 ± .8)E 1 (-1.3 = 1.3)E 2 *(0/ 35)*		18	(4.5 ± 1.8)E 1 *(0/ 9)*		(8.6 ± 13.3)E 0 (-4.0 = 6.9)E 1 *(0/ 7)*	

* NON-ROUTINE REFERS TO THE NUMBER OF SEPARATE MEASUREMENTS WHICH WERE GREATER THAN TEN (10) TIMES THE AVERAGE BACKGROUND FOR THE PERIOD OF THE REPORT

** THE FRACTION OF SAMPLE ANALYSES YIELDING DETECTABLE MEASUREMENTS (I.E. >3SIGMA) IS INDICATED WITHIN *()*.

MEDIUM: SEDIMENT/SILT

UNITS: PCI/KG DRY

RADIOISOTOPES (NO. ANALYSES) (NON-ROUTINE)*	NOMINAL LLD	INDICATOR STATIONS MEAN, RANGE, AND NO. DETECTED**	STA.	HIGHEST STATION MEAN, RANGE, AND NO. DETECTED**	CONTROL LOCATIONS MEAN, RANGE, AND NO. DETECTED**
NB-95 (42) (0)	3.1E+01	(1.1 ± .53)E 1 (-5.3 = 6.9)E 1 *(0/ 35)*	12	(2.5 ± .8)E 1 *(0/ 8)*	(-8.5 ± 9.7)E 0 (-5.8 = 1.7)E 1 *(0/ 7)*
AC-110M (42) (0)	1.4E+02	(-4.4 ± 3.0)E 1 (-5.1 = 2.3)E 2 *(0/ 35)*	12	(-8.2 ± 53.7)E 0 *(0/ 8)*	(-3.3 ± 3.0)E 1 (-1.6 = 1.0)E 2 *(0/ 7)*
RU-103 (42) (0)	2.0E+02	(-1.2 ± 5.5)E 0 (-5.2 = 8.3)E 1 *(0/ 35)*	15	(1.5 ± 1.5)E 1 *(0/ 8)*	(7.7 ± 3.5)E 0 (-4.3 = 16.0)E 0 *(0/ 7)*
RU-106 (42) (0)	.2	(2.9 ± 37.9)E 0 (-5.3 = 4.2)E 2 *(0/ 35)*	18	(6.4 ± 8.3)E 1 *(0/ 9)*	(-6.1 ± 6.4)E 1 (-3.3 = 2.1)E 2 *(0/ 7)*
I-131 (42) (0)	0.	(2.1 ± 9.5)E 1 (-2.5 = .8)E 3 *(0/ 35)*	16	(1.8 ± 1.1)E 2 *(0/ 10)*	(1.4 ± .9)E 2 (-2.1 = 4.0)E 2 *(0/ 7)*
CS-134 (42) (13)	2.0E+02	(1.1 ± .4)E 2 (-6.5 = 82.9)E 1 *(15/ 35)*	16	(2.8 ± 1.0)E 2 (1.6 = 82.9)E 1 *(7/ 10)*	(-8.7 ± 7.9)E 0 (-3.9 = 1.7)E 1 *(0/ 7)*
CS-137 (42) (12)	2.0E+02	(1.4 ± .4)E 3 (4.8 = 86.8)E 1 *(34/ 35)*	16	(3.1 ± 1.1)E 3 (2.4 = 86.8)E 2 *(10/ 10)*	(9.4 ± 3.5)E 1 (-2.6 = 236.0)E 2 *(3/ 7)*
BA-140 (42) (0)	4.0E+02	(-1.3 ± .7)E 2 (-2.4 = .3)E 3 *(0/ 35)*	12	(-6.1 ± 5.1)E 1 *(0/ 8)*	(-6.1 ± 5.8)E 1 (-2.5 = 1.2)E 2 *(0/ 7)*
CE-144 (42) (0)	.2	(3.3 ± 1.8)E 1 (-2.5 = 7.6)E 2 *(0/ 35)*	18	(6.4 ± 4.1)E 1 *(0/ 9)*	(-3.8 ± 2.9)E 1 (-2.1 = .1)E 2 *(0/ 7)*
RA-226 (42) (0)	.1	(1.8 ± .1)E 3 (5.3 = 24.1)E 2 *(31/ 35)*	15	(1.9 ± .1)E 3 (1.3 = 2.5)E 3 *(7/ 8)*	(1.2 ± .2)E 3 (5.0 = 21.9)E 2 *(3/ 7)*

* NON-ROUTINE REFERS TO THE NUMBER OF SEPARATE MEASUREMENTS WHICH WERE GREATER THAN TEN (10) TIMES THE AVERAGE BACKGROUND FOR THE PERIOD OF THE REPORT

** THE FRACTION OF SAMPLE ANALYSES YIELDING DETECTABLE MEASUREMENTS (T.E. >3SIGMA) IS INDICATED WITHIN *()%.

MEDIUM: SEDIMENT/SILT

UNITS: PCI/KG DRY

RADIONUCLIDES (NO. ANALYSES) NOMINAL (NON-ROUTINE)* LLD	INDICATOR STATIONS MEAN, RANGE, AND NO. DETECTED**	HIGHEST STATION MEAN, RANGE, AND NO. DETECTED**	CONTROL LOCATIONS MEAN, RANGE, AND NO. DETECTED**
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TH-228 (42) 2.0E-02 (0)	(7.0 ± .3)E 2 (2.5 - 13.8)E 2 *(35/ 35)*	15 (8.8 ± .8)E 2 (7.2 - 13.8)E 2 *(8/ 8)*	(6.1 ± .5)E 2 (4.3 - 7.8)E 2 *(7/ 7)*

- * NON-ROUTINE REFERS TO THE NUMBER OF SEPARATE MEASUREMENTS WHICH WERE GREATER THAN TEN (10) TIMES THE AVERAGE BACKGROUND FOR THE PERIOD OF THE REPORT
- ** THE FRACTION OF SAMPLE ANALYSES YIELDING DETECTABLE MEASUREMENTS (I.E. >3SIGMA) IS INDICATED WITHIN *()*.

MEDIUM: VEGETATION - AQUATIC

UNITS: PCI/KG WET

RADIOISOTOPES (NO. ANALYSES) (NON-ROUTINE)*	NOMINAL LLD	INDICATOR STATIONS MEAN, RANGE, AND NO. DETECTED**	STA.	HIGHEST STATION MEAN, RANGE, AND NO. DETECTED**	CONTROL LOCATIONS MEAN, RANGE, AND NO. DETECTED**
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BE-7 (24) (0)	.2	(1.8 ± .0)E 2 (3.2 = 66.1)E 1 *(11/ 16)*	12	(2.4 ± .7)E 2 (4.3 = 66.1)E 1 *(7/ 8)*	(1.7 ± .7)E 2 (-7.1 = 59.3)E 1 *(4/ 8)*
K-40 (24) (0)	.5	(5.4 ± .0)E 3 (3.0 = 8.2)E 3 *(16/ 16)*	23	(5.5 ± .3)E 3 (4.8 = 7.1)E 3 *(8/ 8)*	(5.5 ± .3)E 3 (4.8 = 7.1)E 3 *(8/ 8)*
CR-51 (24) (0)	=1.0=100	(9.0 ± 9.6)E 0 (-4.5 = 8.0)E 1 *(0/ 16)*	12	(1.2 ± 1.6)E 1 *(0/ 8)*	(-1.4 ± 274.8)E -1 (-1.2 = 1.1)E 2 *(0/ 8)*
MN-54 (24) (0)	2.0E-02	(2.5 ± 1.8)E 0 (-9.6 = 17.3)E 0 *(0/ 16)*	11	(5.5 ± 2.9)E 0 *(0/ 8)*	(1.8 ± 1.7)E 0 (-6.5 = 9.7)E 0 *(0/ 8)*
CO-58 (24) (0)	2.0E-02	(1.3 ± 1.6)E 0 (-8.2 = 17.3)E 0 *(0/ 16)*	11	(2.9 ± 2.9)E 0 *(0/ 8)*	(1.7 ± 2.4)E 0 (-6.8 = 16.4)E 0 *(0/ 8)*
FE-59 (24) (0)	3.0E+01	(-1.8 ± 3.2)E 0 (-2.3 = 2.0)E 1 *(0/ 16)*	23	(6.6 ± 7.0)E 0 *(0/ 8)*	(6.6 ± 7.0)E 0 (-3.8 = 2.1)E 1 *(0/ 8)*
CO-60 (24) (0)	2.0E-02	(3.6 ± 1.6)E 0 (-8.4 = 19.0)E 0 *(0/ 16)*	11	(4.8 ± 2.5)E 0 *(0/ 8)*	(7.4 ± 28.3)E -1 (-1.6 = .8)E 1 *(0/ 8)*
ZN-65 (24) (0)	=1.0=100	(2.3 ± 3.0)E 0 (-2.1 = 2.6)E 1 *(0/ 16)*	11	(4.1 ± 5.0)E 0 *(0/ 8)*	(1.9 ± 6.9)E 0 (-2.3 = 3.5)E 1 *(0/ 8)*
ZR-95 (24) (0)	4.0E-02	(1.6 ± .6)E 1 (-1.1 = 7.3)E 1 *(4/ 16)*	23	(2.3 ± 1.9)E 1 (-9.4 = 154.0)E 0 *(1/ 8)*	(2.3 ± 1.9)E 1 (-9.4 = 154.0)E 0 *(1/ 8)*

* NON-ROUTINE REFERS TO THE NUMBER OF SEPARATE MEASUREMENTS WHICH WERE GREATER THAN TEN (10) TIMES THE AVERAGE BACKGROUND FOR THE PERIOD OF THE REPORT

** THE FRACTION OF SAMPLE ANALYSES YIELDING DETECTABLE MEASUREMENTS (1.E. >3SIGMA) IS INDICATED WITHIN *()*.

MEDIUM: VEGETATION - AQUATIC

UNITS: PCI/KG WET

RADIONUCLIDES (NO. ANALYSES) (NON-ROUTINE)*	NOMINAL LID	INDICATOR STATIONS MEAN, RANGE, AND NO. DETECTED**	STA.	HIGHEST STATION MEAN, RANGE, AND NO. DETECTED**	CONTROL LOCATIONS MEAN, RANGE, AND NO. DETECTED**
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NR-95 (23) (0)	-1.0-100	(6.6 ± 3.8)E 0 (-9.8 = 37.4)E 0 *(1/ 16)*	23	(1.8 ± 1.3)E 1 (-6.8 = 81.4)E 0 *(1/ 7)*	(1.8 ± 1.3)E 1 (-6.8 = 81.4)E 0 *(1/ 7)*
AG-110M (24) (0)	-1.0-100	(-1.2 ± 1.2)E 1 (-1.4 = .3)E 2 *(0/ 16)*	23	(6.9 ± 23.4)E 0 *(0/ 8)*	(6.9 ± 23.4)E 0 (-1.8 = .8)E 2 *(0/ 8)*
RU-103 (24) (0)	2.0E-02	(5.0 ± 3.0)E 0 (-6.3 = 27.4)E 0 *(3/ 16)*	23	(1.0 ± .5)E 1 (2.0 = 452.0)E -1 *(1/ 8)*	(1.0 ± .5)E 1 (2.0 = 452.0)E -1 *(1/ 8)*
RU-106 (24) (0)	.2	(-2.8 ± 1.2)E 1 (-1.2 = .4)E 2 *(0/ 16)*	11	(-7.3 ± 16.7)E 0 *(0/ 8)*	(-1.0 ± 2.3)E 1 (-1.1 = 1.0)E 2 *(0/ 8)*
I-131 (24) (0)	0.	(2.6 ± 2.0)E 1 (-8.3 = 21.2)E 1 *(0/ 16)*	23	(3.2 ± 2.1)E 1 *(0/ 8)*	(3.2 ± 2.1)E 1 (-1.8 = 15.3)E 1 *(0/ 8)*
CS-134 (24) (0)	2.0E-02	(8.9 ± 10.8)E -1 (-5.6 = 10.3)E 0 *(0/ 16)*	11	(1.2 ± 1.8)E 0 *(0/ 8)*	(-3.7 ± 2.2)E 0 (-1.3 = .6)E 1 *(0/ 8)*
CS-137 (24) (2)	2.0E-02	(7.0 ± 1.5)E 0 (-3.6 = 17.4)E 0 *(2/ 16)*	12	(8.7 ± 1.7)E 0 (2.1 = 17.4)E 0 *(2/ 8)*	(3.5 ± 2.8)E 0 (-3.7 = 15.6)E 0 *(0/ 8)*
RA-140 (24) (0)	8.0E-02	(5.7 ± 5.7)E 0 (-3.1 = 4.7)E 1 *(0/ 16)*	12	(1.0 ± .7)E 1 *(0/ 8)*	(6.2 ± 16.0)E 0 (-5.0 = 10.7)E 1 *(0/ 8)*
CE-141 (24) (0)	4.0E-02	(1.2 ± .7)E 1 (-8.8 = 98.2)E 0 *(4/ 16)*	12	(1.4 ± 1.2)E 1 (-8.1 = 98.2)E 0 *(2/ 8)*	(1.1 ± 1.3)E 1 (-1.4 = 9.2)E 1 *(1/ 8)*
CE-144 (24) (0)	.2	(-6.1 ± 3.0)E 0 (-3.3 = 3.0)E 1 *(0/ 16)*	11	(-1.8 ± 6.4)E 0 *(0/ 8)*	(-2.6 ± 11.6)E 0 (-3.9 = 7.2)E 1 *(0/ 8)*

* NON-ROUTINE REFERS TO THE NUMBER OF SEPARATE MEASUREMENTS WHICH WERE GREATER THAN TEN (10) TIMES THE AVERAGE BACKGROUND FOR THE PERIOD OF THE REPORT

** THE FRACTION OF SAMPLE ANALYSES YIELDING DETECTABLE MEASUREMENTS (I.E. >3SIGMA) IS INDICATED WITHIN *()*.

MEDIUM: VEGETATION - AQUATIC

UNITS: PCI/KG WET

RADIOISOTOPES (NO. ANALYSES) NOMINAL (NON-ROUTINE)* LLD	INDICATOR STATIONS MEAN, RANGE, AND NO. DETECTED**	STA.	HIGHEST STATION MEAN, RANGE, AND NO. DETECTED**	CONTROL LOCATIONS MEAN, RANGE, AND NO. DETECTED**
RA-226 (24) (2)	.1 (1.1 ± .33)E 2 (-1.7 = 41.0)E 1 *(2/ 16)*	12	(1.4 ± .5)E 2 (3.0 = 4100.0)E =1 *(2/ 8)*	(9.3 ± 4.0)E 1 (-6.5 = 26.7)E 1 *(0/ 8)*
TH-228 (24) (8)	2.0E-02 (3.0 ± .6)E 1 (-2.9 = 7.6)E 1 *(4/ 16)*	23	(5.4 ± 1.5)E 1 (-1.8 = 9.7)E 1 *(2/ 8)*	(5.4 ± 1.5)E 1 (-1.8 = 9.7)E 1 *(2/ 8)*

- * NON-ROUTINE REFERS TO THE NUMBER OF SEPARATE MEASUREMENTS WHICH WERE GREATER THAN TEN (10) TIMES THE AVERAGE BACKGROUND FOR THE PERIOD OF THE REPORT
- ** THE FRACTION OF SAMPLE ANALYSES YIELDING DETECTABLE MEASUREMENTS (I.E. >3SIGMA) IS INDICATED WITHIN *()*.

