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NINE MILE POINT NUCLEAR STATION

ANNUAL RADIOLOGICAL ENVIRONMENTAL OPERATING REPORT

NIAGARA MOHAWK POWER CORPORATION

NIAGARA MOHAWK POWER CORPORATION

ANNUAL RADIOLOGICAL ENVIRONMENTAL OPERATING REPORT

January 1, 1985 - December 31, 1985

for

NINE MILE POINT NUCLEAR STATION UNIT 1

Facility Operating License DPR-63

Docket Number 50-220

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NINE MILE POINT NUCLEAR STATION

ANNUAL RADIOLOGICAL ENVIRONMENTAL OPERATING REPORT

I. INTRODUCTION

This report is submitted in accordance with Appendix A (Radiological Technical Specifications), Section 6.9.1.d to License DPR-63, Docket No. 50-220 for the Nine Mile Point Nuclear Station Unit 1 for the year 1985. This report is also submitted as preoperational monitoring data for Nine Mile Point Nuclear Station Unit 2, Docket No. 50-410.

II. DESCRIPTION

The required sample collection and analysis schedule for the Nine Mile Point Nuclear Station Unit 1 (NMPNS) is listed in Table 1 and 2.

The sample collections for the radiological program are performed by two groups. Ecological Analysts Incorporated (EAI) performs much of the environmental sampling. EAI is presently performing the Nine Mile Point Biological Monitoring Program required by the Stations SPDES Permit. The staff required by EAI to perform this program is used to perform the terrestrial sampling required for the site Radiological Environmental Monitoring Program (REMP). In-plant canal sampling and remaining terrestrial sampling is performed jointly by the NMPNS and the James A. FitzPatrick Nuclear Power Plant (JAFNPP) staffs.

1. Sample Collection Methodology and Analysis

A. Surface Water

Surface water samples are taken from the respective inlet canals of the J.A. FitzPatrick facility and Niagara Mohawk's Oswego Steam Station. The FitzPatrick facility removes water from Lake Ontario on a continuous basis and generally represents a "down-current" sampling point from the Nine Mile Point Unit 1 facility. The Oswego Steam Station inlet canal removes water from Lake Ontario at a point approximately 7.6 miles west of the site. This "up-current" location is considered a control location because of the distance from the site as well as lake current patterns and current patterns from the Oswego River located nearby.

Samples from the FitzPatrick facility are composited from automatic sampling equipment which discharges into a large compositing tank. Samples are obtained from the tank monthly and analyzed for gamma emitters. Samples from the Oswego Steam Station are also composited from automatic sampling equipment and discharged to a compositing tank. Samples from this location are obtained weekly and composited to form monthly composite samples. Monthly samples are analyzed for gamma emitters.

II. DESCRIPTION (Cont'd)

1. Sample Collection Methodology and Analysis (Cont'd)

A. Surface Water (Cont'd)

A portion of the monthly samples from each of the locations is saved and composited to form quarterly composite samples for each calendar quarter. Quarterly composite samples are analyzed for tritium.

In addition to the FitzPatrick and Oswego Steam Station facilities, data are presented for the Nine Mile Point Unit 1 facility inlet canal and city water from the City of Oswego. The latter two locations are not required by the Technical Specifications, but are optional samples. Monthly composite samples from these two locations are analyzed for gamma emitters and quarterly composite samples are analyzed for tritium.

Surface water sample locations are shown on Figure 1A.

B. Air Particulate/Iodine

The air sampling stations required by the Technical Specifications are located in the general area of the site boundary (within 0.7 miles) in sectors of highest calculated meteorological deposition factors (D/Q) based on historical meteorological data. These stations (R-1, R-2, and R-3) are located in the east, east-southeast, and southeast sectors as measured from the center of the Nine Mile Point Nuclear Station Unit 2 reactor building. The Technical Specifications also require that a fourth air sampling station be located in the vicinity of a year round community having the highest calculated dispersion factor (D/Q) based on historical meteorological data. This station is located in the southeast sector (R-4). A fifth station required by the Technical Specifications is located at a site 16.4 miles from the site in a least prevalent wind direction of east-northeast (R-5). This location is considered a control location.

In addition to the Technical Specification required locations, there are nine other sampling stations located within the site boundary. These locations generally surround the area occupied by the three generating facilities, but are well within the site boundary. One other air sampling station is located off-site in the southwest sector and is in the vicinity of the City of Oswego.

At each station, airborne particulates are collected by glass fiber filters and radioiodine by charcoal filters. Air particulate glass fiber filters are approximately two inches (47 millimeters) in diameter and are placed in sample holders in the intake line of a vacuum sampler. Directly down stream from the

II. DESCRIPTION (Cont'd)

1. Sample Collection Methodology and Analysis (Cont'd)

B. Air Particulate/Iodine (Cont'd)

particulate filter is a 2 x 1 inch charcoal cartridge used to absorb airborne radioiodine. The samplers run continuously and the charcoal cartridges and particulate filters are changed on a weekly basis, or as required by dust loading. Gross beta analysis is performed for the individual particulate filters on a weekly basis. Charcoal cartridges are analyzed weekly for radioiodine by GeLi detector.

The particulate filters are composited for gamma analyses on a monthly basis by location after all weekly particulate filters have been counted for gross beta activity.

Air sampling stations are shown in Figures 1 and 2.

C. Milk

Milk samples are collected in polyethylene bottles from the bulk storage tank at each sampled farm. Before the sample is drawn, the tank contents are agitated from three to five minutes to assure a homogenous mixture of milk and butterfat. Two gallons are collected during the first half and second half of each month from each of the selected locations within ten miles of the site and from a control location. The samples are frozen and shipped to the analytical contractor within thirty-six hours of collection in insulated shipping containers.

Milk sampling locations are selected based on the maximum deposition factors (D/Q). Deposition factors are generated from average historical meteorological data based on all licensed reactors. The Technical Specifications require three sample locations within 5.0 miles of the site with the highest calculated deposition factors. In addition to the three required locations, several other locations with high deposition factors are sampled for milk. These samples are optional.

A fourth sampling location required by the Technical Specifications is located in a least prevalent wind direction from the site. This location is 15.0 miles from the site in the southwest sector.

Milk samples are collected twice per month (April - December) and analyzed for gamma emitters and I-131. Samples are collected and analyzed in January - March in the event I-131 is detected in November and December of the preceding year.

The milk sampling locations are found on Figure 4. (See Section B.5 for the identification of locations sampled.)

II. DESCRIPTION (Cont'd)

1. Sample Collection Methodology and Analysis (Cont'd)

D. Food Products

Food products are collected once per year during the late summer at the approximate height of the harvest season. Approximately one kilogram of broadleaf vegetables is collected from garden locations with the highest deposition factors (D/Q) based on average historical meteorological data. Six samples are collected from at least two sectors. Control samples are also collected from available off-site locations 9 to 20 miles distant in a least prevalent wind direction. Control samples are of a similar type of vegetation. All samples are shipped fresh as soon as possible after collection.

Food product samples are analyzed for gamma emitters (gamma isotopic analysis). The gamma isotopic analysis also includes I-131.

Food product locations are shown on Figure 3.

E. Fish Samples

Available fish species are obtained from collections during the spring and fall. Samples are collected from two of four possible on-site sample transects located in the vicinity of the site discharge points and one off-site sample transect. Available species are selected under the following guidelines:

1. Samples of 0.5 to 1 kilogram of edible portions for a minimum of two species per location.

2. When two independent species are not available at all sample locations, a species may be divided into two samples for each location. This procedure may be accomplished provided that a sufficient sample size is available for the species in question at all three locations.

Selected fish samples are segregated by species and location and are processed immediately after collection. Samples are shipped frozen within three weeks in insulated containers. Samples are analyzed for gamma emitters in edible portions.

Fish sample transects are shown on Figure 1A.

F. Shoreline Sediment

Shoreline sediment samples are collected twice per year for one area of existing or potential recreational value and from one area beyond the influence of the site. The area of potential recreational value is the only area required by the Technical

II. DESCRIPTION (Cont'd)

1. Sample Collection Methodology and Analysis (Cont'd)

F. Shoreline Sediment (Cont'd)

Specifications. Approximately one kilogram of shoreline sediment is obtained from areas washed by the lake shore surf at the two locations twice per year. All samples are shipped and analyzed for gamma emitters. Optional samples may be collected from other shoreline locations at or near the site.

Shoreline sediment locations are shown on Figure 1A.

G. TLD (direct radiation)

Thermoluminescent dosimeters (TLD's) are used to measure direct radiation (gamma dose) in the environment. TLD's are obtained from Teledyne Isotopes on a quarterly basis and are read at Teledyne Isotopes' facility in Westwood, New Jersey. Shipment control TLD's (at least two) accompany each shipment to and from the vendor's laboratory. Shipment control TLD's also accompany the TLD's when they are being placed or collected and are shielded by lead when they are not being used. TLD data results are corrected for a transit dose by use of the data from the shipment control TLD's.

Five different types of areas are evaluated by environmental TLD's. These areas include on-site areas (areas within the site boundary not required by the Technical Specifications), the site boundary area in each of the sixteen meteorological sectors, an outer ring of TLD's (located four to five miles from the site in eight available land based meteorological sectors), special interest TLD's (located at sites of high population density) and control TLD's located at sites beyond significant influence of the site. Special interest TLD's are located at or near large industrial sites, schools, or proximal towns or communities. Control TLD's are located to the southwest, south and east-northeast of the site at distances of 12.6 to 19.8 miles.

TLD's used during 1985 were composed of rectangular teflon wafers impregnated with 25% $CaSO_4$: Dy Phosphor. These were placed in polyethylene packages to ensure dosimeter integrity. TLD packages were placed in open webbed plastic holders and were attached to supporting structures, usually trees or utility poles.

Environmental TLD locations are shown on Figures 1A, 1B, and 2.

II. DESCRIPTION (Cont'd)

1. Sample Collection Methodology and Analysis (Cont'd)

H. Land Use Census

A land use census is conducted to determine the utilization of land within a distance of 3 miles from the site. The land use census actually consists of two types of census. A milk animal census is conducted to identify all milk animals within a distance of 10 miles from the site. A census covering areas out to a distance of 10 miles exceeds a distance of 3 miles required by the Technical Specifications. This census is conducted during the beginning of the grazing season using road surveys, contacting local agricultural authorities, post cards, and investigating references from other owners.

A second type of census is a residence census. This census is conducted in order to identify the closest residence in each of the 22.5 degree meteorological sectors. A residence, for the purposes of this census, is a residence that is occupied on a part time basis (such as a summer camp), or on a full time, year round basis. For the residence census, several of the meteorological sectors are over Lake Ontario because the site is located at the shoreline. No residences are located in these sectors. There are only eight sectors over land where residences are located within 3 miles.

The results of the land use census are shown on Figures 3 and 4.

I. Interlaboratory Comparison Program

An Interlaboratory Comparison Program is conducted with reference samples originating from the Environmental Protection Agency (EPA). As required by the Technical Specifications, participation in this program includes media for which environmental samples are routinely collected and for which intercomparison samples are available.

The results of the Interlaboratory Comparison Program are shown on Table 18.

2. Analyses Performed

The Radiological Environmental Monitoring Program (REMP) samples were analyzed by Teledyne Isotopes and by the Site Environmental Laboratory during 1985. The following samples were analyzed by the site:

- Air particulate filter (weekly gross beta analysis)
- Air particulate filter (monthly gamma spectral analysis)

II. DESCRIPTION (Cont'd)

2. Analyses Performed (Cont'd)

- Airborne radioiodine cartridge (weekly gamma spectral analysis)

- Lake water (monthly gamma spectral analysis)

The remainder of the sample analyses, as outlined in Table 1 and 2, were analyzed by Teledyne Isotopes.

3. Changes to the 1985 Sample Program

A. Sample collection, analysis and evaluation for Cladophora (algae) was deleted from the Environmental Technical Specifications by the Nuclear Regulatory Commission. The new Radiological Effluent Technical Specifications issued by the Commission became effective January 1, 1985. The new specification does not require sampling and analysis for Cladophora in Lake Ontario. Optional samples may be collected, however, at the discretion of supervisory personnel.

B. The indicator location for shoreline sediment samples was changed from a location near the north shoreline of the station to a location directly east of the site. The new location is of importance as an area of recreational value. The indicator location was revised because the new Technical Specifications, effective January 1, 1985, required the indicator shoreline sediment location to be at an area of existing or potential recreational value. Optional samples may be collected at the discretion of supervisory personnel.

C. The control sample location for surface water sampling was changed during 1985 as a result of the new Technical Specifications effective January 1, 1985. The new Technical Specifications required that a control sample location be established that utilizes surface water from Lake Ontario. Since the indicator location (the FitzPatrick facility inlet canal) utilizes Lake Ontario surface water, the control location was established as Niagara Mohawk Power Corporation's Oswego Steam Station inlet canal. The previous control location (Oswego City Water Treatment System) was deleted as a control sample. Samples are still obtained, however, to monitor the City of Oswego drinking water supply.

D. Four of the fifteen air sampling stations were relocated during the end of 1984 to meet the requirements of the new Technical Specifications, effective January 1, 1985. The new specifications required that three air sampling stations be located in three different 22 1/2 degree meteorological sectors of highest calculated site average deposition values (D/Q) based on historical meteorology. The three stations (R-1, R-2, and R-3) were located at approximate sector mid point and near the site boundary, where possible.

II. DESCRIPTION (Cont'd)

3. Changes to the 1985 Sample Program (Cont'd)

The new specifications also required that a fourth air sampling station (R-4) be relocated in the vicinity of a year round community having the highest calculated site average deposition value (D/Q). A fifth air sampling station (R-5) is required to be a control sampling station. The existing control air sampling station met the requirements of the new specification so that the relocation of the control station was not required.

The relocation of the four air sampling stations affects the sampling locations for the weekly gross beta determinations from the air particulate filters, the monthly composite of air particulate filters for gamma analysis and the weekly iodine 131 determinations from the charcoal cartridges.

In addition, the new specifications effective January 1, 1985 required that the monthly particulate samples analyzed for gamma emitters be composites of weekly samples by location. Thus, the weekly air particulate filters are composited to form a monthly sample for each designated location. Previously, the monthly composite samples were comprised of several locations to form two on-site composites and two off-site composites from a total of fifteen air sampling locations.

E. Several environmental TLD locations were deleted and several added to the overall program during 1985. The new Technical Specifications, effective January 1, 1985, required that TLD's be placed at the site boundary in each of the sixteen 22 1/2 degree meteorological sectors. In addition, TLD's were required to be placed at locations four to five miles from the site in each of the 22 1/2 degree land based meteorological sectors. TLD's were also required to be located at special interest areas and control areas. Most of the special interest and control TLD's were already in place, as required by the previous Technical Specifications.

Program TLD numbers 75-101 were added during the first quarter of 1985, 102 during the third quarter, 103 during the second quarter, and TLD numbers 43-46, 48, 50, 61 and 65 were deleted during the third quarter of 1985.

F. The milk animal census was changed slightly during 1985 as a result of the new Technical Specifications effective January 1, 1985. The previous Technical Specifications required a milk animal census conducted twice per year within ten miles of the site. The new specification required a milk animal census conducted once per year, within three miles of the site. The milk animal census within ten miles was retained since it exceeded the requirements of the new specification and is in the best interest of Niagara Mohawk. This census was conducted once during 1985. In addition, as a result of the new specification, an additional census was conducted once during 1985 to identify the nearest residence in each of the sixteen 22 1/2 degree meteorological sectors out to a distance of three miles.

II. DESCRIPTION (Cont'd)

3. Changes to the 1985 Sample Program (Cont'd)

G. Sampling of food products was changed during 1985 as a result of the new Technical Specifications effective January 1, 1985. The previous Technical Specifications required three samples of broadleaf and three samples of non-broadleaf fruits and/or vegetables to be collected and analyzed once per year. The new Technical Specifications requires a total of six samples to be collected utilizing at least two downwind 22 1/2 degree meteorological sectors. The samples must be from locations of highest calculated site average deposition factors (D/Q). In addition, samples of similar vegetation must be collected from an off-site or control location 9-20 miles distant in a least prevalent wind direction. Food product samples collected during 1985 met the requirements of the new specification. Analysis requirements of the new and old specifications were the same.

H. Sampling of water under the old Technical Specification requirements necessitated the analysis of quarterly water samples for Sr-89 and Sr-90. The new Radiological Effluent Technical Specifications deleted this requirement.

I. The old Technical Specifications required the analysis of fish samples for Sr-89 and Sr-90 in addition to gamma emitters. The new Technical Specifications deleted the requirement for Sr-89 and Sr-90 analysis.

The previous Technical Specifications also required fish samples to be analyzed in units of pCi/kg (dry weight). The analytical units were changed to pCi/kg (wet weight) with the new Technical Specifications. These units are more consistent with regulatory guidance methodology and common analytical technique.

J. The old Technical Specifications required the collection and analysis of soil samples every three years. The sampling and analysis of soil samples was deleted by the new Technical Specifications. Soil samples may be collected and analyzed on an intermittent basis as optional samples at the discretion of supervisory personnel.

K. Radiation monitoring instrumentation is installed in many of the air sampling stations and was required by the old Technical Specifications. The new Technical Specifications deleted the requirement to operate and maintain radiation monitoring instrumentation.

L. Milk sampling under the old Technical Specifications required samples to be analyzed for gamma emitters, iodine 131 and Sr-90. The new Technical Specifications deleted the requirement to analyze milk samples for Sr-90. Optional samples may be collected intermittently at select locations for Sr-90 at the discretion of supervisory personnel.

II. DESCRIPTION (Cont'd)

3. Changes to the 1985 Sample Program (Cont'd)

In addition, the new Technical Specifications deleted the previous requirement to sample milk once per month during the grazing season. The new specification requires that milk be collected twice per month for the months of April through December. In conjunction with bi-monthly sampling, the new specification also requires that samples by analyzed for I-131 in January through March in the event I-131 is detected in November through December of the previous year.

M. Samples of meat, eggs and poultry were collected twice per year as required by the old Technical Specifications. The new specification deleted the requirement to collect and analyze meat, eggs and poultry. Samples of meat and poultry may be collected intermittently at the discretion of supervisory personnel.

4. Exceptions to the 1985 Sample Program

Exceptions to the 1985 sample program consists of those samples or monitoring requirements which are required by the Technical Specifications and those that are not required. For those that are required by the Technical Specifications, this section implements section 3.6.20 of the Nine Mile Point Nuclear Station Unit 1 Technical Specifications.

A. Air Radioiodine and Particulate Sampling Required by the Technical Specifications

1. Environmental air sample equipment at R-1 off-site air sampling station was inoperable from 1/28/85 at 1405 hours to 1/31/85 at 0910 hours. The circuit fuse for the vacuum pump was found blown and was replaced.

2. Environmental air sample equipment at R-1 off-site air sampling station was inoperable from 4/18/85 at 1510 hours to 4/18/85 at 1556 hours. The monitoring station was moved a short distance because of complaints from a nearby resident.

3. Environmental air sample equipment at R-2 off-site air sampling station was inoperable from 10/3/85 at 0800 hours to 10/4/85 at 0830 hours. The cabinet wiring and circuit breaker was replaced to avoid any possible safety hazards.

4. Environmental air sample equipment at R-3 off-site air sampling station was inoperable from 10/16/85 at 0821 hours to 10/16/85 at 1503 hours. The cabinet wiring and circuit breaker was replaced to avoid any possible safety hazards.

II. DESCRIPTION (Cont'd)

4. Exceptions to the 1985 Sample Program (Cont'd)

5. Environmental air sample equipment at R-4 off-site air sampling station was inoperable from 10/17/85 at 0812 hours to 10/17/85 at 1442 hours. The cabinet wiring and circuit breaker was replaced to avoid any possible safety hazards.

6. Environmental air sample equipment at R-1 off-site air sampling station was inoperable from 10/18/85 at 0750 hours to 10/18/85 at 1437 hours. The cabinet wiring and circuit breaker was replaced to avoid any possible safety hazards.

7. Environmental air sample equipment at R-5 off-site air sampling station was inoperable from 10/29/85 at 0914 hours to 10/30/85 at 1345 hours. The cabinet wiring and circuit breaker was replaced to avoid possible safety hazards.

8. Environmental air sample equipment at R-2 off-site air sampling station was inoperable from 11/17/85 at 1105 hours to 11/19/85 at 1243 hours. The ground fault interrupter had tripped off. The equipment was re-energized using a circuit without a ground fault interrupter.

9. Environmental air sample equipment at R-2 off-site air sampling station was inoperable from 12/17/85 at 0820 hours to 12/17/85 at 1255 hours. The vacuum pump failed to restart after the weekly particulate filter and radioiodine cartridge replacement. The vacuum pump was replaced with a spare pump.

B. Air Radioiodine and Particulate Sampling Not Required by the Technical Specifications.

The following summarizes the down time and the respective reasons for air sampling stations not required by the Technical Specifications.

1. H on-site station, off: 1/8/85 (1035 hours) to 1/14/85 (1250 hours). Vacuum pump inoperable because of transmission line problem.

2. E on-site station, off: 1/17/85 (1100 hours) to 1/23/85 (0930 hours). Technician forgot to re-energize vacuum pump.

3. J on-site station, off: 1/17/85 (1300 hours) to 1/23/85 (1030 hours). Blown fuse.

4. J on-site station, off: 2/20/85 (0506 hours) to 2/21/85 (1455 hours). Blown fuse.

5. E on-site station, off: 3/7/85 (1310 hours) to 3/11/85 (1050 hours). Technician forgot to re-energize vacuum pump.

II. DESCRIPTION (Cont'd)

4. Exceptions to the 1985 Sample Program (Cont'd)

6. K on-site station, off: 4/5/85 (1524 hours) to 4/8/85 (1600 hours). Tree fell on transmission line.

7. D2 on-site station, off: 4/15/85 (2126 hours) to 4/17/85 (1031 hours). Blown fuse.

8. D1 on-site station, off: 4/17/85 (1000 hours) to 4/17/85 (1250 hours). Faulty vacuum pump "on" switch.

9. D2 on-site station, off: 4/17/85 (1542 hours) to 4/22/85 (1030 hours). Blown fuse.

10. D1 on-site station, off: 5/10/85 (0905 hours) to 5/10/85 (0915 hours). Vacuum pump malfunction.

11. J on-site station, off: 5/10/85 (1947 hours) to 5/13/85 (0922 hours). Blown fuse.

12. D2 on-site station, off: 5/12/85 (0725 hours) to 5/12/85 (1445 hours). Power outage in the service area.

13. E on-site station, off: 5/12/85 (0725 hours) to 5/12/85 (1445 hours). Power outage in the service area.

14. F on-site station, off: 5/12/85 (0725 hours) to 5/12/85 (1445 hours). Power outage in the service area.

15. K on-site station, off: 5/12/85 (0725 hours) to 5/12/85 (1445 hours). Power outage in the service area.

16. D1 on-site station, off: 5/15/85 (2128 hours) to 5/20/85 (0955 hours). Blown fuse.

17. J on-site station, off: 5/21/85 (2227 hours) to 5/24/85 (0835 hours). Blown fuse.

18. J on-site station, off: 6/9/85 (2300 hours) to 6/10/85 (0945 hours). Blown fuse.

19. J on-site station, off: 6/11/85 (2316 hours) to 6/12/85 (1317 hours). Blown fuse.

20. J on-site station, off: 6/16/85 (0035 hours) to 6/17/85 (1011 hours). Blown fuse.

21. D2 on-site station, off: 7/4/85 (0151 hours) to 7/5/85 (1030 hours). Blown fuse.

II. DESCRIPTION (Cont'd)

4. Exceptions to the 1985 Sample Program (Cont'd)

22. D1 on-site station, off: 8/6/85 (0249 hours) to 8/9/85 (1120 hours). Malfunction of vacuum pump.

23. J on-site station, off: 8/6/85 (0254 hours) to 8/8/85 (1030 hours). Blown fuse.

24. J on-site station, off: 8/10/85 (0948 hours) to 8/12/85 (1010 hours). Blown fuse.

25. J on-site station, off: 8/13/85 (0443 hours) to 8/16/85 (1023 hours). Blown fuse.

26. K on-site station, off: 8/30/85 (0237 hours) to 8/30/85 (0920 hours). Vacuum pump malfunction.

27. D2 on-site station, off: 9/6/85 (1057 hours) to 9/9/85 (1416 hours). Blown fuse.

28. D2 on-site station, off: 9/17/85 (0700 hours) to 9/19/85 (1050 hours). Blown fuse.

29. I on-site station, off: 9/30/85 (1000 hours) to 9/30/85 (1430 hours). Vacuum pump malfunction.

30. D1 on-site station, off: 10/9/85 (0830 hours) to 10/10/85 (1010 hours). Blown fuse.

31. D1 on-site station, off: 10/10/85 (1310 hours) to 10/12/85 (1035 hours). Blown fuse.

32. G on-site station, off: 10/15/85 (0821 hours) to 10/17/85 (0952 hours). Blown fuse.

33. D1 on-site station, off: 10/15/85 (2245 hours) to 10/17/85 (0922 hours). Blown fuse.

34. G on-site station, off: 10/21/85 (0800 hours) to 10/21/85 (1500 hours). Replace wiring and circuit breaker.

35. D2 on-site station, off: 10/22/85 (0824 hours) to 10/22/85 (1550 hours). Replace wiring and circuit breaker.

36. G on-site station, off: 10/22/85 (2030 hours) to 10/24/85 (0948 hours). Blown fuse.

37. E on-site station, off: 10/23/85 (0815 hours) to 10/23/85 (1501 hours). Replace wiring and circuit breaker.

II. DESCRIPTION (Cont'd)

4. Exceptions to the 1985 Sample Program (Cont'd)

38. F on-site station, off: 10/24/85 (0815 hours) to 10/24/85 (1245 hours). Replace wiring and circuit breaker.

39. F on-site station, off: 10/25/85 (0800 hours) to 10/25/85 (1505 hours). Continued replacement of wiring and circuit breaker.

40. G off-site station, off: 10/28/85 (0823 hours) to 10/28/85 (1510 hours). Replaced wiring and circuit breaker.

41. G on-site station, off: 11/5/85 (2050 hours) to 11/7/85 (0855 hours). Blown fuse.

42. G off-site station, off: 11/12/85 (0905 hours) to 11/15/85 (0852 hours). Pump not re-energized by technician.

43. G on-site station, off: 11/15/85 (2241 hours) to 11/19/85 (1223 hours). Ground fault interrupter tripped, reset.

44. J on-site station, off: 11/18/85 (1846 hours) to 11/19/85 (1102 hours). Blown fuse.

45. D1 on-site station, off: 11/19/85 (1020 hours) to 11/20/85 (1302 hours). Replaced wiring and circuit breaker.

46. D1 on-site station, off: 11/21/85 (0500 hours) to 11/25/85 (0842 hours). Vacuum pump malfunction.

47. J on-site station, off: 12/2/85 (1600 hours) to 12/5/85 (0850 hours). Blown fuse.

48. J on-site station, off: 12/5/85 (1410 hours) to 12/9/85 (0810 hours). Blown fuse.

49. G on-site station, off: 12/8/85 (0400 hours) to 12/9/85 (1330 hours). Blown fuse.

50. J on-site station, off: 12/9/85 (1500 hours) to 12/10/85 (0820 hours). Vacuum pump malfunction.

C. Environmental Thermoluminescent Dosimeters (TLD)

The following environmental TLD's were lost as a result of theft. These TLD's are required by the Technical Specifications.

1. Environmental TLD # 88 (Offsite Dose Calculation Manual TLD #22) was missing during the third quarter of 1985 as a result of theft. Data were not available for this location from 6/28/85 to 9/27/85.

II. DESCRIPTION (Cont'd)

4. Exceptions to the 1985 Sample Program (Cont'd)

2. Environmental TLD # 81 (Offsite Dose Calculation Manual TLD # 13) was missing during the fourth quarter of 1985 as a result of theft. Data were not available for this location from 9/25/85 to 12/31/85.

3. Environmental TLD # 88 (Offsite Dose Calculation Manual TLD # 22) was missing during the fourth quarter of 1985 as a result of theft. Data were not available for this location from 9/27/85 to 1/3/86.

TLD # 88 was relocated at the end of the fourth quarter because of the continual theft. TLD # 81 was stolen during the fourth quarter. In the event that theft continues at this location, then this TLD may also be relocated. In the meantime, TLD # 81 will be checked intermittently to verify that it has not been stolen.

The following environmental TLD's were lost as a result of theft and are not required by the Technical Specifications.

4. Environmental TLD # 47 was missing during the first quarter of 1985 as a result of theft. Data were not available for this location from 1/2/85 to 3/28/85.

5. Environmental TLD # 103 was missing during the third quarter of 1985 as a result of theft. Data were not available for this location from 6/26/85 to 9/27/85.

Normally, environmental TLD's are not relocated unless theft is continual. Past history has shown that usually TLD's are stolen only once.

D. Lower Limit of Detection for Environmental Samples

The Technical Specifications require that environmental samples analyzed for the Radiological Environmental Monitoring Program meet the lower limits of detection (LLD) found on Table 4.6.20-1 of the Nine Mile Point Unit 1 Technical Specifications. All of the 1985 environmental samples which showed no net activity were less than the required values found on Table 4.6.20-1.

II. DESCRIPTION (Cont'd)

4. Exceptions to the 1985 Sample Program (Cont'd)

E. Deviations from the Interlaboratory Comparison Program

Section 3.6.21 of the Nine Mile Point Unit 1 Technical Specifications requires the site to conduct an Interlaboratory Comparison Program utilizing QC samples from the Environmental Protection Agency (EPA). This section also requires that deviations from the sample schedules be reported in the Annual Radiological Environmental Operating Report. The sample schedule is set by the EPA and includes media for which environmental samples are routinely collected and for which interlaboratory comparison samples are available from the EPA.

During 1985, all sample media offered by the EPA for the Interlaboratory Comparison Program, and for which environmental samples are routinely collected and analyzed, were obtained and analyzed.

III. EVALUATION OF ENVIRONMENTAL DATA

There were three separate groups of radionuclides that were detected in the environment during 1985. A few of these radionuclides could possibly fall into two of the three groups. The first of these groups is naturally occurring radionuclides. It must be realized that the environment contains a broad inventory of naturally occurring radioactive elements. Background radiation, as a function of primordial radioactive elements and cosmic radiation of solar origin, offers a constant exposure to the environment and man. These radionuclides, such as Ra-226, Be-7 and especially K-40, account for a majority of the annual per capita background dose.

A second group of radionuclides that were detected are a result of the detonation of thermonuclear devices in the earth's upper atmosphere. The detonation frequency during the early 1950's produced a significant inventory of radionuclides found in the lower atmosphere as well as in ecological systems. A ban was placed on atmospheric weapons testing in 1963 which greatly reduced the inventory through the decay of short lived radionuclides, deposition, and the removal (by natural processes) of radionuclides from the food chain such as by the process of sedimentation. Since 1963, several atmospheric weapons tests have been conducted by the People's Republic of China. In each case, the usual radionuclides associated with nuclear detonations were detected several months afterwards and then after a peak detection period, diminished to a point where most could not be detected. The last such weapons test was conducted in October of 1980. The resulting fallout or deposition from this test has influenced the background radiation in the vicinity of the site and was very evident in many of the sample media analyzed during 1981. Calculations of the resulting doses to man from fallout related radionuclides in the environment show that the contribution from such nuclides, in some cases (such as Sr-90 or Cs-137), is significant and second in intensity only to natural background radiation. Quantities of Nb-95, Zr-95, Ce-141, Ce-144, Ru-106, Ru-103, La-140, Cs-137, Mn-54 and Co-60 were typical in air particulate samples during 1981 and have a weapons test origin. During 1985, Cs-137 was the only radionuclide detected in environmental samples that has a weapons testing origin.

The third group of radionuclides detected in the environment during 1985 were those that could be related to operations at the site. These select radionuclides were detected in a few of the sample media collected and at very low concentrations. Many of these radionuclides are a by-product of both nuclear detonations and the operation of light water reactors thus making a distinction between the two sources difficult, if not impossible. Radionuclides falling into this category (as applicable to the 1985 Nine Mile Point Radiological Environmental Monitoring Program) include Cs-137 and Co-60. The dose to man as a result of these radionuclides is small and significantly less than the radiation exposure from naturally occurring sources of radiation and from fallout.

III. EVALUATION OF ENVIRONMENTAL DATA (Cont'd)

Thus, the evaluation and interpretation is made at several levels including trend analysis, dose to man, etc. An attempt has been made not only to report the data collected during 1985, but also to assess the significance of the radionuclides detected in the environment as compared to natural radiation sources. It is important to note that detected concentrations of radionuclides that are possibly related to operations at the site are very small and are not an indication of environmental significance. In regards to these very small quantities, it will be further noted that at such minute concentrations the assessment of the significance of detected radionuclides is very difficult. Therefore, concentrations in one sample that are two times the concentration of another, for example, are not significant overall. Moreover, concentrations at such low levels may show a particular radionuclide in one sample and yet not in another because of counting statistics.

The 1970 per capita dose rate (Eisenbud) was determined to be 209 mrem per year. This average dose includes such exposure sources as natural, occupational, weapons testing, consumer products, medical, etc. The 1970 per capita dose rate due to natural sources was 130 mrem per year. Of this dose, approximately 20 mrem per year is received by the gonads and other soft issues and an additional 15 mrem per year is received by the bone tissue for a 70 kg (155 lb) man. These doses (ie. 20 mrem and 15 mrem) are the result of just K-40 alone, a naturally occurring relatively high energy beta emitter (1.3 Mev). The 1970 per capita dose rate due to the nuclear fuel cycle was 0.028 mrem per year.

Background gamma radiation around the Nine Mile Point Site, as a result of radionuclides in the atmosphere and the ground, accounts for approximately 60 mrem per year. This dose is a result of radionuclides of cosmic origin (as for example Be-7), of a primordial origin (as Ra-226, K-40, and Th-232) and to a much smaller extent of a man-made origin from weapons testing. A dose of 60 mrem per year, as a background dose, is significantly greater than any possible doses as a result of operations at the site during 1985.

A. Aquatic Program

Tables 3 through 6 demonstrate the analytical results for the aquatic media collected during the 1985 sampling program. Aquatic samples were collected at four possible indicator locations. The locations (on-site transect designations) used for on-site sampling were NMPW (01), NMPP (02), JAF (03), and NMPE (04) (see Figure 1). Because of the unavailability of various sample media, on-site samples may be collected from combinations of the above listed locations, when required. NMPW and NMPP were combined into location NMPP. NMPE and JAF were combined into location JAF. Off-site samples were collected at the Oswego Harbor area or further to the west (or east) and therefore served as control samples.

III. EVALUATION OF ENVIRONMENTAL DATA (Cont'd)

A. 1. Shoreline Sediment - Table 3

Shoreline sediment samples were collected twice during 1985. Collections were made in May and November at one off-site or control location (near Oswego Harbor) and at one indicator location (shoreline area just east of the site with recreational value). In addition to the two locations noted above, another shoreline location at the site was sampled. This optional location was the location required by the previous Technical Specifications. This location was sampled during 1985 because plant related radionuclides had been detected during previous years and had been noted in previous annual Radiological Environmental Operating Reports.

The results of the shoreline sediment samples collected during 1985 at the indicator and control locations are shown on Table 3. Only the Sunset Bay location was required by the Technical Specifications during 1985.

