

NIAGARA MOHAWK POWER CORPORATION

ANNUAL ENVIRONMENTAL OPERATING REPORT

January 1, 1978 - December 31, 1978

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. EVALUATION OF ENVIRONMENTAL DATA	1
A. Lake Program	1
1) Periphyton	2
2) Bottom Sediments	2
3) Mollusks	2
4) Gammarus	3
5) Fish	4
6) Lake Water	5
B. Land Program	6
1) Air Particulates	6
2) Air Particulate Composites	6
3) Airborne I-131	7
4) Environmental TLD's	8
5) Radiation Monitors	10
6) Milk	10
7) Milch Animal Census	10
8) Other Land Samples	10
IV. ENVIRONMENTAL SAMPLE SUMMARY	11



## LIST OF TABLES

		<u>Page</u>
Table 1	Required Sample Collection and Analysis (Lake Program)	19
Table 2	Required Sample Collection and Analysis (Land Program)	20
Table 3	Periphyton Results	21
Table 4	Bottom Sediments	22
Table 5	Mollusk Results	23
Table 6	Gammarus Results	24
Table 7	Fish Results	25
Table 8	Water Composites Results - Gross Beta, H-3, Sr-89, Sr-90	26
Table 9	Water Composites Results - Gamma Isotopic	27
Tables 10, 11	Particulate Filter Results - Gross Beta	28
Table 12	Particulate Composite Results - Gamma Isotopic	32
Table 13, 14	Airborne I-131 Results	34
Table 15	TLD Results	38
Table 16	Radiation Monitor Readings	39
Table 17	Milk Results - I-131	43
Table 18	Milk Results - Gamma Isotopic, Sr-90	44
Table 19	Milch Animal Census Results	45
Table 20	Food Product Results	47

## LIST OF FIGURES

Figure 1	Off-Site Environmental Station and TLD Locations	49
Figure 2	On-Site Environmental Station and TLD Locations	50
Figure 3	Milk, Meat, Poultry, Eggs Sample Locations	51
Figure 4	Milch Animal Census Locations	52



## Nine Mile Point Unit I

### 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 NMP-1 is listed in Tables 1 and 2.

The sampling locations are shown in Figures 1 through 3.

#### III. EVALUATION OF ENVIRONMENTAL DATA

##### A. Lake Program

Tables 3 through 9 list the results of radiological analysis of aquatic media at 3 sampling locations: JAF (03), NMPP (02), and in the vicinity of Oswego Harbor (Off-Site 00). It should be noted that when availability of media dictated, other locations were sampled. These alternate locations usually are NMPW (01) or NMPE (04).

##### 1) Periphyton - Table 3

Analysis of periphyton samples shows that some nuclides found were greater than 2 x control values (Off-Site 00).

<u>Date</u>	<u>Transect</u>	<u>Nuclide</u>	<u>Concentration - pCi/g (wet)</u>	
			<u>Control</u>	<u>On-Site</u>
6/27-6/28	NMPP 02	Co-60	<0.01	0.03
8/23	NMPP 02	Co-60	0.013	0.10
8/23	JAF 03	Co-60	0.013	0.03
8/23	NMPP 02	Nb-95	<0.004	0.028
8/23	JAF 03	Nb-95	<0.004	0.034





### III. EVALUATION OF ENVIRONMENTAL DATA (Continued)

#### A. Lake Program (Continued)

##### 1) Periphyton - Table 3 (Continued)

The sample volumes from transects 00, 02, 03 on both collections varied from 1 to 4 1/2 kilograms per sample. The sample collected on NMPW 01 (6/27 - 6/28) was only 45 grams, therefore the results reported in Table 3 for this sample are questionable and do not allow for a meaningful comparison with the other data.

##### 2) Bottom Sediments - Table 4

Analysis of bottom sediments indicated that Cs-137 is the major contributing nuclide occurring in this medium. Assuming the Off-Site 00 transect as control the following nuclides may be of possible significance. (i.e., > 2 x control)

<u>Date</u>	<u>Transect</u>	<u>Nuclide</u>	<u>Concentration p Ci/g (dry)</u>	
			<u>Control</u>	<u>On-Site</u>
6/29	JAF 03	Co-60	<0.06	1.5
6/27	NMPP 02	Co-60	<0.06	0.36
10/2	NMPP 02	Co-60	<0.07	0.55
10/2	NMPW 01	Co-60	<0.07	0.18
6/29	JAF 03	Cs-134	<0.05	0.30
6/29	JAF 03	Cs-137	0.71	2.10

##### 3) Mollusks - Table 5

Sampling efforts for mollusks in the vicinity of Nine Mile Point were not very successful during the first collection. The bottom configuration is bed-rock with little sediment of sufficient depth to sustain a mollusk population. For this reason only the NMPW 01 and the Off-Site 00 resulted in sufficient quantities for any type of meaningful analysis (6/27-6/30). Sufficient quantities were obtained on the off site and 2 on site transects in the 10/2 collection. During both collections no mollusks were found on the JAF 03 transect.



### III. EVALUATION OF ENVIRONMENTAL DATA (Continued)

#### A. Lake Program (Continued)

##### 3) Mollusks - Table 5 (Continued)

Assuming the Off-Site 00 transect as control, the following are greater than 2 x control:

<u>Date</u>	<u>Transect</u>	<u>Nuclide</u>	<u>Concentration pCi/g (wet)</u>	
			<u>Control</u>	<u>On-Site</u>
6/27-6/29	NMPW 01	Co-60	<0.02	0.06
10/2	NMPW 01	Sr-89	0.02	0.07
10/2	NMPP 02	Mn-54	<0.02	1.10
10/2	NMPP 02	Co-60	<0.02	0.22

##### 4) Gammarus - Table 6

The first collection for gammarus yielded volumes of 8.5, 12.3, and 38.0 grams. These volumes are not sufficient for a meaningful analysis. The second collection yielded marginally sufficient volumes on the JAF 03 and Off-Site 00 transects, 248.1 g and 477.9 g respectively. The NMPP 02 transect yielded only 63.5 g.

Several attempts were made on each collection using a variety of sampling methods to obtain adequate volumes. Even extracting gammarus by hand from cladophora collected along the shoreline was tried.

For the above reason, only those analyses of samples of adequate volumes are presented below. With the 00 transect representing control, the following samples may be of possible significance (i.e., 2 x control).

<u>Date</u>	<u>Transect</u>	<u>Nuclide</u>	<u>Concentration pCi/g (wet)</u>	
			<u>Control</u>	<u>On-Site</u>
8/10-8/17	JAF 03	Ce-144	0.03	0.08



### III. EVALUATION OF ENVIRONMENTAL DATA (Continued)

#### A. Lake Program (Continued)

##### 5) Fish - Table 7

As the same species were not collected on each transect in the same collection, the control for this medium is the average concentration (by nuclide) for all species in the off site sample. Less than (<) values in the off site samples are considered in computing a control number.

The following were found to be greater than 2 x control:

<u>Date</u>	<u>Transect</u>	<u>Species</u>	<u>Nuclide</u>	<u>Concentration pCi/g (wet)</u>	
				<u>Control</u>	<u>On-Site</u>
5/18	JAF 03	White Perch	Sr-90	0.008	0.018
5/18	NMPP 02	White Perch	Sr-90	0.008	0.021
10/4 -					
10/5	JAF 03	Yellow Perch	Sr-90	0.007	0.025
10/4 -					
10/5	NMPP 02	Small Bass	Sr-90	0.007	0.016
10/4 -					
10/5	NMPP 02	Yellow Perch	Sr-90	0.007	0.015

##### 6) Lake Water (Monthly Composites) - Tables 8 and 9

The gross beta, H-3, Sr-89, and Sr-90 data are presented in Table 8. Gamma isotopic results are presented in Table 9.

Only one inlet sample (gross beta) during 1978 was found to be greater than 2 x control. The September Nine Mile Point inlet indicated 1.2 pCi/l in comparison to 0.5 pCi/l in the control sample (raw city water in vicinity of 00 transect). It should be noted that such a low detectable concentration resulted in a 100% analytical error ( $0.5 \pm 0.5$  pCi/l).



### III. EVALUATION OF ENVIRONMENTAL DATA (Continued)

#### A. Lake Program (Continued)

##### 6) Lake Water (Monthly Composites) - Tables 8 and 9 (Cont.)

The following composites showed concentrations of various nuclides which may be greater than 2 x control (raw city water):

<u>Month</u>	<u>Sample</u>	<u>Nuclide</u>	<u>Concentration pCi/l</u>		<u>MPC*</u>
			<u>Control</u>	<u>Canal</u>	
Feb.	JAF Inlet	Co-58	0.0 + 7.5	3.9 + 7.7	90,000
Mar.	NMP Inlet	Mn-54	0.0 + 11.2	9.0 + 11.7	100,000
Mar.	JAF Inlet	Mn-54	0.0 + 11.2	4.1 + 11.4	100,000
Apr.	NMP Inlet	Co-60	0.0 + 17.1	17.2 + 17.9	30,000
Apr.	JAF Inlet	Co-60	0.0 + 17.1	17.0 + 17.9	30,000
May	NMP Inlet	Co-60	0.0 + 17.5	4.0 + 18.1	30,000
May	JAF Inlet	Co-60	0.0 + 17.5	33.0 + 18.7	30,000

Fluctuating backgrounds in in-plant counting equipment often resulted in background concentrations larger than gross sample concentrations. The net sample concentrations were reported as 0.0 + accumulative errors (background error + sample error). These 0.0 concentrations resulted in the above inlet canal concentrations being greater than 2 times control. However, the large error associated with the determinations could also lead to the conclusion that no activity is determined present in the canal samples, due to the overlap of error terms.

For this reason all samples after June 1978 were being sent to a contractor for analysis so that lower background variations and therefore lower statistical counting error would result.

The following nuclides were detected in inlet canal samples but do not show up in Table 9. They were excluded from this table because they were only detected once during 1978.

<u>Month</u>	<u>Nuclide</u>	<u>NMP Inlet</u>	<u>Concentration pCi/l</u>		<u>MPC*</u>
			<u>JAF Inlet</u>	<u>Raw City Water</u>	
Mar.	Zn-65	<17.3	19.5 + 5.5	<15.3	100,000
Apr.	I-133	3.4 + 2.4	<5.2	<5.1	1,000

\*Maximum Permissible Concentration - 10CFR20, Table II, Column 2 - is given for comparison





### III.

#### EVALUATION OF ENVIRONMENTAL DATA (Continued)

##### B. Land Program

The results of sample analysis for the 1978 reporting period are included in Tables 10 through 20.

##### 1) Air Particulates - Tables 10 and 11

Tables 10 and 11 give the air particulate gross beta results for the 6 off-site and 9 on-site stations respectively.

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

	<u>Off-Sites</u>	<u>On-Sites</u>
1st Qtr.	0.11	0.10
2nd Qtr.	0.27	0.16
3rd Qtr.	0.18	0.13
4th Qtr.	0.06	0.04

Using the weekly off-site average as control the following may be of possible significance:

<u>Date</u>	<u>Station</u>	<u>Concentration pCi/m<sup>3</sup></u>	
		<u>Control</u>	<u>On-Site</u>
10/23	D <sub>2</sub> On-Site	0.04	0.09
10/23	F On-Site	0.04	0.10
10/23	G On-Site	0.04	0.11

##### 2) Monthly Particulate Composites - Table 12

Monthly Particulate Composites were sent to a contractor for analysis after June 1978. This was due to fluctuating backgrounds in in-plant counting equipment.



### III. EVALUATION OF ENVIRONMENTAL DATA (Continued)

#### B. Land Program (Continued)

##### 2) Monthly Particulate Composites - Table 12 (Continued)

Using the off-site concentration on a nuclide basis as control, the following was found to be of possible significance (i.e.,  $> 2 \times$  control).

<u>Month</u>	<u>Nuclide</u>	<u>Concentration pCi/m<sup>3</sup></u>	
		<u>Control</u>	<u>On-Site</u>
Feb.	Co-60	5.60E-03	1.53E-02

The March results show I-131 in both the on-site and off-site composites. The concentrations were 2.50E-03 and 4.60E-03 pCi/m<sup>3</sup> respectively. MDL's on other composites ranged from 9.28E-05 to 2.51E-04. These I-131 concentrations can be attributed to the nuclear test conducted by the Peoples Republic of China on 3/14/78.

Two nuclides were identified in the December composite but were not included in the 2nd half of Table 12. The nuclides were Ce-141 and Ru-103 with concentrations of  $2.8 \pm 1.9\text{E-}04$  and  $4.5 \pm 2.4\text{E-}04$  pCi/m<sup>3</sup> respectively.

##### 3) Airborne I-131 - Tables 13 and 14

The results of the I-131 (charcoal cartridge) analysis for the 6 off-site and 9 on-site stations are presented in Tables 13 and 14 respectively.

The quarterly average I-131 concentrations (pCi/m<sup>3</sup>) are as follows:

	<u>Off-Sites</u>	<u>On-Sites</u>
1st Qtr.	<0.05	<0.04
2nd Qtr.	<0.03	<0.03
3rd Qtr.	<0.04	<0.03
4th Qtr.	<0.03	<0.03



### III. EVALUATION OF ENVIRONMENTAL DATA (Continued)

#### B. Land Program (Continued)

##### 3) Airborne I-131 - Tables 13 and 14 (Continued)

The March 27-28 results indicated detectable I-131 concentrations at several stations both on-site and off-site. The widespread occurrence, also evident in the monthly particulate composite results, lend support to the claim that these concentrations are due to the Chinese nuclear test and not plant operation.

The 9/25 sample for I On-Site also showed an I-131 concentration of  $0.02 \pm 0.004$  pCi/m<sup>3</sup>. This sample was recounted for confirmation on 9/29 with a resultant concentration of  $0.01 \pm 0.004$  pCi/m<sup>3</sup>. A third count on 9/29 showed only an MDL of 0.02 pCi/m<sup>3</sup>. This concentration is attributed to outage activities at J.A. FitzPatrick Plant.

The 6/27 sample for H On-Site also showed an I-131 concentration of  $0.07 \pm 0.01$  pCi/m<sup>3</sup>. This was attributed to a reactor scram at J.A. FitzPatrick Plant.

#### Dose Calculations

Calculations based on the above concentrations, using the NRC Staff assumptions of Regulatory Guide 1.109, indicated the following annual thyroid doses

H On-Site 6/27 - 0.07 pCi/m<sup>3</sup>.

I On-Site 9/25 - 0.02 pCi/m<sup>3</sup>.

	<u>Adult</u>	<u>Teenager</u>	<u>Child</u>	<u>Infant</u>
m <sup>3</sup> /yr inhaled	8000	8000	3700	1400
Dose (mrem) H on	0.83	1.02	1.14	1.04
Dose (mrem) I on	0.24	0.29	0.32	0.30

(Any of the above individuals would have to have lived at that location for one year breathing air of these concentrations to receive the above doses).

##### 4) TLD's - Table 15

TLD results for the 1st and 2nd quarters are reported as an average of 5 individual LiF chips. The 3rd and 4th quarter TLD's are Ca(SO<sub>4</sub>)(Tm). Each reported value is the average of 4 independent readings (2 readings/TLD - 2 TLD's/location). This is due to a contractor change starting in April 1978.



### III.

#### EVALUATION OF ENVIRONMENTAL DATA (Continued)

##### B. Land Program (Continued)

##### 4) TLD's - Table 15 (Continued)

The TLD's are broken down into 3 groups for reporting purposes. The groups are on-sites, off-sites, and site boundary (see sample summary). The net dose at the site boundary (site boundary average - off-site average) for each quarter were 1, 1, 0, 0, respectively (mRem). The total site boundary dose (mRem) for 1978 was 2.

Badges 31, 32, 39, and 40 are located within the NMP-1 fenced area near the Radwaste Building and are being influenced by waste trucks being loaded in the building or parked nearby. Badges 27 through 30 are located within the JAF restricted area and are being affected by waste trucks being loaded in or parked near the JAF Radwaste Building.

Using the off-site average for each quarter as control, the following TLD results (mRem/Quarter) may be of possible significance (i.e., > 25% above control).

<u>TLD #</u>	<u>1st Qtr.</u>	<u>2nd Qtr.</u>	<u>3rd Qtr.</u>	<u>4th Qtr.</u>
Control	10	11	10	12
16	14			
19	13			
3		27	23	21
4	14			
5	13			
17	13		13	
20	25			
23	14	16	15	
27	146	157	55	51
28		37	131	201
29	36	52	84	96
30	61	60	32	107
31	38	50	40	37
32	26	35	25	25
33	24	28	24	25
34	16	16	14	16
36	13			
37	15	17	14	17
38	19	22	17	18
39	516	387	345	371
40	52	127	62	44





### III.

#### EVALUATION OF ENVIRONMENTAL DATA (Continued)

##### B. Land Program (Continued)

###### 5) Radiation Monitors - Table 16

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.

###### 6) Milk - Tables 17 and 18

Tables 17 and 18 show the milk sample results for I-131 and gamma isotopic Sr-90 respectively.

