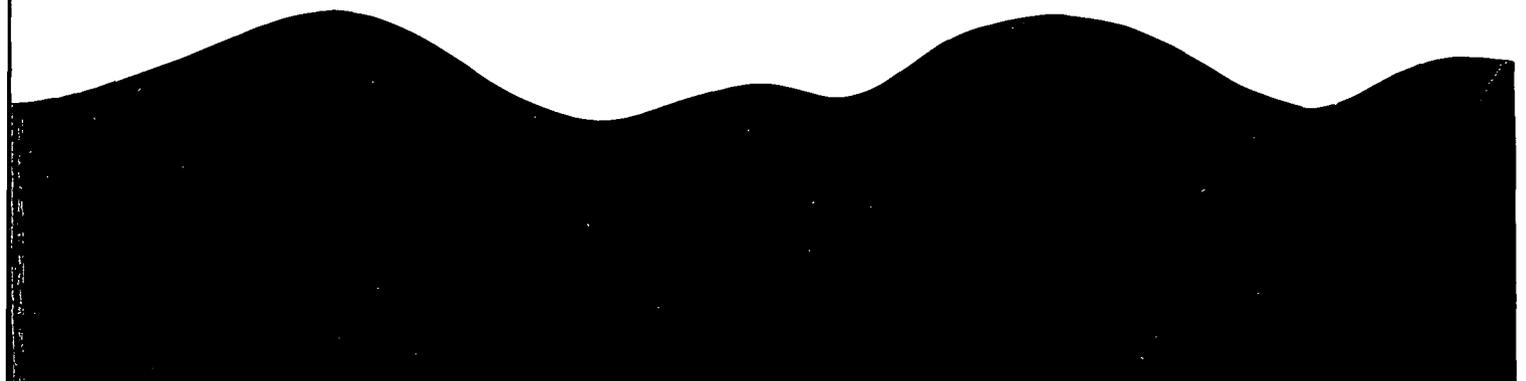


NEW YORK STATE DEPARTMENT OF HEALTH

Environmental Radiation

in New York State

1994
ANNUAL
REPORT



EXECUTIVE SUMMARY

This 1994 report is a continuation of the series of annual reports on Environmental Radiation in New York State prepared by the Department of Health (DOH) since 1982 and previously prepared by the Department of Environmental Conservation (DEC).

The environmental radiation surveillance program measures the level of radionuclides in environmental media to determine the normal levels of background radioactivity in several locations in the state and monitors the influence of human activities on these levels. Monitoring was performed around three operating nuclear power plant sites, several other reactors and industrial facilities which also use radioactive materials. The worldwide distribution of radionuclides from atmospheric nuclear weapons tests and the use of radioactive materials in energy generation, industry and medicine comprise the components of the man-made radiation environment.

Levels of fission products from previous atmospheric weapons testing continue to show a slow decrease with time.

Detectable low levels of radionuclides above normal background levels were measured in the environment near a number of facilities. The data did not indicate the facilities were exceeding limits for discharge to the environment as specified in the New York State Sanitary Code (10 NYCRR Part 16), or the appropriate Department of Environmental Conservation Regulations (6 NYCRR Part 380).

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Attachments

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 - C. Commercial Power Reactors**
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Appendix A Sampling Stations

1. INTRODUCTION

The New York State Department of Health (DOH) measures the levels of radiation exposure and radioactive materials at locations subject to potential releases from certain facilities. Measurements and samples are collected from other sites that serve as background for the measurements around the nuclear facilities. These measurements provide an indication of environmental levels in the sampling locations. This program is not intended to provide a complete mapping of environmental radiation levels in the state.

Data collected often show results to be less than the level of detection. While these results provide an indication of a source's compliance with the regulations, they are not useful in determining the actual low-level human exposure to man-made radiation.

The National Council on Radiation Protection and Measurements (NCRP) estimates that the average U.S. resident is exposed to 360 millirems per year from all radiation sources (NCRP Report 93 Ionizing Radiation Exposure of the Population of the United States - 1987). Radiation from natural sources in the environment contributes about 82 percent of this dose. This includes radiation from the earth, cosmic rays from space, atmospheric radioactivity, radioactive elements within our bodies and within the foods and water that we consume. Indoor radon accounts for about 55 percent of the total (200 mrem/year). Human use of radiation, primarily medical use, contributes the remaining 18 percent of the annual estimated dose. Unnecessary exposure to radiation from man-made sources and radioactive materials releases to the environment should be as low as reasonably achievable.

1.1 Types of Samples Collected

Various types of samples were collected to measure the distribution of radionuclides in the environment. Types of samples taken include air, water, milk, sediment, food, animals and fish, although not all are collected at each site. At some sites, thermoluminescent dosimeters (TLD) are also used to measure the direct environmental gamma radiation level.

The samples were not meant to directly monitor releases from the discharge points at specific facilities (e.g., a stack). The facility operator normally conducts such monitoring to meet requirements of the licensing agency. The environmental samples are intended to assess the impact at nearby locations and to evaluate trends over time.

1.2 Sample Collection and Analysis

DOH personnel, local health units and, in some cases, the site operator collect samples. The New York State Department of Health's Wadsworth Center (WC) then analyzes these samples using a variety of equipment and appropriate methods for the

specific sample type and radionuclides of interest. For some samples, the analysis follows radiochemistry procedures which extract and concentrate the radionuclides of interest. A brief description of how samples are collected and analyzed is given below.

1.2.1 Air

Continuous air samplers are used to draw approximately one cubic foot of air per minute through the sampling media described below. Samplers normally run one to two weeks to allow a sufficient air volume to pass through the sampling medium.

1.2.1.1 Particulate Filters

Paper filters are used to measure the activity of particulates in the air. Gross beta activity is measured as a screening procedure. Composite samples are also analyzed using gamma spectroscopy.

1.2.1.2 Activated Charcoal Cartridges

The Department uses activated charcoal to collect the various radioisotopes of iodine. Analysis is by gamma spectroscopy or radio chemical separation of I-131 for beta/gamma coincidence counting. Chemical extraction of I-129 and I-125 precedes analysis using an intrinsic-germanium detector. The WC uses this method for samples taken near the Cintichem facility.

1.2.1.3 Silica Gel Columns

Airborne tritium (H-3 as tritiated water vapor HTO) is measured by passing air through a silica gel column. The H-3 activity of the absorbed water is measured using liquid scintillation counting.

1.2.2 Milk

Two liter samples of milk are collected near facilities which may release fission products such as I-131, Cs-137 or Sr-90. Analysis may include gamma spectroscopy, and specific measurements for beta emitters such as Sr-90 and tritium. Radiochemistry methods may also be used in the analysis for radionuclides such as Sr-90 or radioiodines.

1.2.3 Water

Samples are two liters in volume and are collected as grab samples or aliquots of continuous samples. Composite samples are made by mixing equal portions of several samples together to measure the average values over a longer time span. Samples are analyzed for gross alpha, gross beta, isotopic gamma (several radionuclides), Sr-90 or tritium activity (as tritiated water HTO). When gross alpha activity exceeds 15 pCi/Liter (pCi/L) or gross beta activity exceeds 50 pCi/L, gamma spectral analysis is performed to identify the particular radionuclides present in the sample.

1.2.4 Fallout

Fallout samples are collected in buckets which are exposed to atmospheric precipitation and dust. These samples are analyzed for Sr-89 and Sr-90 activity at the Albany location and for HTO at Elmsford, Westchester County.

1.2.5 Soil and Sediment

Soil or sediment samples are collected from areas where the long-term deposition of radionuclides in soil or sediment is of interest. Analysis is usually by means of gamma spectroscopy.

1.2.6 Food or Vegetation

Samples of local food or vegetation are collected near sites of interest to monitor radionuclide concentrations in edible material. Analysis is usually by gamma spectroscopy.

1.2.7 Animals and Fish

Biological samples are used to monitor radionuclide concentrations in fish and/or animals (usually deer) near sites of interest. For deer samples, radionuclide concentrations of various fuel-cycle products, tritium, Cs-137, Sr-90, Pu-239 and I-129 are measured in flesh, thyroid and lung tissue. Fish samples are analyzed as whole fish (meat plus bones with head, tail and fins removed) or may be separated into flesh and bone components which are then analyzed individually for fission products of interest and natural radioactivity.

1.2.8 Direct Environmental Radiation

Direct environmental radiation monitoring around nuclear facilities is done using thermoluminescent dosimeters (TLDs) which provide a quantitative measurement of the radiation levels in the area in which they are placed. TLDs are normally exposed for periods of 3 months.

1.3 Types of Sampling Sites

Sampling sites are generally of three types, i.e., background, routine nuclear and nonroutine sites.

1.3.1 Background Locations

These are sites which should not be affected by the operation of facilities that release radionuclides to the environment. Samples taken at these locations should show normal concentrations of naturally occurring radionuclides plus any influences from weapons testing fallout and the buildup of radioactivity from the global use of nuclear energy.

1.3.2 Routine Nuclear Sites

These sites are used to measure the influence of specific facilities on radioactivity in the environment. A paired site may be chosen as a background location for the site of interest, e.g., a sampling site upstream from a facility's point of release to the stream may serve for a "background" sampling location.

1.3.3 Non-routine Sites

These locations are used for a specific purpose, and their inclusion in later reports will depend on circumstances associated with the particular location.

1.4 Reporting of Sample Analysis Results

Sample results are reported in one of three ways. The following is an example for Sr-90:

<u>Nuclide</u>	<u>Concentration (pCi/L)</u>
Sr-90	20 ± 5
Sr-90	< 8
Sr-90	Not Reportable or No Sample

In the first example, a concentration value is given with the associated two standard deviation uncertainty limit. The limit implies that the actual value has a 95 percent probability of being within the interval 15 to 25 pCi/L.

In the second example, the concentration is reported as less than the minimum detectable level of 8 pCi/L. This level depends on several factors, some of which include sample quantity and type, instrument sensitivity, background activity and counting time. Typical minimum detectable levels for various radionuclides and sample types are given in Attachment A. The annual average effluent concentrations for air and water releases to unrestricted areas listed in the New York State Sanitary Code, Part 16 are given in Attachment B. These are the concentrations contained in the Regulations which were revised in 1994. They differ from the maximum permissible concentrations that applied prior to 1994, and were listed in the previous Annual Environmental Radiation reports. These values are equivalent to the radionuclide concentrations which, if inhaled or ingested continuously over the course of a year, would result in a total effective dose equivalent of 50 mrem (0.5 mSv). The same concentrations are also tabulated in the Department of Labor, Industrial Code Rule 38, the Department of Environmental Conservation Part 380, New York City Health Code, Article 175, and correspond to the values shown in the Code of Federal Regulations, 10 CFR Part 20.

In the third example, the sample could not be analyzed for some reason such as when the sample is damaged, lost or when correct sample information is not available or no sample was collected during the period.

2. RESULTS

2.1 Background Sites

Background samples are collected from several sites statewide which are not expected to be influenced by discharges of radionuclides to the environment. These locations establish the normal levels of radionuclides in the environment. This includes natural sources and atmospheric fallout from nuclear weapons testing. Figure 2.1-1 shows the location of the background and major nuclear facilities sites. Table 2.1.1 gives the sample type and collection frequency. Data for these locations are included in this report. This allows comparison to other locations of interest. The water samples collected in Albany County are from the City of Albany public water supply system taken from the tap at the Wadsworth Center Laboratories, Empire State Plaza, Albany, New York. Similarly, the Albany milk samples are from processed milk sold in Albany, New York. Air and fallout samples in Albany are collected at the roof of the Albany County Health Department in Albany, New York.

2.1.1 Radioactivity in Air

Analyses of air samples taken in Albany show that gross beta activity in air was within the typical range for background levels, typically from 0.005 to 0.02 pCi/m³. The naturally occurring radionuclide Be-7 is measurable in quarterly composite samples. Weekly and quarterly air sample results are presented in Tables 2.1.2 and 2.1.3, respectively.

2.1.2 Radioactivity in Milk

Results for weekly milk samples collected from the cafeteria at the ESP show that K-40 contributes most of the radioactivity in the samples, typically in the range 1,200 to 2,100 pCi/L. This year low levels of the fallout radionuclide Sr-90 were measured. The Cs-137 values have been below the minimum detectable levels since 1972. In 1994, the measured levels of Sr-90 were below 2.1 pCi/L and the monthly average was 1.55 pCi/L. Figure 2.1-2 shows the annual average levels of Cs-137 and Sr-90 for 1963 through 1994. Values for the radioiodines (I-125, I-129, I-131) are all below minimum detection levels. Weekly, monthly and quarterly milk sample results are given in Table 2.1.4

2.1.3 Radioactivity in Water

Background water samples include raw samples taken from lakes and rivers, as well as drinking water samples taken from the tap at the DOH's laboratories. The analyses of these samples show typical levels of radionuclides for drinking water or environmental samples. Gross alpha levels are typically below detection limits and gross beta levels are typically below 4 pCi/L. Tritium (HTO) is typically below 200 pCi/L. Fallout fission products were near or below minimum detectable levels. Weekly and monthly water sample results are given in Tables 2.1.5 to 2.1.8.

2.1.4 Radioactivity in Fallout

Fallout samples are collected in buckets which are exposed to atmospheric precipitation and dust at the Albany County Health Department background site. These samples are analyzed for Sr-89, Sr-90, isotopic gamma and tritium. Weekly and monthly composite fallout results are given in Table 2.1.9. Except for Be-7 and H-3 in some of the samples, all measurements show concentrations that are below the minimum detectable levels.

2.1.5 Direct Environmental Radiation

TLDs were placed at Voorheesville, Albany County, at a DOH employee's home as a background station. There are no nuclear facilities around the area, therefore the results are used for background measurement. Results are presented in Table 2.1.10.

Table 2.1.1 Background Sites

Location on Figure 2.1-1	Site #	Type	Location	Frequency
1	0101-001	Water	Albany Co. DOH, ESP	Weekly
1	0101-001	Milk	Albany Co. DOH, ESP	Weekly
1	0101-002	Air	Albany Co. Health Dept.	Weekly
1	0101-002	Fallout	Albany Co. Health Dept.	Weekly
1	0101-003	TLD	Albany Co. Voorheesville	Quarterly
2	2226-001	Water	Cape Vincent, St. Lawrence River	Semiannual
3	0754-001	Water	Chemung River	Semiannual
4	3102-001	Water	Niagara River, West Branch	Monthly
5	3402-001	Water	Geneva	Quarterly
6	2269-001	Water	Black River	Semiannual
7	5650-001	Water	Lake George	Semiannual
8	1465-001	Water	Lake Erie, Locksley Park	Semiannual
9	3154-001	Water	Lake Ontario, Olcott Beach	Semiannual
10	4469-001	Water	Massena, St. Lawrence River	Semiannual

Table 2.1.2 1994 Background Air Sample (Iodine and Particulate)
 City of Albany (0101-002)
 $\text{pCi/m}^3 \times 10^{-3}$

WEEK ENDING	GROSS BETA	I-131	WEEK ENDING	GROSS BETA	I-131
JAN 05	12.3+/-1.6	<6	AUG 03	12.8+/-1.9	<10
JAN 12	12.2+/-1.6	<6	AUG 10	15.3+/-1.9	<6
JAN 19	16.0+/-1.8	<6	AUG 17	11.7+/-1.6	<6
JAN 26	12.2+/-1.7	<6	AUG 24	9.4+/-1.5	<7
			AUG 31	15.2+/-1.7	<7
FEB 02	11.8+/-1.5	<8			
FEB 09	16.0+/-1.9	<6	SEPT 07	10.6+/-1.6	<8
FEB 16	13.8+/-1.7	<5	SEPT 14	15.2+/-1.9	<6
FEB 23	18+/-2	<8	SEPT 21	13.0+/-1.8	<6
			SEPT 29	9.1+/-1.5	<7
MAR 02	14.8+/-1.7	<5			
MAR 09	17.2+/-1.9	<6	OCT 05	6.9+/-1.3	<6
MAR 16	13.1+/-1.7	<6	OCT 12	13.1+/-1.7	<6
MAR 23	10.2+/-1.5	<4	OCT 19	14.2+/-1.8	<7
MAR 30	10.5+/-1.6	<8	OCT 26	15.9+/-1.9	<6
APR 06	11.8+/-1.7	<5	NOV 02	15.8+/-1.9	<7
APR 14	8.9+/-1.4	<6	NOV 09	15.4+/-1.8	<8
APR 20	11.6+/-1.8	<7	NOV 16	17.7+/-1.9	<5
APR 27	11.5+/-1.7	<6	NOV 23	13.9+/-1.7	<5
			NOV 30	14.7+/-1.7	<5
MAY 04	8.9+/-1.5	<7			
MAY 13	8.8+/-1.3	<8	DEC 07	21+/-2	<6
MAY 18	6.0+/-1.6	<10	DEC 14	14.8+/-1.7	<6
MAY 25	10.0+/-1.6	<12	DEC 21	15.3+/-1.8	<3
			DEC 28	18+/-2	<6
JUN 02	9.1+/-1.4	<6			
JUN 08	7.8+/-1.5	<8			
JUN 15	9.5+/-1.5	<7			
JUN 22	11.7+/-1.7	<10			
JUN 29	13.0+/-1.7	<15			
JUL 06	12.4+/-1.7	<10			
JUL 13	12.6+/-1.7	<17			
JUL 20	14.3+/-1.8	<6			
JUL 28	12.0+/-1.6	<8			

Table 2.1.3 1994 Background Air Sample (Composite)
City of Albany (0101-001)
pCi/m³ x 10⁻³

	Be-7	Sr-90	Zr-95	Ru-106	Cs-134	Cs-137
1st QUARTER	71+/-10	<0.07	<1.0	<3	<0.6	<0.6
2nd QUARTER	107+/-15	<0.08	<0.7	<1.5	<0.14	<0.18
3rd QUARTER	79+/-9	<0.11	<0.5	<1.2	<0.11	<0.13
4th QUARTER	67+/-7	<0.07	<0.4	<1.1	<0.1	<0.11

Table 2.1.4 1994 Background Milk Sample
 Empire State Plaza Cafeteria (0101-001)
 pCi/m³ x 10⁻³

WEEK ENDING	WEEKLY					MONTHLY		QUARTERLY
	K-40	I-125	I-129	I-131	Cs-137	Sr-89	Sr-90	HTO
JAN 10	1390+/-150	<0.2	<0.4	<0.06	<7			
JAN 18	1330+/-150	<0.2	<0.3	<0.05	<7			
JAN 24	1380+/-150	<0.2	<0.4	<0.05	<6			
JAN 31	1390+/-160	<0.2	<0.4	<0.06	<7			
FEB 07	1440+/-170	<0.12	<0.2	<0.03	<8	<1.8	1.6+/-0.7	
FEB 14	1350+/-130	<0.2	<0.4	<0.06	<50			
FEB 22	1250+/-130	<0.3	<0.5	<0.08	<6			
FEB 28	1210+/-130	<0.2	<0.4	<0.09	<6			
MAR 07	1200+/-200	<0.12	<0.2	<0.04	<10	<1.6	1.4+/-0.7	
MAR 14	1370+/-150	<0.2	<0.4	<0.08	<7			
MAR 21	1320+/-130	<0.3	<0.4	<0.09	<6			
MAR 28	1330+/-140	<0.3	<0.4	<0.09	<6			
APR 04	1200+/-160	<0.13	<0.2	<0.05	<8	<1.5	1.1+/-0.5	<170
APR 11	1310+/-160	<0.2	<0.4	<0.10	<7			
APR 18	1490+/-180	<0.2	<0.4	<0.09	<8			
APR 25	1390+/-170	<0.2	<0.4	<0.09	<8			
MAY 02	1310+/-160	<0.2	<0.5	<0.10	<7	<1.4	1.6+/-0.7	
MAY 09	1300+/-140	<0.2	<0.5	<0.09	<6			
MAY 16	1290+/-190	<0.2	<0.4	<0.10	<9			
MAY 23	2100+/-200	<0.2	<0.4	<0.11	<10			
MAY 31	1900+/-200	<0.2	<0.4	<0.14	<9			
JUN 06	1600+/-200	<0.2	<0.5	<0.12	<11	<1.8	1.8+/-0.8	
JUN 13	1300+/-180	<0.2	<0.4	<0.09	<9			
JUN 20	1300+/-200	<0.2	<0.5	<0.10	<10			
JUN 27	1350+/-170	<0.3	<0.5	<0.09	<9			
JUL 05	1400+/-200	<0.2	<0.4	<0.10	<10	<1.4	1.8+/-0.6	<120
JUL 11	1460+/-180	<0.2	<0.5	<0.08	<9			
JUL 18	1450+/-160	<0.2	<0.5	<0.14	<8			
JUL 25	1350+/-180	<0.2	<0.5	<0.18	<9			

Table 2.1.4 1994 Background Milk Sample
 Empire State Plaza Cafeteria (0101-001)
 pCi/m³ x 10⁻³

WEEK ENDING	WEEKLY					MONTHLY		QUARTERLY
	K-40	I-125	I-129	I-131	Cs-137	Sr-89	Sr-90	HTO
AUG 01	1300+/-200	<0.18	<0.13	<0.10	<10	<10	1.1+/-0.6	
AUG 08	1300+/-200	<0.16	<0.13	<0.08	<11			
AUG 15	1360+/-190	<0.17	<0.13	<0.08	<9			
AUG 22	1500+/-200	<0.18	<0.14	<0.08	<10			
AUG 29	1500+/-200	<0.16	<0.13	<0.07	<10			
SEPT 06	1350+/-160	<0.16	<0.13	<0.12	<8	<6	1.3+/-0.6	
SEPT 12	1400+/-200	<0.15	<0.12	<0.07	<10			
SEPT 19	1290+/-190	<0.14	<0.12	<0.08	<10			
SEPT 26	1250+/-160	<0.14	<0.12	<0.09	<9			
OCT 03	1500+/-200	<0.14	<0.12	<0.08	<10	<4	2.1+/-0.6	<150
OCT 11	1290+/-180	<0.18	<0.2	<0.09	<10			
OCT 17	1350+/-190	<0.17	<0.2	<0.14	<9			
OCT 26	1470+/-180	<0.16	<0.2	<0.07	<9			
OCT 31	1500+/-200	<0.3	<0.2	<0.08	<10			
NOV 07	1430+/-180	<0.12	<0.14	<0.10	<9	<2	1.5+/-0.6	
NOV 14	1560+/-190	<0.14	<0.2	<0.10	<9			
NOV 21	1360+/-180	<0.3	<0.2	<0.09	<10			
NOV 28	1400+/-160	<0.12	<0.2	<0.09	<8			
DEC 05	1360+/-170	<0.2	<0.2	<0.19	<9	<3	1.8+/-0.7	
DEC 12	1470+/-180	<0.07	<0.1	<0.06	<9			
DEC 19	1380+/-180	<0.08	<0.12	<0.09	<9			
DEC 27	1500+/-200	<0.3	<0.4	<0.11	<9			

Table 2.1.5 1994 Background Water Sample
 Empire State Plaza Cafeteria (0101-001)
 pCi/L

WEEK ENDING	WEEKLY						MONTHLY	
	GROSS ALPHA	GROSS BETA	HTO	Zr-95	Ru-106	Cs-137	Sr-89	Sr-90
JAN 07	<1.1	<1.3	<180	<110	<30	<6		
JAN 14	<0.9	<0.9	<170	<7	<20	<6		
JAN 21	<1.2	<1.3	<170	<6	<19	<6		
JAN 28	<0.8	1.7+/-1.0	<170	<6	<20	<6	<2	<0.7
FEB 04	<1.0	<1.1	<170	<6	<20	<6		
FEB 11	<1.3	1.8+/-1.6	<160	<7	<20	<6		
FEB 18	<1.0	<1.1	<190	<7	<20	<6		
FEB 25	<1.3	<1.3	<160	<6	<17	<5	<3	<0.8
MAR 04	<1.2	<1.8	<160	<7	<20	<6		
MAR 11	<1.2	<1.7	<140	<7	<20	<6		
MAR 18	<1.2	<1.6	<160	<7	<19	<5		
MAR 25	<0.9	2.3+/-1.8	<170	<6	<19	<6	<2	<0.5
APR 01	<0.8	<1.5	<190	<7	<20	<6		
APR 08	<0.4	1.1+/-0.9	<200	<7	<20	<6		
APR 15	<0.9	2.0+/-1.6	<200	<7	<20	<7		
APR 22	<1.2	<1.3	<170	<8	<20	<6		
APR 29	<1.2	<1.2	<190	<7	<20	<6	<4	<1.1
MAY 06	<0.9	<1.6	<150	<6	<17	<5		
MAY 13	<1.3	<1.1	<160	<9	<30	<7		
MAY 20	<1.2	<1.1	<180	<15	<40	<11		
MAY 27	<1.1	<1.4	<200	<12	<30	<9	<1.3	<0.4
JUN 03	<1.1	<1.3	<200	<9	<30	<8		
JUN 10	<1.1	<1.4	<170	<10	<30	<8		
JUN 17	<0.6	<1.6	<170	<9	<30	<8		
JUN 24	<0.9	<2.0	<140	<8	<30	<7	<1.6	<0.6
JUL 01	<0.8	<2.0	<130	<10	<30	<8		
JUL 08	<0.8	<2.0	<120	<9	<30	<8		
JUL 15	<1.0	<2.0	<180	<9	<30	<7		
JUL 22	<0.9	<2.0	<180	<10	<30	<8		
JUL 29	<1.1	<1.6	<200	<10	<30	<8	<13	<0.6

Table 2.1.5 1994 Background Water Sample
 Empire State Plaza Cafeteria (0101-001)
 pCi/L

WEEK ENDING	WEEKLY						MONTHLY	
	GROSS ALPHA	GROSS BETA	HTO	Zr-95	Ru-106	Cs-137	Sr-89	Sr-90
AUG 05	<0.7	2.9+/-1.9	<200	<8	<30	<7		
AUG 12	<0.7	<1.8	<200	<8	<30	<7		
AUG 19	<0.8	2.2+/-1.8	<170	<9	<30	<8		
AUG 26	<0.7	2.4+/-1.9	<160	<9	<30	<8	<9	<0.6
SEPT 02	<0.6	<1.9	<160	<10	<30	<8		
SEPT 09	<1.4	2.0+/-1.7	<160	<10	<30	<8		
SEPT 16	<1.5	2.0+/-1.8	<170	<10	<30	<9		
SEPT 23	<1.6	<1.8	<120	<10	<30	<9		
SEPT 30	<1.5	<2.0	<150	<10	<30	<8	<13	<0.4
OCT 07	<1.5	<1.8	<150	<10	<30	<8		
OCT 14	<1.4	2.0+/-1.6	<140	<9	<30	<8		
OCT 21	<1.3	<1.5	<170	<10	<30	<9		
OCT 28	<1.0	<1.5	<160	<9	<30	<8	<9	<0.4
NOV 04	<1.5	<2.0	<190	<10	<30	<9		
NOV 10	<1.1	<2.0	<170	<12	<40	<10		
NOV 18	<1.4	3.0+/-1.8	<140	<7	<30	<7		
NOV 25	<0.9	<1.6	<140	<11	<40	<9	<12	<0.4
DEC 02	<1.1	1.9+/-1.7	<180	<11	<30	<9		
DEC 09	<1.1	<2.0	<160	<10	<30	<8		
DEC 16	<1.2	<2.0	<180	<7	<20	<6		
DEC 23	<1.3	<2.0	<300	<10	<30	<8		
DEC 30	<1.4	<2.0	<200	<9	<30	<8	<4	<0.4

Table 2.1.6 1994 Background Water Sample
 Niagara Water Treatment Plant (3102-001)
 pCi/L

DATE	QUARTERLY		
	GROSS ALPHA	GROSS BETA	HTO (COMP)
JAN	<1.3	2.1+/-1.6	
FEB	<1.1	1.7+/-1.4	
MAR	<0.9	2.6+/-1.8	<190
APR	<1.1	1.7+/-1.6	
MAY *	---	---	
JUN	<1.4	<1.3	220+/-180
JUL	<1.1	<1.9	
AUG *	---	---	
SEPT *	---	---	
OCT *	---	---	
NOV	<1.5	<2	
DEC	<1.7	<2	170+/-140