Several radionuclides were detected in sediment samples using gamma spectral analysis. These radionuclides ranged from naturally occurring primordial radionuclides to man-made radionuclides. K-40 was detected at both the control location and indicator locations for both collection periods during 1985. K-40 ranged in concentration from 13.1 pCi/g (dry) to 15.4 pCi/g (dry) at the control location and 10.9 pCi/g (dry) to 19.5 pCi/g (dry) at the indicator locations.

Ra-226 and Th-228, in addition to K-40, were also detected and are also naturally occurring radionuclides. Ra-226 was detected only at the optional Nine Mile Point location at a concentration that was representative of normal background level fluctuations. Ra-226 was found at a concentration of 1.52 pCi/g (dry) at the Nine Mile Point location. Th-228 was found at all locations and ranged from 0.27 pCi/g (dry) to 1.38 pCi/g (dry) at the indicator locations and 0.49 pCi/g (dry) to 0.67 pCi/g (dry) at the control location. Be-7 was also detected in one of the indicator samples (the Nine Mile Point location) at a concentration of 0.49 pCi/g (dry). Be-7 is a naturally occurring radionuclide.

Cs-137 was detected in both of the optional Nine Mile Point samples collected during the year. Cs-137 was detected in these optional indicator samples only and none of the normal program samples. The concentrations detected were small and were, for the most part, indicative of operations at the site. Cs-137 was detected in both of the Nine Mile Point samples (i.e., May and November) at concentrations of 1.81 pCi/g (dry) and 1.00 pCi/g (dry), respectively. As noted above, Cs-137 was not detected in any of the control samples, although Cs-137 has been routinely observed in the past in control samples (prior to 1981). Cs-137 was not detected at the Sunset Bay indicator location.

III. EVALUATION OF ENVIRONMENTAL DATA (Cont'd)

A. 1. Shoreline Sediment - Table 3 (cont'd)

Co-60 was detected in both of the optional Nine Mile Point indicator samples collected during 1985. Co-60 was detected at 0.18 pCi/g (dry) in the May sample and at 0.11 pCi/g (dry) in the November sample. The control location samples showed no detectable Co-60. Co-60 has not been noted in previous years at the control location. Co-60 detected during 1985 at this location is a result of operations at the site. Co-60 was not detected at the Sunset Bay indicator location during 1985.

Cs-134 was not detected in any of the indicator or control samples during 1985. Cs-134 had been detected once during 1983 in a Nine Mile Point sample at a concentration of 0.09 pCi/g (dry) which was greater than the LLD values for the 1985 samples.

No other radionuclides were detected in shoreline sediment samples using gamma spectral analysis.

Evaluation of average historical data (1979-1984) shows that Cs-137 has ranged from 0.05 pCi/g (dry) in 1982 to 0.22 pCi/g (dry) in 1979 at the control location. Cs-137 at the Nine Mile Point indicator location has ranged from 0.07 pCi/g (dry) in 1982 to 1.81 pCi/g (dry) in 1983 and 1985. 1985 results ranged from 1.00 pCi/g (dry) to 1.81 pCi/g (dry) at the Nine Mile Point indicator location. Cs-137 was not detected at the control location during 1983, 1984 or 1985. Overall, the control location results have decreased since 1979, while the Nine Mile Point indicator results have increased starting with the one 1982 sample result for Cs-137 of 0.80 pCi/g (dry). Indicator sample results at Nine Mile Point have remained fairly consistent since the fall of 1983.

Since the new Technical Specification location was initiated in 1985, there is no previous data to compare the 1985 result to. As noted above, however, Cs-137 was not detected at the Technical Specification indicator location during 1985. Cs-137 LLDs values ranged from 0.09 pCi/g (dry) to 0.10 pCi/g (dry) during 1985.

The evaluation of past Co-60 data indicates that Co-60 has not been detected during the period of 1974-1982 at either the Nine Mile Point indicator or control locations with the exception of one sample from the Nine Mile Point indicator location in 1982 (0.16 pCi/g-dry). Results from 1983 show that Co-60 was detected in both of the required Nine Mile Point indicator samples (0.14 and 0.36 pCi/g-dry). During 1984, Co-60 was detected at concentrations of 0.21 and 0.26 pCi/g (dry). During 1985, Co-60 was detected at 0.18 pCi/g (dry) and 0.11 pCi/g (dry). Co-60 has not been detected in any of the control samples from 1979-1985. It appears that Co-60 concentrations at the indicator location have increased (from not previously detected), remained somewhat consistent through 1984 and decreased during 1985.

III. EVALUATION OF ENVIRONMENTAL DATA (Cont'd)

A. 1. Shoreline Sediment - Table 3 (cont'd)

As noted previously, the new Technical Specification location was initiated in 1985. Therefore, there is no previous data to compare the 1985 Co-60 results to. Co-60 was not found at this location during 1985. Co-60 LLDs values ranged from < 0.05 pCi/g (dry) to < 0.07 pCi/g (dry) during 1985.

Samples of the Technical Specification indicator location (at the time) collected during November 1982 showed levels of Cs-137 (0.80 pCi/g - dry) that indicated an increased concentration of this radionuclide in comparison to previous years (1979-1981). In addition, Co-60 was detected in the November 1982 sample at a low concentration (0.16 pCi/g-dry). Co-60 had not been detected previous to the November 1982 sample. In view of the increase in Cs-137 concentrations and the appearance of Co-60 in shoreline sediment samples from the Nine Mile Point location, extra samples were collected in March 1983. These samples showed no positive detection of Co-60 and the Cs-137 concentration was less than the November 1982 concentration (0.16 pCi/g-dry). Subsequent samples collected in May and November 1983, which were the normal Technical Specification samples at the time, showed Co-60 to be detected again. Co-60 in May 1983 was detected at a concentration similar to the November 1982 concentration (0.14 pCi/g-dry). The November 1983 sample showed an increase in the Co-60 concentration to 0.36 pCi/g (dry). The May and November 1983 samples showed Cs-137 concentrations of 0.85 pCi/g (dry) and 1.81 pCi/g (dry), respectively.

These samples demonstrated an increase in the Cs-137 concentration to 1.81 pCi/g (dry). In addition to Cs-137 and Co-60, Cs-134 was detected in the November 1983 Nine Mile Point indicator sample. Cs-134 had not been detected previous to 1983 in either control or indicator samples. Cs-134 was detected at 0.09 pCi/g (dry). Concentrations of Cs-137 and Co-60 during 1984 and 1985 were relatively consistent with 1983 concentrations and may have demonstrated a very slight decrease. Cs-134 was not detected in 1984 or 1985. These concentrations, although greater than previous concentrations at this location, have no significant dose consequences to members of the public in regards to 10 CFR 50, Appendix I. An assessment of Co-60 and Cs-137 in shoreline sediment samples is included at the end of this section.

III. EVALUATION OF ENVIRONMENTAL DATA (Cont'd)

A. 1. Shoreline Sediment - Table 3 (cont'd)

The source of the elevated Co-60 and Cs-137 concentrations is believed to be liquid effluents from the site. Site liquid effluents during 1982 - 1985 were well within Technical Specification limits, although the quantities of Co-60, Cs-137 and Cs-134 did increase during the first three quarters of 1983. Other potential sources of radionuclides in liquid effluents are the sewage treatment facility effluent and the storm sewer drainage which accepts its most significant drainage from building foundation sumps, roof drainage, and roadway drainage. Grab samples are obtained weekly from the storm sewer drainage system and from the sewage treatment plant effluent which both discharge at points near the Nine Mile Point shoreline sediment sample location. Review of weekly data showed no detectable concentrations of Co-60, Cs-137 or Cs-134 from the end of 1982 through 1985.

The presence of Co-60, Cs-137, and Cs-134 in other aquatic sample media shows no similar trends, as observed in shoreline sediment. Algae or Cladophora results for 1983 generally showed lower concentrations of these radionuclides when detected. During 1984, Cs-137 concentrations remained the same, although Co-60 and Cs-134 were not detected. For 1985, Co-60, Cs-134 and Cs-137 were not detected in Cladophora samples (data not presented in this report). In addition, fish sample results showed no detectable Co-60 nor Cs-134 during 1983-1985. Cs-137 was detected in indicator fish samples as well as control samples with no significant differences between the two. 1984 detected Cs-137 quantities were equal to 1983 quantities. Results from 1985 demonstrated an apparent decreasing trend. It appears, therefore, that the increased concentrations of Cs-137 and Co-60 during 1983-1984 are specific to shoreline sediment and are not able to be observed in other aquatic sample media.

Shoreline sediment samples, as required by the Technical Specifications, as well as optional samples of the Nine Mile Point location, will continue to be collected and analyzed. These samples may be supplemented with additional samples, if necessary, in an effort to further assess any trends and any possible impacts.

The impact of the 1985 shoreline sediment sample results is minimal and can be evaluated by projecting a dose to man using standard Regulatory Guide 1.109 methodology. The critical pathway, in this case, is direct radiation to the whole body. The presence of Co-60 and Cs-137 at the optional Nine Mile Point location, is a result of operations at the site. Although the shoreline area is controlled by NMPC personnel, a dose may be calculated assuming that the area in question is utilized as a beach area. Assuming that a teenager spends 67 hours per year at the beach area or shoreline (Regulatory Guide 1.109), and the sediment has a mass of 40 kg/m^2 (dry) to a depth of 2.5 cm, then the associated dose to the whole body in mrem per year can be calculated.

III. EVALUATION OF ENVIRONMENTAL DATA (Cont'd)

A. 1. Shoreline Sediment - Table 3 (cont'd)

Further assumptions must be made and include: no radiological decay of the detected radionuclides, the shoreline width factor is 0.3 (Regulatory Guide 1.109) and the average Co-60 and Cs-137 concentrations detected are constant for one year and are a result of site operations. Whole body and skin doses are as follows.

Radionuclide	Concentration **	Whole Body Dose*	Skin Dose*
Co-60	0.14	0.0019	0.0022
Cs-137	1.40	0.0048	0.0055

*Dose in mrem per year
**Concentration in pCi/g (dry)

The average radionuclide concentrations used are 0.14 pCi/g (dry) for Co-60 and 1.40 pCi/g (dry) for Cs-137. The whole body dose from Co-60 is 0.0019 mrem per year and 0.0048 mrem per year from Cs-137 or a total whole body dose of 0.0067 mrem.

A whole body dose from Co-60 and Cs-137 can not be calculated for shoreline sediment samples collected at the 1985 Technical Specification location since no gamma emitting radionuclides, with the exception of naturally occurring radionuclides, were found.

A whole body dose of 0.0067 mrem per year at the Nine Mile Point location is very small and can be compared to the whole body dose from natural background radiation in the area surrounding the site. The natural background dose as a result of parameters such as cosmic radiation and naturally occurring radionuclides in the atmosphere and the ground, has been demonstrated by environmental dosimeters (TLD's) to be approximately 5 mrem per month or 60 mrem per year. The calculated dose of 0.0067 mrem per year as a result of Co-60 and Cs-137 in shoreline sediment is conservative in the sense that it is a high dose estimate and the shoreline area is not a beach area. Even in view of this conservatism, this dose is extremely small and is 0.0001 of the annual natural background dose of 60 mrem per year.

III. EVALUATION OF ENVIRONMENTAL DATA (Cont'd)

A. 2. Fish - Table 4A, 4B

A total of 18 fish samples were analyzed as a result of collections in the spring season (June - July 1985) and in the fall season (September - October 1985). Collections were made utilizing gill nets at one control location greater than five miles from the site (Oswego Harbor area), and at two indicator locations in the vicinity of the lake discharges for the Nine Mile Point Unit #1 (02), and the James A. FitzPatrick (03) generating facilities. The Oswego Harbor samples served as control samples while the NMP (02) and JAF (03) samples served as indicator samples. Samples were analyzed for gamma emitters. Table 4A shows results in units of pCi/g (wet) for purposes of data evaluation. Table 4B shows results in units of pCi/kg (wet), as required by the Technical Specifications.

Analysis of the spring 1985 fish samples indicated detectable concentrations of radionuclides related to past weapons testing and natural origins (naturally occurring). Small detectable concentrations of Cs-137 were found in all fish samples (including control samples). Spring fish collections were comprised of two separate species and nine individual samples. The two species represented one feeding type. Lake trout and brown trout are highly predacious and feed on significant quantities of smaller fish such as smelt, alewife, and other smaller predacious species. Because of the limited availability of species present in the catches, no bottom feeding specimens were collected in the spring samples.

Cs-137 was detected in all indicator and control samples collected during the spring for both species collected. Indicator samples showed Cs-137 concentrations to be slightly greater than control results for some samples and slightly less than or equal to control results for other samples. The average indicator Cs-137 concentration was slightly less than the average control concentration. The indicator results, however, are not significantly different from the control results and are therefore considered to be representative of background concentrations. Cs-137 in brown trout samples ranged from 0.025 to 0.044 pCi/g (wet) for the indicator samples. Cs-137 in control samples ranged from 0.026 to 0.047 pCi/g (wet) for brown trout. Cs-137 in lake trout samples ranged from 0.033 to 0.036 pCi/g (wet) at the indicator locations. Cs-137 in the control sample was 0.035 pCi/g (wet) (one sample collected).

K-40 was detected in all of the spring samples collected. K-40 is a naturally occurring radionuclide and is not related to power plant operations. Detectable concentrations of K-40 in the indicator samples (lake trout and brown trout) ranged from 2.81 to 3.78 pCi/g (wet) and 2.85 to 4.96 pCi/g (wet) for the control samples. No other radionuclides were detected in the spring fish samples.

III. EVALUATION OF ENVIRONMENTAL DATA (Cont'd)

A. 2. Fish - Table 4A, 4B (Cont'd)

Fall fish sample collections were comprised of three separate species and nine individual samples. Three samples of brown trout, three samples of chinook salmon and three samples of smallmouth bass were collected at a combination of two indicator sample locations (NMP and JAF) and one control sample location (Oswego Harbor area). Samples were collected by gill net in September - October.

Cs-137 was detected in all nine samples including the three control samples. Indicator samples showed an average Cs-137 concentration that was less than the control sample mean from the off-site location. The detected concentrations were not significantly different from one another because of the exremely small quantities detected. Cs-137 in brown trout samples at the indicator locations ranged from 0.018 to 0.021 pCi/g (wet) and was 0.026 pCi/g (wet) at the control location. Chinook Salmon samples from the indicator locations ranged from 0.023 to 0.025 pCi/g (wet). The associated control sample was 0.033 pCi/g (wet). The third species, smallmouth bass, ranged from 0.035 - 0.044 pCi/g (wet) at the indicator locations and the control result was 0.034 pCi/g (wet).

K-40 was detected in all of the fall samples collected. Detectable concentrations of K-40 in the indicator samples (brown trout, chinook salmon and smallmouth bass) ranged from 2.70 to 3.62 pCi/g (wet) and 3.13 to 3.55 pCi/g (wet) for the control samples. No other radionuclides were detected in the fall fish samples.

Review of past environmental data indicates that the mean 1985 Cs-137 concentration has decreased from 1984 for the indicator samples and significantly from the 1979 through 1976 results. Average concentrations for these samples decreased from a level of 1.4 pCi/g (wet) in 1976 to a level of 0.030 pCi/g (wet) in 1985. Control sample results have also decreased from a level of 1.2 pCi/g (wet) in 1976 to a level of 0.032 pCi/g (wet) in 1984. Results from 1980 to 1985 have remained fairly consistent for control and indicator samples. The 1985 average of control Cs-137 results increased slightly from 1984: 0.032 to 0.034 pCi/g (wet).

The general decreasing trend for Cs-137 is most probably a result of ecological cycling. The concentrations of Cs-137 detected since 1976 in fish are a result of weapons testing fallout, and the general downward trend in concentrations will continue as a function of ecological cycling and nuclear decay.

III. EVALUATION OF ENVIRONMENTAL DATA (Cont'd)

A. 2. Fish - Table 4A, 4B (Cont'd)

Lake Ontario fish are considered an important food source by many. Therefore, fish is an integral part of the human food chain. Based on the importance of fish in the local diet, a reasonable conservative estimate of dose to man can be calculated. Assuming that an adult consumes 21.0 kg of fish per year (Regulatory Guide 1.109 maximum exposed age group) and the fish consumed contains an average Cs-137 concentration of 0.030 pCi/g (wet) (annual mean result of indicator samples for 1985), the whole body dose received would be 0.045 mrem per year. The critical organ in this case is the liver which would receive a calculated dose of 0.069 mrem per year. The Cs-137 whole body and critical organ doses are conservative calculated doses associated with consuming fish from the Nine Mile Point area (indicator samples). No radiological decay is assumed for the calculation of doses.

Conservative whole body and critical organ doses can be calculated for the consumption of fish from the control location as well. In this case the consumption rate is assumed to remain the same (21.0 kg per year) but the average annual Cs-137 concentration for the control samples is 0.034 pCi/g (wet). The calculated Cs-137 whole body dose is 0.051 mrem per year and the associated dose to the liver is 0.078 mrem per year.

In summary, the whole body and critical organ doses observed as a result of consumption of fish is small. Doses received from the consumption of indicator and control sample fish are approximately the same. The doses from indicator sample fish are slightly lower although well within natural variability. For example, the whole body and organ doses from the control samples were lower during 1984. Doses from both sample groups are considered background doses.

A. 3. Surface Water - Tables 5 and 6

1985 surface water samples were analyzed monthly for gamma emitters (using gamma spectral analysis). Tritium analyses were performed quarterly. Quarterly samples (i.e., analysis for tritium) were composites of monthly samples.

The analytical results for the 1985 surface water samples showed no evidence of plant related radionuclide buildup in the surface water in the vicinity of the site. Indicator samples were collected from the inlet canal at the James A. FitzPatrick facility. The control location samples were collected at the inlet canal of Niagara Mohawk's Oswego Steam Station. These two locations are required to be sampled by the Technical Specifications. Tables 5 and 6 show the results of surface water samples analyzed during 1985.

III. EVALUATION OF ENVIRONMENTAL DATA (Cont'd)

A. 3. Surface Water Tables 5 and 6 (Cont'd)

Gamma spectral analysis was performed on 24 monthly composite samples (two locations) required by the Technical Specifications. In addition, two optional sample locations were evaluated. These included the Nine Mile Point Nuclear Station Unit 1 inlet canal and the City of Oswego drinking water supply. The drinking water supply composite samples consisted of twice per week grab samples. Only two radionuclides were detected in samples from the four locations over the course of 1985. These radionuclides were naturally occurring.

K-40 was detected intermittently in both Technical Specification required intake canal samples. The James A. FitzPatrick inlet canal samples showed K-40 detected in 4 of the 12 monthly samples and ranged from 7.8 to 13.0 pCi/liter. K-40 in the Oswego Steam Station inlet canal was detected in 2 of the 12 samples and ranged from 7.1 to 13.6 pCi/liter. The Nine Mile Point Unit 1 inlet canal and the city water samples showed K-40 detected in 4 and 5 respectively, of the 12 monthly samples for each location. For these samples, K-40 concentrations ranged from 10.9 - 16.9 pCi/liter and 7.1 - 21.2 pCi/liter respectively.

Ra-226 was detected intermittently in samples from all four locations. Ra-226 was detected in 6 of the 12 monthly samples from the Nine Mile Point Unit #1 inlet canal and ranged from 13.4 to 26.1 pCi/liter. Samples from the FitzPatrick location showed Ra-226 in 7 of the 12 monthly samples and ranged from 15.0 to 27.4 pCi/liter. The control sample location (Oswego Steam Station) showed Ra-226 in 7 of the 12 monthly samples and ranged in concentrations from 9.7 - 22.0 pCi/liter. The city water samples results showed Ra-226 detected in 3 of the 12 monthly samples and ranged from 15.0 - 21.5 pCi/liter.

Tritium samples are quarterly samples that were a composite of the appropriate monthly samples. Tritium was detected in samples taken at all four locations. A few sample results showed tritium as not detected within the analytical sensitivity of the analysis. The City of Oswego drinking water showed tritium concentrations ranging from 240 pCi/liter to 430 pCi/liter with a mean of 305 pCi/liter. Tritium concentrations for the James A. FitzPatrick inlet canal ranged from 250 pCi/liter to 1200 pCi/liter and showed a mean concentration of 530 pCi/liter. Inlet canal samples taken at Nine Mile Point Unit 1 showed tritium concentrations ranging from <100 pCi/liter to 470 pCi/liter. The annual mean concentration was 262 pCi/liter. The Technical Specification control location (Oswego Steam Station inlet canal) showed tritium results which ranged from 230 pCi/liter to 370 pCi/liter with a mean of 278 pCi/liter.

III. EVALUATION OF ENVIRONMENTAL DATA (Cont'd)

A. 3. Surface Water Tables 5 and 6 (Cont'd)

The FitzPatrick inlet canal showed one result of 1200 pCi/liter that was greater than any of the other indicator quarterly results and was also greater than any of the quarterly results from the control location. The elevated third quarter sample result was verified by reanalysis of another portion of the sample and by an independent laboratory analysis. Upon further investigation, it was determined that all of the monthly samples that were used to composite the quarterly sample also showed elevated tritium results. These results for the months of July through September 1985 were 940, 870, and 1500 pCi/liter, respectively. It appears, therefore, that all three months showed tritium results that were higher than what would normally be expected. The fourth quarter result was normal (250 pCi/liter).

A plausible reason for the higher than normal quarterly FitzPatrick inlet canal result is not known at this time. The discharge sample for the FitzPatrick facility for the same quarter is considered normal (280 pCi/liter, data not included on Table 5). In addition, the Nine Mile Point Unit 1 inlet sample is also considered normal (270 pCi/liter). Liquid wastewater tank discharges from the site during the third quarter of 1985 were well within Technical Specification limits. No discharges were made from the Nine Mile Point Unit 1 facility. The FitzPatrick facility discharged only 3.6% of the total tritium released for 1985 during the third quarter.

Possible reasons for the anomalous third quarter result includes mishandling of the sample compositing tanks and contamination at the collection point which is located within the FitzPatrick facility. It is possible that the intake sample result was actually the discharge sample result. This confusion may have occurred through misidentification of compositing tanks or mislabeling of sample containers during shipment. Contamination may have also occurred, although the feasibility of this possible reason is limited since the sampling area is outside of any radiation areas.

Review of past environmental data for Cs-137 from 1979 through 1985 shows that this radionuclide was detected only once at the control location during 1979 at a concentration of 2.5 pCi/liter. Cs-137 at the indicator location (JAF inlet canal) was detected only once during 1982 at a concentration of 0.43 pCi/liter. The 1979 control sample result is suspect and may have been a result of contamination during handling or instrument background since Cs-137 was not detected in the indicator inlet canal. The one result from the indicator location (JAF inlet canal) during 1982 was detected in a January composite sample and may have been a result of inlet canal tempering (the addition of discharge water to the inlet canal) or instrument background. Cs-137 was not detected during 1985 in surface water samples.

III. EVALUATION OF ENVIRONMENTAL DATA (Cont'd)

A. 3. Surface Water - Tables 5 and 6 (Cont'd)

Other plant related radionuclides detected during a review period of 1979 - 1985 include only Co-60. The control sample location results showed that Co-60 was detected once in 1981 (the May composite sample). This result is suspect and, as noted above, may be a result of contamination during handling or may be instrument background. This result was 1.4 pCi/liter. Results from the indicator location showed that Co-60 was detected three times during 1982 and averaged 1.9 pCi/liter. These positive results were attributed to inlet canal tempering and instrument background. Co-60 was not detected during 1985 in surface water samples.

Review of previous environmental data for K-40 and Ra-226 showed that the detectable concentrations found during 1985 were representative of concentrations found during 1979 - 1984.

Previous annual mean results for tritium at the indicator sample location (FitzPatrick inlet canal) has decreased since 1976. Mean sample results were reviewed from 1976 through 1984 and showed a peak average value of 476 pCi/liter (1978) and a minimum value of 227 pCi/liter (1980). The annual mean tritium result at the indicator location for 1985 was 530 pCi/liter.

Mean tritium results of the control location (Oswego Steam Station) can not be evaluated with regard to historical data since sampling was only initiated at this location in 1985. Some idea of the variability of control sample data can be obtained, however, by review of previous data from the City of Oswego drinking water samples. The drinking water samples are not likely to be affected by the station because of the effects of the distance, lake currents, and the discharge of the Oswego River. Therefore, this previous sample data represents acceptable control sample data for evaluation purposes.

Mean annual tritium results from previous city water samples from 1976 to 1984 show that the tritium concentrations have steadily decreased. The maximum annual average was found in 1976 (652 pCi/liter) and the minimum in 1982 (165 pCi/liter). The 1985 annual mean tritium result for the Oswego Steam Station (278 pCi/liter) was greater than results from the city water location for the last several years (1982 - 1984). These results ranged from 165 pCi/liter to 250 pCi/liter. The 1985 city water annual mean result increased and was noted at 305 pCi/liter.

The impact, as expressed as a dose to man, can not be evaluated because no plant related radionuclides were detected in surface water samples with the exception of tritium. Plant related radionuclides were not found in the optional drinking water samples either.

III. EVALUATION OF ENVIRONMENTAL DATA (Cont'd)

A. 3. Surface Water - Tables 5 and 6 (Cont'd)

Tritium results during 1985 were variable . The one elevated quarterly result from the FitzPatrick inlet canal is not considered to be representative of actual tritium concentrations because the discharge canal tritium results were normal. With the exception of this one anomalous result from the FitzPatrick inlet canal, the results noted during 1985 are representative of normal background tritium results in surface water. Any impact associated with the fluctuation of tritium levels are considered to be background and are not considered to be a result of operations at the site.

B. Terrestrial Program

Tables 7 through 14 and 17 represent the analytical results for the terrestrial samples collected for the 1985 reporting period.

1. Air Particulate Gross Beta - Tables 7 and 8

Tables 7 and 8 contain the results for the weekly air particulate gross beta analysis for a total of six off-site and nine on-site sample locations. Five of the six off-site locations are required by the Technical Specifications. These sample locations are R-1, R-2, R-3, and R-4 (all located near the site boundary) and R-5 (located at a control location beyond any significant influence from the site). Data contained on Tables 7 and 8 also shows the results from other air sampling locations not required by the Technical Specifications. These locations are designated as D1 on-site, D2 on-site, E on-site, F on-site, G on-site, H on-site, I on-site, J on-site, K on-site and G off-site locations. A total of 52 control samples from location R-5 and 208 indicator samples from locations R-1, R-2, R-3, and R-4 were collected and analyzed during 1985.

No significant levels of gross beta activity were observed in any of the weekly air particulate filter samples collected. The minimum, maximum, and average gross beta results for sample locations required by the Technical Specifications are presented below.

Location **	Minimum*	Maximum*	Average*
R-1	0.010	0.039	0.022
R-2	0.010	0.040	0.024
R-3	0.011	0.041	0.023
R-4	0.011	0.044	0.023
R-5 (control)	0.013	0.043	0.024

* - Concentration in pCi/m^3
** - Locations required by the Technical Specifications

III. EVALUATION OF ENVIRONMENTAL DATA (Cont'd)

1. Air Particulate Gross Beta - Tables 7 and 8 (Cont'd)

The observed minimum, maximum, and average concentrations are all fairly consistent for all locations. During 1985, there were no elevated gross beta results that were ten times an average historical control concentration. The average historical control concentration utilized during 1985 was the average control result from 1984 which was 0.026 pCi/m^3.

The observed small increases and decreases in general gross beta activity can be attributed to changes in the environment, especially seasonal changes. The concentration of naturally occurring radionuclides in the lower limits of the atmosphere directly above land areas are affected by time related processes such as wind direction, snow cover, soil temperature and soil moisture content. Little change was noted in gross beta activity which corresponded with weapons testing as has been observed in past years. Review of air particulate gross beta concentrations shows that no significant increases in concentration occurred during 1985.

In general, the trend in air particulate gross beta activity has been one of decreasing activity since 1974 (extent of the review period). The gross beta concentration at control or off-site locations has decreased from a level of 0.121 pCi/m^3 in 1974 to 0.024 in 1983. Results from on-site air sampling locations ranged from 0.111 pCi/m^3 in 1974 to 0.023 pCi/m^3 in 1983. For both indicator (on-site) locations and control (off-site) locations, the gross beta concentration during 1974 to 1984 fluctuated with the detonation of thermonuclear weapons. The Technical Specification indicator and control results during 1985 were 0.023 pCi/m^3 and 0.024 pCi/m^3 respectively. The annual mean results for indicator and control locations during the last three years (1983, 1984, and 1985) have been approximately equal and ranged from 0.023 to 0.026 pCi/m^3. The range noted during these last three years appears to be a baseline range. The remaining effects of past weapons tests, if any, appears to be at an insignificant level.

2. Monthly Air Particulate Composites - Table 9

Weekly air particulate samples were composited by location to form monthly composite samples. The monthly composite samples required by the Technical Specifications include R-1, R-2, R-3, R-4, and R-5. Other sample locations not required by the Technical Specifications include D1 on-site, D2 on-site, E on-site, F on-site, G on-site, H on-site, I on-site, J on-site, K on-site, and G off-site locations. The results of all monthly composite samples are included on Table 9.

III. EVALUATION OF ENVIRONMENTAL DATA (Cont'd)

2. Monthly Air Particulate Composites - Table 9 (Cont'd)

The results for the monthly composite samples showed positive results for Be-7, K-40, and Ra-226. All three of these radionuclides are naturally occurring. Be-7 was found in each of the monthly composite samples from all locations, including those sample locations required by the Technical Specifications. Be-7 ranged from 0.064 to 0.197 pCi/m^3 for the indicator locations (R-1, R-2, R-3, and R-4). The control location results (R-5) showed Be-7 ranging from 0.082 to 0.173 pCi/m^3. K-40 was found intermittently in the monthly composite samples required by the Technical Specifications. K-40 ranged from 0.013 to 0.025 pCi/m^3 at the control location (R-5) and was found once at a concentration of 0.014 pCi/m^3 at one of the indicator locations (R-3). Ra-226 was not found at any of the indicator locations required by the Technical Specifications. The Technical Specification control location showed concentrations of Ra-226 ranging from 0.012 to 0.017 pCi/m^3.

No other naturally occurring or plant related radionuclides were detected using gamma spectral analysis during 1985.

The location, concentration range and mean, and frequency of occurrence of each radionuclide detected during 1985 at the Technical Specification required locations are included below.

Radionuclide	Location	Range*	Mean*	Frequency**
Ra-226	Indicator	ND	ND	0
Ra-226	Control	0.012 - 0.017	0.014	3
K-40	Indicator	0.014	0.014	1
K-40	Control	0.013 - 0.025	0.018	3
Be-7	Indicator	0.064 - 0.197	0.127	48
Be-7	Control	0.082 - 0.173	0.132	12

* - Results in units of pCi/m^3
** - Frequency is number of times detected
ND - Not detected

Historically, the naturally occurring radionuclides Ra-226, K-40 and Be-7 have shown fluctuations that are representative of natural changing conditions. No significant trends were noted during 1985.

III. EVALUATION OF ENVIRONMENTAL DATA (Cont'd)

2. Monthly Air Particulate Composites - Table 9 (Cont'd)

In the past, Co-60 has fluctuated in air particulate samples as a result of previous weapons testing. Co-60 average concentrations at the on-site or indicator and off-site or control locations from 1977 to 1978 decreased from approximately 0.0175 to 0.0015 pCi/m^3. Average concentrations decreased significantly during 1979 and 1980 when compared to 1977. These results where 0.007 to 0.0016 pCi/m^3 respectively. 1981 and 1982 average Co-60 concentrations decreased to 0.0007 and 0.0005 pCi/m^3. Average indicator and control concentrations were approximately equal during 1977 to 1982. The 1983 indicator average Co-60 concentration was 0.0007 pCi/m^3 or slightly greater than the 1982 concentration. The 1983 average control mean Co-60 concentration was also 0.0007 pCi/m^3 which was slightly greater than 1982 results. As noted in previous annual reports, however, a portion of the Co-60 detected during 1983 was attributed to contamination during handling of the unused filters. Co-60 during 1984 averaged 0.00079 pCi/m^3 at the control stations and 0.00123 pCi/m^3 at the indicator stations. However, the 1984 Co-60 positive results were a result of contamination during handling and not a result of operations at the site. The general reduction in previous indicator and control Co-60 concentrations (1981 - 1983) was a result of nuclear decay and ecological cycling of Co-60 initially produced by the 1980 Chinese weapons test. Co-60 was not detected during 1985 in air particulate samples.

Historically, Cs-137 has been variable during the past and has been present in air particulate samples since 1977 and prior to 1977. During 1977, both on-site, or indicator and off-site or control Cs-137 average concentrations were approximately equal and averaged 0.0039 pCi/m^3. Cs-137 average concentrations at indicator and control locations decreased during 1978 and 1979 to 0.0017 and 0.0013 pCi/m^3 respectively. Average concentrations during 1980 and 1981 were approximately equal at control and indicator locations. Cs-137 during 1980 was approximately equal to 1979 and increased slightly in 1981 from 1979. The 1980 and 1981 average concentrations were 0.0013 and 0.0015 pCi/m^3 respectively. The mean 1982 concentration for Cs-137 decreased to 0.0004 pCi/m^3. The 1983 mean Cs-137 concentration for the indicator and control composite samples were 0.0002 and 0.0002 pCi/m^3 which was a reduction from 1982 results. Cs-137 was not detected during 1984 in any of the indicator or control air particulate composite samples. As noted above for the average annual Co-60 results, the reduction in Cs-137 results since 1981 is attributed to nuclear decay and ecological cycling of Cs-137 initially produced by the 1980 Chinese weapons test. Cs-137 was not detected during 1985 in air particulate samples.

III. EVALUATION OF ENVIRONMENTAL DATA (Cont'd)

2. Monthly Air Particulate Composites - Table 9 (Cont'd)

Prior to 1983 and 1984, several radionuclides were detected that were associated with the 1980 Chinese weapons test and other weapons tests prior to 1980. These radionuclides were not detected during 1984 or 1985 as a result of nuclear decay and ecological cycling. These include Zr-95, Ce-141, Nb-95, Ce-144, Mn-54, Ru-103, Ru-106 and Ba-140. In addition, La-140 was detected once during 1983 and infrequently during 1978 and 1981. La-140 was not detected during 1984 or 1985.

Assessment of the presence of fission product radionuclides in air particulate composite samples can be depicted by calculating doses to man as a result of inhalation. Since no fission product radionuclides were detected in air particulate samples during 1985, no doses can be calculated. It is assumed that there is no significant dose impact from inhalation as a result of operations at the site during 1985.

B. 3. Airborne Radioiodine (I-131) - Tables 10 and 11

During the 1985 sampling program, airborne radioiodine was not detected in any of the 260 weekly samples collected from the five sampling stations required by the Technical Specifications. I-131 has been detected in the past at off-site stations. During 1976, the mean off-site I-131 concentration averaged 0.604 pCi/m^3. 1977 showed an I-131 concentration that decreased to 0.323 pCi/m^3 and for 1978 the concentration decreased by a factor of ten to 0.032 pCi/m^3. During 1979, 1980, 1981, 1983, and 1984, I-131 was not detected. I-131 was detected once during 1982 at a concentration of 0.039 pCi/m^3. As noted above, I-131 was not detected at the sample stations required by the Technical Specifications during 1985.

