1995

ANNUAL RADIOLOGICAL ENVIRONMENTAL OPERATING REPORT

R.E. Ginna Nuclear Plant

Rochester Gas & Electric Corporation

Docket No. 50-244

TABLE OF CONTENTS

LIST OF TABLES

LIST OF TREND PLOTS

LIST OF MAPS

RADIOLOGICAL ENVIRONMENTAL SURVEY

January - December 1995

1.0 SUMMARY

During 1995, there were no measurable influences from radioactive effluent releases. Routine measurements continually are taken in the areas surrounding the R.E. Ginna Nuclear Power Plant to determine if man-made radioactivity is released at a level that would cause an influence to the environs surrounding the plant. These measurements detected one lake bottom and three tritium samples with small positive indications above established background levels. Samples are collected on an established schedule for regular testing to determine if measurable levels of activity exist that may be attributed to the operation of the plant. The information obtained from measurements of these environmental samples is compared to the calculated levels of potential activity at the sampling locations from normal plant releases as determined by monitors within the plant effluent streams.

Samples of water, air, fallout, fish, vegetation, milk and direct radiation are collected from locations near the plant that were determined to be at the point of highest concentration from releases through the plant and containment vents. Samples are also collected from additional locations at distances ranging out to eighteen miles. Reference samples for background measurements are collected concurrently from locations calculated to have radioactivity concentrations less than 1% of those from the closer sampling locations. These background samples provide continuous background data which makes it possible to distinguish between significant radioactivity introduced into the environment from the operation of the plant and that introduced from other sources.

During 1995, 1469 samples were collected for 1897 analyses for beta and gamma emitters through gross activity counting techniques and gamma spectroscopy. These total 932 air samples, 299 water samples, 16 fish samples, 8 vegetation samples, 57 milk samples, 2 special lake samples and 155 thermoluminescent dosimeter measurements. As part of a required quality control program, 9 EPA Interlaboratory Comparison Studies samples (spiked at levels expected to be observed for plant releases) were analyzed and reported.

A summary of the data collected indicating the results of all data for indicator and control locations is given in Table 1-1.

Table 1-1

ENVIRONMENTAL RADIOLOGICAL MONITORING PROGRAM SUMMARY

ROCHESTER GAS AND ELECTRIC CORPORATION
R.E. GINNA NUCLEAR POWER PLANT - DOCKET NO. 50-244
WAYNE, NEW YORK REPORTING PERIOD 1994

PATHWAY SAMPLED UNIT OF MEASUREMENT	TYPE AND TOTAL NUMER OF ANALYSES	LLD	INDICATOR LOCATIONS MEAN (1) RANGE	LOCATION WITH HIGHEST ANNUAL MEAN		CONTROL LOCATIONS MEAN (1) RANGE
				NAME, DISTANCE AND DIRECTION	MEAN (1) RANGE	
AIR: Particulate	Gross Beta 620	0.003	0.016 (360/360) 0.007-0.033	Onsite Location # 6 225 M 232	0.028 (48/48) 0.007 - 0.033	0.014 (260/260) 0.006 - 0.025
(pCi/Cu.M.)	Gamma Scan 48	(2)	< LLD			< LLD
Iodine	Gamma Scan 312	0.02- 0.06	< LLD			< LLD
DIRECT RADIATION: (3) TLD (mrem/QUARTER)	Gamma 155	5.0	13.5 (68/68) 9.2 - 26.4	Onsite Location #20 165 M 680	16.5 (4/4) 13.3 - 24.7	11.5 (83/83) 9.2 - 13.5
WATER: Drinking (pCi/Liter)	Gross Beta 75	1.2	3.20 (76/76) 1.14 - 5.22	Well "B" 640 M 150	4.41 (11/11) 3.78 - 5.22	
	Gamma Scan 49	(2)	Ra-226 33 (11/50) 19-39	Well "B" 640 M 150	Ra-226 33 (11/11) 19 - 39	
	Iodine 35	0.45	< LLD			
Surface (pCi/liter)	Gross Beta 166	1.2	3.02 (114/114) 1.45 - 6.06	Deer Creek 200 M 135	3.74 (12/12) 3.07 - 6.06	2.50 (52/52) 1.31 - 4.19
	Gamma Scan 50	(2)	Ra-266 15 (9/38) 8 - 20	Deer Creek 200 M 135	Ra-226 15 (9/12) 8 - 20	< LLD
	Iodine 48	0.45	< LLD			< LLD
Rainfall (pCi/m^2/day)	Gross Beta 58	1.2	4.73 (22/22) 0.60 - 12.84	Station #3 420 M 110	6.07 (11/11) 2.41 - 12.84	5.66 (36/36) 0.97 - 16.30
MILK: (pCi/Liter)	Iodine 57	0.45	< LLD			< LLD
	Gamma Scan 57	(2)	< LLD			< LLD
FISH: (pCi/Kg)	Gamma Scan 16	(2)	Cs-137 25 (7/8) 14 - 46	Discharge Plume		Cs-137 21 (6/8) 12 - 31
VEGETATION: (pCi/Kg)	Gamma Scan 8	(2)	< LLD			

(1) Mean and range based on detectable measurements only. Fraction of detectable measurements at specified locations in parentheses.
(2) Table of LLD values attached for gamma scan measurements.
(3) Two direct radiation locations have been deleted from this summary since they were affected by contaminated equipment storage locations within 50 meters. The average readings at these locations are 17.6 and 22.9 mrem/Quarter during 1995.

2.0 SURVEILLANCE PROGRAM

2.1 Regulatory Limits

The program in 1995 was conducted under the old Technical Specification requirements for the radiological environmental monitoring program. The requirements were removed from the Technical Specification in early 1996 and placed entirely in the ODCM. The following requirements are from the rewritten ODCM.

Monitoring Program

The radiological environmental monitoring program shall be conducted as specified in Table V-1 at the locations given in the ODCM.

If the radiological environmental monitoring program is not conducted as specified in Table V-1, prepare and submit to the Commission, in the Annual Radiological Environmental Operating Report, a description of the reasons for not conducting the program as required and the plans for preventing a recurrence. (Deviations are permitted from the required sampling schedule if specimens are unobtainable due to hazardous conditions, seasonal availability, or to malfunction of automatic sampling equipment. If the latter, efforts shall be made to complete corrective action prior to the end of the next sampling period.)

If milk or fresh leafy vegetable samples are unavailable for more than one sample period from one or more of the sampling locations indicated by the ODCM, a discussion shall be included in the Annual Radioactive Effluent Report which identifies the cause of the unavailability of samples and identifies locations for obtaining replacement samples. If a milk or leafy vegetable sample location becomes unavailable, the locations from which samples were unavailable may then be deleted from the ODCM, provided that comparable locations are added to the environmental monitoring program.

Land Use Census

A land use census shall be conducted and shall identify the location of the nearest milk animal and the nearest residence in each of the 16 meteorological sectors within a distance of five miles.

An onsite garden located in the meteorological sector having the highest historical D/Q may be used for broad leaf vegetation sampling in lieu of a garden census; otherwise the land use census shall also identify the location of the nearest garden of greater than 500 square feet in each of the 16 meteorological sectors within a distance of five miles. D/Q shall be determined in accordance with methods described in the ODCM.

Interlaboratory Comparison Program

Analyses shall be performed on applicable radioactive environmental samples supplied as part of an interlaboratory comparison program which has been approved by NRC, if such a program exists.

2.2 Regulatory Fulfillment

The fulfillment of the Technical Specification requirements shall be demonstrated when:

Specification

The radiological environmental monitoring samples shall be collected pursuant to Table V-1. Acceptable locations are shown in the ODCM. Samples shall be analyzed pursuant to the requirements of Tables V-1 and V-3.

A land use census shall be conducted annually (between June 1 and October 1).

A summary of the results obtained as part of the required Interlaboratory Comparison Program shall be included in the Annual Radiological Environmental Operating Report.

2.3 Deviations from the Sampling Schedule

Deviations from the sampling schedule are allowed when samples are unavailable due to hazardous conditions, seasonal variations or malfunction of automatic sampling equipment. There were no deviations from the sampling schedule during 1995. The minimum number of samples required in Tech Spec Table V-1 were collected for all pathways.

Offsite Dose Calculation Manual Table V-1

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM

EXPOSURE PATHWAY AND/OR SAMPLE	NUMBER OF SAMPLES & SAMPLE LOCATIONS	SAMPLING AND COLLECTION FREQUENCY	TYPE AND FREQUENCY OF ANALYSIS
1. AIRBORNE			
a. Radionuclide	2 indicator 2 control	Continuous operation of sampler with sample collection at least once per 10 days	Radionuclide canister. Analyze within 7 days of collection of I-131.
b. Particulate	7 indicator 5 control	Same as above	Particulate sampler. Analyze for gross beta radioactivity ≥ 24 hours following filter change. Perform gamma isotopic analysis on each sample for which gross beta activity is > 10 times the mean of offsite samples. Perform gamma isotopic analysis on composite (by location) sample at least once per 92 days.
2. DIRECT RADIATION	18 indicator 10 control 11 placed greater than 5 miles from plant site.	TLDs at least quarterly	Gamma dose quarterly.
3. WATERBORNE			
a. Surface	1 control (Russell Station) 1 indicator (Condenser Water Discharge)	Composite* sample collected over a period of ≤ 31 days.	Gross beta and gamma isotopic analysis of each composite sample. Tritium analysis of one composite sample at least once per 92 days.
b. Drinking	1 indicator (Ontario Water District Intake)	Same as above	Same as above

* Composite sample to be collected by collecting an aliquot at intervals not exceeding 2 hours.

Offsite Dose Calculation Manual Table V-1

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM

EXPOSURE PATHWAY AND/OR SAMPLE	NUMBER OF SAMPLES & SAMPLE LOCATIONS	SAMPLING AND COLLECTION FREQUENCY	TYPE AND FREQUENCY OF ANALYSIS
4. INGESTION			
a. Milk	1 control 3 indicator June thru October each of 3 farms	At least once per 15 days	Gamma isotopic and I-131 analysis of each sample.
	1 control 1 indicator November thru May on of the farms	At least once per 31 days	Gamma isotopic and I-131 analysis of each sample.
b. Fish	4 control 4 indicator (Off shore at Ginna)	Twice during fishing season including at least four species.	Gamma isotopic analysis on edible portions of each sample.
c. Food Products	1 control 2 indicator (On site)	Annual at time of harvest. Sample from two of the following: 1. apples 2. cherries 3. grapes	Gamma isotopic analysis on edible portion of sample.
	1 control 1 indicator (On site garden or nearest offsite garden within 5 miles in the highest D/Q meterological sector)	At time of harvest. One sample of: 1. broad leaf vegetation 2. other vegetable	Gamma isotopic analysis on edible portion of sample.

The maximum LLD values as defined by ODCM Table V-3

Analysis	Water (pCi/l)	Airborne Particulate or Gas (pCi/m^3)	Fish (pCi/kg, wet)	Milk (pCi/l)	Food Particulate (pCi/kg, wet)
gross beta	4[a]	1×10^{-2}			
H-3	2000 (1000[a])				
Mn-54	15		130		
Fe-59	30		260		
Co-58 Co-60	15		130		
Zn-65	30		260		
Zr-Nb-95	15[b]				
I-131	1	7×10^{-2}		1	60
Cs-134 Cs-137	15(10[a]), 18	1×10^{-2}	130	15	60
Ba-La-140	15[b]			15[b]	

a. LLD for drinking water

b. Total for parent and daughter

LLD TABLE NOTATION

The LLD is the smallest concentration of radioactive material in a sample that will yield a net count (above system background) that will be detected with 95% probability with only 5% probability of falsely concluding that a blank observation represents a "real" signal.

For a particular measurement system (which may include radiochemical separation):

$$LLD = \frac{4.66\ Sb}{E\ V\ 2.22\ Y}$$

where

LLD is the lower limit of detection as defined above (as pCi per unit mass or volume)

Sb is the standard deviation of the background counting rate or of the counting rate of a blank sample as appropriate (as counts per minute)

E is the counting efficiency (as counts per disintegration)

V is the sample size (in units of mass or volume)

2.22 is the number of disintegrations per minute per picocurie

Y is the fractional radiochemical yield (when applicable)

The value of Sb used in the calculation of the LLD for a particular measurement system shall be based on the actual observed variance of the background counting rate or the counting rate of the blank samples (as appropriate) rather than on an unverified theoretically predicted variance. In calculating the LLD for a radionuclide determined by gamma-ray spectrometry, the background shall include the typical contribution of other radionuclides normally present in the samples (e.g., potassium-40 in milk samples).

Analyses shall be performed in such a manner that the stated LLDs will be achieved under routine conditions. Occasionally, background fluctuations, unavoidably small sample sizes, the presence of interfering nuclides, or other uncontrollable circumstances may render these LLDs unachievable.

ROCHESTER GAS AND ELECTRIC

Table 2-3
LOWER LIMIT OF DETECTION (LLD)
Environmental Detector #1

Sample Size	Air Filters (a) pCi/M3 500 M3/Qtr	Water pCi/liter 3.5 liters	Milk pCi/liter 3.5 liters	Fish pCi/kg 2 kg	Vegetation (a) pCi/kg 2 kg
Be-7	0.010	38			
K-40	0.037				
Cr-51	0.010	41		73	73
Mn-54	0.001	4		8	8
Fe-59	0.002	7		13	13
Co-58	0.001	4		8	8
Co-60	0.001	4	4	7	7
Zn-65	0.003	8		14	14
Zr-95	0.002	7		13	13
Nb-95	0.001	4		8	8
Ru-103	0.001	4		8	8
Ru-106	0.011	39		68	68
I-131	0.012 (b)	5 Gamma 0.8 Gamma (c) 0.2 Beta	5 Gamma 0.5 Gamma (c) 0.2 Beta	9	9
Cs-134	0.002	5		9	9
Cs-137	0.001	5	5	8	8
BaLa-140	0.006	14	14	25	25
Ce-141	0.002	9		17	17
Ce-144	0.007	45		78	78
Ra-226	0.003	9		16	16
Beta	0.004	1.2			

(a) LLD value will vary due to different sample sizes. Data based on 1995 background sample spectra.
(b) Charcoal Cartridge, 270 M3/wk
(c) Separation by anion exchange on resin

Table 2-4
LOWER LIMIT OF DETECTION (LLD)
Environmental Detector # 2

Sample Size	Air Filters(a) pCi/M3 500 M3/Qtr	Water pCi/liter 3.5 liters	Milk pCi/liter 3.5 liters	Fish pCi/kg 2 kg	Vegetation(a) pCi/kg 2 kg
Be-7	0.005	12			
K-40	0.018				
Cr-51	0.005	12		21	21
Mn-54	0.001	1		3	3
Fe-59	0.001	2		4	4
Co-58	0.001	1		2	2
Co-60	0.001	2	3	3	3
Zn-65	0.001	3		5	5
Zr-95	0.001	2		4	4
Nb-95	0.001	1		2	2
Ru-103	0.001	2		3	3
Ru-106	0.006	14		24	24
I-131	0.006(b)	2 Gamma 0.5 Gamma (c)	3 Gamma 0.4 Gamma (c)	3	3
Cs-134	0.001	2		3	3
Cs-137	0.001	2	3	3	3
BaLa-140	0.003	7	7	12	12
Ce-141	0.001	2		4	4
Ce-144	0.003	11		19	19
Ra-226	0.002	4		6	6

(a) LLD value will vary due to different sample sizes. Data based on 1995 background sample spectra.
(b) Charcoal Cartridge, 270 M3/wk
(c) Separation by anion exchange on resin

Table 2-5

DIRECTION AND DISTANCE TO SAMPLE POINTS

All directions given in degrees and all distances given in meters

Air Sample Stations	Direction	Distance
# 2	87	320
# 3	110	420
# 4	140	250
# 5	185	160
# 6	232	225
# 7	257	220
# 8	258	19200
# 9	235	11400
# 10	185	13100
# 11	123	11500
# 12	93	25100
# 13	194	690

Water Sample Locations	Direction	Distance
Russell Station	270	25600
Ontario Water Dist Intake	70	2200
Circ Water Intake	0	420
Circ Water Discharge	15	130
Deer Creek	105	260
Well B	150	640
Tap	Onsite	Sink
Rainfall #3	110	420
Rainfall #5	185	160
Rainfall #8	258	19200
Rainfall #10	185	13100
Rainfall #12	93	25100

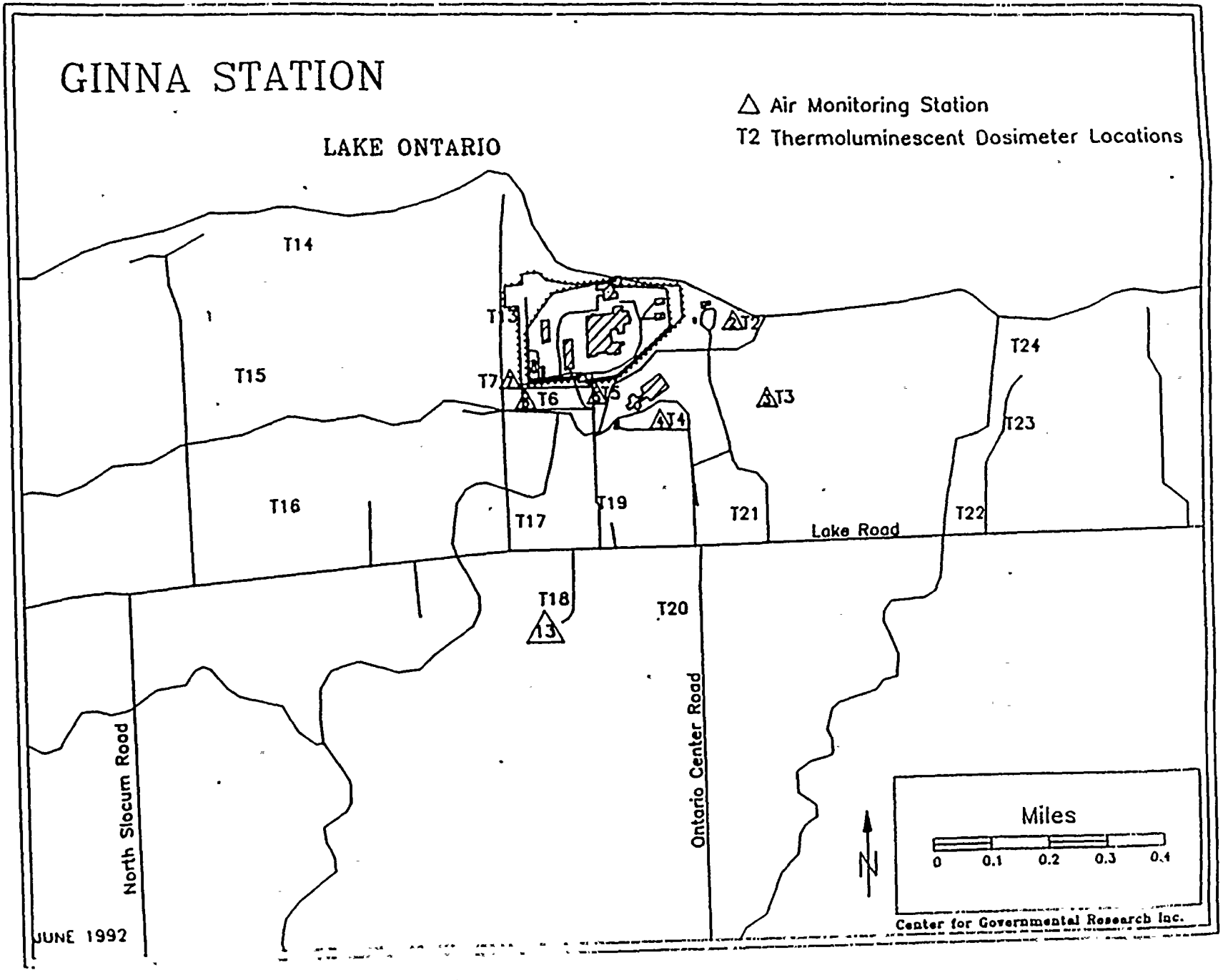
Milk Sample Locations	Direction	Distance
Farm A	113	9500
Farm B	242	5450
Farm C	156	4950
Farm D	132	21000

