RADIOLOGICAL ENVIRONMENTAL SURVEY

January - December 1984

SUMMARY

The environment surrounding the Ginna Nuclear Plant is routinely monitored to determine the influence of plant operation on the levels of man-made radioactivity. Samples are collected on-site where concentrations would be expected to be highest if a release from the plant should occur and compared to samples which have been collected simultaneously at points where the concentration of the plant effluents is calculated to be less than 1% of those at the closer locations. The reference samples provide a running background which makes it possible to distinguish between significant radioactivity introduced to the environment from the operation of the plant and that introduced by nuclear detonations or other sources.

For the year of 1984, new Environmental Tech Specs were in place.

During the year of 1984, 1546 samples were obtained and analyzed. 431 of these samples were analyzed by a gamma scan. In addition, 21 EPA Interlaboratory Comparison Studies samples were analyzed and reported. The samples included air, water, fallout, fish, vegetation, milk and direct radiation. There was no significant difference between on-site and off-site samples and no positive results were found that were due to plant operations. The concentrations of radioactive material in the environment resulting from plant releases were calculated from the measured release rates and dilution factors. These calculated concentrations could not have been detected because of the magnitude and fluctuations of the background or because they were below the sensitivity of our analytic procedures. The calculated concentrations would give a dose commitment well below the design objectives specified in Appendix I, 10 CFR 50.

ANALYTICAL RESULTS

The values listed on the following tables include the uncertainties stated as 2 standard deviations (96% confidence level).

IE25
1/1

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. Table XII is 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. An explanation of the calculation of the LLD is included following Table XII. Gross detection limits are as follows:

Beta:

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

Water 1.2 pCi/L Gross beta for 1 liter sample.

Milk 0.07 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 400M^3 sample.

Radiation 10 millirem/month for one month exposure (film). 5 millirem/ quarter for one quarter exposure (TLD).

AIR PARTICULATES

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.

There is a ring of 7 sampling stations on the plant site located from 150 to 300 meters from the reactor at the point of the maximum annual average ground level concentration. In addition, there is a ring of 5 sampling stations located approximately 7 to 10 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 0.025 and 0.025 pCi/M^3 for the period of January to December, 1984. Maximum weekly concentrations for each station were less than 0.066 pCi/m^3.

The average concentration of particulate at the site boundary due to plant releases of iodine and particulate would be 2.56 E-4 pCi/M^3 or 1.8 E-2% of the average release concentration of 1.42 pCi/m^3. The survey can not detect such concentrations against the magnitude of the background.

Table IA is a list of values for the on-site samplers during January through June, Table IIA is a list for the on-site locations during July through December. Table IB is a list of values for the off-site samplers during January through June, Table IIB is a list for the off-site locations during July through December.

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 this analysis are listed in Tables IIIA and B.

Iodine cartridges are placed at four locations. These cartridges are changed and counted each week. A list of values for these cartridges is given in Table IV.

A trend plot of the 1983 and 1984 Air Filter data is included. The rise during the second half of the year may be due to a change in counting equipment for these samples. All counts were within normal variation seen during the past several years.

WATER

Composite samples are collected weekly from Lake Ontario, upstream (Russell Station) and downstream (Ontario Water Plant) and analyzed for gross beta activity. There was no significant difference between the upstream and downstream sample concentrations. The yearly averages were 4.20 and 3.52 pCi/liter for the upstream and downstream samples respectively. Results are listed in Table VA for January through June and Table VB for July through December. A trend plot of the upstream and downstream samples is included.

Weekly composite samples are taken from the plant circulating water intake and discharge canal. The yearly averages were 3.64 and 3.30 pCi/liter for the intake and discharge canal respectively. These are essentially the same as the upstream and downstream values of 4.20 and 3.52 pCi/liter.

For all batch releases, the average concentration in the discharge canal from the identified activity was 0.40 pCi/liter. The normal 1 sigma variation in the activity calculation of composite samples is 0.99 pCi/liter or twice the average concentration added by releases from the plant.

Samples of tap water, the nearest well, and the creek which crosses the site were collected and analyzed monthly. The results show no indication of plant influence. These results are listed in Tables VA and VB.

Gamma isotopic analysis was done on each monthly sample and biweekly or monthly composites of weekly samples. These are listed in Table VII and separated by source of sample.

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. There was no significant difference between on-site and off-site samples for the period of January through December, 1984. Table VIII lists the values for fallout samples.

EXTERNAL PENETRATING RADIATION

External penetrating radiation is measured by film badges, which are sealed in plastic with the desiccant. The films are located at 12 air particulate sampling stations and one distant location and are changed monthly. One TLD and film location (#7) is affected by the contaminated equipment storage location and indicated > 10 mr/month exposure. The distant location also indicated > 10 mr/month exposure twice during the year which is attributed to possible exposure during periods of radiography.

A thermoluminescent dosimeter (TLD) with a sensitivity of 1 millirem is issued as part of the environmental monitoring. 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 so as to give indications in each of the nine land based sectors around the plant potential population exposures should an excessive release occur from the plant.

Badges are changed and read after approximately 3 months exposure.

For the year of 1984, on-site exposure ranged between 0.78 and 1.77 mrem/wk, with an average exposure of 1.47 mrem/wk and off-site 0.76 to 1.77 mrem/wk with an average exposure of 1.17 mrem/wk. Tables IXA and IXB give TLD readings for each quarter. A trend plot of the quarterly average dose rate by TLD location is included comparing 1983 and 1984.

MILK

Milk samples are collected monthly during November to May and biweekly during June to October from one of the three closest dairy herds located three to five miles from the plant. 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. The method involves chemical separation of iodine and gross beta counting. Interference from other radioactive isotopes has made the results suspect in that they are biased high. The counting procedure is not specific for Iodine-131 and other isotopes may add to the count rate. Attempts to determine the half-life of the activity in the sample is difficult because of the low counting rates involved.

During 1984, 16 of 56 samples indicated positive activity with an average Iodine-131 concentration of 0.65 pCi/liter. The two highest readings were at a time when we were changing counting equipment and the activity could neither be verified or discounted. There were no iodine releases from the plant during the time period of the samples that would have given the found readings.

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. The resultant annual thyroid dose for 1983 would be 0.022 mrem. The annual average plant release rate would give a concentration of < 0.005 pCi/liter of Iodine-131 in milk, which is below the LLD for this analysis.

LAKE ONTARIO FISH

Fish caught near the discharge canal outfall were filleted, and counted for gamma emitting isotopes. Gross gamma activity was normal to that seen in previous years operation of the plant for fish samples.

Isotopic Gamma Concentrations (pCi/wet kilogram) are listed in Table XI.

A sample of the sand was obtained from the lake bottom in the discharge plume area. Results of the gamma scan are included in Table XI.

OTHER SAMPLES

Additional samples representing vegetation and fruit were taken and analyzed for gamma emitting isotopes. The results for these samples are listed in Table XIB.

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 XIII is a tabulation of the samples analyzed during 1984.

TABLE 3.16-1

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM

Exposure Pathway and/or Sample	Number of Samples and Sample Locations	Sampling and Collection Frequency	Type and Frequency of Analysis
1. AIRBORNE			
a. Radioiodine	2 indicator 2 control	Continuous operation of sampler with sample collection at least once per 10 days.	Radioiodine canister. Analyze within 7 days of collection of I-131
b. Particulates	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.

TABLE IX

EXTERNAL PENETRATING RADIATION

THERMOLUMINESCENT DOSIMETRY 1984

LOCATION	BADGE NO.	FIRST QUARTER MREM	FIRST QUARTER MREM/WK	SECOND QUARTER MREM	SECOND QUARTER MREM/WK
#2 - #7 plus #13 are on-site near the line of highest annual average ground level concentration.	2	13.3	0.99±0.07	14.3	1.04±0.08
	3	13.3	0.99±0.07	17.7	1.29±0.09
	4	14.1	1.05±0.08	20.7	1.51±0.11
	5	15.8	1.18±0.08	21.7	1.58±0.11
	6	10.5	0.78±0.06	16.8	1.23±0.09
	7	14.1	3.05±0.22	57.0	4.16±0.30
#8 - #12 are offsite at a distance of 8 to 15 miles.	8	13.3	0.99±0.07	15.3	1.12±0.08
	9	13.6	1.01±0.07	13.1	0.96±0.07
	10	11.1	0.83±0.06	13.9	1.01±0.07
	11	11.2	0.83±0.06	14.4	1.05±0.08
	12	10.2	0.76±0.05	13.6	0.99±0.07
	13	14.1	1.05±0.08	13.9	1.01±0.07
#14 - #16 are located along a line 3000' west of the plant.	14	12.2	0.91±0.07	14.5	1.06±0.08
	15	15.3	1.14±0.08	21.8	1.59±0.11
	16	12.0	0.89±0.06	17.0	1.24±0.09
#17 - #21 are located along Lake Road.	17	11.4	0.85±0.06	15.5	1.13±0.08
	18	14.9	1.11±0.08	17.4	1.27±0.09
	19	14.6	1.09±0.08	16.3	1.19±0.09
	20	13.7	1.02±0.07	16.7	1.22±0.09
	21	13.8	1.03±0.07	17.2	1.25±0.09
#22 - #24 are located along the east site boundary line.	22	13.1	0.98±0.07	15.0	1.09±0.08
	23	11.1	0.83±0.06	15.8	1.15±0.08
	24	12.7	0.95±0.07	17.0	1.24±0.09
#25 - #30 are offsite at a distance of 8 to 15 miles.	25	11.4	0.85±0.06	16.1	1.17±0.08
	26	10.7	0.80±0.06	13.3	0.97±0.07
	27	11.3	0.84±0.06	15.7	1.14±0.08
	28	11.8	0.88±0.06	17.0	1.24±0.09
	29	11.2	0.83±0.06	13.6	0.99±0.07
	30	12.4	0.92±0.07	11.8	0.86±0.06
#31 through #40 are located in an arc at a distance of 4-5 miles.	31	13.2	0.98±0.07	16.3	1.19±0.09
	32		(a)		(a)
	33	11.9	0.89±0.06	17.0	1.24±0.09
	34	11.5	0.86±0.06	16.5	1.20±0.09
	35	13.3	0.99±0.07	16.8	1.23±0.09
	36	11.2	0.83±0.06	14.3	1.04±0.08
	37	12.0	0.89±0.06	15.4	1.12±0.08
	38	12.5	0.93±0.07	16.2	1.18±0.09
	39	11.3	0.84±0.06	17.3	1.26±0.09
	40	10.8	0.80±0.06	14.9	1.09±0.08

(a) TLD missing at field location

FALLOUT TRITIUM ANALYSIS
RESULTS IN pCi/L

MONTH OF	STATION 3	STATION 5	STATION 8	STATION 10	STATION 12
JANUARY	< 470	< 490	< 490	< 500	< 480
FEBRUARY	< 470	< 490	< 490	< 500	< 480
MARCH	< 470	< 490	< 490	< 500	< 480
APRIL	< 470	< 490	< 490	< 500	< 480
MAY	< 470	< 490	< 490	< 500	< 480
JUNE	< 470	< 490	< 490	< 500	< 480
JULY	< 470	< 490	< 490	< 500	< 480
AUGUST	< 470	< 490	< 490	< 500	< 480
SEPTEMBER	< 470	< 490	< 490	< 500	< 480
OCTOBER	< 470	< 490	< 490	< 500	< 480
NOVEMBER	< 470	< 490	< 490	< 500	< 480
DECEMBER	< 470	< 490	< 490	< 500	< 480

ALL VALUES GIVEN AS < ARE LESS THAN THE LLD.

TABLE VIII

FALLOUT GROSS BETA ANALYSES
RESULTS IN pCi/M^2/DAY

MONTH OF	STATION 3	STATION 5	STATION 8	STATION 10	STATION 12
JANUARY	2.91±0.84	2.75±1.17	5.49±1.18	4.68±1.17	6.91±1.43
FEBRUARY	8.10±1.95	5.45±1.71	5.12±1.56	7.39±2.53	6.92±2.47
MARCH	5.93±2.44	3.99±1.39	6.80±1.87	5.21±2.65	7.73±2.65
APRIL	4.69±4.06	3.97±4.21	8.30±4.52	5.24±4.39	9.16±4.88
MAY	8.29±6.73	6.78±6.80	5.57±6.46	9.37±6.56	1.18±0.64
JUNE	3.09±0.78	1.36±0.68	2.70±1.20	0.34±0.68	2.34±1.23
JULY	2.45±1.06	2.81±0.91	1.50±1.23	2.58±1.00	5.19±1.19
AUGUST	3.63±3.09	2.71±2.95		1.35±2.86	7.41±4.03
SEPTEMBER	4.53±3.72	8.16±3.80	1.06±0.42	9.32±3.09	10.58±3.77
OCTOBER	9.24±1.51	3.46±1.23	3.40±1.19	5.17±1.30	1.07±0.16
NOVEMBER	4.87±1.80	5.82±1.92	5.76±1.65	3.87±1.17	1.39±0.27
DECEMBER	3.45±1.51	4.62±1.61	4.67±1.78	8.00±1.77	6.38±1.64
MAXIMUM	9.24±1.51	8.16±3.80	8.30±4.52	9.37±6.56	10.58±3.77
AVERAGE	5.10	4.32	4.58	5.21	5.52
MINIMUM	2.45±1.06	1.36±0.68	1.06±0.42	0.34±0.68	1.07±0.16

TABLE VII F

WELL 'B' WATER GAMMA ISOTOPIC ANALYSES
RESULTS IN pCi/LITER

BETWEEN DATES OF		7 BE	51 CR	54 MN	59 FE	58 CO	60 CO	65 ZN	95 ZR	95 NB
JAN.	1 - JAN. 31	< 59	< 70	< 6	< 9	< 6	< 7	< 11	< 10	< 6
FEB.	1 - FEB. 29	< 60	< 67	< 5	< 9	< 5	< 5	< 11	< 10	< 6
MARCH	1 - MARCH 31	< 58	< 67	< 5	< 9	< 5	< 4	< 11	< 10	< 6
APRIL	1 - APRIL 30	< 60	< 67	< 7	< 9	< 8	< 8	< 18	< 14	< 9
MAY	1 - MAY 31	< 69	< 90	< 5	< 9	< 5	< 9	< 12	< 10	< 6
JUNE	1 - JUNE 30	< 67	< 71	< 5	< 8	< 5	< 3	< 10	< 10	< 6
JULY	1 - JULY 31	< 68	< 91	< 5	< 8	< 5	< 5	< 4	< 10	< 5
AUG.	1 - AUG. 31	< 69	< 91	< 6	< 8	< 5	< 4	< 11	< 10	< 6
SEPT.	1 - SEPT. 30	< 64	< 83	< 5	< 8	< 5	< 4	< 10	< 9	< 5
OCT.	1 - OCT. 31	< 65	< 84	< 5	< 9	< 5	< 3	< 10	< 9	< 5
NOV.	1 - NOV. 30	< 64	< 82	< 5	< 8	< 5	< 3	< 9	< 10	< 6
DEC.	1 - DEC. 31	< 61	< 79	< 5	< 8	< 5	< 3	< 9	< 9	< 5

BETWEEN DATES OF		103 RU	106 RU	131 I	134 CS	137 CS	140 BA	141 CE	144 CE	226 RA
JAN.	1 - JAN. 31	< 8	< 60	< 8	< 6	< 6	< 5	< 15	< 62	< 12
FEB.	1 - FEB. 29	< 8	< 57	< 8	< 6	< 6	< 5	< 14	< 61	21±4
MARCH	1 - MARCH 31	< 6	< 58	< 8	< 6	< 6	< 5	< 14	< 58	14±4
APRIL	1 - APRIL 30	< 8	< 92	< 10	< 8	< 9	< 5	< 20	< 88	37±3
MAY	1 - MAY 31	< 8	< 61	< 10	< 6	< 7	< 5	< 24	<100	41±4
JUNE	1 - JUNE 30	< 8	< 61	< 10	< 6	< 7	< 4	< 24	<100	28±3
JULY	1 - JULY 31	< 8	< 61	< 10	< 6	< 6	< 4	< 23	<100	24±3
AUG.	1 - AUG. 31	< 8	< 64	< 10	< 6	< 6	< 5	< 24	<105	24±3
SEPT.	1 - SEPT. 30	< 8	< 60	< 9	< 6	< 6	< 4	< 23	< 97	18±3
OCT.	1 - OCT. 31	< 8	< 58	< 9	< 6	< 6	< 4	< 22	< 95	18±3
NOV.	1 - NOV. 30	< 8	< 58	< 9	< 6	< 5	< 4	< 22	< 95	16±3
DEC.	1 - DEC. 31	< 8	< 56	< 9	< 6	< 6	< 4	< 21	< 92	24±3

ALL VALUES GIVEN AS < ARE LESS THAN THE LLD.