I-131 was not detected in any of the 517 weekly samples collected from the nine optional on-site sampling stations and the one optional off-site sampling station. I-131 has been detected in the past and was detected at a mean concentration of 0.328 and 0.309 pCi/m^3 during 1976 and 1977. The average concentration decreased to 0.041 pCi/m^3 during 1978 and was not detected during 1979. The 1980-1982 average concentrations were 0.013, 0.029, and 0.016 pCi/m^3 which were reductions in view of previous I-131 concentrations. During 1983, the mean I-131 concentration was 0.028 pCi/m^3 which represented a slight increase compared to 1982. I-131 in on-site and off-site samples was a result of I-131 from weapons testing. A small portion of the concentrations detected may have been a result of operations of the site. The concentrations detected during 1983 at the on-site sample stations were a result of operations at the site. I-131 was not detected in any of the 1984 or 1985 on-site samples.

III. EVALUATION OF ENVIRONMENTAL DATA (Cont'd)

B. 3. Airborne Radioiodine (I-131) - Tables 10 and 11 (Cont'd)

The end result of the 1985 air radioiodine sampling effort showed no significant impact due to operations at the site. During 1985, I-131 was not detected in any other environmental sample media including milk and green leafy vegetables.

Since I-131 was not detected in any of the on-site or off-site environmental stations, no doses can be calculated to members of the public using this sample medium.

B. 4. TLD (Environmental Dosimeter) - Table 12

TLD's were collected and read once per quarter during the 1985 sample year. The TLD results are, for the most part, an average of eight independent readings at each location and are reported in mrem per standard month and in mrem per quarterly period. TLD's required by the Technical Specifications include two TLD's at each location with four independent readings per TLD or a total of eight readings. TLD results included on Tables 12A and 12B are comprised of TLD's required by the Technical Specifications and special interest TLD's not required by the Technical Specifications. In 1985, TLD's were collected on approximately March 28, 1985, June 27, 1985, September 27, 1985, and January 3, 1986.

TLD results are evaluated by organizing environmental TLD's into five different groups. These groups include: (1) on-site TLD's (TLD's within the site boundary not required by the Technical Specifications), (2) site boundary TLD's (one in each of the sixteen 22 1/2 degree meteorological sectors), (3) a ring of TLD's four to five miles from the site (in each of the land based 22 1/2 degree meteorological sectors), (4) special interest TLD's (in areas of high population density), and (5) control TLD's (in areas beyond any significant influence of the generating facilities). Special interest TLD's are located at or near large industrial sites, schools, or proximal town or communities. Control TLD's are located to the southwest, south, and east-northeast of the site at distances of 12.8 to 19.8 miles from the site.

On-site TLD's are TLD's at special interest areas and are not required by the Technical Specifications. These are located near the generating facilities and at on-site air sampling stations. TLD's located at the air sampling stations include numbers 3, 4, 5, 6, 7, 23, 24, 25 and 26. The results for these TLD's are consistent with previous years results and are in agreement with control TLD results. These results ranged from 4.4 to 14.7 mrem per standard month. TLD #3 is located in the vicinity of Nine Mile Point Unit 2 and is between the Unit 1 facility and the FitzPatrick facility. The results for TLD #3 were approximately double the results of the other TLD's because of the effects from Unit 1 and the FitzPatrick facility as well as any possible radiography work at Unit 2. A general increase in TLD results was noted for the first and third quarter results. A similiar trend was noted for the control TLD's.

III. EVALUATION OF ENVIRONMENTAL DATA (Cont'd)

B. 4. TLD (Environmental Dosimeter) - Table 12 (Cont'd)

Other on-site TLD's include special interest TLD's located near the north shoreline of the Unit 1 and FitzPatrick facilities but in close proximity to radwaste facilities and the Unit 1 reactor building. These TLD's include numbers 27, 28, 29, 30, 31, 39, and 47. Results for these TLD's during 1985 were variable and ranged from 7.3 to 55.2 mrem per standard month as a result of activities at the radwaste facilities and the operating modes of the generating facilities. Results for 1985 are within the ranges of variability noted in previous years for TLD's at or near these locations. TLD's in this group ranged up to approximately ten times control TLD results.

Additional on-site TLD's are located near the on-site Energy Information Center and the environmental laboratory. These TLD's include numbers 18, 103, and 59. TLD number 103 is a new TLD and was established in the second quarter of 1985. Therefore, no previous results for this TLD exist, although results were consistent with control TLD results and ranged from 4.7 to 6.8 mrem per standard month. TLD number 18 results during 1985 were fairly consistent and were within the range of control TLD data. Results were consistent with previous years and ranged from 5.0 to 7.0 mrem per standard month. TLD number 59 is located near the FitzPatrick facility stack and showed 1985 results slightly above control TLD results. The proximity of this TLD to the FitzPatrick stack and the reactor building accounted for the slight increase in results. Results were consistent with previous years results and ranged from 6.2 to 14.5 mrem per standard month.

Site boundary TLD's are located in the approximate area of the site boundary, with one in each of the sixteen 22 1/2 degree meteorological sectors. These TLD's include numbers 75, 76, 77, 23, 78, 79, 80, 81, 82, 83, 84, 7, 18, 85, 86 and 87. TLD numbers 78, 79, 80, 81, 82, 83, 84, 7 and 18 showed results that were consistent with control TLD results and ranged from 4.0 to 7.2 mrem per standard month. TLD numbers 75, 76, 77, 23, 85, 86, and 87 showed results that ranged up to twice the results of control TLD's. These results ranged from 4.8 to 12.6 mrem per standard month. This latter group of TLD's are located near the lake shoreline (approximately 100 feet from the shoreline), but are also located in close proximity of the reactor building and radwaste facilities of Unit 1 and the radwaste facilities of the FitzPatrick facility. TLD number 78 was slightly greater than the other site boundary TLD's not affected by facility reactor buildings or radwaste buildings. This TLD is located closer to the FitzPatrick facility and is at least 500 feet within the site boundary or site property.

III. EVALUATION OF ENVIRONMENTAL DATA (Cont'd)

B. 4. TLD (Environmental Dosimeter) - Table 12 (Cont'd)

A net site boundary dose can be estimated from available TLD results and control TLD results. TLD results from TLD's located near the site boundary in sectors facing the land occupied by members of the public (excluding TLD's near the generating facilities and facing Lake Ontario) are compared to control TLD results. The site boundary TLD's include numbers 78, 79, 80, 81, 82, 83, 84, 7 and 18. Control TLD's include numbers 8, 14 and 49. Net site boundary doses for each quarter in mrem per standard month are as follows:

Quarter	Net Site Boundary Dose*
1	-0.4
2	-0.4
3	-0.5
4	-0.2

*Dose in mrem per standard month

Site boundary TLD numbers 75, 76, 77, 23, 85, 86, and 87 were excluded from the net site boundary dose calculation since these TLD's are not representative of doses at areas where a member of the public may be located. These areas are near the north shoreline which are in close proximity to the generating facilities and are not accessible to members of the public.

The third group of environmental TLD's are those TLD's located four to five miles from the site in each of the land based 22.5 degree meteorological sectors. At this distance , TLD's are not present in eight of the sixteen meteorological sectors over Lake Ontario.

Results for this group of TLD's during 1985 fluctuated slightly as a result of changing naturally occurring conditions and the different concentrations of naturally occurring radionuclides in the ground at each of the locations. These TLD's included numbers 88, 89, 90, 91, 92, 93, 94 and 95. Results fluctuated from 4.0 to 7.1 mrem per standard month. These results are consistent with control TLD results during 1985. Results during 1985 can not be compared to previous yearly results since this group of TLD's was established in 1985. The 1985 results, however, were consistent with other off-site TLD results noted in previous years.

III. EVALUATION OF ENVIRONMENTAL DATA (Cont'd)

B. 4. TLD (Environmental Dosimeter) - Table 12 (Cont'd)

The fourth group of environmental TLD's are those TLD's located beyond the site boundary and at special interest areas such as industrial sites, schools, nearby communities, towns, off-site air sampling stations, the closest residence to the site, and the off-site environmental laboratory. This group of TLD's include numbers 9, 10, 11, 12, 13, 15, 19, 51, 52, 53, 54, 55, 56, 58, 96, 97, 98, 99 100, 101, and 102 and ranged from 3.9 to 6.8 mrem per standard month. All the TLD results from this group were within the variation noted for the control TLD's. Results during 1985 for TLD's established during previous years were consistent with results noted for those years.

The fifth group of TLD's include those TLD's considered as control TLD's. These TLD's include numbers 8, 14, and 49. Results for 1985 ranged from 4.4 to 7.7 mrem per standard month. Results from 1985 were consistent with previous years results. A slight increase was noted in the first and third quarters of 1985. This trend was also noted in the other groups of TLD's evaluated during 1985 and has also been noted in previous years.

Overall, TLD results for 1985 showed no significant impact from direct radiation measured outside the site boundary.

B. 5 Milk-Tables 13 and 14

Milk samples were collected from a total of six indicator locations (within 10 miles of the site) and one control location (beyond 10 miles from the site) during 1985. No new locations were added nor were any locations deleted when compared to the latter half of 1984. The Technical Specifications require that three locations be sampled for milk within 5.0 miles of the site. During 1985, there were no milk sample locations within 5.0 miles of the site. The locations that were sampled during 1985 are located from 5.5 to 9.5 miles from the site. The only sample location required by the Technical Specifications during 1985 was the control location which was located 15.0 miles to the southwest from the site (location #40). Sample location descriptions for all milk sample locations utilized during 1985 are listed below.

Location No.	Direction From Site	Distance From Site (miles)
7	ESE	5.5
16	S	5.9
50	E	8.2
55	E	9.0
60	E	9.5
4	ESE	7.8
40	SW	15.2

III. EVALUATION OF ENVIRONMENTAL DATA (Cont'd)

B. 5. Milk -Tables 13 and 14 (Cont'd)

During 1985, milk samples were collected at each of the six indicator locations and the control location in the first half and the second half of each month. Samples were collected during the months of April through December 1985. Since I-131 was not detected during November and December of 1984, no additional samples were collected in January through March of 1985. For each sample, analyses were performed for gamma emitters (analysis by GeLi detector) and I-131 using a resin extraction. Sample analysis results for gamma emitters are found on Table 13 and for I-131 on Table 14.

The gamma spectral analyses of the bimonthly samples showed K-40 to be the only radionuclide detected in the milk samples collected during 1985. K-40 was detected in every sample analyzed and ranged in concentration from 824 pCi/liter to 1620 pCi/liter at the indicator locations and 967 pCi/liter to 1520 pCi/liter at the control location. K-40 is a naturally occurring radionuclide and is found in many of the environmental media sampled.

Cs-137 was not detected in any of the indicator or control samples during 1985. Contrary to the absence of Cs-137 in milk during 1984 and 1985, Cs-137 has been detected in milk samples since 1969. LLD values for Cs-137 ranged from 3.5 - 7.9 pCi/liter during 1985. It should be noted that the two generating facilities were, for the most part, at full capacity during the 1984 and 1985 grazing season and Cs-137 was not detected in milk samples. Cs-137 was detected in milk samples during 1983, however, and ranged from 3.3 - 10.9 pCi/liter and averaged 7.2 pCi/liter. This observation may indicate that the source of the Cs-137 during the more recent years of 1981 - 1983 was the October 1980 Chinese Weapons Test.

No other radionuclides were detected in milk samples using gamma spectral analysis.

Milk samples were collected and analyzed twice per month for I-131 . I-131 was not detected during 1985 in any of the indicator or control samples. All 1985 I-131 milk results are reported as lower limits of detection (LLD). The LLD results ranged from <0.10 pCi/liter to <0.49 pCi/liter for all milk samples.

Evaluation of site historical milk data shows that Cs-137 has been detected in environmental milk samples at both indicator (within 10 miles) and control locations (beyond 10 miles). Mean Cs-137 concentrations for 1976 - 1981 remained fairly consistent and ranged from 8.1 (1980) to 17.1 pCi/liter (1977) at the

III. EVALUATION OF ENVIRONMENTAL DATA (Cont'd)

B. 5. Milk-Tables 13 and 14 (Cont'd)

indicator locations. The 1982 indicator mean was 5.7 pCi/liter which showed a decrease when compared to 1976 - 1981. Cs-137 in milk during 1983 yielded a mean of 7.2 pCi/liter which was slightly greater than the 1982 mean but was less than the 1976 - 1981 mean range. During 1983, however, Cs-137 was detected in only 3 of the 66 samples, while in 1982, Cs-137 was detected in 10 of the 54 samples analyzed. As noted previously, Cs-137 was not detected during 1984 or 1985 in indicator milk samples. At the control location, Cs-137 has remained fairly consistent for all years from 1978 - 1982 except for 1979 and 1982. For these years, this radionuclide was not detected. Cs-137 ranged from 3.9 - 5.8 pCi/liter during 1978 - 1982. Cs-137 was not detected at the control location during 1983, 1984, or 1985. The absence of Cs-137 during 1983 through 1985 may be a result of a three to five year time interval since the last weapons test.

Since Cs-137 was not detected during 1985 at either indicator or control locations, no doses to man can be calculated. During previous years, however, Cs-137 has been detected at low levels in milk samples. The resultant doses to man from ingesting Cs-137 at low levels has been very small and insignificant when compared to doses as a result of naturally occurring K-40 in milk.

Iodine-131 was not detected in the bimonthly milk samples analyzed for the 1985 program. Therefore, no doses to man have been calculated because of the lack of detectable I-131

B. 6 Land Use Census - Tables 15 and 16

In accordance with the Technical Specifications, a land use census was conducted during 1985 to identify within a distance of three miles the location of all milk animals (cows and goats) and the location of the nearest residence in each of the sixteen 22.5 degree meteorological sectors. The milk animal census was actually conducted out to a distance of ten miles in order to provide a more comprehensive census.

The milk animal census is an estimation of the number of cows and goats within a ten mile radius of the Nine Mile Point Site. A census is conducted once per year in the spring. The census is conducted by sending questionnaires to previous milk animal owners and also by road surveys to locate any possible new owners. In the event questionnaires are not answered, then the owners are contacted by telephone or in person. The local agricultural agency is also contacted.

III. EVALUATION OF ENVIRONMENTAL DATA (Cont'd)

B. 6 Land Use Census - Tables 15 and 16 (cont'd)

The number of milk animals located within the ten mile radius of the site was estimated to be 1158 cows and 1 goat for the 1985 census. One new location (#49) with a milk animal was found since the summer 1984 census. The number of cows increased by 62 and the number of goats remained the same with respect to the 1984 summer census.

A residence census was conducted during 1985 to identify the nearest residence in each of the sixteen 22.5 degree meteorological sectors within a distance of three miles from the site. At this distance, some of the meteorological sectors are over water. These sectors include: N, NNE, NE, ENE, W, WNW, NW, and NNW. There are no residences in these sectors. The results of the 1985 residence census showing the applicable sectors and degrees and distance of each of the nearest residences are found on Table 16.

B. 7 Food Products -Table 17

Food product samples collected during 1985 were comprised of garden vegetables and fruit. Samples were collected from six indicator locations and one control location. The indicator locations were represented by nearby gardens in areas of highest D/Q (deposition factor) values based on historical meteorology and all site release points at operating facilities. The control location was represented by a garden location 9-20 miles distant in a least prevalent wind direction. Garden vegetables were comprised of cabbage, beet greens, collard greens, and swiss chard which are all considered broad-leaf vegetables. Where broad-leaf vegetables were not available, non broad-leaf fruits or vegetables were collected. Non broad-leaf fruits or vegetables collected in 1985 consisted of tomatoes. At the control location, one sample of each similar type of fruit or vegetable was collected. Fruits and vegetables were collected in the late summer harvest season.

K-40 was detected in all broadleaf and non-broadleaf vegetables and fruits. Broadleaf vegetables (Swiss chard, collard greens, beet greens and cabbage) showed concentrations of K-40 ranging from 2.05 pCi/g to 4.37 pCi/g (wet). Non-broadleaf fruits (tomatoes) showed concentrations of K-40 ranging from 1.14 pCi/g to 2.34 pCi/g (wet). Be-7 was not detected in the vegetable samples collected during 1985. This naturally occurring radionuclide was detected in a swiss chard sample (broad-leaf vegetable) from the control location during 1984.

B. 7 Food Products-Table 17 (cont'd)

Cs-137 was detected in one of the broad-leaf vegetable samples from an indicator location (0 location). The sample consisted of beet greens. The Cs-137 concentration was 0.047 pCi/g (wet) which was greater than the lower limit of detection for the other broad-leaf and non broad-leaf samples. The lower limit of detection for the other samples ranged from 0.009 to 0.033 pCi/g (wet). Two other proximal locations, one within 1000 feet and the other at approximately 3000 feet from location 0, showed no detectable Cs-137. Cs-137 was not detected at the control location nor at any of the other indicator locations.

No other radionuclides were detected in the 1985 samples of fruits and vegetables.

Review of past environmental data indicates that K-40 has been consistently detected in food crop samples. K-40 concentrations have fluctuated from one sample to another but the annual ranges have remained relatively consistent from year to year. Be-7 has been detected occasionally during the past on leafy vegetables (1978 - 1982, and 1984).

Cs-137 has been detected intermittently during the years of 1976 - 1985 at the indicator locations and during the years of 1980 - 1985 at the control locations (control samples were not obtained prior to 1980). Review of indicator sample results from 1976 - 1985 showed that Cs-137 was not detected during 1976 - 1978 and 1981 - 1984. During 1979 and 1980, Cs-137 in fruits and/or vegetables showed annual mean concentrations of 0.004 and 0.036 pCi/g (wet) respectively. Cs-137 was found at an indicator location during 1985 at a concentration of 0.047 pCi/g (wet). Control sample results during 1980-1985 showed Cs-137 detected only during 1980 at a concentration of 0.02 pCi/g (wet).

The impact of detectable Cs-137 in food product samples can be evaluated by calculating a dose to the maximum exposed individual as a result of consumption. Using standard methodology from NRC Regulatory Guide 1.109, the maximum exposed organ is the bone of a child. The maximum whole body dose would be to an adult. The Cs-137 concentration is 0.047 pCi/g (wet) and is assumed to be a result of operations at the site. The consumption rate is assumed to be a maximum consumption rate of 26 kg per year for a child and 64 kg per year for an adult. The calculated doses are 0.40 mrem per year to a child's bone tissue (maximum organ dose) and 0.21 mrem per year to the whole body of an adult. The child's whole body dose would be 0.06 mrem per year.

A maximum organ dose of 0.40 mrem per year and whole body dose of 0.21 mrem per year are small when compared to doses from non man-made sources. A maximum organ dose of 0.40 mrem is small when compared to a dose of 20 mrem per year to the gonads and other soft tissues of an adult from naturally occurring K-40. A maximum whole body dose of 0.21 mrem per year can be compared to

III. EVALUATION OF ENVIRONMENTAL DATA (Cont'd)

B. 7 Food Products-Table 17 (Cont'd)

the increase in dose from increasing altitude. As one proceeds from one location to another location higher in altitude, the dose rate will increase slightly as a result of solar radiation. A whole body dose of 0.21 mrem per year is equivalent to proceeding from one area to another of 100 meters (328 feet) higher in altitude and remaining at that altitude for 38 days.

An occasion, such as moving to a location 100 meters higher in altitude, is a common occurrence. Any dose that may be received as a result of such an occurrence is considered small and insignificant.

B. 8 Interlaboratory Comparison Program-Table 18

Section 3.6.21 of the Radiological Technical Specifications for the Nine Mile Point Nuclear Station Unit 1 requires that a summary of the results obtained as part of an Interlaboratory Comparison Program be included in the Annual Radiological Environmental Operating Report. Presently, the only NRC approved Interlaboratory Comparison Program is the USEPA Cross Check Program. Table 18 shows the results of the EPA's reference results and the licensee's results. Some of the EPA reference samples have been analyzed by the site. Other EPA reference samples have been analyzed by a vendor who normally analyzes those types of sample media for the site. Participation in the EPA Cross Check Program includes sample media for which environmental samples are routinely collected, as required by Table 3.6.20 - 1 of the Technical Specifications and for which intercomparison samples are available from the EPA.

B. 9 Environmental Sample Locations-Table 19

Table 19 contains the locations of the environmental samples presented in the data tables (Section E). The locations are given in degrees and distance from the Nine Mile Point Nuclear Station Unit 2 reactor centerline. Table 19 also gives the figure (map) number as well as the map designation for each sample location by sample medium type. The requirement for Table 19 is found in section 6.9.1.d of the Radiological Technical Specifications for the Nine Mile Point Nuclear Station Unit 1.

B. 10 Radiological Environmental Monitoring Program Annual Summary-Table 20

Table 20 contains a summary of basic statistics for environmental sample media as required by the Technical Specifications. Table 20 is in the format presented on Table 3 of the NRC Branch Technical Position (Revision 1 dated November 1979) to NRC Regulatory Guide 4.8 "Environmental Technical Specifications for Nuclear Power Plants". The table is presented to meet the requirements of section 6.9.1.d of the Radiological Technical Specifications effective January 1, 1985 for Nine Mile Point Nuclear Station Unit 1.

III. EVALUATION OF ENVIRONMENTAL DATA (Cont'd)

C. Conclusion

The Radiological Environmental Monitoring Program (REMP) was established to detect and evaluate any possible impact to the environment surrounding the Nine Mile Point area resulting from operations at the site.

Samples representing food sources consumed at higher trophic levels, such as fish and milk, were reviewed closely to evaluate any impact to the general environment or to man. In addition, the data was reviewed for any possible historical trophic level bioaccumulation trends. Little or no impact could be determined resulting from radionuclide deposition considering all sources (natural, weapons testing, etc.). In regards to doses as a result of man-made radionuclides, a significant portion of the small doses received by a member of the public was from past nuclear weapons testing. Doses as a result of naturally occurring radionuclides, such as K-40, contributed a major portion of the total annual dose to members of the public.

Any possible impact as a result of site operations is extremely minimal when compared to the impact from natural background levels or weapons testing. It has been demonstrated that almost all environmental samples contain traces of radionuclides which are a result of weapons testing or naturally occurring sources (primordial and/or cosmic related). Whole body doses to man as a result of natural sources (naturally occurring radionuclides in the soil and lower atmosphere) in Oswego County account for approximately 60 mrem per year as demonstrated by control environmental TLD's. Possible doses due to site operations are a minute fraction of this particular natural exposure.

Therefore, as determined by review of the data presented herein, no impact due to operations at the Nine Mile Point Nuclear Station was detected that would effect the health and safety of the public.

D. GENERAL REFERENCE MATERIAL

1. U.S. Nuclear Regulatory Commission Regulatory Guide 1.109, "Calculation of Annual Doses to Man from Routine Releases of Reactor Effluents for the Purpose of Evaluating Compliance with 10CFR Part 50, Appendix I", March 1976 (Revision 0).

2. U.S. Nuclear Regulatory Commission Regulatory Guide 1.109, "Calculation of Annual Doses to Man from Routine Releases of Reactor Effluents for the Purpose of Evaluating Compliance With 10 CFR Part 50, Appendix I", October 1977 (Revision 1).

3. U.S. Nuclear Regulatory Commission Regulatory Guide 4.8, "Environmental Technical Specifications for Nuclear Power Plants", December, 1975.

4. U.S. Nuclear Regulatory Commission Branch Technical Position to Regulatory Guide 4.8, "An Acceptable Radiological Environmental Monitoring Program", November 1979.

5. National Council on Radiation Protection and Measurements (NCRP), Environmental Radiation Measurements, NCRP Report No. 50, 1976.

6. National Council on Radiation Protection and Measurements (NCRP), Natural Background Radiation in the United States, NCRP Report No. 45, 1975.

7. National Council on Radiation Protection and Measurements (NCRP), Cesium-137 from the Environment to Man: Metabolism and Dose, NCRP Report No. 52, 1977.

8. National Council on Radiation Protection and Measurements (NCRP), Radiation Exposure from Consumer Products and Miscellaneous Sources, NCRP Report No. 56, 1977.

9. International Commission on Radiological Protection (ICRP), Radionuclide Release into the Environment; Assessment of Doses to Man, ICRP Publication 29, 1979.

10. Eichholz, G. Environmental Aspects of Nuclear Power, First Edition, Ann Arbor Science Publishers, Inc., Ann Arbor, Michigan, 1976.

11. Eisenbud, Merrill, Environmental Radioactivity, Second Edition, Academic Press, New York, NY 1973.

12. Francis, C.W., Radiostrontium Movement in Soils and Uptake in Plants. Environmental Sciences Division, Oak Ridge National Laboratory, U.S. Department of Energy, 1978.

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14. Pochin, Edward E., Estimated Population Exposure from Nuclear Power Production and other Radiation Sources, Nuclear Energy Agency; Organization for Economic Co-Operation and Development, 1976.

D. GENERAL REFERENCE MATERIAL (cont'd)

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E. DATA TABLES - 1985

TABLE 1

SAMPLE COLLECTION AND ANALYSIS

SITE RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM

A. AQUATIC PROGRAM

	MEDIA	ANALYSIS	FREQUENCY	LOCATIONS (1)
1.	Shoreline Sediment	GSA	2/year	1 Indicator, 1 Control (2)
2.	Fish	GSA	2/year	2 Indicator, 1 Control (3)
3.	Surface Water	GSA	M. Comp.	1 Indicator, 1 Control (4)
		H-3	Qtr. Comp.	1 Indicator, 1 Control

NOTES:

(1) Indicator samples collected in the vicinity of the site; control samples collected at a distance of at least five miles from the site.
(2) Indicator sample from an area of potential recreational value.
(3) Indicator samples from an area near the vicinity of a site discharge point. Control samples of the same species or of species of similar feeding habits.
(4) Indicator sample from the J.A. FitzPatrick inlet canal.

TABLE 2

SAMPLE COLLECTION AND ANALYSIS

SITE RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM

B. TERRESTRIAL PROGRAM

	MEDIA	ANALYSIS	FREQUENCY	LOCATIONS
1.	Air Particulates	GB GSA	Weekly M. Composite	4 Indicator, 1 Control (1)
2.	Airborne - I-131	GSA	Weekly	4 Indicator, 1 Control (1)
3.	TLD	Gamma Dose	Quarterly	29 Indicator, 3 Control (2)
4.	Milk	I-131 GSA	2/Month 2/Month	3 Indicator, 1 Control (3)
5.	Human Food Crops	GSA, I-131 (5)	Annually	(4)

NOTES:

(1) Three indicator samples from near the site boundary in three of the highest D/Q meteorological sectors, one indicator sample from near a year round community, and one control sample from an area of least prevalent wind direction.

(2) Indicator samples from the site boundary, four-five miles from the site, special interest areas, and control areas (greater than ten miles from the site).

(3) Three indicator samples from areas within 5.0 miles of the site. Control sample from an area of least prevalent wind direction.

(4) Six samples total utilizing at least two meteorological sectors in areas of highest D/Q. One sample of each of similar food product in a least prevalent wind direction.

(5) Gamma spectral analysis to include I-131.

TABLE 3A

CONCENTRATION OF GAMMA EMITTERS IN SHORELINE SEDIMENT SAMPLES

Results in units of pCi/g (dry) ± 2 sigma

Sample Location	Collection Date	Be-7	K-40	Co-60	Cs-134	Cs-137	Ra-226	Th-228	Others
Langs Beach	5-7-85	<0.59	13.1±1.3	<0.05	<0.06	<0.05	<1.10	0.49±0.06	<LLD
(Control)**	11-12-85	<0.67	15.4±1.5	<0.08	<0.07	<0.06	<1.21	0.67±0.12	<LLD
Sunset Beach	5-7-85	<0.96	19.5±2.0	<0.07	<0.10	<0.09	<1.20	1.38±0.17	<LLD
(Off-Site)	11-12-85	<0.89	13.5±1.5	<0.05	<0.08	<0.10	<1.57	0.92±0.10	<LLD
Nine Mile Point	5-7-85	<0.64	19.2±1.2	0.18±0.05	<0.06	1.81±0.10	1.52±0.56	0.66±0.15*	<LLD
(On-Site)**	11-12-85	0.49±0.24	10.9±1.0	0.11±0.04	<0.04	1.00±0.08	<0.83	0.27±0.11*	<LLD

* Represents AcTh - 228
**Sample not required by the Technical Specifications
Results in units of activity per gram dry weight

TABLE 3B

CONCENTRATION OF GAMMA EMITTERS IN SHORELINE SEDIMENT SAMPLES

Results in units of pCi/kg (dry) ± 2 sigma

Sample Location	Collection Date	Be-7	K-40	Co-60	Cs-134	Cs-137	Ra-226	Th-228	Others
Langs Beach	5-7-85	<590	13100±1300	<50	<60	<50	<1100	490±60	<LLD
(Control)**	11-12-85	<670	15400±1500	<80	<70	<60	<1210	670±120	<LLD
Sunset Beach	5-7-85	<960	19500±2000	<70	<100	<90	<1200	1380±170	<LLD
(Off-Site)	11-12-85	<890	13500±1500	<50	<80	<100	<1570	920±100	<LLD
Nine Mile Point	5-7-85	<640	19200±1200	180±50	<60	1810±100	1520±560	660±150*	<LLD
(On-Site)**	11-12-85	490±240	10900±1000	110±40	<40	1000±80	<830	270±110*	<LLD

* Represents AcTh - 228
**Sample not required by the Technical Specifications
Results in units of activity per kilogram dry weight

TABLE 4A

CONCENTRATION OF GAMMA EMITTERS IN FISH SAMPLES
Results in units of pCi/g (wet) ± 2 sigma

Sample Date	Sample Type	GAMMA EMITTERS Fe-59	Co-58	K-40	Mn-54	Co-60	Cs-134	Cs-137	Zn-65	Others
				OSWEGO (CONTROL) - 00						
June 26, 1985	Brown Trout #1	<0.014	<0.005	2.95±0.30	<0.005	<0.005	<0.005	0.026±0.005	<0.012	<LLD
	Brown Trout #2	<0.054	<0.025	4.96±0.50	<0.021	<0.026	<0.021	0.047±0.021	<0.047	<LLD
	Lake Trout	<0.015	<0.006	2.85±0.29	<0.005	<0.005	<0.005	0.035±0.006	<0.012	<LLD
October 4	Chinook Salmon	<0.024	<0.009	3.40±0.34	<0.008	<0.009	<0.008	0.033±0.008	<0.020	<LLD
October 10 1985	Brown Trout	<0.020	<0.007	3.55±0.36	<0.006	<0.007	<0.007	0.026±0.007	<0.016	<LLD
	Smallmouth Bass	<0.031	<0.011	3.13±0.31	<0.009	<0.009	<0.010	0.034±0.009	<0.023	<LLD
				NINE MILE POINT - 02						
July 2 1985	Brown Trout #1	<0.017	<0.007	2.81±0.28	<0.006	<0.007	<0.007	0.025±0.006	<0.015	<LLD
	Brown Trout #2	<0.014	<0.005	3.09±0.31	<0.005	<0.005	<0.005	0.028±0.005	<0.013	<LLD
	Lake Trout	<0.013	<0.005	3.03±0.30	<0.005	<0.006	<0.005	0.036±0.006	<0.011	<LLD
September 30	Chinook Salmon	<0.024	<0.009	3.42±0.34	<0.007	<0.008	<0.008	0.023±0.006	<0.018	<LLD
October 15,18 1985	Brown Trout	<0.020	<0.008	3.49±0.35	<0.008	<0.009	<0.008	0.021±0.009	<0.018	<LLD
	Smallmouth Bass	<0.018	<0.007	3.62±0.36	<0.007	<0.007	<0.007	0.044±0.008	<0.018	<LLD
				JA FITZPATRICK - 03						
June 21 1985	Brown Trout #1	<0.059	<0.023	3.78±0.38	<0.021	<0.022	<0.024	0.044±0.020	<0.045	<LLD
	Brown Trout #2	<0.023	<0.009	3.05±0.31	<0.008	<0.008	<0.009	0.032±0.007	<0.019	<LLD
	Lake Trout	<0.024	<0.010	2.93±0.29	<0.009	<0.008	<0.009	0.033±0.008	<0.020	<LLD
September 30	Chinook Salmon	<0.068	<0.014	3.21±0.32	<0.012	<0.031	<0.012	0.025±0.008	<0.052	<LLD
October 18 1985	Brown Trout	<0.014	<0.006	2.96±0.30	<0.005	<0.005	<0.005	0.018±0.005	<0.012	<LLD
	Smallmouth Bass	<0.026	<0.010	2.70±0.27	<0.007	<0.008	<0.008	0.035±0.007	<0.018	<LLD

TABLE 4B

CONCENTRATION OF GAMMA EMITTERS IN FISH SAMPLES
Results in units of pCi/kg (wet) ± 2 sigma

Sample Date	Sample Type	GAMMA EMITTERS Fe-59	Co-58	K-40	Mn-54	Co-60	Cs-134	Cs-137	Zn-65	Others
				OSWEGO (CONTROL)00						
June 26 1985	Brown Trout #1	<14	<5	2950±300	<5	<5	<5	26±5	<12	<LLD
	Brown Trout #2	<54	<25	4960±500	<21	<26	<21	47±21	<47	<LLD
	Lake Trout	<15	<6	2850±290	<5	<5	<5	35±6	<12	<LLD
October 4	Chinook Salmon	<24	<9	3400±340	<8	<9	<8	33±8	<20	<LLD
October 10	Brown Trout	<20	<7	3550±360	<6	<7	<7	26±7	<16	<LLD
1985	Smallmouth Bass	<31	<11	3130±310	<9	<9	<10	34±9	<23	<LLD
				NINE MILE POINT 02						
July 2	Brown Trout #1	<17	<7	2810±280	<6	<7	<7	25±6	<15	<LLD
1985	Brown Trout #2	<14	<5	3090±310	<5	<5	<5	28±5	<13	<LLD
	Lake Trout	<13	<5	3030±300	<5	<6	<5	36±6	<11	<LLD
September 30	Chinook Salmon	<24	<9	3420±340	<7	<8	<8	23±6	<18	<LLD
October 15,18	Brown Trout	<20	<8	3490±350	<8	<9	<8	21±9	<18	<LLD
1985	Smallmouth Bass	<18	<7	3620±360	<7	<7	<7	44±8	<18	<LLD
				JA FITZPATRICK 03						
June 21	Brown Trout #1	<59	<23	3780±380	<21	<22	<24	44±20	<45	<LLD
1985	Brown Trout #2	<23	<9	3050±310	<8	<8	<9	32±7	<19	<LLD
	Lake Trout	<24	<10	2930±290	<9	<8	<9	33±8	<20	<LLD
September 30	Chinook Salmon	<68	<14	3210±320	<12	<31	<12	25±8	<52	<LLD
October 18	Brown Trout	<14	<6	2960±300	<5	<5	<5	18±5	<12	<LLD
1985	Smallmouth Bass	<26	<10	2700±270	<7	<8	<8	35±7	<18	<LLD

TABLE 5

CONCENTRATION OF TRITIUM IN SURFACE WATER SAMPLES
(QUARTERLY COMPOSITE SAMPLES)

Results in units of pCi/liter ± 2 sigma

Station	Period	Date	Tritium
JAF INLET *	First Quarter	1/2/85 - 3/30/85	320 ± 80
	Second Quarter	3/30/85- 7/1/85	350 ± 110
	Third Quarter	7/1/85 - 9/30/85	1200 ± 100 (a)
	Fourth Quarter	9/30/85 - 12/30/85	250 ± 90
NMP INLET **	First Quarter	12/31/84- 4/1/85	<210
	Second Quarter	4/1/85 - 7/1/85	<100
	Third Quarter	7/1/85 - 10/1/85	270 ± 80
	Fourth Quarter	10/1/85 - 12/31/85	470 ± 60
OSWEGO CITY WATER **	First Quarter	12/31/84- 4/1/85	240±80
	Second Quarter	4/1/85 - 7/1/85	430±70
	Third Quarter	7/1/85 - 10/1/85	300 ± 90
	Fourth Quarter	10/1/85 - 12/31/85	250 ± 50
OSWEGO STEAM	First Quarter	12/31/84 - 4/1/85	370 ± 70
STATION *	Second Quarter	4/1/85 - 7/1/85	260 ± 70
(CONTROL)	Third Quarter	7/1/85 - 10/1/85	250 ± 40
	Fourth Quarter	10/1/85 - 12/31/85	230 ± 70

* - Samples required by the Technical Specifications.
** - Optional samples. Oswego City Water samples are composites of twice per week grab samples.
(a)- Third quarter monthly tritium results were 940, 870, and 1500 pCi/liter. The quarterly discharge sample was 280 pCi/liter.

