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Constellation Energy
Generation Group

May 14, 2007

U. S. Nuclear Regulatory Commission
Washington, DC 20555

ATTENTION: Document Control Desk

SUBJECT: **R.E. Ginna Nuclear Power Plant**
Docket No. 50-244

Annual Radioactive Effluent and Environmental Reports

The Annual Radioactive Effluent Release Report is being submitted in accordance with the requirements of Technical Specification Section 5.6.3 and 10 CFR 50.36. The Annual Radiological Environmental Operating Report is being submitted in accordance with the requirements of Technical Specification 5.6.2.

There are no new commitments being made in this submittal. Should you have questions regarding this matter, please contact Mr. Robert Randall at (585) 771-5219, or Robert.Randall@constellation.com.

Very truly yours,

Mary G. Korsnick

Mary G. Korsnick

Enclosures: (1) Annual Radioactive Effluent Release Report
(2) Annual Radiological Environmental Operating Report

cc: S. J. Collins, NRC
D. V. Pickett, NRC
Resident Inspector, NRC

IE48
IE25

1001791

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Building #2, First Sublevel
State Campus
Albany, NY 12226-5000
Attn: Jay Dunkleberger

NYS Department of Public Service
3 Empire State Plaza, 10th Floor
Albany, NY 12223
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700 Galleria Parkway
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2006

ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT

R. E. GINNA NUCLEAR POWER PLANT

DOCKET NO. 50-244

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1.0 INTRODUCTION

This Annual Radioactive Effluent Release Report is for the R. E. Ginna Nuclear Power Plant and is submitted in accordance with the requirements of Technical Specification Section 5.6.3. The report covers the period from January 1, 2006 through December 31, 2006.

This report includes a summary of the quantities of radioactive gaseous and liquid effluents and solid waste released from the plant presented in the format outlined in Appendix B of Regulatory Guide 1.21, Revision 1, June 1974.

All gaseous and liquid effluents discharged during this reporting period were in compliance with the limits of the R. E. Ginna Technical Specifications as defined in the Offsite Dose Calculation Manual (ODCM).

2.0 SUPPLEMENTAL INFORMATION

2.1 Regulatory Limits

The ODCM limits applicable to the release of radioactive material in liquid and gaseous effluents are:

2.1.1 Fission and Activation Gases

The instantaneous dose rate, as calculated in the ODCM, due to noble gases released in gaseous effluents from the site shall be limited to a release rate which would yield $\leq$ 500 mrem/yr to the total body and $\leq$ 3000 mrem/yr to the skin if allowed to continue for a full year.

The air dose, as calculated in the ODCM, due to noble gases released in gaseous effluents from the site shall be limited to the flowing:

(i) During any calendar quarter to $\leq$ 5 mrad for gamma radiation and to $\leq$ 10 mrad for beta radiation.

(ii) During any calendar year to $\leq$ 10 mrad for gamma radiation and to $\leq$ 20 mrad for beta radiation.

2.1.2 Radioiodine, Tritium, and Particulates

The instantaneous dose rate, as calculated in the ODCM, due to radioactive materials released in gaseous effluents from the site as radioiodines, radioactive materials in particulate form, and radionuclides other than noble gases with half-lives greater than 8 days shall be limited to a release rate which would yield $\leq$ 1500 mrem/yr to any organ if allowed to continue for a full year.

The dose to an individual, as calculated in the ODCM, from radioiodine, radioactive materials in particulate form, and radionuclides other than noble gases with half-lives greater than 8 days released with gaseous effluents from the site shall be limited to the following:

(i) During any calendar quarter to $\leq$ 7.5 mrem to any organ.

(ii) During any calendar year to $\leq$ 15 mrem to any organ.

2.1.3 Liquid Effluents

The release of radioactive liquid effluents shall be such that the concentration in the circulating water discharge does not exceed the limits specified in accordance with Appendix B, Table II, Column 2 and notes thereto of 10 CFR 20, as explained in Section 1 of the ODCM. For dissolved or entrained noble gases the total activity due to dissolved or entrained noble gases shall not exceed 2E-04 uCi/ml.

The dose or dose committed to an individual as calculated in the ODCM from radioactive materials in liquid effluents released to unrestricted areas shall be limited:

(i) During any calendar quarter to < 1.5 mrem to the total body and to < 5 mrem to any organ, and

(ii) During any calendar year to < 3 mrem to the total body and to < 10 mrem to and organ.

2.2 Effluent Air and Water Concentrations

2.2.1 For gaseous effluents, effluent concentration limits are not directly used in release rate calculations since the applicable limits are stated in terms of dose rate at the unrestricted area boundary, in accordance with Technical Specification 5.5.4.g.

2.2.2 For liquid effluents, ten times the effluent concentration values specified in 10 CFR 20, Appendix B, Table II, Column 2, are used to calculate release rates and permissible concentrations at the unrestricted area boundary as permitted by Technical Specification 5.5.4.b. A value of 2E-04 uCi/ml is used as the ECL for dissolved and entrained noble gases in liquid effluents.

2.3 Release Rate Limits

The release rate limits for fission and activation gases from the R. E. Ginna Nuclear Power Plant are not based on the average energy of the radionuclide mixture in gaseous effluents; therefore, this value is not applicable. However the 2006 average beta/gamma energy of the radionuclide mixture in fission and activation gases released from Ginna is available for review upon request.

2.4 Measurements and Approximations of Total Radioactivity

Gamma spectroscopy was the primary analysis method used to determine the radionuclide composition and concentration of gaseous and liquid effluents. Composite samples were analyzed for Sr-89, Sr-90, and Fe-55 by a contract laboratory. Tritium and alpha were performed using liquid scintillation and gas flow proportional counting respectively.

The total radioactivity in effluent releases was determined from the measured concentration of each radionuclide present and the total volume of effluents released.

2.5 Batch Releases

2.5.1 Liquid

1. Number of batch releases:	1.55 E+02
2. Total time period for batch releases:	1.04 E+06 min
3. Maximum time period for a batch release:	4.46 E+04 min
4. Average time period for batch releases:	6.71 E+03 min
5. Minimum time period for a batch release:	2.30 E+01 min
6. Average blowdown (LPM) during periods of effluent release into the discharge canal:	4.72 E+02 lpm

2.5.2 Gaseous

1. Number of batch releases:	3.40 E+01
2. Total time period for batch releases:	5.35 E+05 min
3. Maximum time period for a batch release:	4.46 E+04 min
4. Average time period for batch releases:	1.57 E+04 min
5. Minimum time period for a batch release:	8.50 E+01 min

2.6 Abnormal Releases

There were no abnormal or unplanned releases in 2006. Examples of ventilation system deficiencies that could result in small quantities of air exiting controlled areas by pathways other than monitored vent exhaust have been documented by the corrective action process. Sampling did not result in any measured radioactivity. Gaseous release permit methodology is conservative against small deviations in flow direction, if activity were present.

3.0 SUMMARY OF GASEOUS RADIOACTIVE EFFLUENTS

The quantities of radioactive material released in gaseous effluents are summarized in Tables 1A and 1B. Plant Vent and Containment Vent releases are modeled as mixed mode and Air Ejector is modeled as ground level release. In 2005, Ginna revised gaseous release procedures to remove the unrealistically conservative step of including sample activity that was less than the Minimum Detectable Activity, MDA, (which is the calculated *a posteriori* LLD for each sample counted), as if it were actually a measured value. This conservatism had been included in procedures years ago to account for sample purges and valve leakage which have since been demonstrated to be dramatically lower than the conservative estimate. Any leaks or purges with measurable activity are now included in release permits by integration of Radiation Monitoring System (RMS) data. This change has resulted in lower total reported activity in gaseous effluents for 2006 as compared to years prior to 2005.

4.0 SUMMARY OF LIQUID RADIOACTIVE EFFLUENTS

The quantities of radioactive material released in liquid effluents are summarized in Tables 2A and 2B.

5.0 SOLID WASTE

The quantities of radioactive material released in shipments of solid waste transported from the site during the reporting period are summarized in Table 3. Principal nuclides were determined by gamma spectroscopy and non-gamma emitters were calculated from scaling factors determined by an independent laboratory from representative samples of that waste type. The majority of Dry Active Waste is processed utilizing an off-site processor who reduces the volume and then sends the waste for burial.

6.0 LOWER LIMIT OF DETECTION

The required Lower Limit of Detection, (LLD), as defined in the ODCM, was met for all samples used in reporting effluent releases for 2006.

All samples also met the *a posteriori* Minimum Detectable Activity (MDA).

7.0 RADIOLOGICAL IMPACT

An assessment of doses to the maximally exposed individual from gaseous and liquid effluents was performed for locations representing the maximum calculated dose in occupied sectors. Meteorological sectors from WNW through ENE are entirely over Lake Ontario. In all cases, doses were well below Technical Specification limits as defined in the ODCM. Doses were assessed based upon historical meteorological conditions considering the noble gas exposure, inhalation, ground plane exposure, and ingestion pathways. The ingestion pathways considered were the fruit, vegetable, fish, drinking water, goat's milk, cow's milk, and cow meat pathways. Results of this assessment are presented in Tables 4A and 4B. Since September 11, 2001, Ginna Security has been augmented by full-time presence of the New York State Police and the New York National Guard. These personnel have posts within the site boundary. For this reason, the exposure and uptake pathways for 2006 are calculated using meteorological dispersion and deposition parameters at onsite posts, as well as at the site boundary.

7.1 Total Dose

40 CFR 190 limits the total dose to members of the public due to radiation and radioactivity from uranium fuel cycle sources to:

<25 mrem total body or any organ and;
<75 mrem thyroid for a calendar year.

Using the maximum exposure and uptake pathways, the maximum liquid pathways, and the direct radiation measurements onsite in the vicinity of the National Guard outpost, yield the following dose summaries to the maximally exposed individual member of the public onsite.

2.8 mrem total body (2.8 mrem direct radiation plus 7.62E-03 mrem all other pathways).
7.53E-03 mrem thyroid (maximum organ dose).

Using the maximum exposure and uptake pathways, the maximum liquid pathways, and the direct radiation measurements at the site boundary, yield the following dose summaries to the hypothetical maximally exposed individual member of the public offsite. This dose conservatively bounds any real member of the public.

7.6 mrem total body (7.6 mrem direct radiation plus 7.62E-03 mrem all other pathways).
7.53E-03 mrem thyroid (maximum organ dose).

8.0 METEOROLOGICAL DATA

The annual summary of hourly meteorological data collected during 2006 is not included with this report, but can be made available at the R. E. Ginna Nuclear Power Plant.

9.0 LAND USE CENSUS CHANGES

There were no changes in critical receptor location for dose calculations during the reporting period. There were no large changes in land use within 5 miles of the plant. Additional new homes are being built at an increasing rate compared to past years.

10.0 CHANGES TO THE OFFSITE DOSE CALCULATION MANUAL

There were no changes to the ODCM during the reporting period.

11.0 CHANGES TO THE PROCESS CONTROL PROGRAM

There were no changes to the Process Control Program during the reporting period.

12.0 MAJOR CHANGES TO THE RADWASTE TREATMENT SYSTEMS

There were no major changes to the Radwaste Treatment Systems during the reporting period.

13.0 INOPERABLE MONITORS

RM15A, Out Of Service for flow oscillations, 09/05/06-09/20/06

14.0 GROUNDWATER SAMPLING RESULTS

No inadvertent releases to groundwater occurred during 2006. Sample results are included in Table 5.

15.0 CHANGES TO PREVIOUS ANNUAL EFFLUENT OPERATING REPORTS

None

R. E. Ginna Nuclear Power Plant

Table 1A

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT

GASEOUS EFFLUENTS - SUMMATION OF ALL RELEASES
January – June 2006

A. Fission & Activation Gases	Unit	Quarter 1st	Quarter 2nd	Est. Total Error, %
1. Total release	Ci	1.20E-01	1.12E-01	1.50E+01
2. Average release rate for period	uCi/sec	1.54E-02	1.43E-02	
3. Percent of Technical Specification limit	%	2.44E-05	2.27E-05	
B. Iodines				
1. Total iodine-131	Ci		8.20E-09	1.50E+01
2. Average release rate for period	uCi/sec		1.04E-09	
3. Percent of Technical Specification limit	%		2.29E-06	
C. Particulates				
1. Particulates with half-lives > 8 days	Ci			
2. Average release rate for period	uCi/sec			
3. Percent of Technical Specification limit	%			
4. Gross alpha radioactivity	Ci			
D. Tritium				
1. Total release	Ci	1.05E+01	1.10E+01	9.20E+00
2. Average release rate for period	uCi/sec	1.35E+00	1.39E+00	
3. Percent of Technical Specification limit	%	1.59E-04	1.64E-04	

Note: Isotopes for which no value is given were not identified in applicable releases.

R. E. Ginna Nuclear Power Plant

Table 1A

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT

GASEOUS EFFLUENTS - SUMMATION OF ALL RELEASES
July – December 2006

A. Fission & Activation Gases	Unit	Quarter 3rd	Quarter 4th	Est. Total Error, %
1. Total release	Ci	2.83E-01	1.84E+00	1.50E+01
2. Average release rate for period	uCi/sec	3.56E-02	2.31E-01	
3. Percent of Technical Specification limit	%	5.65E-05	3.67E-04	
B. Iodines				
1. Total iodine-131	Ci	5.14E-08	3.77E-07	1.50E+01
2. Average release rate for period	uCi/sec	6.47E-09	4.74E-08	
3. Percent of Technical Specification limit	%	1.42E-05	1.04E-04	
C. Particulates				
1. Particulates with half-lives > 8 days	Ci		5.87E-07	2.00E+01
2. Average release rate for period	uCi/sec		7.39E-08	
3. Percent of Technical Specification limit	%		5.56E-06	
4. Gross alpha radioactivity	Ci			
D. Tritium				
1. Total release	Ci	1.38E+01	1.13E+01	9.20E+00
2. Average release rate for period	uCi/sec	1.74E+00	1.42E+00	
3. Percent of Technical Specification limit	%	2.05E-04	1.67E-04	

Note: Isotopes for which no value is given were not identified in applicable releases.

R. E. Ginna Nuclear Power Plant

Table 2A

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT

LIQUID EFFLUENTS - SUMMATION OF ALL RELEASES
January – June 2006

A. Fission & Activation Products	Unit	Quarter 1st	Quarter 2nd	Est. Total Error, %
1. Total release (not including tritium, gases, alpha)	Ci	3.85E-06	8.54E-5	9.90E+00
2. Average diluted concentration during period	uCi/ml	9.77E-15	1.70E-13	
3. Percent of applicable limit	%	2.54E-12	1.14E-12	
B. Tritium				
1. Total release	Ci	7.89E+01	3.19E+01	9.20E+00
2. Average diluted concentration during period	uCi/ml	2.00E-07	6.35E-08	
3. Percent of applicable limit	%	1.00E+00	3.18E-01	
C. Dissolved and entrained gases				
1. Total release	Ci			9.90E+00
2. Average diluted concentration during period	uCi/ml			
3. Percent of applicable limit	%			
D. Gross alpha radioactivity				
1. Total release	Ci			
E. Volume of waste released (prior to dilution)	Liters	9.76E+07	1.06E+08	
F. Volume of dilution water used during period	Liters	3.94E+11	5.02E+11	

Note: Isotopes for which no value is given were not identified in applicable releases.

R. E. Ginna Nuclear Power Plant

Table 2A

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT

LIQUID EFFLUENTS - SUMMATION OF ALL RELEASES
July – December 2006

A. Fission & Activation Products	Unit	Quarter 3rd	Quarter 4th	Est. Total Error, %
1. Total release (not including tritium, gases, alpha)	Ci	1.03E-04	1.91E-03	9.90E+00
2. Average diluted concentration during period	uCi/ml	1.86E-13	4.35E-12	
3. Percent of applicable limit	%	9.39E-13	2.78E-12	
B. Tritium				
1. Total release	Ci	3.44E+02	1.30E+02	9.20E+00
2. Average diluted concentration during period	uCi/ml	6.19E-07	2.97E-07	
3. Percent of applicable limit	%	3.10E+00	1.49E+00	
C. Dissolved and entrained gases				
1. Total release	Ci	1.93E-03	5.25E-03	9.90E+00
2. Average diluted concentration during period	uCi/ml	3.46E-12	1.20E-11	
3. Percent of applicable limit	%	1.73E-06	6.00E-06	
D. Gross alpha radioactivity				
1. Total release	Ci			
E. Volume of waste released (prior to dilution)	Liters	9.52E+07	8.19E+07	
F. Volume of dilution water used during period	Liters	5.56E+11	4.38E+11	

Note: Isotopes for which no value is given were not identified in applicable releases.

R. E. Ginna Nuclear Power Plant

Table 1B

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT

GASEOUS EFFLUENTS – CONTINUOUS AND BATCH RELEASES
January – June 2006

Nuclides released	Unit	Continuous Mode		Batch Mode	
		Quarter 1st	Quarter 2nd	Quarter 1st	Quarter 2nd
1. Fission Gases					
Argon-41	Ci			5.94E-02	6.63E-02
Krypton-85	Ci				
Krypton-85m	Ci				
Krypton-87	Ci				
Krypton-88	Ci				
Xenon-131m	Ci				
Xenon-133	Ci			5.96E-02	4.52E-02
Xenon-133m	Ci				
Xenon-135	Ci				
Xenon-135m	Ci				
Xenon-138	Ci				
Others (specify)	Ci				
Xenon-135	Ci			5.10E-04	9.10E-04
	Ci				
	Ci				
Total for period	Ci	0.00E+00	0.00E+00	1.20E-01	1.12E-01
2. Iodines					
Iodine-131	Ci				8.20E-09
Iodine-132	Ci				
Iodine-133	Ci				5.84E-09
Total for period	Ci	0.00E+00	0.00E+00	0.00E+00	1.40E-08
3. Particulates					
Strontium-89	Ci				
Strontium-90	Ci				
Cesium-134	Ci				
Cesium-137	Ci				
Niobium-95	Ci				
Cobalt-58	Ci				
Cobalt-60	Ci				
Others (specify)	Ci				
Total for period	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Note: Isotopes for which no value is given were not identified in applicable releases.

R. E. Ginna Nuclear Power Plant

Table 1B

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT

GASEOUS EFFLUENTS – CONTINUOUS AND BATCH RELEASES
July – December 2006

Nuclides released	Unit	Continuous Mode		Batch Mode	
		Quarter	Quarter	Quarter	Quarter
		3rd	4th	3rd	4th
1. Fission Gases					
Argon-41	Ci			7.17E-02	3.71E-01
Krypton-85	Ci				
Krypton-85m	Ci				
Krypton-87	Ci				
Krypton-88	Ci				
Xenon-131m	Ci				2.05E-03
Xenon-133	Ci		6.68E-01	7.44E-02	7.63E-01
Xenon-133m	Ci				4.25E-03
Xenon-135	Ci	1.36E-01	1.13E-02	1.51E-03	1.56E-02
Xenon-135m	Ci				
Xenon-138	Ci				
Others (specify)	Ci				
	Ci				
	Ci				
	Ci				
Total for period	Ci	1.36E-01	6.79E-01	1.48E-01	1.15E+00
2. Iodines					
Iodine-131	Ci			5.15E-08	3.76E-07
Iodine-132	Ci				3.71E-06
Iodine-133	Ci				1.06E-07
Total for period	Ci	0.00E+00	0.00E+00	5.15E-08	4.20E-06
3. Particulates					
Strontium-89	Ci				
Strontium-90	Ci				
Cesium-134	Ci				
Cesium-137	Ci				
Niobium-95	Ci				1.91E-07
Cobalt-58	Ci				2.44E-07
Cobalt-60	Ci				3.65E-08
Zirconium-95	Ci				1.16E-07
Total for period	Ci	0.00E+00	0.00E+00	0.00E+00	5.88E-07

Note: Isotopes for which no value is given were not identified in applicable releases.

R. E. Ginna Nuclear Power Plant

Table 2B

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT

LIQUID EFFLUENTS – CONTINUOUS AND BATCH RELEASES
January – June 2006

Nuclides released	Unit	Continuous Mode		Batch Mode	
		Quarter	Quarter	Quarter	Quarter
		1st	2nd	1st	2nd
Nuclide					
Chromium-51	Ci				
Manganese-54	Ci				
Iron-55	Ci				
Cobalt-57	Ci				2.52E-06
Cobalt-58	Ci				4.50E-05
Iron-59	Ci				
Cobalt-60	Ci				3.79E-05
Zinc-65	Ci				
Stronium-89	Ci				
Stronium-90	Ci				
Niobium-95	Ci				
Zirconium-95	Ci				
Molybdenum-99	Ci				
Silver-110m	Ci				
Antimony-122	Ci				
Antimony-124	Ci				
Antimony-125	Ci				
Iodine-131	Ci				
Iodine-132	Ci				
Tellerium-132	Ci				
Cesium-134	Ci				
Iodine-135	Ci				
Cesium-136	Ci				
Cesium-137	Ci				
Barium/Lanthanum-140	Ci				
Cerium-141	Ci				
Tellerium-123m	Ci			3.85E-06	
Total for period	Ci	0.00E+00	0.00E+00	3.85E-06	8.54E-05
Xenon-133	Ci				
Xenon-135	Ci				

Note: Isotopes for which no value is given were not identified in applicable releases.

