

TABLE 1A

## EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (YEAR)

## GASEOUS EFFLUENTS - SUMMATION OF ALL RELEASES

	Unit	Quarter 3	Quarter 4	Est. Total Error %
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## A. Fission &amp; activation gases

1. Total release	Ci	1.98E 1	1.38E 1	2.8 E 1
2. Average release rate for period	uCi/sec	2.49E 0	4.30E 0	
3. Percent of technical specification limit	%	4.15E-3	7.17E-3	

## B. Iodines

1. Total iodine-131	Ci	4.49E-5	1.12E-4	1.5 E 1
2. Average release rate for period	uCi/sec	5.65E-6	1.43E-5	
3. Percent of technical specification limit	%	1.95E-2	5.07E-2	

## C. Particulates

1. Particulates with half-lives > 8 days	Ci	1.17E-5	3.03E-6	4.8 E 1
2. Average release rate for period	uCi/sec	1.47E-6	3.85E-7	
3. Percent of technical specification limit	%	5.07E-2	1.33E-2	
4. Gross alpha radioactivity	Ci	1.13E-6	6.67E-7	

## D. Tritium

1. Total release	Ci	1.81E 1	2.33E 1	3.0 E 0
2. Average release rate for period	uCi/sec	2.28E 0	2.97E 0	
3. Percent of technical specification limit	%	3.93E 0	5.12E 0	

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TABLE 1B

## EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (YEAR)

## GASEOUS EFFLUENTS - ELEVATED RELEASE

Nuclides Released	Unit	CONTINUOUS MODE		BATCH MODE	
		Quarter	Quarter	Quarter	Quarter
1. Fission gases		3	4	3	4
krypton-85	Ci			2.58E-1	1.31E 0
krypton-85m	Ci	3.8 E-3	7.5 E-3		
krypton-87	Ci	7.6 E-3	1.41E-2		
krypton-88	Ci	9.2 E-3	1.79E-2		
xenon-133	Ci	1.72E-1	2.99E-1	3.76E-1	6.94E-1
xenon-135	Ci	6.60E 0	1.47E 0	4.00E-4	5.2 E-3
xenon-135m	Ci	8.00E-2	1.39E-1		
xenon-138	Ci	1.41E-2	4.40E-2		
Others (specify) Xe-131m	Ci			2.60E-2	1.65E-1
	Ci				
	Ci				
unidentified	Ci				
Total for period	Ci	2.39E 1	3.16E 1	6.60E-1	2.17E 0
2. Iodines					
iodine-131	Ci	1.69E-5	6.46E-5		
iodine-133	Ci	2.81E-5	4.79E-5		
iodine-135	Ci				
Total for period	Ci	4.50E-5	1.13E-4		
3. Particulates					
strontium-89	Ci				
strontium-90	Ci				
cesium-134	Ci				
cesium-137	Ci				
barium-lanthanum-140	Ci				
Others (specify)	Ci				
Co-60	Ci	1.09E-5	5.85E-6		
	Ci				
unidentified	Ci				



TABLE 2A

## EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (YEAR)

## LIQUID EFFLUENTS - SUMMATION OF ALL RELEASES

	Unit	Quarter 3	Quarter 4	Est. Total Error, %
A. Fission and activation products				
1. Total release (not including tritium, gases, alpha)	Ci	6.56E-2	2.59E-2	2.4 E 1
2. Average diluted concentration during period	uCi/ml	3.27E-10	1.30E-10	
3. Percent of applicable limit	%	3.3 E-1	1.3 E-1	
B. Tritium				
1. Total release	Ci	4.46E 1	9.13E 1	3.0 E 0
2. Average diluted concentration during period	uCi/ml	2.22E-7	4.57E-7	
3. Percent of applicable limit	%	2.2 E 0	4.6 E 0	
C. Dissolved and entrained gases				
1. Total release	Ci			
2. Average diluted concentration during period	uCi/ml			
3. Percent of applicable limit	%			
D. Gross alpha radioactivity				
1. Total release				
E. Volume of waste released (prior to dilution)				
	liters	3.27E 7	3.19E 7	7.00E 0
F. Volume of dilution water used during period				
	liters	2.01E 11	2.00E 11	1.00E 0



TABLE 2B

## EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (YEAR)

## LIQUID EFFLUENTS

Nuclides Released	Unit	CONTINUOUS MODE		BATCH MODE	
		Quarter	Quarter	Quarter	Quarter
strontium-89	Ci				
strontium-90	Ci				
cesium-134	Ci			2.10E-2	2.66E-3
cesium-137	Ci			2.84E-2	5.92E-3
iodine-131	Ci			5.1 E-5	
cobalt-58	Ci			6.50E-5	1.57E-4
cobalt-60	Ci			1.39E-2	1.48E-2
iron-59	Ci				
zinc-65	Ci				
manganese-54	Ci			2.18E-3	2.33E-3
chromium-51	Ci				
zirconium-niobium-95	Ci				1.3 E-5
molybdenum-99	Ci				
technetium-99m	Ci				
barium-lanthanum-140	Ci				
cerium-141	Ci				
Other (specify)	Ci				
Ag-110m	Ci				7.72E-5
	Ci				
	Ci				
	Ci				
unidentified	Ci				
Total for period (above)	Ci			6.56E-2	2.59E-2
xenon-133	Ci				
xenon-135	Ci				

THE UNIVERSITY OF CHICAGO

[illegible]



TABLE 3

## EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (YEAR)

## SOLID WASTE AND IRRADIATED FUEL SHIPMENTS

## A. Solid Waste Shipped Offsite for Burial or Disposal (Not irradiated fuel)

1. Type of Waste	Unit	6-month Period	Est. Total Error, %
a. Spent resins, filter sludges, evaporator bottoms, etc.	56.17 m <sup>3</sup> 144.5 Ci	5.62E 1 1.45E 2	1.4 E 1
b. Dry compressible waste, contaminated equip, etc.	67 m <sup>3</sup> 14.48 Ci	6.7 E 1 1.45E 1	1.4 E 1
c. Irradiated components, control rods, etc.	N/A		
d. Other (describe)			