TABLE 6

CONCENTRATION OF GAMMA EMITTERS IN SURFACE WATER SAMPLES

Results in units of pCi/liter ± 2 sigma

Station	Nuclide	January	February	March	April	May	June
				1985			
OSWEGO CITY WATER	K-40	9.4±6.3	8.6±6.6	<12.3	7.9±5.8	<13.6	7.1±5.0
	Ra-226	<18.7	15.0±9.0	21.5±10.8	<18.7	<20.3	<19.2
	Cs-134	<0.88	<1.11	<1.02	<1.04	<1.14	<1.22
	Cs-137	<0.94	<1.02	<1.00	<1.14	<1.14	<1.10
	Zr-95	<2.61	<3.06	<2.95	<2.77	<3.97	<4.21
	Nb-95	<1.71	<1.78	<1.69	<1.71	<1.50	<2.80
	Co-58	<1.18	<1.25	<1.39	<0.94	<1.48	<1.47
	Mn-54	<0.92	<1.19	<1.11	<0.97	<1.09	<1.06
	Fe-59	<1.35	<1.70	<1.33	<1.73	<2.31	<2.41
	Co-60	<0.82	<1.27	<1.33	<1.25	<1.23	<1.05
	Zn-65	<1.78	<2.39	<1.90	<2.37	<2.12	<2.98
	I-131	<15.1	<8.3	<9.2	<9.5	<15.2	<130.0
	Ba/La-140	<6.5	<4.8	<6.6	<4.7	<7.5	<30.0
NINE MILE POINT (02, INLET)	K-40	13.7±7.5	<12.3	<7.6	<13.9	<14.0	<12.6
	Ra-226	<20.1	21.4±9.0	18.4±10.5	<18.2	19.6±9.7	13.4±7.6
	Cs-134	<0.94	<1.03	<1.16	<0.93	<1.17	<1.08
	Cs-137	<1.13	<1.17	<1.05	<0.95	<1.20	<1.15
	Zr-95	<3.55	<2.96	<3.08	<2.84	<3.42	<3.76
	Nb-95	<1.87	<1.76	<1.67	<1.52	<2.17	<2.53
	Co-58	<1.25	<1.16	<1.48	<1.22	<1.39	<1.61
	Mn-54	<1.03	<1.28	<1.14	<1.12	<1.19	<1.18
	Fe-59	<2.11	<1.94	<1.80	<1.92	<2.04	<1.99
	Co-60	<1.28	<1.55	<1.42	<1.56	<1.42	<1.22
	Zn-65	<2.48	<2.42	<2.20	<2.38	<2.56	<2.07
	I-131	<14.9	<8.5	<11.3	<10.8	<15.7	<67.0
	Ba/La-140	<6.4	<5.5	<5.2	<5.2	<6.0	<15.5

TABLE 6 (Continued)

CONCENTRATION OF GAMMA EMITTERS IN SURFACE WATER SAMPLES

Results in units of pCi/liter ± 2 sigma

Station	Nuclide	January	February	March	April	May	June
			1985				
FITZPATRICK	K-40	<12.9	9.4±6.9	13.0±7.4	<13.2	7.8±6.4	<11.8
(03, INLET)	Ra-226	<18.3	21.0±8.7	16.0±9.0	<17.0	23.7±9.0	<19.8
*	Cs-134	<1.00	<1.14	<1.12	<1.26	<1.08	<0.96
	Cs-137	<1.05	<1.04	<1.15	<1.07	<1.12	<1.15
	Zr-95	<3.21	<3.18	<3.63	<2.77	<3.37	<3.72
	Nb-95	<1.70	<1.74	<2.27	<1.74	<2.76	<2.07
	Co-58	<1.22	<1.29	<1.35	<1.12	<1.47	<1.29
	Mn-54	<0.99	<1.11	<1.08	<0.85	<1.05	<1.14
	Fe-59	<1.76	<2.02	<2.04	<2.10	<1.91	<2.04
	Co-60	<1.34	<1.16	<1.08	<1.43	<1.29	<1.28
	Zn-65	<2.32	<2.49	<2.58	<2.52	<2.26	<1.58
	I-131	<8.1	<13.1	<12.1	<10.5	<26.6	<21.1
	Ba/La-140	<4.0	<6.8	<5.3	<5.2	<12.4	<6.6
OSWEGO	K-40	<13.6	<13.4	<14.5	<14.4	<10.0	<10.4
STEAM	Ra-226	16.4±9.8	9.7±7.4	<18.3	<19.5	<19.3	13.3±7.4
STATION	Cs-134	<1.11	<0.88	<1.05	<1.09	<1.05	<1.03
(00, CONTROL)	Cs-137	<1.04	<1.08	<1.11	<1.00	<1.07	<0.95
*	Zr-95	<3.21	<3.02	<2.45	<3.06	<3.04	<3.44
	Nb-95	<2.48	<1.48	<1.62	<1.79	<1.78	<1.88
	Co-58	<1.50	<1.10	<1.34	<1.39	<1.37	<1.55
	Mn-54	<0.90	<1.15	<1.16	<1.20	<0.98	<1.18
	Fe-59	<1.74	<1.53	<1.80	<1.62	<1.94	<1.54
	Co-60	<0.94	<1.38	<1.29	<1.46	<1.36	<1.04
	Zn-65	<2.36	<2.67	<2.10	<1.67	<2.05	<2.30
	I-131	<30.1	<7.3	<9.8	<9.1	<16.1	<16.7
	Ba/La-140	<13.3	<5.7	<6.3	<6.3	<8.4	<8.7

*-Sample required by the Technical Specifications

TABLE 6 (Continued)

CONCENTRATION OF GAMMA EMITTERS IN SURFACE WATER SAMPLES

Results in units of pCi/liter ± 2 sigma

Station	Nuclide	July	August	September	October	November	December
			1985				
OSWEGO CITY WATER	K-40	<14.3	21.2±10.4	<11.2	<16.8	<11.8	<12.2
	Ra-226	<18.8	<19.2	<19.5	<20.2	15.8±9.1	<17.7
	Cs-134	<1.05	<1.16	<1.08	<1.07	<1.15	<0.94
	Cs-137	<1.12	<1.17	<1.09	<1.06	<1.22	<1.15
	Zr-95	<2.52	<3.74	<3.42	<3.37	<3.14	<2.57
	Nb-95	<2.13	<2.40	<2.18	<1.53	<1.93	<1.81
	Co-58	<1.26	<1.41	<1.40	<1.21	<1.63	<1.10
	Mn-54	<1.03	<1.10	<1.14	<1.29	<1.17	<1.03
	Fe-59	<2.30	<2.19	<1.55	<1.95	<2.18	<1.88
	Co-60	<1.12	<1.23	<1.18	<1.32	<1.23	<0.70
	Zn-65	<1.92	<2.76	<2.26	<2.19	<1.70	<2.21
	I-131	<16.6	<27.7	<30.7	<12.1	<21.9	<16.4
	Ba/La-140	<7.1	<13.3	<15.6	<3.3	<8.1	<6.6
NINE MILE POINT (02 INLET)	K-40	16.9±9.9	<16.8	<10.1	<13.7	11.6±6.8	10.9±7.4
	Ra-226	26.1±15.5	<19.0	18.4±10.0	<19.2	<17.7	<20.3
	Cs-134	<1.09	<1.10	<1.04	<0.92	<0.93	<1.03
	Cs-137	<1.13	<1.10	<0.96	<1.24	<0.83	<1.29
	Zr-95	<3.64	<3.52	<2.98	<3.58	<2.88	<3.34
	Nb-95	<2.15	<2.57	<1.77	<1.82	<1.61	<2.12
	Co-58	<1.35	<1.76	<1.29	<1.42	<1.19	<1.57
	Mn-54	<0.97	<1.31	<1.04	<1.13	<0.87	<1.01
	Fe-59	<1.47	<2.02	<1.72	<1.43	<1.60	<1.96
	Co-60	<1.33	<1.27	<1.06	<1.27	<1.04	<1.17
	Zn-65	<2.39	<3.17	<2.57	<2.53	<1.77	<2.22
	I-131	<29.8	<13.5	<18.4	<14.4	<8.8	<18.1
	Ba/La-140	<11.8	<10.5	<9.7	<7.0	<6.0	<7.9

TABLE 6 (Continued)

CONCENTRATION OF GAMMA EMITTERS IN SURFACE WATER SAMPLES

Results in units of pCi/liter ± 2 sigma

Station	Nuclide	July	August	September	October	November	December
				1985			
FITZPATRICK	K-40	<14.8	<12.5	<13.8	9.8±6.9	<20.1	<16.9
(03, INLET)	Ra-226	<18.5	<18.1	23.8±10.4	15.0±8.4	18.7±13.9	27.4±14.5
*	Cs-134	<0.90	<1.17	<1.02	<0.91	<1.48	<1.14
	Cs-137	<1.13	<1.19	<1.17	<1.07	<1.61	<1.04
	Zr-95	<2.87	<3.05	<2.57	<2.61	<4.97	<2.70
	Nb-95	<1.41	<1.98	<1.77	<1.42	<2.12	<1.79
	Co-58	<1.12	<1.57	<1.12	<1.28	<1.39	<1.37
	Mn-54	<1.02	<1.25	<1.01	<0.64	<1.41	<1.17
	Fe-59	<1.61	<2.21	<2.44	<1.67	<2.13	<1.42
	Co-60	<1.22	<1.22	<1.57	<1.35	<1.76	<1.22
	Zn-65	<2.59	<2.78	<2.62	<2.15	<3.07	<1.53
	I-131	<9.4	<7.5	<7.6	<8.2	<7.4	<10.9
	Ba/La-140	<5.5	<6.2	<5.2	<4.1	<5.0	<5.3
OSWEGO	K-40	13.6±5.5	<16.8	7.1±3.2	<16.3	<15.6	<20.9
STEAM	Ra-226	15.3±6.2	22.0±11.2	14.0±4.8	20.3±9.8	<19.2	<20.6
STATION	Cs-134	<0.75	<1.12	<0.48	<1.16	<0.95	<1.11
(00, CONTROL)	Cs-137	<0.72	<1.04	<0.47	<1.15	<1.04	<1.40
*	Zr-95	<2.32	<2.70	<1.58	<2.75	<2.60	<2.85
	Nb-95	<1.36	<1.73	<1.03	<1.95	<1.32	<1.57
	Co-58	<0.95	<1.12	<0.65	<1.36	<0.90	<1.24
	Mn-54	<0.74	<1.20	<0.55	<0.98	<1.03	<1.15
	Fe-59	<1.42	<1.18	<0.84	<2.21	<2.03	<2.06
	Co-60	<0.83	<0.99	<0.54	<1.45	<1.17	<1.22
	Zn-65	<1.76	<2.03	<1.05	<1.96	<2.48	<1.85
	I-131	<12.3	<11.0	<13.3	<8.2	<6.0	<6.0
	Ba/La-140	<5.9	<5.9	<4.9	<3.0	<4.3	<3.3

*-Sample required by the Technical Specifications

TABLE 7

NMP/JAF SITE
ENVIRONMENTAL AIRBORNE PARTICULATE SAMPLES - OFF SITE STATIONS
GROSS BETA ACTIVITY pCi/m^3 ± 2 Sigma

WEEK END DATE	LOCATION					
	R5-OFF	R1-OFF	R2-OFF	R3-OFF	R4-OFF	G--OFF
85/01/08	0.025±0.005	0.027±0.004	0.023±0.004	0.021±0.003	0.021±0.004	0.030±0.005
85/01/15	0.025±0.004	0.017±0.003	0.036±0.005	0.022±0.003	0.022±0.003	0.019±0.003
85/01/23	0.028±0.004	0.012±0.002	0.017±0.002	0.028±0.004	0.030±0.004	0.022±0.004
85/02/29	0.022±0.005	0.014±0.003	0.021±0.003	0.018±0.003	0.020±0.003	0.014±0.002
85/02/05	0.026±0.004	0.012±0.003	0.028±0.005	0.029±0.005	0.030±0.004	0.017±0.003
85/02/11	0.022±0.004	0.014±0.003	0.023±0.003	0.016±0.003	0.022±0.003	0.030±0.006
85/02/19	0.024±0.003	0.013±0.002	0.026±0.003	0.013±0.002	0.023±0.003	0.022±0.003
85/02/26	0.021±0.003	0.009±0.003	0.027±0.003	0.017±0.003	0.025±0.003	0.023±0.004
85/03/05	0.026±0.004	0.019±0.003	0.022±0.003	0.024±0.003	0.024±0.003	0.026±0.004
85/03/12	0.029±0.004	0.024±0.004	0.023±0.003	0.024±0.003	0.044±0.005	0.026±0.004
85/03/19	0.016±0.003	0.021±0.003	0.018±0.003	0.016±0.003	0.021±0.004	0.023±0.004
85/03/25	0.027±0.004	0.025±0.004	0.024±0.004	0.023±0.004	0.028±0.004	0.024±0.004
85/04/02	0.016±0.003	0.018±0.003	0.017±0.003	0.016±0.003	0.016±0.003	0.017±0.003
85/04/09	0.021±0.003	0.022±0.003	0.019±0.003	0.019±0.003	0.015±0.003	0.022±0.004
85/04/06	0.028±0.004	0.030±0.004	0.030±0.004	0.029±0.004	0.031±0.004	0.036±0.005
85/04/23	0.029±0.004	0.031±0.004	0.031±0.004	0.034±0.004	0.028±0.004	0.029±0.004
85/04/30	0.019±0.004	0.022±0.003	0.022±0.003	0.024±0.003	0.018±0.003	0.021±0.004
85/05/07	0.022±0.004	0.016±0.003	0.016±0.003	0.018±0.003	0.016±0.003	0.017±0.004
85/05/14	0.028±0.004	0.024±0.003	0.024±0.003	0.025±0.003	0.023±0.003	0.027±0.004
85/05/21	0.019±0.003	0.014±0.002	0.018±0.003	0.019±0.003	0.015±0.003	0.019±0.003
85/05/29	0.029±0.004	0.027±0.003	0.030±0.003	0.027±0.003	0.027±0.003	0.029±0.004
85/06/4	0.018±0.004	0.021±0.003	0.021±0.003	0.023±0.003	0.021±0.003	0.019±0.003
85/06/11	0.016±0.003	0.018±0.003	0.015±0.003	0.016±0.003	0.013±0.003	0.016±0.003
85/06/18	0.018±0.003	0.015±0.003	0.018±0.003	0.016±0.003	0.015±0.003	0.015±0.003
85/06/24	0.021±0.004	0.025±0.004	0.024±0.004	0.024±0.003	0.024±0.004	0.028±0.004
85/07/02	0.013±0.003	0.013±0.002	0.013±0.002	0.011±0.002	0.011±0.002	0.014±0.003
85/07/09	0.031±0.004	0.031±0.003	0.030±0.004	0.028±0.003	0.028±0.003	0.029±0.004
85/07/17	0.027±0.004	0.022±0.003	0.026±0.004	0.028±0.004	0.028±0.003	0.023±0.003
85/07/23	0.022±0.004	0.023±0.003	0.022±0.003	0.021±0.003	0.020±0.003	0.018±0.003
85/07/30	0.022±0.004	0.019±0.003	0.021±0.003	0.025±0.003	0.021±0.003	0.019±0.003
85/08/06	0.034±0.004	0.039±0.004	0.038±0.004	0.041±0.004	0.043±0.004	0.038±0.004
85/08/13	0.027±0.003	0.025±0.003	0.027±0.003	0.025±0.003	0.025±0.003	0.026±0.004
85/08/20	0.031±0.003	0.031±0.003	0.028±0.003	0.030±0.003	0.030±0.003	0.030±0.004
85/08/27	0.021±0.003	0.017±0.003	0.016±0.003	0.017±0.002	0.018±0.003	0.019±0.003
85/09/04	0.030±0.003	0.039±0.003	0.034±0.003	0.036±0.003	0.033±0.003	0.034±0.003
85/09/10	0.029±0.003	0.029±0.003	0.031±0.004	0.031±0.003	0.030±0.004	0.030±0.004
85/09/17	0.021±0.003	0.022±0.003	0.024±0.003	0.027±0.003	0.026±0.003	0.020±0.003
85/09/24	0.043±0.004	0.036±0.003	0.040±0.004	0.038±0.004	0.033±0.004	0.037±0.004
85/10/1	0.030±0.003	0.025±0.003	0.028±0.003	0.029±0.003	0.026±0.003	0.031±0.004
85/10/08	0.019±0.003	0.023±0.003	0.021±0.003	0.022±0.003	0.021±0.003	0.020±0.003
85/10/16	0.020±0.002	0.022±0.003	0.024±0.003	0.025±0.003	0.024±0.003	0.023±0.003
85/10/22	0.023±0.003	0.023±0.003	0.022±0.003	0.025±0.003	0.021±0.003	0.022±0.003
85/10/29	0.019±0.003	0.017±0.002	0.017±0.003	0.020±0.003	0.018±0.003	0.020±0.003
85/11/05	0.013±0.003	0.016±0.003	0.012±0.002	0.012±0.002	0.011±0.002	0.015±0.003
85/11/12	0.014±0.003	0.011±0.002	0.010±0.002	0.013±0.002	0.014±0.003	0.015±0.003
85/11/19	0.024±0.003	0.020±0.003	0.032±0.007	0.019±0.003	0.018±0.003	0.028±0.006
85/11/26	0.027±0.004	0.028±0.003	0.025±0.003	0.031±0.003	0.026±0.003	0.028±0.004
85/12/03	0.018±0.003	0.019±0.003	0.021±0.003	0.021±0.003	0.019±0.003	0.020±0.003
85/12/10	0.027±0.003	0.026±0.003	0.029±0.004	0.028±0.004	0.026±0.003	0.022±0.004
85/12/17	0.024±0.003	0.026±0.003	0.023±0.003	0.021±0.003	0.025±0.003	0.028±0.004
85/12/23	0.024±0.003	0.026±0.003	0.035±0.005	0.021±0.003	0.026±0.004	0.027±0.004
85/12/30	0.018±0.003	0.023±0.003	0.023±0.003	0.019±0.003	0.024±0.003	0.024±0.003

TABLE 8

NMP/JAF SITE

ENVIRONMENTAL AIRBORNE PARTICULATE SAMPLES - ON SITE STATIONS

GROSS BETA ACTIVITY pCi/M^3 ± 2 Sigma

* - Pump Not Operational

WEEK END DATE	D1--ON	D2-ON	E--ON	F--ON	G--ON	H--ON	I--ON	J--ON	K--ON
85/01/07	0.027±0.004	0.029±0.005	0.025±0.004	0.020±0.004	0.024±0.004	0.023±0.004	0.015±0.003	0.034±0.005	0.021±0.004
85/01/14	0.024±0.004	0.019±0.003	0.020±0.003	0.022±0.003	0.021±0.003	0.027±0.016	0.007±0.002	0.016±0.003	0.017±0.003
85/01/23	0.019±0.003	0.024±0.004	0.028±0.006	0.022±0.003	0.019±0.003	0.001±0.001	0.005±0.002	0.030±0.005	0.022±0.003
85/01/29	0.013±0.003	0.020±0.004	0.019±0.003	0.016±0.003	0.008±0.003	0.018±0.004	0.006±0.003	0.015±0.003	0.017±0.003
85/02/04	0.026±0.004	0.034±0.005	0.028±0.003	0.023±0.004	0.021±0.003	0.021±0.003	0.006±0.002	0.028±0.004	0.017±0.003
85/02/11	0.026±0.003	0.034±0.004	0.026±0.003	0.027±0.004	0.023±0.003	0.022±0.003	0.015±0.003	0.022±0.003	0.025±0.003
85/02/19	0.024±0.003	0.029±0.004	0.023±0.003	0.021±0.003	0.026±0.003	0.020±0.003	0.021±0.003	0.023±0.003	0.020±0.003
85/02/25	0.021±0.003	0.015±0.003	0.031±0.004	0.022±0.004	0.016±0.003	0.019±0.003	0.005±0.002	0.010±0.002	0.014±0.003
85/03/05	0.026±0.003	0.020±0.003	0.023±0.003	0.022±0.003	0.024±0.003	0.021±0.003	0.008±0.002	0.018±0.003	0.020±0.003
85/03/11	0.021±0.003	0.020±0.003	0.019±0.004	0.024±0.003	0.020±0.003	0.020±0.003	0.005±0.002	0.024±0.003	0.024±0.003
85/03/18	0.016±0.003	0.020±0.003	0.017±0.003	0.017±0.003	0.017±0.003	0.014±0.003	0.007±0.002	0.017±0.003	0.017±0.003
85/03/25	0.021±0.003	0.025±0.004	0.030±0.004	0.023±0.003	0.022±0.003	0.026±0.003	0.011±0.002	0.021±0.003	0.019±0.003
85/04/01	0.017±0.003	0.023±0.004	0.017±0.003	0.018±0.003	0.018±0.003	0.020±0.003	0.015±0.002	0.014±0.002	0.014±0.003
85/04/08	0.016±0.002	0.016±0.003	0.016±0.003	0.016±0.003	0.015±0.003	0.016±0.003	0.012±0.002	0.017±0.003	0.013±0.006
85/04/15	0.030±0.003	0.028±0.004	0.032±0.003	0.033±0.004	0.033±0.004	0.026±0.003	0.028±0.003	0.029±0.003	0.031±0.004
85/04/22	0.028±0.003	0.037±0.018	0.030±0.004	0.032±0.004	0.026±0.003	0.024±0.003	0.026±0.003	0.023±0.003	0.020±0.003
85/04/29	0.019±0.003	0.019±0.003	0.020±0.003	0.021±0.003	0.017±0.003	0.022±0.003	0.017±0.003	0.019±0.003	0.016±0.003
85/05/06	0.021±0.003	0.021±0.003	0.021±0.003	0.019±0.003	0.019±0.003	0.019±0.003	0.013±0.002	0.020±0.003	0.021±0.003
85/05/13	0.020±0.003	0.026±0.004	0.026±0.003	0.024±0.003	0.026±0.003	0.028±0.003	0.027±0.003	0.028±0.004	0.022±0.003
85/05/20	0.015±0.005	0.019±0.003	0.016±0.003	0.017±0.003	0.017±0.003	0.014±0.003	0.015±0.003	0.016±0.002	0.013±0.002
85/05/28	0.021±0.003	0.022±0.003	0.020±0.003	0.022±0.003	0.018±0.003	0.019±0.003	0.006±0.002	0.020±0.002	0.023±0.003
85/06/03	0.022±0.003	0.020±0.004	0.019±0.003	0.021±0.003	0.015±0.003	0.019±0.003	0.020±0.004	0.017±0.003	0.018±0.003
85/06/10	0.022±0.003	0.020±0.003	0.018±0.003	0.019±0.003	0.016±0.003	0.016±0.003	0.017±0.003	0.008±0.002	0.019±0.003
85/06/17	0.017±0.003	0.020±0.003	0.015±0.002	0.016±0.003	0.016±0.003	0.016±0.003	0.010±0.003	0.013±0.003	0.016±0.003
85/06/24	0.027±0.003	0.028±0.004	0.026±0.003	0.029±0.003	0.029±0.004	0.029±0.003	0.021±0.004	0.020±0.003	0.024±0.003
85/07/02	0.016±0.002	0.017±0.003	0.015±0.002	0.013±0.002	0.012±0.002	0.013±0.002	0.015±0.003	0.013±0.002	0.008±0.002
85/07/08	0.020±0.003	0.027±0.005	0.024±0.003	0.024±0.003	0.022±0.003	0.022±0.003	0.014±0.003	0.022±0.003	0.022±0.003
85/07/16	0.021±0.003	0.022±0.004	0.023±0.003	0.026±0.003	0.023±0.003	0.021±0.003	*	0.017±0.003	0.020±0.003
85/07/22	0.021±0.003	0.021±0.005	0.022±0.003	0.023±0.003	0.021±0.004	0.016±0.003	0.010±0.003	0.017±0.003	0.021±0.003
85/07/29	0.019±0.003	0.023±0.004	0.019±0.003	0.020±0.003	0.020±0.003	0.011±0.002	0.013±0.003	0.009±0.002	0.007±0.002
85/00/05	0.023±0.003	0.023±0.004	0.023±0.003	0.026±0.003	0.020±0.003	0.022±0.003	0.015±0.003	0.009±0.002	0.014±0.003
85/08/12	0.026±0.005	0.025±0.004	0.025±0.004	0.029±0.004	0.024±0.004	0.023±0.003	0.013±0.003	0.008±0.003	0.022±0.003
85/08/19	0.028±0.003	0.033±0.004	0.030±0.003	0.027±0.003	0.020±0.003	0.030±0.003	0.017±0.003	0.006±0.002	0.018±0.003
85/08/26	0.021±0.003	0.020±0.004	0.020±0.003	0.020±0.003	0.014±0.003	0.017±0.003	0.014±0.003	0.011±0.002	0.004±0.002
85/09/03	0.019±0.002	0.025±0.004	0.023±0.003	0.025±0.003	0.023±0.003	0.012±0.002	0.017±0.003	0.008±0.002	0.015±0.003
85/09/09	0.031±0.004	0.016±0.003	0.030±0.004	0.033±0.004	0.026±0.004	0.016±0.003	0.022±0.004	0.010±0.002	0.013±0.002
85/09/16	0.020±0.003	0.019±0.003	0.022±0.003	0.022±0.003	0.022±0.003	0.015±0.003	0.015±0.003	0.006±0.002	0.019±0.003
85/09/23	0.037±0.004	0.039±0.006	0.036±0.004	0.038±0.004	0.031±0.003	0.039±0.004	0.021±0.003	0.018±0.002	0.028±0.003
85/09/30	0.029±0.003	0.024±0.004	0.025±0.003	0.026±0.003	0.025±0.003	0.022±0.003	0.021±0.003	0.012±0.002	0.020±0.002
85/10/07	0.022±0.003	0.024±0.004	0.023±0.003	0.021±0.003	0.020±0.003	0.025±0.003	0.016±0.002	0.020±0.003	0.016±0.002
85/10/15	0.020±0.003	0.020±0.003	0.024±0.003	0.026±0.003	0.023±0.003	0.025±0.003	0.021±0.003	0.024±0.003	0.024±0.003
85/10/21	0.006±0.002	0.025±0.004	0.021±0.003	0.024±0.003	0.019±0.003	0.021±0.003	0.023±0.003	0.020±0.003	0.008±0.002
85/10/28	0.020±0.003	0.019±0.004	0.020±0.003	0.019±0.003	0.014±0.003	0.020±0.003	0.016±0.003	0.006±0.002	0.019±0.002
85/11/04	0.013±0.002	0.023±0.004	0.013±0.003	0.014±0.003	0.009±0.002	0.011±0.002	0.014±0.002	0.008±0.002	0.015±0.002
85/11/12	0.013±0.002	0.013±0.003	0.012±0.002	0.013±0.002	0.015±0.003	0.010±0.002	0.011±0.002	0.006±0.002	0.012±0.002
85/11/19	0.016±0.002	0.021±0.003	0.022±0.003	0.018±0.002	0.005±0.004	0.019±0.003	0.022±0.003	0.013±0.003	0.019±0.002
85/11/25	*	0.025±0.005	0.029±0.004	0.030±0.004	0.030±0.004	0.028±0.004	0.026±0.003	0.027±0.003	0.026±0.003
85/12/02	0.017±0.002	0.018±0.004	0.018±0.003	0.019±0.003	0.022±0.003	0.019±0.003	0.016±0.002	0.016±0.003	0.016±0.002
85/12/09	0.026±0.003	0.024±0.004	0.026±0.004	0.029±0.004	0.019±0.003	0.027±0.003	0.029±0.003	*	0.023±0.00[illegible]
85/12/16	0.019±0.003	0.022±0.004	0.025±0.003	0.022±0.003	0.017±0.003	0.017±0.003	0.018±0.003	0.016±0.00[illegible]	
85/12/23	0.018±0.003	0.020±0.004	0.022±0.003	0.025±0.004	0.018±0.003	0.021±0.003	0.024±0.00[illegible]		
85/12/30	0.016±0.003	0.025±0.004	0.019±0.003	0.026±0.004	0.012±0.002	0.006±0.00[illegible]			

TABLE 9

CONCENTRATION OF GAMMA EMITTERS IN MONTHLY COMPOSITES OF NMP AIR PARTICULATE SAMPLES

R-1 OFF-SITE STATION*

Results in units of 10^{-3}pCi/m^3 ± 2 sigma

Nuclides	January	February	March	April	May	June
			1985			
Co-60	<2.4	<1.1	<1.7	<2.3	<1.7	<2.1
Mn-54	<1.5	<1.8	<1.7	<1.6	<1.3	<0.6
Cs-134	<1.7	<1.4	<1.0	<2.0	<0.9	<1.2
Cs-137	<2.1	<0.6	<1.2	<1.8	<1.0	<1.5
Nb-95	<3.1	<2.2	<1.4	<2.7	<1.6	<1.6
Zr-95	<6.0	<4.3	<3.5	<2.8	<2.0	<2.6
Ce-141	<2.8	<2.6	<2.1	<2.4	<1.8	<2.5
Ce-144	<8.6	<6.5	<5.6	<6.1	<5.2	<5.4
Ru-106	<19.9	<15.9	<13.5	<12.7	<12.8	<11.7
Ru-103	<2.5	<1.9	<1.4	<2.0	<1.5	<2.5
Be-7	112.0±25.9	64.3±17.4	166.0±24.9	161.0±26.2	154.0±21.2	128.0±24.9
K-40	<26.7	<19.3	<20.7	<24.0	<22.3	<23.8
La-140	<9.2	<5.6	<5.5	<3.3	<2.5	<10.1
Ra-226	<34.8	<27.9	<23.2	<30.6	<18.5	<20.9

Nuclides	July	August	September	October	November	December
Co-60	<2.2	<1.8	<1.9	<1.6	<1.1	<0.9
Mn-54	<1.2	<1.3	<1.2	<1.3	<0.7	<1.2
Cs-134	<1.7	<0.8	<1.3	<9.0	<1.1	<1.6
Cs-137	<1.9	<1.2	<1.2	<1.2	<1.2	<1.5
Nb-95	<2.3	<1.8	<2.2	<2.1	<1.8	<1.6
Zr-95	<5.3	<2.5	<2.8	<3.3	<3.6	<3.8
Ce-141	<2.7	<1.6	<1.6	<1.9	<1.5	<1.6
Ce-144	<6.8	<3.9	<5.5	<4.6	<4.0	<5.5
Ru-106	<16.3	<9.5	<11.2	<8.6	<8.7	<9.9
Ru-103	<1.7	<1.6	<1.4	<1.4	<1.2	<1.6
Be-7	155.0±24.8	130.0±19.9	142.0±21.4	95.3±18.3	73.9±14.3	108.0±19.4
K-40	<22.9	<17.8	<17.6	<23.1	<13.9	<17.9
La-140	<5.5	<6.1	<2.4	<5.3	<3.0	<2.6
Ra-226	<25.7	<19.8	<24.0	<22.6	<14.9	<22.6

* - Location required by the Technical Specifications.

TABLE 9 (Continued)

CONCENTRATION OF GAMMA EMITTERS IN MONTHLY COMPOSITES OF NMP AIR PARTICULATE SAMPLES

R-2 OFF-SITE STATION*

Results in units of 10^{-3}pCi/m^3 ± 2 sigma

Nuclides	January	February	March	April	May	June
			1985			
Co-60	<2.9	<2.7	<1.4	<1.7	<1.6	<2.0
Mn-54	<1.3	<1.7	<1.1	<1.7	<1.0	<1.6
Cs-134	<1.9	<1.8	<0.8	<1.5	<1.1	<1.4
Cs-137	<1.3	<2.2	<1.2	<1.7	<1.2	<2.0
Nb-95	<2.4	<3.5	<0.7	<2.6	<1.0	<2.2
Zr-95	<5.3	<5.0	<3.1	<3.8	<2.7	<2.6
Ce-141	<2.4	<2.7	<1.4	<2.5	<1.5	<3.1
Ce-144	<8.1	<8.9	<5.1	<6.4	<5.0	<6.8
Ru-106	<16.9	<17.6	<13.1	<17.5	<12.0	<17.6
Ru-103	<3.1	<2.2	<1.6	<1.9	<2.0	<2.5
Be-7	106.0±23.1	158.0±30.7	127.0±20.6	182.0±29.2	142.0±22.3	151.0±27.0
K-40	<25.8	<37.5	<15.2	<28.5	<25.8	<37.9
La-140	<8.0	<5.0	<2.7	<3.5	<3.1	<8.9
Ra-226	<35.1	<32.1	<23.0	<32.0	<22.6	<27.7

Nuclides	July	August	September	October	November	December
Co-60	<1.8	<2.1	<1.4	<1.3	<1.8	<1.6
Mn-54	<1.6	<1.2	<1.6	<0.8	<1.5	<1.0
Cs-134	<1.8	<1.2	<1.0	<0.8	<1.4	<1.0
Cs-137	<1.4	<1.2	<1.4	<1.3	<1.1	<1.7
Nb-95	<2.2	<1.5	<2.0	<1.5	<1.1	<1.5
Zr-95	<4.9	<3.4	<3.1	<4.2	<3.4	<4.2
Ce-141	<2.3	<1.8	<2.4	<1.9	<2.1	<2.6
Ce-144	<7.3	<5.3	<6.5	<5.7	<4.8	<7.4
Ru-106	<18.0	<11.4	<14.4	<14.0	<11.7	<11.5
Ru-103	<1.9	<1.4	<1.5	<1.3	<2.0	<2.3
Be-7	157.0±25.9	122.0±20.1	152.0±23.7	100.0±18.7	83.8±18.8	107.0±22.4
K-40	<31.9	<19.1	<34.8	<25.4	<25.2	<25.4
La-140	<7.3	<6.6	<3.9	<3.0	<3.9	<3.3
Ra-226	<30.6	<18.2	<25.1	<21.7	<22.0	<26.3

* - Location required by the Technical Specifications.