Fish Samples	
Indicator Samples	Lake Ontario Discharge Plume
Background Samples	Russell Station

Produce Samples	
Indicator Samples	Grown on property surrounding Plant
Background Samples	Purchased from farms > 10 miles

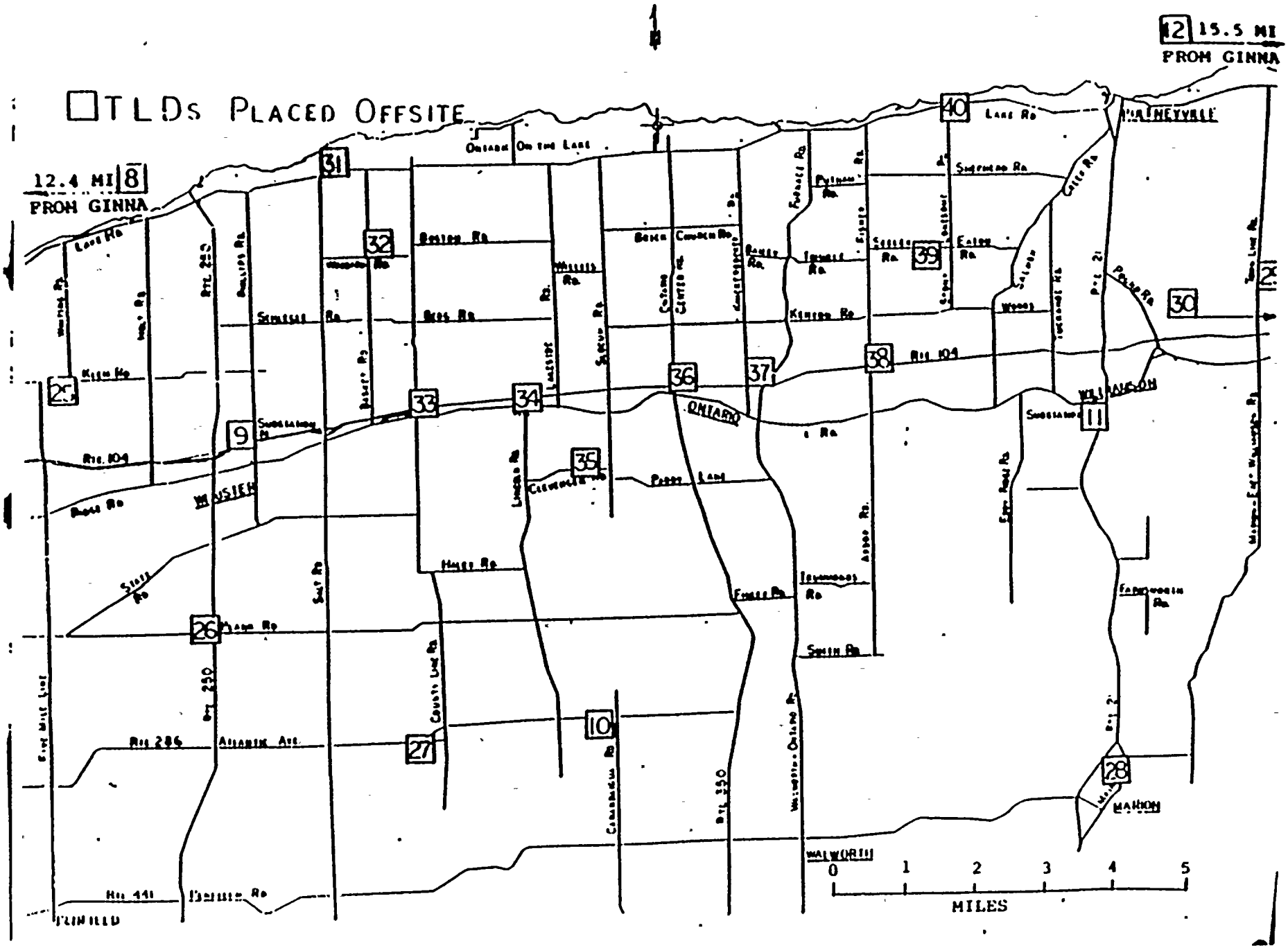
TLD Locations	Direction	Distance
# 2	87	320
# 3	110	420
# 4	140	250
# 5	185	160
# 6	232	225
# 7	257	220
# 8	258	19200
# 9	235	11400
# 10	185	13100
# 11	123	11500
# 12	93	25100
# 13	292	230
# 14	292	770
# 15	272	850
# 16	242	900
# 17	208	500
# 18	193	650
# 19	177	400
# 20	165	680
# 21	145	600
# 22	128	810
# 23	107	680
# 24	90	630
# 25	247	14350
# 26	223	14800
# 27	202	14700
# 28	145	17700
# 29	104	13800
# 30	103	20500
# 31	263	7280
# 32	246	6850
# 33	220	7950
# 34	205	6850
# 35	193	7600
# 36	174	5650
# 37	158	6000
# 38	137	7070
# 39	115	6630
# 40	87	6630

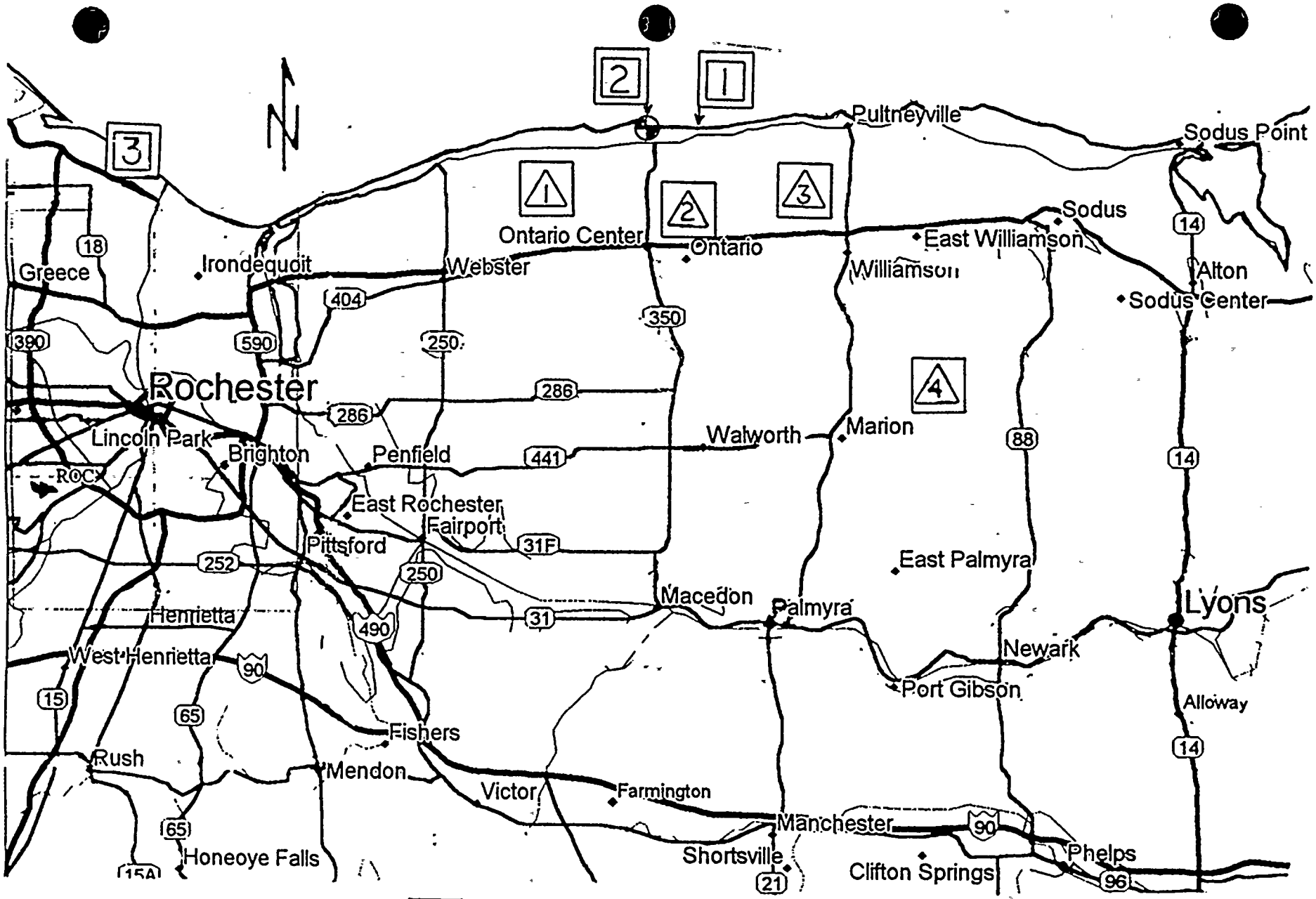
MAP 2-1


GINNA STATION
△ Air Monitoring Station
T2 Thermoluminescent Dosimeter Locations
LAKE ONTARIO
T14
T15
T16
T17
T18
T19
T20
T21
T22
T23
T24
T13
T12
T7
T6
T5
T4
T3
13
Lake Road
North Slocum Road
Ontario Center Road
N
Miles
0
0.1
0.2
0.3
0.4
JUNE 1992
Center for Governmental Research Inc.

Map 2-2

Offsite Sample Locations





Map 2-3
Water Sample and Milk Farm Locations

3.0 DATA SUMMARY

3.1 Analytical Results

The values listed on the following tables include the uncertainties stated as 2 standard deviations (95% confidence level).

Key Definitions

Curie (Ci): The quantity of any radionuclide in which the number of disintegrations per second is 37 billion.

Picocurie (pCi): One millionth of a millionth of a curie or 0.037 disintegrations per second.

Cubic Meter (M^3): Approximately 35.3 cubic feet.

Liter (L): Approximately 1.06 quarts.

Lower Limit of Detection

The Nuclear Regulatory Commission has requested that reported values be compared to the Lower Limit of Detection (LLD) for each piece of equipment. The LLD for the equipment is established by the measurement of a blank sample. Table 2-3 and 2-4 are a listing of the LLD values for gamma isotopes using our Ge(Li) multichannel pulse height detector system. These values are before the correction for decay. Decay correction is applied from the end of the sampling period to the counting time, not from the midpoint of the sampling period. An explanation of the calculation of the LLD is included with Table 2-2. Gross detection limits are as follows:

Beta:

Air 0.003 pCi/M^3 gross beta for 400 m^3 sample.

Water 0.7 pCi/L gross beta for 1 liter sample.

Milk 0.45 pCi/L iodine 131 for 4 liter sample.

Fallout 1.1 pCi/m^2/day for 0.092 M^2 collection area.

Gamma:

Air 0.03 pCi/m^3 iodine 131 on charcoal cartridge for 400 M^3 sample.

Radiation: 5 millirem/quarter for one quarter exposure (TLD).

There are two intrinsic Ge crystals used for the environmental program. One detector has a higher efficiency and therefore, the LLD values are lower. The variation on the tables of the reported LLD is due to counting samples on the different detectors.

3.2 Air Samples

Radioactive particles in air are collected by drawing approximately one cfm 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 daughter products of radon and thoron. 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 150 to 300 meters from the reactor near the point of the maximum annual average ground level concentration and 1 additional at 690 meters. In addition, there is a ring of 5 sampling stations located approximately 7 to 17 miles from the site that serve as background stations.

Based on weekly comparisons, there was no statistical difference between the on-site and the background radioactive particulate concentrations. The average concentrations for the on-site and background samples were 0.016 and 0.014 pCi/m^3 respectively for the period of January to December, 1995. Maximum weekly concentrations for each station were less than 0.033 pCi/m^3.

The major airborne activities 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. For airborne particulates, the average calculated concentration of particulate at the site boundary due to measurable plant releases would be 6.0E-7 pCi/m^3 or 0.015% of the average release concentration of 4.0E-3 pCi/m^3. The survey cannot detect such a concentration which is <0.02% of the LLD of 0.003 pCi/m^3.

Tables 3-1A, 3-1B are a list of gross beta analyses values for the on-site samplers. Tables 3-2A, 3-2B are a list of gross beta analyses values for the off-site samplers.

The particulate filters from each sampling location were saved and a 13 week composite was made. A gamma isotopic analysis was done for each sampling location and corrected for decay. The results of these analyses are listed in Tables 3-3 A to D.

Iodine cartridges are placed at six locations. These cartridges are changed and counted each week. No positive analysis was found on any sample. A list of va lues for these cartridges is given in Table 3-4.

A trend plot of the 1995 Onsite vs. Offsite air filter data is included. Additionally, a trend plot of the annual averages measured since 1968 is included to show 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.

Table 3-1 A
On-Site Air Particulate Samplers
Gross Beta Results in pCi/m3

Week Ending	Sta. #2	Sta. #3	Sta. #4	Sta. #5	Sta. #6	Sta. #7	Sta #13A	Average
6-Jan	0.016 ± 0.001	0.018 ± 0.001	0.016 ± 0.001	0.019 ± 0.001	0.016 ± 0.001	0.016 ± 0.001	0.017 ± 0.001	0.017
13-Jan	0.018 ± 0.001	0.020 ± 0.001	0.020 ± 0.001	0.022 ± 0.002	0.021 ± 0.002	0.022 ± 0.002	0.022 ± 0.001	0.021
20-Jan	0.009 ± 0.001	0.010 ± 0.001	0.010 ± 0.001	0.012 ± 0.001	0.010 ± 0.001	0.010 ± 0.001	0.007 ± 0.001	0.010
27-Jan	0.007 ± 0.001	0.007 ± 0.001	0.008 ± 0.001	0.008 ± 0.001	0.007 ± 0.001	0.007 ± 0.001	0.010 ± 0.001	0.008
3-Feb	0.017 ± 0.001	0.018 ± 0.001	0.017 ± 0.001	0.019 ± 0.001	0.020 ± 0.002	0.017 ± 0.001	0.019 ± 0.001	0.018
10-Feb	0.019 ± 0.001	0.019 ± 0.001	0.018 ± 0.001	0.020 ± 0.001	0.017 ± 0.001	0.018 ± 0.001	0.019 ± 0.001	0.019
17-Feb	0.019 ± 0.001	0.019 ± 0.001	0.021 ± 0.001	0.022 ± 0.001	0.020 ± 0.002	0.021 ± 0.001	0.019 ± 0.001	0.020
24-Feb	0.021 ± 0.001	0.022 ± 0.001	0.022 ± 0.001	0.022 ± 0.001	0.023 ± 0.002	0.022 ± 0.001	0.022 ± 0.001	0.022
3-Mar	0.016 ± 0.001	0.017 ± 0.001	0.018 ± 0.001	0.018 ± 0.001	0.016 ± 0.001	0.018 ± 0.001	0.016 ± 0.001	0.017
10-Mar	0.014 ± 0.001	0.014 ± 0.001	0.013 ± 0.001	0.014 ± 0.001	0.014 ± 0.001	0.014 ± 0.001	0.016 ± 0.001	0.014
17-Mar	0.022 ± 0.001	0.023 ± 0.001	0.025 ± 0.001	0.025 ± 0.002	0.023 ± 0.002	0.024 ± 0.001	0.025 ± 0.001	0.024
24-Mar	0.011 ± 0.001	0.011 ± 0.001	0.012 ± 0.001	0.012 ± 0.001	0.011 ± 0.001	0.012 ± 0.001	0.010 ± 0.001	0.011
31-Mar	0.014 ± 0.001	0.014 ± 0.001	0.016 ± 0.001	0.016 ± 0.001	0.013 ± 0.001	0.015 ± 0.001	0.016 ± 0.001	0.015
7-Apr	0.018 ± 0.001	0.018 ± 0.001	0.018 ± 0.001	0.020 ± 0.001	0.017 ± 0.001	0.019 ± 0.001	0.019 ± 0.001	0.018
14-Apr	0.018 ± 0.001	0.019 ± 0.001	0.020 ± 0.001	0.022 ± 0.001	0.019 ± 0.001	0.020 ± 0.001	0.019 ± 0.001	0.020
21-Apr	0.010 ± 0.001	0.011 ± 0.001	0.010 ± 0.001	0.012 ± 0.001	0.010 ± 0.001	0.011 ± 0.001	0.010 ± 0.001	0.011
28-Apr	0.009 ± 0.001	0.009 ± 0.001	0.010 ± 0.001	0.010 ± 0.001	0.009 ± 0.001	0.010 ± 0.001	0.010 ± 0.001	0.010
5-May	0.009 ± 0.001	0.009 ± 0.001	0.009 ± 0.001	0.010 ± 0.001	0.008 ± 0.001	0.009 ± 0.001	0.010 ± 0.001	0.009
12-May	0.012 ± 0.001	0.011 ± 0.001	0.012 ± 0.001	0.014 ± 0.001	0.012 ± 0.001	0.013 ± 0.001	0.011 ± 0.001	0.012
19-May	0.010 ± 0.001	0.010 ± 0.001	0.010 ± 0.001	0.012 ± 0.001	0.009 ± 0.001	0.011 ± 0.001	0.010 ± 0.001	0.010
26-May	0.008 ± 0.001	0.009 ± 0.001	0.009 ± 0.001	0.009 ± 0.001	0.009 ± 0.001	0.009 ± 0.001	0.010 ± 0.001	0.009
2-Jun	0.008 ± 0.001	0.010 ± 0.001	0.010 ± 0.001	0.011 ± 0.001	0.009 ± 0.001	0.009 ± 0.001	0.012 ± 0.001	0.010
9-Jun	0.014 ± 0.001	0.015 ± 0.001	0.014 ± 0.001	0.016 ± 0.001	0.015 ± 0.001	0.015 ± 0.001	0.016 ± 0.001	0.015
16-Jun	0.009 ± 0.001	0.010 ± 0.001	0.011 ± 0.001	0.010 ± 0.001	0.009 ± 0.001	0.010 ± 0.001	0.012 ± 0.001	0.010
23-Jun	0.019 ± 0.001	0.021 ± 0.001	0.020 ± 0.001	0.022 ± 0.001	0.017 ± 0.001	0.021 ± 0.001	0.019 ± 0.001	0.020
30-Jun	0.012 ± 0.001	0.012 ± 0.001	0.013 ± 0.001	0.014 ± 0.001	0.012 ± 0.001	0.012 ± 0.001	0.011 ± 0.001	0.012
Maximum	0.022 ± 0.001	0.023 ± 0.001	0.025 ± 0.001	0.025 ± 0.002	0.023 ± 0.002	0.024 ± 0.001	0.025 ± 0.001	
Average	0.014	0.014	0.015	0.016	0.014	0.015	0.015	
Minimum	0.007 ± 0.001	0.007 ± 0.001	0.008 ± 0.001	0.008 ± 0.001	0.007 ± 0.001	0.007 ± 0.001	0.007 ± 0.001	