* - No Sample Collected

Table 2.1.7 1994 Background Water Sample
 Seneca Lake Water Treatment Plant (3402-001)
 pCi/L

DATE	GROSS ALPHA	GROSS BETA	HTO
1st QUARTER	<5	2.2+/-1.5	<200
2nd QUARTER	<2	3.0+/-1.9	290+/-160
3rd QUARTER	<2	<2	<180
4th QUARTER	<4	6+/-4	<150

**Table 2.1.8 1994 Background Water Grab Samples
Various Locations
pCi/L**

SITE#	DATE	LOCATION	GROSS ALPHA	GROSS BETA	Zr-95	Ru-106	Cs-137
0754-001	OCT	CHEMUNG R.	<3.0	<1.8	<11	<40	<10
1465-001	MAY	LK ERIE @	<1.5	3.0+/-1.7	---	---	---
	OCT	LOCKSLEY PK	<1.6	<2.0	---	---	---
2226-001	JUN	ST. LAWRENCE R.	<1.3	2.5+/-1.6	<9.0	<30	<8.0
	OCT	@ CAPE VINCENT	<2.0	2.1+/-1.9	<10	<30	<9.0
2269-001	JUN	BLACK RIVER @	<1.1	1.6+/-1.5	---	---	---
	OCT	WATERTOWN	<1.4	<2.0	---	---	---
3154-001	MAY	LK. ONTARIO @	<1.5	3.2+/-1.8	---	---	---
	NOV	OLCOTT BEACH	<1.6	4+/-2	---	---	---
4469-001	APR	MASSENA WTP	<1.2	3.0+/-1.8	<7.0	<20	<6.0
	NOV		<3.0	1.0+/-0.5	<9.0	<30	<8.0
5650-001	JUL	LK GEORGE @	<0.8	3+/-2	---	---	---
	NOV	BOLTON LANDING	<1.2	<2.0	---	---	---

Table 2.1.9 1994 Background Fallout Samples
 Roof - Albany County Health Department (0101-002)
 pCi/m²/day

WEEK ENDING	WEEKLY					MONTHLY COMP.	
	Be-7	Zr-95	Ru-106	Cs-137	(pCi/L) HTO	Sr-89	Sr-90
JAN 05	<190	<30	<110	<20	<190		
JAN 11	<140	<20	<70	<20	<190		
JAN 19	<190	<30	<100	<30	<170		
JAN 26	<130	<20	<70	<18	590+/-160	<4	<0.7
FEB 02	<160	<30	<60	<16	<180		
FEB 04	<120	<20	<60	<17	<170		
FEB 16	<130	<20	<70	<19	<190		
FEB 23	<160	<20	<90	<20	<160	<3	<0.7
MAR 02	<130	<20	<70	<18	<170		
MAR 09	140+/-120	<20	<70	<18	<140		
MAR 16	140+/-120	<20	<70	<18	<160		
MAR 23	<150	<20	<90	<20	<170		
MAR 30	150+/-120	<20	<70	<19	<160	<3	<0.7
APR 06	<140	<20	<80	<20	---		
APR 14	300+/-200	<40	<130	<30	<200		
APR 20	<150	<20	<80	<20	<200		
APR 27	<150	<20	<80	<19	---	<5	<1.2
MAY 04	180+/-140	<20	<80	<20	<190		
MAY 13	120+/-100	<18	<70	<15	<160		
MAY 18	<300	<40	<140	<40	<160		
MAY 25	<100	<20	<60	<17	---	<1.1	<0.3
JUN 02	<120	<20	<80	<20	---		
JUN 08	<120	<20	<70	<20	---		
JUN 15	330+/-160	<30	<100	<30	<170		
JUN 22	110+/-80	<15	<50	<14	<140		
JUN 29	100+/-80	<16	<50	<14	<130	<3	<0.7

Table 2.1.9 1994 Background Fallout Samples
 Roof - Albany County Health Department (0101-002)
 pCi/m²/day

WEEK ENDING	WEEKLY					MONTHLY COMP.	
	Be-7	Zr-95	Ru-106	Cs-137	(pCi/L) HTO	Sr-89	Sr-90
JUL 06	<90	<16	<50	<14	---		
JUL 13	<90	<18	<60	<16	---		
JUL 28	290+/-180	<40	<120	<30	<200	<1.3	<0.6
AUG 03	420+/-180	<30	<120	<30	<200		
AUG 10	<80	<15	<50	<13	---		
AUG 17	<200	<50	<150	<40	<200		
AUG 24	820+/-660	<100	<400	<30	<160		
AUG 31	<100	<18	<60	<10	---	<1.2	<0.8
SEPT 07	<160	<30	<90	<20	---		
SEPT 14	160+/-100	<19	<60	<17	---		
SEPT 21	<110	<18	<60	<16	<120		
SEPT 28	<160	<30	<100	<20	<150	<1	<0.7
OCT 05	<110	<18	<60	<15	---		
OCT 12	<120	<20	<70	<18	<140		
OCT 19	<130	<20	<80	<20	---		
OCT 26	<120	<20	<70	<19	---	<2	<0.3
NOV 02	<160	<30	<100	<30	<190		
NOV 09	<110	<19	<60	<17	---		
NOV 16	<110	<20	<70	<18	---		
NOV 23	<100	<18	<60	<16	<140		
NOV 30	<200	<30	<120	<30	<140	<3	<0.3
DEC 07	<400	<70	<20	<60	<180		
DEC 14	<90	<16	<50	<14	<170		
DEC 21	<100	<17	<60	<16	---		
DEC 28	<150	<30	<90	<20	<200	<2	<0.3

**Table 2.1.10 1994 Background Direct Environmental Radiation (TLD)
mR/standard Quarter**

Location	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
Albany County Voorheesville	13.5	11.8	14.5	14.7

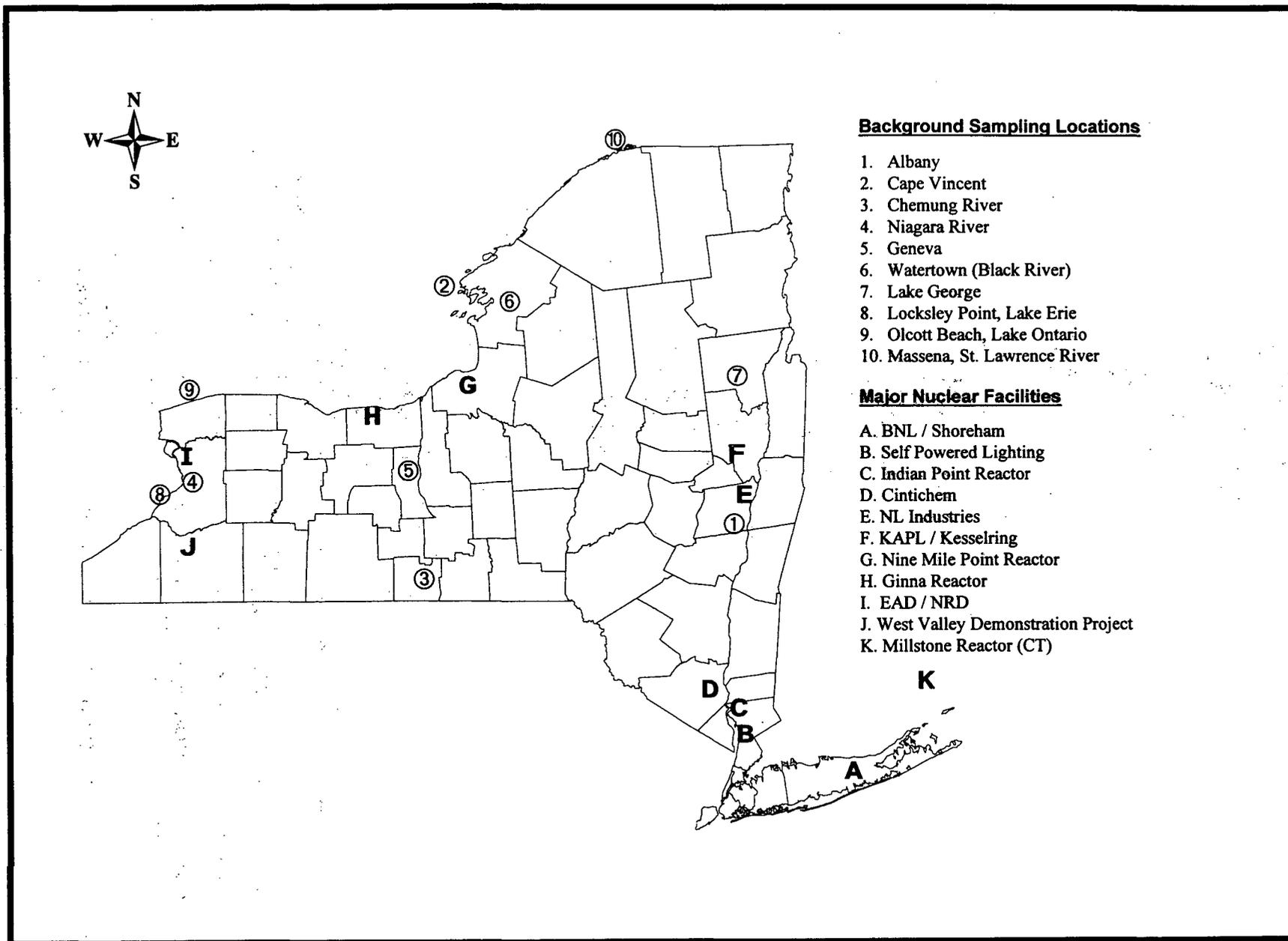


Figure 2.1-1. Background and Major Nuclear Facilities Sites

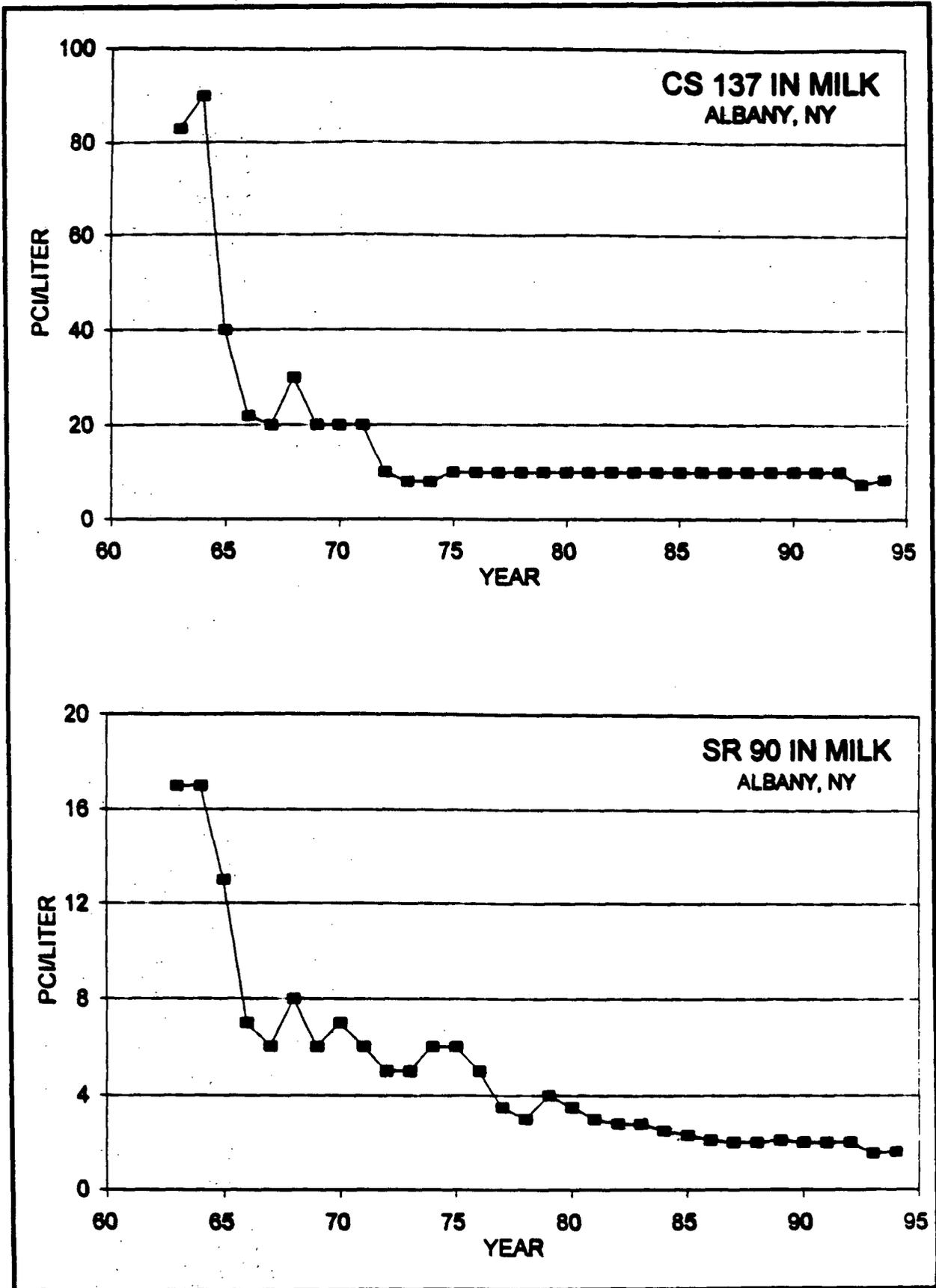


Figure 2.1.2 Fallout Fission Products in Milk

2.2 Routine Nuclear Sites

2.2.1 BROOKHAVEN NATIONAL LABORATORY (BNL), UPTON, SUFFOLK COUNTY

This facility is operated by the U.S. Department of Energy. There are two research reactors on the site, the 60 megawatt thermal (MWt) High Flux Beam Reactor (HFBR) and the 5 MWt Medical Research Reactor (MRR). Other nuclear facilities include the Brookhaven Linac Isotope Production Facility, hot cells and storage areas for spent reactor fuel. Figure 2.2-1 shows the facility and some nearby sampling sites. Table 2.2.1 shows information on sample type and collection frequency.

2.2.1.1 Radioactivity in Air

The Department of Health air sampler is located at one of the BNL air monitoring sites. Sampling at this location was stopped on March 24, 1993 due to building construction activities by BNL at this site. Results of gross beta activity in air were within the typical range for background levels of less than 0.02 pCi/m³. Air sampling was resumed on September 9, 1994 when the building repair was completed. However, it was discovered that air flow to the sample holder resulted in invalid measurements. Therefore, air measurement results are reported only for the last quarter in 1994.

2.2.1.2 Radioactivity in Milk

There are no dairy farms operating on Long Island. Therefore, no milk samples were available in 1994.

2.2.1.3 Radioactivity in Water

Monthly samples were collected from the Peconic River where it leaves the BNL site. Effluents from the BNL Sewage Treatment Plant are discharged to the Peconic River. Gross alpha and gross beta results were typical of background levels. Measurable levels of tritium (HTO) were found to range between 320 to 4,100 pCi/L. The most likely source of the tritium is movement of contaminated groundwater and surface runoff from the site. The tritium levels found were below the EPA drinking water standard of 20,000 pCi/L. The minimal average tritium concentrations from 1973 to 1994 in the Peconic River are shown on Figure 2.2-2. Results of quarterly water samples are given in Table 2.2.3.

2.2.1.4 Radioactivity in Fish and Shellfish

Except for 1977 and 1979, fish samples have been collected each year since 1973 from waters along the Peconic River. These include samples collected from Donahue's and Forge Ponds, Peconic Lake and Peconic River. Control samples have been collected from Swan Pond routinely and occasionally from other ponds, including Preston and Sandy Ponds and Lower Lake. These samples are normally collected by the DEC staff and analyzed by DOH's WC laboratories. This year samples collected include mussels and fish. The K-40, Sr-90 and Cs-137 concentrations measured in the samples are given in Table 2.2.4.

Table 2.2.1 Brookhaven National Laboratory Sampling Sites

Map Location	Site	Type	Location	Frequency
1	5151-001	Air	Southeast site boundary	Weekly
2	5151-006	Water	Peconic River east of site	Monthly
3	5151-002	Fish	Surrounding ponds	Annually
4	5151-003	Fish	Surrounding ponds	Annually
5	5151-004	Fish	Surrounding ponds	Annually

Table 2.2.2 1994 Air Samples (particulates)
 Brookhaven National Laboratory P-7 (5151-001)
 pCi/m³ x 10⁻³

WEEK ENDING	GROSS BETA
SEPT 16 *	14.2+/-1.7
SEPT 23	21+/-2
SEPT 30	11.8+/-1.5
OCT 07	7.4+/-1.2
OCT 14	12.4+/-1.6
OCT 21	9.6+/-1.2
OCT 28	16.4+/-1.8
NOV 04	13.1+/-1.6
NOV 10	17+/-2
NOV 18	13.6+/-1.5
NOV 23	8.1+/-1.6
DEC 02	11.9+/-1.3
DEC 09	17.4+/-1.8
DEC 16	12.3+/-1.5
DEC 22	13.3+/-1.7
DEC 29	11.1+/-1.5

**-no data collected prior to
 September 16th due to
 equipment problems*

Table 2.2.3 1994 Water Sample
 Peconic River at Manorville (5151-006)
 pCi/L

DATE	GROSS ALPHA	GROSS BETA	HTO
MAR	<1.0	2.1+/-1.8	320+/-150
APR	<1.2	4.0+/-1.8	880+/-180
MAY	<1.3	2.8+/-1.7	820+/-160
JUN	<0.9	3+/-2	4100+/-200

No samples collected Jan - Feb & Jul - Dec.

Table 2.2.4 1994 Fish Samples
 Brookhaven National Laboratory (5151-XXX)
 Surrounding Ponds
 pCi/kg

DATE SAMPLED	POND	K-40	Sr-90	Ru-106	Cs-134	Cs-137
APR 26	DONAHUES (5151-002)	2800+/-300	27+/-4	<100	<16	700+/-30
APR 29		3000+/-500	38+/-3	<150	<20	400+/-30
APR 26	FORGE (5151-003)	<1700	87+/-5	<600	<90	<90
APR 27		3600+/-400	11.4+/-1.7	<140	<20	170+/-20
APR 28		2600+/-400	162+/-8	<130	<20	250+/-20
APR 28	SWAN (5151-004)	3300+/-500	7.6+/-1.9	<150	<20	70+/-20
APR 29		3200+/-500	125+/-9	200+/-170	<30	270+/-30

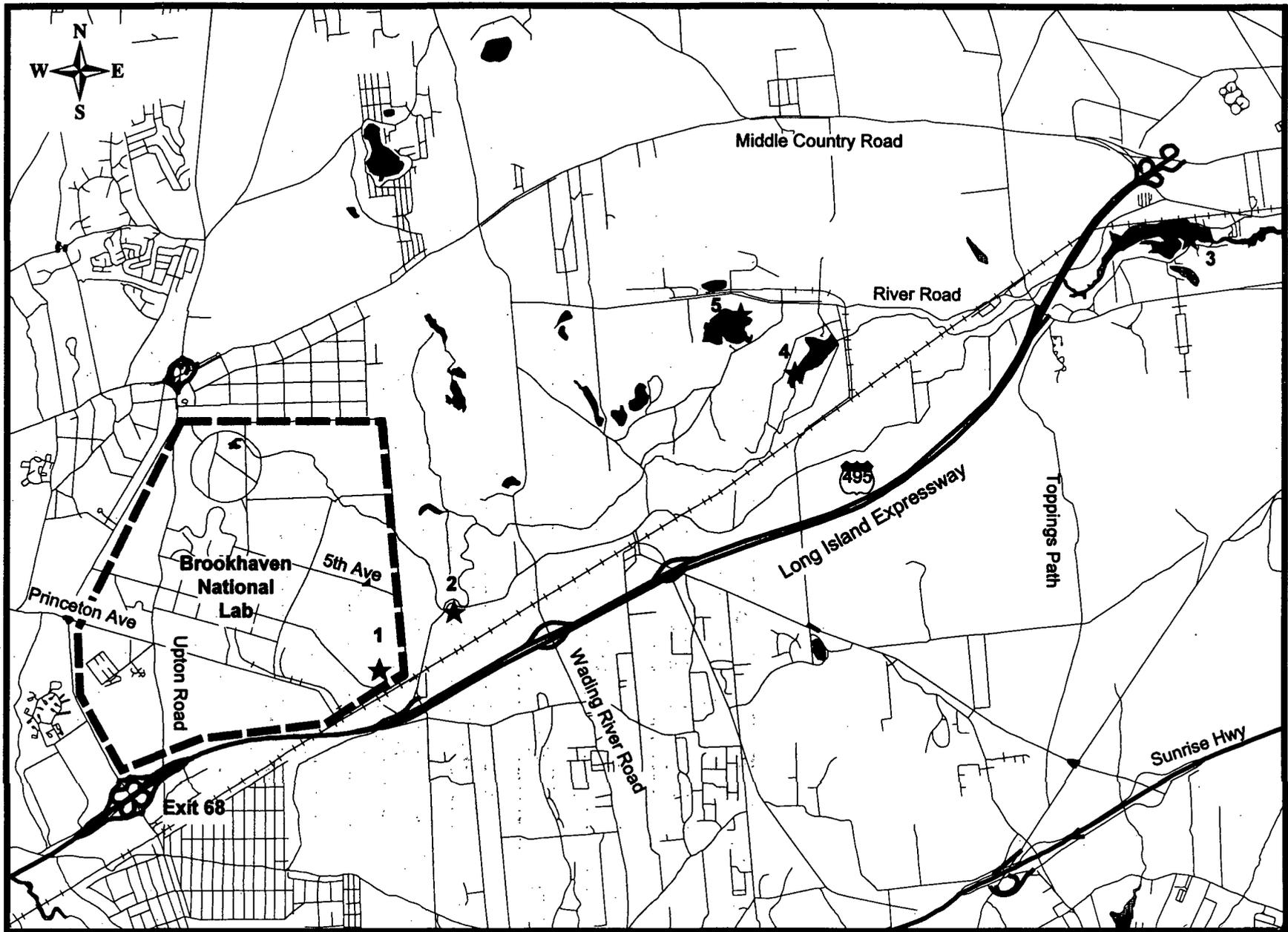


Figure 2.2-1. Brookhaven National Laboratory Vicinity Sampling Locations.

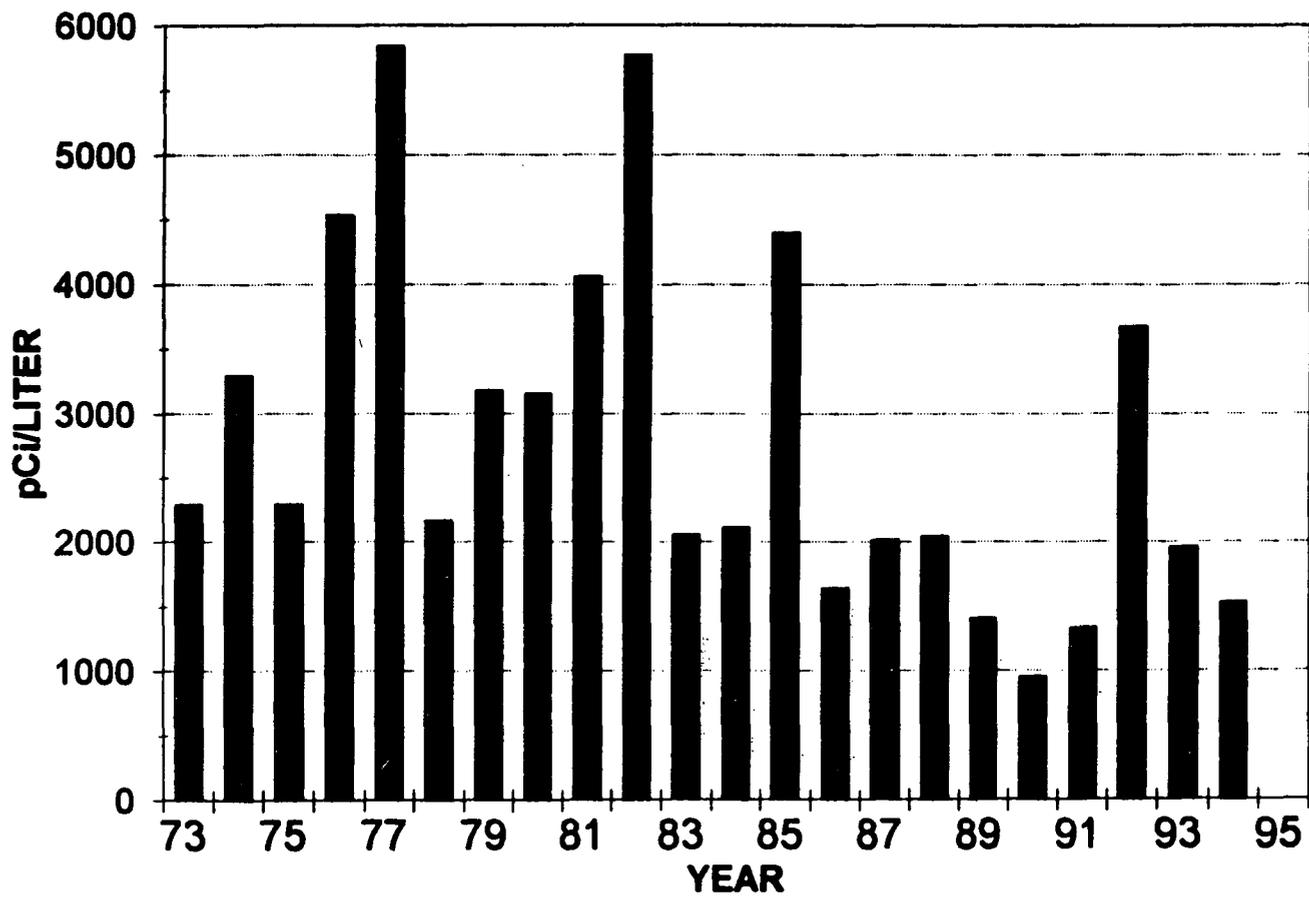


Figure 2.2-2 Tritium at Peconic River

2.2.2. CINTICHEM (FORMERLY UNION CARBIDE), TUXEDO, ORANGE COUNTY

This facility, located in the Sterling Forest Industrial Park, contains a 5 MWt research reactor that once produced radioactive pharmaceuticals for use in medicine. Figure 2.2-3 shows the location of the site and some of the nearby sampling points including the location of the TLD monitors used to measure the external background radiation level. Table 2.2.5 provides information on the sampling sites.

In 1990 Cintichem shut down the reactor following the discovery of contamination outside the reactor building. The reactor and radioisotope processing hot cells were decommissioned in 1994.

2.2.2.1 Radioactivity in Air

Air samples showed low levels of gross beta activity, while I-125, I-129 and I-131 were below minimum detection level. Results of weekly and composite air samples are presented in Tables 2.2.6 and 2.2.7, respectively.

2.2.2.2 Radioactivity in Milk

Due to the fact that the nearby farmer who previously supplied milk samples went out of business and Cintichem was being decommissioned, no milk samples were collected in 1994. The last milk sample was collected in October 1992.

2.2.2.3 Radioactivity in Water

Water samples were collected at two locations, at Indian Kill and at the Sterling Forest Water Treatment Plant. The former showed HTO concentrations, which ranged from less than detectable levels to 1,800 pCi/L. All the gross alpha results were below the detection limit except for the sample collected August 12, where the gross alpha result was 19 ± 11 pCi/L. Gross alpha measurement results for the latter ranged from below minimum detection level to 2.1 ± 1.8 pCi/L. The concentration ranged from below detection level to 10 pCi/L for gross beta. Results from weekly samples are given in Tables 2.2.8 and 2.2.9.

2.2.2.4 Direct Environmental Radiation

Data for the quarterly values for the TLD sites were typical of the normal background level in this area. Results are presented in Table 2.2.10.