TABLE 9 (Continued)

CONCENTRATION OF GAMMA EMITTERS IN MONTHLY COMPOSITES OF NMP AIR PARTICULATE SAMPLES

R-3 OFF-SITE STATION*

Results in units of 10^{-3}pCi/m^3 ± 2 sigma

Nuclides	January	February	March	April	May	June
			1985			
Co-60	<3.1	<2.2	<1.3	<2.3	<1.9	<1.3
Mn-54	<2.3	<1.9	<1.0	<1.6	<0.5	<1.6
Cs-134	<1.4	<1.9	<1.4	<1.7	<1.4	<1.5
Cs-137	<2.2	<1.7	<1.6	<1.7	<1.3	<0.9
Nb-95	<2.3	<1.0	<1.4	<2.2	<1.6	<1.8
Zr-95	<5.3	<5.0	<3.5	<2.7	<3.0	<4.5
Ce-141	<2.6	<2.3	<1.9	<2.5	<2.0	<2.3
Ce-144	<6.9	<7.0	<5.8	<7.3	<4.8	<5.2
Ru-106	<17.3	<14.3	<11.7	<19.1	<3.8	<12.2
Ru-103	<2.1	<1.9	<1.6	<2.2	<1.5	<1.8
Be-7	97.8±22.4	71.0±20.1	154.0±22.8	197.0±28.1	167.0±23.8	113.0±21.8
K-40	<22.7	<18.8	<19.0	<22.1	<16.7	<26.7
La-140	<6.4	<6.7	<4.2	<4.4	<6.5	<8.6
Ra-226	<29.9	<28.7	<22.1	<29.0	<21.0	<24.8

Nuclides	July	August	September	October	November	December
Co-60	<1.6	<1.3	<1.4	<1.9	<1.9	<2.8
Mn-54	<1.7	<1.1	<1.3	<1.6	<1.2	<1.9
Cs-134	<1.7	<1.0	<1.4	<1.2	<1.3	<1.1
Cs-137	<1.8	<1.2	<1.6	<1.4	<1.3	<1.9
Nb-95	<2.7	<1.3	<1.7	<1.5	<1.5	<2.0
Zr-95	<4.1	<2.6	<3.3	<3.9	<3.1	<4.1
Ce-141	<2.5	<1.7	<1.8	<2.1	<1.9	<2.6
Ce-144	<7.2	<4.5	<5.8	<5.6	<5.5	<7.4
Ru-106	<7.2	<10.5	<10.6	<17.3	<12.3	<12.7
Ru-103	<2.0	<1.4	<1.1	<1.8	<1.9	<2.0
Be-7	140.0±25.1	110.0±19.8	123.0±20.7	108.0±19.8	93.7±17.4	93.8±20.1
K-40	<31.3	<24.8	13.7±11.1	<26.7	<21.2	<30.7
La-140	<6.3	<3.3	<4.7	<4.5	<4.6	<4.0
Ra-226	<29.6	<18.0	<20.3	<23.8	<17.9	<26.0

* - Location required by the Technical Specifications.

TABLE 9 (Continued)

CONCENTRATION OF GAMMA EMITTERS IN MONTHLY COMPOSITES OF NMP AIR PARTICULATE SAMPLES

R-4 OFF-SITE STATION*

Results in units of 10^{-3}pCi/m^3 ± 2 sigma

Nuclides	January	February	March	April	May	June
			1985			
Co-60	<5.5	<3.3	<1.3	<1.7	<1.6	<1.1
Mn-54	<2.7	<1.5	<1.3	<1.9	<1.7	<1.2
Cs-134	<3.1	<1.8	<1.8	<1.3	<1.2	<1.4
Cs-137	<2.4	<1.5	<1.0	<1.8	<0.7	<1.2
Nb-95	<1.9	<2.2	<1.8	<1.6	<2.3	<2.4
Zr-95	<6.2	<5.4	<3.4	<4.6	<4.0	<5.1
Ce-141	<3.0	<2.9	<1.8	<2.4	<1.9	<3.2
Ce-144	<10.1	<7.1	<5.2	<7.3	<5.6	<8.0
Ru-106	<24.4	<15.8	<16.2	<14.9	<14.2	<17.3
Ru-103	<2.6	<2.3	<1.7	<2.2	<1.2	<2.8
Be-7	99.4±24.3	134.0±25.4	188.0±26.2	152.0±26.7	132.0±22.0	154.0±27.6
K-40	<15.0	<21.3	<16.6	<13.0	<13.7	<26.3
La-140	<7.1	<4.4	<3.0	<3.6	<3.8	<11.1
Ra-226	<41.6	<31.2	<20.4	<30.8	<26.7	<26.9

Nuclides	July	August	September	October	November	December
Co-60	<1.5	<1.6	<1.5	<0.9	<0.8	<1.0
Mn-54	<1.2	<1.1	<1.4	<1.4	<1.0	<1.4
Cs-134	<1.3	<1.0	<1.1	<1.0	<1.0	<1.4
Cs-137	<1.6	<1.6	<1.5	<1.7	<0.6	<2.0
Nb-95	<0.9	<1.6	<2.0	<2.2	<1.4	<1.9
Zr-95	<3.9	<2.7	<2.5	<4.9	<2.7	<3.7
Ce-141	<2.5	<1.8	<1.6	<2.0	<1.8	<2.2
Ce-144	<5.9	<4.5	<5.8	<5.2	<4.8	<6.4
Ru-106	<12.0	<9.6	<12.4	<11.2	<11.8	<14.3
Ru-103	<1.8	<1.6	<1.5	<1.5	<1.2	<1.9
Be-7	127.0±23.4	115.0±19.5	125.0±21.8	99.9±19.4	79.7±16.4	139.0±23.8
K-40	<30.0	<22.8	<15.0	<28.9	<23.9	<14.8
La-140	<7.4	<4.9	<4.1	<3.1	<3.4	<3.6
Ra-226	<26.2	<16.7	<22.5	<21.0	<17.8	<25.5

* - Location required by the Technical Specifications.

TABLE 9 (Continued)

CONCENTRATION OF GAMMA EMITTERS IN MONTHLY COMPOSITES OF NMP AIR PARTICULATE SAMPLES

R-5 OFF-SITE STATION (CONTROL)*

Results in units of 10^{-3}pCi/m^3 ± 2 sigma

Nuclides	January	February	March	April	May	June
			1985			
Co-60	<4.6	<2.6	<2.2	<3.9	<2.8	<2.3
Mn-54	<3.1	<1.6	<1.2	<2.3	<1.7	<2.5
Cs-134	<3.2	<2.3	<2.3	<2.0	<1.8	<2.0
Cs-137	<2.9	<1.8	<1.6	<2.2	<2.0	<1.7
Nb-95	<2.5	<2.5	<2.5	<2.3	<3.1	<3.0
Zr-95	<6.7	<6.8	<4.3	<6.0	<4.7	<5.5
Ce-141	<4.1	<2.7	<2.0	<3.2	<2.9	<3.2
Ce-144	<11.3	<9.0	<6.6	<9.8	<7.8	<8.4
Ru-106	<31.0	<27.1	<10.1	<15.3	<16.2	<14.9
Ru-103	<2.4	<2.5	<2.0	<1.8	<3.2	<2.8
Be-7	101.0±28.5	119.0±28.5	173.0±26.5	162.0±30.3	161.0±27.7	136.0±27.1
K-40	<50.8	<27.6	<11.6	<22.3	<29.2	15.8±14.1
La-140	<7.8	<8.0	<7.2	<4.3	<5.3	<9.4
Ra-226	<45.4	<34.7	<28.9	<32.3	<31.2	16.7±12.1

Nuclides	July	August	September	October	November	December
Co-60	<2.2	<1.4	<2.7	<1.7	<1.4	<1.9
Mn-54	<2.0	<1.7	<1.2	<1.3	<0.9	<1.5
Cs-134	<1.6	<1.3	<1.3	<1.1	<1.1	<1.2
Cs-137	<2.4	<1.3	<1.7	<1.0	<1.0	<1.4
Nb-95	<2.5	<1.4	<1.5	<1.5	<2.0	<2.3
Zr-95	<5.9	<3.8	<4.0	<2.8	<3.3	<4.2
Ce-141	<3.2	<2.0	<1.8	<1.9	<2.0	<2.4
Ce-144	<8.4	<4.1	<6.0	<5.3	<4.9	<7.3
Ru-106	<20.0	<12.1	<13.8	<13.4	<9.8	<16.9
Ru-103	<2.5	<2.2	<1.4	<1.0	<1.6	<1.8
Be-7	139.0±28.6	125.0±21.4	164.0±23.6	101.0±18.0	82.1±17.0	119.0±21.7
K-40	25.4±19.0	<28.6	<14.7	<19.7	<27.8	13.0±11.5
La-140	<5.2	<9.0	<5.8	<5.9	<3.6	<5.3
Ra-226	<32.1	14.0±11.6	<21.2	11.8±11.6	<19.2	<25.5

* - Location required by the Technical Specifications.

TABLE 9 (Continued)

CONCENTRATION OF GAMMA EMITTERS IN MONTHLY COMPOSITES OF NMP AIR PARTICULATE SAMPLES

D1 ON-SITE STATION *

Results in units of 10^{-3}pCi/m^3 ± 2 sigma

Nuclides	January	February	March	April	May	June
			1985			
Co-60	<3.8	<2.1	<0.9	<2.5	<1.9	<1.4
Mn-54	<2.6	<2.0	<1.5	<2.0	<1.0	<0.6
Cs-134	<1.9	<1.4	<1.1	<1.5	<1.3	<1.4
Cs-137	<2.4	<2.2	<1.5	<1.4	<1.7	<1.6
Nb-95	<1.1	<2.8	<2.0	<1.9	<1.9	<2.1
Zr-95	<5.9	<3.8	<3.1	<4.5	<3.5	<3.3
Ce-141	<3.2	<2.8	<1.9	<1.6	<2.2	<2.7
Ce-144	<9.1	<7.0	<5.0	<6.1	<5.7	<6.9
Ru-106	<31.7	<12.8	<11.7	<11.6	<13.4	<17.1
Ru-103	<3.0	<2.8	<1.7	<1.8	<1.4	<2.8
Be-7	104.0±27.8	121.0±24.7	129.0±22.8	131.0±21.5	126.0±21.7	123.0±23.7
K-40	<44.2	<18.3	<21.0	<24.9	<27.1	<31.3
La-140	<7.1	<5.1	<4.0	<2.6	<3.2	<10.8
Ra-226	<39.1	<30.4	<21.5	<25.7	<27.3	<24.8

Nuclides	July	August	September	October	November	December
Co-60	<1.9	<2.1	<2.9	<1.9	<1.7	<1.4
Mn-54	<1.4	<1.2	<1.9	<2.0	<1.2	<1.4
Cs-134	<1.5	<1.3	<1.4	<1.3	<0.9	<1.4
Cs-137	<1.7	<1.6	<2.0	<1.8	<1.0	<1.6
Nb-95	<2.8	<0.7	<2.7	<1.9	<1.8	<2.2
Zr-95	<4.5	<2.6	<4.1	<3.5	<2.5	<4.1
Ce-141	<2.3	<1.8	<2.3	<1.9	<1.7	<2.8
Ce-144	<6.3	<4.5	<6.7	<5.6	<4.7	<9.3
Ru-106	<16.6	<10.5	<13.1	<11.4	<9.6	<12.9
Ru-103	<1.9	<1.4	<2.2	<0.9	<1.4	<1.6
Be-7	120.0±22.1	115.0±20.1	143.0±24.0	99.7±19.5	74.6±15.8	83.7±17.9
K-40	<27.5	<26.9	27.2±17.9	11.6±10.4	<24.0	<23.9
La-140	<7.7	<5.1	<4.4	<3.8	<5.2	<4.3
Ra-226	<31.2	<20.7	<27.1	<20.5	<19.1	<29.1

*-Optional sample location

TABLE 9 (Continued)

CONCENTRATION OF GAMMA EMITTERS IN MONTHLY COMPOSITES OF NMP AIR PARTICULATE SAMPLES

D2 ON-SITE STATION *

Results in units of 10^{-3}pCi/m^3 ± 2 sigma

Nuclides	January	February	March	April	May	June
			1985			
Co-60	<3.9	<2.1	<2.9	<2.7	<2.5	<1.3
Mn-54	<2.2	<1.9	<1.8	<1.9	<0.9	<2.1
Cs-134	<2.8	<1.2	<1.2	<2.2	<1.1	<2.1
Cs-137	<2.9	<2.2	<1.2	<2.1	<1.8	<1.9
Nb-95	<3.7	<1.8	<2.0	<2.9	<1.1	<5.3
Zr-95	<8.9	<5.2	<4.3	<6.5	<2.9	<5.2
Ce-141	<3.9	<3.4	<2.7	<2.8	<2.2	<3.4
Ce-144	<12.0	<9.8	<6.7	<8.8	<5.5	<8.3
Ru-106	<28.8	<17.4	<15.2	<16.7	<15.0	<16.5
Ru-103	<3.5	<3.3	<1.1	<2.9	<1.8	<4.1
Be-7	78.3±26.5	150.0±31.0	123.0±22.9	126.0±25.1	125.0±22.1	127.0±28.5
K-40	<41.9	<22.1	<22.5	<40.1	<28.4	<41.3
La-140	<4.8	<6.1	<4.3	<5.4	<3.1	<16.2
Ra-226	<51.7	<37.7	<25.0	<34.0	<22.6	<27.7

Nuclides	July	August	September	October	November	December
Co-60	<2.4	<2.7	<1.6	<2.6	<1.7	<2.6
Mn-54	<2.6	<1.7	<2.8	<2.3	<1.8	<2.5
Cs-134	<2.8	<1.7	<2.3	<2.1	<1.6	<2.5
Cs-137	<3.0	<1.8	<3.0	<2.6	<1.7	<2.2
Nb-95	<3.4	<2.4	<3.4	<3.0	<2.8	<3.5
Zr-95	<7.1	<2.6	<6.4	<3.7	<4.1	<4.9
Ce-141	<3.8	<2.6	<3.4	<2.6	<2.8	<2.5
Ce-144	<12.1	<7.0	<9.6	<9.6	<6.8	<9.3
Ru-106	<27.3	<13.7	<27.3	<21.8	<18.2	<19.7
Ru-103	<3.6	<1.7	<3.0	<2.2	<2.6	<2.4
Be-7	109.0±28.0	113.0±23.2	108.0±26.1	113.0±27.7	46.6±18.3	108.0±26.1
K-40	<49.0	<35.4	<40.5	28.8±23.3	<28.4	31.9±23.6
La-140	<11.8	<5.9	<7.9	<8.6	<8.9	<7.8
Ra-226	<43.2	<28.4	<37.9	<38.4	<30.3	<37.9

*Optional sample location

TABLE 9 (Continued)

CONCENTRATION OF GAMMA EMITTERS IN MONTHLY COMPOSITES OF NMP AIR PARTICULATE SAMPLES

E ON-SITE STATION *

Results in units of 10^{-3}pCi/m^3 ± 2 sigma

Nuclides	January	February	March	April	May	June
			1985			
Co-60	<3.1	<2.9	<1.4	<2.5	<0.8	<1.8
Mn-54	<2.5	<1.2	<1.8	<1.7	<0.8	<1.6
Cs-134	<2.6	<1.8	<0.9	<1.2	<0.9	<1.5
Cs-137	<3.5	<1.3	<1.6	<2.0	<1.2	<1.0
Nb-95	<3.5	<2.3	<2.0	<1.5	<2.0	<1.4
Zr-95	<6.3	<4.1	<3.5	<3.6	<1.8	<2.9
Ce-141	<2.5	<2.5	<2.5	<2.1	<1.9	<2.7
Ce-144	<10.2	<5.8	<5.6	<6.7	<5.2	<6.5
Ru-106	<24.4	<13.3	<11.4	<17.9	<11.7	<10.9
Ru-103	<3.0	<2.0	<2.1	<1.9	<1.2	<1.8
Be-7	84.8±23.9	128.0±23.9	156.0±24.7	162.0±26.1	142.0±21.3	159.0±26.5
K-40	<27.0	<25.5	<21.0	<23.9	<20.0	<25.5
La-140	<8.4	<6.4	<4.5	<4.6	<4.0	<8.2
Ra-226	<36.0	<25.2	<25.9	<25.1	<22.0	<24.0

Nuclides	July	August	September	October	November	December
Co-60	<1.6	<2.1	<2.5	<1.9	<1.5	<2.4
Mn-54	<1.8	<1.6	<1.8	<1.6	<1.1	<1.6
Cs-134	<1.6	<1.7	<1.3	<1.4	<1.0	<1.5
Cs-137	<1.4	<1.6	<1.6	<1.3	<1.1	<1.3
Nb-95	<0.9	<1.9	<1.8	<2.0	<2.0	<1.6
Zr-95	<4.7	<4.0	<2.0	<3.7	<4.1	<5.6
Ce-141	<2.4	<2.0	<2.1	<2.1	<1.8	<2.9
Ce-144	<6.3	<5.6	<6.0	<5.3	<4.6	<9.8
Ru-106	<12.5	<12.6	<16.1	<9.8	<11.0	<11.0
Ru-103	<2.0	<2.5	<1.3	<1.8	<1.4	<2.4
Be-7	133.0±24.2	128.0±23.1	165.0±24.9	90.5±19.5	97.3±18.6	95.0±19.3
K-40	<30.2	<20.9	<27.2	13.1±12.3	<15.4	<25.7
La-140	<7.6	<13.1	<4.0	<3.1	<5.0	<3.3
Ra-226	<26.5	<22.7	<26.7	<24.8	<20.4	<32.7

*Optional sample location

TABLE 9 (Continued)

CONCENTRATION OF GAMMA EMITTERS IN MONTHLY COMPOSITES OF NMP AIR PARTICULATE SAMPLES

F ON-SITE STATION *

Results in units of 10^{-3}pCi/m^3 ± 2 sigma

Nuclides	January	February	March	April	May	June
			1985			
Co-60	<4.3	<2.2	<1.4	<1.0	<1.2	<0.9
Mn-54	<2.5	<2.3	<1.4	<2.1	<1.3	<1.5
Cs-134	<2.8	<1.7	<1.5	<1.8	<0.7	<1.4
Cs-137	<2.4	<1.9	<1.2	<1.3	<0.7	<1.2
Nb-95	<2.0	<3.0	<2.0	<1.4	<1.2	<1.4
Zr-95	<6.1	<5.3	<3.8	<3.6	<1.9	<2.7
Ce-141	<3.4	<2.9	<2.0	<2.0	<1.6	<2.6
Ce-144	<8.9	<7.4	<5.5	<6.1	<4.7	<5.3
Ru-106	<17.6	<19.2	<12.4	<15.8	<7.6	<15.4
Ru-103	<2.4	<2.9	<1.6	<2.1	<1.3	<2.2
Be-7	109.0±24.5	120.0±25.7	158.0±23.0	178.0±26.2	169.0±21.4	163.0±26.8
K-40	<29.7	12.9±12.8	<25.9	<23.8	<15.1	19.8±15.4
La-140	<5.3	<7.4	<5.0	<5.0	<3.4	<7.5
Ra-226	<36.5	<37.9	<20.6	<27.4	<19.2	<22.7

Nuclides	July	August	September	October	November	December
Co-60	<0.9	<1.3	<1.7	<1.9	<1.8	<2.4
Mn-54	<1.6	<1.5	<1.1	<2.1	<1.3	<1.5
Cs-134	<1.5	<1.1	<1.6	<1.5	<1.2	<2.2
Cs-137	<1.3	<1.5	<1.9	<1.9	<1.1	<2.1
Nb-95	<2.2	<1.9	<2.0	<1.4	<1.1	<0.9
Zr-95	<2.2	<3.8	<3.2	<4.7	<2.9	<2.4
Ce-141	<2.3	<2.2	<2.3	<1.8	<1.7	<2.2
Ce-144	<5.9	<5.6	<7.1	<6.2	<5.7	<7.7
Ru-106	<14.7	<10.9	<17.2	<8.7	<12.1	<11.0
Ru-103	<1.6	<2.1	<2.0	<1.6	<1.6	<2.0
Be-7	122.0±22.5	116.0±20.7	147.0±23.6	97.3±20.6	87.7±16.8	92.3±22.4
K-40	<28.8	<26.4	<38.0	<23.6	<18.6	22.5±16.3
La-140	<5.1	<7.6	<4.0	<7.2	<3.9	<8.0
Ra-226	<23.1	<20.0	<25.9	<21.0	<17.6	<28.2

*-Optional sample location.

TABLE 9 (Continued)

CONCENTRATION OF GAMMA EMITTERS IN MONTHLY COMPOSITES OF NMP AIR PARTICULATE SAMPLES

G ON-SITE STATION *

Results in units of 10^{-3}pCi/m^3 ± 2 sigma

Nuclides	January	February	March	April	May	June
			1985			
Co-60	<2.8	<1.8	<0.9	<2.4	<1.4	<1.2
Mn-54	<1.6	<1.1	<1.6	<1.3	<1.6	<1.3
Cs-134	<1.9	<1.8	<1.2	<1.8	<1.6	<1.5
Cs-137	<2.0	<2.0	<1.6	<1.4	<1.5	<1.8
Nb-95	<2.1	<3.3	<2.8	<2.3	<2.3	<3.1
Zr-95	<6.3	<4.4	<3.6	<3.1	<4.3	<3.4
Ce-141	<2.6	<2.6	<2.3	<2.2	<2.2	<3.1
Ce-144	<9.6	<6.9	<5.8	<7.4	<6.0	<8.2
Ru-106	<23.0	<17.8	<11.6	<13.2	<13.3	<13.9
Ru-103	<1.8	<2.6	<1.8	<1.9	<1.7	<3.0
Be-7	84.9±23.4	105.0±23.5	141.0±23.7	138.0±24.0	147.0±24.9	131.0±26.9
K-40	<32.5	<26.9	<22.2	<27.3	<24.1	<22.9
La-140	<3.4	<5.3	<6.0	<3.2	<4.8	<11.7
Ra-226	<36.2	<29.4	16.0±10.0	<28.3	<25.5	20.5±15.0

Nuclides	July	August	September	October	November	December
Co-60	<1.4	<1.7	<1.4	<1.5	<1.7	<1.3
Mn-54	<1.5	<1.5	<2.1	<0.9	<1.0	<1.6
Cs-134	<2.0	<1.4	<1.6	<1.4	<1.4	<0.9
Cs-137	<2.4	<1.6	<2.2	<1.4	<1.5	<1.1
Nb-95	<2.0	<2.5	<1.9	<1.8	<1.7	<2.2
Zr-95	<3.6	<3.8	<3.6	<4.2	<2.6	<2.7
Ce-141	<3.3	<2.4	<2.2	<2.2	<2.0	<2.0
Ce-144	<8.6	<6.5	<6.5	<6.6	<5.3	<6.9
Ru-106	<16.8	<14.2	<14.1	<19.7	<18.7	<10.5
Ru-103	<3.3	<2.2	<2.0	<1.8	<2.3	<1.9
Be-7	122.0±26.7	129.0±24.1	113.0±20.5	88.5±19.4	69.9±17.9	77.6±16.8
K-40	<34.9	30.1±17.9	22.3±16.3	<24.5	<32.1	<26.5
La-140	<9.4	<5.6	<4.1	<3.1	<8.8	<2.9
Ra-226	<34.5	<25.6	<24.7	<27.2	<24.6	<23.8

*-Optional sample location

TABLE 9 (Continued)

CONCENTRATION OF GAMMA EMITTERS IN MONTHLY COMPOSITES OF NMP AIR PARTICULATE SAMPLES

H ON-SITE STATION *

Results in units of 10^{-3}pCi/m^3 ± 2 sigma

Nuclides	January	February	March	April	May	June
			1985			
Co-60	<4.3	<2.7	<1.1	<1.7	<1.1	<1.3
Mn-54	<2.7	<1.6	<1.5	<2.4	<1.4	<1.4
Cs-134	<2.5	<1.8	<1.3	<1.4	<1.3	<1.6
Cs-137	<3.1	<2.0	<1.2	<1.3	<1.3	<2.0
Nb-95	<4.2	<2.6	<2.0	<2.4	<2.2	<2.1
Zr-95	<7.1	<4.2	<3.4	<5.2	<3.1	<4.9
Ce-141	<4.1	<2.7	<1.8	<2.5	<1.9	<2.6
Ce-144	<13.4	<5.7	<5.7	<6.6	<5.1	<6.2
Ru-106	<24.3	<18.1	<11.5	<12.4	<8.3	<12.8
Ru-103	<3.7	<2.4	<1.8	<2.7	<1.6	<2.2
Be-7	57.6±27.3	105.0±22.3	130.0±20.9	127.0±24.0	140.0±21.2	126.0±23.9
K-40	<42.5	<28.1	10.0±8.9	<18.0	<20.1	<30.8
La-140	<8.5	<4.5	<6.3	<3.6	<2.7	<11.6
Ra-226	<52.0	<29.1	<22.6	<34.6	<21.6	<22.9

Nuclides	July	August	September	October	November	December
Co-60	<2.5	<1.5	<2.2	<1.7	<2.1	<1.0
Mn-54	<0.6	<1.0	<1.8	<1.1	<1.3	<1.2
Cs-134	<1.6	<1.0	<1.6	<1.2	<1.1	<1.2
Cs-137	<1.8	<1.2	<2.1	<1.2	<1.3	<1.5
Nb-95	<2.1	<2.1	<2.2	<0.8	<1.1	<1.3
Zr-95	<3.8	<4.2	<5.2	<2.7	<2.9	<4.4
Ce-141	<2.3	<2.3	<2.0	<1.5	<2.2	<2.2
Ce-144	<5.7	<4.3	<6.8	<4.7	<4.7	<6.0
Ru-106	<16.5	<10.8	<16.7	<10.6	<9.6	<13.9
Ru-103	<2.0	<1.5	<1.6	<1.1	<1.6	<1.4
Be-7	113.0±21.9	75.2±16.1	125.0±23.7	89.5±15.8	78.7±17.3	96.6±19.3
K-40	<34.5	<26.1	<22.7	<16.7	<19.9	**
La-140	<5.6	<7.6	<3.2	<4.3	<5.5	<2.9
Ra-226	<26.8	<19.1	<25.8	<20.9	<19.6	<25.0

*-Optional sample location

**-The data report showed the error to be greater than the net activity, therefore, a result is not reported here. The original result was 7.6±10.2.

TABLE 9 (Continued)

CONCENTRATION OF GAMMA EMITTERS IN MONTHLY COMPOSITES OF NMP AIR PARTICULATE SAMPLES

I ON-SITE STATION *

Results in units of 10^{-3}pCi/m^3 ± 2 sigma

Nuclides	January	February	March	April	May	June
			1985			
Co-60	<3.0	<2.0	<2.6	<2.0	<1.4	<2.8
Mn-54	<2.9	<2.1	<1.1	<1.1	<1.2	<1.8
Cs-134	<2.0	<1.6	<1.0	<1.1	<1.0	<2.4
Cs-137	<1.9	<1.4	<1.0	<1.8	<1.6	<1.9
Nb-95	<3.2	<2.5	<2.0	<1.9	<0.7	<2.3
Zr-95	<5.8	<3.4	<1.9	<4.2	<2.8	<3.2
Ce-141	<2.8	<2.3	<2.0	<1.9	<2.0	<3.6
Ce-144	<7.9	<7.6	<4.5	<6.3	<5.7	<8.4
Ru-106	<15.0	<15.8	<11.3	<10.5	<14.5	<20.7
Ru-103	<2.2	<1.9	<1.6	<1.6	<1.4	<3.9
Be-7	43.4±16.8	62.9±18.6	76.0±16.9	117.0±20.7	87.8±17.7	110.0±26.4
K-40	<27.1	<18.4	<25.6	<15.3	<21.1	<26.5
La-140	<3.6	<4.3	<3.9	<5.3	<2.8	<11.1
Ra-226	<30.3	<27.2	<20.5	<23.0	<22.1	<31.1

Nuclides	July	August	September	October	November	December
Co-60	<3.3	<1.6	<2.5	<2.0	<1.1	<1.4
Mn-54	<2.9	<1.5	<1.6	<1.2	<1.5	<1.8
Cs-134	<2.3	<1.2	<2.3	<0.9	<1.2	<1.3
Cs-137	<3.7	<1.4	<1.6	<1.2	<1.3	<1.4
Nb-95	<3.2	<1.6	<2.5	<1.7	<2.1	<2.0
Zr-95	<8.5	<4.1	<4.4	<3.6	<3.2	<2.4
Ce-141	<4.0	<2.2	<2.7	<2.1	<2.0	<2.6
Ce-144	<9.3	<5.6	<7.3	<6.6	<5.0	<7.9
Ru-106	<21.3	<11.7	<16.6	<11.5	<12.3	<14.7
Ru-103	<3.1	<2.2	<2.2	<1.6	<1.8	<1.4
Be-7	78.5±25.1	53.0±17.0	93.0±20.7	92.2±17.2	78.2±16.7	84.8±18.1
K-40	34.0±25.4	<30.5	<43.0	<16.1	<16.3	<27.4
La-140	<7.5	<9.8	<5.1	<5.3	<8.4	<6.6
Ra-226	<42.4	<21.8	<33.0	<21.8	<19.8	<29.0

*-Optional sample location

TABLE 9 (Continued)

CONCENTRATION OF GAMMA EMITTERS IN MONTHLY COMPOSITES OF NMP AIR PARTICULATE SAMPLES

J ON-SITE STATION *

Results in units of 10^{-3}pCi/m^3 ± 2 sigma

Nuclides	January	February	March	April	May	June
			1985			
Co-60	<2.8	<2.2	<1.4	<1.8	<1.4	<0.9
Mn-54	<3.3	<1.6	<1.5	<0.9	<1.5	<1.6
Cs-134	<2.4	<1.4	<1.0	<1.3	<0.8	<1.3
Cs-137	<2.2	<1.5	<1.3	<1.6	<1.1	<1.3
Nb-95	<4.0	<3.1	<2.0	<1.9	<1.6	<2.2
Zr-95	<7.9	<6.1	<2.3	<3.6	<3.4	<5.3
Ce-141	<3.6	<2.7	<1.9	<2.0	<1.6	<2.4
Ce-144	<11.2	<6.8	<4.7	<5.2	<5.0	<5.4
Ru-106	<28.6	<16.4	<9.0	<11.4	<7.5	<13.3
Ru-103	<3.8	<2.1	<1.6	<1.9	<1.8	<2.2
Be-7	64.4±22.3	121.0±25.4	124.0±19.7	130.0±22.5	129.0±19.6	89.5±20.8
K-40	<22.4	<18.6	<16.8	<24.0	<12.2	<31.7
La-140	<7.7	<5.3	<3.2	<3.1	<2.8	<7.3
Ra-226	<43.4	<30.4	<19.3	<22.6	<17.2	<22.7

Nuclides	July	August	September	October	November	December
Co-60	<1.5	<2.3	<0.9	<1.7	<2.0	<1.2
Mn-54	<1.9	<1.2	<1.4	<1.0	<1.0	<1.7
Cs-134	<1.6	<1.0	<1.6	<1.2	<0.9	<1.6
Cs-137	<1.3	<1.4	<1.2	<0.8	<0.9	<1.8
Nb-95	<2.0	<1.9	<1.1	<1.3	<2.3	<1.9
Zr-95	<4.6	<4.5	<2.4	<3.6	<3.2	<3.6
Ce-141	<2.5	<1.8	<1.5	<1.8	<1.9	<2.6
Ce-144	<6.3	<4.0	<4.5	<4.6	<4.3	<8.4
Ru-106	<17.7	<11.1	<14.6	<8.5	<7.0	<14.0
Ru-103	<1.9	<1.7	<1.2	<1.7	<1.4	<1.9
Be-7	96.9±20.7	44.3±13.1	66.5±14.6	71.5±15.2	55.0±14.1	62.1±18.3
K-40	<29.0	<21.2	<19.8	<12.6	**	<32.1
La-140	<6.2	<4.8	<2.5	<4.5	<7.2	<3.8
Ra-226	<26.3	<17.5	<20.5	<17.5	<21.3	24.1±14.0

*-Optional sample location

**-The data report showed the error to be equal to the net activity, therefore, a result is not reported here. The original result was 8.5±8.5.

