Northeast
Utilities System

107 Selden Street, Berlin, CT 06037

Northeast Utilities Service Company
P.O. Box 270
Hartford, CT 06141-0270
(203) 665-5000

April 26, 1994

Docket Nos. 50-245
50-336
50-423
B14828

Re: 10CFR50.4(b)(1)

U.S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, DC 20555

Millstone Nuclear Power Station, Unit Nos. 1, 2, and 3
Annual Radiological Environmental Operating Report

In accordance with the requirements of the Millstone Nuclear Power Station Radiological Effluent Monitoring Manual, an implementing document of the Millstone Unit Nos. 1, 2, and 3 Technical Specifications, two (2) copies of the Annual Radiological Environmental Operating Report are herewith submitted. Copies of this report are being distributed in accordance with 10CFR50.4(b)(1).

Very truly yours,

NORTHEAST NUCLEAR ENERGY COMPANY

J. F. Opeka
Executive Vice President

cc: T. T. Martin, Region I Administrator
J. W. Andersen, NRC Acting Project Manager, Millstone Unit No. 1
G. S. Vissing, NRC Project Manager, Millstone Unit No. 2
V. L. Rooney, NRC Project Manager, Millstone Unit No. 3
D. H. Jaffe, NRC Project Manager, Millstone Station
P. D. Swetland, Senior Resident Inspector, Millstone Unit Nos. 1, 2, and 3

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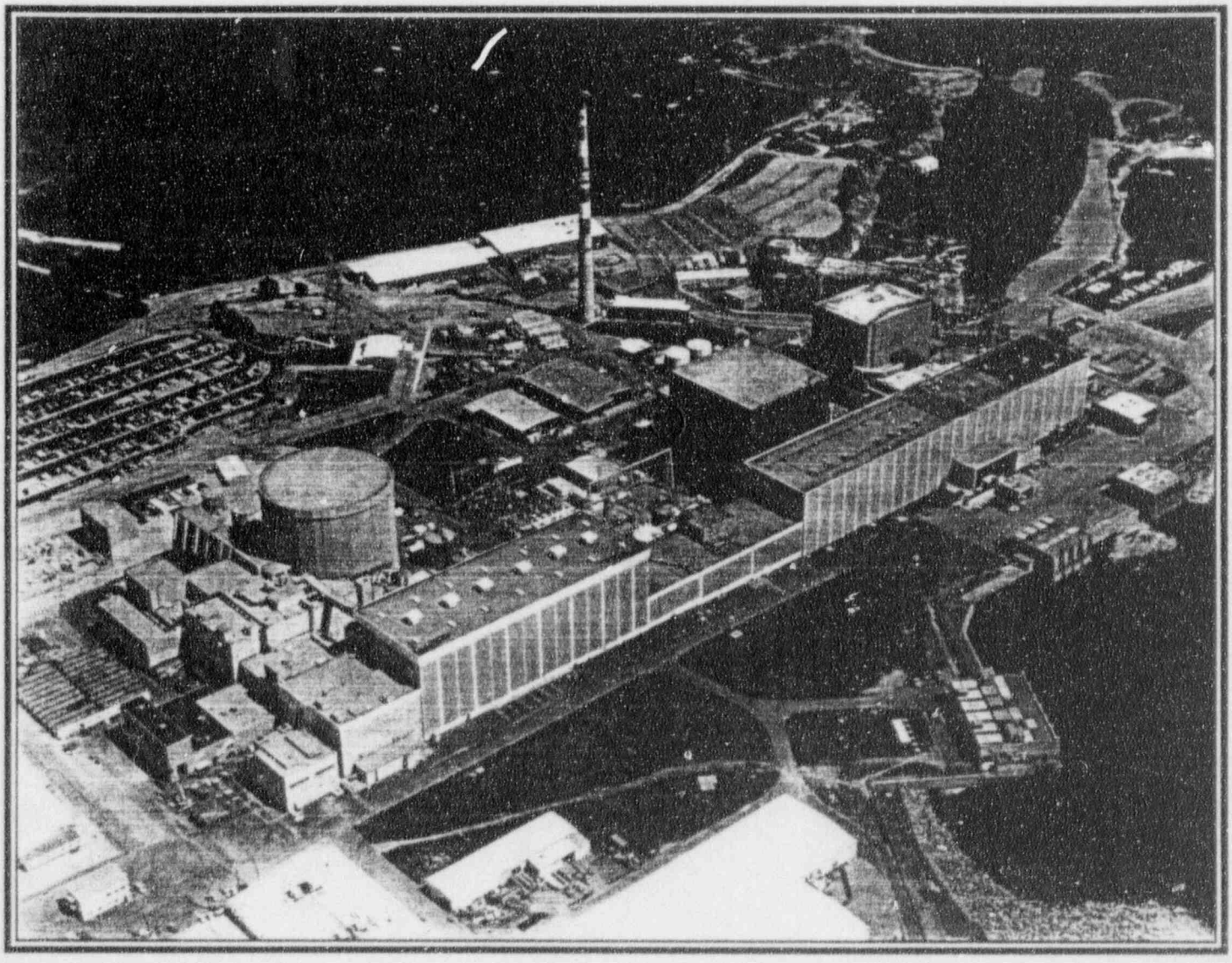
Millstone Nuclear Power Station

ANNUAL RADIOLOGICAL ENVIRONMENTAL OPERATING REPORT

JANUARY 1, 1993 – DECEMBER 31, 1993

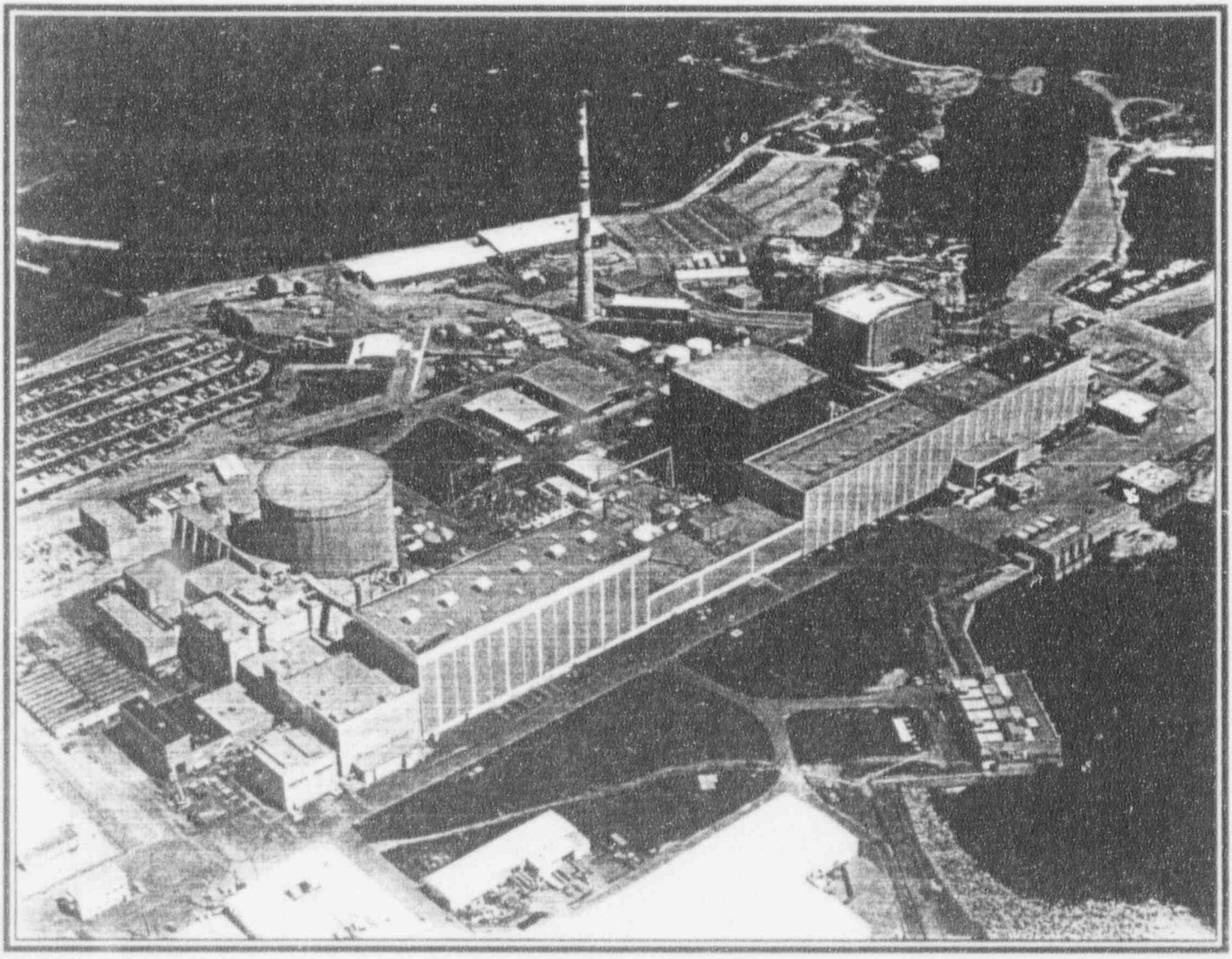


NORTHEAST NUCLEAR ENERGY COMPANY
HARTFORD, CONNECTICUT

Millstone Nuclear Power Station

ANNUAL RADIOLOGICAL ENVIRONMENTAL OPERATING REPORT

JANUARY 1, 1993 – DECEMBER 31, 1993



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MILLSTONE NUCLEAR POWER STATION

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM

ANNUAL RADIOLOGICAL ENVIRONMENTAL OPERATING REPORT

PERIOD JANUARY 1, 1993 - DECEMBER 31, 1993

MILLSTONE UNIT 1, DOCKET NO. 50-245
MILLSTONE UNIT 2, DOCKET NO. 50-336
MILLSTONE UNIT 3, DOCKET NO. 50-423

PREPARED FOR THE

NORTHEAST NUCLEAR ENERGY COMPANY

HARTFORD, CONNECTICUT

BY THE

NORTHEAST UTILITIES SERVICE COMPANY

BERLIN, CONNECTICUT

TABLE OF CONTENTS

1.0 SUMMARY

The radiological environmental monitoring program for the Millstone Nuclear Power Station was continued for the period January through December 1993, in compliance with the Radiological Effluent Monitoring and Offsite Dose Calculation Manual. This annual report was prepared for the Northeast Nuclear Energy Company (NNECO) by the Radiological Assessment Branch of the Northeast Utilities Service Company (NUSCO). All sample collections and preparations are performed by the Production Operations Services Laboratory. Gamma exposure measurements were performed by NUSCO at the Production Operations Services Laboratory. All remaining laboratory analyses were performed by the primary contractor, Teledyne Isotopes, Inc. As part of the overall quality assurance program, Yankee Atomic Environmental Laboratory was used as an independent check on the primary contractor's laboratory.

Sampling and radiological analyses were performed with gamma exposure measuring devices and on air particulates and iodine, milk, pasture grass, broad leaf vegetation, fruits, vegetables, seawater, bottom sediment, aquatic flora, fin fish, mussels, oysters, clams, and lobsters. In evaluating the results of these analyses it is necessary to consider the variability of radionuclide uptake in environmental media. This variability is dependent on many factors, including plant release rates, seasonal variability of fallout, locational variability of fallout, soil characteristics, farming practices, and feed type. Significant variations in measured levels of radioactivity could be caused by any one of these factors. Therefore, these factors need to be considered in order to properly explain any variations.

The predominant radioactivity, except for a few aquatic sample results, was that from nonplant (not Millstone) sources, such as fallout from nuclear weapons tests and naturally occurring radionuclides. In the case of the terrestrial media, the effect from Unit 1 via the direct dose pathway (i.e., scattered radiation, "skyshine", from nitrogen-16 in the turbine building; unique to Boiling Water Reactors) exists in the gamma exposure measurements at some of the on-site locations. This effect can normally be seen by a decrease in the thermoluminescent dosimeter (TLD) values during months when Unit 1 is shutdown for refueling. This direct dose pathway decreases rapidly with distance, to levels that are undetectable at the offsite locations. The gaseous releases have been reduced such that they are no longer detectable by TLD's at any on-site or offsite location. Gaseous releases of iodine were also very low, such that it was not detectable in milk, even at the nearest offsite goat location.

The capacity factors for 1993 were as follows: Unit 1 - 92.8%; Unit 2 - 82.5%; Unit 3 -65%.

Monitoring of the aquatic environment in the area of the discharge indicated the presence of the following plant related radionuclides: tritium in sea water; cobalt-60 in bottom sediment; cobalt-58, cobalt-60 and silver-110m in aquatic flora; cesium-137 in fish; cobalt-58, cobalt-60, zinc-65, and silver-110m in oysters; cobalt-60 and silver-110m in clams; and silver-110m in lobsters. The levels of these radionuclides are comparable to those observed since 1987. Doses from the 1993 measured levels are well below those required by each Unit's Safety Technical Specifications (10CFR50 Appendix I, Design Guidelines). Activity levels were below those of the higher discharge period of 1974-1975 (before the Unit 1 augmented liquid radwaste treatment system).

As usual, cesium-137 and strontium-90 were measured in both cow and goat milk. These levels are a result of nuclear weapons testing in the 1960's and not the result of plant operation. This can be concluded based on the facts that: insufficient quantities of these isotopes have been released by the plant to account for the measured concentrations, chemically similar and plant related cesium-134 and strontium-89 have not been detected and comparable levels of cesium-137 and strontium-90 were detected prior to initial plant operation.

The radiation dose (dose equivalent commitment) to the general public from the plant's discharges has been evaluated by two methods. One method utilizes the measured station's discharges and conservative transport models and the other utilizes the measured concentrations of radioactivity in the environmental media. The maximum whole body dose (station boundary) that could occur to a member of the general public as a result of station operation was 3.4 millirem. This includes a contribution of 3.3 millirem from "skyshine" and 0.087 millirem from station effluents. The average dose to a member of the public residing within 50 miles of the plant is 0.00025 millirem. These doses are 14 percent and 0.0010 percent of the standards as set by the Environmental Protection Agency on the maximum allowable dose to an individual of the general public. These standards are a small fraction (less than 10 percent) of the 280 mrem per year normal background radiation and are designed to be inconsequential in regard to public health and safety. Plant related doses are even a smaller fraction of the natural background; they are less than 10 percent of the variation in natural background in Connecticut. Therefore, for the above stated reasons the plant related doses have insignificant public health consequences.

2.0 PROGRAM DESCRIPTION

2.1 Sampling Schedule and Locations

The sample locations and the sample types and frequency of analysis are given in Table 2-1 and 2-2 and Figures 2.1 through 2.3. The program as described here includes both required samples as specified in the Radiological Effluent Monitoring and Offsite Dose Calculation Manual and any extra samples.

TABLE 2-1

ENVIRONMENTAL MONITORING PROGRAM SAMPLING LOCATIONS

The following lists the environmental sampling locations and the types of samples obtained at each location.