MEDIUM: VEGETATION - TERRESTRIAL

UNITS: PCI/KG WET

RADIONUCLIDES (NO. ANALYSES) (NON-ROUTINE)*	NOMINAL LLD	INDICATOR STATIONS MEAN, RANGE, AND NO. DETECTED**	STA.	HIGHEST STATION MEAN, RANGE, AND NO. DETECTED**	CONTROL LOCATIONS MEAN, RANGE, AND NO. DETECTED**
SR-89 (12) (0)	3.0E-02	(3.4 ± 5.5)E 0 (-1.5 - 1.5)E 1 *(0/5)*	13	(1.4 ± 1.3)E 1 *(0/2)*	(5.1 ± 5.1)E 0 (-1.3 - 2.8)E 1 *(0/7)*
SR-90 (12) (0)	5.0E-03	(3.0 ± .5)E 2 (1.4 - 8.4)E 2 *(5/5)*	13	(5.4 ± .9)E 2 (4.6 - 6.3)E 2 *(2/2)*	(3.2 ± .9)E 2 (2.6 - 62.6)E 1 *(7/7)*
BE-7 (12) (0)	.2	(3.4 ± 1.0)E 3 (9.3 - 63.6)E 2 *(5/5)*	12	(5.2 ± 1.1)E 3 (4.1 - 6.4)E 3 *(2/2)*	(1.9 ± .9)E 3 (-5.6 - 599.0)E 1 *(4/7)*
K-40 (12) (0)	.5	(1.2 ± .1)E 4 (9.1 - 15.9)E 3 *(5/5)*	12	(1.3 ± .3)E 4 (9.3 - 15.9)E 3 *(2/2)*	(8.7 ± .7)E 3 (5.6 - 11.4)E 3 *(7/7)*
CR-51 (12) (0)	-1.0-100	(-6.6 ± 6.3)E 1 (-2.3 - 1.2)E 2 *(0/5)*	11	(-5.8 ± 17.5)E 1 *(0/2)*	(-1.0 ± .5)E 2 (-3.4 - .4)E 2 *(0/7)*
MN-54 (12) (0)	2.0E-02	(1.1 ± .8)E 1 (-1.5 - 2.8)E 1 *(0/5)*	15	(2.6 ± 1.4)E 1 *(0/1)*	(1.1 ± 3.7)E 0 (-1.1 - 1.9)E 1 *(0/7)*
CO-58 (12) (0)	2.0E-02	(3.0 ± 5.0)E 0 (-8.1 - 19.3)E 0 *(0/5)*	26	(1.2 ± .9)E 1 *(0/3)*	(6.6 ± 61.8)E -1 (-1.7 - 2.9)E 1 *(0/7)*
FE-59 (12) (0)	3.0E+01	(-2.2 ± 1.4)E 1 (-5.9 - 1.6)E 1 *(0/5)*	15	(1.6 ± 3.1)E 1 *(0/1)*	(3.8 ± 13.3)E 0 (-4.8 - 5.5)E 1 *(0/7)*
CO-60 (12) (0)	2.0E-02	(2.4 ± 8.5)E 0 (-9.7 - 17.6)E 0 *(0/5)*	15	(1.8 ± 2.3)E 1 *(0/1)*	(-3.0 ± 6.3)E 0 (-3.0 - 1.5)E 1 *(0/7)*

* NON-ROUTINE REFERS TO THE NUMBER OF SEPARATE MEASUREMENTS WHICH WERE GREATER THAN TEN (10) TIMES THE AVERAGE BACKGROUND FOR THE PERIOD OF THE REPORT
** THE FRACTION OF SAMPLE ANALYSES YIELDING DETECTABLE MEASUREMENTS (I.E. >3SIGMA) IS INDICATED WITHIN *()*.

UNITS: PCI/KG WET

MEDIUM: VEGETATION - TERRESTRIAL

RADIONUCLIDES (NO. ANALYSES) (NON-ROUTINE)*	NOMINAL LLD	INDICATOR STATIONS MEAN, RANGE, AND NO. DETECTED**	STA.	HIGHEST STATION MEAN, RANGE, AND NO. DETECTED**	CONTROL LOCATIONS MEAN, RANGE, AND NO. DETECTED**
ZN-65 (12) (0)	-1.0-100	(-3.9 ± 14.8)E 0 (-4.9 = 3.0)F 1 *(0/5)*	12	(2.8 ± .5)E 1 *(0/2)*	(0.9 ± 8.5)F 0 (-2.6 = 3.6)F 1 *(0/7)*
ZR-95 (12) (0)	4.0E-02	(1.2 ± 1.0)E 1 (-1.2 = 3.0)E 1 *(0/5)*	15	(3.9 ± 2.7)E 1 *(0/1)*	(-1.7 ± 1.0)F 1 (-5.9 = .9)F 1 *(0/7)*
NB-95 (12) (0)	-1.0-100	(-8.7 ± 8.2)E 0 (-2.4 = 0.0)E 1 *(0/5)*	24	(6.6 ± 7.1)E 0 *(0/2)*	(3.2 ± 7.9)F 0 (-3.7 = 3.1)E 1 *(0/7)*
AG-110M (12) (0)	-1.0-100	(1.0 ± .4)E 2 (-1.1 = 17.7)E 1 *(0/5)*	15	(1.6 ± 1.2)F 2 *(0/1)*	(-4.3 ± 6.1)E 1 (-2.4 = 2.1)E 2 *(0/7)*
RU-103 (12) (0)	2.0E-02	(1.7 ± 9.4)E 0 (-2.5 = 2.7)E 1 *(0/5)*	24	(1.3 ± .6)E 1 *(0/2)*	(3.9 ± 5.2)F 0 (-1.1 = 2.6)E 1 *(0/7)*
RU-106 (12) (0)	.2	(2.4 ± 8.0)E 1 (-1.9 = 2.3)E 2 *(0/5)*	15	(2.3 ± 1.3)E 2 *(0/1)*	(7.7 ± 3.4)E 1 (-7.4 = 271.0)E 0 *(0/7)*
I-131 (12) (0)	0.	(3.4 ± 113.6)E -1 (-4.1 = 2.5)E 1 *(0/5)*	11	(1.1 ± 1.4)F 1 *(0/2)*	(-7.3 ± 11.2)F 0 (-6.6 = 2.5)F 1 *(0/7)*
CS-134 (12) (0)	2.0E-02	(-5.5 ± 6.5)E 0 (-2.1 = .8)E 1 *(0/5)*	13	(3.3 ± 13.6)E 0 *(0/2)*	(-1.2 ± 5.1)F 0 (-2.6 = 1.7)F 1 *(0/7)*
CS-137 (12) (0)	2.0E-02	(4.0 ± 1.7)E 1 (-5.4 = 17.0)E -1 *(3/5)*	13	(1.3 ± .1)E 2 (1.5 = 1.4)F 2 *(2/2)*	(6.8 ± 2.1)F 1 (1.6 = 13.7)F 1 *(5/7)*
BA-140 (12) (0)	8.0E-02	(-3.1 ± .9)E 1 (-5.6 = 0.0)E 1 *(0/5)*	24	(1.4 ± 3.3)F 1 *(0/2)*	(-1.3 ± 1.2)F 1 (-5.2 = 4.7)F 1 *(0/7)*

* NON-ROUTINE REFERS TO THE NUMBER OF SEPARATE MEASUREMENTS WHICH WERE GREATER THAN TEN (10) TIMES THE AVERAGE BACKGROUND FOR THE PERIOD OF THE REPORT

** THE FRACTION OF SAMPLE ANALYSES YIELDING DETECTABLE MEASUREMENTS (I.E. >5 SIGMA) IS INDICATED WITHIN *()*.

MEDIUM: VEGETATION - TERRESTRIAL

UNITS: PCI/KG WET

RADIOISOTOPES (NO. ANALYSES) NOMINAL (NON-ROUTINE)* LLD	INDICATOR STATIONS MEAN, RANGE, AND NO. DETECTED**	HIGHEST STATION MEAN, RANGE, AND NO. DETECTED**	CONTROL LOCATIONS MEAN, RANGE, AND NO. DETECTED**
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CE-144 (12) (0)	.2 (1.5 ± 3.8)E 1 (=3.0 = 16.5)E 1 *(0/ 5)*	15 (1.6 ± .7)E 2 *(0/ 1)*	(=0.8 ± 172.9)E =1 (=0.1 = 8.0)E 1 *(0/ 7)*
GA-226 (12) (0)	.2 (2.2 ± 1.3)E 2 (=1.3 = 5.8)E 2 *(0/ 5)*	12 (4.2 ± 1.1)E 2 *(0/ 2)*	(4.8 ± 9.5)E 1 (=1.7 = 5.6)E 2 *(0/ 7)*
TH-232 (12) (0)	2.0E-02 (5.8 ± 26.8)E 0 (=6.2 = 7.8)E 1 *(0/ 5)*	24 (1.8 ± 1.0)E 2 *(0/ 2)*	(8.5 ± 3.3)E 1 (6.8 = 206.0)E 0 *(0/ 7)*

- * NON-ROUTINE REFERS TO THE NUMBER OF SEPARATE MEASUREMENTS WHICH WERE GREATER THAN TEN (10) TIMES THE AVERAGE BACKGROUND FOR THE PERIOD OF THE REPORT
- ** THE FRACTION OF SAMPLE ANALYSES YIELDING DETECTABLE MEASUREMENTS (I.E. >3SIGMA) IS INDICATED WITHIN *()*.

MEDIUM: WATER - ESTUARY

UNITS: PCI/LITER

RADIOISOTOPES (NO. ANALYSES) (NON-ROUTINE)*		NOMINAL LTD	INDICATOR STATIONS MEAN, RANGE, AND NO. DETECTED**		STA.	HIGHEST STATION MEAN, RANGE, AND NO. DETECTED**		CONTROL LOCATIONS MEAN, RANGE, AND NO. DETECTED**	
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BE-7	(36) (0)	8.0E+01	(1.8 ± 1.3)E 0 (-1.3 - 1.8)E 1 *(0/ 24)*	0	20	(4.8 ± 2.2)E 0 *(0/ 12)*	0	(4.8 ± 2.2)E 0 (-6.1 - 14.5)E 0 *(0/ 12)*	
K-40	(36) (0)	2.0E+02	(2.6 ± .1)E 2 (2.1 - 3.1)E 2 *(24/ 24)*	2	11	(2.7 ± .1)E 2 (2.1 - 3.1)E 2 *(12/ 12)*	2	(5.5 ± .8)E 1 (-1.1 - 8.5)E 1 *(10/ 12)*	
CR-51	(36) (0)	1.7E -1	(-1.9 ± 1.0)E 0 (-1.8 - 1.2)E 1 *(0/ 24)*	0	11	(3.2 ± 29.1)E -1 *(0/ 12)*	-1	(-1.2 ± 2.0)E 0 (-2.0 - .8)E 1 *(0/ 12)*	
MN-54	(36) (0)	8.	(4.0 ± 13.7)E -2 (-1.2 - 1.3)E 0 *(0/ 24)*	-2	11	(2.4 ± 1.8)E -1 *(0/ 12)*	-1	(-1.8 ± 1.7)E -1 (-1.1 - .9)E 0 *(0/ 12)*	
CO-58	(36) (0)	8.	(-1.1 ± 1.8)E -1 (-2.2 - 1.7)E 0 *(1/ 24)*	-1	15	(7.3 ± 32.1)E -2 (-2.2 - 1.7)E 0 *(1/ 12)*	-2	(-5.0 ± 1.8)E -1 (-1.8 - .6)E 0 *(0/ 12)*	
PO-59	(36) (0)	1.0E+01	(7.7 ± 33.0)E -2 (-2.8 - 8.0)E 0 *(0/ 24)*	-2	15	(3.7 ± 5.5)E -1 - *(0/ 12)*	-1	(2.3 ± 4.5)E -1 (-1.9 - 3.0)E 0 *(0/ 12)*	
CD-60	(36) (0)	8.	(-3.2 ± 1.8)E -1 (-2.2 - 1.8)E 0 *(0/ 24)*	-1	11	(-2.3 ± 2.7)E -1 *(0/ 12)*	-1	(-2.5 ± 1.8)E -1 (-1.2 - .6)E 0 *(0/ 12)*	
ZN-65	(36) (0)	8.	(3.2 ± 3.3)E -1 (-3.2 - 2.7)E 0 *(0/ 24)*	-1	11	(9.1 ± 3.4)E -1 *(0/ 12)*	-1	(-6.0 ± 2.9)E -1 (-2.0 - 1.2)E 0 *(0/ 12)*	
ZR-95	(36) (0)	1.0E+01	(-1.1 ± 3.4)E -1 (-3.6 - 3.7)E 0 *(0/ 24)*	-1	20	(6.4 ± 5.2)E -1 *(0/ 12)*	-1	(6.4 ± 5.2)E -1 (-2.0 - 4.5)E 0 *(0/ 12)*	

- * NON-ROUTINE REFERS TO THE NUMBER OF SEPARATE MEASUREMENTS WHICH WERE GREATER THAN TEN (10) TIMES THE AVERAGE BACKGROUND FOR THE PERIOD OF THE REPORT
- ** THE FRACTION OF SAMPLE ANALYSES YIELDING DETECTABLE MEASUREMENTS (I.E. >3SIGMA) IS INDICATED WITHIN *()*.