TABLE VII E

TAP WATER GAMMA ISOTOPIC ANALYSES
RESULTS IN pCi/LITER

BETWEEN DATES OF		7 BE	51 CR	54 MN	59 FE	58 CO	60 CO	65 ZN	95 ZR	95 NB
JAN.	1 - JAN. 31	< 60	< 68	< 6	< 9	< 5	< 7	< 11	< 10	< 6
FEB.	1 - FEB. 29	< 56	< 65	< 5	< 8	< 5	< 4	< 10	< 10	< 6
MARCH	1 - MARCH 31	< 56	< 65	< 5	< 9	< 5	< 4	< 11	< 9	< 6
APRIL	1 - APRIL 30	< 61	< 69	< 6	< 9	< 6	< 7	< 11	< 10	< 6
MAY	1 - MAY 31	< 67	< 88	< 5	< 9	< 5	< 8	< 10	< 10	< 5
JUNE	1 - JUNE 30	< 64	< 84	< 5	< 9	< 5	< 4	< 9	< 10	< 5
JULY	1 - JULY 31	< 64	< 85	< 5	< 9	< 5	< 4	< 9	< 9	< 6
AUG.	1 - AUG. 31	< 61	< 83	< 5	< 8	< 5	< 4	< 10	< 9	< 5
SEPT.	1 - SEPT. 30	< 64	< 81	< 5	< 8	< 5	< 3	< 9	< 9	< 5
OCT.	1 - OCT. 31	< 64	< 81	< 5	< 8	< 5	< 4	< 9	< 9	< 5
NOV.	1 - NOV. 30	< 64	< 81	< 5	< 8	< 5	< 3	< 10	< 10	< 6
DEC.	1 - DEC. 31	< 59	< 79	< 5	< 8	< 4	< 2	< 9	< 9	< 5

BETWEEN DATES OF		103 RU	106 RU	131 I	134 CS	137 CS	140 BA	141 CE	144 CE	226 RA
JAN.	1 - JAN. 31	< 7	< 60	< 8	< 6	< 6	< 5	< 14	< 61	< 12
FEB.	1 - FEB. 29	< 6	< 58	< 8	< 6	< 6	< 4	< 14	< 60	< 12
MARCH	1 - MARCH 31	< 6	< 56	< 8	< 6	< 6	< 4	< 14	< 58	< 12
APRIL	1 - APRIL 30	< 6	< 62	< 8	< 6	< 6	< 5	< 15	< 62	< 12
MAY	1 - MAY 31	< 8	< 61	< 10	< 6	< 7	< 4	< 23	< 99	< 13
JUNE	1 - JUNE 30	< 7	< 58	< 9	< 6	< 7	< 4	< 22	< 97	< 13
JULY	1 - JULY 31	< 7	< 61	< 10	< 6	< 6	< 4	< 23	< 98	< 13
AUG.	1 - AUG. 31	< 7	< 60	< 9	< 6	< 6	< 4	< 22	< 97	< 12
SEPT.	1 - SEPT. 30	< 7	< 61	< 9	< 5	< 6	< 5	< 22	< 94	< 12
OCT.	1 - OCT. 31	< 7	< 58	< 9	< 6	< 6	< 4	< 22	< 94	< 13
NOV.	1 - NOV. 30	< 7	< 56	< 9	< 6	< 6	< 4	< 22	< 95	< 13
DEC.	1 - DEC. 31	< 7	< 53	< 9	< 5	< 5	< 4	< 21	< 92	< 12

ALL VALUES GIVEN AS < ARE LESS THAN THE LLD.

TABLE VII D

DEER CREEK WATER GAMMA ISOTOPIC ANALYSES
RESULTS IN pCi/LITER

BETWEEN DATES OF		7 BE	51 CR	54 MN	59 FE	58 CO	60 CO	65 ZN	95 ZR	95 NB
JAN.	1 - JAN. 31	< 60	< 71	< 6	< 10	< 5	< 5	< 11	< 10	< 6
FEB.	1 - FEB. 29	< 59	< 72	< 5	< 9	< 6	< 5	< 11	< 10	< 6
MARCH	1 - MARCH 31	< 60	< 72	< 6	< 10	< 6	< 5	< 11	< 10	< 6
APRIL	1 - APRIL 30	< 63	< 74	< 6	< 10	< 6	< 5	< 11	< 11	< 6
MAY	1 - MAY 31	< 65	< 85	< 5	< 9	< 5		< 9	< 10	< 5
JUNE	1 - JUNE 30	< 67	< 87	< 5	< 8	< 5	< 3	< 9	< 10	< 6
JULY	1 - JULY 31	< 64	< 87	< 5	< 9	< 5	< 4	< 11	< 10	< 6
AUG.	1 - AUG. 31	< 65	< 83	< 5	< 8	< 5	< 3	< 10	< 9	< 6
SEPT.	1 - SEPT. 30	< 64	< 85	< 5	< 8	< 5	< 4	< 9	< 9	< 5
OCT.	1 - OCT. 31		NO FLOW IN CREEK							
NOV.	1 - NOV. 30	< 65	< 83	< 5	< 8	< 5	< 3	< 10	< 10	< 5
DEC.	1 - DEC. 31	< 65	< 87	< 5	< 9	< 5	< 3	< 9	< 9	< 5

BETWEEN DATES OF		103 RU	106 RU	131 I	134 CS	137 CS	140 BA	141 CE	144 CE	226 RA
JAN.	1 - JAN. 31	< 10	< 61	< 8	< 6	< 6	< 6	< 15	< 63	< 13
FEB.	1 - FEB. 29	< 10	< 56	< 9	< 6	< 6	< 5	< 15	< 61	< 13
MARCH	1 - MARCH 31	< 7	< 61	< 9	< 6	< 6	< 6	< 15	< 63	15±4
APRIL	1 - APRIL 30	< 7	< 62	< 9	< 6	< 6	< 5	< 15	< 64	< 13
MAY	1 - MAY 31	< 8	< 64	< 10	< 6	< 7	< 4	< 22	<100	< 14
JUNE	1 - JUNE 30	< 10	< 62	< 10	< 6	< 7	< 4	< 22	< 98	11±3
JULY	1 - JULY 31	< 10	< 61	< 10	< 6	< 6	< 5	< 23	< 99	< 12
AUG.	1 - AUG. 31	< 10	< 56	< 9	< 6	< 6	< 5	< 22	< 94	< 12
SEPT.	1 - SEPT. 30	< 7	< 57	< 9	< 6	< 6	< 4	< 22	< 94	< 12
OCT.	1 - OCT. 31		NO FLOW IN CREEK							
NOV.	1 - NOV. 30	< 7	< 57	< 10	< 6	< 6	< 5	< 22	< 95	< 14
DEC.	1 - DEC. 31	< 8	< 56	< 12	< 5	< 6	< 5	< 23	< 95	< 13

ALL VALUES GIVEN AS < ARE LESS THAN THE LLD.

TABLE VII C

CIRC. OUT WATER GAMMA ISOTOPIC ANALYSES
RESULTS IN pCi/LITER

BETWEEN DATES OF	7 BE	51 CR	54 MN	59 FE	58 CO	60 CO	65 ZN	95 ZR	95 NB	103 RU	106 RU	131 I	134 CS	137 CS	140 BA	141 CE	144 CE	226 RA
DEC. 29 - JAN. 12	< 60	< 80	< 5	< 10	< 6	< 4	< 11	< 11	< 6	< 7	< 58	< 14	< 6	< 6	< 6	< 16	< 62	< 12
JAN. 12 - JAN. 26	< 66	< 81	< 5	< 11	< 6	< 4	< 12	< 11	< 6	< 8	< 62	< 15	< 6	< 6	< 8	< 16	< 62	< 12
JAN. 26 - FEB. 9	< 62	< 80	< 5	< 10	< 6	< 4	< 11	< 11	< 6	< 7	< 61	< 14	< 6	< 6	< 7	< 16	< 59	< 12
FEB. 9 - FEB. 23	< 65	< 83	< 5	< 10	< 6	< 5	< 11	< 11	< 6	< 8	< 57	< 15	< 6	< 6	< 7	< 17	< 62	< 12
FEB. 23 - MARCH 8	< 58	< 75	< 5	< 9	< 6	< 4	< 10	< 11	< 6	< 7	< 55	< 14	< 6	< 5	< 7	< 16	< 58	< 11
MARCH 8 - MARCH 22	< 62	< 80	< 5	< 10	< 5	< 4	< 11	< 11	< 6	< 7	< 58	< 14	< 6	< 6	< 7	< 16	< 61	< 12
MARCH 22 - APRIL 5	< 72	< 86	< 6	< 12	< 7	< 5	< 11	< 12	< 7	< 8	< 63	< 15	< 6	< 7	< 7	< 17	< 65	< 13
APRIL 5 - APRIL 19	< 70	< 87	< 6	< 11	< 6	< 5	< 12	< 12	< 7	< 8	< 61	< 17	< 6	< 6	< 6	< 18	< 64	< 13
APRIL 19 - MAY 3	< 70	<100	< 5	< 9	< 6	< 8	< 9	< 11	< 6	< 8	< 63	< 18	< 6	< 7	< 6	< 26	< 99	< 43
MAY 3 - MAY 17	< 74	<110	< 5	< 9	< 6	< 8	< 9	< 11	< 7	< 9	< 61	< 23	< 6	< 7	< 7	< 28	< 98	< 12
MAY 17 - MAY 31	< 71	<105	< 5	< 9	< 5	< 8	< 10	< 11	< 6	< 8	< 61	< 19	< 6	< 5	< 7	< 27	<100	< 13
MAY 31 - JUNE 14	< 70	<105	< 5	< 9	< 6	< 2	< 10	< 11	< 6	< 8	< 61	< 18	< 6	< 7	< 6	< 26	< 98	< 13
JUNE 14 - JUNE 28	< 84	<135	< 5	< 11	< 6	< 4	< 10	< 11	< 7	< 10	< 59	< 45	< 6	< 6	< 11	< 32	<100	< 12
JUNE 28 - JULY 12	< 75	<105	< 5	< 9	< 6	< 4	< 10	< 10	< 7	< 9	< 63	< 21	< 6	< 6	< 6	< 27	<100	< 12
JULY 12 - JULY 26	< 74	<105	< 5	< 9	< 5	< 4	< 9	< 10	< 6	< 8	< 59	< 19	< 6	< 6	< 7	< 26	< 98	< 12
JULY 26 - AUG. 9	< 77	<110	< 5	< 9	< 6	< 6	< 4	< 10	< 7	< 9	< 62	< 27	< 6	< 6	< 8	< 28	<100	< 13
AUG. 9 - AUG. 23	< 69	<105	< 5	< 9	< 6	< 4	< 10	< 10	< 6	< 8	< 57	< 19	< 6	< 5	< 6	< 26	< 95	< 12
AUG. 23 - SEPT. 6	< 70	< 99	< 5	< 8	< 5	< 2	< 9	< 10	< 6	< 8	< 56	< 18	< 6	< 6	< 6	< 26	< 95	< 12
SEPT. 6 - SEPT. 20	< 72	<105	< 5	< 9	< 6	< 4	< 9	< 11	< 6	< 9	< 59	< 21	< 6	< 6	< 7	< 26	< 98	< 13
SEPT. 20 - OCT. 4	< 71	<110	< 5	< 9	< 5	< 4	< 9	< 10	< 6	< 9	< 60	< 24	< 6	< 5	< 7	< 27	< 99	< 13
OCT. 4 - OCT. 18	< 71	<105	< 5	< 9	< 6	< 3	< 10	< 10	< 7	< 9	< 58	< 22	< 6	< 6	< 8	< 27	< 98	< 12
OCT. 18 - NOV. 1	< 71	<105	< 5	< 10	< 6	< 3	< 9	< 10	< 6	< 9	< 58	< 21	< 6	< 6	< 8	< 27	< 99	< 12
NOV. 1 - NOV. 15	< 70	< 99	< 5	< 9	< 5	< 4	< 9	< 10	< 6	< 8	< 60	< 16	< 6	< 6	< 6	< 25	< 97	< 13
NOV. 15 - NOV. 29	< 70	< 98	< 5	< 10	< 5	< 2	< 9	< 10	< 6	< 8	< 52	< 18	< 6	< 5	< 6	< 24	< 92	< 12
NOV. 29 - DEC. 13	< 65	< 91	< 5	< 9	< 5	< 2	< 9	< 9	< 6	< 8	< 55	< 16	< 5	< 5	< 6	< 24	< 93	< 12
DEC. 13 - DEC. 27	< 67	< 96	< 5	< 9	< 5	< 2	< 9	< 10	< 6	< 8	< 59	< 16	< 5	< 5	< 6	< 24	< 91	< 12

ALL VALUES GIVEN AS < ARE LESS THAN THE LLD.

TABLE VII B

ONTARIO WATER DISTRICT WATER GAMMA ISOTOPIC ANALYSES
RESULTS IN pCi/LITER

BETWEEN DATES OF	7 BE	51 CR	54 MN	59 FE	58 CO	60 CO	65 ZN	95 ZR	95 NB	103 RU	106 RU	131 I	134 CS	137 CS	140 BA	141 CE	144 CE	226 RA
DEC. 30 - JAN. 13	< 65	< 83	< 6	< 10	< 6	< 5	< 11	< 11	< 6	< 8	< 58	< 15	< 6	< 6	< 7	< 16	< 62	< 13
JAN. 13 - JAN. 27	< 62	< 81	< 5	< 10	< 6	< 5	< 11	< 11	< 6	< 7	< 61	< 14	< 6	< 6	< 7	< 17	< 62	< 12
JAN. 27 - FEB. 10	< 62	< 83	< 5	< 11	< 5	< 4	< 11	< 10	< 6	< 7	< 58	< 15	< 6	< 6	< 7	< 16	< 61	< 12
FEB. 10 - FEB. 24	< 65	< 83	< 6	< 11	< 6	< 5	< 11	< 11	< 7	< 8	< 56	< 15	< 6	< 5	< 8	< 17	< 62	< 12
FEB. 24 - MARCH 9	< 58	< 75	< 5	< 10	< 5	< 4	< 11	< 10	< 6	< 7	< 58	< 14	< 5	< 6	< 7	< 16	< 58	< 11
MARCH 9 - MARCH 23	< 62	< 80	< 5	< 10	< 6	< 4	< 10	< 10	< 6	< 7	< 56	< 14	< 6	< 6	< 7	< 16	< 61	< 12
MARCH 23 - APRIL 6	< 67	< 84	< 6	< 11	< 6	< 5	< 11	< 11	< 7	< 8	< 61	< 16	< 6	< 6	< 7	< 18	< 64	< 13
APRIL 6 - APRIL 20	< 71	< 92	< 6	< 12	< 6	< 5	< 12	< 12	< 7	< 8	< 62	< 20	< 6	< 7	< 8	< 18	< 66	< 13
APRIL 20 - MAY 4	< 72	<100	< 5	< 9	< 6	< 11	< 11	< 10	< 6	< 8	< 62	< 18	< 6	< 7	< 7	< 27	<100	< 12
MAY 4 - MAY 18	< 75	<110	< 5	< 9	< 5	< 7	< 9	< 11	< 6	< 9	< 61	< 22	< 6	< 7	< 7	< 27	<100	< 12
MAY 18 - JUNE 1	< 74	<105	< 5	< 10	< 5	< 8	< 10	< 11	< 6	< 8	< 61	< 19	< 6	< 7	< 7	< 27	<100	< 13
JUNE 1 - JUNE 15	< 71	<100	< 5	< 9	< 6	< 2	< 10	< 11	< 6	< 8	< 59	< 18	< 6	< 7	< 6	< 26	< 97	< 12
JUNE 15 - JUNE 29	< 80	<125	< 6	< 10	< 6	< 4	< 10	< 12	< 7	< 9	< 63	< 32	< 6	< 6	< 9	< 31	<105	< 13
JUNE 29 - JULY 13	< 73	<110	< 5	< 10	< 6	< 4	< 9	< 11	< 6	< 9	< 61	< 23	< 6	< 6	< 6	< 28	<100	< 13
JULY 13 - JULY 27	< 71	<105	< 5	< 10	< 5	< 4	< 10	< 10	< 6	< 8	< 61	< 18	< 6	< 6	< 6	< 26	< 97	< 12
JULY 27 - AUG. 10	< 74	<110	< 5	< 10	< 6	< 5	< 10	< 11	< 7	< 9	< 60	< 24	< 6	< 6	< 8	< 27	<100	< 13
AUG. 10 - AUG. 24	< 70	<100	< 5	< 9	< 5	< 3	< 10	< 11	< 6	< 8	< 59	< 20	< 6	< 6	< 7	< 26	< 96	< 13
AUG. 24 - SEPT. 7	< 70	<105	< 5	< 10	< 5	< 3	< 10	< 10	< 6	< 8	< 59	< 22	< 6	< 6	< 8	< 27	< 98	< 12
SEPT. 7 - SEPT. 21	< 69	<100	< 5	< 10	< 5	< 4	< 10	< 10	< 6	< 8	< 56	< 18	< 6	< 6	< 6	< 26	< 96	< 12
SEPT. 21 - OCT. 5	< 67	<105	< 5	< 9	< 5	< 3	< 9	< 11	< 7	< 8	< 59	< 19	< 6	< 6	< 6	< 26	< 99	< 13
OCT. 5 - OCT. 19	< 70	<100	< 5	< 10	< 6	< 3	< 9	< 10	< 6	< 8	< 58	< 19	< 6	< 6	< 6	< 26	< 97	< 12
OCT. 19 - NOV. 2	< 66	< 96	< 5	< 9	< 5	< 4	< 10	< 10	< 6	< 8	< 59	< 16	< 6	< 6	< 6	< 25	< 95	< 12
NOV. 2 - NOV. 16	< 69	<100	< 5	< 9	< 5	< 3	< 10	< 10	< 6	< 8	< 55	< 17	< 6	< 6	< 7	< 25	< 97	< 12
NOV. 16 - NOV. 30	< 66	< 99	< 5	< 9	< 5	< 2	< 10	< 10	< 7	< 8	< 59	< 20	< 5	< 5	< 8	< 26	< 93	< 12
NOV. 30 - DEC. 14	< 67	<100	< 5	< 10	< 5	< 3	< 9	< 10	< 6	< 9	< 57	< 21	< 6	< 5	< 6	< 25	< 93	< 12
DEC. 14 - DEC. 28	< 83	<120	< 6	< 10	< 6	< 5	< 11	< 12	< 7	< 10	< 69	< 27	< 6	< 7	< 8	< 31	<110	< 14

ALL VALUES GIVEN AS < ARE LESS THAN THE LLD.