Table 2.2.5 Cintichem Sampling Sites

Map Loc.	Site #	Type	Location	Frequency
1	3565-001	Air	At NE site boundary	Weekly
2	3565-002	Water	Indian Kill	Weekly
3	3565-098	Water	Sterling Forest WTP	Weekly
T		TLD	4 locations	Quarterly

Table 2.2.6 1994 Air Sample (Iodine & Particulate)
 Cintichem, Inc. (3565-001)
 Long Meadow Road
 pCi/m³ x 10⁻³

WEEK ENDING	GROSS BETA	I-125	I-129	I-131	WEEK ENDING	GROSS BETA	I-125	I-129	I-131
JAN 07	---	---	---	---	AUG 05	31+/-3	<0.9	<0.6	<3
JAN 14 *	10.8+/-1.3	<0.9	<1.4	<1.4	AUG 12	7.2+/-1.2	<0.7	<0.5	<1.6
JAN 24	---	<1.0	<1.4	<2	AUG 19	8.7+/-1.3	<0.8	<0.6	<3
JAN 31	---	---	---	---	AUG 26	---	---	---	---
FEB 04 *	15.7+/-1.4	<0.8	<1.2	<1.2	SEPT 02*	12.2+/-1.1	<0.4	<0.3	<0.8
FEB 11	---	---	---	---	SEPT 09	12.9+/-1.7	<1.0	<1.0	<3
FEB 18 *	10.2+/-0.8	<0.4	<0.5	<1.3	SEPT 16	18+/-2	<0.7	<0.5	<1.7
FEB 24	---	---	---	---	SEPT 23	16.3+/-1.8	<0.6	<0.5	<3
MAR 04 *	11.9+/-1.1	<0.6	<0.8	<1.1	SEPT 30	9.3+/-1.4	<1.6	<0.9	<3
MAR 11	---	---	---	---	OCT 07	7.3+/-1.3	<0.6	<0.5	<3
MAR 18 *	13.2+/-1.2	<0.7	<0.9	<1.5	OCT 14	13.1+/-1.7	<1.6	<0.9	<3
MAR 25	9.2+/-1.4	<1.2	<1.7	<1.9	OCT 21	16.8+/-1.9	<0.7	<0.9	<2
APR 01	---	<1.1	<1.5	<2	OCT 28	14.3+/-1.7	<0.7	<1.0	<1.8
APR 08	21+/-2	<0.9	<1.4	<1.8	NOV 04	16.0+/-1.8	<0.5	<0.9	<3
APR 15	9.8+/-1.5	<1.1	<1.5	<2	NOV 11	---	---	---	---
APR 22	---	---	---	---	NOV 18 *	16.5+/-1.3	<0.17	<0.19	<1.4
APR 29 *	10+/-1	<0.5	<1.0	<1.9	NOV 25	---	---	---	---
MAY 06	---	---	---	---	DEC 02 *	13.3+/-1.2	<0.5	<0.4	<1.5
MAY 13 *	8.5+/-1.0	<0.4	<0.8	<1.1	DEC 09	---	---	---	---
MAY 20	5.9+/-1.3	<0.9	<1.7	<2	DEC 16 *	13.8+/-1.2	<0.18	<0.4	<1.3
MAY 27	11.4+/-1.6	<1.1	<1.9	<3	DEC 24	---	---	---	---
JUN 03	9.2+/-1.4	<0.9	<1.6	<0.7	DEC 31	---	---	---	---
JUN 10	---	---	---	---					
JUN 20 *	10.7+/-1.0	<0.5	<0.8	<1.8					
JUN 24	13+/-2	<2	<3	<3					
JUL 08	12.1+/-1.0	<0.4	<0.7	<0.9					
JUL 14	---	---	---	---					
JUL 22 *	12.8+/-1.2	<0.3	<0.3	<1.1					
JUL 29	12.9+/-1.7	<0.7	<0.6	<1.4					

*Two week sample

Table 2.2.7 1994 Air Sample (Composite)
 Cintichem, Inc. (3565-001)
 Long Meadow Road
 pCi/m³x 10⁻³

	Be-7	Sr-90	Zr-95	Ru-106	Cs-134	Cs-137
1st QUARTER	58+/-12	<0.08	<1.2	<4	<0.7	<0.8
2nd QUARTER	118+/-16	<0.07	<0.9	<2	<0.2	<0.2
3rd QUARTER	94+/-10	<0.09	<0.7	<1.7	<0.14	<0.16
4th QUARTER	55+/-6	<0.06	<0.4	<0.9	<0.09	<0.1

Table 2.2.8 1994 Water Sample
 Cintichem, Inc. (3365-002)
 Indian Kill - 150 feet downstream
 pCi/L

WEEK ENDING	GROSS ALPHA	GROSS BETA	H-3	I-125	I-129	I-131
JAN 07	<1.1	<1.3	<180	<0.3	<0.5	<0.14
JAN 14	<0.9	1.7+/-1.4	<170	<0.2	<0.4	<0.13
JAN 24	<1.2	<1.3	<180	<0.3	<0.5	<0.19
JAN 31 *	---	---	---	---	---	---
FEB 04	<1.0	<1.4	<170	<0.4	<0.6	<0.18
FEB 11 *	---	---	---	---	---	---
FEB 18	<1.3	1.8+/-1.6	<190	<0.4	<0.6	<0.16
FEB 25 *	---	---	---	---	---	---
MAR 04	<1.2	2.7+/-1.9	<140	<0.4	<0.6	<0.2
MAR 18	<1.2	<1.6	<160	<0.3	<0.5	<0.14
MAR 25	<0.9	2.1+/-1.7	230+/-160	<0.4	<0.5	<0.12
APR 01	<0.7	3.9+/-1.9	<190	<0.3	<0.6	<0.4
APR 08	<0.9	<1.6	<200	<0.4	<0.6	<0.18
APR 15	<0.8	1.8+/-1.6	<200	<0.3	<0.5	<0.15
APR 22 *	---	---	---	---	---	---
APR 29	<1.2	1.8+/-1.6	<200	<0.3	<0.6	<0.5
MAY 07 *	---	---	---	---	---	---
MAY 13	<1.3	1.6+/-1.5	<160	<0.3	<0.6	<0.15
MAY 20	<1.2	<1.1	<160	<0.3	<0.6	<0.3
MAY 27	<1.1	2.3+/-1.7	1800+/-200	<0.3	<0.6	<0.3
JUN 03	<0.6	3.2+/-1.7	<200	<0.3	<0.6	<0.15
JUN 13 *	---	---	---	---	---	---
JUN 20	<0.9	<2.0	<130	<0.3	<0.6	<0.3
JUN 24	<0.9	<2.0	<130	<0.4	<0.6	<0.15
JUL 08	<0.8	<2.0	<180	<0.3	<0.6	<0.18
JUL 15 *	---	---	---	---	---	---
JUL 22	---	---	<200	<0.2	<0.17	<0.2

Table 2.2.8 1994 Water Sample
 Cintichem, Inc. (3365-002)
 Indian Kill - 150 feet downstream
 pCi/L

WEEK ENDING	GROSS ALPHA	GROSS BETA	H-3	I-125	I-129	I-131
AUG 05	<0.8	4+/-2	<200	<0.2	<0.19	<0.17
AUG 12	19+/-11	21+/-6	<200	<0.2	<0.17	<0.16
AUG 19	<0.8	<1.7	<170	<0.3	<0.17	<0.16
AUG 26*	----	----	----	----	----	----
SEPT 02	<1.0	<2.0	<170	<0.2	<0.17	<0.2
SEPT 09	<3.0	<1.7	<160	<0.6	<0.3	<0.2
SEPT 16	<3.0	<2.0	<170	<0.2	<0.15	<0.14
SEPT 23	<1.4	<2.0	<150	<0.09	<0.07	<0.18
SEPT 30	<1.6	<1.9	<140	<0.19	<0.2	<0.12
OCT 07	<1.7	<1.8	210+/-140	<0.4	<0.2	<0.16
OCT 14	<1.5	<1.5	370+/-150	<0.5	<0.3	<0.19
OCT 21	<1.4	<1.6	<170	<0.08	<0.07	<0.16
OCT 28	<1.1	<1.6	<190	<0.4	<0.3	<0.2
NOV 04	<1.4	<1.4	<190	<0.3	<0.2	<0.11
NOV 11 *	---	---	---	---	---	---
NOV 18	<1.3	<1.6	---	<0.11	<0.12	<0.14
NOV 25 *	---	---	---	---	---	---
DEC 02	<1.1	2.3+/-1.8	<160	<0.11	<0.2	<0.012
DEC 09 *	---	---	---	---	---	---
DEC 16	<1.3	<1.9	<300	<0.2	<0.3	<0.1
DEC 26 *	---	---	---	---	---	---

* - No Sample Collected

Table 2.2.9 1994 Water Sample
 Cintichem, Inc. (3565-098)
 Sterling Forest Water Treatment Plant
 pCi/L

WEEK ENDING	GROSS ALPHA	GROSS BETA	Cs-137	Ru-106	Zr-95
JAN 07	<1.1	<1.3	<5	<19	<6
JAN 14	<0.9	<0.9	<6	<20	<7
JAN 24	<1.2	<1.3	<6	<20	<7
JAN 31 *	---	---	---	---	---
FEB 04	<1.0	1.8+/-1.4	<6	<20	<7
FEB 11 *	---	---	---	---	---
FEB 18	<1.3	<1.3	<5	<19	<6
FEB 25 *	---	---	---	---	---
MAR 04	<1.2	<1.7	<6	<20	<7
MAR 18	<1.3	3.2+/-1.8	<6	<20	<7
MAR 25	<1.1	<1.5	<6	<20	<8
APR 01	<0.9	4+/-2	<7	<20	<7
APR 08	<1.0	<1.6	<6	<20	<6
APR 15	<0.9	<1.3	<6	<20	<7
APR 22 *	---	---	---	---	---
APR 29	<1.2	<1.2	<6	<20	<7
MAY 07 *	---	---	---	---	---
MAY 13	<1.3	1.8+/-1.5	<6	<20	<6
MAY 20	<1.2	2.7+/-1.6	<11	<40	<14
MAY 27	<1.1	<1.4	<8	<30	<12
JUN 03	<0.6	<1.1	<7	<30	<9
JUN 13 *	---	---	---	---	---
JUN 20	<0.8	<2.0	<7	<20	<8
JUN 24	<0.8	<2.0	<8	<30	<9
JUL 08	<0.8	<2.0	<7	<30	<8
JUL 15 *	---	---	---	---	---
JUL 22	2.1+/-1.8	<1.6	<8	<30	<9
JUL 29 *	---	---	---	---	---

Table 2.2.9 1994 Water Sample
 Cintichem, Inc. (3565-098)
 Sterling Forest Water Treatment Plant
 pCi/L

WEEK ENDING	GROSS ALPHA	GROSS BETA	Cs-137	Ru-106	Zr-95
AUG 05	2.5+/-1.9	2.6+/-1.9	<9	<30	<10
AUG 12	<1.1	<1.9	<9	<40	<10
AUG 19	<0.8	<1.7	<8	<30	<10
AUG 26 *	---	---	---	---	---
SEPT 02	<0.9	<2.0	<8	<30	<10
SEPT 09	<2.0	<1.7	<9	<30	<10
SEPT 16	<1.1	<1.9	<9	<40	<10
SEPT 23	<1.4	<2.0	<7	<30	<8
SEPT 30	<1.5	10+/-3	11+/-8	<30	<10
OCT 07	<1.6	<1.8	<8	<30	<9
OCT 14	<1.4	3.0+/-1.7	<10	<40	<11
OCT 21	<1.3	<1.5	<8	<30	<9
OCT 28	<0.9	<1.6	<9	<30	<10
NOV 04	<1.1	<1.4	<10	<40	<12
NOV 11 *	---	---	---	---	---
NOV 18	<1.2	<1.6	<8	<30	<9
NOV 25 *	---	---	---	---	---
DEC 02	<1.1	2.0+/-1.8	<8	<30	<10
DEC 09 *	---	---	---	---	---
DEC 16	<1.3	<1.9	<9	<40	<11
DEC 26 *	---	---	---	---	---

* - No Sample Collected

Table 2.2.10 1994 Direct Environment Radiation (TDL)
 Cintichem, Inc.
 mR/Standard Quarter

Location	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
Orange County				
Tuxedo				
Long Meadow Rd.	12.7	14.1	14.5	17.1
Air Sampler N of Plant	13.3	13	13.4	13.9
Laurel Ridge	12.1	14.9	15.3	17.6
Maintenance Garage	14.0	12.9	13.2	14.8

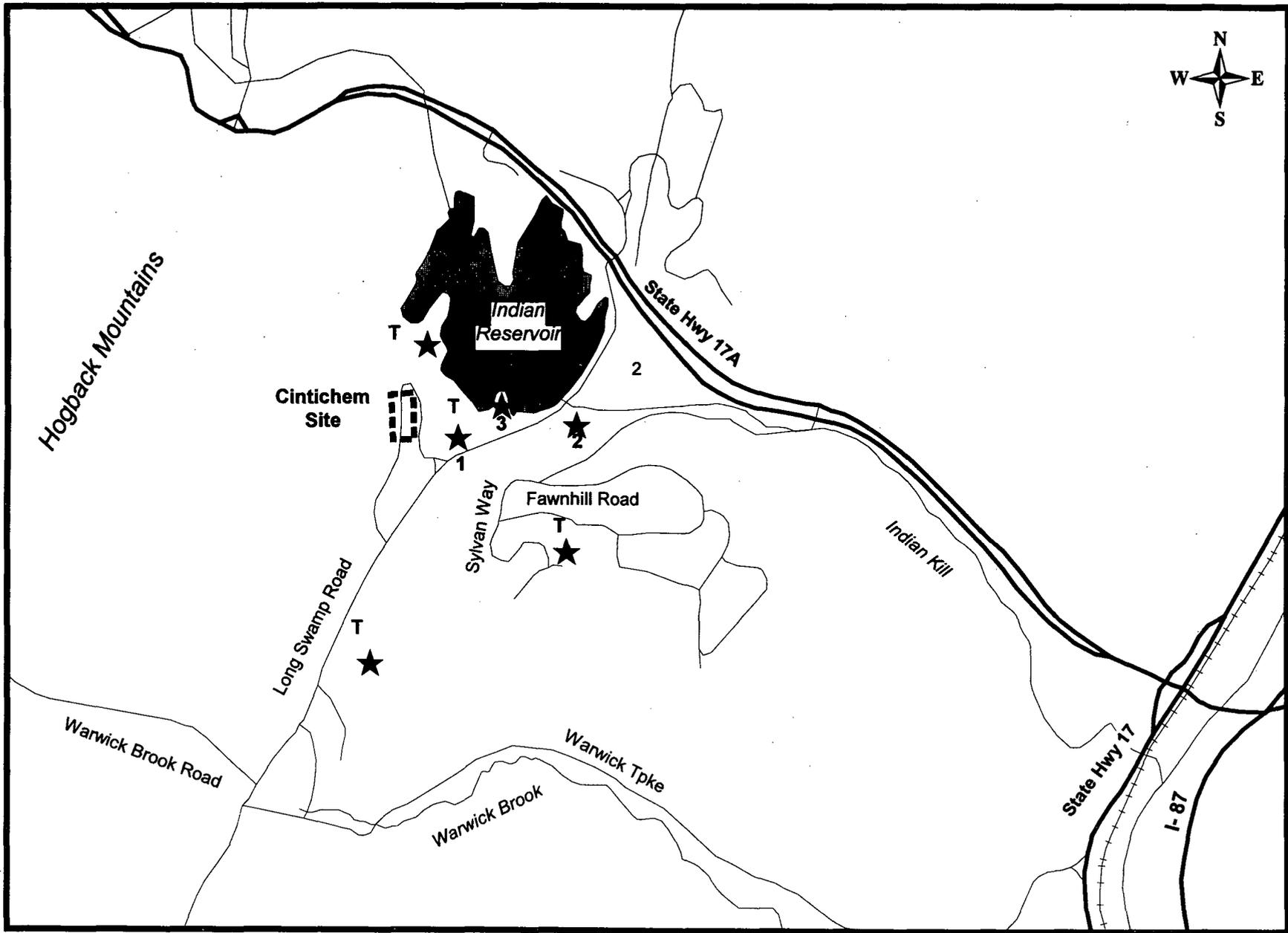


Figure 2.2-3. Cintichem Sampling Sites (Formerly Union Carbide)

2.2.3 GINNA NUCLEAR POWER STATION, ONTARIO, WAYNE COUNTY

Rochester Gas & Electric operates the R.E. Ginna nuclear power plant located on the shore of Lake Ontario. This facility houses a 420 Megawatt electric (MWe) pressurized-water reactor that uses cooling water from Lake Ontario.

Figure 2.2-4 shows the site location and some nearby sampling points. Table 2.2.11 gives a description of the sampling sites.

2.2.3.1 Radioactivity in Air

Results for gross beta activity were within the normal range for background levels and I-131 levels were below the minimum detectable level. Weekly and quarterly results are presented in Tables 2.2.12 and 2.2.13, respectively.

2.2.3.2 Radioactivity in Milk

Results for monthly milk samples collected from nearby farms showed that naturally occurring K-40 contributes most of the radioactivity in the samples. Typically, low levels of Sr-90 and HTO were measurable while Cs-137 and I-131 were below minimum detection levels. The tritium levels in milk are higher than those reported in previous years. Release data from the utilities do not indicate higher releases to the environment. For a period during the last quarter the laboratory made a procedural change in how the milk samples were analyzed for tritium which may have resulted in reporting higher concentrations than the true values. Monthly results from two farms are presented in Tables 2.2.14 and 2.2.15, respectively.

2.2.3.3 Radioactivity in Water

Biweekly water samples were collected using a continuous water sampler at the Town of Ontario water filtration plant which takes its water from Lake Ontario. The gross alpha and gross beta activities were typical of background values.

Weekly results are presented in Tables 2.2.16 and monthly composite results are presented in Table 2.2.17. Monthly samples from the discharge canal (Site #5857-005) showed undetectable levels of Zr-95, Ru-106 and Cs-137. Measurable levels of tritium were found to range between 200 and 400 pCi/L.

These measured values are below the EPA drinking water standard of 20,000 pCi/L, and are consistent with other background samples around the state. Results from the discharge canal and Russel station samples are given in Tables 2.2.18 and 2.2.19, respectively.

2.2.3.4 Radioactivity in Sediment

Table 2.2.20 shows the results of sediment samples from the Ginna plant, K-40 was responsible for most of the activity. Trace amounts of Cs-137 were detected in the sample.

2.2.3.5 Radioactivity in Vegetation

Vegetable samples were collected at the Ginna area. The results indicate background levels of activity and they are presented in Table 2.2.21.

2.2.3.6 Radioactivity in Fish

Fish samples show that naturally occurring K-40 is responsible for most of the activity. Trace amounts of Cs-137 were detected in the sample. Results of the sample are presented in Table 2.2.22.

2.2.3.7 Direct Environmental Radiation

Values measured by the TLD monitors were typical of the normal background radiation levels for these locations, and are shown in Table 2.2.23.

Table 2.2.11 Ginna Nuclear Power Station Sites

Map Location	Site #	Type	Location	Frequency
1	5857-001	Air	Southeast side of boundary	Weekly
5	5857-002	Milk	Farm 3 1/2 mi. SSE	Monthly
2	5857-003	Milk	Farm 1 mile SE	Monthly
3	5857-004	Water	Ontario filtration plant	Weekly
4	5857-005	Water	Discharge canal	Monthly
6	5857-006	Water	Upstream at Russell Station	Monthly
7	5857-007	Fish	Lake Ontario offshore	Annually
8	5857-008	Sediment	Lake Ontario offshore	Annually
9	5857-009	Vegetation	Ontario	Annually
T		TLD	3 Locations	Quarterly

Table 2.2.12 1994 Air Sample (Iodine & Particulate)
 RG&E Ginna (5857-001)
 Parking Lot
 pCi/m³ x 10⁻³

WEEK ENDING	GROSS BETA	I-131
JAN 07	8.4+/-1.1	<7
JAN 14	10.8+/-1.3	<8
JAN 21	6.8+/-1.0	<7
JAN 28	18.1+/-1.7	<10
FEB 04	12.0+/-1.4	<7
FEB 11	13.0+/-1.5	<5
FEB 18	16.9+/-1.7	<10
FEB 25	6.9+/-1.2	<7
MAR 04	13.0+/-1.5	<8
MAR 11	14.9+/-1.6	<8
MAR 18	12.6+/-1.5	<6
MAR 25	8.3+/-1.3	<5
APR 01	10.5+/-1.4	<7
APR 08	10.3+/-1.4	<7
APR 15	9.0+/-1.4	<6
APR 22	8.0+/-1.3	<7
APR 29	8.9+/-1.4	<9
MAY 06	10.4+/-1.4	<6
MAY 13	7.4+/-1.3	<6
MAY 20	4.8+/-1.1	<6
MAY 27	5.6+/-1.1	<13
JUN 03	7.0+/-1.2	<8
JUN 10	8.4+/-1.3	<8
JUN 16	10.7+/-1.6	<8
JUN 24	9.9+/-1.3	<8
JUL 01	5.8+/-1.1	<10
JUL 08	11.0+/-1.5	<7
JUL 15	9.5+/-1.4	<9

WEEK ENDING	GROSS BETA	I-131
JUL 22	11.1+/-1.6	<10
JUL 29	12.4+/-1.6	<9
AUG 05	15.6+/-1.8	<8
AUG 12	8.5+/-1.3	<9
AUG 19	3.0+/-0.8	<10
AUG 26	16.5+/-1.7	<9
SEPT 02	15.8+/-1.8	<9
SEPT 09	10.8+/-1.5	<8
SEPT 16	13.0+/-1.6	<7
SEPT 23	18.9+/-1.9	<8
SEPT 30	8.9+/-1.3	<8
OCT 07	6.0+/-1.1	<7
OCT 14	14.2+/-1.7	<7
OCT 21	13.7+/-1.6	<8
OCT 28	8.6+/-1.3	<9
NOV 04	17.9+/-1.8	<8
NOV 11	19.6+/-1.9	<10
NOV 17	17.4+/-1.9	<7
NOV 23	12.9+/-1.7	<9
DEC 01	13.0+/-1.4	<8
DEC 08	24+/-2	<6
DEC 15	14.9+/-1.6	<7
DEC 22	15.7+/-1.7	<7
DEC 29	18.2+/-1.9	<9

Table 2.2.13 1994 Air Sample (Composite)
 RG&E Ginna (5857-001)
 Parking Lot
 pCi/m³x10⁻³

	Be-7	Zr-95	Ru-106	Cs-134	Cs-137
1 st Quarter	65+/-12	<1.1	<4	<0.7	<0.7
2 nd Quarter	78+/-14	<1.0	<1.9	<0.16	<0.2
3 rd Quarter	97+/-10	<0.5	<1.3	<0.12	<0.12
4 th Quarter	90+/-8	<0.4	<1.2	<0.11	<0.12

Table 2.2.14 1994 Milk Sample
 RG&E Ginna (5857-002)
 Wayne, Ontario
 pCi/L

Monthly				Quarterly	
DATE	K-40	I-131	Cs-137	Sr-90	HTO
JAN					770+/-150
FEB	1540+/-160	<0.2	<7		
MAR	1470+/-170	<0.2	<8		
APR	1300+/-200	<0.2	<10	0.9+/-0.5	690+/-180
MAY	1300+/-200	<0.3	<10		
JUN	1300+/-200	<0.11	<10		
JUL	1510+/-180	<0.4	<9	1.3+/-0.7	630+/-140
AUG	1530+/-170	<0.4	<8		
SEPT	1300+/-190	<0.3	<9		
OCT	1300+/-200	<0.4	<9	0.8+/-0.5	
NOV					1200+/-180

No sample collected in December

Table 2.2.15 1994 Milk Sample
 RG&E Ginna (5857-003)
 Wayne, Ontario
 pCi/L

DATE	K-40	I-131	Cs-137
JAN	1270+/-180	<0.005	<9
FEB	1480+/-180	<0.4	<8
MAR	2600+/-200	<0.17	<8
APR	1310+/-150	<0.4	<7
MAY	1250+/-140	<0.4	<6
JUN	1630+/-170	<0.3	<8
JUL	1400+/-200	<0.4	<10
AUG	1300+/-200	<0.2	<9
SEPT	1400+/-200	<0.3	<11
OCT	1300+/-200	<0.4	<9
NOV	1400+/-300	<1.0	<17
DEC	1020+/-190	<0.1	<10

Table 2.2.16

1994 Water Sample
 RG&E Ginna (5857-004)
 Ontario Water Treatment Plant
 pCi/L

WEEK ENDING	GROSS ALPHA	GROSS BETA
JAN 07	<1.4	1.8+/-1.6
JAN 14	<3	2.4+/-1.7
JAN 21	<1.5	<1.6
JAN 28	<1.5	2.2+/-1.7
FEB 04	<1.7	3.4+/-1.8
FEB 11	<1.7	<1.4
FEB 18	<1.4	4+/-2
FEB 25	<1.4	<1.6
MAR 04	<1.2	3.3+/-1.9
MAR 11	<1.2	3.2+/-1.9
MAR 18	<2	2.8+/-1.9
MAR 25	<1.2	3.3+/-1.7
APR 01	<2	2.1+/-1.7
APR 08	<1.5	3.7+/-1.8
APR 15	<1.4	1.9+/-1.6
APR 22	<1.2	3.4+/-1.8
APR 29	<1.2	2.6+/-1.7
MAY 06	<1.2	2.2+/-1.7
MAY 13	<1.4	1.9+/-1.6
MAY 20	<1.4	<1.1
MAY 27	<0.7	<1.6
JUN 03	<0.7	<1.6
JUN 10	<0.7	4+/-2
JUN 17	<1.5	3.0+/-1.7
JUN 24	<0.9	<2
JUL 01	<1.0	3+/-2
JUL 08	<1.0	<2
JUL 15	<1.1	3+/-2
JUL 22	<1.2	<2
JUL 29	<0.8	2.9+/-1.9

WEEK ENDING	GROSS BETA	GROSS ALPHA
AUG 05	<0.8	2.9+/-1.9
AUG 12	<1.0	<1.7
AUG 19	<1.1	2.8+/-1.9
AUG 26	<2	3.3+/-1.9
SEPT 02	<1.7	3+/-2
SEPT 09	<2	2.5+/-1.8
SEPT 16	<1.7	<2
SEPT 23	<1.7	<2
SEPT 30	<2	3+/-2
OCT 07	<2	<2
OCT 14	<2	3+/-2
OCT 21	<2	<1.9
OCT 28	<2	2.5+/-1.7
NOV 04	<1.7	2.1+/-1.8
NOV 10	<1.7	<2
NOV 17	<1.8	<1.6
NOV 23	<1.6	2.7+/-1.8
DEC 01	<1.6	<1.6
DEC 08	<2	2.8+/-1.9
DEC 15 *		
DEC 22	<2	2.6+/-1.9
DEC 29	<3	<1.8

Table 2.2.17 1994 Water Sample (Composite)
 RG&E Ginna (5857-004)
 Ontario Water Treatment Plant
 pCi/L

DATE	Zr-95	Ru-106	Cs-137	HTO
JAN	<14	<30	<7	<140
FEB	<10	<20	<6	210+/-150
MAR	<10	<30	<7	<200
APR	<9	<20	<6	200+/-150
MAY	<16	<40	<10	<170
JUN	<16	<30	<9	<200
JUL	<15	<40	<9	210+/-160
AUG	<17	<30	<8	390+/-140
SEPT	<15	<30	<8	210+/-160
OCT	<16	<40	<9	260+/-140
NOV	<16	<30	<8	230+/-150
DEC	<16	<40	<10	240+/-160

Table 2.2.18 1994 Water Sample
 RG&E Ginna (5857-005)
 Discharge Canal
 pCi/L

DATE	MONTHLY			QUARTERLY (HTO)
	Zr-95	Ru-106	Cs-137	(COMP)
JAN	<9	<20	<6	
FEB	<8	<20	<6	
MAR	<9	<20	<6	<190
APR	<9	<20	<6	
MAY	<12	<30	<8	
JUN	<10	<30	<7	<200
JUL	<12	<30	<8	
AUG	<12	<30	<8	
SEPT	<12	<30	<8	350+/-160
OCT	<11	<30	<8	
NOV	<8	<20	<6	
DEC	<11	<30	<8	400+/-140

Table 2.2.19 1994 Water Sample
 RG&E Ginna (5857-006)
 Russel Station Upstream
 pCi/L

