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NIAGARA MOHAWK POWER CORPORATION

ANNUAL ENVIRONMENTAL OPERATING REPORT

January 1, 1977 - December 31, 1977

NINE MILE POINT NUCLEAR STATION UNIT #1

Facility Operating License DPR-63

Docket Number 50-220

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TABLE OF CONTENTS

	<u>Page</u>
I. INTRODUCTION	1
II. DESCRIPTION AND SUMMARY	1
III. ANALYSIS OF ENVIRONMENTAL DATA	1-7
A. Lake Program	1-2
1) Bottom Sediments	1
2) Mollusks	1
3) Periphyton	2
4) Gammarus	2
5) Fish	2
6) Lake Water	2
B. Land Program	3-7
1) Air Particulates	3
2) Air Particulate Composites	3
3) Airborne I-131	4
4) Environmental TLD's	5
5) Radiation Monitors	6
6) Milk	7
7) Milch Animal Census	7
8) Other Land Samples	7
IV. ENVIRONMENTAL SAMPLE SUMMARY	8-11

LIST OF TABLES

		<u>Page</u>
Table 1	Required Sample Collection and Analysis (Lake Program)	12
Table 2	Required Sample Collection and Analysis (Land Program)	13
Table 3	Bottom Sediments and Periphyton Results	19
Table 4	Mollusks and Gammarus Results	20
Table 5	Fish Results	21-23
Table 6,6A,6B	Lake Water Results	24-27
Tables 7,8	Air Particulates - Gross Beta Results	28-31
Table 9	Air Particulate Composites - Gamma Isotopic	32-34
Tables 10,11	Airborne I-131 Results	35-38
Table 12	Environmental TLD Results	39
Table 13	Radiation Monitor Readings	40-43
Table 14	Milk - I-131 Results	44
Table 15	Milk - Gamma Isotopic Results	45
Table 16	Milch Animal Census Locations	46-47
Table 17	Meat, Poultry, Gamma Isotopic Results	48
Table 18	Eggs and Produce, Gamma Isotopic Results	49
Table 19	Soil Results	50

LIST OF FIGURES

Figure 1	Off-Site Environmental Station and TLD Locations	14
Figure 2	On-Site Environmental Station and TLD Locations	15
Figure 3	Aquatic Sample Locations (On-Site)	16
Figure 4	Milk, Meat, Poultry, Eggs Sample Locations	17
Figure 5	Milch Animal Census Locations	18

NINE MILE POINT UNIT 1
ANNUAL ENVIRONMENTAL OPERATING REPORT

I. INTRODUCTION

This report is submitted in accordance with Section 5.6.1 of Appendix B to DPR-63, Docket 50-220.

II. DESCRIPTION

The required sample collection and analysis schedule for Nine Mile Point is listed in Tables 1 and 2.

The sampling locations are shown in Figures 1 through 5.

III. EVALUATION OF ENVIRONMENTAL DATA*

A. Lake Program

Tables 3 through 6 list the results of radiological analysis of aquatic media at 3 sampling locations (JAF, NMP-1, Oswego Steam Station-OSWP). It should be noted that when availability of media dictated, other off-site locations were sampled.

1) Bottom Sediments - Table 3.

Assuming the off-site data as control, the following concentrations may be of possible significance (>2x control).

Date	Transect	Isotope	Control	Concentration pCi/g On-Site
12/7-8	NMPP	Cs-134	<0.15	0.80
		Cs-137	0.73	4.10
		Co-60	<0.15	0.72
	JAF	Cs-134	<0.15	0.73
		Cs-137	0.73	2.40
		Co-60	<0.15	0.58

2) Mollusks - Table 4

Analysis showed no significant concentrations in these organisms.

*Missing data will be submitted in a supplemental report when received from analytical contractor.

III. EVALUATION OF ENVIRONMENTAL DATA (Cont.)

A. 3) Periphyton - Table 3

Analyses of periphyton samples shows the Zr-Nb-95 concentration in the NMPP sample, collected 9/15, is greater than 2x control (OSWP). The NMPP and OSWP concentrations are 0.50 and .22 pCi/g respectively.

4) Gammarus - Table 4

The off-site sample collected 8/11 did not contain sufficient organisms for a more sensitive analysis, thus, the control values are higher than the on-site experimental values.

5) Fish - Table 5

The control value for fish sample results is the average concentration for all species collected on the Oswego Transect. Based on a comparison with this value the following may be of possible significance (>2x control):

<u>Date</u>	<u>Transect</u>	<u>Species</u>	<u>Isotope</u>	<u>Control</u>	<u>Concentration pCi/g On-Site</u>
8/25	FITZ	Yellowperch	Sr-90	.07	.18
	FITZ	Whiteperch	Sr-90	.07	.17
	NMPP	Whiteperch	Sr-90	.07	.24
	FITZ	Yellowperch	Cs-137	<.13	.79
	NMPP	Whiteperch	Cs-137	<.13	.30
	NMPP	Yellowperch	Cs-137	<.13	.34

6) Lake Water - Tables 6, 6A, 6B

The gross beta, tritium and strontium results are presented in Table 6. Gamma isotopic results are presented in Table 6A and pH and solids data is presented in Table 6B. Preparation of samples in the plant labs and counting of samples after high concentration reactor water and in plant air samples were counted resulted in poor analytical sensitivities. Use of the environmental lab for sample preparation, counting on a clean GeLi system, and upgraded management control contributed to more valid analyses beginning with the August composite.

III.

EVALUATION OF ENVIRONMENTAL DATA (Cont.)

B. Land Program

The results of sample analysis for the 1978 reporting period are included in Tables 7 through 19.

1) Air Particulates - Tables 7 through 8.

Tables 7 and 8 give the air particulate gross beta results for the 6 off-site stations and 9 on-site locations, respectively.

The quarterly averages for gross beta activity (pCi/m^3) are as follows:

	<u>Off-Sites</u>	<u>On-Sites</u>
1st Qtr.	.046	.040
2nd Qtr.	.195	.168
3rd Qtr.	.141	.102
4th Qtr.	.119	.110

2) Monthly Particulate Composites - Table 9

The particulate filters prior to August 1977 were divided into 4 composites (2 on-site and 2 off-site). Beginning with August 1977 there are only 2 composites per month (1 on-site and 1 off-site). Reference NRC Inspection Report 77-16 for details of the relevant specification interpretation.

For the period of January through July 1977, the average concentration of the 2 off-site composites was considered control. On this basis the following may be of possible significance: ($>2x$ control)

<u>Month</u>	<u>Isotope</u>	<u>Control</u>	<u>Concentration pCi/m^3</u>	
			<u>On-Site Composite #1</u>	<u>#2</u>
January	Co-58	$<1.22\text{E-}4$	$3.88\text{E-}4$	$2.43\text{E-}3$
	Mn-54	$<1.38\text{E-}4$	-	$2.87\text{E-}3$
	Co-60	$<1.60\text{E-}4$	-	$4.59\text{E-}3$

For the period of August through December 1977, the off-site concentration was considered control. On this basis, the following may be of possible significance: ($>2x$ control).

5.
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III.

EVALUATION OF ENVIRONMENTAL DATA (Cont.)

b. 2)

<u>Month</u>	<u>Isotope</u>	<u>Concentration pCi/m³</u>	
		<u>Control</u>	<u>On-Site Composite</u>
August	Cs-137	8.44E-4	3.22E-3
	Zr-95	2.05E-3	8.70E-3
	Nb-95	4.74E-3	1.83E-2
	Mn-54	1.38E-3	8.13E-3
	Co-60	3.37E-3	1.68E-2
	Cr-51	<1.76E-3	<9.12E-3
	Cs-134	<2.51E-4	<1.12E-3
	Zn-65	<5.38E-4	<2.72E-3
September	Mn-54	3.71E-3	8.96E-3
	Cr-51	<1.52E-3	<8.60E-3
	Cs-134	<2.17E-4	<1.06E-3
	Zn-65	<6.11E-4	<2.41E-3
October	Cs-137	1.41E-3	3.82E-3
	Co-58	8.15E-4	1.70E-3
	Mn-54	2.13E-3	8.69E-3
	Co-60	5.43E-3	1.82E-4
	Cr-51	<1.78E-3	<9.26E-3
	Cs-134	<2.33E-4	<1.01E-3
	Zn-65	<5.50E-4	<2.59E-3

3) Airborne I-131 Tables 10 through 11.

The results of the charcoal cartridge analyses for the 6 off-site and 9 on-site stations are presented in Tables 10 and 11, respectively.

The quarterly average I-131 activities (pCi/m³) are as follows:

	<u>Off-Sites</u>	<u>On-Sites</u>
1st Qtr.	0.02±0.53	0.04±0.52
2nd Qtr.	0.00±0.11	0.00±0.08
3rd Qtr.	0.00±0.10	0.00±0.08
4th Qtr.	0.00±0.40	0.00±0.47

Again using the average off-site results for each collection period as control then the following on-site samples could be considered significant. (>2x control)

III. EVALUATION OF ENVIRONMENTAL DATA (Cont.)

B. 3) (Cont.)

<u>Station</u>	<u>Date</u>	<u>pCi/m³</u>	
		<u>Result</u>	<u>Control</u>
E	2/15	0.00±0.43	0.00±0.21
D ₂	3/22	0.00±0.13	0.00±0.06
E	5/3	0.00±0.15	0.00±0.06
H	8/2	0.00±0.21	0.00±0.10
F	8/16	0.00±0.21	0.00±0.09
G	8/30	0.00±0.11	0.00±0.05
G	9/27	0.00±0.15	0.00±0.06
H	9/27	0.00±0.21	0.00±0.06
D ₂	10/25	0.00±1.82	0.00±0.83
D ₁	11/1	0.00±0.12	0.00±0.06
D ₂	11/1	0.00±0.16	0.00±0.06
H	11/1	0.00±0.16	0.00±0.06
E	11/8	0.00±2.12	0.00±0.67
F	11/8	0.00±1.57	0.00±0.67
D ₂	11/15	0.00±3.64	0.00±1.33
E	11/15	0.00±3.11	0.00±1.33
F	11/15	0.00±3.17	0.00±1.33
G	11/15	0.00±4.70	0.00±1.33
E	12/6	0.00±1.37	0.00±0.49
E	12/13	0.00±0.83	0.00±0.33
G	12/13	0.00±0.74	0.00±0.33
D ₁	12/27	0.00±0.29	0.00±0.14
E	12/27	0.00±0.36	0.00±0.14
F	12/27	0.00±0.53	0.00±0.14
G	12/27	0.00±0.32	0.00±0.14

4) TLDs - Table 12

The environmental TLD readings are reported as an average of 5 individual chips at each location.

The TLDs are broken down into 3 groups for inclusion in this report. These groups and their respective quarterly averages are as follows (mrem/qtr.):

	1st	2nd	3rd	4th
Off-Sites	13	14	13	22
Site Boundary	13	13	11	21
On-Sites	40	43	38	75

Badges 31, 32, and 39 are located near the NMP-1 Radwaste Building and are being influenced by waste trucks being loaded in the building or parked in this area. Badges 29 and 30 are probably being affected by the James A. FitzPatrick N-16 gamma radiation or "turbine shine" and also by waste trucks being loaded in the area.

III.

EVALUATION OF ENVIRONMENTAL DATA (Cont.)

- B. 4) The following On-Site TLD results may be considered significant: (i.e. >25% above off-site average.)

<u>TLD#</u>	<u>1st Qtr.</u>	<u>2nd Qtr.</u>	<u>3rd Qtr.</u>	<u>4th Qtr.</u>
3	31	28		46
20	24	24		44
27	75	36		243
28	29	54		81
29	165		130	54
30	95	64	40	93
31	53	68	41	70
32	28		28	43
33	30	31	23	44
34	19	21	18	31
35				30
37	20	19	20	31
38			20	36
39	185	403	360	713
40	83	67	53	85

#29 - located approx. 200' north of rad waste building JAF

#39 - located approx. 40' east of rad waste building NMP #1

5) Radiation Monitor - Table 13

The quarterly averages for the radiation monitors are as follows (mrem/qtr):

	<u>1st Qtr</u>	<u>2nd Qtr.</u>	<u>3rd Qtr.</u>	<u>4th Qtr.</u>
On-Sites	48.7	58.9	55.6	47.3
Off-Site	45.4	54.6	48.6	44.2

Radiation monitors have a small radioactive source mounted on the detector to produce on-scale readings. For this reason direct comparison to TLD readings is not possible.

Four high trip indications were encountered during this year. These were compared against plant releases and corresponding meteorological conditions and no correlation was found.

III. EVALUATION OF ENVIRONMENTAL DATA (Cont.)

B. 6) Milk

Tables 14 and 15 give the results of the milk analyses. The I-131 data (Table 14) indicates higher than normal concentrations in samples collected from 10/6 through 11/7/77. The 11/29 samples show that concentrations had returned to normal.

These high concentrations are attributable to fallout from the nuclear test conducted by the People's Republic of China in late September of this year. The widespread occurrence of increased I-131 concentrations in milk supports the attribution of its presence to this nuclear test.

The 11/7 and 11/29 samples were collected after the end of the grazing season in order that the effects of the aforementioned test might be followed.

The gamma isotopic and Sr-90 data are shown in Table 15.

7) Milch Animal Census

The spring and midseason milch animal censuses are included as Table 16.

8) Meat, Poultry, Eggs, Produce and Soil

Results of analyses of these media are presented as follows:

Table 17 - Meat, Poultry

Table 18 - Eggs, Produce

Table 19 - Soil

IV. ENVIRONMENTAL SAMPLE SUMMARY

<u>Medium/Sample</u>	<u>Location</u>	<u>Nuclide</u>	<u>1st Quarter</u>	<u>2nd Quarter</u>	<u>3rd Quarter</u>	<u>4th Quarter</u>
<u>Airborne</u>						
Particulates	On-sites	Gross Beta, pCi/m ³				
	D ₁		.046	.177	.135	.106
	D ₂		.038	.195	.134	.130
	E		.043	.206	.128	.135
	F		.047	.206	.141	.125
	G		.045	.192	.119	.124
	H		.035	.121	.076	.062
	I		.025	.153	.059	.095
	J		.035	.123	.070	.097
	K		.042	.137	.058	.117
	Off-sites					
	C		.049	.196	.154	.118
	D ₁		.043	.213	.157	.122
	D ₂		.048	.183	.145	.120
	E		.051	.187	.114	.114
	F		.043	.210	.127	.121
	G		.040	.179	.148	.119

IV. ENVIRONMENTAL SAMPLE SUMMARY

<u>Medium/Sample</u>	<u>Location</u>	<u>Nuclide</u>	<u>1st Quarter</u>	<u>2nd Quarter</u>	<u>3rd Quarter</u>	<u>4th Quarter</u>
<u>Airborne</u>						
Charcoal Cart.	On-sites	I-131, pCi/m ³				
	D ₁		0.06+0.58	0.00+0.08	0.00+0.07	0.00+0.35
	D ₂		0.02+0.62	0.00+0.08	0.00+0.10	0.00+0.58
	E		0.02+0.57	0.00+0.13	0.00+0.10	0.00+0.72
	F		0.07+0.58	0.00+0.10	0.00+0.09	0.00+0.65
	G		0.09+0.57	0.00+0.09	0.00+0.11	0.00+0.73
	H		0.02+0.48	0.00+0.05	0.00+0.09	0.00+0.30
	I		0.03+0.37	0.00+0.05	0.00+0.05	0.00+0.29
	J		0.03+0.46	0.00+0.05	0.00+0.05	0.00+0.33
	K		0.03+0.42	0.00+0.08	0.00+0.07	0.00+0.35
	Off-sites					
	C		0.07+0.34	0.00+0.06	0.00+0.07	0.00+0.47
	D ₁		0.03+0.56	0.00+0.08	0.00+0.52	0.00+0.56
	D ₂		0.01+0.47	0.00+0.11	0.00+0.08	0.00+0.31
	E		0.00+0.71	0.00+0.09	0.00+0.44	0.00+0.36
	F		0.04+0.64	0.00+0.08	0.00+0.09	0.00+0.40
	G		0.03+0.44	0.00+0.23	0.00+0.11	0.00+0.27

IV. ENVIRONMENTAL SAMPLE SUMMARY

<u>Medium/Sample</u>	<u>Location</u>	<u>Nuclide</u>	<u>1st Quarter</u>	<u>2nd Quarter</u>	<u>3rd Quarter</u>	<u>4th Quarter</u>
Direct Radiation Continuous Monitors (GM)	On-sites	mrem/qtr				
	D ₁		75.6	75.7	44.2	44.2
	D ₂		37.4	71.3	81.7	37.5
	E		38.9	39.3	48.6	39.7
	F		37.4	54.6	66.2	44.2
	G		75.6	87.4	90.5	86.1
	H		57.6	62.6	66.2	66.2
	I		30.2	47.3	37.5	37.5
	J		53.3	59.0	33.1	30.9
	K		32.4	32.8	33.1	39.7
	Off-site					
	C		45.4	54.6	48.6	44.2
TLD's	Off-site	mrem/qtr	13	14	13	22
	Site Boundary	mrem/qtr	13	13	11	21
	On-site	mrem/qtr	40	43	38	75

IV. ENVIRONMENTAL SAMPLE SUMMARY

<u>Medium/Sample</u>	<u>Location</u>	<u>Nuclide</u>	<u>1st Quarter*</u>	<u>2nd Quarter</u>	<u>3rd Quarter</u>	<u>4th Quarter</u>
Ingestion Milk-pCi/l	#1	I-131		0.02	0.00	14.36
		K-40		**	856.00	765.00
		Cs-137			<15	<15
		Sr-90			2.50	8.00
	#2	I-131		0.00	0.06	13.40
		K-40		**	863.00	700.00
		Cs-137			<17	<14
		Sr-90			7.50	7.00
	#3	I-131		0.00	0.12	13.52
		K-40		**	903.00	720.00
		Cs-137			<15	<16
		Sr-90			6.20	5.00
	#4	I-131		0.00	0.12	15.93
		K-40		**	917.00	935.00
		Cs-137			<15	<20
		Sr-90			4.40	13.00

* No samples collected - not in grazing season

** May and June composite inadvertently discarded (Reference LER 77-44)

TABLE 1

SAMPLE COLLECTION AND ANALYSISSITE RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAMA. LAKE PROGRAM⁽¹⁾

<u>MEDIA</u>	<u>ANALYSIS</u> ⁽⁵⁾	<u>FREQUENCY</u> ⁽⁴⁾	<u>LOCATION</u> ⁽²⁾	
1. Fish	GeLi, ⁸⁹ Sr & ⁹⁰ Sr	2/yr	2 onsite	1 offsite
2. Mollusks	GeLi, ⁸⁹ Sr & ⁹⁰ Sr	2/yr	2 onsite	1 offsite
3. Gammarus	GeLi, ⁸⁹ Sr & ⁹⁰ Sr	2/yr	2 onsite	1 offsite
4. Bottom Sediments	GeLi, ⁹⁰ Sr	2/yr	2 onsite	1 offsite
5. Periphyton	GeLi	2/yr	2 onsite	1 offsite
6. Lake Water	GB, GSA or GeLi ³ H, ⁸⁹ Sr, ⁹⁰ Sr	M Comp. Qtr. Comp.	3 ⁽³⁾	

Notes:

- (1) Program continued for at least three years after the startup of James A. Fitzpatrick Nuclear Power Plant.
- (2) Onsite locations samples collected in the vicinity of discharges, offsite samples collected at a distance of at least five miles from site.
- (3) The three lake water samples to include Nine Mile Point Unit 1 intake water, James A. FitzPatrick intake water, and Oswego City water.
- (4) Samples of items 1 through 5 collected in springs, summer and fall when available.
- (5) GeLi analysis will have a MDL of 3 times σ of background based on a 400 minute count on a 55 cc GeLi system.