R. E. Ginna Nuclear Power Plant

Table 2B

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT

LIQUID EFFLUENTS – CONTINUOUS AND BATCH RELEASES
July – December 2006

Nuclides released	Unit	Continuous Mode		Batch Mode	
		Quarter	Quarter	Quarter	Quarter
		3rd	4th	3rd	4th
Nuclide					
Chromium-51	Ci				
Manganese-54	Ci				
Iron-55	Ci				
Cobalt-57	Ci				
Cobalt-58	Ci				1.33E-03
Iron-59	Ci				
Cobalt-60	Ci			4.07E-05	1.83E-04
Zinc-65	Ci				
Stronium-89	Ci				
Stronium-90	Ci				
Niobium-95	Ci				
Zirconium-95	Ci				
Molybdenum-99	Ci				
Silver-110m	Ci				
Antimony-122	Ci				
Antimony-124	Ci				
Antimony-125	Ci				
Iodine-131	Ci				
Iodine-132	Ci				1.42E-04
Tellerium-132	Ci				1.64E-04
Cesium-134	Ci				
Iodine-135	Ci				
Cesium-136	Ci				
Cesium-137	Ci				
Barium/Lanthanum-140	Ci				
Cerium-141	Ci				
Tellerium-123m	Ci			6.25E-05	9.43E-05
Total for period	Ci	0.00E+00	0.00E+00	1.03E-04	1.90E-03
Xenon-133	Ci			1.92E-03	5.23E-03
Xenon-135	Ci			3.57E-06	1.43E-05

Note: Isotopes for which no value is given were not identified in applicable releases.

Table 3
EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT
SOLID WASTE AND IRRADIATED FUEL SHIPMENTS
January 1, 2006 - December 31, 2006

A. SOLID WASTE SHIPPED OFFSITE FOR BURIAL OR DISPOSAL - (Not irradiated fuel)

1. Type of waste	Unit	12 month period	Est. total Error %
a. Spent resins, filter sludges, evaporator bottoms, etc.	m^3 Ci	1.1E+01 1.5E+02	7.0E+00 1.4E+01
b. Dry compressible waste, contaminated equip, etc.	m^3 Ci	2.1E+02 1.7E+00	7.0E+00 1.4E+01
c. Irradiated components, control rods, etc.	m^3 Ci	None	N/A
d. Other: Turbine Rotor and Parts	m^3 Ci	4.4E+01 4.7E-04	7.0E+00 1.4E+01

2.Estimate of major nuclide composition (by type of waste)								
a.			b.			d. (None)		
Co-58	%	2.7E+00	Fe-55	%	5.8E+00	Co-60	%	3.6E+01
Ni-63	%	6.4E+01	Co-58	%	3.5E+00	Ni-63	%	5.8E+01
Co-60	%	1.2E+01	Ni-63	%	4.3E+00	Ag-110m	%	5.0E-01
Cs-137	%	5.2E+00	Cr-51	%	1.0E+00	Cs-137	%	2.5E+00
Fe-55	%	1.4E+01	Co-60	%	5.8E+00	Ce-144	%	2.0E+00
Sb-125	%	6.8E-01	Zr-95	%	2.0E-01		%	
Ce-144	%	1.6E-01	Ag-110m	%	8.0E-01		%	
Mn-54	%	6.9E-01	Cs-137	%	1.0E-01		%	
Ag-110m	%	1.0E-01	Sb-125	%	1.0E-01		%	
H-3	%	1.3E-01	H-3	%	7.8E+01		%	
Total		1.0E+02	Total		1.0E+02	Total		9.9E+01

3. Solid Waste Disposition		
Number of Shipments	Mode of Transportation	Destination
2.0E+00	Sole Use Truck	Barnwell, SC
4.0E+00	Sole Use Truck	Duratek, TN
1.0E+00	Sole Use Truck	Studsvik, TN
3.0E+00	Sole Use Truck	Toxco, TN

B. IRRADIATED FUEL SHIPMENTS (Disposition)

Number of Shipments	Mode of Transportation	Destination
None	N/A	N/A

Table 4A
Radiation Dose to Maximum Individual Receptor
From Gaseous Releases
First Quarter 2006
(Units in rem)

	All Noble Gas Air Gamma	All Noble Gas Air Beta	Adult Thyroid	Teen Thyroid	Child Thyroid	Infant Thyroid
N	1.56E-09	7.01E-10				
NNE	1.30E-09	5.87E-10				
NE	1.50E-09	6.77E-10				
ENE	1.91E-09	8.60E-10				
E	3.47E-09	1.56E-09	2.92E-07	3.20E-07	4.40E-07	1.92E-07
ESE	4.42E-09	1.99E-09	3.72E-07	4.07E-07	5.59E-07	2.44E-07
SE	2.67E-09	1.20E-09	2.25E-07	2.46E-07	3.38E-07	1.48E-07
SSE	1.10E-09	4.96E-10	9.27E-08	1.01E-07	1.39E-07	6.09E-08
S	1.93E-09	8.68E-10	1.62E-07	1.77E-07	2.44E-07	1.06E-07
SSW	1.93E-09	8.68E-10	1.62E-07	1.77E-07	2.44E-07	1.06E-07
SW	1.93E-09	8.68E-10	1.62E-07	1.77E-07	2.44E-07	1.06E-07
WSW	2.06E-09	9.25E-10	1.73E-07	1.89E-07	2.60E-07	1.14E-07
W	1.31E-09	5.89E-10	1.10E-07	1.20E-07	1.65E-07	7.22E-08
WNW	1.11E-10	4.98E-11				
NW	3.62E-10	1.63E-10				
NNW	1.13E-09	5.10E-10				
Maximum	4.42E-09	1.99E-09	3.72E-07	4.07E-07	5.59E-07	2.44E-07

R. E. Ginna Nuclear Power Plant

Table 4A
Radiation Dose to Maximum Individual Receptor
From Gaseous Releases
Second Quarter 2006
(Units in rem)

	All	All	Adult	Teen	Child	Infant
	Noble Gas	Noble Gas	Thyroid	Thyroid	Thyroid	Thyroid
	Air Gamma	Air Beta				
N	1.72E-09	7.26E-10				
NNE	1.44E-09	6.08E-10				
NE	1.66E-09	7.01E-10				
ENE	2.11E-09	8.90E-10				
E	3.84E-09	1.62E-09	3.06E-07	3.35E-07	4.60E-07	2.02E-07
ESE	4.89E-09	2.06E-09	3.89E-07	4.27E-07	5.85E-07	2.58E-07
SE	2.96E-09	1.25E-09	2.35E-07	2.58E-07	3.54E-07	1.56E-07
SSE	1.22E-09	5.14E-10	9.70E-08	1.06E-07	1.46E-07	6.42E-08
S	2.13E-09	8.99E-10	1.70E-07	1.86E-07	2.55E-07	1.12E-07
SSW	2.13E-09	8.99E-10	1.70E-07	1.86E-07	2.55E-07	1.12E-07
SW	2.13E-09	8.99E-10	1.70E-07	1.86E-07	2.55E-07	1.12E-07
WSW	2.27E-09	9.58E-10	1.81E-07	1.98E-07	2.72E-07	1.20E-07
W	1.45E-09	6.10E-10	1.15E-07	1.26E-07	1.73E-07	7.62E-08
WNW	1.22E-10	5.15E-11				
NW	4.00E-10	1.69E-10				
NNW	1.25E-09	5.28E-10				
Maximum	4.89E-09	2.06E-09	3.89E-07	4.267E-07	5.853E-07	2.576E-07

R. E. Ginna Nuclear Power Plant

Table 4A
Radiation Dose to Maximum Individual Receptor
From Gaseous Releases
Third Quarter 2006
(Units in rem)

	All	All	Adult	Teen	Child	Infant
	Noble Gas	Noble Gas	Thyroid	Thyroid	Thyroid	Thyroid
	Air Gamma	Air Beta				
N	2.60E-09	1.77E-09				
NNE	2.17E-09	1.48E-09				
NE	2.51E-09	1.70E-09				
ENE	3.18E-09	2.16E-09				
E	5.79E-09	3.94E-09	3.87E-07	4.26E-07	5.86E-07	2.64E-07
ESE	7.37E-09	5.01E-09	4.93E-07	5.42E-07	7.45E-07	3.36E-07
SE	4.46E-09	3.03E-09	2.98E-07	3.28E-07	4.51E-07	2.03E-07
SSE	1.84E-09	1.25E-09	1.23E-07	1.35E-07	1.86E-07	8.38E-08
S	3.21E-09	2.19E-09	2.15E-07	2.36E-07	3.25E-07	1.47E-07
SSW	3.21E-09	2.19E-09	2.15E-07	2.36E-07	3.25E-07	1.47E-07
SW	3.21E-09	2.19E-09	2.15E-07	2.36E-07	3.25E-07	1.47E-07
WSW	3.43E-09	2.33E-09	2.29E-07	2.52E-07	3.46E-07	1.56E-07
W	2.18E-09	1.48E-09	1.46E-07	1.60E-07	2.20E-07	9.94E-08
WNW	1.84E-10	1.25E-10				
NW	6.04E-10	4.10E-10				
NNW	1.89E-09	1.28E-09				
Maximum	7.37E-09	5.01E-09	4.928E-07	5.417E-07	7.45E-07	3.36E-07

R. E. Ginna Nuclear Power Plant

Table 4A
Radiation Dose to Maximum Individual Receptor
From Gaseous Releases
Fourth Quarter 2006
(Units in rem)

	All	All	Adult	Teen	Child	Infant
	Noble Gas	Noble Gas	Thyroid	Thyroid	Thyroid	Thyroid
	Air Gamma	Air Beta				
N	1.26E-08	1.30E-08				
NNE	1.05E-08	1.09E-08				
NE	1.21E-08	1.25E-08				
ENE	1.54E-08	1.59E-08				
E	2.81E-08	2.89E-08	4.67E-07	5.16E-07	7.18E-07	3.72E-07
ESE	3.57E-08	3.68E-08	5.94E-07	6.56E-07	9.14E-07	4.74E-07
SE	2.16E-08	2.23E-08	3.60E-07	3.97E-07	5.53E-07	2.86E-07
SSE	8.90E-09	9.18E-09	1.48E-07	1.64E-07	2.28E-07	1.18E-07
S	1.56E-08	1.61E-08	2.59E-07	2.86E-07	3.99E-07	2.07E-07
SSW	1.56E-08	1.61E-08	2.59E-07	2.86E-07	3.99E-07	2.07E-07
SW	1.56E-08	1.61E-08	2.59E-07	2.86E-07	3.99E-07	2.07E-07
WSW	1.66E-08	1.71E-08	2.76E-07	3.05E-07	4.25E-07	2.20E-07
W	1.06E-08	1.09E-08	1.76E-07	1.94E-07	2.70E-07	1.40E-07
WNW	8.93E-10	9.20E-10				
NW	2.92E-09	3.01E-09				
NNW	9.15E-09	9.44E-09				
Maximum	3.57E-08	3.68E-08	5.94422E-07	6.55922E-07	9.14122E-07	4.73522E-07

R. E. Ginna Nuclear Power Plant

Table 4B
Radiation Dose to Maximum Individual Receptor
From Liquid Release
2006
(Units in rem)

	Adult	Teen	Child	Infant
First Quarter				
Total Body	5.85E-07	4.12E-07	7.76E-07	7.55E-07
Liver	5.85E-07	4.12E-07	7.76E-07	7.55E-07
Thyroid	5.85E-07	4.12E-07	7.76E-07	7.55E-07
Second Quarter				
Total Body	1.87E-07	1.32E-07	2.49E-07	2.42E-07
Liver	1.87E-07	1.32E-07	2.49E-07	2.42E-07
Thyroid	1.87E-07	1.32E-07	2.49E-07	2.42E-07
Third Quarter				
Total Body	2.00E-06	1.41E-06	2.66E-06	2.59E-06
Liver	2.00E-06	1.41E-06	2.66E-06	2.59E-06
Thyroid	2.00E-06	1.41E-06	2.66E-06	2.59E-06
Fourth Quarter				
Total Body	7.80E-07	5.50E-07	1.04E-06	1.01E-06
Liver	7.80E-07	5.50E-07	1.04E-06	1.01E-06
Thyroid	7.80E-07	5.50E-07	1.04E-06	1.01E-06

R. E. Ginna Nuclear Power Plant

Groundwater Sampling Results

Table 5

LOCATION	DATE SAMPLED	Tritium pCi/L
Groundwater AVT M. 17'	02/28/06	*
Groundwater AVT M. 17'	05/08/06	*
Groundwater AVT M. 17'	06/21/06	*
Groundwater AVT M. 17'	07/08/06	*
Groundwater AVT M. 17'	08/22/06	*
Groundwater AVT M. 17'	09/28/06	*
Groundwater AVT M. 17'	10/17/06	*
Groundwater AVT M. 17'	11/15/06	*
Groundwater AVT M. 17'	12/23/06	*
Groundwater AVT N. 6'	02/27/06	*
Groundwater AVT N. 6'	05/08/06	*
Groundwater AVT N. 6'	06/21/06	*
Groundwater AVT N. 6'	07/08/06	*
Groundwater AVT N. 6'	08/22/06	*
Groundwater AVT N. 6'	09/28/06	*
Groundwater AVT N. 6'	10/17/06	*
Groundwater AVT N. 6'	11/15/06	*
Groundwater AVT N. 6'	12/23/06	*
Groundwater AVT S. 13'	02/28/06	*
Groundwater AVT S. 13'	05/08/06	*
Groundwater AVT S. 13'	06/21/06	*
Groundwater AVT S. 13'	07/08/06	*
Groundwater AVT S. 13'	08/22/06	*
Groundwater AVT S. 13'	09/28/06	*
Groundwater AVT S. 13'	10/17/06	*
Groundwater AVT S. 13'	11/15/06	*
Groundwater AVT S. 13'	12/23/06	*
Groundwater by Butler Bldg.	02/27/06	*
Groundwater by Butler Bldg.	05/10/06	*
Groundwater by Butler Bldg.	06/21/06	*
Groundwater by Butler Bldg.	07/08/06	*
Groundwater by Butler Bldg.	08/22/06	*
Groundwater by Butler Bldg.	09/28/06	*
Groundwater by Butler Bldg.	10/17/06	*
Groundwater by Butler Bldg.	11/15/06	*
Groundwater by Butler Bldg.	12/23/06	*
Pond	09/28/06	*
Pond	10/17/06	*
Pond	11/15/06	*
Pond	12/23/06	*
IBSB Inner Moat by Slot	05/09/06	1.94E+07
* All results are <500 pCi/L unless otherwise shown		

R. E. Ginna Nuclear Power Plant

Groundwater Sampling Results

Table 5 continued

LOCATION	DATE SAMPLED	Tritium pCi/L
Groundwater SE of CSB	02/27/06	*
Groundwater SE of CSB	05/10/06	*
Groundwater SE of CSB	06/21/06	*
Groundwater SE of CSB	07/08/06	*
Groundwater SE of CSB	08/22/06	*
Groundwater SE of CSB	09/28/06	*
Groundwater SE of CSB	10/17/06	*
Groundwater SE of CSB	11/15/06	*
Groundwater SE of CSB	12/23/06	*
Retention Tank North	02/27/06	*
Retention Tank North	05/10/06	*
Retention Tank North	06/21/06	*
Retention Tank North	07/08/06	*
Retention Tank North	08/22/06	*
Retention Tank North	09/28/06	*
Retention Tank North	10/17/06	*
Retention Tank North	11/15/06	*
Retention Tank North	12/23/06	*
Storm Drain F	09/28/06	*
Storm Drain F	11/15/06	*
Storm Drain F	12/23/06	*
Storm Drain G	09/28/06	*
Storm Drain G	10/17/06	*
Storm Drain G	11/15/06	*
Storm Drain G	12/23/06	*
Storm Drain H	09/28/06	*
Storm Drain H	11/15/06	*
Storm Drain H	12/23/06	*
Storm Drain I	09/28/06	*
Storm Drain I	10/17/06	*
Storm Drain I	11/15/06	*
Storm Drain I	12/23/06	*
SFP Leakoff	05/08/06	2.04E+08
SFP Leakoff	05/08/06	2.12E+08
SFP Leakoff	05/08/06	2.12E+08
SFP Leakoff	09/25/06	1.88E+08
SFP Leakoff	10/02/06	1.50E+08
SFP Leakoff	10/09/06	1.86E+08
SFP Leakoff	10/16/06	1.69E+08
SFP Leakoff	10/23/06	1.66E+08
* All results are <500 pCi/L unless otherwise shown		

ANNUAL RADIOLOGICAL ENVIRONMENTAL OPERATING REPORT FOR THE R. E. GINNA NUCLEAR POWER PLANT

January 1 - December 31, 2006

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CONSTELLATION ENERGY
CONSTELLATION GENERATION GROUP, LLC

APRIL 2007

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I. SUMMARY

The Annual Radiological Environmental Operating Report is published in accordance with Section 5.0 of the Offsite Dose Calculation Manual, (ODCM).This report describes the Radiological Environmental Monitoring Program, (REMP), and its implementation as required by the ODCM.

The REMP is implemented to measure radioactivity in the aquatic and terrestrial pathways. The aquatic pathways include Lake Ontario fish, Lake Ontario water, and Deer Creek water. Measurement results of the samples representing these pathways contained only natural background radiation or low concentrations of Cs-137 resulting from past atmospheric nuclear weapons testing. Terrestrial pathways monitored included airborne particulate and radioiodine, milk, food products, and direct radiation. Analysis of terrestrial pathways demonstrated no detectable increase in radiation levels as a result of plant operation. The 2006 results were consistent with data for the past five years and exhibited no adverse trends.

The analytical results from the 2006 Radiological Environmental Monitoring program demonstrate that the operation of the R.E. Ginna Nuclear Power Plant had no measurable radiological impact on the environment. The results also demonstrate that operation of the plant did not result in a measurable radiation dose to the general population above natural background levels.

During 2006, 1232 samples were collected for analysis by gross beta counting and/or gamma spectroscopy. These included 936 air samples, 60 water samples, 13 fish samples, 7 sediment samples, 21 vegetation samples, 39 milk samples, and 156 thermoluminescent dosimeter measurements. During 2006 there were no deviations from the sampling schedule for air samples. The minimum number of samples required in the ODCM (Ref. 2) were collected for all pathways.

Samples were collected by Ginna Station chemistry personnel and analyzed by the Fort Smallwood Environmental Laboratory. A summary of the content of the REMP and the results of all the data collected for indicator and control locations is given in Table 1 and Table 2.

II. R. E. GINNA NUCLEAR POWER PLANT RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM

II.A. INTRODUCTION

The R. E. Ginna site is an operating nuclear generating station consisting of one pressurized water reactor. Unit 1 achieved criticality and commenced commercial operation in 1969. The location of the plant in relation to local metropolitan areas is shown on Figure A-1, page 19.

Results of the monitoring program for the pre-operational and previous operational periods through 2006 have been reported in a series of documents.

Results of the monitoring program for the current operational period are included in this report. The report presents the content of the REMP (Table 1), the sampling locations (Appendix A), the summary of the analytical results (Table 2), a compilation of the analytical data (Appendix B), the results of the Quality Assurance Program (Appendix C), and the results of the Land Use Survey (Appendix D). Interpretation of the data and conclusions are presented in the body of the report.

The environmental surveillance data collected during this reporting period were compared with that generated in previous periods whenever possible to evaluate the environmental radiological impact of the R. E. Ginna Nuclear Power Plant.

II.B. PROGRAM

II.B.1 Objectives

The objectives of the REMP for the Ginna Nuclear Power Plant are:

a. Measure and evaluate the effects of plant operation on the environment.
b. Monitor background radiation levels in the environs of the Ginna site.
c. Demonstrate compliance with the environmental conditions and requirements of applicable state and federal regulations, including the ODCM and 40 CFR 190.
d. Provide information by which the general public can evaluate environmental aspects of the operation of Ginna Nuclear Power Station.

II.B.2 Sample Collection

The locations of the individual sampling stations are listed in Table A-1 and shown in Figures A-2 and A-3. All samples were collected by contractors to, or personnel of Constellation Energy according to Ginna Procedures (Ref. 3).

II.B.3 Data Interpretation

Many results in environmental monitoring occur at or below the minimum detectable activity (MDA). In this report, all results at or below the relevant MDA are reported as being "less than" the MDA value.

II.B.4 Program Exceptions

On 14 occasions air sample stations lost power during the sample collection period. On each occasion the procedurally required minimum sample volume was collected. All LLD's were met. On two occasions TLD's were temporarily removed, and relocated in the same environmental monitoring sector.

Date	Station	Date	Station
4/26/06	# 8	5/2/06	# 13
5/9/06	# 3	5/17/06	# 3
5/22/06	# 3	5/31/06	# 12
6/6/06	# 12	6/13/06	# 12
8/7/06	# 2	8/7/06	# 4
8/30/06	# 9	9/19/06	# 9
9/26/06	# 6	9/26/06	# 7

TLD #34 was removed for < 1 day.
TLD #18 was removed for < 7 days, the sampling period was 83 days.

II.C. RESULTS AND DISCUSSIONS

All the environmental samples collected during the year were analyzed using Constellation Energy laboratory procedures (Ref. 3). The analytical results for this reporting period are presented in Appendix B and are also summarized in Table 2. For discussion, the analytical results are divided into four categories. The categories are the Aquatic Environment, the Atmospheric Environment, the Terrestrial Environment, and Direct Radiation. These categories are further divided into subcategories according to sample type (e.g., Circulating Water, Aquatic Organisms, etc., for the Aquatic Environment).

II.C.1 Aquatic Environment

The aquatic environment surrounding the plant was monitored by analyzing samples of surface and drinking water, aquatic organisms, and shoreline sediment. These samples were obtained from various sampling locations on Lake Ontario and Deer Creek near the plant.

II.C.1.a **Surface and Drinking Water**

Samples are collected weekly from Lake Ontario, upstream (Monroe County Water Authority - Shoremont) and downstream (Ontario Water District Plant - OWD), composited monthly, and analyzed for gross beta activity, Table B-1. There was no statistically significant difference between the upstream and downstream sample concentrations as shown in Figure A-8. The 2006 averages were 2.10 pCi/liter and 2.28 pCi/liter for the upstream and downstream samples respectively. Gamma isotopic analysis of the monthly composite samples showed no statistically significant difference in activity between the upstream and downstream samples.

Gross beta peaks of up to 5 pCi/liter can occur when the lake is stirred up by wind and the weekly sample includes large quantities of suspended silt.

Weekly samples are taken from the plant circulating water intake (Circ In) and discharge canal (Circ Out), and composited monthly. The 2006 averages were 2.28 pCi/liter and 2.18 pCi/liter for the intake and discharge canal respectively. These are essentially the same as the upstream and downstream values as they fall within the $\pm$ 2 sigma error band and range of the measurement.