DATE	MONTHLY			QUARTERLY HTO (COMP)
	Zr-95	Ru-106	Cs-137	
JAN	<9	<20	<6	
FEB	<8	<20	<5	
MAR	<7	<18	<5	<190
APR	<8	<20	<6	
MAY	<13	<30	<9	
JUN	<11	<30	<8	<200
JUL	<13	<40	<9	
AUG	<9	<30	<7	
SEPT	<12	<30	<8	370+/-160
OCT	<10	<30	<7	
NOV	<11	<30	<8	
DEC	<10	<30	<7	190+/-180

Table 2.2.20 1994 Sediment Sample
 RG&E Ginna (5857-008)
 Area Shoreline
 pCi/Kg

DATE SAMPLED	K-40	Co-60	Cs-137	Ra-226	Th-232	U-235	U-238
AUG 24	12600+/-500	18+/-7	297+/-19	300+/-20	280+/-40	<50	820+/-130

Table 2.2.21 1994 Vegetation Sample
 RG&E Ginna (5857-009)
 Area Farm
 pCi/Kg

DATE SAMPLED	K-40	Co-60	Ru-106	Cs-134	Cs-137
OCT 04	900+/-200	<16	<60	<10	<11
OCT 20	3600+/-300	<17	<60	<11	<12

Table 2.2.22 1994 Fish Sample
 RG&E Ginna (5857-007)
 Offshore
 pCi/Kg

DATE SAMPLED	K-40	Ru-106	Cs-134	Cs-137
OCT 14	2500+/-200	<40	<8.0	14+/-9

Table 2.2.23 1994 Direct Environmental Radiation (TLD)
 RG&E Ginna
 mR/Standard Quarter

Location	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
Wayne County				
Rochester Gas & Electric				
Training Center	---	11.4	14.6	14.2
Parking Lot	11.6	10.4	13.2	13.6
Webster Sub-Sta.	12.6	9.8	13.1	12.6

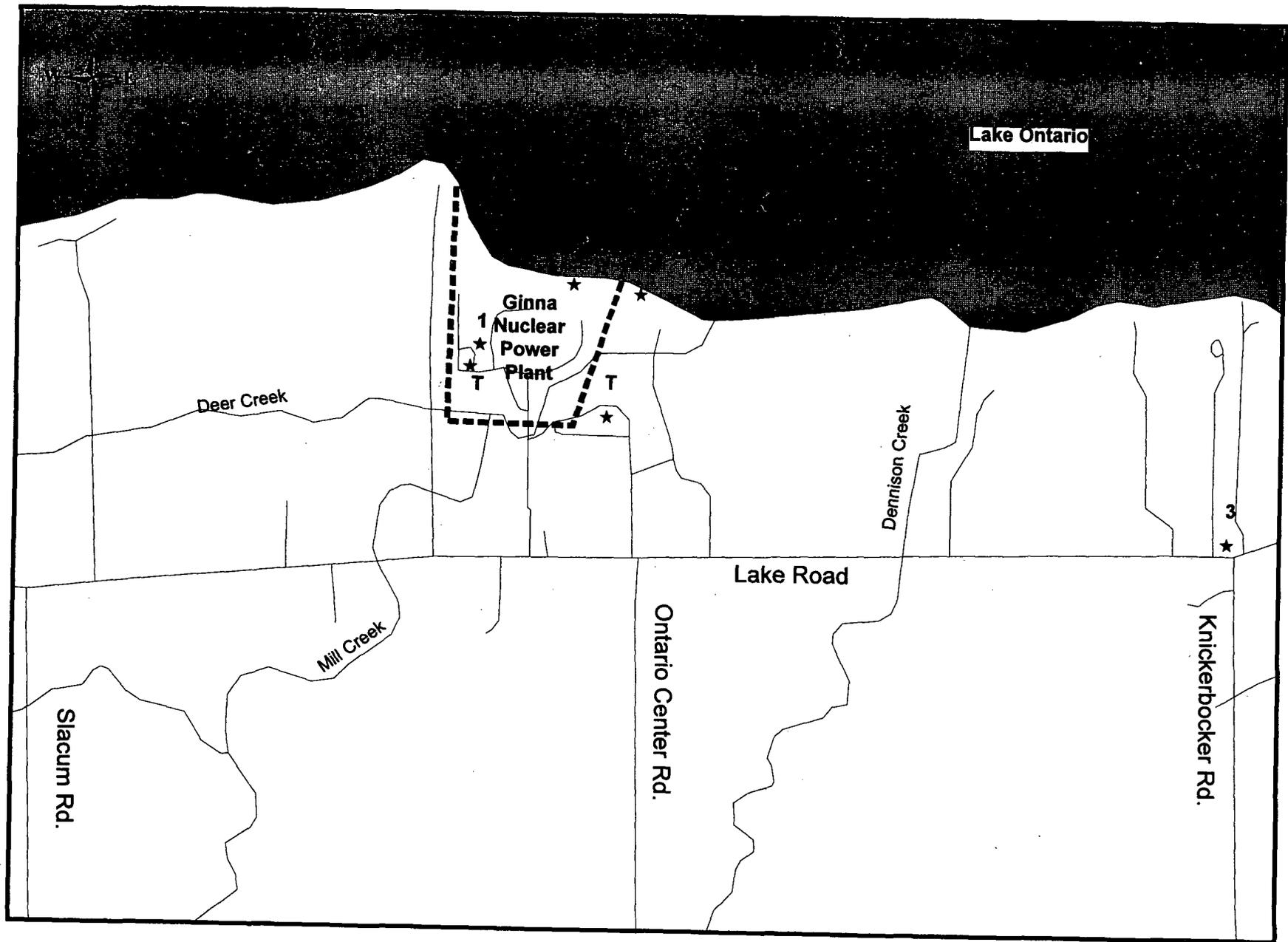


Figure 2.2-4. Ginna Nuclear Power Reactor Sampling Locations.

2.2.4 INDIAN POINT SITES, BUCHANAN, WESTCHESTER COUNTY

The Indian Point Site is located on the Hudson River shore near Peekskill. Two electric utilities have operating nuclear power plants at this site.

Consolidated Edison (ConEd) operates Unit 2 which houses an 873 MWe, pressurized-water reactor. The initial reactor (Unit 1) at the site, also owned by Con ED, is awaiting decommissioning and is not operational. The New York Power Authority (NYPA) operates Unit 3, which is a 965 MWe, pressurized-water reactor. Both operating reactors obtain cooling water from the Hudson River.

Figure 2.2-5 shows the location of the site and some sampling locations in the vicinity. Table 2.2.24 gives a description of the sampling sites.

2.2.4.1 Radioactivity in Air

Air samples showed low levels of gross beta activity and levels of I-131 were below detection levels. Weekly and quarterly results are given in Tables 2.2.25 and 2.2.26, respectively.

2.2.4.2 Radioactivity in Milk

The last commercial dairy farm operating near this site went out of business in 1992. Therefore, no milk samples were collected in 1994.

2.2.4.3 Radioactivity in Water

Water samples showed low levels of gross beta activity. Tritium levels were at typical background levels. The levels for other radioisotopes were low with most samples below minimum detectable levels. Results are presented in Tables 2.2.27 to 2.2.30.

2.2.4.4 Radioactivity in Fish

Fish samples show that naturally occurring K-40 is responsible for most of the activity. All other isotopes are below detectable levels. Results of the fish samples are given in Table 2.2.31.

2.2.4.5 Direct Environmental Radiation

Table 2.2.32 shows the quarterly values for the TLD sites. The data are typical of the normal background level in this area. During 1994 several TLDs were stolen as indicated in the Table.

Table 2.2.24 Indian Point Sites

Map Location	Site #	Type	Location	Frequency
1	5951-001	Air	South side of site	Weekly
2	5951-002	Water	Verplank	Weekly
3	5941-001	Water	Discharge canal	Quarterly
4	5941-002	Water	Inlet canal	Quarterly
5	5941-003	Fish	Hudson River	Annually
	T	TLD	4 locations	Quarterly

Table 2.2.25

1994 Air Sample (Iodine & Particulate)
 Indian Point (5951-001)
 New York University Meteorological Tower
 $\text{pCi/m}^3 \times 10^{-3}$

WEEK ENDING	GROSS BETA	I-131
JAN 06	---	---
JAN 13	---	---
JAN 20	---	---
JAN 27	---	---
FEB 03 ***	9.1+/-0.5	<6
FEB 10	---	---
FEB 18 *	14.2+/-1.1	<5
FEB 25	---	---
MAR 01 *	No Sample	<4
MAR 08	---	---
MAR 15	---	---
MAR 24 **	8.7+/-0.7	<5
MAR 30	7.0+/-1.4	<7
APR 06	9.5+/-1.4	<7
APR 13	10.6+/-1.5	<6
APR 20	9.5+/-1.5	<8
APR 25	12+/-2	<6
MAY 04	8.4+/-1.2	<6
MAY 11	7.4+/-1.3	<9
MAY 17	7.2+/-1.4	<7
MAY 25	7.3+/-1.2	<8
JUN 01	9.9+/-1.4	<10
JUN 08	9.0+/-1.4	<5
JUN 14	9.2+/-1.5	<5
JUN 21	13.3+/-1.7	<7

WEEK ENDING	GROSS BETA	I-131
JUL 07	14.6+/-1.9	<6
JUL 12	11.1+/-1.9	<12
JUL 20	14.3+/-1.6	<10
JUL 29	9.5+/-1.2	<9
AUG 05	17.1+/-1.9	<6
AUG 11	8.9+/-1.5	<9
AUG 17	11.8+/-1.7	<7
AUG 23	6.9+/-1.3	<8
SEPT 01	13.7+/-1.4	<6
SEPT 07	10.3+/-1.6	<10
SEPT 14	16.2+/-1.9	<7
SEPT 19	19+/-2	<13
SEPT 30	8.4+/-1.0	<6
OCT 05	6.6+/-1.5	<14
OCT 12	11.9+/-1.6	<7
OCT 18	13.5+/-1.8	<14
OCT 26	16.2+/-1.7	<10
NOV 03	11.5+/-1.4	<8
NOV 09	21+/-2	<12
NOV 17	16.9+/-1.7	<8
NOV 24	---	---
DEC 02 *	11.2+/-1.0	<4
DEC 09	18.4+/-1.9	<17
DEC 16	---	---
DEC 23	---	---
JAN 04 **	10.5+/-0.8	<3

* - Two Week Sample

** - Three Week Sample

*** - Five Week Sample

Table 2.2.26 1994 Air Sample (Composite)
 Indian Point (5951-001)
 New York University Meteorological Tower
 pCi/m³ x 10⁻³

	Be-7	Zr-95	Ru-106	Cs-134	Cs-137
1 st QUARTER	82+/-16	<1.5	<3	<0.6	<0.6
2 nd QUARTER	108+/-15	<0.8	<1.7	<0.14	<0.19
3 rd QUARTER	84+/-8	<0.5	<1.0	<0.09	<0.1

Table 2.2.27 1994 Water Sample
 Indian Point (5951-002)
 Verplank-Hudson River
 pCi/L

WEEK ENDING	GROSS ALPHA	GROSS BETA	WEEK ENDING	GROSS ALPHA	GROSS BETA
MAR 24 *	<8	22+/-10	SEPT 01	<5	<10
MAR 30	<1	2.8+/-1.1	SEPT 07	<40	40+/-20
APR 06	<1	3.1+/-1.9	SEPT 14	<20	<20
APR 13	2.0+/-1.9	2.7+/-1.7	SEPT 19	<20	30+/-20
APR 20	<1.2	3.5+/-1.8	SEPT 30	<30	<18
APR 25	<1.3	6+/-2	OCT 05	<50	50+/-40
MAY 04	<1.2	2.4+/-1.6	OCT 12	<20	<20
MAY 11	<1.5	3.3+/-1.8	OCT 18	<40	30+/-20
MAY 17	<1.2	1.6+/-1.5	OCT 26	<30	<20
MAY 25	<5	7+/-4	NOV 03	<18	<20
JUN 01	<3	6+/-2	NOV 09	<11	<12
JUN 08	<1.1	1.1+/-0.8	NOV 17	<18	23+/-18
JUN 14	<12	27+/-19	NOV 24 **	---	---
JUN 21	<9	<11	DEC 02	<12	16+/-10
JUL 01	<3	11+/-6	DEC 09 *	<2	<1.9
JUL 07	<9	16+/-11			
JUL 12	<18	<20			
JUL 20	<15	40+/-20			
JUL 29	<6	12+/-10			
AUG 05	<16	40+/-20			
AUG 11	<15	30+/-20			
AUG 17	<13	30+/-20			
AUG 23	<3	<5			

* - No Sample Collected before March 24 or after Dec 9

** - No Sample Collected

Table 2.2.28 1994 Water Samples (Composite)
 Indian Point (5951-002)
 Verplank-Hudson River
 pCi/L

DATE	Sr-89	Sr-90	Zr-95	Ru-106	Cs-137	HTO
MAR	<2	<0.7	<8	<20	<6	<200
APR	<4	<1.1	<10	<20	<7	<150
MAY	<1.3	<0.4	<14	<40	<9	<170
JUN	<30	<0.6	<15	<30	<8	<200
JUL	<20	<0.7	<12	<30	<7	<160
AUG	<13	0.7+/-0.6	<16	<30	<8	<140
SEPT	<8	<0.6	<14	<30	<7	<170
OCT	<10	<0.5	<16	<40	<9	<130
NOV	<8	<0.7	<15	<30	<7	<160
DEC	<2	<0.6	<12	<30	<7	<140

No samples collected in Jan & Feb due to frozen condition

Table 2.2.29 1994 Water Sample
 Indian Point (5941-001)
 Cooling Water Discharge Canal
 pCi/L

DATE	Zr-95	Ru-106	Cs-137	HTO
1 st QUARTER	<30	<30	<8	310+/-150
2 nd QUARTER	<15	<30	<7	<180
3 rd QUARTER	<18	<30	<7	380+/-160
4 th QUARTER	<19	<40	<8	170+/-130

Table 2.2.30 1994 Water Sample
 Indian Point (5941-002)
 Cooling Water Intake Canal
 pCi/L

DATE	Zr-95	Ru-106	Cs-137	HTO
1 st QUARTER	<40	<40	<10	160
2 nd QUARTER	<20	<40	<9	<180
3 rd QUARTER	<20	<40	<9	<170
4 th QUARTER	<19	<40	<9	<130

Table 2.2.31 1994 Fish Sample
 Indian Point (5941-003)
 Intake Screen
 pCi/Kg

DATE SAMPLED	K-40	Ru-106	Cs-134	Cs-137
OCT 14	2100+/-300	<60	<12	<14
OCT 15	2600+/-400	<100	<19	<20

Table 2.2.32 1994 Direct Environmental Radiation (TLD)
 Indian Point
 mR/Standard Quarter

Location	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
<u>Westchester County</u>				
Indian Pt.				
Broadway & Bleakly	11.6	11.7	12.2	13.3
NYU Tower	---*	---*	12.8	12.9
Factory St. Sub-Sta.	10.1	---*	12.6	14.2
Old Dump	12.2	---*	12.4	---*

*---- *Stolen*

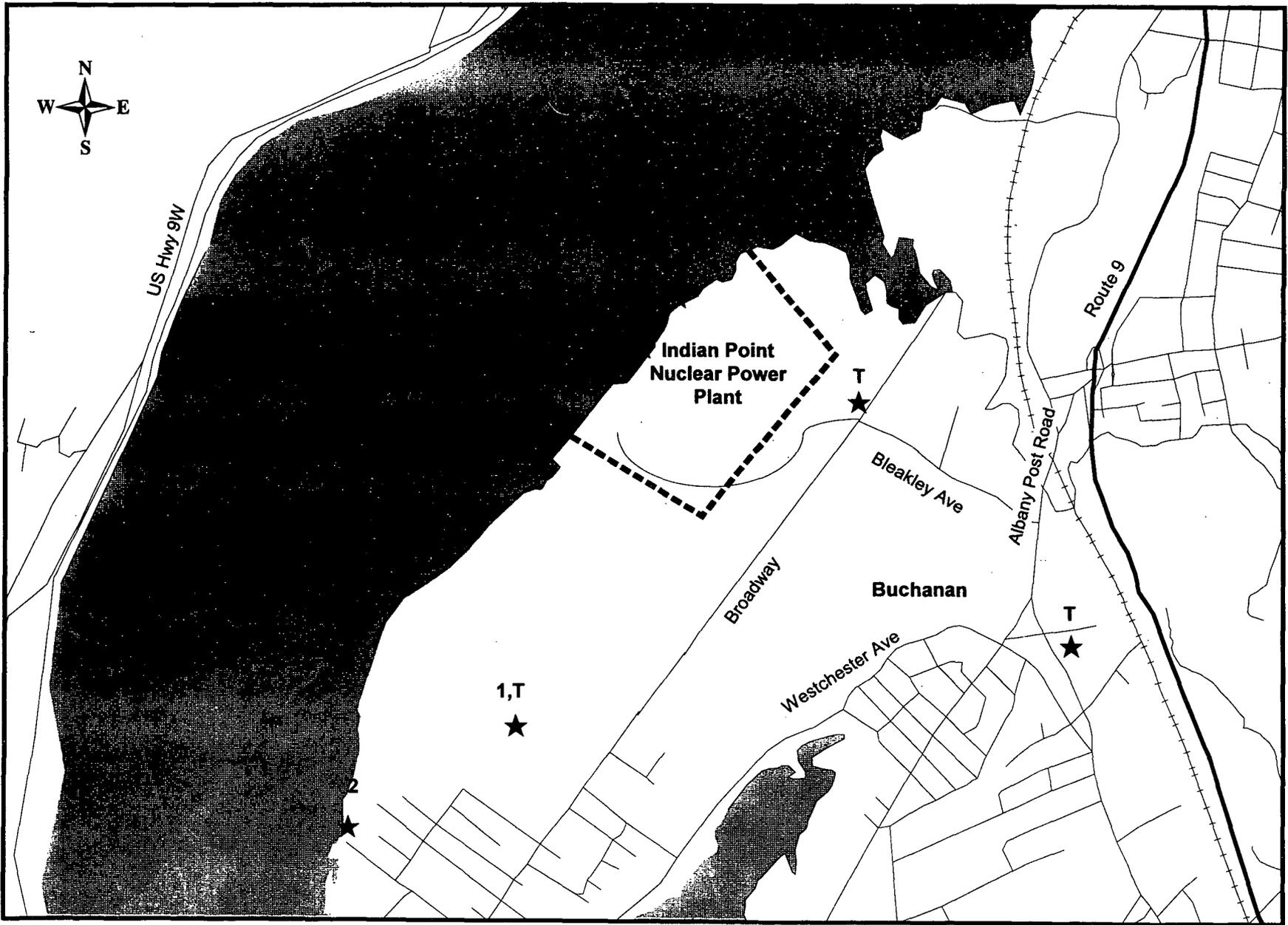


Figure 2.2-5. Indian Point Nuclear Power Plants Sampling Sites.

2.2.5 KNOLLS ATOMIC POWER LABORATORY (KAPL), NISKAYUNA, SCHENECTADY COUNTY AND KESSELRING SITE, WEST MILTON, SARATOGA COUNTY

This facility operates at two separate sites. KAPL is on the shore of the Mohawk River, east of Schenectady, where a small test reactor and hot cell facilities are operated. The Kesselring site is where prototype naval training reactors are operated for the U.S. Navy. The Latham Water District, Colonie Filtration Plant, which is located about 7 miles downstream from KAPL, uses the Mohawk River as a water source.

Figure 2.26 shows the location of the Kesselring facility in Saratoga County. Table 2.2.33 provides information on sampling sites for both locations.

2.2.5.1 Radioactivity in Air

Gross beta activity at this location was within the normal range for background levels and I-131 was below minimum detection levels. Weekly results are given in Table 2.2.34.

2.2.5.2 Radioactivity in Water

Both locations show values typical of normal background levels for gross alpha, gross beta and tritium activity. Results of weekly samples at KAPL and monthly samples at Kesselring are given in Tables 2.2.35 and 2.2.36, respectively.

Table 2.2.33 KAPL and Kesselring Sites

Map Loc.	Site #	Type	Location	Frequency
1	4561-001	Air	Site boundary E side	Weekly
2	4561-002	Water	Glowegee Creek below site	Monthly
3	0153-002	Water	Colonie Filtration Plant	Weekly

Table 2.2.34 1994 Air Sample (Iodine & Particulate)
 Kesseling Site (4561-001)
 Site Boundary
 pCi/m³ x 10⁻³

WEEK ENDING	GROSS BETA	I-131	WEEK ENDING	GROSS BETA	I-131
JAN 09	11.4+/-1.2	<6	JUL 28	Equip.	
JAN 16	---	---			
JAN 23 *	11.8+/-1.0	<7	AUG 05	---	---
JAN 30	---	---	AUG 12	---	---
			AUG 19 **	6.7+/-1.9	<14
FEB 03 *	14.8+/-1.3	<6	AUG 26	8.6+/-1.2	<6
FEB 10	14.0+/-1.6	<7			
FEB 17	16.6+/-1.7	<5	SEPT 02	12.0+/-1.4	<8
FEB 24	---	---	SEPT 09	10.0+/-1.4	<6
			SEPT 15	16+/-2	<10
MAR 04 *	10.9+/-1.0	<5	SEPT 23	19.4+/-1.7	<4
MAR 10	12.8+/-1.6	<7			
MAR 18	15.2+/-1.6	<6	OCT 01	---	---
MAR 25	9.8+/-1.4	<4	OCT 11 *	6.9+/-0.7	<4
			OCT 18	11.5+/-1.5	<7
APR 01	8.1+/-1.3	<5	OCT 21	21+/-3	<11
APR 08	9.1+/-1.4	<6	OCT 27	15.8+/-1.8	<5
APR 15	10.6+/-1.4	<6			
APR 22	8.7+/-1.3	<5	NOV 04	5.1+/-0.5	<6
APR 28	12.2+/-1.6	<5	NOV 11	---	---
			NOV 18	---	---
MAY 09	7.6+/-1.0	<3	NOV 21 **	12.8+/-1.0	<4
MAY 13	8.1+/-1.9	<11			
MAY 20	5.6+/-1.1	<9	DEC 01	10.4+/-1.1	<4
MAY 27	---	---	DEC 09	18.7+/-1.8	<4
			DEC 15	16.3+/-1.8	<5
JUN 06 *	9.5+/-0.9	<5			
JUN 09	9.0+/-1.5	<7			
JUN 17	10.1+/-1.3	<4			
JUN 27	12.4+/-1.3	<6			
JUL 04	---	---			
JUL 12 *	10.3+/-1.0	<4			
JUL 15	12+/-3	<8			
JUL 22	14.5+/-1.7	<7			
* - Two Week Sample					
** - Three Week Sample					

Table 2.2.35

1994 Water Sample
Knolls Atomic Power Laboratory (0153-002)
Colonie Water Treatment Plant
pCi/L

WEEK ENDING	GROSS ALPHA	GROSS BETA	HTO	WEEK ENDING	GROSS ALPHA	GROSS BETA	HTO
JUL 30	<1.1	<1.8	<170	JUL 16	<1.2	<1.6	
JUL 30	<1.1	<1.8	<170	JUL 23	1.9+/-1.8	<1.6	
JAN 08	<1.5	<1.4		AUG 06	<1.1	2.6+/-1.9	
JAN 15	<1.2	<1.1		AUG 13	<1.0	<2	
JAN 22	<1.2	3.4+/-1.6		AUG 20	<1.0	<2	
JAN 29	<1.2	2.6+/-1.6	<140	AUG 27	<0.9	<2	<140
FEB 05	<1.3	<1.1		SEPT 03	<2	2.4+/-1.8	
FEB 12	<1.2	1.7+/-1.4		SEPT 10	<2	2.1+/-1.8	
FEB 19	<1.1	3.2+/-1.9		SEPT 17	<2	<1.9	
FEB 26	<1.2	2.4+/-1.8	<190	SEPT 24	<2	<1.8	<160
MAR 05	<1.2	2.1+/-1.8		OCT 01	<2	<1.8	
MAR 12	<1.2	3.2+/-1.9		OCT 08	<2	<2	
MAR 19	<1.1	2.2+/-1.8		OCT 15	<2	<2	
MAR 26	<1.6	2.1+/-1.6	<160	OCT 22	<2	<2	
APR 02	<1.5	<1.2		OCT 29	<1.9	<2	<120
APR 09	<1.4	1.6+/-1.5		NOV 05	<1.7	2.0+/-1.7	
APR 16	<1.3	2.4+/-1.6		NOV 12	<1.7	<1.6	
APR 25	<1.3	<1.2		NOV 19	<1.6	<1.6	
APR 30	<1.3	2.7+/-1.6	<170	NOV 26	<1.6	3.2+/-1.8	<170
MAY 07	<1.3	1.8+/-1.5		DEC 03	<1.7	<2	
MAY 14	<1.3	1.8+/-1.5		DEC 10	<1.8	<2	
MAY 21	<0.7	2.5+/-1.7		DEC 17	<1.9	<2	
MAY 28	<0.7	<1.6	<170	DEC 24	<2	<2	
JUN 04	<0.7	<1.3		DEC 31	<2	<3	<200
JUN 11	<1.1	<2					
JUN 18	<1.2	<2					
JUN 25	<1.3	<2	<200				
JUL 02	<1.3	<2					
JUL 09	<1.2	<1.6					

Table 2.2.36 1994 Water Sample
 Kesselring Site (4561-002)
 Glowegee Creek
 pCi/L

DATE	GROSS ALPHA	GROSS BETA	HTO
MAR *	<1.0	<1.6	<200
APR	<1.0	2.2+/-1.7	<200
MAY	<1.4	<1.3	<200
JUN	<1.0	<2	<120
JUL	<1.3	<1.6	<200
AUG	<1.2	4+/-2	<160
SEPT	<2	<1.9	<160
OCT	<3	3.1+/-1.8	<170
NOV	<3	<2	<190
DEC	<2	<2	<180

* - No sample collected Jan & Feb due to frozen conditions

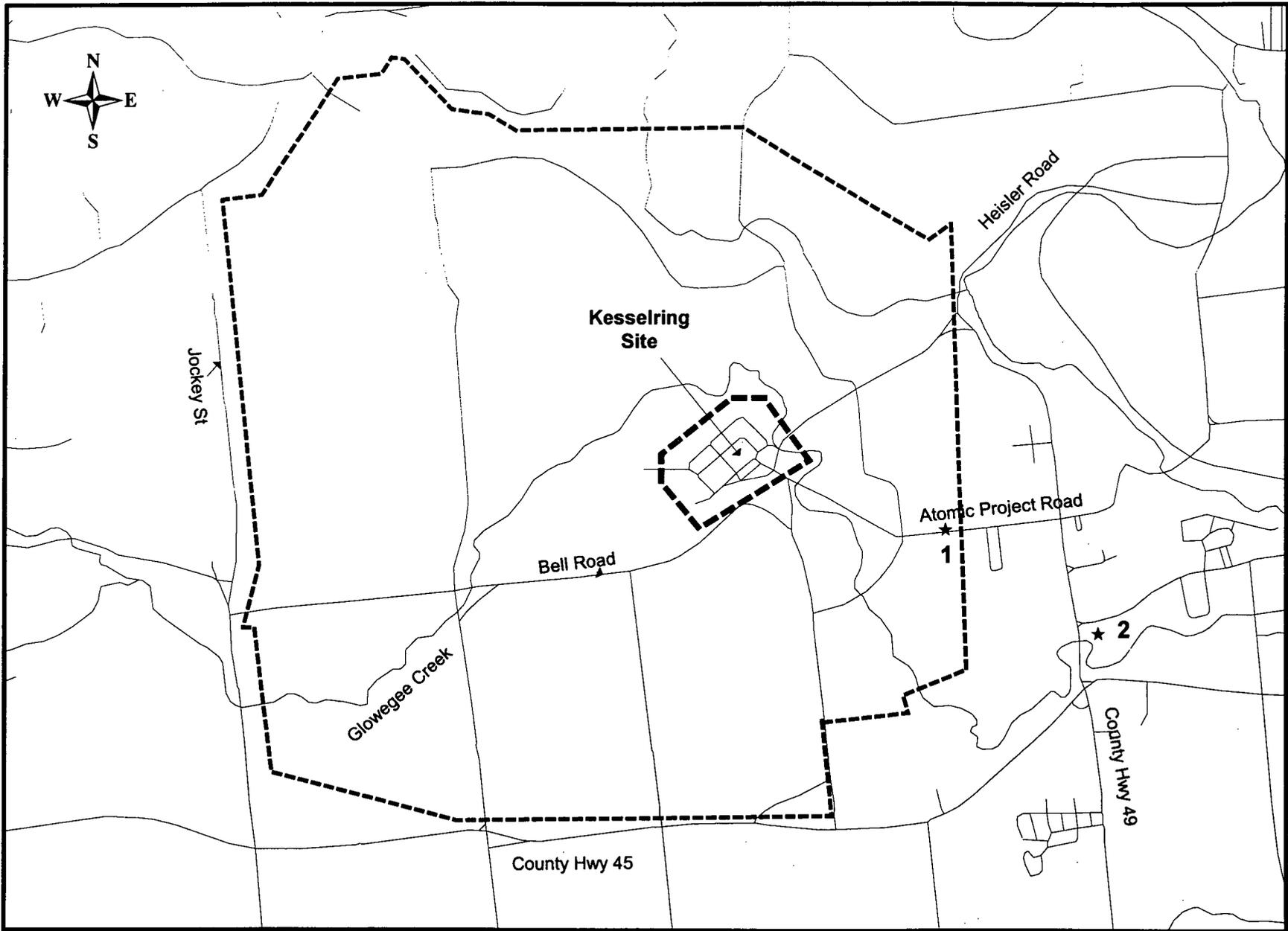


Figure 2.2-6. Kesselring Site Sampling Locations

2.2.6 NL INDUSTRIES (DOE/NLI), COLONIE, ALBANY COUNTY

The NLI site is approximately 10 acres in size, located just north of the border between the Town of Colonie and the City of Albany. The plant was involved in the production of uranium products from the 1950s until it stopped operating in 1980.