TABLE 2

SAMPLE COLLECTION AND ANALYSISSITE RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAMB. LAND PROGRAM⁽¹⁾

<u>MEDIA</u>	<u>ANALYSIS</u>	<u>FREQUENCY</u>	<u>NO. OF LOCATIONS</u>	<u>LOCATIONS</u>	
1. Air Particulates	GB GSA	W M Comp. (6)	At least 10	9 onsite	6 offsite
2. Soil	GSA, ⁹⁰ Sr	Every 3 years	15	9 onsite	6 offsite
3. TLD	Gamma Dose	Qtr.	20	14 onsite	6 offsite
4. Radiation Monitors	Gamma Dose	C	10	9 onsite	1 offsite
5. Airborne - I ¹³¹	GSA	W	At least 10	9 onsite	6 offsite
6. Milk	I GSA, ⁹⁰ Sr	M M Comp.	4 ⁽⁷⁾	(8)	
7. Human Food Crops	GSA, ¹³¹ I	A	3	(8)	
8. Meat, Poultry, Eggs	GSA Edible Portion	SA	3	(8)	

Notes: (Cont.)

- (6) Onsite samples counted together, offsite counted together, any high count samples counted separately.
 (7) Frequency applied only during grazing season.
 (8) Samples to be collected from farms within a 10-mile radius having the highest potential concentrations of radionuclides.

Abbreviations:

M Comp. - Monthly composite of weekly or bi-weekly samples
 GB - Gross beta analysis
 GeLi - Gamma spectral analysis on a GeLi system (quantitative)
 GSA - Gamma spectral analysis on a NaI system (quantitative)

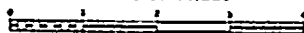
A - Annually BW - Bi-weekly (alternate wks.)
 W - Weekly Qtr. - Quarterly
 M - Monthly SA - Semiannually
 C - Continuous

FIGURE 1
OFF-SITE ENVIRONMENTAL STATION
AND
TLD LOCATIONS *

*TLD at each station

Revised to January 1, 1974

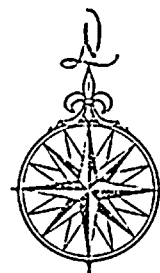
SCALE OF MILES



LEGEND

Interstate.....
U.S. & State Highway.....
County Roads.....
Town Roads.....
County Lines.....
Town Lines.....
City & Village Lines.....
Railroads.....

Latitude 43°28' N.
Longitude 76°30' W.
at Oswego County Bldg., Oswego, N.Y.
Land Area 968 Square miles



LAKE
ONTARIO

JAF-KIP SITE

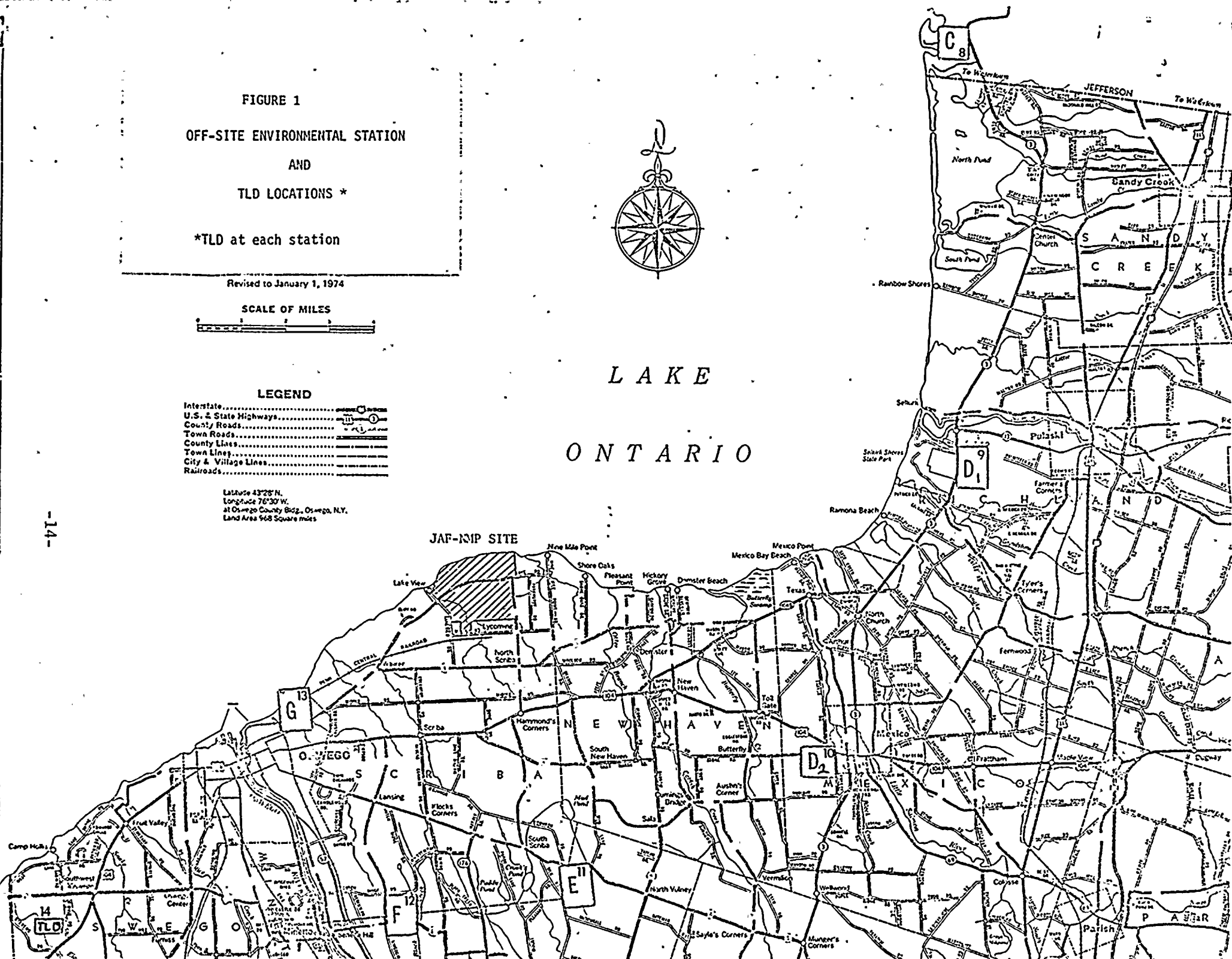
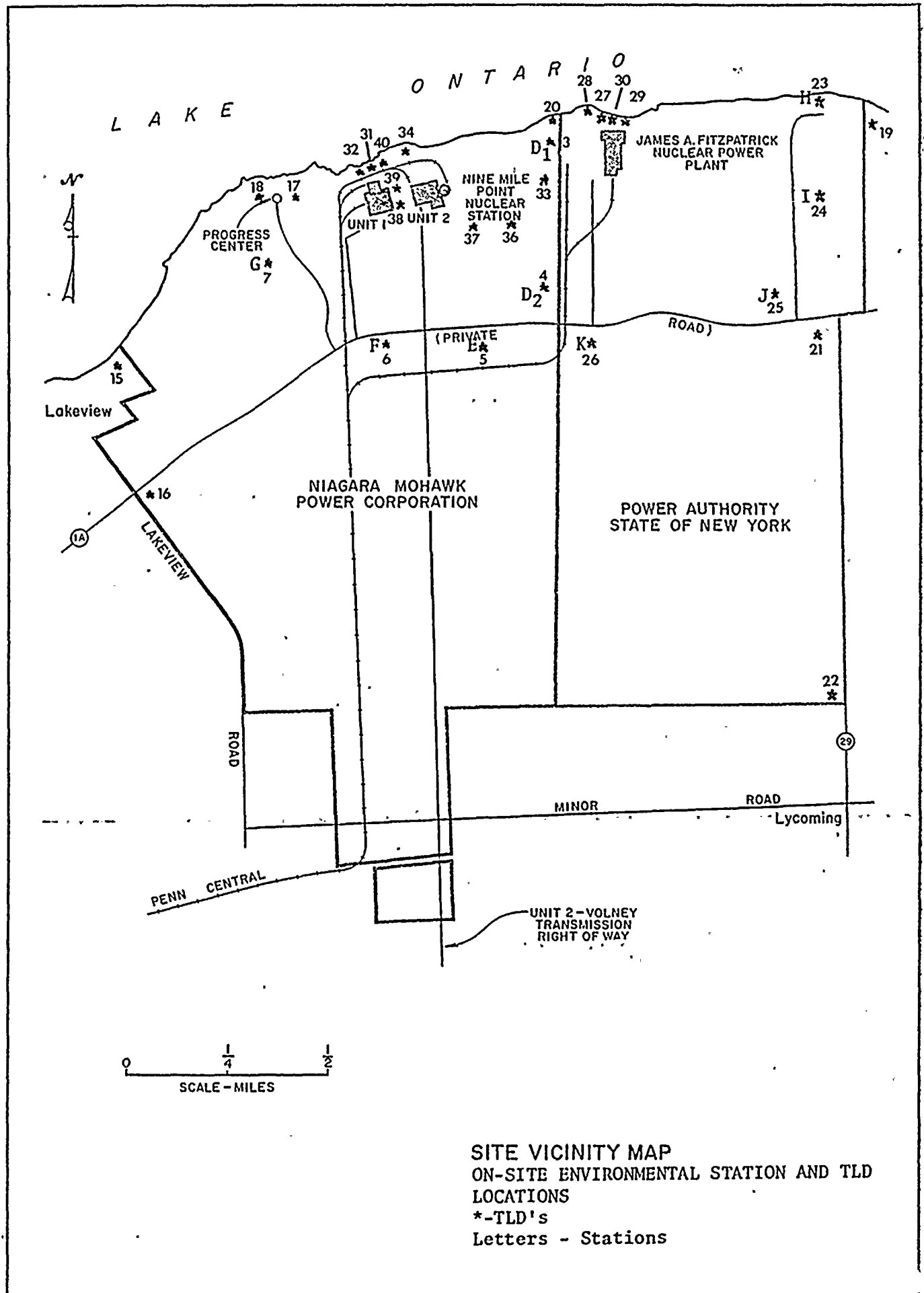