MEDIUM: WATER - ESTUARY

UNITS: PCI/LITER

RADIOISOTOPES (NO. ANALYSES) (NON-ROUTINE)*	MINIMAL LID	INDICATOR STATIONS MEAN, RANGE, AND NO. DETECTED**	STA.	HIGHEST STATION MEAN, RANGE, AND NO. DETECTED**	CONTROL LOCATIONS MEAN, RANGE, AND NO. DETECTED**
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NB-95 (36) (0)	2.	(2.6 ± 2.2)E -1 (=2.5 = 2.2)E 0 *(0/ 24)*	15	(3.8 ± 3.5)E -1 *(0/ 12)*	(-4.8 ± 30.0)E =2 (=2.0 = 1.9)E 0 *(0/ 12)*
AG-110M (36) (0)	1.4E+01	(7.9 ± 18.0)E -1 (=1.0 = 1.7)E 1 *(0/ 24)*	11	(3.0 ± 1.8)E 0 *(0/ 12)*	(-5.5 ± 16.0)E -1 (=1.0 = .9)E 1 *(0/ 12)*
RU-103 (36) (0)	9.	(-9.4 ± 1.6)E -1 (=2.4 = .7)E 0 *(0/ 24)*	15	(-9.3 ± 2.4)E -1 *(0/ 12)*	(-1.0 ± .2)E 0 (=2.3 = .1)E 0 *(0/ 12)*
RU-106 (36) (0)	8.0E+01	(2.1 ± 1.5)E 0 (=1.0 = 2.0)E 1 *(0/ 24)*	15	(3.6 ± 2.4)E 0 *(0/ 12)*	(-1.7 ± 1.4)E 0 (=6.9 = 11.1)E 0 *(0/ 12)*
I-131 (36) (0)	0.	(-1.0 ± .6)E 0 (=8.1 = 8.6)E 0 *(0/ 24)*	20	(-4.1 ± 6.7)E -1 *(0/ 12)*	(-4.1 ± 6.7)E -1 (=4.8 = 2.6)E 0 *(0/ 12)*
CS-134 (36) (0)	9.	(-2.0 ± 1.9)E -1 (=1.7 = 2.1)E 0 *(0/ 24)*	15	(4.8 ± 27.1)E -2 *(0/ 12)*	(-5.6 ± 1.3)E -1 (=1.4 = .3)E 0 *(0/ 12)*
CS-137 (36) (0)	9.	(1.1 ± 1.9)E -1 (=2.1 = 2.0)E 0 *(1/ 24)*	20	(4.2 ± 2.1)E -1 *(0/ 12)*	(4.2 ± 2.1)E -1 (=5.5 = 15.7)E -1 *(0/ 12)*
BA-140 (36) (0)	1.5E+01	(-9.8 ± 8.7)E -1 (=5.0 = 3.4)E 0 *(0/ 24)*	20	(1.0 ± 6.0)E -1 *(0/ 12)*	(1.5 ± 6.0)E -1 (=2.6 = 3.7)E 0 *(0/ 12)*
CE-144 (36) (0)	8.0E+01	(-5.2 ± 107.0)E =2 (=1.1 = 1.0)E 1 *(0/ 24)*	15	(9.4 ± 11.7)E -1 *(0/ 12)*	(-3.1 ± 6.5)E -1 (=3.1 = 3.8)E 0 *(0/ 12)*
RA-226 (36) (0)	6.0E+01	(-3.7 ± 3.9)E 0 (=3.5 = 3.3)E 1 *(0/ 24)*	20	(6.4 ± 4.5)E 0 *(0/ 12)*	(6.4 ± 4.5)E 0 (=2.1 = 3.4)E 1 *(0/ 12)*

* NON-ROUTINE REFERS TO THE NUMBER OF SEPARATE MEASUREMENTS WHICH WERE GREATER THAN TEN (10) TIMES THE AVERAGE BACKGROUND FOR THE PERIOD OF THE REPORT

** THE FRACTION OF SAMPLE ANALYSES YIELDING DETECTABLE MEASUREMENTS (I.E. >3SIGMA) IS INDICATED WITHIN *()*.

UNITS: PCI/LITER

MEDIUM: WATER - ESTUARY

RADIOISOTOPES (NO. ANALYSES) NOMINAL (NON-ROUTINE)* LLD		INDICATOR STATIONS MEAN, RANGE, AND NO. DETECTED**	STA.	HIGHEST STATION MEAN, RANGE, AND NO. DETECTED**	CONTROL LOCATIONS MEAN, RANGE, AND NO. DETECTED**
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TH-228 (36) (0)	9.0E+01	(-4.5 ± 6.0)E -1 (-7.6 ± 8.9)E 0 *(0/ 24)*	15	(-1.5 ± 9.5)E -1 *(0/ 12)*	(-8.4 ± 8.4)E -1 (-7.8 ± 2.4)E 0 *(0/ 12)*
H-3 (12) (1)	9.0E+01	(3.4 ± 1.3)E 2 (9.0 ± 1070.0)E 0 *(3/ 8)*	15	(5.4 ± 2.2)E 2 (9.0 ± 1070.0)E 0 *(3/ 4)*	(1.1 ± 1.0)E 2 (-1.8 ± 2.4)E 2 *(0/ 4)*

- * NON-ROUTINE REFERS TO THE NUMBER OF SEPARATE MEASUREMENTS WHICH WERE GREATER THAN TEN (10) TIMES THE AVERAGE BACKGROUND FOR THE PERIOD OF THE REPORT
- ** THE FRACTION OF SAMPLE ANALYSES YIELDING DETECTABLE MEASUREMENTS (I.E. >3SIGMA) IS INDICATED WITHIN *()*.

MEDIUM: WATER - GROUND

UNITS: PCI/LITER

RADIOISOTOPES (NO. ANALYSES) (NON-ROUTINE)*		NOMINAL LLD	INDICATOR STATIONS MEAN, RANGE, AND NO. DETECTED**		STA.	HIGHEST STATION MEAN, RANGE, AND NO. DETECTED**		CONTROL LOCATIONS MEAN, RANGE, AND NO. DETECTED**	
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BE-7	(16) (0)	8.0E+01	(-1.6 ± 1.2)E 0 (-8.1 = 6.8)E 0 *(0 / 12)*		12	(-3.3 ± 15.6)E -1 *(0 / 4)*		(-2.0 ± 3.2)E 0 (-8.6 = 5.0)E 0 *(0 / 4)*	
K-40	(16) (0)	2.0E+02	(-0.7 ± 3.6)E 0 (-2.8 = 1.2)E 1 *(0 / 12)*		24	(1.8 ± .5)E 1 *(0 / 4)*		(1.8 ± .5)E 1 (3.6 = 27.9)E 0 *(0 / 4)*	
CR-51	(16) (0)	1.7E+01	(2.2 ± 1.0)E 0 (-6.3 = 16.7)E 0 *(0 / 12)*		24	(6.2 ± 4.0)E 0 *(0 / 4)*		(6.2 ± 4.0)E 0 (-2.8 = 15.5)E 0 *(0 / 4)*	
MN-54	(16) (0)	8.	(-7.8 ± 28.8)E -2 (-2.3 = 1.3)E 0 *(0 / 12)*		12	(3.3 ± 4.2)E -1 *(0 / 4)*		(-8.7 ± 55.0)E -2 (-1.6 = 1.1)E 0 *(0 / 4)*	
CO-58	(16) (0)	8.	(-3.0 ± 2.8)E -1 (-1.7 = 1.5)E 0 *(0 / 12)*		24	(-1.2 ± 6.6)E -1 *(0 / 4)*		(-1.2 ± 6.6)E -1 (-1.5 = 1.7)E 0 *(0 / 4)*	
FE-59	(16) (0)	1.0E+01	(-7.3 ± 5.3)E -1 (-5.7 = 1.5)E 0 *(0 / 12)*		24	(3.5 ± 88.4)E -2 *(0 / 4)*		(3.5 ± 88.4)E -2 (-1.8 = 1.9)E 0 *(0 / 4)*	
CO-60	(16) (0)	8.	(-4.3 ± 2.6)E -1 (-1.9 = 1.3)E 0 *(0 / 12)*		13	(6.9 ± 46.4)E -2 *(0 / 4)*		(-1.3 ± .3)E 0 (-2.1 = 0.0)E 0 *(0 / 4)*	
ZN-65	(16) (0)	8.	(4.2 ± 3.5)E -1 (-1.6 = 2.2)E 0 *(0 / 12)*		12	(6.5 ± 5.7)E -1 *(0 / 4)*		(4.9 ± 8.7)E -1 (-1.2 = 2.4)E 0 *(0 / 4)*	
ZR-95	(16) (0)	1.0E+01	(2.2 ± 3.3)E -1 (-1.9 = 2.5)E 0 *(0 / 12)*		12	(8.7 ± 6.5)E -1 *(0 / 4)*		(-1.6 ± .9)E 0 (-3.5 = .5)E 0 *(0 / 4)*	

* NON-ROUTINE REFERS TO THE NUMBER OF SEPARATE MEASUREMENTS WHICH WERE GREATER THAN TEN (10) TIMES THE AVERAGE BACKGROUND FOR THE PERIOD OF THE REPORT
 ** THE FRACTION OF SAMPLE ANALYSES YIELDING DETECTABLE MEASUREMENTS (I.E. >3SIGMA) IS INDICATED WITHIN *()*.

MEDIUM: WATER - GROUND			UNIT3: PCI/LITER		
RADIOISOTOPES (ISO. ANALYSES) (NON-ROUTINE)**	NOMINAL LLD	INDICATOR STATIONS MEAN, RANGE, AND NO. DETECTED**	STA.	HIGHEST STATION MEAN, RANGE, AND NO. DETECTED**	CONTROL LOCATIONS MEAN, RANGE, AND NO. DETECTED**
AS-95 (16) (0)	2.	(6.6 Δ 2.0)E -1 (-1.8 - 28.0)E -1 *(0/ 12)*	12	(9.3 Δ 1.8)E -1 *(0/ 4)*	(2.3 Δ 3.4)E -1 (-8.7 - 9.9)E -1 *(0/ 4)*
AS-110M (16) (0)	1.0E+01	(-2.0 Δ 2.1)E 0 (-1.8 - .8)E 1 *(0/ 12)*	24	(5.1 Δ 1.3)E 0 *(0/ 4)*	(6.1 Δ 1.3)E 0 (3.5 - 8.7)E 0 *(0/ 4)*
RU-103 (16) (0)	8.	(-7.3 Δ 2.7)E -1 (-2.5 - .8)E 0 *(0/ 12)*	11	(-7.0 Δ 461.2)E -3 *(0/ 4)*	(-9.8 Δ 6.8)E -1 (-1.9 - .1)E 0 *(0/ 4)*
RU-106 (16) (0)	8.0E+01	(2.3 Δ 27.9)E -1 (-1.5 - 2.1)E 1 *(0/ 12)*	12	(3.8 Δ 7.1)E 0 *(0/ 4)*	(-2.0 Δ 3.8)E 0 (-1.3 - .6)E 1 *(0/ 4)*
I-131 (16) (0)	0.	(1.0 Δ .6)E 0 (-1.6 - 5.1)E 0 *(0/ 12)*	13	(3.0 Δ .9)E 0 *(0/ 4)*	(2.6 Δ 3.5)E 0 (-2.9 - 12.9)E 0 *(0/ 4)*
CS-134 (16) (0)	9.	(-7.0 Δ 2.0)E -1 (-1.6 - .6)E 0 *(0/ 12)*	13	(-3.2 Δ 5.1)E -1 *(0/ 4)*	(-4.0 Δ 2.5)E -1 (-1.1 - .0)E 0 *(0/ 4)*
CS-137 (16) (0)	9.	(-3.0 Δ 2.0)E -1 (-1.5 - 1.0)E 0 *(0/ 12)*	12	(3.0 Δ 41.2)E -2 *(0/ 4)*	(-3.4 Δ 9.2)E -1 (-2.7 - 1.7)E 0 *(0/ 4)*
BA-140 (16) (0)	1.5E+01	(-1.0 Δ .9)E 0 (-9.3 - 2.0)E 0 *(0/ 12)*	12	(3.4 Δ 9.3)E -1 *(0/ 4)*	(5.6 Δ 76.1)E -2 (-1.8 - 1.9)E 0 *(0/ 4)*
CE-144 (16) (0)	8.0E+01	(-1.3 Δ .8)E 0 (-6.5 - 8.7)E 0 *(0/ 12)*	24	(9.6 Δ 21.6)E -1 *(0/ 4)*	(9.6 Δ 21.6)E -1 (-3.8 - 6.6)E 0 *(0/ 4)*
RA-226 (8) (0)	6.0E+01	(1.2 Δ 1.1)E -1 (-2.7 - 38.8)E -2 *(1/ 3)*	13	(3.4 Δ .9)E -1 *(1/ 1)*	(-8.8 Δ 8.8)E -3 (-8.8 - 0.0)E -3 *(0/ 1)*

* NON-ROUTINE REFERS TO THE NUMBER OF SEPARATE MEASUREMENTS WHICH WERE GREATER THAN TEN (10) TIMES THE AVERAGE BACKGROUND FOR THE PERIOD OF THE REPORT
** THE FRACTION OF SAMPLE ANALYSES YIELDING DETECTABLE MEASUREMENTS (I.E. >3SIGMA) IS INDICATED WITHIN *
3*

MEDIUM: WATER - GROUND

UNITS: PCI/LITER

RADIOISOTOPES (NO. ANALYSES) NOMINAL (NON-ROUTINE)* LLD		INDICATOR STATIONS MEAN, RANGE, AND NO. DETECTED**	HIGHEST STATION MEAN, RANGE, AND NO. DETECTED**	CONTROL LOCATIONS MEAN, RANGE, AND NO. DETECTED**
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TH-228 (16) (0)	1.0E+01	(-2.1 ± 3.0)E -1 (-2.4 = 1.8)E 0 *(0/ 12)*	13 (2.3 ± 7.2)E -1 *(0/ 4)*	(1.9 ± 13.2)E -1 (-2.2 = 3.9)E 0 *(0/ 4)*
H-3 (16) (0)	9.0E+01	(6.1 ± 3.4)E 1 (-1.6 = 2.4)E 2 *(0/ 12)*	12 (7.8 ± 5.9)E 1 *(0/ 4)*	(1.8 ± 23.0)E 0 (-6.3 = 4.2)E 1 *(0/ 4)*

* NON-ROUTINE REFERS TO THE NUMBER OF SEPARATE MEASUREMENTS WHICH WERE GREATER THAN TEN (10) TIMES THE AVERAGE BACKGROUND FOR THE PERIOD OF THE REPORT

** THE FRACTION OF SAMPLE ANALYSES YIELDING DETECTABLE MEASUREMENTS (I.E. >3SIGMA) IS INDICATED WITHIN *()*.

MEDIUM: WATER - PRECIPITATION

UNITS: PCI/LITER

RADIONUCLIDES (NO. ANALYSES) NOMINAL (NON-ROUTINE)* LLD		INDICATOR STATIONS MEAN, RANGE, AND NO. DETECTED**		STA.	HIGHEST STATION MEAN, RANGE, AND NO. DETECTED**		CONTROL LOCATIONS MEAN, RANGE, AND NO. DETECTED**	
-----		-----		----	-----		-----	
H-3	(43) 9.0E+01 (1)	(1.3 ± .4) F 2 (= 1.3 = 9.2) E 2 *(5 / 33) *		12	(1.8 ± .8) E 2 (= 4.2 = 92.1) F 1 *(3 / 11) *		(2.4 ± 4.3) F 1 (= 1.6 = 2.4) E 2 *(0 / 10) *	

* NON-ROUTINE REFERS TO THE NUMBER OF SEPARATE MEASUREMENTS WHICH WERE GREATER THAN TEN (10) TIMES THE AVERAGE BACKGROUND FOR THE PERIOD OF THE REPORT

** THE FRACTION OF SAMPLE ANALYSES YIELDING DETECTABLE MEASUREMENTS (I.E. >3SIGMA) IS INDICATED WITHIN *()*.

IV. MILK COW CENSUS DATA

A census of all milk cows within a distance of 8 kilometers (5 miles) of the plant was carried out on April 28 and October 20, 1980. Table 1 indicates the results of this survey; there was no change in the milk sampling locations during 1980.