There were two more Chinese tests during 1978. The first was in mid-March and the second in mid-December. Milk samples were not collected during the time that initial fallout would be occurring. This is due to the fact that cattle are not on pasture at these times but on supplemental feed and milk is not sampled. In order for I-131 to show in local milk samples, the cattle would have to be on pasture. By the time cattle were on pasture any I-131 in fallout had decayed away. This is not true of Cs-137 concentrations.

The concentrations of Cs-137 varied during the course of the grazing season. This is due primarily to local weather patterns and the corresponding precipitation trends. The concentrations of Cs-137 is a function of the amount of precipitation induced fallout. This trend is about the same as that seen during the 1977 sampling program.

###### 7) Milch Animal Census - Table 19 and Figure 5

###### 8) Food Products - Table 20

The result of analysis of meat, poultry, eggs, and food crops is shown in Table 20. Human Food Crop analysis for I-131 resulted in Minimum Detectable Activity ranging from <3 to <10 pCi/kg (wet). All analyses were performed within one half-life.



# 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>
Water		pCi/l				
Monthly Composite	NMP Inlet	Co-60	16.0	< 8.1	<1.2	<2.3
		Fe-59	<14.6	<13.9	<2.2	<2.7
		Mn-54	< 7.0	< 1.0	<1.1	<1.0
		Co-58	< 1.3	< 7.5	<1.1	<1.0
		Nb-95	< 6.3	< 6.3	<1.1	<1.0
		Zr-95	<11.5	<10.5	<1.6	<1.7
		Cs-137	< 4.6	< 7.5	<1.2	<1.3
		Cs-134	< 6.4	< 5.7	<1.5	<1.3
		Cr-51	<43.7	<41.0	<7.7	<7.3
		Ce-141	< 7.6	< 6.4	<1.5	<1.0
		Ba-La-140	<21.8	<22.4	<1.6	<2.0
		Gross Beta	< 7.5	3.6	2.5	<2.0
	JAF Inlet	Co-60	11.2	<17.7	<1.5	<1.3
		Fe-59	<12.7	<13.6	<1.9	<2.7
		Mn-54	1.4	< 3.8	<0.8	<1.0
		Co-58	< 1.3	< 9.4	<0.8	<1.0
		Nb-95	< 6.4	< 6.2	<1.1	<1.0
		Zr-95	<10.8	<10.9	<1.5	<1.7
		Cs-137	< 7.4	< 7.1	<1.2	<2.0
		Cs-134	< 5.8	< 6.0	<1.5	<3.0
		Cr-51	<42.1	<43.8	<7.0	<9.7
		Ce-141	< 6.3	< 6.5	<1.5	<1.7
		Ba-La-140	<21.5	<21.8	<1.6	<2.0
		Gross Beta	< 8.4	7.5	2.1	3.1



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>
Water (Cont.)		pCi/l				
Monthly	Raw City					
Composite	Water					
		Co-60	14.5	< 1.1	<1.5	<2.0
		Fe-59	<16.9	<13.7	<2.2	<2.7
		Mn-54	0.0	< 4.6	<0.8	<1.3
		Co-58	< 2.6	< 6.7	<0.8	<1.0
		Nb-95	< 6.9	< 6.3	<1.1	<1.0
		Zr-95	<11.1	<11.7	<1.5	<2.0
		Cs-137	< 8.2	< 7.1	<1.1	<1.3
		Cs-134	< 7.0	< 5.9	<1.4	<1.3
		Cr-51	<45.0	<42.5	<7.7	<8.7
		Ce-141	< 7.1	< 6.5	<1.1	<1.7
		Ba-La-140	<23.7	<22.2	<1.9	<2.0
		Gross Beta	< 6.5	4.4	2.3	2.8



# 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>		pCi/m <sup>3</sup>				
Particulate Filters	On-Sites	Gross Beta				
	D <sub>1</sub>		0.11.	0.18	0.14	0.03
	D <sub>2</sub>		0.10	0.16	0.13	0.04
	E		0.10	0.17	0.08	0.03
	F		0.11	0.18	0.14	0.05
	G		0.10	0.16	0.14	0.05
	H		0.07	0.15	0.12	0.02
	I		0.06	0.12	0.11	0.03
	J		0.07	0.12	0.09	0.02
	K		0.04	0.10	0.10	0.02
	Off-Sites					
	C		0.11	0.27	0.16	0.05
	D <sub>1</sub>		0.10	0.23	0.16	0.05
	D <sub>2</sub>		0.09	0.26	0.18	0.05
	E		0.11	0.26	0.17	0.06
	F		0.10	0.25	0.21	0.05
	G		0.09	0.25	0.14	0.04





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>		pCi/m <sup>3</sup>				
Part.	On-Site	Co-60	5.9E-03	9.0E-04	6.1E-04	8.6E-04
		Fe-59	<4.0E-04	<3.6E-04	<<3.0E-04	<3.0E-04
		Mn-54	1.3E-03	4.0E-04	<2.6E-04	4.4E-04
		Co-58	<3.9E-04	<3.4E-05	<1.3E-04	<1.4E-04
		Nb-95	2.3E-03	2.2E-03	<2.1E-04	<1.0E-04
		Zr-95	1.0E-03	9.4E-04	<2.0E-04	<2.0E-04
		Cs-137	1.6E-03	2.8E-03	<1.7E-03	3.6E-04
		Cs-134	<1.8E-03	<1.8E-04	<1.7E-04	<1.6E-04
		Cr-51	<1.3E-03	<1.4E-03	<9.3E-04	<8.0E-04
		Ce-141	<3.7E-04	<5.9E-04	<1.0E-04	<1.6E-04
		Ba-La-140	<1.9E-03	<1.0E-03	<2.0E-04	<1.6E-04
		I-131	<9.3E-04	<1.1E-04	<1.0E-04	<1.6E-04
		Ce-144	ND	ND	8.8E-03	1.6E-03
		Be-7	ND	ND	2.4E-02	2.7E-02
		Ru-106	ND	ND	<4.3E-03	<1.0E-03
		Sb-125	ND	ND	8.2E-04	<3.7E-04

ND = Not Detected/No MDL



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>		pCi/m <sup>3</sup>				
Part.	Off-Site	Co-60	3.5E-03	6.8E-04	<1.0E-03	1.0E-03
Composite		Fe-59	<5.7E-04	<2.8E-04	<4.3E-04	<4.3E-04
		Mn-54	1.5E-03	7.2E-04	<4.0E-04	<4.7E-04
		Co-58	<7.3E-03	<1.5E-04	<2.7E-04	<1.7E-04
		Nb-95	2.9E-03	1.9E-03	<3.7E-04	<2.7E-04
		Zr-95	1.4E-03	7.3E-04	<6.0E-04	<4.3E-04
		Cs-137	1.2E-03	2.6E-04	2.5E-03	1.1E-03
		Cs-134	<2.7E-04	<2.0E-04	<3.3E-04	<3.0E-04
		Cr-51	<2.1E-03	<6.2E-04	<2.3E-03	<2.0E-03
		Ce-141	<6.5E-04	<4.7E-04	<3.7E-04	<3.7E-04
		BaLa-140	<3.2E-03	6.7E-04	<4.3E-04	<4.7E-04
		I-131	<1.7E-03	<1.9E-04	<2.3E-04	<2.0E-04
		Ce-144	ND	ND	2.9E-03	4.1E-03
		Be-7	ND	ND	3.2E-02	7.0E-02
		Ru-106	ND	ND	<5.1E-03	<3.0E-03
		Sb-125	ND	ND	<1.2E-03	<8.3E-04

ND = Not Detected/No MDL



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>						
Char. Cart.	On-Sites	I-131 pCi/m <sup>3</sup>				
	D <sub>1</sub>		<0.04	<0.03	<0.04	<0.04
	D <sub>2</sub>		<0.05	<0.04	<0.04	<0.04
	E		<0.05	<0.03	<0.04	<0.03
	F		<0.05	<0.03	<0.04	<0.03
	G		<0.05	<0.04	<0.04	<0.03
	H		<0.05	<0.02	<0.03	<0.02
	I		<0.03	<0.02	<0.02	<0.01
	J		<0.03	<0.02	<0.02	<0.02
	K		<0.03	<0.02	<0.02	<0.01
	Off-Sites					
	C		<0.04	<0.03	<0.04	<0.03
	D <sub>1</sub>		<0.06	<0.04	<0.04	<0.03
	D <sub>2</sub>		<0.04	<0.03	<0.04	<0.03
	E		<0.03	<0.03	<0.04	<0.03
	F		<0.06	<0.04	<0.05	<0.03
	G		<0.05	<0.03	<0.04	<0.04



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>Direct Radiation</u>						
Continuous Monitors (GM)	On-Sites	mrem/qtr				
	D <sub>1</sub>		51.8	72.1	55.2	77.3
	D <sub>2</sub>		47.5	56.8	50.8	37.5
	E		36.7	45.9	44.2	44.2
	F		36.7	32.8	35.3	33.1
	G		84.2	96.1	94.9	72.9
	H		49.7	59.0	61.9	59.6
	I		30.2	34.9	35.3	37.5
	J		30.2	41.5	44.2	48.6
	K		36.7	39.3	39.7	39.7
	Off-Site					
	C		67.0	80.8	57.4	48.6
TLDs	Off-Site	mrem/qtr	10	11	10	12
	Site Boundary	mrem/qtr	11	12	10	12
	On-Site	mrem/qtr	48	50	41	49





# ENVIRONMENTAL SAMPLE SUMMARY

<u>Medium/Sample</u>	<u>Location</u>	<u>Map #*</u>	<u>Nuclide</u> pCi/l	<u>1st Quarter</u>	<u>2nd Quarter</u>	<u>3rd Quarter</u>	<u>4th Quarter</u>
Ingestion	1	16	I-131	NS	<0.2	<0.2	<0.2
			K-40		960.0	1500.0	1500.0
			Cs-137		10.0	17.9	5.9
			Sr-90		6.3	7.1	5.5
	2	4	I-131	NS	<0.1	<0.2	<0.2
			K-40		800.0	1470.0	1470.0
			Cs-137		5.5	9.0	5.5
			Sr-90		5.0	5.3	5.1
	3	14	I-131	NS	<0.2	<0.2	<0.2
			K-40		1700.0	1340.0	1430.0
			Cs-137		3.9	7.6	4.4
			Sr-90		4.5	5.8	3.5
	4	25	I-131	NS	<0.2	<0.2	<0.2
			K-40		950.0	1500.0	1630.0
			Cs-137		12.0	14.3	17.7
			Sr-90		10.0	7.1	7.3
	5	13	I-131	NS	<0.2	<0.2	<0.2
			K-40		1200.0	1230.0	1360.0
			Cs-137		7.8	7.0	4.0
			Sr-90		7.6	6.9	4.3

NS = Not Samples (not in grazing season)

\*Figure 4



TABLE 1

SAMPLE COLLECTION AND ANALYSISSITE RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAMA. LAKE PROGRAM<sup>(1)</sup>

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

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 spring and fall when available.



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, <sup>90</sup> 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 <sup>131</sup>	GSA	W	At least 10	9 onsite 6 offsite
6. Milk	I GSA, <sup>90</sup> Sr	M M Comp.	4(7)	(8)
7. Human Food Crops	GSA, <sup>131</sup> 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



TABLE 3  
CONCENTRATIONS OF GAMMA EMITTERS IN PERIPHYTON SAMPLES

Results in Units of pCi/g(wet)  $\pm$  2 sigma

COLLECTION SITE	NUCLIDES FOUND	6-27-78 to 6-28-78	8-23-78
Off-Site 00	Be-7	0.09 $\pm$ 0.07	0.35 $\pm$ 0.06
	K-40	1.7 $\pm$ 0.3	2.2 $\pm$ 0.2
	Mn-54	<0.007	0.011 $\pm$ 0.007
	Co-60	<0.01	0.013 $\pm$ 0.005
	Zr-95	<0.02	0.012 $\pm$ 0.009
	Nb-95	0.019 $\pm$ 0.009	<0.004
	Ru-106	<0.07	0.09 $\pm$ 0.05
	Cs-137	0.023 $\pm$ 0.009	0.063 $\pm$ 0.009
	Ce-144	0.10 $\pm$ 0.06	0.13 $\pm$ 0.05
	Ra-226	<0.02	0.071 $\pm$ 0.009
	Th-232	<0.03	0.04 $\pm$ 0.03
JAF 03	Be-7	0.07 $\pm$ 0.04	0.33 $\pm$ 0.05
	K-40	1.1 $\pm$ 0.2	2.7 $\pm$ 0.3
	Mn-54	<0.006	0.008 $\pm$ 0.005
	Co-60	<0.005	0.030 $\pm$ 0.006
	Zr-95	0.019 $\pm$ 0.009	0.014 $\pm$ 0.005
	Nb-95	0.017 $\pm$ 0.007	0.034 $\pm$ 0.008
	Ru-106	<0.04	0.06 $\pm$ 0.04
	Cs-137	<0.006	0.072 $\pm$ 0.007
	Ce-144	0.09 $\pm$ 0.03	0.12 $\pm$ 0.02
	Ra-226	<0.009	0.024 $\pm$ 0.007
NMPP 02	Be-7	0.3 $\pm$ 0.1	0.59 $\pm$ 0.06
	K-40	1.2 $\pm$ 0.3	2.1 $\pm$ 0.2
	Co-60	0.03 $\pm$ 0.01	0.10 $\pm$ 0.01
	Zr-95	0.03 $\pm$ 0.02	0.010 $\pm$ 0.008
	Nb-95	0.04 $\pm$ 0.02	0.028 $\pm$ 0.008
	Ru-106	<0.1	0.09 $\pm$ 0.05
	Cs-134	<0.01	0.011 $\pm$ 0.005
	Cs-137	0.05 $\pm$ 0.02	0.12 $\pm$ 0.01
	Ce-144	<0.07	0.11 $\pm$ 0.03
	Ra-226	<0.03	0.042 $\pm$ 0.008
	Th-232	<0.05	0.03 $\pm$ 0.02
NMPW 01	Be-7	1.8 $\pm$ 0.4	
	K-40	1.0 $\pm$ 0.6	
	Nb-95	0.09 $\pm$ 0.04	
	Ru-103	0.04 $\pm$ 0.04	
	Cs-137	0.19 $\pm$ 0.05	
	Ce-144	1.1 $\pm$ 0.3	

\* No Sample Required.





TABLE 4

## CONCENTRATIONS OF Sr-89 AND GAMMA EMITTERS IN SEDIMENT SAMPLES

Results in Units of pCi/g(dry)  $\pm$  2 sigma

COLLECTION SITE	COLLECTION DATE	Sr-90	K-40	Co-60	Ru-103	GAMMA EMITTERS		Cs-137	BaLa-140	Ra-226	Th-232
						Sb-125	Cs-134				
Off-site 00	6-27-78	0.061 $\pm$ 0.008	11 $\pm$ 1	<0.06	<0.03	0.1 $\pm$ 0.1	<0.05	0.71 $\pm$ 0.09	<0.05	1.0 $\pm$ 0.1	0.9 $\pm$ 0.2
	10-02-78	0.04 $\pm$ 0.01	13 $\pm$ 2	<0.07	<0.03	<0.1	<0.05	0.50 $\pm$ 0.08	<0.06	0.94 $\pm$ 0.09	0.8 $\pm$ 0.2
JAF 03	6-29-78	0.015 $\pm$ 0.005	15 $\pm$ 2	1.5 $\pm$ 0.2	0.04 $\pm$ 0.04	<0.1	0.30 $\pm$ 0.07	2.1 $\pm$ 0.2	<0.08	0.3 $\pm$ 0.8	0.4 $\pm$ 0.2
NMPP 02	6-27-78	<0.02	14 $\pm$ 1	0.36 $\pm$ 0.06	<0.03	<0.1	<0.06	0.63 $\pm$ 0.09	0.09 $\pm$ 0.09	0.5 $\pm$ 0.2	0.7 $\pm$ 0.2
	10-02-78	<0.02	14 $\pm$ 2	0.55 $\pm$ 0.08	<0.04	<0.1	<0.05	1.0 $\pm$ 0.1	<0.06	0.62 $\pm$ 0.09	0.6 $\pm$ 0.2
NMPW 01	10-02-78	<0.01	10 $\pm$ 1	0.18 $\pm$ 0.05	<0.04	<0.1	<0.05	0.24 $\pm$ 0.08	<0.06	0.4 $\pm$ 0.1	0.4 $\pm$ 0.2



TABLE 5  
CONCENTRATIONS OF GAMMA EMITTERS, Sr-89 AND -90 IN MOLLUSK SAMPLES

Results in Units of pCi/g(wet)  $\pm$  2 sigma

COLLECTION SITE	COLLECTION DATE	Sr-89	Sr-90	Be-7	GAMMA EMITTERS		Co-60	Ra-226	Th-232
					K-40	Mn-54			
Off-site 00	6-27-78 to 6-30-78	<0.02	0.12 $\pm$ 0.01	<0.07	<0.2	<0.02	<0.02	0.08 $\pm$ 0.02	0.07 $\pm$ 0.04
	10-02-78	0.02 $\pm$ 0.02	0.150 $\pm$ 0.009	<0.1	<0.3	<0.02	<0.02	0.21 $\pm$ 0.04	<0.08
NMPP 02	6-27-78 to 6-29-78	<0.03	0.14 $\pm$ 0.01	0.2 $\pm$ 0.1	<0.3	0.35 $\pm$ 0.04	<0.04	0.12 $\pm$ 0.04	<0.08
	10-02-78 to 10-06-78	0.03 $\pm$ 0.02	0.18 $\pm$ 0.01	<0.1	<0.2	1.1 $\pm$ 0.1	0.22 $\pm$ 0.03	0.23 $\pm$ 0.05	<0.07
NMPW 01	6-27-78 to 6-29-78	<0.02	0.097 $\pm$ 0.008	<0.1	0.6 $\pm$ 0.4	<0.05	0.06 $\pm$ 0.03	<0.06	<0.1
	10-02-78	0.07 $\pm$ 0.02	0.14 $\pm$ 0.01	<0.09	<0.4	<0.03	<0.03	0.22 $\pm$ 0.04	<0.08