FIGURE 2



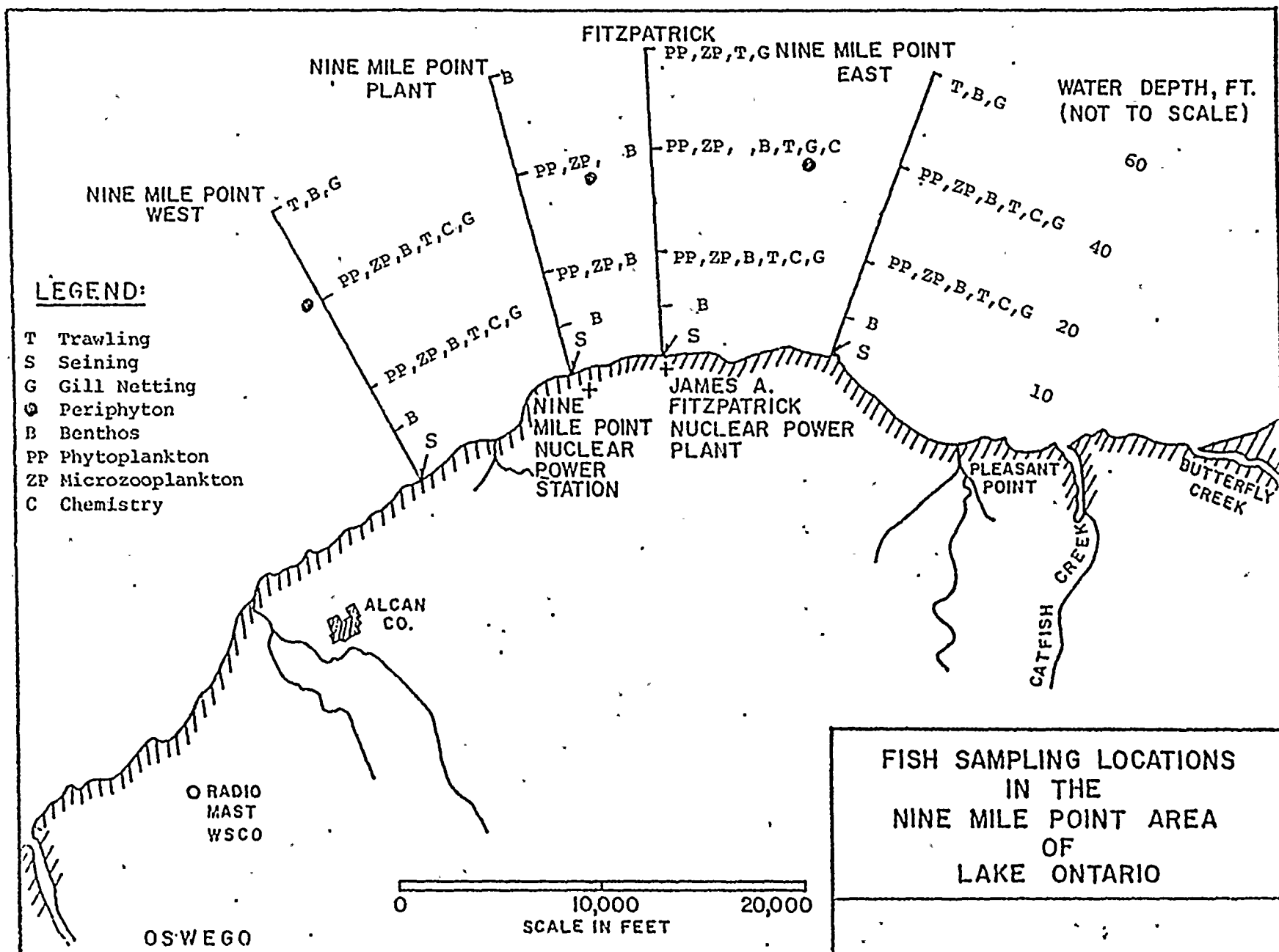


FIGURE 3
AQUATIC SAMPLE LOCATIONS

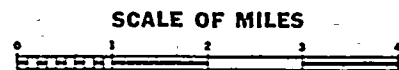
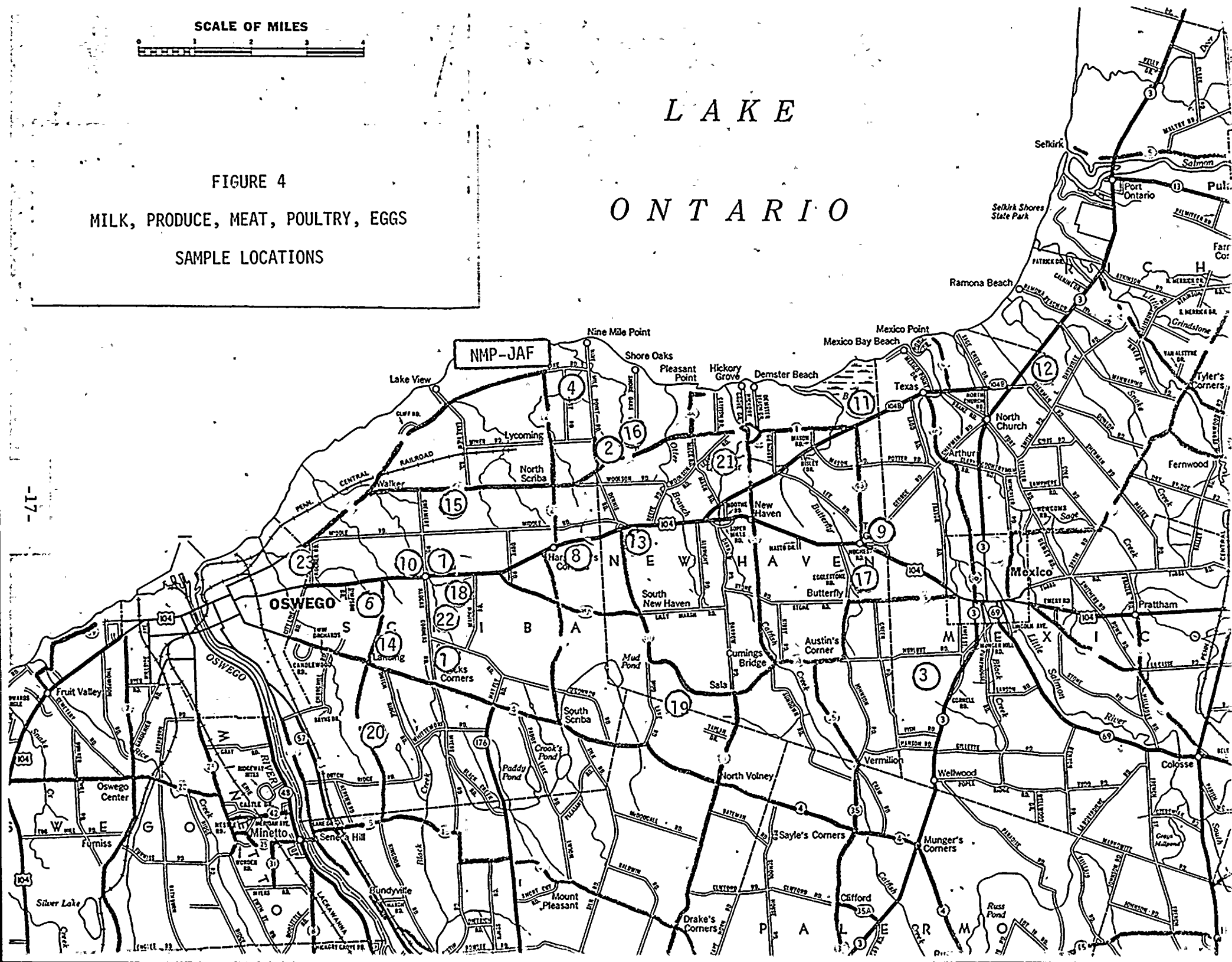


FIGURE 4
MILK, PRODUCE, MEAT, POULTRY, EGGS
SAMPLE LOCATIONS

LAKE ONTARIO



SCALE OF MILES

FIGURE 5

MILCH ANIMAL CENSUS LOCATIONS

LAKE ONTARIO

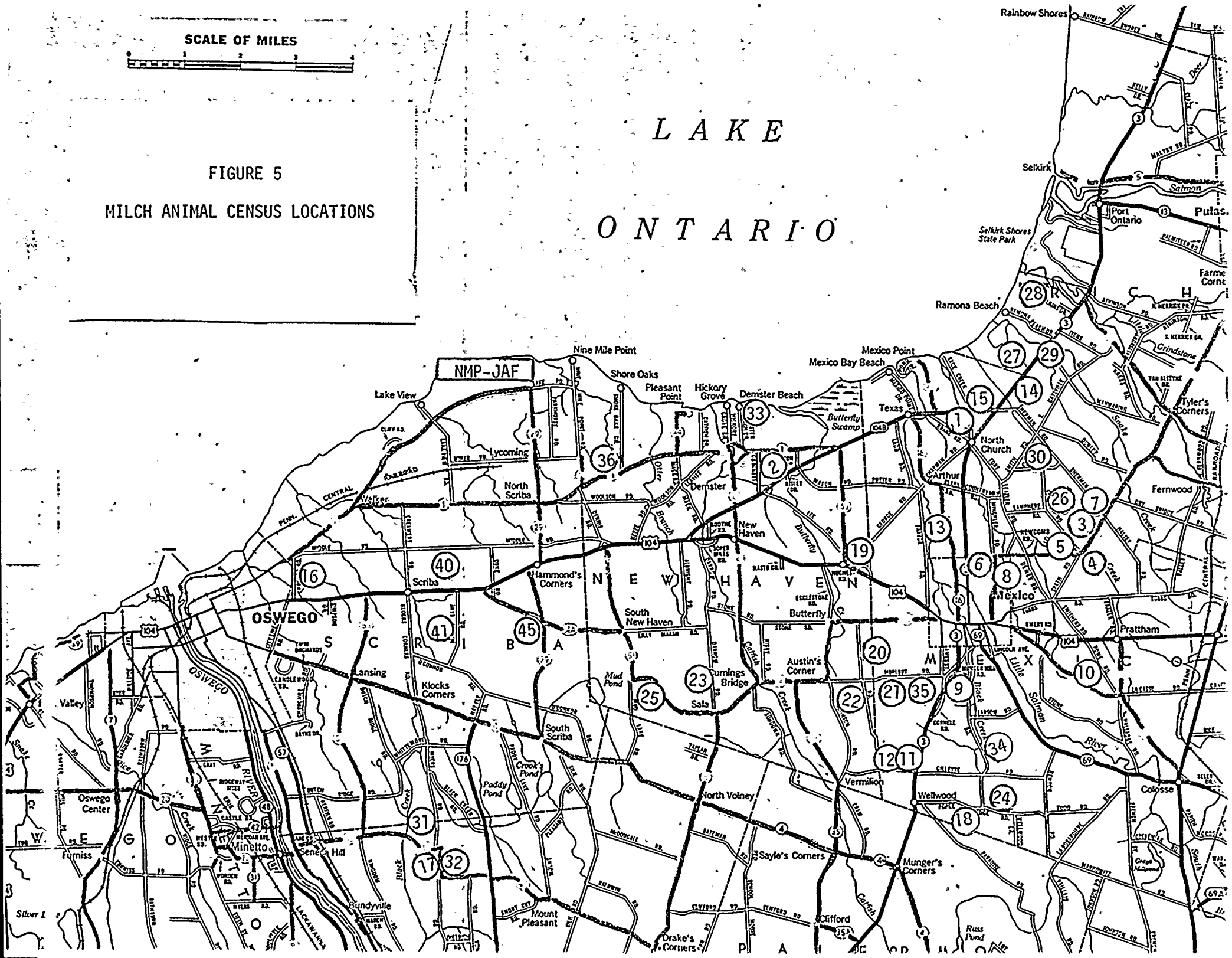


TABLE 3

GAMMA ISOTOPIC ANALYSIS OF PERIPHYTON

Collection Site	Collection Date	pCi/g (Wet Weight)						
		Cs-134	Cs-137	Co-60	Mn-54	Ce-144	Zr-Nb-95	Others*
OSWW	09/15/77	<0.08	<0.08	<0.08	<0.08	0.53 ± 0.09	0.22 ± 0.04	<0.08
NMPP	09/15/77	<0.08	<0.08	0.16 ± 0.04	<0.08	<0.40	0.50 ± 0.08	<0.08
JAF	09/15/77	<0.08	0.13 ± 0.03	<0.08	<0.08	<0.50	0.19 ± 0.05	<0.08
OSWW	12/07/77 ⁽¹⁾	<1.00	<1.00	<1.00	<1.00	<8.00	<1.00	<0.08
NMPP	11/10/77	<0.08	0.09 ± 0.03	<0.08	<0.08	0.57 ± 0.13	0.16 ± 0.05	<0.08
NMPP	12/08/77	<0.08	0.34 ± 0.06	1.20 ± 0.20	0.32 ± 0.06	2.00 ± 0.20	0.86 ± 0.12	<0.08
JAF	11/10/77	<0.06	0.14 ± 0.05	<0.08	<0.08	<0.40	<0.08	<1.00
JAF	12/08/77	<0.13	1.40 ± 0.20	0.43 ± 0.14	<0.13	<2.00	<0.38	<0.26

(1) 2 attempts made however sufficient sample could not be obtained to obtain lower MDL

Sr-89 AND Sr-90 AND GAMMA ISOTOPIC ANALYSIS OF BOTTOM SEDIMENT

Collection Site	Collection Date	pCi/g (dry)					
		Sr-89	Sr-90	Gamma Emitters		Co-60	Others*
				Cs-134	Cs-137		
JAF	09/15/77	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
OSWW (Control)	09/15/77	<0.15	<0.15	<0.15	0.62 ± .14	0.32 ± 0.13	<0.15
NMPP	09/15/77	<0.15	<0.15	<0.15	0.31 ± .10	0.27 ± 0.12	<0.15
NMPP	12/08/77			0.80 ± 0.13	4.10 ± 0.40	0.72 ± 0.18	<0.15
JAF	12/08/77			0.73 ± 0.13	2.40 ± 0.20	0.58 ± 0.17	<0.15
OSWW (Control)	12/07/77			<0.15	0.73 ± 0.24	<0.15	<0.15

*The spectrum is computer scanned from ~20 to ~2000 KeV. Specifically included are Ce-144, Ba-La-140, Cs-137, Zr-Nb-95, Co-58, Co-60, Mn-54, Zn-65. Naturally occurring gamma emitters such as K-40 and Ra daughters are frequently detected but not listed here.

TABLE 4

STRONTIUM 89 AND 90, GAMMA ISOTOPIC ANALYSIS OF MOLLUSKS

<u>Collection Date</u>	<u>Collection Site</u>	<u>pCi/g (Wet)</u>		
		<u>Sr-89</u>	<u>Sr-90</u>	<u>Gamma Emitters*</u>
09/15/77	FitzPatrick	< 0.04	0.11 ± 0.02	< 0.26
9/15/77	Nine Mile Point	< 0.04	0.11 ± 0.03	< 0.26
9/27/77	Oswego (Control)	< 0.04	0.08 ± 0.01	< 0.26
11/16/77	FitzPatrick			< 0.26
11/16/77	Nine Mile Point			0.23 ± 0.11
11/16/77	Oswego (Control)			< 0.26

STRONTIUM 89 AND 90, GAMMA ISOTOPIC ANALYSIS OF GAMMARUS

<u>Collection Date</u>	<u>Collection Site</u>	<u>pCi/g (Wet)</u>		
		<u>Sr-89</u>	<u>Sr-90</u>	<u>Gamma Emitters*</u>
08/11/77	Nine Mile Point	< 0.04	0.077 ± .036	< 0.08
08/11/77	FitzPatrick	< 0.05	< 0.05	< 0.08
08/11/77	Oswego (Control)	< 0.10(a)	0.32 ± .16	< 0.24(a)
11/10/77	Nine Mile Point			< 0.34(a)
11/21/77	FitzPatrick			< 0.46(a)
12/21/77	Oswego (Control)			< 0.60(a)

(a) Insufficient sample for more sensitive analysis.

*The spectrum is computer scanned from ~20 to ~2000 KeV. Specifically included are Ce-144, Ba-La-140, Cs-134, Cs-137, Zr-Nb-95, Co-58, Co-60, Mn-54, Zn-65. Naturally occurring gamma emitters such as K-40 and Ra daughters are frequently detected but not listed here.

TABLE 5

STRONTIUM 89 AND 90, GAMMA ISOTOPIC ANALYSIS OF FISH SAMPLES

OSWEGO

Collection Date	Sample Type	pCi/g(wet)						
		Sr-89	Sr-90	Cs-134	Cs-137	Zn-65	Fe-59	Other Gamma*
08/25/77	yellow perch	<0.04	0.016 ± .015	<0.13	<0.13	<0.26	<0.26	<0.13
08/15/77	white perch	<0.04	0.120 ± .050	<0.13	<0.13	<0.26	<0.26	<0.13
08/25/77	catfish	<0.04	0.090 ± .039	<0.13	<0.13	<0.26	<0.26	<0.13
08/25/77	shiners	<0.04	0.036 ± .014	<0.13	<0.13	<0.26	<0.26	<0.13
08/25/77	sm. mouth bass	<0.04	0.070 ± .019	<0.13	0.13 ± .04	<0.26	<0.26	<0.13
08/25/77	sunfish	<0.04	0.092 ± .012	<0.13	<0.13	<0.26	<0.26	<0.13
08/25/77	shad	<0.04	0.078 ± 0.16	<0.13	<0.13	<0.26	<0.26	<0.13
12/20/77	brown bullhead			<0.13	<0.13	<0.26	<0.26	<0.13
12/20/77	northern pike			<0.13	<0.13	<0.26	<0.26	<0.13
12/20/77	gizzard shad			<0.13	<0.13	<0.26	<0.26	<0.13
12/20/77	yellow perch			<0.13	<0.13	<0.26	<0.26	<0.13
11/04/77	white sucker			<0.13	<0.13	<0.26	<0.26	<0.13
11/04/77	white bass			<0.13	<0.13	<0.26	<0.26	<0.13
11/04/77	spottail shiner			<0.13	<0.13	<0.26	<0.26	<0.13
11/04/77	rainbow smelt			<0.13	<0.13	<0.26	<0.26	<0.13
11/04/77	white perch			<0.13	<0.13	<0.26	<0.26	<0.13
11/17/77	yellow perch			<0.13	<0.13	<0.26	<0.26	<0.13
11/21/77	yellow perch			<0.13	<0.13	<0.26	<0.26	<0.13

*The spectrum is computer scanned from ~20 to ~2000 KeV. Specifically included are Ce-144, Ba-La-140, Cs-134, Cs-137, Zr-Nb-95, Co-58, Co-60, Mn-54, Zn-65. Naturally occurring gamma emitters such as K-40 and Ra daughters are frequently detected but not listed here.

TABLE 5 (CONT.)

STRONTIUM 89 AND 90, GAMMA ISOTOPIC ANALYSIS OF FISH SAMPLES

FITZPATRICK

Collection Date	Sample Type	pCi/g(wet)						
		Sr-89	Sr-90	Cs-134	Cs-137	Zn-65	Fe-59	Other Gamma*
08/25/77	Chinook salmon	<0.04	<0.01	<0.13	<0.13	<0.26	<0.26	<0.13
08/25/77	white perch	<0.04	0.095 ± .018	<0.13	0.19 ± .09	<0.26	<0.26	<0.13
08/25/77	Coho salmon	<0.04	0.041 ± .014	<0.13	<0.13	<0.26	<0.26	<0.13
08/25/77	yellow perch	<0.04	0.081 ± .021	<0.13	<0.13	<0.26	<0.26	<0.13
08/25/77	Chinook salmon	<0.04	<0.012	<0.13	<0.13	<0.26	<0.26	<0.13
08/25/77	yellow perch	<0.04	0.042 ± .012	<0.13	<0.13	<0.26	<0.26	<0.13
08/25/77	Chinook salmon	<0.04	0.047 ± .013	<0.13	<0.13	<0.26	<0.26	<0.13
08/25/77	white perch	<0.04	0.051 ± .015	<0.13	<0.13	<0.26	<0.26	<0.13
08/25/77	white perch	<0.04	0.17 ± .05	sample lost in processing				
08/25/77	yellow perch	<0.04	0.18 ± .04	<0.13	0.79 ± .20	<0.26	<0.26	<0.13
11/03/77	gizzard shad			<0.13	<0.13	<0.26	<0.26	<0.13
11/21/77	spottail shiner			<0.13	<0.13	<0.26	<0.26	<0.13
11/17/77	white perch			<0.13	<0.13	<0.26	<0.26	<0.13
11/21/77	white sucker			<0.13	<0.13	<0.26	<0.26	<0.13
11/21/77	rainbow smelt			<0.13	<0.13	<0.26	<0.26	<0.13
11/21/77	splake			<0.13	<0.13	<0.26	<0.26	<0.13
11/21/77	yellow perch			<0.13	<0.13	<0.26	<0.26	<0.13

*The spectrum is computer scanned from ~20 to ~2000 KeV. Specifically included are Ce-144, Ba-La-140, Cs-134, Cs-137, Zr-Nb-95, Co-58, Co-60, Mn-54, Zn-65. Naturally occurring gamma emitters such as K-40 and Ra daughters are frequently detected but not listed here.

TABLE 5 (CONT.)