Results for all water beta analyses are listed in Table B-1. Additionally, a trend plot of the annual averages measured since 1968, Figure A-7, provides for the variation of data during the years that the R.E. Ginna Nuclear Power Plant has been operational. The peak activities measured correspond to the years when atmospheric tests of nuclear weapons were being conducted.

Samples of the creek which crosses the site are collected and analyzed monthly.
Deer Creek gross beta values are typically higher than other surface water samples due to Radon progeny in the soils from which the creek recharges and over which the creek flows.

Gamma isotopic analysis including I-131 is performed on each monthly composite sample. These are listed in Table B-1 and are separated by source of sample. No anomalous results were noted. The analysis allows the determination of Iodine-131 activity of <1 pCi/liter. Any positive counts and the 2 sigma error are reported. During 2006, no sample results indicated I-131 activity in excess of the LLD for the analysis.

Tritium analysis was performed on all water samples on a monthly basis. Composites are made from the weekly samples and a portion filtered to remove interferences for analysis by beta scintillation. Tritium data is given in Table B-1.

II.C.1.b **Aquatic Organisms**

Indicator fish are caught in the vicinity of the Discharge Canal and analyzed for radioactivity from liquid effluent releases from the plant. The fish are filleted to represent that portion which

would normally be eaten. Additional fish are caught more than 10 miles away, west of the plant, to be used as control samples and are prepared in the same manner.

Four different species of fish are analyzed during each half-year from the indicator and background locations if they are available. There was no statistically significant difference in the activity of the fish caught between the indicator and control locations.

Fish are caught by R. E. Ginna Nuclear Power Plant environmental staff and are analyzed by gamma spectroscopy after being held for periods of less than one week to keep the LLD value for the shorter half-life isotopes realistic. Detection limits could also be affected by small mass samples, (< 2000 grams), in some species. Gamma isotopic concentrations (pCi/kilogram wet) are listed in Table B-2.

II.C.1.c **Shoreline Sediment**

Samples of shoreline sediment are taken upstream (Russell Station or Monroe County Water Authority - Shoremont) and downstream (Ontario Water District) of Ginna Station. Results of the gamma isotopic analysis for sediment are included in Table B-3, along with benthic sediment and cladaphora from Lake Ontario. I-131 was found in cladaphora in 2 samples and its presence is attributed to nuclear medicine treatments based on the absence of I-131 in releases during the sample period.

II.C.2 **Atmospheric Environment**

Radioactive particles in air are collected by drawing approximately one SCFM through a two inch diameter particulate filter. The volume of air sampled is measured by a dry gas meter and corrected for the pressure drop across the filter. The filters are changed weekly and allowed to decay for three days prior to counting to eliminate most of the natural radioactivity such as the short half-life decay products of radon. The decay period is used to give a more sensitive measurement of long-lived man-made radioactivity.

A ring of 6 sampling stations is located on the plant site from 160 to 420 meters from the reactor centerline near the point of the maximum annual average ground level concentration, 1 more is located near-site at 690 meters, and 2 others offsite at approximately 7 miles. In addition, there are 3 sampling stations located approximately 7 to 16 miles from the site that serve as control stations. See Figure A-2 for on-site locations and Figure A-4 for off-site locations.

II.C.2.a **Air Particulate Filters**

Based on weekly comparisons, there was no statistical difference between the Control and Indicator radioactive particulate concentrations. The averages for the control samples were 0.019 pCi/m^3, and the averages for the indicators were 0.019 pCi/m^3 for the period of January to December, 2006. Maximum weekly concentrations for each control and indicator station were less than 0.04 pCi/m^3.

The major airborne species released from the plant are noble gases, tritium and radioiodines. Most of this activity is released in a gaseous form, however, some radioiodine is released as airborne particulate and some of the particulate activity is due to short lived noble gas decay products.

Table B-5 is a list of gross beta analysis values for the on-site sample stations. Table B-6 is a list of gross beta analysis values for the off-site sampler stations.

The particulate filters from each sampling location were saved and a 13 week composite was made. A gamma isotopic analysis was performed for each sampling location and corrected for decay. The results of these analyses are listed in Table B-7. The 3rd quarter sample at Station 4 was lost by the analytical laboratory.

A trend plot of the 2006 Onsite vs. Offsite air filter data is included, Figure A-5. Additionally, a trend plot of the annual averages measured since 1968, Figure A-6, provides for the variation of data during the years that the R.E. Ginna Nuclear Power Plant has been operational. The peak activities measured correspond to the years when atmospheric tests of nuclear weapons were being conducted.

II.C.2.b **Air Iodine**

Radioiodine cartridges are placed at six locations. These cartridges are changed and analyzed each week. No positive analytical results were found on any sample.

II.C.3 **Terrestrial Environment**

Crops are grown on the plant property in a location with the highest site boundary meteorological deposition parameter, and samples of the produce are collected at harvest time for analysis. Control samples are purchased from farms greater than ten miles from the plant.

II.C.3.a **Vegetation**

There was no indication in the samples of any measurable activity other than naturally occurring K-40 and Ra-226.

Gamma isotopic data is given in Table B-8.

II.C.3.b **Milk**

There was one indicator dairy herd located five miles from the plant on 1/1/06. The owner of previous indicator farm B ceased operation, and a change to the ODCM has been submitted to reflect this. Milk samples are collected monthly during November through May from the indicator farm and biweekly during June through October. A control farm sample is taken for each monthly sample and once during each biweekly period. The milk is analyzed for Iodine-131 and also analyzed by gamma spectroscopy for major fission products.

All positive counts and the ±2 sigma error are reported. During 2006, no samples indicated I-131 activity.

Table B-9 is a listing of all samples collected during 2006 with analytical results.

II.C.4 **Direct Radiation**

Thermoluminescent dosimeters, (TLD's), with a sensitivity of 5 millirem/quarter are placed as part of the environmental monitoring program. Thirty-nine TLD badges are currently placed in four rings around the plant. These rings range from less than 1000 feet to 15 miles and have been dispersed to give indications in each of the nine land based sectors around the plant should an excessive release occur from the plant. Badges are changed and read after approximately 3 months exposure.

TLD locations #7 and #13 are influenced by close proximity to radioactive equipment storage areas and will normally read slightly higher than other locations. For the year of 2006, on-site

exposure ranged between 9.9 – 15.7 mrem/quarter, and off-site exposure ranged between 9.9 – 14.2 mrem/quarter.

40 CFR 190 requires that the annual dose equivalent not exceed 25 millirems to the whole body of any member of the public. Using the annual average of control TLD stations as background and the highest site boundary TLD, leads to 7.6 millirem direct radiation dose to the hypothetical maximally exposed member of the public, off-site.

Table B-12 gives TLD readings for each quarter. Table A-9 provides for no significant differences between the years 2005 and 2006.

II.D. CONCLUSION

It is concluded that the operation of R. E. Ginna produced radioactivity and ambient radiation levels significantly below the limits of the ODCM and 40 CFR Part 190, and there was no significant buildup of plant-related radionuclides in the environment due to the operation of the Ginna Station..

Table 1
Synopsis of 2006. Ginna Nuclear Power Plant Radiological Environmental Monitoring Program

Sample Type	Sampling Frequency[1]	Number of Locations	Number Collected	Analysis	Analysis Frequency[1]	Number Analyzed
Aquatic Environment						
Drinking Water	MC	1	12	Gamma	M	12
				Gross Beta	M	12
				Tritium	QC	4
Surface Water	MC	2	24	Gamma	M	24
				Gross Beta	M	24
				Tritium	QC	8
Fish[2]	SA	2	12	Gamma	B	12
Sediment	SA	2	5	Gamma	SA	5
Cladophera	A	1	2	Gamma	A	2
Atmospheric Environment						
Air Iodine[3]	W	6	312	Gamma	W	312
Air Particulates[4]	W	12	624	Gross Beta	W	624
		12	48	Gamma	Q	47
Milk	BW (June thru October)	2	23	Gamma	BM	22[6]
	M (November thru May)	2	15	Gamma	M	14[6]
Direct Radiation						
Ambient Radiation	Q	39	468	TLD	Q	468
Terrestrial Environment						
Food Products[7]	A	7	28	Gamma	A	28

[1] W=Weekly, BW=biweekly (15 days), M=Monthly (31 days), Q=Quarterly (92 days), SA=Semiannual, A=Annual, C= Composite
[2] Twice during fishing season including at least four species
[3] The collection device contains activated charcoal
[4] Beta counting is performed ≥ 24 hours following filter change. Gamma spectroscopy performed on quarterly composite of weekly samples
[5] Quarterly Filter Composite site #4 Lost before being analyzed.
[6] Milk Sample lost for Gamma on 10/2/06 due to container failure on the detector Re-sampled on 10/9/06. Milk Sample lost for Gamma on 11/13/06 due to data not saved properly, re-sampled on 11/27/06.
[7] Annually during growing season. Samples include broad leaf vegetation

Table 2

Annual Summary of Radioactivity in the Environs of the Ginna Nuclear Power Plant

Medium or Pathway Sampled (Unit of Measurement)	Type and Total Number of Analyses Performed	Lower Limit of Detection (LLD)	Indicator Locations Mean (F)/Range[1]	Location with Highest Annual Mean Name/Distance & Direction[2]	Highest Annual Mean (F)/Range[1]	Control Locations Mean (F)/Range[1]
Aquatic Environment						
Drinking Water (pCi/L)	Gross Beta 12	0.60	2.29(12/12) (1.57 – 2.94)	Ontario Water District Station 15 2.2 km ENE	2.29(12/12) (1.57 – 2.94)	2.09(12/12) (1.54 – 2.39)
Surface Water (pCi/L)	Gross Beta 36	0.60	3.06(36/36) (1.51 – 6.43)	Deer Creek Station 18	4.73(12/12) (3.32 – 6.43)	2.09(12/12) (1.54 – 2.39)
Sediment						
Cladophera (pCi/kg)	Gamma 2	----	----	Lake Ontario Discharge North	89(2/2) (30-157)	NA
Atmospheric Environment						
Air Particulates (10^{-2} pCi/m^3)	Gross Beta 52	0.5	1.92(468/468) (0.65 - 15.3)	Creek Bridge Station 5 .16 km SSE	2.24(52/52) (0.66 – 15.3)	1.99(156/156) (0.66 – 3.96)
Direct Radiation						
Ambient Radiation (mR/91 days)	TLD (468)	--	11.5 (360/360) (9.8 – 15.7)	West Fence Line Station 7 0.22 km WSW	14.4(12/12) (13.4 – 15.7)	10.7(108/108) (9.9 – 11.5)

[1] Mean and range based upon detectable measurements only. Fraction (F) of detectable measurements at specified location is indicated in parentheses

[2] From the center point of the containment building

V. REFERENCES

(1) R. E. Ginna Nuclear Power Plant, Technical Specification 5.6.2; Annual Radiological Environmental Operating Report.

(2) Offsite Dose Calculation Manual for the R. E. Ginna Nuclear Power Plant.

(3) Constellation Energy Laboratory Procedures Manual, General Services Department.

(4) Constellation Energy, CH-ENV-LAND-USE, "Land Use Census", September 2006.

APPENDIX A

Sample Locations for the REMP

Appendix A contains information concerning the environmental samples which were collected during this operating period.

Sample locations and specific information about individual locations for the Ginna are given in Table A-1. Figure A-1 shows the location of the Ginna Station in relation to New York State and Lake Ontario. Figures A-2, A-3 and A-4 show the locations of the power plant sampling sites in relation to the plant site at different degrees of detail.

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TABLE OF CONTENTS - SAMPLING LOCATIONS

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TABLE A-1
Locations of Environmental Sampling Stations
for the R. E. Ginna Nuclear Plant

Station	Description	Distance		Direction
		Meters	Miles	Sector
Air Samplers				
2	Manor House Yard	320	0.2	E
3	East Field	420	0.3	ESE
4	Training Center Parking Lot	250	0.2	SE
5	Creek Bridge	160	0.1	SSE
6	Main Parking Lot	225	0.1	SW
7	West Fence Line	220	0.1	WSW
8	Seabreeze	19200	11.9	WSW
9	Webster	11400	7.1	SW
10	Walworth	13100	8.1	S
11	Williamson	11500	7.1	ESE
12	Sodus Point	25100	15.6	E
13	Substation 13	690	0.4	SSW
Direct Radiation				
2	Onsite-Manor House Yard	320	0.2	E
3	Onsite-In field approximately 200 ft SE of station	420	0.3	ESE
4	Onsite-Training Center yard driveway circle	250	0.2	SE
5	Onsite-Between creek and plant entry road	160	0.1	SSE
6	Onsite-SW side of plant parking lot	225	0.1	SW
7	Onsite-utility pole along West plant fence	220	0.1	WSW
8 [1]	Topper Drive-Irondequoit, Seabreeze Substation	19200	11.9	WSW
9	Phillips Road-Webster, intersection with Highway #104, Substation #74	11400	7.1	SW
10 [1]	Atlantic Avenue-Walworth, Substation #230	13100	8.1	S
11	W. Main Street-Williamson, Substation #207	11500	7.1	ESE
12 [1]	12 Seaman Avenue-Sodus Point-Off Lake Road by Sewer district, Substation #209	25100	15.6	E
13	At corner of plant-controlled area fence and dogleg to West	230	0.1	WNW
14	NW corner of field along lake shore	770	0.5	WNW
15	Field access road, west of orchard, approximately 3000' West of plant	850	0.5	W
16	SW Corner of orchard, approximately 3000' West of plant, approximately 200' North of Lake Road	900	0.6	WSW
17	Utility pole in orchard, approximately 75" North of Lake Road	500	0.3	SSW
18	Approximately 30' North of NE corner of Substation 13A fence	650	0.4	SSW
19	On NW corner of house 100' East of plant access road	400	0.2	S
20	Approximately 150' West of Ontario Center Road and approximately 170' South of Lake Road	680	0.4	SSE
21	North side of Lake Road, approximately 200' East of Ontario Center Road	600	0.4	SE

Station	Description	Distance		Direction
		Meters	Miles	Sector
22	North side of Lake Road, SE, property owner	810	0.5	SE
23	East property line, midway between Lake Road and Lake shore	680	0.4	ESE
24	Lake shore near NE corner of property	630	0.4	E
25 [1]	Substation #73, Klem Road, adjacent to 897 Klem Road	14350	8.9	WSW
26 [1]	Service Center, Plank Road, West of 250	14800	9.2	SW
27 [1]	Atlantic Avenue at Knollwood Drive utility pole, North side of road	14700	9.1	SSW
28 [1]	Substation #193, Marion, behind Stanton Ag. Service, North Main Street	17700	11.0	SE
29 [1]	Substation #208, Town Line Road (CR-118), 1000 ' North of Route 104	13800	8.6	ESE
30 [1]	District Office, Sodus, on pole, West side of bldg	20500	12.7	ESE
31	Lake Road, pole 20' North of road, 500' East of Salt Road	7280	4.5	W
32	Woodard Road at County Line Road, pole @ BW corner	6850	4.2	WSW
33	County Line Road at RR tracks, pole approximately 100' East along tracks	7950	4.9	SW
34	Lincoln Road, pole midway between Ridge Road and Route 104	6850	4.2	SSW
35	Transmission Right of Way, North of Clevenger Road on pole	7600	4.7	SSW
36	Substation #205, Route 104, East of Ontario Center Road, North side of fence	5650	3.5	S
37	Rail Road Avenue, pole at 2048	6000	3.7	SSE
38	Fisher Road at RR Tracks, pole East of road	7070	4.4	SE
39	Seeley Road, Pole South side 100' West of intersection with Stony Lonesome Road	6630	4.1	ESE
40	Lake Road at Stoney Lonesome Road, pole at SE corner	6630	4.1	E
	Fish			
25	Lake Ontario Discharge Plume	2200	1.4	ENE
26	Russell Station	25600	15.9	W
	Produce (Vegetation)			
	Indicator and background samples of lettuce, apples, tomatoes, and cabbage are collected from gardens grown on company property and purchased from farms >10 miles from the plant.			
	Water			
14	Shoremont/MCWA	27160	16.2	W
15	Ontario Water District	2200	1.4	ENE
16	Circ Water Intake	420	0.3	N
17	Circ Water Discharge	130	0.1	NNE
18	Deer Creek	260	0.2	ESE
	Sediment			
25	Lake Ontario Discharge Plume	2200	1.4	ENE
26	Russell Station	25600	15.9	W

Station	Description	Distance		Direction
		Meters	Miles	Sector
Milk				
21	Farm A	8270	5.1	ESE
24	Farm D	21000	13.0	SE

FIGURE A-1
Map of New York State and Lake Ontario Showing Location of R. E. Ginna Nuclear Power Plant

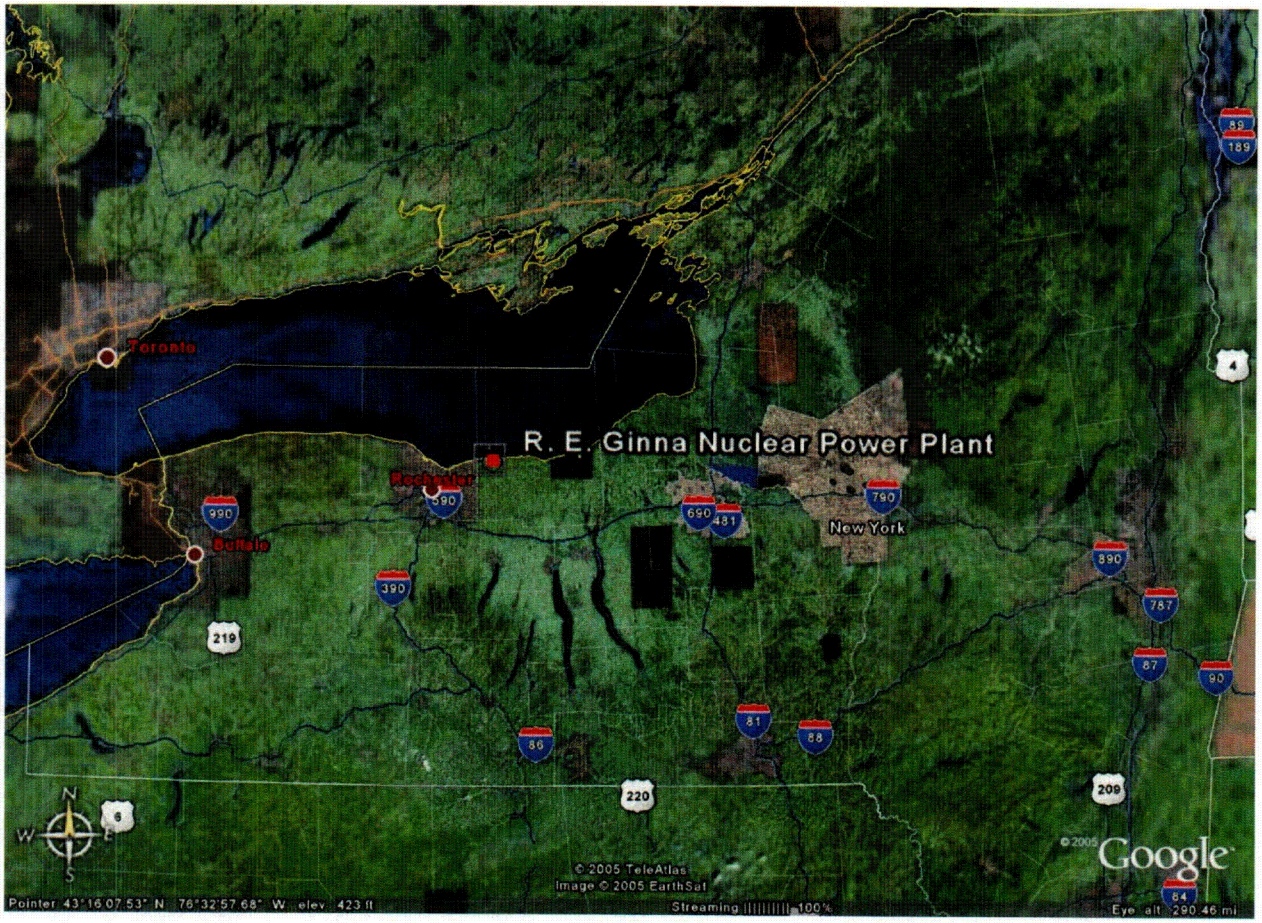

FIGURE A-2
Onsite Sample Locations

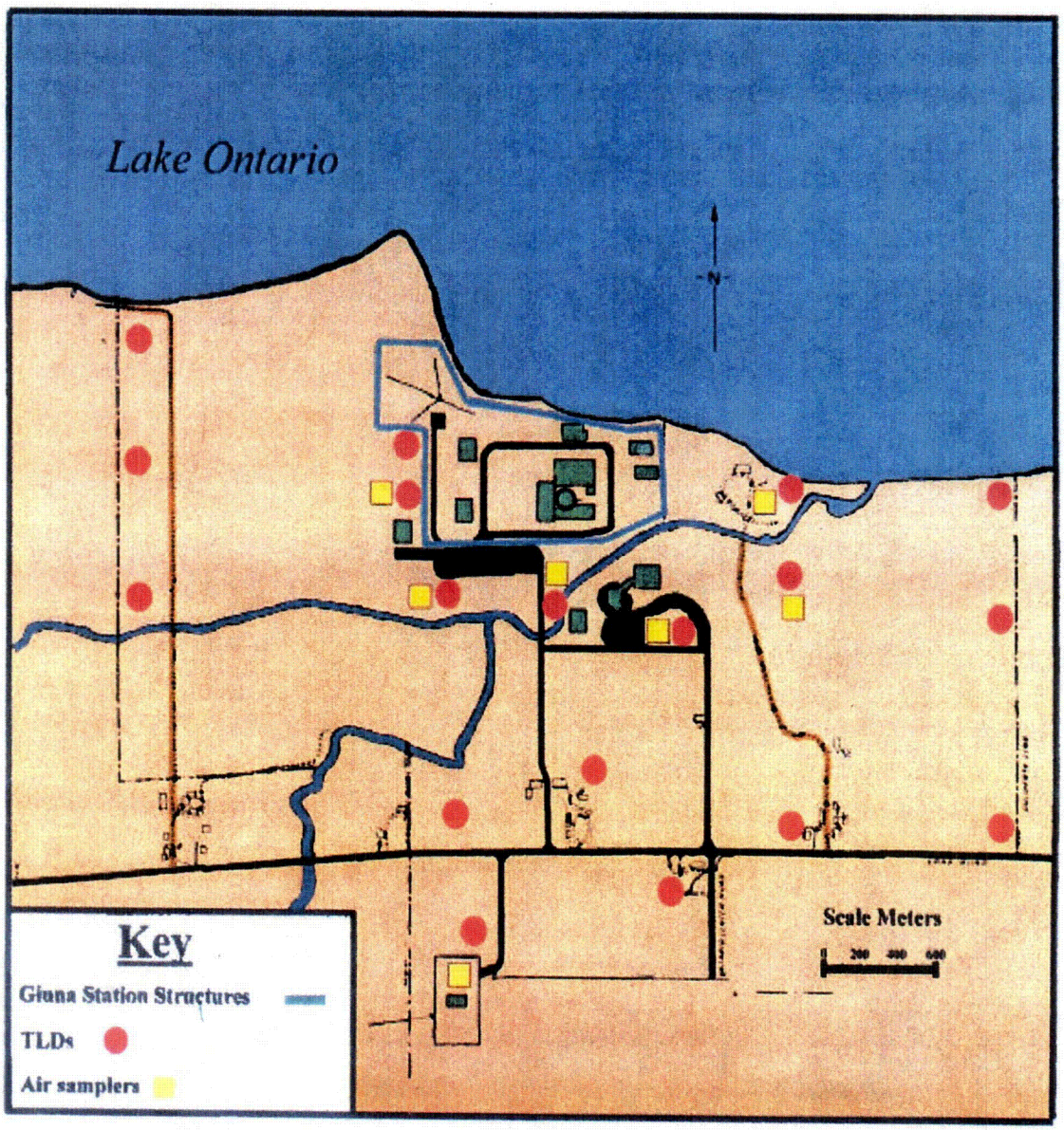

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FIGURE A-3
Offsite Sample Locations (TLDs and milk farms within 5 miles)