TABLE VII A

RUSSELL STATION WATER GAMMA ISOTOPIC ANALYSES
RESULTS IN pCi/LITER

BETWEEN DATES OF		7 BE	51 CR	54 MN	59 FE	58 CO	60 CO	65 ZN	95 ZR	95 NB
JAN.	1 - JAN. 31	< 70	<100	< 6	< 12	< 6	< 6	< 12	< 12	< 7
FEB.	1 - FEB. 29	< 72	<105	< 6	< 10	< 6	< 4	< 11	< 11	< 8
MARCH	1 - MARCH 31	< 79	<115	< 6	< 14	< 7	< 6	< 12	< 13	< 8
APRIL	1 - APRIL 30	< 81	<105	< 6	< 12	< 6	< 6	< 11	< 12	< 8
MAY	1 - MAY 31	< 84	<130	< 5	< 11	< 6	< 6	< 11	< 11	< 7
JUNE	1 - JUNE 30	< 89	<150	< 6	< 13	< 6	< 4	< 10	< 13	< 8
JULY	1 - JULY 31	< 91	<175	< 6	< 13	< 7	< 4	< 10	< 14	< 9
AUG.	1 - AUG. 31	< 78	<135	< 5	< 12	< 6	< 3	< 10	< 11	< 8
SEPT.	1 - SEPT. 30	< 76	<130	< 5	< 11	< 6	< 3	< 9	< 12	< 8
OCT.	1 - OCT. 31	< 79	<135	< 5	< 10	< 6	< 4	< 9	< 12	< 8
NOV.	1 - NOV. 30	< 84	<135	< 5	< 12	< 6	< 2	< 10	< 10	< 8
DEC.	1 - DEC. 31	< 74	<115	< 5	< 11	< 6	< 2	< 9	< 10	< 7

BETWEEN DATES OF		103 RU	106 RU	131 I	134 CS	137 CS	140 BA	141 CE	144 CE	226 RA
JAN.	1 - JAN. 31	< 9	< 61	< 30	< 6	< 6	< 11	< 20	< 64	< 12
FEB.	1 - FEB. 29	< 9	< 58	< 40	< 6	< 5	< 13	< 61	< 11	< 11
MARCH	1 - MARCH 31	< 10	< 66	< 44	< 6	< 6	< 14	< 22	< 66	< 12
APRIL	1 - APRIL 30	< 10	< 62	< 41	< 6	< 6	< 12	< 24	< 66	< 13
MAY	1 - MAY 31	< 10	< 60	< 44	< 6	< 4	< 11	< 33	<100	< 12
JUNE	1 - JUNE 30	< 11	< 64	< 62	< 6	< 6	< 15	< 36	<105	< 12
JULY	1 - JULY 31	< 13	< 62	<110	< 6	< 6	< 20	< 40	<105	< 13
AUG.	1 - AUG. 31	< 10	< 61	< 58	< 6	< 5	< 14	< 34	< 97	< 12
SEPT.	1 - SEPT. 30	< 10	< 60	< 47	< 6	< 6	< 10	< 32	< 99	< 12
OCT.	1 - OCT. 31	< 10	< 59	< 52	< 6	< 6	< 11	< 33	< 99	< 12
NOV.	1 - NOV. 30	< 10	< 61	< 69	< 6	< 5	< 17	< 34	< 95	< 12
DEC.	1 - DEC. 31	< 9	< 56	< 35	< 6	< 5	< 8	< 29	< 90	< 12

ALL VALUES GIVEN AS < ARE LESS THAN THE LLD.

TABLE VI

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	< 490	< 480	< 490	< 480	< 610	< 500	< 480
FEBRUARY	< 490	< 480	< 490	< 480	< 610	< 500	< 480
MARCH	< 490	< 480	< 490	< 480	< 610	< 500	< 480
APRIL	< 490	< 480	< 490	< 480	< 610	< 500	< 480
MAY	< 490	< 480	< 490	< 480	< 610	< 500	< 480
JUNE	< 490	< 480	< 490	< 480	< 610	< 500	< 480
JULY	< 490	< 480	< 490	< 480	< 610	< 500	< 480
AUGUST	< 490	< 480	< 490	< 480	< 610	< 500	< 480
SEPTEMBER	< 490	< 480	< 490	< 480	< 610	< 500	< 480
OCTOBER	< 490	< 480	< 490	< 480	< 610	< 500	< 480
NOVEMBER	< 490	< 480	< 490	< 480	< 610	< 500	< 480
DECEMBER	< 490	< 480	< 490	< 480	< 610	< 500	< 480

ALL VALUES GIVEN AS < ARE LESS THAN THE LLD.

TABLE XIII

NOTES:

Gamma in Water	2/3/84	The Zn-65 was greater than the EPA value +2 sigma. This analysis was done by a gamma scan and isotopic gamma peak analysis. No cause for the discrepancy is apparent since the results for Co-60, Cs-134, and Cs-137 agree well with known value. The Ru-106 was listed as LLD when the known concentration exceeded the LLD. There was possibly a poorly defined peak which the isotopic gamma peak analysis program did not recognize.
Gamma in Water	10/5/84	The Zn-65 was originally reported with an error of a factor of 10. This was an error by the chemist in recording the value.
Air Filters	8/4/84	These results were initially reported in error after being calculated with the wrong efficiency factor.

TABLE XIII (Cont'd)

EPA INTERLABORATORY COMPARISON PROGRAM - 1984

Description	Date	Sample Analysis	Experimental Data			EPA Value ±1σ
Air Filters (Results in pCi/filter)	03/23/84	Alpha	14	16	16	15 ± 5
		Beta	50	50	50	51 ± 5
		Cs-137	7	9	8	10 ± 5
	08/24/84	Alpha*	19	16	16	17 ± 5
		Beta*	52	50	51	51 ± 5
		Cs-137	20	19	20	15 ± 5
	11/23/84	Alpha	21	21	20	15 ± 5
		Beta	53	53	54	52 ± 5
		Cs-137	9	8	10	10 ± 5
Milk (Results in pCi/l)	03/02/84	I-131	6	6	6	6 ± 1
	06/22/84	I-131	36	40	40	43 ± 5
		K-40	1240	1430	1530	1496 ±75
	10/28/84	I-131	42	43	37	42 ± 6
		Cs-137	25	27	26	32 ± 5
		K-40	1380	1400	1340	1517 ±75

All values given as < are less than the LLD

* Average of results reported exceeding ± 2 sigma, see attached notes.

TABLE XIII

EPA INTERLABORATORY COMPARISON PROGRAM - 1984

Description	Date	Sample Analysis	Experimental Data			EPA Value +1σ
Alpha/Beta in Water (Results in pCi/l)	Ø3/18/84	Alpha	5	6	6	5 ± 5
		Beta	18	18	17	2Ø ± 5
	Ø7/15/84	Alpha	11	12	11	6 ± 5
		Beta	19	21	22	13 ± 5
	11/18/84	Alpha	1Ø	9	7	7 ± 5
		Beta	16	16	15	2Ø ± 5
Gamma in Water (Results in pCi/l)	Ø2/Ø3/84	Cr-51	<68	<68	<68	4Ø ± 5
		Co-6Ø	1Ø	12	15	1Ø ± 5
		Zn-65*	64	7Ø	69	5Ø ± 5
		Ru-1Ø6*	<48	<48	<48	61 ± 5
		Cs-134	31	34	3Ø	31 ± 5
		Cs-137	19	17	17	16 ± 5
	Ø6/Ø1/84	Cr-51	68	71	72	66 ± 5
		Co-6Ø	33	32	34	31 ± 5
		Zn-65	61	66	61	63 ± 5
		Ru-1Ø6	<67	<67	<73	29 ± 5
		Cs-134	4Ø	42	4Ø	47 ± 5
		Cs-137	41	38	43	37 ± 5
	1Ø/Ø5/84	Cr-51	<165	<165	<165	4Ø ± 5
		Co-6Ø	17	14	15	2Ø ± 5
		Zn-65*	138	137	135	147 ± 5
		Ru-1Ø6	<76	<76	<76	47 ± 5
		Cs-134	26	25	28	31 ± 5
		Cs-137	29	3Ø	28	24 ± 5
Iodine-131 in Water (Results in pCi/l)	Ø4/Ø6/84	I-131	11	13	9	6 ± 6
	Ø8/Ø3/84	I-131	29	36	32	34 ± 6
	12/Ø7/84	I-131	33	3Ø	34	36 ± 6

All values given as < are less than the LLD

* Average of results reported exceeding ± 2 sigma, see attached notes.

Table XII

LOWER LIMIT OF DETECTION (LLD)
Before Correction For Decay

	Air Filters pCi/M^3 (minimum Sple 3500 M^3/Qt.	Water pCi/liter (Sample of 3.5 liters)	Milk pCi/liter (Sample of 3.5 liters)	Fish pCi/kgm (minimum Sple 2.0 kgms)	Vegetation(a) pCi/kgm (Sample of 3.0 kgms.)
Be^{7}	0.014	52		91	61
K^{40}	0.027	81	81	137	91
Cr^{51}	0.013	52		91	61
Mn^{54}	0.002	5		9	6
Fe^{59}	0.004	12		20	13
Co^{58}	0.004	5		9	6
Co^{60}	0.002	6	6	11	7
Zn^{65}	0.004	11		19	13
Zr^{95}	0.004	12		22	15
Nb^{95}	0.002	5		9	6
Ru^{103}	0.002	6		11	7
Ru^{106}	0.015	53		93	62
I^{131}	0.03(b)	7	7(Gamma Scan) 0.05(Beta)	12	8
Cs^{134}	0.002	6		10	7
Cs^{137}	0.002	7	7	11	8
$BaLa^{140}$	0.002	5	5	9	6
Ce^{141}	0.002	9		16	11
Ce^{144}	0.007	41		72	48
Ra^{226}	0.003	14		25	17
Beta	0.002	1.2			

(a) Leaf vegetable or pasture grass samples would be 50% higher due to sample sizes of 2.0 kgms
(b) Charcoal Cartridge

TABLE XI C

LAKE SAMPLES
RESULTS IN pCi/KGM

DESCRIPTION	40 K	51 CR	54 MN	59 FE	58 CO	60 CO	65 ZN	95 ZR	95 NB
CLADAUFERA 9/18	2240±30	<245	< 16	< 26	< 15	< 14	< 31	< 28	< 16
LAKE BOTTOM 9/18	8060±24	<140	< 13	< 27	< 13	13±2	< 30	< 24	< 14

DESCRIPTION	103 RU	106 RU	131 I	134 CS	137 CS	140 BA	141 CE	144 CE	226 RA
CLADAUFERA 9/18	< 22	<160	< 30	< 18	< 20	< 13	< 62	<265	< 39
LAKE BOTTOM 9/18	< 17	<130		18±3	160±3	< 11	< 33	<135	137±6

ALL VALUES GIVEN AS < ARE LESS THAN THE LLD.

TABLE XI B

VEGETATION SAMPLES
RESULTS IN pCi/KGM WET

DESCRIPTION		40 K	51 CR	54 MN	59 FE	58 CO	60 CO	65 ZN	95 ZR	95 NB
CHERRIES	7/23	1330±10	< 85	< 6	< 10	< 6	< 5	< 12	< 10	< 6
LETTUCE	8/27	1360±17	<135	< 9	< 15	< 9	< 7	< 18	< 16	< 9
ZUCCINI	9/24	1310±14	<122	< 8	< 13	< 7	< 7	< 17	< 14	< 8
APPLES	10/ 8	685±13	<100	< 6	< 11	< 6	< 5	< 12	< 12	< 6
GRAPES	10/12	1200±13	<100	< 7	< 12	< 6	< 6	< 13	< 12	< 7
ALFALFA	10/12	2820±36	<325	< 19	< 34	< 20	< 16	< 41	< 36	< 20
CABBAGE	10/15	1660±18	<155	< 10	< 18	< 10	< 10	< 20	< 18	< 10

DESCRIPTION		103 RU	106 RU	131 I	134 CS	137 CS	140 BA	141 CE	144 CE	226 RA
CHERRIES	7/23	< 7	< 62	< 10	< 6	< 6	< 4	< 22	< 98	< 12
LETTUCE	8/27	< 11	< 98	< 15	< 10	14±2	< 6	< 35	<150	< 22
ZUCCINI	9/24	< 11	< 85	< 14	< 9	< 10	< 5	< 31	<130	< 18
APPLES	10/ 8	< 9	< 69	< 11	< 7	< 7	< 5	< 26	<115	< 15
GRAPES	10/12	< 9	< 70	< 11	< 7	< 7	< 4	< 25	<110	< 15
ALFALFA	10/12	< 28	<230	< 37	< 23	< 25	< 14	< 81	<350	< 49
CABBAGE	10/15	< 14	<110	< 17	< 11	< 12	< 7	< 39	<165	< 24

ALL VALUES GIVEN AS < ARE LESS THAN THE LLD.

TABLE XI

FISH SAMPLES

RESULTS IN pCi/kgm Wet

DESCRIPTION		40 K	51 CR	54 MN	59 FE	58 CO	60 CO	65 ZN	95 ZR	95 NB	103 RU	106 RU	131 I	134 CS	137 CS	140 BA	141 CE	144 CE	226 RA
FIRST HALF 1984																			
BROWN TROUT	6/ 7	3440±15	<130	< 8	< 16	< 8	< 4	< 18	< 15	< 8	< 11	< 85	< 17	< 9	37±2	< 6	< 32	<130	< 18
YELLOW PERCH	6/ 7	3900±59	<540	< 30	< 52	< 31	< 17	< 60	< 59	< 35	< 45	<335	< 90	< 35	91±8	< 27	<130	<495	< 69
LAKE TROUT	6/13	3750±50	<330	< 17	< 36	< 18	< 10	< 34	< 33	< 20	< 27	<180	< 81	< 19	45±4	< 21	< 80	<275	< 37
WHITE PERCH	6/ 7	2960±21	<410	< 18	< 38	< 21	< 12	< 40	< 40	< 25	< 32	<225	< 91	< 22	33±5	< 26	< 95	<330	< 47
SECOND HALF 1984																			
BROWN TROUT	6/ 7	3020±16	<155	< 9	< 18	< 10	< 8	< 20	< 18	< 11	< 13	< 97	< 26	< 10	26±2	< 8	< 39	<150	< 21
LAKE TROUT	6/13	2220±19	<130	< 7	< 16	< 8	< 6	< 16	< 14	< 9	< 11	< 78	< 24	< 8	34±2	< 8	< 34	<125	< 17
RAINBOW TROUT	9/18	1930±19	<195	< 10	< 23	< 11	< 8	< 20	< 20	< 12	< 15	<110	< 46	< 11	< 13	< 13	< 47	<165	< 23
BACKGROUND FISH FROM SOMERSET SITE																			
FIRST HALF 1984																			
LAKE TROUT	6/13	2200±16	<150	< 8	< 16	< 9	< 5	< 17	< 16	< 9	< 12	< 87	< 24	< 9	28±2	< 7	< 36	<135	< 20
WHITE PERCH	6/ 7	1940±15	<155	< 8	< 17	< 9	< 5	< 17	< 16	< 9	< 13	< 90	< 28	< 9	21±2	< 9	< 37	<140	< 20
YELLOW PERCH	6/ 7	2240±17	<155	< 8	< 18	< 9	< 5	< 17	< 17	< 10	< 13	< 98	< 28	< 10	32±2	< 9	< 39	<140	< 20
SECOND HALF 1984																			
YELLOW PERCH	6/ 7	2210±17	<167	< 9	< 18	< 9	< 7	< 18	< 18	< 11	< 13	< 94	< 41	< 9	23±2	< 12	< 41	<140	< 19

ALL VALUES GIVEN AS < ARE LESS THAN THE LLD.

MILK
RESULTS IN pCi/LITER

FARM	DATE	I-131	CS-137	BA-140	K-40
A	JAN. 17	< 0.31	< 7	< 5	1110± 14
D	JAN. 19	< 0.26	< 7	< 5	1170± 14
C	FEB. 14	< 0.25	< 7	< 5	1340± 14
D	FEB. 16	< 0.09	< 6	< 5	1110± 15
B	MARCH 13	< 0.13	< 6	< 5	1370± 90
D	MARCH 15	< 0.10	< 7	< 5	1310± 90
A	APRIL 17	< 0.11	< 7	< 6	1140± 17
D	APRIL 19	< 0.13	< 7	< 5	1170± 15
C	MAY 15	< 0.11	< 8	< 4	1240± 13
D	MAY 17	< 0.10	< 8	< 4	1070± 11
B	JUNE 5	< 0.10	< 8	< 5	1190± 11
D	JUNE 7	< 0.14	< 7	< 4	1300± 10
A	JUNE 12	< 0.10	< 8	< 4	1190± 10
C	JUNE 14	< 0.12	< 8	< 5	1350± 11
B	JUNE 19	< 0.11	< 7	< 5	1300± 15
D	JUNE 21	< 0.08	< 7	< 4	1180± 11
A	JUNE 26	< 0.20	< 8	< 5	1330± 12
C	JUNE 28	< 0.36	< 7	< 4	1110± 12
B	JULY 3	2.05±0.11	< 7	< 4	1310± 11
D	JULY 5	1.76±0.44	< 7	< 5	1170± 12
A	JULY 10	< 0.08	< 7	< 4	1200± 13
C	JULY 12	< 0.08	< 6	< 4	1190± 12
B	JULY 17	< 0.08	< 7	< 4	1270± 12
D	JULY 19	< 0.08	< 7	< 4	1200± 11
A	JULY 24	0.49±0.08	< 7	< 4	1370± 11
C	JULY 26	< 0.07	< 6	< 4	1180± 11
B	JULY 31	0.49±0.09	< 6	< 5	1210± 12
D	AUG. 2	0.20±0.07	< 7	< 4	1090± 13
A	AUG. 7	0.76±0.08	< 7	< 4	1280± 12
C	AUG. 9	0.25±0.08	< 7	< 5	1250± 11
B	AUG. 14	< 0.09	< 7	< 4	1230± 12
D	AUG. 16	0.18±0.08	< 7	< 4	1060± 12
A	AUG. 21	0.66±0.09	< 6	< 4	1080± 11
C	AUG. 23	0.17±0.08	< 7	< 4	1170± 12
B	AUG. 28	< 0.08	< 7	< 5	1100± 70
D	AUG. 30	< 0.11	< 7	< 4	1180± 12
A	SEPT. 4	< 0.09	< 7	< 4	1250± 10
C	SEPT. 6	< 0.15	< 6	< 4	1230± 10
B	SEPT. 11	< 0.08	< 6	< 4	1200± 11
D	SEPT. 13	1.30±0.17	< 7	< 5	1200± 11
A	SEPT. 18	0.32±0.11	< 6	< 4	1170± 11
C	SEPT. 20	0.40±0.11	< 7	< 5	1140± 11
B	SEPT. 25	< 0.14	< 6	< 4	1180± 11
D	SEPT. 27	< 0.15	< 6	< 4	1170± 12
A	OCT. 2	< 0.11	< 7	< 4	1300± 12
C	OCT. 4	< 0.10	< 6	< 4	1200± 12
B	OCT. 9	< 0.07	< 7	< 5	1140± 12
D	OCT. 11	< 0.12	< 6	< 4	1160± 12
A	OCT. 16	0.20±0.07	< 7	< 4	1310± 12
C	OCT. 18	0.48±0.12	< 7	< 4	1150± 11
B	OCT. 23	0.62±0.08	< 6	< 4	1230± 12
D	OCT. 25	< 0.10	< 6	< 5	1260± 12
D	NOV. 11	< 0.09	< 6	< 5	1200± 12
A	NOV. 18	< 0.09	< 6	< 5	1190± 11
C	DEC. 18	< 0.09	< 6	< 4	1240± 11
D	DEC. 20	< 0.10	< 6	< 5	1220± 12

ALL VALUES GIVEN AS < ARE LESS THAN THE LLD.