Table 3-1 B
On-Site Air Particulate Samplers
Gross Beta Results in pCi/m3

Week Ending	Sta. #2	Sta. #3	Sta. #4	Sta. #5	Sta. #6	Sta. #7	Sta. #13A	Average
7-Jul	0.011 ± 0.001	0.011 ± 0.001	0.011 ± 0.001	0.013 ± 0.001	0.011 ± 0.001	0.011 ± 0.001	0.011 ± 0.001	0.011
14-Jul	0.013 ± 0.001	0.014 ± 0.001	0.014 ± 0.001	0.014 ± 0.001	0.013 ± 0.001	0.014 ± 0.001	0.016 ± 0.001	0.014
21-Jul	0.018 ± 0.001	0.017 ± 0.001	0.016 ± 0.001	0.018 ± 0.001	0.017 ± 0.001	0.019 ± 0.001	0.018 ± 0.001	0.018
28-Jul	0.021 ± 0.001	0.021 ± 0.001	0.021 ± 0.001	0.023 ± 0.002	0.020 ± 0.002	0.021 ± 0.001	0.022 ± 0.001	0.021
4-Aug	0.018 ± 0.001	0.017 ± 0.001	0.017 ± 0.001	0.020 ± 0.001	0.022 ± 0.005	0.019 ± 0.001	0.016 ± 0.001	0.018
11-Aug	0.014 ± 0.001	0.014 ± 0.001	0.013 ± 0.001	0.014 ± 0.001	a	0.013 ± 0.001	0.014 ± 0.001	0.014
18-Aug	0.017 ± 0.001	0.018 ± 0.001	0.017 ± 0.001	0.020 ± 0.001	a	0.018 ± 0.001	0.020 ± 0.001	0.018
25-Aug	0.017 ± 0.001	0.015 ± 0.001	0.018 ± 0.001	0.018 ± 0.001	a	0.016 ± 0.001	0.013 ± 0.001	0.016
1-Sep	0.012 ± 0.001	0.011 ± 0.001	0.012 ± 0.001	0.014 ± 0.001	a	0.012 ± 0.001	0.014 ± 0.001	0.013
8-Sep	0.017 ± 0.001	0.017 ± 0.001	0.018 ± 0.001	0.019 ± 0.001	0.033 ± 0.007	0.019 ± 0.001	0.016 ± 0.001	0.020
15-Sep	0.014 ± 0.001	0.014 ± 0.001	0.015 ± 0.001	0.016 ± 0.001	0.014 ± 0.001	0.015 ± 0.001	0.012 ± 0.001	0.014
22-Sep	0.011 ± 0.001	0.010 ± 0.001	0.010 ± 0.001	0.011 ± 0.001	0.010 ± 0.001	0.010 ± 0.001	0.012 ± 0.001	0.011
29-Sep	0.018 ± 0.001	0.017 ± 0.001	0.017 ± 0.001	0.018 ± 0.001	0.015 ± 0.001	0.018 ± 0.001	0.017 ± 0.001	0.017
6-Oct	0.014 ± 0.001	0.015 ± 0.001	0.014 ± 0.001	0.016 ± 0.001	0.013 ± 0.001	0.015 ± 0.001	0.013 ± 0.001	0.014
13-Oct	0.017 ± 0.001	0.016 ± 0.001	0.016 ± 0.001	0.016 ± 0.001	0.014 ± 0.001	0.016 ± 0.001	0.022 ± 0.001	0.017
20-Oct	0.025 ± 0.001	0.027 ± 0.002	0.027 ± 0.001	0.029 ± 0.002	0.024 ± 0.001	0.027 ± 0.001	0.021 ± 0.001	0.026
27-Oct	0.015 ± 0.001	0.015 ± 0.001	0.015 ± 0.001	0.017 ± 0.001	0.013 ± 0.001	0.016 ± 0.001	0.014 ± 0.001	0.015
3-Nov	0.011 ± 0.001	0.010 ± 0.001	0.010 ± 0.001	0.013 ± 0.001	0.010 ± 0.001	0.011 ± 0.001	0.010 ± 0.001	0.011
10-Nov	0.019 ± 0.001	0.018 ± 0.002	0.019 ± 0.001	0.020 ± 0.001	0.017 ± 0.001	0.018 ± 0.001	0.018 ± 0.001	0.018
17-Nov	0.013 ± 0.001	0.015 ± 0.001	0.014 ± 0.001	0.015 ± 0.001	0.014 ± 0.001	0.015 ± 0.001	0.022 ± 0.003	0.015
24-Nov	0.018 ± 0.001	0.018 ± 0.002	0.018 ± 0.001	0.017 ± 0.001	0.016 ± 0.001	0.020 ± 0.001	0.017 ± 0.001	0.018
1-Dec	0.020 ± 0.001	0.021 ± 0.002	0.022 ± 0.001	0.020 ± 0.001	0.020 ± 0.001	0.021 ± 0.001	0.019 ± 0.001	0.020
8-Dec	0.019 ± 0.001	0.018 ± 0.002	0.018 ± 0.001	0.019 ± 0.001	0.018 ± 0.001	0.019 ± 0.001	0.019 ± 0.001	0.019
15-Dec	0.021 ± 0.001	0.018 ± 0.002	0.019 ± 0.001	0.019 ± 0.001	0.019 ± 0.001	0.020 ± 0.001	0.017 ± 0.001	0.019
22-Dec	0.022 ± 0.001	0.020 ± 0.002	0.023 ± 0.001	0.022 ± 0.001	0.022 ± 0.001	0.023 ± 0.001	0.020 ± 0.001	0.022
29-Dec	0.010 ± 0.001	0.013 ± 0.001	0.012 ± 0.001	0.011 ± 0.001	0.010 ± 0.001	0.011 ± 0.001	0.013 ± 0.001	0.011
Maximum	0.025 ± 0.001	0.027 ± 0.002	0.027 ± 0.001	0.029 ± 0.002	0.033 ± 0.007	0.027 ± 0.001	0.022 ± 0.003	
Average	0.016	0.016	0.016	0.017	0.017	0.017	0.016	
Minimum	0.010 ± 0.001	0.010 ± 0.001	0.010 ± 0.001	0.011 ± 0.001	0.010 ± 0.001	0.010 ± 0.001	0.010 ± 0.001	

a) Pump out of service.

Table 3-2 A
Off-Site Air Particulate Samplers
Gross Beta Results in pCi/m3

Week Ending	Sta. #8	Sta.#9	Sta. #10	Sta. #11	Sta.#12	Average
6-Jan	0.017 ± 0.001	0.015 ± 0.002	0.016 ± 0.001	0.016 ± 0.001	0.015 ± 0.001	0.016
13-Jan	0.016 ± 0.001	0.015 ± 0.002	0.017 ± 0.001	0.017 ± 0.001	0.017 ± 0.001	0.016
20-Jan	0.008 ± 0.001	0.007 ± 0.002	0.007 ± 0.001	0.008 ± 0.001	0.006 ± 0.001	0.007
27-Jan	0.009 ± 0.001	0.008 ± 0.002	0.009 ± 0.001	0.010 ± 0.001	0.007 ± 0.001	0.009
3-Feb	0.015 ± 0.001	0.017 ± 0.002	0.016 ± 0.001	0.016 ± 0.001	0.016 ± 0.001	0.016
10-Feb	0.018 ± 0.001	0.018 ± 0.002	0.018 ± 0.001	0.017 ± 0.001	0.017 ± 0.001	0.018
17-Feb	0.019 ± 0.001	0.017 ± 0.002	0.018 ± 0.001	0.019 ± 0.001	0.017 ± 0.001	0.018
24-Feb	0.022 ± 0.001	0.019 ± 0.002	0.020 ± 0.001	0.020 ± 0.001	0.019 ± 0.001	0.020
3-Mar	0.015 ± 0.001	0.015 ± 0.002	0.013 ± 0.001	0.013 ± 0.001	0.014 ± 0.001	0.014
10-Mar	0.017 ± 0.001	0.012 ± 0.002	0.014 ± 0.001	0.014 ± 0.001	0.012 ± 0.001	0.014
17-Mar	0.025 ± 0.001	0.024 ± 0.002	0.024 ± 0.001	0.023 ± 0.001	0.021 ± 0.001	0.023
24-Mar	0.012 ± 0.001	0.010 ± 0.002	0.010 ± 0.001	0.010 ± 0.001	0.009 ± 0.001	0.010
31-Mar	0.015 ± 0.001	0.014 ± 0.002	0.014 ± 0.001	0.015 ± 0.001	0.012 ± 0.001	0.014
7-Apr	0.020 ± 0.001	0.017 ± 0.002	0.018 ± 0.001	0.018 ± 0.001	0.015 ± 0.001	0.018
14-Apr	0.020 ± 0.001	0.018 ± 0.002	0.017 ± 0.001	0.018 ± 0.001	0.016 ± 0.001	0.018
21-Apr	0.010 ± 0.001	0.010 ± 0.002	0.010 ± 0.001	0.011 ± 0.001	0.009 ± 0.001	0.010
28-Apr	0.009 ± 0.001	0.010 ± 0.002	0.009 ± 0.001	0.010 ± 0.001	0.008 ± 0.001	0.009
5-May	0.010 ± 0.001	0.009 ± 0.002	0.009 ± 0.001	0.010 ± 0.001	0.008 ± 0.001	0.009
12-May	0.011 ± 0.001	0.012 ± 0.002	0.012 ± 0.001	0.011 ± 0.001	0.009 ± 0.001	0.011
19-May	0.011 ± 0.001	0.010 ± 0.002	0.010 ± 0.001	0.011 ± 0.001	0.008 ± 0.001	0.010
26-May	0.010 ± 0.001	0.007 ± 0.002	0.010 ± 0.001	0.010 ± 0.001	0.007 ± 0.001	0.009
2-Jun	0.012 ± 0.001	0.011 ± 0.002	0.012 ± 0.001	0.011 ± 0.001	0.010 ± 0.001	0.011
9-Jun	0.014 ± 0.001	0.017 ± 0.002	0.015 ± 0.001	0.015 ± 0.001	0.013 ± 0.001	0.015
16-Jun	0.008 ± 0.001	0.011 ± 0.002	0.012 ± 0.001	0.012 ± 0.001	0.009 ± 0.001	0.010
23-Jun	0.021 ± 0.001	0.019 ± 0.002	0.021 ± 0.001	0.020 ± 0.001	0.018 ± 0.001	0.020
30-Jun	0.012 ± 0.001	0.011 ± 0.002	0.011 ± 0.001	0.012 ± 0.001	0.009 ± 0.001	0.011
Maximum	0.025 ± 0.001	0.024 ± 0.002	0.024 ± 0.001	0.023 ± 0.001	0.021 ± 0.001	
Average	0.014	0.014	0.014	0.014	0.012	
Minimum	0.008 ± 0.001	0.007 ± 0.002	0.007 ± 0.001	0.008 ± 0.001	0.006 ± 0.001	

Table 3-2 B
Off-Site Air Particulate Samplers
Gross Beta Results in pCi/m3

Week Ending	Sta. #8	Sta. #9	Sta. #10	Sta. #11	Sta. #12	Average
7-Jul	0.013 ± 0.001	0.012 ± 0.002	0.011 ± 0.001	0.010 ± 0.001	0.009 ± 0.001	0.011
14-Jul	0.016 ± 0.001	0.013 ± 0.002	0.015 ± 0.001	0.014 ± 0.001	0.010 ± 0.001	0.014
21-Jul	0.019 ± 0.001	0.017 ± 0.002	0.019 ± 0.001	0.017 ± 0.001	0.014 ± 0.001	0.017
28-Jul	0.024 ± 0.001	0.020 ± 0.002	0.023 ± 0.001	0.021 ± 0.001	0.017 ± 0.001	0.021
4-Aug	0.017 ± 0.001	0.017 ± 0.002	0.018 ± 0.001	0.017 ± 0.001	0.014 ± 0.001	0.017
11-Aug	0.015 ± 0.001	0.015 ± 0.002	0.015 ± 0.001	0.014 ± 0.001	0.011 ± 0.001	0.014
18-Aug	0.021 ± 0.001	0.022 ± 0.002	0.020 ± 0.001	0.020 ± 0.001	0.017 ± 0.001	0.020
25-Aug	0.015 ± 0.001	0.012 ± 0.002	0.013 ± 0.001	0.015 ± 0.001	0.012 ± 0.001	0.013
1-Sep	0.016 ± 0.001	0.014 ± 0.002	0.013 ± 0.001	0.014 ± 0.001	0.012 ± 0.001	0.014
8-Sep	0.020 ± 0.001	0.016 ± 0.002	0.017 ± 0.001	0.017 ± 0.001	0.015 ± 0.001	0.017
15-Sep	0.015 ± 0.001	0.011 ± 0.002	0.012 ± 0.001	0.012 ± 0.001	0.014 ± 0.001	0.013
22-Sep	0.013 ± 0.001	0.012 ± 0.002	0.012 ± 0.001	0.011 ± 0.001	0.011 ± 0.001	0.012
29-Sep	0.019 ± 0.001	0.016 ± 0.002	0.017 ± 0.001	0.017 ± 0.001	0.014 ± 0.001	0.017
6-Oct	0.015 ± 0.001	0.014 ± 0.002	0.014 ± 0.001	0.015 ± 0.001	0.011 ± 0.001	0.014
13-Oct	0.024 ± 0.001	0.024 ± 0.002	0.023 ± 0.001	0.022 ± 0.001	0.021 ± 0.001	0.023
20-Oct	0.020 ± 0.001	0.020 ± 0.002	0.021 ± 0.001	0.022 ± 0.001	0.019 ± 0.001	0.020
27-Oct	0.014 ± 0.001	0.016 ± 0.002	0.015 ± 0.001	0.014 ± 0.001	0.014 ± 0.001	0.015
3-Nov	0.010 ± 0.001	0.010 ± 0.002	0.011 ± 0.001	0.010 ± 0.001	0.010 ± 0.001	0.010
10-Nov	0.018 ± 0.001	0.018 ± 0.002	0.020 ± 0.001	0.018 ± 0.001	0.017 ± 0.001	0.018
17-Nov	0.014 ± 0.001	0.012 ± 0.002	0.015 ± 0.001	0.013 ± 0.001	0.013 ± 0.001	0.013
24-Nov	0.018 ± 0.001	0.016 ± 0.002	0.017 ± 0.001	0.017 ± 0.001	0.017 ± 0.001	0.017
1-Dec	0.019 ± 0.001	0.015 ± 0.002	0.020 ± 0.001	0.018 ± 0.001	0.018 ± 0.001	0.018
8-Dec	0.019 ± 0.001	0.019 ± 0.002	0.020 ± 0.001	0.022 ± 0.002	0.017 ± 0.001	0.019
15-Dec	0.017 ± 0.001	0.014 ± 0.002	0.018 ± 0.001	0.018 ± 0.001	0.015 ± 0.001	0.016
22-Dec	0.022 ± 0.002	0.020 ± 0.002	0.020 ± 0.001	0.022 ± 0.002	0.017 ± 0.001	0.020
29-Dec	0.013 ± 0.001	0.010 ± 0.001	0.013 ± 0.001	0.014 ± 0.001	0.010 ± 0.001	0.012
Maximum	0.024 ± 0.001	0.024 ± 0.002	0.023 ± 0.001	0.022 ± 0.001	0.021 ± 0.001	
Average	0.017	0.016	0.017	0.016	0.014	
Minimum	0.010 ± 0.001	0.010 ± 0.002	0.011 ± 0.001	0.010 ± 0.001	0.009 ± 0.001	

Rochester Gas and Electric

Table 3-3 A
13 Week Composite
Gamma Isotopic Analysis
Result in pCi/m3
First Quarter

	Sta. #2	Sta. #3	Sta. #4	Sta. #5	Sta. #6	Sta. #7	Sta. #8	Sta. #9	Sta. #10	Sta. #11	Sta. #12	Sta. #13A
Be-7	.097 ± .006	.103 ± .005	.119 ± .006	.128 ± .009	.101 ± .006	.112 ± .007	.116 ± .005	.096 ± .009	.102 ± .009	.104 ± .004	.093 ± .007	.106 ± .005
K-40	<.001	<.004	<.002	<.006	<.003	<.016	<.004	<.012	<.016	<.003	<.012	<.009
Mn-54	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001
Fe-59	<.003	<.002	<.003	<.004	<.002	<.004	<.002	<.004	<.004	<.002	<.003	<.002
Co-58	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001
Co-60	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001
Zn-65	<.001	<.001	<.002	<.002	<.001	<.002	<.001	<.002	<.002	<.001	<.001	<.001
Zr-95	<.002	<.001	<.002	<.002	<.002	<.003	<.001	<.003	<.002	<.001	<.002	<.001
Nb-95	<.002	<.001	<.002	<.003	<.002	<.002	<.001	<.003	<.002	<.001	<.002	<.002
Ru-103	<.001	<.001	<.002	<.002	<.001	<.002	<.001	<.002	<.002	<.001	<.002	<.001
Ru-106	<.006	<.005	<.006	<.008	<.005	<.007	<.003	<.008	<.007	<.004	<.005	<.003
Cs-134	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001
Cs-137	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001
Ba-140	<.045	<.035	<.048	<.076	<.043	<.071	<.033	<.080	<.076	<.054	<.086	<.062
Ce-141	<.002	<.002	<.003	<.004	<.002	<.003	<.002	<.004	<.004	<.002	<.003	<.002
Ce-144	<.004	<.002	<.004	<.005	<.003	<.005	<.002	<.005	<.005	<.002	<.003	<.002

All values given as < are less than LLD corrected for decay.

Rochester Gas and Electric

Table 3-3 B
13 Week Composite
Gamma Isotopic Analysis
Result in pCi/m3
Second Quarter

	Sta. #2	Sta. #3	Sta. #4	Sta. #5	Sta. #6	Sta. #7	Sta. #8	Sta. #9	Sta. #10	Sta. #11	Sta. #12	Sta. #13A
Be-7	.105 ± .004	.109 ± .007	.111 ± .006	.133 ± .005	.113 ± .013	.123 ± .006	.122 ± .005	.135 ± .016	.126 ± .009	.108 ± .005	.087 ± .007	.120 ± .005
K-40	<.003	<.004	<.006	<.007	0.231 ± 0.012	<.005	<.006	<.005	<.004	<.003	<.002	<.005
Mn-54	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.002	<.001	<.001	<.001	<.001
Fe-59	<.001	<.003	<.003	<.002	<.007	<.002	<.002	<.007	<.004	<.002	<.003	<.002
Co-58	<.001	<.001	<.001	<.001	<.002	<.001	<.001	<.002	<.001	<.001	<.001	<.001
Co-60	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001
Zn-65	<.001	<.002	<.001	<.001	<.003	<.001	<.001	<.004	<.002	<.001	<.001	<.001
Zr-95	<.001	<.002	<.002	<.001	<.004	<.001	<.001	<.005	<.002	<.001	<.002	<.001
Nb-95	<.001	<.002	<.002	<.001	<.004	<.002	<.001	<.005	<.002	<.001	<.002	<.001
Ru-103	<.001	<.002	<.002	<.001	<.004	<.001	<.001	<.004	<.002	<.001	<.002	<.001
Ru-106	<.003	<.006	<.006	<.004	<.012	<.004	<.004	<.014	<.007	<.004	<.006	<.004
Cs-134	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.002	<.001	<.001	<.001	<.001
Cs-137	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.002	<.001	<.001	<.001	<.001
Ba-140	<.022	<.048	<.047	<.030	<.134	<.043	<.036	<.166	<.085	<.040	<.097	<.054
Ce-141	<.001	<.003	<.003	<.002	<.008	<.002	<.002	<.007	<.003	<.002	<.003	<.002
Ce-144	<.002	<.004	<.004	<.002	<.010	<.002	<.002	<.009	<.004	<.002	<.004	<.002

All values given as < are less than LLD corrected for decay.