STRONTIUM 89 AND 90, GAMMA ISOTOPIC ANALYSIS OF FISH SAMPLES

NINE MILE POINT

Collection Date	Sample Type	pCi/g (wet)						
		Sr-89	Sr-90	Cs-134	Cs-137	Zn-65	Fe-59	Other Gamma*
08/25/77	white perch	<0.04	0.063 ± .012	<0.13	<0.13	<0.26	<0.26	<0.13
08/25/77	yellow perch	<0.04	0.050 ± .011	<0.13	0.21 ± .07	<0.26	<0.26	<0.13
08/25/77	yellow perch	<0.04	0.042 ± .016	<0.13	<0.13	<0.26	<0.26	<0.13
08/25/77	white perch	<0.04	0.042 ± .010	<0.13	0.19 ± .05	<0.26	<0.26	<0.13
08/25/77	white perch	<0.04	0.086 ± .020	<0.13	<0.13	<0.26	<0.26	<0.13
08/25/77	white perch	<0.04	0.24 ± .05	<0.13	<0.13	<0.26	<0.26	<0.13
08/25/77	yellow perch	<0.04	0.09 ± .02	<0.13	<0.13	<0.26	<0.26	<0.13
08/25/77	white perch	<0.04	0.057 ± .015	<0.13	<0.13	<0.26	<0.26	<0.13
08/25/77	yellow perch	<0.04	0.039 ± .013	0.17 ± .04	0.34 ± .07	<0.26	<0.26	<0.13
08/25/77	white perch	<0.04	0.040 ± .010	<0.13	<0.13	<0.26	<0.26	<0.13
08/25/77	white perch	<0.04	0.029 ± .017	<0.13	<0.13	<0.26	<0.26	<0.13
08/25/77	yellow perch	<0.04	0.063 ± .015	<0.13	0.13 ± .06	<0.26	<0.26	<0.13
08/25/77	yellow perch	<0.04	0.059 ± .014	<0.13	0.17 ± .06	<0.26	<0.26	<0.13
08/25/77	white perch	0.03 ± .03	0.04 ± .04	<0.13	0.30 ± .10	<0.26	<0.26	<0.13
11/03/77	gizzard shad			<0.13	<0.13	<0.26	<0.26	<0.13
11/03/77	spottail shiner			<0.13	<0.13	<0.26	<0.26	<0.13
11/03/77	rainbow smelt			<0.13	<0.13	<0.26	<0.26	<0.13
11/21/77	stonecat			<0.13	<0.13	<0.26	<0.26	<0.13
11/21/77	alewife			<0.13	<0.13	<0.26	<0.26	<0.13
11/21/77	white sucker			<0.13	<0.13	<0.26	<0.26	<0.13

*The spectrum is computer scanned from ~20 to ~2000 KeV. Specifically included are Ce-144, Ba-La-140, Cs-134, Cs-137, Zr-Nb-95, Co-58, Co-60, Mn-54, Zn-65. Naturally occurring gamma emitters such as K-40 and Ra daughters are frequently detected but not listed here.

TABLE 6
LAKE WATER SAMPLES

INLET CANAL

Date	Monthly Composite - Gross Beta - pCi/l			Location	Date	Quarterly Composite - pCi/l		
	NMP-1	JAF	OSWP			H-3	Sr-89	Sr-90
1/77	27.3 ± 11.5	2.5 ± 20.7	2.9 ± 10.1	NMP-1	1st qtr/77	410 ± 90	<5.0	1.0 ± 1.0
2/77	1.7 ± 8.8	6.2 ± 8.1	20.2 ± 12.9	JAF	1st qtr/77	<400	<2.0	<2.0
3/77	21.0 ± 24.2	5.6 ± 7.5	2.6 ± 24.0	OSWP	1st qtr/77	370 ± 90	<5.0	1.0 ± 1.0
4/77	26.6 ± 30.4	8.0 ± 3.0	2.5 ± 29.8	NMP-1	2nd qtr/77	400 ± 350	<5.0	<2.0
5/77	0.00 ± 30.8	8.1 ± 3.0	0.0 ± 28.9	JAF	2nd qtr/77	<400	<6.0	<5.0
6/77	87.0 ± 27.0	6.7 ± 2.8	49.3 ± 26.2	OSWP	2nd qtr/77	530 ± 350	<5.0	<2.0
7/77	9.4 ± 3.3	21.0 ± 6.1	9.2 ± 9.1	OSWP	3rd qtr/77	470 ± 120	<5.0	<2.0
8/77	1.0 ± 5.4	8.6 ± 5.9	3.0 ± 5.5	JAF	3rd qtr/77	530 ± 120	<5.0	<2.0
9/77	8.9 ± 5.8	66.8 ± 10.3	8.3 ± 6.0	OSWP	3rd qtr/77	430 ± 120	<5.0	<2.0
10/77	9.3 ± 5.0	20.4 ± 7.3	5.9 ± 5.5	NMP-1	4th qtr/77	510 ± 90		
11/77	4.0 ± 5.6	4.8 ± 5.0	0.00 ± 5.0	JAF	4th qtr/77	380 ± 90		
12/77	4.7 ± 4.5	4.7 ± 4.6	5.3 ± 5.5	OSWP	4th qtr/77	300 ± 90		

TABLE 6-A

MONTHLY WATER COMPOSITES
GAMMA ACTIVITY
pCi/l

ISOTOPE	JAN.	FEB.	MAR.	APR.	MAY	JUNE
OSWEGO CITY WATER						
Cs-134	7.90 ± 7.86E1	6.50 ± 8.80E1	<1.08E2	1.41 ± 1.84E2	1.10 ± 0.34E2	<1.08E2
Cs-137	3.35 ± 1.04E2	0.00 ± 1.19E2	<2.48E2	0.11 ± 1.20E2	0.00 ± 1.08E2	<3.06E2
Co-58	<1.06E2	<9.75E1	<1.53E2	<1.99E2	0.00 ± 3.15E2	<1.43E2
Co-60	0.00 ± 2.18E2	<3.92E2	7.57 ± 0.98E2	0.80 ± 2.49E2	0.00 ± 2.31E2	0.00 ± 2.05E2
Mn-54	2.26 ± 0.54E2	<1.58E2	<1.62E2	<2.37E2	<3.08E2	<8.94E1
Zn-65	<2.58E2	<3.62E2	<4.61E2	<3.77E2	<5.99E2	<2.54E2
NINE MILE POINT INLET						
Cs-134	1.25 ± 0.77E2	1.32 ± 0.90E2	1.06 ± 0.84E2	<2.09E2	1.74 ± 0.38E2	1.97 ± 0.34E2
Cs-137	<2.63E2	1.81 ± 1.26E1	3.65 ± 3.21E2	0.00 ± 1.11E2	0.65 ± 1.05E2	5.10 ± 9.80E1
Co-58	<1.06E2	<1.40E2	<3.47E2	<1.12E2	0.00 ± 3.95E2	<9.96E1
Co-60	0.00 ± 1.90E2	<5.48E2	8.49 ± 1.27E2	0.00 ± 2.36E2	0.00 ± 2.39E2	0.00 ± 2.12E2
Mn-54	<1.30E2	<2.50E2	<2.96E2	<2.15E2	<9.00E1	<8.94E1
Zn-65	<2.58E2	<2.52E2	<3.61E2	<3.77E2	<2.56E2	<2.54E2
JAF INLET						
Cs-134	<8.38E1	No MDL	No MDL	No MDL	No MDL	No MDL
Cs-137	9.37 ± 8.81E1	No MDL	No MDL	No MDL	No MDL	0.00 ± 5.46E1
Co-58	2.41 ± 0.96E2	1.85 ± 0.13E2	2.42 ± 0.30E1	0.22 ± 1.65E2	0.00 ± 2.18E2	8.24 ± 1.12E1
Co-60	5.46 ± 2.23E2	0.48 ± 1.10E2	8.33 ± 0.47E1	0.00 ± 1.26E2	0.00 ± 1.27E2	7.40 ± 2.07E1
Mn-54	4.03 ± 1.80E2	2.74 ± 0.11E2	5.79 ± 0.35E1	7.18 ± 0.43E1	1.85 ± 1.66E2	1.04 ± 0.14E2
Zn-65	1.85 ± 1.87E2	No MDL	No MDL	No MDL	No MDL	No MDL

TABLE 6-A (Cont.)
MONTHLY WATER COMPOSITES
GAMMA ACTIVITY
pCi/l

ISOTOPE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.
OSWEGO CITY WATER						
Cs-134	0.86 ± 1.28E2	<2.07E1	<6.40E0	<6.30E0	<5.60E0	<6.20E0
Cs-137	0.00 ± 1.33E2	<3.28E1	0.00 ± 7.40E0	<6.90E0	<6.90E0	<7.20E0
Co-58	<1.51E2	<3.10E1	0.00 ± 9.60E0	3.90 ± 7.00E0	0.00 ± 5.70E0	9.00 ± 5.50E0
Co-60	3.38 ± 2.34E2	7.00 ± 4.70E1	0.00 ± 2.32E1	0.00 ± 1.00E1	0.10 ± 1.80E1	1.30 ± 1.80E0
Mn-54	No MDL	4.83 ± 2.61E1	0.00 ± 1.36E1	0.00 ± 1.19E1	0.00 ± 1.02E1	0.17 ± 1.02E1
Zn-65	<2.58E2	<7.09E1	<1.95E1	<2.24E1	<1.71E1	<1.66E1
NINE MILE POINT INLET						
Cs-134	0.00 ± 1.21E2	<2.64E1	<6.10E0	<5.80E0	<6.10E0	<5.90E0
Cs-137	0.00 ± 1.46E2	<3.28E1	<8.00E0	<8.10E0	<6.80E0	<7.20E0
Co-58	<2.10E2	<2.61E1	0.00 ± 9.20E0	0.40 ± 6.80E0	0.00 ± 6.10E0	5.0 ± 5.4E0
Co-60	2.12 ± 2.31E2	6.40 ± 2.10E1	0.00 ± 2.29E1	0.00 ± 2.00E0	0.00 ± 1.80E1	0.30 ± 1.80E1
Mn-54	<1.60E2	5.20 ± 2.80E1	0.00 ± 1.39E1	0.50 ± 1.20E1	0.25 ± 1.06E1	1.12 ± 1.03E1
Zn-65	<2.55E2	<6.14E1	<1.94E1	<1.84E1	<4.69E1	<1.77E1
JAF INLET						
Cs-134	<6.80E0	<6.50E0	<8.20E0	<5.70E0	<6.20E0	<6.00E0
Cs-137	<7.9E0	<7.40E0	<8.40E0	1.18 ± 0.32E1	<7.10E0	<7.77E0
Co-58	0.00 ± 1.49E1	0.00 ± 8.20E0	<8.40E0	2.00 ± 6.60E0	0.00 ± 5.90E0	9.70 ± 5.90E0
Co-60	0.00 ± 2.83E1	0.00 ± 2.26E1	<1.17E1	0.00 ± 2.00E0	0.00 ± 1.80E1	2.60 ± 0.95E1
Mn-54	0.00 ± 1.98E1	0.00 ± 1.34E1	<1.25E1	0.78 ± 1.22E1	0.71 ± 1.08E1	0.18 ± 1.02E1
Zn-65	No MDL	<1.87E1	<1.88E1	<1.64E1	<1.56E1	0.00 ± 1.34E1

TABLE 6B
CANAL WATER DATA
MONTHLY COMPOSITE ANALYSIS

-27-

SAMPLE	MONTH	INLET CANAL			DISCHARGE CANAL				
		pH	DISSOLVED SOLIDS PPM	SUSPENDED SOLIDS PPM	TOTAL SOLIDS PPM	pH	DISSOLVED SOLIDS PPM	SUSPENDED SOLIDS PPM	TOTAL SOLIDS PPM
	January	7.6	241	5.0	246	7.7	229	5.0	234
	February	7.9	255	5.0	260	7.9	215	1.0	216
	March	7.9	208	2.0	210	7.9	209	1.0	210
	April	8.0	204	1.7	206	8.0	245	1.3	246
	May	8.0	250	9.5	260	8.0	246	8.0	254
	June	7.8	219	2.0	221	7.7	226	2.0	228
	July	8.1	210	3.0	213	8.1	249	4.0	253
	August	8.1	249	2.0	250	8.2	218	3.0	221
	September	8.1	237	3.0	240	8.2	221	7.0	228
	October	8.0	241	4.0	245	8.1	226	5.0	231
	November	7.9	647	8.0	655	7.9	607	3.0	610
	December	7.8	674	8.0	682	7.8	693	3.0	696

TABLE 7
NMP - JAF SITE
ENVIRONMENTAL AIRBORNE PARTICULATE SAMPLES - OFF SITE STATIONS
GROSS BETA ACTIVITY pCi/m³ ± 2σ

Date Collected	LOCATION					
	C	D ₁	D ₂	E	F	G
1-5-77	.062 ± .009	.058 ± .009	.062 ± .010	.057 ± .009	.071 ± .011	.057 ± .008
1-13-77	.074 ± .010	.075 ± .011	.075 ± .011	.082 ± .012	.071 ± .010	.067 ± .009
1-18-77	.082 ± .012	.080 ± .013	.079 ± .012	.079 ± .012	.083 ± .013	.000 ± .005
1-26-77	-	-	.034 ± .006	.036 ± .007	.029 ± .006	.024 ± .006
2-1-77	*.031 ± .004	*.030 ± .005	.047 ± .008	.038 ± .007	.045 ± .008	.044 ± .007
2-9-77	.026 ± .007	.032 ± .008	.031 ± .008	.034 ± .008	.031 ± .008	.037 ± .007
2-16-77	.048 ± .008	.038 ± .008	.041 ± .009	.041 ± .008	.037 ± .008	.049 ± .008
2-23-77	.038 ± .007	.031 ± .008	.023 ± .007	.037 ± .009	.023 ± .007	.024 ± .006
3-2-77	.038 ± .007	.037 ± .008	.046 ± .009	.067 ± .011	.043 ± .009	.045 ± .008
3-9-77	.037 ± .004	.031 ± .004	.034 ± .004	.038 ± .005	.036 ± .004	.034 ± .004
3-16-77	.048 ± .004	.036 ± .004	.055 ± .005	.054 ± .006	.001 ± .001	.048 ± .004
3-24-77	.036 ± .003	.042 ± .005	.034 ± .004	.037 ± .004	.036 ± .004	.036 ± .003
3-30-77	.064 ± .005	.072 ± .007	.067 ± .007	.067 ± .006	.061 ± .006	.057 ± .005
4-6-77	.101 ± .006	.090 ± .007	.089 ± .007	.100 ± .007	.092 ± .007	.097 ± .006
4-13-77	.109 ± .009	.155 ± .013	.107 ± .009	.147 ± .012	.132 ± .008	.132 ± .007
4-20-77	.169 ± .014	.222 ± .018	.200 ± .016	.278 ± .022	.193 ± .016	.186 ± .015
4-27-77	.084 ± .007	.084 ± .007	.098 ± .008	.082 ± .007	.090 ± .008	.081 ± .007
5-4-77	.185 ± .015	.216 ± .018	.194 ± .016	.186 ± .015	.142 ± .012	.142 ± .012
5-11-77	.189 ± .015	.201 ± .016	.136 ± .011	.190 ± .015	.205 ± .016	.186 ± .015
5-18-77	.266 ± .009	.284 ± .012	.186 ± .009	.286 ± .012	.271 ± .010	.215 ± .010
5-25-77	.284 ± .010	.321 ± .012	.244 ± .010	.200 ± .008	.297 ± .011	.257 ± .011
6-1-77	.269 ± .010	.276 ± .012	.250 ± .011	.197 ± .008	.269 ± .010	.293 ± .012
6-8-77	.198 ± .008	.171 ± .008	.208 ± .010	.229 ± .008	.234 ± .010	.239 ± .016
6-15-77	.199 ± .008	.215 ± .010	.207 ± .010	.215 ± .008	.244 ± .011	.233 ± .010
6-22-77	.231 ± .009	.253 ± .011	.188 ± .010	.172 ± .007	.198 ± .010	.034 ± .004
6-29-77	.266 ± .009	.286 ± .011	.277 ± .012	.154 ± .007	.370 ± .013	.243 ± .011

*Two-week sample, due to snow.