TABLE 1

<u>Farm</u>	<u>Location</u>	<u>Number of Cows</u>	
		<u>April</u>	<u>October</u>
Sherwood Baker	Woolwich 7.2 km, 268°	5	5
Gerry Galuza	Woolwich 7.4 km, 229°	1	1
Lester Holbrook	Woolwich 7.1 km, 269°	20	23
Wayne Leeman	Woolwich 7.9 km, 228°	2	3
Bruce Dickson	Wiscasset 2.7 km, 10°	2	3
Ronald Hodgdon	Wiscasset 2.1 km, 356°	2	2
Frank Richards	Edgecomb 7.7 km, 94°	1	1
Raymond Shadis	Edgecomb 4.2 km, 56°	1	1
John Potter	Edgecomb 7.9 km, 56°	1	1

V. QUALITY ASSURANCE PROGRAM

Three separate quality assurance programs were performed during 1980 to demonstrate the validity of laboratory analyses by the Yankee Environmental Laboratory (YEL).

YEL participates in the EPA Interlaboratory Comparison (cross-check) Program for those species and matrices routinely analyzed by the laboratory. This provides an independent check of accuracy and precision of the laboratory analysis.

YEL maintains an intralaboratory quality control program to assure the validity and reliability of the data. This program includes quality control of laboratory equipment, use of reference standards for calibration, determination of counting efficiencies and analysis of blank and spiked samples. The records of the quality control program are reviewed by the responsible cognizant, and corrective measures are taken whenever applicable.

A blind duplicate/replicate program is maintained in which samples are prepared from split or homogeneous media and sent to the laboratory for analysis. The results from this program are used to check for precision in laboratory analyses.

Figures 9 through 11 show the results of the EPA Intercomparison Program for radionuclides in milk and water samples for 1980. Strontium 89 in milk in a July sample and Cr-51 in a February water sample fell outside of the EPA control level, all other milk and water samples were within EPA criteria.

In March of 1980, YEL changed the method of detection of Sr-89 and Sr-90 from simple beta counting at two different times to a more reliable beta-beta anticoincidence system. A negative bias in Sr-89 measurement became apparent in late August 1980 and processing of the strontium sample was suspended pending system evaluation. In September, the entire beta-beta anticoincidence system was recalibrated and resulted in Sr-89 efficiencies which were approximately ten percent lower than the original calibration. All Sr-89 data generated by the beta-beta anticoincidence methodology was reviewed and positive values have been updated. This problem did not affect the ability of the technique to detect Sr-89 near the 10 pCi per liter LLD requirements. The September Sr-89 EPA results were within EPA criteria for accuracy.

Concerning the Analysis of Cr-51 - The analysis of Cr-51 is made difficult by the low branching intensity of the primary gamma line (0.099 at 320 keV) and the relatively short half-life (27.7 days) of Cr-51. A review of the gamma spectra associated with these analyses showed no significant problems with the manner in which these analyses were conducted. All future Cr-51 analyses will be carefully reviewed; however, we feel that the expected precision utilized by the EPA to determine the normalized deviation from the known for Cr-51 is far too restrictive.

The results of the blind duplicate and intralaboratory QA sample programs for the first half of 1980 showed that YEL met the criteria for precision in environmental media.

FIG. 9

EPA RESULTS RADIONUCLIDES IN WATER

□ = CS-134
 ○ = CS-137
 △ = I-131
 + = H-3
 X = GROSS BETA

◇ = CO-60

DEVIATION FROM KNOWN

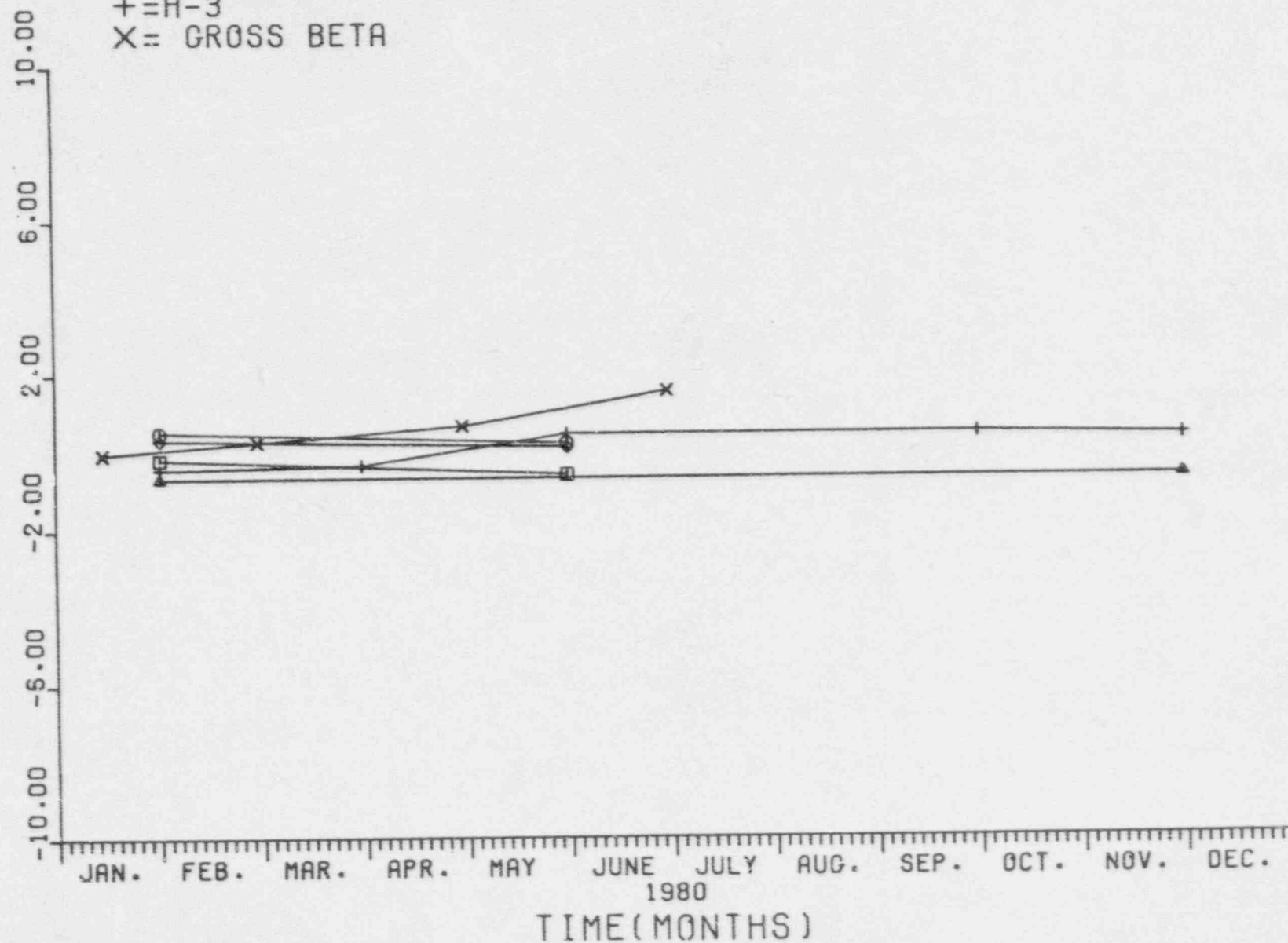


FIG. 10

EPA RESULTS RADIONUCLIDES IN WATER

□ = SR-89
 ○ = SR-90
 △ = RU-106
 + = ZN-65
 X = CR-51

DEVIATION FROM KNOWN

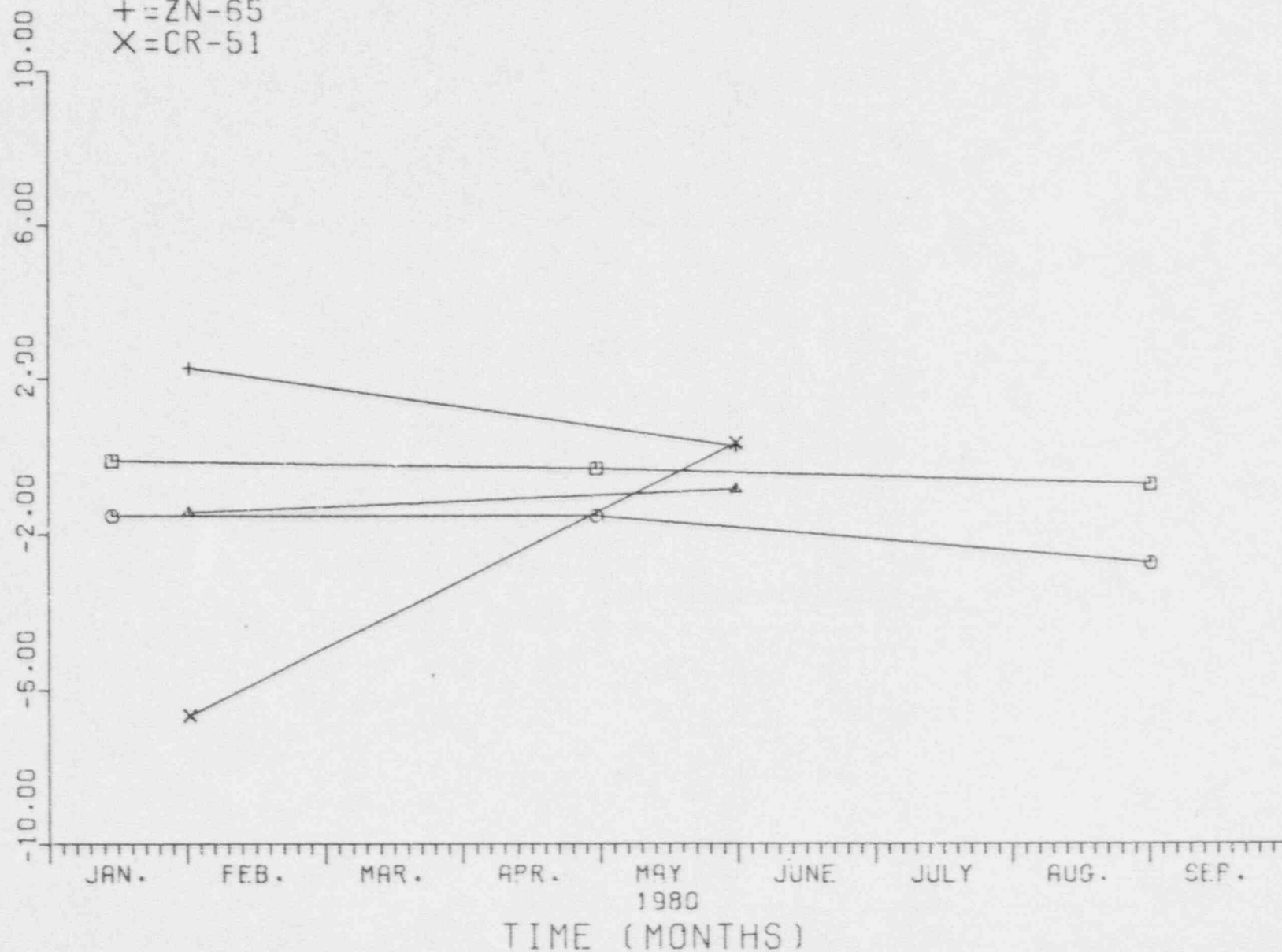
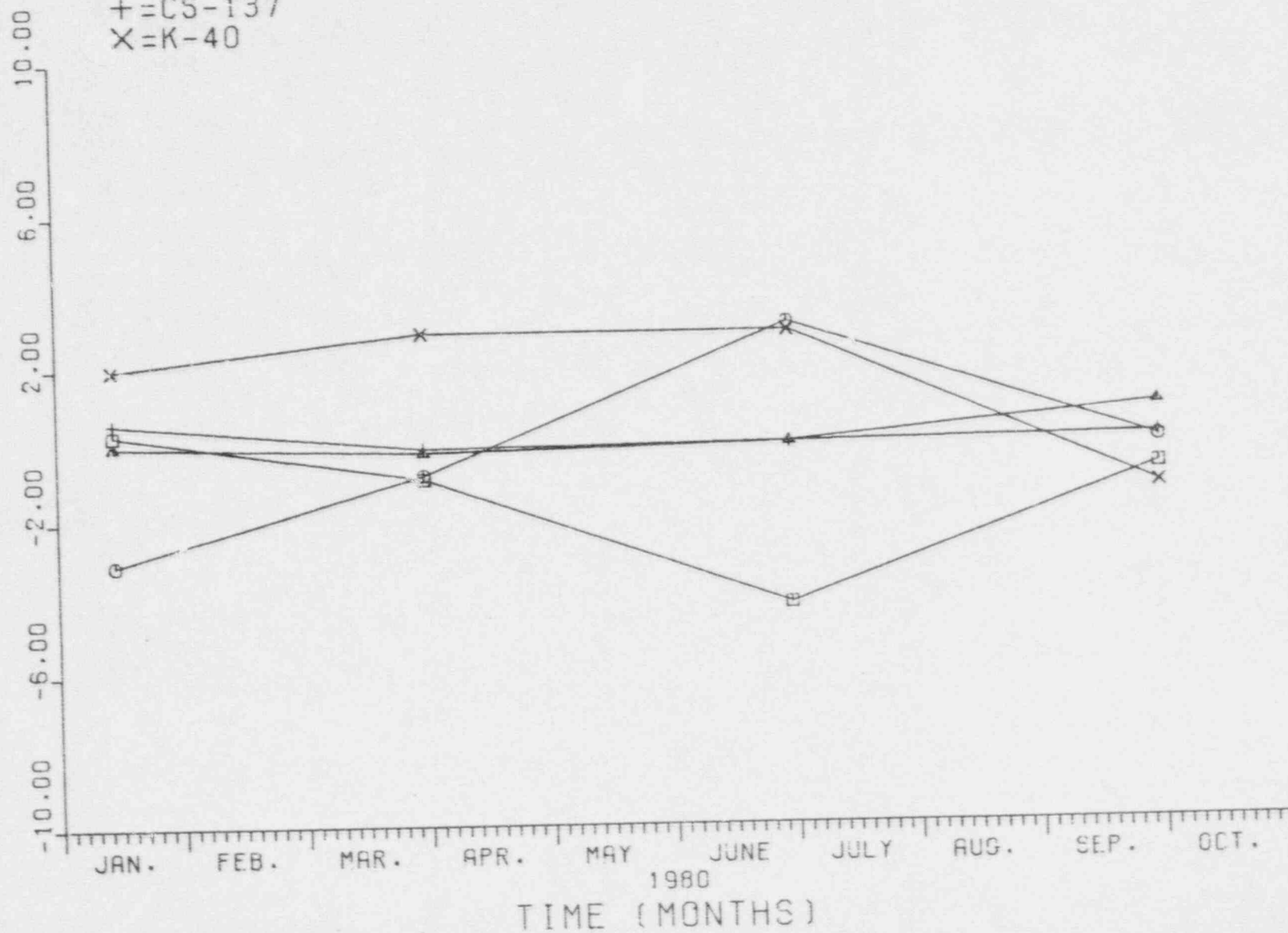


FIG. 11

EPA RESULTS
RADIONUCLIDES IN MILK

□ = SR-89
○ = SR-90
△ = I-131
+ = CS-137
X = K-40



VI. ATMOSPHERIC FALLOUT DURING 1980

On October 17, 1980, the People's Republic of China detonated a nuclear device in the atmosphere at the Lop Nor test site in northwest China. The explosion was estimated by the Department of Energy to be in the 200 kilotons to one megaton yield range. The clouds of radioactive debris began drifting over the western part of the United States on October 19, 1980.