Rochester Gas and Electric

Table 3-3 C
13 Week Composite
Gamma Isotopic Analysis
Result in pCi/m3
Third Quarter

	Sta. #2	Sta. #3	Sta. #4	Sta. #5	Sta. #6	Sta. #7	Sta. #8	Sta. #9	Sta. #10	Sta. #11	Sta. #12	Sta. #13A
Be-7	.104 ± .006	.100 ± .004	.102 ± .004	.117 ± .005	.095 ± .012	.107 ± .008	.122 ± .007	.090 ± .009	.096 ± .007	.096 ± .005	.098 ± .009	.109 ± .008
K-40	<.014	<.004	<.003	<.008	<.029	<.017	<.015	<.007	<.015	<.004	<.014	<.001
Mn-54	<.001	<.001	<.001	<.001	<.002	<.001	<.001	<.001	<.001	<.001	<.001	<.001
Fe-59	<.003	<.001	<.001	<.002	<.007	<.004	<.004	<.004	<.004	<.002	<.004	<.004
Co-58	<.001	<.001	<.001	<.001	<.002	<.001	<.001	<.001	<.001	<.001	<.001	<.001
Co-60	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001
Zn-65	<.002	<.001	<.001	<.001	<.004	<.002	<.002	<.002	<.002	<.001	<.002	<.001
Zr-95	<.002	<.001	<.001	<.001	<.005	<.003	<.002	<.003	<.003	<.001	<.003	<.002
Nb-95	<.002	<.001	<.001	<.001	<.005	<.003	<.003	<.003	<.003	<.002	<.003	<.002
Ru-103	<.002	<.001	<.001	<.001	<.004	<.002	<.002	<.002	<.002	<.001	<.002	<.002
Ru-106	<.006	<.004	<.003	<.004	<.014	<.007	<.007	<.008	<.007	<.003	<.006	<.006
Cs-134	<.001	<.001	<.001	<.001	<.002	<.001	<.001	<.001	<.001	<.001	<.001	<.001
Cs-137	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001
Ba-140	<.033	<.017	<.027	<.041	<.167	<.094	<.103	<.110	<.127	<.083	<.149	<.133
Ce-141	<.002	<.001	<.001	<.002	<.007	<.004	<.004	<.004	<.004	<.002	<.004	<.004
Ce-144	<.004	<.002	<.002	<.002	<.008	<.005	<.004	<.005	<.004	<.002	<.004	<.004

All values given as < are less than LLD corrected for decay.

Rochester Gas and Electric

Table 3-3 D
13 Week Composite
Gamma Isotopic Analysis
Result in pCi/m3
Fourth Quarter

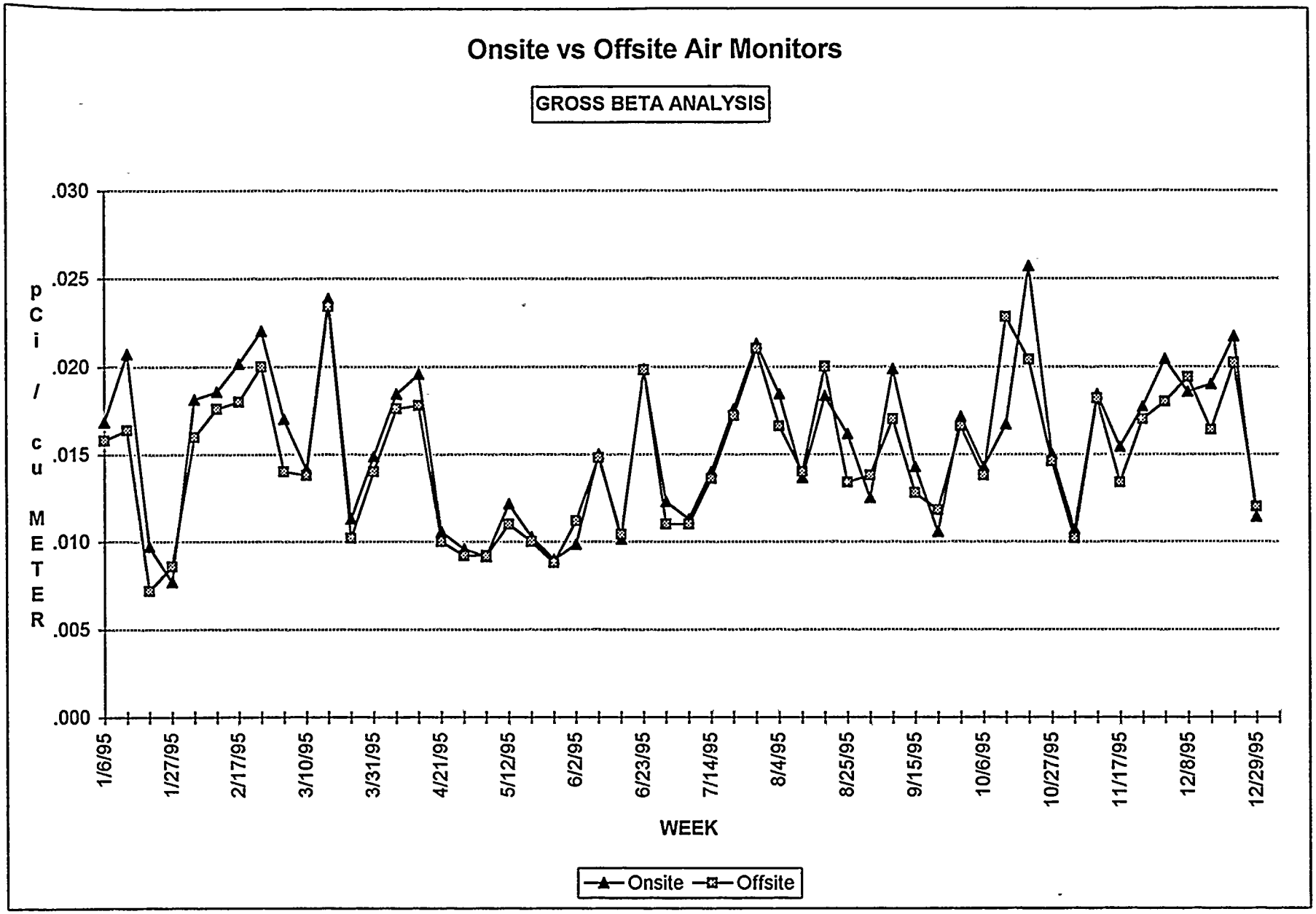
	Sta. #2	Sta. #3	Sta. #4	Sta. #5	Sta. #6	Sta. #7	Sta. #8	Sta. #9	Sta. #10	Sta. #11	Sta. #12	Sta. #13A
Be-7	.075 ± .008	.084 ± .005	.080 ± .008	.082 ± .004	.080 ± .008	.080 ± .004	.078 ± .008	.074 ± .007	.089 ± .005	.069 ± .008	.060 ± .005	.076 ± .004
K-40	<.014	<.009	<.013	<.002	<.015	<.001	<.002	<.002	<.001	<.005	<.006	<.002
Mn-54	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001
Fe-59	<.003	<.002	<.003	<.002	<.003	<.001	<.003	<.003	<.002	<.004	<.002	<.001
Co-58	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001
Co-60	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001
Zn-65	<.002	<.001	<.002	<.001	<.002	<.001	<.002	<.002	<.001	<.002	<.001	<.001
Zr-95	<.002	<.001	<.002	<.001	<.002	<.001	<.003	<.002	<.001	<.003	<.001	<.001
Nb-95	<.002	<.001	<.002	<.001	<.002	<.001	<.002	<.002	<.001	<.002	<.001	<.001
Ru-103	<.002	<.001	<.002	<.001	<.002	<.001	<.002	<.002	<.001	<.002	<.001	<.001
Ru-106	<.006	<.004	<.007	<.004	<.007	<.004	<.007	<.008	<.004	<.007	<.004	<.003
Cs-134	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001
Cs-137	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.004	<.001
Ba-140	<.003	<.026	<.045	<.028	<.051	<.026	<.053	<.053	<.029	<.080	<.039	<.031
Ce-141	<.002	<.002	<.003	<.002	<.003	<.001	<.003	<.003	<.001	<.004	<.002	<.001
Ce-144	<.004	<.003	<.004	<.002	<.004	<.002	<.005	<.004	<.002	<.005	<.002	<.002

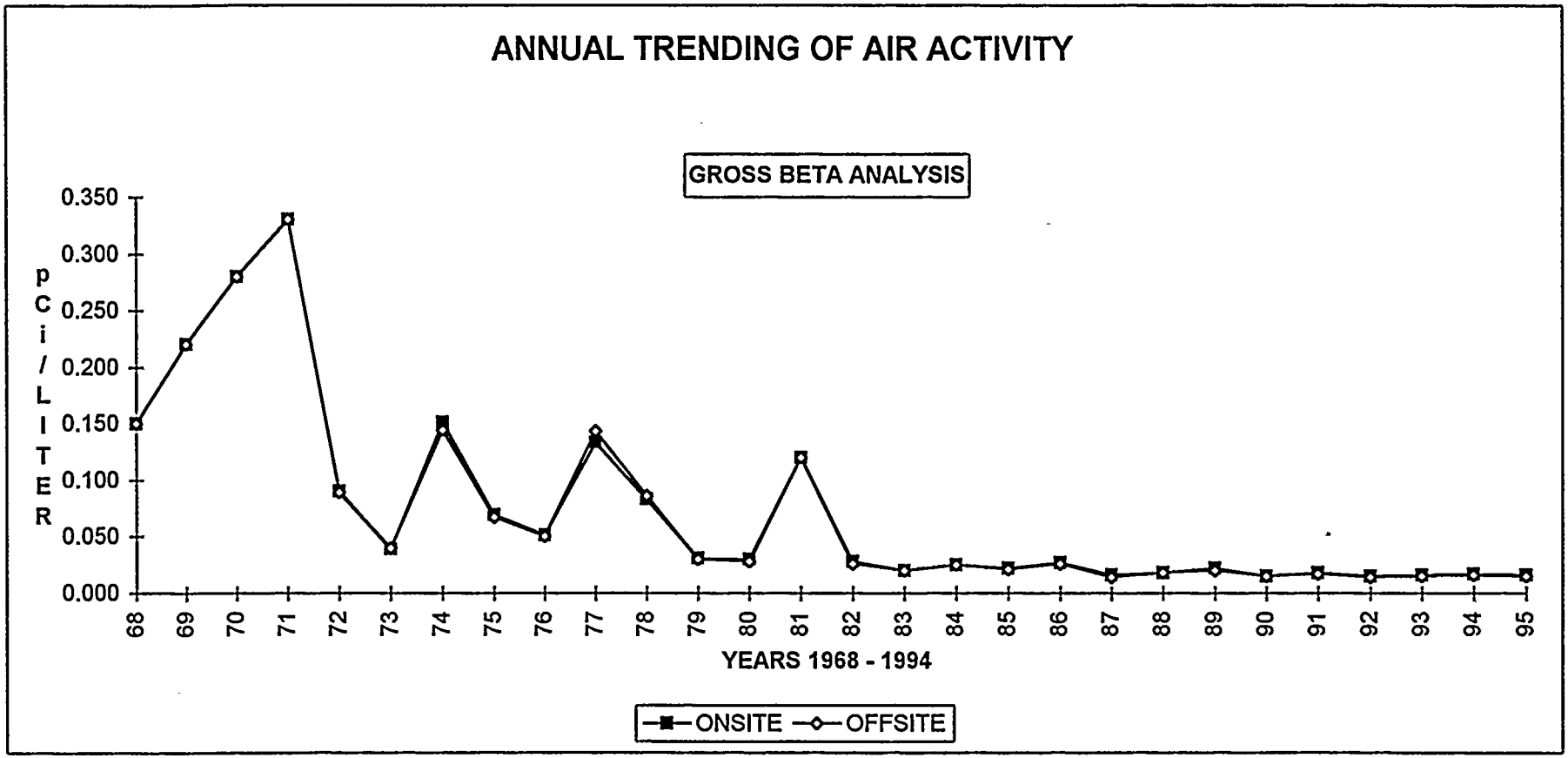
All values given as < are less than LLD corrected for decay.

Table 3-4
Charcoal Cartridges Gamma Analysis for Iodine
Results in pCi/m3

Week Ending	Sta. #2	Sta. #4	Sta. #7	Sta. #9	Sta. #11	Sta. #12
6-Jan	<.035	<.019	<.041	<.034	<.018	<.032
13-Jan	<.015	<.019	<.021	<.039	<.040	<.032
20-Jan	<.034	<.034	<.021	<.039	<.037	<.017
27-Jan	<.036	<.016	<.023	<.040	<.021	<.032
3-Feb	<.017	<.021	<.022	<.043	<.019	<.038
10-Feb	<.019	<.038	<.023	<.030	<.019	<.035
17-Feb	<.016	<.017	<.021	<.048	<.020	<.021
24-Feb	<.033	<.017	<.023	<.024	<.020	<.034
3-Mar	<.035	<.016	<.023	<.040	<.018	<.034
10-Mar	<.033	<.018	<.023	<.040	<.017	<.032
17-Mar	<.033	<.018	<.024	<.045	<.018	<.014
24-Mar	<.034	<.018	<.045	<.041	<.035	<.018
31-Mar	<.012	<.024	<.022	<.038	<.012	<.023
7-Apr	<.030	<.018	<.040	<.022	<.017	<.037
14-Apr	<.018	<.036	<.046	<.042	<.023	<.036
21-Apr	<.018	<.033	<.025	<.036	<.031	<.015
28-Apr	<.031	<.022	<.020	<.038	<.016	<.027
5-May	<.015	<.018	<.021	<.043	<.017	<.017
12-May	<.017	<.029	<.040	<.042	<.018	<.027
19-May	<.017	<.018	<.021	<.044	<.019	<.025
26-May	<.032	<.018	<.045	<.039	<.018	<.038
2-Jun	<.035	<.017	<.022	<.044	<.038	<.052
9-Jun	<.035	<.037	<.044	<.049	<.038	<.032
16-Jun	<.032	<.036	<.045	<.037	<.020	<.017
23-Jun	<.017	<.018	<.023	<.039	<.019	<.036
30-Jun	<.015	<.018	<.020	<.014	<.040	<.019
7-Jul	<.020	<.018	<.030	<.045	<.021	<.034
14-Jul	<.015	<.017	<.022	<.041	<.019	<.017
21-Jul	<.021	<.020	<.023	<.041	<.020	<.036
28-Jul	<.019	<.036	<.021	<.041	<.019	<.037
4-Aug	<.039	<.035	<.043	<.053	<.038	<.036
11-Aug	<.039	<.037	<.046	<.020	<.019	<.037
18-Aug	<.042	<.038	<.042	<.034	<.037	<.018
25-Aug	<.034	<.037	<.042	<.038	<.042	<.023
1-Sep	<.039	<.034	<.049	<.056	<.026	<.045
8-Sep	<.042	<.038	<.045	<.039	<.040	<.019
15-Sep	<.018	<.018	<.023	<.040	<.043	<.020
22-Sep	<.039	<.040	<.041	<.041	<.058	<.052
29-Sep	<.018	<.019	<.023	<.038	<.019	<.018
6-Oct	<.021	<.020	<.023	<.047	<.041	<.022
13-Oct	<.017	<.018	<.022	<.042	<.038	<.020
20-Oct	<.020	<.019	<.018	<.053	<.019	<.024
27-Oct	<.018	<.019	<.018	<.056	<.021	<.045
3-Nov	<.021	<.017	<.019	<.043	<.041	<.022
10-Nov	<.018	<.036	<.019	<.027	<.041	<.021
17-Nov	<.038	<.017	<.022	<.047	<.045	<.021
24-Nov	<.021	<.043	<.045	<.053	<.049	<.027
1-Dec	<.036	<.035	<.036	<.038	<.040	<.018
8-Dec	<.039	<.020	<.018	<.040	<.022	<.044
15-Dec	<.039	<.038	<.043	<.045	<.032	<.022
22-Dec	<.039	<.018	<.020	<.021	<.022	<.041
29-Dec	<.035	<.018	<.038	<.016	<.048	<.043
5-Jan	<.041	<.041	<.018	<.036	<.024	<.046

All values given as < are less than LLD.


Onsite vs Offsite Air Monitors
GROSS BETA ANALYSIS
pCi/cu METER
.030
.025
.020
.015
.010
.005
.000
1/6/95
1/27/95
2/17/95
3/10/95
3/31/95
4/21/95
5/12/95
6/2/95
6/23/95
7/14/95
8/4/95
8/25/95
9/15/95
10/6/95
10/27/95
11/17/95
12/8/95
12/29/95
WEEK
Onsite
Offsite



PEAKS ARE INDICITAVE OF NUCLEAR
DETONATIONS IN THE ATMOSPHERE

3.3 Water Samples

Water samples are collected on a regular schedule from locations surrounding the plant to demonstrate that there is no measurable influence or contamination of drinking or irrigation water from liquid effluent releases or deposition from gaseous effluent releases.

Composite samples are collected weekly from Lake Ontario, upstream (Russell Station) and downstream (Ontario Water District Plant - OWD), and analyzed for gross beta activity. There was no significant difference between the upstream and downstream sample concentrations. The 1995 averages were 2.50 and 2.84 pCi/liter for the upstream and downstream samples respectively.

Weekly composite samples are taken from the plant circulating water intake (Circ In) and discharge canal (Circ Out). The yearly averages were 2.76 and 2.62 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. A gamma isotopic analysis of biweekly composites of the OWD and the discharge canal is performed.

For all batch releases, the average concentration in the discharge canal from the identified activity during 1995 was 0.06 pCi/liter. The normal 2 sigma variation for the activity calculation of composite samples is 0.67 pCi/liter or 10 times the average concentration added by releases from the plant.

Samples of tap water, the nearest well, and the creek which crosses the site are collected and analyzed monthly. The results show no indication of plant influence. Results for all water beta analyses are listed in Tables 3-5A, 3-5B.

Gamma isotopic analysis is done on each monthly sample and each biweekly or monthly composite of weekly samples. These are listed in Tables 3-6 to 3-11 and separated by source of sample. Since these are decay corrected from the midpoint of the sample period, short half-life elements such as Ba-La exceed the required LLD which does not include decay correction.

Trend plots are included to show the weekly upstream and downstream beta activities. Peaks up to 5 pCi/liter occur when the lake is stirred up by wind and the sample includes large quantities of suspended silt. A trend plot showing the annual average activity measured during the years since 1968 is included to show the data during the years the R.E. Ginna Nuclear Power Plant has been in operation. The peaks correspond to the years when atmospheric testing of nuclear weapons occurred.

Fallout

Fallout is a term used to denote radioactive material settling from the atmosphere to the ground. At the sampling stations, the fallout settles as dust or is collected with rainfall by a funnel and bottle. There are two on-site sampling stations and three off-site. Fallout generally increases in the spring months due to transfer of fission products from the upper to the lower atmosphere in conjunction with increased rainfall. Station #12 is surrounded by trees and often gives results higher than other locations due to the increase of organic materials. Gamma isotopic analysis has not shown any positive activity attributed to the plant. The onsite average and the offsite average were 4.94 and 5.66 $pCi/m^2/day$ respectively. There is no real significant difference between on-site and off-site samples for the period of January through December, 1995. Table 3-5C lists the values for fallout samples.