Location Number	Name	Direction & Distance From Release Point**	Sample Types
1-I	On-site - Old Millstone Rd.	0.6 Mi, NNW	TLD, Air Particulate, Iodine, Vegetation
2-I	On-site - Weather Shack	0.3 Mi, S	TLD, Air Particulate, Iodine
3-I	On-site - Bird Sanctuary	0.3 Mi, NE	TLD, Air Particulate, Iodine
4-I	On-site - Albacore Drive	1.0 Mi, N	TLD, Air Particulate, Iodine
5-I	MP3 Discharge	0.1 Mi, SSE	TLD
6-I	Quarry Discharge	0.3 Mi, SSE	TLD
7-I	Env. Lab Dock	0.3 Mi, SE	TLD
8-I	Environmental Lab	0.3 Mi, SE	TLD
9-I	Bay Point Beach	0.4 Mi, W	TLD
10-I	Pleasure Beach	1.2 Mi, E	TLD, Air Particulate, Iodine
11-I	New London Country Club	1.6 Mi, ENE	TLD, Air Particulate, Iodine
12-C	Fisher's Island, NY	8.7 Mi, ESE	TLD
12-X	Fisher's Island, NY	8.7 Mi, ESE	Air Particulate
13-C	Mystic, CT	11.5 Mi, ENE	TLD
14-C	Ledyard, CT	12.0 Mi, NE	TLD
15-C	Norwich, CT	14.0 Mi, N	TLD, Air Particulate, Iodine
16-C	Old Lyme, CT	8.8 Mi, W	TLD
17-I	Site Boundary	0.5 Mi, NE	Vegetation
18-I	New London Country Club	1.6 Mi, ENE	Vegetation
19-I	Cow Location #1	6.0 Mi, N	Milk
20-I	Cow Location #2	9.5 Mi, WNW	Milk
21-I	Cow Location #3	13.0 Mi, ENE	Milk
22-C	Cow Location #4	16.0 Mi, NNW	Milk
23-I	Goat Location #1	2.0 Mi, ENE	Milk
24-C	Goat Location #2	14.0 Mi, NE	Milk
19-I*	Cow Location #1	9.5 Mi, WNW	Milk
20-C*	Cow Location #2	16.0 Mi, NNW	Milk
21-I*	Goat Location #1	2.0 Mi, N	Milk
22-I*	Goat Location #2	5.2 Mi, NNE	Milk
23-I*	Goat Location #3	2.0 Mi, ENE	Milk
24-C*	Goat Location #4	14.0 Mi, NE	Milk
25-I	Fruits & Vegetables	Within 10 Miles	Vegetation
26-C	Fruits & Vegetables	Beyond 10 Miles	Vegetation
27-I	Niantic	1.7 Mi, WNW	TLD, Air Particulate, Iodine
28-I	Two Tree Island	0.8 Mi, SSE	Mussels
29-I	West Jordan Cove	0.4 Mi, NNE	Clams
29-X	West Jordan Cove	0.4 Mi, NNE	Fucus
30-C	Golden Spur	4.7 Mi, NNW	Bottom Sediment
31-I	Niantic Shoals	1.8 Mi, NW	Bottom Sediment, Oysters, Scallops
		1.5 Mi, NNW	Mussels
31-X	Niantic Shoals	1.8 Mi, NW	Fucus
32-I	Vicinity of Discharge		Botton Sediment, Oysters, Lobster, Fish, Seawater

TABLE 2-1 (Cont'd)

Location Number	Name	Direction & Distance From Release Point**	Sample Types
32-X	Vicinity of Discharge		Fucus, Mussels
33-I	Seaside Point	1.8 Mi, ESE	Bottom Sediment
33-X	Seaside Point	1.8 Mi, ESE	Fucus
34-I	Thames River Yacht Club	4.0 Mi, ENE	Bottom Sediment
34-X	Thames River Yacht club	4.0 Mi, ENE	Oysters
35-I	Niantic Bay	0.3 Mi, WNW	Lobster, Fish
36-I	Black Point	3.0 Mi, WSW	Bottom Sediment, Oysters
36-X	Black Point	3.0 Mi, WSW	Fucus
37-C	Giant's Neck	3.5 Mi, WSW	Bottom Sediment, Oysters, Lobster, Seawater
37-X	Giant's Neck	3.5 Mi, WSW	Fucus
38-I	Waterford Shellfish Bed #1	1 Mi, NW	Clams
39-X	Jordon Cove Bar	0.8 Mi, NE	Clams
40-X	Quarry		Fish, Oysters, Crabs, Seawater
41-X	Upper Jordon Cove	1.2 Mi, NE	Mussels
50-X	Myrock Avenue	3.2 Mi, ENE	TLD
54-X	Billow Road	2.4 Mi, WSW	TLD
55-X	Black Point	2.6 Mi, SW	TLD
98-X	Ion Chamber Shack	0.5 Mi, NE	TLD
99-X	Schoolhouse	0.1 Mi, NNE	TLD

I = Indicator C - Control X - Extra - nonrequired sample

*As of May 1, 1993, the ODCM was revised to reflect a change in milk sample locations. Two distant cow milk stations were changed to closer goat milk stations.

**For terrestrial locations, this is the MP1 stack for aquatic it is the quarry cut.

TABLE 2-2

MILLSTONE RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM

	Exposure Pathway and/or Sample	Number of Locations	Sampling & Collection Frequency	Type & Frequency of Analysis
1a.	Gamma Dose - Environmental TLD	17	Monthly	Gamma Dose - Monthly
1b.	Gamma Dose - Accident TLD	22	Quarterly [a]	N/A[a]
2.	Airborne Particulate	8	Continuous sampler - weekly filter change	Gross Beta - Weekly Gamma Spectrum - Quarterly on composite (by location), & on individual sample if gross beta is greater than 10 times the mean of the weekly control stations gross beta results
3.	Airborne Iodine	8	Continuous sampler - weekly canister change	I-131-Weekly
4.	Vegetation	5	One sample near middle & one near end of growing season	Gamma Isotopic on each sample
5.	Milk	6	Monthly	Gamma Isotopic, I-131, Sr-89 & Sr-90 on each sample
6.	Seawater	2	Quarterly - Composite of 6 Weekly Grab Samples	Quarterly - Gamma Isotopic and Tritium on each composite
7.	Bottom Sediment	7	Semiannual	Gamma Isotopic on each sample
8.	Fin Fish-Flounder and one other type of edible fin fish	2	Quarterly	Gamma Isotopic on each sample
9.	Mussels	2	Quarterly	Gamma Isotopic on each sample
10.	Oysters	4	Quarterly	Gamma Isotopic on each sample
11.	Clams	2	Quarterly	Gamma Isotopic on each sample
12.	Lobster	3	Quarterly	Gamma Isotopic on each sample

(a) Accident monitoring TLDs to be dedosed at least quarterly

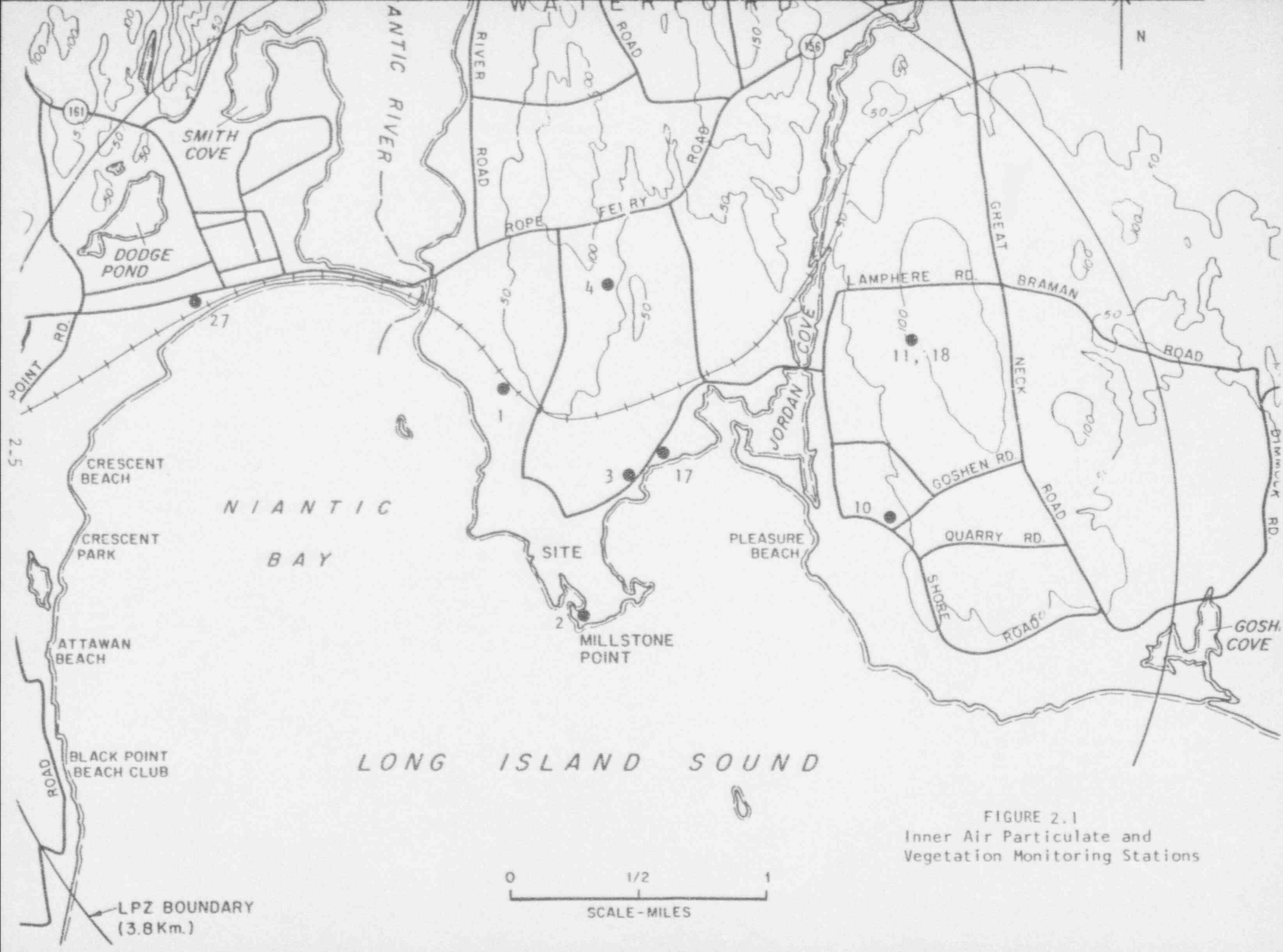

FIGURE 2.1
Inner Air Particulate and
Vegetation Monitoring Stations

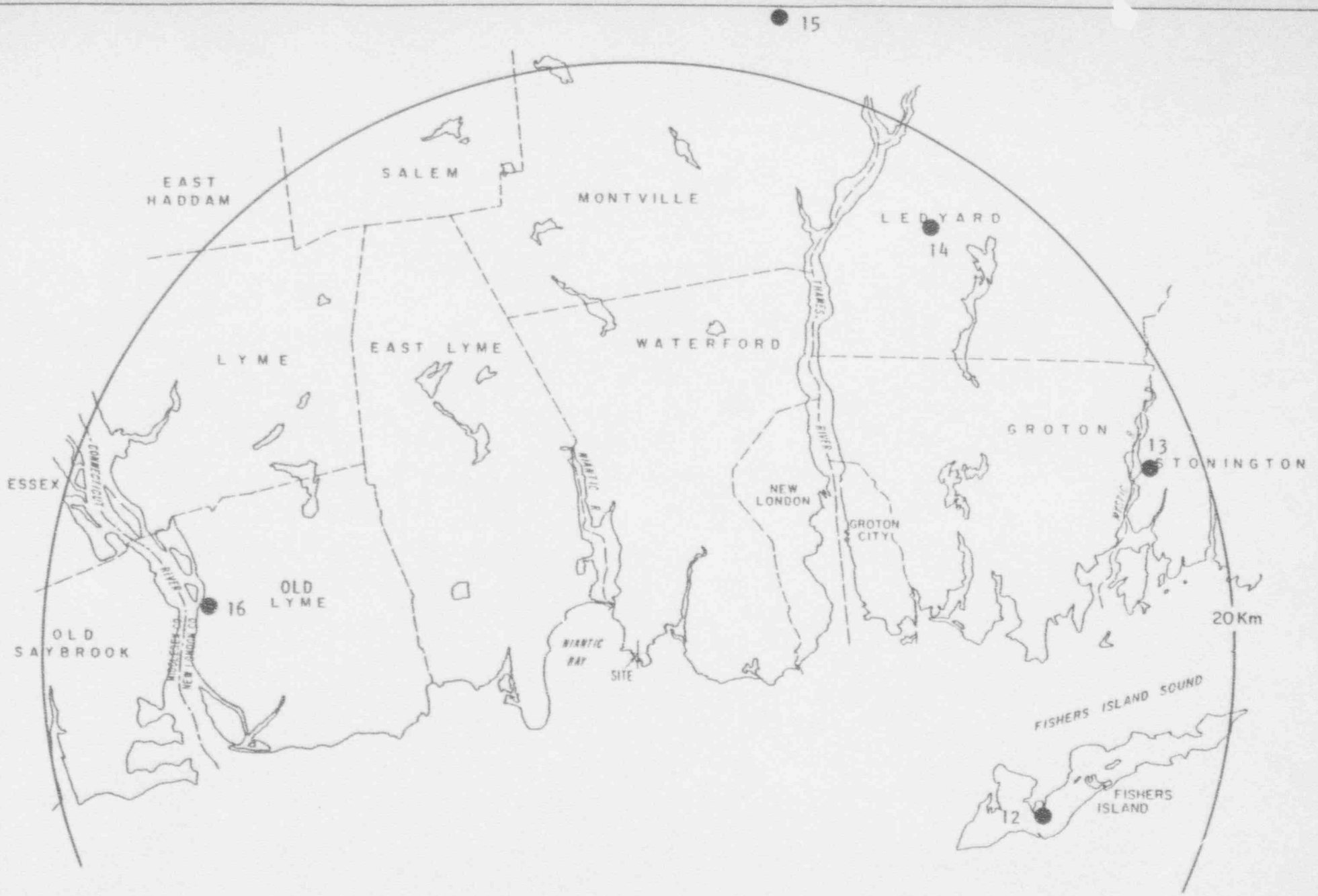

FIGURE 2.2
Outer Terrestrial Monitoring Stations

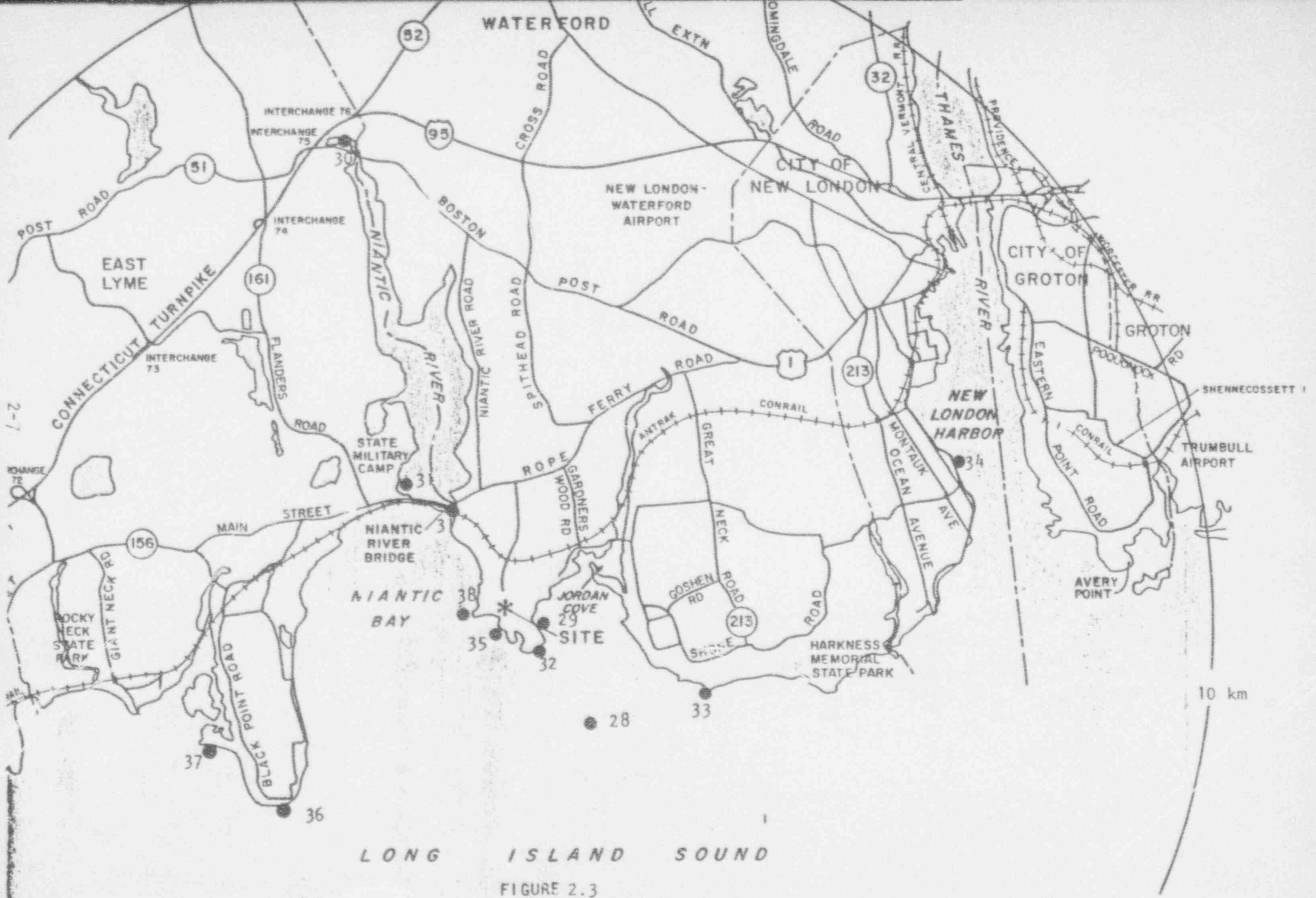

FIGURE 2.3
Aquatic Sampling Stations

2.2 Samples Collected During Report Period

The following table summarizes the number of samples of each type collected during the present reporting period:

Sample Type	Number of Required Samples	Number of Extra Samples
Gamma Exposure (TLD)	204	58
Air Particulates	416	50
Air Iodine	416	0
Dairy Milk	32	0
Goat Milk	13	0
Pasture Grass	13	0
Fruit & Vegetables	8	0
Broad Leaf Vegetation	6	14
Seawater	7	0
Bottom Sediment	14	0
Aquatic Flora	0	6
Fish	15	4
Mussels	8	0
Oysters	13	8
Clams	8	4
Lobster	12	0
Total All Types	1,185	144

3.0 RADIOCHEMICAL RESULTS

3.1 Summary Table

In accordance with the Radiological Effluent Monitoring Manual (REMM), Section F.1, a summary table of the radiochemical results has been prepared and is presented in Table 3-1.

In the determination of the mean, the data was handled as recommended by the Health and Safety Laboratory, Idaho and NUREG/CR-4007 (Sept. 1984): all valid data, including negative values and zeros were used in the determination of the mean (see Part 3.2).

A more detailed analysis of the data is given in Section 4.0 where a discussion of the variations in the data explains many aspects that are not evident in the Summary Table because of the basic limitation of data summaries.

TABLE 3-1
ENVIRONMENTAL RADIOLOGICAL MONITORING PROGRAM SUMMARY
MILLSTONE NUCLEAR POWER STATION, 'NITS 1, 2 AND 3
DOCKETS 50-245, 50-336 AND 50-423
JANUARY - DECEMBER 1993

MEDIUM OR PATHWAY SAMPLED	ANALYSIS AND TOTAL NUMBER OF ANALYSES PERFORMED	LOWER LIMIT OF DETECTION (LLD) (A)	ALL INDICATOR LOCATIONS MEAN (RANGE)(B)	LOCATION WITH HIGHEST ANNUAL MEAN LOCATION #, DISTANCE AND DIRECTION	LOCATION WITH HIGHEST ANNUAL MEAN MEAN (RANGE)(B)	CONTROL LOCATIONS MEAN (RANGE)(B)	# OF NRM (C)
GAMMA DOSE (UR/HR)	144, 60 (D)	1.5	10.2 (6.4 - 16.5)	LOC # 5 0.1 MILES SSE	14.8 (13.3 - 16.1)	9.0 (7.3 - 11.8)	0
AIR PARTICULATE AND IODINE (PCI/M3)	364, 52 BETA	0.01 (E)	0.011 (0.001 - 0.029)	LOC # 2 0.3 MILES S	0.011 (0.002 - 0.023)	0.011 (0.003 - 0.027)	0
	GE(LI) 364,52 I-131	0.07	-0.000 (-0.009 - 0.008)	LOC # 15C 14 MILES N	0.000 (-0.009 - 0.006)	0.000 (-0.009 - 0.006)	0
	GE(LI) 28, 4 BE-7	--	0.109 (0.073 - 0.139)	LOC # 3 0.3 MILES NE	0.120 (0.104 - 0.139)	0.110 (0.096 - 0.119)	0
	CO-60	--	0.000 (0.000 - 0.000)	LOC # 10 1.2 MILES E	0.000 (0.000 - 0.000)	0.000 (0.000 - 0.000)	0
	ZR-95	--	0.000 (0.000 - 0.001)	LOC # 2 0.3 MILES S	0.000 (0.000 - 0.000)	0.000 (0.000 - 0.001)	0
	NB-95	--	0.000 (0.000 - 0.000)	LOC # 10 1.2 MILES E	0.000 (0.000 - 0.000)	0.000 (0.000 - 0.000)	0
	RU-103	--	-0.000 (-0.001 - 0.000)	LOC # 3 0.3 MILES NE	0.000 (0.000 - 0.000)	0.000 (0.000 - 0.000)	0
	CS-134	0.05 (F)	0.000 (0.000 - 0.000)	LOC # 4 1 MILES N	0.000 (0.000 - 0.000)	0.000 (0.000 - 0.000)	0
	CS-137	0.06	0.000 (0.000 - 0.000)	LOC # 4 1 MILES N	0.000 (0.000 - 0.000)	0.000 (0.000 - 0.000)	0
MILK (DAIRY) (PCI/L)	SR 20,12 SR-89	--	0.1 (-0.9 - 1.4)	LOC # 21 13 MILES ENE	0.6 (0.1 - 1.4)	0.1 (-1.2 - 1.5)	0
	SR-90	--	1.9 (1.0 - 3.4)	LOC # 21 13 MILES ENE	2.7 (1.5 - 3.4)	1.7 (1.1 - 2.5)	0

TABLE 3-1
ENVIRONMENTAL RADIOLOGICAL MONITORING PROGRAM SUMMARY
MILLSTONE NUCLEAR POWER STATION, UNITS 1, 2 AND 3
DOCKETS 50-245, 50-336 AND 50-423
JANUARY - DECEMBER 1993

MEDIUM OR PATHWAY SAMPLED	ANALYSIS AND TOTAL NUMBER OF ANALYSES PERFORMED	LOWER LIMIT OF DETECTION (LLD) (A)	ALL INDICATOR LOCATIONS MEAN (RANGE)(B)	LOCATION WITH HIGHEST ANNUAL MEAN LOCATION #, DISTANCE AND DIRECTION	MEAN (RANGE)(B)	CONTROL LOCATIONS MEAN (RANGE)(B)	# OF NRM (C)
	IODINE 20,12 I-131	1	-0.01 (-0.11 - 0.09)	LOC # 21 13 MILES ENE	0.01 (-0.08 - 0.06)	-0.02 (-0.12 - 0.08)	0
	GE(LI) 20,12 CS-134	15	0.1 (-1.7 - 1.9)	LOC # 19 6 MILES N	0.2 (-1.7 - 1.2)	-0.4 (-5.1 - 2.2)	0
	CS-137	18	1.2 (-1.8 - 8.6)	LOC # 22C 16 MILES NNW	3.2 (0.0 - 8.9)	3.2 (0.0 - 8.9)	0
	BA-140	70	-1 (-6 - 3)	LOC # 22C 16 MILES NNW	3 (-4 - 11)	3 (-4 - 11)	0
	LA-140	25	0.2 (-4.2 - 2.9)	LOC # 19 6 MILES N	1.3 (-0.4 - 2.4)	-0.1 (-4.1 - 1.7)	0
GOAT MILK (PCI/L)	SR 6, 7 SR-89	--	5.4 (-2.6 - 39.1)	LOC # 23 2 MILES ENE	5.4 (-2.6 - 39.1)	-0.0 (-1.7 - 1.5)	0
	SR-90	--	11.9 (1.3 - 20.7)	LOC # 23 2 MILES ENE	11.9 (1.3 - 20.7)	4.2 (2.0 - 6.5)	0
	IODINE 6, 7 I-131	1	-0.00 (-0.11 - 0.08)	LOC # 24C 14 MILES NE	0.00 (-0.12 - 0.17)	0.00 (-0.12 - 0.17)	0
	GE(LI) 6, 7 CS-134	15	0.3 (-1.3 - 1.9)	LOC # 23 2 MILES ENE	0.3 (-1.3 - 1.9)	0.3 (-1.5 - 2.5)	0
	CS-137	18	56.8 (11.0 - 95.3)	LOC # 23 2 MILES ENE	56.8 (11.0 - 95.3)	9.4 (0.0 - 15.5)	0
	BA-140	70	2 (-4 - 6)	LOC # 23 2 MILES ENE	2 (-4 - 6)	-0 (-6 - 11)	0
	LA-140	25	-0.7 (-1.7 - 1.3)	LOC # 23 2 MILES ENE	-0.7 (-1.7 - 1.3)	-1.2 (-3.9 - 0.6)	0

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ENVIRONMENTAL RADIOLOGICAL MONITORING PROGRAM SUMMARY
MILLSTONE NUCLEAR POWER STATION, UNITS 1, 2 AND 3
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PASTURE GRASS (PCI/G)	SR 7, 6 SR-89	--	-0.01 (-0.01 - -0.00)	LOC # 22 5.2 MILES NNE	-0.00 (-0.01 - 0.00)	-0.00 (-0.01 - 0.00)	0
	SR-90	--	0.07 (0.03 - 0.13)	LOC # 22 5.2 MILES NNE	0.07 (0.06 - 0.09)	0.07 (0.06 - 0.09)	0
	GE(LI) 7, 6 I-131	0.06	-0.000 (-0.007 - 0.003)	LOC # 22 5.2 MILES NNE	0.001 (-0.007 - 0.008)	0.001 (-0.007 - 0.008)	0
	CS-134	0.06	-0.001 (-0.005 - 0.001)	LOC # 22 5.2 MILES NNE	0.002 (-0.004 - 0.007)	0.002 (-0.004 - 0.007)	0
	CS-137	0.08	0.218 (0.000 - 0.840)	LOC # 21 2 MILES N	0.254 (0.000 - 0.840)	0.026 (0.000 - 0.107)	0
	BA-140	--	0.000 (-0.006 - 0.011)	LOC # 23 2 MILES ENE	0.008 (0.008 - 0.008)	0.005 (0.002 - 0.011)	0
	LA-140	--	-0.001 (-0.007 - 0.005)	LOC # 23 2 MILES ENE	0.004 (0.004 - 0.004)	-0.003 (-0.016 - 0.006)	0
FRUITS AND VEGETABLES (PCI/G)	GE(LI) 4, 4 BE-7	--	0.06 (0.00 - 0.21)	LOC # 25 <10 MILES	0.06 (0.00 - 0.21)	-0.01 (-0.03 - 0.00)	0
	K-40	--	2.23 (0.52 - 3.39)	LOC # 25 <10 MILES	2.23 (0.52 - 3.39)	2.03 (0.68 - 3.38)	0
	MN-54	--	0.001 (0.000 - 0.002)	LOC # 25 <10 MILES	0.001 (0.000 - 0.002)	0.001 (-0.001 - 0.002)	0
	CO-58	--	-0.002 (-0.003 - 0.001)	LOC # 26C >10 MILES	-0.001 (-0.002 - 0.000)	-0.001 (-0.002 - 0.000)	0
	CO-60	--	0.001 (-0.001 - 0.004)	LOC # 25 <10 MILES	0.001 (-0.001 - 0.004)	0.001 (-0.001 - 0.002)	0

TABLE 3-1
ENVIRONMENTAL RADIOLOGICAL MONITORING PROGRAM SUMMARY
MILLSTONE NUCLEAR POWER STATION, UNITS 1, 2 AND 3
DOCKETS 50-245, 50-336 AND 50-423
JANUARY - DECEMBER 1993

MEDIUM OR PATHWAY SAMPLED	ANALYSIS AND TOTAL NUMBER OF ANALYSES PERFORMED	LOWER LIMIT OF DETECTION (LLD) (A)	ALL INDICATOR LOCATIONS MEAN (RANGE)(B)	LOCATION WITH HIGHEST ANNUAL MEAN LOCATION #, DISTANCE AND DIRECTION	LOCATION WITH HIGHEST ANNUAL MEAN MEAN (RANGE)(B)	CONTROL LOCATIONS MEAN (RANGE)(B)	# OF NRM (C)
	ZR-95	--	-0.002 (-0.019 - 0.006)	LOC # 26C >10 MILES	0.000 (-0.005 - 0.005)	0.000 (-0.005 - 0.005)	0
	NB-95	--	0.004 (0.000 - 0.006)	LOC # 25 <10 MILES	0.004 (0.000 - 0.006)	0.000 (0.000 - 0.001)	0
	RU-103	--	-0.000 (-0.003 - 0.001)	LOC # 26C >10 MILES	-0.000 (-0.001 - 0.000)	-0.000 (-0.001 - 0.000)	0
	I-131	0.06 (G)	0.000 (-0.009 - 0.011)	LOC # 25 <10 MILES	0.000 (-0.009 - 0.011)	-0.002 (-0.005 - 0.001)	0
	CS-134	0.06	-0.001 (-0.004 - 0.000)	LOC # 26C >10 MILES	-0.000 (-0.002 - 0.002)	-0.000 (-0.002 - 0.002)	0
	CS-137	0.08	0.003 (0.000 - 0.006)	LOC # 25 <10 MILES	0.003 (0.000 - 0.006)	0.001 (0.000 - 0.003)	0
	RA-226	--	-0.042 (-0.169 - 0.011)	LOC # 26C >10 MILES	-0.027 (-0.140 - 0.039)	-0.027 (-0.140 - 0.039)	0
	TH-228	--	-0.005 (-0.017 - 0.000)	LOC # 26C >10 MILES	-0.003 (-0.013 - 0.001)	-0.003 (-0.013 - 0.001)	0
BROADLEAF VEGETATION (PCI/G)	GE(LI) 28, . BE-7	--	1.10 (0.07 - 4.42)	LOC # 1 0.6 MILES NNW	1.46 (0.09 - 4.42)	. (. - .)	0
	K-40	--	3.05 (2.07 - 4.70)	LOC # 10 1.2 MILES E	3.23 (2.20 - 4.70)	. (. - .)	0
	MN-54	--	0.001 (-0.005 - 0.005)	LOC # 17 0.5 MILES NE	0.002 (-0.001 - 0.005)	. (. - .)	0
	CO-58	--	-0.000 (-0.009 - 0.005)	LOC # 17 0.5 MILES NE	0.001 (-0.002 - 0.003)	. (. - .)	0

TABLE 3-1
ENVIRONMENTAL RADIOLOGICAL MONITORING PROGRAM SUMMARY
MILLSTONE NUCLEAR POWER STATION, UNITS 1, 2 AND 3
DOCKETS 50-245, 50-336 AND 50-423
JANUARY - DECEMBER 1993