## 2. Estimate of major nuclide compositing (by type of waste)

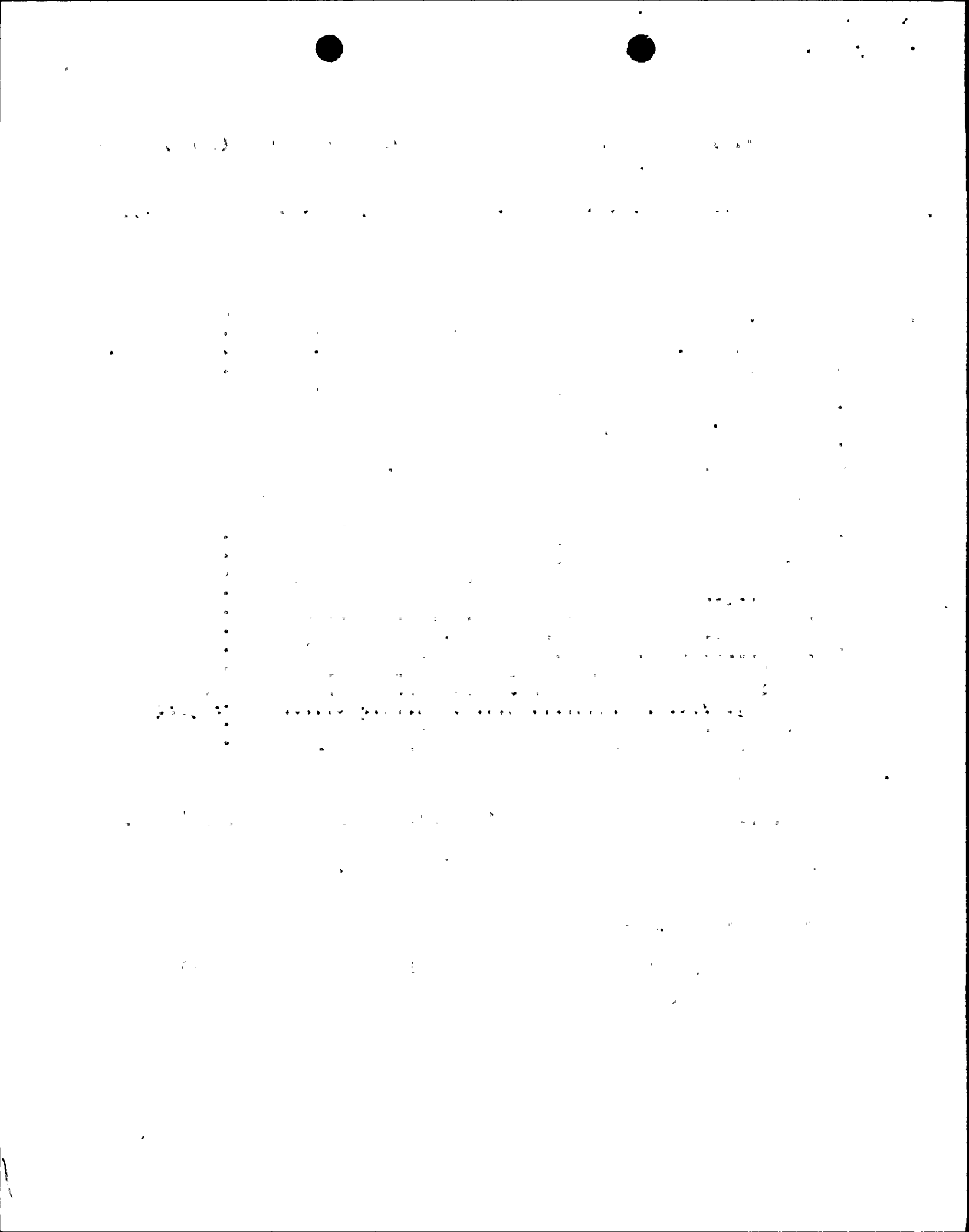
a.	H-3	%	1.7 E 1
	Co-58	%	1.6 E 0
	Co-60	%	2.8 E 1
	Ni-63	%	5.4 E 0
	Cs-134	%	1.3 E 1
	Cs-137	%	3.5 E 1
b.	Co-58	%	2.9 E 0
	Co-60	%	3.2 E 1
	Cs-134	%	1.7 E 1
	Cs-137	%	3.2 E 1
	H-3	%	4.8 E 0
	Ni-63	%	7.1 E 0

## 3. Solid Waste Disposition

<u>Number of Shipments</u>	<u>Mode of Transportation</u>	<u>Destination</u>
6	Highway Transport	Richland, WA
5	Highway Transport	Barnwell, SC

## B. Irradiated Fuel Shipments (Disposition)

<u>Number of Shipments</u>	<u>Mode of Transportation</u>	<u>Destination</u>
None Shipped		



# EFFLUENT AND WASTE DISPOSAL SEMI-ANNUAL REPORT

## Supplemental Information

Report Period: July 1 to December 31, 1983

Facility Ginna Station

Licensee Rochester Gas & Electric

### 1. Regulatory Limits

- a. Fission and activation gases: 6.0 E-4 uCi/sec.
- b. Iodines: 2.9 E-2 uCi/sec.
- c. Particulates, half-lives > 8 days: 2.9 E-2 uCi/sec.
- d. Liquid effluents: Either Identified MPC or Unidentified MPC

### 2. Maximum Permissible Concentrations

Provide the MPCs used in determining allowable release rates or concentrations.

- a. Fission and activation gases: MPC values are determined
- b. Iodines: on each release normally
- c. Particulates, half-lives > 8 days: release rates are calculated
- d. Liquid effluents: using 1/10 of the identified or unidentified MPC for the batch.

### 3. Average Energy

Provide the average energy ( $\bar{E}$ ) of the radionuclide mixture in releases of fission and activation gases, if applicable.

Not available

### 4. Measurements and Approximations of Total Radioactivity

Provide the methods used to measure or approximate the total radioactivity in effluents and the methods used to determine radionuclide composition.

- a. Fission and activation gases: Gamma Spectroscopy of Grab Samples
- b. Iodines: Gamma Spectroscopy of Continuous Samples
- c. Particulates: Gamma Spectroscopy of Continuous Samples or Grab Samples.
- d. Liquid effluents: Gamma Spectroscopy of Batch Grab Samples or Composited Samples.

### 5. Batch Releases

Provide the following information relating to batch releases of radioactive materials in liquid and gaseous effluents.

#### a. Liquid

- 1. Number of batch releases: 421
- 2. Total time period for batch releases: 26307 min.
- 3. Maximum time period for a batch release: 258 min.
- 4. Average time period for batch releases: 62.5 min.
- 5. Minimum time period for a batch release: 5 min.
- 6. Average stream flow during periods of release of effluent into a flowing stream: 400,000 gpm



b. Gaseous

- |    |  |           |
|----|--|-----------|
| 1. | Number of batch releases:                | 6         |
| 2. | Total time period for batch releases:    | 1946 min. |
| 3. | Maximum time period for a batch release: | 517 min.  |
| 4. | Average time period for batch releases:  | 324 min.  |
| 5. | Minimum time period for a batch release: | 135 min.  |

6. Abnormal Releases

a. Liquid

- |    |                          |      |
|----|--------------------------|------|
| 1. | Number of releases:      | NONE |
| 2. | Total activity released: |      |

b. Gaseous

- |    |                          |      |
|----|--------------------------|------|
| 1. | Number of releases:      | NONE |
| 2. | Total activity released: |      |