Tritium Analysis

Tritium analysis is done on all water samples on a monthly basis. Composites are made from the weekly composites and a portion distilled for analysis to remove interfering elements or activity. Positive tritium values were found during April and May in the Circ Out Composite sample during the time the Circ Water Pumps were not available for normal dilution of liquid discharges. The high value is 0.2% of allowable release limits. No tritium was detected in the OWD sample which is lake water downstream of the plant. Tritium data is given in Tables 3-12 A & B.

Iodine Analysis

All monthly composite water samples except the fallout samples are analyzed for Iodine-131. The analysis allows the determination of Iodine-131 activity of < 1 pCi/liter. Iodine data is given in Table 3-13. Any positive counts and the 2 sigma error are reported. All negative counts after background correction are reported as <LLD for that analysis.

Table 3-5 A
Environmental Water Samples Gross Beta Analysis
Results in pCi / l

Week Ending	Russell	O.W.D.	Circ In	Circ Out	Deer Creek	Tap	Well 'B'
6-Jan	2.30 ± 0.72	3.13 ± 0.76	2.65 ± 0.74	3.02 ± 0.75		2.35 ± 0.72	
13-Jan	2.12 ± 0.71	3.00 ± 0.75	2.34 ± 0.72	2.12 ± 0.71			4.11 ± 0.76
20-Jan	2.00 ± 0.74	1.14 ± 0.70	2.77 ± 0.77	1.90 ± 0.73	3.07 ± 0.75		
27-Jan	2.63 ± 0.73	2.68 ± 0.74	2.87 ± 0.74	2.24 ± 0.71			
3-Feb	2.76 ± 0.74	3.72 ± 0.78	4.29 ± 0.80	3.58 ± 0.77			
10-Feb	3.13 ± 0.70	3.85 ± 0.74	3.32 ± 0.71	3.64 ± 0.73		2.39 ± 0.73	
17-Feb	4.19 ± 0.74	4.23 ± 0.76	3.14 ± 0.70	3.54 ± 0.72	3.68 ± 0.70		3.78 ± 0.77
24-Feb	2.04 ± 0.73	1.92 ± 0.72	2.03 ± 0.73	1.45 ± 0.70			
3-Mar	1.66 ± 0.71	4.27 ± 0.76	2.43 ± 0.71	1.78 ± 0.72			
10-Mar	2.34 ± 0.70	3.13 ± 0.71	3.41 ± 0.74	3.51 ± 0.74	4.07 ± 0.74	2.91 ± 0.69	4.65 ± 0.76
17-Mar	3.11 ± 0.71	3.26 ± 0.72	3.13 ± 0.71	3.02 ± 0.70			
24-Mar	2.77 ± 0.70	2.58 ± 0.71	3.42 ± 0.72	2.84 ± 0.70			
31-Mar	3.47 ± 0.72	2.00 ± 0.68	3.48 ± 0.76	3.31 ± 0.72			
7-Apr	2.21 ± 0.70	3.12 ± 0.74	a	2.85 ± 0.70			
14-Apr	2.62 ± 0.71	2.49 ± 0.71	3.47 ± 0.74	3.07 ± 0.73			
21-Apr	2.46 ± 0.71	2.75 ± 0.72	2.90 ± 0.73	2.99 ± 0.73	3.30 ± 0.72	2.30 ± 0.69	
28-Apr	2.34 ± 0.70	2.21 ± 0.70	3.01 ± 0.73	3.44 ± 0.75			5.22 ± 0.78
5-May	2.75 ± 0.72	3.25 ± 0.74	3.05 ± 0.73	2.74 ± 0.72			
12-May	2.18 ± 0.71	2.32 ± 0.72	2.62 ± 0.73	2.58 ± 0.73		2.20 ± 0.68	4.64 ± 0.78
19-May	2.62 ± 0.73	2.62 ± 0.73	2.41 ± 0.72	a			
26-May	2.33 ± 0.72	2.44 ± 0.73	1.91 ± 0.71	2.61 ± 0.73	3.27 ± 0.73		
2-Jun	1.89 ± 0.70	2.35 ± 0.71	2.09 ± 0.70	2.20 ± 0.71			
9-Jun	2.47 ± 0.72	2.52 ± 0.72	2.35 ± 0.71	2.54 ± 0.72	3.46 ± 0.73		4.14 ± 0.75
16-Jun	2.40 ± 0.71	2.46 ± 0.71	2.89 ± 0.73	1.76 ± 0.68		2.06 ± 0.70	
23-Jun	2.47 ± 0.71	3.11 ± 0.74	2.63 ± 0.72	2.70 ± 0.72			
30-Jun	2.62 ± 0.71	1.96 ± 0.69	2.87 ± 0.73	2.31 ± 0.70			
Maximum	4.19 ± 0.74	4.27 ± 0.76	4.29 ± 0.80	3.64 ± 0.73	4.07 ± 0.74	2.91 ± 0.69	5.22 ± 0.78
Average	2.53	2.79	2.86	2.71	3.48	2.37	4.42
Minimum	1.66 ± 0.71	1.14 ± 0.70	1.91 ± 0.71	1.45 ± 0.70	3.07 ± 0.75	2.06 ± 0.70	3.78 ± 0.77

All values given as < are less than the LLD corrected for decay.

a) Sample not available.

Table 3-5 B
Environmental Water Samples Gross Beta Analysis
Results in pCi / l

Week Ending	Russell	O.W.D.	Circ In	Circ Out	Deer Creek	Tap	Well 'B'
7-Jul	2.12 ± 0.70	2.52 ± 0.71	2.18 ± 0.70	2.23 ± 0.70			
14-Jul	1.94 ± 0.72	2.25 ± 0.74	2.30 ± 0.74	1.90 ± 0.72			4.20 ± 0.77
21-Jul	1.31 ± 0.69	2.15 ± 0.72	1.83 ± 0.71	2.25 ± 0.73		1.97 ± 0.72	
28-Jul	1.97 ± 0.71	2.04 ± 0.71	2.25 ± 0.72	2.03 ± 0.71	3.44 ± 0.74		
4-Aug	2.49 ± 0.74	2.31 ± 0.74	2.05 ± 0.73	1.81 ± 0.72			
11-Aug	3.25 ± 0.73	3.17 ± 0.73	3.00 ± 0.72	3.27 ± 0.73			
18-Aug	2.58 ± 0.71	2.31 ± 0.73	2.74 ± 0.71	3.08 ± 0.73	3.20 ± 0.71	2.38 ± 0.70	
25-Aug	2.26 ± 0.73	2.40 ± 0.73	2.30 ± 0.72	2.58 ± 0.74			4.53 ± 0.76
1-Sep	2.76 ± 0.74	2.31 ± 0.73	2.68 ± 0.74	2.37 ± 0.73			
8-Sep	2.70 ± 0.69	3.07 ± 0.70	2.97 ± 0.70	3.04 ± 0.71			
15-Sep	1.70 ± 0.72	2.11 ± 0.74	2.43 ± 0.75	2.23 ± 0.74	2.59 ± 0.67	2.62 ± 0.69	4.07 ± 0.75
22-Sep	2.28 ± 0.75	2.80 ± 0.77	2.17 ± 0.74	2.25 ± 0.75			
29-Sep	1.98 ± 0.73	3.54 ± 0.75	2.57 ± 0.76	2.00 ± 0.74			
6-Oct	2.35 ± 0.71	2.59 ± 0.72	3.29 ± 0.75	2.29 ± 0.70			
13-Oct	2.54 ± 0.72	2.85 ± 0.73	2.47 ± 0.71	1.81 ± 0.69		2.72 ± 0.72	4.95 ± 0.78
20-Oct	2.92 ± 0.73	2.92 ± 0.70	2.21 ± 0.70	2.55 ± 0.71			
27-Oct	3.05 ± 0.71	2.60 ± 0.69	2.34 ± 0.68	2.44 ± 0.68	6.06 ± 0.80		
3-Nov	3.39 ± 0.72	3.09 ± 0.79	3.06 ± 0.71	1.87 ± 0.73			
10-Nov	2.33 ± 0.75	2.92 ± 0.78	1.86 ± 0.73	2.28 ± 0.75		1.61 ± 0.71	
17-Nov	2.51 ± 0.76	3.36 ± 0.80	3.58 ± 0.80	2.65 ± 0.76	4.71 ± 0.80		
24-Nov	2.20 ± 0.73	3.46 ± 0.79	2.72 ± 0.75	2.97 ± 0.76			4.27 ± 0.78
1-Dec	2.58 ± 0.74	2.95 ± 0.72	2.85 ± 0.76	2.34 ± 0.74			
8-Dec	2.78 ± 0.71	3.72 ± 0.76	3.55 ± 0.74	2.91 ± 0.72		2.72 ± 0.71	
15-Dec	2.82 ± 0.71	3.64 ± 0.75	3.02 ± 0.71	2.57 ± 0.70			
22-Dec	2.50 ± 0.73	3.55 ± 0.74	3.74 ± 0.75	3.00 ± 0.72	3.87 ± 0.73		
29-Dec	2.95 ± 0.76	3.91 ± 0.76	3.07 ± 0.76	2.83 ± 0.75			a
Maximum	3.39 ± 0.72	3.91 ± 0.76	3.74 ± 0.75	3.27 ± 0.73	6.06 ± 0.80	2.72 ± 0.72	4.95 ± 0.78
Average	2.47	2.87	2.66	2.44	3.98	2.34	4.40
Minimum	1.31 ± 0.69	2.04 ± 0.71	1.83 ± 0.71	1.81 ± 0.72	2.59 ± 0.67	1.61 ± 0.71	4.07 ± 0.75

All values given as < are less than the LLD corrected for decay.

a) Well pump frozen during month of December.

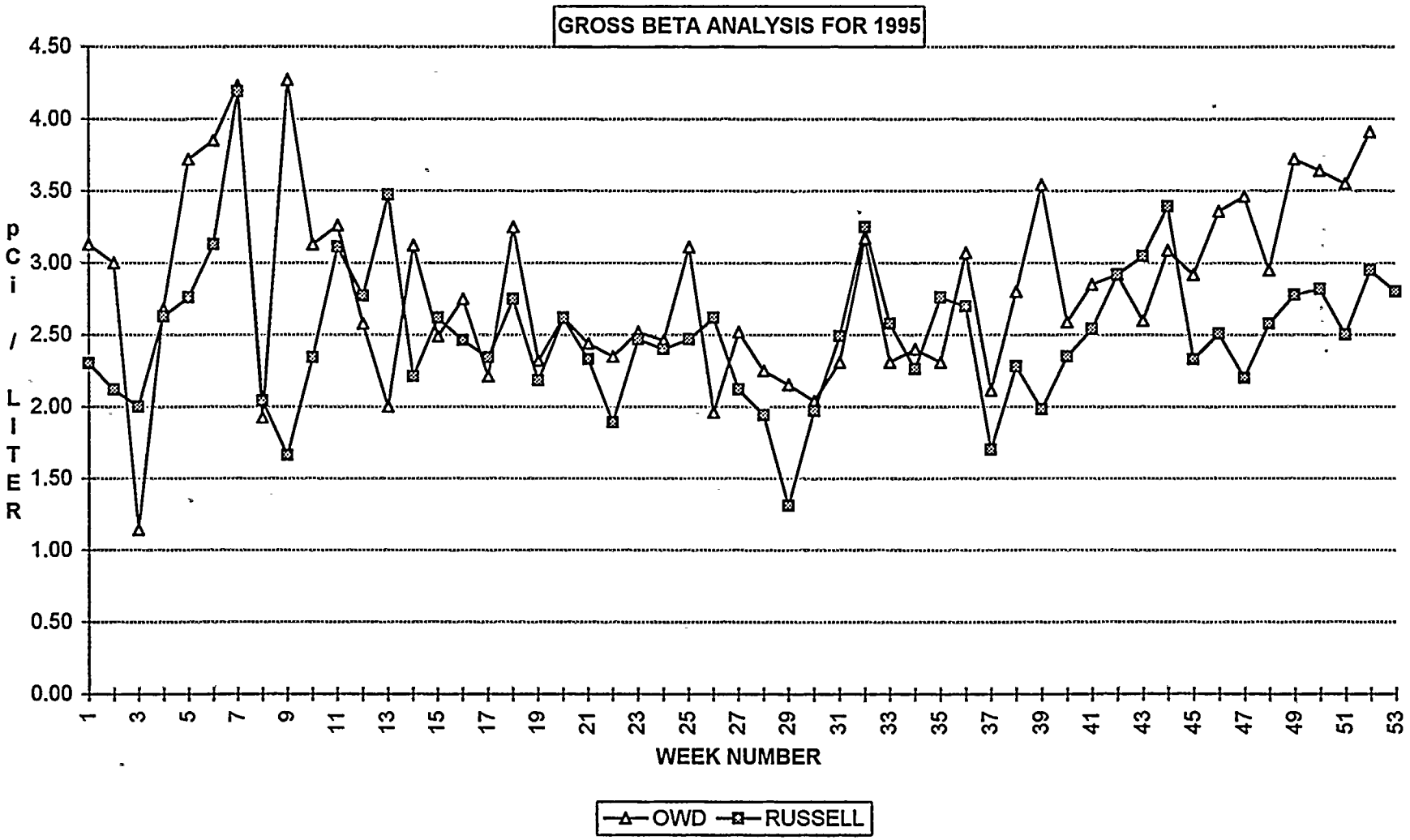
Table 3-5 C
Fallout Gross Beta Analysis
Results in pCi/ m^2 / Day

Month of	Station 3	Station 5	Station 8	Station 10	Station 12
January	3.20 ± 0.64	1.90 ± 0.62	2.80 ± 0.62	2.96 ± 0.65	5.02 ± 0.79
February	7.99 ± 0.77	3.13 ± 0.69	7.44 ± 0.81	4.86 ± 0.70	4.64 ± 0.65
March	2.75 ± 0.63	0.60 ± 0.54	1.01 ± 0.54	1.01 ± 0.54	1.56 ± 0.56
April	6.77 ± 0.76	3.50 ± 0.71	2.16 ± 0.59	3.31 ± 0.63	2.77 ± 0.67
May	4.43 ± 0.72	7.59 ± 0.79	3.23 ± 0.61	1.85 ± 0.60	7.76 ± 0.87
June	a	a	0.97 ± 0.68	1.03 ± 0.64	12.25 ± 0.64
July	6.46 ± 0.66	6.08 ± 0.69	4.90 ± 0.60	8.41 ± 0.63	13.21 ± 0.72
August	2.41 ± 0.58	1.72 ± 0.55	6.22 ± 0.63	9.41 ± 0.68	14.14 ± 0.93
September	9.24 ± 0.65	2.51 ± 0.54	3.27 ± 0.58	2.84 ± 0.60	14.43 ± 0.80
October	12.84 ± 0.58	6.57 ± 0.52	3.07 ± 0.48	8.57 ± 0.53	16.30 ± 0.62
November	4.93 ± 0.56	5.05 ± 0.57	4.87 ± 0.55	3.88 ± 0.54	14.02 ± 0.68
December	5.75 ± 0.62	3.18 ± 0.60	2.74 ± 0.55	2.94 ± 0.55	3.85 ± 0.50
Maximum	12.84 ± 0.58	7.59 ± 0.79	7.44 ± 0.81	9.41 ± 0.68	16.30 ± 0.62
Average	6.07	3.80	3.56	4.26	9.16
Minimum	2.41 ± 0.58	0.60 ± 0.54	0.97 ± 0.68	1.01 ± 0.54	1.56 ± 0.56

All values given as < are less than the LLD corrected for decay.

a) No measurable precipitation.

ENVIRONMENTAL WATER SAMPLES



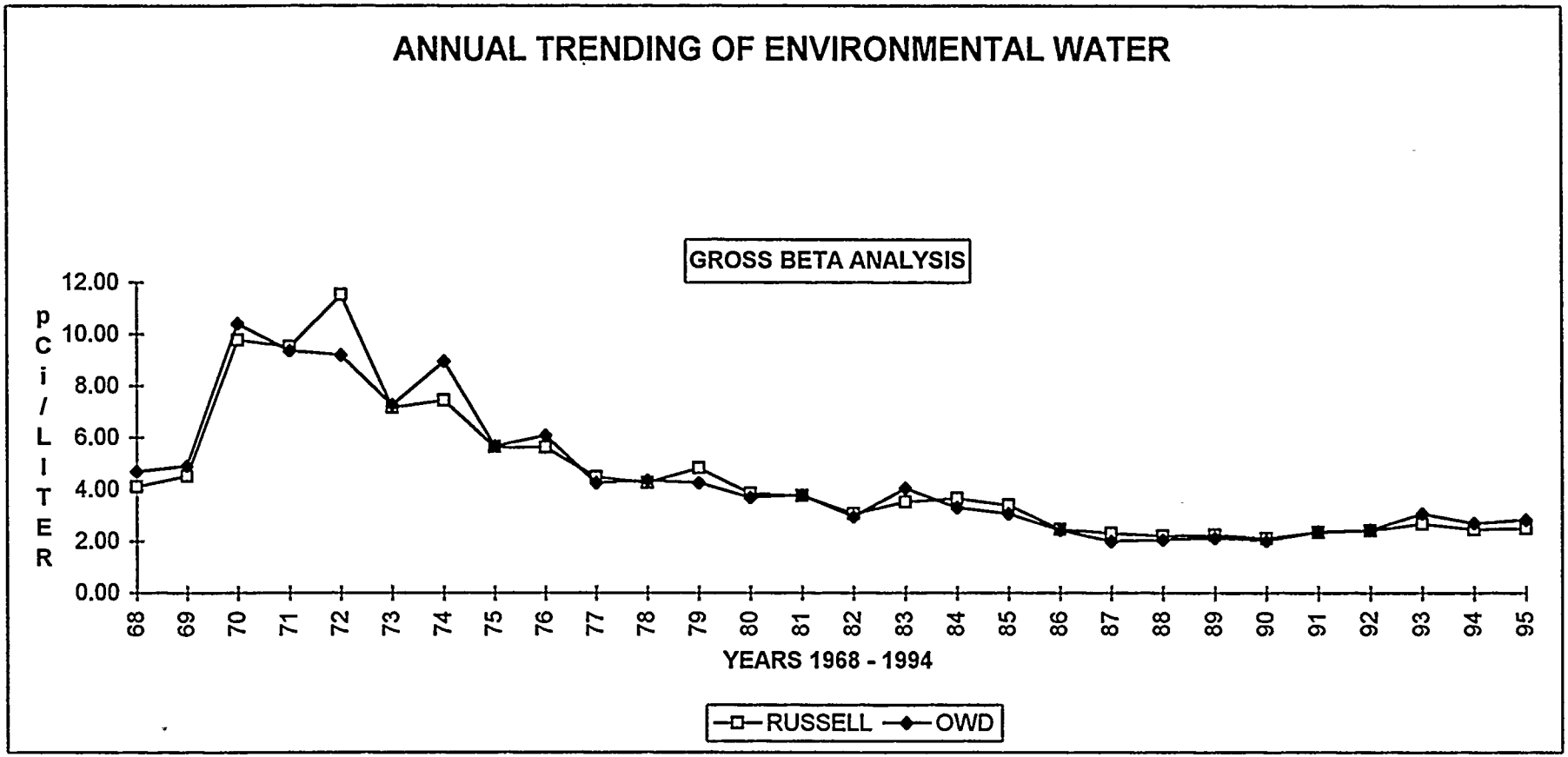

ANNUAL TRENDING OF ENVIRONMENTAL WATER
GROSS BETA ANALYSIS
pCi/LITER
12.00
10.00
8.00
6.00
4.00
2.00
0.00
68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95
YEARS 1968 - 1994
RUSSELL
OWD