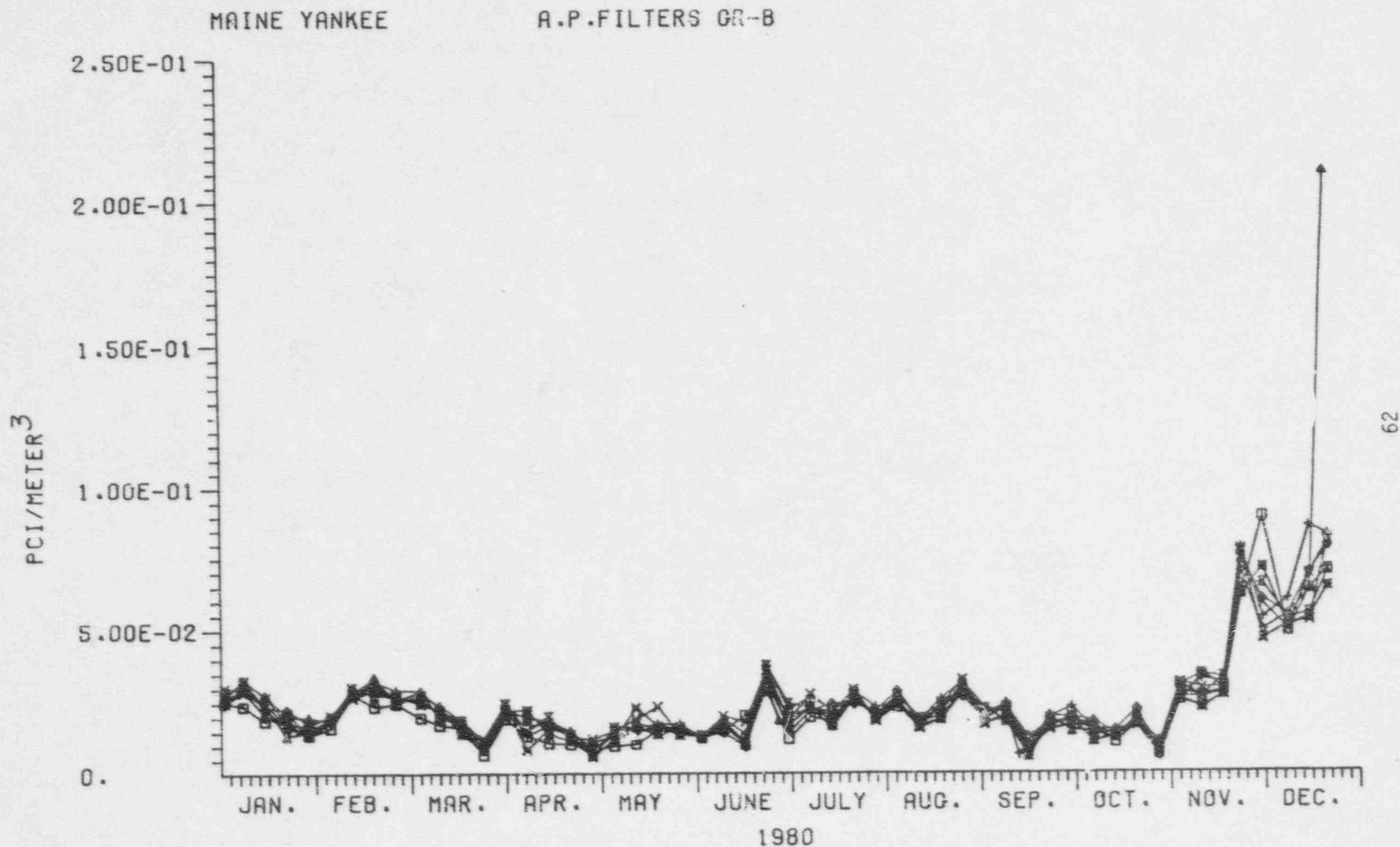
Figures 12 and 13 show the weekly measurement of airborne gross beta activity on air particulate filters from nine air sampling stations in the environs of Maine Yankee. During the beginning of November, increased airborne gross beta activity was prevalent at both indicator and control station samples and continued to increase into 1981. Station 29, a control station located 20 kilometers north-northwest of the plant, detected gross beta activity during the second week of December, which was approximately 18 times greater than the average gross beta concentrations of the eight other airborne stations for this period. A gamma analysis of this filter was performed, and the analysis showed detectable concentrations of several fission products (Ce-141, Ce-144, Zr-95) which are associated with a nuclear test.

Gamma analyses are routinely performed quarterly on weekly composite air particulate filters from each station. The fourth quarter gamma analysis of these filters at all sampling locations showed detectable concentrations of fallout fission products (Ce-141, Ru-103, Nb-95 and Zr-95) from the Chinese test. In October 1980, our environmental laboratory in Westborough, Massachusetts, began operation of a control air monitoring station. These

measurements are in addition to the background measurements required by our Technical Specifications. From November 13 to the end of the year, the laboratory detected measureable concentrations of Ce-141, Ru-103, Ba-140, Nb-95, I-131 and Zr-95 in air particulate filters. Iodine 131 was also detected in charcoal filters on November 20, 1980.

Fallout was also detected in other environmental media during 1980. Aquatic vegetation samples from both indicator and control locations collected in December of 1980 showed detectable concentrations of Ce-141, Ru-103, Nb-95 and Zr-95 (Figures 25 through 28). Iodine 131 activity was detected in November and December milk samples from both indicator and control stations.

FIG. 12

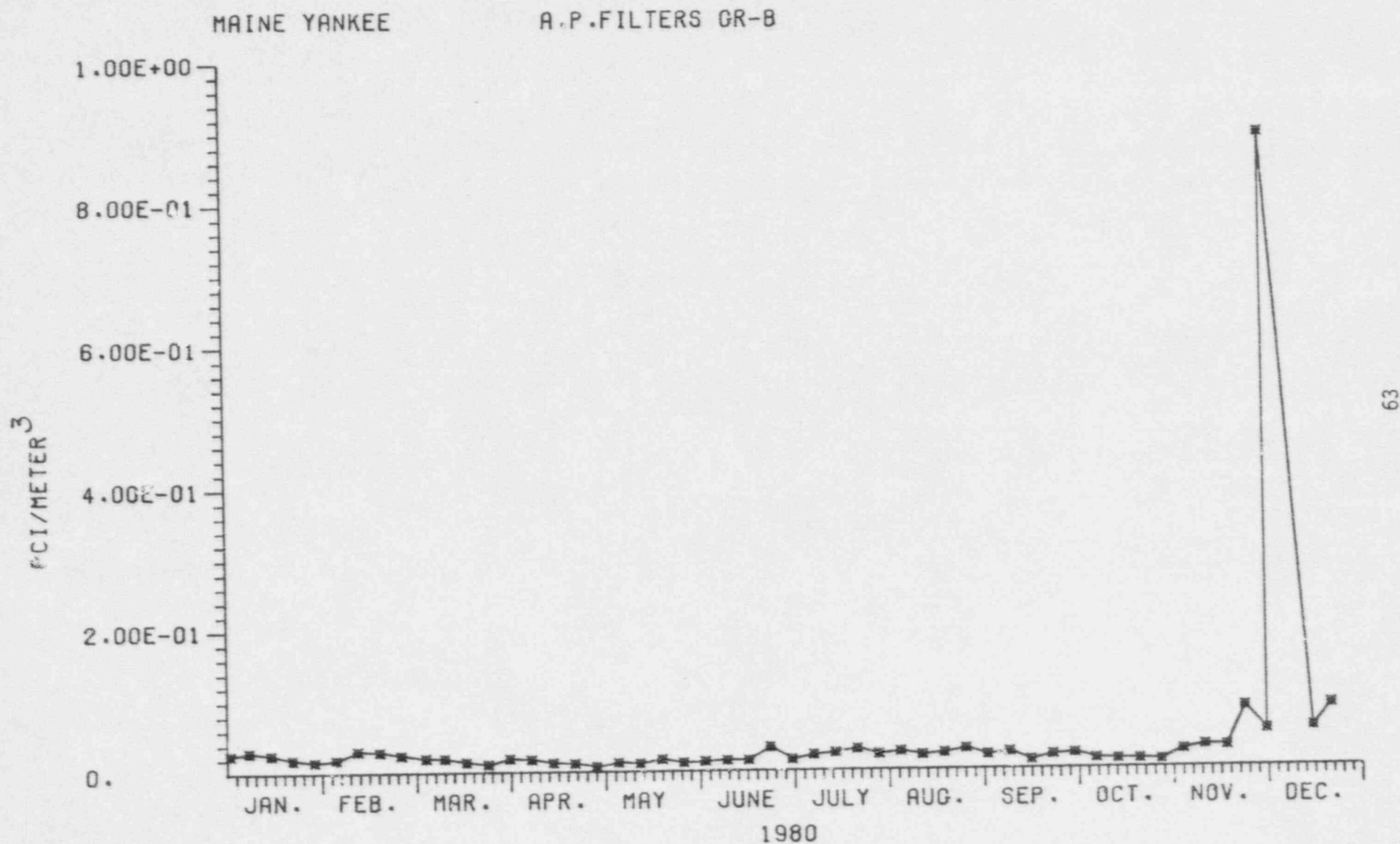


Z VALUES INDICATE ACTIVITY NUMBERS OUTSIDE THE RANGE OF THE PLOT

STATION 11 = * STATION 12 = ✕ STATION 13 = ⋈ STATION 14 = + STATION 15 = ×

STATION 16 = ◇ STATION 17 = □ STATION 28 = △

FIG. 13



Z VALUES INDICATE ACTIVITY NUMBERS OUTSIDE THE RANGE OF THE PLOT
 STATION 29 = *

VII. ANALYSIS OF ENVIRONMENTAL DATA

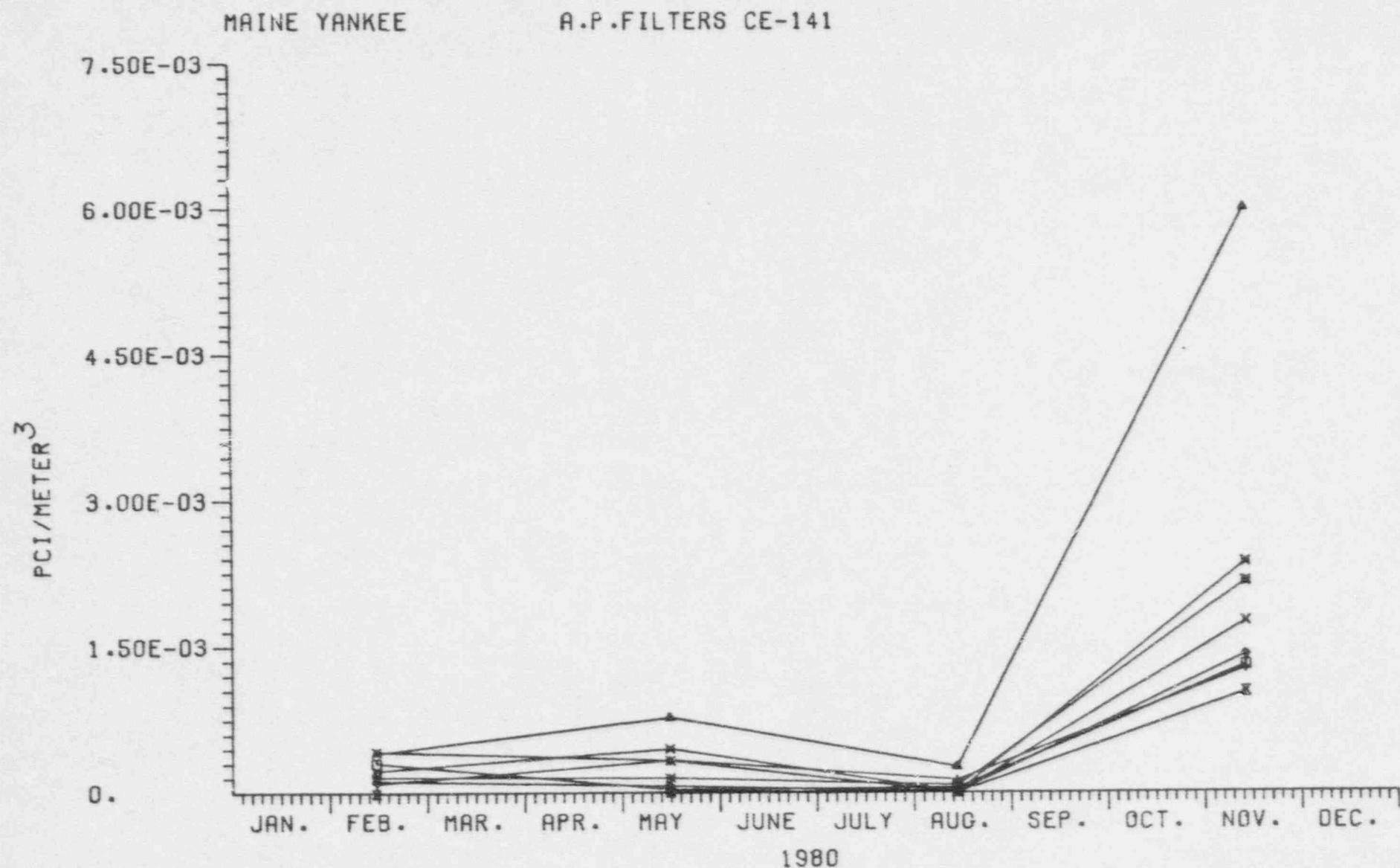
The analysis of environmental data may be divided into three sections: airborne radioactivity, waterborne radioactivity, and direct radiation measurements. A discussion of each environmental media within these sections will follow.