COMPARISON OF TLD DATA

of 1983 and 1984

mRem/Quarter vs: TLD Location

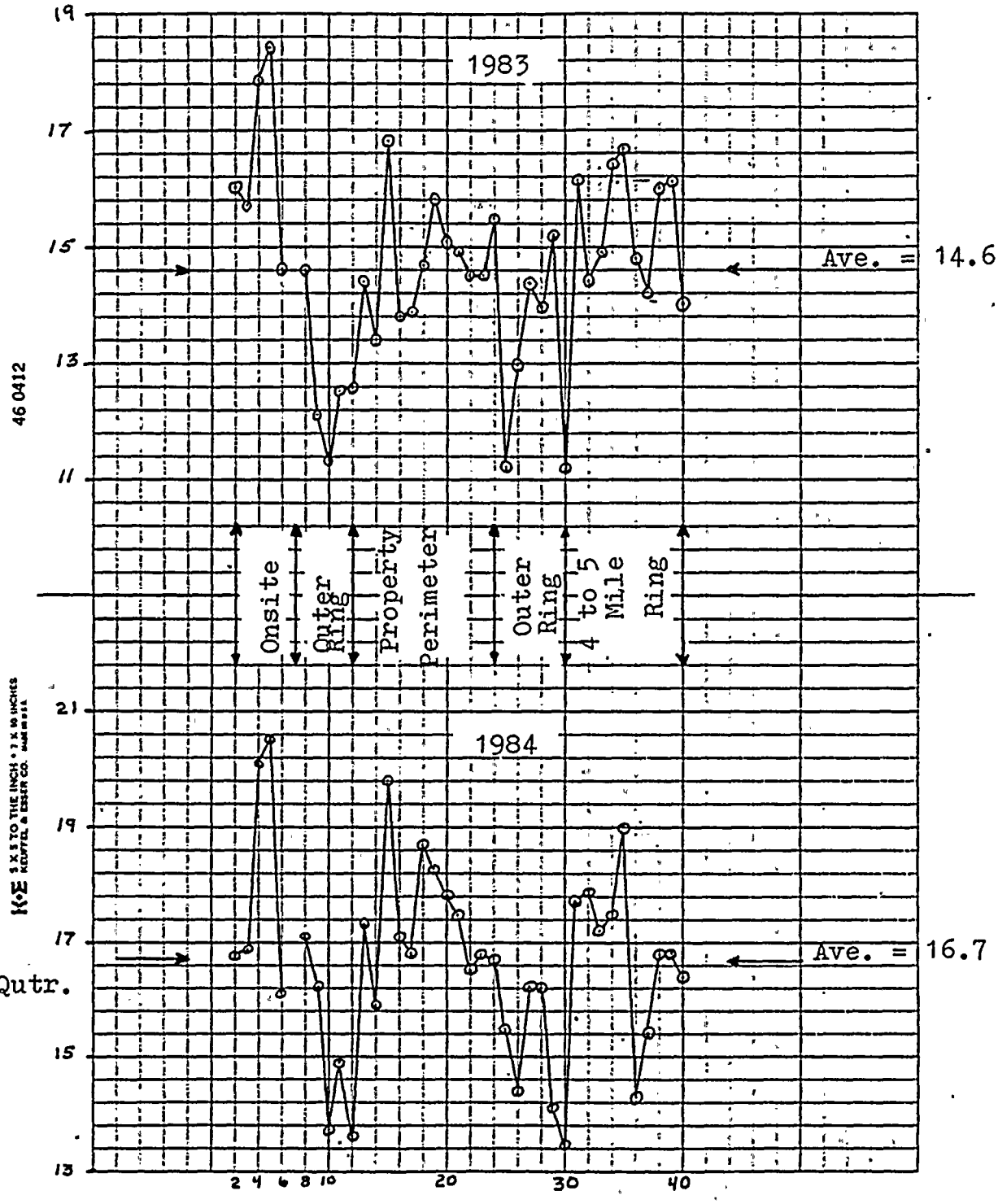


TABLE IX

EXTERNAL PENETRATING RADIATION

THERMOLUMINESCENT DOSIMETRY 1984

LOCATION	BADGE NO.	THIRD QUARTER MREM	THIRD QUARTER MREM/WK	FOURTH QUARTER MREM	FOURTH QUARTER MREM/WK
#2 - #7 plus #13 are on-site near the line of highest annual average ground level concentration.	2	18.7	1.38±0.10	21.1	1.59±0.11
	3	19.8	1.46±0.11		(b)
	4	23.0	1.69±0.12	22.7	1.71±0.12
	5	21.8	1.61±0.12	22.6	1.70±0.12
	6	18.4	1.36±0.10	18.6	1.40±0.10
	7	60.9	4.49±0.32	68.4	5.15±0.37
#8 - #12 are offsite at a distance of 8 to 15 miles.	8	21.7	1.60±0.12	18.0	1.35±0.10
	9	21.2	1.56±0.11	16.8	1.27±0.09
	10	13.8	1.02±0.07	16.1	1.21±0.09
	11	16.5	1.22±0.09	17.5	1.32±0.09
	12	15.4	1.13±0.08	15.3	1.15±0.08
	13	20.9	1.54±0.11	20.4	1.53±0.11
#14 - #16 are located along a line 3000' west of the plant.	14	18.4	1.36±0.10	18.5	1.39±0.10
	15	19.9	1.47±0.11	22.2	1.67±0.12
	16	20.3	1.50±0.11	19.1	1.44±0.10
#17 - #21 are located along Lake Road.	17	20.7	1.53±0.11	19.4	1.46±0.11
	18	22.0	1.62±0.12	20.4	1.54±0.11
	19	24.0	1.77±0.13	18.4	1.38±0.10
	20	20.6	1.52±0.11	20.2	1.52±0.11
	21	19.7	1.45±0.10	19.2	1.45±0.10
#22 - #24 are located along the east site boundary line.	22	19.9	1.47±0.11	18.0	1.35±0.10
	23	20.4	1.50±0.11	19.8	1.49±0.11
	24	19.6	1.44±0.10	17.3	1.30±0.09
#25 - #30 are offsite at a distance of 8 to 15 miles.	25	19.1	1.41±0.10		(b)
	26	17.6	1.30±0.09	16.0	1.20±0.09
	27	18.6	1.37±0.10	19.0	1.43±0.10
	28	19.7	1.45±0.10		(b)
	29	17.4	1.28±0.09		(b)
	30	16.1	1.19±0.09	13.5	1.02±0.07
#31 through #40 are located in an arc at a distance of 4-5 miles.	31	21.6	1.59±0.11	19.8	1.49±0.11
	32	18.4	1.36±0.10	17.4	1.31±0.09
	33	20.2	1.49±0.11	19.7	1.48±0.11
	34	22.6	1.67±0.12	19.4	1.46±0.11
	35	26.5	1.95±0.14	19.6	1.48±0.11
	36	16.0	1.18±0.08	15.6	1.18±0.08
	37	16.5	1.22±0.09	17.5	1.32±0.09
	38	19.6	1.44±0.10	19.1	1.44±0.10
	39	18.1	1.41±0.10	20.4	1.54±0.11
	40	22.2	1.64±0.12	17.5	1.32±0.09

(b) Data lost when TLD wet

TABLE 3.16-1 (CONTINUED)

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM

Exposure Pathway and/or Sample	Number of Samples and Sample Locations	Sampling and Collection Frequency	Type and Frequency of Analysis
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.

TABLE 3.16-1 (CONTINUED)

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM

Exposure Pathway and/or Sample	Number of Samples and 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 one 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	Gamma isotopic analysis on edible portion of sample.
	1 control 2 indicator (On site garden or nearest offsite garden within 5 miles in the highest D/Q meteorological sector)	At time of harvest. One sample of: 1. broad leaf vegetation 2. other vegetable	Gamma isotopic analysis on edible portions of each sample.

COMPARISON OF GROSS BETA DATA FOR WATER SAMPLES

UPSTREAM (RUSSELL STATION) AND DOWNSTREAM

(ONTARIO WATER DISTRICT)

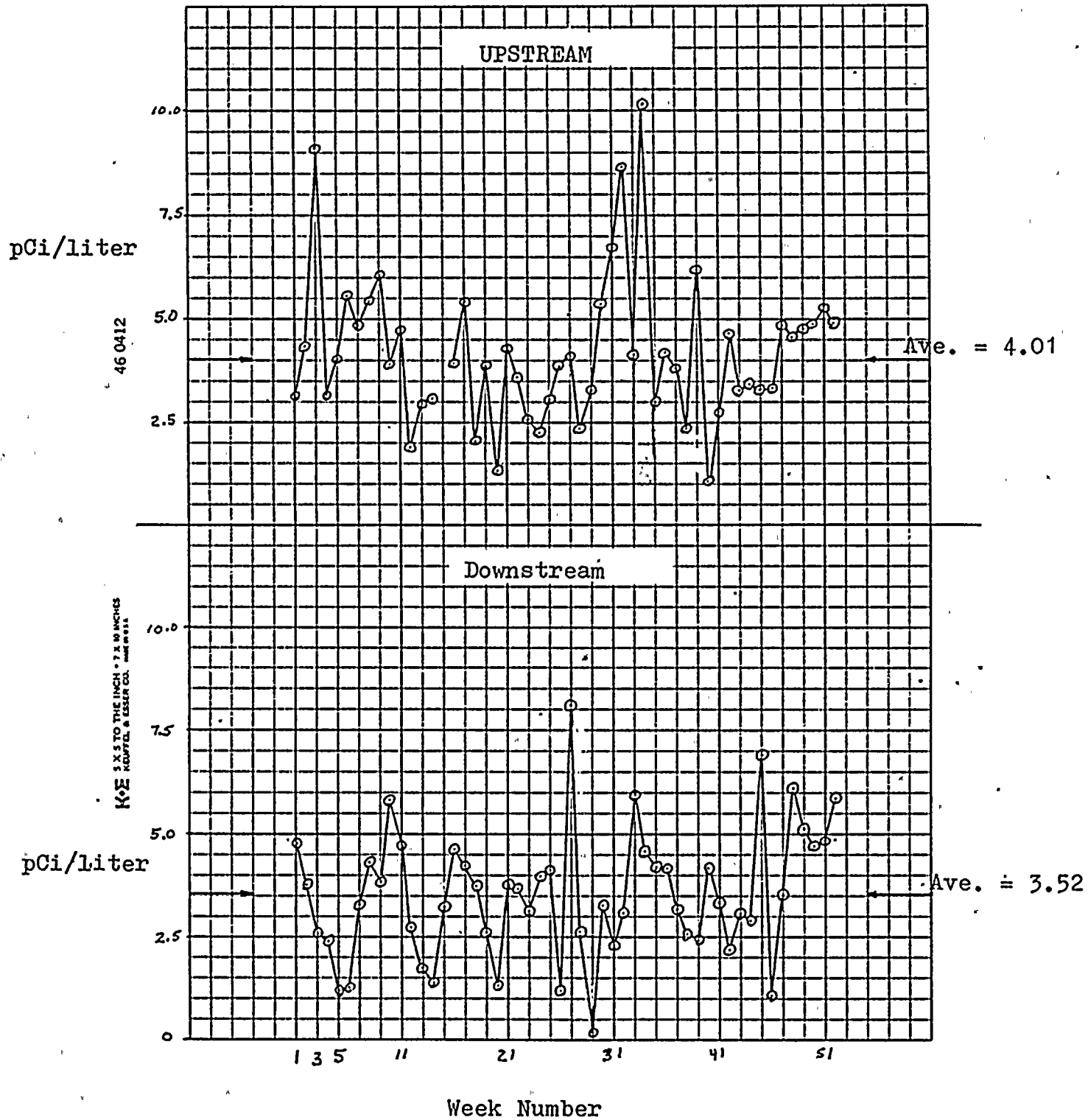


TABLE V B

1984 ENVIRONMENTAL WATER SAMPLES GROSS BETA ANALYSES
RESULTS IN C /L :

WEEK OF	RUSSELL	O.W.D.	CIRC. IN	CIRC. OUT	DEER CREEK	TAP	WELL 'B'
JUNE 30 - JULY 6	4.08±1.39	8.07±1.41	4.79±1.26	4.52±1.26			
JULY 7 - JULY 13	2.35±1.20	2.59±1.38	1.88±1.35	2.45±1.35	2.44±1.77		
JULY 14 - JULY 20	3.25±1.25	0.22±1.15	1.92±1.21			1.72±1.29	3.99±1.60
JULY 21 - JULY 27	5.39±1.34	3.31±1.25	1.62±1.05	0.73±1.13			
JULY 28 - AUG. 3	6.73±1.37	2.29±1.51	1.17±1.50	2.19±1.15			
AUG. 4 - AUG. 10	8.63±1.38	3.09±1.25	2.28±1.21	4.08±1.23			
AUG. 11 - AUG. 17	4.13±2.03	5.97±1.35	7.10±1.44	8.24±1.37	7.10±1.44	5.05±1.24	
AUG. 18 - AUG. 24	10.20±1.90	4.53±1.71	4.15±1.70	4.10±1.79			10.50±3.00
AUG. 25 - AUG. 31	2.99±1.95	4.21±1.93	3.67±1.89	2.38±1.94			
SEPT. 1 - SEPT. 7	4.20±1.97	4.14±1.93	7.06±2.04	3.82±1.94			
SEPT. 8 - SEPT. 14	3.81±2.05	3.19±1.92	4.36±2.00	3.76±1.88	7.54±2.30	4.33±1.96	
SEPT. 15 - SEPT. 21	2.37±1.86	2.52±2.00	1.66±1.99	2.08±1.98			5.71±2.63
SEPT. 22 - SEPT. 28	6.22±2.07	2.44±1.86	4.65±2.00	2.38±1.86			
SEPT. 29 - OCT. 5	1.06±1.91	4.23±2.02	2.56±2.01	2.37±2.01			
OCT. 6 - OCT. 12	2.75±2.06	3.37±1.87	3.89±1.91	4.27±2.01		3.77±2.04	
OCT. 13 - OCT. 19	4.67±1.93	2.16±2.23	2.89±2.05	2.69±2.05			
OCT. 20 - OCT. 26	3.31±1.92	3.04±2.06	3.92±2.19	3.74±2.06			6.99±2.83
OCT. 27 - NOV. 2	3.47±2.09	2.87±1.97	3.99±1.98	3.32±1.96			
NOV. 3 - NOV. 9	3.36±2.22	6.89±2.28	5.20±1.98	3.32±1.96	5.67±2.72	2.74±2.13	
NOV. 10 - NOV. 16	3.39±2.37	1.05±2.10	3.40±2.12	1.67±1.58			
NOV. 17 - NOV. 23	4.85±2.21	3.51±2.25	2.98±2.18	2.36±2.20			6.82±3.15
NOV. 24 - NOV. 30	4.53±2.01	6.06±2.23	7.18±2.13	4.53±2.04			
DEC. 1 - DEC. 7	4.73±2.05	5.11±2.11	3.69±2.01	3.02±1.94			
DEC. 8 - DEC. 14	4.87±2.04	4.68±2.07	6.87±2.05	3.78±1.93		2.59±1.85	
DEC. 15 - DEC. 21	5.32±2.16	4.82±2.12	3.41±1.95	3.59±2.01	6.09±2.55		10.50±3.00
DEC. 22 - DEC. 28	4.92±2.26	5.82±2.12	4.53±2.02	2.59±2.00			
MAXIMUM	10.20±1.90	8.07±1.41	7.18±2.13	8.24±1.37	7.54±2.30	5.05±1.24	10.50±3.00
AVERAGE	4.45	3.85	3.88	3.28	5.77	3.37	7.42
MINIMUM	1.06±1.91	0.22±1.15	1.17±1.50	0.73±1.13	2.44±1.77	1.72±1.29	3.99±1.60

TABLE V A

1984 ENVIRONMENTAL WATER SAMPLES GROSS BETA ANALYSES
RESULTS IN pCi/L

WEEK OF	RUSSELL	O.W.D.	CIRC. IN	CIRC. OUT	DEER CREEK	TAP	WELL "B"
JAN. 1 - JAN. 7	3.15±2.22	4.76±2.46	3.29±2.39	3.99±2.46	5.83±2.50	2.89±2.45	
JAN. 8 - JAN. 14	4.35±2.25	3.74±2.25	2.83±2.21	3.97±2.55			
JAN. 15 - JAN. 21	9.10±2.34	2.54±2.24	4.72±2.28	4.78±2.29			
JAN. 22 - JAN. 28	3.16±2.27	2.43±2.26	3.58±2.25	1.00±2.23			5.53±2.21
JAN. 29 - FEB. 4	4.02±2.24	1.20±2.16	2.68±2.18	1.61±2.19			
FEB. 5 - FEB. 11	5.54±2.30	1.35±2.22	1.84±2.22	1.20±2.20	6.49±2.28	1.20±2.14	
FEB. 12 - FEB. 18	4.87±2.27	3.28±2.25	3.77±2.27	3.77±2.26			
FEB. 19 - FEB. 25	5.44±2.25	4.31±2.22	4.92±2.25	3.48±2.23			6.09±2.29
FEB. 26 - MARCH 3	6.07±2.27	3.80±2.23	5.85±2.26	3.30±2.22			
MARCH 4 - MARCH 10	3.88±2.17	5.83±2.21	4.11±2.19	5.36±2.21		3.13±2.22	
MARCH 11 - MARCH 17	4.72±2.26	4.72±2.27	1.56±2.22	3.01±2.24	8.49±2.33		
MARCH 18 - MARCH 24	1.92±2.20	2.72±2.23	3.20±2.22	3.02±2.24			
MARCH 25 - MARCH 31	2.96±2.24	1.70±2.19	1.34±2.18	2.47±2.21			6.43±2.26
APRIL 1 - APRIL 7	3.04±2.21	1.41±2.20	1.52±2.18	2.31±2.23		4.05±2.21	
APRIL 8 - APRIL 14		3.22±2.22	3.03±2.20	2.09±2.21	2.68±2.22		
APRIL 15 - APRIL 21	3.94±2.19	4.57±2.20	4.84±2.22	4.73±2.22			
APRIL 22 - APRIL 28	5.44±2.23	4.24±2.20	2.67±2.19	1.50±2.12			5.66±2.24
APRIL 29 - MAY 5	2.01±2.14	3.70±2.16	4.52±2.16	4.55±2.17			
MAY 6 - MAY 12	3.88±2.16	2.58±2.15	2.80±2.14	2.92±2.15	3.14±2.16	1.78±2.12	
MAY 13 - MAY 19	1.31±2.15	1.33±2.15	2.12±2.16	3.86±2.19			
MAY 20 - MAY 26	4.32±2.10	3.76±2.13	4.37±2.13	4.67±2.15			6.89±2.19
MAY 27 - JUNE 2	3.60±2.13	3.63±2.14	4.55±2.13	4.32±2.10			
JUNE 3 - JUNE 9	2.58±2.11	3.11±2.13	3.23±2.12	3.31±2.12	3.15±2.14	3.25±2.13	
JUNE 10 - JUNE 16	2.24±2.12	3.99±2.16	2.96±2.13	2.73±2.14			
JUNE 17 - JUNE 23	3.02±2.14	4.10±2.15	2.04±2.14	3.46±2.15			6.18±2.22
JUNE 24 - JUNE 30	3.91±1.29	1.20±1.17	6.07±1.32	5.22±1.30			
MAXIMUM	9.10±2.34	5.83±2.21	6.07±1.32	5.36±2.21	8.49±2.33	4.05±2.21	6.89±2.19
AVERAGE	3.94	3.20	3.40	3.33	4.96	2.72	6.13
MINIMUM	1.31±2.15	1.20±2.16	1.34±2.18	1.00±2.23	2.68±2.22	1.20±2.14	5.53±2.21

TABLE IV

CHARCOAL CARTRIDGES GAMMA ANALYSES FOR IODINE
RESULTS IN pCi/CU. M.