During 1987, the US DOE purchased the plant and started the on-site clean-up and remedial activities to remove soil contaminated with uranium from nearby properties. The DOE is temporarily storing the soil from decontamination activities within the building until it can be sent to an approved low level radioactive waste disposal site.

Table 2.2.37 gives a description of the sampling sites and Figure 2.2-7 shows their location.

2.2.6.1 Radioactivity in Water

Water samples were collected at Patroon Creek twice in 1994. The gross alpha and gross beta results from the April 8 sample (13 ± 6 and 6 ± 2 pCi/L, respectively) show an increase from previous samples. The results, though positive, are still below the action level to trigger more specific isotopic analyses. Results for these samples are given in Table 2.2.38.

Table 2.2.37 NL Industries Sites

Map Loc	Site #	Type	Location	Frequency
1	0153-001	Water	Patroon Creek	Semiannual
2	0153-003	Water	Overflow-I90	Semiannual

Table 2.2.38 1994 Water Sample
NL Industries
pCi/L

Date	Site	Site Number	Gross Alpha	Gross Beta
APR	Patroon Creek	0153-001	13 +/- 6	6 +/- 2
	Patroon Creek Overflow	0153-003	< 3.0	2.9 +/- 1.8
OCT	Patroon Creek	0153-001	< 5.0	< 4.0
	Patroon Creek Overflow	0153-003	< 6.0	< 4.0

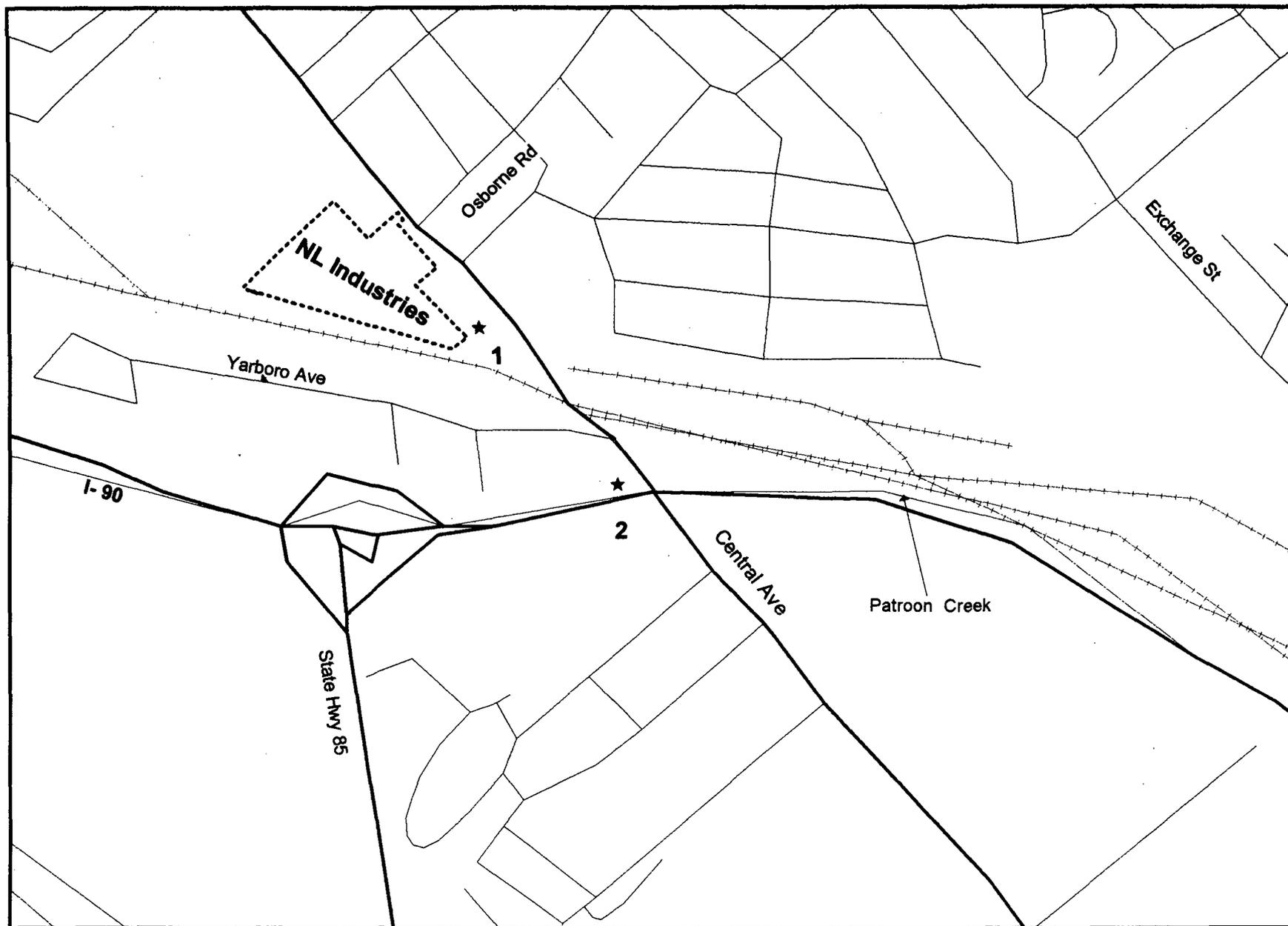


Figure 2.2-7. NL Industries Sampling Locations

2.2.7 NINE MILE POINT SITE, SCRIBA, OSWEGO COUNTY

This site is located on the shore of Lake Ontario. Two electric utilities operate three nuclear power plants at the site. Niagara Mohawk Power Corporation operates both Nine Mile 1 (625 MWe) and Nine Mile 2 (1150 MWe). The New York Power Authority operates the Fitzpatrick Nuclear Station (821 MWe). All reactors are boiling water reactors (BWRs) and take cooling water from Lake Ontario. Figure 2.2-8 shows the facility and some nearby sampling sites. Table 2.2.39 provides information on the sampling sites.

2.2.7.1 Radioactivity in Air

Results for gross beta activity were within the normal range for background levels. I-131 concentrations were below the minimum detectable level. Weekly and quarterly results are given in Tables 2.2.40 and 2.2.41, respectively.

2.2.7.2 Radioactivity in Milk

Results for monthly milk samples collected from three nearby farms show that naturally occurring K-40 contributes most of the radioactivity in the samples. Low levels of Sr-90 and tritium were measurable while Cs-137 and I-131 were below minimum detection levels.

The tritium levels in milk are higher than those reported in previous years. Release data from the utilities do not indicate higher releases to the environment. For a period during the last quarter the laboratory made a procedural change in how the milk samples were analyzed for tritium which may have resulted in reporting higher concentrations than the true values. Results from the three nearby farms are presented in Tables 2.2.42 to 2.2.44.

2.2.7.3 Radioactivity in Water

Monthly grab samples from Lake Ontario showed typical background values for gross alpha, gross beta and tritium. A composite sample at the nearby City of Oswego water treatment plant also showed background levels. Results from water samples are given in Tables 2.2.45 to 2.2.49.

2.2.7.4 Radioactivity in Sediment

Table 2.2.50 shows the results of sediment samples. K-40 and other naturally occurring isotopes were detected as well as background levels of Cs-137. Low, but measurable Co-60 concentrations were also observed.

2.2.7.5 Radioactivity in Vegetation

Vegetable samples were collected in Oswego. The results indicate background levels of activity and are shown in Table 2.2.51.

2.2.7.6 Radioactivity in Fish

Fish samples show that naturally occurring K-40 is responsible for most of the activity. Trace amounts of Cs-137 were detected in the sample. The results are presented in Table 2.2.52.

2.2.7.7 Direct Environmental Radiation (TLD)

Values recorded by the TLD monitors were typical of the normal background radiation levels for these locations and are shown in Table 2.2.53.

Table 2.2.39 Nine Mile Point Sites

Map Loc.	Site #	Type	Location	Frequency
1	3767-001	Air	ESE of site	Weekly
4	3757-001	Milk	Mexico 10 miles ESE	Monthly
5	3758-001	Milk	New Haven 5 miles SE	Monthly
6	3767-002	Milk	Sciba 5 miles SSW	Monthly
7	3702-001	Water	Oswego Water T.P.	Weekly
8	3702-003	Water	Steam plant inlet, Oswego	Monthly
9	3758-002	Water	New Haven Dempster Beach	Monthly
2	3767-003	Water	Inlet Canal Unit #1	Monthly
2	3767-006	Sediment	Offshore	Semiannual
3	3767-005	Fish	Offshore	Semiannual
	3767-007	Vegetation	New Haven	Annual
T		TLD	4 locations	Quarterly

Table 2.2.41 1994 Ail Sample (Composite)
 Nine Mile Point (3767-001)
 Lake Road and County Rt. 29
 pCi/m³x 10⁻³

	Be-7	Zr-95	Ru-106	Cs-134	Cs-137
1st QUARTER	51+/-9	<0.9	<3	<0.5	<0.6
2nd QUARTER	47+/-12	<0.9	<1.9	<0.2	<0.18
3rd QUARTER	89+/-10	<0.6	<1.5	<0.12	<0.14
4th QUARTER	85+/-8	<0.4	<1.2	<0.11	<0.12

Table 2.2.42 1994 Milk Sample
 Nine Mile Point (3757-001)
 Oswego, Mexico
 pCi/L

DATE	MONTHLY			QUARTERLY	
	K-40	I-131	Cs-137	Sr-90	HTO
JAN	1310+/-190	<0.3	<9	1.1+/-0.8	<200
FEB	1330+/-150	<0.2	<7		
MAR	1390+/-190	<0.4	<9		
APR	1400+/-180	<0.3	<8	1.0+/-0.6	300+/-170
MAY	1460+/-190	<1.1	<10		
JUN	1300+/-200	<0.4	<10		
JUL	1570+/-190	<0.4	<9	<0.4	230+/-160
AUG	1500+/-200	<0.4	<10		
SEPT	1260+/-190	<0.3	<10		
OCT	1230+/-170	<0.3	<9	<0.4	1550+/-180
NOV	1400+/-200	<0.3	<11		
DEC	1390+/-190	<0.2	<9		

Table 2.2.43 1994 Milk Sample
 Nine Mile Point (3758-001)
 Oswego, New Haven
 pCi/L

MONTHLY				QUARTERLY	
DATE	K-40	I-131	Cs-137	Sr-90	HTO
JAN	1360+/-150	<0.0012	<7	1.9+/-0.5	<200
FEB	1310+/-170	<0.4	<7		
MAR	1500+/-200	<0.3	<10		
APR	1230+/-120	<0.4	<6	1.9+/-0.5	<200
MAY	1600+/-200	<1.1	<10		
JUN	1400+/-200	<0.3	<10		
JUL	1450+/-190	<0.5	<9	2.8+/-0.6	<190
AUG	1390+/-190	<0.2	<9		
SEPT *					
OCT *					
NOV *					
DEC	1350+/-160	<0.3	<8		
* - No sample collected					

Table 2.2.44 1994 Milk Sample
 Nine Mile Point (3767-002)
 Oswego, Scriba
 pCi/L

DATE	K-40	I-131	Cs-137
APR *	1340+/-170	<0.3	<8
MAY	1300+/-150	<0.2	<7
JUN	1800+/-200	<0.17	<10
JUL	1470+/-180	<0.3	<9
AUG	1600+/-200	<0.3	<11
SEPT	1640+/-190	<0.19	<10
OCT	1390+/-190	<0.18	<9
NOV	1280+/-170	<0.3	<8
DEC	1480+/-190	<0.17	<10

* - No collection before April

Table 2.2.45 1994 Water Sample
 Nine Mile Point (3702-001)
 Oswego Water Treatment Plant
 pCi/L

WEEK ENDING	GROSS ALPHA	GROSS BETA	WEEK ENDING	GROSS ALPHA	GROSS BETA
JAN 07	<1.4	1.8+/-1.6	AUG 05	<0.8	2.0+/-1.8
JAN 14	<1.1	1.9+/-1.4	AUG 12	<1.1	<1.9
JAN 21	<1.4	<1.4	AUG 19	<1.1	4+/-2
JAN 28	<1.4	3.2+/-1.8	AUG 26	<1.1	4+/-2
FEB 04	<1.2	<1.1	SEPT 02	<1.6	<2
FEB 10	<1.5	<1.3	SEPT 09 *	---	---
FEB 18	<1.5	2.4+/-1.7	SEPT 16 *	---	---
FEB 25	<1.5	4+/-2	SEPT 23	<2	<2
MAR 04	<1.4	4+/-2	SEPT 30	<2	<2
MAR 11	<1.4	4+/-2	OCT 07	<2	<1.8
MAR 18	<1.4	4+/-2	OCT 14	<1.9	4.0+/-1.9
MAR 25	<1.0	<1.5	OCT 21	<1.9	2.0+/-1.7
APR 01	<1.0	2.0+/-1.7	OCT 28	<1.5	<1.5
APR 08	<1.2	2.6+/-1.7	NOV 04	<1.4	<2
APR 15	<0.8	3.4+/-1.8	NOV 10	<1.6	<2
APR 29	<1.4	2.5+/-1.7	NOV 17 *	---	---
MAY 06	<1.2	<1.6	NOV 25	<1.6	<2
MAY 13	<1.5	1.6+/-1.5	DEC 02	<1.6	<2
MAY 20	<1.4	<1.1	DEC 09	<1.5	<2
MAY 27	<0.7	3.5+/-1.8	DEC 16	<2	<2
JUN 03	<0.7	3.2+/-1.7	DEC 23	<2	<1.8
JUN 10	<0.7	1.7+/-1.6	DEC 30	<2	<2
JUN 17	<0.8	2.2+/-1.9			
JUN 24	<1.0	3+/-2			
JUL 01	<1.5	1.6+/-1.5			
JUL 08	<1.0	3+/-2			
JUL 15	<1.2	3+/-2			
JUL 22	<1.1	<2			
JUL 29	<0.8	<1.8			

* - No Sample Collected

Table 2.2.46 1994 Water Sample
 Nine Mile Point (3702-001)
 Oswego Water Treatment Plant
 pCi/L

DATE	Zr-95	Ru-106	Cs-137	HTO
JAN	<11	<20	<6	<140
FEB	<8	<17	<5	510+/-160
MAR	<10	<20	<6	<200
APR	<9	<20	<6	230+/-150
MAY	<14	<30	<8	220+/-150
JUN	<17	<30	<9	<200
JUL	<14	<30	<8	<170
AUG	<19	<40	<9	250+/-140
SEPT	<16	<30	<8	230+/-160
OCT	<15	<40	<9	350+/-140
NOV	<17	<40	<9	<170
DEC	<13	<30	<8	240+/-160

Table 2.2.47 1994 Water Sample
 Nine Mile Point (3702-003)
 Oswego Steam Inlet
 pCi/L

	MONTHLY			QUARTERLY
DATE	Zr-95	Ru-106	Cs-137	HTO (COMP)
JAN	<8	<20	<6	260+/-160
FEB	<7	<20	<6	
MAR	<8	<20	<6	
APR	<9	<20	<6	140+/-120
MAY *	---	---	---	
JUN	<10	<30	<7	
JUL	<11	<30	<8	210+/-160
AUG	<12	<30	<9	
SEPT	<12	<30	<9	
OCT	<11	<30	<8	170+/-130
NOV	<9	<30	<7	
DEC	<11	<30	<8	
* - No Sample Collected				

Table 2.2.48 1994 Water Sample
 Nine Mile Point (3757-002)
 Demsters Beach
 pCi/L

DATE	MONTHLY		QUARTERLY
	GROSS ALPHA	GROSS BETA	HTO (COMP)
APR	<1.3	4.0+/-1.9	
MAY	<1.3	3.1+/-1.7	
JUN	<0.8	<1.8	<200
JUL	<1.2	3+/-2	
AUG	<1.4	4+/-2	
SEPT	<2	<1.9	<180
OCT	<2	3+/-2	
NOV	<1.8	<2	
DEC	<2	<1.8	<160

* No samples collected Jan - Mar due to frozen conditions

Table 2.2.49 1994 Water Sample
 Nine Miles Point (3767-003)
 Cooling Water Inlet
 pCi/L

DATE	MONTHLY			QUARTERLY
	Zr-95	Ru-106	Cs-137	HTO (COMP)
JAN	<8	<20	<6	
FEB	<8	<19	<5	
MAR	<7	<18	<5	<190
APR	<7	<20	<6	
MAY *	---	---	---	
JUN	<11	<30	<8	<120
JUL	<12	<30	<8	
AUG	<12	<30	<8	
SEPT	<12	<30	<8	190+/-160
OCT	<11	<30	<8	
NOV	<12	<30	<8	
DEC	<14	<30	<9	<130
* - No Sample Collected				

Table 2.2.50 1994 Sediment Sample
 Nine Mile Point (3767-006)
 Sunset Beach
 pCi/Kg

DATE SAMPLED	Be-7	Mn-54	K-40	Co-60	Cs-137	Ra-226	Th-232	U-235	U-238
APR 26	320+/-70	17+/-7	16300+/-600	32+/-10	333+/-19	590+/-30	750+/-50	90+/-70	900+/-200
OCT 26	---	---	21200+/-800	13+/-10	119+/-12	790+/-40	950+/-60	100+/-60	1300+/-400

Table 2.2.51 1994 Vegetation Sample
 Nine Mile Point (3767-007)
 Area Farm
 pCi/Kg

DATE SAMPLED	K-40	Co-60	Ru-106	Cs-134	Cs-137
SEPT 12	2200+/-800	<50	<150	<30	<40
SEPT 13	2400+/-700	<40	<130	<30	<30

Table 2.2.52 1994 Fish Sample
 Nine Mile Point (3767-005)
 Lake Ontario (Area of Discharge)
 pCi/Kg

DATE SAMPLED	K-40	Ru-106	Cs-134	Cs-137
JUN 06	3400+/-300	<60	<12	33+/-14
SEPT 22	3500+/-400	<80	<16	23+/-18

Table 2.2.53 1994 Direct Environmental Radiation (TLD)
 Nine Mile Point
 mR/Standard Quarter

Location	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
Oswego County Nine Mile Pt.				
Meteorological Tower	9.1	10.2	11.6	12.3
Co.Rt. 29 & Miner Rd.	9.7	10.5	11.2	12.6
County Rt. 1A & 29 (at air sampler)	11.6	10.7	11.3	13
Lakeview Rd.	11.4	11.5	12.4	13.5

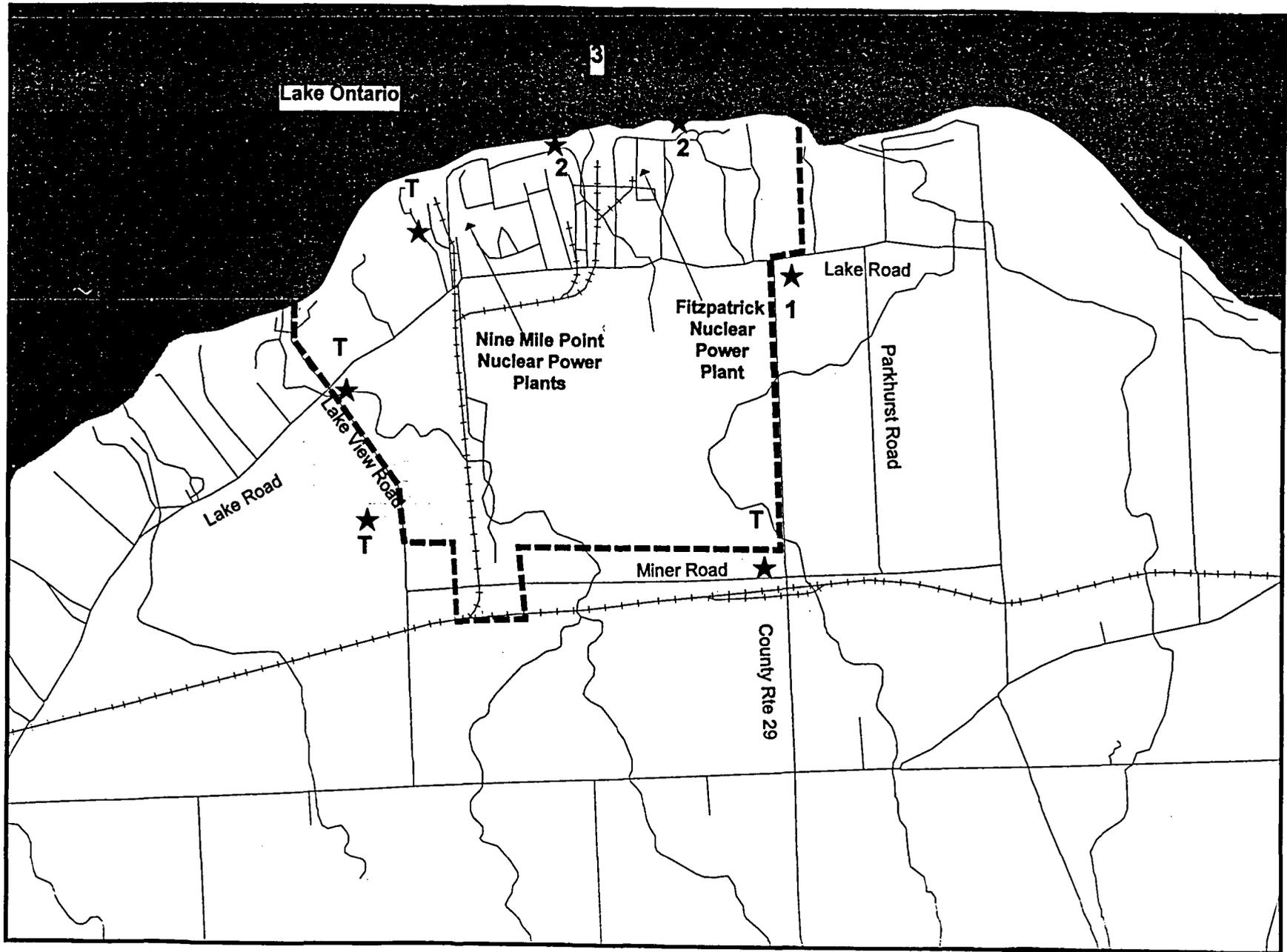


Figure 2.2-8. Nine Mile Point Site Sampling Locations.

2.2.8. SELF-POWERED LIGHTING (SPL), ELMSFORD, WESTCHESTER COUNTY

This facility utilizes large quantities of tritium in the manufacture of various self-luminous devices at this location. Figure 2.2-9 shows the facility location and some nearby sampling sites. Table 2.2.54 provides information on the sampling sites.

2.2.8.1 Radioactivity in Air

Air samples collected near the SPL show measurable HTO levels. The results for 1994 range from less than 1.6 to 6.5 pCi/m³. These results are lower than the 1993 results of 1.0 to 15.5 pCi/m³. Bi-weekly results are presented in Table 2.2.55.

2.2.8.2 Radioactivity in Water

Water samples show measurable levels of tritium in samples collected near the SPL facility ranging from <200 to 680±160 pCi/L. All samples were well below the USEPA safe drinking water standard of 20,000 pCi/L. Yonkers water treatment plant results were also below the safe drinking water standard. Figure 2.2-10 shows the annual average tritium (H-3) level at the Yonkers water treatment plant from 1979 to 1994. The highest recorded value of 340±160 pCi/L, is less than the largest 1993 value of 520±140 pCi/L. Results for the other nearby sites show a maximum tritium concentration of 220±140 pCi/L. Weekly results from the Yonkers Water Treatment Plant and the Tributary to Saw Mill River are given in Tables 2.2.56 and 2.2.57, respectively. Monthly samples from other nearby locations are given in Table 2.2.58.

2.2.8.3 Radioactivity in Fallout

Weekly fallout (rainfall) samples were collected and results showed measurable levels of tritium. This sample was collected near the air sampler across the street from SPL. Low levels of tritium are measurable in these samples. Biweekly results are presented in Table 2.2.59.