1) Airborne

a) Air Particulate Filters

Air monitoring stations are established at a total of nine locations. Seven of these locations are indicator, while the remaining two are control stations. The air pumps at these locations operate continuously at a flow rate of approximately one cubic foot per minute, resulting in a weekly air sample of approximately 300 cubic meters. Airborne particulates are collected by passing the air through a fiber filter; these filters are collected weekly and held for at least 100 hours before being analyzed for gross beta activity to allow for the decay of radon and thoron daughter products. Weekly composite air filters from each location are analyzed quarterly for gamma emitting nuclides. Figures 12 and 13 show the weekly concentration of gross beta activity during 1980. These figures show that the behavior of gross beta activity for indicator and control stations were similar. In November, increased airborne gross beta activity was noted in both indicator and control stations and showed even higher concentrations in December. Station 29, a control station, had a gross beta concentration during the second week of December which was approximately 18 times higher than the average concentration of the other air sampling stations for this period. A gamma analysis of this filter showed detectable concentration of fission products related to the Chinese nuclear test (see

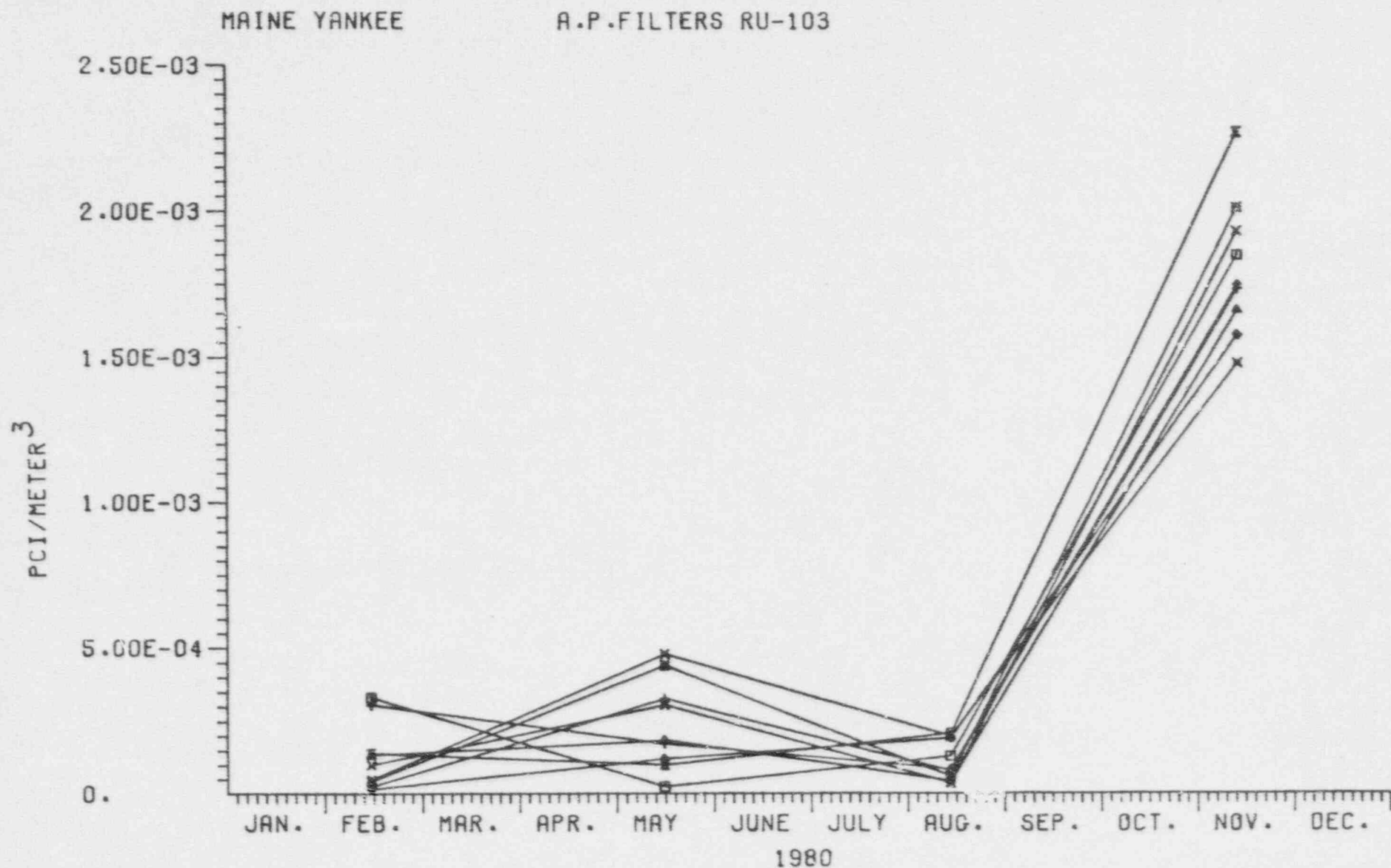
FIG. 14



Z VALUES INDICATE ACTIVITY NUMBERS OUTSIDE THE RANGE OF THE PLOT

STATION 12 = * STATION 13 = × STATION 14 = ⊗ STATION 15 = + STATION 16 = ×
 STATION 17 = ◇ STATION 28 = ▣ STATION 29 = △ STATION = ♣

FIG. 15

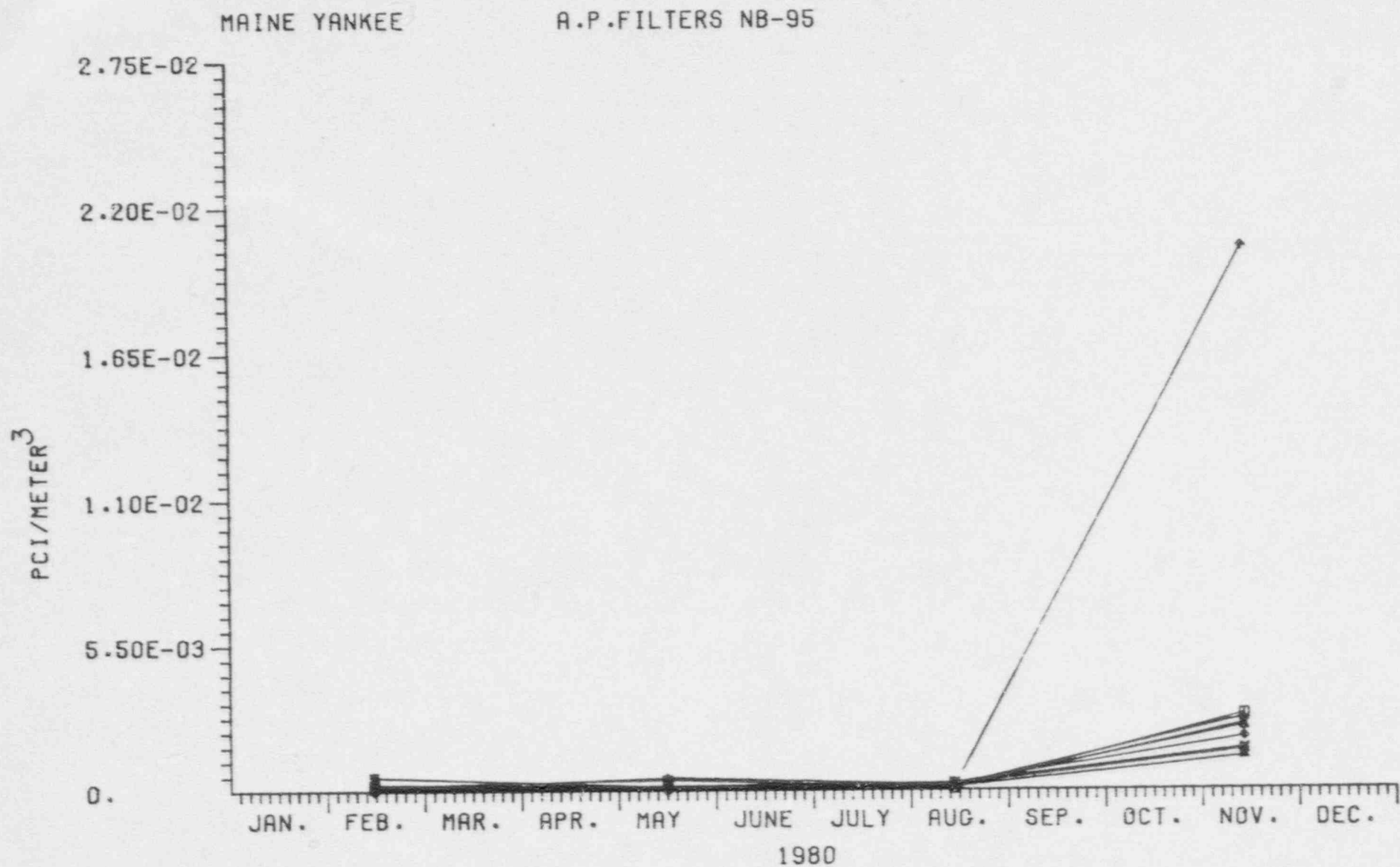


Z VALUES INDICATE ACTIVITY NUMBERS OUTSIDE THE RANGE OF THE PLOT

STATION 11 = * STATION 12 = ✕ STATION 13 = " STATION 14 = + STATION 15 = X

STATION 16 = ◇ STATION 17 = □ STATION 28 = ▲ STATION 29 = †

FIG. 16



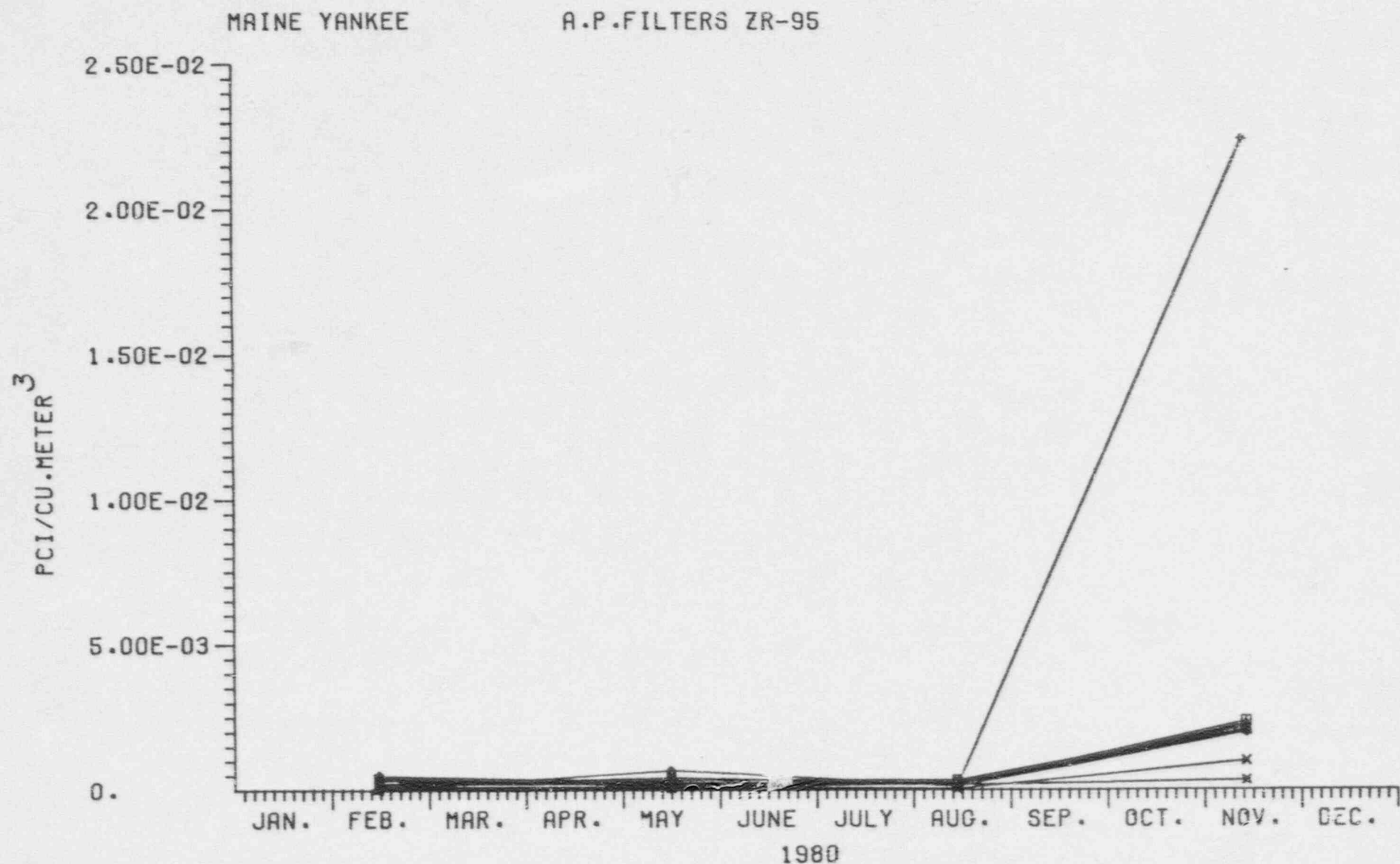
68

Z VALUES INDICATE ACTIVITY NUMBERS OUTSIDE THE RANGE OF THE PLOT

STATION 11 = * STATION 12 = x STATION 13 = X STATION 14 = + STATION 15 = X

STATION 16 = ◇ STATION 17 = □ STATION 28 = △ STATION 29 = ⋈

FIG. 17



Z VALUES INDICATE ACTIVITY NUMBERS OUTSIDE THE RANGE OF THE PLOT

STATION 11 = * STATION 12 = x STATION 13 = X STATION 14 = + STATION 15 = X

STATION 16 = ◇ STATION 17 = □ STATION 28 = △ STATION 29 = ⊕

Section VI).

The quarterly gamma analysis on weekly composite air particulate filters shows detectable concentrations of Ce-141, Ru-103, Nb-95 and Zr-95 during the fourth quarter of 1980 (Figures 14 through 17). The concentration of these fission products was not statistically different at all locations except Station 29, which exhibited higher activities. This fourth quarter activity is the result of fresh fallout associated with the Chinese nuclear test.