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 1983

MEDIUM OR PATHWAY SAMPLED (UNIT OF MEASUREMENT)	TYPE AND TOTAL OF ANALYSES PERFORMED	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 (pCi/Cu.M.)	GROSS BETA 618	0.003	0.020 (360/360) 0.006 - 0.086	ONSITE LOCATION #2 360 M 88	0.022 (52/52) 0.006 - 0.086	0.020 (258/258) 0.006 - 0.074
	GAMMA SCAN 48	(2)	< LLD (28/28)	-----	-----	< LLD (20/20)
	IODINE GAMMA SCAN 208	0.02	< LLD (104/104)	-----	-----	< LLD (104/104)
DIRECT RADIATION: FILM (mR/MONTH) TLD (mR/WEEK)	BETA/GAMMA 144	10	< 10 (72/72)	-----	-----	< 10 (72/72)
	GAMMA 152	0.06	1.17 0.91 - 1.56	ONSITE LOCATION #5 200 M 185	1.40 (4/4) 1.27 - 1.56	1.05 0.73 - 1.77
WATER: DRINKING (pCi/LITER)	GROSS BETA 76	2.4	3.72 1.20 - 7.35	WELL "B" 640 M 150	5.41 2.67 - 7.35	-----
	GAMMA SCAN 50	(2)	Re-226 17 (8/50) 14 - 26	WELL "B" 640 M 150	18 (7/12) 14 - 26	-----
	GROSS BETA 162	2.4	3.28 1.20 - 9.28	LAKE ONTARIO INTAKE 0 M 0	3.35 1.20 - 5.73	4.21 (52/52) 1.20 - 9.28
	GAMMA SCAN 76	(2)	< LLD	-----	-----	-----
	RAINFALL (pCi/sq.M/day)	GROSS BETA 60	2.4	7.76 1.20 - 18.6	ONSITE LOCATION #5 200 M 185	7.39 (12/12) 1.99 - 15.7
MILK: (pCi/LITER)	IODINE 12	0.05	0.32 (3/12) 0.23 - 0.37	FARM "A" 5.1 MILES 120	0.36 (1/4)	-----
	GAMMA SCAN	(2)	< LLD (12/12)	-----	-----	-----
FISH: (pCi/Kg)	GAMMA SCAN 13	(2)	Cs-137 44 (11/11) 20 - 88	DISCHARGE PLUME	-----	Cs-137 20 (2/2) 20
VEGETATION: (pCi/Kg)	GAMMA SCAN 7	(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.