MEDIUM OR PATHWAY SAMPLED	ANALYSIS AND TOTAL NUMBER OF ANALYSES PERFORMED	LOWER LIMIT OF DETECTION (LLD) (A)	ALL INDICATOR LOCATIONS MEAN (RANGE)(B)	LOCATION WITH HIGHEST ANNUAL MEAN LOCATION #, DISTANCE AND DIRECTION	LOCATION WITH HIGHEST ANNUAL MEAN MEAN (RANGE)(B)	CONTROL LOCATIONS MEAN (RANGE)(B)	# OF NRM (C)
	CO-60	--	0.001 (-0.010 - 0.012)	LOC # 1 0.6 MILES NNW	0.002 (-0.004 - 0.010)	(. - .)	0
	ZR-95	--	-0.001 (-0.018 - 0.014)	LOC # 1 0.6 MILES NNW	0.001 (-0.004 - 0.014)	(. - .)	0
	NB-95	--	0.003 (-0.003 - 0.013)	LOC # 17 0.5 MILES NE	0.005 (-0.002 - 0.013)	(. - .)	0
	RU-103	--	0.001 (-0.006 - 0.013)	LOC # 10 1.2 MILES E	0.002 (-0.004 - 0.013)	(. - .)	0
	I-131	0.06	-0.002 (-0.019 - 0.012)	LOC # 17 0.5 MILES NE	0.002 (-0.008 - 0.012)	(. - .)	0
	CS-134	0.06	0.000 (-0.006 - 0.008)	LOC # 17 0.5 MILES NE	0.001 (-0.001 - 0.008)	(. - .)	0
	CS-137	0.08	0.033 (0.000 - 0.103)	LOC # 17 0.5 MILES NE	0.040 (0.000 - 0.070)	(. - .)	0
	RA-226	--	-0.084 (-0.420 - 0.188)	LOC # 1 0.6 MILES NNW	-0.041 (-0.175 - 0.087)	(. - .)	0
	TH-228	--	0.022 (-0.042 - 0.108)	LOC # 17 0.5 MILES NE	0.052 (0.000 - 0.108)	(. - .)	0
SEAWATER (PCI/L)	GE(LI) 4, 3 K-40	--	302 (239 - 342)	LOC # 32 0 MILES N/A	302 (239 - 342)	225 (148 - 265)	0
	MN-54	30	0.8 (0.0 - 1.9)	LOC # 32 0 MILES N/A	0.8 (0.0 - 1.9)	0.8 (0.2 - 1.3)	0
	CO-58	30	-0.6 (-1.6 - 0.3)	LOC # 37C 3.5 MILES WSW	-0.3 (-1.8 - 0.5)	-0.3 (-1.8 - 0.5)	0

TABLE 3-1
ENVIRONMENTAL RADIOLOGICAL MONITORING PROGRAM SUMMARY
MILLSTONE NUCLEAR POWER STATION, UNITS 1, 2 AND 3
DOCKETS 50-245, 50-336 AND 50-423
JANUARY - DECEMBER 1993

MEDIUM OR PATHWAY SAMPLED	ANALYSIS AND TOTAL NUMBER OF ANALYSES PERFORMED	LOWER LIMIT OF DETECTION (LLD) (A)	ALL INDICATOR LOCATIONS MEAN (RANGE)(B)	LOCATION WITH HIGHEST ANNUAL MEAN LOCATION #, DISTANCE AND DIRECTION	LOCATION WITH HIGHEST ANNUAL MEAN MEAN (RANGE)(B)	CONTROL LOCATIONS MEAN (RANGE)(B)	# OF NRM (C)
	CO-60	30	-0.3 (-1.5 - 0.6)	LOC # 37C 3.5 MILES WSW	0.0 (-1.3 - 0.9)	0.0 (-1.3 - 0.9)	0
	I-131	--	-20 (-48 - 35)	LOC # 37C 3.5 MILES WSW	0 (-8 - 8)	0 (-8 - 8)	0
	CS-134	30	-0.8 (-3.1 - 0.4)	LOC # 37C 3.5 MILES WSW	-0.1 (-0.5 - 0.4)	-0.1 (-0.5 - 0.4)	0
	CS-137	40	0.8 (0.5 - 1.5)	LOC # 32 0 MILES N/A	0.8 (0.5 - 1.5)	0.5 (-0.7 - 1.5)	0
	BA-140	120 (H)	-13 (-56 - 29)	LOC # 37C 3.5 MILES WSW	3 (0 - 7)	3 (0 - 7)	0
	LA-140	30 (H)	10 (-17 - 61)	LOC # 32 0 MILES N/A	10 (-17 - 61)	2 (-3 - 5)	0
	TRITIUM 4, 3 H-3	2000	396 (65 - 811)	LOC # 32 0 MILES N/A	396 (65 - 811)	38 (-72 - 176)	0
BOTTOM SEDIMENT (PCI/G)	GE(LI) 10, 4 K-40	--	15.9 (8.4 - 19.6)	LOC # 34 4 MILES ENE	19.0 (18.5 - 19.6)	15.1 (13.8 - 17.6)	0
	MN-54	--	0.00 (-0.00 - 0.01)	LOC # 31 1.8 MILES NW	0.01 (0.01 - 0.01)	0.00 (-0.01 - 0.01)	0
	CO-58	--	-0.00 (-0.01 - 0.01)	LOC # 37C 3.5 MILES WSW	0.00 (0.00 - 0.00)	-0.00 (-0.01 - 0.00)	0
	CO-60	--	0.01 (-0.02 - 0.12)	LOC # 31 1.8 MILES NW	0.07 (0.01 - 0.12)	0.01 (0.00 - 0.01)	0
	ZR-95	--	0.00 (-0.02 - 0.03)	LOC # 39C 4.7 MILES NNW	0.02 (0.00 - 0.04)	0.02 (0.00 - 0.04)	0

TABLE 3-1
ENVIRONMENTAL RADIOLOGICAL MONITORING PROGRAM SUMMARY
MILLSTONE NUCLEAR POWER STATION, UNITS 1, 2 AND 3
DOCKETS 50-245, 50-336 AND 50-423
JANUARY - DECEMBER 1993

MEDIUM OR PATHWAY SAMPLED	ANALYSIS AND TOTAL NUMBER OF ANALYSES PERFORMED	LOWER LIMIT OF DETECTION (LLD) (A)	ALL INDICATOR LOCATIONS MEAN (RANGE)(B)	LOCATION WITH HIGHEST ANNUAL MEAN LOCATION #, DISTANCE AND DIRECTION	LOCATION WITH HIGHEST ANNUAL MEAN MEAN (RANGE)(B)	CONTROL LOCATIONS MEAN (RANGE)(B)	# OF NRM (C)
	NB-95	--	0.00 (0.00 - 0.01)	LOC # 30C 4.7 MILES NNW	0.01 (0.00 - 0.03)	0.01 (0.00 - 0.03)	0
	I-131	--	0.01 (-0.03 - 0.03)	LOC # 30C 4.7 MILES NNW	0.07 (0.05 - 0.08)	0.04 (0.02 - 0.08)	0
	CS-134	0.15	0.00 (0.00 - 0.01)	LOC # 30C 4.7 MILES NNW	0.03 (0.02 - 0.04)	0.02 (0.00 - 0.04)	0
	CS-137	0.18	0.00 (0.00 - 0.02)	LOC # 30C 4.7 MILES NNW	0.29 (0.20 - 0.39)	0.15 (0.00 - 0.39)	0
	RA-226	--	0.21 (0.00 - 1.03)	LOC # 30C 4.7 MILES NNW	0.70 (0.00 - 1.40)	0.42 (0.00 - 1.40)	0
	TH-228	--	0.53 (0.17 - 2.02)	LOC # 31 1.8 MILES NW	1.61 (1.21 - 2.02)	0.65 (0.17 - 1.19)	0
FISH (ALL TYPES) (PCI/G)	GE(LI) 15, . BE-7	--	0.00 (-0.06 - 0.12)	LOC # 32 0 MILES N/A	0.01 (-0.06 - 0.12)	(. - .)	0
	K-40	--	2.7 (1.9 - 4.3)	LOC # 35 0.3 MILES WNW	2.8 (1.9 - 4.3)	(. - .)	0
	CR-51	--	-0.01 (-0.15 - 0.08)	LOC # 35 0.3 MILES WNW	0.00 (-0.05 - 0.08)	(. - .)	0
	MN-54	0.13	0.00 (-0.00 - 0.01)	LOC # 35 0.3 MILES WNW	0.00 (-0.00 - 0.01)	(. - .)	0
	CO-58	0.13	-0.00 (-0.01 - 0.01)	LOC # 35 0.3 MILES WNW	-0.00 (-0.01 - 0.01)	(. - .)	0

TABLE 3-1
ENVIRONMENTAL RADIOLOGICAL MONITORING PROGRAM SUMMARY
MILLSTONE NUCLEAR POWER STATION, UNITS 1, 2 AND 3
DOCKETS 50-245, 50-336 AND 50-423
JANUARY - DECEMBER 1993

MEDIUM OR PATHWAY SAMPLED	ANALYSIS AND TOTAL NUMBER OF ANALYSES PERFORMED	LOWER LIMIT OF DETECTION (LLD) (A)	ALL INDICATOR LOCATIONS MEAN (RANGE)(B)	LOCATION WITH HIGHEST ANNUAL MEAN LOCATION #, DISTANCE AND DIRECTION	LOCATION WITH HIGHEST ANNUAL MEAN MEAN (RANGE)(B)	CONTROL LOCATIONS MEAN (RANGE)(B)	# OF NRM (C)
	FE-59	0.26	-0.00 (-0.02 - 0.02)	LOC # 35 0.3 MILES WNW	0.00 (-0.00 - 0.02)	(. - .)	0
	CO-60	0.13	0.00 (-0.01 - 0.01)	LOC # 35 0.3 MILES WNW	0.00 (-0.00 - 0.01)	(. - .)	0
	ZN-65	0.26	-0.00 (-0.03 - 0.01)	LOC # 32 0 MILES N/A	-0.00 (-0.01 - 0.01)	(. - .)	0
	ZR-95	--	0.00 (-0.05 - 0.01)	LOC # 32 0 MILES N/A	0.01 (-0.01 - 0.01)	(. - .)	0
	NB-95	--	0.00 (-0.01 - 0.01)	LOC # 35 0.3 MILES WNW	0.00 (0.00 - 0.01)	(. - .)	0
	RU-103	--	0.00 (-0.01 - 0.01)	LOC # 35 0.3 MILES WNW	0.00 (-0.00 - 0.01)	(. - .)	0
	RU-106	--	-0.01 (-0.11 - 0.07)	LOC # 35 0.3 MILES WNW	0.01 (-0.01 - 0.07)	(. - .)	0
	AG-110M	--	-0.00 (-0.02 - 0.01)	LOC # 35 0.3 MILES WNW	-0.00 (-0.02 - 0.01)	(. - .)	0
	I-131	--	-0.00 (-0.02 - 0.04)	LOC # 35 0.3 MILES WNW	0.00 (-0.02 - 0.04)	(. - .)	0
	CS-134	0.13	-0.00 (-0.01 - 0.01)	LOC # 32 0 MILES N/A	0.00 (0.00 - 0.01)	(. - .)	0
	CS-137	0.15	0.00 (0.00 - 0.02)	LOC # 32 0 MILES N/A	0.00 (0.00 - 0.02)	(. - .)	0
	RA-226	--	-0.18 (-0.37 - 0.17)	LOC # 32 0 MILES N/A	-0.15 (-0.37 - 0.17)	(. - .)	0

TABLE 3-1
ENVIRONMENTAL RADIOLOGICAL MONITORING PROGRAM SUMMARY
MILLSTONE NUCLEAR POWER STATION, UNITS 1, 2 AND 3
DOCKETS 50-245, 50-336 AND 50-423
JANUARY - DECEMBER 1993

MEDIUM OR PATHWAY SAMPLED	ANALYSIS AND TOTAL NUMBER OF ANALYSES PERFORMED	LOWER LIMIT OF DETECTION (LLD) (A)	ALL INDICATOR LOCATIONS MEAN (RANGE)(B)	LOCATION WITH HIGHEST ANNUAL MEAN LOCATION #, DISTANCE AND DIRECTION	LOCATION WITH HIGHEST ANNUAL MEAN MEAN (RANGE)(B)	CONTROL LOCATIONS MEAN (RANGE)(B)	# OF NRM (C)
	TH-228	--	-0.01 (-0.04 - 0.01)	LOC # 32 0 MILES N/A	-0.00 (-0.04 - 0.01)	(. - .)	0
MUSSELS (PCI/G)	GE(LI) 8, , BE-7	--	0.03 (0.00 - 0.08)	LOC # 31 1.8 MILES NW	0.03 (0.00 - 0.08)	(. - .)	0
	K-40	--	1.8 (1.3 - 2.5)	LOC # 28 0.8 MILES SSE	1.9 (1.5 - 2.5)	(. - .)	0
	CR-51	--	0.00 (-0.03 - 0.05)	LOC # 28 0.8 MILES SSE	0.01 (-0.01 - 0.05)	(. - .)	0
	MN-54	0.13	0.00 (-0.00 - 0.00)	LOC # 31 1.8 MILES NW	0.00 (0.00 - 0.00)	(. - .)	0
	CO-58	0.13	0.00 (-0.00 - 0.00)	LOC # 28 0.8 MILES SSE	0.00 (-0.00 - 0.00)	(. - .)	0
	FE-59	0.26	-0.00 (-0.01 - 0.01)	LOC # 31 1.8 MILES NW	0.00 (-0.01 - 0.01)	(. - .)	0
	CO-60	0.13	0.00 (0.00 - 0.01)	LOC # 28 0.8 MILES SSE	0.00 (0.00 - 0.01)	(. - .)	0
	ZN-65	0.26	0.00 (-0.00 - 0.01)	LOC # 28 0.8 MILES SSE	0.01 (-0.00 - 0.01)	(. - .)	0
	ZR-95	--	0.00 (-0.01 - 0.02)	LOC # 28 0.8 MILES SSE	0.01 (0.00 - 0.02)	(. - .)	0
	NB-95	--	0.00 (0.00 - 0.01)	LOC # 28 0.8 MILES SSE	0.00 (0.00 - 0.01)	(. - .)	0

TABLE 3-1
ENVIRONMENTAL RADIOLOGICAL MONITORING PROGRAM SUMMARY
MILLSTONE NUCLEAR POWER STATION, UNITS 1, 2 AND 3
DOCKETS 50-245, 50-336 AND 50-423
JANUARY - DECEMBER 1993