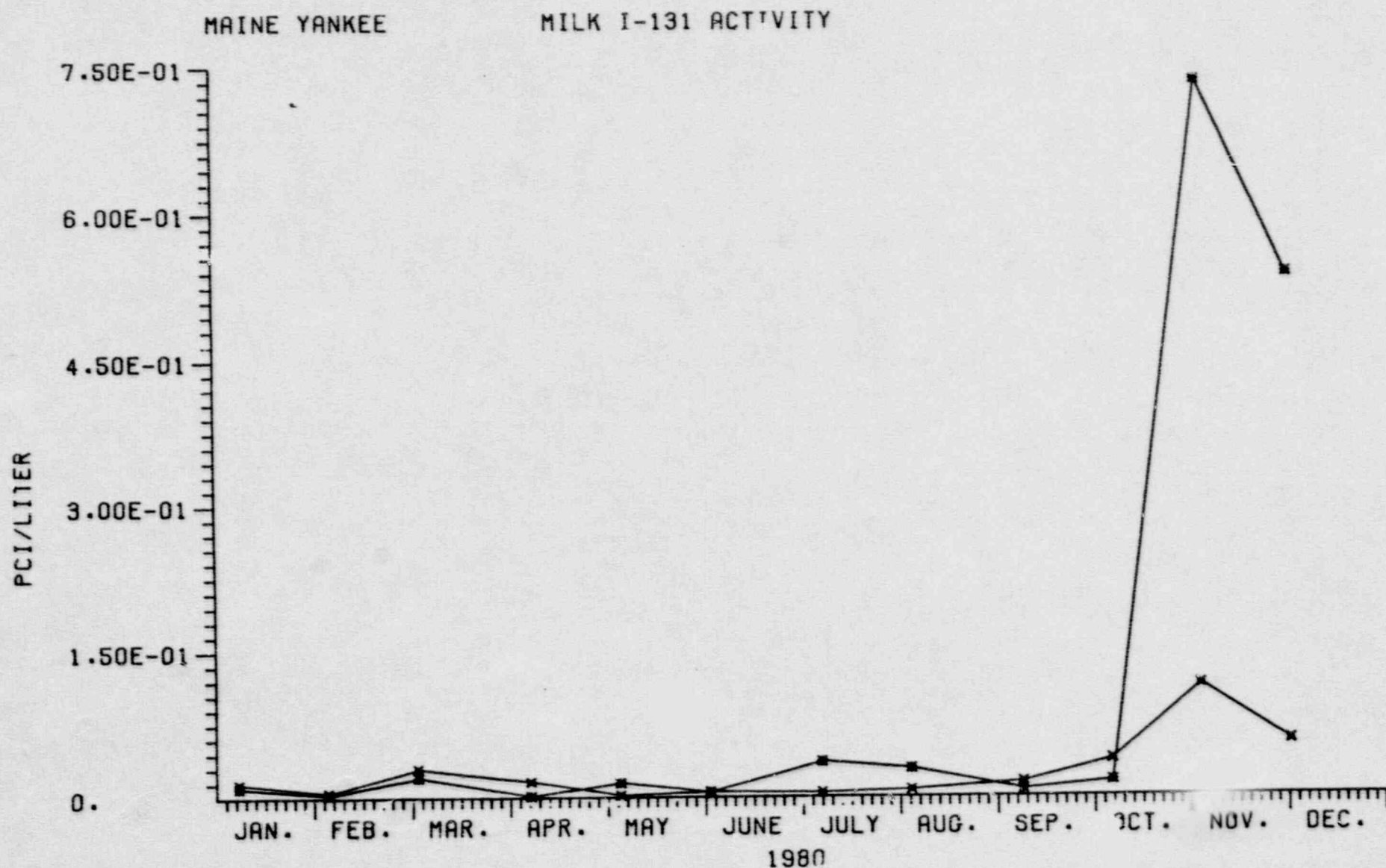
b) Charcoal Filters

Charcoal filters from nine air sampling locations were collected and analyzed weekly for I-131 activity. Concentrations of I-131 activity in both indicator and control station samples during 1980 were below detectable measurements.

c) Milk

Milk samples were collected and analyzed monthly for Sr-89, Sr-90, and gamma emitting nuclides. During 1980, detectable measurements of I-131 were noted in November and December samples from both the indicator and control stations. The plant's airborne releases of I-131 were lowest during the second half of 1980, and Figure 18 shows that the I-131 activity occurred simultaneously with the arrival of fallout from the Chinese nuclear test in the beginning of November (Figures

FIG. 18



Z VALUES INDICATE ACTIVITY NUMBERS OUTSIDE THE RANGE OF THE PLOT
 STATION 16 = * STATION 24 = x

12 and 13). Milk samples from other New England sampling locations exhibited detectable measurements of I-131 during this period of time. Furthermore, our laboratory in Westborough, Massachusetts, operated a control air sampler and measured a detectable concentration of I-131 in a charcoal filter during the month of November. This information indicates that the I-131 activity in milk samples was not related to the operation of Maine Yankee, but rather the detonation of a nuclear device by the Chinese.

A detectable concentration of Sr-89 was measured in December from Station 16, located 7.2 kilometers west of the plant. However, this nuclide was also detected at other New England sampling locations and is related to the Chinese test.

Detectable concentrations of Cs-137 and Sr-90 were measured in milk samples from the indicator and control stations. The mean concentration of Cs-137 and Sr-90 in milk from the indicator station was greater by a factor of 3 and 4, respectively, than the control station milk samples. This higher concentration in the indicator station has been noted for several years and is not related to Maine Yankee gaseous releases. An in-depth study of the Strontium-90 and Cesium-137 levels in the environment will be carried out over a four-month period in 1981. Preliminary results from a study carried out in the environs of Maine Yankee during 1980 indicated that Sr-90 and Cs-137 levels in soil were related to weapons testing

fallout and that the concentration of these nuclides in milk is a function of the type of vegetation cattle feed on.

d) Terrestrial Vegetation

Terrestrial vegetation samples were collected twice during the growing season from six sample locations listed in Table I. The vegetation samples consisted of mixed grass and were analyzed for Sr-89, Sr-90, and gamma emitting nuclides. As usual, detectable concentrations of Sr-90 and Cs-137 were measured in samples from both indicator and control locations. The mean concentration of both Sr-90 and Cs-137 in samples from both locations were not statistically different. Comparisons of indicator and control location measurements indicate that this activity is not from the operation of Maine Yankee, but rather residual activity from the detonation of nuclear weapons in the atmosphere.

e) Food and Garden Crops

Samples of apples, potatoes and cabbages were collected at harvest time and analyzed for gamma emitting nuclides. Low level I-131 analyses were also performed on the leafy portion of the cabbage according to our Technical Specifications. Potassium 40, a naturally occurring radionuclide, was the only radionuclide with activity concentrations greater than detectable measurements.

f) Fresh Water

Fresh water samples were collected from three indicator and one control locations. The samples were analyzed quarterly for tritium and gamma emitting nuclides. The results of the analysis showed that Ra-226, a naturally occurring nuclide, was the only detectable radionuclide measured in fresh water during 1980.

g) Precipitation

Precipitation samples are collected and analyzed for tritium activity monthly at four sampling locations in the environs of Maine Yankee. The results of the analysis show that detectable concentrations of tritium were measured in February and May samples from Stations 12 and 13. Atmospheric releases of tritium were lower in the first half of 1980 when these concentrations were detected. During 1980, the total gaseous release of tritium from Maine Yankee was 3.16 curies. Using the methodology in Regulatory Guide 1.109 (Reference 3) and the annual average λ/Q at Stations 12 and 13, the expected tritium concentration would be a factor of 12 and 4, respectively, lower than the mean concentration of the detectable measurements for each station.

Tritium is formed naturally from several interactions of cosmic rays with gases of the upper atmosphere, and is also produced in thermo-nuclear detonations in the atmosphere. The

atmospheric concentration of tritium has increased since 1954 (Reference 1) and in 1980, the total tritium inventory was estimated to be approximately 900,000,000 curies (Reference 2).

Tritium exists in the atmosphere principally in the form of water vapor and precipitates in rain and snow. The detectable measurements of tritium at Stations 12 and 13 are probably the results of all sources mentioned above. No detectable levels of tritium were measured in drinking water samples.

2) Waterborne Pathway

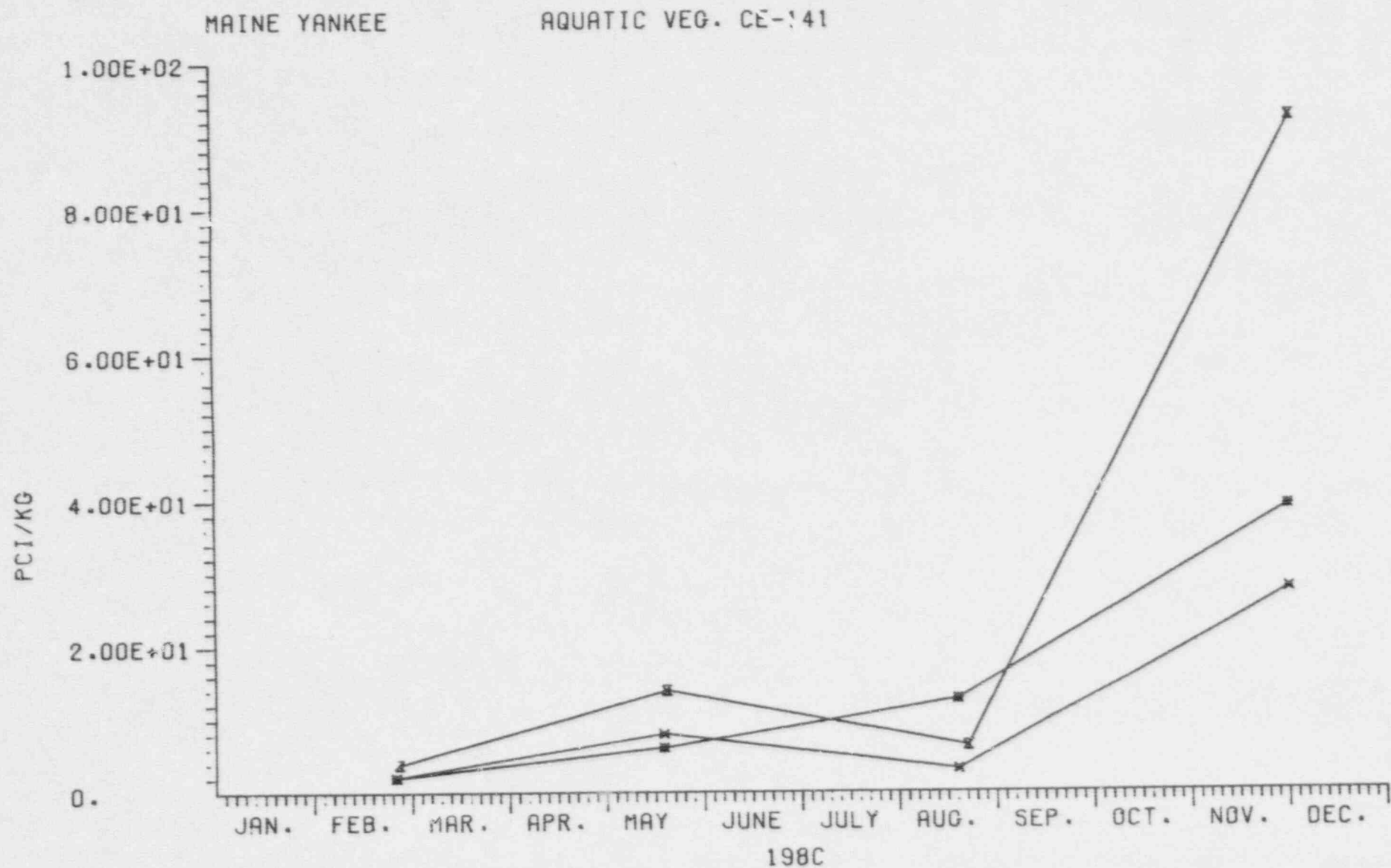
a) Estuary Water

Estuary water samples were collected and analyzed monthly for gamma emitting nuclides, and a tritium analysis was performed quarterly on monthly composite samples. Station 15 was the only location which showed some detectable concentrations. Composite samples from this location are taken before the diffuser discharge. When a dilution factor of 10 is applied, due to the operation of the diffuser in the back river, the concentrations are below detectable levels.

b) Aquatic Vegetation

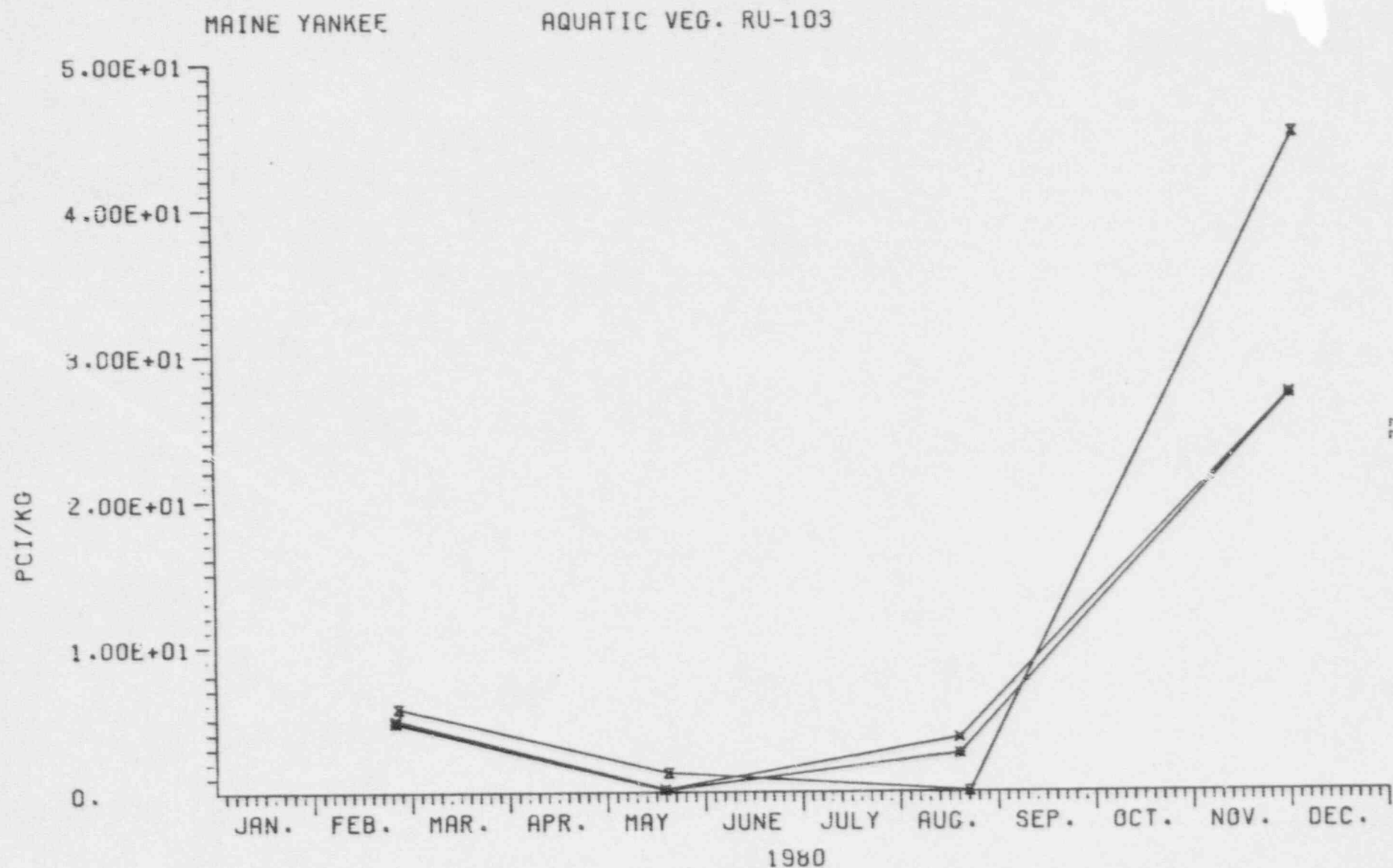
Aquatic vegetation samples were collected and analyzed quarterly for gamma emitting nuclides. During the fourth quarter of 1980, all sampling station samples had detectable concentrations of Ce-141, Ru-103, Nb-95 and Zr-95 (Figures 19 through 22).