TABLE 6

## CONCENTRATIONS OF GAMMA EMITTERS, Sr-89 AND Sr-90 IN GAMMARUS SAMPLES

Results in Units of pCi/g(wet)  $\pm$  2 sigma

COLLECTION SITE	COLLECTION DATE	Sr-89	Sr-90	Be-7	GAMMA EMITTERS		Cs-137	Ce-144	Ra-226
					K-40	Mn-54			
Off-site 00	6-20-78 to 6-27-78	<0.07	0.14 $\pm$ 0.03	<0.2	<0.4	<0.02	<0.02	<0.1	<0.05
	8-10-78 to 8-17-78	<0.03	0.13 $\pm$ 0.01	0.05 $\pm$ 0.03	0.8 $\pm$ 0.1	<0.005	0.028 $\pm$ 0.009	0.03 $\pm$ 0.02	0.027 $\pm$ 0.009
JAF 03	6-20-78 to 6-27-78	<0.2	0.14 $\pm$ 0.05	<0.4	<1.0	<0.05	<0.07	<0.3	<0.2
	8-10-78 to 8-17-78	<0.04	0.19 $\pm$ 0.01	0.09 $\pm$ 0.08	0.7 $\pm$ 0.2	<0.009	0.05 $\pm$ 0.02	0.08 $\pm$ 0.05	<0.03
NMPP 02	6-20-78 to 6-27-78	<0.2	0.13 $\pm$ 0.06	<0.7	<2.0	0.1 $\pm$ 0.1	<0.08	<0.7	<0.2
	8-10-78 to 8-17-78	<0.1	0.21 $\pm$ 0.03	<0.2	1.4 $\pm$ 0.7	<0.03	0.05 $\pm$ 0.04	<0.2	<0.07



TABLE 7

## CONCENTRATIONS OF STRONTIUM-89 AND -90, GAMMA EMITTERS IN FISH SAMPLES

Results in Units of pCi/g(wet)  $\pm$  2 sigma

SAMPLE DATE	SAMPLE TYPE	Sr-89	Sr-90	K-40	Mn-54	Cs-137	Ce-141	Ce-144
FITZPATRICK - 03								
5-18-78	#1 White Perch	<0.01	0.010 $\pm$ 0.004	1.6 $\pm$ 0.4	<0.01	0.10 $\pm$ 0.03	<0.02	<0.1
	#2 White Perch	<0.009	0.018 $\pm$ 0.004	1.7 $\pm$ 0.5	<0.01	0.09 $\pm$ 0.02	<0.01	<0.05
	Salvelinus	<0.008	<0.004	2.3 $\pm$ 0.5	<0.009	0.05 $\pm$ 0.02	<0.01	<0.05
	Rainbow Smelt	<0.006	0.012 $\pm$ 0.003	1.6 $\pm$ 0.5	<0.02	0.03 $\pm$ 0.02	<0.03	<0.1
	Brown Trout	<0.007	<0.004	1.8 $\pm$ 0.5	<0.02	0.09 $\pm$ 0.03	<0.02	<0.1
10-04-78	Smallmouth Bass	<0.01	0.013 $\pm$ 0.004	2.6 $\pm$ 0.4	<0.01	0.08 $\pm$ 0.02	<0.009	<0.04
to	#1 Rainbow Smelt	0.014 $\pm$ 0.007	0.009 $\pm$ 0.004	2.3 $\pm$ 0.4	<0.01	0.04 $\pm$ 0.02	<0.009	<0.04
10-05-78	#2 Rainbow Smelt	<0.008	0.008 $\pm$ 0.003	1.9 $\pm$ 0.4	<0.01	<0.02	<0.01	<0.06
	Yellow Perch	<0.01	0.025 $\pm$ 0.004	2.7 $\pm$ 0.5	<0.02	0.10 $\pm$ 0.03	<0.01	<0.07
10-05-78	#1 Brown Trout	0.015 $\pm$ 0.006	<0.005	2.2 $\pm$ 0.5	<0.01	0.07 $\pm$ 0.02	<0.01	<0.05
	#2 Brown Trout	<0.009	0.004 $\pm$ 0.003	2.9 $\pm$ 0.6	<0.01	0.07 $\pm$ 0.03	<0.02	<0.07
NINE MILE POINT - 02								
5-18-78	#1 White Perch	<0.007	0.021 $\pm$ 0.003	1.5 $\pm$ 0.5	<0.01	0.10 $\pm$ 0.03	<0.02	<0.09
	#2 White Perch	<0.006	0.013 $\pm$ 0.003	1.6 $\pm$ 0.4	<0.01	0.09 $\pm$ 0.03	<0.01	<0.05
	Salvelinus	<0.006	<0.003	2.6 $\pm$ 0.6	<0.02	0.05 $\pm$ 0.04	0.03 $\pm$ 0.03	<0.1
5-22-78	Rainbow Smelt	<0.01	0.014 $\pm$ 0.005	1.1 $\pm$ 0.3	<0.01	<0.02	<0.02	<0.09
10-04-78	#1 Salvelinus	<0.01	<0.006	1.9 $\pm$ 0.5	<0.02	0.07 $\pm$ 0.02	<0.01	<0.04
	#2 Salvelinus	<0.01	0.005 $\pm$ 0.004	2.3 $\pm$ 0.6	<0.01	0.07 $\pm$ 0.03	<0.02	<0.09
10-04-78	Smallmouth Bass	<0.01	0.016 $\pm$ 0.004	2.6 $\pm$ 0.6	<0.02	0.10 $\pm$ 0.04	<0.02	<0.09
to	Yellow Perch	<0.01	0.015 $\pm$ 0.005	2.1 $\pm$ 0.4	0.02 $\pm$ 0.01	0.08 $\pm$ 0.02	<0.006	<0.04
10-05-78								
OFFSITE - 00								
5-18-78	#1 White Perch	<0.005	<0.003	2.4 $\pm$ 0.5	<0.02	0.06 $\pm$ 0.03	<0.02	<0.08
	#2 White Perch	<0.005	0.012 $\pm$ 0.002	3.1 $\pm$ 0.6	<0.01	0.08 $\pm$ 0.02	<0.01	<0.06
	Yellow Perch	<0.006	0.008 $\pm$ 0.003	3.0 $\pm$ 0.7	<0.01	0.10 $\pm$ 0.04	<0.03	<0.1
	Northern Pike	<0.006	0.015 $\pm$ 0.003	2.3 $\pm$ 0.4	<0.01	0.04 $\pm$ 0.02	<0.01	<0.07
	Brown Trout	<0.006	<0.003	5.7 $\pm$ 1.2	<0.03	0.20 $\pm$ 0.06	<0.03	<0.09
10-04-78	#1 Chinook Salmon	<0.01	<0.005	3.1 $\pm$ 0.5	<0.01	0.07 $\pm$ 0.02	<0.01	<0.04
	#2 Chinook Salmon	<0.01	0.004 $\pm$ 0.003	2.6 $\pm$ 0.6	<0.02	0.10 $\pm$ 0.03	<0.02	0.11 $\pm$ 0.09
10-04-78	White Perch	<0.02	0.012 $\pm$ 0.005	2.4 $\pm$ 0.6	<0.02	<0.02	<0.02	<0.08
to	Yellow Perch	<0.007	0.008 $\pm$ 0.003	1.9 $\pm$ 0.4	<0.01	0.04 $\pm$ 0.02	<0.01	<0.06
10-05-78								





TABLE 8

## LAKE WATER SAMPLES

## INLET CANAL

Monthly Composite - Gross Beta - pCi/l				Quarterly Composite - pCi/l				
Date	NMP-1	JAF	OSWP	Location	Date	H-3	Sr-89	Sr-90
1/78	<9.5	<9.4	<9.1	NMP-1	1st qtr/78	390+120	<5.0	<2.0
2/78	7.1+0.8	7.8+0.8	4.6+0.7	JAF	1st qtr/78	560+120	<5.0	<2.0
3/78	5.9+0.5	8.0+0.6	5.8+0.5	OSWP	1st qtr/78	490+120	<5.0	<2.0
4/78	5.7+0.6	7.3+0.8	6.1+0.6					
5/78	7.4+0.6	11.1+0.7	4.3+0.6	NMP-1	2nd qtr/78	314+160	<1.1	1.0+0.4
6/78	2.8+0.8	4.1+0.8	2.9+0.7	JAF	2nd qtr/78	560+140	<1.2	1.1+0.5
7/78	2.7+0.6	2.8+0.6	3.4+0.7	OSWP	2nd qtr/78	282+160	<1.1	1.0+0.4
8/78	3.6+0.7	2.9+0.6	3.0+0.7	NMP	3rd qtr/78	256+86	0.8+0.4	0.4+0.3
9/78	1.2+0.5	0.6+0.5	0.5+0.5	JAF	3rd qtr/78	377+87	0.6+0.5	0.6+0.3
10/78	2.4+0.6	2.8+0.7	2.7+0.7	OSWP	3rd qtr/78	228+85	<0.8	0.8+0.3
11/78	3.5+0.7	3.3+0.7	2.8+0.6					
12/78	3.3+0.6	3.3+0.6	2.9+0.6	NMP-1	4th qtr/78	253+170	<0.9	1.1+0.3
				JAF	4th qtr/78	405+170	0.7+0.6	0.6+0.3
				OSWP	4th qtr/78	215+170	<0.9	0.9+0.3



TABLE 9  
MONTHLY WATER COMPOSITES  
GAMMA ACTIVITY  
pCi/l

ISOTOPE	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
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NINE MILE POINT UNIT I INLET

Co-60	0.0±18.0	20.0±19.6	28.1±18.6	17.2±17.9	4.0±18.1	< 3.2*	<0.6	< 1.0	< 2.0	<2.0	< 2.0	< 3.0
Fe-59	<14.0	<16.5	<13.3	<15.2	<12.2	<14.2	<0.7	< 3.0	< 3.0	<3.0	< 3.0	< 2.0
Mn-54	0.0± 9.9	<12.1	9.0±11.7	0.0± 9.6	0.0± 9.7	< 3.0*	<0.4	< 2.0	< 1.0	<1.0	< 1.0	< 1.0
Co-58	0.0± 5.7	< 3.8	0.0± 6.8	< 7.9	< 7.3	< 7.26	<0.4	< 2.0	< 1.0	<1.0	< 1.0	< 1.0
Nb-95	< 5.6	< 7.3	< 6.1	< 6.1	< 6.6	< 6.2	<0.4	< 2.0	< 1.0	<1.0	< 1.0	< 1.0
Zr-95	<11.1	<12.0	<11.3	<10.9	<10.5	<10.2	<0.7	< 2.0	< 2.0	<2.0	< 2.0	< 1.0
Cs-137	< 6.8	4.5± 5.5	2.6± 6.6	< 7.5	< 7.8	< 7.2	<0.5	< 2.0	< 1.0	<2.0	< 1.0	< 1.0
Cs-134	< 6.3	< 6.6	< 6.4	< 5.6	< 5.9	< 5.5	<0.4	< 2.0	< 2.0	<1.0	< 1.0	< 2.0
Cr-51	<39.7	<45.2	<46.3	<40.5	<41.5	<40.9	<3.0	<10.0	<10.0	<7.0	< 8.0	< 7.0
Ce-141	9.0± 2.1	< 6.9	< 6.8	< 6.5	< 6.4	< 6.4	<0.6	< 2.0	< 2.0	<1.0	< 1.0	< 1.0
BaLa-140	<20.6	<23.6	<21.2	<21.8	<22.5	22.8± 2.6	<0.7	< 2.0	< 2.0	<2.0	< 2.0	< 2.0

JAMES A. FITZPATRICK INLET

Co-60	0.0±18.2	22.0±19.7	11.5±18.1	17.0±17.9	33.0±18.7	< 3.2*	<0.5	< 2.0	< 2.0	<2.0	< 2.0	< 1.0
Fe-59	< 9.9	<13.8	<14.4	<13.5	<13.3	<14.0	<0.7	< 3.0	< 2.0	<3.0	< 3.0	< 2.0
Mn-54	0.0± 9.9	0.0±11.0	4.1±11.4	7.8± 9.7	0.6± 9.7	< 3.0*	<0.4	< 1.0	< 1.0	<1.0	< 1.0	< 1.0
Co-58	0.0± 5.7	3.9± 7.7	0.0± 6.2	13.3± 2.8	< 7.2	< 7.8	<0.4	< 1.0	< 1.0	<1.0	< 1.0	< 1.0
Nb-95	< 6.7	< 6.5	< 6.1	< 6.5	< 6.2	< 5.9	<0.4	< 2.0	< 1.0	<1.0	< 1.0	< 1.0
Zr-95	<10.5	<11.3	<10.6	< 9.8	<11.4	<11.5	<0.6	< 2.0	< 2.0	<2.0	< 2.0	< 1.0
Cs-137	< 7.1	< 8.2	< 7.0	< 6.5	< 7.4	< 7.3	<0.5	< 2.0	< 1.0	<2.0	< 2.0	< 2.0
Cs-134	< 5.3	< 6.1	< 6.1	< 5.9	< 6.1	< 6.1	<0.5	< 2.0	< 2.0	<1.0	< 1.0	< 1.0
Cr-151	<43.9	<42.8	<39.6	<43.3	<42.9	<45.3	<3.0	<10.0	< 8.0	<9.0	<10.0	<10.0
Ce-141	< 6.5	< 6.3	< 6.2	< 6.6	< 6.5	< 6.5	<0.6	< 2.0	< 2.0	<2.0	< 2.0	< 1.0
BaLa-140	<21.5	<22.4	<19.7	<22.8	<20.1	<22.4	<0.8	< 2.0	< 2.0	<2.0	< 2.0	< 2.0

RAW CITY WATER

Co-60	8.5±18.8	11.0±21.5	24.1±18.5	0.0±17.1	0.0±17.5	< 3.2*	<0.6	< 2.0	< 2.0	<2.0	< 2.0	< 2.0
Fe-59	<14.4	<19.9	<16.5	<13.3	<14.4	<13.3	<0.7	< 3.0	< 3.0	<3.0	< 3.0	< 2.0
Mn-54	0.0±14.4	0.0±12.3	0.0±11.2	7.4± 9.9	3.4±10.1	< 3.0*	<0.3	< 1.0	< 1.0	<2.0	< 1.0	< 1.0
Co-58	< 7.9	0.0± 7.5	0.0± 6.3	12.2± 2.8	0.0± 5.1	< 7.8	<0.3	< 1.0	< 1.0	<1.0	< 1.0	< 1.0
Nb-95	< 5.9	< 8.3	< 6.4	< 6.4	< 6.6	< 5.9	<0.3	< 2.0	< 1.0	<1.0	< 1.0	< 1.0
Zr-95	<10.1	<12.8	<10.5	<10.6	<12.5	<12.1	<0.6	< 2.0	< 2.0	<2.0	< 2.0	< 2.0
Cs-137	< 7.5	< 9.8	< 7.4	< 7.4	< 7.1	< 6.9	<0.4	< 2.0	< 1.0	<1.0	< 2.0	< 1.0
Cs-134	< 5.9	< 8.7	< 6.5	< 6.1	< 5.4	< 6.3	<0.3	< 2.0	< 2.0	<1.0	< 2.0	< 1.0
Cr-51	<41.2	<51.2	<42.5	<45.0	<43.9	<38.5	<3.0	<10.0	<10.0	<9.0	<10.0	< 7.0
Ce-141	< 6.2	< 8.6	< 6.4	< 6.5	< 6.5	< 6.6	<0.4	< 2.0	< 2.0	<2.0	< 2.0	< 1.0
BaLa-140	<22.4	<26.1	<22.6	<22.3	21.6± 3.4	<21.4	<0.6	< 3.0	< 2.0	<2.0	< 2.0	< 2.0

\*Reanalyzed. Results decay corrected.