Table 3-6
Ontario Water District Water Gamma Isotopic Analyses
Results in pCi/Liter

Between Dates Of		7Be	51Cr	54Mn	59Fe	58Co	60Co	65Zn	95Zr	95Nb	103Ru	106Ru	134Cs	137Cs	140Ba	141Ce	144Ce	226Ra
30-Dec	13-Jan	<12	<14	<2	<3	<1	<2	<3	<3	<1	<1	<14	<2	<2	<6	<3	<13	<3
13-Jan	27-Jan	<13	<13	<1	<3	<1	<2	<3	<3	<1	<1	<14	<2	<2	<5	<3	<13	<3
27-Jan	10-Feb	<14	<14	<1	<3	<1	<2	<3	<3	<1	<2	<16	<2	<2	<6	<3	<13	<4
10-Feb	24-Feb	<35	<38	<4	<7	<4	<4	<8	<7	<4	<4	<39	<5	<5	<15	<10	<44	<8
24-Feb	10-Mar	<13	<13	<2	<3	<2	<2	<3	<2	<2	<2	<14	<2	<2	<5	<3	<13	<3
10-Mar	24-Mar	<35	<39	<4	<8	<4	<4	<8	<7	<4	<4	<38	<5	<4	<14	<10	<45	<9
24-Mar	7-Apr	<28	<30	<3	<5	<3	<3	<6	<5	<3	<3	<27	<4	<3	<11	<7	<34	<6
7-Apr	21-Apr	<13	<14	<1	<3	<2	<2	<3	<2	<2	<2	<14	<2	<2	<5	<3	<13	<3
21-Apr	5-May	<14	<14	<2	<3	<1	<2	<3	<3	<1	<2	<15	<2	<2	<5	<3	<13	<4
5-May	19-May	<30	<32	<3	<6	<3	<3	<6	<6	<3	<4	<32	<4	<4	<12	<8	<37	<7
19-May	2-Jun	<34	<40	<4	<7	<4	<4	<8	<7	<4	<4	<38	<5	<5	<16	<10	<45	<9
2-Jun	16-Jun	<36	<39	<4	<7	<4	<4	<8	<7	<4	<4	<40	<4	<4	<16	<9	<45	<9
16-Jun	30-Jun	<36	<38	<4	<7	<4	<4	<8	<7	<4	<4	<37	<5	<4	<15	<10	<44	<8
30-Jun	14-Jul	<13	<13	<1	<3	<2	<2	<3	<2	<1	<1	<14	<2	<2	<5	<3	<13	<3
14-Jul	28-Jul	<28	<32	<3	<6	<3	<3	<6	<5	<3	<4	<27	<3	<3	<13	<8	<34	<6
28-Jul	11-Aug	<14	<14	<1	<3	<2	<2	<3	<3	<1	<2	<13	<2	<2	<7	<3	<13	<3
11-Aug	25-Aug	<37	<40	<4	<7	<4	<4	<8	<7	<3	<4	<38	<4	<5	<14	<10	<44	<9
25-Aug	8-Sep	<36	<39	<4	<7	<4	<4	<7	<7	<4	<4	<35	<5	<4	<15	<10	<45	<9
8-Sep	22-Sep	<13	<13	<2	<3	<2	<2	<3	<2	<1	<2	<14	<2	<2	<5	<3	<14	<5
22-Sep	6-Oct	<14	<14	<1	<3	<2	<2	<3	<3	<2	<2	<13	<2	<2	<6	<3	<13	<3
6-Oct	20-Oct	<37	<39	<4	<8	<4	<4	<9	<7	<4	<4	<39	<5	<4	<15	<10	<46	<9
20-Oct	3-Nov	<36	<39	<4	<7	<4	<4	<7	<6	<4	<4	<39	<4	<5	<15	<10	<46	<8
3-Nov	17-Nov	<13	<14	<2	<3	<2	<1	<3	<2	<2	<2	<13	<2	<2	<5	<3	<13	<3
17-Nov	1-Dec	<37	<40	<4	<7	<4	<4	<8	<7	<4	<5	<38	<5	<4	<15	<10	<46	<9
1-Dec	15-Dec	<39	<40	<4	<8	<4	<4	<9	<8	<4	<4	<40	<4	<5	<16	<10	<46	<8
15-Dec	29-Dec	<38	<39	<4	<8	<4	<4	<9	<7	<4	<5	<40	<4	<4	<15	<10	<46	<10

All values given as < are less than LLD corrected for decay.

Table 3-7
Circ. Outlet Water Gamma Isotopic Analyses
Results in pCi/Liter

Between Dates Of		7Be	51Cr	54Mn	59Fe	58Co	60Co	65Zn	95Zr	95Nb	103Ru	106Ru	134Cs	137Cs	140Ba	141Ce	144Ce	226Ra
28-Dec	11-Jan	<37	<41	<4	<7	<4	<4	<8	<7	<4	<4	<36	<5	<5	<16	<10	<46	<9
11-Jan	25-Jan	<13	<14	<1	<3	<1	<1	<3	<3	<1	<2	<14	<2	<2	<5	<3	<13	<3
25-Jan	8-Feb	<38	<39	<4	<7	<4	<4	<8	<7	<4	<4	<37	<4	<4	<16	<10	<45	<8
8-Feb	22-Feb	<13	<15	<2	<3	<2	<2	<3	<3	<2	<2	<14	<2	<2	<6	<3	<14	<3
22-Feb	8-Mar	<12	<13	<2	<3	<1	<2	<3	<2	<1	<2	<15	<2	<2	<5	<3	<13	<3
8-Mar	22-Mar	<13	<14	<1	<3	<1	<2	<3	<3	<1	<2	<14	<2	<2	<6	<3	<13	<3
22-Mar	5-Apr	<10	<10	<1	<2	<1	<1	<2	<2	<1	<1	<11	<1	<1	<4	<2	<10	<3
5-Apr	19-Apr	<12	<13	<2	<3	<1	<2	<3	<3	<2	<2	<14	<2	<2	<5	<3	<13	<3
19-Apr	3-May	<30	<31	<3	<6	<3	<4	<6	<5	<3	<4	<32	<4	<4	<12	<8	<37	<7
3-May	17-May a	<21	<23	<2	<4	<2	<2	<4	<4	<2	<3	<20	<3	<2	<11	<5	<19	<5
17-May	31-May	<19	<19	<2	<4	<2	<2	<5	<3	<2	<2	<19	<2	<2	<8	<4	<18	<5
31-May	14-Jun	<14	<14	<2	<3	<2	<2	<3	<3	<2	<2	<15	<2	<2	<6	<3	<14	<3
14-Jun	28-Jun	<35	<38	<4	<7	<4	<4	<7	<6	<4	<5	<38	<4	<4	<16	<10	<44	<9
28-Jun	12-Jul	<13	<14	<1	<3	<2	<1	<3	<3	<2	<2	<14	<2	<2	<5	<3	<13	<3
12-Jul	26-Jul	<13	<14	<1	<3	<1	<2	<3	<2	<1	<2	<14	<2	<2	<5	<3	<13	<3
26-Jul	9-Aug	<12	<14	<1	<3	<1	<2	<3	<3	<2	<2	<14	<2	<2	<5	<3	<13	<3
9-Aug	23-Aug	<14	<15	<2	<3	<2	<2	<3	<2	<2	<2	<15	<2	<2	<6	<3	<14	<3
23-Aug	6-Sep	<37	<40	<4	<7	<4	<4	<8	<7	<4	<4	<41	<4	<5	<14	<10	<45	<9
6-Sep	20-Sep	<12	<13	<2	<3	<2	<2	<3	<3	<2	<1	<14	<1	<2	<5	<3	<13	<4
20-Sep	4-Oct	<37	<39	<4	<7	<4	<4	<8	<7	<4	<4	<38	<4	<5	<16	<10	<46	<9
4-Oct	18-Oct	<39	<39	<4	<8	<4	<4	<8	<7	<4	<4	<39	<5	<5	<16	<10	<45	<8
18-Oct	1-Nov	<36	<41	<4	<8	<4	<4	<9	<7	<4	<5	<41	<5	<5	<16	<10	<46	<8
1-Nov	15-Nov	<38	<40	<4	<8	<4	<4	<8	<7	<4	<4	<37	<4	<5	<15	<10	<45	<8
15-Nov	29-Nov	<14	<13	<1	<3	<1	<2	<3	<2	<1	<1	<14	<2	<2	<6	<3	<13	<3
29-Nov	13-Dec	<38	<40	<4	<4	<4	<8	<8	<7	<4	<4	<40	<5	<5	<15	<10	<46	<8
13-Dec	27-Dec	<12	<14	<2	<3	<1	<2	<3	<3	<1	<2	<13	<2	<2	<6	<3	<13	6±1

All values given as < are less than LLD corrected for decay.

(a) Sample of week 5/10/95-5/17/95 lost- compositor OOS.

Table 3-8
Russell Station Water Gamma Isotopic Analyses
Results in pCi/Liter

Month of	7Be	51Cr	54Mn	59Fe	58Co	60Co	65Zn	95Zr	95Nb	103Ru	106Ru	134Cs	137Cs	140Ba	141Ce	144Ce	226Ra
Jan-95	<13	<14	<2	<3	<2	<2	<3	<3	<1	<2	<15	<2	<2	<6	<3	<13	<4
Feb-95	<37	<39	<4	<7	<4	<4	<8	<7	<4	<4	<37	<4	<5	<15	<10	<44	<8
Mar-95	<13	<13	<1	<3	<2	<2	<3	<3	<2	<2	<14	<2	<2	<6	<3	<13	<3
Apr-95	<29	<33	<4	<6	<3	<3	<6	<6	<3	<4	<30	<4	<4	<14	<8	<38	<7
May-95	<12	<14	<2	<3	<2	<1	<3	<2	<2	<2	<13	<2	<2	<6	<3	<13	<4
Jun-95	<12	<14	<1	<3	<1	<2	<3	<3	<2	<2	<13	<2	<2	<6	<3	<13	<3
Jul-95	<15	<15	<2	<3	<2	<2	<3	<3	<2	<2	<17	<2	<2	<7	<3	<14	<4
Aug-95	<13	<13	<1	<3	<1	<2	<3	<2	<2	<2	<13	<2	<2	<6	<3	<13	<4
Sep-95	<38	<41	<4	<8	<4	<3	<8	<7	<4	<5	<35	<5	<5	<17	<10	<46	<9
Oct-95	<13	<13	<1	<3	<1	<2	<3	<2	<2	<2	<13	<2	<2	<6	<3	<13	<3
Nov-95	<29	<32	<3	<6	<3	<3	<6	<5	<3	<3	<29	<4	<3	<14	<8	<35	<6
Dec-95	<14	<14	<2	<3	<1	<1	<3	<3	<2	<2	<14	<2	<1	<6	<3	<13	<3

All values given as < are less than LLD corrected for decay.

Table 3-9
Tap Water Gamma Isotopic Analyses
Results in pCi/Liter

Month of	7Be	51Cr	54Mn	59Fe	58Co	60Co	65Zn	95Zr	95Nb	103Ru	106Ru	134Cs	137Cs	140Ba	141Ce	144Ce	226Ra
Jan-95	<36	<39	<4	<7	<4	<4	<8	<7	<4	<5	<40	<4	<4	<14	<10	<45	<9
Feb-95	<37	<40	<4	<7	<4	<4	<8	<7	<4	<4	<39	<5	<5	<16	<10	<47	<9
Mar-95	<35	<37	<4	<7	<4	<4	<8	<7	<4	<4	<40	<4	<4	<15	<10	<45	<9
Apr-95	<35	<39	<4	<7	<4	<4	<8	<8	<4	<4	<39	<5	<5	<15	<10	<46	<9
May-95	<13	<14	<1	<3	<2	<2	<3	<3	<2	<2	<14	<2	<2	<5	<3	<13	<4
Jun-95	<41	<43	<4	<8	<4	<4	<9	<8	<4	<5	<43	<5	<5	<17	<11	<49	<10
Jul-95	<36	<39	<4	<7	<4	<5	<8	<7	<4	<4	<37	<5	<5	<15	<10	<45	<9
Aug-95	<37	<38	<4	<7	<4	<4	<8	<7	<4	<4	<37	<5	<5	<15	<10	<46	<9
Sep-95	<14	<15	<2	<3	<2	<2	<3	<3	<2	<2	<15	<2	<2	<6	<3	<14	<4
Oct-95	<38	<42	<4	<8	<4	<4	<8	<7	<4	<5	<41	<5	<5	<17	<10	<45	<9
Nov-95	<35	<38	<4	<7	<4	<5	<8	<7	<4	<4	<39	<5	<5	<15	<10	<46	<9
Dec-95	<36	<39	<4	<8	<4	<4	<8	<6	<4	<4	<38	<5	<5	<15	<10	<46	<8

All values given as < are less than LLD corrected for decay.

Table 3-10
Well "B" Water Gamma Isotopic Analyses
Results in pCi/Liter

Month of	7Be	51Cr	54Mn	59Fe	58Co	60Co	65Zn	95Zr	95Nb	103Ru	106Ru	134Cs	137Cs	140Ba	141Ce	144Ce	226Ra
Jan-95	<37	<42	<4	<7	<4	<4	<9	<8	<4	<4	<39	<5	<5	<16	<10	<48	33±5
Feb-95	<39	<40	<4	<7	<4	<5	<10	<7	<4	<4	<40	<5	<5	<16	<10	<48	36±5
Mar-95	<40	<41	<4	<7	<4	<4	<10	<7	<4	<5	<39	<4	<5	<16	<10	<47	53±5
Apr-95	<33	<35	<4	<7	<3	<4	<6	<6	<4	<4	<31	<4	<4	<13	<8	<39	44±5
May-95	<33	<32	<3	<5	<4	<3	<7	<5	<3	<4	<32	<4	<4	<13	<8	<40	30±5
Jun-95	<39	<42	<5	<7	<4	<4	<10	<8	<4	<5	<38	<5	<4	<15	<10	<47	35±5
Jul-95	<38	<41	<4	<7	<4	<4	<9	<7	<4	<4	<39	<4	<5	<16	<10	<48	39±5
Aug-95	<36	<40	<4	<8	<4	<4	<9	<7	<4	<4	<38	<5	<5	<16	<10	<47	26±5
Sep-95	<38	<40	<4	<7	<4	<4	<8	<7	<4	<5	<39	<5	<5	<15	<10	<45	19±4
Oct-95	<38	<40	<4	<8	<4	<4	<9	<7	<4	<5	<40	<5	<5	<15	<10	<46	22±5
Nov-95	<38	<41	<4	<8	<4	<4	<8	<7	<4	<5	<40	<4	<5	<17	<10	<48	22±5
Dec-95 a																	

All values given as < are less than LLD corrected for decay.

(a) Sample unattainable due to pump in-operability.

Table 3-11
Deer Creek Water Gamma Isotopic Analyses
Results in pCi/Liter.

Month of	7Be	51Cr	54Mn	59Fe	58Co	60Co	65Zn	95Zr	95Nb	103Ru	106Ru	134Cs	137Cs	140Ba	141Ce	144Ce	226Ra
Jan-95	<39	<37	<4	<7	<4	<4	<8	<7	<4	<4	<37	<4	<5	<14	<10	<45	16±3
Feb-95	<14	<15	<2	<3	<2	<2	<3	<3	<2	<2	<13	<2	<2	<6	<3	<14	20±2
Mar-95	<36	<40	<4	<7	<4	<4	<8	<7	<4	<4	<36	<5	<4	<16	<10	<46	20±5
Apr-95	<35	<39	<4	<7	<4	<4	<8	<7	<4	<4	<39	<5	<5	<15	<10	<46	16±5
May-95	<36	<41	<4	<7	<4	<4	<8	<7	<4	<4	<40	<4	<5	<15	<10	<46	15±5
Jun-95	<18	<18	<2	<4	<2	<2	<4	<3	<2	<2	<17	<2	<2	<7	<4	<16	3±2
Jul-95	<36	<41	<4	<7	<4	<4	<8	<7	<4	<5	<42	<5	<5	<16	<10	<45	16±5
Aug-95	<39	<40	<4	<7	<4	<4	<8	<7	<4	<4	<38	<5	<4	<15	<10	<47	<10
Sep-95	<38	<38	<4	<7	<4	<4	<9	<7	<4	<4	<38	<4	<5	<15	<10	<46	<10
Oct-95	<39	<40	<4	<7	<4	<4	<7	<7	<4	<4	<41	<4	<4	<15	<10	<46	8±4
Nov-95	<14	<14	<2	<3	<1	<2	<3	<3	<2	<2	<16	<2	<2	<6	<3	<13	8±2
Dec-95	<37	<40	<4	<7	<4	<4	<8	<7	<4	<4	<36	<5	<5	<17	<10	<46	13±4

All values given as < are less than LLD corrected for decay.

Table 3-12 A
Environmental Water Samples Tritium Analysis
Results in pCi/L

Month of	Russell	O.W.D.	Circ In	Circ Out	Deer Creek	Tap	Well 'B'
January	<453	<459	<456	<455	<453	<462	<456
February	<443	<434	482 ± 268	<435	<434	<451	<444
March	<491	<490	<491	<487	<495	<491	<497
April	<495	<490	<493	2040 ± 347	<488	<495	<490
May	<494	<471	<482	1040 ± 309	<492	<515	<478
June	<456	<453	<458	<464	<450	<460	<457
July	<449	<447	<444	<447	<445	<445	<441
August	<467	<466	<462	<465	<465	<466	<465
September	<430	<434	<426	<428	<428	<430	<428
October	<460	<457	<462	<460	<458	<458	<462
November	<446	<453	<445	<446	<451	<455	<452
December	<475	<471	<468	<470	<429	<467	a

All values given as < are less than the LLD corrected for decay.

a) No sample available, pump frozen.

Table 3-12 B
Fallout Tritium Analysis
Results in pCi/L

Month of	Station 3	Station 5	Station 8	Station 10	Station 12
January	<459	<461	<460	<460	<466
February	<448	<437	<443	<437	<445
March	586 ± 302	<490	<487	<497	<490
April	<491	<492	<498	<491	<491
May	<488	<478	<492	<492	<491
June	*	*	<451	<453	<458
July	<444	<450	<443	<446	<448
August	<465	<459	<466	<467	<462
September	<428	<429	<434	<434	<434
October	<459	<459	<460	<454	<457
November	<448	<448	<457	<451	<451
December	<492	<473	<480	<471	<474

All values given as < are less than the LLD corrected for decay.

* No measurable precipitation.

Table 3-13
Iodine in Water
Results in pCi/L

Month of	Russell	O.W.D.	Circ. In	Circ. Out	Deer Creek	Tap	Well"B"
January	<.45	<.30	<.63	<.31	<.64	<.30	<.29
February	<.32	<.61	<.30	<.62	<.64	<.30	<.29
March	<.69	<.28	<.33	<.29	<.30	<.30	<.29
April	<.33	<.31	<.32	<.29	<.29	<.30	<.29
May	<.32	<.83	<.64	<.40	<.30	<.30	<.31
June	<.31	<.41	<.31	<.67	<.68	<.35	<.64
July	<.73	<.39	<.67	<.29	<.30	<.29	<.31
August	<.31	<.63	<.61	<.29	<.29	<.28	<.30
September	<.35	<.63	<.64	<.29	<.28	<.30	<.28
October	<.35	<.30	<.32	<.63	<.28	<.32	<.29
November	<.38	<.29	<.30	<.63	<.29	<.33	<.32
December	<.38	<.30	<.63	<.29	<.29	<.30	a

All values given as < are less than the LLD corrected for decay

(a) Sample unattainable due to hand-pump frozen.