TABLE 9 (Continued)

CONCENTRATION OF GAMMA EMITTERS IN MONTHLY COMPOSITES OF NMP AIR PARTICULATE SAMPLES

K ON-SITE STATION *

Results in units of 10^{-3}pCi/m^3 ± 2 sigma

Nuclides	January	February	March	April	May	June
			1985			
Co-60	<1.2	<2.1	<0.9	<1.2	<1.3	<1.5
Mn-54	<2.5	<1.5	<1.0	<2.1	<1.3	<1.9
Cs-134	<2.0	<1.8	<1.2	<1.6	<1.4	<0.8
Cs-137	<1.6	<1.7	<1.2	<2.0	<1.1	<1.3
Nb-95	<1.8	<1.5	<1.8	<2.6	<1.6	<3.1
Zr-95	<4.1	<3.2	<3.8	<4.3	<3.3	<5.8
Ce-141	<2.2	<2.5	<2.0	<2.6	<1.8	<2.8
Ce-144	<8.6	<7.1	<5.9	<8.3	<4.9	<7.2
Ru-106	<16.4	<16.8	<7.4	<16.9	<11.5	<15.1
Ru-103	<2.7	<1.6	<1.5	<2.5	<1.6	<2.8
Be-7	58.5±18.5	125.0±25.2	130.0±22.4	135.0±26.4	120.0±19.2	96.9±22.3
K-40	<35.9	<22.0	13.4±10.9	<21.8	<21.4	<26.3
La-140	<5.5	<7.2	<4.2	<5.1	<4.6	<8.6
Ra-226	<33.1	<29.5	<22.8	<35.6	<20.2	<26.0

Nuclides	July	August	September	October	November	December
Co-60	<1.6	<1.6	<1.2	<1.9	<0.5	<0.9
Mn-54	<1.7	<1.4	<1.6	<1.2	<0.5	<1.5
Cs-134	<1.5	<1.3	<1.5	<1.4	<0.4	<1.2
Cs-137	<1.6	<0.9	<1.4	<1.5	<0.6	<1.2
Nb-95	<2.4	<1.8	<1.8	<1.8	<0.8	<1.9
Zr-95	<3.8	<3.8	<2.2	<2.8	<1.4	<3.0
Ce-141	<2.7	<2.1	<1.8	<1.8	<0.9	<1.7
Ce-144	<6.5	<4.4	<5.9	<5.4	<2.4	<5.1
Ru-106	<20.1	<10.9	<13.5	<8.9	<5.6	<12.8
Ru-103	<2.5	<1.2	<1.6	<1.0	<0.7	<1.6
Be-7	100.0±21.4	88.6±19.5	85.8±17.3	91.7±16.7	48.6±8.7	103.0±19.7
K-40	<28.4	<28.0	<21.5	<16.6	<11.2	<22.3
La-140	<6.6	<4.9	<3.0	<3.4	<3.0	<5.7
Ra-226	<25.0	<20.0	<21.0	<22.3	<8.7	<19.9

*-Optional sample location

TABLE 9 (Continued)

CONCENTRATION OF GAMMA EMITTERS IN MONTHLY COMPOSITES OF NMP AIR PARTICULATE SAMPLES

G OFF-SITE STATION *

Results in units of 10^{-3}pCi/m^3 ± 2 sigma

Nuclides	January	February	March	April	May	June
			1985			
Co-60	<2.5	<2.1	<2.2	<3.0	<2.1	<1.8
Mn-54	<1.8	<2.4	<1.0	<2.3	<1.5	<1.7
Cs-134	<2.6	<1.4	<1.1	<2.2	<1.7	<2.0
Cs-137	<2.3	<3.1	<1.1	<2.8	<1.2	<2.1
Nb-95	<3.5	<3.2	<2.2	<3.6	<2.4	<1.3
Zr-95	<6.9	<6.6	<4.4	<3.7	<4.0	<7.4
Ce-141	<2.9	<3.6	<2.7	<2.9	<2.4	<3.4
Ce-144	<8.5	<9.7	<7.1	<8.6	<6.1	<8.0
Ru-106	<14.7	<19.1	<13.7	<23.9	<16.3	<12.3
Ru-103	<2.7	<2.6	<2.3	<1.6	<1.6	<2.1
Be-7	115.0±24.5	129.0±29.4	175.0±27.8	176.0±31.2	176.0±29.6	147.0±28.9
K-40	<33.0	<45.1	<11.5	<15.9	16.3±13.3	<30.9
La-140	<6.1	<8.0	<5.0	<6.4	<9.8	<7.5
Ra-226	<36.7	<39.0	<25.6	<41.3	<29.6	<29.8

Nuclides	July	August	September	October	November	December
Co-60	<2.3	<1.8	<2.7	<1.2	<2.4	<2.5
Mn-54	<2.0	<1.2	<2.2	<1.1	<1.9	<1.6
Cs-134	<2.0	<1.3	<1.7	<2.0	<1.6	<1.9
Cs-137	<1.9	<1.3	<1.6	<1.5	<1.0	<1.6
Nb-95	<1.8	<2.9	<1.8	<2.0	<2.6	<2.3
Zr-95	<4.8	<5.1	<4.2	<5.1	<2.9	<3.0
Ce-141	<2.8	<2.5	<2.8	<2.6	<2.4	<3.7
Ce-144	<8.1	<6.5	<8.1	<7.1	<6.4	<13.0
Ru-106	<15.1	<11.3	<20.7	<22.9	<9.9	<16.2
Ru-103	<3.0	<2.3	<1.9	<2.8	<1.3	<3.3
Be-7	171.0±28.8	120.0±22.0	137.0±24.9	103.0±22.4	116.0±22.3	113.0±25.0
K-40	<38.0	<27.7	<21.2	<25.9	<33.5	<39.3
La-140	<14.7	<4.9	<5.9	<4.4	<5.0	<7.3
Ra-226	<28.6	<25.4	<31.2	<26.9	<24.6	<34.0

*-Optional sample location

TABLE 10

NMP/JAF SITE
ENVIRONMENTAL CHARCOAL CARTRIDGE SAMPLES -- OFF SITE STATIONS
I-131 ACTIVITY pCi/M^3 ± 2 sigma

WEEK END DATE	LOCATION					
	R5-OFF	R1-OFF	R2-OFF	R3-OFF	R4-OFF	G--OFF
85/01/08	<0.025	<0.024	<0.031	<0.020	<0.034	<0.024
85/01/15	<0.024	<0.019	<0.025	<0.018	<0.024	<0.020
85/01/23	<0.030	<0.015	<0.018	<0.027	<0.025	<0.025
85/01/29	<0.041	<0.024	<0.017	<0.020	<0.019	<0.014
85/02/05	<0.023	<0.016	<0.026	<0.014	<0.020	<0.014
85/02/11	<0.013	<0.018	<0.014	<0.015	<0.011	<0.033
85/02/19	<0.008	<0.010	<0.010	<0.011	<0.009	<0.015
85/02/26	<0.015	<0.008	<0.017	<0.022	<0.019	<0.012
85/03/05	<0.017	<0.012	<0.016	<0.015	<0.012	<0.024
85/03/12	<0.017	<0.013	<0.010	<0.014	<0.014	<0.015
85/03/19	<0.018	<0.011	<0.018	<0.012	<0.012	<0.030
85/03/25	<0.012	<0.010	<0.014	<0.013	<0.015	<0.009
85/04/02	<0.010	<0.011	<0.015	<0.015	<0.012	<0.015
85/04/09	<0.013	<0.013	<0.009	<0.011	<0.015	<0.018
85/04/06	<0.012	<0.009	<0.013	<0.010	<0.011	<0.011
85/04/23	<0.017	<0.010	<0.014	<0.019	<0.010	<0.012
85/04/30	<0.015	<0.013	<0.006	<0.014	<0.010	<0.018
85/05/07	<0.018	<0.015	<0.013	<0.009	<0.012	<0.016
85/05/14	<0.009	<0.004	<0.012	<0.012	<0.004	<0.017
85/05/21	<0.014	<0.011	<0.011	<0.009	<0.015	<0.014
85/05/29	<0.008	<0.009	<0.013	<0.008	<0.013	<0.016
85/06/4	<0.015	<0.012	<0.009	<0.009	<0.016	<0.013
85/06/11	<0.013	<0.011	<0.010	<0.008	<0.011	<0.014
85/06/18	<0.014	<0.014	<0.016	<0.017	<0.012	<0.013
85/06/24	<0.013	<0.013	<0.014	<0.011	<0.012	<0.013
85/07/02	<0.041	<0.047	<0.044	<0.055	<0.048	<0.062
85/07/09	<0.058	<0.055	<0.037	<0.038	<0.046	<0.069
85/07/17	<0.013	<0.011	<0.012	<0.012	<0.007	<0.017
85/07/23	<0.018	<0.007	<0.015	<0.009	<0.010	<0.010
85/07/30	<0.015	<0.010	<0.011	<0.012	<0.010	<0.011
85/08/06	<0.012	<0.008	<0.010	<0.012	<0.010	<0.008
85/08/13	<0.015	<0.012	<0.005	<0.012	<0.009	<0.013
85/08/20	<0.006	<0.011	<0.008	<0.007	<0.008	<0.011
85/08/27	<0.015	<0.007	<0.010	<0.008	<0.011	<0.019
85/09/04	<0.000	<0.005	<0.010	<0.007	<0.009	<0.009
85/09/10	<0.007	<0.008	<0.008	<0.015	<0.019	<0.014
85/09/17	<0.009	<0.011	<0.010	<0.012	<0.011	<0.015
85/09/24	<0.015	<0.008	<0.013	<0.011	<0.010	<0.018
85/10/1	<0.009	<0.010	<0.011	<0.012	<0.011	<0.015
85/10/08	<0.008	<0.007	<0.008	<0.016	<0.010	<0.013
85/10/16	<0.009	<0.009	<0.006	<0.010	<0.010	<0.010
85/10/22	<0.008	<0.009	<0.012	<0.011	<0.011	<0.018
85/10/29	<0.006	<0.005	<0.010	<0.004	<0.010	<0.013
85/11/05	<0.010	<0.011	<0.007	<0.010	<0.011	<0.010
85/11/12	<0.012	<0.008	<0.009	<0.010	<0.008	<0.011
85/11/19	<0.008	<0.009	<0.026	<0.010	<0.008	<0.021
85/11/26	<0.011	<0.011	<0.007	<0.004	<0.010	<0.011
85/12/03	<0.010	<0.012	<0.010	<0.014	<0.008	<0.012
85/12/10	<0.013	<0.014	<0.011	<0.014	<0.011	<0.013
85/12/17	<0.008	<0.010	<0.010	<0.009	<0.012	<0.012
85/12/23	<0.015	<0.011	<0.017	<0.011	<0.012	<0.018
85/12/30	<0.005	<0.010	<0.011	<0.007		<0.012

TABLE 11

NMP/JAF SITE
ENVIRONMENTAL CHARCOAL CARTRIDGE SAMPLES - ON SITE STATIONS
I-131 ACTIVITY pCi/m^3 ± 2 sigma

LOCATION

* - Pump Not Operational

WEEK END DATE	D1-ON	D2-ON	E--ON	F--ON	G--ON	H--ON	I--ON	J--ON	K--ON
85/01/07	<0.025	<0.033	<0.023	<0.019	<0.032	<0.028	<0.018	<0.036	<0.029
85/01/14	<0.031	<0.032	<0.022	<0.023	<0.023	<0.039	<0.021	<0.025	<0.018
85/01/23	<0.021	<0.022	<0.041	<0.022	<0.023	<0.011	<0.015	<0.058	<0.009
85/01/28	<0.017	<0.029	<0.021	<0.019	<0.021	<0.027	<0.025	<0.022	<0.017
85/02/04	<0.019	<0.027	<0.012	<0.019	<0.017	<0.011	<0.028	<0.024	<0.014
85/02/11	<0.014	<0.028	<0.012	<0.016	<0.015	<0.011	<0.014	<0.015	<0.013
85/02/19	<0.013	<0.019	<0.010	<0.011	<0.009	<0.014	<0.011	<0.011	<0.011
85/02/25	<0.009	<0.017	<0.011	<0.019	<0.013	<0.015	<0.018	<0.012	<0.014
85/03/05	<0.015	<0.015	<0.018	<0.018	<0.013	<0.015	<0.015	<0.014	<0.016
85/03/11	<0.013	<0.010	<0.016	<0.016	<0.007	<0.013	<0.013	<0.013	<0.013
85/03/18	<0.064	<0.014	<0.011	<0.010	<0.008	<0.012	<0.009	<0.013	<0.013
85/03/25	<0.012	<0.018	<0.017	<0.013	<0.008	<0.012	<0.010	<0.012	<0.013
85/04/01	<0.009	<0.019	<0.010	<0.017	<0.012	<0.011	<0.011	<0.009	<0.013
85/04/08	<0.010	<0.016	<0.012	<0.012	<0.011	<0.011	<0.009	<0.010	<0.051
85/04/15	<0.006	<0.010	<0.009	<0.008	<0.007	<0.013	<0.007	<0.008	<0.011
85/04/22	<0.013	<0.065	<0.013	<0.014	<0.014	<0.008	<0.012	<0.010	<0.013
85/04/29	<0.006	<0.013	<0.009	<0.009	<0.013	<0.012	<0.011	<0.010	<0.015
85/05/06	<0.007	<0.015	<0.013	<0.010	<0.010	<0.011	<0.011	<0.010	<0.014
85/05/13	<0.009	<0.019	<0.009	<0.012	<0.013	<0.006	<0.013	<0.013	<0.013
85/05/20	<0.034	<0.011	<0.009	<0.011	<0.012	<0.009	<0.009	<0.008	<0.009
85/05/28	<0.012	<0.012	<0.012	<0.009	<0.015	<0.009	<0.015	<0.007	<0.009
85/06/03	<0.011	<0.011	<0.011	<0.011	<0.014	<0.014	<0.017	<0.006	<0.011
85/06/10	<0.010	<0.016	<0.008	<0.011	<0.010	<0.009	<0.013	<0.008	<0.014
85/06/17	<0.008	<0.007	<0.010	<0.009	<0.011	<0.015	<0.015	<0.010	<0.007
85/06/24	<0.013	<0.016	<0.007	<0.008	<0.013	<0.013	<0.012	<0.007	<0.009
85/07/02	<0.043	<0.045	<0.048	<0.030	<0.045	<0.036	<0.047	<0.023	<0.033
85/07/08	<0.023	<0.058	<0.033	<0.049	<0.039	<0.052	<0.068	<0.051	<0.052
85/07/16	<0.011	<0.010	<0.010	<0.010	<0.014	<0.010	*	<0.007	<0.005
85/07/22	<0.009	<0.020	<0.013	<0.010	<0.016	<0.014	<0.014	<0.012	<0.014
85/07/29	<0.013	<0.011	<0.012	<0.010	<0.015	<0.014	<0.009	<0.009	<0.007
85/08/05	<0.014	<0.015	<0.013	<0.007	<0.014	<0.008	<0.011	<0.013	<0.013
85/08/12	<0.022	<0.011	<0.008	<0.014	<0.017	<0.010	<0.013	<0.016	<0.009
85/08/19	<0.009	<0.014	<0.011	<0.010	<0.018	<0.012	<0.009	<0.021	<0.008
85/08/26	<0.013	<0.020	<0.010	<0.011	<0.016	<0.011	<0.013	<0.006	<0.012
85/09/03	<0.009	<0.006	<0.006	<0.011	<0.011	<0.012	<0.010	<0.010	<0.009
85/09/09	<0.017	<0.014	<0.015	<0.014	<0.017	<0.013	<0.020	<0.010	<0.012
85/09/16	<0.010	<0.013	<0.013	<0.010	<0.014	<0.011	<0.016	<0.010	<0.012
85/09/23	<0.013	<0.016	<0.016	<0.016	<0.006	<0.011	<0.016	<0.009	<0.006
85/09/30	<0.010	<0.020	<0.007	<0.005	<0.009	<0.012	<0.011	<0.010	<0.007
85/10/07	<0.009	<0.015	<0.009	<0.008	<0.012	<0.011	<0.011	<0.006	<0.009
85/10/15	<0.012	<0.013	<0.010	<0.012	<0.006	<0.012	<0.008	<0.008	<0.010
85/10/21	<0.010	<0.017	<0.008	<0.010	<0.009	<0.013	<0.009	<0.011	<0.016
85/10/28	<0.012	<0.016	<0.006	<0.011	<0.013	<0.012	<0.009	<0.009	<0.007
85/11/04	<0.009	<0.020	<0.011	<0.012	<0.010	<0.008	<0.012	<0.004	<0.010
85/11/12	<0.010	<0.010	<0.009	<0.009	<0.016	<0.007	<0.004	<0.005	<0.004
85/11/19	<0.013	<0.011	<0.007	<0.011	<0.021	<0.012	<0.008	<0.014	<0.007
85/11/25	*	<0.019	<0.013	<0.013	<0.010	<0.013	<0.008	<0.009	<0.007
85/12/02	<0.008	<0.018	<0.011	<0.009	<0.011	<0.011	<0.007	<0.009	<0.008
85/12/09	<0.011	<0.016	<0.016	<0.010	<0.009	<0.008	<0.012	*	<0.010
85/12/16	<0.010	<0.013	<0.011	<0.012	<0.009	<0.010	<0.011	<0.015	<0.012
85/12/23	<0.013	<0.015	<0.016	<0.010	<0.010	<0.009	<0.010	<0.012	<0.011
85/12/30	<0.016	<0.014	<0.005	<0.009	<0.010	<0.009	<0.013	<0.015	<0.012

TABLE 12A

DIRECT RADIATION MEASUREMENT RESULTS

Results in units of mrem/quarterly period ± 2 sigma

Station Number	Location 1985	January Through March	April Through June	July Through September	October Through December	Location (Direction and (Distance)(3)
3	D1 On Site	26.2±1.6	17.1±0.2	36.9±1.8	47.7±3.2	0.2 miles @ 69°
4	D2 On Site	18.3±1.2	16.7±0.6	18.3±0.6	18.4±0.2	0.4 miles @ 140°
5	E On Site	17.5±1.1	15.6±0.8	17.4±0.8	16.6±0.5	0.4 miles @ 175°
6	F On Site	15.7±0.6	14.1±0.3	15.7±1.3	14.8±1.1	0.5 miles @ 210°
7*	G On Site	15.7±0.8	13.4±0.2	19.2±0.6	17.6±1.1	0.7 miles @ 250°
8	R-5 Off Site-Control	17.6±1.2	16.1±0.6	22.7±0.8	17.2±0.8	16.4 miles @ 42°
9	D1 Off Site	15.4±0.9	14.4±0.3	19.4±0.2	16.6±0.6	11.4 miles @ 80°
10	D2 Off Site	15.6±0.7	14.9±0.4	19.2±0.4	15.4±0.6	9.0 miles @ 117°
11	E Off Site	13.4±1.1	14.2±0.1	18.8±1.0	15.1±0.4	7.2 miles @ 160°
12	F Off Site	15.2±1.0	14.2±0.3	18.6±0.6	16.5±0.8	7.7 miles @ 190°
13	G Off Site	16.1±1.2	14.4±0.6	19.1±0.4	15.0±0.5	5.3 miles @ 225°
14*	DeMass Rd, SW Oswego-Control	16.7±1.5	14.1±0.4	20.0±0.6	16.0±0.5	12.6 miles @ 226°
15*	Pole 66, W. Boundary-Bible Camp	14.4±1.5	11.8±0.3	17.8±1.0	15.0±0.6	0.9 miles @ 237°
18*	Energy Info. Center-Lamp Post, SW	16.0±1.4	15.1±0.3	20.6±0.5	16.8±0.5	0.4 miles @ 265°
19	East Boundary-JAF, Pole 9	17.4±1.6	15.6±0.6	18.7±0.8	15.4±0.4	1.3 miles @ 81°
23*	H On Site	20.3±1.8	15.8±0.6	25.2±1.4	23.8±0.8	0.8 miles @ 70°
24	I On Site	17.1±0.9	14.6±0.3	22.4±0.4	16.3±0.5	0.8 miles @ 98°
25	J On Site	17.4±0.8	14.3±0.4	18.6±0.7	14.8±0.6	0.9 miles @ 110°
26	K On Site	16.5±0.9	17.0±0.2	17.7±0.5	14.7±0.6	0.5 miles @ 132°
27	N. Fence, N. of Switchyard, JAF	42.8±6.2	26.1±1.5	64.2±7.4	84.9±10.0	0.4 miles @ 60°
28	N. Light Pole, N. of Screenhouse,JAF	63.4±11.8	40.1±4.9	83.6±11.6	110.2±20.0	0.5 miles @ 68°
29	N. Fence, N. of W. Side Screenhouse, JAF	93.9±15.8	98.8±12.3	134.0±12.3	179.4±22.8	0.5 miles @ 65°
30	N Fence (NW) JAF	33.4±3.5	19.7±1.1	52.3±4.2	65.4±6.0	0.4 miles @ 57°
31	N. Fence (NW) NMP-1	25.0±1.6	22.6±1.2	31.2±3.7	26.0±2.0	0.2 miles @ 276°
39	N. Fence, Rad. Waste, NMP-1	36.1±5.1	36.5±1.9	44.4±3.2	38.0±3.8	0.2 miles @ 292°

TABLE 12A (Continued)

DIRECT RADIATION MEASUREMENT RESULTS

Results in units of mrem/quarterly period ± 2 sigma

Station Number	Location	1985	January Through March	April Through June	July Through September	October Through December	Location (Direction and (Distance)(3)
47	N. Fence, NE, JAF		(1)	22.0±1.4	45.7±2.6	47.8±3.6	0.6 miles @ 69°
49*	Phoenix, NY-Control		15.2±0.8	13.6±0.3	19.3±0.6	14.1±0.6	19.8 miles @ 170°
51	Liberty & Bronson Sts., E. of OSS		15.5±0.9	14.5±0.4	18.9±0.5	17.1±0.8	7.4 miles @ 233°
52	East 12th & Cayuga Sts., Osw. School		14.9±0.4	13.9±0.2	18.2±0.6	13.8±0.4	5.8 miles @ 227°
53	Broadwell & Chestnut Sts., Fulton H.S.		15.4±0.7	18.7±0.6	20.3±1.3	15.3±0.5	13.7 miles @ 183°
54	Liberty St. & Co. Rt. 16, Mexico H.S.		14.9±1.9	14.1±0.4	17.6±0.2	14.4±0.4	9.3 miles @ 115°
55	Gas Substation, Co. Rt. 5, Pulaski		14.3±0.5	15.2±0.4	18.0±0.4	17.4±1.2	13.0 miles @ 75°
56*	Rt. 104 - New Haven Sch. (SE Corner)		14.6±0.6	15.9±0.8	19.3±0.6	17.0±1.0	5.3 miles @ 123°
58*	Co. Rt. 1A - Alcan (E. of Entrance Rd.)		14.5±0.7	15.0±0.6	19.6±0.7	14.2±0.5	3.1 miles @ 220°
59	Environmental Lab - JAF		40.4±3.1	18.6±0.9	24.9±1.2	25.8±2.4	0.5 miles @ 95°
75*	Unit 2, N. Fence, N. of Reactor Bldg.		19.0±0.6	14.3±0.8	20.9±0.6	16.3±0.7	0.1 miles @ 5°
76*	Unit 2, N. Fence, N. of Change House		25.2±4.4	14.9±0.8	21.4±0.7	16.9±1.0	0.1 miles @ 25°
77*	Unit 2, N. Fence, N. of Pipe Bldg.		29.0±3.0	13.2±0.6	23.4±2.2	19.6±0.7	0.2 miles @ 45°
78*	JAF, E. OF E. Old Laydown Area		17.2±1.2	15.2±0.6	21.3±0.3	16.9±0.5	1.0 miles @ 90°
79*	Co. Rt. 29, Pole #63, 0.2 mi. S. of Lake Rd.		15.2±1.2	12.6±0.3	19.2±0.7	12.8±0.4	1.1 miles @ 115°
80*	Co. Rt. 29, Pole #54, 0.7 mi. S. of Lake Rd.		15.8±1.0	13.9±0.4	20.1±0.6	16.6±1.0	1.4 miles @ 133°
81*	Miner Rd., Pole #16, 0.5 mi. W. of Rt. 29		14.9±0.5	12.8±0.4	18.4±0.6	(1)	1.6 miles @ 159°
82*	Miner Rd., Pole # 1 1/2, 1.1 mi. W. of Rt. 29		15.0±0.6	13.2±0.3	18.1±0.8	14.1±0.4	1.6 miles @ 181°
83*	Lakeview Rd., Tree 0.45 mi. N. of Miner Rd.		14.8±1.0	13.2±0.4	18.2±0.8	13.7±0.5	1.2 miles @ 200°
84*	Lakeview Rd., N., Pole # 6117, 200 Ft. N. of Lake Rd.		14.4±1.0	13.0±0.4	18.2±0.7	13.4±0.5	1.1 miles @ 225°
85*	Unit 1, N. Fence, N. of W. Side of Screen House		34.6±4.8	28.0±1.4	38.2±5.0	32.8±3.4	0.2 miles @ 294°
86*	Unit 2, N. Fence, N. of W. Side of Screen House		20.4±1.6	15.2±0.8	21.4±0.6	24.4±2.9	0.1 miles @ 315°
87*	Unit 2, N. Fence, N. Of E. Side of Screen House		23.2±2.6	19.2±1.2	24.5±0.9	16.1±1.2	0.1 miles @ 341°
88*	Demster Beach Rd., Pole #35, 0.6 mi. N.. of Rt. 1		16.0±0.5	14.2±0.2	(1)	(1)	4.8 miles @ 97°

TABLE 12A (Continued)

DIRECT RADIATION MEASUREMENT RESULTS

Results in units of mrem/quarterly period ± 2 sigma

Station Number	Location	1985	January Through March	April Through June	July Through September	October Through December	Location (Direction and (Distance)(3)
89*	Leavitt Rd., Pole #16, 0.4 mi. S., of Rt. 1		14.8±1.6	13.9±0.4	21.0±0.4	14.0±0.6	4.1 miles @ 111°
90*	Rt. 104, Pole #300, 150 Ft. E. of Keefe Rd.		15.6±1.0	12.6±0.2	17.6±0.9	14.2±0.6	4.2 miles @ 135°
91*	Rt. 51A, Pole #59, 0.8 mi. W., of Rt. 51		14.3±0.8	12.4±0.4	14.6±0.4	13.5±0.4	4.8 miles @ 156°
92*	Maiden Lane Rd., Power Pole, 0.6 mi., S. of Rt, 104		16.4±0.8	14.8±0.2	17.4±0.6	14.9±0.4	4.4 miles @ 183°
93*	Rt. 53, Pole 1-1, 120 Ft. S. of Rt. 104		15.2±1.2	13.0±0.3	17.4±0.4	17.8±-1.3	4.4 miles @ 205°
94*	Rt. 1, Pole #82, 250 Ft. E. of Kocher Rd.		14.6±0.4	13.0±0.3	17.6±0.7	13.4±0.6	4.7 miles @ 223°
95*	Lakeshore Camp Site, From Alcan W. Access Rd., Pole #21, 1.2 mi. N. of Rt. 1		14.5±0.6	12.3±0.2	17.4±0.5	13.4±0.4	4.1 miles @ 237°
96*	Creamery Rd., 0.3mi. S. of Middle Rd., Pole 1 1/2		14.0±0.8	13.4±0.8	18.7±0.6	16.8±0.4	3.6 miles @ 199°
97*	Rt. 29, Pole #50, 200 Ft. N. of Miner Rd.		15.4±0.8	13.5±0.2	19.0±1.4	14.6±0.4	1.8 miles @ 143°
98*	Lake Rd., Pole #145, 0.15 mi. E. of Rt. 29		16.5±1.4	14.8±0.4	20.1±0.5	14.6±0.4	1.2 miles @ 101°
99	NMP Rd., 0.4 miles N. of Lake Rd., Env. Station R1 Off-Site		15.8±1.4	15.8±0.3	20.1±0.8	16.0±0.6	1.8 miles @ 88°
100	Rt. 29 and Lake Rd., Env. Station R2 Off-Site		14.8±0.6	14.1±0.5	19.8±0.4	16.4±0.9	1.1 miles @ 104°
101	Rt. 29, 07 mi. S. of Lake Rd., Env. Station R3 Off-Site		17.2±1.0	13.1±0.6	18.8±0.8	15.2±0.5	1.5 miles @ 132°
102	EOF/Env. Lab, Oswego Co. Airport (Fulton Airport), Rt. 176		(2)	(2)	18.8±1.2	15.6±0.8	11.9 miles @ 175°
103	EIC, East Garage Rd., Lamp Post		(2)	11.2±0.4	(1)	14.7±0.4	0.4 miles @ 267°

(1) TLD lost in the field.
(2) TLD not established during the quarterly peribd.
(3) Direction and distance based on NMP-2 reactor centerline and sixteen 22.5° sector grid.
* Technical Specification location

TABLE 12B

DIRECT RADIATION MEASUREMENT RESULTS

Results in units of mrem/standard month ± 2 sigma

Station Number	Location	1985 January Through March	April Through June	July Through September	October Through December	Location (Direction and (Distance)(3)
3	D1 On Site	9.4±1.2	5.8±0.2	12.2±1.2	14.7±1.9	0.2 miles @ 69°
4	D2 On Site	6.6±0.9	5.6±0.4	6.1±0.4	5.7±0.1	0.4 miles @ 140°
5	E On Site	6.3±0.8	5.2±0.6	5.7±0.5	5.2±0.3	0.4 miles @ 175°
6	F On Site	5.7±0.4	4.7±0.2	5.2±0.9	4.7±0.7	0.5 miles @ 210°
7*	G On Site	5.7±0.6	4.4±0.1	6.4±0.4	5.4±0.7	0.7 miles @ 250°
8	R-5 Off Site-Control	6.3±0.9	5.4±0.4	7.7±0.5	5.4±0.4	16.4 miles @ 42°
9	D1 Off Site	5.5±0.6	4.8±0.2	6.6±0.2	5.1±0.4	11.4 miles @ 80°
10	D2 Off Site	5.6±0.5	5.0±0.2	6.5±0.3	4.7±0.4	9.0 miles @ 117°
11	E Off Site	4.8±0.8	4.7±0.1	6.4±0.8	4.6±0.2	7.2 miles @ 160°
12	F Off Site	5.5±0.7	4.7±0.2	6.3±0.4	5.1±0.5	7.7 miles @ 190°
13	G Off Site	5.8±0.9	4.8±0.4	6.4±0.3	4.8±0.4	5.3 miles @ 225°
14*	DeMass Rd., SW Oswego-Control	6.1±1.1	4.7±0.3	6.8±0.4	5.0±0.2	12.6 miles @ 226°
15*	Pole 66, W. Boundary-Bible Camp	5.2±1.1	3.9±0.1	6.0±0.7	4.7±0.4	0.9 miles @ 237°
18*	Energy Info. Center - Lamp Post, SW.	5.8±1.0	5.0±0.2	7.0±0.3	5.3±0.3	0.4 miles @ 265°
19	East Boundary-JAF, Pole 9	6.4±1.2	5.2±0.4	6.3±0.5	4.7±0.2	1.3 miles @ 81°
23*	H On Site	7.4±1.4	5.2±0.4	8.4±0.9	7.4±0.5	0.8 miles @ 70°
24	I On Site	6.2±0.6	4.8±0.2	7.5±0.3	5.0±0.3	0.8 miles @ 98°
25	J On Site	6.3±0.6	4.7±0.3	6.2±0.5	4.6±0.4	0.9 miles @ 110°
26	K On Site	6.0±0.6	5.6±0.1	5.9±0.4	4.6±0.3	0.5 miles @ 132°
27	N. Fence, N. of Switchyard, JAF	15.3±4.4	8.6±1.0	21.6±5.5	26.1±6.2	0.4 miles @ 60°
28	N. Light Pole, N. of Screenhouse, JAF	22.7±8.4	13.3±3.2	28.2±7.8	33.9±12.4	0.5 miles @ 68°
29	N. Fence, N. of W. Side Screenhouse, JAF	33.6±11.3	32.7±8.1	45.2±8.3	55.2±14.1	0.5 miles @ 65°
30	N. Fence (NW) JAF	12.0±2.5	6.5±0.7	17.6±2.8	20.1±3.6	0.4 miles @ 57°
31	N. Fence (NW) NMP-1	8.9±1.2	7.6±0.8	10.2±2.4	7.8±1.2	0.2 miles @ 276°
39	N. Fence, Rad Waste, NMP-1	12.9±3.6	12.3±1.3	14.6±2.2	11.4±2.2	0.2 miles @ 292°

TABLE 12B (Continued)

DIRECT RADIATION MEASUREMENT RESULTS

Results in units of mrem/standard month ± 2 sigma

Station Number	Location	1985	January Through March	April Through June	July Through September	October Through December	Location (Direction and (Distance)(3)
47	N. Fence, NE, JAF		(1)	7.3±1.0	15.4±1.8	14.7±2.2	0.6 miles @ 69°
49*	Phoenix, NY-Control		5.4±0.6	4.5±0.2	6.4±0.4	4.4±0.4	19.8 miles @ 170°
51	Liberty & Bronson Sts., E of OSS		5.6±0.6	4.9±0.2	6.4±0.3	5.2±0.5	7.4 miles @ 233°
52	East 12th & Cayuga Sts., Osw. School		5.4±0.3	4.7±0.2	6.1±0.4	4.2±0.2	5.8 miles @ 227°
53	Broadwell & Chestnut Sts., Fulton H.S.		5.6±0.5	6.2±0.4	6.8±0.8	4.7±0.3	13.7 miles @ 183°
54	Liberty St., & Co. Rte. 16, Mexico H.S.		5.4±1.4	4.7±0.2	6.0±0.2	4.4±0.3	9.3 miles @ 115°
55	Gas Substation & Co. Rt. 5 - Pulaski		5.2±0.3	5.1±0.3	6.1±0.3	5.4±0.8	13.0 miles @ 75°
56*	Rt. 104 - New Haven Sch. (SE Corner)		5.3±0.5	5.3±0.5	6.5±0.4	5.2±0.6	5.3 miles @ 123°
58*	Co. Rt. 1A - Alcan (E. of E. Entrance Rd.)		5.3±0.6	5.0±0.4	6.6±0.5	4.3±0.3	3.1 miles @ 220°
59	Environmental Lab - JAFNPP		14.5±2.2	6.2±0.6	8.4±0.8	7.9±1.5	0.5 miles @ 95°
75*	Unit 2, N. Fence, N. of Reactor Bldg.		6.7±0.4	4.8±0.5	7.0±0.4	5.2±0.4	0.1 miles @ 5°
76*	Unit 2, N. Fence, N. of Change House		8.8±3.0	5.0±0.6	7.0±0.4	5.4±0.6	0.1 miles @ 25°
77*	Unit 2, N. Fence, N. of Pipe Bldg.		10.1±2.1	6.1±0.4	7.7±1.4	6.2±0.4	0.2 miles @ 45°
78*	JAF, E. of E. Old Lay Down Area		6.1±0.9	5.0±0.4	7.2±0.2	5.2±0.3	1.0 miles @ 90°
79*	Co. Rt. 29, Pole #63, 0.2 mi. S. of Lake Rd.		5.4±0.9	4.1±0.2	6.4±0.4	4.0±0.2	1.1 miles @ 115°
80*	Co. Rt. 29, Pole #54, 0.7 mi. S. of Lake Rd.		5.6±0.8	4.6±0.2	6.8±0.4	5.2±0.6	1.4 miles @ 133°
81*	Miner Rd., Pole #16, 0.5 mi. W. of Rt. 29		5.2±0.4	4.2±0.3	6.2±0.4	(1)	1.6 miles @ 159°
82*	Miner Rd., Pole #1 1/2, 1.1 mi. W. of Rt. 29		5.2±0.5	4.4±0.2	6.2±0.6	4.4±0.2	1.6 miles @ 181°
83*	Lakeview Rd., Tree, 0.45 mi. N. of Miner Rd.		5.2±0.7	4.4±0.3	6.2±0.6	4.2±0.3	1.2 miles @ 200°
84*	Lakeview Rd. N., Pole #6117, 200 Ft. N. of Lake Rd.		5.0±0.7	4.3±0.2	6.2±0.5	4.2±0.4	1.1 miles @ 225°
85*	Unit 1, N. Fence, N. of W. Side of Screen House		12.2±3.4	9.4±0.9	12.6±3.4	9.8±2.0	0.2 miles @ 294°
86*	Unit 2, N. Fence, N. of W. Side of Screen House		7.2±1.1	5.1±0.5	7.0±0.4	7.9±1.8	0.1 miles @ 315°
87*	Unit 2, N. Fence, N. of E. side of Screen House		8.1±1.8	6.4±0.8	8.0±0.6	5.2±0.8	0.1 miles @ 341°
88*	Demster Beach Rd., Pole #35, 0.6 mi. N. of Rt. 1		5.6±0.4	4.7±0.1	(1)	(1)	4.8 miles @ 97°

TABLE 12B (Continued)

DIRECT RADIATION MEASUREMENT RESULTS

Results in units of mrem/standard month ± 2 sigma

Station Number	Location	1985	January Through March	April Through June	July Through September	October Through December	Location (Direction and (Distance)(3)
89*	Leavitt Rd., Pole #16, 0.4 mi. S. of Rt. 1		5.2±1.1	4.4±0.3	7.1±0.2	4.3±0.4	4.1 miles @ 111°
90*	Rt. 104, Pole #300, 150 Ft. E. of Keefe Rd.		5.4±0.8	4.0±0.1	6.0±0.6	4.4±0.3	4.2 miles @ 135°
91*	Rt. 51A, Pole #59, 0.8 mi. W. of Rt. 51		5.2±0.6	4.1±0.3	4.9±0.3	4.2±0.3	4.8 miles @ 156°
92*	Maiden Lane Rd., Power Pole, 0-6 mi., S. of Rt. 104		5.9±0.6	5.0±0.1	5.8±0.4	4.6±0.2	4.4 miles @ 183°
93*	Rt. 53, Pole 1-1, 120 Ft. S. of 104		5.6±0.9	4.4±0.2	5.8±0.2	5.5±0.8	4.4 miles @ 205°
94*	Rt. 1, Pole #82, 250 ft. E. of Kocher Rd.		5.2±0.3	4.1±0.1	6.0±0.4	4.2±0.4	4.7 miles @ 223°
95*	Lakeshore Camp Site, From Alcan W. Access Rd., Pole #21, 1.2 mi. N. of Rt. 1		5.3±0.4	4.1±0.1	5.8±0.4	4.1±0.3	4.1 miles @ 237°
96*	Creamery Rd., 0.3 mi. S of Middle Rd., Pole 1 1/2		5.1±0.6	4.5±0.5	6.3±0.4	5.2±0.3	3.6 miles @ 199°
97*	Rt. 29, Pole #50, 200 Ft. N. of Miner Rd.		5.4±0.6	4.4±0.1	6.4±1.0	4.6±0.2	1.8 miles @ 143°
98*	Lake Rd., Pole #145, 0.15 mi. E. of Rt. 29		5.8±1.1	4.8±0.2	6.8±0.4	4.6±0.2	1.2 miles @ 101°
99	NMP Rd., 0.4 miles N. of Lake Rd., Env. Station R1 Off-Site		5.6±1.1	5.2±0.2	6.8±0.6	5.0±0.4	1.8 miles @ 88°
100	Rt. 29 and Lake Rd., Env. Station R2 Off-Site		5.2±0.4	4.6±0.3	6.6±0.2	5.2±0.8	1.1 miles @ 104°
101	Rt. 29, 0.7 mi. S. of Lake Rd., Env. Station R3 Off-Site		6.0±0.7	4.3±0.4	6.4±0.6	4.8±0.4	1.5 miles @ 132°
102	EOF/Env. Lab, Oswego Co. Airport (Fulton Airport), Rt. 176		(2)	(2)	6.3±0.8	4.8±0.5	11.9 miles @ 175°
103	EIC, East Garage Rd., Lamp Post		(2)	6.8±0.4	(1)	4.7±0.2	0.4 miles @ 267°

(1) TLD lost in field.
(2) TLD not established during the quarterly period.
(3) Direction and distance based on NMP-2 reactor centerline and sixteen 22.5° sector grid.
* Technical Specification location.