TABLE 7 (Cont.)
NMP - JAF SITE
ENVIRONMENTAL AIRBORNE PARTICULATE SAMPLES - OFF SITE STATIONS
GROSS BETA ACTIVITY pCi/m³ ± 2σ

LOCATION						
Date Collected	C	D ₁	D ₂	E	F	G
7-7-77	.146 ± .007	.148 ± .008	.155 ± .009	.074 ± .005	.160 ± .009	.156 ± .009
7-13-77	.120 ± .007	.135 ± .008	.115 ± .007	.119 ± .006	.119 ± .007	.115 ± .007
7-20-77	.203 ± .008	.236 ± .010	.223 ± .009	.214 ± .008	.201 ± .009	.156 ± .009
7-27-77	.144 ± .007	.174 ± .008	.164 ± .007	.171 ± .007	.179 ± .009	.176 ± .009
8-3-77	.215 ± .009	.232 ± .010	.188 ± .008	.258 ± .009	.251 ± .011	.251 ± .010
8-10-77	.484 ± .013	.369 ± .013	.375 ± .011	.004 ± .002	.246 ± .010	.300 ± .011
8-17-77	.158 ± .008	.178 ± .009	.161 ± .007	.153 ± .007	.088 ± .001	.163 ± .008
8-24-77	.121 ± .010	.105 ± .010	.097 ± .008	.097 ± .008	.063 ± .008	.101 ± .009
8-31-77	.105 ± .009	.099 ± .010	.091 ± .008	.089 ± .008	.090 ± .009	.116 ± .010
9-7-77	.078 ± .008	.086 ± .009	.086 ± .008	.069 ± .007	.058 ± .008	.077 ± .009
9-14-77	.129 ± .001	.178 ± .001	.113 ± .009	.119 ± .009	.093 ± .010	.114 ± .010
9-21-77	.042 ± .006	.070 ± .009	.058 ± .007	.054 ± .006	.044 ± .007	.058 ± .008
9-28-77	.061 ± .007	.079 ± .009	.060 ± .007	.058 ± .006	.058 ± .011	.061 ± .008
10-5-77	.187 ± .011	.224 ± .015	.228 ± .013	.181 ± .011	.218 ± .019	.208 ± .013
10-12-77	.120 ± .009	.135 ± .012	.133 ± .010	.149 ± .010	.136 ± .015	.153 ± .011
10-19-77	.128 ± .010	.131 ± .012	.114 ± .009	.117 ± .009	.116 ± .015	.119 ± .011
10-26-77	.199 ± .012	.219 ± .015	.211 ± .013	.176 ± .011	.249 ± .020	.204 ± .014
11-2-77	.190 ± .012	.180 ± .014	.172 ± .011	.192 ± .011	.188 ± .014	.191 ± .013
11-9-77	.116 ± .009	.084 ± .008	.119 ± .009	.113 ± .009	.098 ± .010	.093 ± .009
11-16-77	.098 ± .008	.091 ± .010	.093 ± .009	.091 ± .008	.092 ± .010	.105 ± .010
11-23-77	.095 ± .008	.098 ± .010	.103 ± .009	.085 ± .008	.078 ± .009	.091 ± .009
11-30-77	.109 ± .009	.114 ± .011	.109 ± .009	.098 ± .008	.097 ± .010	.104 ± .010
12-7-77	.060 ± .007	.073 ± .009	.057 ± .007	.056 ± .006	.066 ± .009	.064 ± .008
12-14-77	.089 ± .008	.087 ± .010	.090 ± .008	.080 ± .007	.088 ± .010	.069 ± .008
12-21-77	.058 ± .007	.044 ± .007	.044 ± .006	.048 ± .006	.048 ± .008	.049 ± .007
12-27-77	.086 ± .008	.108 ± .011	.090 ± .008	.096 ± .008	.103 ± .010	.101 ± .010

TABLE 8
NMP - JAF SITE
ENVIRONMENTAL AIRBORNE PARTICULATE SAMPLES - ON SITE STATIONS
Gross Beta Activity - pCi/m³ ± 2σ

Date Collected	LOCATION								
	D ₁	D ₂	E	F	G	H	I	J	K
1-4-77	.052 ± .010	.049 ± .010	.052 ± .010	.050 ± .010	.045 ± .010	.056 ± .010	.016 ± .000	.053 ± .010	.018 ± .000
1-13-77	.070 ± .010	.080 ± .011	.069 ± .010	.089 ± .012	.082 ± .011	.067 ± .028	.034 ± .010	.075 ± .010	.080 ± .011
1-20-77	.064 ± .011	.003 ± .005	.050 ± .010	.060 ± .010	.050 ± .010	.055 ± .010	.046 ± .010	.054 ± .010	.056 ± .010
1-25-77	.027 ± .007	.032 ± .007	.037 ± .009	.040 ± .008	.025 ± .008	.015 ± .006	.036 ± .007	.030 ± .007	.016 ± .006
2-1-77	.050 ± .009	.036 ± .006	.040 ± .008	.046 ± .008	.047 ± .008	.030 ± .005	.038 ± .006	.032 ± .006	.038 ± .007
2-8-77	.042 ± .009	.033 ± .007	.033 ± .008	.031 ± .007	.037 ± .008	.023 ± .005	.036 ± .007	.039 ± .007	.036 ± .007
2-15-77	.054 ± .009	.037 ± .007	.031 ± .008	.047 ± .008	.050 ± .009	.050 ± .008	.026 ± .006	.046 ± .008	.038 ± .008
2-22-77	.026 ± .007	.019 ± .006	.021 ± .008	.018 ± .007	.033 ± .008	.034 ± .007	.026 ± .006	.008 ± .006	.046 ± .009
3-1-77	.034 ± .008	.029 ± .007	.037 ± .009	.035 ± .008	.044 ± .008	.019 ± .005	.028 ± .006	.029 ± .007	.044 ± .008
3-8-77	.028 ± .004	.031 ± .004	.034 ± .004	.036 ± .004	.031 ± .004	.006 ± .002	.010 ± .002	.011 ± .002	.026 ± .003
3-15-77	.056 ± .005	.052 ± .005	.052 ± .005	.065 ± .006	.052 ± .005	.018 ± .003	.056 ± .004	.035 ± .004	.046 ± .004
3-22-77	.043 ± .005	.034 ± .004	.040 ± .005	.035 ± .004	.036 ± .005	.039 ± .004	.007 ± .000	.012 ± .002	.045 ± .005
3-29-77	.050 ± .005	.045 ± .004	.060 ± .006	.055 ± .005	.047 ± .005	.045 ± .004	.007 ± .000	.015 ± .002	.052 ± .005
4-5-77	.137 ± .008	.122 ± .007	.121 ± .008	.130 ± .008	.122 ± .008	.116 ± .006	.115 ± .006	.092 ± .004	.126 ± .008
4-12-77	.096 ± .007	.098 ± .006	.096 ± .007	.080 ± .007	.101 ± .007	.062 ± .005	.018 ± .003	.090 ± .005	.094 ± .007
4-19-77	.149 ± .012	.161 ± .013	.190 ± .016	.194 ± .016	.201 ± .016	.127 ± .010	.194 ± .015	.069 ± .006	.208 ± .017
4-26-77	.121 ± .010	.120 ± .010	.131 ± .011	.130 ± .011	.134 ± .011	.095 ± .008	.113 ± .009	.050 ± .004	.127 ± .010
5-3-77	.157 ± .013	.172 ± .014	.172 ± .014	.185 ± .015	.173 ± .014	.050 ± .004	.173 ± .014	.159 ± .012	.068 ± .006
5-10-77	.161 ± .013	.154 ± .013	.179 ± .015	.180 ± .015	.149 ± .012	.165 ± .013	.170 ± .013	.189 ± .015	.186 ± .015
5-17-77	.139 ± .007	.135 ± .009	.233 ± .011	.210 ± .009	.226 ± .010	.205 ± .008	.217 ± .008	.217 ± .008	.210 ± .010
5-24-77	.248 ± .010	.291 ± .011	.326 ± 0.12	.309 ± .011	.249 ± .010	.285 ± .009	.283 ± .009	.115 ± .005	.286 ± .011
5-31-77	.229 ± .010	.259 ± .011	.261 ± .011	.276 ± .011	.249 ± .010	.262 ± .010	.183 ± .007	.235 ± .007	.039 ± .040
6-7-77	.206 ± .009	.241 ± .010	.227 ± .010	.231 ± .010	.229 ± .010	.012 ± .002	.177 ± .007	.067 ± .004	.052 ± .004
6-14-77	.213 ± .009	.214 ± .010	.221 ± .010	.215 ± .010	.216 ± .010	.189 ± .008	.080 ± .005	.179 ± .006	.118 ± .006
6-21-77	.185 ± .008	.265 ± .011	.218 ± .010	.214 ± .010	.199 ± .010	.042 ± .004	.068 ± .004	.037 ± .003	.080 ± .005
6-28-77	.269 ± .010	.2899 ± .012	.308 ± .012	.319 ± .012	.248 ± .010	.259 ± .009	.200 ± .006	.100 ± .005	.185 ± .007

TABLE 8 (Cont.)
NMP - JAF SITE
ENVIRONMENTAL AIRBORNE PARTICULATE SAMPLES - ON SITE STATIONS
Gross Beta Activity - $\text{pCi/m}^3 \pm 2\sigma$

Date Collected	LOCATION								
	D ₁	D ₂	E	F	G	H	I	J	K
7-6-77	.145 ± .007	.191 ± .009	.138 ± .008	.165 ± .008	.147 ± .008	.111 ± .006	.078 ± .004	.058 ± .004	.006 ± .002
7-1-77	.100 ± .006	.107 ± .007	.113 ± .007	.111 ± .007	.109 ± .007	.114 ± .006	.062 ± .004	.059 ± .004	.101 ± .005
7-19-77	.222 ± .009	.190 ± .009	.202 ± .010	.216 ± .010	.176 ± .009	.200 ± .008	.047 ± .003	.160 ± .006	.162 ± .007
7-26-77	.176 ± .008	.193 ± .009	.182 ± .009	.190 ± .009	.175 ± .008	.127 ± .006	.140 ± .006	.096 ± .004	.037 ± .003
8-2-77	.140 ± .007	.144 ± .008	.162 ± .009	.167 ± .008	.132 ± .008	.016 ± .002	.129 ± .005	.024 ± .002	.024 ± .003
8-9-77	.149 ± .007	.175 ± .009	.161 ± .009	.169 ± .008	.117 ± .007	.077 ± .005	.043 ± .003	.131 ± .005	.135 ± .006
8-16-77	.182 ± .008	.171 ± .009	.166 ± .009	.188 ± .009	.129 ± .007	.067 ± .001	.021 ± .001	.103 ± .005	.043 ± .001
8-23-77	.115 ± .009	.124 ± .011	.106 ± .011	.131 ± .011	.097 ± .010	.107 ± .008	.008 ± .003	.084 ± .006	.070 ± .007
8-30-77	.127 ± .010	.123 ± .010	.123 ± .012	.138 ± .011	.113 ± .011	.002 ± .004	.017 ± .003	.058 ± .005	.035 ± .005
9-6-77	.090 ± .009	.070 ± .008	.074 ± .009	.082 ± .009	.084 ± .009	**	**	.026 ± .004	.032 ± .005
9-13-77	.147 ± .011	.118 ± .010	.097 ± .010	.143 ± .012	.124 ± .011	.028 ± .006	.056 ± .005	.023 ± .004	.053 ± .006
9-20-77	.088 ± .009	.073 ± .009	.073 ± .009	.072 ± .008	.078 ± .009	.008 ± .004	.064 ± .006	.048 ± .005	.009 ± .003
9-27-77	.069 ± .008	.063 ± .009	.070 ± .010	.060 ± .008	.065 ± .009	.054 ± .008	.048 ± .005	.047 ± .005	.045 ± .006
10-4-77	.034 ± .006	.189 ± .014	.191 ± .015	.170 ± .012	.147 ± .013	.088 ± .010	.110 ± .008	.103 ± .007	.110 ± .008
10-12-77	.195 ± .012	.196 ± .014	.188 ± .015	.184 ± .012	.256 ± .016	.018 ± .006	.134 ± .008	.157 ± .009	.125 ± .009
10-18-77	.132 ± .012	.111 ± .012	.123 ± .014	.126 ± .012	.104 ± .012	.008 ± .006	.081 ± .007	.063 ± .007	.099 ± .009
10-25-77	.000 ± .003	.160 ± .013	.160 ± .014	.168 ± .012	.149 ± .013	.006 ± .004	.129 ± .008	.050 ± .005	.156 ± .011
11-1-77	.233 ± .014	.210 ± .015	.292 ± .019	.202 ± .013	.212 ± .015	.109 ± .010	.154 ± .009	.167 ± .009	.200 ± .012
11-8-77	.080 ± .008	.140 ± .012	.160 ± .014	.144 ± .011	.135 ± .012	.083 ± .009	.120 ± .008	.125 ± .008	.140 ± .011
11-15-77	.060 ± .008	.062 ± .009	.059 ± .009	.059 ± .008	.054 ± .008	.002 ± .004	.044 ± .005	.052 ± .005	.052 ± .007
11-22-77	.000 ± .022	.134 ± .012	.155 ± .012	.121 ± .011	.127 ± .012	.115 ± .010	.106 ± .007	.112 ± .008	.130 ± .010
11-29-77	.102 ± .009	.105 ± .010	.106 ± .011	.102 ± .009	.106 ± .011	.097 ± .010	.084 ± .007	.078 ± .006	.133 ± .010
12-6-77	.086 ± .009	.141 ± .012	.099 ± .011	.085 ± .089	.078 ± .009	.079 ± .009	.066 ± .006	.063 ± .006	.084 ± .008
12-13-77	.081 ± .008	.080 ± .009	.097 ± .011	.096 ± .009	.085 ± .010	.077 ± .009	.079 ± .006	.086 ± .007	.087 ± .008
12-21-77	.067 ± .007	.058 ± .008	.056 ± .008	.064 ± .007	.056 ± .008	.029 ± .005	.054 ± .005	**	.064 ± .007
12-28-77	.103 ± .010	.109 ± .011	.108 ± .013	.108 ± .010	.098 ± .011	.094 ± .010	.085 ± .007	.104 ± .009	.143 ± .003

**Sample pump inoperative.

TABLE 9
MONTHLY PARTICULATE COMPOSITES
GAMMA ACTIVITY
pCi/m³

ISOTOPE	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY
OFF-SITE COMPOSITE #1							
Cr-51	0.00 ± 1.47E-3	0.00 ± 1.35E-3	0.00 ± 2.45E-2	0.00 ± 2.07E-2	0.00 ± 2.69E-2	0.00 ± 3.05E-2	0.00 ± 8.04E-3
Cs-137	2.19 ± 0.72E-4	3.49 ± 0.80E-4	0.00 ± 4.26E-3	0.00 ± 4.91E-3	7.21 ± 1.85E-3	7.01 ± 1.92E-3	3.67 ± 0.72E-3
Zr-95	0.00 ± 3.21E-4	3.74 ± 1.32E-4	0.00 ± 6.36E-3	1.42 ± 0.32E-2	6.28 ± 0.66E-2	4.77 ± 0.59E-2	1.23 ± 0.15E-2
Cs-134	0.00 ± 1.82E-4	0.00 ± 1.75E-4	0.00 ± 3.51E-3	0.00 ± 3.18E-3	0.00 ± 4.78E-3	0.00 ± 3.87E-3	0.00 ± 1.19E-3
Co-58	0.00 ± 1.86E-4	1.08 ± 0.10E-3	0.00 ± 4.98E-3	9.32 ± 1.72E-3	5.27 ± 1.60E-3	0.00 ± 4.29E-3	1.06 ± 0.40E-3
Mn-54	0.00 ± 2.17E-4	3.52 ± 0.14E-3	1.68 ± 0.29E-2	1.16 ± 0.20E-2	1.45 ± 0.26E-2	1.56 ± 0.26E-2	4.00 ± 0.69E-3
Zn-65	0.00 ± 4.56E-4	2.49 ± 0.29E-3	1.36 ± 0.41E-2	0.00 ± 6.88E-3	0.00 ± 1.14E-2	0.00 ± 1.04E-2	0.00 ± 2.35E-3
Co-60	0.00 ± 2.73E-4	5.51 ± 0.22E-3	3.33 ± 0.46E-2	2.75 ± 0.37E-2	2.86 ± 0.43E-2	2.59 ± 0.41E-2	9.82 ± 1.22E-3
OFF-SITE COMPOSITE #2							
Cr-51	0.00 ± 6.13E-4	0.00 ± 5.50E-4	0.00 ± 2.39E-2	0.00 ± 2.12E-2	0.00 ± 3.52E-2	0.00 ± 2.81E-2	0.00 ± 6.74E-3
Cs-137	0.00 ± 6.30E-5	2.54 ± 0.39E-4	0.00 ± 4.10E-3	5.37 ± 1.64E-3	7.57 ± 2.26E-3	1.12 ± 0.22 E-2	3.15 ± 0.59E-3
Zr-95	0.00 ± 9.86E-5	2.15 ± 0.58E-4	0.00 ± 8.06E-3	2.92 ± 0.41E-2	5.53 ± 0.62E-2	6.94 ± 0.68E-2	1.59 ± 0.16E-2
Cs-134	0.00 ± 6.14E-5	0.00 ± 8.73E-5	0.00 ± 3.38E-3	0.00 ± 2.95E-3	0.00 ± 4.08E-3	0.00 ± 4.48E-3	0.00 ± 1.07E-3
Co-58	0.00 ± 5.89E-5	0.00 ± 1.16E-4	0.00 ± 5.21E-3	4.94 ± 1.45E-3	0.00 ± 5.19E-3	0.00 ± 4.26E-3	0.00 ± 1.32E-3
Mn-54	0.00 ± 5.88E-5	2.80 ± 0.09E-3	1.51 ± 0.25E-2	1.01 ± 0.19E-2	2.63 ± 0.34E-2	1.41 ± 0.23E-2	3.44 ± 0.69E-3
Zn-65	0.00 ± 1.18E-4	0.00 ± 1.89E-4	0.00 ± 1.03E-2	0.00 ± 5.78E-3	0.00 ± 1.02E-2	0.00 ± 9.61E-3	0.00 ± 2.49E-3
Co-60	0.00 ± 4.70E-5	0.00 ± 1.58E-4	2.80 ± 0.41E-2	2.05 ± .033E-2	2.96 ± 0.44E-2	3.47 ± 0.46E-2	8.74 ± 1.18E-3