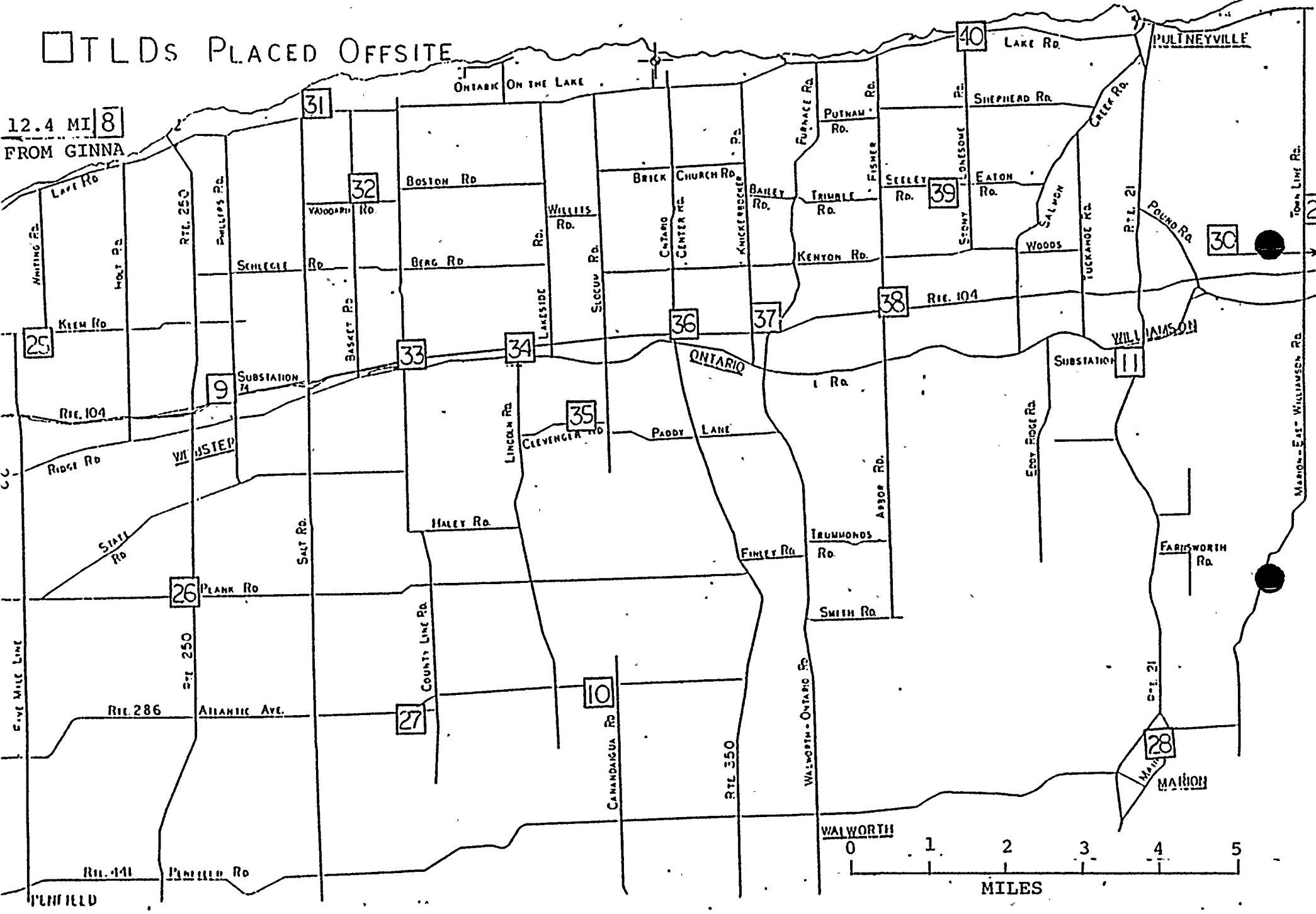




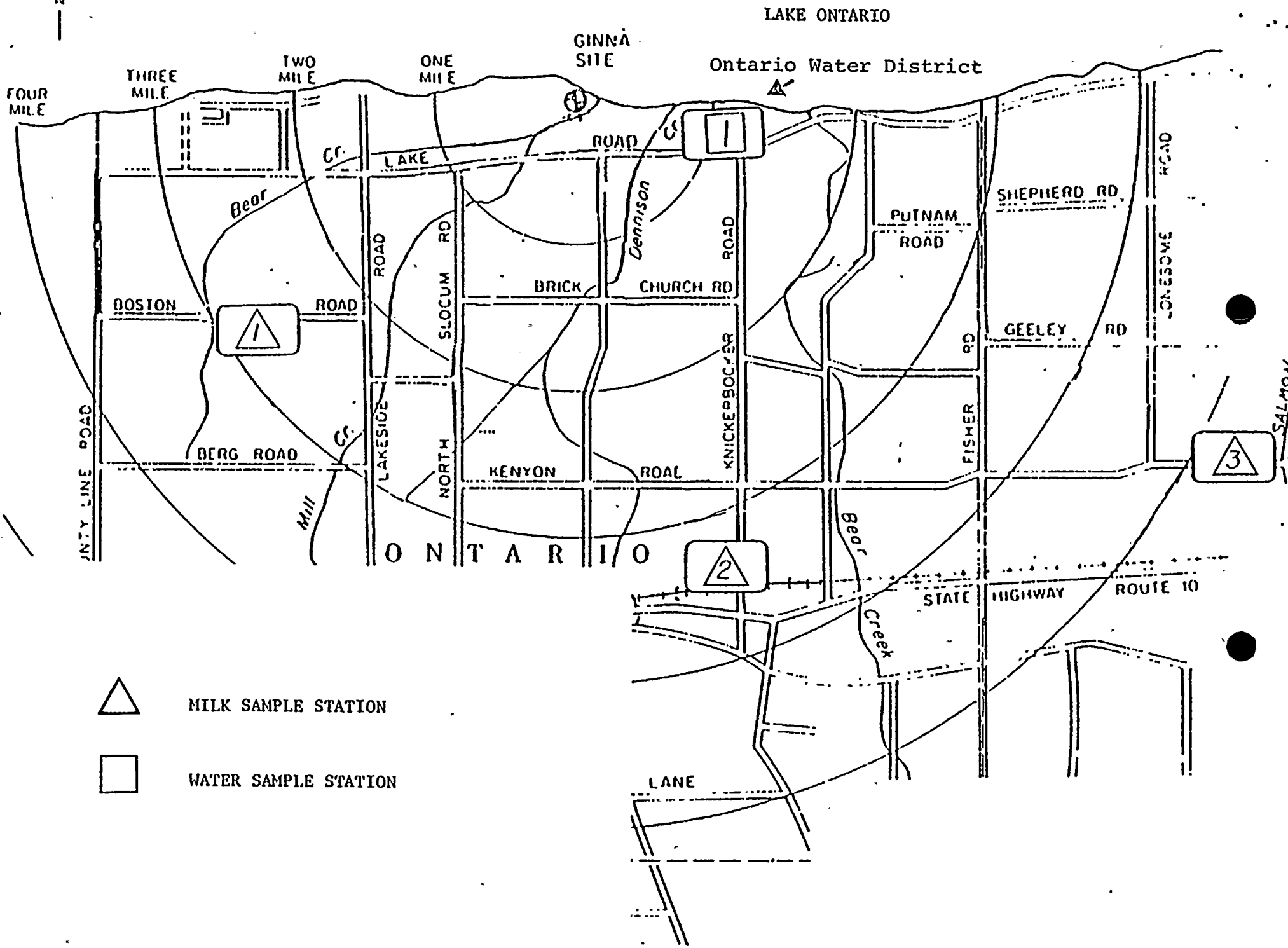
12.5.5 MI  
FROM GINNA

□ TLDs PLACED OFFSITE

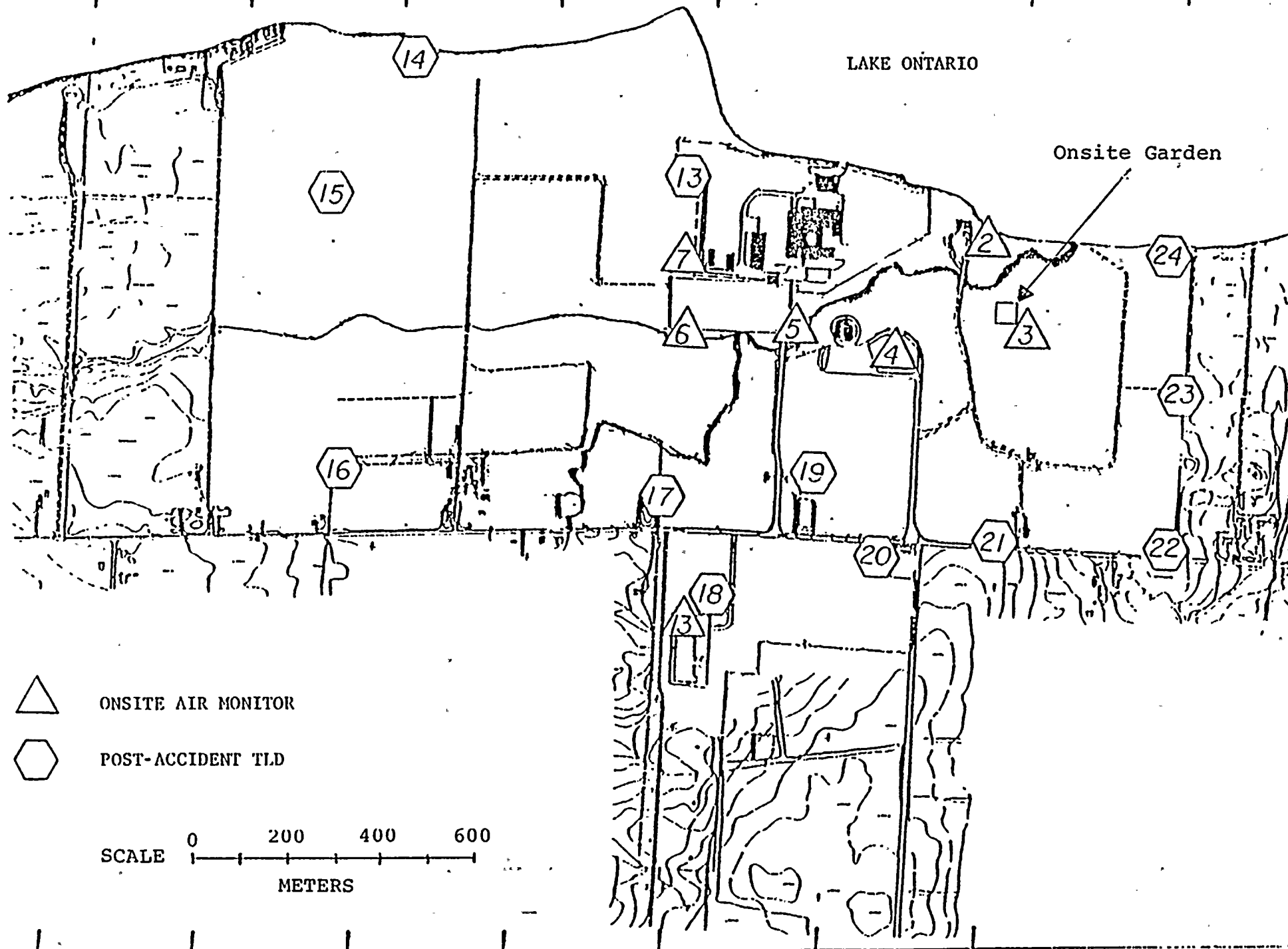
12.4 MI | 8  
FROM GINNA













● LOWER LIMIT OF DETECTION (L) ●  
Before Correction For Decay

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





## TABLE 1A

## EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (YEAR)

## GASEOUS EFFLUENTS - SUMMATION OF ALL RELEASES

	Unit	Quarter C	Quarter d	Est. Total Error %
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## A. Fission &amp; activation gases