3.4 Milk Samples

There are three dairy herds located three to five miles from the plant. Milk samples are collected monthly during November through May from one of the three and biweekly during June through October from each. 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 gamma scanned for major fission products.

All positive counts and the 2 sigma error are reported. All negative counts after background correction are reported as <LLD for that analysis. During 1995, no samples indicated positive I-131 activity that exceeded the LLD for the analysis. Table 3-14 is a listing of all samples collected during 1995.

The annual dose to the thyroid of an infant which could result from the measured plant release rate, was calculated by the method described in the Offsite Dose Calculation Manual using equation 13. The calculation is done for releases during the growing season when cows may be grazing. For R.E. Ginna, this includes only releases during the months of May through October. The maximum resultant annual thyroid dose for 1995 would be 0.016 mrem using the cow-milk-infant pathway for a hypothetical farm at the site boundary. Using the real farm with the highest D/Q which is 5 miles from the plant, the maximum calculated dose to the infant is 2.2E-4 mrem from plant releases during the growing season. The annual average plant release rate during the grazing season would give a concentration of < 0.0045 pCi/liter of Iodine-131 in milk at this real farm. This concentration is equal to <0.6% of the LLD for this analysis.

ROCHESTER GAS AND ELECTRIC

Table 3-14
Milk
Results in pCi/Liter

Farm	Date	I-131	Cs-137	Ba-140	K-40
D	18-Jan	<.31	<2	<6	1410 ± 30
A	20-Jan	<.34	<5	<17	1249 ± 53
C	14-Feb	<.31	<2	<6	1406 ± 29
D	16-Feb	<.69	<5	<16	1277 ± 54
B	14-Mar	<.31	<5	<17	1319 ± 54
D	16-Mar	<.69	<5	<18	1304 ± 52
A	11-Apr	<.31	<2	<7	1362 ± 34
D	12-Apr	<.31	<7	<22	1186 ± 61
C	16-May	<.31	<4	<14	1359 ± 52
D	18-May	<.54	<5	<14	1252 ± 55
B	1-Jun	<.66	<2	<7	1395 ± 32
A	6-Jun	<.31	<5	<16	1247 ± 53
C	8-Jun	<.31	<2	<6	1556 ± 31
D	13-Jun	<.68	<2	<7	1387 ± 32
B	15-Jun	<.68	<5	<17	1373 ± 56
A	20-Jun	<.32	<2	<6	1398 ± 30
C	22-Jun	<.32	<5	<17	1420 ± 54
D	27-Jun	<.66	<6	<18	1317 ± 56
B	29-Jun	<.31	<5	<17	1294 ± 52
A	5-Jul	<.31	<5	<16	1285 ± 52
C	6-Jul	<.34	<5	<18	1291 ± 53
D	11-Jul	<.31	<5	<17	1320 ± 52
B	13-Jul	<.32	<5	<18	1354 ± 53
A	18-Jul	<.32	<5	<17	1268 ± 57
C	20-Jul	<.32	<5	<17	1361 ± 56
D	25-Jul	<.32	<5	<17	1317 ± 53
B	27-Jul	<.33	<5	<17	1300 ± 53
A	1-Aug	<.31	<2	<7	1331 ± 31
C	3-Aug	<.30	<2	<7	1471 ± 31
D	8-Aug	<.31	<6	<17	1345 ± 58
B	10-Aug	<.68	<2	<7	1423 ± 31
A	15-Aug	<.32	<2	<6	1373 ± 30
C	17-Aug	<.66	<2	<6	1438 ± 31
D	21-Aug	<.32	<5	<17	1325 ± 55
B	24-Aug	<.32	<5	<17	1394 ± 57
A	29-Aug	<.65	<5	<16	1275 ± 56
C	31-Aug	<.32	<5	<17	1321 ± 56
D	5-Sep	<.30	<5	<17	1321 ± 56
B	7-Sep	<.31	<5	<16	1333 ± 59
A	12-Sep	<.30	<5	<16	1214 ± 56
C	14-Sep	<.30	<5	<17	1402 ± 56
D	19-Sep	<.29	<5	<16	1356 ± 56
B	21-Sep	<.66	<3	<8	1412 ± 40
A	26-Sep	<.30	<5	<17	1272 ± 55
C	28-Sep	<.31	<5	<17	1312 ± 57
D	3-Oct	<.30	<5	<17	1204 ± 56
B	5-Oct	<.33	<5	<18	1329 ± 57
A	10-Oct	<.31	<5	<18	1191 ± 53
C	12-Oct	<.68	<2	<7	1397 ± 30
D	17-Oct	<.66	<5	<18	1344 ± 57
B	19-Oct	<.34	<2	<6	1362 ± 30
A	24-Oct	<.30	<2	<6	1303 ± 29
C	26-Oct	<.33	<5	<16	1330 ± 56
B	14-Nov	<.30	<5	<17	1334 ± 56
D	17-Nov	<.66	<5	<17	1329 ± 55
C	12-Dec	<.30	<5	<17	1361 ± 56
D	14-Dec	<.36	<2	<6	1389 ± 30

All values given as < are less than the LLD corrected for decay.

3.5 Fish Samples

Indicator fish are caught in the plume from the Discharge Canal and tested for radioactivity ingested 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 15 miles away to be used as background indicators 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 real difference in the activity of the fish caught between the indicator and background locations.

Isotopic gamma concentrations (pCi/kilogram wet) are listed in Tables 3-15A, 3-15B.

Samples of algae (cladophora) and sand were obtained from the lake bottom in the discharge plume area. Lake bottom samples continue to show small amounts of Cs-134 and Cs-137 activity and a small Co-60 activity. Results of the gamma scans are included in Table 3-16.

Fish are caught by an outside group and given to us after being held for periods of less than one week for counting by gamma scan. The LLD value for the shorter half life isotopes became large. This is the case for most of the chromium, iodine and barium data in the table. The data is also affected by small fish samples (< 2000 grams) in some species.

Table 3-15
Fish Samples Gamma Isotopic Analysis
Results in pCi/kgm Wet

Description	40K	51Cr	54Mn	59Fe	58Co	60Co	65Zn	95Zr	95Nb
Indicator Fish									
First Half 1995									
Coho Salmon	3590 ± 118	<92	<10	<23	<9	<10	<22	<17	<10
Brown Trout	4599 ± 90	<65	<7	<17	<7	<7	<18	<12	<7
Smallmouth Bass	3006 ± 273	<286	<30	<60	<27	<30	<60	<55	<29
Lake Trout	3239 ± 49	<23	<3	<7	<3	<3	<7	<5	<3
Second Half 1995									
Rainbow Trout	3353 ± 259	<268	<25	<49	<25	<23	<57	<44	<27
Smallmouth Bass	3166 ± 239	<302	<24	<55	<27	<24	<52	<47	<29
Lake Trout	2934 ± 82	<58	<7	<13	<6	<6	<15	<11	<6
Walleye	1974 ± 250	<243	<26	<48	<24	<25	<52	<45	<27
Background Fish									
First Half 1995									
White Sucker	3618 ± 256	<489	<28	<80	<36	<26	<61	<64	<46
Brown Trout	2471 ± 221	<315	<24	<54	<24	<25	<56	<49	<32
Lake Trout	2802 ± 76	<120	<7	<22	<8	<7	<17	<15	<11
Coho Salmon	3620 ± 244	<368	<26	<63	<29	<25	<58	<55	<37
Second Half 1995									
Smallmouth Bass	3806 ± 281	<342	<29	<60	<30	<32	<64	<58	<32
Lake Trout	2731 ± 41	<20	<2	<6	<3	<3	<6	<4	<2
Chinook Salmon	3194 ± 254	<299	<25	<52	<27	<24	<54	<46	<31
Brown Trout	3239 ± 45	<23	<3	<7	<3	<3	<6	<4	<3

All values given as < are less than the LLD corrected for decay

Table 3-15
Fish Samples Gamma Isotopic Analysis
Results in pCi/kgm Wet

Description	103Ru	106Ru	131I	134Cs	137Cs	140Ba	141Ce	144Ce	226Ra
Indicator Fish									
First Half 1995									
Coho Salmon	<10	<81	<14	<11	20 ± 6	<41	<21	<92	<18
Brown Trout	<7	<60	<11	<8	23 ± 3	<31	<16	<66	<13
Smallmouth Bass	<31	<268	<37	<34	<37	<112	<54	<235	<63
Lake Trout	<3	<22	<4	<3	14 ± 2	<11	<5	<20	<3
Second Half 1995									
Rainbow Trout	<26	<225	<45	<28	28 ± 13	<120	<49	<194	<50
Smallmouth Bass	<30	<228	<72	<26	29 ± 10	<161	<55	<191	<53
Lake Trout	<6	<58	<8	<7	15 ± 3	<24	<13	<62	<13
Walleye	<26	<238	<31	<28	46 ± 14	<93	<46	<200	<52
Background Fish									
First Half 1995									
White Sucker	<45	<271	<304	<32	<33	<401	<85	<226	<55
Brown Trout	<30	<220	<82	<28	<31	<168	<57	<201	<54
Lake Trout	<10	<59	<114	<7	18 ± 3	<130	<26	<64	<12
Coho Salmon	<33	<264	<119	<28	28 ± 12	<226	<66	<220	<53
Second Half 1995									
Smallmouth Bass	<33	<279	<76	<32	19 ± 11	<173	<61	<223	<59
Lake Trout	<2	<20	<4	<3	12 ± 1	<10	<4	<18	<5
Chinook Salmon	<28	<226	<79	<25	31 ± 11	<156	<55	<191	<48
Brown Trout	<3	<21	<6	<3	15 ± 2	<13	<5	<18	<5

All values given as < are less than the LLD corrected for decay

Table 3-16
Lake Samples Gamma Isotopic Analysis
Results in pCi/kgm

Description	40K	51Cr	54Mn	59Fe	58Co	60Co	65Zn	95Zr	95Nb
Cladophora	3525 ± 104	<72	<8	<18	<8	<9	<20	<14	<8
Lake Bottom	8791 ± 50	<27	<3	<6	<3	12 ± 2	<7	<5	

Description	103Ru	106Ru	131I	134Cs	137Cs	140Ba	141Ce	144Ce	226Ra
Cladophora	<8	<73	<9	<9	<9	<30	<18	<82	<18
Lake Bottom	<3	<26	<4	32 ± 1	342 ± 3	<11	<7	<31	149 ± 4

All values given as < are less than the LLD corrected for decay

3.6 Vegetation Samples

Crops are grown on the plant property and samples of the fruits and grains are collected at harvest time for testing. Background samples are purchased from farms greater than 10 miles from the plant. There was no indication in the samples of any measurable activity other than naturally occuring K-40. Gamma isotopic data is given in Table 3-17.

Table 3-17
Vegetation Samples Gamma Isotopic Analysis
Results in pCi/kgm Wet

Description	40K	51Cr	54Mn	59Fe	58Co	60Co	65Zn	95Zr	95Nb
Burdock Leaves	6974 ± 105	<54	<6	<13	<6	<7	<15	<10	<6
Apples	733 ± 48	<43	<4	<9	<4	<5	<10	<8	<5
Cherries	1438 ± 197	<200	<23	<38	<22	<21	<49	<36	<20
Grapes	1824 ± 35	<17	<2	<5	<2	<3	<5	<4	<2
Squash	1406 ± 44	<25	<3	<6	<3	<3	<7	<5	<3
Rhubarb	3218 ± 182	<165	<18	<34	<18	<18	<37	<30	<17
Control Vegetation Samples									
Lettuce	1932 ± 54	<29	<4	<8	<4	<4	<9	<6	<4
Apples	877 ± 51	<43	<5	<10	<4	<5	<10	<8	<4

Description	103Ru	106Ru	131I	134Cs	137Cs	140Ba	141Ce	144Ce	226Ra
Burdock Leaves	<6	<57	<7	<7	<6	<21	<11	<49	21 ± 6
Apples	<5	<40	<5	<5	<5	<16	<11	<48	<10
Cherries	<21	<198	<24	<23	<24	<75	<38	<170	<44
Grapes	<2	<19	<2	<3	<2	<7	<4	<17	<5
Squash	<3	<26	<3	<3	<3	<10	<5	<23	<7
Rhubarb	<18	<162	<20	<19	<21	<64	<31	<138	<36
Control Vegetation Samples									
Lettuce	<4	<34	<4	<4	<4	<13	<6	<27	<8
Apples	<5	<43	<6	<5	<5	<17	<11	<49	<10

All values given as < are less than LLD corrected for decay

3.7 External Penetrating Radiation

Thermoluminescent dosimeter (TLD) 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 the Contaminated Equipment Storage Areas and will normally read 20-30 mRem/quarter. For the year of 1995, omitting locations 7 and 13, on-site exposure ranged between 9.2-14.5 mrem/quarter, with an average exposure of 13.5 mrem/quarter and off-site 9.2 - 13.5 mrem/quarter with an average exposure of 11.5 mrem/quarter. Table 3-18 gives TLD readings for each quarter.

A trend chart with a comparison of data for each location for the years of 1994 and 1995 is included. The data plotted is the average quarterly dose measured.

The NRC also obtains TLD measurements around the plant. The following is a comparison of the data for each quarter of 1994 using NRC data from NUREG-0837 Vol. 15, No. 1, 2, 3, and 4. Results in mrem/quarter:

	GINNA				NRC			
	1st	2nd	3rd	4th	1st	2nd	3rd	4th
< 2 miles	12.6	13.5	14.0	14.0	14.7	14.3	14.8	13.7
2-5 miles	10.6	12.3	12.4	12.0	14.3	14.0	14.4	12.9
>5 miles	10.0	11.6	11.4	11.7	14.2	14.2	14.4	13.4

There are six stations that are co-located. The differences in the comparison of co-located TLDs may be because the NRC uses model 801 TLDs and Ginna uses model 814s. These comparisons are:

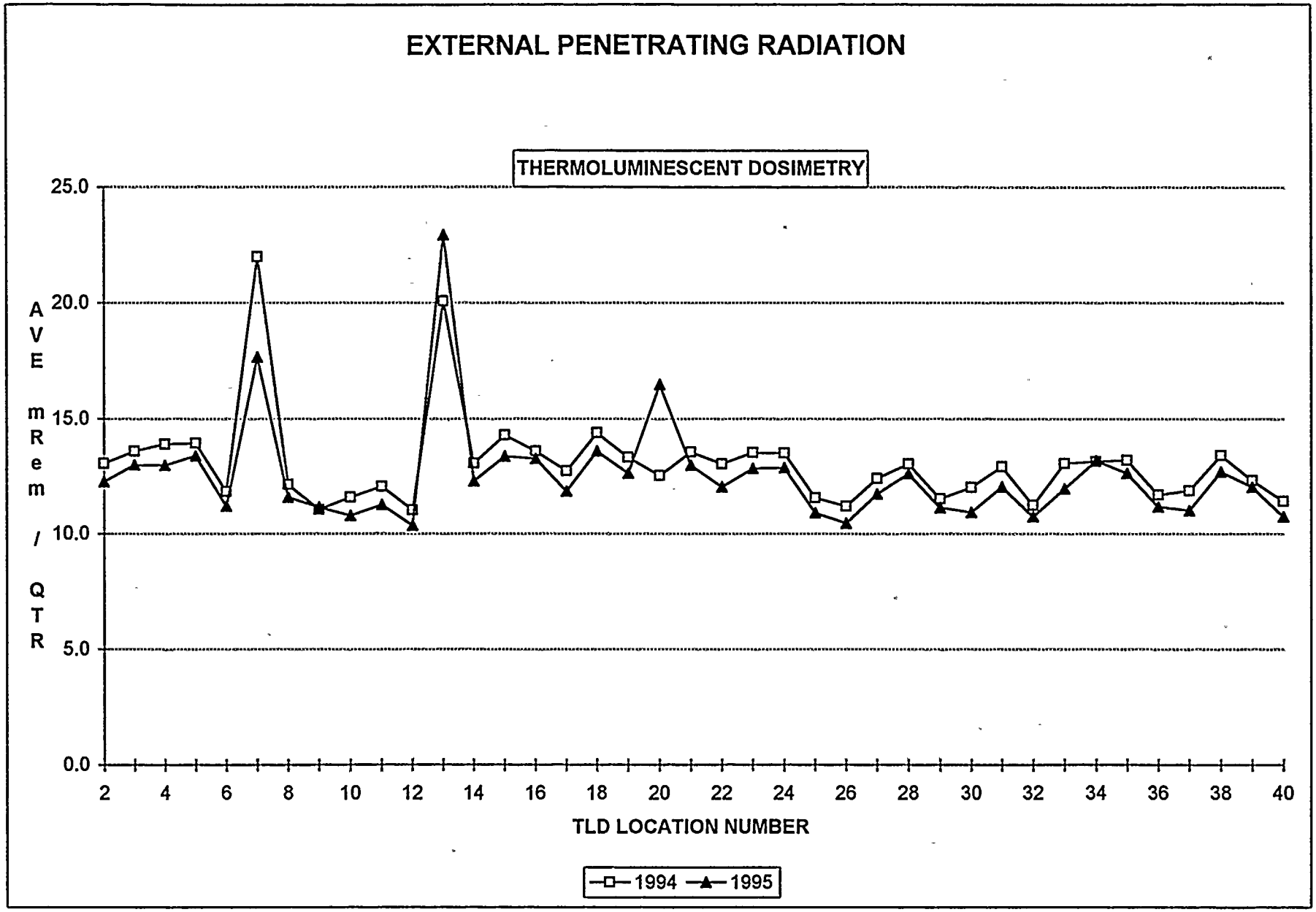
A	10.3	13.3	13.3	11.2	15.6	16.6	15.8	15.2
B	9.6	11.0	11.0	11.4	15.9	12.7	15.3	12.3
C	10.1	11.5	11.7	11.4	15.2	15.8	16.3	15.7
D	10.7	12.3	12.4	12.7	14.5	14.4	14.4	13.6
E	9.4	11.3	11.3	11.0	12.6	*	12.9	11.7
F	10.2	11.7	11.2	11.5	15.2	13.4	14.9	13.3

* Dosimeter missing

Table 3-18
External Penetrating Radiation
Thermoluminescent Dosimetry 1996
Units mRem/91 Day Quarter