MEDIUM OR PATHWAY SAMPLED	ANALYSIS AND TOTAL NUMBER OF ANALYSES PERFORMED	LOWER LIMIT OF DETECTION (LLD) (A)	ALL INDICATOR LOCATIONS MEAN (RANGE)(B)	LOCATION WITH HIGHEST ANNUAL MEAN LOCATION #, DISTANCE AND DIRECTION	LOCATION WITH HIGHEST ANNUAL MEAN MEAN (RANGE)(B)	CONTROL LOCATIONS MEAN (RANGE)(B)	# OF NRM (C)
	RU-103	--	0.00 (-0.00 - 0.01)	LOC # 28 0.8 MILES SSE	0.00 (-0.00 - 0.01)	(. - .)	0
	RU-106	--	-0.00 (-0.04 - 0.04)	LOC # 28 0.8 MILES SSE	0.03 (0.00 - 0.04)	(. - .)	0
	AG-110M	--	0.00 (-0.00 - 0.00)	LOC # 28 0.8 MILES SSE	0.00 (0.00 - 0.00)	(. - .)	0
	I-131	--	-0.00 (-0.01 - 0.01)	LOC # 31 1.8 MILES NW	0.01 (0.00 - 0.01)	(. - .)	0
	CS-134	0.13	0.00 (-0.00 - 0.00)	LOC # 31 1.8 MILES NW	0.00 (-0.00 - 0.00)	(. - .)	0
	CS-137	0.15	-0.00 (-0.01 - 0.01)	LOC # 31 1.8 MILES NW	0.00 (-0.01 - 0.01)	(. - .)	0
	RA-226	--	-0.16 (-0.51 - 0.19)	LOC # 31 1.8 MILES NW	-0.04 (-0.21 - 0.19)	(. - .)	0
	TH-228	--	-0.00 (-0.04 - 0.02)	LOC # 31 1.8 MILES NW	0.00 (-0.01 - 0.02)	(. - .)	0
OYSTERS (PCI/G)	GE(LI) 14, 3 BE-7	--	-0.02 (-0.12 - 0.04)	LOC # 31 1.8 MILES NW	0.00 (-0.01 - 0.02)	0.00 (-0.01 - 0.02)	0
	K-40	--	1.2 (0.1 - 1.9)	LOC # 31 1.8 MILES NW	1.5 (1.1 - 1.9)	1.5 (1.1 - 2.0)	0
	CR-51	--	-0.01 (-0.08 - 0.06)	LOC # 34 4 MILES ENE	0.00 (-0.03 - 0.03)	-0.03 (-0.06 - 0.00)	0

TABLE 3-1
ENVIRONMENTAL RADIOLOGICAL MONITORING PROGRAM SUMMARY
MILLSTONE NUCLEAR POWER STATION, UNITS 1, 2 AND 3
DOCKETS 50-245, 50-336 AND 50-423
JANUARY - DECEMBER 1993

MEDIUM OR PATHWAY SAMPLED	ANALYSIS AND TOTAL NUMBER OF ANALYSES PERFORMED	LOWER LIMIT OF DETECTION (LLD) (A)	ALL INDICATOR LOCATIONS MEAN (RANGE)(B)	LOCATION WITH HIGHEST ANNUAL MEAN LOCATION #, DISTANCE AND DIRECTION	LOCATION WITH HIGHEST ANNUAL MEAN MEAN (RANGE)(B)	CONTROL LOCATIONS MEAN (RANGE)(B)	# OF NRM (C)
	MN-54	0.13	0.00 (-0.01 - 0.01)	LOC # 32 0 MILES N/A	0.00 (-0.00 - 0.01)	0.00 (0.00 - 0.00)	0
	CO-58	0.13	0.03 (-0.00 - 0.28)	LOC # 32 0 MILES N/A	0.12 (0.00 - 0.28)	0.00 (-0.00 - 0.00)	0
	FE-59	0.26	0.00 (-0.02 - 0.01)	LOC # 36 3 MILES WSW	0.01 (0.00 - 0.01)	0.00 (-0.01 - 0.01)	0
	CO-60	0.13	0.02 (-0.00 - 0.06)	LOC # 32 0 MILES N/A	0.05 (0.02 - 0.06)	0.00 (0.00 - 0.00)	0
	ZN-65	0.26	0.28 (-0.02 - 2.16)	LOC # 32 0 MILES N/A	0.96 (0.09 - 2.16)	0.00 (0.00 - 0.00)	0
	ZR-95	--	0.00 (-0.00 - 0.02)	LOC # 32 0 MILES N/A	0.01 (-0.00 - 0.02)	-0.01 (-0.04 - 0.01)	0
	NB-95	--	-0.00 (-0.01 - 0.00)	LOC # 37C 3.5 MILES WSW	0.00 (0.00 - 0.01)	0.00 (0.00 - 0.01)	0
	RU-103	--	0.00 (-0.00 - 0.01)	LOC # 31 1.8 MILES NW	0.00 (-0.00 - 0.01)	-0.00 (-0.01 - 0.00)	0
	RU-106	--	0.01 (-0.05 - 0.04)	LOC # 34 4 MILES ENE	0.03 (0.01 - 0.04)	0.00 (-0.01 - 0.01)	0
	AG-110M	--	0.30 (-0.00 - 2.47)	LOC # 32 0 MILES N/A	1.04 (0.32 - 2.47)	0.00 (-0.00 - 0.01)	0
	I-131	--	0.00 (-0.01 - 0.01)	LOC # 36 3 MILES WSW	0.01 (0.01 - 0.01)	-0.00 (-0.00 - 0.00)	0
	CS-134	0.13	0.00 (-0.00 - 0.00)	LOC # 37C 3.5 MILES WSW	0.00 (-0.00 - 0.01)	0.00 (-0.00 - 0.01)	0

TABLE 3-1
ENVIRONMENTAL RADIOLOGICAL MONITORING PROGRAM SUMMARY
MILLSTONE NUCLEAR POWER STATION, UNITS 1, 2 AND 3
DOCKETS 50-245, 50-336 AND 50-423
JANUARY - DECEMBER 1993

MEDIUM OR PATHWAY SAMPLED	ANALYSIS AND TOTAL NUMBER OF ANALYSES PERFORMED	LOWER LIMIT OF DETECTION (LLD) (A)	ALL INDICATOR LOCATIONS MEAN (RANGE)(B)	LOCATION WITH HIGHEST ANNUAL MEAN LOCATION #, DISTANCE AND DIRECTION	LOCATION WITH HIGHEST ANNUAL MEAN MEAN (RANGE)(B)	CONTROL LOCATIONS MEAN (RANGE)(B)	# OF NRM (C)
	CS-137	0.15	-0.00 (-0.01 - 0.01)	LOC # 37C 3.5 MILES WSW	0.00 (0.00 - 0.00)	0.00 (0.00 - 0.00)	0
	RA-226	--	-0.09 (-0.42 - 0.06)	LOC # 37C 3.5 MILES WSW	0.00 (-0.04 - 0.06)	0.00 (-0.04 0.06)	0
	TH-228	--	-0.00 (-0.02 - 0.01)	LOC # 36 3 MILES WSW	0.01 (0.00 - 0.01)	-0.02 (-0.03 - -0.01)	0
CLAMS (PCI/G)	GE(LI) G. , BE-7	--	0.01 (-0.03 - 0.05)	LOC # 29 0.4 MILES NNE	0.02 (-0.01 - 0.03)	(. - .)	0
	K-40	--	1.5 (0.7 - 2.2)	LOC # 38 1 MILES NW	2.0 (1.6 - 2.2)	(. - .)	0
	CR-51	--	0.01 (-0.03 - 0.05)	LOC # 38 1 MILES NW	0.01 (-0.03 - 0.05)	(. - .)	0
	MN-54	0.13	-0.00 (-0.01 - 0.01)	LOC # 29 0.4 MILES NNE	0.00 (-0.00 - 0.00)	(. - .)	0
	CO-58	0.13	0.00 (-0.01 - 0.01)	LOC # 38 1 MILES NW	0.00 (0.00 - 0.01)	(. - .)	0
	FE-59	0.26	-0.00 (-0.01 - 0.01)	LOC # 29 0.4 MILES NNE	0.00 (-0.01 - 0.01)	(. - .)	0
	CO-60	0.13	0.00 (0.00 - 0.02)	LOC # 29 0.4 MILES NNE	0.00 (0.00 - 0.02)	(. - .)	0
	ZN-65	0.26	0.00 (-0.00 - 0.01)	LOC # 38 1 MILES NW	0.01 (-0.00 - 0.01)	(. - .)	0

TABLE 3-1
ENVIRONMENTAL RADIOLOGICAL MONITORING PROGRAM SUMMARY
MILLSTONE NUCLEAR POWER STATION, UNITS 1, 2 AND 3
DOCKETS 50-245, 50-336 AND 50-423
JANUARY - DECEMBER 1993

MEDIUM OR PATHWAY SAMPLED	ANALYSIS AND TOTAL NUMBER OF ANALYSES PERFORMED	LOWER LIMIT OF DETECTION (LLD) (A)	ALL INDICATOR LOCATIONS MEAN (RANGE)(B)	LOCATION WITH HIGHEST ANNUAL MEAN LOCATION #, DISTANCE AND DIRECTION	LOCATION WITH HIGHEST ANNUAL MEAN MEAN (RANGE)(B)	CONTROL LOCATIONS MEAN (RANGE)(B)	# OF NRM (C)
	ZR-95	--	0.00 (-0.01 - 0.01)	LOC # 38 1 MILES NW	0.00 (-0.01 - 0.01)	(. - .)	0
	NB-95	--	0.00 (0.00 - 0.01)	LOC # 38 1 MILES NW	0.00 (0.00 - 0.01)	(. - .)	0
	RU-103	--	-0.00 (-0.01 - 0.00)	LOC # 38 1 MILES NW	-0.00 (-0.01 - 0.00)	(. - .)	0
	RU-106	--	-0.01 (-0.04 - 0.01)	LOC # 29 0.4 MILES NNE	-0.01 (-0.02 - -0.00)	(. - .)	0
	AG-110M	--	0.00 (0.00 - 0.00)	LOC # 29 0.4 MILES NNE	0.00 (0.00 - 0.00)	(. - .)	0
	I-131	--	0.00 (-0.01 - 0.01)	LOC # 38 1 MILES NW	0.00 (-0.00 - 0.01)	(. - .)	0
	CS-134	0.13	-0.00 (-0.01 - 0.00)	LOC # 29 0.4 MILES NNE	0.00 (-0.00 - 0.00)	(. - .)	0
	CS-137	0.15	-0.00 (-0.02 - 0.00)	LOC # 38 1 MILES NW	0.00 (0.00 - 0.00)	(. - .)	0
	RA-226	--	-0.05 (-0.26 - 0.12)	LOC # 29 0.4 MILES NNE	-0.02 (-0.20 - 0.12)	(. - .)	0
	TH-228	--	-0.01 (-0.07 - 0.01)	LOC # 38 1 MILES NW	-0.01 (-0.03 - 0.01)	(. - .)	0
LOBSTER (PCI/G)	GE(LI) 6, 4 BE-7	--	0.01 (-0.05 - 0.06)	LOC # 35 0.3 MILES WNW	0.01 (-0.05 - 0.05)	-0.02 (-0.09 - 0.03)	0

TABLE 3-1
ENVIRONMENTAL RADIOLOGICAL MONITORING PROGRAM SUMMARY
MILLSTONE NUCLEAR POWER STATION, UNITS 1, 2 AND 3
DOCKETS 50-245, 50-336 AND 50-423
JANUARY - DECEMBER 1993

MEDIUM OR PATHWAY SAMPLED	ANALYSIS AND TOTAL NUMBER OF ANALYSES PERFORMED	LOWER LIMIT OF DETECTION (LLD) (A)	ALL INDICATOR LOCATIONS MEAN (RANGE)(B)	LOCATION WITH HIGHEST ANNUAL MEAN LOCATION #, DISTANCE AND DIRECTION	LOCATION WITH HIGHEST ANNUAL MEAN MEAN (RANGE)(B)	CONTROL LOCATIONS MEAN (RANGE)(B)	# OF NRM (C)
	K-40	--	2.4 (1.3 - 3.6)	LOC # 37C 3.5 MILES WSW	3.5 (2.7 - 4.6)	3.5 (2.7 - 4.6)	0
	CR-51	--	0.01 (-0.11 - 0.12)	LOC # 35 0.3 MILES WNW	0.02 (-0.00 - 0.04)	0.01 (-0.05 - 0.07)	0
	MN-54	0.13	0.00 (-0.00 - 0.01)	LOC # 37C 3.5 MILES WSW	0.01 (0.01 - 0.01)	0.01 (0.01 - 0.01)	0
	CO-58	0.13	-0.00 (-0.03 - 0.01)	LOC # 37C 3.5 MILES WSW	0.00 (-0.00 - 0.01)	0.00 (-0.00 - 0.01)	0
	FE-59	0.26	0.00 (-0.01 - 0.01)	LOC # 37C 3.5 MILES WSW	0.01 (0.01 - 0.01)	0.01 (0.01 - 0.01)	0
	CO-60	0.13	0.00 (-0.00 - 0.02)	LOC # 32 0 MILES N/A	0.01 (-0.00 - 0.02)	0.00 (-0.01 - 0.01)	0
	ZN-65	0.26	0.01 (-0.01 - 0.03)	LOC # 37C 3.5 MILES WSW	0.02 (0.00 - 0.04)	0.02 (0.00 - 0.04)	0
	ZR-95	--	0.01 (-0.01 - 0.03)	LOC # 32 0 MILES N/A	0.01 (0.00 - 0.03)	-0.01 (-0.05 - 0.01)	0
	NB-95	--	0.00 (0.00 - 0.01)	LOC # 32 0 MILES N/A	0.00 (0.00 - 0.01)	-0.00 (-0.00 - 0.00)	0
	RU-103	--	0.00 (-0.00 - 0.01)	LOC # 32 0 MILES N/A	0.00 (-0.00 - 0.01)	-0.00 (-0.01 - 0.01)	0
	RU-106	--	0.03 (-0.09 - 0.10)	LOC # 32 0 MILES N/A	0.03 (-0.04 - 0.10)	-0.02 (-0.04 - 0.02)	0
	AG-110M	--	0.01 (0.00 - 0.04)	LOC # 32 0 MILLS N/A	0.01 (0.00 - 0.04)	0.00 (-0.01 - 0.01)	0

TABLE 3-1
ENVIRONMENTAL RADIOLOGICAL MONITORING PROGRAM SUMMARY
MILLSTONE NUCLEAR POWER STATION, UNITS 1, 2 AND 3
DOCKETS 50-245, 50-336 AND 50-423
JANUARY - DECEMBER 1993

MEDIUM OR PATHWAY SAMPLED	ANALYSIS AND TOTAL NUMBER OF ANALYSES PERFORMED	LOWER LIMIT OF DETECTION (LLD) (A)	ALL INDICATOR LOCATIONS MEAN (RANGE)(B)	LOCATION WITH HIGHEST ANNUAL MEAN LOCATION #, DISTANCE AND DIRECTION	LOCATION WITH HIGHEST ANNUAL MEAN MEAN (RANGE)(B)	CONTROL LOCATIONS MEAN (RANGE)(B)	# OF NRM (C)
	I-131	--	-0.00 (-0.06 - 0.02)	LOC # 32 0 MILES N/A	0.01 (-0.00 - 0.02)	-0.00 (-0.04 - 0.02)	0
	CS-134	0.13	0.00 (-0.00 - 0.01)	LOC # 32 0 MILES N/A	0.00 (0.00 - 0.01)	-0.00 (-0.01 - 0.00)	0
	CS-137	0.15	-0.01 (-0.03 - 0.01)	LOC # 37C 3.5 MILES WSW	-0.00 (-0.02 - 0.01)	-0.00 (-0.02 - 0.01)	0
	RA-226	--	-0.18 (-0.75 - 0.20)	LOC # 35 0.3 MILES WNW	-0.09 (-0.59 - 0.20)	-0.29 (-0.65 - 0.06)	0
	TH-228	--	-0.01 (-0.04 - 0.01)	LOC # 35 0.3 MILES WNW	-0.00 (-0.01 - 0.01)	-0.00 (-0.01 - 0.02)	0

FOOTNOTES

A. For Ge(Li) measurements the MDL's $\simeq$ LLD ÷ 2.33. For all others, MDL = 2 x σ background. These MDL's are based on the absence of large amounts of interfering activity (excluding naturally occurring radionuclides). Deviations by about factors of 3 to 4 can occur.

The LLD is the smallest concentration of radioactive material in a sample that will be detected with 95% probability with a 5% probability of falsely concluding that a blank observation represents a "real" signal.