TABLE 9 (Cont.)
MONTHLY PARTICULATE COMPOSITES
GAMMA ACTIVITY
pCi/m³

ISOTOPE	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY
ON-SITE COMPOSITE #1							
Cr-51	0.00 ± 2.52E-4	0.00 ± 8.24E-4	0.00 ± 2.84E-2	0.00 ± 2.32E-2	0.00 ± 3.17E-2	0.00 ± 3.26E-2	0.00 ± 5.50E-3
Cs-137	1.67 ± 0.21E-4	2.20 ± 0.48E-4	0.00 ± 4.68E-3	7.83 ± 1.82E-3	1.05 ± 0.24E-2	1.20 ± 0.27E-2	2.86 ± 0.46E-3
Zr-95	1.42 ± 0.29E-4	4.94 ± 0.85E-4	0.00 ± 8.93E-3	3.37 ± 0.42E-2	7.76 ± 0.74E-2	8.21 ± 0.77E-2	6.18 ± 1.26E-3
Cs-134	0.00 ± 3.84E-5	0.00 ± 2.79E-5	0.00 ± 3.52E-3	0.00 ± 3.67E-3	0.00 ± 4.24E-3	0.00 ± 5.34E-3	0.00 ± 8.27E-4
Co-58	3.88 ± 0.25E-4	7.63 ± 0.74E-4	5.56 ± 2.06E-3	0.00 ± 4.15E-3	3.81 ± 1.37E-3	5.27 ± 1.64E-3	1.36 ± 0.37E-3
Mn-54	1.15 ± 0.04E-3	2.36 ± 0.09E-3	1.24 ± 0.26E-2	1.78 ± 0.25E-2	2.04 ± 0.30E-2	2.06 ± 0.29E-2	4.03 ± 0.54E-3
Zn-65	1.68 ± 0.34E-4	4.45 ± 1.56E-4	0.00 ± 1.14E-2	0.00 ± 7.97E-3	0.00 ± 1.06E-2	0.00 ± 1.00E-2	0.00 ± 1.53E-3
Co-60	1.31 ± 0.06E-3	4.35 ± 0.15E-3	3.07 ± 0.46E-2	2.84 ± 0.38E-2	3.60 ± 0.48E-2	2.89 ± 0.43E-2	7.11 ± 0.86E-2
ON-SITE COMPOSITE #2							
Cr-51	1.65 ± 0.34E-3	0.00 ± 3.49E-4	0.00 ± 1.84E-2	0.00 ± 8.88E-3	0.00 ± 2.44E-2	0.00 ± 1.79E-2	0.00 ± 3.90E-3
Cs-137	0.00 ± 1.38E-4	9.52 ± 2.11E-5	0.00 ± 3.47E-3	5.41 ± 0.78E-3	8.82 ± 1.69E-3	7.36 ± 1.41E-3	1.28 ± 0.27E-3
Zr-95	0.00 ± 2.23E-4	2.79 ± 0.46E-4	0.00 ± 6.08E-3	1.95 ± 0.17E-2	6.20 ± 0.55E-2	3.66 ± 0.40E-2	8.88 ± 0.85E-3
Cs-134	3.53 ± 0.50E-4	0.00 ± 5.16E-5	0.00 ± 2.61E-3	0.00 ± 1.30E-3	0.00 ± 3.34E-3	0.00 ± 2.62E-3	0.00 ± 5.42E-4
Co-58	2.43 ± 0.86E-3	5.56 ± 0.37E-4	5.35 ± 1.47E-3	3.16 ± 0.58E-3	0.00 ± 3.53E-3	0.00 ± 3.28E-3	5.58 ± 1.92E-4
Mn-54	2.87 ± 0.91E-3	1.93 ± 0.06E-3	1.75 ± 0.24E-2	7.81 ± 0.87E-3	1.31 ± 0.22E-2	1.23 ± 0.17E-2	2.21 ± 0.35E-3
Zn-65	4.40 ± 0.97E-4	3.12 ± 0.54E-4	0.00 ± 9.14E-3	0.00 ± 3.01E-3	0.00 ± 9.08E-3	0.00 ± 6.32E-3	0.00 ± 1.45E-3
Co-60	4.59 ± 0.14E-3	3.03 ± 0.71E-4	1.77 ± 0.30E-2	1.66 ± 0.15E-2	1.98 ± 0.30E-2	1.56 ± 0.25E-2	4.42 ± 0.56E-3

TABLE 9 (Cont.)
MONTHLY PARTICULATE COMPOSITES
GAMMA ACTIVITY
pci/m³

ISOTOPE	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
OFF-SITE COMPOSITES					
Cr-51	0.00 ± 1.76E-3	0.00 ± 1.52E-3	0.00 ± 1.78E-3	0.00 ± 1.25E-3	0.00 ± 1.36E-3
Cs-137	8.44 ± 1.49E-4	9.22 ± 1.20E-4	1.41 ± 0.14E-3	1.23 ± 0.11E-3	8.80 ± 1.21E-4
Zr-95	2.05 ± 0.29E-3	1.94 ± 0.22E-3	6.71 ± 0.37E-3	2.77 ± 0.23E-3	1.37 ± 0.16E-3
Nb-95	4.74 ± 0.27E-3	4.15 ± 0.20E-3	9.88 ± 0.31E-3	4.98 ± 0.19E-3	2.53 ± 0.16E-3
Cs-134	0.00 ± 2.51E-4	0.00 ± 2.17E-4	0.00 ± 2.33E-4	0.00 ± 1.70E-4	0.00 ± 1.97E-4
Co-58	4.69 ± 1.28E-4	1.43 ± 0.14E-3	8.15 ± 1.15E-4	5.85 ± 0.86E-4	5.13 ± 1.05E-4
Mn-54	1.38 ± 0.17E-3	3.71 ± 0.20E-3	2.13 ± 0.17E-3	1.63 ± 0.12E-3	2.02 ± 0.16E-3
Zn-65	0.00 ± 5.38E-4	0.00 ± 6.11E-4	0.00 ± 5.50E-4	0.00 ± 4.61E-4	0.00 ± 5.27E-4
Co-60	3.37 ± 0.29E-3	6.55 ± 0.32E-3	5.43 ± 0.30E-3	3.96 ± 0.22E-3	4.44 ± 0.27E-3
ON-SITE COMPOSITES					
Cr-51	0.00 ± 9.12E-3	0.00 ± 8.60E-3	0.00 ± 9.26E-3	0.00 ± 8.98E-4	0.00 ± 9.55E-4
Cs-137	3.22 ± 0.52E-3	0.00 ± 1.38E-3	3.82 ± 0.50E-3	9.74 ± 0.78E-4	6.91 ± 0.75E-4
Zr-95	8.70 ± 1.04E-3	0.00 ± 2.39E-3	9.33 ± 1.01E-3	1.89 ± 0.17E-3	1.02 ± 0.12E-3
Nb-95	1.83 ± 0.09E-2	0.00 ± 1.60E-3	1.59 ± 0.08E-2	4.13 ± 0.14E-3	2.08 ± 0.12E-3
Cs-134	0.00 ± 1.12E-3	0.00 ± 1.06E-3	0.00 ± 1.01E-3	0.00 ± 1.11E-4	0.00 ± 1.25E-4
Co-58	0.00 ± 1.26E-3	0.00 ± 1.26E-3	1.70 ± 0.41E-3	2.36 ± 0.49E-4	3.14 ± 0.59E-4
Mn-54	8.13 ± 0.75E-3	8.96 ± 0.64E-3	8.69 ± 0.67E-3	1.09 ± 0.08E-3	1.15 ± 0.10E-3
Zn-65	0.00 ± 2.72E-3	0.00 ± 2.41E-3	0.00 ± 2.59E-3	3.00 ± 0.96E-4	0.00 ± 3.34E-4
Co-60	1.68 ± 0.11E-2	0.00 ± 1.49E-4	1.82 ± 0.10E-2	4.23 ± 0.14E-3	2.78 ± 0.17E-3

TABLE 10
NMP-JAF SITE
ENVIRONMENTAL CHARCOAL CARTRIDGE ACTIVITY OFF-SITE STATIONS
I-131 pCi/m³ ± 3σ

Date Collected	Location					
	C	D ₁	D ₂	E	F	G
1-5-77	0.00 ± 0.92	0.00 ± 1.25	0.00 ± 1.22	0.00 ± 1.22	0.46 ± 1.25	0.35 ± 0.86
1-13-77	0.00 ± 0.73	0.00 ± 1.23	0.00 ± 2.24	0.00 ± 2.04	0.00 ± 2.49	0.00 ± 1.54
1-18-77	0.82 ± 1.66	0.35 ± 2.32	0.16 ± 0.88	0.00 ± 2.12	0.00 ± 0.97	0.00 ± 0.65
1-26-77	-	-	0.00 ± 0.16	0.00 ± 1.20	0.00 ± 1.30	0.00 ± 1.56
2-2-77	*0.00 ± 0.33	*0.00 ± 0.78	0.00 ± 0.26	0.00 ± 0.96	0.00 ± 1.06	0.00 ± 0.18
2-9-77	0.00 ± 0.25	0.00 ± 0.69	0.00 ± 0.59	0.00 ± 0.61	0.00 ± 0.40	0.00 ± 0.46
2-16-77		0.00 ± 0.13	0.00 ± 0.12	0.00 ± 0.38	0.00 ± 0.36	0.00 ± 0.08
2-23-77	0.00 ± 0.04	0.00 ± 0.08	0.00 ± 0.24	0.00 ± 0.28	0.00 ± 0.25	0.00 ± 0.04
3-2-77	0.00 ± 0.03	0.00 ± 0.04	0.00 ± 0.12	0.00 ± 0.11	0.00 ± 0.03	0.00 ± 0.08
3-9-77	0.00 ± 0.06	0.00 ± 0.04	0.00 ± 0.06	0.00 ± 0.11	0.00 ± 0.14	0.00 ± 0.03
3-16-77	0.00 ± 0.08	0.00 ± 0.05	0.00 ± 0.11	0.00 ± 0.03	0.00 ± 0.04	0.00 ± 0.09
3-24-77	0.00 ± 0.03	0.00 ± 0.09	0.00 ± 0.04	0.00 ± 0.08	0.00 ± 0.04	0.00 ± 0.07
3-30-77	0.02 ± 0.03	0.00 ± 0.05	0.00 ± 0.12	0.00 ± 0.13	0.00 ± 0.05	0.00 ± 0.04
4-6-77	0.00 ± 0.06	0.00 ± 0.04	0.00 ± 0.09	0.00 ± 0.10	0.00 ± 0.05	0.00 ± 0.07
4-13-77	0.00 ± 0.02	0.00 ± 0.10	0.00 ± 0.16	0.00 ± 0.10	0.00 ± 0.09	0.00 ± 0.66
4-20-77	0.00 ± 0.06	0.00 ± 0.14	0.00 ± 0.14	0.00 ± 0.19	0.00 ± 0.05	0.00 ± 0.11
4-27-77	0.00 ± 0.07	0.00 ± 0.10	0.00 ± 0.04	0.00 ± 0.09	0.00 ± 0.03	0.00 ± 0.03
5-4-77	0.00 ± 0.03	0.00 ± 0.04	0.00 ± 0.04	0.00 ± 0.10	0.00 ± 0.04	0.00 ± 0.10
5-11-77	0.00 ± 0.08	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.10	0.00 ± 0.12
5-18-77	0.00 ± 0.03	0.00 ± 0.13	0.00 ± 0.24	0.00 ± 0.13	0.00 ± 0.10	0.00 ± 0.03
5-25-77	0.00 ± 0.09	0.00 ± 0.04	0.00 ± 0.10	0.00 ± 0.10	0.00 ± 0.09	0.00 ± 0.01
6-1-77	0.00 ± 0.02	0.00 ± 0.04	0.00 ± 0.12	0.00 ± 0.03	0.00 ± 0.10	0.00 ± 0.15
6-8-77	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.05	0.00 ± 0.07	0.00 ± 0.09	0.00 ± 0.15
6-15-77	0.00 ± 0.03	0.00 ± 0.10	0.00 ± 0.04	0.00 ± 0.07	0.00 ± 0.04	0.00 ± 0.10
6-22-77	0.00 ± 0.14	0.00 ± 0.05	0.00 ± 0.22	0.00 ± 0.03	0.10 ± 0.02	0.00 ± 1.24
6-29-77	0.00 ± 0.11	0.00 ± 0.15	0.00 ± 0.18	0.00 ± 0.09	0.00 ± 0.18	0.00 ± 0.13

*Two-week sample, due to snow.

TABLE 10 (Cont.)
NMP-JAF SITE
ENVIRONMENTAL CHARCOAL CARTRIDGE ACTIVITY OFF-SITE STATIONS
I-131 pCi/m³ $\pm 3\sigma$

Date Collected	Location					
	C	D ₁	D ₂	E	F	G
7-6-77	0.00 \pm 0.11	0.00 \pm 5.81	0.00 \pm 0.20	0.00 \pm 4.93	0.00 \pm 0.12	0.00 \pm 0.14
7-13-77	0.00 \pm 0.12	0.00 \pm 0.15	0.00 \pm 0.14	0.00 \pm 0.09	0.00 \pm 0.13	0.00 \pm 0.15
7-20-77	0.00 \pm 0.10	0.00 \pm 0.16	0.00 \pm 0.04	0.00 \pm 0.09	0.00 \pm 0.05	0.00 \pm 0.12
7-27-77	0.00 \pm 0.07	0.00 \pm 0.12	0.00 \pm 0.07	0.00 \pm 0.07	0.00 \pm 0.10	0.00 \pm 0.06
8-3-77	0.00 \pm 0.08	0.00 \pm 0.06	0.00 \pm 0.06	0.00 \pm 0.04	0.00 \pm 0.08	0.00 \pm 0.29
8-10-77	0.00 \pm 0.09	0.00 \pm 0.11	0.00 \pm 0.05	0.00 \pm 0.06	0.00 \pm 0.06	0.00 \pm 0.06
8-17-77	0.00 \pm 0.07	0.00 \pm 0.05	0.00 \pm 0.11	0.00 \pm 0.10	0.00 \pm 0.08	0.00 \pm 0.12
8-24-77	0.00 \pm 0.09	0.00 \pm 0.07	0.00 \pm 0.05	0.00 \pm 0.08	0.00 \pm 0.09	0.00 \pm 0.07
8-31-77	0.00 \pm 0.08	0.00 \pm 0.02	0.00 \pm 0.02	0.00 \pm 0.02	0.00 \pm 0.03	0.00 \pm 0.10
9-7-77	0.00 \pm 0.03	0.00 \pm 0.02	0.00 \pm 0.08	0.00 \pm 0.07	0.00 \pm 0.10	0.00 \pm 0.09
9-14-77	0.00 \pm 0.03	0.00 \pm 0.05	0.00 \pm 0.07	0.00 \pm 0.007	0.00 \pm 0.11	0.00 \pm 0.03
9-21-77	0.00 \pm 0.08	0.00 \pm 0.03	0.00 \pm 0.09	0.00 \pm 0.03	0.00 \pm 0.10	0.00 \pm 0.12
9-28-77	0.00 \pm 0.03	0.00 \pm 0.05	0.00 \pm 0.03	0.00 \pm 0.03	0.00 \pm 0.07	0.00 \pm 0.13
10-4-77	0.00 \pm 0.05	0.00 \pm 0.06	0.00 \pm 0.05	0.00 \pm 0.06	0.00 \pm 0.09	0.00 \pm 0.05
10-12-77	0.00 \pm 0.15	0.00 \pm 0.22	0.00 \pm 0.16	0.00 \pm 0.14	0.00 \pm 0.38	0.00 \pm 0.05
10-19-77	0.00 \pm 0.23	0.00 \pm 0.09	0.00 \pm 0.05	0.00 \pm 0.24	0.00 \pm 0.58	0.00 \pm 0.07
10-26-77	0.00 \pm 1.02	0.00 \pm 1.50	0.00 \pm 1.06	0.00 \pm 0.79	0.00 \pm 0.33	0.00 \pm 0.28
11-2-77	0.00 \pm 0.03	0.00 \pm 0.15	0.00 \pm 0.03	0.00 \pm 0.10	0.00 \pm 0.03	0.00 \pm 0.03
11-9-77	0.00 \pm 1.17	0.00 \pm 0.49	0.00 \pm 0.29	0.00 \pm 0.26	0.00 \pm 1.44	0.00 \pm 0.35
11-16-77	0.00 \pm 1.60	0.00 \pm 2.53	0.00 \pm 0.56	0.00 \pm 1.87	0.00 \pm 0.71	0.00 \pm 0.74
11-23-77	0.00 \pm 0.31	0.00 \pm 0.13	0.00 \pm 0.09	0.00 \pm 0.31	0.00 \pm 0.41	0.00 \pm 0.45
11-30-77	0.00 \pm 0.45	0.00 \pm 0.14	0.00 \pm 0.42	0.00 \pm 0.10	0.00 \pm 0.59	0.00 \pm 0.46
12-7-77	0.00 \pm 0.52	0.00 \pm 0.92	0.00 \pm 0.58	0.00 \pm 0.48	0.00 \pm 0.24	0.00 \pm 0.21
12-14-77	0.00 \pm 0.47	0.00 \pm 0.59	0.00 \pm 0.47	0.00 \pm 0.12	0.00 \pm 0.17	0.00 \pm 0.19
12-21-77	0.00 \pm 0.07	0.00 \pm 0.34	0.00 \pm 0.21	0.00 \pm 0.06	0.00 \pm 0.09	0.00 \pm 0.27
12-28-77	0.00 \pm 0.07	0.00 \pm 0.09	0.00 \pm 0.07	0.00 \pm 0.21	0.00 \pm 0.10	0.00 \pm 0.30