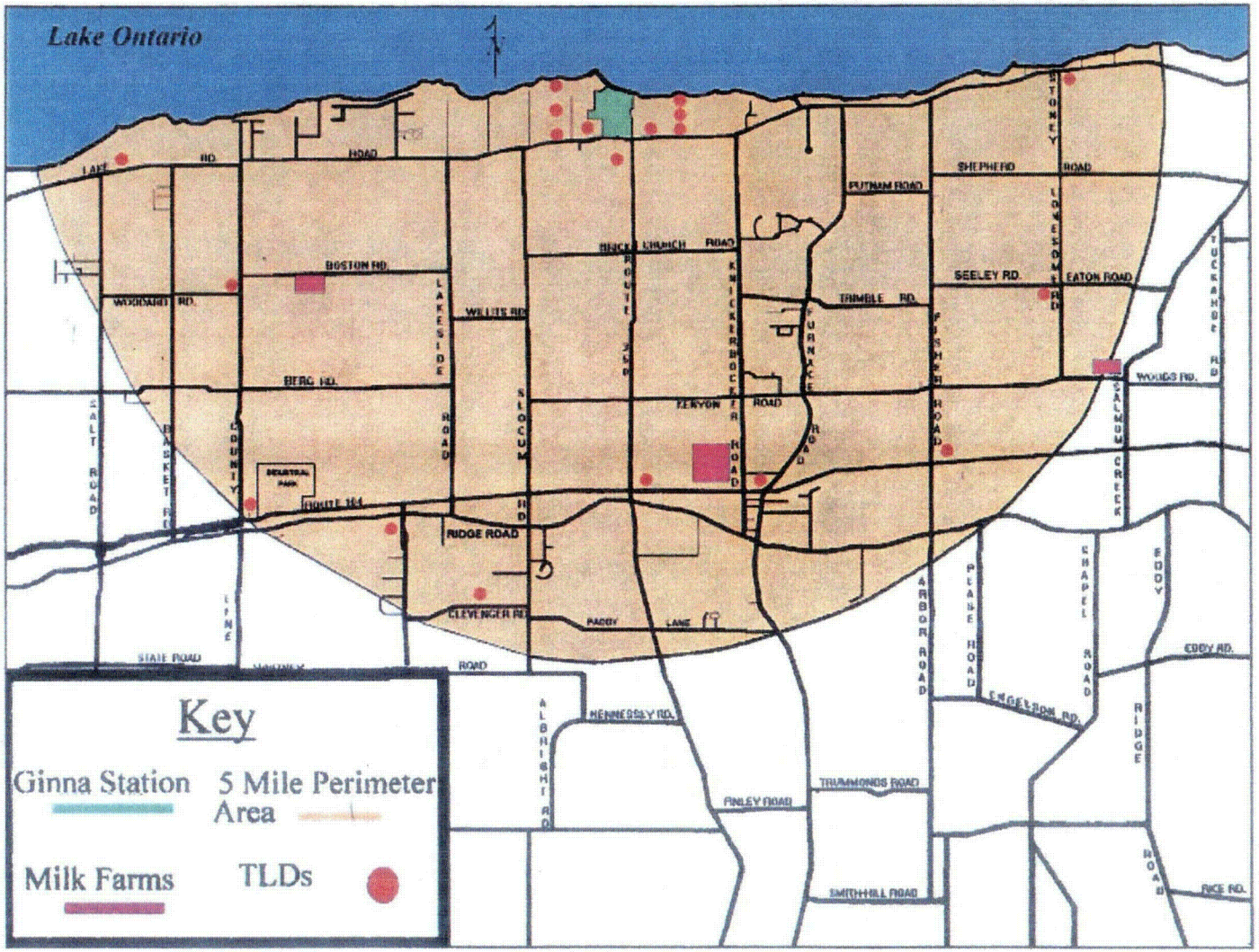

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FIGURE A-4
Water Sample, Milk Farms and TLD Locations