TABLE 13

CONCENTRATION OF GAMMA EMITTERS IN MILK
Results in units of pCi/liter ± 2 sigma

Station	Nuclides	4-8-85	4-22-85	5-6-85	5-20-85	6-3-85	6-17-85
7	K-40	1380±140	1380±140	1270±130	1360±140	1250±130	1360±140
	Cs-134	<5.3	<8.3	<4.0	<5.2	<5.2	<5.1
	Cs-137	<5.2	<7.6	<4.0	<6.4	<6.4	<6.2
	Ba/La-140	<6.2	<7.7	<4.1	<5.3	<6.3	<8.3
	Others	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD
16	K-40	1320±130	1240±120	1330±130	1370±140	1260±130	1040±100
	Cs-134	<4.6	<4.5	<4.4	<7.5	<8.1	<7.8
	Cs-137	<4.5	<4.1	<4.2	<7.6	<7.5	<7.7
	Ba/La-140	<6.1	<4.5	<4.3	<8.2	<8.5	<9.6
	Others	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD
50	K-40	1220±120	1380±140	1310±130	1350±140	1480±150	1240±120
	Cs-134	<4.6	<4.1	<5.5	<5.9	<6.6	<6.2
	Cs-137	<4.2	<4.3	<5.1	<5.8	<6.4	<5.8
	Ba/La-140	<6.3	<4.5	<5.4	<5.4	<7.2	<9.3
	Others	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD
55	K-40	1440±140	1520±150	1620±160	1330±130	1410±140	1450±150
	Cs-134	<4.4	<5.5	<8.3	<3.9	<3.9	<4.5
	Cs-137	<4.0	<5.3	<7.9	<4.6	<3.9	<4.4
	Ba/La-140	<5.7	<5.7	<8.1	<4.9	<4.3	<5.3
	Others	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD

TABLE 13 (Continued)

CONCENTRATION OF GAMMA EMITTERS IN MILK
Results in units of pCi/liter ± 2 sigma

Station	Nuclides	4-8-85	4-22-85	5-6-85	5-20-85	6-3-85	6-17-85
60	K-40	1570±160	1350±140	1400±140	1420±140	1390±140	1400±140
	Cs-134	<6.6	<4.0	<5.3	<4.3	<4.1	<4.4
	Cs-137	<6.5	<4.4	<5.9	<4.1	<4.4	<4.4
	Ba/La-140	<7.5	<4.2	<5.8	<4.4	<4.2	<5.1
	Others	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD
4	K-40	1400±140	1410±140	1370±140	1490±150	1320±130	1420±140
	Cs-134	<4.3	<4.3	<4.3	<8.1	<5.7	<6.2
	Cs-137	<4.0	<4.5	<4.0	<7.7	<6.1	<6.9
	Ba/La-140	<5.5	<4.8	<3.7	<8.3	<6.5	<7.8
	Others	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD
40* (Control)	K-40	967±97	1350±140	1520±150	1430±140	1400±140	1490±150
	Cs-134	<6.6	<7.9	<4.4	<7.5	<5.6	<5.4
	Cs-137	<6.1	<7.1	<4.2	<7.0	<5.3	<5.1
	Ba/La-140	<6.8	<7.2	<6.3	<6.6	<5.5	<7.2
	Others	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD

*-Technical Specification location

TABLE 13 (Continued)

CONCENTRATION OF GAMMA EMITTERS IN MILK
Results in units of pCi/liter ± 2 sigma

Station	Nuclides	7-8-85	7-22-85	8-5-85	8-19-85	9-9-85	9-23-85
7	K-40	1240±120	1350±140	1120±110	1310±130	1220±120	1230±120
	Cs-134	<5.6	<4.4	<5.5	<4.1	<5.6	<4.2
	Cs-137	<6.9	<4.1	<6.3	<4.0	<6.4	<4.3
	Ba/La-140	<8.0	<5.3	<12.0	<5.7	<9.7	<6.1
	Others	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD
16	K-40	1270±130	1440±140	824±82	1320±130	1310±130	1320±130
	Cs-134	<7.8	<4.2	<7.9	<4.3	<8.1	<3.9
	Cs-137	<7.6	<5.2	<7.9	<4.8	<7.9	<4.5
	Ba/La-140	<8.6	<5.9	<7.7	<5.0	<9.7	<5.7
	Others	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD
50	K-40	1140±110	1270±130	1150±120	1260±130	1510±150	1260±130
	Cs-134	<6.2	<6.2	<5.7	<5.8	<6.2	<6.2
	Cs-137	<6.2	<6.3	<5.7	<5.8	<6.0	<5.7
	Ba/La-140	<8.7	<8.2	<7.3	<7.9	<8.9	<7.6
	Others	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD
55	K-40	1520±150	1380±140	1450±150	1290±130	1320±130	1400±140
	Cs-134	<3.8	<4.2	<7.2	<4.3	<4.5	<4.5
	Cs-137	<3.9	<4.4	<6.7	<4.6	<4.0	<4.8
	Ba/La-140	<5.0	<5.3	<6.4	<6.2	<5.4	<6.3
	Others	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD

TABLE 13 (Continued)

CONCENTRATION OF GAMMA EMITTERS IN MILK
Results in units of pCi/liter ± 2 sigma

Station	Nuclides	7-8-85	7-22-85	8-5-85	8-19-85	9-9-85	9-23-85
60	K-40	1410±140	1480±150	1520±150	1460±150	1380±140	1390±140
	Cs-134	<4.5	<4.1	<4.2	<4.0	<4.2	<4.4
	Cs-137	<4.1	<4.5	<4.4	<4.1	<4.6	<4.4
	Ba/La-140	<5.2	<6.1	<4.1	<5.8	<5.1	<6.1
	Others	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD
4	K-40	1430±140	1310±130	1380±140	1220±120	1350±140	1350±140
	Cs-134	<5.5	<4.3	<5.9	<7.4	<5.2	<3.9
	Cs-137	<6.5	<4.9	<6.3	<7.8	<6.0	<4.3
	Ba/La-140	<7.3	<6.4	<13.0	<10.0	<7.6	<5.6
	Others	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD
40* (Control)	K-40	1470±150	1370±140	1130±110	1430±140	1320±130	1410±140
	Cs-134	<5.2	<3.9	<7.6	<5.5	<5.4	<3.9
	Cs-137	<5.1	<3.9	<6.8	<5.5	<5.5	<4.3
	Ba/La-140	<6.5	<6.1	<7.3	<7.1	<6.5	<5.3
	Others	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD

*-Technical Specification location

TABLE 13 (Continued)

CONCENTRATION OF GAMMA EMITTERS IN MILK
Results in units of pCi/liter ± 2 sigma

Station	Nuclides	10-7-85	10-21-85	11-4-85	11-18-85	12-2-85	12-16-85
7	K-40	1290±130	1290±130	1250±130	1340±130	1350±140	1440±140
	Cs-134	<5.4	<4.5	<5.7	<4.4	<5.1	<5.9
	Cs-137	<5.3	<4.7	<5.8	<4.3	<6.0	<6.0
	Ba/La-140	<6.3	<6.0	<5.7	<5.6	<6.6	<6.2
	Others	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD
16	K-40	1350±140	1170±120	1360±140	1280±130	1100±110	1470±150
	Cs-134	<4.3	<5.9	<5.6	<6.3	<6.7	<4.1
	Cs-137	<4.4	<6.0	<5.4	<6.2	<6.5	<3.9
	Ba/La-140	<5.1	<8.7	<4.7	<7.7	<7.3	<4.4
	Others	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD
50	K-40	1300±130	1290±130	1270±130	1280±130	1110±110	1300±130
	Cs-134	<7.9	<4.3	<6.2	<6.2	<5.3	<8.8
	Cs-137	<7.5	<4.1	<7.1	<5.6	<5.3	<8.7
	Ba/La-140	<9.3	<6.1	<7.7	<7.3	<6.6	<6.2
	Others	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD
55	K-40	1300±130	1270±130	1390±140	1390±140	1460±150	1300±130
	Cs-134	<5.4	<6.3	<6.3	<4.5	<3.6	<6.4
	Cs-137	<6.1	<6.0	<6.4	<4.6	<3.5	<6.4
	Ba/La-140	<8.1	<6.6	<7.1	<5.7	<4.4	<7.9
	Others	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD

TABLE 13 (Continued)

CONCENTRATION OF GAMMA EMITTERS IN MILK
Results in units of pCi/liter ± 2 sigma

Station	Nuclides	10-7-85	10-21-85	11-4-85	11-18-85	12-2-85	12-16-85
60	K-40	1280±130	1320±130	1270±130	1300±130	1290±130	1340±130
	Cs-134	<6.0	<4.6	<4.1	<4.0	<3.8	<4.0
	Cs-137	<5.9	<4.4	<4.2	<4.5	<3.8	<4.1
	Ba/La-140	<8.5	<5.0	<4.1	<6.0	<3.6	<4.0
	Others	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD
4	K-40	1430±140	1290±130	1390±140	1440±140	1270±130	1490±150
	Cs-134	<4.1	<8.0	<7.7	<4.6	<4.9	<8.0
	Cs-137	<4.2	<7.0	<7.8	<4.3	<5.1	<7.9
	Ba/La-140	<5.6	<9.6	<6.9	<6.5	<5.4	<8.1
	Others	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD
40* (Control)	K-40	1330±130	1370±140	1290±130	1350±130	1400±140	1370±140
	Cs-134	<7.6	<5.8	<4.1	<4.3	<5.0	<7.6
	Cs-137	<7.0	<6.0	<4.2	<4.2	<4.6	<6.9
	Ba/La-140	<8.8	<7.5	<4.0	<7.7	<5.1	<8.7
	Others	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD

*-Technical Specification location

TABLE 14

CONCENTRATION OF IODINE - 131 IN MILK (1)
Results in units of pCi/liter ± 2 sigma

Station	4-8-85	4-22-85	5-6-85	5-20-85	6-3-85	6-17-85
7	<0.18	<0.18	<0.23	<0.14	<0.27	<0.20
16	<0.18	<0.16	<0.18	<0.13	<0.44	<0.20
50	<0.19	<0.17	<0.22	<0.15	<0.25	<0.20
55	<0.18	<0.17	<0.27	<0.12	<0.26	<0.22
60	<0.15	<0.17	<0.29	<0.10	<0.35	<0.31
4	<0.21	<0.16	<0.18	<0.13	<0.20	<0.17
40*	<0.16	<0.16	<0.21	<0.14	<0.18	<0.16

Station	7-8-85	7-22-85	8-5-85	8-19-85	9-9-85	9-23-85
7	<0.24	<0.15	<0.39	<0.28	<0.22	<0.24
16	<0.22	<0.15	<0.44	<0.39	<0.38	<0.20
50	<0.27	<0.19	<0.27	<0.26	<0.37	<0.22
55	<0.33	<0.19	<0.40	<0.28	<0.27	<0.25
60	<0.38	<0.21	<0.41	<0.28	<0.25	<0.27
4	<0.20	<0.16	<0.29	<0.23	<0.17	<0.49
40*	<0.27	<0.14	<0.25	<0.22	<0.31	<0.21

* Control result. Technical Specification location
(1) Iodine 131 results are corrected for decay to the sampling stop date.

TABLE 14 (Continued)

CONCENTRATION OF IODINE - 131 IN MILK (1)
Results in units of pCi/liter ± 2 sigma

Station	10-7-85	10-21-85	11-4-85	11-18-85	12-2-85	12-16-85
7	<0.25	<0.29	<0.23	<0.32	<0.40	<0.21
16	<0.42	<0.27	<0.21	<0.39	<0.22	<0.21
50	<0.25	<0.35	<0.19	<0.20	<0.24	<0.26
55	<0.38	<0.32	<0.26	<0.22	<0.25	<0.25
60	<0.20	<0.35	<0.45	<0.28	<0.24	<0.18
4	<0.22	<0.34	<0.21	<0.30	<0.21	<0.22
40*	<0.44	<0.29	<0.43	<0.29	<0.20	<0.20

* Control result. Technical Specification location
(1) Iodine 131 results are corrected for decay to the sampling stop date.

TABLE 15
MILK ANIMAL CENSUS
SPRING 1985

Town or Area[a]	Number on Census Map[1]	Degrees	Distance	Number of Milk Animals
Scriba	1(b)	220°	3.0 miles	None
	16*	190°	5.9	44C
	2	195°	8.0	ND
	3	190°	4.5	2C
	6 (b)	162°	2.2	1C
	26 (b)	114°	1.5	None
New Haven	8	130°	9.2	33C
	9	95°	5.2	42C
	4*	113°	7.8	78C
	45	125°	8.0	None
	10(b)	130°	2.6	33C
	5	146°	7.2	45C
	11	130°	8.5	40C
	7*	107°	5.5	69C
	48	141°	2.9	None
Mexico	12	107°	11.5	70C
	13	114°	11.2	2C
	14	120°	9.8	70C
	15	100°	10.8	37C
	17	115°	10.2	43C
	18	110°	10.0	48C
	19	132°	10.5	42C
	20	123°	11.2	None
	60*	90°	9.5	35C
	50*	93°	8.2	150C
	55*	95°	9.0	54C
	21	112°	10.5	75C
	49***	88°	7.9	1G(2)
Richland	22	85°	10.2	40C
	23	92°	10.5	75C
Oswego	24	214°	8.8	None
Hannibal	40**	220°	15.0	30C
Volney	25	182°	9.5	None
			TOTALS:	1158 Cows 1 Goat

C = Cows
G = Goats
* = Milk sample location
** = Milk sample control location
*** = New location
ND = Did not wish to participate in the survey
(1) = References Figure 4
(2) = Goat is not currently producing milk
None= No cows or goats at that location. Location was a previous location with cows or goats.
(a) = Census performed out to a distance of approximately ten miles.
(b) = Location within three miles (Technical Specification requirement).

TABLE 16

1985 RESIDENCE CENSUS

Location	Map[1] Location	Meteorological Sector	Degrees	Distance
*		N	—	—
*		NNE	—	—
*		NE	—	—
*		ENE	—	—
Sunset Bay	A	E	80°	1.4 miles
Lake Road	B	ESE	102°	1.1 miles
County Route 29	C	SE	130°	1.4 miles
Miner Road	D	SSE	163°	1.6 miles
Miner Road	E	S	170°	1.6 miles
Lakeview Road	F	SSW	203°	1.2 miles
Lakeview Road	G	SW	228°	1.1 miles
Bible Camp Retreat	H	WSW	238°	0.9 miles
*		W	—	—
*		WNW	—	—
*		NW	—	—
*		NNW	—	—

* This meteorological sector over Lake Ontario. No residence within three miles.

(1) Corresponds to Figure 3.

TABLE 17A

CONCENTRATION OF GAMMA EMITTERS IN FOOD PRODUCTS

Results in units of pCi/g (wet) ± 2 sigma

Collection Site	Sample Date	Description	Be-7	K-40	I-131	Cs-134	Cs-137	Others
N	9-16-85	Cabbage	<0.15	2.05±0.26	<0.021	<0.019	<0.015	<LLD
O	9-16-85	Beet Greens	<0.23	3.52±0.35	<0.032	<0.027	0.047±0.021	<LLD
P	9-16-85	Collard Greens	<0.16	4.37±0.44	<0.021	<0.017	<0.017	<LLD
M*	9-16-85	Swiss Chard	<0.29	3.37±0.41	<0.047	<0.033	<0.033	<LLD
Q	9-16-85	Tomatoes	<0.08	1.14±0.13	<0.013	<0.008	<0.009	<LLD
S	9-16-85	Tomatoes	<0.08	1.65±0.17	<0.013	<0.010	<0.010	<LLD
R	9-16-85	Tomatoes	<0.15	2.34±0.27	<0.023	<0.017	<0.018	<LLD
M*	10-28-85	Tomatoes	<0.09	2.31±0.23	<0.014	<0.011	<0.011	<LLD

* - Control result
Results in units of activity per gram wet weight

TABLE 17B

CONCENTRATION OF GAMMA EMITTERS IN FOOD PRODUCTS

Results in units of pCi/kg (wet) ± 2 sigma

Collection Site	Sample Date	Description	Be-7	K-40	I-131	Cs-134	Cs-137	Others
N	9-16-85	Cabbage	<150	2050±260	<21	<19	<15	<LLD
O	9-16-85	Beet Greens	<230	3520±350	<32	<27	47±21	<LLD
P	9-16-85	Collard Greens	<160	4370±440	<21	<17	<17	<LLD
M*	9-16-85	Swiss Chard	<290	3370±410	<47	<33	<33	<LLD
Q	9-16-85	Tomatoes	<80	1140±130	<13	<8	<9	<LLD
S	9-16-85	Tomatoes	<80	1650±170	<13	<10	<10	<LLD
R	9-16-85	Tomatoes	<150	2340±270	<23	<17	<18	<LLD
M*	10-28-85	Tomatoes	<90	2310±230	<14	<11	<11	<LLD

* - Control result

Results in units of activity per kilogram wet weight

TABLE 18

INTERLABORATORY COMPARISON PROGRAM RESULTS

Analysis	Date	Medium	Site Reference No.	EPA Result (1)	Site Result (2)
Beta	3/85	Air Filter (pCi/filter)	QA 85-23	36.0±8.7	44.0±1.6 (3) 45.0±1.7 45.5±1.7
Beta	8/85	Air Filter (pCi/filter)	QA 85-91	44.0±5.0	60.2±5.8 (3) 61.4±5.9 59.5±5.8
Tritium	6/85	Water (pCi/liter)	QA 85-53	2416±351	2600±100 (4) 2600±100 2700±200
Tritium	10/85	Water (pCi/liter)	QA 85-111	1974±345	1900±100 (4) 2100±200 2000±200
I-131	3/85	Milk (pCi/liter)	QA 85-15	9.0±1.6	7.9±0.9 (4) 8.0±1.0 7.0±0.9
I-131	8/85	Water (pCi/liter)	QA 85-79	33.0±6.0	33.9±13.5 (3) 35.6±17.5 38.0±15.2
I-131	12/85	Water (pCi/liter)	QA 85-134	45.0±9.0	51.1±27.9 (3) 53.5±7.9 48.3±7.2

TABLE 18 (Continued)

INTERLABORATORY COMPARISON PROGRAM RESULTS

Analysis	Date	Medium	Site Reference No.	EPA Result (1)	Site Result (2)
Gamma (I-131)	1/85	Food (pCi/kg)	QA 85-7	35.0±10.4	42.9±10.9 (3) 44.6±10.8 44.0±17.8
Gamma (Cs-137)	1/85	Food (pCi/kg)	QA 85-7	29.0±8.7	35.3±5.6 (3) 38.0±5.0 39.8±6.9
Gamma (K-40)*	1/85	Food (pCi/kg)	QA 85-7	1382±120	1200±120 (3) 1270±130 1190±120
Gamma (I-131)	7/85	Food (pCi/kg)	QA 85-70	35.0±6.0	37.0±3.0 (3) 39.0±2.0 36.0±3.0
Gamma (Cs-137)	7/85	Food (pCi/kg)	QA 85-70	29.0±5.0	31.6±5.2 (3) 33.6±4.3 34.8±4.9
Gamma (K-40)*	7/85	Food (pCi/kg)	QA 85-70	1514±76	1340±130 (3) 1380±140 1300±130

TABLE 18 (Continued)

INTERLABORATORY COMPARISON PROGRAM RESULTS

Analysis	Date	Medium	Site Reference No.	EPA Result (1)	Site Result (2)
Gamma (Cr-51)	2/85	Water (pCi/liter)	QA 85-8	48.0±8.7	38.4±12.6 (3) 43.6±7.6 43.0±12.3
Gamma (Co-60)	2/85	Water (pCi/liter)	QA 85-8	20.0±8.7	17.0±2.3 (3) 18.9±2.5 18.4±1.3
Gamma (Zn-65)	2/85	Water (pCi/liter)	QA 85-8	55.0±8.7	55.4±6.1 (3) 49.7±5.1 54.3±5.3
Gamma (Ru-106)	2/85	Water (pCi/liter)	QA 85-8	25.0±8.7	28.3±10.1 (3) 30.8±10.3 36.3±13.0
Gamma (Cs-134)	2/85	Water (pCi/liter)	QA 85-8	35.0±8.7	29.0±2.2 (3) 30.3±2.3 28.1±2.3
Gamma (Cs-137)	2/85	Water (pCi/liter)	QA 85-8	25.0±8.7	22.9±2.2 (3) 22.5±1.2 20.6±2.0

TABLE 18 (Continued)

INTERLABORATORY COMPARISON PROGRAM RESULTS

Analysis	Date	Medium	Site Reference No.	EPA Result (1)	Site Result (2)
Gamma (Co-60)	4/85	Water (pCi/liter)	QA 85-34	15.0±5.0	15.1±3.9 (4) 17.4±5.0 12.1±4.9
Gamma (Cs-134)	4/85	Water (pCi/liter)	QA 85-34	15.0±5.0	15.8±3.4 (4) 12.7±4.7 21.3±5.4
Gamma (Cs-137)	4/85	Water (pCi/liter)	QA 85-34	12.0±5.0	11.1±3.6 (4) 15.4±4.1 15.6±6.7
Gamma (Cr-51)	6/85	Water (pCi/liter)	QA 85-49	44.0±5.0	62.7±40.6 (3) 67.3±43.8 65.8±49.2
Gamma (Co-60)	6/85	Water (pCi/liter)	QA 85-49	14.0±5.0	24.0±8.8 (3) 19.0±8.1 17.6±6.9
Gamma (Zn-65)	6/85	Water (pCi/liter)	QA 85-49	47.0±5.0	52.8±3.2 (3) 52.3±16.1 51.8±16.0

TABLE 18 (Continued)

INTERLABORATORY COMPARISON PROGRAM RESULTS

Analysis	Date	Medium	Site Reference No.	EPA Result (1)	Site Result (2)
Gamma (Ru-106)	6/85	Water (pCi/liter)	QA 85-49	62.0±5.0	83.0±12.3 (3) 84.6±43.8 77.7±66.3
Gamma (Cs-134)	6/85	Water (pCi/liter)	QA 85-49	35.0±5.0	35.7±10.9 (3) 33.5±8.1 35.5±8.7
Gamma (Cs-137)	6/85	Water (pCi/liter)	QA 85-49	20.0±5.0	23.2±7.3 (3) 23.2±7.9 22.4±7.0
Gamma (Cr-51)	10/85	Water (pCi/liter)	QA 85-108	21.0±5.0	37.9±21.9 (3) 49.7±29.4 46.3±29.3
Gamma (Co-60)	10/85	Water (pCi/liter)	QA 85-108	20.0±5.0	24.2±7.1 (3) 19.6±3.6 22.1±6.0
Gamma (Zn-65)	10/85	Water (pCi/liter)	QA 85-108	19.0±5.0	19.7±6.7 (3) 34.5±12.3 32.6±11.5

TABLE 18 (Continued)

INTERLABORATORY COMPARISON PROGRAM RESULTS

Analysis	Date	Medium	Site Reference No.	EPA Result (1).	Site Result (2)
Gamma (Ru-106)	10/85	Water (pCi/liter)	QA 85-108	20.0±5.0	36.4±23.0 (3) 44.1±37.9 42.3±35.5
Gamma (Cs-134)	10/85	Water (pCi/liter)	QA 85-108	20.0±5.0	16.7±3.0 (3) 19.3±4.9 17.7±5.0
Gamma (Cs-137)	10/85	Water (pCi/liter)	QA 85-108	20.0±5.0	20.3±4.7 (3) 19.6±3.0 21.2±5.3
Gamma (Co-60)	10/85	Water (pCi/liter)	QA 85-112	18.0±5.0	20.0±3.4 (3)
Gamma (Cs-134)	10/85	Water (pCi/liter)	QA 85-112	18.0±5.0	17.8±3.6 (3)
Gamma (Cs-137)	10/85	Water (pCi/liter)	QA 85-112	18.0±5.0	21.6±3.4 (3)

TABLE 18 (Continued)

INTERLABORATORY COMPARISON PROGRAM RESULTS

Analysis	Date	Medium	Site Reference No.	EPA Result (1)	Site Result (2)
Gamma (Cs-137)	3/85	Air Filter (pCi/filter)	QA 85-23	6.0±8.7	8.0±2.0 (3) 8.0±1.9 8.1±2.5
Gamma (Cs-137)	8/85	Air Filter (pCi/filter)	QA 85-91	8.0±5.0	9.1±1.9 (3) 11.5±2.1 9.6±2.0
Gamma (I-131)	6/85	Milk (pCi/liter)	QA 85-61	11.0±6.0	<20.0 (4) <27.0 <14.0
Gamma (Cs-137)	6/85	Milk (pCi/liter)	QA 85-61	11.0±5.0	13.6±4.7 (4) 11.6±3.8 9.5±3.2
Gamma (K-40)*	6/85	Milk (pCi/liter)	QA 85-61	1525±76	1400±140 (4) 1290±130 1410±140
Gamma (I-131)	10/85	Milk (pCi/liter)	QA 85-115	42.0±10.0	31.0±3.0 (4) 33.0±3.0 34.0±2.0

TABLE 18 (Continued)

INTERLABORATORY COMPARISON PROGRAM RESULTS

Analysis	Date	Medium	Site Reference No.	EPA Result (1)	Site Result (2)
Gamma (Cs-131)	10/85	Milk (pCi/liter)	QA 85-115	56.0±9.0	57.5±5.8 (4) 62.3±6.2 54.0±5.4
Gamma (K-40)*	10/85	Milk (pCi/liter)	QA 85-115	1540±76	1250±130 (4) 1260±130 1250±130

*-K-40 results reported as mg per unit of total potassium for EPA result only.
(1)-Results reported as activity ± the standard deviation of the error.
(2)-Results reported as activity ± the error (2 sigma).
(3)-Analyzed at the site environmental laboratory.
(4)-Analyzed at a vendor laboratory.

TABLE 19

ENVIRONMENTAL SAMPLE LOCATIONS

Sample Medium	Map Designation	Figure Number	Location Description	Degrees and Distance (1)
Shoreline Sediment	05*	Figure 1A	Sunset Bay	80° at 1.5 miles
	06	Figure 1A	Langs Beach, Control	230° at 5.8 miles
	07	Figure 1A	Nine Mile Point	275° at 0.3 miles
Fish	02*	Figure 1A	Nine Mile Point Transect	315° at 0.3 miles
	03*	Figure 1A	FitzPatrick Transect	55° at 0.6 miles
	00*	Figure 1A	Oswego Transect	235° at 6.2 miles
Surface Water	03*	Figure 1A	FitzPatrick Inlet	70° at 0.5 miles
	08*	Figure 1A	Oswego Steam Station Inlet	235° at 7.6 miles
	09	Figure 1A	NMP Unit 1 Inlet	305° at 0.3 miles
	10	Figure 1A	Oswego City Water	240° at 7.8 miles

TABLE 19 (Continued)

ENVIRONMENTAL SAMPLE LOCATIONS

Sample Medium	Map Designation	Figure Number	Location Description	Degrees and Distance (1)
Air Radioiodine and Particulates	R-1*	Figure 1A	R-1 Station, Nine Mile Point Road	88° at 1.8 miles
	R-2*	Figure 2	R-2 Station, Lake Road	104° at 1.1 miles
	R-3*	Figure 2	R-3 Station, Co. Rt. 29	132° at 1.5 miles
	R-4*	Figure 2	R-4 Station, Co. Rt. 29	143° at 1.8 miles
	R-5*	Figure 1A	R-5 Station, Montario Point Road	42° at 16.4 miles
	D1	Figure 2	D1 On-Site Station	69° at 0.2 miles
	D2	Figure 2	D2 On-Site Station	140° at 0.4 miles
	E	Figure 2	E On-Site Station	175° at 0.4 miles
	F	Figure 2	F On-Site Station	210° at 0.5 miles
	G	Figure 2	G On-Site Station	250° at 0.7 miles
	H	Figure 2	H On-Site Station	71° at 0.8 miles
	I	Figure 2	I On-Site Station	98° at 0.8 miles

TABLE 19 (Continued)

ENVIRONMENTAL SAMPLE LOCATIONS

Sample Medium	Map Designation	Figure Number	Location Description	Degrees and Distance (1)
Air Radioiodine and Particulates Continued	J	Figure 2	J On-Site Station	110° at 0.9 miles
	K	Figure 2	K On-Site Station	132° at 0.5 miles
	G	Figure 1A	G Off-Site Station, Saint Paul Street	225° at 5.3 miles
Thermo-luminescent Dosimeters (TLD)	3	Figure 2	D1 On-Site Station	69° at 0.2 miles
	4	Figure 2	D2 On-Site Station	140° at 0.4 miles
	5	Figure 2	E On-Site Station	175° at 0.4 miles
	6	Figure 2	F On-Site Station	210° at 0.5 miles
	7*	Figure 2	G On-Site Station	250° at 0.7 miles
	8	Figure 1A	R-5 Off-Site Station	42° at 16.4 miles
	9	Figure 1A	D1 Off-Site Location	80° at 11.4 miles
	10	Figure 1A	D2 Off-Site Location	117° at 9.0 miles

TABLE 19 (Continued)

ENVIRONMENTAL SAMPLE LOCATIONS

Sample Medium	Map Designation	Figure Number	Location Description	Degrees and Distance (1)
Thermo-luminescent Dosimeters (TLD) Continued	11	Figure 1A	E Off-Site Location	160° at 7.2 miles
	12	Figure 1A	F Off-Site Location	190° at 7.7 miles
	13	Figure 1A	G Off-Site Station	225° at 5.3 miles
	14*	Figure 1A	Southwest Oswego - Control	226° at 12.6 miles
	15*	Figure 2	West Site Boundary	237° at 0.9 miles
	18*	Figure 2	Energy Information Center	265° at 0.4 miles
	19	Figure 2	East Site Boundary	81° at 1.3 miles
	23*	Figure 2	H On-Site Station	70° at 0.8 miles
	24	Figure 2	I On-Site Station	98° at 0.8 miles
	25	Figure 2	J On-Site Station	110° at 0.9 miles
	26	Figure 2	K On-Site Station	132° at 0.5 miles
	27	Figure 2	North Fence, JAFNPP	60° at 0.4 miles
	28	Figure 2	North Fence, JAFNPP	68° at 0.5 miles

TABLE 19 (Continued)

ENVIRONMENTAL SAMPLE LOCATIONS

Sample Medium	Map Designation	Figure Number	Location Description	Degrees and Distance (1)
Thermo-luminescent Dosimeters (TLD) Continued	29	Figure 2	North Fence, JAFNPP	65° at 0.5 miles
	30	Figure 2	North Fence, JAFNPP	57° at 0.4 miles
	31	Figure 2	North Fence, NMP-1	276° at 0.2 miles
	39	Figure 2	North Fence, NMP-1	292° at 0.2 miles
	47	Figure 2	North Fence, JAFNPP	69° at 0.6 miles
	49*	Figure 1B	Phoenix, NY - Control	170° at 19.8 miles
	51	Figure 1A	Oswego Steam Station, East	233° at 7.4 miles
	52	Figure 1A	Oswego Elementary School, East	227° at 5.8 miles
	53	Figure 1B	Fulton High School	183° at 13.7 miles
	54	Figure 1A	Mexico High School	115° at 9.3 miles
	55	Figure 1A	Pulaski Gas Substation, Rt. 5	75° at 13.0 miles
	56*	Figure 1A	New Haven Elementary School	123° at 5.3 miles
	58*	Figure 1A	Co. Rt. 1 and Alcan	220° at 3.1 miles

TABLE 19 (Continued)

ENVIRONMENTAL SAMPLE LOCATIONS

Sample Medium	Map Designation	Figure Number	Location Description	Degrees and Distance (1)
Thermo-luminescent Dosimeters (TLD) Continued	59	Figure 2	Environmental Lab, JAFNPP	95° at 0.5 miles
	75	Figure 2	North Fence, NMP-2	5° at 0.1 miles
	76*	Figure 2	North Fence, NMP-2	25° at 0.1 miles
	77*	Figure 2	North Fence, NMP-2	45° at 0.2 miles
	78*	Figure 2	East Boundary, JAFNPP	90° at 1.0 miles
	79*	Figure 2	County Route 29	115° at 1.1 miles
	80*	Figure 2	County Route 29	133° at 1.4 miles
	81*	Figure 2	Miner Road	159° at 1.6 miles
	82*	Figure 2	Miner Road	181° at 1.6 miles
	83*	Figure 2	Lakeview Road	200° at 1.2 miles
	84*	Figure 2	Lakeview Road	225° at 1.1 miles
	85*	Figure 2	North Fence, NMP-1	294° at 0.2 miles
	86*	Figure 2	North Fence, NMP-1	315° at 0.1 miles

TABLE 19 (Continued)

ENVIRONMENTAL SAMPLE LOCATIONS

Sample Medium	Map Designation	Figure Number	Location Description	Degrees and Distance (1)
Thermo-luminescent Dosimeters (TLD) Continued	87*	Figure 2	North Fence, NMP-2	341° at 0.1 miles
	88*	Figure 1A	Demster Beach Road	97° at 4.8 miles
	89*	Figure 1A	Leavitt Road	111° at 4.1 miles
	90*	Figure 1A	Route 104 and Keefe Road	135° at 4.2 miles
	91*	Figure 1A	County Route 51A	156° at 4.8 miles
	92*	Figure 1A	Maiden Lane Road	183° at 4.4 miles
	93*	Figure 1A	County Route 53	205° at 4.4 miles
	94*	Figure 1A	County Route 1 and Kocher Road	223° at 4.7 miles
	95*	Figure 1A	Lakeshore Camp Site	237° at 4.1 miles
	96*	Figure 1A	Creamery Road	199° at 3.6 miles
	97*	Figure 2	County Route 29	143° at 1.8 miles
	98*	Figure 1A	Lake Road	101° at 1.2 miles
	99	Figure 1A	Nine Mile Point Road	88° at 1.8 miles

TABLE 19 (Continued)

ENVIRONMENTAL SAMPLE LOCATIONS

Sample Medium	Map Designation	Figure Number	Location Description	Degrees and Distance (1)
Thermo-luminescent Dosimeters (TLD) Continued	100	Figure 2	County Route 29 and Lake Road	104° at 1.1 miles
	101	Figure 2	County Route 29	132° at 1.5 miles
	102	Figure 1B	Oswego County Airport	175° at 11.9 miles
	103	Figure 2	Energy Information Center, East	267° at 0.4 miles
Cows Milk	7	Figure 4	Indicator Location	107° at 5.5 miles
	16	Figure 4	Indicator Location	190° at 5.9 miles
	50	Figure 4	Indicator Location	93° at 8.2 miles
	55	Figure 4	Indicator Location	95° at 9.0 miles
	60	Figure 4	Indicator Location	90° at 9.5 miles
	4	Figure 4	Indicator Location	113° at 7.8 miles
	40*	Figure 4	Control Location	223° at 15.0 miles

TABLE 19 (Continued)

ENVIRONMENTAL SAMPLE LOCATIONS

Sample Medium	Map Designation	Figure Number	Location Description	Degrees and Distance (1)
Food Products	N*	Figure 3	Indicator Location	122° at 2.3 miles
	O*	Figure 3	Indicator Location	96° at 1.8 miles
	P*	Figure 3	Indicator Location	101° at 1.9 miles
	M*	Figure 3	Control Location	223° at 15.0 miles
	Q*	Figure 3	Indicator Location	123° at 2.2 miles
	S*	Figure 3	Indicator Location	143° at 1.9 miles
	R*	Figure 3	Indicator Location	114° at 1.5 miles

*-Technical Specification location.
(1) - Degrees and distance based on Nine Mile Point Unit 2 reactor centerline.