TABLE 10  
NMP - JAF SITE  
ENVIRONMENTAL AIRBORNE PARTICULATE SAMPLES - OFF SITE STATIONS  
GROSS BETA ACTIVITY pCi/m<sup>3</sup> ± 2σ

Date Collected	LOCATION					
	C	D <sub>1</sub>	D <sub>2</sub>	E	F	G
1-1-78	0.09 ± 0.01	0.12 ± 0.01	0.11 ± 0.01	0.09 ± 0.01	0.08 ± 0.01	0.09 ± 0.01
1-11-78	0.07 ± 0.01	0.08 ± 0.01	0.09 ± 0.01	0.08 ± 0.01	0.08 ± 0.01	0.09 ± 0.01
1-17-78	0.14 ± 0.01	0.13 ± 0.02	0.12 ± 0.01	0.12 ± 0.01	0.09 ± 0.01	0.08 ± 0.01
1-24-78	0.16 ± 0.01	0.15 ± 0.01	0.12 ± 0.01	0.13 ± 0.01	0.17 ± 0.01	0.15 ± 0.01
1-31-78	0.07 ± 0.01	0.06 ± 0.01	0.06 ± 0.01	0.06 ± 0.01	0.06 ± 0.01	0.06 ± 0.01
2-7-78	0.07 ± 0.01	0.06 ± 0.01	0.06 ± 0.01	0.06 ± 0.01	0.06 ± 0.01	0.07 ± 0.01
2-14-78	0.07 ± 0.01	0.06 ± 0.01	0.04 ± 0.01	0.06 ± 0.01	0.06 ± 0.01	0.08 ± 0.01
2-22-78	0.07 ± 0.01	0.07 ± 0.01	0.05 ± 0.01	0.07 ± 0.01	0.14 ± 0.01	0.08 ± 0.01
2-28-78	0.08 ± 0.01	0.09 ± 0.01	0.05 ± 0.01	0.08 ± 0.01	0.07 ± 0.01	0.08 ± 0.01
3-7-78	0.12 ± 0.01	0.12 ± 0.01	0.11 ± 0.01	0.12 ± 0.01	0.12 ± 0.01	0.12 ± 0.01
3-14-78	0.12 ± 0.01	0.09 ± 0.01	0.06 ± 0.01	0.10 ± 0.01	0.08 ± 0.01	0.09 ± 0.01
3-21-78	0.16 ± 0.01	0.11 ± 0.01	0.11 ± 0.01	0.16 ± 0.01	0.11 ± 0.01	0.12 ± 0.01
3-28-78	0.22 ± 0.01	0.22 ± 0.01	0.24 ± 0.01	0.26 ± 0.01	0.25 ± 0.01	0.12 ± 0.01
4-4-78	0.30 ± 0.01	0.28 ± 0.01	0.30 ± 0.01	0.30 ± 0.01	0.30 ± 0.01	0.33 ± 0.01
4-11-78	0.21 ± 0.01	0.20 ± 0.01	TV Interference Test	0.22 ± 0.01	0.20 ± 0.01	0.23 ± 0.01
4-18-78	0.38 ± 0.01	0.23 ± 0.01	0.35 ± 0.01	0.32 ± 0.01	0.32 ± 0.01	0.28 ± 0.01
4-25-78	0.53 ± 0.02	0.37 ± 0.02	0.51 ± 0.02	0.44 ± 0.01	0.44 ± 0.02	0.43 ± 0.02
5-2-78	0.32 ± 0.01	0.27 ± 0.01	0.31 ± 0.01	0.30 ± 0.01	0.27 ± 0.01	0.29 ± 0.01
5-9-78	0.08 ± 0.01	0.08 ± 0.01	0.08 ± 0.01	0.08 ± 0.01	0.06 ± 0.01	0.06 ± 0.01
5-16-78	0.20 ± 0.01	0.13 ± 0.01	0.11 ± 0.01	0.11 ± 0.01	0.11 ± 0.01	0.13 ± 0.01
5-23-78	0.18 ± 0.01	0.16 ± 0.01	0.20 ± 0.01	0.21 ± 0.01	0.21 ± 0.01	0.21 ± 0.01
5-31-78	0.32 ± 0.01	0.28 ± 0.01	0.27 ± 0.01	0.30 ± 0.01	0.25 ± 0.01	0.27 ± 0.01
6-6-78	0.19 ± 0.01	0.19 ± 0.01	0.19 ± 0.01	0.22 ± 0.01	0.21 ± 0.01	0.18 ± 0.01
6-13-78	0.14 ± 0.01	0.15 ± 0.01	0.14 ± 0.01	0.11 ± 0.01	0.09 ± 0.01	0.13 ± 0.01
6-20-78	0.21 ± 0.01	0.20 ± 0.01	0.16 ± 0.01	0.16 ± 0.01	0.19 ± 0.01	0.18 ± 0.01
6-26-78	0.48 ± 0.02	0.46 ± 0.01	0.45 ± 0.01	0.60 ± 0.01	0.66 ± 0.02	0.48 ± 0.02



TABLE 10(Cont.)  
NMP - JAF SITE  
ENVIRONMENTAL AIRBORNE PARTICULATE SAMPLES - OFF SITE STATIONS  
GROSS BETA ACTIVITY  $\mu\text{Ci}/\text{m}^3 \pm 2\sigma$

Date Collected	LOCATION					
	C	D <sub>1</sub>	D <sub>2</sub>	E	F	G
7-5-78	0.22 ± 0.01	0.26 ± 0.01	0.23 ± 0.01	0.29 ± 0.01	0.32 ± 0.01	0.22 ± 0.01
7-11-78	0.21 ± 0.01	0.24 ± 0.01	0.17 ± 0.01	0.20 ± 0.01	0.20 ± 0.01	0.15 ± 0.01
7-18-78	0.24 ± 0.01	0.24 ± 0.01	0.31 ± 0.01	0.32 ± 0.01	0.30 ± 0.01	0.23 ± 0.01
7-25-78	0.22 ± 0.01	0.22 ± 0.01	0.36 ± 0.01	0.22 ± 0.01	0.22 ± 0.01	0.18 ± 0.01
8-1-78	0.10 ± 0.01	*	0.10 ± 0.01	0.09 ± 0.01	0.11 ± 0.01	0.10 ± 0.01
8-8-78	0.14 ± 0.01	0.14 ± 0.01	0.16 ± 0.01	0.13 ± 0.01	0.16 ± 0.01	0.14 ± 0.01
8-15-78	0.27 ± 0.01	0.20 ± 0.01	0.27 ± 0.01	0.32 ± 0.01	0.46 ± 0.01	0.24 ± 0.01
8-22-78	0.18 ± 0.01	0.18 ± 0.01	0.24 ± 0.01	0.22 ± 0.01	0.32 ± 0.01	0.18 ± 0.01
8-29-78	0.07 ± 0.01	0.08 ± 0.01	0.09 ± 0.01	0.08 ± 0.01	0.08 ± 0.01	0.09 ± 0.01
9-6-78	0.12 ± 0.01	0.15 ± 0.01	0.20 ± 0.01	0.19 ± 0.01	0.24 ± 0.01	0.11 ± 0.01
9-12-78	0.07 ± 0.01	0.07 ± 0.01	0.08 ± 0.01	0.08 ± 0.01	0.09 ± 0.01	0.07 ± 0.01
9-19-78	*	0.04 ± 0.01	0.05 ± 0.01	0.04 ± 0.01	0.04 ± 0.01	0.05 ± 0.01
9-26-78	0.10 ± 0.01	0.13 ± 0.01	0.14 ± 0.01	0.03 ± 0.01	0.15 ± 0.01	0.10 ± 0.01
10-3-78	0.06 ± 0.01	0.05 ± 0.01	0.04 ± 0.01	0.05 ± 0.01	0.04 ± 0.01	0.04 ± 0.01
10-11-78	0.04 ± 0.01	0.02 ± 0.01	0.02 ± 0.01	0.02 ± 0.01	0.02 ± 0.01	0.02 ± 0.01
10-17-78	0.11 ± 0.01	0.12 ± 0.01	0.15 ± 0.01	0.12 ± 0.01	0.15 ± 0.01	0.08 ± 0.01
10-24-78	0.06 ± 0.01	0.04 ± 0.01	0.01 ± 0.01	0.04 ± 0.01	0.04 ± 0.01	0.03 ± 0.01
10-31-78	0.05 ± 0.01	0.05 ± 0.01	0.06 ± 0.01	0.09 ± 0.01	0.08 ± 0.01	0.06 ± 0.01
11-7-78	0.10 ± 0.01	0.07 ± 0.01	0.10 ± 0.01	0.11 ± 0.01	0.10 ± 0.01	0.08 ± 0.01
11-14-78	0.04 ± 0.01	0.04 ± 0.01	0.04 ± 0.01	0.05 ± 0.01	0.04 ± 0.01	0.03 ± 0.01
11-21-78	0.03 ± 0.01	0.03 ± 0.01	0.03 ± 0.01	0.03 ± 0.01	0.02 ± 0.01	0.02 ± 0.01
11-29-78	0.02 ± 0.01	0.02 ± 0.01	0.02 ± 0.01	0.03 ± 0.01	0.02 ± 0.01	0.02 ± 0.01
12-05-78	0.06 ± 0.01	0.06 ± 0.01	0.07 ± 0.01	0.07 ± 0.01	0.06 ± 0.01	0.06 ± 0.01
12-12-78	0.04 ± 0.01	0.05 ± 0.01	0.04 ± 0.01	0.06 ± 0.01	0.05 ± 0.01	0.05 ± 0.01
12-19-78	0.03 ± 0.01	0.04 ± 0.01	0.04 ± 0.01	0.03 ± 0.01	0.03 ± 0.01	0.03 ± 0.01
12-27-78	0.05 ± 0.01	0.05 ± 0.01	0.05 ± 0.01	0.04 ± 0.01	0.04 ± 0.01	0.04 ± 0.01
1-4-79	0.03 ± 0.01	0.04 ± 0.01	0.04 ± 0.01	0.04 ± 0.01	0.03 ± 0.01	0.03 ± 0.01





TABLE 11  
NMP - JAF SITE  
ENVIRONMENTAL AIRBORNE PARTICULATE SAMPLES - ON SITE STATIONS  
Gross Beta Activity - pCi/m<sup>3</sup> ± 2σ

Date Collected	LOCATION								
	D <sub>1</sub>	D <sub>2</sub>	E	F	G	H	I	J	K
1-4-78	0.08 ± 0.01	0.08 ± 0.01	0.08 ± 0.01	0.09 ± 0.01	0.15 ± 0.01	0.06 ± 0.01	0.07 ± 0.01	0.12 ± 0.01	*
1-9-78	0.08 ± 0.01	0.07 ± 0.01	0.08 ± 0.01	0.09 ± 0.01	0.07 ± 0.01	0.10 ± 0.02	0.01 ± 0.01	0.01 ± 0.01	0.10 ± 0.01
1-16-78	0.11 ± 0.01	0.06 ± 0.01	0.08 ± 0.01	0.10 ± 0.01	0.10 ± 0.01	0.02 ± 0.01	0.06 ± 0.01	0.01 ± 0.01	0.08 ± 0.01
1-23-78	0.16 ± 0.01	0.14 ± 0.01	0.14 ± 0.01	0.16 ± 0.01	0.13 ± 0.01	0.11 ± 0.01	0.12 ± 0.01	0.13 ± 0.01	0.09 ± 0.01
1-30-78	0.07 ± 0.01	0.06 ± 0.01	0.07 ± 0.01	0.07 ± 0.01	0.06 ± 0.01	0.05 ± 0.01	0.06 ± 0.01	0.06 ± 0.01	0.06 ± 0.01
2-6-78	0.08 ± 0.01	0.07 ± 0.01	0.05 ± 0.01	0.08 ± 0.01	0.06 ± 0.01	0.10 ± 0.01	0.006 ± 0.01	0.07 ± 0.01	0.02 ± 0.01
2-13-78	0.07 ± 0.01	0.05 ± 0.01	0.07 ± 0.01	0.07 ± 0.01	0.05 ± 0.01	0.01 ± 0.01	0.07 ± 0.01	0.05 ± 0.01	0.01 ± 0.01
2-21-78	0.08 ± 0.01	0.09 ± 0.01	0.07 ± 0.01	0.07 ± 0.01	0.06 ± 0.01	0.06 ± 0.01	0.07 ± 0.01	0.06 ± 0.01	0.04 ± 0.01
2-27-78	0.08 ± 0.01	0.07 ± 0.01	0.08 ± 0.01	0.07 ± 0.01	0.07 ± 0.01	0.03 ± 0.01	0.04 ± 0.01	0.07 ± 0.01	0.02 ± 0.01
3-6-78	0.13 ± 0.01	0.11 ± 0.01	0.10 ± 0.01	0.12 ± 0.01	0.11 ± 0.01	0.04 ± 0.01	0.05 ± 0.01	0.05 ± 0.01	0.09 ± 0.01
3-13-78	0.12 ± 0.01	0.11 ± 0.01	0.09 ± 0.001	0.2 ± 0.01	0.11 ± 0.01	0.10 ± 0.01	0.05 ± 0.01	0.09 ± 0.01	0.03 ± 0.01
3-20-78	0.12 ± 0.01	0.14 ± 0.01	0.10 ± 0.01	0.13 ± 0.01	0.12 ± 0.01	0.12 ± 0.01	0.10 ± 0.01	0.10 ± 0.01	0.03 ± 0.01
3-27-78	0.28 ± 0.01	0.28 ± 0.01	0.24 ± 0.01	0.31 ± 0.01	0.18 ± 0.01	0.12 ± 0.01	0.08 ± 0.01	0.12 ± 0.01	0.03 ± 0.01
4-3-78	0.23 ± 0.01	0.19 ± 0.01	0.21 ± 0.01	0.25 ± 0.01	0.23 ± 0.01	0.18 ± 0.01	0.15 ± 0.01	0.15 ± 0.01	0.03 ± 0.01
4-10-78	0.15 ± 0.01	0.13 ± 0.01	0.11 ± 0.01	0.13 ± 0.01	0.13 ± 0.01	0.10 ± 0.01	0.11 ± 0.01	0.03 ± 0.01	0.02 ± 0.01
4-17-78	0.21 ± 0.01	0.17 ± 0.01	0.19 ± 0.01	0.22 ± 0.01	0.20 ± 0.01	0.18 ± 0.01	*	0.03 ± 0.01	0.17 ± 0.01
4-24-78	0.25 ± 0.01	0.23 ± 0.01	0.26 ± 0.01	0.25 ± 0.01	0.22 ± 0.01	0.16 ± 0.01	0.23 ± 0.01	0.21 ± 0.01	0.23 ± 0.01
5-1-78	0.27 ± 0.01	0.26 ± 0.01	0.26 ± 0.01	0.26 ± 0.01	0.26 ± 0.01	0.21 ± 0.01	0.26 ± 0.01	0.24 ± 0.01	0.16 ± 0.01
5-8-78	0.07 ± 0.01	0.08 ± 0.01	0.08 ± 0.01	0.08 ± 0.01	0.07 ± 0.01	0.08 ± 0.01	0.07 ± 0.01	0.02 ± 0.01	0.02 ± 0.01
5-15-78	0.12 ± 0.01	0.12 ± 0.01	0.14 ± 0.01	0.14 ± 0.01	0.12 ± 0.01	0.12 ± 0.01	0.11 ± 0.01	0.12 ± 0.01	0.04 ± 0.01
5-22-78	0.08 ± 0.01	0.07 ± 0.01	0.08 ± 0.01	0.08 ± 0.01	0.07 ± 0.01	0.07 ± 0.01	0.03 ± 0.01	0.06 ± 0.01	0.07 ± 0.07
5-29-78	0.22 ± 0.01	0.21 ± 0.01	0.21 ± 0.01	0.21 ± 0.01	0.21 ± 0.01	0.19 ± 0.01	0.21 ± 0.01	0.23 ± 0.01	0.24 ± 0.01
6-5-78	0.17 ± 0.01	0.16 ± 0.01	0.17 ± 0.01	0.17 ± 0.01	0.16 ± 0.01	0.11 ± 0.01	0.16 ± 0.01	0.16 ± 0.01	0.14 ± 0.01
6-12-78	0.19 ± 0.01	0.21 ± 0.01	0.18 ± 0.01	0.17 ± 0.01	0.18 ± 0.01	0.18 ± 0.01	0.10 ± 0.01	0.15 ± 0.01	0.16 ± 0.01
6-19-78	0.18 ± 0.01	0.18 ± 0.01	0.17 ± 0.01	0.19 ± 0.01	0.17 ± 0.01	0.17 ± 0.01	0.14 ± 0.01	0.14 ± 0.01	0.02 ± 0.01
6-27-78	0.15 ± 0.01	0.13 ± 0.01	0.16 ± 0.01	0.16 ± 0.01	0.07 ± 0.01	0.16 ± 0.01	0.02 ± 0.01	0.06 ± 0.01	0.05 ± 0.01



TABLE 11 (Cont.)  
NMP - JAF SITE  
ENVIRONMENTAL AIRBORNE PARTICULATE SAMPLES - ON SITE STATIONS  
Gross Beta Activity - pCi/m<sup>3</sup> ± 2σ