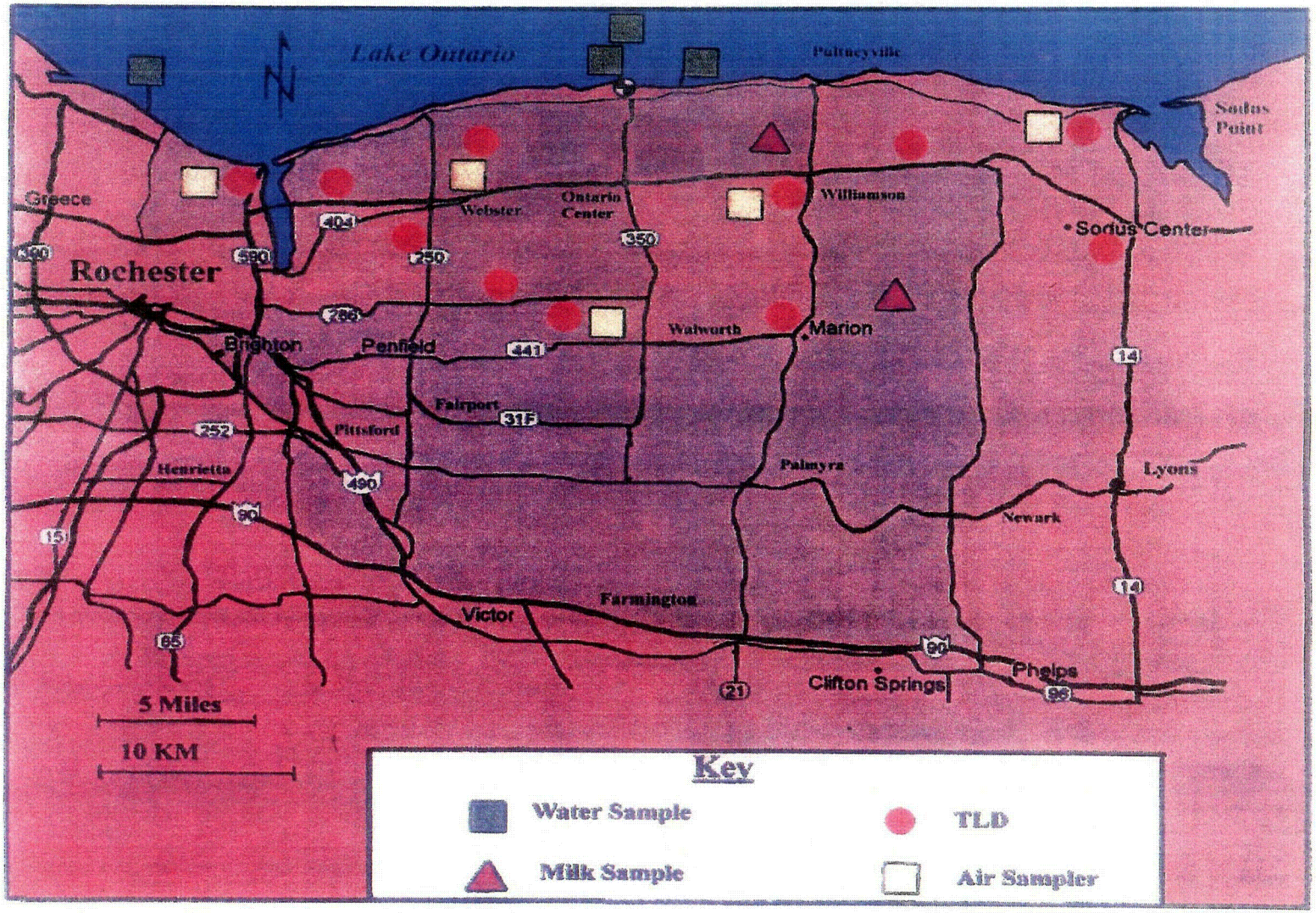


Figure A-5
Onsite vs Offsite Air Monitors

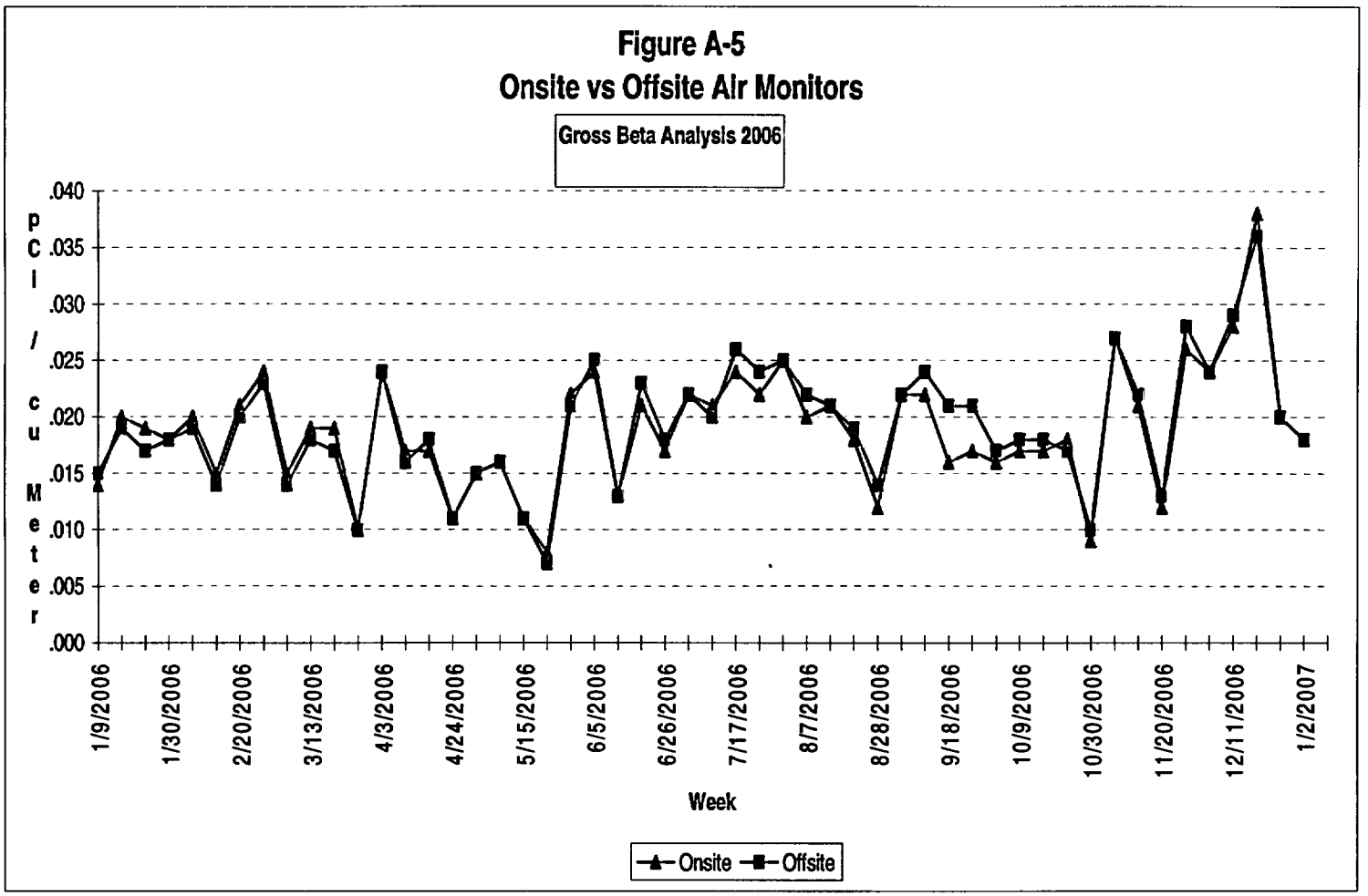


Figure A-6
Annual Trending of Air Activity

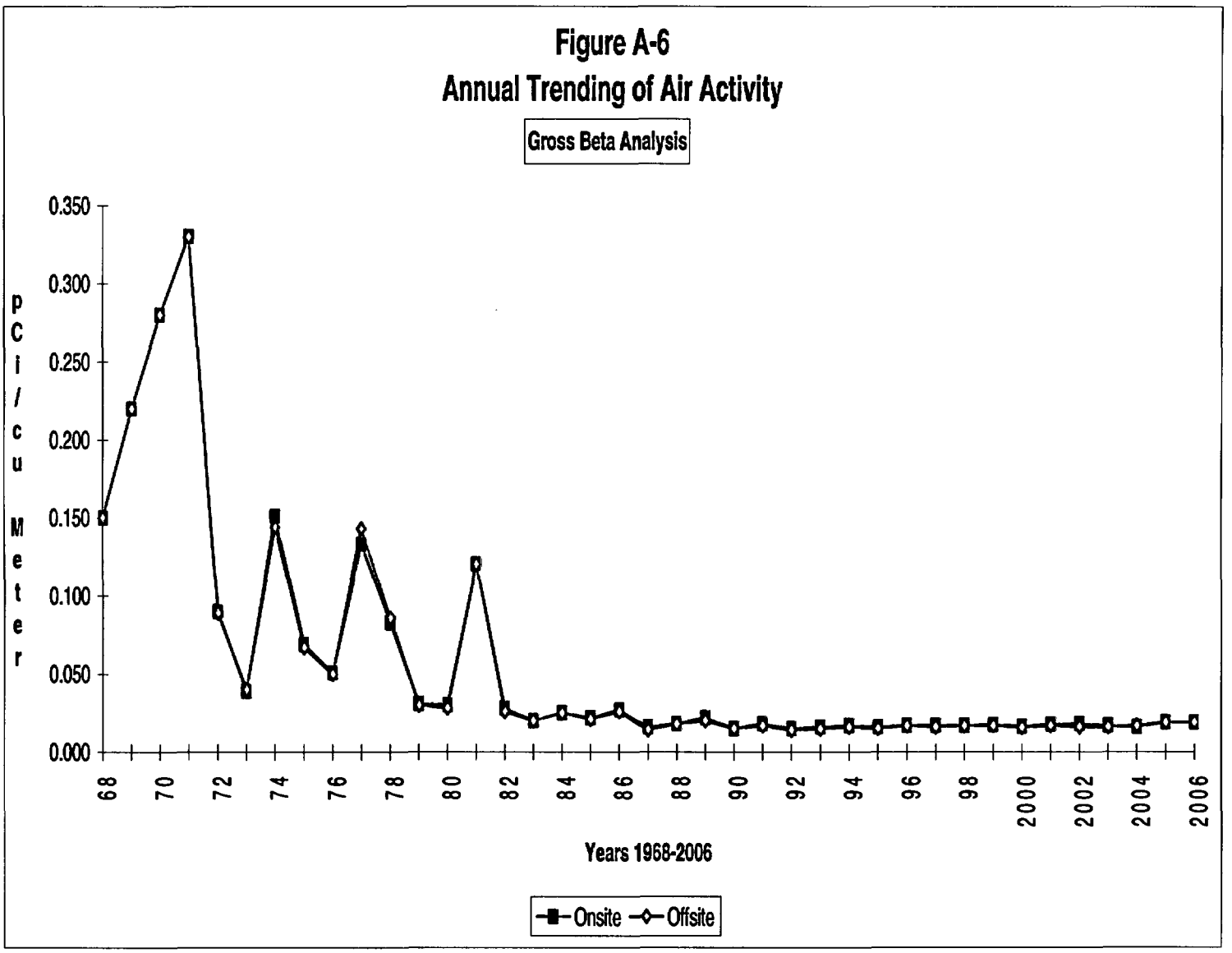


Figure A-7
Annual Trending of Environmental Water Samples

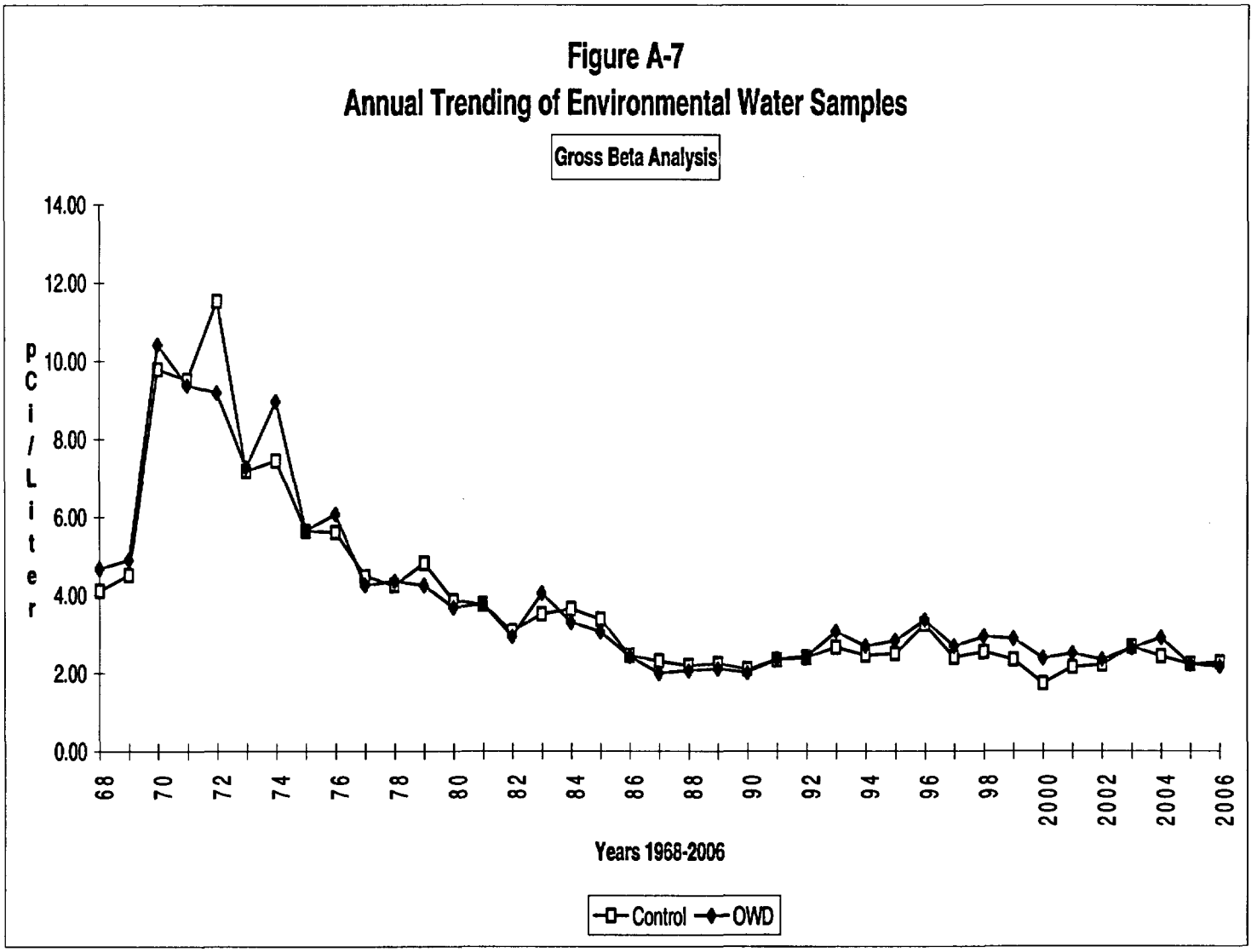


Figure A-8
Environmental Water Samples

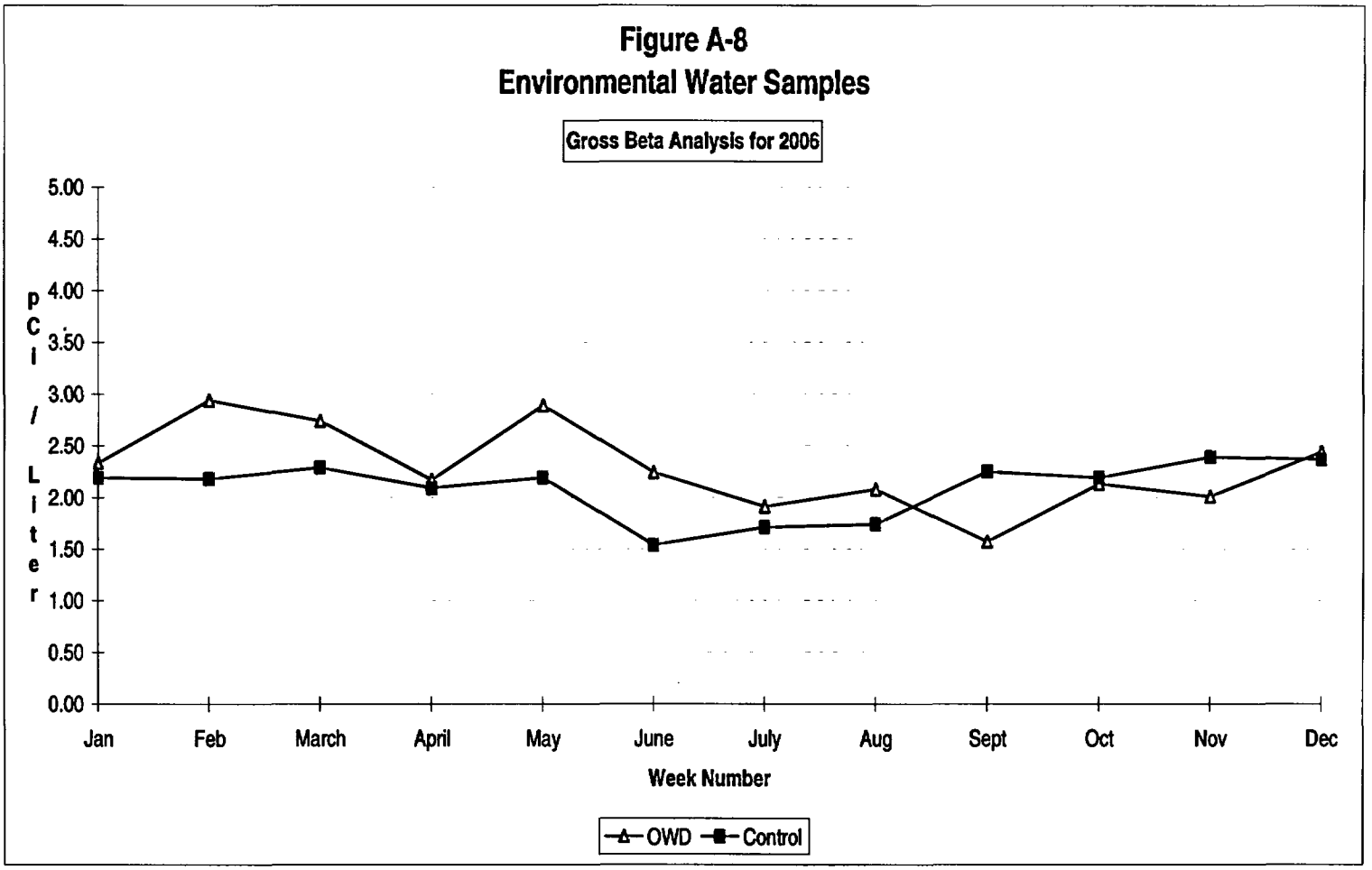
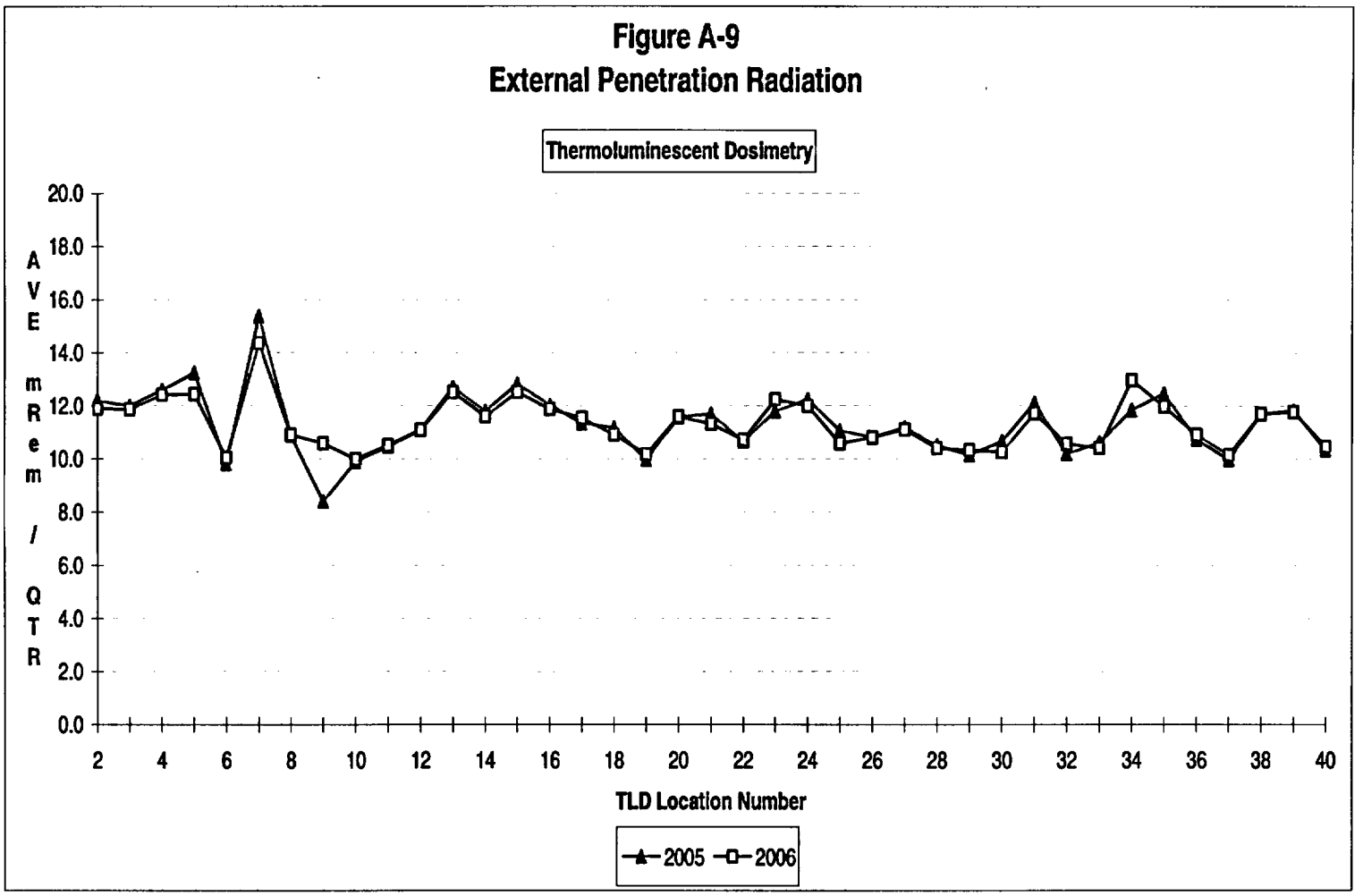


Figure A-9
External Penetration Radiation



APPENDIX B
Analysis Results for the REMP

Appendix B is a presentation of the analytical results for the Ginna Station radiological environmental monitoring programs.

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TABLE OF CONTENTS - ANALYTICAL RESULTS

Table B-1

Concentration of Tritium, Gamma Emitters and Gross Beta in Surface and Drinking Water
(Results in units of pCi/L ± 2σ)

Location	Sample Date	H-3	Gamma Emitters	Gross Beta
Monroe County Water	01/30/2006	*	*	2.19 ± 0.54
Shoremont (MCWA)	02/27/2006	*	*	2.18 ± 0.49
Station 14	04/03/2006	*	*	2.29 ± 0.54
	05/01/2006	*	*	2.09 ± 0.55
	05/30/2006	*	*	2.19 ± 0.49
	07/03/2006	*	*	1.54 ± 0.51
	07/31/2006	*	*	1.71 ± 0.51
	09/05/2006	*	*	1.74 ± 0.54
	10/02/2006	*	*	2.25 ± 0.57
	10/30/2006	*	*	2.19 ± 0.54
	11/27/2006	*	*	2.39 ± 0.57
	01/02/2007	*	*	2.37 ± 0.54
Ontario Water District	01/30/2006	*	*	2.33 ± 0.55
(OWD)	02/27/2006	*	*	2.94 ± 0.54
Station 15	04/03/2006	*	*	2.74 ± 0.56
	05/01/2006	*	*	2.17 ± 0.56
	05/30/2006	*	*	2.89 ± 0.53
	07/03/2006	*	*	2.24 ± 0.55
	07/31/2006	*	*	1.91 ± 0.52
	09/05/2006	*	*	2.08 ± 0.56
	10/03/2006	*	*	1.57 ± 0.53
	10/30/2006	*	*	2.13 ± 0.54
	11/27/2006	*	*	2.01 ± 0.56
	01/02/2007	*	*	2.44 ± 0.55
Circulating Water Inlet	01/30/2006	*	*	3.00 ± 0.58
(Circ In)	02/27/2006	*	*	2.83 ± 0.53
Station 16	04/04/2006	*	*	2.56 ± 0.55
	05/01/2006	*	*	2.36 ± 0.56
	05/31/2006	*	*	1.89 ± 0.48
	07/03/2006	*	*	1.51 ± 0.51
	07/31/2006	*	*	2.20 ± 0.54
	09/05/2006	*	*	2.12 ± 0.55
	10/03/2006	*	*	2.04 ± 0.56
	11/01/2006	*	*	2.22 ± 0.54
	11/30/2006	*	*	2.03 ± 0.56
	01/02/2007	*	*	2.60 ± 0.56

*All Non-Natural Gamma Emitters, including I-131, and tritium <MDA.

Table B-1 (Continued)

Location	Sample Date	H-3	Gamma Emitters	Gross Beta
Circulating Water Outlet	01/30/2006	*	*	2.47 ± 0.55
(Circ Out)	02/27/2006	*	*	2.79 ± 0.56
Station 17	04/04/2006	*	*	2.97 ± 0.57
	05/01/2006	*	*	2.03 ± 0.55
	05/31/2006	*	*	2.45 ± 0.51
	07/03/2006	*	*	1.56 ± 0.51
	07/31/2006	*	*	2.01 ± 0.53
	09/05/2006	*	*	1.70 ± 0.54
	10/02/2006	*	*	2.23 ± 0.56
	10/30/2006	*	*	1.82 ± 0.52
	11/27/2006	*	*	1.89 ± 0.55
	01/02/2007	*	*	2.24 ± 0.54
Deer Creek	01/23/2006	*	*	4.18 ± 0.73
Station 18	02/20/2006	*	*	4.17 ± 0.75
	03/27/2006	*	*	4.23 ± 0.76
	04/26/2006	*	*	3.65 ± 0.69
	05/22/2006	*	*	3.32 ± 0.62
	06/19/2006	*	*	4.44 ± 0.73
	07/17/2006	*	*	5.22 ± 0.76
	08/21/2006	*	*	4.19 ± 0.84
	09/18/2006	*	*	6.43 ± 0.93
	10/16/2006	*	*	6.00 ± 0.88
	11/13/2006	*	*	6.10 ± 0.87
	12/18/2006	*	*	4.87 ± 0.82

* All Non-Natural Gamma Emitters, including I-131, and tritium <MDA

Table B-2

Concentration of Gamma Emitters in the Flesh of Edible Fish
(Results in units of pCi/kg (wet) ± 2σ)

Location	Sample Date	Fish Type	Gamma Emitters
Lake Ontario Discharge Plume (Indicator) Station 25	1/12/2006	Lake Trout	*
	1/27/2006	Smallmouth Bass	*
	2/28/2006	Freshwater Drum	*
	3/28/2006	Rainbow Trout	*
	8/24/2006	Brown Trout	*
	8/24/2006	Small Mouth Bass	*
	9/6/2006	Lake Trout	*
	9/28/2006	Chinook Salmon	*
Russell Station (Control) Station 26	1/25/2006	Smallmouth Bass	*
	3/15/2006	White Sucker	*
	6/5/2006	Largemouth Bass	*
	6/5/2006	Walleyed Pike	*
	9/6/2006	White Sucker	*
	10/2/2006	Northern Pike	*
	10/2/2006	Gizzard Shad	*
	10/2/2006	Brown Trout	*

*All Non-Natural Gamma Emitters <MDA

Table B-3

Concentration of Gamma Emitters in Sediment
(Results in units of pCi/kg (wet) ± 2σ)

Description	Sample Date	Gamma Emitters
Shoreline Sediment		
Russell Station 26	5/16/2006	*
	7/24/2006	*
Lake Ontario Discharge Plume Station 25	5/16/2006	*
	6/13/2006	*
Benthic Sediment		
Lake Ontario Discharge Plume Station 25	6/13/2006	*
Cladophera		
Station 25	7/25/2006	157 (I131)
	9/5/2006	82.2 (I131)

* All Non-Natural Gamma Emitters <MDA

Table B-4

Concentration of Iodine-131 in Filtered Air (Charcoal Cartridges)
(Results in units of 10^{-2} pCi/m^3 $\pm 2\sigma$)

Start Date	Stop Date	Station #2 (I) Manor House Yard	Station #4 (I) Training Center Parking Lot	Station #7 (I) West Fence Line	Station #8 (C) Seabreeze [1]	Station #9 (I) Webster	Station #11 (I) Williamson
1/3/2006	1/9/2006	*	*	*	*	*	*
1/9/2006	1/16/2006	*	*	*	*	*	*
1/16/2006	1/23/2006	*	*	*	*	*	*
1/23/2006	1/30/2006	*	*	*	*	*	*
1/30/2006	2/6/2006	*	*	*	*	*	*
2/6/2006	2/13/2006	*	*	*	*	*	*
2/13/2006	2/20/2006	*	*	*	*	*	*
2/20/2006	2/27/2006	*	*	*	*	*	*
2/27/2006	3/6/2006	*	*	*	*	*	*
3/6/2006	3/13/2006	*	*	*	*	*	*
3/13/2006	3/20/2006	*	*	*	*	*	*
3/20/2006	3/27/2006	*	*	*	*	*	*
3/27/2006	4/3/2006	*	*	*	*	*	*
4/3/2006	4/11/2006	*	*	*	*	*	*
4/11/2006	4/18/2006	*	*	*	*	*	*
4/18/2006	4/24/2006	*	*	*	*	*	*
4/24/2006	5/1/2006	*	*	*	*	*	*
5/1/2006	5/9/2006	*	*	*	*	*	*
5/9/2006	5/15/2006	*	*	*	*	*	*
5/15/2006	5/22/2006	*	*	*	*	*	*
5/22/2006	5/30/2006	*	*	*	*	*	*
5/30/2006	6/5/2006	*	*	*	*	*	*
6/5/2006	6/12/2006	*	*	*	*	*	*
6/12/2006	6/19/2006	*	*	*	*	*	*
6/19/2006	6/26/2006	*	*	*	*	*	*
6/26/2006	7/3/2006	*	*	*	*	*	*

[1] Control Location

*<MDA (I-131)

Table B-4 (Continued)

Concentration of Iodine-131 in Filtered Air (Charcoal Cartridges)
(Results in units of 10^{-2} pCi/m^3 $\pm 2\sigma$)

Start Date	Stop Date	Station #2 (I) Manor House Yard	Station #4 (I) Training Center Parking Lot	Station #7 (I) West Fence Line	Station #8 (C) Seabreeze [1]	Station #9 (I) Webster	Station #11 (I) Williamson
7/3/2006	7/10/2006	*	*	*	*	*	*
7/10/2006	7/17/2006	*	*	*	*	*	*
7/17/2006	7/24/2006	*	*	*	*	*	*
7/24/2006	7/31/2006	*	*	*	*	*	*
7/31/2006	8/7/2006	*	*	*	*	*	*
8/7/2006	8/14/2006	*	*	*	*	*	*
8/14/2006	8/21/2006	*	*	*	*	*	*
8/21/2006	8/28/2006	*	*	*	*	*	*
8/28/2006	9/5/2006	*	*	*	*	*	*
9/5/2006	9/11/2006	*	*	*	*	*	*
9/11/2006	9/18/2006	*	*	*	*	*	*
9/18/2006	9/25/2006	*	*	*	*	*	*
9/25/2006	10/2/2006	*	*	*	*	*	*
10/2/2006	10/9/2006	*	*	*	*	*	*
10/9/2006	10/16/2006	*	*	*	*	*	*
10/16/2006	10/23/2006	*	*	*	*	*	*
10/24/2006	10/30/2006	*	*	*	*	*	*
10/30/2006	11/6/2006	*	*	*	*	*	*
11/6/2006	11/13/2006	*	*	*	*	*	*
11/13/2006	11/20/2006	*	*	*	*	*	*
11/20/2006	11/27/2006	*	*	*	*	*	*
11/27/2006	12/4/2006	*	*	*	*	*	*
12/4/2006	12/11/2006	*	*	*	*	*	*
12/11/2006	12/18/2006	*	*	*	*	*	*
12/18/2006	12/25/2006	*	*	*	*	*	*
12/26/2006	1/2/2007	*	*	*	*	*	*

[1] Control Location

*<MDA (I-131)

Table B-5

Concentration of Beta Emitters in Air Particulates – Onsite Samples
(Results in pCi/m^3 ± 2σ Uncertainty)

Start Date	Stop Date	Station #2 (I) Manor House Yard	Station #3 (I) East Field	Station #4 (I) Training Center Parking Lot	Station #5 (I) Creek Bridge	Station #6 (I) Main parking Lot	Station #7 (I) West Fence Line	Station #13 (I) Substation #13
1/3/2006	1/9/2006	0.0133 ± 0.0013	0.0143 ± 0.0012	0.0147 ± 0.0016	0.0130 ± 0.0012	0.0125 ± 0.0017	0.0137 ± 0.0013	0.0139 ± 0.0020
1/9/2006	1/16/2006	0.0189 ± 0.0013	0.0195 ± 0.0012	0.0202 ± 0.0016	0.0203 ± 0.0012	0.0203 ± 0.0018	0.0209 ± 0.0014	0.0201 ± 0.0021
1/16/2006	1/23/2006	0.0180 ± 0.0013	0.0186 ± 0.0012	0.0192 ± 0.0016	0.0185 ± 0.0012	0.0188 ± 0.0017	0.0192 ± 0.0013	0.0199 ± 0.0021
1/23/2006	1/30/2006	0.0185 ± 0.0013	0.0188 ± 0.0012	0.0174 ± 0.0015	0.0177 ± 0.0012	0.0180 ± 0.0017	0.0178 ± 0.0013	0.0174 ± 0.0019
1/30/2006	2/6/2006	0.0198 ± 0.0013	0.0193 ± 0.0012	0.0192 ± 0.0015	0.0219 ± 0.0013	0.0194 ± 0.0017	0.0210 ± 0.0014	0.0201 ± 0.0020
2/6/2006	2/13/2006	0.0154 ± 0.0012	0.0159 ± 0.0011	0.0151 ± 0.0014	0.0146 ± 0.0011	0.0154 ± 0.0016	0.0148 ± 0.0012	0.0143 ± 0.0018
2/13/2006	2/20/2006	0.0215 ± 0.0014	0.0212 ± 0.0012	0.0202 ± 0.0016	0.0206 ± 0.0012	0.0210 ± 0.0018	0.0225 ± 0.0014	0.0218 ± 0.0021
2/20/2006	2/27/2006	0.0205 ± 0.0013	0.0234 ± 0.0013	0.0214 ± 0.0016	0.0235 ± 0.0013	0.0236 ± 0.0018	0.0212 ± 0.0013	0.0265 ± 0.0022
2/27/2006	3/6/2006	0.0146 ± 0.0012	0.0152 ± 0.0011	0.0147 ± 0.0014	0.0158 ± 0.0011	0.0149 ± 0.0016	0.0145 ± 0.0012	0.0145 ± 0.0019
3/6/2006	3/13/2006	0.0174 ± 0.0012	0.0192 ± 0.0012	0.0197 ± 0.0016	0.0190 ± 0.0012	0.0199 ± 0.0017	0.0191 ± 0.0013	0.0195 ± 0.0020
3/13/2006	3/20/2006	0.0178 ± 0.0013	0.0190 ± 0.0012	0.0196 ± 0.0016	0.0182 ± 0.0012	0.0189 ± 0.0017	0.0197 ± 0.0013	0.0163 ± 0.0019
3/20/2006	3/27/2006	0.0085 ± 0.0010	0.0088 ± 0.0009	0.0094 ± 0.0013	0.0089 ± 0.0009	0.0092 ± 0.0014	0.0097 ± 0.0010	0.0100 ± 0.0017
3/27/2006	4/3/2006	0.0228 ± 0.0014	0.0242 ± 0.0013	0.0247 ± 0.0017	0.0238 ± 0.0013	0.0244 ± 0.0018	0.0260 ± 0.0014	0.0229 ± 0.0021
4/3/2006	4/11/2006	0.0155 ± 0.0011	0.0170 ± 0.0011	0.0170 ± 0.0014	0.0161 ± 0.0011	0.0169 ± 0.0015	0.0166 ± 0.0011	0.0157 ± 0.0018
4/11/2006	4/18/2006	0.0164 ± 0.0012	0.0161 ± 0.0011	0.0182 ± 0.0015	0.0174 ± 0.0011	0.0171 ± 0.0016	0.0175 ± 0.0012	0.0166 ± 0.0019
4/18/2006	4/24/2006	0.0096 ± 0.0011	0.0115 ± 0.0011	0.0103 ± 0.0015	0.0113 ± 0.0011	0.0097 ± 0.0016	0.0106 ± 0.0012	0.0112 ± 0.0020
4/24/2006	5/1/2006	0.0139 ± 0.0011	0.0157 ± 0.0011	0.0164 ± 0.0015	0.0153 ± 0.0011	0.0155 ± 0.0016	0.0153 ± 0.0012	0.0147 ± 0.0018
5/1/2006	5/9/2006	0.0144 ± 0.0011	0.0176 ± 0.0017	0.0154 ± 0.0014	0.0158 ± 0.0011	0.0159 ± 0.0015	0.0148 ± 0.0011	0.0203 ± 0.0021
5/9/2006	5/15/2006	0.0120 ± 0.0013	0.0112 ± 0.0012	0.0112 ± 0.0016	0.0108 ± 0.0012	0.0105 ± 0.0018	0.0115 ± 0.0013	0.0107 ± 0.0014
5/15/2006	5/22/2006	0.0078 ± 0.0010	0.0065 ± 0.0013	0.0072 ± 0.0012	0.0066 ± 0.0009	0.0068 ± 0.0014	0.0077 ± 0.0010	0.0076 ± 0.0011
5/22/2006	5/30/2006	0.0199 ± 0.0012	0.0238 ± 0.0014	0.0236 ± 0.0016	0.0221 ± 0.0012	0.0212 ± 0.0017	0.0235 ± 0.0014	0.0232 ± 0.0014
5/30/2006	6/5/2006	0.0208 ± 0.0015	0.0227 ± 0.0014	0.0256 ± 0.0020	0.0230 ± 0.0015	0.0252 ± 0.0022	0.0254 ± 0.0016	0.0237 ± 0.0017
6/5/2006	6/12/2006	0.0122 ± 0.0011	0.0141 ± 0.0011	0.0132 ± 0.0014	0.0125 ± 0.0011	0.0151 ± 0.0017	0.0130 ± 0.0012	0.0132 ± 0.0013
6/12/2006	6/19/2006	0.0180 ± 0.0013	0.0205 ± 0.0011	0.0212 ± 0.0017	0.0219 ± 0.0013	0.0229 ± 0.0019	0.0221 ± 0.0014	0.0215 ± 0.0014
6/19/2006	6/26/2006	0.0149 ± 0.0011	0.0155 ± 0.0012	0.0181 ± 0.0015	0.0183 ± 0.0012	0.0194 ± 0.0019	0.0175 ± 0.0013	0.0161 ± 0.0016
6/26/2006	7/3/2006	0.0202 ± 0.0015	0.0226 ± 0.0014	0.0231 ± 0.0020	0.0238 ± 0.0015	0.0215 ± 0.0019	0.0222 ± 0.0014	0.0217 ± 0.0015
1st 6-Month Summary								
Maximum		0.0228 ± 0.0015	0.0242 ± 0.0017	0.0256 ± 0.0020	0.0238 ± 0.0015	0.0252 ± 0.0022	0.0260 ± 0.0016	0.0265 ± 0.0022
Average		0.0162	0.0174	0.0175	0.0173	0.0175	0.0176	0.0174
Minimum		0.0078 ± 0.0010	0.0065 ± 0.0009	0.0072 ± 0.0012	0.0066 ± 0.0009	0.0068 ± 0.0014	0.0077 ± 0.0010	0.0076 ± 0.0011