1. Total release	Ci	1.98E 1	1.38E 1	2.0 E 1
2. Average release rate for period	uCi/sec	2.49E 0	4.30E 0	
3. Percent of technical specification limit	%	4.15E-3	7.17E-3	

## B. Iodines

1. Total iodine-131	Ci	4.49E-5	1.12E-4	1.5 E 1
2. Average release rate for period	uCi/sec	5.03E-6	1.43E-5	
3. Percent of technical specification limit	%	1.95E-2	5.07E-2	

## C. Particulates

1. Particulates with half-lives > 8 days	Ci	1.17E-5	3.03E-6	4.0 E 1
2. Average release rate for period	uCi/sec	1.47E-6	3.85E-7	
3. Percent of technical specification limit	%	5.07E-2	1.33E-2	
4. Gross alpha radioactivity	Ci	1.13E-6	6.67E-7	

## D. Tritium

1. Total release	Ci	1.81E 1	2.33E 1	3.0 E 0
2. Average release rate for period	uCi/sec	2.28E 0	2.97E 0	
3. Percent of technical specification limit	%	3.93E 0	5.12E 0	

TABLE 1E

## EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (YEAR)

## CASECUS EFFLUENTS - ELEVATED RELEASE

Nuclides Released	Unit	CONTINUOUS MODE		EFFECT MODE	
		Quarter 3	Quarter 4	Quarter 3	Quarter 4
1. Fission gases		3	4	3	4
krypton-85	Ci			2.56E-1	1.31E 0
krypton-85m	Ci	3.8 E-3	7.5 L-3		
krypton-87	Ci	7.6 L-3	1.41E-2		
krypton-88	Ci	9.2 E-3	1.79E-2		
xenon-133	Ci	1.72E-1	2.99E-1	3.70E-1	6.94E-1
xenon-135	Ci	6.66E 0	1.47E 0	4.60E-4	5.2 L-3
xenon-135m	Ci	8.66E-2	1.39E-1		
xenon-138	Ci	1.41E-2	4.46E-2		
Others (specify) Xe-131m	Ci			2.60E-2	1.05E-1
	Ci				
	Ci				
unidentified	Ci				
Total for period	Ci	2.39E 1	3.10E 1	6.60E-1	2.17E 0
2. Iodines					
iodine-131	Ci	1.69E-5	6.46E-5		
iodine-133	Ci	2.81E-5	4.79E-5		
iodine-135	Ci				
Total for period	Ci	4.50E-5	1.13E-4		
3. Particulates					
strontium-89	Ci				
strontium-90	Ci				
cesium-134	Ci				
cesium-137	Ci				
barium-lanthanum-140	Ci				
Others (specify)	Ci				
Co-60	Ci	1.09E-5	5.85E-6		
	Ci				
unidentified	Ci				

TABLE 2A

## EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (YEAR)

## LIQUID EFFLUENTS - SUMMARY OF ALL RELEASES

	Unit	Quarter 3	Quarter 4	Lst. Total Error, %
A. Fission and activation products				
1. Total release (not including tritium, ceses, alpha)	Ci	6.56E-2	2.59E-2	2.4 E 1
2. Average diluted concentration during period	uCi/ml	3.27E-10	1.36E-10	
3. Percent of applicable limit	%	3.3 E-1	1.3 E-1	
B. Tritium				
1. Total release	Ci	4.40E 1	9.13E 1	3.0 E 2
2. Average diluted concentration during period	uCi/ml	2.22E-7	4.57E-7	
3. Percent of applicable limit	%	2.2 E 0	4.6 E 0	
C. Dissolved and entrained gases				
1. Total release	Ci			
2. Average diluted concentration during period	uCi/ml			
3. Percent of applicable limit	%			
D. Gross alpha radioactivity				
1. Total release				
E. Volume of waste released (prior to dilution)				
	liters	3.27E 7	3.19E 7	7.46E 8
F. Volume of dilution water used during period				
	liters	2.61E 11	2.66E 11	1.00E 2

TABLE 2B

## EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (YEAR)

## LIQUID EFFLUENTS

Nuclides Released	Unit	CONTINUOUS MONITORING		BATCH MONITORING	
		Quarter	Quarter	Quarter	Quarter
Strontium-89	Ci				
Strontium-90	Ci				
Cesium-134	Ci			2.10E-2	2.66E-3
Cesium-137	Ci			2.84E-2	5.92E-3
Iodine-131	Ci			5.1 E-5	
Cobalt-58	Ci			6.51E-5	1.57E-4
Cobalt-60	Ci			1.39E-2	1.48E-2
Iron-59	Ci				
Zinc-65	Ci				
Manganese-54	Ci			2.10E-3	2.33E-3
Chromium-51	Ci				
Zirconium-niobium-95	Ci				1.3 E-5
Molybdenum-99	Ci				
Technetium-99m	Ci				
Barium-lanthanum-140	Ci				
Cerium-141	Ci				
Other (specify)	Ci				
Ag-110m	Ci				7.72E-5
	Ci				
	Ci				
	Ci				
Unidentified	Ci				
Total for period (above)	Ci			6.56E-2	2.59E-2
Xenon-133	Ci				
Xenon-135	Ci				

TABLE 3

## EFFLUENT AND WASTE DISPOSAL SEMI-ANNUAL REPORT (YEAR)

## SOLID WASTE AND IRRADIATED FUEL SHIPMENTS

## A. Solid Waste Shipped Offsite for Burial or Disposal (Not irradiated fuel)

1. Type of Waste	Unit	6-month Period	Est. Total Error, %
a. Spent resins, filter sludges, evaporator bottoms, etc.	56.17 m <sup>3</sup> 144.5 Ci	5.62E 1 1.45E 2	1.4 L 1
b. Dry compressible waste, contaminated equip, etc.	67 m <sup>3</sup> 14.48 Ci	6.7 E 1 1.45E 1	1.4 L 1
c. Irradiated components, control rods, etc.	N/A		
d. Other (describe)			