FIG. 19



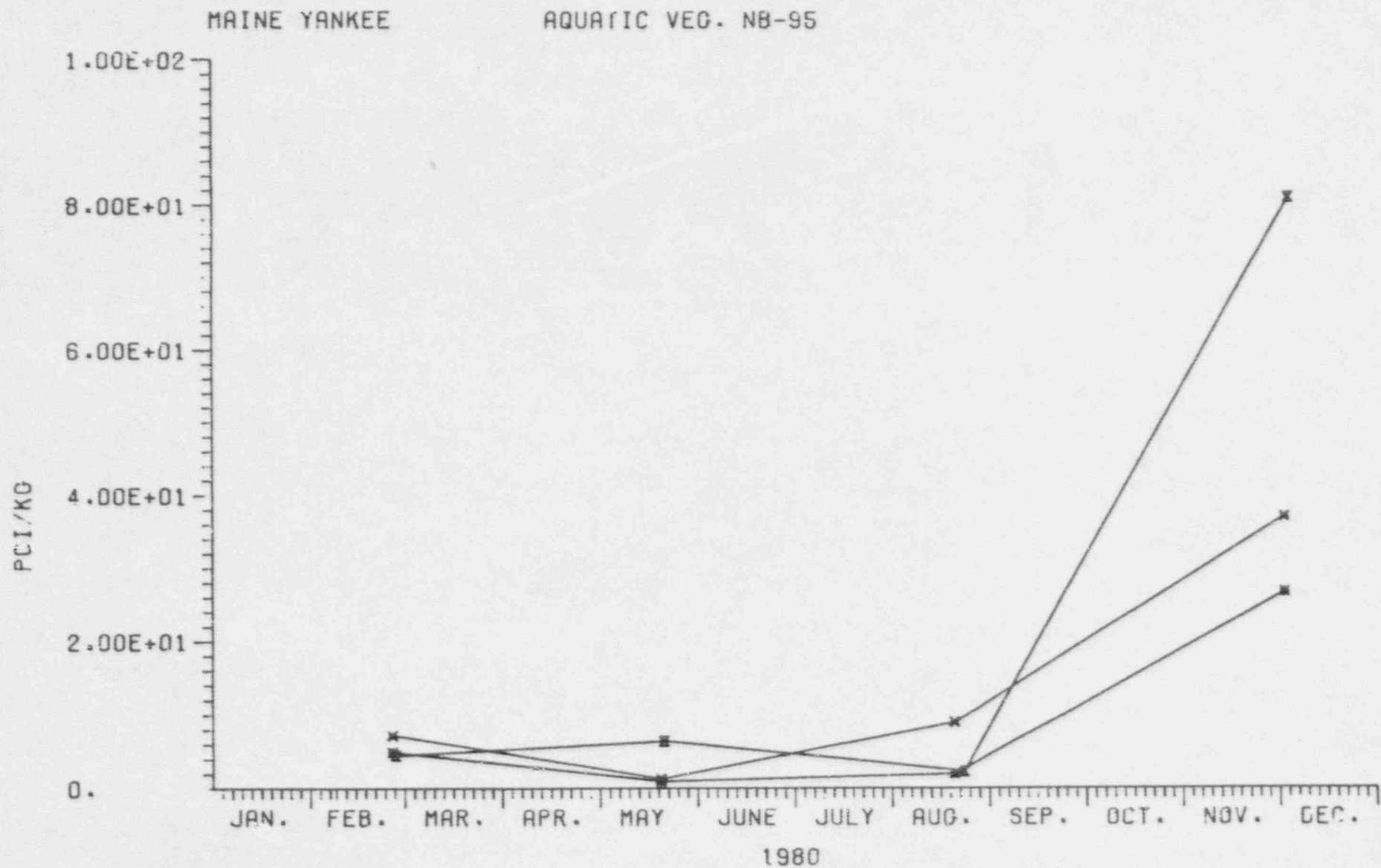
Z VALUES INDICATE ACTIVITY NUMBERS OUTSIDE THE RANGE OF THE PLOT
 STATION 11 = * STATION 12 = x STATION 23 = X

FIG. 20



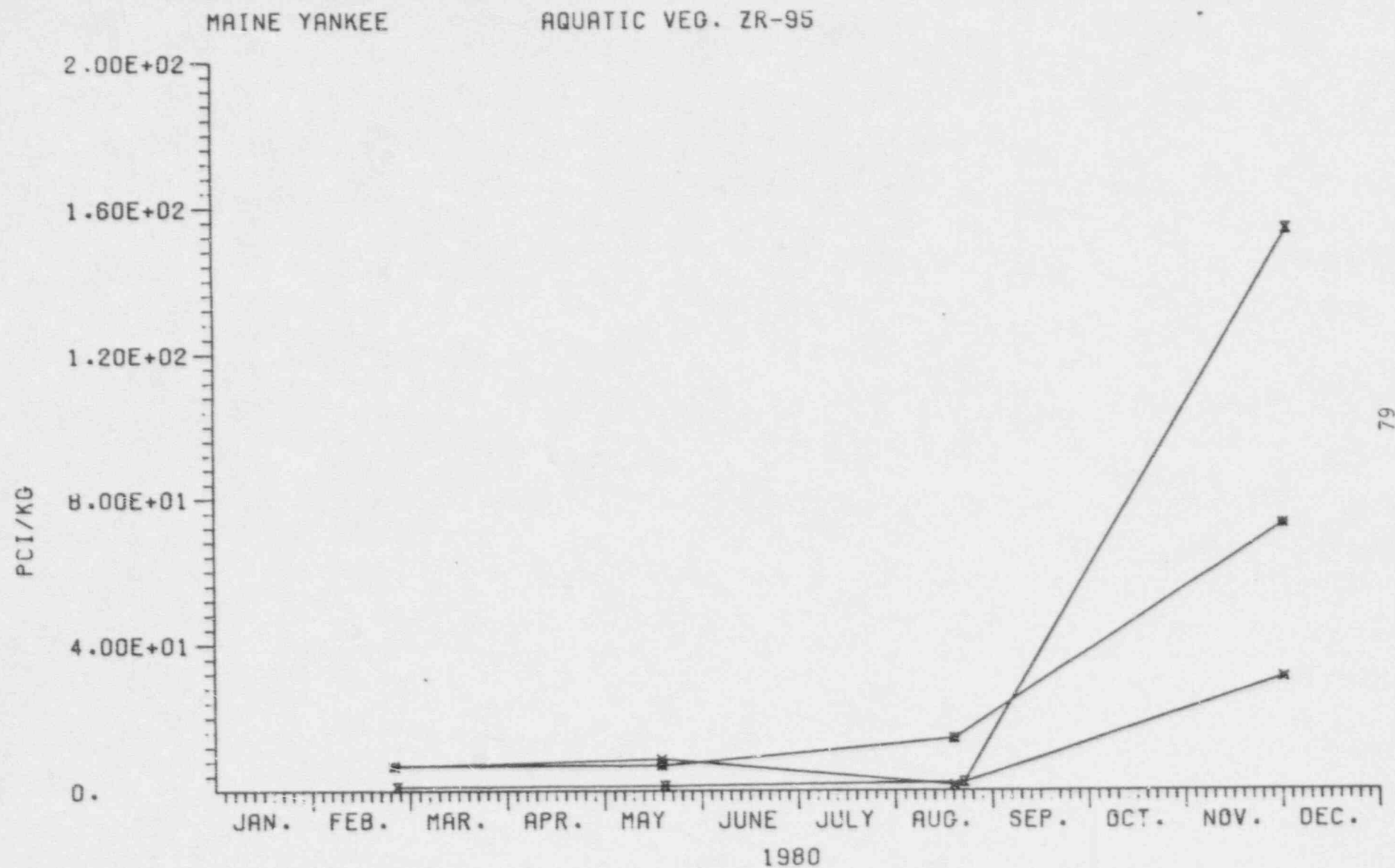
Z VALUES INDICATE ACTIVITY NUMBERS OUTSIDE THE RANGE OF THE PLOT
 STATION 11 = * STATION 12 = x STATION 23 = X

FIG. 21



Z VALUES INDICATE ACTIVITY NUMBERS OUTSIDE THE RANGE OF THE PLOT
 STATION 11 = * STATION 12 = x STATION 23 = X

FIG. 22



Z VALUES INDICATE ACTIVITY NUMBERS OUTSIDE THE RANGE OF THE PLOT
 STATION 11 = * STATION 12 = x STATION 23 = X

Since these fission products in aquatic vegetation correlate with the arrival of fresh fallout from the Chinese nuclear test (see Section VI) and were below detectable level concentration for liquid releases from the plant, this activity is not the result of the operation of Maine Yankee.

c) Marine Organisms

Fish, crabs, lobsters and mussels were collected and analyzed during 1980. Crabs and lobsters are categorized under the media arthropods, while mussels are under shellfish in our summary tables in Section III. The results of the gamma analysis show that Potassium-40, a naturally occurring nuclide, was the only detectable radionuclide in marine organisms.

d) Sediment

Detectable concentrations of Co-60, Cs-134 and Cs-137 were measured in sediment samples from Stations 15 and 16, located on the west side of Bailey Cove. These stations are in the vicinity of the old liquid discharge point, where routine liquid releases from the plant occurred before 1975. A discharge diffuser has subsequently been installed and the liquid is now discharged into the Back River. The activity detected in these stations is due to the residual activity from old releases.

Concentrations of Co-60 and Cs-134 were below detectable values

at Station 18, which is located on the east side of Bailey Cove near the present diffuser.

3) Direct Radiation

Table 2 shows the yearly average exposure from direct gamma radiation in microrem per hour from 17 TLD stations located on and off the Maine Yankee site. Zone I and restricted boundary stations exhibited monthly radiation exposures which ranged from 7.3 to 26.2 microrem per hour. The control locations showed monthly exposures which ranged from 10.0 to 18.7 microrem per hour. The yearly average shows that the control stations' exposures are not statistically different than the average exposure rate at indicator and restricted boundary sites.

TABLE 2
1980 Average TLD Exposures

		<u>Microrem/Hour</u>
TL 1	Zone I	11.8
TL 2	Zone I	11.3
TL 3	Zone I	11.8
TL 4	Zone I	13.3
TL 5	Zone I	11.3
TL 6	Zone I	11.7
TL 7	Zone I	10.9
TL 8	Restricted Boundary	10.4
TL 9	Restricted Boundary	15.9
TL 10	Restricted Boundary	14.1
TL 11	Restricted Boundary	15.2
TL 12	Restricted Boundary	15.9
TL 13	Restricted Boundary	10.6
TL 14	Restricted Boundary	12.7
TL 15	Restricted Boundary	13.3
TL 16	Zone II	13.9
TL 17	Zone II	11.5

Average Zone I - 11.7 ± 1.8

Average Zone I + Restricted Boundary Sites - 12.7 ± 2.8

Average Zone II - 12.6 ± 2.4 microrem/hour

TABLE 3

Off-Site Environmental Radiological Monitoring
Summary of Analyses for the Period 1/3/80 to 1/6/81

TLD - Direct Radiation
 Microrem per Hour

<u>Analyses Performed (Total Number)</u>	<u>Lower Limit of Detection (LLD)</u>	<u>All Indicator Stations (Mean Range)</u>	<u>Highest Station (Mean Range)</u>	<u>Control Station (Mean Range)</u>
201	0.3	(12.7 \pm 2.8) (7.3 - 26.2)	12(15.9 \pm 2.2) (12.7 - 20.7)	(12.6 \pm 2.4) (10.0 - 18.7)

VIII. ENVIRONMENTAL DOSIMETRY

The concentration of man-made radionuclides having detectable measurements in indicator and control station samples of air particulate filters, charcoal filters, drinking water, aquatic food, milk and food crops were used to calculate total body doses to adults. The average individual's usage factors were taken from USNRC Regulatory Guide 1.109 (October 1977). These usage factors are:

8,000	m ³ /yr of inhaled air
370	liters/yr of drinking water
7.9	kg/yr of aquatic food
110	liters/yr of milk
190	kg/yr of food products

The product of the radionuclide concentration and the usage factor yields the yearly radionuclide intake. The dose is calculated by using the dose conversion factors contained in USNRC Regulatory Guide 1.109. I-131 doses to the thyroid were calculated separately from data from the media mentioned above. In addition, external whole body doses were measured with TLD's placed in indicator and control locations.

Table 4 summarizes the environmental doses from detectable concentrations in indicator and control station samples. The doses calculated from inhalation and I-131 are due primarily to higher concentrations of fresh fallout related to the Chinese nuclear test in October.

TLD measurements indicate that nearby residences did not receive any measurable dose from the operation of Maine Yankee. The background external doses were measured to be approximately 8 mrem higher for 1980 than Zone I location, indicating that variation in the natural environment dose rate is greater than any contribution from the plant.

TABLE 4

Summary of Environmental Radiation Doses
(mrem/year)

<u>Source</u>	<u>Plant Environs</u>	<u>Background</u>
Inhalation	7.64×10^{-5}	3.31×10^{-4}
Aquatic Organisms	*	*
Food Crops	*	*
Milk	3.01	0.73
Water	*	*
I-131	0.023	0.003
TLD	<u>102.5</u>	<u>110.4</u>
Total	105.5	111.1

* Concentrations below detectable measurements

IX. CONCLUSION

During 1980, our radiological environmental monitoring program conducted in Maine's off-site environment showed that, in general, the major radionuclides measured in environmental media were the naturally occurring and fallout fission products from atmospheric nuclear testing. There was no significant increase in environmental radioactivity due to the operation of Maine Yankee.

The levels of radioactive materials in environmental media indicate that public intakes are less than one percent of those recommended in Appendix B, Table II, Part 20 of the Code of Federal Regulations.

X. REFERENCES

1. M. Eisenbud, Environmental Radioactivity, Second Edition, 1973, Academic Press, New York.
2. G. Eichholz, Environmental Aspects of Nuclear Power, 1976, Ann Arbor Science Publishers, Ann Arbor.