Date Collected	LOCATION								
	D <sub>1</sub>	D <sub>2</sub>	E	F	G	H	I	J	K
7-3-78	0.12 ± 0.01	0.14 ± 0.01	0.13 ± 0.01	0.13 ± 0.01	0.01 ± 0.01	0.11 ± 0.01	0.04 ± 0.01	0.09 ± 0.01	0.09 ± 0.01
7-10-78	0.24 ± 0.01	0.25 ± 0.01	0.27 ± 0.01	0.24 ± 0.01	0.34 ± 0.01	0.23 ± 0.01	0.01 ± 0.01	0.09 ± 0.01	0.18 ± 0.01
7-17-78	0.18 ± 0.01	0.17 ± 0.01	0.19 ± 0.01	0.20 ± 0.01	0.07 ± 0.01	0.16 ± 0.01	0.17 ± 0.01	0.14 ± 0.01	0.16 ± 0.01
7-24-78	0.13 ± 0.01	0.14 ± 0.01	0.13 ± 0.01	0.14 ± 0.01	0.13 ± 0.01	0.14 ± 0.01	0.06 ± 0.01	0.09 ± 0.01	0.05 ± 0.01
7-31-78	0.11 ± 0.01	0.12 ± 0.01	0.14 ± 0.01	0.12 ± 0.01	0.12 ± 0.01	0.03 ± 0.01	0.11 ± 0.01	0.11 ± 0.01	0.05 ± 0.01
8-7-78	0.11 ± 0.01	0.11 ± 0.01	0.11 ± 0.01	0.12 ± 0.01	0.11 ± 0.01	0.12 ± 0.01	0.08 ± 0.01	0.10 ± 0.01	0.08 ± 0.01
8-14-78	0.28 ± 0.01	0.25 ± 0.01	0.27 ± 0.01	0.27 ± 0.01	0.31 ± 0.01	0.22 ± 0.01	0.28 ± 0.01	0.08 ± 0.01	0.18 ± 0.01
8-21-78	0.11 ± 0.01	0.10 ± 0.01	0.12 ± 0.01	0.10 ± 0.01	0.11 ± 0.01	0.11 ± 0.01	0.13 ± 0.01	0.11 ± 0.01	0.10 ± 0.01
8-28-78	0.10 ± 0.01	0.10 ± 0.01	0.10 ± 0.01	0.09 ± 0.01	0.11 ± 0.01	0.09 ± 0.01	0.09 ± 0.01	0.08 ± 0.01	0.08 ± 0.01
9-5-78	0.10 ± 0.01	0.07 ± 0.01	0.02 ± 0.01	0.10 ± 0.01	0.10 ± 0.01	0.04 ± 0.01	0.08 ± 0.01	0.06 ± 0.01	0.08 ± 0.01
9-11-78	0.15 ± 0.01	0.14 ± 0.01	0.14 ± 0.01	0.13 ± 0.01	0.18 ± 0.01	0.13 ± 0.01	0.14 ± 0.01	0.10 ± 0.01	0.12 ± 0.01
9-18-78	0.06 ± 0.01	0.05 ± 0.01	0.01 ± 0.01	0.06 ± 0.01	0.05 ± 0.01	0.05 ± 0.01	0.04 ± 0.01	0.02 ± 0.01	0.04 ± 0.01
9-25-78	0.04 ± 0.01	0.06 ± 0.01	0.02 ± 0.01	0.06 ± 0.01	0.08 ± 0.01	0.06 ± 0.01	0.04 ± 0.01	0.04 ± 0.01	0.05 ± 0.01
10-2-78	0.03 ± 0.01	0.05 ± 0.01	0.02 ± 0.01	0.05 ± 0.01	0.06 ± 0.01	0.02 ± 0.01	0.01 ± 0.01	0.03 ± 0.01	0.01 ± 0.01
10-10-78	0.01 ± 0.01	0.02 ± 0.01	0.01 ± 0.01	0.02 ± 0.01	0.02 ± 0.01	**	**	0.01 ± 0.01	0.01 ± 0.01
10-16-78	0.06 ± 0.01	0.09 ± 0.01	0.04 ± 0.01	0.11 ± 0.01	0.11 ± 0.01	**	**	0.05 ± 0.01	0.04 ± 0.01
10-23-78	0.05 ± 0.01	0.09 ± 0.01	0.04 ± 0.01	0.10 ± 0.01	0.11 ± 0.01	0.03 ± 0.01	0.06 ± 0.01	0.05 ± 0.01	0.01 ± 0.01
10-30-78	0.03 ± 0.01	0.05 ± 0.01	0.02 ± 0.01	0.05 ± 0.01	0.07 ± 0.01	0.03 ± 0.01	0.05 ± 0.01	0.03 ± 0.01	0.06 ± 0.01
11-6-78	0.06 ± 0.01	0.08 ± 0.01	0.05 ± 0.01	0.06 ± 0.01	0.09 ± 0.01	0.05 ± 0.01	0.04 ± 0.01	0.01 ± 0.01	0.06 ± 0.01
11-13-78	0.03 ± 0.01	0.04 ± 0.01	0.02 ± 0.01	0.04 ± 0.01	0.05 ± 0.01	0.01 ± 0.01	0.01 ± 0.01	0.01 ± 0.01	0.02 ± 0.01
11-20-78	0.02 ± 0.01	0.03 ± 0.01	0.01 ± 0.01	0.02 ± 0.01	0.03 ± 0.01	0.01 ± 0.01	0.03 ± 0.01	*	0.02 ± 0.01
11-28-78	0.01 ± 0.01	0.01 ± 0.01	0.01 ± 0.01	0.02 ± 0.01	0.02 ± 0.01	0.01 ± 0.01	0.01 ± 0.01	*	0.01 ± 0.01
12-4-78	0.02 ± 0.01	0.05 ± 0.01	0.02 ± 0.01	0.05 ± 0.01	0.04 ± 0.01	0.01 ± 0.01	0.05 ± 0.01	*	0.01 ± 0.01
12-12-78	0.03 ± 0.01	0.03 ± 0.01	0.02 ± 0.01	0.06 ± 0.01	0.03 ± 0.01	(*)	0.01 ± 0.01	0.01 ± 0.01	0.01 ± 0.01
12-18-78	0.03 ± 0.01	0.03 ± 0.01	0.04 ± 0.01	0.04 ± 0.01	0.04 ± 0.01	0.02 ± 0.01	0.04 ± 0.01	0.02 ± 0.01	0.01 ± 0.01
12-26-78	0.01 ± 0.01	0.04 ± 0.01	0.03 ± 0.01	0.04 ± 0.01	*	0.03 ± 0.01	0.01 ± 0.01	0.04 ± 0.01	0.01 ± 0.01
1-2-79	0.01 ± 0.01	0.04 ± 0.01	0.03 ± 0.01	0.03 ± 0.01	0.03 ± 0.01	0.01 ± 0.01	0.04 ± 0.01	0.01 ± 0.01	0.01 ± 0.01

\* Pump inoperative

\*\* Power Line Down

(\*) Lost Sample



TABLE 12  
MONTHLY PARTICULATE COMPOSITES  
Gamma Activity - pCi/m<sup>3</sup>

ISOTOPE	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE
ONSITE COMPOSITE						
Co-60	2.40 + 0.17 E-03	1.53 + 0.05 E-02	0.00 + 4.32 E-04	1.88 + 0.44 E-03	3.20 + 2.43 E-04	4.90 + 6.14 E-04
Fe-59	<2.87 E-04	<5.87 E-04	<3.30 E-04	<4.39 E-04	<1.92 E-04	<4.50 E-04
Mn-54	1.30 + 0.11 E-03	2.45 + 0.18 E-03	0.00 + 2.60 E-04	5.50 + 2.37 E-04	3.28 + 1.34 E-04	3.15 + 3.29 E-04
Co-58	2.64 + 0.63 E-04	6.85 + 1.12 E-04	<2.30 E-04	<2.20 E-04	0.00 + 8.81 E-05	8.00 + 17.8 E-05
Nb-95	1.42 + 0.11 E-03	2.42 + 0.16 E-03	3.04 + 0.17 E-03	2.89 + 0.17 E-03	1.82 + 0.09 E-03	1.98 + 0.16 E-03
Zr-95	4.30 + 1.04 E-04	1.04 + 0.17 E-03	1.54 + 0.19 E-03	1.56 + 0.20 E-03	7.09 + 0.90 E-04	5.43 + 1.76 E-04
Cs-137	1.03 + 0.10 E-03	1.30 + 0.14 E-03	2.37 + 0.16 E-03	2.53 + 0.17 E-03	2.51 + 0.11 E-03	3.31 + 0.20 E-03
Cs-134	<1.34 E-04	<2.03 E-04	<1.95 E-04	<2.12 E-04	<1.00 E-04	<2.13 E-04
Cr-51	<9.79 E-04	<1.45 E-03	<1.48 E-03	<1.60 E-03	<8.14 E-04	<1.72 E-03
Ce-141	<1.46 E-04	<1.94 E-04	7.62 + 0.80 E-04	1.40 + 0.11 E-03	<1.15 E-04	<2.61 E-04
BaLa-140	4.08 + 0.48 E-04	<7.42 E-04	4.49 + 0.47 E-03	1.91 + 0.37 E-03	<3.81 E-04	<7.98 E-04
I-131	<1.26 E-04	<1.70 E-04	2.50 + 0.13 E-03	<1.29 E-04	<9.28 E-05	<1.04 E-04
OFFSITE COMPOSITE						
Co-60	4.95 + 0.31 E-03	5.60 + 0.38 E-03	0.00 + 7.20 E-04	1.30 + 0.33 E-03	4.40 + 4.38 E-04	3.00 + 2.74 E-04
Fe-59	<4.00 E-04	<6.27 E-04	<6.72 E-04	<2.75 E-04	<3.33 E-04	<2.19 E-04
Mn-54	1.98 + 0.17 E-03	2.64 + 0.23 E-03	0.00 + 4.60 E-04	1.60 + 0.19 E-03	3.80 + 2.33 E-04	1.90 + 15.2 E-04
Co-58	8.72 + 1.22 E-04	9.13 + 1.44 E-04	<4.09 E-04	<1.47 E-04	<1.80 E-04	<1.10 E-04
Nb-95	2.42 + 0.18 E-03	2.48 + 0.22 E-03	3.81 + 1.24 E-03	2.02 + 0.11 E-03	2.31 + 0.14 E-03	1.32 + 0.09 E-03
Zr-95	9.67 + 1.80 E-04	1.50 + 0.25 E-03	1.65 + 0.28 E-03	1.03 + 0.12 E-03	7.04 + 1.30 E-04	4.66 + 0.80 E-04
Cs-137	1.46 + 0.15 E-03	1.28 + 0.17 E-03	7.52 + 2.46 E-04	1.89 + 0.11 E-03	3.47 + 0.17 E-03	2.37 + 0.11 E-03
Cs-134	<2.30 E-04	<2.58 E-04	<3.17 E-04	3.36 + 0.70 E-04	<1.67 E-04	<1.07 E-04
Cr-51	<1.50 E-03	<1.99 E-03	<2.87 E-03	9.05 + 5.39 E-04	<1.33 E-03	<8.49 E-04
Ce-141	<2.23 E-04	<2.82 E-04	1.46 + 0.14 E-03	1.09 + 0.08 E-03	<1.90 E-04	<1.26 E-04
BaLa-140	<7.72 E-04	<1.03 E-03	7.73 + 0.76 E-03	1.63 + 0.27 E-03	<1.59 E-04	<2.14 E-04
I-131	<1.87 E-04	<2.51 E-04	4.60 + 0.21 E-03	<2.09 E-04	<1.59 E-04	<2.14 E-04



TABLE 12 (Cont.)  
MONTHLY PARTICULATE COMPOSITES  
Gamma Activity - pCi/m<sup>3</sup>

ISOTOPE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
ONSITE COMPOSITE						
Co-60	4.8 + 1.6 E-04	5.2 + 1.9 E-04	8.3 + 2.2 E-04	1.4 + 0.2 E-03	5.7 + 1.8 E-04	6.2 + 2.4 E-04
Fe-59	<3.0 E-04	<3.0 E-04	<3.0 E-04	<3.0 E-04	<3.0 E-04	<3.0 E-04
Mn-54	2.1 + 1.4 E-04	2.8 + 1.8 E-04	<3.0 E-04	5.7 + 1.9 E-04	3.7 + 2.1 E-04	3.8 + 2.1 E-04
Co-58	<1.0 E-04	<1.0 E-04	<2.0 E-04	2.2 + 1.6 E-04	<1.0 E-04	<1.0 E-04
Nb-95	2.4 + 1.5 E-04	<2.0 E-04	<2.0 E-04	<1.0 E-04	<1.0 E-04	<1.0 E-04
Zr-95	<5.0 E-04	<3.0 E-04	<2.0 E-04	<2.0 E-04	<2.0 E-04	<2.0 E-04
Cs-137	2.6 + 0.3 E-03	1.6 + 0.3 E-03	8.6 + 2.8 E-04	3.0 + 1.6 E-04	3.9 + 1.9 E-04	3.8 + 1.9 E-04
Cs-134	<1.0 E-04	<2.0 E-04	<2.0 E-04	<1.0 E-04	<2.0 E-04	<2.0 E-04
Cr-51	<8.0 E-04	<1.0 E-03	<1.0 E-03	<7.0 E-04	<9.0 E-04	<8.0 E-04
Ce-144	1.5 + 0.2 E-02	7.0 + 0.9 E-03	4.4 + 0.8 E-03	1.6 + 0.5 E-03	1.6 + 0.6 E-03	1.5 + 0.6 E-03
Ba-La-140	<2.0 E-04	<2.0 E-04	<2.0 E-04	<1.0 E-04	<2.0 E-04	<2.0 E-04
Be-7	2.0 + 0.2 E-02	2.4 + 0.3 E-02	2.8 + 0.3 E-02	1.8 + 0.2 E-02	3.2 + 0.3 E-02	3.2 + 0.3 E-02
Sb-125	1.2 + 0.4 E-03	6.4 + 4.5 E-04	6.2 + 4.4 E-04	<3.0 E-04	<4.0 E-04	<4.0 E-04
Ru-106	7.4 + 1.8 E-03	3.5 + 1.7 E-03	<2.0 E-03	<1.0 E-03	<1.0 E-03	<1.0 E-03

OFFSITE COMPOSITE

Co-60	<5.0 E-04	<5.0 E-04	2.1 + 0.6 E-03	1.4 + 0.4 E-03	9.3 + 4.8 E-04	8.1 + 3.1 E-04
Fe-59	<3.0 E-04	<4.0 E-04	<6.0 E-04	<5.0 E-04	<5.0 E-04	<3.0 E-04
Mn-54	<3.0 E-04	<3.0 E-04	5.9 + 4.8 E-04	7.0 + 3.8 E-04	<4.0 E-04	<3.0 E-04
Co-58	<2.0 E-04	<2.0 E-04	<4.0 E-04	<3.0 E-04	<3.0 E-04	<2.0 E-04
Nb-95	<4.0 E-04	<3.0 E-04	<4.0 E-04	<2.0 E-04	<3.0 E-04	<3.0 E-04
Zr-95	<6.0 E-04	<6.0 E-04	<6.0 E-04	<5.0 E-04	<4.0 E-04	<4.0 E-04
Cs-137	4.2 + 0.7 E-03	2.2 + 0.7 E-03	1.2 + 6.0 E-03	1.0 + 0.4 E-03	1.3 + 0.6 E-03	8.7 + 4.3 E-04
Cs-134	<3.0 E-04	<3.0 E-04	<4.0 E-04	<3.0 E-04	<3.0 E-04	<3.0 E-04
Cr-51	<2.0 E-03	<2.0 E-03	<3.0 E-04	<2.0 E-03	<2.0 E-03	<2.0 E-03
Ce-144	2.4 + 0.3 E-02	1.1 + 0.3 E-02	5.3 + 2.7 E-03	3.8 + 1.7 E-03	3.2 + 2.0 E-03	5.4 + 2.2 E-03
BaLa-140	<4.0 E-04	<4.0 E-04	<5.0 E-04	<4.0 E-04	<5.0 E-04	<5.0 E-04
Be-7	2.9 + 0.5 E-02	3.1 + 0.6 E-02	3.5 + 0.6 E-02	5.2 + 0.6 E-02	7.8 + 0.8 E-02	7.9 + 0.8 E-02
Sb-125	1.7 + 1.0 E-03	<1.0 E-03	<9.0 E-04	1.1 + 1.0 E-03	<8.0 E-04	<6.0 E-04
Ru-106	8.3 + 4.3 E-03	<4.0 E-03	<3.0 E-03	<3.0 E-03	<3.0 E-03	<3.0 E-03