WEEK OF	STA. # 4	STA. # 7	STA. # 9	STA. #11	WEEK OF	STA. # 4	STA. # 7	STA. # 9	STA. #11
DEC. 30 - JAN. 6	<0.03	<0.03	<0.03	<0.02	JUNE 29 - JULY 6	<0.03	<0.03	<0.03	<0.02
JAN. 6 - JAN. 13	<0.03	<0.03	<0.03	<0.02	JULY 6 - JULY 13	<0.03	<0.03	<0.03	<0.02
JAN. 13 - JAN. 20	<0.03	<0.03	<0.03	<0.02	JULY 13 - JULY 20	<0.03	<0.03	<0.03	<0.02
JAN. 20 - JAN. 27	<0.03	<0.03	<0.03	<0.02	JULY 20 - JULY 27	<0.03	<0.03	<0.03	<0.02
JAN. 27 - FEB. 3	<0.03	<0.03	<0.03	<0.02	JULY 27 - AUG. 3	<0.03	<0.03	<0.03	<0.02
FEB. 3 - FEB. 10	<0.03	<0.03	<0.03	<0.02	AUG. 3 - AUG. 10	<0.03	<0.03	<0.03	<0.02
FEB. 10 - FEB. 17	<0.03	<0.03	<0.03	<0.02	AUG. 10 - AUG. 17	<0.03	<0.03	<0.03	<0.02
FEB. 17 - FEB. 24	<0.03	<0.03	<0.03	<0.02	AUG. 17 - AUG. 24	<0.03	<0.03	<0.03	<0.02
FEB. 24 - MARCH 2	<0.03	<0.03	<0.03	<0.02	AUG. 24 - AUG. 31	<0.03	<0.03	<0.03	<0.02
MARCH 2 - MARCH 9	<0.03	<0.03	<0.03	<0.02	AUG. 31 - SEPT. 7	<0.03	<0.03	<0.03	<0.02
MARCH 9 - MARCH 16	<0.03	<0.03	<0.03	<0.02	SEPT. 7 - SEPT. 14	<0.03	<0.03	<0.03	<0.02
MARCH 16 - MARCH 23	<0.03	<0.03	<0.03	<0.02	SEPT. 14 - SEPT. 21	<0.03	<0.03	<0.03	<0.02
MARCH 23 - MARCH 30	<0.03	<0.03	<0.03	<0.02	SEPT. 21 - SEPT. 28	<0.03	<0.03	<0.03	<0.02
MARCH 30 - APRIL 6	<0.03	<0.03	<0.03	<0.02	SEPT. 28 - OCT. 5	<0.03	<0.03	<0.03	<0.02
APRIL 6 - APRIL 13	<0.03	<0.03	<0.03	<0.02	OCT. 5 - OCT. 12	<0.03	<0.03	<0.03	<0.02
APRIL 13 - APRIL 20	<0.03	<0.03	<0.03	<0.02	OCT. 12 - OCT. 19	<0.03	<0.03	<0.03	<0.02
APRIL 20 - APRIL 27	<0.03	<0.03	<0.03	<0.02	OCT. 19 - OCT. 26	<0.03	<0.03	<0.03	<0.02
APRIL 27 - MAY 4	<0.03	<0.03	<0.03	<0.02	OCT. 26 - NOV. 2	<0.03	<0.03	<0.03	<0.02
MAY 4 - MAY 11	<0.03	<0.03	<0.03	<0.02	NOV. 2 - NOV. 9	<0.03	<0.03	<0.03	<0.02
MAY 11 - MAY 18	<0.03	<0.03	<0.03	<0.02	NOV. 9 - NOV. 16	<0.03	<0.03	<0.03	<0.02
MAY 18 - MAY 25	<0.03	<0.03	<0.03	<0.02	NOV. 16 - NOV. 23	<0.03	<0.03	<0.03	<0.02
MAY 25 - JUNE 1	<0.03	<0.03	<0.03	<0.02	NOV. 23 - NOV. 30	<0.03	<0.03	<0.03	<0.02
JUNE 1 - JUNE 8	<0.03	<0.03	<0.03	<0.02	NOV. 30 - DEC. 7	<0.03	<0.03	<0.03	<0.02
JUNE 8 - JUNE 15	<0.03	<0.03	<0.03	<0.02	DEC. 7 - DEC. 14	<0.03	<0.03	<0.03	<0.02
JUNE 15 - JUNE 22	<0.03	<0.03	<0.03	<0.02	DEC. 14 - DEC. 21	<0.03	<0.03	<0.03	<0.02
JUNE 22 - JUNE 29	<0.03	<0.03	<0.03	<0.02	DEC. 21 - DEC. 28	<0.03	<0.03	<0.03	<0.02

ALL VALUES GIVEN AS < ARE LESS THAN THE LLD.

TABLE III A

13 WEEK COMPOSITE AIR FILTER GAMMA ISOTOPIC ANALYSIS

RESULTS IN pCi/M^3

LOCATION	7 BE	40 K	51 CR	54 MN	59 FE	58 CO	60 CO	65 ZN	95 ZR	95 NB	103 RU	106 RU	134 CS	137 CS	140 BA	141 CE	144 CE
THIRD QUARTER																	
AIR FILTER STATION # 2	0.091±0.002	<0.005	<0.025	<0.001	<0.002	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.008	<0.001	<0.001	<0.009	<0.004	[illegible]006
AIR FILTER STATION # 3	0.094±0.002	<0.005	<0.028	<0.001	<0.003	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.009	<0.001	<0.001	<0.010	<0.004	[illegible]006
AIR FILTER STATION # 4	0.090±0.003	<0.005	<0.029	<0.001	<0.003	<0.001	<0.002	<0.002	<0.003	<0.002	<0.002	<0.009	<0.001	<0.001	<0.012	<0.004	<0.007
AIR FILTER STATION # 5	0.084±0.002	<0.004	<0.025	<0.001	<0.002	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.007	<0.001	<0.001	<0.012	<0.004	<0.006
AIR FILTER STATION # 6	0.093±0.002	<0.004	<0.026	<0.001	<0.002	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.006	<0.001	<0.001	<0.012	<0.004	<0.005
AIR FILTER STATION # 7	0.078±0.002	<0.004	<0.030	<0.001	<0.003	<0.001	<0.002	<0.001	<0.002	<0.002	<0.002	<0.007	<0.001	<0.001	<0.013	<0.004	<0.006
AIR FILTER STATION # 8	0.074±0.002	<0.004	<0.032	<0.001	<0.003	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.008	<0.001	<0.001	<0.015	<0.004	<0.006
AIR FILTER STATION # 9	0.107±0.003	<0.005	<0.039	<0.001	<0.003	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.008	<0.001	<0.001	<0.017	<0.005	<0.007
AIR FILTER STATION #10	0.090±0.004	<0.006	<0.048	<0.001	<0.004	<0.002	<0.002	<0.002	<0.003	<0.003	<0.003	<0.010	<0.001	<0.001	<0.024	<0.007	<0.008
AIR FILTER STATION #11	0.130±0.004	<0.006	<0.050	<0.001	<0.004	<0.002	<0.002	<0.002	<0.003	<0.003	<0.003	<0.011	<0.001	<0.001	<0.030	<0.007	<0.009
AIR FILTER STATION #12	0.093±0.003	<0.005	<0.044	<0.001	<0.003	<0.001	<0.002	<0.002	<0.003	<0.002	<0.003	<0.009	<0.001	<0.001	<0.027	<0.006	<0.008
AIR FILTER STATION #13	0.085±0.003	<0.005	<0.044	<0.001	<0.004	<0.001	<0.002	<0.002	<0.003	<0.003	<0.003	<0.008	<0.001	<0.001	<0.022	<0.006	<0.007

LOCATION	7 BE	40 K	51 CR	54 MN	59 FE	58 CO	60 CO	65 ZN	95 ZR	95 NB	103 RU	106 RU	134 CS	137 CS	140 BA	141 CE	144 CE
FOURTH QUARTER																	
AIR FILTER STATION # 2	0.123±0.002	<0.005	<0.023	<0.001	<0.003	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.007	<0.001	<0.001	<0.009	<0.004	[illegible]06
AIR FILTER STATION # 3	0.067±0.002	<0.005	<0.025	<0.001	<0.002	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.008	<0.001	<0.001	<0.009	<0.004	<0.006
AIR FILTER STATION # 4	0.065±0.003	<0.006	<0.041	<0.001	<0.004	<0.002	<0.001	<0.002	<0.003	<0.003	<0.003	<0.012	<0.001	<0.001	<0.016	<0.006	<0.010
AIR FILTER STATION # 5	0.061±0.002	<0.005	<0.023	<0.001	<0.002	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.007	<0.001	<0.001	<0.009	<0.003	<0.005
AIR FILTER STATION # 6	0.068±0.002	<0.004	<0.020	<0.001	<0.002	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.006	<0.001	<0.001	<0.008	<0.003	<0.005
AIR FILTER STATION # 7	0.053±0.002	<0.003	<0.021	<0.001	<0.002	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.007	<0.001	<0.001	<0.009	<0.003	<0.005
AIR FILTER STATION # 8	0.077±0.002	<0.006	<0.026	<0.001	<0.003	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.007	<0.001	<0.001	<0.010	<0.004	<0.006
AIR FILTER STATION # 9	0.072±0.002	<0.007	<0.028	<0.001	<0.003	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.009	<0.001	<0.001	<0.013	<0.004	<0.006
AIR FILTER STATION #10	0.075±0.003	<0.006	<0.036	<0.001	<0.003	<0.001	<0.001	<0.002	<0.003	<0.002	<0.002	<0.010	<0.001	<0.001	<0.015	<0.005	<0.008
AIR FILTER STATION #11	0.063±0.003	<0.007	<0.041	<0.001	<0.004	<0.002	<0.001	<0.003	<0.003	<0.003	<0.003	<0.011	<0.001	<0.001	<0.017	<0.005	<0.009
AIR FILTER STATION #12	0.077±0.002	<0.004	<0.029	<0.001	<0.003	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.008	<0.001	<0.001	<0.013	<0.004	<0.006
AIR FILTER STATION #13	0.070±0.002	<0.004	<0.024	<0.001	<0.002	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.007	<0.001	<0.001	<0.012	<0.003	<0.006

TABLE III A

13 WEEK COMPOSITE AIR FILTER GAMMA ISOTOPIC ANALYSIS

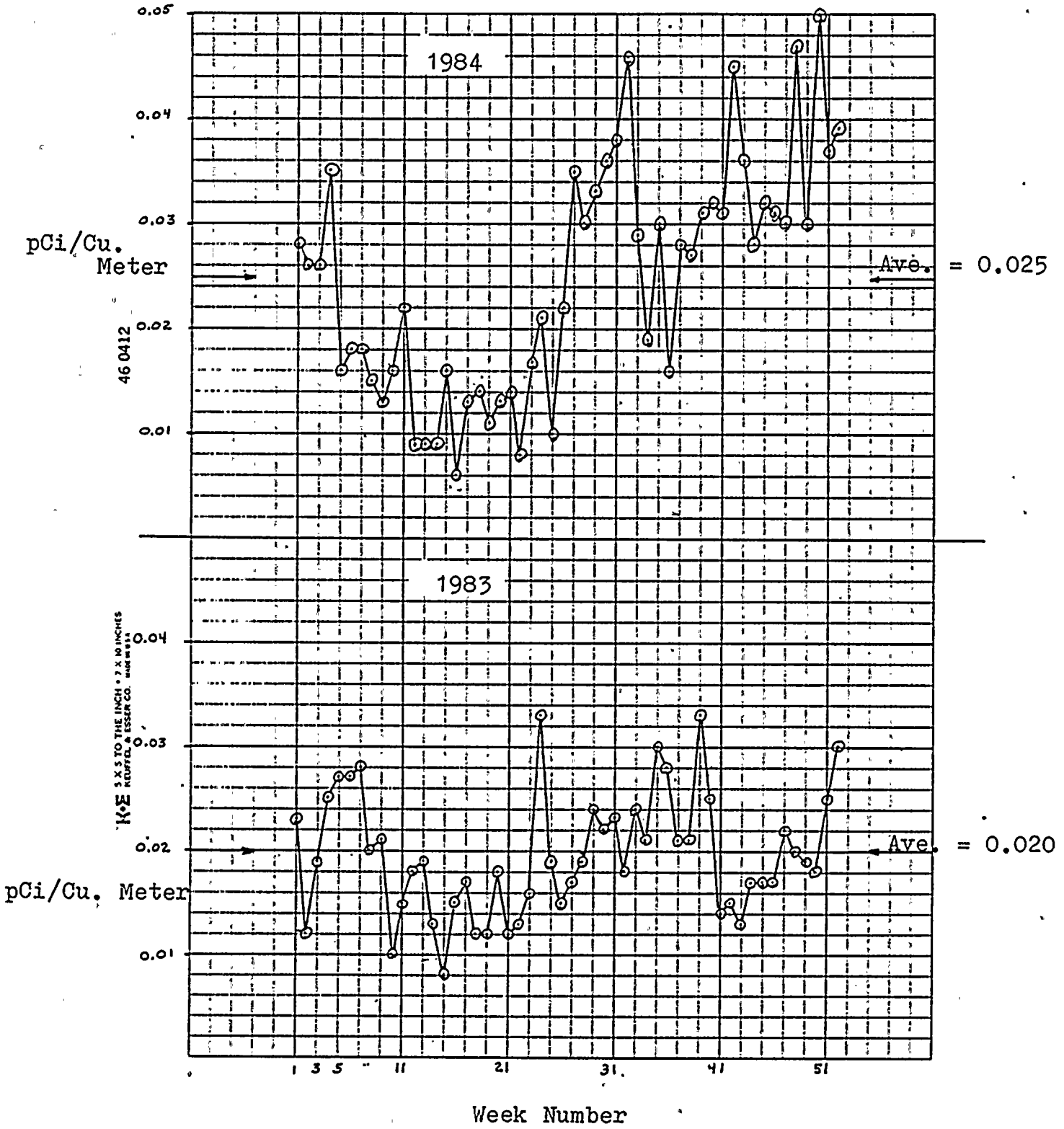
RESULTS IN pCi/M^3

LOCATION	7 BE	40 K	51 CR	54 MN	59 FE	58 CO	60 CO	65 ZN	95 ZR	95 NB	103 RU	106 RU	134 CS	137 CS	140 BA	141 CE	144 CE
FIRST QUARTER																	
AIR FILTER STATION # 2	0.048±0.002	<0.004	<0.025	<0.001	<0.003	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.008	<0.001	<0.001	<0.009	<0.004	[illegible].006
AIR FILTER STATION # 3	0.050±0.003	<0.003	<0.028	<0.001	<0.003	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.008	<0.001	<0.001	<0.009	<0.004	<0.007
AIR FILTER STATION # 4	0.056±0.003	<0.004	<0.028	<0.001	<0.003	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.009	<0.001	<0.001	<0.010	<0.004	<0.006
AIR FILTER STATION # 5	0.064±0.006	<0.009	<0.066	<0.002	<0.007	<0.003	<0.004	<0.004	<0.005	<0.005	<0.005	<0.018	<0.002	<0.002	<0.025	<0.009	<0.015
AIR FILTER STATION # 6	0.055±0.002	<0.004	<0.024	<0.001	<0.002	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.007	<0.001	<0.001	<0.010	<0.004	<0.005
AIR FILTER STATION # 7	0.045±0.002	<0.004	<0.030	<0.001	<0.003	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.008	<0.001	<0.001	<0.012	<0.004	<0.006
AIR FILTER STATION # 8	0.049±0.002	<0.002	<0.026	<0.001	<0.003	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.008	<0.001	<0.001	<0.010	<0.004	<0.006
AIR FILTER STATION # 9	0.054±0.003	<0.004	<0.033	<0.001	<0.003	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.009	<0.001	<0.001	<0.015	<0.005	<0.007
AIR FILTER STATION #10	0.040±0.004	<0.008	<0.053	<0.001	<0.005	<0.002	<0.001	<0.003	<0.004	<0.004	<0.004	<0.013	<0.001	<0.001	<0.025	<0.008	<0.011
AIR FILTER STATION #11	0.047±0.002	<0.003	<0.026	<0.001	<0.003	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.007	<0.001	<0.001	<0.011	<0.003	<0.005
AIR FILTER STATION #12	0.043±0.003	<0.004	<0.034	<0.001	<0.003	<0.001	<0.001	<0.002	<0.003	<0.002	<0.002	<0.008	<0.001	<0.001	<0.015	<0.005	<0.006
AIR FILTER STATION #13	0.038±0.003	<0.005	<0.042	<0.001	<0.004	<0.001	<0.001	<0.002	<0.003	<0.002	<0.003	<0.009	<0.001	<0.001	<0.020	<0.006	<0.007