## 2. Estimate of major nuclide composition (by type of waste)

a.	H-3	£	1.7 E 1
	Cc-58	£	1.6 E 1
	Cc-60	£	2.8 E 1
	Ni-63	£	5.4 E 0
	Cs-134	£	1.3 E 1
	Cs-137	£	3.5 E 1
b.	Cc-58	£	2.9 E 1
	Cc-60	£	3.2 E 1
	Cs-134	£	1.7 E 1
	Cs-137	£	3.2 E 1
	H-3	£	4.8 E 0
	Ni-63	£	7.1 E 0

## 3. Solid Waste Disposition

<u>Number of Shipments</u>	<u>Mode of Transportation</u>	<u>Destination</u>
6	Highway Transport	Richland, WA
5	Highway Transport	Earnwell, SC

## B. Irradiated Fuel Shipments (Disposition)

<u>Number of Shipments</u>	<u>Mode of Transportation</u>	<u>Destination</u>
None Shipped		

# EFFLUENT AND WASTE DISPOSAL SEMI-ANNUAL REPORT

## Supplemental Information

Report Period: July 1 to December 31, 1963

Facility Cinna Station

Licensee Rochester Gas & Electric

### 1. Regulatory Limits

- a. Fission and activation gases:  $6.6 \text{ E-4 } \mu\text{Ci/sec.}$
- b. Iodines:  $2.9 \text{ E-2 } \mu\text{Ci/sec.}$
- c. Particulates, half-lives > 8 days:  $2.9 \text{ E-2 } \mu\text{Ci/sec.}$
- d. Liquid effluents: Either Identified MPC or Unidentified MPC

### 2. Maximum Permissible Concentrations

Provide the MPCs used in determining allowable release rates or concentrations.

- a. Fission and activation gases: MPC values are determined
- b. Iodines: on each release normally
- c. Particulates, half-lives > 8 days: release rates are calculated
- d. Liquid effluents: using 1/10 of the identified or unidentified MPC for the batch.

### 3. Average Energy

Provide the average energy ( $\bar{E}$ ) of the radionuclide mixture in releases of fission and activation gases, if applicable.

Not available

### 4. Measurements and Approximations of Total Radioactivity

Provide the methods used to measure or approximate the total radioactivity in effluents and the methods used to determine radionuclide composition.

- a. Fission and activation gases: Gamma Spectroscopy of Grab Samples
- b. Iodines: Gamma Spectroscopy of Continuous Samples
- c. Particulates: Gamma Spectroscopy of Continuous Samples or Grab Samples.
- d. Liquid effluents: Gamma Spectroscopy of Batch Grab Samples or Composited Samples.

### 5. Batch Releases

Provide the following information relating to batch releases of radioactive materials in liquid and gaseous effluents.

#### a. Liquid

- 1. Number of batch releases: 421
- 2. Total time period for batch releases: 26307 min.
- 3. Maximum time period for a batch release: 258 min.
- 4. Average time period for batch releases: 62.5 min.
- 5. Minimum time period for a batch release: 5-min.
- 6. Average stream flow during periods of release of effluent into a flowing stream: 400,000 gpm

b. Casecus

- |    |  |           |
|----|--|-----------|
| 1. | Number of batch releases:                | 6         |
| 2. | Total time period for batch releases:    | 1940 min. |
| 3. | Maximum time period for a batch release: | 517 min.  |
| 4. | Average time period for batch releases:  | 324 min.  |
| 5. | Minimum time period for a batch release: | 135 min.  |

6. Abnormal Releases

a. Liquid

- |    |                          |      |
|----|--------------------------|------|
| 1. | Number of releases:      | NCME |
| 2. | Total activity released: |      |

b. Casecus

- |    |                          |      |
|----|--------------------------|------|
| 1. | Number of releases:      | NCME |
| 2. | Total activity released: |      |