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

$$LLD = \frac{4.66\ S_b}{E * V * 2.22 * Y * \exp(-\lambda \Delta t)}$$

where

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

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

E is the counting efficiency (as counts per transformation)

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

2.22 is the number of transformation per minute per picocurie

Y is the fractional radiochemical yield (when applicable)

λ is the radioactive decay constant for the particular radionuclide

Δt is the elapsed time between sample collection (or end of the sample collection period) and time of counting

It should be recognized that LLD is defined as a priori *(before the fact)* limit representing the capability of a measurement system and not as a posteriori *(after the fact)* limit for a particular measurement.

FOOTNOTES (Cont'd)

Analyses shall be performed in such a manner that the stated LLDs will be achieved under routine conditions. Occasionally background fluctuations, unavoidably small sample sizes, the presence of interfering nuclides, or other uncontrollable circumstances may render these a priori LLDs unachievable. In such cases, the contributing factors will be identified and described in the *Annual Radiological Environmental Operating Report.*

B. Analytical results are handled as recommended by HASL *("Reporting of Analytical Results from HASL,"* letter by Leo B. Higginbotham) and NUREG/CR-4007 (Sept. 1984). Negative values were used in the determination of mean.

C. Nonroutine reported measurements (NRM's). These are results of samples that exceed the report levels of Table E-2 of the *Radiological Effluent Monitoring Manual.*

D. First number is the number of indicator measurements, the second is the number of control measurements.

E. Assuming 270 m^3/paper

F. Assuming 1080 m^3

G. LLD for leafy vegetables.

H. LLD from the end of the sample period.

3.2 Data Tables

The data reported in this section are strictly counting statistics. The reported error is two times the standard deviation of the net activity. Unless otherwise noted, the overall error (counting, sample size, chemistry, errors, etc.) is estimated to be 2 to 5 times that listed.

Because of counting statistics, negative values, zeros and numbers below the Minimum Detectable Level (MDL) are statistically valid pieces of data. For the purposes of this report, in order to indicate any background biases, all the valid data are presented. In instances where zeros are listed after significant digits, this is an artifact of the computer data handling program.

Data are given according to sample type as indicated below.

1. Gamma Exposure Rate
2. Air Particulates, Gross Beta Radioactivity
3. Air Particulates, Weekly I-131
4. Air Particulates, Quantitative Gamma Spectra
5. Air Particulates, Quarterly Strontium*
6. Soil*
7. Milk - Dairy Farms
8. Milk - Goat Farms
9. Pasture Grass
10. Well Water*
11. Reservoir Water*
12. Fruits & Vegetables
13. Broad Leaf Vegetation
14. Seawater
15. Bottom Sediment
16. Aquatic Flora
17. Fin Fish
18. Mussels
19. Oysters
20. Clams
21. Scallops*
22. Lobster (and Crabs)

* This type of sampling or analysis was not performed, therefore there is no table.

TABLE 1
MONTHLY
GAMMA EXPOSURE RATE (UR/HR) *

L O C A T I O N S

PERIOD	1	2	3	4	5	6	7	8	9	10	11
JAN 93	8.4 .3	11.8 .1	7.9 .3	8.3 .2	14.4 .2	10.3 .0	6.9 .0	12.7 .1	14.0 .7	8.6 .2	7.9 .4
FEB 93	8.1 .2	10.7 .4	7.9 .2	8.5 .1	13.9 .0 A	10.3 .0 A	6.7 .0	12.7 .6	13.7 .2	8.3 .1	7.2 .3
MAR 93	7.6 .2	10.3 .1	7.6 .2	7.9 .2	13.3 .2	9.9 .2	7.0 .1	12.0 .2	13.6 .1	8.1 .3	7.2 .3
APR 93	8.1 .1	10.7 .3	8.3 .0	8.6 .2	13.7 .0	10.1 .0	6.4 .2	12.6 .5	13.5 .5	8.4 .2	7.5 .2
MAY 93	8.8 .1	11.4 .1	8.1 .2	8.9 .2	15.0 .4	10.5 .0	6.5 .1	13.0 .6	15.4 .2	8.8 .2	8.1 .0
JUN 93	9.0 .2	11.7 .1	8.5 .1	9.2 .0	15.5 .3	10.5 .0	7.1 .3	13.6 .2	15.4 .1	8.9 .2	8.1 .4
JUL 93	9.2 .1	11.9 .1	8.5 .1	9.5 .3	16.1 .2	10.8 .0	6.8 .1	13.9 .1	16.5 .5	9.4 .2	8.8 .0
AUG 93	9.3 .0	11.8 .0	8.8 .2	9.4 .2	15.8 .3	10.5 .2	7.1 .2	13.8 .4	16.0 .3	9.3 .2	8.8 .4
SEP 93	9.2 .4	11.5 .1	8.8 .5	9.5 .5	15.5 .1	10.8 .2	7.5 .2	13.2 .1	15.7 .3	9.2 .4	8.6 .0
OCT 93	9.2 .2	11.5 .6	8.8 .0	9.5 .1	14.0 .2	10.6 .2	7.1 .2	13.3 .4	13.9 .1	9.2 .1	8.5 .2
NOV 93	9.3 .2	11.6 .2	8.6 .2	9.3 .4	15.6 .4	10.9 .3	7.5 .0	13.4 .0	15.4 .6	9.2 .1	8.9 .3
DEC 93	9.0 .0	11.5 .4	8.8 .0	9.4 .5	15.0 .2	10.7 .2	7.8 .2	13.7 .8	14.5 .5	9.1 .1	8.3 .2

PERIOD	12C	13C	14C	15C	16C	27	50X	54X	55X	98X	99X
JAN 93	8.1 .1	8.5 .1	10.9 .4	7.9 .0	7.8 .1	8.1 .2	7.8 .0	8.4 .0	7.4 .0	9.3 .1	9.8 .0 A
FEB 93	7.4 .0	8.3 .0 A	10.5 .1	8.4 .0 A	7.9 .1	7.6 .3	7.6 .1	8.7 .0	7.6 .7	9.2 .2	9.3 .1
MAR 93	7.7 .4	7.9 .0	9.9 .4	7.4 .2	7.3 .3	7.5 .1	7.5 .1	7.7 .2	7.0 .0	9.0 .1	8.9 .1
APR 93	8.0 .0	8.6 .1	10.8 .1	8.6 .1	7.8 .1	7.8 .3	7.8 .1	8.8 .0	7.3 .1	9.2 .1	9.7 .0
MAY 93	8.6 .1	8.8 .3	11.3 .1	8.5 .0	8.2 .1	8.4 .0	8.1 .1	8.7 .1	7.6 .1	9.7 .1	10.0 .0
JUN 93	8.2 .1	8.9 .1	11.3 .1	9.2 .1	8.5 .2	8.1 .2	8.4 .0	9.3 .0	7.7 .0	9.7 .0	10.2 .2
JUL 93	7.5 .2	9.1 .1	11.8 .0	9.3 .1	8.5 .2	8.6 .0	8.6 .1	9.4 .1	8.2 .0	10.1 .1	10.5 .0
AUG 93	8.7 .0	8.9 .1	11.5 .1	9.5 .2	8.5 .1	8.2 .2	8.5 .0	9.5 .1	8.1 .1	10.0 .0	10.6 .1
SEP 93	9.0 .2	8.9 .0	11.6 .0	8.8 .2	8.6 .5	8.6 .1	8.2 .2	9.7 .1	8.6 .1	9.8 .1	10.9 .2
OCT 93	8.6 .1	9.0 .1	11.7 .1	9.6 .1	8.5 .1	8.4 .3	8.3 .1	9.4 .1	8.1 .4	10.0 .0	11.7 1
NOV 93	8.8 .2	9.1 .1	11.8 .2	8.9 .1	8.4 .2	8.0 1	8.3 .1	9.3 .1	8.1 .0	10.0 .1	11.3 .0
DEC 93	7.9 .1	8.9 .1	11.6 .3	9.4 .3	7.5 .3	8.5 .5	8.2 .3	9.5 .1	8.3 .3	10.0 .1	11.3 .6

* Values listed are the average of two TLDs.
Errors listed are 1 sigma.
A: Single TLD result.

TABLE 2
AIR PARTICULATES
GROSS BETA RADIOACTIVTY
(PCI/M3)

LOCATIONS

PERIOD ENDING	1	(+/-)	2	(+/-)	3	(+/-)	4	(+/-)	10	(+/-)	11	(+/-)	12X	(+/-)	15C	(+/-)	27	(+/-)
JAN04	0.012	0.002	0.013	0.003	0.013	0.003	0.010	0.002	0.013	0.003	0.012	0.003	0.013	0.003	0.014	0.003	0.014	0.003
JAN11	0.014	0.003	0.013	0.002	0.016	0.003	0.017	0.003	0.016	0.003	0.017	0.003	0.019	0.002	0.018	0.003	0.014	0.002
JAN18	0.009	0.003	0.013	0.003	0.012	0.003	0.013	0.003	0.010	0.003	0.014	0.003	0.011	0.003A	0.010	0.003	0.010	0.003
JAN25	0.015	0.003	0.014	0.003	0.011	0.002	0.013	0.003	0.015	0.003	0.014	0.003	0.011	0.003	0.011	0.003	0.015	0.003
FEB01	0.011	0.003	0.012	0.003	0.010	0.003	0.010	0.003	0.008	0.003	0.009	0.003	0.020	0.002	0.013	0.003	0.011	0.003
FEB08	0.019	0.003	0.019	0.003	0.018	0.003	0.016	0.003	0.019	0.003	0.016	0.003	.	.	0.014	0.003	0.017	0.003
FEB16	0.016	0.002	0.014	0.002	0.015	0.002	0.016	0.002	0.013	0.002	0.014	0.002	.	.	0.015	0.002	0.013	0.002
FEB22	0.011	0.003	0.014	0.003	0.011	0.003	0.013	0.003	0.012	0.003	0.014	0.003	0.016	0.001A	0.011	0.003	0.010	0.003
MAR01	0.017	0.003	0.016	0.003	0.017	0.003	0.016	0.003	0.016	0.003	0.015	0.003	0.014	0.002B	0.018	0.003	0.018	0.003
MAR08	0.018	0.003	0.019	0.003	0.018	0.003	0.020	0.003	0.022	0.003	0.017	0.003	0.017	0.003	0.017	0.003	0.019	0.003
MAR15	0.011	0.002	0.013	0.003	0.011	0.003	0.012	0.003	0.013	0.003	0.013	0.003	0.017	0.002	0.011	0.002	0.010	0.002
MAR22	0.018	0.003	0.018	0.003	0.016	0.003	0.018	0.003	0.015	0.003	0.018	0.003	0.019	0.002	0.018	0.003	0.019	0.003
MAR29	0.002	0.002	0.002	0.002	0.003	0.002	0.002	0.002	0.003	0.002	0.002	0.002	0.010	0.002	0.003	0.002	0.002	0.002
APR05	0.002	0.002	0.002	0.002	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.002	0.003	0.002	0.003	0.002
APR12	0.006	0.002	0.007	0.002	0.006	0.002	0.007	0.002	0.005	0.002	0.008	0.002	0.006	0.002	0.007	0.002	0.008	0.002
APR19	0.006	0.002	0.007	0.002	0.005	0.002	0.006	0.002	0.005	0.002	0.006	0.002	0.011	0.002	0.005	0.002	0.003	0.002
APR26	0.008	0.002	0.008	0.002	0.008	0.003	0.007	0.002	0.008	0.003	0.011	0.003	0.009	0.002	0.010	0.003	0.008	0.002
MAY03	0.008	0.002	0.010	0.003	0.011	0.003	0.008	0.003	0.010	0.003	0.010	0.003	0.014	0.002	0.010	0.003	0.007	0.002
MAY10	0.006	0.002	0.006	0.002	0.007	0.002	0.007	0.002	0.005	0.002	0.007	0.002	0.006	0.002	0.005	0.002	0.005	0.002
MAY17	0.011	0.002	0.013	0.002	0.011	0.002	0.011	0.002	0.014	0.002	0.014	0.002	0.012	0.002	0.009	0.002	0.014	0.002
MAY24	0.004	0.002	0.005	0.002	0.003	0.002	0.004	0.002	0.005	0.002	0.005	0.002	0.011	0.002	0.007	0.002	0.003	0.002
JUN01	0.009	0.002	0.011	0.002	0.009	0.002	0.012	0.002	0.008	0.002	0.010	0.002	0.013	0.002	0.015	0.003	0.010	0.002
JUN07	0.003	0.002	0.002	0.002	0.003	0.002	0.003	0.002	0.005	0.003	0.005	0.002	0.001	0.002	0.003	0.002	0.001	0.002
JUN14	0.008	0.002	0.006	0.002	0.007	0.002	0.006	0.002	0.005	0.002	0.006	0.002	0.013	0.002	0.008	0.002	0.007	0.002
JUN21	0.009	0.002	0.014	0.002	0.011	0.002	0.011	0.002	0.011	0.002	0.010	0.002	0.014	0.002	0.008	0.002	0.010	0.002
JUN29	0.009	0.002	0.010	0.002	0.008	0.002	0.010	0.002	0.009	0.002	0.008	0.002	0.011	0.002	0.010	0.002	0.011	0.002

Sample dates may vary by a couple of days.
A: Collection period greater than 8 days.
B: Collection period less than 6 days.