Table B-5 (Continued)

(Results in pCi/m^3 ± 2σ Uncertainty)

Start Date	Stop Date	Station #2 (I) Manor House Yard	Station #3 (I) East Field	Station #4 (I) Training Center Parking Lot	Station #5 (I) Creek Bridge	Station #6 (I) Main parking Lot	Station #7 (I) West Fence Line	Station #13 (I) Substation #13
7/3/2006	7/10/2006	0.0181 ± 0.0012	0.0207 ± 0.0012	0.0209 ± 0.0017	0.0227 ± 0.0015	0.0211 ± 0.0018	0.0204 ± 0.0014	0.0212 ± 0.0015
7/10/2006	7/17/2006	0.0240 ± 0.0013	0.0240 ± 0.0013	0.0262 ± 0.0019	0.0270 ± 0.0016	0.0242 ± 0.0014	0.0252 ± 0.0015	0.0243 ± 0.0016
7/17/2006	7/24/2006	0.0216 ± 0.0012	0.0216 ± 0.0012	0.0222 ± 0.0016	0.0249 ± 0.0014	0.0215 ± 0.0012	0.0261 ± 0.0014	0.0233 ± 0.0015
7/24/2006	7/31/2006	0.0234 ± 0.0014	0.0237 ± 0.0015	0.0267 ± 0.0021	0.0284 ± 0.0018	0.0243 ± 0.0013	0.0271 ± 0.0014	0.0245 ± 0.0016
7/31/2006	8/7/2006	0.0335 ± 0.0030	0.0199 ± 0.0012	0.0359 ± 0.0042	0.0239 ± 0.0015	0.0200 ± 0.0012	0.0211 ± 0.0015	0.0229 ± 0.0015
8/7/2006	8/14/2006	0.0192 ± 0.0015	0.0204 ± 0.0012	0.0215 ± 0.0017	0.0219 ± 0.0015	0.0205 ± 0.0012	0.0208 ± 0.0013	0.0199 ± 0.0013
8/14/2006	8/21/2006	0.0187 ± 0.0012	0.0199 ± 0.0013	0.0208 ± 0.0017	0.0222 ± 0.0015	0.0199 ± 0.0013	0.0219 ± 0.0014	0.0198 ± 0.0016
8/21/2006	8/28/2006	0.0162 ± 0.0011	0.0169 ± 0.0011	0.0186 ± 0.0016	0.0187 ± 0.0013	0.0187 ± 0.0012	0.0193 ± 0.0013	0.0175 ± 0.0014
8/28/2006	9/5/2006	0.0122 ± 0.0009	0.0120 ± 0.0009	0.0118 ± 0.0010	0.0140 ± 0.0012	0.0121 ± 0.0009	0.0122 ± 0.0010	0.0111 ± 0.0011
9/5/2006	9/11/2006	0.0204 ± 0.0013	0.0208 ± 0.0013	0.0208 ± 0.0013	0.0249 ± 0.0017	0.0216 ± 0.0013	0.0219 ± 0.0014	0.0218 ± 0.0016
9/11/2006	9/18/2006	0.0137 ± 0.0011	0.0142 ± 0.0011	0.0145 ± 0.0011	0.0166 ± 0.0013	0.0146 ± 0.0011	0.0185 ± 0.0013	0.0224 ± 0.0015
9/18/2006	9/25/2006	0.0162 ± 0.0010	0.0153 ± 0.0010	0.0168 ± 0.0011	0.0130 ± 0.0011	0.0158 ± 0.0011	0.0227 ± 0.0014	0.0187 ± 0.0014
9/25/2006	10/2/2006	0.0158 ± 0.0012	0.0177 ± 0.0013	0.0166 ± 0.0012	0.0200 ± 0.0016	0.0170 ± 0.0011	0.0170 ± 0.0012	0.0172 ± 0.0014
10/2/2006	10/9/2006	0.0162 ± 0.0010	0.0171 ± 0.0011	0.0169 ± 0.0011	0.0200 ± 0.0013	0.0166 ± 0.0011	0.0179 ± 0.0012	0.0170 ± 0.0014
10/9/2006	10/16/2006	0.0163 ± 0.0012	0.0153 ± 0.0012	0.0149 ± 0.0012	0.0180 ± 0.0015	0.0163 ± 0.0011	0.0171 ± 0.0012	0.0162 ± 0.0013
10/16/2006	10/23/2006	0.0177 ± 0.0011	0.0169 ± 0.0011	0.0171 ± 0.0011	0.0191 ± 0.0014	0.0164 ± 0.0011	0.0185 ± 0.0012	0.0174 ± 0.0013
10/24/2006	10/30/2006	0.0079 ± 0.0009	0.0090 ± 0.0009	0.0080 ± 0.0009	0.0084 ± 0.0011	0.0076 ± 0.0009	0.0088 ± 0.0010	0.0086 ± 0.0011
10/30/2006	11/6/2006	0.0247 ± 0.0013	0.0254 ± 0.0014	0.0259 ± 0.0014	0.0293 ± 0.0017	0.0262 ± 0.0013	0.0287 ± 0.0015	0.0257 ± 0.0016
11/6/2006	11/13/2006	0.0215 ± 0.0012	0.0218 ± 0.0013	0.0204 ± 0.0012	0.0232 ± 0.0015	0.0212 ± 0.0012	0.0232 ± 0.0014	0.0212 ± 0.0015
11/13/2006	11/20/2006	0.0117 ± 0.0010	0.0114 ± 0.0010	0.0116 ± 0.0010	0.0140 ± 0.0013	0.0124 ± 0.0010	0.0130 ± 0.0011	0.0102 ± 0.0012
11/20/2006	11/27/2006	0.0254 ± 0.0013	0.0248 ± 0.0013	0.0256 ± 0.0013	0.0276 ± 0.0016	0.0254 ± 0.0013	0.0272 ± 0.0014	0.0254 ± 0.0016
11/27/2006	12/4/2006	0.0239 ± 0.0013	0.0228 ± 0.0013	0.0229 ± 0.0013	0.0270 ± 0.0016	0.0233 ± 0.0013	0.0263 ± 0.0014	0.0236 ± 0.0015
12/4/2006	12/11/2006	0.0282 ± 0.0013	0.0279 ± 0.0013	0.0260 ± 0.0013	0.0304 ± 0.0015	0.0254 ± 0.0013	0.0287 ± 0.0015	0.0312 ± 0.0016
12/11/2006	12/18/2006	0.0366 ± 0.0017	0.0374 ± 0.0017	0.0343 ± 0.0017	0.0413 ± 0.0021	0.0378 ± 0.0016	0.0405 ± 0.0017	0.0348 ± 0.0018
12/18/2006	12/25/2006	0.0182 ± 0.0011	0.0187 ± 0.0011	0.0194 ± 0.0011	0.0211 ± 0.0013	0.0190 ± 0.0011	0.0205 ± 0.0012	0.0189 ± 0.0014
12/25/2006	1/2/2007	0.0176 ± 0.0011	0.0167 ± 0.0011	0.0159 ± 0.0011	0.0200 ± 0.0014	0.0181 ± 0.0011	0.0188 ± 0.0012	0.0192 ± 0.0014
2nd 6-Month Summary								
Maximum		0.0366 ± 0.0030	0.0374 ± 0.0017	0.0359 ± 0.0042	0.0413 ± 0.0021	0.0378 ± 0.0018	0.0405 ± 0.0017	0.0348 ± 0.0018
Average		0.0200	0.0197	0.0205	0.0222	0.0199	0.0217	0.0205
Minimum		0.0079 ± 0.0009	0.0090 ± 0.0009	0.0080 ± 0.0009	0.0084 ± 0.0011	0.0076 ± 0.0009	0.0088 ± 0.0010	0.0086 ± 0.0011
12–Month Summary								
Maximum		0.0366 ± 0.0030	0.0374 ± 0.0017	0.0359 ± 0.0042	0.04130 ± 0.0034	0.0378 ± 0.0022	0.0405 ± 0.0017	0.0348 ± 0.0022
Average		0.0181 ±	0.0185	0.0190	0.0198	0.0187	0.0196	0.0190
Minimum		0.0078 ± 0.0009	0.0065 ± 0.0009	0.0072 ± 0.0009	0.0066 ± 0.0009	0.0068 ± 0.0009	0.0077 ± 0.0010	0.0076 ± 0.0011

Table B-6

Concentration of Beta Emitters in Air Particulates – Offsite Samples
(Results in pCi/m^3 ± 2σ Uncertainty)

Start Date	Stop Date	Station # 8 (C) Seabreeze	Station #9 (I) Webster	Station #10 (C) Walworth	Station #11 (IC) Williamson	Station #12 (C) Sodus Point
1/3/2006	1/9/2006	0.0149 ± 0.0014	0.0132 ± 0.0012	0.0155 ± 0.0013	0.0156 ± 0.0014	0.0147 ± 0.0013
1/9/2006	1/16/2006	0.0202 ± 0.0014	0.0183 ± 0.0012	0.0212 ± 0.0013	0.0195 ± 0.0013	0.0190 ± 0.0013
1/16/2006	1/23/2006	0.0172 ± 0.0013	0.0162 ± 0.0012	0.0197 ± 0.0013	0.0153 ± 0.0012	0.0180 ± 0.0012
1/23/2006	1/30/2006	0.0171 ± 0.0013	0.0164 ± 0.0012	0.0190 ± 0.0013	0.0182 ± 0.0013	0.0178 ± 0.0012
1/30/2006	2/6/2006	0.0222 ± 0.0014	0.0187 ± 0.0012	0.0203 ± 0.0013	0.0180 ± 0.0013	0.0188 ± 0.0012
2/6/2006	2/13/2006	0.0138 ± 0.0012	0.0124 ± 0.0010	0.0138 ± 0.0011	0.0135 ± 0.0011	0.0150 ± 0.0011
2/13/2006	2/20/2006	0.0208 ± 0.0014	0.0191 ± 0.0012	0.0224 ± 0.0014	0.0193 ± 0.0013	0.0210 ± 0.0013
2/20/2006	2/27/2006	0.0232 ± 0.0015	0.0202 ± 0.0012	0.0268 ± 0.0015	0.0223 ± 0.0013	0.0234 ± 0.0013
2/27/2006	3/6/2006	0.0145 ± 0.0013	0.0136 ± 0.0011	0.0151 ± 0.0012	0.0134 ± 0.0011	0.0132 ± 0.0011
3/6/2006	3/13/2006	0.0188 ± 0.0013	0.0161 ± 0.0012	0.0203 ± 0.0013	0.0190 ± 0.0013	0.0170 ± 0.0012
3/13/2006	3/20/2006	0.0187 ± 0.0014	0.0176 ± 0.0012	0.0204 ± 0.0013	0.0166 ± 0.0012	0.0168 ± 0.0012
3/20/2006	3/27/2006	0.0096 ± 0.0011	0.0090 ± 0.0009	0.0099 ± 0.0010	0.0095 ± 0.0010	0.0099 ± 0.0010
3/27/2006	4/3/2006	0.0243 ± 0.0015	0.0228 ± 0.0013	0.0276 ± 0.0015	0.0241 ± 0.0014	0.0226 ± 0.0013
4/3/2006	4/11/2006	0.0166 ± 0.0012	0.0162 ± 0.0011	0.0176 ± 0.0012	0.0158 ± 0.0011	0.0158 ± 0.0011
4/11/2006	4/18/2006	0.0216 ± 0.0015	0.0171 ± 0.0012	0.0193 ± 0.0013	0.0175 ± 0.0013	0.0159 ± 0.0012
4/18/2006	4/24/2006	0.0081 ± 0.0019	0.0113 ± 0.0011	0.0126 ± 0.0012	0.0105 ± 0.0012	0.0117 ± 0.0012
4/24/2006	5/1/2006	0.0153 ± 0.0012	0.0149 ± 0.0011	0.0175 ± 0.0012	0.0145 ± 0.0012	0.0151 ± 0.0011
5/1/2006	5/9/2006	0.0162 ± 0.0012	0.0160 ± 0.0011	0.0187 ± 0.0012	0.0149 ± 0.0011	0.0152 ± 0.0011
5/9/2006	5/15/2006	0.0115 ± 0.0013	0.0112 ± 0.0012	0.0128 ± 0.0013	0.0105 ± 0.0013	0.0098 ± 0.0012
5/15/2006	5/22/2006	0.0071 ± 0.0010	0.0078 ± 0.0009	0.0086 ± 0.0010	0.0070 ± 0.0010	0.0066 ± 0.0009
5/22/2006	5/30/2006	0.0229 ± 0.0013	0.0225 ± 0.0013	0.0249 ± 0.0014	0.0227 ± 0.0013	0.0161 ± 0.0020
5/30/2006	6/5/2006	0.0245 ± 0.0016	0.0232 ± 0.0015	0.0259 ± 0.0015	0.0251 ± 0.0015	0.0255 ± 0.0021
6/5/2006	6/12/2006	0.0137 ± 0.0012	0.0129 ± 0.0011	0.0147 ± 0.0013	0.0123 ± 0.0012	0.0120 ± 0.0013
6/12/2006	6/19/2006	0.0214 ± 0.0014	0.0204 ± 0.0013	0.0239 ± 0.0014	0.0213 ± 0.0013	0.0276 ± 0.0019
6/19/2006	6/26/2006	0.0194 ± 0.0014	0.0194 ± 0.0013	0.0177 ± 0.0014	0.0168 ± 0.0015	0.0172 ± 0.0014
6/26/2006	7/3/2006	0.0218 ± 0.0014	0.0217 ± 0.0014	0.0274 ± 0.0017	0.0199 ± 0.0019	0.0217 ± 0.0014
1st 6-Month Summary						
Maximum		0.0245 ± 0.0019	0.0232 ± 0.0015	0.0276 ± 0.0017	0.0251 ± 0.0019	0.0276 ± 0.0021
Average		0.0175	0.0165	0.0190	0.0167	0.0168
Minimum		0.0071 ± 0.0010	0.0078 ± 0.0009	0.0086 ± 0.0010	0.0070 ± 0.0010	0.0066 ± 0.0009

Table B-6 (Continued)

Concentration of Beta Emitters in Air Particulates – Offsite Samples
(Results in pCi/m^3 ± 2σ Uncertainty)

Start Date	Stop Date	Station # 8 (C) Seabreeze	Station #9 (I) Webster	Station #10 (C) Walworth	Station #11 (IC) Williamson	Station #12 (C) Sodus Point
7/3/2006	7/10/2006	0.0202 ± 0.0014	0.0190 ± 0.0013	0.0217 ± 0.0014	0.0193 ± 0.0019	0.0199 ± 0.0012
7/10/2006	7/17/2006	0.0260 ± 0.0015	0.0250 ± 0.0015	0.0268 ± 0.0016	0.0285 ± 0.0028	0.0259 ± 0.0016
7/17/2006	7/24/2006	0.0224 ± 0.0014	0.0275 ± 0.0018	0.0276 ± 0.0016	0.0245 ± 0.0023	0.0254 ± 0.0015
7/24/2006	7/31/2006	0.0253 ± 0.0015	0.0267 ± 0.0015	0.0396 ± 0.0060	0.0275 ± 0.0024	0.0256 ± 0.0015
7/31/2006	8/7/2006	0.0212 ± 0.0014	0.0207 ± 0.0013	0.0256 ± 0.0017	0.0229 ± 0.0022	0.0228 ± 0.0014
8/7/2006	8/14/2006	0.0209 ± 0.0017	0.0196 ± 0.0013	0.0220 ± 0.0013	0.0186 ± 0.0019	0.0211 ± 0.0013
8/14/2006	8/21/2006	0.0214 ± 0.0019	0.0197 ± 0.0013	0.0209 ± 0.0013	0.0173 ± 0.0023	0.0186 ± 0.0014
8/21/2006	8/28/2006	0.0192 ± 0.0018	0.0175 ± 0.0013	0.0189 ± 0.0012	0.0188 ± 0.0021	0.0167 ± 0.0012
8/28/2006	9/5/2006	0.0138 ± 0.0015	0.0119 ± 0.0010	0.0116 ± 0.0009	0.0121 ± 0.0017	0.0128 ± 0.0010
9/5/2006	9/11/2006	0.0252 ± 0.0022	0.0218 ± 0.0015	0.0235 ± 0.0015	0.0222 ± 0.0024	0.0220 ± 0.0015
9/11/2006	9/18/2006	0.0263 ± 0.0020	0.0218 ± 0.0017	0.0197 ± 0.0012	0.0270 ± 0.0022	0.0225 ± 0.0013
9/18/2006	9/25/2006	0.0318 ± 0.0021	0.0203 ± 0.0013	0.0183 ± 0.0012	0.0156 ± 0.0019	0.0163 ± 0.0012
9/25/2006	10/2/2006	0.0177 ± 0.0017	0.0158 ± 0.0012	0.0167 ± 0.0012	0.0168 ± 0.0022	0.0179 ± 0.0014
10/2/2006	10/9/2006	0.0205 ± 0.0017	0.0167 ± 0.0012	0.0180 ± 0.0012	0.0163 ± 0.0020	0.0169 ± 0.0012
10/9/2006	10/16/2006	0.0185 ± 0.0019	0.0158 ± 0.0013	0.0187 ± 0.0011	0.0179 ± 0.0020	0.0169 ± 0.0012
10/16/2006	10/23/2006	0.0184 ± 0.0018	0.0177 ± 0.0012	0.0160 ± 0.0012	0.0177 ± 0.0020	0.0183 ± 0.0012
10/24/2006	10/30/2006	0.0091 ± 0.0014	0.0094 ± 0.0010	0.0091 ± 0.0009	0.0090 ± 0.0017	0.0084 ± 0.0010
10/30/2006	11/6/2006	0.0289 ± 0.0021	0.0250 ± 0.0015	0.0273 ± 0.0014	0.0261 ± 0.0023	0.0269 ± 0.0015
11/6/2006	11/13/2006	0.0227 ± 0.0019	0.0229 ± 0.0014	0.0227 ± 0.0013	0.0235 ± 0.0022	0.0220 ± 0.0013
11/13/2006	11/20/2006	0.0147 ± 0.0016	0.0114 ± 0.0011	0.0114 ± 0.0010	0.0126 ± 0.0019	0.0122 ± 0.0011
11/20/2006	11/27/2006	0.0294 ± 0.0021	0.0266 ± 0.0015	0.0290 ± 0.0014	0.0259 ± 0.0022	0.0288 ± 0.0015
11/27/2006	12/4/2006	0.0241 ± 0.0019	0.0218 ± 0.0013	0.0258 ± 0.0013	0.0249 ± 0.0022	0.0247 ± 0.0013
12/4/2006	12/11/2006	0.0288 ± 0.0021	0.0267 ± 0.0014	0.0305 ± 0.0015	0.0292 ± 0.0024	0.0296 ± 0.0016
12/11/2006	12/18/2006	0.0380 ± 0.0023	0.0293 ± 0.0015	0.0382 ± 0.0016	0.0365 ± 0.0026	0.0365 ± 0.0016
12/18/2006	12/25/2006	0.0214 ± 0.0017	0.0180 ± 0.0011	0.0203 ± 0.0012	0.0191 ± 0.0019	0.0193 ± 0.0012
12/26/2006	1/2/2007	0.0204 ± 0.0019	0.0155 ± 0.0012	0.0184 ± 0.0012	0.0179 ± 0.0020	0.0194 ± 0.0013
2nd 6-Month Summary						
Maximum		0.0380 ± 0.0023	0.0293 ± 0.0018	0.0396 ± 0.0060	0.0365 ± 0.0028	0.0365 ± 0.0016
Average		0.0226	0.0201	0.0222	0.0211	0.0211
Minimum		0.0091 ± 0.0014	0.0094 ± 0.0010	0.0091 ± 0.0009	0.0090 ± 0.0017	0.0084 ± 0.0010
12-Month Summary						
Maximum		0.0380 ± 0.0023	0.0293 ± 0.0018	0.0396 ± 0.0060	0.0365 ± 0.0028	0.0365 ± 0.0021
Average		0.0200	0.0183	0.0206	0.0189	0.0189
Minimum		0.0071 ± 0.0010	0.0078 ± 0.0009	0.0086 ± 0.0009	0.0070 ± 0.0010	0.0066 ± 0.0009