Table 2.2.54 Self-Powered Lighting Sites

Map Location	Site #	Type	Location	Frequency
1	5953-018	Air	Across street from site	Bi-Weekly
1	5953-018	Fallout	Across street from site	Weekly
4	5907-007	Water	Yonkers filtration plant	Weekly
2	5953-009	Water	Trib. of Saw Mill River	Weekly
3	5953-021	Water	Pond West Comm.	Monthly
5	5957-001	Water	College	Monthly
6	5957-002	Water	Kensico Reservoir Pocantico Reservoir	Monthly

Table 2.2.55 1994 Air Sample (Tritium)
 Self Powered Lighting (5953-018)
 Martin Building
 pCi/m³

WEEK ENDING	HTO
FEB 03	1.73+/-0.14
FEB 18	3.3+/-0.7
MAR 01	5.4+/-0.9
MAR 24	1.5+/-0.4
APR 06	5.6+/-1.1
APR 20	4.1+/-0.7
MAY 04	2.9+/-0.6
MAY 17	6.5+/-0.9
JUN 01	2.9+/-0.9
JUN 14	5.4+/-1.4
JUL 01	3.8+/-1.6
JUL 12	<1.6
AUG 01	1.9+/-1.0
AUG 11	3.3+/-1.8
AUG 29	2.8+/-1.3
SEPT 06	2.3+/-1.6
SEPT 23	2.3+/-0.7
OCT 05	3.6+/-0.8
NOV 03	4+/-2
JAN 10	3.4+/-0.7

Table 2.2.56

1994 Water Sample
Self Powered Lighting (5907-007)
Yonkers Water Treatment Plant
pCi/L

WEEK ENDING	HTO	WEEK ENDING	HTO
FEB 03 *	<170	SEPT 08	<170
FEB 10 **	---	SEPT 14	240+/-160
FEB 18	<160	SEPT 23	<120
FEB 25 **	---	SEPT 30	<160
MAR 01	<170	OCT 05	<140
MAR 13 **	---	OCT 13	<130
MAR 24	<170	OCT 18	<160
MAR 30	<190	OCT 27	<190
APR 07 **	---	NOV 03	<180
APR 13	<200	NOV 10	220+/-150
APR 20	<200	NOV 17 **	---
APR 25	<190	NOV 24 **	---
MAY 04	<150	DEC 02	340+/-160
MAY 11	<150	DEC 09 **	---
MAY 17	190+/-150	DEC 15 *	<300
MAY 25	<170		
JUN 01	<200		
JUN 08	200+/-150		
JUN 14	<170		
JUN 21 **	---		
JUN 27 **	---		
JUL 01	400+/-130		
JUL 07	550+/-140		
JUL 12	520+/-160		
JUL 20	550+/-180		
JUL 29	250+/-180		
AUG 04	370+/-180		
AUG 11	520+/-180		
AUG 17	490+/-170		
AUG 23	<170		

* - No Sample Collected before Feb 03 & after Dec 02

** - No Sample Collected

Table 2.2.57 1994 Water Sample
 Self Powered Lighting (5953-009)
 Tributary to Saw Mill River
 pCi/L

WEEK ENDING	HTO	WEEK ENDING	HTO
FEB 03 *	310+/-150	SEPT 01	410+/-150
FEB 10 **	---	SEPT 09	340+/-150
FEB 18 **	---	SEPT 14	680+/-160
FEB 25 **	---	SEPT 23	150+/-140
MAR 01	260+/-130	SEPT 30	420+/-140
MAR 13 **	---	OCT 05	550+/-140
MAR 24	230+/-140	OCT 13	480+/-150
MAR 30	<200	OCT 21	330+/-160
APR 06	190+/-160	OCT 24 **	---
APR 13	<200	NOV 03	400+/-170
APR 20	230+/-170	NOV 10	<140
APR 25	360+/-170	NOV 17	540+/-150
MAY 04	410+/-150	NOV 24 **	---
MAY 11	490+/-160	DEC 02 *	300+/-150
MAY 17	260+/-150		
MAY 25	430+/-160		
JUN 01	430+/-180		
JUN 08	570+/-160		
JUN 14	360+/-150		
JUN 21	650+/-160		
JUL 01	<120		
JUL 06	<120		
JUL 12	<180		
JUL 20	<200		
JUL 29	<200		
AUG 04	<200		
AUG 11	<200		
AUG 17	<170		
AUG 23	<170		

*No sample collected before Feb 03
 and after Dec 15

** No sample collected

Table 2.2.58 1994 Water Sample (HTO)
 Self Powered Lighting
 pCi/L

DATE	WESTCHESTER COMM. COLL.	KENSICO RESERVOIR	POCANTICO RESERVOIR
	5953-021	5957-001	5957-001
MAR	<170	<170	<170
APR	<200	<200	<200
MAY	<170	<160	<170
JUN	200+/-140	<170	220+/-140
JUL	<160	<170	<170
AUG	<200	<200	<200
SEPT	<160	<160	<180
OCT	<140	<140	<140
NOV	<190	<190	170+/-150

*No sample collected Jan Feb, & Dec due
 to frozen conditions*

Table 2.2.59

1994 Fallout Samples
 Self Powered Lighting (5953-018)
 Martin Building
 pCi/L

WEEK ENDING	HTO	WEEK ENDING	HTO
FEB 03	---	SEPT 01	<160
FEB 17	---	SEPT 22	<150
MAR 01	410+/-150	OCT 20	210+/-150
MAR 10	340+/-140	OCT 27	<190
APR 20	770+/-180	NOV 02	<190
APR 28	770+/-160	NOV 10	<140
MAY 05	<160	DEC 01	<160
MAY 12	1900+/-190	DEC 15	<120
MAY 18	<170	DEC 22	760+/-140
MAY 26	510+/-180	DEC 29	150+/-130
JUN 14	200+/-140		
JUN 21	<140		
JUN 23	230+/-120		
JUN 30	240+/-130		
JUL 15	<200		
JUL 29	<200		
AUG 18	<170		
AUG 25	<170		

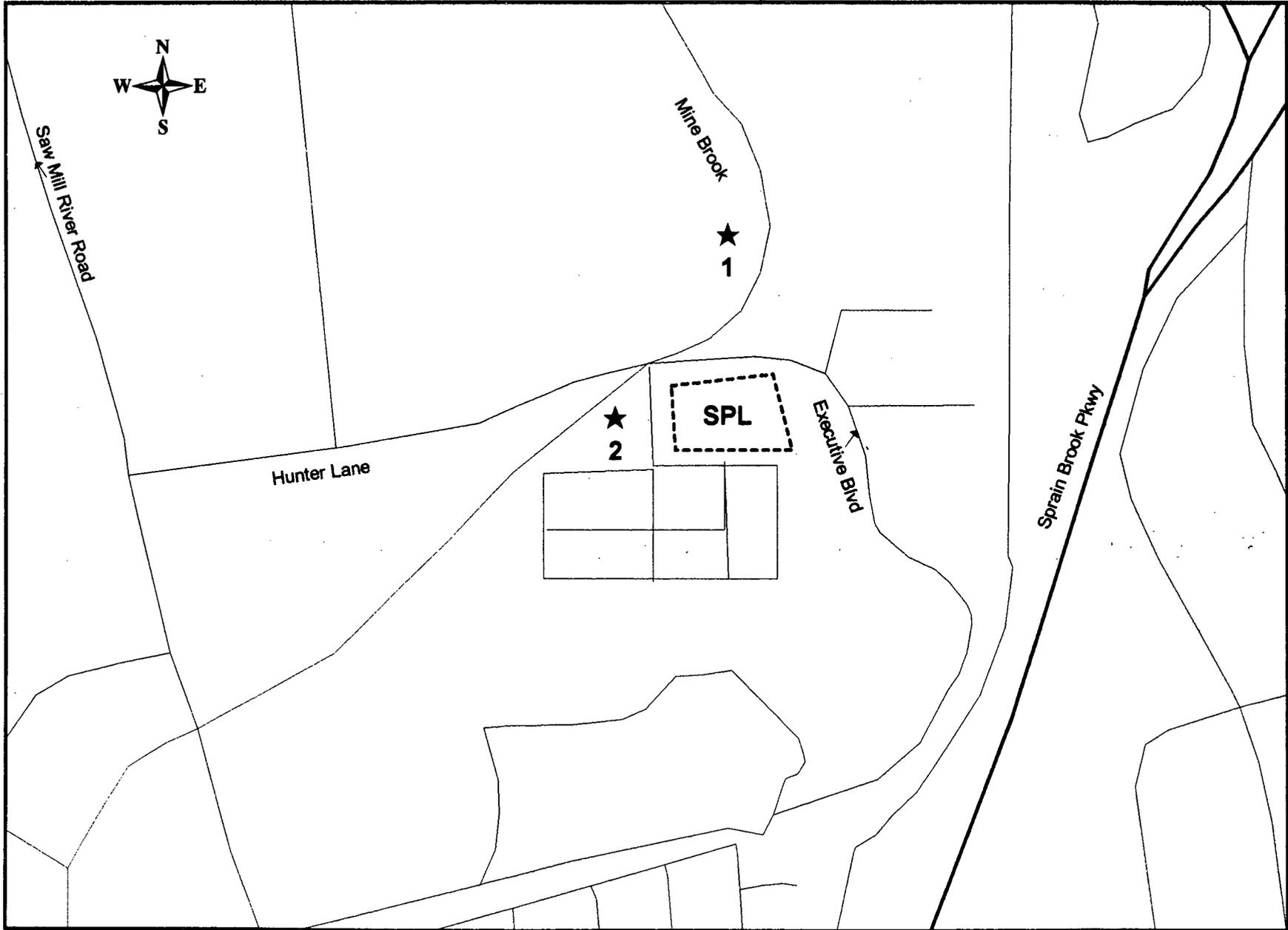


Figure 2.2-9. Self Powered Lighting Sample Locations.

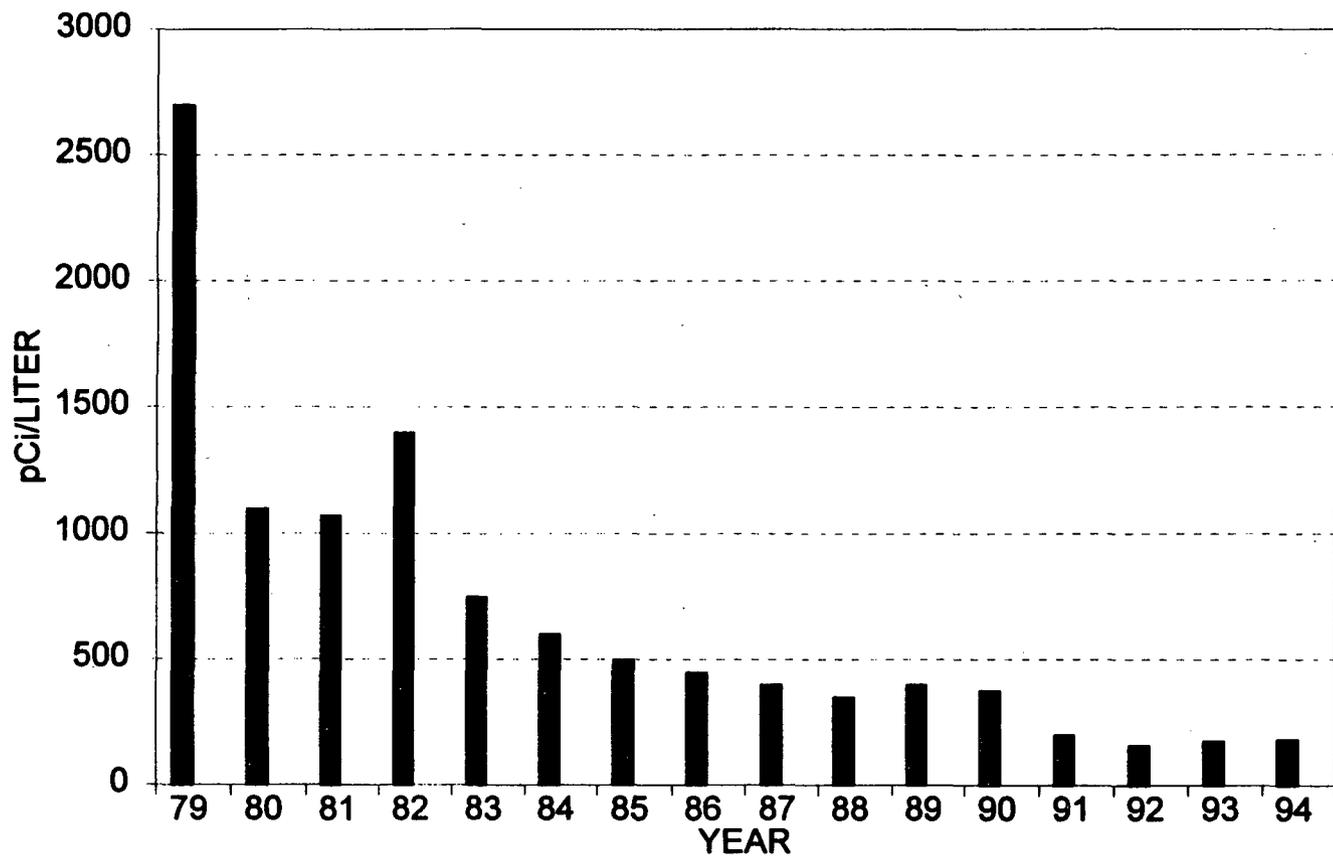


Figure 2.2-10. H-3 at Yonkers Water District.

2.2.9 SHOREHAM NUCLEAR POWER STATION, SHOREHAM, SUFFOLK COUNTY

The Shoreham nuclear power plant is located in the Town of Shoreham on Long Island Sound. Its reactor was designed to operate at a power level of 849 MWe. The reactor was never operated at more than 5 percent of full power during initial testing and it has been shutdown since May 1991. The power reactor was decommissioned in 1994 under an agreement between New York State and the Long Island Lighting Company.

Figure 2.2-11 shows the Shoreham site and nearby sampling locations. Table 2.2.60 provides information on the sampling sites.

2.2.9.1 Radioactivity in Air

Gross beta activity of air samples collected at this location was within the normal range for background levels. Due to the completion of decommissioning, the Shoreham air sample station was discontinued June 21, 1994. Weekly air sample results are given in Table 2.2.61. Composite quarterly results are given in Table 2.2.62.

2.2.9.2 Radioactivity in Milk

No commercial dairy farms are operating near this site, and the last such farm went out of business in 1992, therefore no milk samples were collected in 1994.

2.2.9.3 Radioactivity in Water

Water samples collected from Long Island Sound showed fission product activity to be below minimum detection levels. Results of these samples are given in Tables 2.2.63 and 2.2.64.

2.2.9.4 Radioactivity in Fish

Fish samples results show that naturally occurring K-40 is responsible for most of the activity. Concentration of Ru-106, Cs-134 and Cs-137 were all below detection limits. Fish sample results are given in Table 2.2.65.

2.2.9.5 Direct Environmental Radiation (TLD)

Four locations near the Shoreham site showed quarterly readings typical for normal background radiation levels in this area. Values recorded by the TLD monitors were typical for these locations, and are shown in Table 2.2.66.

Table 2.2.60 Shoreham Sites

Map Loc.	Site	Type	Location	Frequency
1	5128-001	Air	0.2 mile NNE	Weekly
	5128-003	Water	Long Island Sound	Semiannual
	5128-004	Water	Long Island Sound	Semiannual
2	5128-008	Water	Long Island Sound	Monthly
	5128-007	Fish	Long Island Sound	Annually

Table 2.2.61 1994 Air Sample (Iodine and Particulate)
 Shoreham Nuclear Power Station (5128-001)
 Creek Rd. 0.2 mile NNE
 pCi/m³x10⁻³

WEEK	GROSS	
ENDING	BETA	I-131
JAN 04	---	---
JAN 11	---	---
JAN 18	16.2+/-1.7	<11
JAN 25	12.3+/-1.5	<9
FEB 01	11.4+/-1.4	<6
FEB 08	11.9+/-1.5	<17
FEB 15	13.7+/-1.5	<7
FEB 22	15.0+/-1.7	<9
MAR 01	9.9+/-1.4	<7
MAR 08	10.5+/-1.4	<10
MAR 15	8.4+/-1.4	<13
MAR 22	8.8+/-1.3	<7
MAR 29	7.5+/-1.3	<7
APR 05	9.1+/-1.4	<9
APR 12	8.5+/-1.4	<13
APR 19	9.2+/-1.5	<6
APR 26	7.6+/-1.3	<7
MAY 03	7.3+/-1.3	<12
MAY 10	6.6+/-1.3	<7
MAY 17	10.9+/-1.5	<7
MAY 24	5.1+/-1.1	<17
MAY 31	8.2+/-1.3	<12
JUN 07	6.7+/-1.2	<10
JUN 14	14.2+/-1.7	<9
JUN 21 *	10.6+/-1.6	<10

* - Environmental Program
 Discontinued on 6/12/94

Table 2.2.62 1994 Air Samples (Composite)
 Shoreham Nuclear Power Station (5128-001)
 Creek Rd. 0.2 mile NNE
 pCi/m³x10⁻³

	Be-7	Zr-95	Ru-106	Cs-134	Cs-137
1 st QUARTER	69+/-14	<1.4	<5	<0.8	<0.9
2 nd QUARTER *	104+/-18	<1.2	<3	<0.2	<0.2

* - DISCONTINUED IN JUNE 1994

Table 2.2.63 1994 Water Sample
 Shoreham Nuclear Power Station
 Long Island Sound
 pCi/L

SITE #	DATE	LOCATION	Cs-137	Ru-106	Zr-95	HTO
5128-003	MAY	HEROD PT	<9.0	<30	<11	<200
5128-004	MAY	MT. MISERY	<11	<40	<14	<200

Table 2.2.64 1994 Water Sample
 Shoreham Nuclear Power Station (5128-008)
 Stone Jetty Long Island Sound
 pCi/L

DATE	Cs-137	Ru-106	Zr-95	HTO
FEB	<6.0	<20	<7.0	
MAR	<7.0	<30	<9.0	<190
APR	<6.0	<20	<7.0	
MAY	<7.0	<20	<9.0	
JUN	<9.0	<40	<11	<200
JUL	<9.0	<30	<11	
AUG	<9.0	<30	<11	
SEPT	<8.0	<30	<11	<180
OCT	<8.0	<30	<11	
NOV	<10	<40	<13	
DEC	<8.0	<30	<10	<120

No samples collected in Jan due to frozen conditions

Table 2.2.65 1994 Fish Sample
 Shoreham Nuclear Power Station (5128-007)
 Long Island Sound
 pCi/Kg

DATE	K-40	Ru-106	Cs-134	Cs-137
MAY 16	4300+/-400	<80	<16	<18
MAY 17	2900+/-300	<70	<13	<14
MAY 23	2800+/-300	<70	<13	<15
MAY 24	3100+/-300	<70	<13	<15

Table 2.2.66 1994 Direct Environmental Radiation (TLD)
 Shoreham Nuclear Power Station
 mR/Standard Quarter

	1st	2nd	3rd	4th
Location	Quarter	Quarter	Quarter	Quarter
Suffolk County				
Shoreham				
End of Sound Rd.	12.2	10	10.6	11.7
Danby Res.	13.1	11.6	12.9	13.2
Randell Rd.	11.5	10.3	12.7	12
Defence Hill Rd.	12	---	11.4	---

Table 2.2.67 West Valley Demonstration Project Sites

Map Location	Site #	Type	Location	Frequency
1	0451-001	Air	NE of site 1 mile	Weekly
2	0451-016	Milk	N of site 1 mile	Monthly
	0451-017	Milk	WNW of site 1.9 mile	Monthly
	0451-002	Water	Swamp drainage	Monthly
3	0451-004	Water	Buttermilk Creek (at Fox Valley Rd bridge)	Monthly
	0451-006	Water	Erdman Brook on site	Monthly
	0451-007	Water	Cattaraugus Creek (at Bigelow Bridge)	Quarterly
4	0451-035	Water	Buttermilk Creek (at Thomas Corners Road)	Monthly
5	0451-044	Water	Cattaraugus Creek (at Felton Bridge)	Monthly
6	0451-053	Water	Erdman Brook	Monthly
7	0451-067	Water	Brook near burial site	Monthly
	1459-042	Water	Springville Dam	Quarterly
	0451-027	Vegetation	Near Site	Annually
	0451-026	Vegetation	Background site	Annually
	0451-026	Deer	Near site	Annually
	1459-002	Fish	Springville area	Annually
	1459-042	Fish	Springville Dam	Annually
	0451-004	Sediment	Buttermilk Creek (at Fox Valley Road)	Annually
	1459-042	Sediment	Cattaraugus Creek (at Springville Dam)	Annually
T		TLD	7 locations	Quarterly

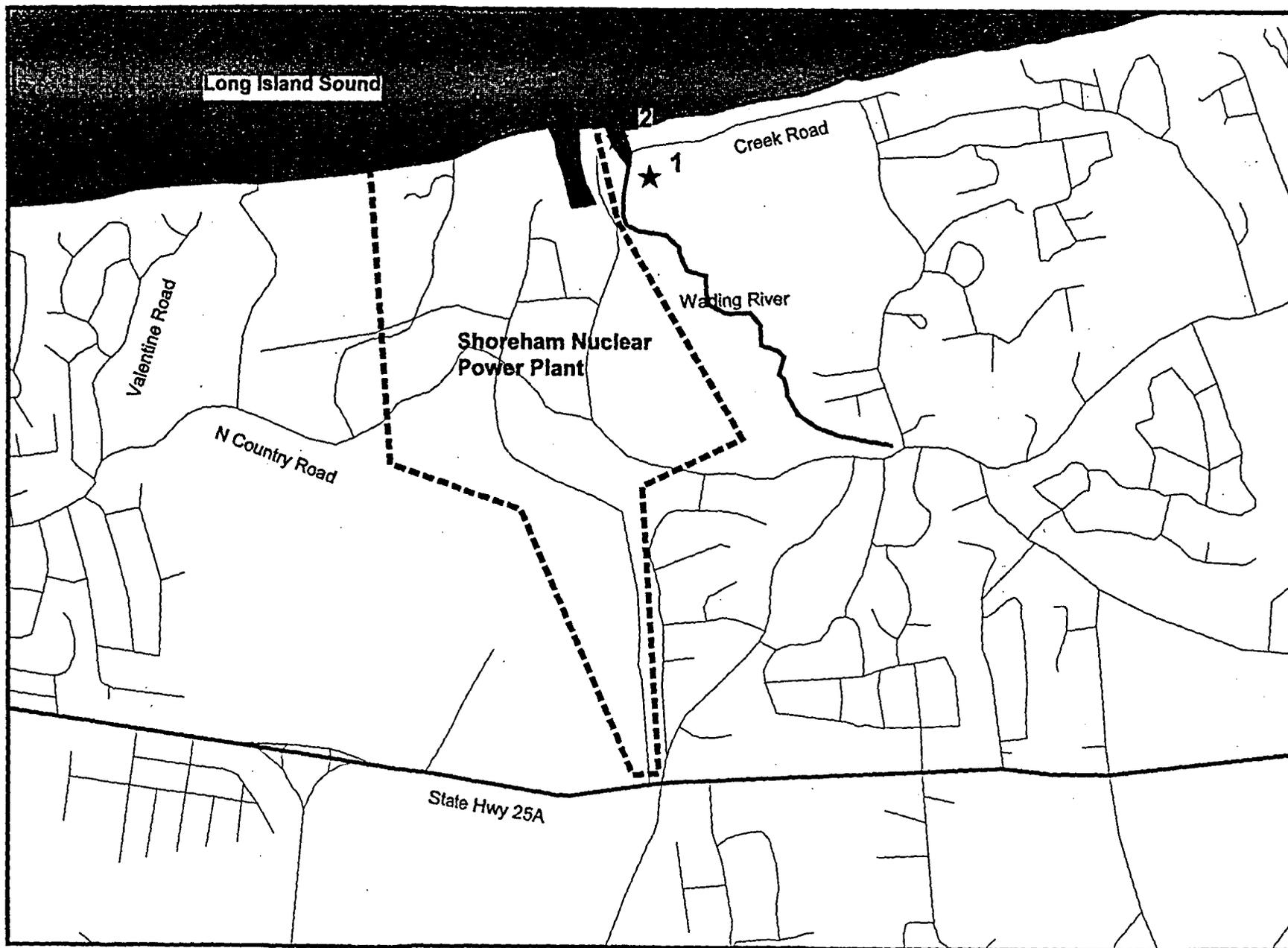


Figure 2.2-11. Shoreham Nuclear Power Plant Sampling Sites.

2.2.10 WEST VALLEY DEMONSTRATION PROJECT SITE (WVDP/DOE) (FORMERLY NUCLEAR FUEL SERVICES), ASHFORD, CATTARAUGUS COUNTY

The West Valley site is located about 35 miles south of Buffalo. The site is 3,345 acres in size and contains an inactive commercial low level radioactive waste burial site and a federally licensed burial site. The former Nuclear Fuels Services (NFS) reprocessing plant is also located on the site. The site is owned by New York State Energy Research and Development Authority (NYSERDA), the 200-acre former reprocessing facility is now operated by Westinghouse for DOE as the West Valley Demonstration Project to investigate methods of encapsulation of high level radioactive waste for permanent disposal. DOE took over responsibility for this site in February 1982. The project will encapsulate the high level waste currently stored on the site from the previous NFS nuclear fuel processing activities, and in the process decontaminate the facilities used by the project at the site.

Figure 2.2-12 shows the location of the site and some nearby sampling locations. Table 2.2.67 lists these sampling sites.

2.2.10.1 Radioactivity in Air

Gross beta activity at this location was within the normal range for background levels. Weekly and quarterly air sample results are given in Tables 2.2.68 and 2.2.69, respectively.

2.2.10.2 Radioactivity in Milk

Results for monthly milk samples collected from a nearby farm showed that naturally occurring K-40 contributed most of the radioactivity in the samples. Low levels of Sr-90 were measurable while Cs-137 and I-131 were below detection levels. The Sr-90 concentrations are typical for atmospheric fallout and are found in milk samples taken throughout the state. Levels of HTO were in the range of less than 160 to 3,300 pCi/L. Results of monthly milk samples are given in Tables 2.2.70 and 2.2.71.

2.2.10.3 Radioactivity in Water

Water samples are collected on and around the WVDP site. The main water pathway leaving the site is Erdman Brook which flows into Buttermilk Creek. The water then flows into Cattaraugus Creek and then into Lake Erie. Cattaraugus Creek has a much larger flow rate and is the first offsite sample location.

On-site sampling locations show low levels of alpha, beta and tritium activity. The samples from the swamp drainage shows measurable fission product activity as it has over the years. Concentrations are well below the State Sanitary Code limits for release to uncontrolled areas (Attachment B).

Samples from Buttermilk Creek, downstream of the WVDP discharge point, show low levels of beta activity. Cattaraugus Creek shows occasional low levels of activity near the point where Buttermilk Creek flows into it. Monthly and quarterly water sample results for these locations are given in Tables 2.2.72 to 2.2.80.

Figures 2.2-13 and 2.2.14 show the trends in annual averages for tritium (HTO) and Sr-90 respectively, in Cattaraugus Creek at the Springville dam. Both HTO and Sr-90 were very low at Springville Dam. These levels reflect atmospheric fallout and reconcentration via surface water runoff.

2.2.10.4 Radioactivity in Sediment

Tables 2.2.81 and 2.2.82 show the results of sediments from two different locations. In addition to naturally occurring radionuclides, Cs-137 concentrations of 228 ± 17 pCi/Kg was measured in the sediment sample taken from the Springville Dam location and 48 ± 12 pCi/Kg in the Buttermilk Creek sample. The results show no difference from previous years.

2.2.10.5 Radioactivity in Vegetation

Vegetable samples continue to show background levels of activities. Naturally occurring K-40 exhibited the greatest activity. Results of vegetable samples from area farms are presented in Tables 2.2.83 and 2.2.84.

2.2.10.6 Radioactivity in Fish

Fish samples were collected at Springville Dam and at Arcade (background). Both sites show background levels of activities. Naturally occurring K-40 is responsible for most of the activity. Sample results are shown in Tables 2.2.85 and 2.2.86.

2.2.10.7 Radioactivity in Deer

Deer samples were collected both on-site and off-site. These samples continue to show low levels of radioactivity. The on-site sample indicates trace amounts of Pu-239 (0.25 ± 0.18 pCi/kg). Complete results are given in Table 2.2.87.

2.2.10.8 Direct Environmental Radiation

Quarterly TLD values are typical for this area. The TLD near the new waste storage location shows high readings, as expected. Actual exposure to anyone on the site is much lower than the TLD results show since such people will not spend 24 hours per day at this location. In addition, workers at the site have individual personal monitors, which determine their radiation doses.

Table 2.2.88 shows the results and location of TLD sites used to monitor external radiation levels.