TABLE 2
AIR PARTICULATES
GROSS BETA RADIOACTIVTY
(PCI/M3)

LOCATIONS

PERIOD ENDING	1	(+/-)	2	(+/-)	3	(+/-)	4	(+/-)	10	(+/-)	11	(+/-)	12X	(+/-)	15C	(+/-)	27	(+/-)
JUL06	0.007	0.002	0.008	0.002	0.005	0.002	0.007	0.002	0.006	0.002	0.008	0.002	0.012	0.002	0.009	0.002	0.007	0.002
JUL12	0.009	0.003	0.010	0.003	0.008	0.003	0.008	0.003	0.010	0.003	0.011	0.003	0.011	0.003	0.010	0.003	0.009	0.003
JUL19	0.007	0.002	0.009	0.002	0.007	0.002	0.007	0.002	0.006	0.002	0.007	0.002	0.014	0.002	0.008	0.002	0.007	0.002
JUL26	0.006	0.002	0.006	0.002	0.006	0.002	0.006	0.002	0.007	0.002	0.006	0.002	0.011	0.002	0.006	0.002	0.008	0.002
AUG02	0.007	0.002	0.006	0.002	0.006	0.002	0.006	0.002	0.006	0.002	0.008	0.002	0.005	0.002	0.007	0.002	0.008	0.002
AUG09	0.012	0.002	0.015	0.002	0.014	0.003	0.012	0.002	0.015	0.003	0.012	0.002	0.014	0.002	0.013	0.003	0.014	0.002
AUG16	0.007	0.002	0.010	0.003	0.011	0.003	0.010	0.003	0.012	0.003	0.007	0.002	0.018	0.002	0.009	0.003	0.010	0.002
AUG23	0.012	0.003	0.012	0.003	0.011	0.003	0.010	0.003	0.009	0.002	0.011	0.003	0.010	0.002	0.010	0.003	0.009	0.002
AUG30	0.018	0.003	0.019	0.003	0.018	0.003	0.019	0.003	0.019	0.003	0.017	0.003	0.021	0.002	0.018	0.003	0.017	0.003
SEP07	0.008	0.002	0.010	0.002	0.009	0.002	0.010	0.002	0.010	0.002	0.010	0.002	0.015	0.002	0.011	0.002	0.010	0.002
SEP14	0.012	0.003	0.009	0.002	0.010	0.003	0.012	0.003	0.011	0.003	0.011	0.003	0.011	0.003	0.011	0.003	0.009	0.002
SEP20	0.006	0.002	0.008	0.003	0.004	0.002	0.004	0.002	0.008	0.003	0.005	0.002	0.013	0.002	0.008	0.003	0.005	0.002
SEP27	0.011	0.003	0.009	0.003	0.011	0.003	0.011	0.003	0.009	0.003	0.013	0.003	0.015	0.002	0.013	0.003	0.012	0.003
OCT04	0.012	0.003	0.009	0.002	0.011	0.003	0.010	0.003	0.011	0.003	0.010	0.003	0.016	0.002	0.009	0.003	0.009	0.002
OCT12	0.010	0.002	0.010	0.002	0.013	0.002	0.010	0.002	0.011	0.002	0.010	0.002	0.013	0.002	0.012	0.002	0.011	0.002
OCT18	0.005	0.003	0.006	0.003	0.006	0.003	0.007	0.003	0.007	0.003	0.006	0.003	0.008	0.002	0.007	0.003	0.006	0.003
OCT25	0.011	0.003	0.016	0.004	0.013	0.003	0.011	0.003	0.010	0.003	0.011	0.003	0.019	0.002	0.010	0.003	0.012	0.003
NOV01	0.011	0.003	0.010	0.003	0.009	0.003	0.011	0.003	0.011	0.003	0.009	0.003	0.007	0.005	0.010	0.003	0.011	0.003
NOV08	0.013	0.003	0.013	0.003	0.017	0.003	0.012	0.003	0.014	0.003	0.013	0.003	0.012	0.003	0.013	0.003	0.011	0.003
NOV15	0.026	0.003	0.023	0.003	0.025	0.003	0.025	0.003	0.029	0.003	0.023	0.003	0.015	0.003	0.027	0.003	0.025	0.003
NOV22	0.011	0.003	0.011	0.003	0.010	0.003	0.015	0.003	0.012	0.003	0.013	0.003	0.016	0.003	0.013	0.003	0.012	0.003
NOV29	0.012	0.003	0.013	0.003	0.011	0.003	0.013	0.003	0.014	0.003	0.011	0.003	0.018	0.003	0.013	0.003	0.006	0.002
DEC06	0.018	0.002	0.020	0.003	0.017	0.003	0.020	0.003	0.019	0.003	0.020	0.003	0.023	0.003	0.021	0.003	0.019	0.002
DEC13	0.019	0.003	0.015	0.003	0.016	0.003	0.017	0.003	0.016	0.003	0.017	0.003	0.012	0.003	0.016	0.003	0.019	0.003
DEC20	0.007	0.003	0.010	0.003	0.010	0.003	0.011	0.003	0.007	0.003	0.007	0.003	0.013	0.003	0.008	0.003	0.008	0.003
DEC27	0.017	0.003	0.016	0.003	0.016	0.003	0.016	0.003	0.015	0.003	0.016	0.003	0.013	0.002	0.012	0.002	0.016	0.003

Sample dates may vary by a couple of days.
A: Collection period greater than 8 days.
B: Collection period less than 6 days.

TABLE 3
AIRBORNE IODINE
I-131 (PCI/M3)

PERIOD ENDING	LOCATIONS															
	1		2		3		4		10		11		15C		27	
		(+/-)		(+/-)		(+/-)		(+/-)		(+/-)		(+/-)		(+/-)		(+/-)
JAN 04	0.006	0.005	0.008	0.006	0.001	0.005	0.000	0.002	0.001	0.005	0.001	0.005	0.001	0.005	0.006	0.005
JAN 11	-.003	0.006	-.003	0.005	-.003	0.003	-.002	0.002	-.003	0.003	-.003	0.003	-.003	0.003	-.003	0.006
JAN 18	0.003	0.006	0.003	0.006	-.001	0.005	0.000	0.002	-.001	0.005	-.001	0.005	-.001	0.005	0.001	0.003
JAN 25	0.004	0.005	0.004	0.005	-.003	0.004	-.002	0.002	-.003	0.004	-.003	0.004	-.003	0.004	0.004	0.005
FEB 01	0.003	0.005	0.003	0.006	0.003	0.004	0.002	0.002	0.003	0.004	0.003	0.003	0.003	0.004	0.003	0.005
FEB 08	0.005	0.006	0.004	0.005	-.001	0.005	0.000	0.002	-.001	0.005	-.001	0.005	-.001	0.005	0.005	0.006
FEB 16	0.008	0.005	0.008	0.005	-.002	0.004	-.001	0.002	-.002	0.004	-.002	0.005	-.002	0.004	0.008	0.005
FEB 22	-.002	0.007	-.002	0.007	-.003	0.006	-.001	0.002	-.003	0.006	-.003	0.005	-.003	0.006	-.002	0.007
MAR 01	-.005	0.005	-.005	0.005	-.001	0.004	0.000	0.003	-.001	0.004	-.001	0.004	-.001	0.004	-.004	0.005
MAR 08	-.005	0.005	-.005	0.005	-.002	0.005	-.001	0.002	-.002	0.005	-.002	0.005	-.002	0.005	-.005	0.005
MAR 15	0.002	0.006	0.002	0.006	0.003	0.005	0.001	0.002	0.003	0.005	0.003	0.005	0.003	0.005	0.002	0.006
MAR 22	-.008	0.005	-.008	0.005	0.006	0.005	0.002	0.002	0.006	0.005	0.006	0.005	0.006	0.005	-.008	0.005
MAR 29	-.002	0.004	-.002	0.004	0.004	0.003	0.002	0.002	0.004	0.003	0.004	0.003	0.004	0.003	-.001	0.002
APR 05	-.004	0.005	-.004	0.005	-.003	0.005	-.001	0.002	-.003	0.005	-.003	0.005	-.003	0.005	-.004	0.005
APR 12	0.002	0.005	0.002	0.005	-.003	0.006	-.001	0.003	-.003	0.006	-.003	0.006	0.003	0.005	0.002	0.005
APR 19	-.006	0.005	-.006	0.005	0.000	0.005	0.000	0.002	0.000	0.005	0.000	0.005	0.000	0.005	-.006	0.005
APR 26	0.001	0.004	0.001	0.004	-.005	0.005	-.002	0.002	-.005	0.005	-.005	0.005	-.005	0.005	0.001	0.004
MAY 03	0.006	0.007	0.006	0.007	0.003	0.005	0.001	0.002	0.003	0.005	0.003	0.005	0.003	0.005	0.006	0.007
MAY 10	0.003	0.006	0.003	0.006	0.000	0.053	0.000	0.020	0.000	0.054	0.000	0.052	0.000	0.053	0.003	0.006
MAY 17	-.004	0.008	-.004	0.008	-.002	0.004	-.001	0.002	-.002	0.004	-.002	0.004	-.002	0.004	-.004	0.007
MAY 24	0.003	0.005	0.003	0.005	0.004	0.006	0.002	0.003	0.004	0.006	0.004	0.006	0.004	0.006	0.003	0.005
JUN 01	-.005	0.005	-.005	0.005	0.002	0.004	0.001	0.002	0.002	0.004	0.002	0.004	0.002	0.004	-.005	0.005
JUN 07	-.002	0.006	-.002	0.006	0.000	0.006	0.000	0.002	0.000	0.006	0.000	0.005	0.000	0.006	-.002	0.006
JUN 14	0.001	0.005	0.005	0.006	0.000	0.006	-.002	0.005	-.005	0.005	-.003	0.005	0.004	0.006	0.000	0.004
JUN 21	0.002	0.003	0.002	0.003	0.003	0.005	0.001	0.002	0.003	0.005	0.003	0.005	0.003	0.005	0.001	0.002
JUN 29	-.003	0.003	-.003	0.003	0.004	0.003	0.002	0.001	0.004	0.003	0.004	0.003	0.003	0.003	-.003	0.003

Sample dates may vary by a couple of days.

TABLE 3
AIRBORNE IODINE
I-131 (PCI/M3)

PERIOD ENDING	LOCATIONS															
	1	(+/-)	2	(+/-)	3	(+/-)	4	(+/-)	10	(+/-)	11	(+/-)	15C	(+/-)	27	(+/-)
JUL 06	-.002	0.004	-.002	0.004	0.004	0.005	0.002	0.002	0.005	0.005	0.005	0.005	0.005	0.005	-.002	0.004
JUL 12	0.003	0.007	0.003	0.008	-.005	0.006	-.002	0.002	-.005	0.006	-.005	0.006	-.005	0.006	0.003	0.007
JUL 19	-.003	0.004	-.003	0.004	0.000	0.005	0.000	0.003	0.000	0.006	0.000	0.005	0.000	0.005	-.003	0.004
JUL 26	0.000	0.007	0.000	0.007	0.004	0.006	0.002	0.003	0.004	0.006	0.004	0.006	0.004	0.006	0.000	0.006
AUG 02	-.002	0.003	-.002	0.003	0.000	0.005	0.000	0.002	0.000	0.006	0.000	0.006	0.000	0.006	-.002	0.003
AUG 09	-.005	0.005	-.005	0.005	-.002	0.005	-.001	0.002	-.002	0.005	-.002	0.005	-.002	0.005	-.005	0.005
AUG 16	-.001	0.006	-.001	0.006	0.001	0.003	0.001	0.002	0.001	0.004	0.001	0.003	0.001	0.003	-.001	0.006
AUG 23	0.002	0.005	0.002	0.005	-.001	0.006	0.000	0.003	-.001	0.006	-.001	0.006	-.001	0.006	0.001	0.005
AUG 30	-.003	0.005	-.003	0.005	0.001	0.004	0.000	0.002	0.001	0.005	0.001	0.004	0.001	0.005	-.003	0.005
SEP 07	0.001	0.004	0.001	0.004	0.003	0.004	0.001	0.002	0.003	0.004	0.003	0.004	0.003	0.004	0.001	0.004
SEP 14	0.002	0.003	0.002	0.003	-.001	0.004	-.001	0.002	-.001	0.004	-.001	0.004	-.001	0.004	0.002	0.003
SEP 20	0.001	0.007	0.001	0.007	0.000	0.007	0.000	0.003	0.000	0.007	0.000	0.007	0.000	0.007	0.001	0.007
SEP 27	-.001	0.003	-.001	0.003	0.005	0.004	0.003	0.002	0.005	0.004	0.005	0.004	0.005	0.004	-.001	0.003
OCT 04	-.001	0.004	-.001	0.004	0.004	0.007	0.002	0.003	0.005	0.007	0.005	0.007	0.005	0.007	-.001	0.004
OCT 12	-.005	0.006	-.005	0.006	0.000	0.005	0.000	0.002	0.000	0.005	0.000	0.005	0.000	0.005	-.004	0.006
OCT 18	0.003	0.011	0.003	0.011	-.003	0.009	-.001	0.004	-.003	0.009	-.003	0.009	-.003	0.009	0.003	0.011
OCT 25	-.004	0.005	-.005	0.007	-.004	0.006	-.002	0.003	-.004	0.005	-.004	0.005	-.004	0.006	-.004	0.005
NOV 01	0.000	0.003	0.000	0.003	-.009	0.007	-.005	0.003	-.009	0.007	-.009	0.006	-.009	0.006	0.000	0.003
NOV 08	0.002	0.006	0.002	0.006	0.002	0.005	0.001	0.003	0.002	0.005	0.002	0.004	0.002	0.005	0.002	0.006
NOV 15	0.001	0.007	0.001	0.007	0.001	0.007	0.001	0.007	-.001	0.010	-.001	0.010	-.001	0.010	0.001	0.003
NOV 22	0.001	0.004	0.001	0.004	-.001	0.005	-.001	0.003	-.001	0.006	-.001	0.006	-.001	0.006	0.000	0.002
NOV 29	-.002	0.004	-.002	0.004	-.001	0.007	0.000	0.003	-.001	0.007	-.001	0.006	-.001	0.007	-.002	0.004
DEC 06	0.000	0.003	0.000	0.003	0.004	0.005	0.002	0.003	0.004	0.005	0.004	0.004	0.004	0.005	0.000	0.003
DEC 13	-.001	0.005	-.001	0.004	-.005	0.006	-.002	0.003	-.005	0.006	-.005	0.006	-.005	0.006	-.001	0.004
DEC 20	-.001	0.004	-.001	0.004	0.006	0.005	0.003	0.002	0.006	0.005	0.006	0.005	0.006	0.005	-.001	0.004
DEC 27	0.006	0.005	0.005	0.005	-.001	0.003	-.001	0.002	-.001	0.003	-.001	0.003	-.001	0.003	0.006	0.005

Sample dates may vary by a couple of days.

TABLE 4A
AIR PARTICULATES
GAMMA SPECTRA - QTR 1
(PCI/M3)

A N A L Y S E S

LOCATION	BE-7	(+/-)	CO-60	(+/-)	ZR-95	(+/-)	NB-95	(+/-)	RU-103	(+/-)
1	0.095	0.009	0.0000	0.0002	0.0000	0.0004	0.0000	0.0002	0.0002	0.0003
2	0.100	0.010	0.0000	0.0001	0.0005	0.0005	0.0000	0.0002	0.0001	0.0003
3	0.134	0.013	0.0000	0.0002	0.0003	0.0007	0.0001	0.0003	0.0004	0.0005
4	0.119	0.012	0.0000	0.0002	0.0000	0.0005	0.0000	0.0003	0.0000	0.0003
10	0.130	0.013	0.0001	0.0002	0.0001	0.0008	0.0000	0.0004	0.0000	0.0005
11	0.109	0.011	0.0001	0.0002	0.0000	0.0006	0.0000	0.0003	0.0000	0.0005
12X	0.096	0.010	0.0000	0.0002	0.0005	0.0005	0.0000	0.0002	0.0000	0.0004
15C	0.110	0.011	0.0002	0.0002	0.0006	0.0006	0.0001	0.0003	0.0000	0.0004
27	0.103	0.010	0.0002	0.0002	0.0000	0.0007	0.0000	0.0004	0.0000	0.0005

LOCATION	RU-106	(+/-)	CS-134	(+/-)	CS-137	(+/-)	BA-140	(+/-)	CE-141	(+/-)
1	-0.0010	0.0011	0.0001	0.0001	0.0000	0.0001	0.0006	0.0070	0.0000	0.0004
2	0.0012	0.0013	0.0001	0.0001	0.0000	0.0001	-0.0050	0.0064	0.0001	0.0006
3	-0.0010	0.0017	0.0000	0.0002	0.0000	0.0002	-0.0130	0.0098	0.0000	0.0009
4	0.0008	0.0015	0.0002	0.0002	0.0000	0.0001	-0.0080	0.0085	0.0000	0.0007
10	0.0022	0.0022	0.0001	0.0002	0.0000	0.0002	-0.0200	0.0110	0.0000	0.0013
11	0.0004	0.0017	0.0000	0.0002	0.0001	0.0002	0.0114	0.0117	0.0000	0.0007
12X	-0.0010	0.0014	0.0000	0.0002	0.0001	0.0002	0.0027	0.0089	-0.0010	0.0005
15C	0.0002	0.0017	0.0001	0.0002	0.0000	0.0002	-0.0060	0.0098	0.0000	0.0007
27	0.0015	0.0023	0.0001	0.0003	0.0000	0.0002	0.0077	0.0142	0.0002	0.0008

TABLE 4B
AIR PARTICULATES
GAMMA SPECTRA - QTR 2
(PCI/M3)