Table B-7

Concentration of Gamma Emitters in Air Particulates
(Results in units of 10^{-2} pCi/m^3 $\pm 2\sigma$)

Location	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
Station #2 Manor House Yard	*	*	*	*
Station #3 East Field	*	*	*	*
Station #4 Training Center Parking Lot	*	*	[1]	*
Station #5 Creek Bridge	*	*	*	*
Station #6 Main Parking Lot	*	*	*	*
Station #7 West Fence Line	*	*	*	*
Station #8 Seabreeze	*	*	*	*
Station #9 Webster	*	*	*	*
Station #10 Walworth	*	*	*	*
Station #11 Williamson	*	*	*	*
Station #12 Sodus Point	*	*	*	*
Station #13 Substation 13	*	*	*	*

* All Non-Natural Gamma Emitters <MDA

[1] Lost Sample

Table B-8

Concentration of Gamma Emitters in Vegetation Samples
(Results in units of pCi/kg (wet) ± 2σ)

Location	Sample Date	Sample Type	Gamma Emitters
SE Garden	07/03/06	Lettuce	*
	07/17/06	Lettuce	*
	09/12/06	Grapes	*
ESE Garden	07/03/06	Lettuce	*
	07/10/06	Raspberries	*
	09/12/06	Grapes	*
Control Garden	7/6/2006	Lettuce	*
	7/18/2006	Raspberries	*
	7/24/2006	Squash	*
	7/31/2006	Cucumbers	*
	8/15/2006	Corn	*
	8/15/2006	Cabbage	*
	8/15/2006	Tomatoes	*
	9/14/2006	Grapes	*
	9/14/2006	Apples	*
South Southeast Garden	7/24/2006	Squash	*
	7/31/2006	Cucumbers	*
	8/9/2006	Corn	*
	8/14/2006	Cabbage	*
	8/21/2006	Tomatoes	*
South	9/20/2006	Apples	*
South West	9/20/2006	Apples	*
West	9/20/2006	Apples	*

* All Non-Natural Gamma Emitters <MDA

Table B-9

Concentration of Gamma Emitters (including I-131) in Milk
(Results in units of pCi/Liter ± 2σ)

Location	Sample Date	Gamma Emitters
FARM A Station 21	01/10/06	*
	02/14/06	*
	03/13/06	*
	04/10/06	*
	05/09/06	*
	06/12/06	*
	06/26/06	*
	07/10/06	*
	07/24/06	*
	08/07/06	*
	08/22/06	*
	09/05/06	*
	09/18/06	*
	10/02/06	*
	10/16/06	*
FARM D Station 24	01/10/06	*
	02/14/06	*
	03/13/06	*
	04/10/06	*
	05/09/06	*
	06/12/06	*
	06/26/06	*
	07/10/06	*
	07/24/06	*
	08/07/06	*
	08/22/06	*
	09/05/06	*
	09/18/06	*
	10/02/06	*
	10/16/06	*
	10/30/06	*
	11/13/06	*
	12/11/06	*

Table B-10
Typical MDA Ranges for Gamma Spectrometry

Selected Nuclides	Water pCi/l	Fish pCi/Kg	Sediment pCi/Kg	Particulate 10^{-3} pCi/m^3	Vegetation pCi/Kg	Milk pCi/l
H-3	223 -- 779	--	--	--	--	--
Na-22	4 – 10	27 – 51	47 – 160	0.4 – 1.0	21 – 68	6 – 13
Cr-51	28 – 77	237 – 777	353 – 1380	14 – 27	143 – 380	31 – 61
Mn-54	4 – 8	20-39	39 – 118	0.5 – 0.9	15 – 56	5 – 10
Co-58	4 – 9	33 – 50	47 – 156	0.8 – 1.6	20 – 54	5 – 10
Fe-59	8 – 11	69 – 191	118-436	3 – 6	45 – 144	11 – 24
Co-60	4 – 9	24 – 47	49 – 144	0.5 – 1.0	21 – 70	5 – 12
Zn-65	8 – 21	53 – 95	102 – 365	3 – 3	45 – 166	12 – 25
Nb-95	4 – 11	39 – 100	53 – 222	2 – 3	23 – 61	5 – 9
Zr-95	6 – 16	47 – 94	75 – 259	1 – 3	34 – 102	8 – 16
Ru-106	34 – 71	185 – 267	319 – 922	4 – 6	149 – 440	37 – 75
Ag-110m	3 – 8	20 – 31	37 – 142	0.4 – 0.8	16 – 52	4 – 8
Te-129m	42 – 119	364 – 1170	538 – 2280	19 – 33	246 – 674	50 – 98
I-131	4 – 29**	100 – 12200	122 – 1300	161 – 827*	21 – 479	4 – 9***
Cs-134	3 – 7	18 – 27	33 – 117	0.4 – 0.7	14 – 51	4 – 8
Cs-137	4 – 8	21 – 32	39 – 125	0.3 – 0.7	18 – 57	5 – 10
Ba-140	6 – 29	59 – 2250	103 – 916	33 – 87	29 – 137	6 – 14
La-140	6 – 29	59 – 2250	103 – 916	33 – 87	29 – 137	6 – 14
Ce-144	18 – 39	61 – 80	140 – 413	1 – 2	64 – 195	20 - 43

* The MDA range for I-131 measured on a charcoal cartridge is typically 6.3 x 10^{-3} to 2.3 x 10^{-2} pCi/m^3

** The MDA range for I-131 measured in drinking water is typically 0.5 to 1.1 pCi/L

***The MDA range for I-131 measured in milk is typically 0.6 to 0.9 pCi/L

Table B-11
Typical LLDs for Gamma Spectrometry

Selected Nuclides	Water pCi/l	Fish pCi/Kg	Sediment pCi/Kg	Particulate * 10^{-3} pCi/m^3	Vegetation pCi/Kg	Milk pCi/l
Na-22	4.1	24	59	3.7	29	6
Cr-51	26	120	327	16	144	30
Mn-54	3.8	20	49	2.8	24	5
Co-58	3.9	20	36	2.8	19	5
Fs-59	7.8	45	103	2.8	50	11
Co-60	4.4	24	60	2.7	26	6
Zn-65	7.9	54	141	7.0	57	12
Nb-95	4.2	18	60	2.4	24	4
Zr-95	6.5	35	79	5.0	43	8
Ru-106	35	172	458	25	196	39
Ag-110m	3.6	15	42	2.2	21	4
Te-129m	41	170	551	27	248	50
I-131	3.2*	13	41	1.9 **	19	4*
Cs-134	3.3	17	44	2.4	20	4
Cs-137	3.9	17	58	2.8	26	5
Ba-140	4.8	19	67	3.9	33	5
La-140	4.8	19	67	3.9	33	5
Ce-144	17	58	191	8.9	81	20

* The LLD for I-131 measured in drinking water and milk is 0.5 pCi/L
**The LLD for I-131 measured on charcoal filter is 9.4×10^{-3} pCi/m^3

Table B-12
Direct Radiation
(Results in Units of mR/90 days ± 2σ)

Station	Location	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
2	Onsite-Manor House Yard	12.2 ± 3.1	12.0 ± 3.0	11.3 ± 2.8	12.1 ± 3.1
3	Onsite-In field approximately 200 ft SE of station #2	12.6 ± 3.2	12.5 ± 3.1	11.2 ± 2.8	11.2 ± 2.8
4	Onsite-Training Center yard driveway circle	12.7 ± 3.2	13.0 ± 3.3	11.7 ± 2.9	12.3 ± 3.1
5	Onsite-Between creek and plant entry road	13.1 ± 3.3	12.4 ± 3.1	11.7 ± 3.0	12.6 ± 3.2
6	Onsite-SW side of plant parking lot	10.2 ± 2.6	9.9± 2.5	10.0 ± 2.5	10.1 ± 2.5
7	Onsite-utility pole along West plant fence	15.7 ± 4.0	14.5 ± 3.7	13.4 ± 3.4	13.9 ± 3.5
8	Topper Drive-Irondequoit, Seabreeze Substation #51	10.9 ± 2.7	11.1 ± 2.8	10.5 ± 2.7	11.2 ± 2.8
9	Phillips Road-Webster, intersection with Highway #104, Substation #74	10.6 ± 2.7	10.2 ± 2.6	10.6 ± 2.7	11.0 ± 2.8
10	Atlantic Avenue-Walworth, Substation #230	10.1 ± 2.5	10.1 ± 2.5	9.9 ± 2.5	9.9 ± 2.5
11	W. Main Street-Williamson, Substation #207	10.5 ± 2.6	10.5 ± 2.6	10.4 ± 2.6	10.7 ± 2.7
12	12 Seaman Avenue-Sodus Point-Off Lake Road by Sewer district, Substation #209	11.2 ± 2.8	11.4 ± 2.9	10.8 ± 2.7	11.0 ± 2.8
13	At corner of plant-controlled area fence and dogleg to West	12.9 ± 3.3	13.1 ± 3.3	11.7 ± 3.0	12.4 ± 3.1
14	NW corner of field along lake shore	11.7 ± 3.0	11.7 ± 3.0	11.2 ± 2.8	11.8 ± 3.0
15	Field access road, west of orchard, approximately 3000' West of plant	12.6 ± 3.2	12.9 ± 3.3	11.9 ± 3.0	12.7 ± 3.2

Table B-12 (Continued)

16	SW Corner of orchard, approximately 3000' West of plant, approximately 200' North of Lake Road	12.2 ± 3.1	12.3 ± 3.1	11.3 ± 2.9	11.7 ± 3.0
17	Utility pole in orchard, approximately 75" North of Lake Road	11.7 ± 2.9	12.2 ± 3.1	11.0 ± 2.8	11.3 ± 2.8
18	Approximately 30' North of NE corner of Substation 13A fence	11.0 ± 2.8	10.7 ± 2.7	10.6 ± 2.7	11.4 ± 2.9
19	On NW corner of house 100' East of plant access road	9.8 ± 2.5	10.5 ± 2.7	10.3 ± 2.6	10.1 ± 2.6
20	Approximately 150' West of Ontario Center Road and approximately 170' South of Lake Road	11.8 ± 3.0	12.1 ± 3.1	11.1 ± 2.8	11.4 ± 2.9
21	North side of Lake Road, approximately 200' East of Ontario Center Road	11.6 ± 2.9	11.7 ± 2.9	10.7 ± 2.7	11.3 ± 2.9
22	North side of Lake Road, SE, property owner	10.8 ± 2.7	10.8 ± 2.7	10.5 ± 2.6	10.8 ± 2.7
23	East property line, midway between Lake Road and Lake shore	12.1 ± 3.1	12.1 ± 3.0	11.7 ± 3.0	13.1 ± 3.3
24	Lake shore near NE corner of property	12.1 ± 3.0	12.8 ± 3.2	10.9 ± 2.8	12.2 ± 3.1
25 [1]	Substation #73, Klem Road, adjacent to 897 Klem Road	10.8 ± 2.7	10.5 ± 2.7	10.4 ± 2.6	10.7 ± 2.7
26 [1]	Service Center, Plank Road, West of 250	11.5 ± 2.9	10.8 ± 2.7	10.2 ± 2.6	10.8 ± 2.7
27 [1]	Atlantic Avenue at Knollwood Drive utility pole, North side of road	11.2 ± 2.8	11.3 ± 2.9	10.8 ± 2.7	11.2 ± 2.8
28 [1]	Substation #193, Marion, behind Stanton Ag. Service, North Main Street	10.6 ± 2.7	10.6 ± 2.7	10.2 ± 2.6	10.3 ± 2.6
29 [1]	Substation #208, Town Line Road (CR-118), 1000 ' North of Route 104	10.3 ± 2.6	10.2 ± 2.6	10.4 ± 2.6	10.5 ± 2.6
30 [1]	District Office, Sodus, on pole, West side of bldg	11.0 ± 2.8	10.6 ± 2.7	10.2 ± 2.6	10.3 ± 2.6

Table B-12 (Continued)

31	Lake Road, pole 20' North of road, 500' East of Salt Road	12.1 ± 3.1	12.2 ± 3.1	10.9 ± 2.8	11.7 ± 3.0
32	Woodard Road at County Line Road, pole @ BW corner	10.6 ± 2.7	10.9 ± 2.7	10.0 ± 2.5	10.8 ± 2.7
33	County Line Road at RR tracks, pole approximately 100' East along tracks	10.9 ± 2.8	10.3 ± 2.6	10.0 ± 2.5	10.5 ± 2.7
34	Lincoln Road, pole midway between Ridge Road and Route 104	12.5 ± 3.2	14.2 ± 3.6	12.6 ± 3.2	12.6 ± 3.2
35	Transmission Right of Way, North of Clevenger Road on pole	12.0 ± 3.0	12.9 ± 3.3	11.2 ± 2.8	11.8 ± 3.0
36	Substation #205, Route 104, East of Ontario Center Road, North side of fence	10.8 ± 2.7	11.1 ± 2.8	10.8 ± 2.7	11.0 ± 2.8
37	Rail Road Avenue, pole at 2048	10.1 ± 2.5	10.3 ± 2.6	10.2 ± 2.6	10.0 ± 2.5
38	Fisher Road at RR Tracks, pole East of road	11.9 ± 3.0	11.7 ± 3.0	11.4 ± 2.9	11.8 ± 3.0
39	Seeley Road, Pole South side 100' West of intersection with Stony Lonesome Road	12.0 ± 3.0	12.0 ± 3.0	11.6 ± 2.9	11.5 ± 2.9
40	Lake Road at Stoney Lonesome Road, pole at SE corner	10.5 ± 2.7	10.5 ± 2.7	10.5 ± 2.7	10.4 ± 2.6

† Control Location

APPENDIX C

Quality Assurance Program

Appendix C is a summary of Constellation Energy laboratory's quality assurance program. It consists of Table C-1 which is a compilation of the results of the Constellation Energy Laboratory's participation in an intercomparison program with Environmental Resource Associates (ERA) located in Arvada, Colorado and Analytics, Inc. located in Atlanta, Georgia. It also includes Table C-2 which is a compilation of the results of the Constellation Energy Laboratory's participation in a split sample program with Teledyne Brown Engineering located in Knoxville, Tennessee and Table C-3 which is a list of typical MDAs achieved by Teledyne Brown for Gamma Spectroscopy.

All the Constellation Energy Laboratory's results contained in Table C-1 generally agree with the intercomparison laboratorys' results within the range of ±2 σ of each other. In addition, all the sets of intercomparison results in the table are in full agreement when they were further evaluated using the NRC Resolution Test Criteria[1]. The uncertainties for the Constellation Energy Laboratory's results and Analytics' results are ±2σ while the ERA laboratory's uncertainty is based on USEPA guidelines[2].

All the results contained in Table C-2 agree within the range of ±2 σ of each other with their respective Constellation Energy Laboratory original, replicate and/or Teledyne Brown Engineering's split laboratory samples, except for the comparisons of two soil samples and a shoreline sample involving Cs-137 results. The original analysis of the soil sample from SFS2 collected on 3/06/2006, the split analysis of the soil sample from SFS4 collected on 6/19/2006, and the split analysis of the shoreline sample do not agree within the range of ±2σ of their respective QC comparison soil samples analyzed. These minor discrepancies, which have been observed in previous reporting periods, are most probably due to counting statistics and/or the non-homogeneous nature of this type of sample. Other samples whose nature generally precludes sample splitting are marked "**" in the Split Analysis column.

[1] NRC Inspection Manual, Inspection Procedure 84750, March 15, 1994
[2] National Standards for Water Proficiency Testing Studies Criteria Document, December 1998

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TABLE OF CONTENTS - ANALYTICAL RESULTS

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TABLE C-1

Results of Participation in Cross Check Programs

Sample Date	Sample Type and Units	Isotope Observed	Reported Laboratory's Results[1]	Cross Check Lab Results[1]
1/16/06	Water-pCi/L	Ba-133	90±8	89±10
		Co-60	101±8	98±5
		Cs-134	19±5	22±5
		Cs-137	112±11	110±6
		Zn-65	194±24	200±19
3/23/06	Milk-pCi/L	I-131	79±19	78±3
		Cs-134	106±13	121±4
		Cs-137	92±16	89±3
		Ce-141	108±19	104±3
		Cr-51	280±101	280±9
		Mn-54	93±18	93±3
		Co-58	112±20	105±3
		Fe-59	87±23	87±3
		Co-60	131±16	128±4
		Zn-65	182±38	176±6
3/23/06	Charcoal Cartridge-pCi	I-131	114±8	86±3
3/23/06	Water-pCi/L	Gross β	225±3	262±9
4/11/06	Water-pCi/L	I-131	19±5	20±3
6/8/06	Water-pCi	Gross β	156±2	169±6
6/8/06	Water-pCi/L	I-131	83±26	75±2
		Cs-134	101±12	103±3
		Cs-137	114±19	95±3
		Ce-141	166±23	149±5
		Co-58	92±19	81±3
		Fe-59	96±26	76±3
		Cr-51	264±117	210±7
		Co-60	116±15	104±4
		Mn-54	141±20	119±4
		Zn-65	155±39	150±5

[1] See discussion at the beginning of the Appendix.

Table C1 (Continued)

Results of Participation in Cross Check Programs

Sample Date	Sample Type and Units	Isotope Observed	Reported Laboratory's Results[1]	Cross Check Lab Results[1]
6/8/06	Filter-pCi/filter	Ce-141	134±7	129±4
		Cr-51	200±35	182±6
		Cs-134	71±5	89±3
		Cs-137	82±7	82±3
		Mn-54	105±8	130±3
		Fe-59	70±8	66±2
		Zn-65	143±16	130±4
		Co-60	90±6	90±3
		Co-58	71±7	70±2
7/10/06	Water-pCi/L	Ba-133	80±14	85±9
		Cs-134	46±9	52±5
		Cs-137	243±23	239±12
		Zn-65	113±32	128±12
		Co-60	101±13	103±5
7/10/06	Water-pCi/L	Gross β	7.46±3.00	8.95±5.00
9/14/06	Charcoal Cartridge-pCi	I-131	111±8	92±3
9/14/06	Filter-pCi/filter	Gross β	80±2	85±3
9/18/06	Filter-pCi/filter	Am-241	396±131	297±116
		Cs-134	2789±42	2790±390
		Cs-137	251±18	208±66
		Co-60	1499±28	1220±210
10/06/06	Water-pCi/L	I-131	27±2	23±3

[1] See discussion at the beginning of the Appendix

Table C1 (Continued)

Results of Participation in Cross Check Programs

Sample Date	Sample Type and Units	Isotope Observed	Reported Laboratory's Results[1]	Cross Check Lab Results[1]
12/07/06	Milk-pCi/L	I-131	86±56	70±2
		Ce-141	369±39	294±10
		Cr-51	607±200	433±14
		Cs-134	150±15	147±5
		Cs-137	264±29	237±8
		Co-58	96±18	84±3
		Mn-54	140±23	111±4
		Fe-59	80±29	80±3
		Zn-65	184±39	164±5
		Co-60	331±26	281±9
12/07/06	Filter-pCi/filter	Ce-141	219±9	191±6
		Cr-51	323±50	280±9
		Cs-134	81±5	95±3
		Cs-137	161±10	153±5
		Co-58	54±8	54±2
		Mn-54	81±9	72±2
		Fe-59	60±12	52±2
		Zn-65	112±18	106±4
		Co-60	191±10	182±6
12/07/06	Water-pCi/L	Gross β	255±3	225±7

[1] See discussion at the beginning of the Appendix

TABLE C-2

Results of Quality Assurance Program

Sample Type And Location	Sample Date	Type of Analysis	Original Analysis	Replicate Analysis	Split Analysis
				10^{-2} pCi/m^3	
Air Iodine-A3	1/09/06	I-131	<MDA	<MDA	**
Air Iodine-A4	1/09/06	I-131	<MDA	<MDA	**
Air Filter -A1	1/09/06	Beta	1.7±0.2	1.9±0.2	**
Air Filter -A2	1/09/06	Beta	1.5±0.1	1.6±0.2	**
Air Filter -A3	1/09/06	Beta	1.1±0.2	1.4±0.2	**
Air Filter -A4	1/09/06	Beta	1.7±0.2	1.9±0.2	**
Air Filter -A5	1/09/06	Beta	1.5±0.2	1.6±0.2	**
Air Filter –SFA1	1/09/06	Beta	1.6±0.3	1.7±0.2	**
Air Filter –SFA2	1/09/06	Beta	1.4±0.2	1.6±0.2	**
Air Filter –SFA3	1/09/06	Beta	*	*	**
Air Filter –SFA4	1/09/06	Beta	1.5±0.2	1.9±0.2	**
				10^{-2} pCi/m^3	
Air Filter-A1	2/06/06	Beta	1.5±0.2	1.7±0.2	**
Air Filter-A2	2/06/06	Beta	1.2±0.2	1.3±0.2	**
Air Filter-A3	2/06/06	Beta	1.3±0.2	1.3±0.2	**
Air Filter-A4	2/06/06	Beta	2.1±0.3	2.3±0.2	**
Air Filter-A5	2/06/06	Beta	1.2±0.2	1.4±0.2	**
Air Filter-SFA1	2/06/06	Beta	1.3±0.2	1.5±0.2	**
Air Filter-SFA2	2/06/06	Beta	1.4±0.2	1.4±0.2	**
Air Filter-SFA3	2/06/06	Beta	1.1±0.2	1.1±0.2	**
Air Filter-SFA4	2/06/06	Beta	1.9±0.2	2.0±0.2	**
Air Iodine-A1	2/06/06	I-131	<MDA	<MDA	**
Air Iodine-A2	2/06/06	I-131	<MDA	<MDA	**
				pCi/L	
Bay Water-Wa2	2/28/06	Gamma	<MDA	<MDA	<MDA

*Invalid Sample
**The nature of these samples precluded splitting them with an independent laboratory.