LOCATION	7 BE	40 K	51 CR	54 MN	59 FE	58 CO	60 CO	65 ZN	95 ZR	95 NB	103 RU	106 RU	134 CS	137 CS	140 BA	141 CE	144 CE
SECOND QUARTER																	
AIR FILTER STATION # 2	0.077±0.003	<0.004	<0.036	<0.001	<0.003	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.008	<0.001	<0.001	<0.018	<0.005	[illegible].007
AIR FILTER STATION # 3	0.092±0.003	<0.008	<0.040	<0.001	<0.004	<0.001	<0.001	<0.002	<0.003	<0.003	<0.003	<0.009	<0.001	<0.001	<0.023	<0.005	<0.007
AIR FILTER STATION # 4	0.083±0.003	<0.005	<0.041	<0.001	<0.003	<0.001	<0.001	<0.002	<0.003	<0.003	<0.002	<0.008	<0.001	<0.001	<0.021	<0.005	<0.007
AIR FILTER STATION # 5	0.105±0.005	<0.009	<0.084	<0.001	<0.007	<0.003	<0.002	<0.003	<0.005	<0.005	<0.005	<0.015	<0.001	<0.001	<0.057	<0.011	<0.012
AIR FILTER STATION # 6	0.085±0.003	<0.004	<0.039	<0.001	<0.003	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.007	<0.001	<0.001	<0.026	<0.005	<0.006
AIR FILTER STATION # 7	0.084±0.003	<0.005	<0.050	<0.001	<0.004	<0.001	<0.001	<0.002	<0.003	<0.003	<0.003	<0.008	<0.001	<0.001	<0.040	<0.006	<0.006
AIR FILTER STATION # 8	0.082±0.003	<0.003	<0.050	<0.001	<0.004	<0.001	<0.001	<0.002	<0.003	<0.003	<0.003	<0.007	<0.001	<0.001	<0.045	<0.006	<0.006
AIR FILTER STATION # 9	0.078±0.004	<0.005	<0.060	<0.001	<0.004	<0.002	<0.001	<0.002	<0.003	<0.004	<0.003	<0.009	<0.001	<0.001	<0.050	<0.007	<0.008
AIR FILTER STATION #10	0.081±0.006	<0.007	<0.105	<0.002	<0.008	<0.003	<0.002	<0.004	<0.003	<0.007	<0.006	<0.016	<0.002	<0.001	<0.099	<0.013	<0.013
AIR FILTER STATION #11	0.079±0.003	<0.004	<0.043	<0.001	<0.003	<0.001	<0.001	<0.001	<0.002	<0.003	<0.003	<0.007	<0.001	<0.001	<0.033	<0.005	<0.006
AIR FILTER STATION #12	0.074±0.004	<0.004	<0.046	<0.001	<0.004	<0.001	<0.001	<0.002	<0.003	<0.003	<0.003	<0.007	<0.001	<0.001	<0.043	<0.006	<0.006
AIR FILTER STATION #13	0.095±0.004	<0.006	<0.066	<0.001	<0.005	<0.002	<0.001	<0.002	<0.003	<0.004	<0.004	<0.010	<0.001	<0.001	<0.057	<0.008	<0.008

OFFSITE AIR MONITORS GROSS BETA

COMPARISON OF 1983 and 1984



ONSITE AIR MONITORS GROSS BETA
COMPARISON OF 1983 and 1984

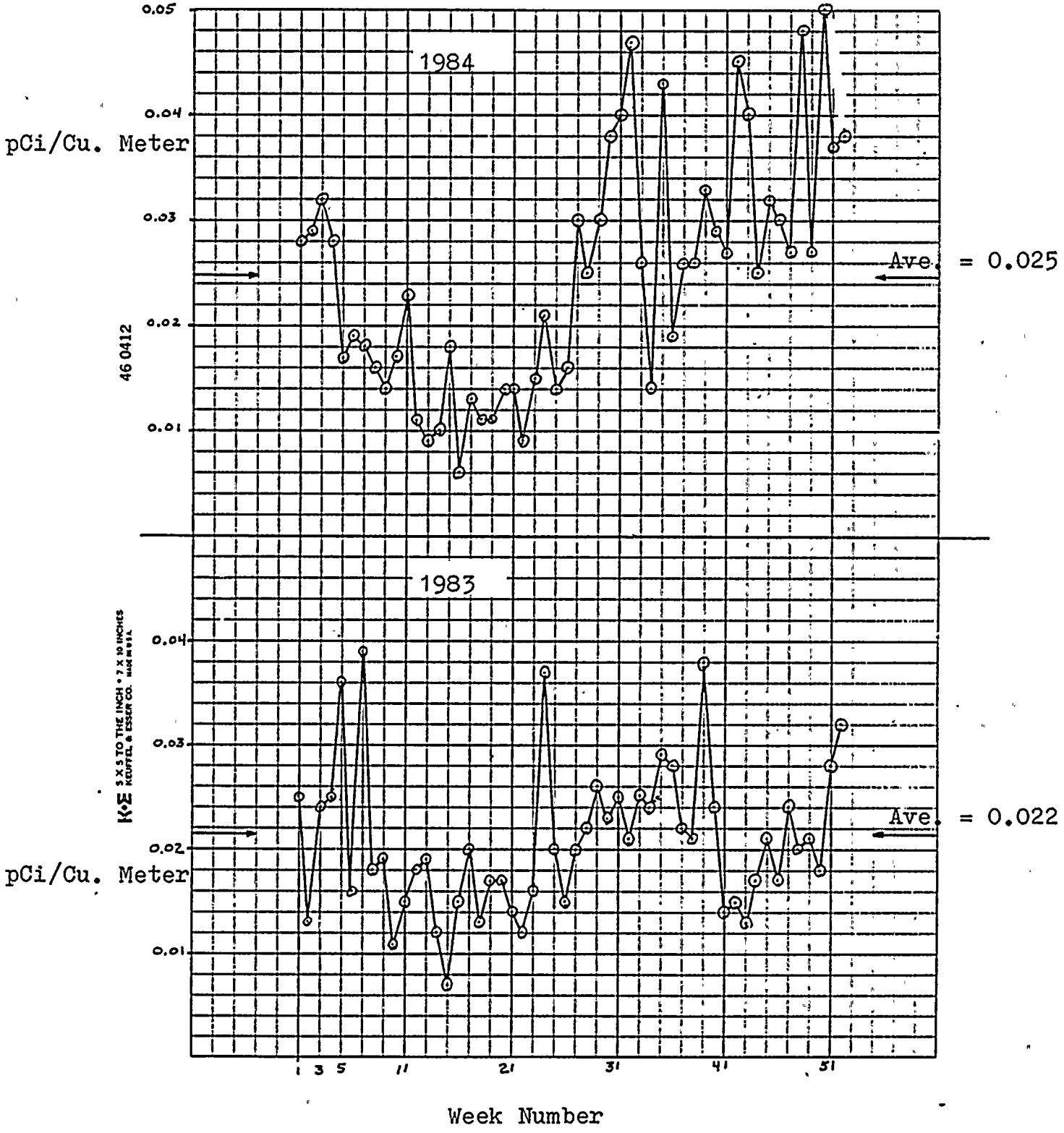


TABLE II B

1984 OFFSITE AIR MONITORS GROSS BETA ANALYSES
RESULTS IN pCi/CU. M.

WEEK OF	STATION 8	STATION 9	STATION 10	STATION 11	STATION 12	AVE.
JUNE 29 - JULY 6	0.032±0.004	0.031±0.003	0.040±0.007	0.035±0.003	0.036±0.004	0.035
JULY 6 - JULY 13	0.030±0.004	0.028±0.005	0.029±0.008	0.030±0.005	0.033±0.005	0.030
JULY 13 - JULY 20	0.031±0.005	0.031±0.005	0.025±0.007	0.028±0.004	0.044±0.005	0.033
JULY 20 - JULY 27	0.036±0.005	0.041±0.005	0.043±0.006	0.026±0.004	0.035±0.005	0.036
JULY 27 - AUG. 3	0.044±0.005	0.039±0.006	0.038±0.007	0.032±0.004	0.039±0.006	0.038
AUG. 3 - AUG. 10	0.050±0.004	0.051±0.005	0.047±0.006	0.046±0.004	0.040±0.005	0.046
AUG. 10 - AUG. 17	0.029±0.004	0.026±0.004	0.033±0.005	0.026±0.003	0.029±0.004	0.029
AUG. 17 - AUG. 24	0.019±0.003	0.019±0.004	0.019±0.004	0.019±0.003	0.020±0.004	0.019
AUG. 24 - AUG. 31	0.033±0.004	0.030±0.004	0.032±0.005	0.027±0.004	0.027±0.005	0.030
AUG. 31 - SEPT. 7	0.018±0.004	0.016±0.005	0.017±0.006	0.014±0.003	0.013±0.004	0.016
SEPT. 7 - SEPT. 14	0.029±0.004	0.030±0.004	0.004±0.005	0.027±0.004	0.027±0.004	0.028
SEPT. 14 - SEPT. 21	0.032±0.004	0.024±0.004	0.029±0.006	0.027±0.004	0.025±0.005	0.027
SEPT. 21 - SEPT. 28	0.035±0.004	0.028±0.004	0.034±0.006	0.027±0.003	0.030±0.004	0.031
SEPT. 28 - OCT. 5	0.034±0.004	0.030±0.004	0.034±0.006	0.030±0.004	0.030±0.005	0.032
OCT. 5 - OCT. 12	0.031±0.004	0.025±0.004	0.032±0.006	0.034±0.007	0.031±0.005	0.031
OCT. 12 - OCT. 19	0.046±0.005	0.044±0.004	0.051±0.006	0.040±0.007	0.044±0.005	0.045
OCT. 19 - OCT. 26	0.045±0.005	0.032±0.004	0.042±0.006	0.035±0.007	0.028±0.004	0.036
OCT. 26 - NOV. 2	0.033±0.005	0.024±0.004	0.029±0.006	0.028±0.007	0.026±0.005	0.028
NOV. 2 - NOV. 9	0.038±0.005	(a)	0.037±0.007	0.022±0.007	0.032±0.005	0.032
NOV. 9 - NOV. 16	0.035±0.006	0.023±0.009	0.031±0.007	0.029±0.008	0.036±0.006	0.031
NOV. 16 - NOV. 23	0.035±0.005	0.022±0.004	0.034±0.007	0.030±0.008	0.029±0.005	0.030
NOV. 23 - NOV. 30	0.051±0.004	0.043±0.004	0.054±0.005	0.041±0.006	0.045±0.004	0.047
NOV. 30 - DEC. 7	0.034±0.004	0.029±0.004	(b)	0.027±0.006	0.030±0.004	0.030
DEC. 7 - DEC. 14	0.069±0.005	0.063±0.005	0.070±0.007	0.056±0.007	0.065±0.005	0.065
DEC. 14 - DEC. 21	0.043±0.005	0.037±0.004	0.036±0.006	0.032±0.007	0.036±0.005	0.037
DEC. 21 - DEC. 28	0.045±0.005	0.034±0.004	0.046±0.006	0.033±0.007	0.037±0.005	0.039
MAXIMUM	0.069±0.005	0.063±0.005	0.070±0.007	0.056±0.007	0.065±0.005	
AVERAGE	0.037	0.032	0.035	0.031	0.033	
MINIMUM	0.018±0.004	0.016±0.005	0.004±0.005	0.014±0.003	0.013±0.004	

(a) UNIT OUT OF SERVICE
(b) FILTER TORN OR OFFCENTERED

TABLE II A

1984 ONSITE AIR MONITORS GROSS BETA ANALYSES
RESULTS IN pCi/CU. M.

WEEK OF	STATION 2	STATION 3	STATION 4	STATION 5	STATION 6	STATION 7	STATION 13	AVE.
JUNE 29 - JULY 6	0.031±0.004	0.029±0.004	0.031±0.004	0.033±0.004	0.025±0.003	0.026±0.003	0.036±0.004	0.030
JULY 6 - JULY 13	0.029±0.005	0.020±0.005	0.021±0.004	0.024±0.004	0.022±0.003	0.023±0.003	0.033±0.005	0.025
JULY 13 - JULY 20	0.038±0.005	0.033±0.005	0.032±0.005	0.028±0.004	0.027±0.004	0.014±0.004	0.044±0.005	0.030
JULY 20 - JULY 27	0.041±0.005	0.040±0.005	0.037±0.005	0.037±0.004	0.040±0.004	0.037±0.004	0.037±0.005	0.038
JULY 27 - AUG. 3	0.043±0.006	0.036±0.006	0.047±0.006	0.042±0.005	0.037±0.005	0.039±0.005	0.038±0.006	0.040
AUG. 3 - AUG. 10	0.051±0.005	0.047±0.006	0.046±0.005	0.049±0.005	0.043±0.004	0.040±0.005	0.050±0.005	0.047
AUG. 10 - AUG. 17	0.025±0.004	0.025±0.004	0.028±0.004	0.028±0.003	0.027±0.003	0.025±0.003	0.027±0.005	[illegible]26
AUG. 17 - AUG. 24	0.014±0.003	0.011±0.004	0.005±0.005	0.014±0.003	0.015±0.003	0.014±0.003	0.025±0.004	0.014
AUG. 24 - AUG. 31	0.031±0.004	0.032±0.005	0.037±0.012	0.033±0.004	0.035±0.004	0.031±0.004	(b)	0.033
AUG. 31 - SEPT. 7	0.024±0.004	0.021±0.005	0.016±0.007	0.022±0.004	0.016±0.003	0.019±0.004	0.010±0.005	0.019
SEPT. 7 - SEPT. 14	0.019±0.006	0.026±0.005	0.031±0.007	0.027±0.004	0.026±0.003	0.025±0.004	0.029±0.005	0.026
SEPT. 14 - SEPT. 21	0.031±0.004	0.023±0.004	0.015±0.006	0.027±0.004	0.028±0.004	0.029±0.004	0.031±0.005	0.026
SEPT. 21 - SEPT. 28	0.031±0.004	0.030±0.004	0.033±0.007	0.029±0.004	0.027±0.003	0.028±0.004	0.029±0.004	0.033
SEPT. 28 - OCT. 5	0.031±0.004	0.034±0.005	0.031±0.007	0.029±0.004	0.026±0.003	0.024±0.004	0.031±0.005	0.029
OCT. 5 - OCT. 12	0.029±0.004	0.030±0.005	0.024±0.006	0.028±0.004	0.027±0.003	0.026±0.004	0.028±0.004	0.027
OCT. 12 - OCT. 19	0.044±0.004	0.046±0.005	0.042±0.007	0.046±0.005	0.047±0.004	0.042±0.004	0.047±0.005	0.045
OCT. 19 - OCT. 26	0.031±0.005	0.048±0.005	0.055±0.008	0.037±0.004	0.034±0.004	0.034±0.004	0.035±0.004	0.040
OCT. 26 - NOV. 2	0.025±0.004	0.024±0.005	0.019±0.007	0.021±0.004	0.026±0.004	0.028±0.004	0.030±0.004	0.025
NOV. 2 - NOV. 9	0.037±0.005	0.031±0.005	0.031±0.007	0.035±0.004	0.033±0.004	0.028±0.004	0.029±0.004	0.032
NOV. 9 - NOV. 16	0.035±0.005	0.031±0.006	0.028±0.008	0.029±0.005	0.031±0.004	0.025±0.005	0.032±0.005	0.030
NOV. 16 - NOV. 23	0.025±0.005	0.027±0.005	0.028±0.008	0.009±0.004	0.028±0.004	0.028±0.005	0.028±0.005	0.027
NOV. 23 - NOV. 30	0.045±0.004	0.049±0.004	0.048±0.006	0.051±0.006	0.049±0.003	0.047±0.004	0.045±0.004	0.048
NOV. 30 - DEC. 7	0.028±0.004	0.030±0.004	0.024±0.006	0.028±0.004	0.026±0.003	0.025±0.004	0.028±0.004	[illegible]27
DEC. 7 - DEC. 14	0.063±0.005	0.063±0.005	0.060±0.007	0.066±0.005	0.065±0.004	0.064±0.005	0.058±0.005	0.063
DEC. 14 - DEC. 21	0.039±0.005	0.033±0.004	0.038±0.007	0.038±0.005	0.036±0.004	0.035±0.004	0.037±0.004	0.037
DEC. 21 - DEC. 28	0.039±0.005	0.038±0.005	0.037±0.007	0.039±0.004	0.041±0.004	0.041±0.004	0.034±0.004	0.038
MAXIMUM	0.063±0.005	0.063±0.005	0.060±0.007	0.066±0.005	0.065±0.004	0.064±0.005	0.058±0.005	
AVERAGE	0.034	0.033	0.032	0.033	0.032	0.031	0.034	
MINIMUM	0.014±0.003	0.011±0.004	0.005±0.005	0.009±0.004	0.015±0.003	0.014±0.004	0.010±0.005	