Table 2.2.67 West Valley Demonstration Project Sites

Map Loc.	Site #	Type	Location	Frequency
1	0451-001	Air	NE of site 1 mile	Weekly
2	0451-016	Milk	N of site 1 mile	Monthly
	0451-017	Milk	WNW of site 1.9	Monthly
	0451-002	Water	miles Swamp drainage	Monthly
3	0451-004	Water		
	0451-006	Water	Buttermilk Creek (at Fox Valley Rd.	Monthly
	0451-007	Water	bridge) Erdman Brook on site	Quarterly
4	0451-035	Water	Cattaraugus Creek (At Bigelow Bridge)	Monthly
5	0451-044	Water		Monthly
			Buttermilk Creek (at Thomas Corners Rd)	
6	0451-053	Water		Monthly
7	0451-067	Water	Cattaraugus Creek	Monthly
	1459-042	Water	(at Felton Bridge)	Quarterly
	0451-009	Vegetation		Annually
	0451-010	Vegetaion	Erdman Brook	Annually
	0451-026	Deer		Annually
	6020-001	Fish	Brook near burial site	Semi-annually
	1459-042	Fish		Semi-annually
	0451-004	Sediment	Springville Dam Near site	Annually
	1459-042	Sediment	Background site Near site	Annually
T		TLD	Arcade area Springville Dam Buttermilk Creek (at Fox Valley Rd) Cattaraugus Creek (at Springville Dam)	Quarterly
			9 locations	

Table 2.2.68

1994 Air Sample (Particulate)
 West Valley Demonstration Project (0451-001)
 Rt 240 - Zefer's Farm
 pCi/m³x10⁻³

WEEK ENDING	GROSS BETA	WEEK ENDING	GROSS BETA
JAN 04	12.6+/-1.5	AUG 02	15.5+/-1.7
JAN 11	12.0+/-1.4	AUG 09	12.0+/-1.4
JAN 18	18.2+/-1.8	AUG 16	
JAN 25	23+/-2	AUG 23	
FEB 01	14.2+/-1.7	AUG 30	8.8+/-1.4
FEB 08	16.5+/-1.8	SEPT 13	14.0+/-1.7
FEB 15	16.1+/-1.8	SEPT 20	26+/-2
FEB 22	39+/-11	SEPT 27	12.0+/-1.6
MAR 01 *	---	OCT 04	7.1+/-1.3
MAR 08 *	---	OCT 11	11.4+/-1.6
MAR 15	14.8+/-1.7	OCT 18	11.6+/-1.6
MAR 22	10.6+/-1.4	OCT 25	15.7+/-1.8
MAR 29	13.1+/-1.6	NOV 01	15.5+/-1.8
APR 05	7.8+/-1.3	NOV 08	14.9+/-1.7
APR 12	9.4+/-1.4	NOV 15	16.7+/-1.8
APR 19	10.5+/-1.5	NOV 22	13.0+/-1.6
APR 26	12.8+/-1.6	NOV 29	14.7+/-1.7
MAY 03	6.3+/-1.2	DEC 06	21+/-2
MAY 10	9.8+/-1.4	DEC 13	11.8+/-1.5
MAY 17	5.9+/-1.2	DEC 20	16.3+/-1.8
MAY 24	7.2+/-1.3	DEC 27	16.7+/-1.8
MAY 31	11.3+/-1.5	JAN 03	15.6+/-1.7
JUN 07	7.9+/-1.3		
JUN 14	10.4+/-1.5		
JUN 21	15.3+/-1.8		
JUN 28	10.5+/-1.5		
JUL 05	9.8+/-1.5		
JUL 12	10.6+/-1.5		
JUL 19	13.0+/-1.6		
JUL 26	7.3+/-0.8		

Table 2.2.69

1994 Air Sample (Composite)
West Valley Demonstration Project (0451-001)
Rt 240 - Zefer's Farm
pCi/m³x10⁻³

	Be-7	Sr-90	Zr-95	Ru-106	Cs-134	Cs-137
1 st QUARTER	85+/-13	<0.08	<1.3	<4	<0.7	<0.8
2 nd QUARTER	111+/-16	<0.08	<0.8	<1.8	<0.15	<0.2
3 rd QUARTER	80+/-8	<0.07	<0.5	<0.9	<0.09	<0.1
4 th QUARTER	84+/-9	<0.07	<0.5	<1.0	<0.1	<0.1

Table 2.2.70

1994 Milk Samples
 West Valley Demonstration Project (0451-016)
 Local Farm
 pCi/L

DATE	I-131	K-40	Cs-137	Ba-140	Sr-90	H-3
JAN	<5	1370+/-140	<7	<9	1.9+/-0.8	<160
FEB	<5	1210+/-150	<7	<10	1.0+/-0.5	<160
MAR	<5	1350+/-130	<6	<10	1.4+/-0.8	1030+/-170
APR	<6	1390+/-180	<9	<13	1.4+/-0.9	1400+/-200
MAY	<7	2000+/-200	<12	---	1.9+/-0.5	<200
JUN	<5	1330+/-160	<8	---	1.8+/-0.6	1250+/-180
JUL	<13	1500+/-400	<9	<40	1.0+/-0.6	520+/-190
AUG	<5	1600+/-200	<4	<20	1.2+/-0.6	570+/-160
SEPT	<7	1700+/-200	<4	<20	0.9+/-0.4	300+/-200
OCT	<5	1300+/-200	<4	<18	1.4+/-0.5	1500+/-200
NOV	<7	1700+/-200	<4	<20	1.3+/-0.5	2300+/-300
DEC	<5	1500+/-200	<4	<20	1.5+/-0.5	3300+/-300

Table 2.2.71 1994 Milk Sample
 West Valley Demonstration Project (0451-017)
 CoBo Farm (1.9 km WNW)
 pCi/L

DATE	I-131	K-40	Cs-137	Ba-140	Sr-90	H-3
JAN	<3000	1100+/-140	<7	<500	1.1+/-0.6	<180
FEB	<200	1140+/-130	<7	<110	2.3+/-0.8	3300+/-200
MAR	<20	1170+/-170	<8	<30	1.2+/-0.7	<170
APR	<12	1200+/-160	<8	<18	1.1+/-0.7	940+/-180
MAY	<5	1430+/-160	<7	---	1.6+/-0.5	2900+/-200
JUN	<5	1320+/-150	<8	---	1.7+/-0.5	3200+/-200
JUL	<20	1400+/-400	<9	<60	2.4+/-0.8	850+/-190
AUG	<14	1300+/-190	<4	<40	1.4+/-0.5	630+/-160
SEPT	<7	1400+/-200	<4	<20	1.8+/-0.6	1950+/-190
OCT	<8	1100+/-180	<4	<30	1.5+/-0.6	800+/-200
NOV	<30	1600+/-200	<4	<50	2.3+/-0.5	1900+/-200
DEC	<30	1200+/-200	<4	<60	1.0+/-0.7	<200

Table 2.2.72 1994 Water Sample
 West Valley Demonstration Project (0451-053)
 Erdman Brook at Burial Trench
 pCi/L

DATE	MONTHLY			QUARTERLY				
	GROSS ALPHA	GROSS BETA	H-3	Co-60	Sr-90	Ru-106	Cs-134	Cs-137
JAN	<1.5	32+/-4	230+/-140	<8	9.5+/-1.1	<20	<5	<6
FEB	<3	14+/-3	<160					
MAR	<1.9	21+/-3	<170					
APR	<1.8	9+/-2	<170	<10	7.3+/-0.8	<30	<6	<8
MAY	<2	12+/-3	<200					
JUN	<3	15+/-6	170+/-140					
JUL	<3	21+/-4	<200	<11	9.5+/-0.9	<40	<7	<8
AUG	<3	20+/-6	<170					
SEPT	<8	17+/-6	160+/-140					
OCT	<5	29+/-7	330+/-150	<11	8.9+/-0.9	<40	<7	<9
NOV	<1.9	18+/-3	260+/-150					
DEC	<3	8+/-2	<200					

Table 2.2.73

1994 Water Sample
 West Valley Demonstration Project (0451-006)
 Erdman Brook at Franks Creek
 pCi/L

DATE	MONTHLY			QUARTERLY				
	GROSS ALPHA	GROSS BETA	H-3	Co-60	Sr-90	Ru-106	Cs-134	Cs-137
JAN	7+/-4	110+/-8	1460+/-170	<8	26.0+/-1.6	<20	<5	<6
FEB	5+/-4	77+/-6	750+/-160					
MAR	4+/-3	21+/-3	<180					
APR	5+/-4	46+/-5	870+/-190	<10	22.8+/-1.5	<30	<6	<8
MAY	4+/-3	173+/-10	2500+/-200					
JUN	9+/-7	69+/-10	<200					
JUL	<5	360+/-30	2800+/-200	<12	47+/-2	<40	<7	<9
AUG	<13	84+/-15	180+/-130					
SEPT	---	---	1500+/-180					
OCT	<4	40+/-8	410+/-150	<11	21.9+/-1.3	<40	<7	<8
NOV	<3	88+/-7	3000+/-200					
DEC	<2	56+/-5	3200+/-200					

Table 2.2.74

1994 Water Sample
 West Valley Demonstration Project (0451-035)
 Buttermilk Creek at Thomas Cor Bridge
 pCi/L

DATE	MONTHLY			QUARTERLY				
	GROSS ALPHA	GROSS BETA	H-3	Co-60	Sr-90	Ru-106	Cs-134	Cs-137
JAN	<1.5	7+/-2	<160	<8	2.7+/-0.7	<30	<5	<6
FEB	<1.2	7+/-2	<160					
MAR	<5	11+/-3	<170					
APR	2.2+/-1.9	5+/-2	<200	<10	1.9+/-0.5	<30	<6	<7
MAY	<0.9	16+/-3	380+/-150					
JUN	11+/-6	13+/-3	<200					
JUL	<1.3	17+/-3	<170	<11	3.0+/-0.6	<40	<6	<8
AUG	<2	7+/-2	<120					
SEPT	<3	14+/-3	310+/-150					
OCT	<3	12+/-3	<140	<11	2.3+/-0.5	<40	<7	<8
NOV	<3	6+/-2	<300					
DEC	<3	7+/-2	<140					

Table 2.2.75 1994 Water Sample
 West Valley Demonstration Project (0451-004)
 Buttermilk Creek at Fox Valley Road
 pCi/L

DATE	MONTHLY			QUARTERLY				
	GROSS ALPHA	GROSS BETA	H-3	Co-60	Sr-90	Ru-106	Cs-134	Cs-137
JAN	<1.6	4.5+/-1.9	<170	<9	<0.5	<30	<5	<7
FEB	<1.4	6+/-2	<160					
MAR *	---	---	---					
APR	4+/-3	7+/-2	<170	<10	<0.3	<30	<7	<8
APR	29+/-14	26+/-6	<200					
MAY	<0.8	3+/-2	180+/-140					
JUN	<3	8+/-3	<200					
JUL	<1.4	6+/-2	<170	<10	<0.4	<40	<7	<8
JUL	<1.1	3+/-2	<200					
AUG	<2	4+/-2	<130					
SEPT	<5	7+/-5	<150					
OCT	<1.9	4+/-2	<140	<10	<0.5	<30	<6	<7
OCT	<4	<2	<170					
NOV	<2	4+/-2	<300					
DEC	<1.9	3+/-2	<110					

*- No Sample Collected

Table 2.2.76

1994 Water Sample
 West Valley Demonstration Project (0451-044)
 Cattaraugus Creet at Felton Bridge
 pCi/L

DATE	MONTHLY			QUARTERLY				
	GROSS ALPHA	GROSS BETA	H-3	Co-60	Sr-90	Ru-106	Cs-134	Cs-137
JAN	<1.6	3.2+/-1.8	<160	<8	<0.5	<20	<5	<6
FEB	4+/-3	7+/-2	<170					
MAR	<1.3	2.4+/-1.7	<170					
APR	<1.8	6+/-2	<200	<11	<0.5	<30	<7	<8
MAY	<1.0	4+/-2	<140					
JUN	<3.0	8+/-3	<200					
JUL	<1.4	6+/-2	<170	<10	<0.5	<30	<6	<7
AUG	<3.0	6+/-2	<130					
SEPT	20+/-7	67+/-6	<150					
OCT	<2	4+/-2	<140	<11	<0.5	<40	<7	<8
NOV	<3	4+/-2	<200					
DEC	<2	<2	990+/-150					

Table 2.2.77 1994 Water Sample
 West Valley Demonstration Project (0451-007)
 Cattaraugus Creek at Bigelow Bridge
 pCi/L

QUARTERLY				SEMI-ANNUAL				
DATE	GROSS ALPHA	GROSS BETA	H-3	Co-60	Sr-90	Ru-106	Cs-134	Cs-137
1 st QUARTER	<1.3	<1.1	<180	<8	<0.6	<20	<5	<6
2 nd QUARTER	<2	5+/-2	<170					
3 rd QUARTER	<1.4	<2	<200	<10	<0.4	<40	<6	<7
4 th QUARTER	<4	<5	<160					

Table 2.2.78 1994 Water Sample
 West Valley Demonstration Project (0451-002)
 Swamp Drainage Area North Plateau
 pCi/L

MONTHLY				QUARTERLY				
DATE	GROSS ALPHA	GROSS BETA	H-3	Co-60	Sr-90	Ru-106	Cs-134	Cs-137
JAN	7+/-5	1000+/-40	460+/-150	<7	301+/-11	<20	<4	<5
FEB	10+/-6	1080+/-40	340+/-150					
MAR	3.2+/-1.2	5.2+/-1.1	<170					
APR	6+/-5	2190+/-80	190+/-160	<11	880+/-30	<30	<6	<8
MAY	7+/-3	1260+/-40	510+/-150					
JUN	6+/-5	1430+/-50	520+/-190					
JUL	15+/-11	1580+/-60	480+/-160	<11	960+/-30	<40	<7	<8
AUG	16+/-11	1750+/-70	290+/-130					
SEPT	21+/-16	2060+/-90	490+/-150					
OCT	33+/-19	1620+/-80	370+/-190	<11	670+/-20	<40	<7	<8
NOV	<6	830+/-40	480+/-190					
DEC	14+/-11	1150+/-50	1350+/-160					

Table 2.2.79 1994 Water Sample
 West Valley Demonstration Project (0451-067)
 Brook Northeast of Burial Area
 pCi/L

DATE	GROSS ALPHA	GROSS BETA	H-3
JAN	<1.2	3.9+/-1.7	<150
FEB	<1.4	3.2+/-1.8	<160
MAR	<1.3	8+/-2	<170
APR	<1.2	2.7+/-1.7	<170
MAY	<1.3	2.4+/-1.7	<200
JUN	<1.5	4+/-2	190+/-140
JUL	<1.4	5+/-2	<200
AUG	<1.4	3+/-2	<170
SEPT	<5	<5	<150
OCT	<2	4.2+/-1.9	310+/-160
NOV	<1.9	2.0+/-1.8	<200
DEC	<1.5	<2	150+/-140

Table 2.2.80 1994 Water Sample
 West Valley Demonstration Project (1459-042)
 Springville Dam
 pCi/L

DATE	GROSS ALPHA	GROSS BETA	H-3	Co-60	Sr-90	Ru-106	Cs-134	Cs-137
1 st QUARTER								
	<1.3	1.6+/-1.4	<150	<8	<0.7	<20	<5	<6
2 nd QUARTER								
	4+/-3	4.5+/-1.9	<170	<8	<0.5	<20	<5	<6
3 rd QUARTER								
	<1.4	13+/-3	<200	<14	0.7+/-0.5	<40	<8	<10
4 th QUARTER								
	<3	3.7+/-1.9	<160	<11	<0.3	<30	<7	<8

Table 2.2.81 1994 Sediment Data
 West Valley Demonstration Project (0451-004)
 Buttermilk Creek
 pCi/Kg

DATE SAMPLED	K-40	Co-60	Cs-137	Ra-226	Th-232	U-235	U-238
JUN 07	14100+/-700	<12	48+/-12	890+/-50	810+/-70	<70	1200+/-200

Table 2.2.82 1994 Sediment Data
 West Valley Demonstration Project (1459-042)
 Springville Dam
 pCi/Kg

DATE SAMPLED	K-40	Co-60	Cs-137	Ra-226	Th-232	U-235	U-238
JUN 07	11100+/-500	<9	228+/-17	770+/-40	770+/-60	80+/-50	1120+/-130

Table 2.2.83 1994 Vegetation Sample
 West Valley Demonstration Project (0451-009)
 Area Farm
 pCi/Kg

DATE SAMPLED	K-40	Co-60	Ru-106	Cs-134	Cs-137
AUG 16	2400+/-300	<19	<60	<12	<14
SEPT 23	2800+/-300	<20	<70	<13	<15
OCT 21	1100+/-300	<19	<60	<12	<14

Table 2.2.84 1994 Vegetation Sample
 West Valley Demonstration Project (0451-010)
 Area Farm
 pCi/Kg

DATE SAMPLED	K-40	Co-60	Ru-106	Cs-134	Cs-137
AUG 09	1000+/-200	<16	<50	<10	<11
SEPT 20	2100+/-200	<16	<50	<10	<13
OCT 18	2800+/-400	<20	<70	<15	<18

Table 2.2.85 1994 Fish Sample
 West Valley Demonstration Project (1459-042)
 Springville Dam
 pCi/Kg

DATE SAMPLED	K-40	Sr-90	Cs-137	Ru-106
JUN 23	3100+/-400	<15	<17	<80
OCT 13	3100+/-400	<17	<20	<90

Table 2.2.86 1994 Fish Sample
 West Valley Demonstration Project (6020-001)
 Background (Arcade)
 pCi/Kg

DATE SAMPLED	K-40	Sr-90	Ru-106	Cs-134	Cs-137
JUN 09	3100+/-400	8+/-4	<80	<15	<17
OCT 07	3300+/-400	4+/-3	<90	<16	<19

Table 2.2.87 1994 Deer Samples
 West Valley Demonstration Project
 pCi/Kg

SITE #	LOCATION	DATE SAMPLED	(pCi/L) HTO	K-40	Sr-90	Ru-106	I-129	Cs-134	Cs-137	Pu-238	Pu-239
		DEC 16	<140	3500+/-400	<1.1	<70	<0.01	<13	<16	<0.3	<0.17
0451-026	ONSITE	DEC 21	<140	3100+/-400	<1.3	<80	<0.016	<17	<20	<0.16	0.25+/-0.18

Table 2.2.88 1994 Direct Environmental Radiation (TLD)
 West Valley Demonstration Project
 mR/Standard Quarter

Location	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
Cattaraugus County				
Ashford				
Fox Valley Rd.	11.4	13.7	13.6	16.6
Dutch Hill & Schwartz	12.4	13.2	14.5	15.1
Thomas Corner Rd.	13.8	13.6	15.2	16.1
Dutch Hill Rd.	12.6	13.7	14.5	16.7
Route 240 Thomas Corner Rd.	11.2	13	12.6	14.1
(0.5 mi from Rt.240)	11.3	12.2	12.7	14.5
Heinz Rd.	12	14.7	13.7	16.2
Rock Spring Rd.	14.5	16.6	18.2	18.8
Fence at Waste Area	510	430	426	579
Concord				
Springville	12	14.7	13.7	16.6

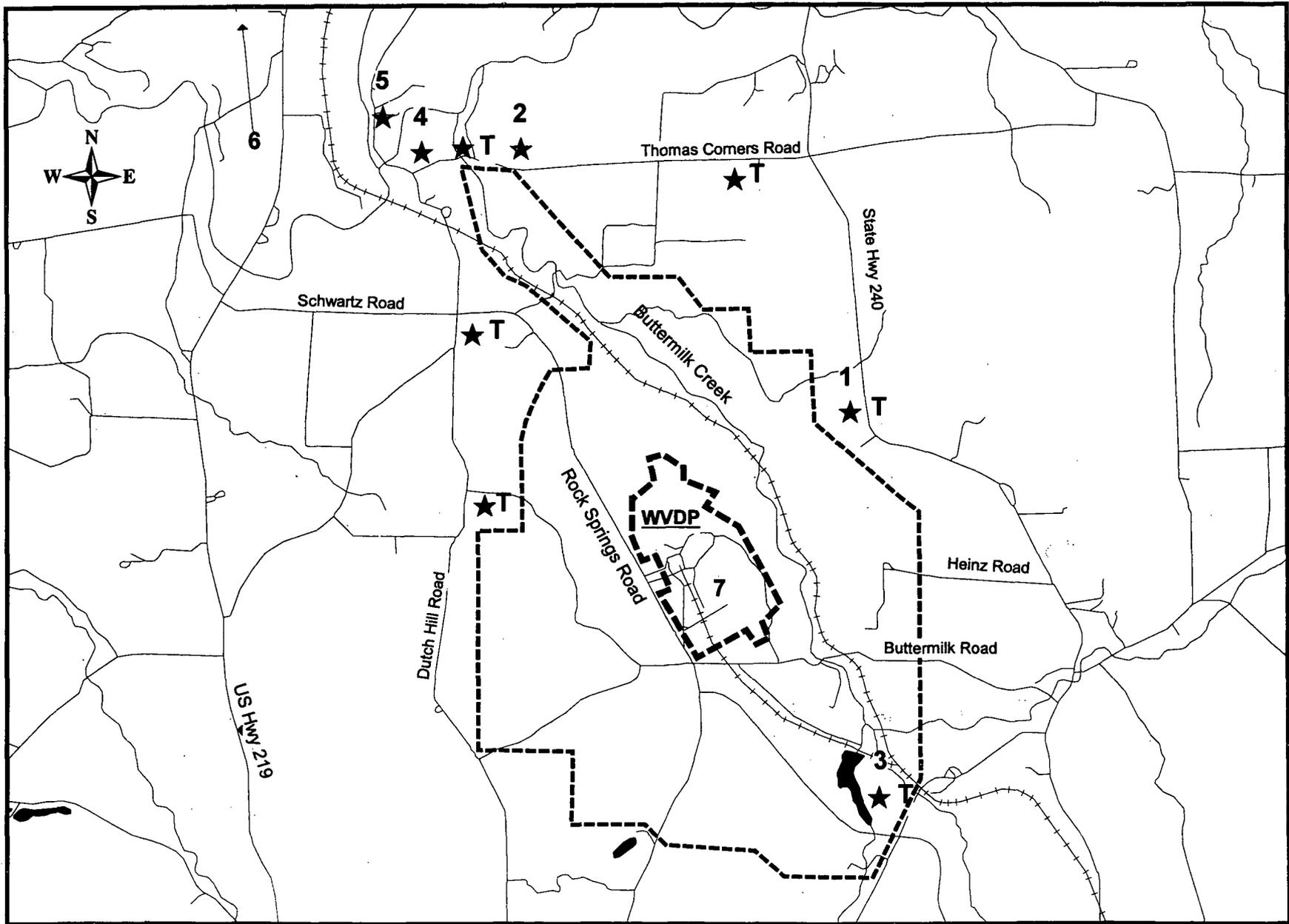


Figure 2.2-12. West Valley Demonstration Project Sampling Sites.

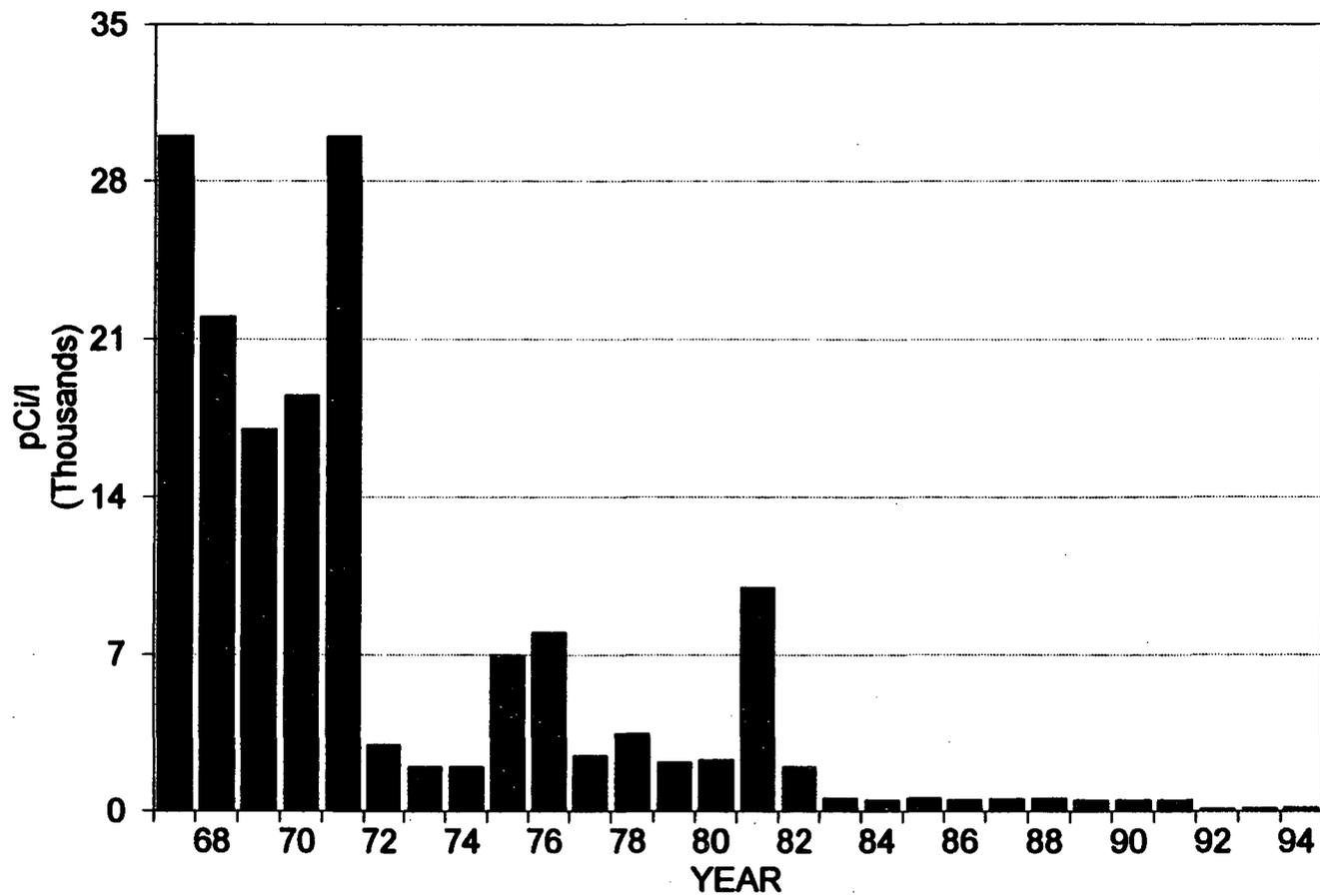


Figure 2.2-13 Tritium in Water at Springville Dam

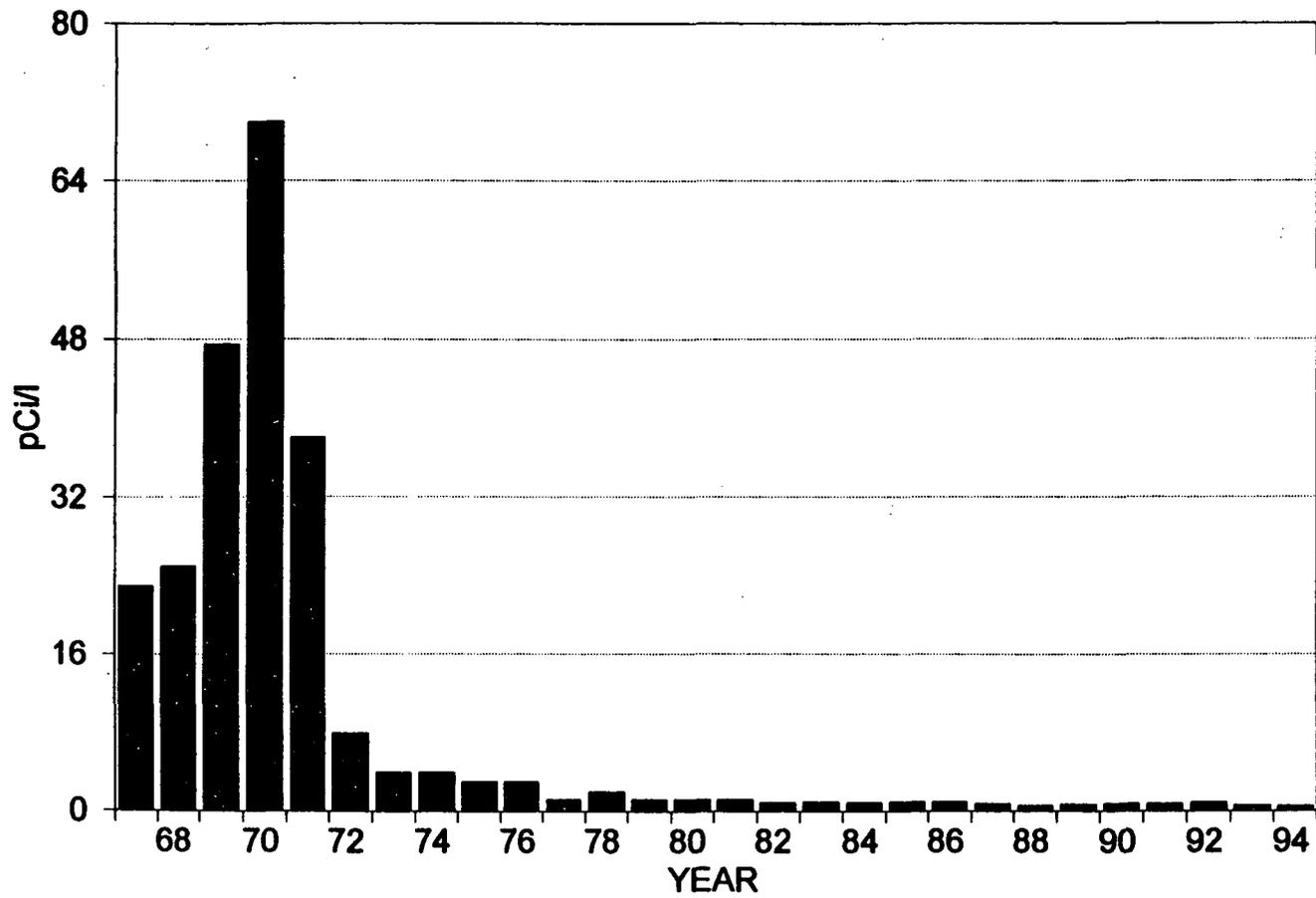


Figure 2.2-14 Sr-90 in Water at Springville Dam

2.3 Non-Routine Sites

2.3.1 CORNELL UNIVERSITY, ITHACA, TOMPKINS COUNTY

The Cornell University burial site is located off the main campus, adjacent to Snyder Road, close to Tompkins County Airport. This fenced-in site, operated between 1956 and 1978, is approximately 300' x 300' in size. Ninety-eight percent of the buried material was C-14 and H-3; the other two percent was short-lived fission products from crop and animal experiments.