TABLE C-2 (Continued)

Results of Quality Assurance Program

Sample Type And Location	Sample Date	Type of Analysis	Original Analysis	Replicate Analysis	Split Analysis
				10^{-2} pCi/m^3	
Air Filter-A1	3/06/06	Beta	2.3±0.3	2.4±0.3	**
Air Filter-A2	3/06/06	Beta	1.9±0.2	1.8±0.2	**
Air Filter-A3	3/06/06	Beta	1.5±0.2	1.6±0.2	**
Air Filter-A4	3/06/06	Beta	2.3±0.3	2.2±0.3	**
Air Filter-A5	3/06/06	Beta	2.2±0.2	2.4±0.3	**
Air Filter-SFA1	3/06/06	Beta	2.1±0.2	2.2±0.2	**
Air Filter-SFA2	3/06/06	Beta	2.0±0.2	1.9±0.2	**
Air Filter-SFA3	3/06/06	Beta	1.9±0.2	2.0±0.2	**
Air Filter-SFA4	3/06/06	Beta	2.9±0.3	2.8±0.3	**
Air Iodine-A3	3/06/06	I-131	<MDA	< MDA	**
Air Iodine-A4	3/06/06	I-131	< MDA	< MDA	**
				pCi/Kg	
Soil-SFS1	3/06/06	Gamma	<MDA	<MDA	<MDA
Soil-SFS2	3/06/06	Cs-137	<MDA	100±71	142±92
Vegetation-SFb1	3/06/06	Gamma	<MDA	<MDA	<MDA
Vegetation-SFb2	3/06/06	Gamma	<MDA	<MDA	<MDA
Oysters-Ia3	3/24/06	Gamma	<MDA	<MDA	<MDA
				pCi/L	
Bay Water-Wa2	4/28/06	Gamma	<MDA	<MDA	<MDA
				10^{-2} pCi/m^3	
Air Filter-A1	4/03/06	Beta	2.3±0.2	2.4±0.2	**
Air Filter-A2	4/03/06	Beta	2.1±0.2	1.8±0.2	**
Air Filter-A3	4/03/06	Beta	1.9±0.2	1.7±0.2	**
Air Filter-A4	4/03/06	Beta	2.3±0.2	2.1±0.2	**
Air Filter-A5	4/03/06	Beta	2.0±0.1	2.1±0.1	**
Air Filter-SFA1	4/03/06	Beta	2.6±0.2	2.4±0.2	**
Air Filter-SFA2	4/03/06	Beta	1.8±0.2	1.9±0.2	**
Air Filter-SFA3	4/03/06	Beta	2.0±0.2	1.9±0.2	**
Air Filter-SFA4	4/03/06	Beta	2.5±0.2	2.2±0.2	**

**The nature of these samples precluded splitting them with an independent laboratory.

TABLE C-2 (Continued)

Results of Quality Assurance Program

Sample Type And Location	Sample Date	Type of Analysis	Original Analysis	Replicate Analysis	Split Analysis
				10^{-2} pCi/m^3	
Air Iodine-A1	4/03/06	I-131	<MDA	<MDA	**
Air Iodine-A2	4/03/06	I-131	<MDA	<MDA	**
				10^{-2} pCi/m^3	
Air Filters-A1	4/15/06	Gamma	<MDA	<MDA	<MDA
Air Filters-A2	4/15/06	Gamma	<MDA	<MDA	<MDA
Air Filters-A3	4/15/06	Gamma	<MDA	<MDA	<MDA
Air Filters-A4	4/15/06	Gamma	<MDA	<MDA	<MDA
Air Filters-A5	4/15/06	Gamma	<MDA	<MDA	<MDA
Air Filters-SFA1	4/15/06	Gamma	<MDA	<MDA	<MDA
Air Filters-SFA2	4/15/06	Gamma	<MDA	<MDA	<MDA
Air Filters-SFA3	4/15/06	Gamma	<MDA	<MDA	<MDA
Air Filters-SFA4	4/15/06	Gamma	<MDA	<MDA	<MDA
				10^{-2} pCi/m^3	
Air Iodine-A3	5/08/06	I-131	<MDA	<MDA	**
Air Iodine-A4	5/08/06	I-131	<MDA	<MDA	**
Air Filter-A1	5/08/06	Beta	1.4±0.2	1.3±0.2	**
Air Filter-A2	5/08/06	Beta	1.4±0.2	1.3±0.2	**
Air Filter-A3	5/08/06	Beta	*	*	**
Air Filter-A4	5/08/06	Beta	1.2±0.2	1.4±0.2	**
Air Filter-A5	5/08/06	Beta	1.5±0.2	1.5±0.2	**
Air Filter-SFA1	5/08/06	Beta	1.5±0.2	1.3±0.2	**
Air Filter-SFA2	5/08/06	Beta	1.3±0.2	1.4±0.2	**
Air Filter-SFA3	5/08/06	Beta	1.6±0.2	1.4±0.2	**
Air Filter-SFA4	5/08/06	Beta	1.8±0.2	1.7±0.2	**
				pCi/L	
Bay Water-Wa2	5/31/06	Gamma	<MDA	<MDA	<MDA

*Invalid Sample
**The nature of these samples precluded splitting them with an independent laboratory.

TABLE C-2 (Continued)

Results of Quality Assurance Program

Sample Type And Location	Sample Date	Type of Analysis	Original Analysis	Replicate Analysis	Split Analysis
				10^{-2} pCi/m^3	
Air Iodine-A1	6/05/06	I-131	<MDA	<MDA	**
Air Iodine-A2	6/05/06	I-131	<MDA	<MDA	**
				10^{-2} pCi/m^3	
Air Filter-A1	6/05/06	Beta	1.5±0.2	1.3±0.2	**
Air Filter-A2	6/05/06	Beta	1.8±0.2	1.5±0.2	**
Air Filter-A3	6/05/06	Beta	1.9±0.3	1.7±0.2	**
Air Filter-A4	6/05/06	Beta	1.4±0.2	1.3±0.2	**
Air Filter-A5	6/05/06	Beta	2.0±0.2	1.7±0.2	**
Air Filter-SFA1	6/05/06	Beta	1.8±0.2	1.6±0.2	**
Air Filter-SFA2	6/05/06	Beta	1.7±0.2	1.7±0.2	**
Air Filter-SFA3	6/05/06	Beta	1.2±0.2	1.4±0.2	**
Air Filter-SFA4	6/05/06	Beta	2.1±0.3	2.0±0.3	**
				pCi/Kg	
Soil-SFS2	6/19/06	Cs-137	73±54	101±77	176±86
Soil-SFS4	6/19/06	Cs-137	86±70	88±67	<MDA
Vegetation-SFb2	6/19/06	Gamma	<MDA	<MDA	<MDA
Vegetation-SFb4	6/19/06	Gamma	<MDA	<MDA	<MDA
				pCi/Kg	
Shoreline-Wb1	6/26/06	Gamma	<MDA	<MDA	225±73
				mR/90 Days	
DR05	6/30/06	TLD	11.74±0.72	10.84±0.71	**
DR06	6/30/06	TLD	10.50±0.61	9.46±0.97	**
DR07	6/30/06	TLD	10.34±1.28	9.37±0.57	**
DR08	6/30/06	TLD	15.56±1.67	13.60±0.46	**
DR09	6/30/06	TLD	11.27±0.97	10.33±0.91	**
DR10	6/30/06	TLD	10.57±0.42	9.60±0.83	**
DR11	6/30/06	TLD	10.92±0.71	9.75±1.01	**
DR29	6/30/06	TLD	15.06±0.93	14.47±1.05	**
DR31	6/30/06	TLD	15.90±1.70	14.75±0.84	**

**The nature of these samples precluded splitting them with an independent laboratory.

TABLE C-2 (Continued)

Results of Quality Assurance Program

Sample Type And Location	Sample Date	Type of Analysis	Original Analysis	Replicate Analysis	Split Analysis
				mR/90 Days	
SFDR14	6/30/06	TLD	38.75±3.55	33.11±5.66	**
SFDR15	6/30/06	TLD	24.03±2.94	22.71±3.24	**
				10^{-2} pCi/m^3	
Air Filter-A1	7/03/06	Beta	1.8±0.2	1.5±0.2	**
Air Filter-A2	7/03/06	Beta	1.4±0.2	1.4±0.2	**
Air Filter-A3	7/03/06	Beta	1.5±0.2	1.6±0.2	**
Air Filter-A4	7/03/06	Beta	1.6±0.2	1.6±0.2	**
Air Filter-A5	7/03/06	Beta	2.6±0.3	2.5±0.2	**
Air Filter-SFA1	7/03/06	Beta	1.7±0.2	1.6±0.2	**
Air Filter-SFA2	7/03/06	Beta	1.6±0.2	1.6±0.2	**
Air Filter-SFA3	7/03/06	Beta	1.6±0.2	1.6±0.2	**
Air Filter-SFA4	7/03/06	Beta	2.2±0.3	2.4±0.3	**
Air Iodine-A3	7/03/06	I-131	<MDA	<MDA	**
Air Iodine-A4	7/03/06	I-131	<MDA	<MDA	**
				pCi /kg	
Vegetation-Ib1	7/24/06	Gamma	<MDA	<MDA	<MDA
Vegetation-Ib2	7/24/06	Gamma	<MDA	<MDA	<MDA
Vegetation-Ib4	7/24/06	Gamma	<MDA	<MDA	<MDA
Vegetation-Ib5	7/24/06	Gamma	<MDA	<MDA	<MDA
Vegetation-Ib7	7/24/06	Gamma	<MDA	<MDA	<MDA
Vegetation-Ib8	7/24/06	Gamma	<MDA	<MDA	<MDA
				10^{-2} pCi/m^3	
Air Filter-A1	8/07/06	Beta	1.8±0.2	1.8±0.2	**
Air Filter-A2	8/07/06	Beta	2.4±0.3	2.5±0.3	**
Air Filter-A3	8/07/06	Beta	2.6±0.3	2.3±0.3	**
Air Filter-A4	8/07/06	Beta	2.1±0.2	1.8±0.2	**
Air Filter-A5	8/07/06	Beta	2.7±0.3	3.0±0.3	**
Air Filter-SFA1	8/07/06	Beta	1.6±0.2	1.8±0.2	**
Air Filter-SFA2	8/07/06	Beta	2.4±0.2	2.4±0.2	**
Air Filter-SFA3	8/07/06	Beta	2.3±0.2	2.1±0.2	**
Air Filter-SFA4	8/07/06	Beta	3.1±0.3	3.3±0.4	**

**The nature of these samples precluded splitting them with an independent laboratory.

TABLE C-2 (Continued)

Results of Quality Assurance Program

Sample Type And Location	Sample Date	Type of Analysis	Original Analysis	Replicate Analysis	Split Analysis
				10^{-2} pCi/m^3	
Air Iodine-A1	8/07/06	I-131	<MDA	<MDA	**
Air Iodine-A2	8/07/06	I-131	<MDA	<MDA	**
				pCi/kg	
Fish-Ia1	8/22/06	Gamma	<MDA	<MDA	<MDA
Oysters-Ia3	8/22/06	Gamma	<MDA	<MDA	<MDA
				pCi/L	
Bay Water-Wa2	8/31/06	Gamma	<MDA	<MDA	<MDA
				10^{-2} pCi/m^3	
Air Iodine-A3	9/04/06	I-131	<MDA	<MDA	**
Air Iodine-A4	9/04/06	I-131	<MDA	<MDA	**
Air Filter-A1	9/04/06	Beta	1.3±0.2	1.7±0.2	**
Air Filter-A2	9/04/06	Beta	1.0±0.2	1.3±0.2	**
Air Filter-A3	9/04/06	Beta	1.0±0.2	1.3±0.2	**
Air Filter-A4	9/04/06	Beta	0.9±0.2	1.2±0.2	**
Air Filter-A5	9/04/06	Beta	1.1±0.2	1.3±0.3	**
Air Filter-SFA1	9/04/06	Beta	1.0±0.2	1.1±0.2	**
Air Filter-SFA2	9/04/06	Beta	0.7±0.2	0.9±0.2	**
Air Filter-SFA3	9/04/06	Beta	0.8±0.2	1.2±0.2	**
Air Filter-SFA4	9/04/06	Beta	1.1±0.2	1.6±0.3	**
				10^{-3} pCi/m^3	
Air Filters-A1	9/15/06	Gamma	<MDA	<MDA	<MDA
Air Filters-A2	9/15/06	Gamma	<MDA	<MDA	<MDA
Air Filters-A3	9/15/06	Gamma	<MDA	<MDA	<MDA
Air Filters-A4	9/15/06	Gamma	<MDA	<MDA	<MDA
Air Filters-A5	9/15/06	Gamma	<MDA	<MDA	<MDA
Air Filters-SFA1	9/15/06	Gamma	<MDA	<MDA	<MDA
Air Filters-SFA2	9/15/06	Gamma	<MDA	<MDA	<MDA

**The nature of these samples precluded splitting them with an independent laboratory.

TABLE C-2 (Continued)

Results of Quality Assurance Program

Sample Type And Location	Sample Date	Type of Analysis	Original Analysis	Replicate Analysis	Split Analysis
				10^{-3} pCi/m^3	
Air Filters-SFA3	9/15/06	Gamma	<MDA	<MDA	<MDA
Air Filters-SFA4	9/15/06	Gamma	<MDA	<MDA	<MDA
				mR/90 Days	
DR05	09/30/06	TLD	11.98±1.78	11.80±1.31	**
DR06	09/30/06	TLD	10.26±1.15	9.89±1.36	**
DR07	09/30/06	TLD	10.40±0.53	10.24±0.99	**
DR08	09/30/06	TLD	15.24±1.58	11.75±4.42	**
DR09	09/30/06	TLD	11.64±1.70	10.10±1.11	**
DR10	09/30/06	TLD	10.77±1.59	9.40±1.21	**
DR11	09/30/06	TLD	10.92±0.72	9.41±1.06	**
SFDR14	09/30/06	TLD	33.53±1.16	30.08±3.28	**
SFDR15	09/30/06	TLD	25.00±3.27	21.30±2.19	**
DR29	09/30/06	TLD	14.83±0.89	13.28±2.12	**
DR31	09/30/06	TLD	16.04±1.80	13.12±1.47	**
				pCi /kg	
Vegetation-Ib1	10/02/06	Gamma	<MDA	<MDA	<MDA
Vegetation-Ib2	10/02/06	Gamma	<MDA	<MDA	<MDA
Vegetation-Ib4	10/02/06	Gamma	<MDA	<MDA	<MDA
Vegetation-Ib5	10/02/06	Gamma	<MDA	<MDA	<MDA
Vegetation-Ib7	10/02/06	Gamma	<MDA	<MDA	<MDA
Vegetation-Ib8	10/02/06	Gamma	<MDA	<MDA	<MDA
				10^{-2} pCi/m^3	
Air Iodine-A1	10/09/06	I-131	<MDA	<MDA	**
Air Iodine-A2	10/09/06	I-131	<MDA	<MDA	**
				10^{-2} pCi/m^3	
Air Filter-A1	10/09/06	Beta	1.6±0.2	1.5±0.2	**
Air Filter-A2	10/09/06	Beta	1.8±0.2	1.5±0.2	**
Air Filter-A3	10/09/06	Beta	1.6±0.3	1.7±0.3	**
Air Filter-A4	10/09/06	Beta	1.5±0.2	1.3±0.2	**

**The nature of these samples precluded splitting them with an independent laboratory.

TABLE C-2 (Continued)

Results of Quality Assurance Program

Sample Type And Location	Sample Date	Type of Analysis	Original Analysis	Replicate Analysis	Split Analysis
				10^{-2} pCi/m^3	
Air Filter-A5	10/09/06	Beta	2.1±0.3	2.0±0.3	**
Air Filter-SFA1	10/09/06	Beta	1.7±0.2	1.4±0.2	**
Air Filter-SFA2	10/09/06	Beta	1.3±0.2	1.4±0.2	**
Air Filter-SFA3	10/09/06	Beta	1.3±0.2	1.2±0.2	**
Air Filter-SFA4	10/09/06	Beta	2.5±0.3	2.2±0.3	**
				10^{-2} pCi/m^3	
Air Filter-A1	11/05/06	Beta	2.3±0.2	2.2±0.2	**
Air Filter-A2	11/05/06	Beta	3.0±0.3	2.3±0.2	**
Air Filter-A3	11/05/06	Beta	3.9±0.4	2.2±0.2	**
Air Filter-A4	11/05/06	Beta	2.5±0.2	2.5±0.2	**
Air Filter-A5	11/05/06	Beta	3.9±0.4	2.0±0.2	**
Air Filter-SFA1	11/05/06	Beta	2.6±0.2	2.2±0.3	**
Air Filter-SFA2	11/05/06	Beta	2.7±0.2	2.2±0.2	**
Air Filter-SFA3	11/05/06	Beta	2.2±0.2	2.1±0.2	**
Air Filter-SFA4	11/05/06	Beta	4.4±0.4	2.3±0.2	**
Air Iodine-A3	11/05/06	I-131	<MDA	<MDA	**
Air Iodine-A5	11/05/06	I-131	<MDA	<MDA	**
				pCi/L	
Bay Water-Wa2	11/30/06	Gamma	<MDA	<MDA	<MDA
				10^{-2} pCi/m^3	
Air Filter-A1	12/04/06	Beta	1.4±0.2	1.6±0.2	**
Air Filter-A2	12/04/06	Beta	1.9±0.2	1.9±0.2	**
Air Filter-A3	12/04/06	Beta	1.8±0.2	1.7±0.2	**
Air Filter-A4	12/04/06	Beta	1.9±0.2	2.3±0.2	**
Air Filter-A5	12/04/06	Beta	2.0±0.2	2.0±0.2	**
Air Filter-SFA1	12/04/06	Beta	2.0±0.2	1.9±0.2	**
Air Filter-SFA2	12/04/06	Beta	2.1±0.2	1.9±0.2	**
Air Filter-SFA3	12/04/06	Beta	1.8±0.2	2.0±0.2	**
Air Filter-SFA4	12/04/06	Beta	2.2±0.2	1.8±0.2	**
Air Iodine-A1	12/04/06	I-131	<MDA	<MDA	**
Air Iodine-A2	12/04/06	I-131	<MDA	<MDA	**

**The nature of these samples precluded splitting them with an independent laboratory.

TABLE C-3

Teledyne Brown Engineering's Typical MDAs for Gamma Spectrometry

Selected Nuclides	Bay Water pCi/l	Fish pCi/kg	Shellfish pCi/kg	Sediment pCi/kg	Vegetation pCi/kg	Particulates 10^{-3}pCi/m^3
H-3	175	--	--	--	--	--
Na-22	1	8	3	12	6	5
Cr-51	12	105	4	104	50	63
Mn-54	1	9	3	12	5	4
Co-58	1	9	4	9	4	5
Fe-59	3	28	9	24	10	12
Co-60	1	9	4	12	5	6
Zn-65	2	20	8	25	10	9
Nb-95	1	12	7	14	6	9
Zr-95	2	18	8	20	9	9
Ru-106	9	75	30	90	41	40
Ag-110m	1	10	10	10	5	4
Te-129m	16	131	60	162	79	95
I-131	4	65	30	35	22	74
Cs-134	1	8	4	10	5	4
Cs-137	1	9	4	10	5	4
BaLa-140	3	32	15	25	14	36
Ce-144	7	40	16	54	26	18

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APPENDIX D
Land Use Survey

Appendix D contains the results of a Land Use Survey conducted around Ginna Station during this operating period. A table listing the raw data of this survey and a discussion of the results are included in this appendix.

Table D 1

Sector	Distance to Nearest Residence	Distance to Nearest Garden	Distance to Milk Producing Animals
E	1260 m	N/A	N/A
ESE	1050 m	Onsite Garden	N/A
SE	610 m	N/A	8270 m
SSE	660 m	N/A	N/A
S	1560 m	N/A	N/A
SSW	760 m	N/A	N/A
SW	660 m	N/A	N/A
WSW	1350 m	N/A	N/A
W	1160 m	N/A	N/A

Discussion

A Land Use Survey was conducted to identify, within a distance of 5 miles, the location of the nearest milk animal, the nearest residence, and the nearest garden greater than 50 m^2 in each of the nine sectors over land. A detailed description of the Land Use Survey is given in a separate document (Ref. 4). The position of the nearest residence and garden and animals producing milk for human consumption in each sector out to 5 miles is given in the above Table D1.

The closest residence is situated in the SE sector (610m), the nearest garden is in the ESE sector (1050 m), And the nearest milk producing animals was in the SW sector (4680m).

Changes from Previous Years:

- Development of single family homes is continuing at a pace consistent with past years
- Interviews with area farmers indicate that the number of acres farmed will continue to decrease.
- No new agricultural land use was noted.
- No new food producing facilities were noted.

Milk Animal Locations:

- Gerber Farm – 450 Boston Road, Ontario, NY- no longer a commercial milk farm
- Eaton Farm -- 6747 Salmon Creek Road, Williamson, NY
- No new milk producing animals were identified in the 2006 Census.