TABLE 13  
NMP-JAF SITE  
ENVIRONMENTAL CHARCOAL CARTRIDGE ACTIVITY OFF-SITE STATIONS  
I-131 pCi/m<sup>3</sup> ± 4.66σ

Date Collected	Location					
	C	D <sub>1</sub>	D <sub>2</sub>	E	F	G
1-6-78	0.00 ± 0.14	0.00 ± 0.20	0.00 ± 0.15	0.00 ± 0.13	0.00 ± 0.18	0.00 ± 0.18
1-11-78	0.00 ± 0.03	0.00 ± 0.07	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.06	0.00 ± 0.05
1-17-78	0.00 ± 0.06	0.00 ± 0.07	0.00 ± 0.04	0.00 ± 0.02	0.00 ± 0.05	0.00 ± 0.04
1-24-78	0.00 ± 0.05	0.00 ± 0.06	0.00 ± 0.04	0.00 ± 0.03	0.00 ± 0.06	0.00 ± 0.05
1-31-78	0.00 ± 0.04	0.00 ± 0.07	0.00 ± 0.04	0.00 ± 0.04	0.00 ± 0.06	0.00 ± 0.05
2-7-78	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.02	0.00 ± 0.04	0.00 ± 0.03
2-14-78	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.02	0.00 ± 0.04	0.00 ± 0.03
2-22-78	0.00 ± 0.02	0.00 ± 0.04	0.00 ± 0.03	0.00 ± 0.02	0.00 ± 0.04	0.00 ± 0.04
2-28-78	0.00 ± 0.02	0.00 ± 0.04	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.04	0.00 ± 0.03
3-7-78	0.00 ± 0.02	0.00 ± 0.05	0.00 ± 0.03	0.00 ± 0.02	0.00 ± 0.04	0.00 ± 0.03
3-15-78	0.00 ± 0.03	0.00 ± 0.04	0.00 ± 0.02	0.00 ± 0.02	0.00 ± 0.03	0.00 ± 0.03
3-21-78	0.00 ± 0.03	0.00 ± 0.04	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.05	0.00 ± 0.03
3-28-78	0.03 ± 0.01	0.04 ± 0.01	0.03 ± 0.01	0.03 ± 0.01	0.00 ± 0.05	0.00 ± 0.04
4-4-78	0.00 ± 0.03	0.00 ± 0.05	0.00 ± 0.04	0.00 ± 0.03	0.00 ± 0.05	0.00 ± 0.04
4-11-78	0.00 ± 0.03	0.00 ± 0.05	TV Interference Test	0.00 ± 0.02	0.00 ± 0.03	0.00 ± 0.03
4-18-78	0.00 ± 0.03	0.00 ± 0.04	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.05	0.00 ± 0.03
4-25-78	0.00 ± 0.03	0.00 ± 0.04	0.00 ± 0.03	0.00 ± 0.02	0.00 ± 0.04	0.00 ± 0.03
5-2-78	0.00 ± 0.03	0.00 ± 0.04	0.00 ± 0.02	0.00 ± 0.02	0.00 ± 0.03	0.00 ± 0.03
5-9-78	0.00 ± 0.02	0.00 ± 0.04	0.00 ± 0.03	0.00 ± 0.02	0.00 ± 0.04	0.00 ± 0.03
5-16-78	0.00 ± 0.03	0.00 ± 0.04	0.00 ± 0.03	0.00 ± 0.02	0.00 ± 0.04	0.00 ± 0.02
5-23-78	0.00 ± 0.03	0.00 ± 0.04	0.00 ± 0.02	0.00 ± 0.04	0.00 ± 0.03	0.00 ± 0.02
5-31-78	0.00 ± 0.02	0.00 ± 0.02	0.00 ± 0.02	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.02
6-6-78	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.05	0.00 ± 0.04
6-13-78	0.00 ± 0.04	0.00 ± 0.03	0.00 ± 0.02	0.00 ± 0.03	0.00 ± 0.04	0.00 ± 0.03
6-20-78	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.04	0.00 ± 0.03
6-26-78	0.00 ± 0.02	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.02



TABLE 13 (Cont.)  
NMP-JAF SITE  
ENVIRONMENTAL CHARCOAL CARTRIDGE ACTIVITY OFF-SITE STATIONS  
I-131 pCi/m<sup>3</sup> ± 4.66σ

Date Collected	Location					
	C	D <sub>1</sub>	D <sub>2</sub>	E	F	G
7-5-78	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.03
7-11-78	0.00 ± 0.03	0.00 ± 0.04	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.03
7-18-78	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.03
7-25-78	0.00 ± 0.03	0.00 ± 0.04	0.00 ± 0.03	0.00 ± 0.02	0.00 ± 0.03	0.00 ± 0.03
8-1-78	0.00 ± 0.03	*	0.00 ± 0.02	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.03
8-8-78	0.00 ± 0.09	0.00 ± 0.08	0.00 ± 0.08	0.00 ± 0.09	0.00 ± 0.08	0.00 ± 0.09
8-15-78	0.00 ± 0.09	0.00 ± 0.08	0.00 ± 0.08	0.00 ± 0.10	0.00 ± 0.10	0.00 ± 0.09
8-22-78	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.03
8-29-78	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.02	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.03
9-6-78	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.04	0.00 ± 0.04	0.00 ± 0.03	0.00 ± 0.04
9-12-78	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.04	0.00 ± 0.03	0.00 ± 0.02
9-19-78	*	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.03
9-26-78	0.00 ± 0.04	0.00 ± 0.04	0.00 ± 0.04	0.00 ± 0.03	0.00 ± 0.18	0.00 ± 0.04
10-3-78	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.04	0.00 ± 0.04	0.00 ± 0.04
10-11-78	0.00 ± 0.03	0.00 ± 0.02	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.03
10-17-78	0.00 ± 0.03	0.00 ± 0.04	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.04
10-24-78	0.00 ± 0.04	0.00 ± 0.02	0.00 ± 0.02	0.00 ± 0.03	0.00 ± 0.04	0.00 ± 0.03
10-31-78	0.00 ± 0.04	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.04	0.00 ± 0.03
11-7-78	0.00 ± 0.02	0.00 ± 0.03	0.00 ± 0.02	0.00 ± 0.03	0.00 ± 0.04	0.00 ± 0.04
11-14-78	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.04	0.00 ± 0.03
11-21-78	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.04	0.00 ± 0.04
11-29-78	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.02	0.00 ± 0.04	0.00 ± 0.04
12-5-78	0.00 ± 0.03	0.00 ± 0.04	0.00 ± 0.04	0.00 ± 0.03	0.00 ± 0.05	0.00 ± 0.05
12-12-78	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.03
12-19-78	0.00 ± 0.02	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.05
12-27-78	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.03
1-4-79	0.00 ± 0.05	0.00 ± 0.04	0.00 ± 0.04	0.00 ± 0.04	0.00 ± 0.05	0.00 ± 0.06



TABLE 14  
NMP-JAF SITE  
ENVIRONMENTAL CHARCOAL CARTRIDGE ACTIVITY ON-SITE STATIONS  
I-131 pCi/m<sup>3</sup> ± 4.66σ

Date Collected	Location								
	D <sub>1</sub>	D <sub>2</sub>	E	F	G	H	I	J	K
1-4-78	0.00 ± 0.13	0.00 ± 0.15	0.00 ± 0.17	0.00 ± 0.13	0.00 ± 0.16	0.00 ± 0.16	0.00 ± 0.08	0.00 ± 0.11	0.00 ± 0.09
1-9-78	0.00 ± 0.05	0.00 ± 0.06	0.00 ± 0.06	0.00 ± 0.06	0.00 ± 0.07	0.00 ± 0.08	0.00 ± 0.03	0.00 ± 0.04	0.00 ± 0.03
1-16-78	0.00 ± 0.05	0.00 ± 0.05	0.00 ± 0.06	0.00 ± 0.04	0.00 ± 0.04	0.00 ± 0.05	0.00 ± 0.02	0.00 ± 0.03	0.00 ± 0.03
1-23-78	0.00 ± 0.05	0.00 ± 0.05	0.00 ± 0.04	0.00 ± 0.05	0.00 ± 0.06	0.00 ± 0.05	0.00 ± 0.03	0.00 ± 0.02	0.00 ± 0.03
1-30-78	0.00 ± 0.05	0.00 ± 0.07	0.00 ± 0.05	0.00 ± 0.05	0.00 ± 0.05	0.00 ± 0.05	0.00 ± 0.04	0.00 ± 0.03	0.00 ± 0.04
2-6-78	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.04	0.00 ± 0.03	0.00 ± 0.04	0.00 ± 0.03	0.00 ± 0.02	0.00 ± 0.02	0.00 ± 0.02
2-13-78	0.00 ± 0.02	0.00 ± 0.04	0.00 ± 0.04	0.00 ± 0.03	0.00 ± 0.04	0.00 ± 0.03	0.00 ± 0.02	0.00 ± 0.02	0.00 ± 0.02
2-21-78	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.04	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.02	0.00 ± 0.02	0.00 ± 0.02
2-27-78	0.00 ± 0.03	0.00 ± 0.04	0.00 ± 0.04	0.00 ± 0.03	0.00 ± 0.04	0.00 ± 0.03	0.00 ± 0.02	0.00 ± 0.02	0.00 ± 0.02
3-6-78	0.00 ± 0.03	0.00 ± 0.04	0.00 ± 0.05	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.04	0.00 ± 0.02	0.00 ± 0.03	0.00 ± 0.02
3-13-78	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.04	0.00 ± 0.04	0.00 ± 0.02	0.00 ± 0.02	0.00 ± 0.02
3-20-78	0.00 ± 0.03	0.00 ± 0.04	0.00 ± 0.04	0.00 ± 0.04	0.00 ± 0.05	0.00 ± 0.03	0.00 ± 0.02	0.00 ± 0.02	0.00 ± 0.02
3-27-78	0.04 ± 0.01	0.00 ± 0.04	0.04 ± 0.01	0.00 ± 0.05	0.00 ± 0.05	0.06 ± 0.01	0.04 ± 0.01	0.03 ± 0.01	0.03 ± 0.01
4-3-78	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.04	0.00 ± 0.03	0.00 ± 0.05	0.00 ± 0.05	0.00 ± 0.03	0.00 ± 0.02	0.00 ± 0.03
4-10-78	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.04	0.00 ± 0.03	0.00 ± 0.02	0.00 ± 0.02	0.00 ± 0.02
4-17-78	0.00 ± 0.04	0.00 ± 0.04	0.00 ± 0.04	0.00 ± 0.04	0.00 ± 0.05	0.00 ± 0.01	*	0.00 ± 0.02	0.00 ± 0.02
4-24-78	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.04	0.00 ± 0.03	0.00 ± 0.04	0.00 ± 0.02	0.00 ± 0.01	0.00 ± 0.02	0.00 ± 0.03
5-1-78	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.04	0.00 ± 0.03	0.00 ± 0.04	0.00 ± 0.03	0.00 ± 0.02	0.00 ± 0.02	0.00 ± 0.03
5-8-78	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.04	0.00 ± 0.04	0.00 ± 0.04	0.00 ± 0.02	0.00 ± 0.01	0.00 ± 0.02	0.00 ± 0.02
5-15-78	0.00 ± 0.03	0.00 ± 0.04	0.00 ± 0.04	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.01	0.00 ± 0.02	0.00 ± 0.01
5-22-78	0.00 ± 0.03	0.00 ± 0.04	0.00 ± 0.03	0.00 ± 0.02	0.00 ± 0.03	0.00 ± 0.02	0.00 ± 0.01	0.00 ± 0.02	0.00 ± 0.01
5-29-78	0.00 ± 0.03	0.00 ± 0.04	0.00 ± 0.04	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.02	0.00 ± 0.03	0.00 ± 0.02
6-5-78	0.00 ± 0.03	0.00 ± 0.04	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.02	0.00 ± 0.01	0.00 ± 0.02	0.00 ± 0.01
6-12-78	0.00 ± 0.03	0.00 ± 0.04	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.02	0.00 ± 0.02	0.00 ± 0.01	0.00 ± 0.01	0.00 ± 0.02
6-19-78	0.00 ± 0.03	0.00 ± 0.05	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.02	0.00 ± 0.01	0.00 ± 0.02	0.00 ± 0.02
6-27-78	0.00 ± 0.02	0.00 ± 0.05	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.03	0.07 ± 0.01	0.00 ± 0.02	0.00 ± 0.01	0.00 ± 0.02



TABLE 14(Cont.)  
NMP-JAF SITE  
ENVIRONMENTAL CHARCOAL CARTRIDGE ACTIVITY ON-SITE STATIONS  
 $I-131 \text{ pCi/m}^3 \pm 4.66\sigma$

Date Collected	Location								
	D <sub>1</sub>	D <sub>2</sub>	E	F	G	H	I	J	K
7-3-78	0.00 ± 0.03	0.00 ± 0.04	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.02	0.00 ± 0.02	0.00 ± 0.01	0.00 ± 0.01	0.00 ± 0.01
7-10-78	0.00 ± 0.02	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.02	0.00 ± 0.01	0.00 ± 0.02	0.00 ± 0.01
7-17-78	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.04	0.00 ± 0.03	0.00 ± 0.02	0.00 ± 0.02	0.00 ± 0.02	0.00 ± 0.02
7-24-78	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.01	0.00 ± 0.02	0.00 ± 0.02
7-31-78	0.00 ± 0.02	0.00 ± 0.04	0.00 ± 0.04	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.02	0.00 ± 0.01	0.00 ± 0.01	0.00 ± 0.01
8-7-78	0.00 ± 0.09	0.00 ± 0.09	0.00 ± 0.09	0.00 ± 0.08	0.00 ± 0.09	0.00 ± 0.08	0.00 ± 0.06	0.00 ± 0.04	0.00 ± 0.04
8-14-78	0.00 ± 0.09	0.00 ± 0.09	0.00 ± 0.09	0.00 ± 0.09	0.00 ± 0.08	0.00 ± 0.06	0.00 ± 0.04	0.00 ± 0.04	0.00 ± 0.04
8-21-78	0.00 ± 0.03	0.00 ± 0.04	0.00 ± 0.04	0.00 ± 0.04	0.00 ± 0.03	0.00 ± 0.02	0.00 ± 0.02	0.00 ± 0.02	0.00 ± 0.01
8-28-78	0.00 ± 0.03	0.00 ± 0.04	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.02	0.00 ± 0.02	0.00 ± 0.01	0.00 ± 0.01	0.00 ± 0.01
9-5-78	0.00 ± 0.04	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.02	0.00 ± 0.01	0.00 ± 0.01	0.00 ± 0.01
9-11-78	0.00 ± 0.03	0.00 ± 0.04	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.02	0.00 ± 0.01	0.00 ± 0.02	0.00 ± 0.02
9-18-78	0.00 ± 0.03	0.00 ± 0.04	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.02	0.00 ± 0.02	0.00 ± 0.01	0.00 ± 0.01
9-25-78	0.00 ± 0.04	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.03	0.02 ± 0.00	0.00 ± 0.02	0.00 ± 0.02
10-2-78	0.00 ± 0.03	0.00 ± 0.04	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.02	0.00 ± 0.02	0.00 ± 0.04	0.00 ± 0.02
10-10-78	0.00 ± 0.02	0.00 ± 0.04	(*)	0.00 ± 0.03	0.00 ± 0.03	**	**	0.00 ± 0.01	0.00 ± 0.01
10-16-78	0.00 ± 0.03	0.00 ± 0.04	0.00 ± 0.03	0.00 ± 0.03	0.04 ± 0.01	**	**	0.00 ± 0.01	0.00 ± 0.02
10-23-78	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.04	0.00 ± 0.03	0.00 ± 0.01	0.00 ± 0.01	0.00 ± 0.01	0.00 ± 0.02
10-30-78	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.02	0.00 ± 0.03	0.00 ± 0.01	0.00 ± 0.01	0.00 ± 0.01	0.00 ± 0.01
11-6-78	0.00 ± 0.04	0.00 ± 0.04	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.01	0.00 ± 0.01	0.00 ± 0.02	0.00 ± 0.01
11-13-78	0.00 ± 0.03	0.00 ± 0.04	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.04	0.00 ± 0.02	0.00 ± 0.02	0.00 ± 0.01	0.00 ± 0.01
11-20-78	0.00 ± 0.03	0.00 ± 0.04	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.01	0.00 ± 0.01	*	0.00 ± 0.01
11-28-78	0.00 ± 0.03	0.00 ± 0.04	0.00 ± 0.04	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.02	0.00 ± 0.01	*	0.00 ± 0.01
12-4-78	0.00 ± 0.05	0.00 ± 0.04	0.00 ± 0.04	0.00 ± 0.04	0.00 ± 0.04	0.00 ± 0.03	0.00 ± 0.02	*	0.00 ± 0.02
12-11-78	0.00 ± 0.04	0.00 ± 0.05	0.00 ± 0.04	0.00 ± 0.04	0.00 ± 0.04	0.00 ± 0.03	0.00 ± 0.02	0.00 ± 0.02	0.00 ± 0.01
12-18-78	0.00 ± 0.05	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.02	0.00 ± 0.01	0.00 ± 0.02	0.00 ± 0.01
12-26-78	0.00 ± 0.04	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.03	*	0.00 ± 0.02	0.00 ± 0.01	0.00 ± 0.02	0.00 ± 0.01
1-2-79	0.00 ± 0.04	0.00 ± 0.04	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.03	0.00 ± 0.01	0.00 ± 0.02	0.00 ± 0.01