TABLE 11
NMP-JAF SITE
ENVIRONMENTAL CHARCOAL CARTRIDGE ACTIVITY ON-SITE STATIONS
I-131 pCi/m³ ± 3σ

Date Collected	Location								
	D ₁	D ₂	E	F	G	H	I	J	K
1-4-77	0.00 ± 0.82	0.33 ± 1.35	0.04 ± 0.38	0.56 ± 1.23	0.46 ± 1.17	0.28 ± 0.91	0.18 ± 0.99	0.00 ± 1.00	0.28 ± 0.94
1-14-77	0.00 ± 0.58	0.00 ± 0.58	0.00 ± 0.52	0.00 ± 0.94	0.00 ± 0.50	0.00 ± 0.59	0.00 ± 0.52	0.00 ± 0.45	0.00 ± 0.49
1-20-77	0.00 ± 2.28	0.00 ± 1.93	0.17 ± 1.85	0.00 ± 1.38	0.00 ± 1.74	0.00 ± 1.15	0.00 ± 1.26	0.00 ± 1.40	0.00 ± 1.58
1-26-77	0.73 ± 1.62	0.00 ± 1.54	0.00 ± 1.96	0.39 ± 1.87	0.68 ± 2.07	0.19 ± 1.57	0.21 ± 0.59	0.37 ± 1.74	0.00 ± 1.32
2-1-77	0.00 ± 1.16	0.00 ± 1.10	0.00 ± 1.17	0.00 ± 1.02	0.00 ± 0.84	0.00 ± 0.44	0.00 ± 0.82	0.00 ± 0.87	missing
2-8-77	0.00 ± 0.51	0.00 ± 0.68	0.00 ± 0.72	0.00 ± 0.43	0.00 ± 0.11	0.00 ± 0.82	0.00 ± 0.11	0.00 ± 0.15	0.00 ± 0.09
2-15-77	0.00 ± 0.27	0.00 ± 0.07	0.00 ± 0.43	0.00 ± 0.29	0.00 ± 0.33	0.00 ± 0.22	0.00 ± 0.13	0.00 ± 0.08	0.00 ± 0.11
2-22-77	0.00 ± 0.07	0.00 ± 0.23	0.00 ± 0.10	0.00 ± 0.07	0.00 ± 0.24	0.00 ± 0.21	0.00 ± 0.18	0.00 ± 0.08	0.00 ± 0.08
3-1-77	0.00 ± 0.05	0.00 ± 0.12	0.00 ± 0.04	0.00 ± 0.04	0.00 ± 0.12	0.00 ± 0.12	0.00 ± 0.02	0.00 ± 0.04	0.00 ± 0.14
3-8-77	0.00 ± 0.09	0.00 ± 0.13	0.00 ± 0.04	0.00 ± 0.04	0.00 ± 0.10	0.00 ± 0.08	0.00 ± 0.04	0.00 ± 0.04	0.00 ± 0.04
3-15-77	0.00 ± 0.04	0.00 ± 0.05	0.00 ± 0.07	0.00 ± 0.13	0.00 ± 0.11	0.00 ± 0.04	0.00 ± 0.03	0.00 ± 0.10	0.00 ± 0.09
3-22-77	0.00 ± 0.11	0.00 ± 0.13	0.00 ± 0.06	0.00 ± 0.04	0.00 ± 0.05	0.00 ± 0.05	0.00 ± 0.09	0.00 ± 0.08	0.00 ± 0.06
3-29-77	0.00 ± 0.04	0.00 ± 0.09	0.05 ± 0.11	0.00 ± 0.05	0.00 ± 0.05	0.00 ± 0.08	0.00 ± 0.03	0.00 ± 0.02	0.00 ± 0.11
4-5-77	0.00 ± 0.04	0.00 ± 0.14	0.00 ± 0.13	0.00 ± 0.11	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.08	0.00 ± 0.02	0.00 ± 0.03
4-12-77	0.00 ± 0.08	0.00 ± 0.03	0.00 ± 0.25	0.00 ± 0.10	0.00 ± 0.04	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.12	0.00 ± 0.11
4-19-77	0.00 ± 0.04	0.00 ± 0.04	0.00 ± 0.23	0.00 ± 0.13	0.00 ± 0.05	0.00 ± 0.07	0.00 ± 0.04	0.00 ± 0.02	0.00 ± 0.17
4-26-77	0.00 ± 0.08	0.00 ± 0.04	0.00 ± 0.12	0.00 ± 0.11	0.00 ± 0.04	0.00 ± 0.07	0.00 ± 0.02	0.00 ± 0.03	0.02 ± 0.05
5-3-77	0.00 ± 0.10	0.00 ± 0.04	0.00 ± 0.15	0.00 ± 0.04	0.00 ± 0.10	0.00 ± 0.04	0.00 ± 0.04	0.00 ± 0.07	0.00 ± 0.03
5-10-77	0.00 ± 0.09	0.00 ± 0.04	0.00 ± 0.03	0.00 ± 0.04	0.00 ± 0.18	0.00 ± 0.05	0.00 ± 0.07	0.00 ± 0.07	0.00 ± 0.03
5-17-77	0.00 ± 0.13	0.00 ± 0.16	0.00 ± 0.14	0.00 ± 0.03	0.00 ± 0.06	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.03
5-24-77	0.00 ± 0.10	0.00 ± 0.04	0.00 ± 0.12	0.00 ± 0.05	0.00 ± 0.11	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.06	0.00 ± 0.03
5-31-77	0.00 ± 0.04	0.00 ± 0.05	0.00 ± 0.05	0.00 ± 0.13	0.00 ± 0.10	0.00 ± 0.03	0.00 ± 0.07	0.00 ± 0.06	0.00 ± 0.04
6-7-77	0.00 ± 0.04	0.00 ± 0.13	0.00 ± 0.05	0.00 ± 0.12	0.00 ± 0.05	0.00 ± 0.03	0.00 ± 0.07	0.00 ± 0.02	0.00 ± 0.08
6-14-77	0.00 ± 0.02	0.00 ± 0.10	0.00 ± 0.04	0.00 ± 0.12	0.00 ± 0.04	0.00 ± 0.08	0.00 ± 0.03	0.00 ± 0.06	0.00 ± 0.02
6-21-77	0.00 ± 0.13	0.00 ± 0.05	0.00 ± 0.19	0.00 ± 0.19	0.00 ± 0.21	0.00 ± 0.04	0.00 ± 0.09	0.00 ± 0.02	0.00 ± 0.13
6-28-77	0.00 ± 0.13	0.00 ± 0.29	0.00 ± 0.25	0.00 ± 0.16	0.00 ± 0.20	0.00 ± 0.21	0.00 ± 0.11	0.00 ± 0.09	0.00 ± 0.25

TABLE 11 (Cont.)
NMP-JAF SITE
ENVIRONMENTAL CHARCOAL CARTRIDGE ACTIVITY ON-SITE STATIONS
I-131 pCi/m³ ± 3σ

Date Collected	Location								
	D ₁	D ₂	E	F	G	H	I	J	K
7-5-77	0.00 ± 0.13	0.00 ± 0.18	0.00 ± 0.14	0.00 ± 0.15	0.00 ± 0.16	0.00 ± 0.11	0.00 ± 0.05	0.00 ± 0.05	0.00 ± 0.07
7-12-77	0.00 ± 0.12	0.00 ± 0.15	0.00 ± 0.20	0.00 ± 0.12	0.00 ± 0.14	0.00 ± 0.10	0.00 ± 0.08	0.00 ± 0.07	0.00 ± 0.10
7-19-77	0.00 ± 0.11	0.00 ± 0.11	0.00 ± 0.14	0.00 ± 0.11	0.00 ± 0.14	0.00 ± 0.09	0.00 ± 0.06	0.00 ± 0.08	0.00 ± 0.10
7-26-77	0.00 ± 0.06	0.00 ± 0.13	0.00 ± 0.08	0.00 ± 0.09	0.00 ± 0.09	0.00 ± 0.08	0.00 ± 0.05	0.00 ± 0.04	0.00 ± 0.08
8-2-77	0.00 ± 0.07	0.00 ± 0.10	0.00 ± 0.12	0.00 ± 0.09	0.00 ± 0.09	0.00 ± 0.21	0.00 ± 0.05	0.00 ± 0.05	0.00 ± 0.04
8-9-77	0.00 ± 0.07	0.00 ± 0.07	0.00 ± 0.11	0.00 ± 0.06	0.00 ± 0.10	0.00 ± 0.05	0.00 ± 0.05	0.00 ± 0.03	0.00 ± 0.07
8-16-77	0.00 ± 0.05	0.00 ± 0.12	0.00 ± 0.12	0.00 ± 0.21	0.00 ± 0.08	0.00 ± 0.09	0.00 ± 0.09	0.00 ± 0.06	0.00 ± 0.11
8-23-77	0.00 ± 0.10	0.00 ± 0.07	0.00 ± 0.10	0.00 ± 0.08	0.00 ± 0.08	0.00 ± 0.08	0.00 ± 0.05	0.00 ± 0.06	0.00 ± 0.07
8-30-77	0.00 ± 0.02	0.00 ± 0.03	0.00 ± 0.04	0.00 ± 0.09	0.00 ± 0.11	0.00 ± 0.09	0.00 ± 0.05	0.00 ± 0.06	0.00 ± 0.03
9-6-77	0.00 ± 0.09	0.00 ± 0.10	0.00 ± 0.05	0.00 ± 0.03	0.00 ± 0.03	**	0.00 ± 0.02	0.00 ± 0.05	0.00 ± 0.02
9-13-77	0.00 ± 0.02	0.00 ± 0.03	0.00 ± 0.04	0.00 ± 0.04	0.00 ± 0.11	0.00 ± 0.02	0.00 ± 0.02	0.00 ± 0.05	0.00 ± 0.08
9-20-77	0.00 ± 0.04	0.00 ± 0.12	0.00 ± 0.04	0.00 ± 0.12	0.00 ± 0.15	0.00 ± 0.05	0.00 ± 0.02	0.00 ± 0.07	0.00 ± 0.07
9-27-77	0.00 ± 0.05	0.00 ± 0.06	0.00 ± 0.06	0.00 ± 0.04	0.00 ± 0.15	0.00 ± 0.21	0.00 ± 0.08	0.00 ± 0.03	0.00 ± 0.04
10-4-77	0.00 ± 0.09	0.00 ± 0.07	0.00 ± 0.09	0.00 ± 0.08	0.00 ± 0.07	0.00 ± 0.08	0.00 ± 0.04	0.00 ± 0.04	0.00 ± 0.05
10-12-77	0.00 ± 0.13	0.00 ± 0.04	0.00 ± 0.04	0.00 ± 0.14	0.00 ± 0.04	0.00 ± 0.03	0.00 ± 0.02	0.00 ± 0.02	0.00 ± 0.10
10-18-77	0.00 ± 0.05	0.00 ± 0.23	0.00 ± 0.33	0.00 ± 0.20	0.00 ± 0.06	0.00 ± 0.31	0.00 ± 0.04	0.00 ± 0.04	0.00 ± 0.17
10-25-77	0.00 ± 0.27	0.00 ± 1.82	0.00 ± 0.58	0.00 ± 0.26	0.00 ± 1.59	0.00 ± 1.49	0.00 ± 0.89	0.00 ± 0.30	0.00 ± 1.08
11-1-77	0.00 ± 0.12	0.00 ± 0.16	0.00 ± 0.05	0.00 ± 0.04	0.00 ± 0.05	0.00 ± 0.16	0.00 ± 0.02	0.00 ± 0.07	0.00 ± 0.12
11-8-77	0.00 ± 0.40	0.00 ± 0.35	0.00 ± 2.12	0.00 ± 1.57	0.00 ± 0.19	0.00 ± 0.62	0.00 ± 0.92	0.00 ± 0.92	0.00 ± 0.29
11-15-77	0.00 ± 1.18	0.00 ± 3.64	0.00 ± 3.11	0.00 ± 3.17	0.00 ± 4.70	0.00 ± 0.39	0.00 ± 0.45	0.00 ± 1.54	0.00 ± 0.76
11-22-77	0.00 ± 0.29	0.00 ± 0.10	0.00 ± 0.12	0.00 ± 0.30	0.00 ± 0.40	0.00 ± 0.09	0.00 ± 0.18	0.00 ± 0.18	0.00 ± 0.76
11-29-77	0.00 ± 0.57	0.00 ± 0.16	0.00 ± 0.22	0.00 ± 0.58	0.00 ± 0.65	0.00 ± 0.13	0.00 ± 0.34	0.00 ± 0.32	0.00 ± 0.16
12-6-77	0.00 ± 0.78	0.00 ± 0.33	0.00 ± 1.37	0.00 ± 0.79	0.00 ± 0.33	0.00 ± 0.28	0.00 ± 0.57	0.00 ± 0.12	0.00 ± 0.25
12-13-77	0.00 ± 0.15	0.00 ± 0.17	0.00 ± 0.83	0.00 ± 0.60	0.00 ± 0.74	0.00 ± 0.16	0.00 ± 0.04	0.00 ± 0.13	0.00 ± 0.56
12-21-77	0.00 ± 0.23	0.00 ± 0.32	0.00 ± 0.12	0.00 ± 0.23	0.00 ± 0.30	0.00 ± 0.07	0.00 ± 0.18	**	0.00 ± 0.06
12-27-77	0.00 ± 0.29	0.00 ± 0.14	0.00 ± 0.36	0.00 ± 0.53	0.00 ± 0.32	0.00 ± 0.11	0.00 ± 0.14	0.00 ± 0.25	0.00 ± 0.16

**Sample pump inoperative.

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

TABLE 12
ENVIRONMENTAL TLD READINGS
Total Dose in mRem \pm 2 σ

TLD NO.	LOCATION	QUARTER			
		1st	2nd	3rd	4th
3	D1 On Site	31 \pm 8	28 \pm 8	16 \pm 10	46 \pm 11
4	D2 On Site	15 \pm 4	17 \pm 4	15 \pm 5	25 \pm 7
5	E On Site	13 \pm 3	16 \pm 5	14 \pm 8	24 \pm 7
6	F On Site	14 \pm 3	13 \pm 4	11 \pm 5	25 \pm 7
7	G On Site	11 \pm 4	12 \pm 7	11 \pm 2	19 \pm 5
8	C Off Site	13 \pm 6	16 \pm 5	14 \pm 5	24 \pm 5
9	D1 Off Site	14 \pm 3	13 \pm 4	17 \pm 7	21 \pm 5
10	D2 Off Site	13 \pm 4	14 \pm 4	12 \pm 4	21 \pm 5
11	E Off Site	*	15 \pm 4	13 \pm 7	22 \pm 5
12	F Off Site	12 \pm 4	14 \pm 4	14 \pm 6	20 \pm 5
13	G Off Site	14 \pm 5	13 \pm 4	11 \pm 4	23 \pm 5
14	SW Oswego	13 \pm 4	12 \pm 4	12 \pm 4	22 \pm 5
15	Pole 66, W. Bound	11 \pm 4	13 \pm 5	11 \pm 5	20 \pm 5
16	Pole 51, W. Bound	15 \pm 3	14 \pm 5	10 \pm 5	20 \pm 6
17	Prog. Cen. E. Yard	12 \pm 3	16 \pm 6	14 \pm 6	25 \pm 5
18	Prog. Cen. Picnic	14 \pm 3	15 \pm 5	13 \pm 5	24 \pm 7
19	Pole 9, E. Bound	28 \pm 8(1)	14 \pm 5	13 \pm 4	*
20	JAF Shore, W. Bound	24 \pm 8	24 \pm 6	*	44 \pm 10
21	Pole 67, E. Bound	12 \pm 5	12 \pm 5	11 \pm 4	23 \pm 7
22	Pole 53, E. Bound	11 \pm 6	12 \pm 4	11 \pm 5	22 \pm 6
23	H	15 \pm 4	18 \pm 7	12 \pm 9	*
24	I	14 \pm 9	13 \pm 4	10 \pm 7	28 \pm 6
25	J	13 \pm 6	*	12 \pm 3	22 \pm 8
26	K	*	13 \pm 4	9 \pm 4	22 \pm 5
27	Light Pole(N) JAF	75 \pm 16	36 \pm 9	*	243 \pm 32 (2)
28	Light Pole(NW) JAF	29 \pm 9	54 \pm 8	14 \pm 6	81 \pm 20
29	N. Fence (E) JAF	165 \pm 81	*	130 \pm 22	54 \pm 10
30	N. Fence (ME) JAF	95 \pm 11	64 \pm 10	40 \pm 11	93 \pm 22
31	N. Fence (MW) NMP	53 \pm 10	68 \pm 19	41 \pm 13	70 \pm 21
32	N. Fence (W) NMP	28 \pm 6	*	28 \pm 10	43 \pm 7
33	NMP/JAF, Twin Pole (W) of JAF W. Fence	30 \pm 6	31 \pm 8	23 \pm 5	44 \pm 15
34	N of Unit 2 on Lake	19 \pm 6	21 \pm 5	18 \pm 5	31 \pm 7
35	E of Unit 2 on Stor. Bldg.	15 \pm 3	13 \pm 2	15 \pm 6	30 \pm 7
36	Pole Tower, FNM-13	13 \pm 4	12 \pm 5	13 \pm 5	25 \pm 5
37	Pole Tower, FNM-14	20 \pm 5	19 \pm 5	20 \pm 5	31 \pm 6
38	SE End of Shop on Fence	15 \pm 4	15 \pm 5	20 \pm 5	36 \pm 7
39	NMP-1 ME Gate	185 \pm 21	403 \pm 82	360 \pm 42	713 \pm 72
40	NE Gate, NMP-1	83 \pm 21	67 \pm 20	53 \pm 14	85 \pm 13

*TLD missing

(1) #19 was not collected at end of 4th quarter due to snow. Reading is for 4th quarter 76 - 1st quarter 77.