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 1983

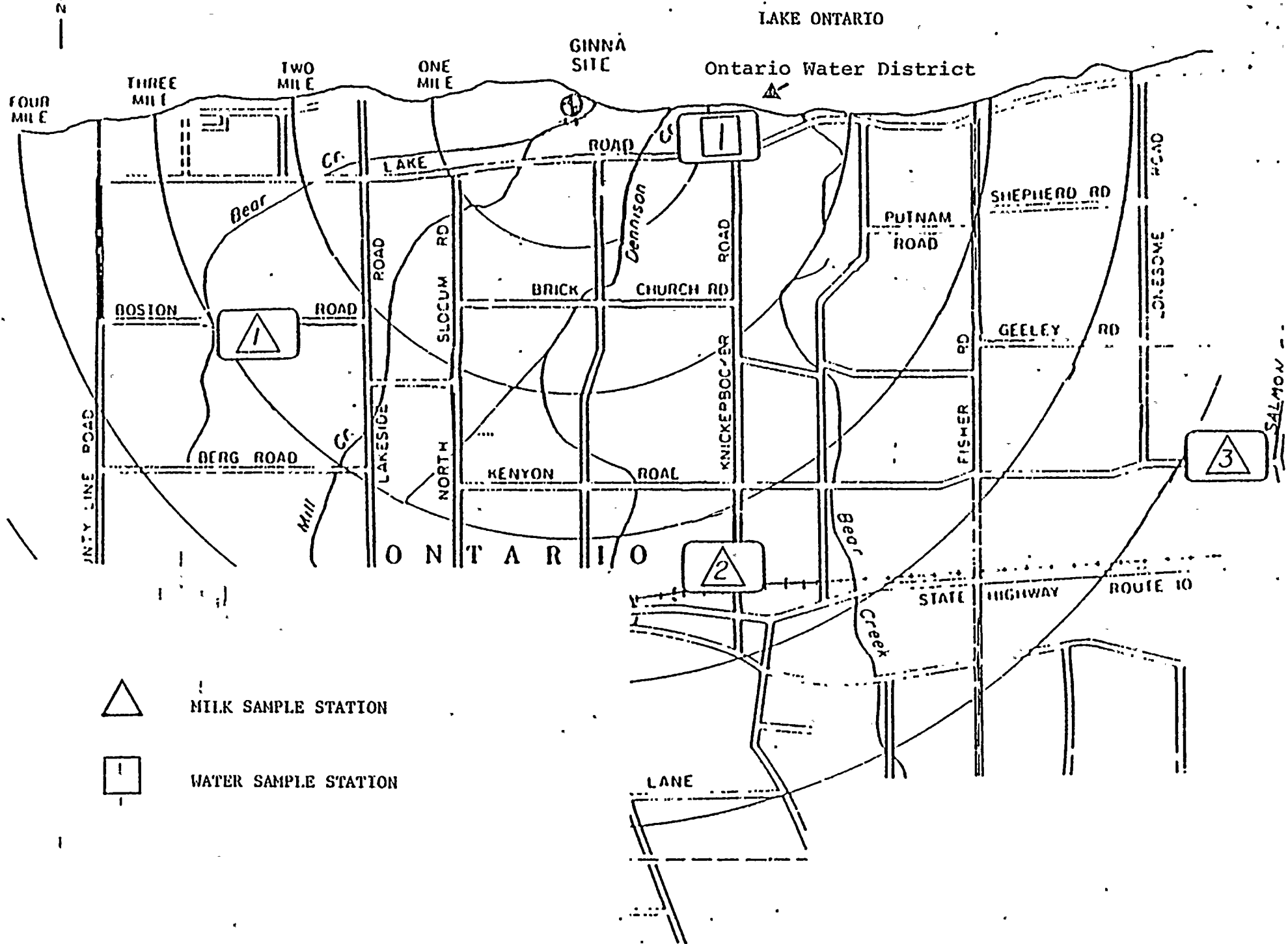
MEDIUM OR PATHWAY SAMPLED (UNIT OF MEASUREMENT)	TYPE AND TOTAL OF ANALYSES PERFORMED	LLD	INDICATOR LOCATIONS MEAN (1) RANGE	LOCATION WITH HIGHEST ANNUAL MEAN		CONTROL LOCATIONS MEAN (1) RANGE
				NAME DISTANCE AND DIRECTION	MEAN (1) RANGE	
AIR: PARTICULATE (pCi/Cu.M.)	GROSS BETA 618	0.003	0.020 (360/360) 0.006 - 0.086	ONSITE LOCATION #2 360 M 88	0.022 (52/52) 0.006 - 0.086	0.020 (258/258) 0.006 - 0.074
	GAHMA SCAN 48	(2)	< LLD (28/28)	-----	-----	< LLD (20/20)
	IODINE	GAHMA SCAN 208	0.02	< LLD (104/104)	-----	< LLD (104/104)
DIRECT RADIATION: FILM (mR/MONTH)	BETA/GAHMA 144	10	< 10 (72/72)	-----	-----	< 10 (72/72)
TLD (mR/WEEK)	GAHMA 152	0.06	1.17 0.91 - 1.56	ONSITE LOCATION #5 200 M 185	1.40 (4/4) 1.27 - 1.56	1.05 0.73 - 1.77
WATER: DRINKING (pCi/LITER)	GROSS BETA 76	2.4	3.72 1.20 - 7.35	WELL "B" 640 M 150	5.41 2.67 - 7.35	-----
	GAHMA SCAN 50	(2)	Ra-226 17 (8/50) 14 - 26	WELL "B" 640 M 150	18 (7/12) 14 - 26	-----
	SURFACE (pCi/LITER)	GROSS BETA 162	2.4	3.28 1.20 - 9.28	LAKE ONTARIO INTAKE 0 M 0	4.21 (52/52) 1.20 - 9.28
		GAHMA SCAN 76	(2)	< LLD	-----	-----
	RAINFALL (pCi/sq.M/day)	GROSS BETA 60	2.4	7.76 1.20 - 18.6	ONSITE LOCATION #5 200 M 185	9.17 1.20 - 17.0
MILK: (pCi/LITER)	IODINE 12	0.05	0.32 (3/12) 0.23 - 0.37	FARM "A" 5.1 MILES 120	0.36 (1/4)	-----
	GAHMA SCAN	(2)	< LLD (12/12)	-----	-----	-----
FISH: (pCi/Kg)	GAHMA SCAN 13	(2)	Cs-137 44 (11/11) 20 - 88	DISCHARGE PLUME	-----	Cs-137 20 (2/2) 20
VEGETATION: (pCi/Kg)	GAHMA SCAN 7	(2)	< LLD	-----	-----	-----

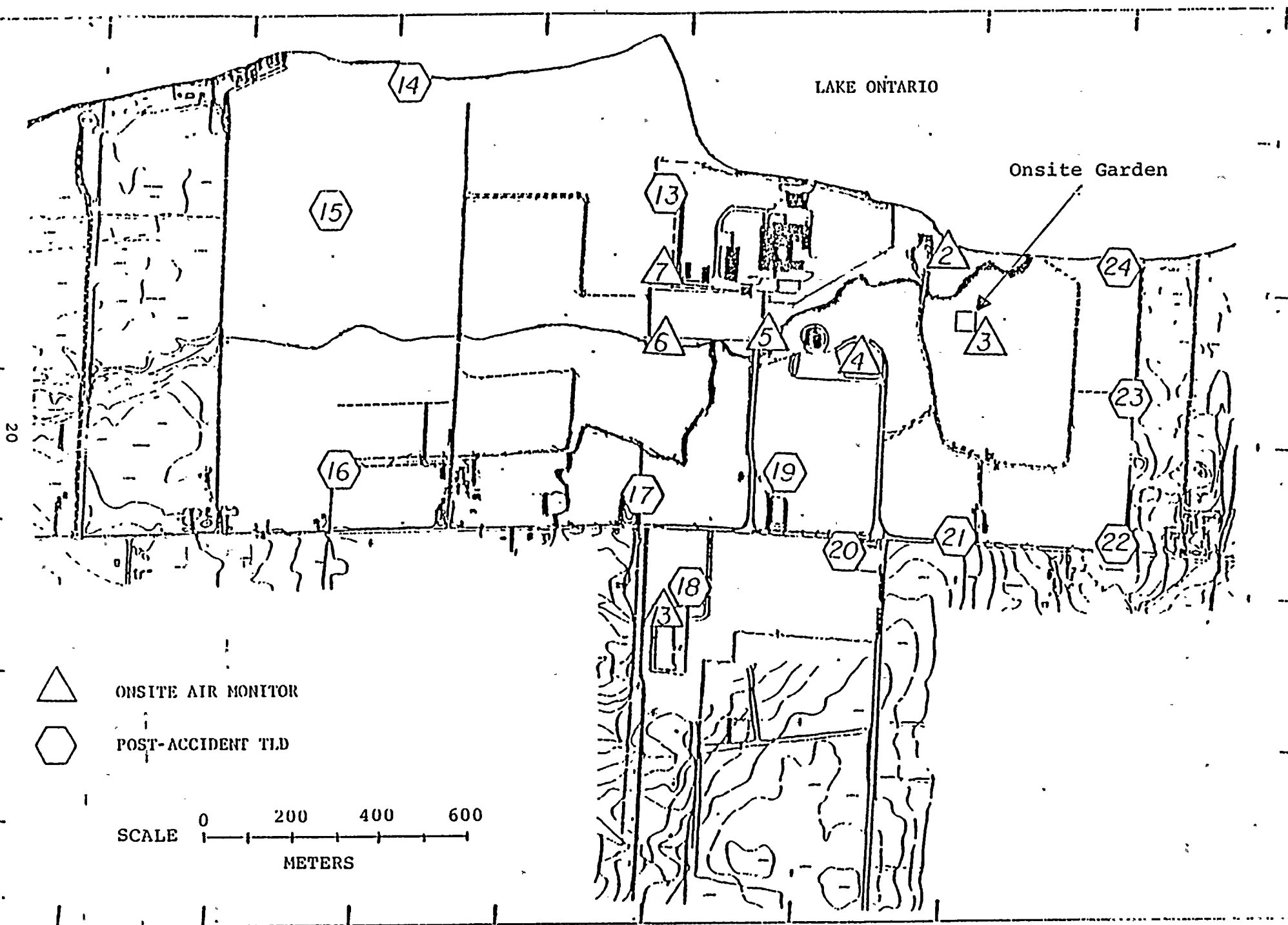
- (1) Mean and range based on detectable measurements only. Fraction of detectable measurements at specified locations in parentheses.  
(2) Table of LLD values attached for gamma scan measurements.