TABLE 15  
ENVIRONMENTAL TLD READINGS  
Net Dose in mRem  $\pm 2\sigma$

TLD NO.	LOCATION	QUARTER			
		1st	2nd	3rd	4th
3	D1 On Site	Missing	27 $\pm$ 3	23 $\pm$ 3	21 $\pm$ 2
4	D2 On Site	14 $\pm$ 4	Missing	12 $\pm$ 2	14 $\pm$ 2
5	E On Site	13 $\pm$ 3	14 $\pm$ 2	12 $\pm$ 2	Missing
6	F On Site	12 $\pm$ 3	12 $\pm$ 2	10 $\pm$ 1	12 $\pm$ 1
7	G On Site	9 $\pm$ 3	10 $\pm$ 1	11 $\pm$ 2	11 $\pm$ 1
8	C Off Site	12 $\pm$ 3	Missing	13 $\pm$ 2	14 $\pm$ 1
9	D1 Off Site	10 $\pm$ 3	Missing	12 $\pm$ 1	11 $\pm$ 1
10	D2 Off Site	10 $\pm$ 3	11 $\pm$ 2	9 $\pm$ 2	12 $\pm$ 1
11	E Off Site	10 $\pm$ 3	11 $\pm$ 4	7 $\pm$ 1	10 $\pm$ 1
12	F Off Site	Missing	11 $\pm$ 3	10 $\pm$ 2	11 $\pm$ 1
13	G Off Site	8 $\pm$ 2	10 $\pm$ 1	10 $\pm$ 2	10 $\pm$ 1
14	SW Oswego	12 $\pm$ 3	12 $\pm$ 2	10 $\pm$ 1	13 $\pm$ 1
15	Pole 66, W. Bound	9 $\pm$ 2	11 $\pm$ 3	9 $\pm$ 1	10 $\pm$ 2
16	Pole 51, W. Bound	14 $\pm$ 4	12 $\pm$ 3	11 $\pm$ 2	12 $\pm$ 1
17	Prog. Cen. E. Yard	13 $\pm$ 3	13 $\pm$ 2	12 $\pm$ 2	13 $\pm$ 2
18	Prog. Cen. Picnic	11 $\pm$ 3	13 $\pm$ 2	10 $\pm$ 2	12 $\pm$ 2
19	Pole 9, E. Bound	13 $\pm$ 3	12 $\pm$ 2	11 $\pm$ 3	12 $\pm$ 1
20	JAF Shore, W. Bound	25 $\pm$ 12	Missing	Missing	Missing
21	Pole 67, E. Bound	10 $\pm$ 3	12 $\pm$ 2	11 $\pm$ 3	13 $\pm$ 2
22	Pole 53, E. Bound	9 $\pm$ 4	11 $\pm$ 1	10 $\pm$ 1	11 $\pm$ 1
23	H On-Site	14 $\pm$ 3	16 $\pm$ 2	15 $\pm$ 1	15 $\pm$ 1
24	I On-Site	10 $\pm$ 3	13 $\pm$ 2	11 $\pm$ 2	12 $\pm$ 1
25	J On-Site	10 $\pm$ 2	12 $\pm$ 2	11 $\pm$ 2	13 $\pm$ 2
26	K On-Site	10 $\pm$ 2	Missing	12 $\pm$ 2	12 $\pm$ 2
27	Light Pole(N) JAF	146 $\pm$ 31	157 $\pm$ 30	56 $\pm$ 5	51 $\pm$ 4
28	Light Pole(E) JAF	Missing	37 $\pm$ 4	131 $\pm$ 12	201 $\pm$ 12
29	N. Fence (E) JAF	36 $\pm$ 7	52 $\pm$ 6	84 $\pm$ 6	96 $\pm$ 15
30	N. Fence (MW) JAF	61 $\pm$ 11	60 $\pm$ 7	32 $\pm$ 4	107 $\pm$ 13
31	N. Fence (MW) NMP	38 $\pm$ 7	50 $\pm$ 5	40 $\pm$ 7	37 $\pm$ 2
32	N. Fence (W) NMP	26 $\pm$ 4	35 $\pm$ 4	25 $\pm$ 4	25 $\pm$ 2
33	NMP/JAF, Twin Pole (W) of JAF W. Fence	24 $\pm$ 4	28 $\pm$ 3	24 $\pm$ 3	25 $\pm$ 2
34	N of Unit 2 on Lake	16 $\pm$ 3	16 $\pm$ 2	14 $\pm$ 2	16 $\pm$ 2
35	E of Unit 2 on Stor. Bldg.	Missing	14 $\pm$ 2	Missing	13 $\pm$ 2
36	Pole Tower, FNM-13	13 $\pm$ 4	12 $\pm$ 2	9 $\pm$ 1	12 $\pm$ 1
37	Pole Tower, FNM-14	15 $\pm$ 3	17 $\pm$ 2	14 $\pm$ 1	17 $\pm$ 1
38	SE End of Shop on Fence	19 $\pm$ 3	22 $\pm$ 2	17 $\pm$ 2	18 $\pm$ 1
39	NMP-1 ME Gate	516 $\pm$ 101	387 $\pm$ 40	345 $\pm$ 59	371 $\pm$ 19
40	NE Gate, NMP-1	52 $\pm$ 7	127 $\pm$ 10	62 $\pm$ 5	44 $\pm$ 1
41	Paint Shop NMP-2	24 $\pm$ 6	35 $\pm$ 4	28 $\pm$ 3	24 $\pm$ 2
42	Turb. Track Bay NMP-2	73 $\pm$ 21	Missing	59 $\pm$ 6	Missing



TABLE 16  
CONTINUOUS RADIATION MONITORS\* (GM)  
mr/hr  
1st HALF

LOCATION	PERIOD	mR/hr		
		MIN.	MAX.	AVE.
C Off-Site	January	0.019	0.042	0.031
	February	0.022	0.042	0.030
	March	0.021	0.048	0.031
	April	0.024	0.050	0.035
	May	0.028	0.055	0.042
	June	0.018	0.052	0.035
D <sub>1</sub> On-Site	January	0.019	0.050	0.026
	February	0.011	0.042	0.023
	March	0.010	0.067	0.024
	April	0.014	0.042	0.030
	May	0.010	0.051	0.025
	June	0.022	0.065	0.043
D <sub>2</sub> On-Site	January	0.012	0.028	0.018
	February	0.010	0.032	0.021
	March	0.018	0.055	0.028
	April	0.015	0.040	0.030
	May	0.015	0.030	0.022
	June	0.016	0.033	0.025
E On-Site	January	0.012	0.023	0.016
	February	0.013	0.027	0.018
	March	0.013	0.024	0.018
	April	0.014	0.029	0.021
	May	0.015	0.030	0.022
	June	0.012	0.040	0.020
F On-Site	January	0.012	0.031	0.020
	February	0.010	0.024	0.018
	March	0.010	0.020	0.014
	April	0.010	0.022	0.014
	May	0.010	0.028	0.014
	June	0.010	0.025	0.018

\*Detectors are 'bugged' to insure onscale readings.



TABLE 16 (Cont.)

## CONTINUOUS RADIATION MONITORS\* (GM)

mr/hr  
1st HALF

LOCATION	PERIOD	mR/hr		
		MIN.	MAX.	AVE.
G On-Site	January	0.025	0.050	0.040
	February	0.027	0.048	0.036
	March	0.028	0.062	0.040
	April	0.029	0.080	0.040
	May	0.029	0.065	0.047
	June	0.026	0.065	0.046
H On-Site	January	0.016	0.032	0.024
	February	0.015	0.032	0.023
	March	0.019	0.035	0.021
	April	0.017	0.038	0.024
	May	0.016	0.035	0.025
	June	0.018	0.045	0.031
I On-Site	January	0.010	0.018	0.013
	February	0.010	0.040	0.015
	March	0.010	0.025	0.014
	April	0.010	0.022	0.014
	May	0.010	0.023	0.015
	June	0.010	0.030	0.020
J On-Site	January	0.010	0.021	0.013
	February	0.010	0.015	0.013
	March	0.010	0.030	0.017
	April	0.010	0.028	0.018
	May	0.012	0.030	0.021
	June	0.012	0.030	0.018
K On-Site	January	0.011	0.025	0.015
	February	0.011	0.025	0.018
	March	0.011	0.032	0.019
	April	0.012	0.032	0.017
	May	0.010	0.029	0.019
	June	0.010	0.028	0.019



TABLE 16 (Cont.)  
CONTINUOUS RADIATION MONITORS\* (GM)  
mr/hr  
2nd HALF

LOCATION	PERIOD	mR/hr		
		MIN.	MAX.	AVE.
C Off-Site	July	0.018	0.035	0.025
	August	0.018	0.032	0.025
	September	0.016	0.040	0.028
	October	0.015	0.030	0.025
	November	0.015	0.025	0.020
	December	0.012	0.030	0.020
D <sub>1</sub> On-Site	July	0.015	0.065	0.020
	August	0.018	0.060	0.025
	September	0.010	0.040	0.030
	October	0.020	0.500	0.035
	November	0.015	0.070	0.030
	December	0.028	0.075	0.040
D <sub>2</sub> On-Site	July	0.015	0.025	0.020
	August	0.015	0.045	0.020
	September	0.010	0.050	0.030
	October	0.015	0.025	0.018
	November	0.015	0.028	0.018
	December	0.010	0.030	0.015
E On-Site	July	0.015	0.030	0.020
	August	0.015	0.028	0.020
	September	0.010	0.030	0.020
	October	0.010	0.030	0.020
	November	0.010	0.030	0.020
	December	0.015	0.040	0.020
F On-Site	July	0.010	0.028	0.018
	August	0.010	0.025	0.015
	September	0.010	0.030	0.015
	October	0.010	0.030	0.015
	November	0.012	0.025	0.015
	December	0.010	0.050	0.015

\*Detectors are 'bugged' to insure onscale readings.





TABLE 16 (Cont.)

## CONTINUOUS RADIATION MONITORS\* (GM)

mr/hr  
2nd HALF

LOCATION	PERIOD	mR/hr		
		MIN.	MAX.	AVE.
G On-Site	July	0.025	0.075	0.045
	August	0.030	0.070	0.045
	September	0.030	0.050	0.040
	October	0.025	0.050	0.040
	November	0.028	0.200	0.040
	December	0.010	0.050	0.020
H On-Site	July	0.020	0.050	0.030
	August	0.015	0.040	0.030
	September	0.010	0.035	0.025
	October	0.015	0.035	0.025
	November	0.018	0.035	0.025
	December	0.018	0.045	0.030
I On-Site	July	0.010	0.025	0.018
	August	0.010	0.050	0.015
	September	0.010	0.020	0.015
	October	0.010	0.030	0.018
	November	0.020	0.020	0.020
	December	0.010	0.022	0.013
J On-Site	July	0.015	0.035	0.020
	August	0.015	0.030	0.020
	September	0.010	0.040	0.020
	October	0.010	0.045	0.030
	November	0.015	0.025	0.020
	December	0.012	0.023	0.017
K On-Site	July	0.012	0.030	0.020
	August	0.010	0.030	0.015
	September	0.010	0.035	0.020
	October	0.010	0.035	0.025
	November	0.010	0.025	0.015
	December	0.010	0.020	0.015



TABLE 17

## CONCENTRATIONS OF IODINE-131 IN MILK

Results in Units of pCi/l  $\pm$  2 sigma

STATION*	6-05-78	7-04-78	8-01-78	9-08-78	10-02-78	11-02-78	12-04-78
4	<0.1	<0.2	<0.1	<0.2	<0.2	<0.2	<0.2
13	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
14	<0.2	<0.2	<0.3	<0.2	<0.2	<0.2	<0.3
16	<0.2	<0.2	<0.1	<0.2	<0.2	<0.2	<0.2
25	<0.2	<0.2	<0.2	<0.3	0.19 $\pm$ 0.07	<0.2	<0.2

\*See Env. Sample Summary for Cross Reference to prior years sample locations.



TABLE 18

## CONCENTRATIONS OF GAMMA EMITTERS AND STRONTIUM-90 IN MILK

Results in Units of pCi/l  $\pm$  2 sigma

STATION	NUCLIDES	6-05-78 to 6-19-78	7-04-78 to 7-17-78	8-01-78 to 8-14-78	9-08-78 to 9-18-78	10-02-78 to 10-16-78	11-02-78 to 11-13-78	12-04-78 to 12-18-78
4	K-40	800 $\pm$ 80*	1300 $\pm$ 130	1500 $\pm$ 150	1600 $\pm$ 160	1600 $\pm$ 160	1200 $\pm$ 120	1600 $\pm$ 160
	Cs-137	5.5 $\pm$ 2.2	7.2 $\pm$ 2.3	7.7 $\pm$ 3.8	12 $\pm$ 4	6.8 $\pm$ 3.2	3.7 $\pm$ 2.1	6.0 $\pm$ 3.0
	Sr-90	5.0 $\pm$ 1.3	4.8 $\pm$ 1.2	4.8 $\pm$ 0.9	6.2 $\pm$ 1.5	7.3 $\pm$ 1.5	4.6 $\pm$ 0.9	3.4 $\pm$ 0.7
13	K-40	1200 $\pm$ 120	1100 $\pm$ 110	1200 $\pm$ 120	1400 $\pm$ 140	1600 $\pm$ 160	990 $\pm$ 99	1500 $\pm$ 150
	Cs-137	7.8 $\pm$ 2.3	6.3 $\pm$ 2.1	7.8 $\pm$ 3.1	6.8 $\pm$ 3.7	5.5 $\pm$ 2.8	2.4 $\pm$ 1.9	4.2 $\pm$ 3.2
	Sr-90	7.6 $\pm$ 1.0	6.6 $\pm$ 0.9	5.1 $\pm$ 1.1	9.0 $\pm$ 2.3	5.7 $\pm$ 1.0	4.2 $\pm$ 1.3	3.0 $\pm$ 0.6
14	K-40	1100 $\pm$ 110*	930 $\pm$ 93	1500 $\pm$ 150	1600 $\pm$ 160	1500 $\pm$ 150	1400 $\pm$ 140	1400 $\pm$ 140
	Cs-137	3.9 $\pm$ 2.0	5.3 $\pm$ 2.1	7.8 $\pm$ 3.4	9.7 $\pm$ 3.6	4.5 $\pm$ 2.8	5.3 $\pm$ 2.3	3.4 $\pm$ 2.8
	Sr-90	4.5 $\pm$ 0.9	8.1 $\pm$ 1.2	3.8 $\pm$ 1.0	5.5 $\pm$ 2.1	5.1 $\pm$ 1.5	2.5 $\pm$ 1.2	3.2 $\pm$ 0.8
16	K-40	960 $\pm$ 96	1200 $\pm$ 120	1400 $\pm$ 140	1900 $\pm$ 190	1600 $\pm$ 160	1300 $\pm$ 130	1600 $\pm$ 160
	Cs-137	10 $\pm$ 2	14 $\pm$ 3	9.6 $\pm$ 3.6	30 $\pm$ 6	6.9 $\pm$ 3.7	3.5 $\pm$ 2.0	7.2 $\pm$ 2.8
	Sr-90	6.3 $\pm$ 0.9	7.3 $\pm$ 1.0	6.5 $\pm$ 1.1	7.4 $\pm$ 2.5	6.6 $\pm$ 1.1	4.7 $\pm$ 1.2	5.1 $\pm$ 0.7
25	K-40	950 $\pm$ 95	1300 $\pm$ 130	1400 $\pm$ 140	1800 $\pm$ 180	1700 $\pm$ 170	1300 $\pm$ 130	1900 $\pm$ 190
	Cs-137	12 $\pm$ 3	17 $\pm$ 3	16 $\pm$ 5	10 $\pm$ 4	11 $\pm$ 4	9.2 $\pm$ 2.9	33 $\pm$ 6
	Sr-90	10 $\pm$ 1	8.1 $\pm$ 1.0	5.5 $\pm$ 1.4	7.8 $\pm$ 1.4	8.1 $\pm$ 1.3	8.5 $\pm$ 2.1	5.2 $\pm$ 1.1



TABLE 19 (Cont.)

MILCH ANIMAL CENSUS  
SUMMER 1978

<u>TOWN</u>	<u>NO. ON MAP</u>	<u>MILCH ANIMALS</u>
New Haven	1	33C
	4	52C
	5	23C
	21	30C
	35	17G
Mexico	2	0
	7	24C
	8	48C
	9	**
	12	19C
	14	60C
	15	42C
	20	1G
	22	31C
	23	37C
	24	45C
	26	34C
	27	1C
	28	0
	29	3C
	30	*
	33	0
	36	0
	37	35C
Richland	18	**
Lycoming	25	16C
Hannibal	13	26C
Oswego	3	*
	6	*
	10	3C
	11	29C
	16	30C
	17	0
	19	*
	31	1C
	32	20C
	34	0

C = Cows

G = Goats

\* = Would Not Cooperate

\*\* = Numerous attempts were made to contact this person; all unsuccessful.





TABLE 19  
MILCH ANIMAL CENSUS  
SPRING 1978

<u>TOWN</u>	<u>NO. ON MAP</u>	<u>MILCH ANIMALS</u>
New Haven	1	33C
	4	52C
	5	22C
	21	40C
	35	17G
Mexico	2	0
	7	20C
	8	45C
	9	**
	12	19C
	14	60C
	15	45C
	20	1G
	22	35C
	23	36C
	24	45C
	26	40C
	27	1C
	28	0
	29	6C
	30	*
	33	0
	36	0
	37	31C
Richland	18	55C
Lycoming	25	16C
Hannibal	13	22C
Oswego	3	*
	6	**
	10	4C
	11	26C
	16	38C
	17	0
	19	*
	31	1C
	32	20C
	34	0

C = Cows

G = Goats

\* = Would Not Cooperate

\*\* = Numerous attempts were made to contact this person; all unsuccessful.