Water samples were taken in the vicinity of the Cornell University burial site in Tompkins County. Samples have been collected since 1966 from a stream, pond and private wells near the site and low to non-detectable levels of activity were found over this time period. Results of water samples taken at various locations are shown in Table 2.3.1.

Table 2.3.1 1994 Water Sample
 Cornell University
 Wells Near the Site
 pCi/L

LOCATION	GROSS ALPHA	GROSS BETA	HTO
5401-001			
APR	<1	3.4+/-1.9	---
OCT	<3	<2	---
5452-004			
MAR	<1.7	1.9+/-1.8	<200
5452-013			
APR	<3	<1.3	<170
5456-001			
MAR	<1.1	2.0+/-1.8	<200
5456-002			
APR	<1.2	<1.6	<200
5456-003			
MAR	<1.1	1.8+/-1.7	<200
5456-007			
MAR	<2	3+/-2	<200
5456-016			
MAR	20+/-8	17+/-3	<200
JUN	<0.8	2.0+/-1.6	<170
JUL	<1.3	4+/-2	<120
5456-017			
MAR	<0.9	<1.6	<200

2.3.2 EAD METALLURGICAL INC., TONAWANDA, ERIE COUNTY

From 1977 to 1983 this site produced Am-241 foils which were used in the manufacture of smoke detectors. The plant was closed in 1983 and attempts were made to remove residual Am-241 contamination so the building could be released for unrestricted use. In 1984, contamination was discovered in the sewer lines leading from the EAD facility. The location of this site is shown on Figure 2.3-1. In 1993 NYSDOH and NYSDEC conducted characterization surveys of the contaminated building and grounds. In 1994 the building and property were cleaned up and returned to the original owner.

Samples collected from the sewage treatment plant showed Am-241 contamination in sewage sludge, incinerated sludge ash and at the nearby landfill. Ash had been disposed of at the landfill and was used as covering material. A program monitoring sewage sludge and ash was instituted in 1984 and was continued through 1994.

Table 2.3.2 shows the 1994 Am-241 data for ash samples collected in Tonawanda. Concentrations ranged from below the minimum detection level of 0.04 to 9.7 ± 0.6 pCi/g. Figure 2.3-2 shows the long term data for ash samples. Table 2.3.3 shows the Am-241 data for sludge samples. Concentrations in sludge ranged from below the minimum detection level of 0.03 to 0.3 pCi/g.

Table 2.3.2

1994 Ash Sample
 EAD Metallurgical, Inc. (1403-001)
 Tonawanda STP
 pCi/g

DATE	Am-241
JAN	<1.2
FEB	<0.09
MAR	<0.09
APR	<0.1
MAY	<0.19
JUN	9.7+/-0.6
JUL	<0.2
AUG	0.5+/-0.2
SEPT	<0.17
OCT	<0.07
NOV	<0.04
DEC	0.46+/-0.07

Table 2.3.3

1994 Sludge Sample
 EAD Metallurgical, Inc. (1403-002)
 Tonawanda STP
 pCi/g

DATE	Am-241
JAN	<0.3
FEB	<0.04
MAR	<0.05
APR	<0.05
MAY	<0.08
JUN	<0.09
JUL	<0.1
AUG	<0.07
SEPT	<0.07
OCT	<0.03
NOV	<0.03
DEC	<0.2

2.3.3 NRD, INC., GRAND ISLAND, ERIE COUNTY

This facility currently manufactures smoke detector foils containing Am-241. Am-241 was discharged directly to the sanitary sewer system prior to 1984.

Following the discovery of the EAD problem, samples were collected in the Grand Island sewage treatment plant and measurable levels of Am-241 were found in the sludge. This plant disposed of the sludge in a local landfill. NRD installed a new treatment system for its waste water in 1984 and reduced the quantity of Am-241 released to the sanitary sewer. Table 2.3.4 shows the 1994 Am-241 data for sludge samples collected in Grand Island. Figure 2.3-3 shows the long-term data for sludge samples. Samples collected in 1994 were in the range of 1.33 to 30 pCi/g.

Beginning in 1990, the sludge from Grand Island was sent to Buffalo for incineration with Buffalo's sewage sludge. Several samples of ash from the Buffalo incinerator were analyzed but all Am-241 levels were below minimum detection levels. This is not unexpected since the volume of Buffalo's sludge is much greater than that from Grand Island. Any Am-241 present in Grand Island sludge will be diluted by the larger volume of Buffalo sludge.

Table 2.3.4

1994 Sludge Sample
 NRD, Inc. (1464-001)
 Grand Island STP
 pCi/g

DATE	Am-241
JAN *	---
FEB	15.6+/-0.5
MAR	15.4+/-0.5
APR	30.0+/-1.1
MAY *	---
JUN	13.6+/-6
JUL	7.6+/-0.4
AUG	2.00+/-0.41
SEPT	3.24+/-0.12
OCT	2.39+/-0.08
NOV	1.74+/-0.05
DEC	1.33+/-0.05

* - No Sample Collected

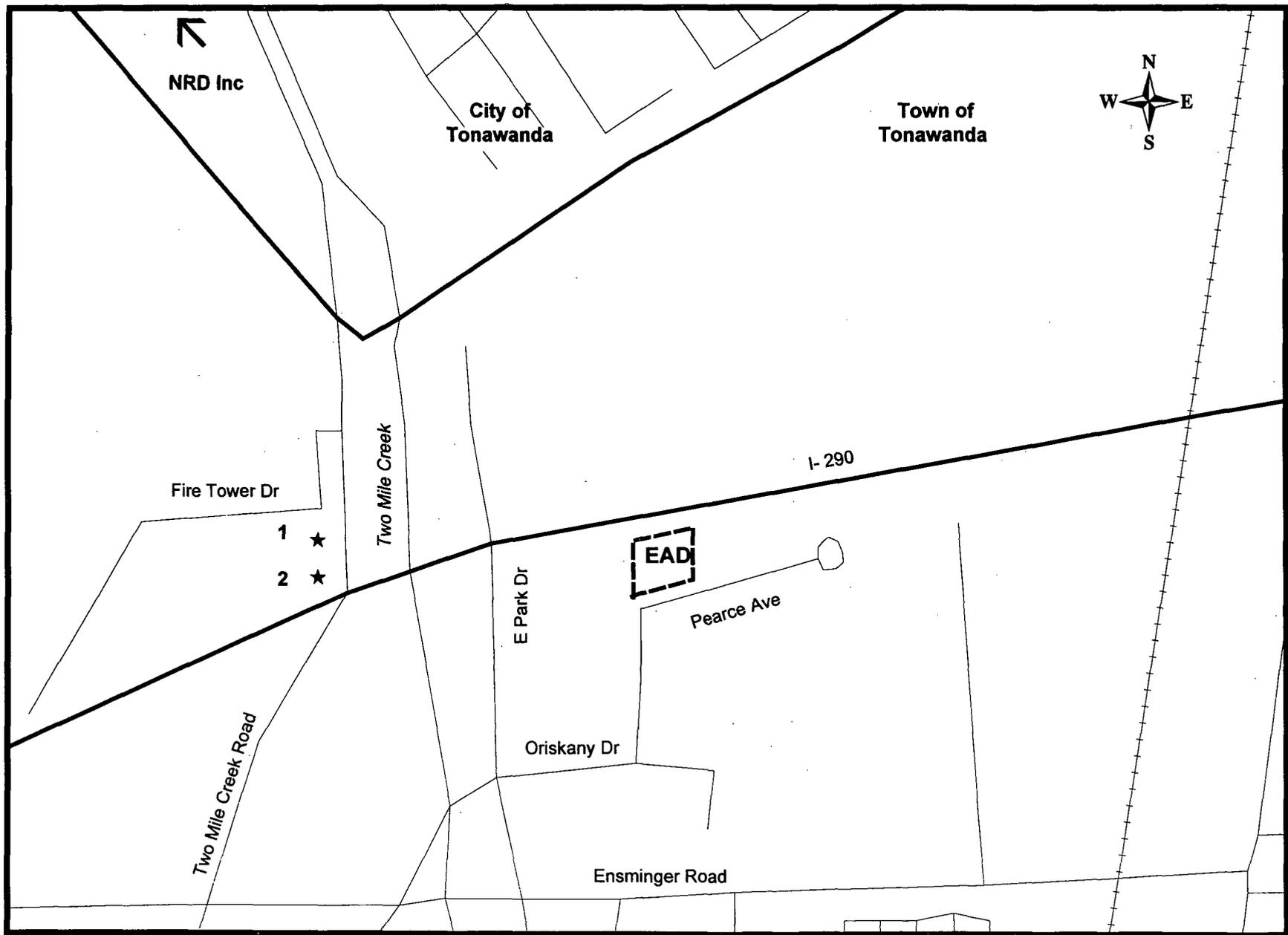


Figure 2.3-1. NRD and EAD Metallurgical Inc. Sampling Sites.

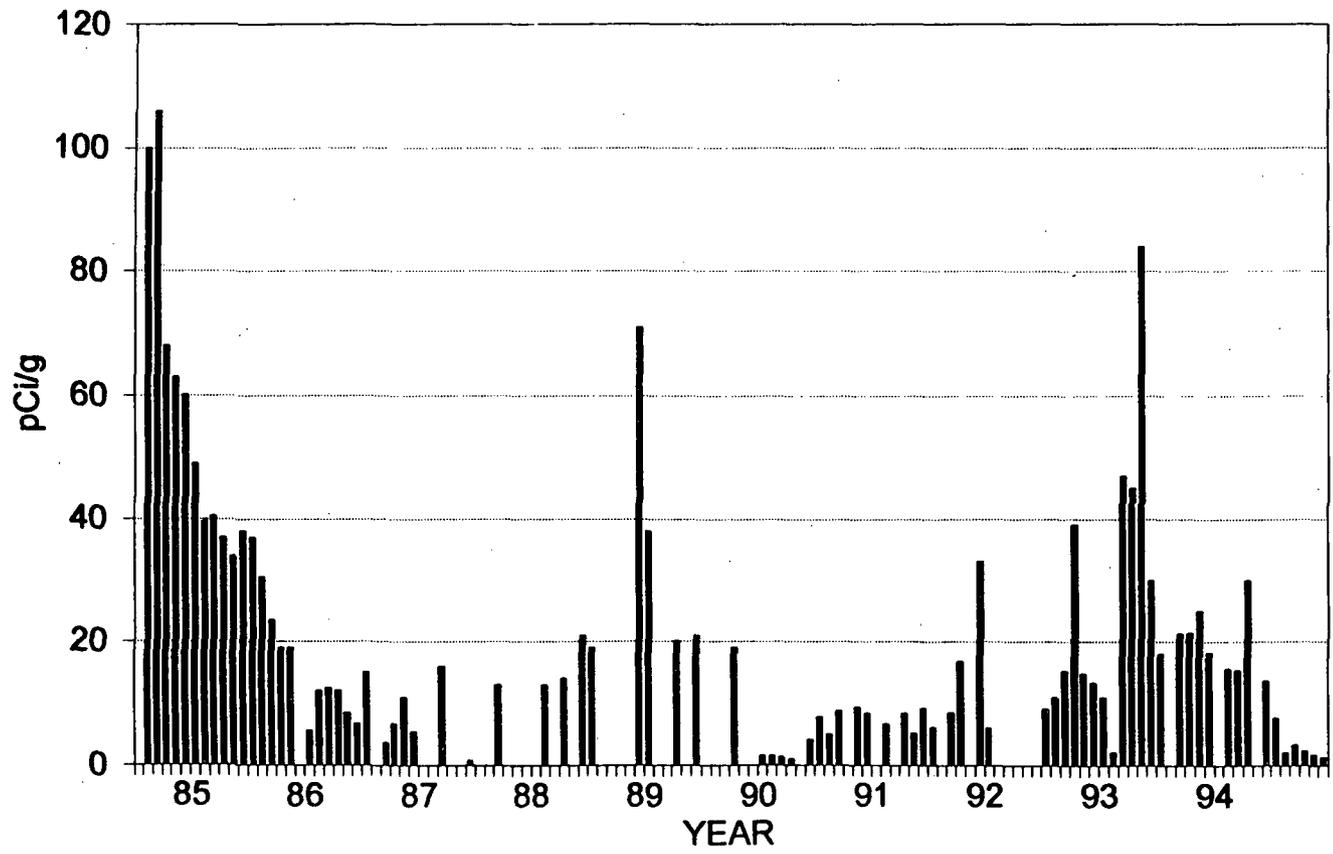


Figure 2.3-3. Am-241 in Grand Island Sludge.

2.3.4 MILLSTONE NUCLEAR POWER STATION, CONNECTICUT

The Millstone Nuclear Power Station is located at Millstone Point, Connecticut. The water sampling station at Fishers Island, New York is approximately 14 miles ESE from the plant. Gross alpha, gross beta, and HTO were typical of normal background levels. Water sample results are shown in Table 2.3.5.

Table 2.3.5 1994 Water Sample
 Millstone (5159-001)
 Fisher's Island (Barlow Pd)
 pCi/L

DATE	GROSS ALPHA	GROSS BETA	HTO
APR	<0.8	4.1+/-1.9	<200
MAY	<1.1	<1.4	<200
JUL	<0.6	<1.4	<200
AUG	<1.7	2.7+/-1.9	<170
OCT	<1.2	<1.8	<190
NOV	<0.9	2.9+/-1.8	<300

No samples collected Jan - Mar, June, Sept, & Dec

ATTACHMENT A

Minimum Detectable Level*

<u>Air (x10⁻³ pCi/m³)</u>	
Gross Beta	3.0
I-125	4.0
I-131 (isotopic scan)	8.0
I-131 (Beta/Gamma coincidence)	0.4
<u>Fallout (pCi/m²/day)</u>	
H-3 (pCi/L)	140.0
Be-7	150.0
Sr-89	0.6
Sr-90	0.5
ZrNb-95	20.0
Ru-106	80.0
Cs-137	20.0
<u>Water & Milk (pCi/L)</u>	
Gross Alpha	0.8
Gross Beta	2.0
H-3	140.0
K-40	200.0
Co-60	7.0
Zn-65	30.0
Sr-89	0.6
Sr-90	0.5
ZrNb-95	10.0
Ru-106	20.0
Sb-125	14.0
I-125	0.1
I-129	0.3
I-131 (isotopic scan)	9.0
I-131 (Beta/Gamma coincidence)	0.04
Cs-134	6.0
Cs-137	6.0
Ba-140	17.0
Ra-226	0.04
Ra-228	0.9
Rn-222	9.0
Th-232 (Pb-212)	5.0
U-234	0.03
U-235, 236	0.01
U-238	0.01
Pu-238	0.02
Pu-239, 240	0.01

*These are average values only. Actual values vary with the sample size and the background interferences.

Attachment B

Effluent Concentration Listed
in
NYSDOH State Sanitary Code Chapter 1, Part 16 and
NYSDEC Part 380 Rules and Regulations

The effluent concentrations listed by NYSDOH, NYSDEC in air for discharges to unrestricted areas in pCi/m³ are:

Gross Beta varies with isotopes present	
H-3	100,000
Kr-85	700,000
Sr-90 (all soluble compounds except SrTiO ₃)	30
(all insoluble compounds and SrTiO ₃)	6
Zr-95 (all compounds except the following:	400
oxides, hydroxides, halides, nitrates,	500
and carbides)	400
Ru-106 (all compounds except the following:	100
halides,	80
oxides and hydroxides)	20
I-125	300
I-131	200
Cs-134	200
Cs-137	200
Ba-140	2,000
Pu-238	0.02
Pu-239	0.02
Pu-240	0.02

Attachment B (continued)

Effluent Concentration Listed
in
NYSDOH State Sanitary Code Chapter 1, Part 16 and
NYSDEC Part 380 Rules and Regulations

The effluent concentrations listed by NYSDOH, NYSDEC in water for discharges to unrestricted areas in pCi/L are:

Gross Alpha varies with isotopes present

Gross Beta varies with isotopes present

H-3	1,000,000
Co-60	3,000
Zn-65	5,000
Sr-89	8,000
Sr-90	500
Zr95	20,000
Nb-95	30,000
Ru-106	3,000
Sb-125	30,000
I-129	200
I-131	1,000
Cs-134	900
Cs-137	1,000
Ce-144	3,000
U-234	300
U-235	300
U-238	300
Pu-238	20
Pu-239	20
Pu-240	20

Attachment C

Commercial Power Reactors

<u>Facility</u>	<u>Location</u>	<u>Start Up Date</u>	<u>Remarks</u>
James A. Fitzpatrick, Nuclear Power Station Power Authority State of New York	Lycoming, Oswego Co.	1975	BWR, 821 MW(e)
Robert E. Ginna Nuclear Power Station, Rochester Gas & Electric Corp.	Brookwood, Wayne Co.	1970	PWR, 420 MW(e)
Indian Point Nuclear Power Stations, Consolidated Edison Company of NY, Inc. Unit No. 1	Buchanan, Westchester Co.	1962	PWR, 265 MW(e), out of service for indefinite period.
Unit No. 2		1973	PWR, 873 MW(e)
The New York Power Authority Unit No. 3		1976	PWR, 965 MW(e)
Nine Mile Point Nuclear Power Station, Niagara Mohawk Power Corp. Unit No. 1	Lycoming Oswego Co.	1969	BWR, 625 MW(e)
Unit No. 2		1987	BWR, 1150 MW(e)
Shoreham Nuclear Power Station, Long Island Lighting Company	Shoreham, Suffolk Co.	1985	BWR, 849 MW(e) Not operational in decommissioning process

Attachment D

Testing, Training, Research Reactors, Industrial Facilities & Misc.

<u>Facility</u>	<u>Location</u>	<u>Start Up Date</u>	<u>Remarks</u>
Brookhaven National Laboratory	Upton, Suffolk Co.	1965	HFBR (High Flux Beam Reactor), 60 MW (t)
		1959	MRR (Medical Research Reactor), 5 MW (t)
Cornell Burial Site, Cornell University	Lansing, Tompkins Co.	1960	Burial of radioactive waste from numerous research projects on campus.
Kesselring Site, General Electric Company	West Milton, Saratoga Co.	1955	Destroyer & submarine prototype reactors.
Knolls Atomic Power General Electric Company	Niskayuna Schenectady Co.	1951 laboratory,	TTR-1 (Thermal Test Reactor), Graphite 10 kW(t).
NL Industries, Inc.	Colonie, Albany Co.	1960	Fabrication of depleted uranium counter weights and shielding. Decommissioned in 1980.
West Valley Demonstration Project (Formerly Nuclear Fuel Services, Inc.)	West Valley, Cattaraugus Co.	1966	Nuclear fuel reprocessing plant storage of high level wastes, suspended operation in 1971.
		1963	Burial site, solid radioactive wastes shipped mainly from facilities in North-East states buried in trenches, suspended operation in 1975.
Self-Powered Lighting	Elmsford, Westchester Co.		Large quantities of tritium are used in mfg. of various self luminous devices.
Cintichem, Inc. (formerly Union Carbide Corp.)	Tuxedo Orange Co.	1961	USNRC, 5MW(t) Pool Type light water research reactor in decommissioning process.

APPENDIX A**SAMPLING STATIONS****Air Sampling Stations**

Site Number

0101-002	Albany Co., Roof of Albany County Health Department
0451-001	Cattaraugus Co., Ashford, Near WVDP Site
3565-001	Orange Co., Tuxedo, Long Meadow Road
3767-001	Oswego Co., Scriba, County Route 29 and Lake Road
4561-001	Saratoga Co., West Milton
5128-001	Suffolk Co., Shoreham, Wading River
5151-001	Suffolk Co., Brookhaven, Upton
5857-001	Wayne Co., Ontario, GINNA Plant
5951-001	Westchester Co., Cortlandt, NYU Tower
5953-018	Westchester Co., Greenburgh, Martin Building

Milk Sampling Stations

Site Number

0101-001	Albany Co., Albany Empire State Plaza, Cafeteria
0451-016	Cattaraugus Co., Ashford, Near WVDP Site
0451-017	Cattaraugus Co., Ashford, Near WVDP Site
3757-001	Oswego Co., Mexico
3758-001	Oswego Co., New Haven
3767-002	Oswego Co., Scriba
5857-002	Wayne Co., Ontario
5857-003	Wayne Co., Ontario

Fallout Sampling Stations

Site Number

0101-002 Albany Co., Roof of Albany County Health Dept.
5953-018 Westchester Co., Greenburgh, Martin Building

Water Sampling Stations

Site Number

0101-001 Albany Co., State Health Department Laboratory
0153-001 Albany Co., Colonie - NL Industries, Patroon Creek
0153-002 Albany Co., Colonie - Filtration Plant, Mohawk River
0153-003 Albany Co., Colonie - NL Industries, overflow - I90
0451-002 Cattaraugus Co., Ashford, Swamp Drainage
0451-004 Cattaraugus Co., Ashford, Buttermilk Creek at Fox Valley Rd.. Bridge
(Upstream of WVDP Site)
0451-006 Cattaraugus Co., Ashford, Erdman Brook leaving Site
0451-007 Cattaraugus Co., Ashford, Cattaraugus Ck. at Bigelow Bridge
(Upstream of WVDP Site)
0451-035 Cattaraugus Co., Ashford, Buttermilk Ck. at Thomas Cor. Rd.. Bridge
(Downstream of WVDP Site)
0451-044 Cattaraugus Co., Ashford, Cattaraugus Creek at Felton Bridge
(Downstream of WVDP\ Site)
0451-053 Cattaraugus Co., Ashford, Erdman Brook
0451-067 Cattaraugus Co., Ashford, Brook NE of WVDP, Burial Area
0754-001 Chemung Co., Chemung, Chemung River
1459-042 Cattaraugus Co., Concord, Cattaraugus Creek at Springville Dam
1465-001 Erie Co., Locksley Park
2226-001 Jefferson Co., Cape Vincent, St. Lawrence River

2269-001 Jefferson Co., Watertown, Black River
3102-001 Niagara Co., Niagara Falls, West Branch of Niagara River
3154-001 Niagara Co., Olcott Beach, Lake Ontario
3402-001 Ontario Co., Geneva, Seneca Lake WTP
3565-002 Orange Co., Tuxedo, 150' Below Indian Kill Reservoir
3565-098 Orange Co., Tuxedo, Sterling Forest Water Treatment Plant
3702-001 Oswego Co., Oswego, City Water Supply
3702-003 Oswego Co., Oswego, Inlet - Steam Plant
3758-002 Oswego Co., New Haven, Dempster Beach Road
3767-003 Oswego Co., Scriba, Nine Mile Point Unit #1 Inlet
4469-001 St. Lawrence County, Massena, St. Lawrence at Massena
4561-002 Saratoga Co., Milton, Glowegee Creek at USGS Gauge Station
5128-003 Suffolk Co., Shoreham, Long Island Sound off Herod Point
5128-004 Suffolk Co., Shoreham, Long Island Sound at Mt. Misery Shoal
5128-008 Suffolk Co., Shoreham, Wading River Near Stone Jetty
5151-006 Suffolk Co., Brookhaven, Peconic River at Manorville
5159-001 Suffolk Co., Southold, Fishers Island, Barlow Pond
5401-001 Tompkins Co., Ithaca, Cayuga Lake
5452-004 Tompkins Co., Dryden, Well Water
5452-013 Tompkins Co., Dryden, Well Water
5456-001 Tompkins Co., Lansing, Well Water
5456-002 Tompkins Co., Lansing, Well Water
5456-003 Tompkins Co., Lansing, Well Water
5456-007 Tompkins Co., Lansing, Well Water

5456-016	Tompkins Co., Lansing, Stream West of Burial Site
5456-017	Discharge Area Tompkins Co., Lansing, Stream East of Burial Site
5650-001	Warren Co., Bolton Landing, Lake George
5857-004	Wayne Co., Ontario, Filtration Plant
5857-005	Wayne Co., GINNA Station, Discharge Canal
5857-006	Wayne Co., Ontario, Upstream at Russell Station
5907-007	Westchester Co., Yonkers, WTP - Saw Mill River Intake
5941-001	Westchester Co., Buchanan, Con Ed
5941-002	Westchester Co., Buchanan, Con Ed Intake Area
5951-002	Westchester Co., Cortlandt, Hudson River at Verplank Water Station
5953-009	Westchester Co., Elmsford, Tributary to Saw Mill River at SPL
5953-021	Westchester Co., Greenburgh, Pond at Westchester Community College
5957-001	Westchester Co., Mt. Pleasant, Kensico Reservoir
5957-002	Westchester Co., Mt. Pleasant, Pocantico Reservoir

Biological Sampling Stations

Site Number

0451-025	Cattaraugus Co., Ashford, WVDP Area
0451-026	Cattaraugus Co., Ashford, WVDP Site
1459-042	Erie Co., Concord, Springville Dam Area
3767-005	Oswego Co., Nine Mile Point Off Shore
5128-007	Suffolk Co., Shoreham, Off Shore 2.9 Mi. NE
5151-002	Suffolk Co., Brookhaven, Surrounding Ponds
5151-003	Suffolk Co., Brookhaven, Surrounding Ponds
5151-004	Suffolk Co., Brookhaven, Surrounding Ponds

5857-007 Wayne Co., Ontario, Off Shore
5941-003 Westchester Co., Buchanan, Intake Screen
6020-001 Wyoming Co., Arcade

Sediment Sampling Stations

Site Number

0451-004 Cattaraugus Co., Ashford, Buttermilk Creek, Bottom Sediment
1459-042 Erie Co., Concord, Springville Dam, Bottom Sediment
3767-006 Oswego Co., Nine Mile Point, Bottom Sediment
5857-008 Wayne Co., Ontario, Ginna Shoreline

Vegetation Sampling Stations

Site Number

0451-009 Cattaraugus Co., Background for WVDP Site
0451-010 Cattaraugus Co., Near WVDP Site
3767-007 Oswego Co., Nine Mile Point, Vicinity of Nine Mile Point
5857-009 Wayne Co., Ontario, Vicinity of Ginna Site

Ash Sampling Station

Site Number

1403-001 Erie Co., Tonawanda, STP

Sludge Sampling Stations

Site Number

1403-002 Erie Co., Tonawanda, STP
1464-001 Erie Co., Grand Island, STP



State of New York
George E. Pataki, Governor
Department of Health
Antonia C. Novello, M.D., M.P.H., Commissioner



STATE OF NEW YORK DEPARTMENT OF HEALTH

Flanigan Square, 547 River Street, Troy, New York 12180-2216

Antonia C. Novello, M.D., M.P.H.
Commissioner

Dennis P. Whalen
Executive Deputy Commissioner

February 3, 2000

Dear Interested Party:

Enclosed is a copy of the Department of Health's Bureau of Environmental Radiation 1994 Annual Report.

If you have questions regarding the above you may contact us at 1-800-458-1158 extension 2-7556 or (518) 402-7556.

Sincerely yours,

Adela Salame-Alfie
Adela Salame-Alfie, Ph.D.
Assistant Director
Bureau of Environmental Radiation
Protection