## WATER SAMPLE STATION





LAKE ONTARIO

Onsite Garden

△ ONSITE AIR MONITOR

⬡ POST-ACCIDENT TLD

SCALE 0 200 400 600  
METERS

LOWER LIMIT OF DETECTION (LLD)  
Before Correction For Decay

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

*Superseded*

TABLE 1A

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (YEAR)

GASEOUS EFFLUENTS - SUMMATION OF ALL RELEASES

	Unit	Quarter 3	Quarter 4	Est. Total Error %
--	------	--------------	--------------	-----------------------

A. Fission & activation gases

1. Total release	Ci	1.98E 1	1.38E 1	2.8 E 1
2. Average release rate for period	uCi/sec	2.49E 0	4.38E 0	
3. Percent of technical specification limit	%	4.15E-3	7.17E-3	

B. Iodines

1. Total iodine-131	Ci	4.49E-5	1.12E-4	1.5 E 1
2. Average release rate for period	uCi/sec	5.05E-6	1.43E-5	
3. Percent of technical specification limit	%	1.95E-2	5.07E-2	

C. Particulates

1. Particulates with half-lives > 8 days	Ci	1.17E-5	3.03E-6	4.8 E 1
2. Average release rate for period	uCi/sec	1.47E-6	3.85E-7	
3. Percent of technical specification limit	%	5.07E-2	1.33E-2	
4. Gross alpha radioactivity	Ci	1.13E-6	6.07E-7	

D. Tritium

1. Total release	Ci	1.81E 1	2.33E 1	3.0 E 1
2. Average release rate for period	uCi/sec	2.28E 0	2.97E 0	
3. Percent of technical specification limit	%	3.93E 0	5.12E 0	

*Revised*

TABLE 1E

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (YEAR)

CASECUS EFFLUENTS - ELEVATED RELEASE

Nuclides Released	Unit	CONTINUOUS MCDE		PULSE MCDE	
		Quarter	Quarter	Quarter	Quarter
1. Fission gases		3	4	3	4
krypton-85	Ci			2.50E-1	1.31E 0
krypton-85m	Ci	3.8 E-3	7.5 E-3		
krypton-87	Ci	7.6 E-3	1.41E-2		
krypton-88	Ci	9.2 E-3	1.79E-2		
xenon-133	Ci	1.72E-1	2.99E-1	3.70E-1	6.94E-1
xenon-135	Ci	6.60E 1	1.47E 1	4.60E-4	5.2 E-3
xenon-135m	Ci	8.60E-2	1.39E-1		
xenon-138	Ci	1.41E-2	4.41E-2		
Others (specify) Xe-131m	Ci			2.00E-2	1.05E-1
	Ci				
	Ci				
unidentified	Ci				
Total for period	Ci	2.39E 1	3.10E 1	6.60E-1	2.17E 0
2. Iodines					
iodine-131	Ci	1.69E-5	6.40E-5		
iodine-133	Ci	2.81E-5	4.79E-5		
iodine-135	Ci				
Total for period	Ci	4.50E-5	1.13E-4		
3. Particulates					
strontium-89	Ci				
strontium-90	Ci				
cesium-134	Ci				
cesium-137	Ci				
barium-lanthanum-140	Ci				
Others (specify)	Ci				
Co-60	Ci	1.69E-5	5.85E-6		
	Ci				
unidentified	Ci				

*Supplemental*  
EFFLUENT AND WASTE DISPOSAL SEMI-ANNUAL REPORT

Supplemental Information

Report Period: July 1 to December 31, 1983

Facility Cinna Station

Licensee Rochester Gas & Electric

1. Regulatory Limits

- |                                       |   |
|---------------------------------------|---|
| a. Fission and activation gases:      | 0.2 E-4 uCi/sec.                          |
| b. Iodines:                           | 2.9 E-2 uCi/sec.                          |
| c. Particulates, half-lives > 3 days: | 2.9 E-2 uCi/sec.                          |
| d. Liquid effluents:                  | Either Identified MPC or Unidentified MPC |

2. Maximum Permissible Concentrations

Provide the MPCs used in determining allowable release rates or concentrations.

- |                                       |   |
|---------------------------------------|---|
| a. Fission and activation gases:      | MPC values are determined                                       |
| b. Iodines:                           | on each release normally  |
| c. Particulates, half-lives > 3 days: | release rates are calculated                                    |
| d. Liquid effluents:                  | using 1/10 of the identified or unidentified MPC for the batch. |

3. Average Energy

Provide the average energy ( $\bar{E}$ ) of the radionuclide mixture in releases of fission and activation gases, if applicable.

Not available

4. Measurements and Approximations of Total Radioactivity

Provide the methods used to measure or approximate the total radioactivity in effluents and the methods used to determine radionuclide composition.

- |                                  |  |
|----------------------------------|--|
| a. Fission and activation gases: | Gamma Spectroscopy of Grab Samples                               |
| b. Iodines:                      | Gamma Spectroscopy of Continuous Samples                         |
| c. Particulates:                 | Gamma Spectroscopy of Continuous Samples or Grab Samples.        |
| d. Liquid effluents:             | Gamma Spectroscopy of Batch Grab Samples or Compositing Samples. |

5. Batch Releases

Provide the following information relating to batch releases of radioactive materials in liquid and gaseous effluents.

a. Liquid

- |   |             |
|---|-------------|
| 1. Number of batch releases:  | 421         |
| 2. Total time period for batch releases:  | 26307 min.  |
| 3. Maximum time period for a batch release:   | 258 min.    |
| 4. Average time period for batch releases:  | 62.5 min.   |
| 5. Minimum time period for a batch release:   | 5-min.      |
| 6. Average stream flow during periods of release of effluent into a flowing stream: | 400,000 gpm |