	Location	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
#2 - #7 plus #13 are	2	11.0 ± 2.8	12.7 ± 3.2	12.7 ± 3.2	12.6 ± 3.2
on-site near the line	3	11.4 ± 2.9	13.6 ± 3.4	13.8 ± 3.5	13.2 ± 3.3
of the highest annual	4	11.6 ± 2.9	13.7 ± 3.4	13.4 ± 3.4	13.2 ± 3.3
average ground level	5	11.8 ± 3.0	14.5 ± 3.7	13.5 ± 3.4	13.7 ± 3.5
concentration.	6	9.9 ± 2.5	11.8 ± 3.0	11.5 ± 2.9	11.6 ± 2.9
	7	18.6 ± 4.7	18.4 ± 4.6	17.0 ± 4.3	16.6 ± 4.2
#8 - #12 are offsite at	8	10.7 ± 2.7	12.0 ± 3.0	11.6 ± 2.9	12.0 ± 3.0
a distance of 8 to 15 miles.	9	10.2 ± 2.6	11.7 ± 2.9	11.2 ± 2.8	11.5 ± 2.9
	10	9.5 ± 2.4	11.1 ± 2.8	11.0 ± 2.8	11.5 ± 2.9
	11	10.3 ± 2.6	11.5 ± 2.9	11.4 ± 2.9	11.8 ± 3.0
	12	9.2 ± 2.3	10.5 ± 2.6	10.7 ± 2.7	11.0 ± 2.8
	13	21.5 ± 5.4	18.6 ± 4.7	25.2 ± 6.4	26.4 ± 6.7
#14 - #16 are located	14	11.1 ± 2.8	12.3 ± 3.1	a	13.4 ± 3.4
along a line 3000 ft. west	15	11.8 ± 3.0	13.6 ± 3.4	13.9 ± 3.5	14.1 ± 3.5
of the plant.	16	11.4 ± 2.9	13.5 ± 3.4	14.3 ± 3.6	13.8 ± 3.5
#17 - #21 are located	17	10.6 ± 2.7	12.3 ± 3.1	12.2 ± 3.1	12.3 ± 3.1
along Lake Road.	18	12.1 ± 3.1	14.3 ± 3.6	14.1 ± 3.5	13.8 ± 3.5
	19	11.0 ± 2.8	13.1 ± 3.3	13.3 ± 3.4	13.1 ± 3.3
	20	24.7 ± 6.2	14.0 ± 3.5	13.3 ± 3.4	13.9 ± 3.5
	21	11.5 ± 2.9	13.6 ± 3.4	13.2 ± 3.3	13.6 ± 3.4
#22 - #24 are located	22	11.1 ± 2.8	12.1 ± 3.0	12.6 ± 3.2	12.3 ± 3.1
along the east site	23	11.1 ± 2.8	13.2 ± 3.3	13.7 ± 3.4	13.3 ± 3.3
boundary line.	24	11.4 ± 2.9	13.4 ± 3.4	13.3 ± 3.4	13.4 ± 3.4
#25 - #30 are offsite	25	9.7 ± 2.5	11.0 ± 2.8	11.3 ± 2.8	11.6 ± 2.9
at a distance of 8	26	9.2 ± 2.3	10.9 ± 2.7	10.8 ± 2.7	10.9 ± 2.8
to 15 miles.	27	10.4 ± 2.6	12.4 ± 3.1	11.9 ± 3.0	12.2 ± 3.1
	28	10.9 ± 2.7	13.4 ± 3.4	13.1 ± 3.3	13.0 ± 3.3
	29	10.1 ± 2.6	11.4 ± 2.9	11.3 ± 2.9	11.7 ± 3.0
	30	9.5 ± 2.4	11.3 ± 2.8	11.2 ± 2.8	11.7 ± 3.0
#31 - #40 are located	31	10.3 ± 2.6	13.3 ± 3.4	13.3 ± 3.3	11.2 ± 2.8
in an arc at a distance	32	9.6 ± 2.4	11.0 ± 2.8	11.0 ± 2.8	11.4 ± 2.9
of 4 - 5 miles.	33	11.1 ± 2.8	12.7 ± 3.2	12.8 ± 3.2	11.2 ± 2.8
	34	12.5 ± 3.1	13.4 ± 3.4	13.5 ± 3.4	13.3 ± 3.4
	35	11.0 ± 2.8	13.1 ± 3.3	13.4 ± 3.4	13.0 ± 3.3
	36	10.1 ± 2.5	11.5 ± 2.9	11.7 ± 2.9	11.4 ± 2.9
	37	9.9 ± 2.5	11.3 ± 2.9	11.4 ± 2.9	11.4 ± 2.9
	38	11.6 ± 2.9	13.2 ± 3.3	12.8 ± 3.2	13.1 ± 3.3
	39	10.7 ± 2.7	12.3 ± 3.1	12.4 ± 3.1	12.7 ± 3.2
	40	9.4 ± 2.4	11.3 ± 2.8	11.3 ± 2.8	11.0 ± 2.8

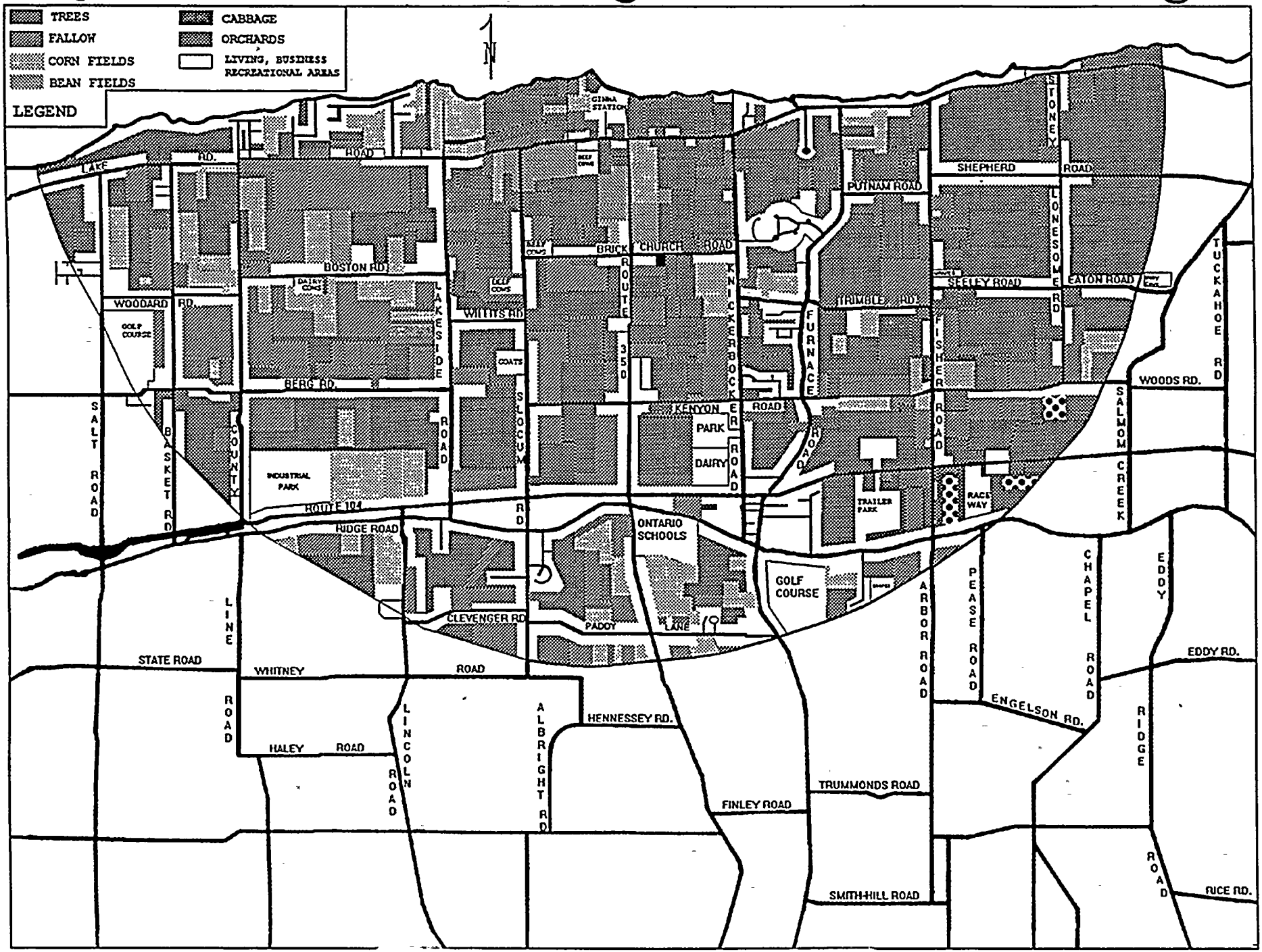
(a) TLD missing at time of collection.


EXTERNAL PENETRATING RADIATION
THERMOLUMINESCENT DOSIMETRY
25.0
20.0
15.0
10.0
5.0
0.0
AVE mRem / QTR
2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40
TLD LOCATION NUMBER
1994
1995

4.0 LAND USE CENSUS

A land use census is done each year to determine any major changes in the use of the land within 5 miles of the plant. There were no major changes during 1995. The land use remains mainly agricultural in nature. There were several private homes constructed, but no new housing developments or large business construction projects. The three dairy operations nearest the plant continued in operation with an average of 40 to 70 milking cows. There are no goats used for milk on a regular basis within the 5 mile radius. Beef cattle are still raised on 3 farms within 2 miles of the plant as in the past.

A copy of the Land Use Census is attached.



Land Use Census 1995

5.0 EXTERNAL INFLUENCES

During 1995, there were no external influences such as atmospheric weapons testing or accidents at other nuclear facilities which caused an influence on the data reported. The annual trending graphs for air and water indicate a level effect in the measured activity.

6.0 EPA INTERLABORATORY COMPARISON STUDY

An indication of the laboratory's ability to analyze samples and achieve results consistent with other laboratories is the aim of the EPA Interlaboratory Comparison. Selected unknowns are received and analyzed by our procedures and the results are sent to the EPA Environmental Monitoring Systems Laboratory. A report is returned from them indicating the concentrations with which the samples were spiked and how we compared to other laboratories analyzing the same samples. Table 6-1 is a tabulation of the Ginna results of samples analyzed during 1995.

Graphs showing a statistical analysis and trend of the results of RG&E's analysis and all reporting laboratories is included after the table. The sigma value is smaller than that calculated by EPA for a single laboratory. The graphs indicate that our agreement with other laboratories for the analysis is good.

Following Table 6-1 is a statistical analysis and trend of RG&E's comparison to all non-outlier laboratories participating in the 1994 and 1995 EPA Interlaboratory Comparison program. Normalized standard deviation (Z-score) statistic is used to assess RG&E's accuracy and precision relative to the other laboratories and is defined by the following equation.

$$Z\text{-}score = \frac{(Ginna\ mean) - (Grand\ Avg.\ of\ Labs)}{(Standard\ Deviation\ of\ Labs)}$$

Upper and lower control limits are set at Z-scores equivalent to ± 3 standard deviations respectively. Upper and lower warning limits are set at Z-scores equivalent to ± 2 standard deviations respectively. Z-scores within the control limits are assessed to be within agreement and Z-scores outside the control limits are assessed to be in disagreement. Z-score trends with no more than 2 consecutive Z-scores outside the warning limits are assessed to have acceptable precision, otherwise precision is assessed as a bias trending low or high. All Z-scores are within agreement and acceptable precision.

Rochester Gas and Electric
Table 6-1

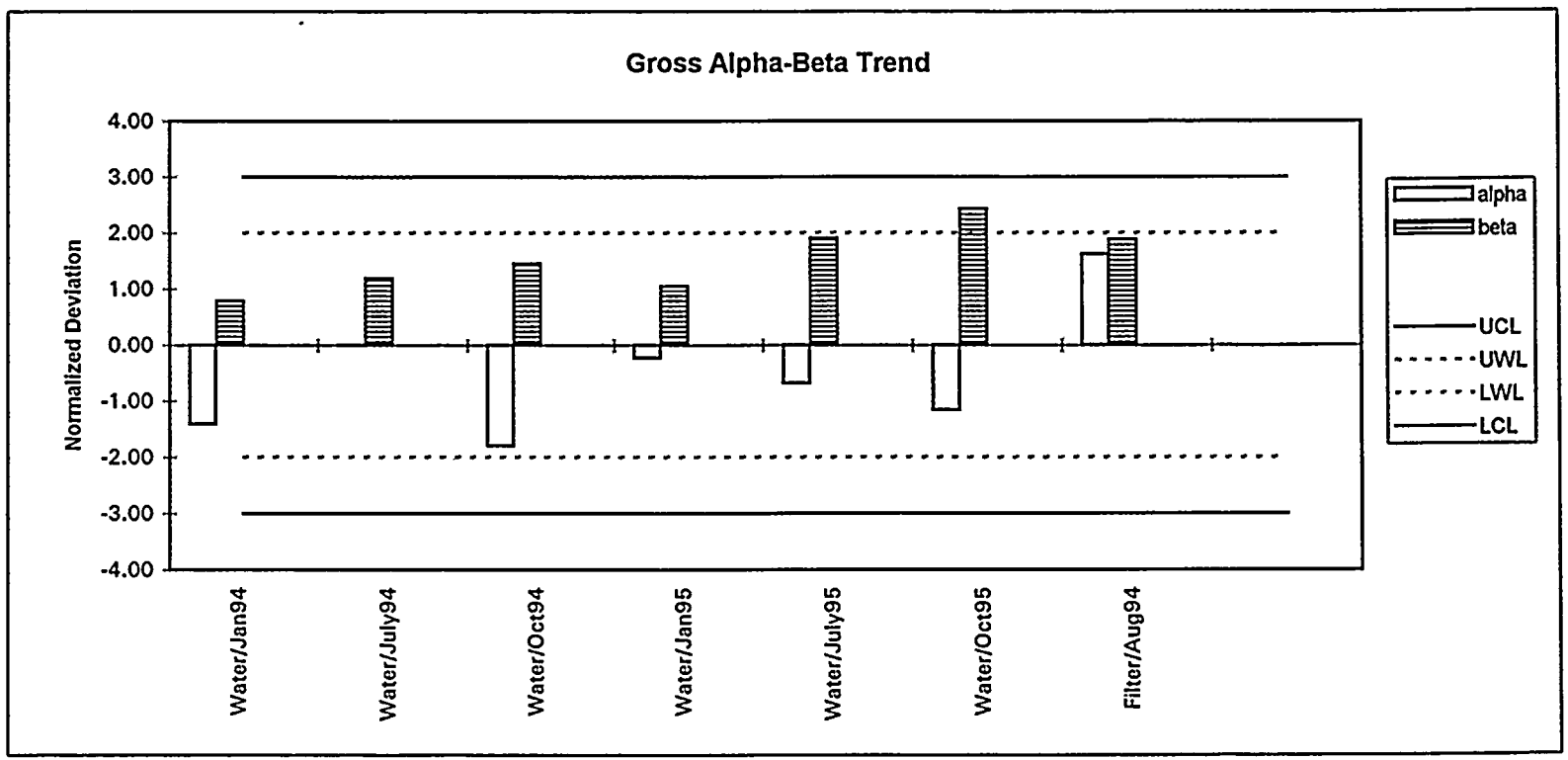
EPA Interlaboratory Comparison Program -1995

Description	Date	Sample Analysis	Experimental Data			EPA Value ± 1 Sigma
Alpha/Beta in Water (Results in pCi/1)	1/27/95	Alpha	6	4	5	5 ± 5
		Beta	9	10	10	5 ± 5
	7/21/95	Alpha	29.8	27.9	29.5	27.5 ± 6.9
		Beta	15.9	15.4	16.7	19.4 ± 5.0
	10/27/95	Alpha *	22.7	17.4	23.9	51.2 ± 12.8
		Beta	34.1	35.4	32.8	24.8 ± 5.0
		* Alpha in water - average for all respondent's was 30.0 ± 8.7. Check of alpha efficiency with standard indicated no problem with counter.				
Gamma in Water (Results in pCi/l)	6/9/95	Co-60	36	38	36	40 ± 5
		Zn-65	76	77	80	76 ± 8
		Cs-134	51	47	48	50 ± 5
		Cs-137	34	38	35	35 ± 5
		Ba-133	79	80	89	79 ± 8
	11/3/95	Co-60	63	62	57	60 ± 5
		Zn-65	126	127	130	125 ± 13
		Cs-134	32	36	34	40 ± 5
		Cs-137	50	49	50	49 ± 5
		Ba-133	92	106	92	99 ± 10
Iodine-131 in Water (Results in pCi/1)	2/3/95	I-131	98	101	100	100 ± 10
	10/6/95	I-131	150	154	159	148 ± 15
Air Filters (Results in pCi/filter)	8/25/95	Alpha	27.6	30.3	28.3	25.0 ± 6.3
		Beta	77.3	78.3	78.2	86.6 ± 10
		Cs-137	24	26	25	25 ± 5
Milk (Results in pCi/1)	9/29/95	I-131	100	98	98	99 ± 10
		Cs-137	48	50	49	50 ± 5
		K-40	1660	1720	1680	1654 ± 83

EPA Interlaboratory Comparison Program, Gross Alpha-Beta

Sample/Month	Grand Average of Labs pCi/l alpha	Grand Average of Labs pCi/l beta	Ginna Mean pCi/l alpha	Ginna Mean pCi/l beta	Normalized Deviation of Ginna Mean from Grand Average of Labs alpha	Normalized Deviation of Ginna Mean from Grand Average of Labs beta
Water/Jan94	13.75	56.14	9.67	60.67	-1.42	0.78
Water/July94	29.74	14.91	29.67	18.33	-0.02	1.19
Water/Oct94	52.3	27.16	37.67	31.33	-1.81	1.45
Water/Jan95	5.68	6.62	5.00	9.67	-0.24	1.05
Water/July95	19.75	21.67	16	29.07	-0.69	1.91
Water/Oct95	29.99	27.09	21.33	34.1	-1.17	2.43
Filter/Aug94	36.89	59.08	45.33	70	1.62	1.89
Filter/Aug95	26.65	87.38	28.73	77.93	0.57	-1.64

Note: alpha was reported as beta and beta as alpha to EPA



EPA Interlaboratory Comparison Program, Gamma Isotopic

Sample/Month	Grand Average of Labs pCi/l Ba-133	pCi/l Co-60	pCi/l Cs-134	pCi/l Cs-137	pCi/l I-131	mg/l K-40	pCi/l Ru-106	pCi/l Zn-65	Ginna pCi/l Ba-133	pCi/l Co-60	pCi/l Cs-134	pCi/l Cs-137	pCi/l I-131	mg/l K-40	pCi/l Ru-106	pCi/l Zn-65	Normalized Deviation of Ginna Mean from Grand Average of Labs Ba-133	Co-60	Cs-134	Cs-137	I-131	K-40	Ru-106	Zn-65
Water/Feb 94					120.99								124.33								0.48			
Water/June 94	86.46	49.77	36.99	52.38			216.56	140.62	84.33	49.00	37.33	49.00			189.33	139.00	-0.37	-0.27	0.12	-1.17			-1.89	-0.22
Water/Oct 94					79.89								81.00								0.24			
Water/Nov 94	70.81	58.87	22.95	51.92				104.68	66.33	56.00	20.67	47.00				98.67	-1.11	-0.99	-0.79	-1.70				-1.04
Water/Feb 95					98.53								99.67								0.2			
Water/June 95	76.16	39.71	45.65	35.49				78.75	82.67	36.67	48.67	35.67				77.67	1.41	-1.06	1.05	0.06				-0.23
Water/Oct 95					152.9								154.33								0.17			
Water/Nov 95	95.64	59.65	36.85	50.81				128.89	96.67	60.67	34	49.67				127.67	0.18	0.35	-0.99	-0.39				-0.16
Milk/Sept 94				62.39	74.89	1700.90						57.67	70.67	1736.67						-1.64	-0.92	0.72		
Milk/Sept 95				50.99	101.23	1665.47						49	98.67	1686.67						-0.69	-0.44	0.44		
Filter/Aug 94				16.59								19.33								0.95				
Filter/Aug 95				26.85								25								-0.64