(a) UNIT OUT OF SERVICE
(b) FILTER TORN OR OFFCENTERED

TABLE I B

1984 OFFSITE AIR MONITORS GROSS BETA ANALYSES
RESULTS IN pCi/CU. M.

WEEK OF	STATION 8	STATION 9	STATION 10	STATION 11	STATION 12	AVE.
DEC. 30 - JAN. 6	0.026±0.003	0.027±0.003	0.031±0.005	0.027±0.003	0.028±0.003	0.028
JAN. 6 - JAN. 13	0.028±0.003	0.029±0.003	0.026±0.005	0.026±0.003	0.023±0.003	0.026
JAN. 13 - JAN. 20	0.029±0.003	0.032±0.004	0.028±0.005	0.030±0.003	0.012±0.003	0.026
JAN. 20 - JAN. 27	0.020±0.003	0.026±0.003	0.042±0.005	0.033±0.003	0.054±0.003	0.035
JAN. 27 - FEB. 3	0.018±0.003	0.016±0.003	0.013±0.005	0.016±0.003	0.016±0.003	0.016
FEB. 3 - FEB. 10	0.018±0.003	0.018±0.003	0.015±0.005	0.018±0.003	0.019±0.003	0.018
FEB. 10 - FEB. 17	0.016±0.003	0.019±0.003	0.018±0.005	0.020±0.003	0.017±0.003	0.018
FEB. 17 - FEB. 24	0.016±0.003	0.016±0.003	0.015±0.005	0.015±0.003	0.014±0.003	0.015
FEB. 24 - MARCH 2	0.013±0.003	0.012±0.003	(b)	0.013±0.003	0.013±0.003	0.013
MARCH 2 - MARCH 9	0.016±0.003	0.018±0.003	0.016±0.005	0.014±0.003	0.018±0.008	0.016
MARCH 9 - MARCH 16	0.021±0.003	0.018±0.006	0.023±0.005	0.024±0.003	0.025±0.003	0.022
MARCH 16 - MARCH 23	0.011±0.003	0.009±0.003	0.006±0.005	0.010±0.002	0.010±0.003	0.009
MARCH 23 - MARCH 30	0.012±0.003	0.010±0.003	0.009±0.005	0.008±0.002	0.008±0.002	0.009
MARCH 30 - APRIL 6	0.011±0.003	0.009±0.003	0.006±0.005	0.010±0.002	0.010±0.003	0.009
APRIL 6 - APRIL 13	0.017±0.003	0.017±0.003	0.017±0.005	0.015±0.003	0.014±0.003	0.016
APRIL 13 - APRIL 20	0.007±0.003	0.005±0.003	0.002±0.005	0.008±0.003	0.007±0.003	0.006
APRIL 20 - APRIL 27	0.015±0.003	0.014±0.003	0.010±0.005	0.012±0.002	0.012±0.003	0.013
APRIL 27 - MAY 4	0.015±0.003	0.014±0.003	0.015±0.005	0.012±0.002	0.012±0.003	0.014
MAY 4 - MAY 11	0.011±0.003	0.011±0.003	0.011±0.005	0.012±0.003	0.010±0.003	0.011
MAY 11 - MAY 18	0.015±0.003	0.014±0.003	0.013±0.005	0.011±0.002	0.012±0.003	0.013
MAY 18 - MAY 25	0.013±0.002	0.015±0.003	0.013±0.005	0.014±0.002	0.013±0.003	0.014
MAY 25 - JUNE 1	0.008±0.003	0.010±0.003	0.005±0.005	0.009±0.002	0.009±0.003	0.008
JUNE 1 - JUNE 8	0.013±0.003	0.018±0.003	0.019±0.006	0.018±0.002	0.018±0.003	0.017
JUNE 8 - JUNE 15	0.013±0.003	0.020±0.003	0.032±0.006	0.018±0.002	0.021±0.003	0.021
JUNE 15 - JUNE 22	0.011±0.003	0.013±0.003	0.005±0.005	0.011±0.002	0.011±0.003	0.010
JUNE 22 - JUNE 29	0.024±0.005	0.023±0.005	0.023±0.005	0.020±0.004	0.020±0.005	0.022
MAXIMUM	0.029±0.003	0.032±0.004	0.042±0.005	0.033±0.003	0.054±0.003	
AVERAGE	0.016	0.017	0.017	0.016	0.016	
MINIMUM	0.007±0.003	0.005±0.003	0.002±0.005	0.008±0.002	0.007±0.003	

(a) UNIT OUT OF SERVICE
(b) FILTER TORN OR OFFCENTERED

TABLE I A

1984 ONSITE AIR MONITORS GROSS BETA ANALYSES
RESULTS IN pCi/CU. M.

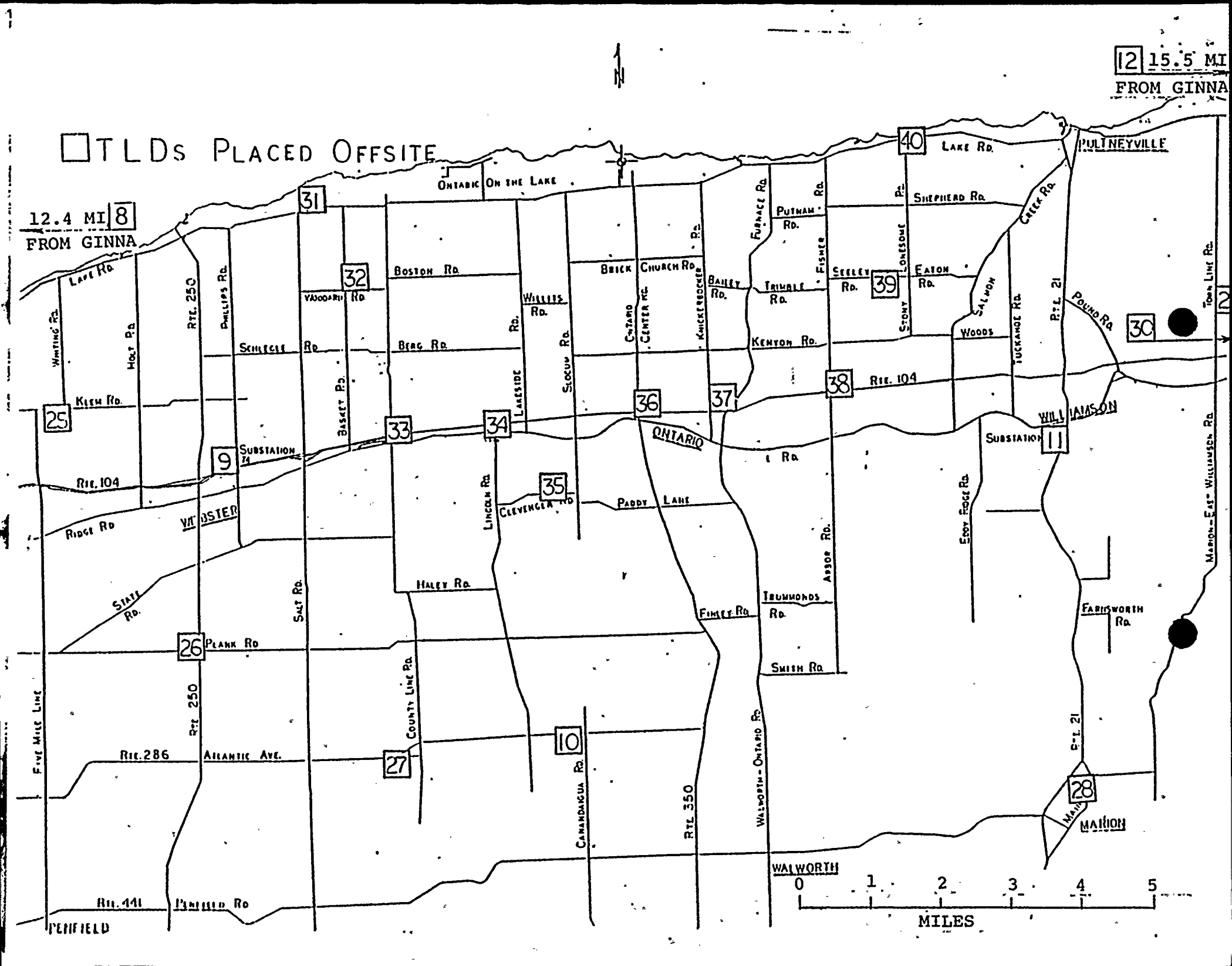
WEEK OF	STATION 2	STATION 3	STATION 4	STATION 5	STATION 6	STATION 7	STATION 13	AVE.
DEC. 30 - JAN. 6	0.027±0.003	0.028±0.003	0.029±0.003	0.027±0.007	0.028±0.003	0.030±0.003	0.028±0.003	0.028
JAN. 6 - JAN. 13	0.030±0.003	0.028±0.003	0.028±0.003	0.028±0.007	0.028±0.003	0.029±0.003	0.031±0.003	0.029
JAN. 13 - JAN. 20	0.032±0.003	0.031±0.004	0.034±0.003	0.028±0.007	0.034±0.003	0.031±0.003	0.033±0.004	0.032
JAN. 20 - JAN. 27	0.026±0.003	0.026±0.003	0.030±0.003	0.023±0.007	0.027±0.003	0.030±0.003	0.031±0.003	0.028
JAN. 27 - FEB. 3	0.018±0.003	0.017±0.003	0.018±0.003	0.012±0.007	0.018±0.003	0.018±0.003	0.019±0.003	0.017
FEB. 3 - FEB. 10	0.019±0.003	0.018±0.003	0.017±0.003	0.021±0.007	0.019±0.003	0.019±0.003	0.018±0.003	0.019
FEB. 10 - FEB. 17	0.018±0.003	0.017±0.003	0.018±0.003	0.017±0.007	0.018±0.003	0.021±0.003	0.018±0.003	[illegible]18
FEB. 17 - FEB. 24	0.018±0.003	0.014±0.003	0.016±0.003	0.012±0.007	0.017±0.003	0.015±0.003	0.017±0.003	0.016
FEB. 24 - MARCH 2	0.014±0.003	0.015±0.003	0.015±0.003	0.014±0.007	0.015±0.003	0.017±0.003	0.011±0.003	0.014
MARCH 2 - MARCH 9	0.018±0.003	0.017±0.003	0.015±0.003	0.014±0.007	0.019±0.003	0.019±0.003	0.018±0.003	0.017
MARCH 9 - MARCH 16	0.024±0.003	0.024±0.003	0.023±0.003	0.018±0.007	0.025±0.003	0.022±0.003	0.023±0.003	0.023
MARCH 16 - MARCH 23	0.012±0.003	0.012±0.003	0.012±0.003	0.009±0.007	0.010±0.002	0.011±0.003	0.012±0.003	0.011
MARCH 23 - MARCH 30	0.007±0.003	0.013±0.003	0.012±0.003	(b)	0.012±0.003	0.010±0.003	0.009±0.003	0.009
MARCH 30 - APRIL 6	0.007±0.003	0.012±0.003	0.011±0.003	0.010±0.006	0.010±0.002	0.011±0.003	0.011±0.003	0.010
APRIL 6 - APRIL 13	0.019±0.003	0.019±0.003	0.019±0.003	0.017±0.007	0.018±0.003	0.017±0.003	0.018±0.003	0.018
APRIL 13 - APRIL 20	0.006±0.003	0.007±0.003	0.006±0.003	0.004±0.006	0.006±0.002	0.006±0.003	0.008±0.003	0.006
APRIL 20 - APRIL 27	0.014±0.003	0.015±0.003	0.013±0.003	0.010±0.006	0.014±0.003	0.013±0.003	0.014±0.003	0.013
APRIL 27 - MAY 4	0.005±0.003	0.010±0.003	0.012±0.003	0.010±0.006	0.013±0.003	0.013±0.003	0.013±0.003	0.011
MAY 4 - MAY 11	0.011±0.003	0.012±0.003	0.012±0.003	0.007±0.006	0.011±0.002	0.011±0.003	0.011±0.003	0.011
MAY 11 - MAY 18	0.016±0.003	0.018±0.003	0.015±0.003	0.011±0.006	0.014±0.003	0.013±0.003	0.013±0.003	0.014
MAY 18 - MAY 25	0.013±0.003	0.014±0.003	0.012±0.003	0.014±0.006	0.013±0.002	0.013±0.003	0.017±0.003	0.014
MAY 25 - JUNE 1	0.008±0.003	0.009±0.003	0.010±0.003	0.008±0.007	0.009±0.002	0.010±0.003	0.008±0.003	0.009
JUNE 1 - JUNE 8	0.021±0.003	0.011±0.003	0.018±0.003	0.008±0.006	0.012±0.002	0.014±0.003	0.018±0.003	[illegible]15
JUNE 8 - JUNE 15	0.039±0.003	0.021±0.003	0.004±0.003	0.019±0.004	0.021±0.002	0.020±0.004	0.021±0.003	0.021
JUNE 15 - JUNE 22	0.014±0.003	0.015±0.003	0.014±0.003	0.015±0.003	0.016±0.002	0.013±0.003	0.011±0.003	0.014
JUNE 22 - JUNE 29	0.021±0.005	0.017±0.005	0.012±0.005	0.020±0.005	0.023±0.004	0.021±0.005	(b)	0.016
MAXIMUM	0.039±0.003	0.031±0.004	0.034±0.003	0.028±0.007	0.034±0.003	0.031±0.003	0.033±0.004	
AVERAGE	0.018	0.017	0.016	0.015	0.017	0.017	0.017	
MINIMUM	0.005±0.003	0.007±0.003	0.004±0.003	0.004±0.006	0.006±0.002	0.006±0.003	0.008±0.003	

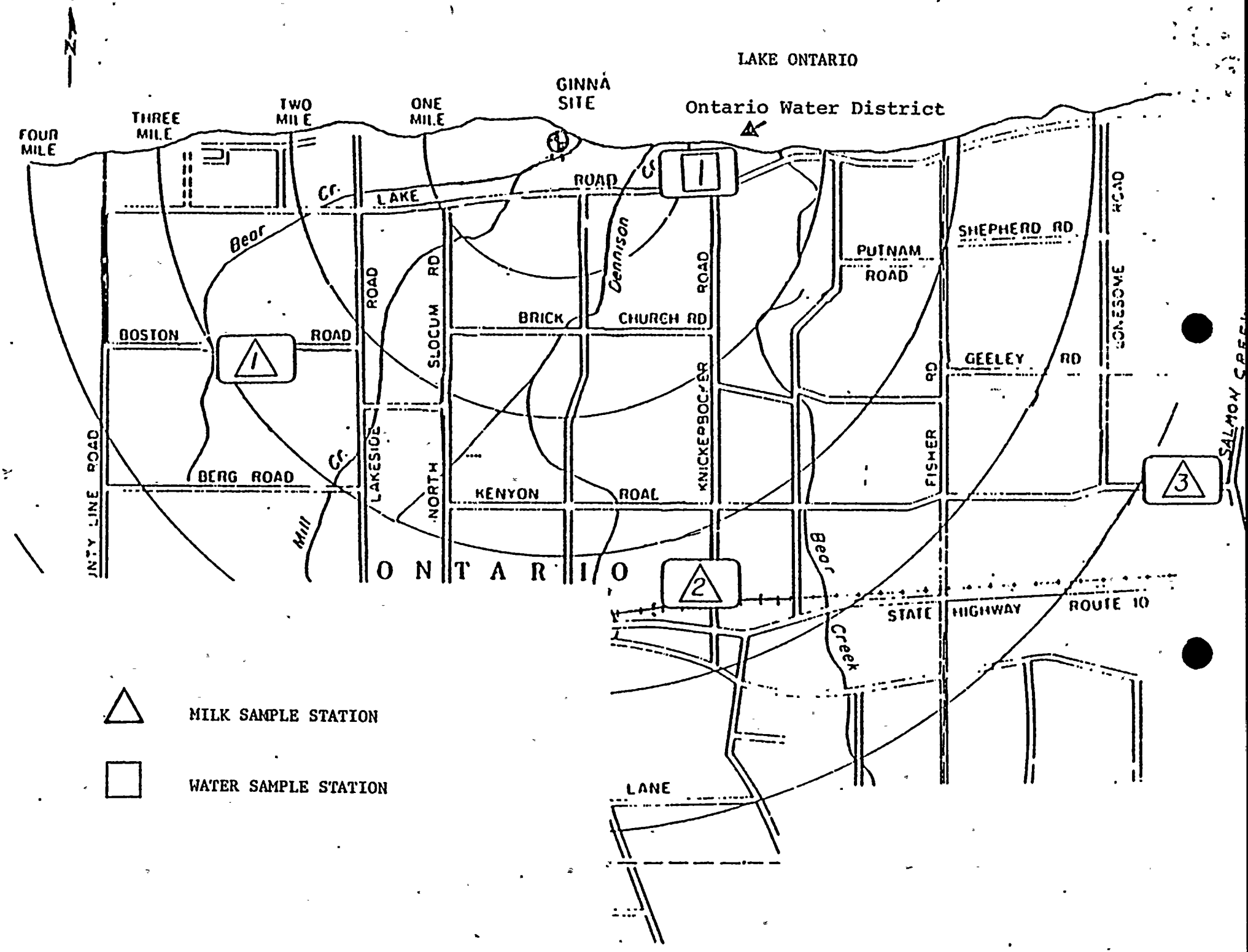
(a) UNIT OUT OF SERVICE
(b) FILTER TORN OR OFFCENTERED