(2) #27 and #29 may have been interchanged for the fourth quarter.

TABLE 13
CONTINUOUS RADIATION MONITORS* (GM)
mr/hr
1st HALF

LOCATION	PERIOD	mR/hr		
		MIN.	MAX.	AVE.
C Off-Site	January	0.013	0.033	0.020
	February	0.014	0.029	0.020
	March	0.015	0.038	0.020
	April	0.011	0.042	0.023
	May	0.018	0.049	0.024
	June	0.017	0.034	0.026
D ₁ On-Site	January	0.010	0.060	0.035
	February	0.020	0.065	0.035
	March	0.010	0.065	0.035
	April	0.015	0.060	0.035
	May	0.017	0.050	0.035
	June	0.017	0.059	0.034
D ₂ On-Site	January	0.010	0.060	0.018
	February	0.010	0.030	0.016
	March	0.010	0.037	0.018
	April	0.010	0.072	0.018
	May	0.019	0.075	0.040
	June	0.018	0.074	0.040
E On-Site	January	0.010	0.033	0.018
	February	0.011	0.028	0.017
	March	0.013	0.038	0.018
	April	0.013	0.078	0.018
	May	0.012	0.033	0.016
	June	0.013	0.036	0.020
F On-Site	January	0.010	0.062	0.017
	February	0.010	0.052	0.018
	March	0.010	0.060	0.018
	April	0.012	0.035	0.020
	May	0.012	0.065	0.025
	June	0.013	0.071	0.030

*Detectors are 'bugged' to insure onscale readings.

TABLE 13 (Cont.)

CONTINUOUS RADIATION MONITORS
1st HALF

LOCATION	PERIOD	MIN.	mR/hr	
			MAX.	AVE.
G On-Site	January	0.018	0.058	0.035
	February	0.018	0.056	0.035
	March	0.020	0.052	0.035
	April	0.020	0.072	0.035
	May	0.018	0.066	0.040
	June	0.015	0.068	0.045
H On-Site	January	0.016	0.050	0.025
	February	0.018	0.042	0.025
	March	0.018	0.052	0.030
	April	0.019	0.048	0.030
	May	0.015	0.042	0.030
	June	0.018	0.041	0.026
I On-Site	January	0.010	0.030	0.014
	February	0.011	0.028	0.013
	March	0.012	0.030	0.016
	April	0.015	0.025	0.020
	May	0.013	0.044	0.025
	June	0.012	0.035	0.020
J On-Site	January	0.010	0.038	0.025
	February	0.016	0.050	0.023
	March	0.018	0.055	0.026
	April	0.015	0.042	0.023
	May	0.015	0.022	0.031
	June	0.013	0.036	0.027
K On-Site	January	0.010	0.025	0.015
	February	0.010	0.022	0.015
	March	0.010	0.030	0.015
	April	0.010	0.024	0.015
	May	0.010	0.024	0.015
	June	0.010	0.025	0.015

TABLE 13 (Cont.)

CONTINUOUS RADIATION MONITORS
2nd HALF

LOCATION	PERIOD	mR/hr		
		MIN.	MAX.	AVE.
C Off-Site	July	0.017	0.038	0.025
	August	0.018	0.038	0.022
	September	0.015	0.025	0.020
	October	0.015	0.035	0.020
	November	0.013	0.030	0.021
	December	0.012	0.026	0.020
D ₁ On-Site	July	0.015	0.032	0.020
	August	0.015	0.032	0.020
	September	0.013	0.026	0.020
	October	0.013	0.095	0.020
	November	0.010	0.035	0.020
	December	0.010	0.035	0.020
D ₂ On-Site	July	0.012	0.075	0.042
	August	0.013	0.074	0.035
	September	0.022	0.080	0.035
	October	0.010	0.041	0.020
	November	0.010	0.025	0.015
	December	0.010	0.025	0.016
E On-Site	July	0.014	0.033	0.021
	August	0.012	0.029	0.020
	September	0.010	0.030	0.025
	October	0.015	0.027	0.019
	November	0.013	0.026	0.018
	December	0.012	0.025	0.018
F On-Site	July	0.014	0.097	0.035
	August	0.015	0.097	0.035
	September	0.015	0.033	0.020
	October	0.012	0.031	0.020
	November	0.013	0.030	0.021
	December	0.012	0.041	0.019
G On-Site	July	0.013	0.071	0.043
	August	0.030	0.058	0.040
	September	0.030	0.052	0.040
	October	0.030	0.061	0.040
	November	0.030	0.053	0.040
	December	0.026	0.053	0.038

TABLE 13 (Cont.)
CONTINUOUS RADIATION MONITORS
2nd HALF

LOCATION	PERIOD	mR/hr		
		MIN.	MAX.	AVE.
H On-Site	July	0.020	0.042	0.030
	August	0.020	0.042	0.030
	September	0.020	0.042	0.030
	October	0.021	0.050	0.030
	November	0.019	0.051	0.030
	December	0.019	0.048	0.030
I On-Site	July	0.012	0.029	0.021
	August	0.010	0.019	0.015
	September	0.010	0.019	0.015
	October	0.010	0.023	0.016
	November	0.010	0.041	0.021
	December	0.010	0.020	0.014
J On-Site	July	0.013	0.018	0.015
	August	0.013	0.018	0.015
	September	0.013	0.018	0.015
	October	0.012	0.018	0.015
	November	0.011	0.018	0.013
	December	0.011	0.018	0.013
K On-Site	July	0.010	0.025	0.015
	August	0.010	0.025	0.015
	September	0.010	0.025	0.015
	October	0.012	0.041	0.023
	November	0.010	0.023	0.015
	December	0.010	0.022	0.015

TABLE 14

IODINE-131 IN MILK
pCi/l

Collection Date	Counting Date	Location			
		<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>
05/17/77	05/13/77	0.22 ± 0.16	0.13 ± 0.17	0.00 ± 0.15	0.00 ± 0.16
06/01/77	06/06/77	0.00 ± 0.10	0.00 ± 0.16	0.00 ± 0.12	0.00 ± 0.21
06/16/77	06/22/77	0.00 ± 0.08	0.00 ± 0.09	0.00 ± 0.10	0.06 ± 0.08
06/28/77	07/05/77	0.00 ± 0.08	0.22 ± 0.14	0.10 ± 0.10	0.01 ± 0.10
07/14/77	07/19/77	0.01 ± 0.06	0.01 ± 0.06	0.16 ± 0.08	0.12 ± 0.06
08/01/77	08/05/77	0.00 ± 0.07	0.00 ± 0.06	0.04 ± 0.07	0.02 ± 0.06
08/12/77	08/19/77	0.00 ± 0.13	0.15 ± 0.14	0.04 ± 0.08	0.22 ± 0.12
08/31/77	09/08/77	0.00 ± 0.10	0.00 ± 0.26	0.20 ± 0.12	0.10 ± 0.12
09/08/77	09/13/77	0.13 ± 0.08	0.01 ± 0.08	0.22 ± 0.08	0.21 ± 0.09
09/23/77	10/01/77	0.00 ± 0.08	0.21 ± 0.10	0.06 ± 0.08	0.06 ± 0.09
10/06/77	10/11/77	48.00 ± 1.00	49.00 ± 1.00	46.00 ± 1.00	33.00 ± 1.00
10/14/77	10/21/77	15.00 ± 1.00	10.00 ± 1.00	13.00 ± 1.00	34.00 ± 1.00
10/28/77	11/04/77	7.70 ± 0.20	3.00 ± 0.20	6.00 ± 0.30	11.70 ± 0.70
11/07/77	11/15/77	1.10 ± 0.10	5.00 ± 0.20	2.50 ± 0.10	0.76 ± 0.09
11/29/77(a)	12/07/77	0.00 ± 0.10	0.00 ± 0.10	0.11 ± 0.11	0.17 ± 0.16

(a) Extra Control Sample (Location #5) = 0.09 ± 0.12 pCi/l

TABLE 15

GAMMA ISOTOPIC AND STRONTIUM-90 ANALYSIS IN MONTHLY MILK COMPOSITES

Collection Site	Collection Date	pCi/l			
		K-40	Cs-137	Sr-90	Other Gamma*
#1	July	660± 130	<15.0	2.8± 1.3	<15
	August	910± 160	<15.0	2.7± 0.9	<15
	September	1000± 200	<15.0	2.0± 2.0	<15
	October	860± 150	<15.0	9.0± 2.0	<15
	November	670± 140	<15.0	7.0± 2.0	<15
#2	July	860± 150	20.0± 06.0	3.9± 1.9	<15
	August	780± 150	<15.0	6.5± 1.7	<15
	September	950± 160	<15.0	12.0± 5.0	<15
	October	600± 100	<15.0	8.0± 2.0	<15
	November	800± 150	13.0± 05.0	6.0± 2.0	<15
#3	July	510± 120	<15.0	2.0± 0.7	<15
	August	1200± 200	<15.0	3.4± 1.1	<15
	September	1000± 200	<15.0	7.0± 2.0	<15
	October	580± 130	<15.0	5.0± 3.0	<15
	November	860± 150	17.0± 05.0	5.0± 1.0	<15
#4	July	950± 160	19.0± 06.0	4.5± 2.0	<15
	August	950± 160	11.0± 04.0	3.6± 0.9	<15
	September	850± 150	<15.0	5.0± 1.0	<15
	October	1000± 200	18.0± 06.0	15.0± 2.0	<15
	November	870± 150	22.0± 06.0	11.0± 2.0	<15

*The spectrum is computer scanned from ~20 to ~2000 KeV. Specifically included are Ce-144, Ba-La-140, Cs-134, Cs-137, Zr-Nb-95, Co-58, Co-60, Mn-54, Zn-65. Naturally occurring gamma emitters such as K-40 and Ra daughters are frequently detected but not listed here. Data listed as "<" are at the 3σ level, others are 2σ. Unless otherwise noted, listed concentration is for Cs-137 and may be slightly more or less sensitive for other nuclides.

Table 16
SPRING MILCH ANIMAL CENSUS

<u>Town</u>	<u># On Map</u>	<u>No. Cows</u>
New Haven	20	32
	33	40
	21	51
	19	25
	22	35
	23	0
	25	40
Richland	27	0
	28	55*
	30	30
	29	51
Volney	31	0
	17	3
	32	25
Mexico	1	30
	5	0
	4	20
	3	48
	10	20
	18	0
	24	0**
	7	0
	26	35
	8	48
	11	39
	15	100
	35	60
	9	5
	34	0
	14	--
	12	30
	6	5
	13	19
Oswego	16	--
	36	25
	41	3
	40	3
	45	0

--Would Not Cooperate

*1 Milk Goat

**2 Milk Goats

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Table 16 Continued

MID-SEASON MILCH ANIMAL CENSUS

<u>Town</u>	<u># On Map</u>	<u>No. Cows</u>
New Haven	20	34
	33	40
	21	120
	19	26
	22	35
	23	0
	25	40
Richland	27	0
	28	55*
	30	30
	29	50
Volney	31	0
	17	3
	32	25
Mexico	1	30
	5	0
	4	20
	3	45
	10	19
	18	0
	24	0**
	7	0
	26	33
	8	45
	11	38
	15	0
	35	60
	9	10
	34	0
	12	30
	6	0
	13	25
Oswego	36	25
	41	3
	40	3
	45	0

*1 Milk Goat

**2 Milk Goats

100

TABLE 17

GAMMA ISOTOPIC ANALYSIS OF MEAT AND POULTRY

<u>Collection Site</u>	<u>Collection Date</u>	<u>Sample⁽¹⁾ Type</u>	<u>pCi/g (Wet)</u>		
			<u>I-131</u>	<u>Cs-137</u>	<u>Other Gamma*</u>
#12	07/29/77	poultry	<.05	<.13	<.26
#13	08/05/77	poultry	<.05	<.13	<.26
#17	08/05/77	beef	<.06	<.13	<.26
#17	08/05/77	pork	<.05	<.13	<.26
#18	08/12/77	poultry	<.05	<.13	<.26
#9	08/23/77	beef patties	<.10	<.13	<.26
#19	07/29/77	sirloin	<.10	<.13	<.26
#19	07/29/77	shaved steak	<.10	<.13	<.26
#2	11/28/77	beef	<.13	<.13	<.26
#2	11/18/77	beef	<.13	<.13	<.26
#4	12/12/77	pork	<.13	<.13	<.26
#13	11/11/77	poultry	<.18	<.13	<.26
#22	11/16/77	poultry	<.13	<.13	<.26
#23	11/18/77	poultry	<.11	<.13	<.26

(1) Edible Portions Only

*The spectrum is computer scanned from ~20 to ~2000 KeV. Specifically included are Ce-144, Ba-La-140, Cs-134, Cs-137, Zr-Nb-95, Co-58, Co-60, Mn-54, Zn-65. Naturally occurring gamma emitters such as K-40 and Ra daughters are frequently detected but not listed here. Data listed as "<" are at the 3 σ level.



TABLE 18

GAMMA ISOTOPIC ANALYSIS OF PRODUCE

<u>Collection Site</u>	<u>Collection Date</u>	<u>Sample Type</u>	<u>pCi/g (wet)</u>		
			<u>I-131</u>	<u>Cs-137</u>	<u>Other Gamma*</u>
#6	08/18/77	onions	<.08	<.08	<.08
#6	08/18/77	lettuce	<.08	<.08	<.08
#6	08/18/77	corn	<.08	<.08	<.08
#6	08/18/77	tomatoes	<.08	<.08	<.08
#6	08/18/77	cucumbers	<.08	<.08	<.08
#6	08/18/77	squash	<.08	<.08	<.08
#7	08/19/77	corn	<.08	<.08	<.08
#7	08/19/77	squash	<.08	<.08	<.08
#8	09/08/77	corn	<.08	<.08	<.08
#8	09/08/77	squash	<.08	<.08	<.08
#8	09/08/77	tomatoes	<.08	<.08	<.08
#8	09/08/77	peppers	<.08	<.08	<.08
#8	09/08/77	cucumbers	<.08	<.08	<.08
#2	09/08/77	cabbage	<.08	<.08	<.08
#2	09/08/77	squash	<.08	<.08	<.08
#2	09/08/77	tomatoes	<.08	<.08	<.08
#2	09/08/77	cucumbers	<.08	<.08	<.08
#2	09/08/77	corn	<.08	<.08	<.08
#3	09/08/77	apples	<.08	<.08	<.08
#9	09/08/77	pears	<.08	<.08	<.08
#10	09/20/77	apples	<.08	<.08	<.08
#11	09/15/77	apples	<.08	<.08	<.08

GAMMA ISOTOPIC ANALYSIS OF CHICKEN EGGS

<u>Collection Site</u>	<u>Collection Date</u>	<u>pCi/g</u>	
		<u>Cs-137</u>	<u>Gamma Emitters*</u>
#12	07/29/77	<0.13	<0.26
#13	08/16/77	<0.13	<0.26
#14	08/16/77	<0.13	<0.26
#15	11/11/77	<0.13	<0.26
#13	11/11/77	<0.13	<0.26
#16	11/16/77	<0.13	<0.26

*The spectrum is computer scanned from ~20 to ~2000 KeV. Specifically included are Ce-144, Ba-La-140, Cs-134, Cs-137, Zr-Nb-95, Co-58, Co-60, Mn-54, Zn-65. Naturally occurring gamma emitters such as K-40 and Ra daughters are frequently detected but not listed here. Data listed as "<" are at the 3 σ level.

TABLE 19
Sr-90 AND GAMMA ISOTOPIC ANALYSIS
OF SOIL SAMPLES

<u>Collection Site</u>	<u>Collection Date</u>	<u>Sr-90</u>	<u>pCi/g (dry)</u>	
			<u>Cs-137</u>	<u>Other Gamma*</u>
Alternate to D2 ON SITE	11/15/77		1.7 ± 0.3	<0.15
NMPC sta. G ON SITE	11/15/77		2.0 ± 0.3	<0.15
NMPC sta. F ON SITE	11/15/77		0.3 ± 0.1	<0.15
NMPC sta. E ON SITE	11/15/77		0.7 ± 0.2	<0.15
NMPC sta. K ON SITE	11/15/77		0.3 ± 0.1	<0.15
NMPC sta. J ON SITE	11/15/77		0.9 ± 0.2	<0.15
alternate to D1 ON SITE	11/15/77		1.7 ± 0.3	<0.15
NMPC sta. H ON SITE	11/15/77		0.9 ± 0.1	<0.15
NMPC sta. I ON SITE	11/15/77		0.8 ± 0.2	<0.15
NMPC sta. G OFF SITE	11/16/77		2.0 ± 0.4	<0.15
NMPC sta. F OFF SITE	11/16/77		1.3 ± 0.3	<0.15
NMPC sta. E OFF SITE	11/16/77		0.8 ± 0.2	<0.15
NMPC sta. D2 OFF SITE	11/16/77		1.3 ± 0.3	<0.15
NMPC sta. D1 OFF SITE	11/16/77		0.9 ± 0.2	<0.15
NMPC Sta. C OFF SITE	11/16/77		0.7 ± 0.2	<0.15

*The spectrum is computer scanned from ~20 to ~2000 KeV. Specifically included are Ce-144, Ba-La-134, Cs-134, Cs-137, Zr-Nb-95, Co-58, Co-60, Mn-54, Zn-65. Naturally occurring gamma emitters such as K-40 and Ra daughters are frequently detected but not listed here.