TABLE 20

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM ANNUAL SUMMARY
NINE MILE POINT NUCLEAR STATION DOCKET NO. 50-220
OSWEGO COUNTY, STATE OF NEW YORK JANUARY - DECEMBER 1985*

Medium (Units)	Type and Number of Analyses	LLD(a)	Indicator Locations: Mean (f) Range	Location (b) of Highest Annual Mean: Location & Mean (f) Range	Control Location: Mean (f) Range	Number of Nonroutine Reports
Shoreline Sediment (pCi/kg-dry)	GSA(4):					
	Cs-134	150	<LLD	<LLD	<LLD	0
	Cs-137	180	<LLD	<LLD	<LLD	0
	Co-60	N/A	<LLD	<LLD	<LLD	0
Fish (pCi/kg-wet)	GSA (18):					
	Mn-54	130	<LLD	<LLD	<LLD	0
	Fe-59	260	<LLD	<LLD	<LLD	0
	Co-58	130	<LLD	<LLD	<LLD	0
	Co-60	130	<LLD	<LLD	<LLD	0
	Zn-65	260	<LLD	<LLD	<LLD	0
	Cs-134	130	<LLD	<LLD	<LLD	0
	Cs-137	150	30 (12/12) 18-44	JAF: 0.6 at 55° 31 (6/6) 18-44	34 (6/6) 26-47	0

TABLE 20 (Continued)

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM ANNUAL SUMMARY
NINE MILE POINT NUCLEAR STATION DOCKET NO. 50-220
OSWEGO COUNTY, STATE OF NEW YORK JANUARY - DECEMBER 1985*

Medium (Units)	Type and Number of Analyses	LLD(a)	Indicator Locations: Mean (f) Range	Location (b) of Highest Annual Mean: Location & Mean (f) Range		Control Location: Mean (f) Range	Number of Nonroutine Reports
Surface Water (pCi/liter)	H-3 (8):						
	H-3	3000	530 (4/4) 250-1200	JAF: 0.5 at 70°	530 (4/4) 250-1200	278 (4/4) 230-370	0
	GSA (24):						
	Mn-54	15	<LLD	<LLD		<LLD	0
	Fe-59	30	<LLD	<LLD		<LLD	0
	Co-58	15	<LLD	<LLD		<LLD	0
	Co-60	15	<LLD	<LLD		<LLD	0
	Zn-65	30	<LLD	<LLD		<LLD	0
	Zr-95	15	<LLD	<LLD		<LLD	0
	Nb-95	15	<LLD	<LLD		<LLD	0
	I-131	15(c)	<LLD	<LLD		<LLD	0

TABLE 20 (Continued)

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM ANNUAL SUMMARY
NINE MILE POINT NUCLEAR STATION DOCKET NO. 50-220
OSWEGO COUNTY, STATE OF NEW YORK JANUARY - DECEMBER 1985*

Medium (Units)	Type and Number of Analyses	LLD(a)	Indicator Locations: Mean (f) Range	Location (b) of Highest Annual Mean: Location & Mean (f) Range	Control Location: Mean (f) Range	Number of Nonroutine Reports
Surface Water (pCi/liter) (Continued)	Cs-134	15	<LLD	<LLD	<LLD	0
	Cs-137	18	<LLD	<LLD	<LLD	0
	Ba/La-140	15	<LLD	<LLD	<LLD	0
Air Particulates (pCi/m^3)	Gross Beta: (260)	0.01	0.023(208/208) 0.010-0.044	R-2 1.1 at 104°	0.024(52/52) 0.010-0.040	0.024(52/52) 0.013-0.043	0
	I-131(260):	0.07	<LLD	<LLD	<LLD	0
	GSA (60):					
	Cs-134	0.05	<LLD	<LLD	<LLD	0
	Cs-137	0.06	<LLD	<LLD	<LLD	0

TABLE 20 (Continued)

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM ANNUAL SUMMARY
NINE MILE POINT NUCLEAR STATION DOCKET NO. 50-220
OSWEGO COUNTY, STATE OF NEW YORK JANUARY - DECEMBER 1985*

Medium (Units)	Type and Number of Analyses	LLD(a)	Indicator Locations: Mean (f) Range	Location (b) of Highest Annual Mean: Location & Mean (f) Range	Control Location: Mean (f) Range	Number of Nonroutine Reports
TLD (mrem per quarterly period)	Gamma Dose (125):	(d)	16.6(117/117) 11.8-38.2	TLD# 85 0.2 at 294° 33.4(4/4) (g) 28.0-38.2	16.1(8/8) 13.6-20.0	0
Milk (pCi/liter	GSA (18):					
	Cs-134	15	(e)	(e)	<LLD	0
	Cs-137	18	(e)	(e)	<LLD	0
	Ba/La-140	15	(e)	(e)	<LLD	0
	I-131 (18):					
	I-131	1	(e)	(e)	<LLD	0
Food Products (pCi/kg-wet)	GSA (7):					
	I-131	60	<LLD	<LLD	<LLD	0
	Cs-134	60	<LLD	<LLD	<LLD	0
	Cs-137	80	47 (1/6) 47	0 1.8 at 96° -116 47 (1/6) 47	<LLD	0

TABLE 20 (Continued)

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM ANNUAL SUMMARY
NINE MILE POINT NUCLEAR STATION DOCKET NO. 50-220
OSWEGO COUNTY, STATE OF NEW YORK JANUARY - DECEMBER 1985*

Table Notes:

* = Data for Table 20 is based on Technical Specification required samples only.

N/A = Not applicable

(a) = LLD values as required by the Radiological Effluent Technical Specifications effective January 1, 1985. LLD units specified in medium column.

(b) = Location is distance in miles and direction in compass degrees based on NMP-2 reactor centerline. Units for this column specified in medium column.

(c) = The Technical Specifications do not specify a particular LLD value for surface water analysis (non-drinking water) for I-131. A value of 15 pCi/liter is used here and represents the most recent guidance from the NRC.

(d) = The Technical Specifications do not specify a particular LLD value for environmental TLDs. The NMP-1 Off-Site Dose Calculation Manual contains specifications for environmental TLD sensitivities.

(e) = The Technical Specification criteria for indicator milk sample locations includes locations within 5.0 miles of the site. There are no milk sample locations within 5.0 miles of the site. Therefore, the only sample location required by the Technical Specifications is the control location.

(f) = Fraction of number of detectable measurements to total number of measurements.

(g) = The results for TLD #85 must be evaluated with the knowledge that this TLD is in close proximity (300-500 feet) of the Nine Mile Point Unit 1 reactor building and the radwaste buildings. This TLD, as well as other TLDs in this area, are adjacent to the lake shoreline which is a restricted area to members of the public. There are no residences or private property near this area.

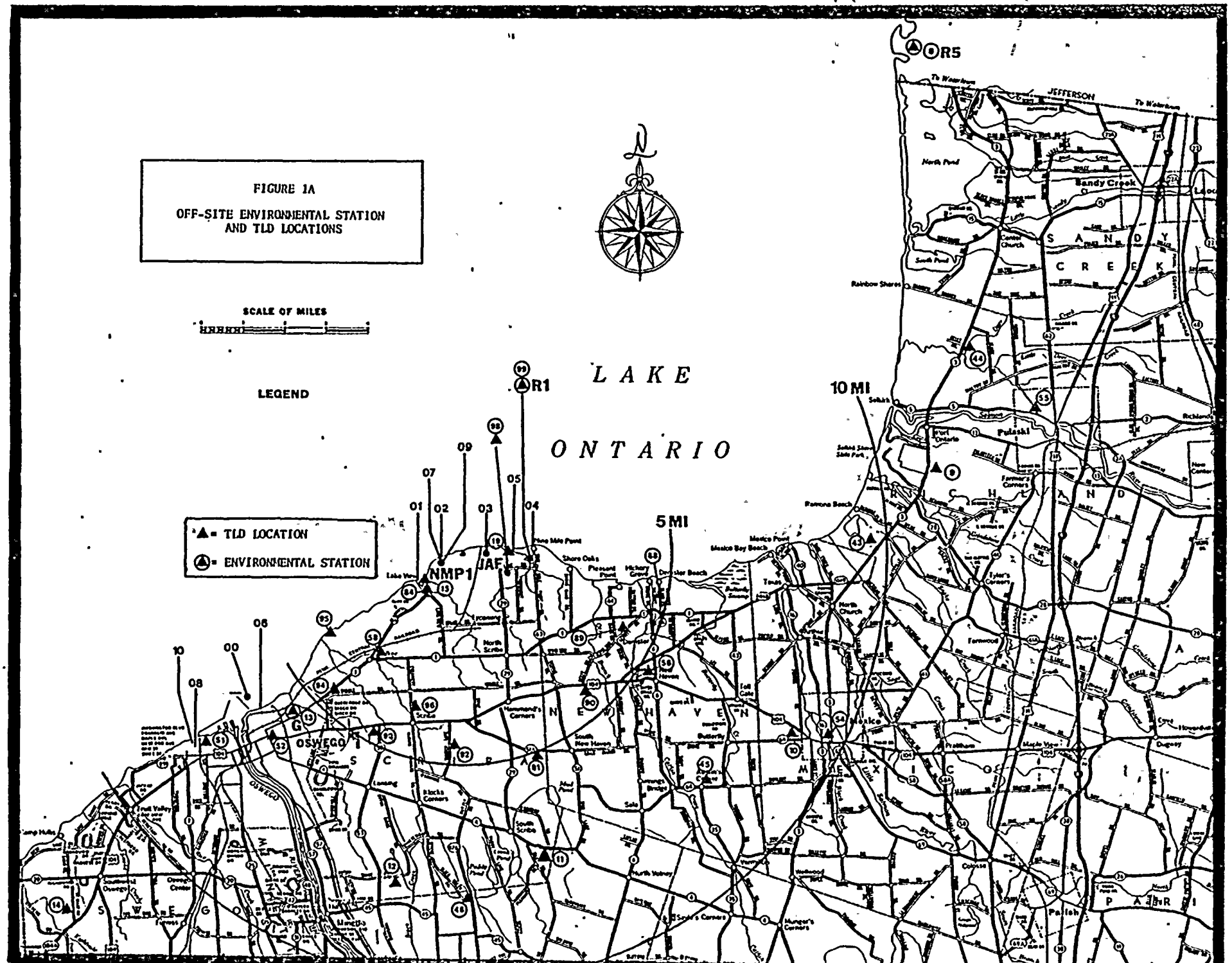


FIGURE 1A
OFF-SITE ENVIRONMENTAL STATION AND TLD LOCATIONS
N
SCALE OF MILES
LEGEND
TLD LOCATION
ENVIRONMENTAL STATION
LAKE ONTARIO
R1
R5
10MI
5MI
NMP1
JAF
01
02
03
04
05
07
09
00
06
08
10
OSWEGO
JEFFERSON
Sandy Creek
Pulaski

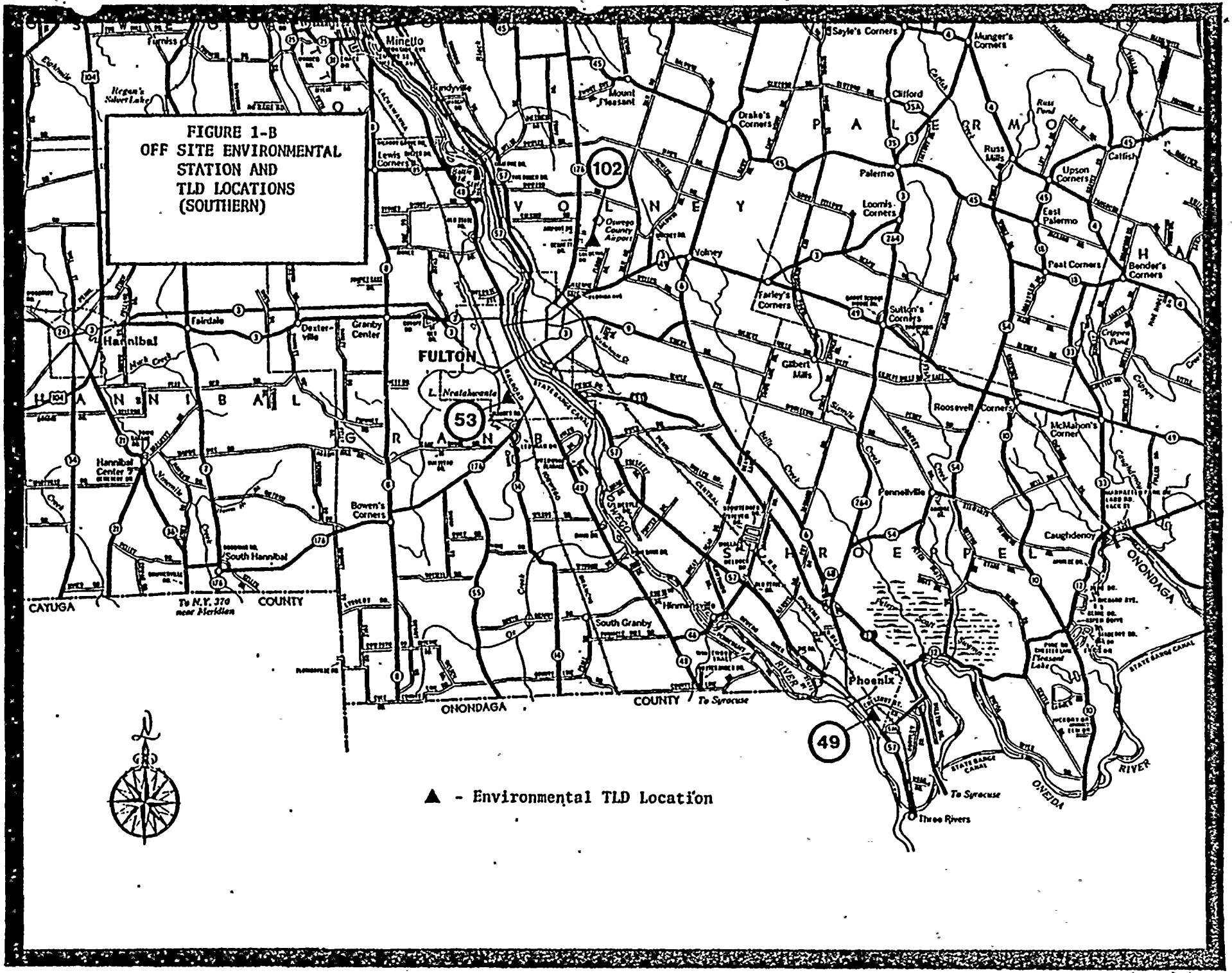
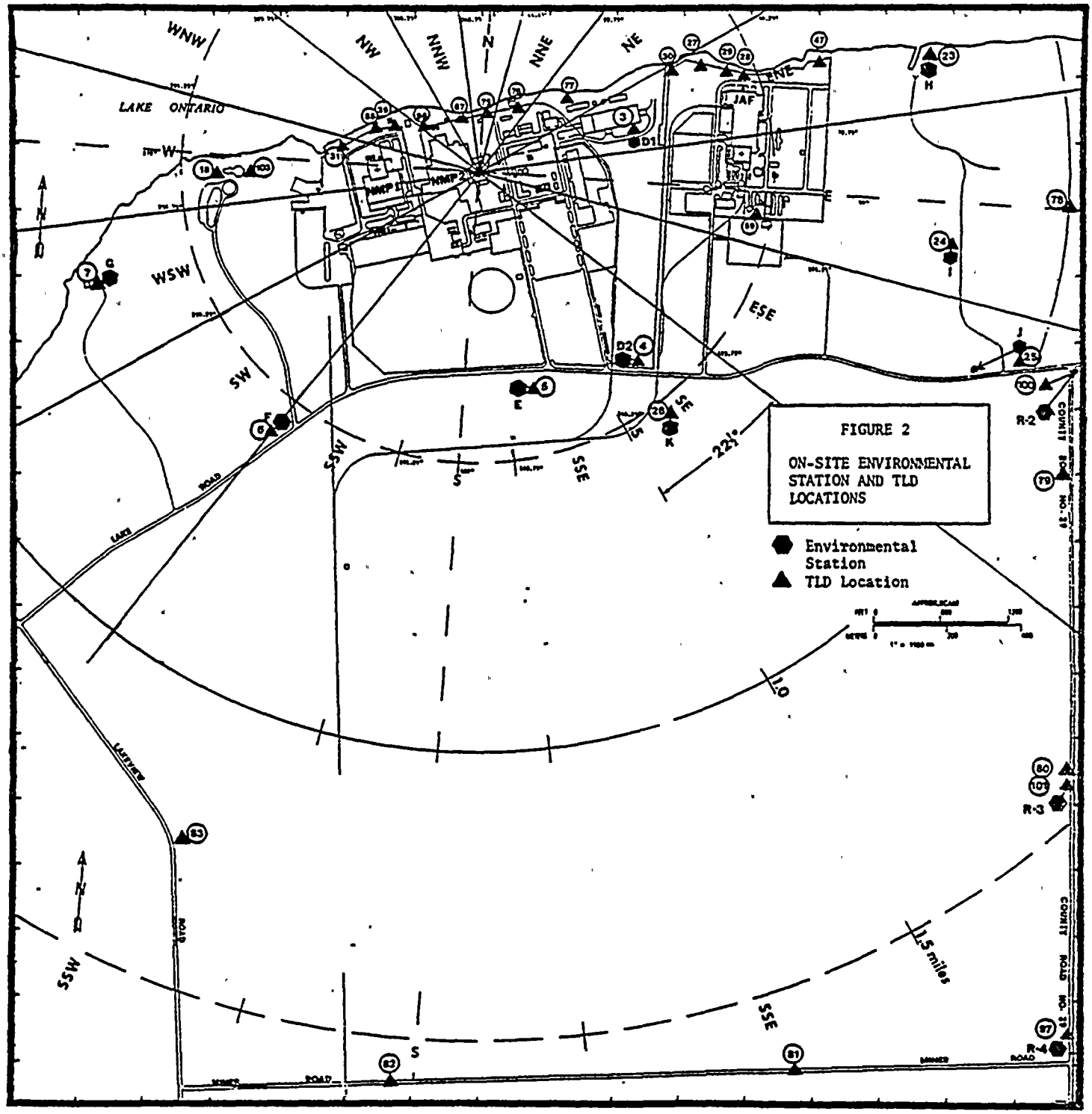


FIGURE 1-B
OFF SITE ENVIRONMENTAL
STATION AND
TLD LOCATIONS
(SOUTHERN)
Minetto
Mount Pleasant
Sandyville
Lewis Corners
Oswego County Airport
Volney
Fairdale
Dexter-ville
Granby Center
Hannibal
FULTON
L. Neatahwanta
Hannibal Center
South Hannibal
Bowen's Corners
South Granby
Hinmansville
Phoenix
Three Rivers
Drake's Corners
Clifford
Palermo
Loomis Corners
Tarley's Corners
Sutton's Corners
Gilbert Mills
Roosevelt Corners
Pennellville
Caughdenoy
Munger's Corners
Russ Mills
Upson Corners
Catfish
East Palermo
Peat Corners
Bender's Corners
McMahon's Corner
CAYUGA
COUNTY
To N.Y. 370 near Meriden
ONONDAGA
COUNTY
To Syracuse
To Syracuse
OSWEGO
RIVER
ONEIDA
STATE BARGE CANAL
102
53
49
▲ - Environmental TLD Location


WNW
NW
NNW
N
NNE
NE
ENE
LAKE ONTARIO
JAF
NMP1
NMP2
WSW
ESE
SW
SSW
SSE
SE
22½°
1.5
1.0
1.5 miles
LAKE ROAD
COUNTY ROAD NO. 38
R-2
R-3
R-4
D1
D2
E
H
I
J
K
FIGURE 2
ON-SITE ENVIRONMENTAL STATION AND TLD LOCATIONS
Environmental Station
TLD Location

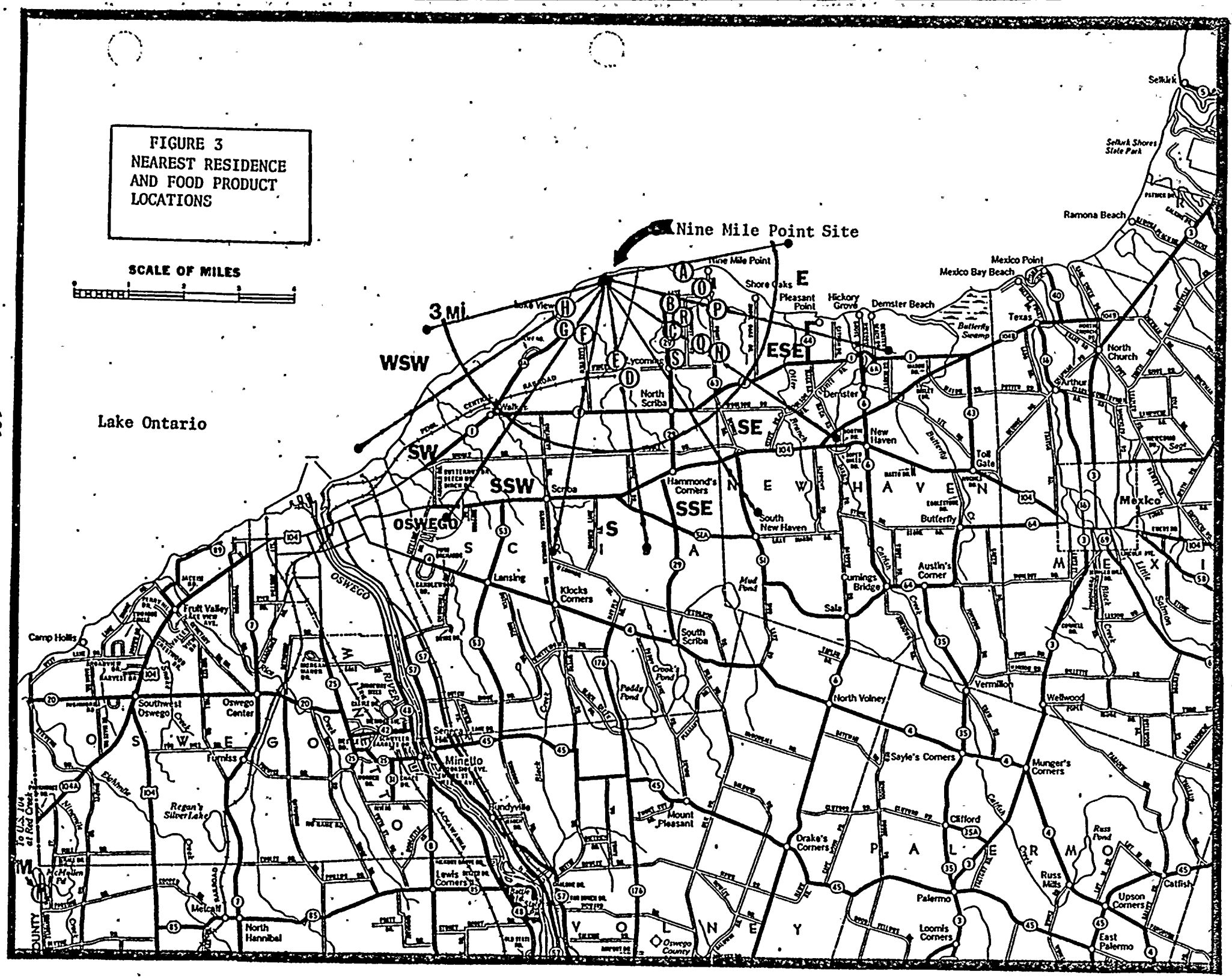


FIGURE 3
NEAREST RESIDENCE
AND FOOD PRODUCT
LOCATIONS
SCALE OF MILES
Nine Mile Point Site
3 Mi
WSW
ESE
SE
SSW
SSE
SW
Lake Ontario
OSWEGO
Nine Mile Point
Shore Oaks
Pleasant Point
Hickory Grove
Demster Beach
Mexico Point
Mexico Bay Beach
Ramona Beach
Selkirk
Selkirk Shores State Park
Texas
North Church
Butterfly Swamp
Demster
North Scriba
New Haven
Toll Gate
Hammond's Corners
South New Haven
Butterfly
Mexico
Scriba
Lansing
Klocks Corners
South Scriba
Cummings Bridge
Austin's Corner
Sala
Mud Pond
Fruit Valley
Camp Hollis
Southwest Oswego
Oswego Center
Furniss
Minetto
Fairgrounds
Regan's Silver Lake
Lake Road
Lewis Corners
Mount Pleasant
Hindyville
North Hannibal
McMullen Rd
Melcall
To U.S. 104 at Red Creek
North Volney
Vermilion
Wellwood
Sayle's Corners
Munger's Corners
Drake's Corners
Clifford
Palermo
Loomis Corners
Russ Mills
Upson Corners
Catfish
East Palermo
Oswego County

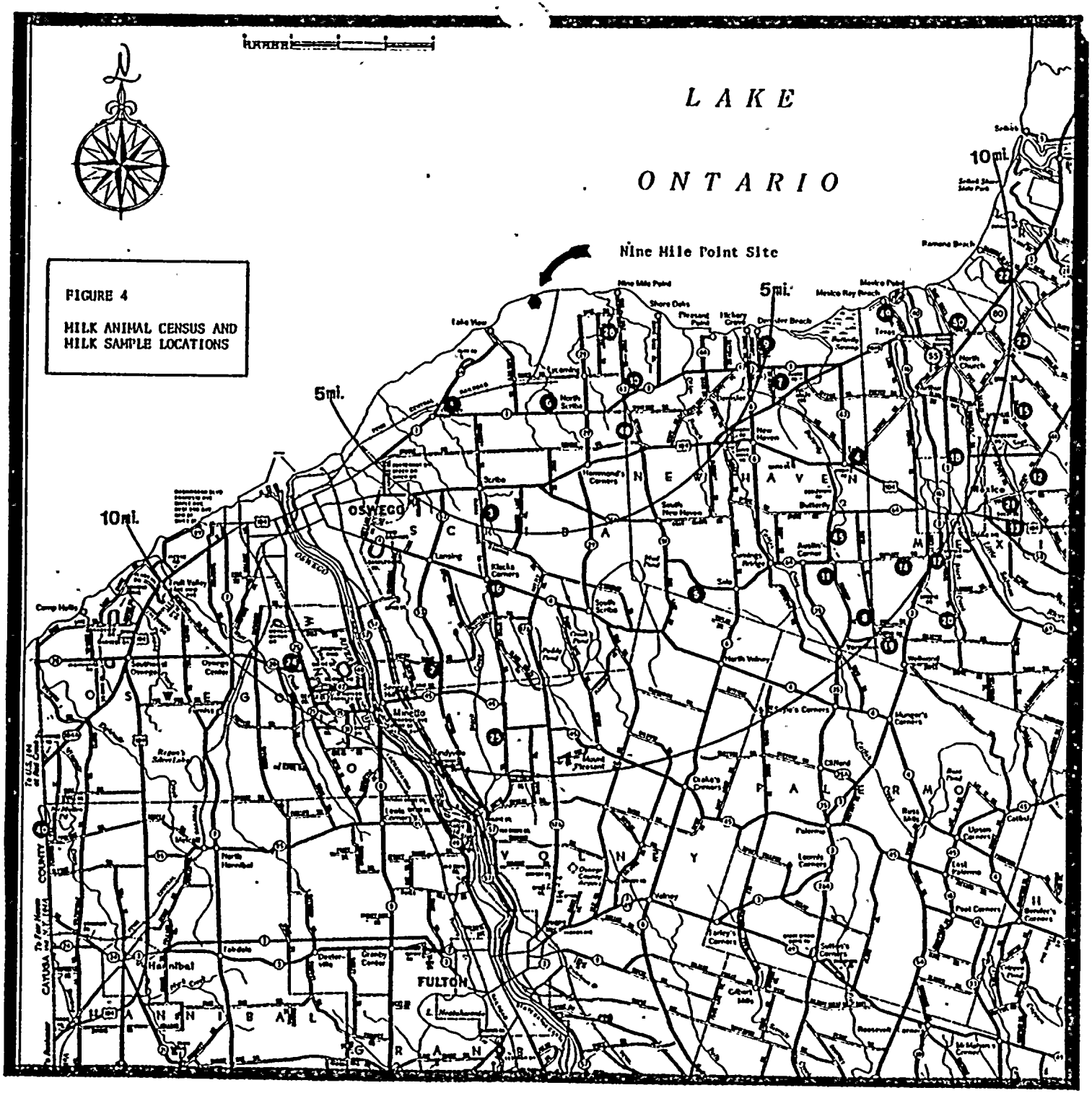
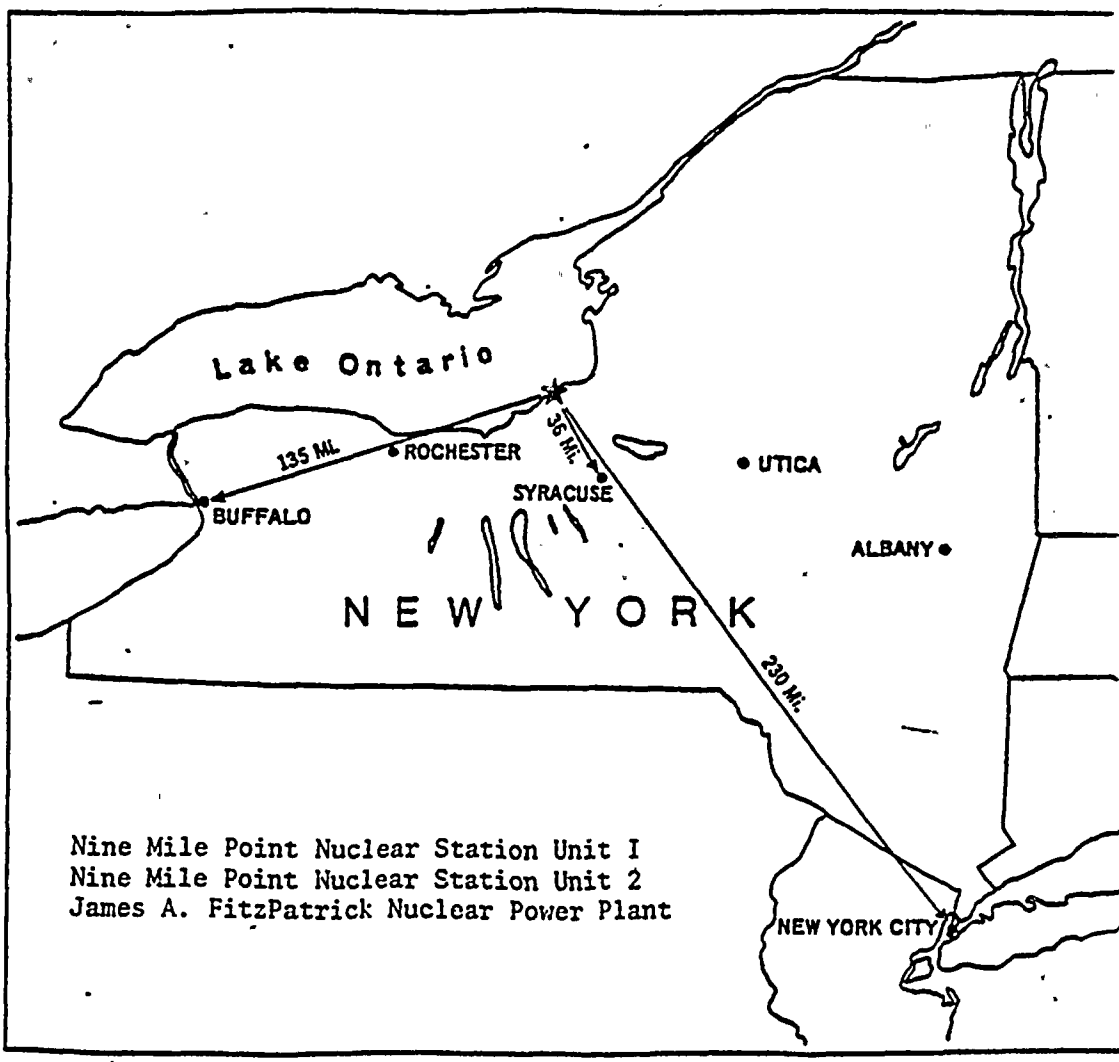


FIGURE 4

MILK ANIMAL CENSUS AND MILK SAMPLE LOCATIONS

FIGURE 5
NEW YORK STATE MAP



NMP-18234

NIAGARA MOHAWK POWER CORPORATION

NIAGARA MOHAWK

300 ERIE BOULEVARD WEST
SYRACUSE, N.Y. 13202

THOMAS E. LEMPGES
VICE PRESIDENT—NUCLEAR GENERATION

April 30, 1986

Dr. Thomas E. Murley
Regional Administrator
United States Nuclear Regulatory Commission
Region 1
631 Park Avenue
King of Prussia; PA 19406

RE: Nine Mile Point Nuclear Station Unit I
- Facility Operating License DPR-63
Docket No. 50-220

Dear Dr. Murley:

In accordance with the Technical Specifications for Nine Mile Point Nuclear Station Unit I, we are enclosing the Annual Radiological Environmental Operating Report for the period January, 1985 through December, 1985. Data presented in this report also provides documentation of the Preoperational Monitoring Program for Nine Mile Point Nuclear Station Unit II.

Very truly yours,

Thomas E. Lempges

Thomas E. Lempges
Vice President
Nuclear Generation

TEL/HJF/tg
Enclosure

cc: Document Control Desk

IE26
1/1