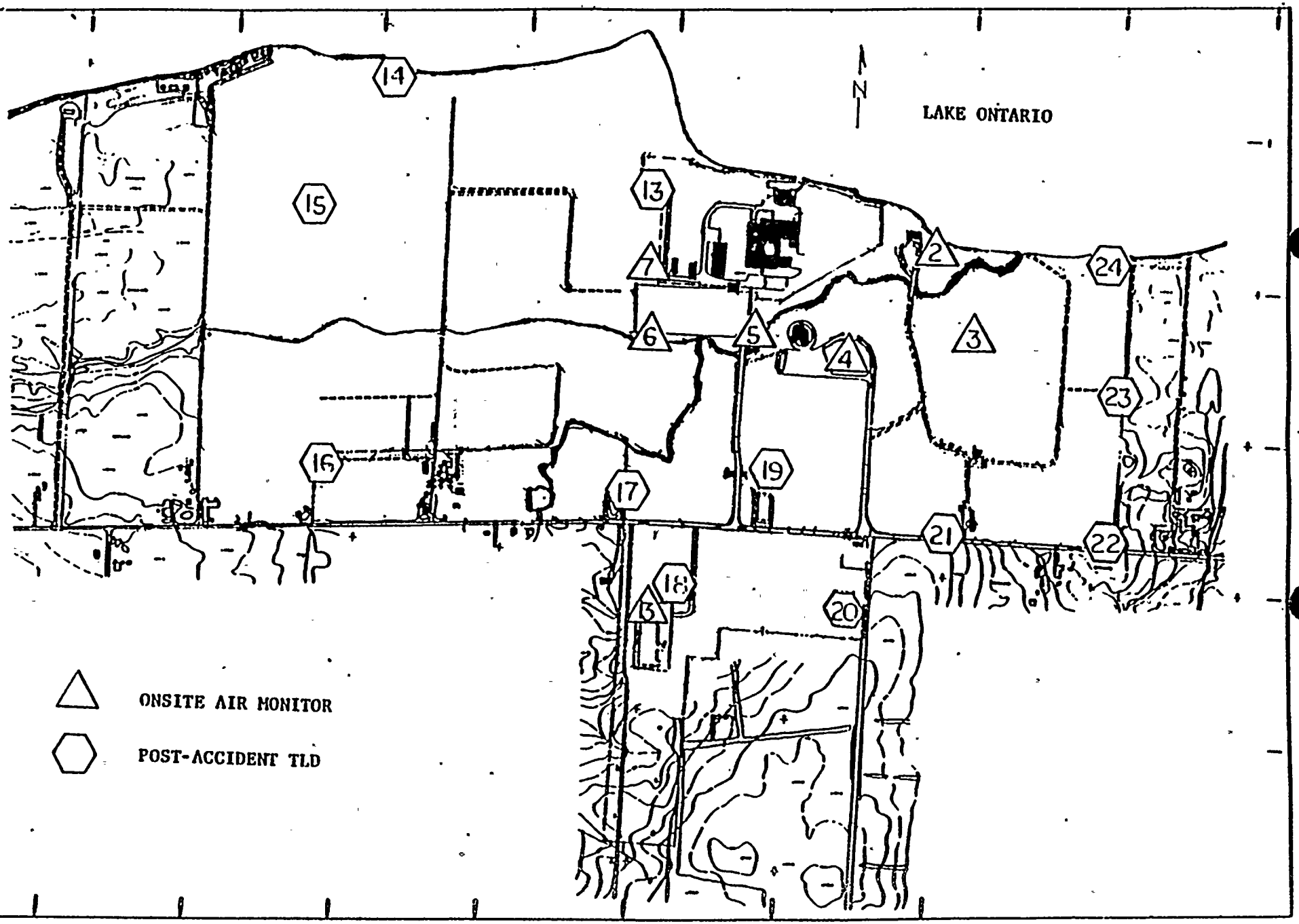
ENVIRONMENTAL SAMPLING LOCATIONS

Distance and Direction

No.	Distance (meters)	Direction	No.	Distance (meters)	Direction
2	360	88	3	435	112
4	260	140	5	200	185
6	280	230	7	230	258
8	19960	255	9	11160	245
10	12980	187	11	11470	123
12	24950	93	13	280	297
14	820	294	15	900	274
16	1020	254	17	530	210
18	690	194	19	425	180
20	640	167	21	670	147
22	910	130	23	760	111
24	670	91	25	2860	248
26	2940	223	27	2880	202
28	3500	147	29	13770	105
30	20750	103	31	7150	262
32	6040	244	33	7850	222
34	6640	207	35	7440	193
36	5530	176	37	5630	160
38	7040	138	39	6740	115
40	6540	97	Well 'B'	640	150
OWD	1620	105	Creek	200	135
Russell Station	26860	263	Onsite Vegetable Garden	435	112


TLDs PLACED OFFSITE
12.4 MI 8
FROM GINNA
12 15.5 MI
FROM GINNA
ONTARIO ON THE LAKE
LAKE RD.
PULTNEYVILLE
PUTNAM RD.
SHEPHERD RD.
CREEK RD.
TOWN LINE RD.
BOSTON RD.
BRICK CHURCH RD.
FURNACE RD.
FISHER RD.
STONY LONESOME RD.
SEELEY RD.
EATON RD.
SALMON CREEK RD.
WHITING RD.
HOLT RD.
RTE. 250
PHILLIPS RD.
VANDOREN RD.
WILLETTS RD.
BAILEY RD.
TRIMBLE RD.
SCHLEGEL RD.
BERG RD.
BASKET RD.
LAKESIDE RD.
SLOCUM RD.
CENTER RD.
KNICKERBOCKER RD.
KENYON RD.
WOODS
TUCKAHOE RD.
RTE. 21
POUND RD.
KLEH RD.
RTE. 104
SUBSTATION 14
ONTARIO
WILLIAMSON
SUBSTATION 11
MARION-EAST WILLIAMSON RD.
RIDGE RD
WEBSTER
LINCOLN RD.
CLEVENGER RD.
PADDY LANE
EBOY RIDGE RD.
ABBOTT RD.
HALEY RD.
STATE RD.
SALT RD.
TRUMMONDS RD.
FINLEY RD.
FARNSWORTH RD.
PLANK RD
SMITH RD.
FIVE MILE LINE
COUNTY LINE RD.
RTE. 286
ATLANTIC AVE.
CANANDAIGUA RD.
RTE. 350
WALWORTH-ONTARIO RD.
MARION
WALWORTH
RTE. 441
PENFIELD RD
PENFIELD
0 1 2 3 4 5
MILES


N
LAKE ONTARIO
GINNA SITE
Ontario Water District
FOUR MILE
THREE MILE
TWO MILE
ONE MILE
LAKE ROAD
Bear Cr.
Gennison
BOSTON ROAD
BERG ROAD
JNTY LINE ROAD
LAKESIDE ROAD
SLOCUM RD
NORTH
BRICK
CHURCH RD
KENYON ROAL
KNICKERBOCKER RD
PUTNAM ROAD
SHEPHERD RD
GEELEY RD
FISHER
SONESOME ROAD
SALMON CREEK
Mill Cr.
ONTARIO
Bear Creek
STATE HIGHWAY ROUTE 10
LANE
1
2
3
MILK SAMPLE STATION
WATER SAMPLE STATION


N
LAKE ONTARIO
14
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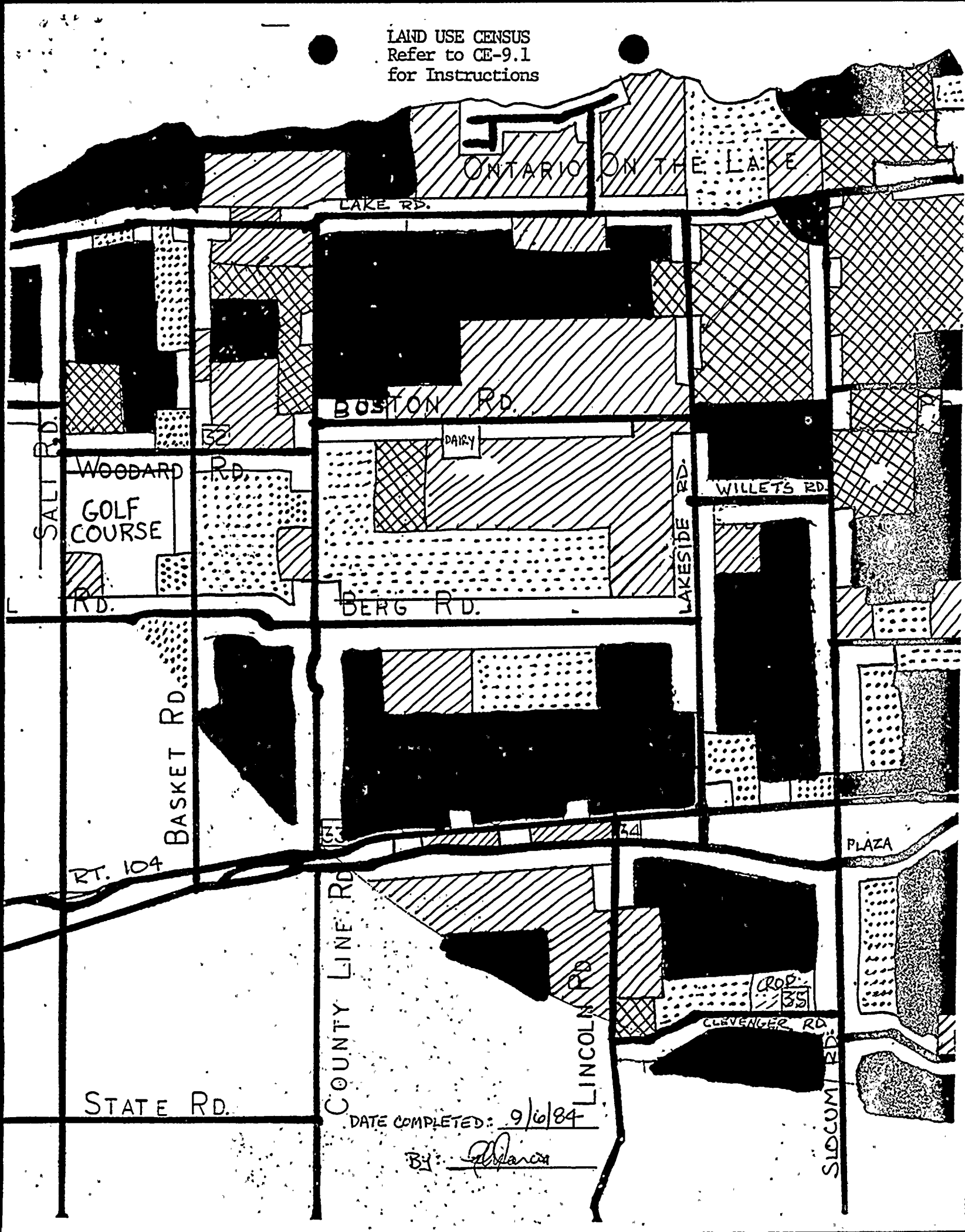
ONSITE AIR MONITOR
POST-ACCIDENT TLD

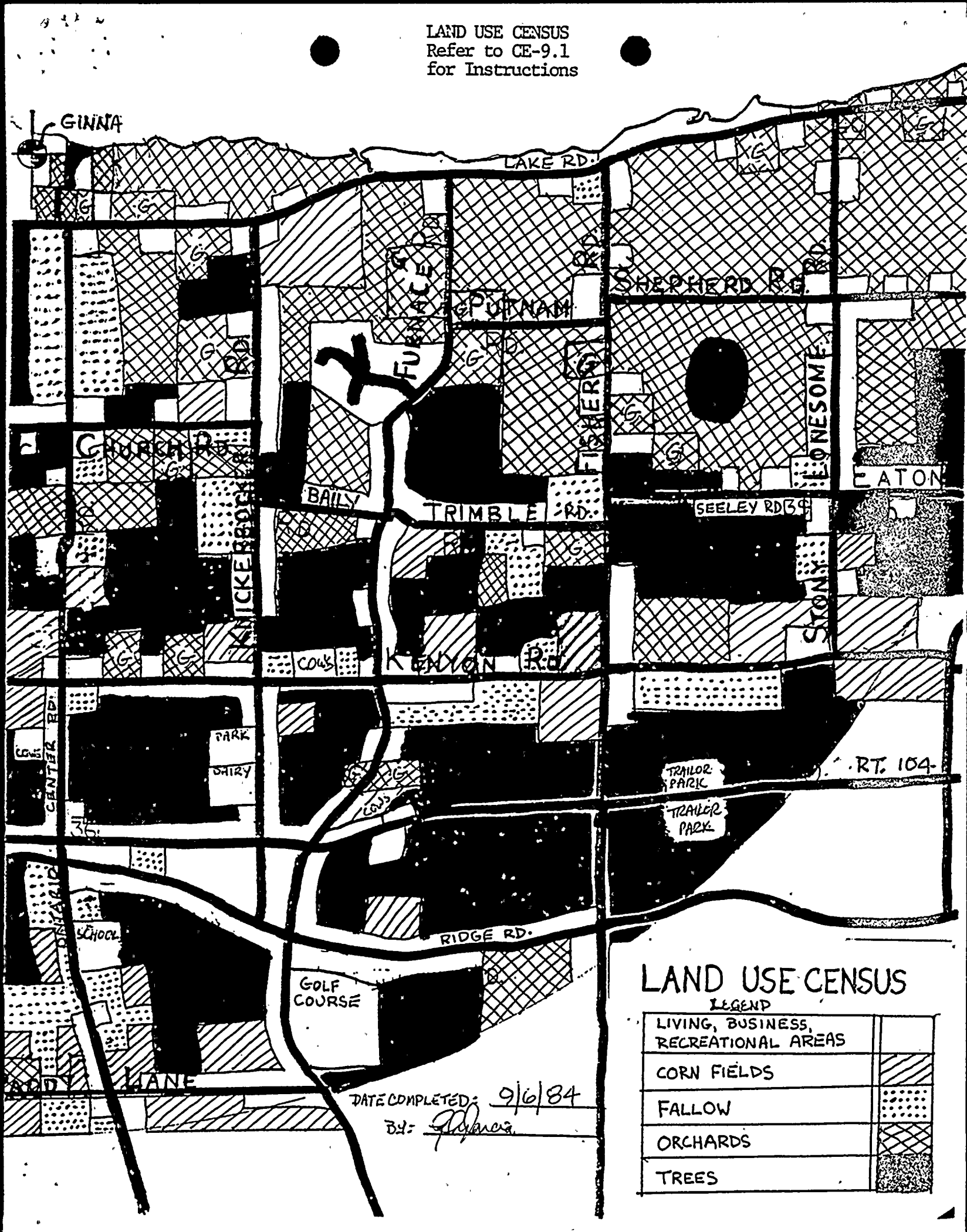
LAND USE CENSUS
Refer to CE-9.1
for Instructions



DATE COMPLETED: 9/6/84

BY: [signature]

LAND USE CENSUS
Refer to CE-9.1
for Instructions



LAND USE CENSUS

LEGEND

LIVING, BUSINESS, RECREATIONAL AREAS	
CORN FIELDS	
FALLOW	
ORCHARDS	
TREES	

DATE COMPLETED: 9/6/84

BY: [signature]

ROCHESTER GAS AND ELECTRIC CORPORATION
ENVIRONMENTAL RADIOLOGICAL MONITORING PROGRAM SUMMARY
R. E. GINNA NUCLEAR POWER PLANT DOCKET NO. 50-244
WAYNE, NEW YORK REPORTING PERIOD 1984

PATHWAY SAMPLED (UNIT OF MEASUREMENT)	TYPE AND TOTAL NUMBER OF ANALYSES	LLD	INDICATOR LOCATIONS MEAN (1) RANGE	LOCATION WITH HIGHEST ANNUAL MEAN NAME DISTANCE AND DIRECTION	MEAN (1) RANGE	CONTROL LOCATIONS MEAN (1) RANGE
AIR: PARTICULATE (pCi/Cu.M.)	GROSS BETA 618	0.003	0.025 (361/361) 0.004 - 0.066	ONSITE LOCATION #2 360 M 88	0.026 (52/52) 0.005 - 0.063	0.025 (256/256) 0.004 - 0.070
	GAMMA SCAN 48	(2)	< LLD (28/28)	———	———	< LLD (20/20)
IODINE	GAMMA SCAN 208	0.02	< LLD (104/104)	———	———	< LLD (104/104)
DIRECT RADIATION: (3) FILM (mR/MONTH)	BETA/GAMMA 144	10	10 (1/68) 10	ONSITE LOCATION #5 200 M 185	20 (1/12) 20	20 (2/72) 20
TLD (mR/WEEK)	GAMMA 150	0.08	1.47 (71/71) 0.78 - 1.77	ONSITE LOCATION #19 425 M 180	———	1.17 (79/79) 0.76 - 1.95
WATER: DRINKING (pCi/LITER)	GROSS BETA 76	1.2	3.96 (76/76) 1.20 - 10.50	WELL "B" 640 M 150	6.77 (12/12) 3.99 - 10.99	———
	GAMMA SCAN 50	(2)	Ra-226 24 (11/50) 14 - 41	WELL "B" 640 M 150	24 (11/12) 14 - 41	———
SURFACE (pCi/LITER	GROSS BETA 165	1.2	3.65 (114/114) 0.73 - 8.49	DEER CREEK 200 M 135	5.33 (11/11) 2.44 - 8.49	4.02 (51/51) 1.06 - 10.20
	GAMMA SCAN 63	(2)	Ra-226 13 (2/38) 11 - 15	DEER CREEK 200 M 135	13 (2/11) 11 - 15	< LLD (12/12)
RAINFALL (pCi/sq.M/day)	GROSS BETA 59	1.2	4.71 (24/24) 1.36 - 9.24	STATION #3 435 M 112	5.10 (12/12) 2.45 - 9.24	5.12 (35/35) 1.06 - 10.6
MILK: (pCi/LITER	IODINE 56	0.07	0.57 (12/38) 0.17 - 2.05	FARM "B"	1.05 (3/12) 0.49 - 2.05	0.87 (4/18) 0.18 - 1.76
	GAMMA SCAN 56	(2)	< LLD (38/38)	———	———	———
FISH: (pCi/Kg)	GAMMA SCAN 11	(2)	Cs-137 44 (6Ø7) 26 - 91	DISCHARGE PLUME	———	26 (4/4) 21 - 32
VEGETATION: (pCi/Kg)	GAMMA SCAN 7	(2)	Cs-137 14 (1/7) 14	ONSITE GARDEN 435 M 112	———	———

(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) One direct radiation location has been deleted from this summary since it was affected by the contaminated equipment storage loction 50 meters away. The average reading at this location is 4.21 mR/week.