TABLE 20

## CONCENTRATIONS OF GAMMA EMITTERS IN VARIOUS FOOD PRODUCTS

Results in Units of pCi/g(wet)  $\pm$  2 sigma

SAMPLE	SAMPLE DATE	DESCRIPTION	Be-7	K-40	Mn-54	Sb-125	Cs-137	Ra-226
N	5-10-78	Beef	<0.04	1.5 $\pm$ 0.2	<0.004	<0.01	0.040 $\pm$ 0.008	<0.01
F	5-14-78	Chicken	<0.04	2.5 $\pm$ 0.3	<0.004	<0.01	0.014 $\pm$ 0.007	<0.01
A	5-17-78	Beef	<0.03	1.7 $\pm$ 0.2	<0.004	<0.01	0.014 $\pm$ 0.006	<0.008
K	5-17-78	Chicken	<0.03	1.9 $\pm$ 0.2	<0.003	<0.008	<0.004	<0.009
K	5-17-78	Eggs	<0.03	0.72 $\pm$ 0.12	<0.004	<0.009	<0.004	<0.01
O	5-18-78	Chicken	<0.04	2.0 $\pm$ 0.2	<0.004	<0.01	0.013 $\pm$ 0.008	<0.01
O	5-18-78	Eggs	<0.04	1.4 $\pm$ 0.2	<0.004	<0.01	<0.005	<0.01
L	5-24-78	Eggs	<0.03	0.9 $\pm$ 0.1	<0.003	<0.009	<0.004	<0.008
O	5-25-78	Goat	<0.03	2.0 $\pm$ 0.2	<0.003	0.01 $\pm$ 0.01	0.033 $\pm$ 0.005	<0.006
D	8-21-78	Green Beans	0.07 $\pm$ 0.06	4.8 $\pm$ 0.5	<0.006	<0.01	<0.008	<0.01
D	8-21-78	Zucchini Squash	<0.04	1.1 $\pm$ 0.2	<0.004	<0.01	<0.005	<0.01
G	8-21-78	Pears	<0.04	0.8 $\pm$ 0.1	0.011 $\pm$ 0.008	<0.01	<0.006	<0.02
G	8-21-78	Tomatoes	<0.04	1.7 $\pm$ 0.2	<0.005	<0.01	<0.005	<0.01
C	8-24-78	Broccoli	<0.03	2.3 $\pm$ 0.2	<0.004	<0.01	<0.005	<0.009
C	8-24-78	Cabbage	<0.02	1.5 $\pm$ 0.2	<0.003	<0.007	<0.003	<0.006
E	9-13-78	Cabbage	<0.09	3.9 $\pm$ 0.5	<0.01	<0.03	<0.01	<0.03
G	9-14-78	Pears	<0.1	1.0 $\pm$ 0.4	<0.01	<0.04	<0.01	<0.03
I	9-15-78	Tomatoes	<0.09	2.8 $\pm$ 0.4	<0.01	<0.03	0.01 $\pm$ 0.01	<0.03
F	11-15-78	Chicken	<0.03	2.8 $\pm$ 0.3	<0.004	<0.01	<0.005	0.013 $\pm$ 0.008
H	11-15-78	Pork	<0.03	2.3 $\pm$ 0.2	<0.004	<0.01	0.020 $\pm$ 0.009	<0.009
J	11-15-78	Pork	<0.03	1.6 $\pm$ 0.2	<0.003	<0.009	0.014 $\pm$ 0.005	<0.008
K	11-15-78	Chicken	<0.03	2.7 $\pm$ 0.3	<0.003	<0.01	<0.004	<0.01
K	11-15-78	Eggs	<0.03	1.3 $\pm$ 0.1	<0.004	<0.01	<0.005	<0.009



TABLE 20 (cont.)

## CONCENTRATIONS OF GAMMA EMITTERS IN VARIOUS FOOD PRODUCTS

Results in Units of pCi/g(wet)  $\pm$  2 sigma

SAMPLE	SAMPLE DATE	DESCRIPTION	Be-7	K-40	Mn-54	Sb-125	Cs-137	Ra-226
O	11-15-78	Chicken	<0.05	2.5 $\pm$ 0.3	<0.005	<0.01	0.01 $\pm$ 0.01	<0.01
O	11-15-78	Eggs	<0.03	1.0 $\pm$ 0.1	<0.003	<0.009	0.006 $\pm$ 0.004	<0.008
B	11-16-78	Beef	<0.03	2.4 $\pm$ 0.2	<0.003	<0.01	0.016 $\pm$ 0.006	0.02 $\pm$ 0.01
M	11-20-78	Eggs	<0.03	1.1 $\pm$ 0.1	<0.004	<0.01	<0.004	<0.01



FIGURE 1

OFF-SITE ENVIRONMENTAL STATION  
AND  
TLD LOCATIONS \*

\*TLD at each station

Revised to January 1, 1974

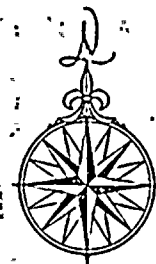
SCALE OF MILES



LEGEND

- Interstate.....
- U.S. & State Highways.....
- 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 568 Square miles



LAKE

ONTARIO

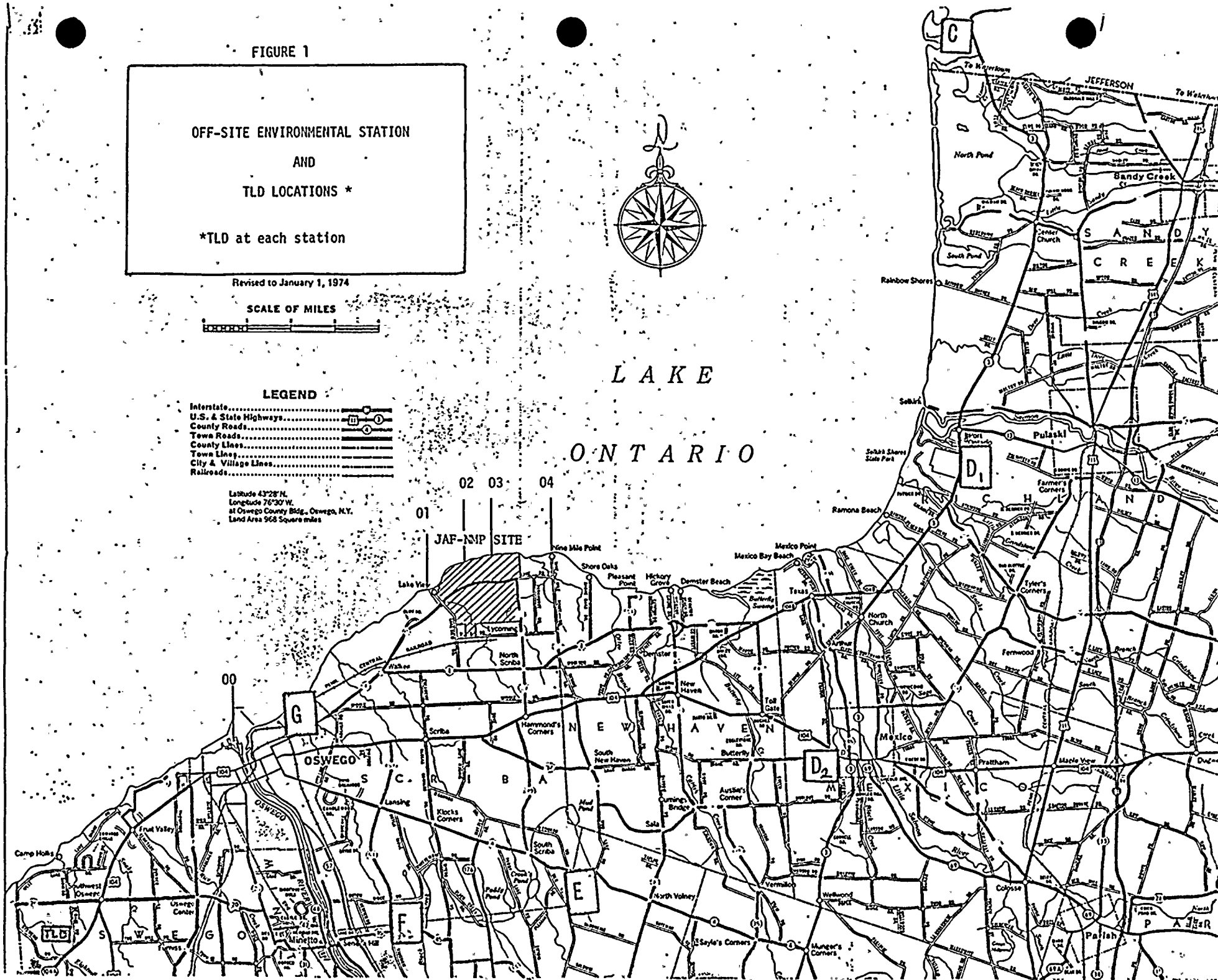
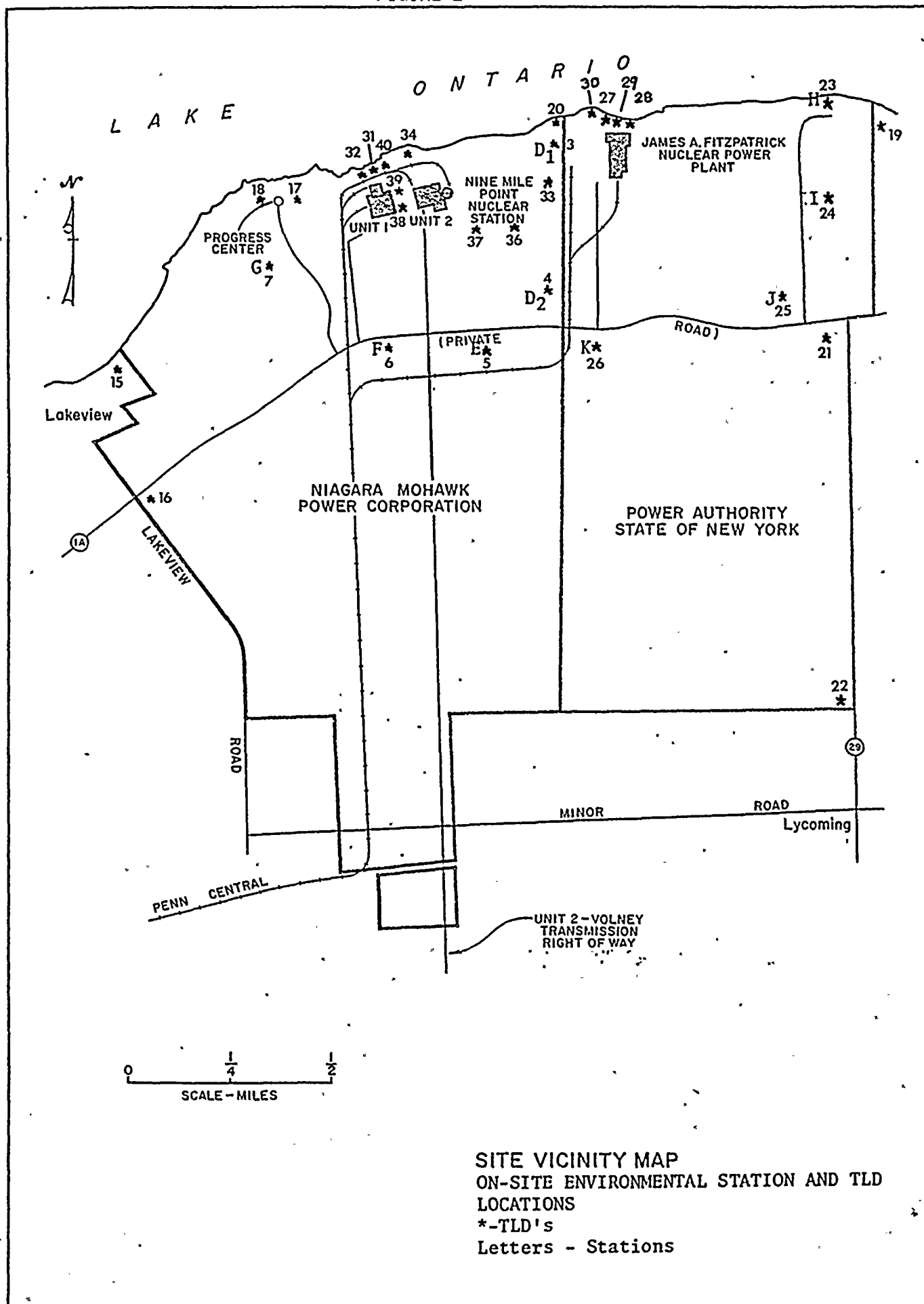






FIGURE 2





# OSWEGO COUNTY New York

Revised to January 1, 1979



## LEGEND

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

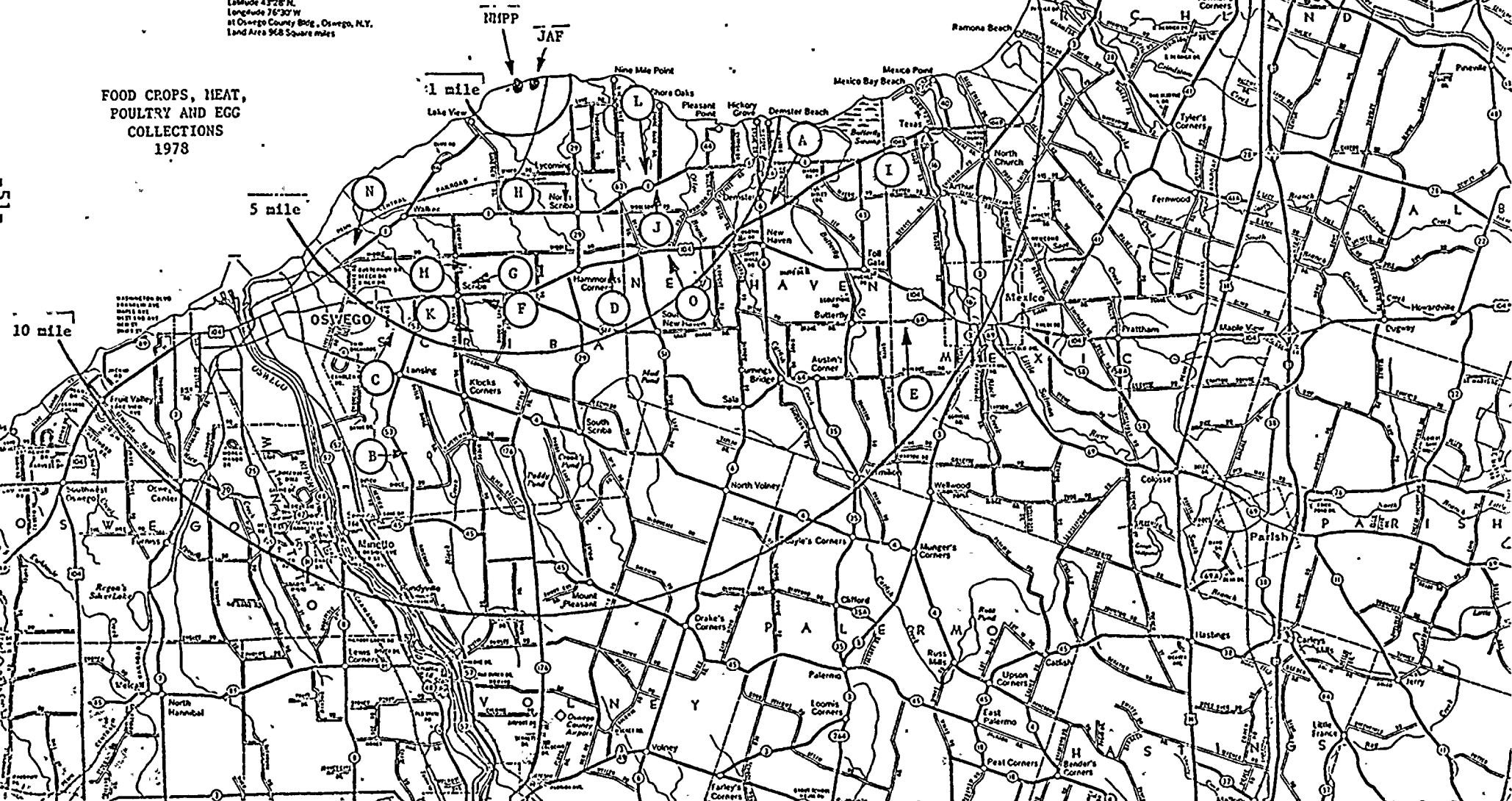
Latitude 43°28' N.  
Longitude 76°30' W.  
at Oswego County Bldg., Oswego, N.Y.  
Land Area 968 Square miles



FIGURE 3

## LAKE ONTARIO

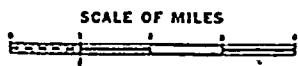
FOOD CROPS, MEAT,  
POULTRY AND EGG  
COLLECTIONS  
1978





# OSWEGO COUNTY New York

Revised to January 1, 1979



## LEGEND

- Interstate.....
- U.S. & State Highways.....
- 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

ANIMAL CENSUS  
AND  
MILK COLLECTION  
1978

FIGURE 4

LAKE

ONTARIO