ANALYSES

LOCATION	BE-7	(+/-)	CO-60	(+/-)	ZR-95	(+/-)	NB-95	(+/-)	RU-103	(+/-)
1	0.073	0.008	0.0001	0.0002	0.0000	0.0004	0.0001	0.0002	0.0000	0.0003
2	0.109	0.011	0.0000	0.0001	0.0002	0.0004	0.0000	0.0002	0.0000	0.0003
3	0.104	0.010	0.0000	0.0002	0.0007	0.0007	0.0001	0.0003	0.0003	0.0005
4	0.107	0.011	0.0002	0.0002	0.0000	0.0005	0.0002	0.0003	0.0005	0.0005
10	0.125	0.013	0.0002	0.0002	0.0004	0.0006	0.0002	0.0003	-0.0010	0.0005
11	0.100	0.010	0.0000	0.0001	0.0001	0.0004	0.0000	0.0002	0.0001	0.0003
12X	0.103	0.010	0.0001	0.0002	0.0000	0.0006	0.0000	0.0003	0.0000	0.0004
15C	0.096	0.010	0.0001	0.0002	0.0001	0.0005	0.0003	0.0003	0.0001	0.0003
27	0.106	0.011	0.0000	0.0002	0.0003	0.0007	0.0001	0.0003	0.0000	0.0005

LOCATION	RU-106	(+/-)	CS-134	(+/-)	CS-137	(+/-)	BA-140	(+/-)	CE-141	(+/-)
1	0.0014	0.0013	0.0001	0.0001	0.0001	0.0001	-0.0010	0.0073	0.0000	0.0004
2	-0.0010	0.0011	0.0001	0.0001	0.0000	0.0000	-0.0020	0.0074	0.0000	0.0006
3	0.0000	0.0017	0.0000	0.0002	0.0000	0.0002	0.0059	0.0120	-0.0010	0.0007
4	0.0008	0.0016	0.0002	0.0002	0.0002	0.0002	0.0064	0.0105	0.0000	0.0008
10	-0.0010	0.0016	0.0002	0.0002	0.0000	0.0002	0.0070	0.0115	-0.0010	0.0009
11	0.0031	0.0011	0.0001	0.0001	0.0000	0.0001	0.0000	0.0074	0.0000	0.0006
12X	-0.0010	0.0015	0.0001	0.0002	0.0000	0.0002	-0.0030	0.0110	0.0004	0.0008
15C	0.0009	0.0011	0.0000	0.0002	0.0001	0.0001	-0.0030	0.0072	0.0000	0.0004
27	-0.0010	0.0017	0.0000	0.0002	0.0000	0.0002	0.0122	0.0120	0.0003	0.0007

TABLE 4C
AIR PARTICULATES
GAMMA SPECTRA - QTR 3
(PCI/M3)

A N A L Y S E S

LOCATION	BE-7		CO-60		ZR-95		NB-95		RU-103	
		(+/-)		(+/-)		(+/-)		(+/-)		(+/-)
1	0.127	0.013	0.0000	0.0002	0.0000	0.0006	0.0000	0.0003	0.0000	0.0004
2	0.121	0.012	0.0001	0.0002	0.0005	0.0006	0.0002	0.0003	0.0000	0.0004
3	0.139	0.014	0.0001	0.0002	0.0005	0.0006	0.0003	0.0003	0.0000	0.0004
4	0.120	0.012	0.0000	0.0001	0.0000	0.0004	0.0000	0.0002	0.0000	0.0003
10	0.119	0.012	0.0001	0.0002	0.0000	0.0007	0.0001	0.0003	0.0000	0.0004
11	0.118	0.012	0.0000	0.0002	0.0005	0.0006	0.0000	0.0002	0.0000	0.0004
15C	0.119	0.012	0.0000	0.0002	0.0002	0.0005	0.0000	0.0003	0.0000	0.0004
27	0.114	0.011	0.0000	0.0002	0.0000	0.0005	0.0001	0.0002	-0.0010	0.0003
12X	0.126	0.013	0.0000	0.0002	-0.0010	0.0006	0.0005	0.0003	0.0000	0.0000

LOCATION	RU-106		CS-134		CS-137		BA-140		CE-141	
		(+/-)		(+/-)		(+/-)		(+/-)		(+/-)
1	-0.0010	0.0016	0.0001	0.0002	0.0001	0.0002	0.0064	0.0105	-0.0010	0.0011
2	0.0006	0.0017	0.0001	0.0002	0.0000	0.0002	0.0060	0.0100	0.0002	0.0006
3	0.0018	0.0018	0.0000	0.0002	0.0000	0.0002	-0.0020	0.0089	0.0000	0.0007
4	-0.0010	0.0011	0.0001	0.0001	0.0000	0.0001	0.0041	0.0073	0.0005	0.0006
10	0.0000	0.0017	0.0001	0.0002	0.0001	0.0002	-0.0010	0.0111	0.0002	0.0007
11	0.0000	0.0014	0.0000	0.0002	0.0000	0.0002	0.0000	0.0087	0.0005	0.0005
15C	0.0007	0.0015	0.0001	0.0002	0.0000	0.0002	-0.0110	0.0084	0.0001	0.0007
27	0.0002	0.0013	0.0002	0.0002	0.0000	0.0002	-0.0030	0.0082	-0.0010	0.0006
12X	-0.0010	0.0015	0.0002	0.0002	0.0002	0.0002	0.0057	0.0119	0.0000	0.0009

TABLE 4D
AIR PARTICULATES
GAMMA SPECTRA - QTR 4
(PCI/M3)

ANALYSES

LOCATION	BE-7	(+/-)	CO-60	(+/-)	ZR-95	(+/-)	NB-95	(+/-)	RU-103	(+/-)
1	0.083	0.017	0.0000	0.0002	0.0003	0.0008	0.0005	0.0004	0.0003	0.0006
2	0.104	0.011	0.0001	0.0001	0.0004	0.0007	0.0000	0.0003	0.0000	0.0005
3	0.105	0.010	0.0001	0.0002	0.0006	0.0005	0.0001	0.0003	0.0000	0.0004
4	0.106	0.013	0.0000	0.0002	0.0000	0.0007	0.0002	0.0004	0.0000	0.0006
10	0.091	0.009	0.0002	0.0002	0.0005	0.0004	0.0005	0.0004	0.0008	0.0005
11	0.114	0.011	0.0000	0.0002	0.0006	0.0004	0.0002	0.0003	-0.0010	0.0004
12X	0.099	0.012	0.0000	0.0002	-0.0020	0.0008	0.0003	0.0005	0.0001	0.0007
15C	0.116	0.012	0.0002	0.0002	0.0003	0.0007	0.0002	0.0004	0.0000	0.0006
27	0.098	0.009	0.0001	0.0001	0.0006	0.0006	0.0003	0.0003	0.0003	0.0005

LOCATION	RU-106	(+/-)	CS-134	(+/-)	CS-137	(+/-)	BA-140	(+/-)	CE-141	(+/-)
1	-0.0010	0.0018	0.0000	0.0002	0.0000	0.0002	-0.0070	0.0222	0.0003	0.0008
2	0.0005	0.0016	0.0000	0.0002	0.0000	0.0002	0.0023	0.0187	0.0008	0.0010
3	-0.0010	0.0011	0.0000	0.0002	0.0000	0.0001	0.0057	0.0184	0.0010	0.0009
4	0.0000	0.0018	0.0000	0.0002	0.0001	0.0002	-0.0130	0.0219	0.0013	0.0017
10	-0.0020	0.0016	0.0002	0.0002	0.0001	0.0002	-0.0020	0.0194	0.0003	0.0008
11	0.0000	0.0013	0.0001	0.0002	0.0000	0.0001	-0.0270	0.0147	0.0007	0.0009
12X	0.0015	0.0023	0.0000	0.0003	0.0001	0.0002	-0.0290	0.0246	0.0008	0.0011
15C	0.0004	0.0017	0.0002	0.0002	0.0000	0.0002	0.0121	0.0233	-0.0010	0.0010
27	0.0002	0.0013	0.0001	0.0002	0.0000	0.0002	-0.0020	0.0158	0.0000	0.0008

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TABLE 7
DAIRY MILK
(pCi/L)

#	Location Dist.	Dir.	Collection Date	Sr-89	(+/-)	Sr-90	(+/-)	I-131	(+/-)	Cs-134	(+/-)	Cs-137	(+/-)	Ba-140	(+/-)	La-140	(+/-)
19	11.5 Mi	NNW	1/12/93	0.0	1.5	1.4	0.2	0.03	0.12	1.2	1.9	1.8	2.0	3	6	2.4	2.4
19	11.5 Mi	NNW	2/9/93	0.0	0.4	1.0	0.1	0.07	0.09	1.0	1.8	1.8	1.8	2	6	1.7	2.5
19	11.5 Mi	NNW	3/9/93	0.8	2.3	1.5	0.3	-0.11	0.09	-1.7	1.5	1.8	1.6	-5	5	1.7	2.0
19	11.5 Mi	NNW	4/6/93	0.5	1.7	1.3	0.2	0.01	0.10	0.2	1.4	0.0	1.5	-3	5	-0.4	1.6
20	9.5 Mi	WNW	1/12/93	-0.3	1.3	2.2	0.2	-0.02	0.10	1.2	1.7	7.4	3.4	-1	5	-1.2	2.1
20	9.5 Mi	WNW	2/9/93	0.1	0.5	1.0	0.1	0.07	0.08	-0.9	1.6	0.0	1.8	-1	5	-0.8	2.5
20	9.5 Mi	WNW	3/9/93	-0.4	1.7	3.3	0.3	-0.07	0.08	-1.0	2.1	0.2	2.2	-5	2	-0.3	3.4
20	9.5 Mi	WNW	4/6/93	0.4	1.8	1.8	0.3	-0.02	0.11	1.9	1.4	1.0	1.4	-2	5	0.3	1.8
19	9.5 Mi	WNW	5/10/93	-0.1	0.9	1.4	0.1	-0.06	0.11	-0.4	1.7	0.0	1.8	3	6	-0.6	2.2
19	9.5 Mi	WNW	6/7/93	1.3	2.4	2.3	0.4	-0.04	0.06	0.8	1.9	-1.8	1.9	1	7	-4.2	2.7
19	9.5 Mi	WNW	7/7/93	-0.5	1.1	1.4	0.1	-0.03	0.09	0.5	1.7	-0.3	1.7	0	6	2.1	2.4
19	9.5 Mi	WNW	8/10/93	0.1	2.1	1.6	0.3	-0.09	0.06	-0.8	1.6	0.0	1.8	2	5	-1.3	2.2
19	9.5 Mi	WNW	9/12/93	-0.9	1.7	1.9	0.3	0.03	0.11	-0.1	1.8	0.0	1.9	-1	6	-0.6	2.3
19	9.5 Mi	WNW	10/13/93	-0.1	1.5	1.3	0.2	-0.02	0.13	0.1	1.6	0.0	2.2	-1	5	2.9	2.4
19	9.5 Mi	WNW	11/8/93	-0.5	1.6	2.4	0.2	-0.01	0.07	0.3	1.6	2.3	2.2	-6	5	0.6	2.4
19	9.5 Mi	WNW	12/14/93	0.0	1.4	1.0	0.2	0.09	0.14	-0.1	1.8	2.0	1.7	-4	5	0.0	2.3
21	13.0 Mi	ENE	1/12/93	1.4	2.1	1.5	0.2	-0.08	0.12	1.4	1.8	8.8	3.6	-3	6	2.6	2.5
21	13.0 Mi	ENE	2/9/93	0.2	0.5	3.0	0.2	0.04	0.08	0.0	1.8	0.1	1.8	0	6	0.0	2.5
21	13.0 Mi	ENE	3/9/93	0.7	1.9	3.4	0.3	0.01	0.08	-0.4	1.5	0.0	1.7	2	5	0.4	2.4
21	13.0 Mi	ENE	4/6/93	0.1	1.4	2.8	0.3	0.06	0.08	-1.0	1.3	0.0	1.4	-3	5	-0.8	1.7
22C	16.0 Mi	NNW	1/12/93	0.4	1.5	1.6	0.2	-0.06	0.10	-0.1	1.7	2.3	1.9	-2	5	0.0	2.6
22C	16.0 Mi	NNW	2/9/93	-0.8	0.4	1.7	0.2	0.00	0.06	-1.0	2.2	1.5	2.3	6	8	0.7	2.7
22C	16.0 Mi	NNW	3/9/93	-0.3	1.0	1.3	0.2	-0.11	0.10	-0.3	1.6	5.8	3.0	5	6	-0.7	2.5
22C	16.0 Mi	NNW	4/5/93	0.4	1.1	1.1	0.2	0.00	0.09	-5.1	1.6	0.9	1.7	6	6	-0.4	2.1
20C	16.0 Mi	NNW	5/10/93	-1.2	1.4	2.3	0.2	0.00	0.06	0.1	1.7	0.0	1.9	-2	6	0.4	2.5
20C	16.0 Mi	NNW	6/5/93	1.0	1.9	1.9	0.3	-0.12	0.09	-0.7	1.8	8.9	3.5	2	5	-0.5	2.1
20C	16.0 Mi	NNW	7/6/93	0.8	1.5	2.5	0.2	0.01	0.12	1.1	1.7	8.4	3.3	0	5	-0.6	2.2
20C	16.0 Mi	NNW	8/9/93	0.3	1.4	1.8	0.2	0.01	0.09	-0.1	1.6	2.7	2.0	3	6	1.5	2.5
20C	16.0 Mi	NNW	9/12/93	-0.1	1.2	1.9	0.2	-0.01	0.08	1.7	2.0	8.1	3.6	4	7	0.0	2.5
20C	16.0 Mi	NNW	10/12/93	1.5	1.5	1.4	0.2	-0.02	0.14	-0.9	1.8	0.0	2.0	6	6	0.7	2.4
20C	16.0 Mi	NNW	11/7/93	-0.1	1.2	1.5	0.2	0.06	0.09	-1.4	1.8	0.2	1.9	-4	6	1.7	2.5
20C	16.0 Mi	NNW	12/13/93	-0.4	1.2	1.2	0.2	0.02	0.16	2.2	1.9	0.0	1.9	11	6	-4.1	2.1

* Starting May 1, 1993, the ODCM was revised to reflect a change in milk sample locations. Two distant cow milk stations were deleted and replaced with two closer goat milk stations. As shown the location numbers were also changed as of May 1.

TABLE B
GOAT'S MILK
(PCI/L)

LOCATION	COLLECTION DATE	SR-89	(+/-)	SR-90	(+/-)	I-131	(+/-)	CS-134	(+/-)	CS-137	(+/-)	BA-140	(+/-)	LA-140	(+/-)
23	01/12/93	-1.1	2.0	1.3	0.3	-0.03	0.11	-1.3	1.7	11.0	3.4	6	6	-1.7	2.1
23	06/06/93	-2.0	2.7	20.7	0.5	-0.02	0.10	1.9	1.5	95.3	9.5	-4	4	-1.3	1.3
23	07/06/93	-1.6	2.1	14.6	0.4	0.07	0.15	-0.4	1.9	67.6	6.8	5	7	-0.8	2.4
23	08/09/93	6.8	2.8	14.7	0.4	-0.11	0.13	0.0	1.9	68.8	6.9	3	5	-0.9	1.7
23	09/13/93	-2.6	1.9	12.1	0.4	0.00	0.09	1.5	1.7	52.3	5.2	2	5	1.3	2.0
23	10/13/93	39.1	1.5	8.1	0.3	0.08	0.12	0.2	1.7	46.0	4.7	1	6	-1.0	2.1
24C	01/12/93	1.2	1.8	3.8	0.3	-0.12	0.10	1.9	2.3	0.0	2.4	11	8	-3.9	2.5
24C	05/10/93	-0.9	1.9	2.0	0.2	-0.02	0.10	-1.5	0.0	8.2	3.1	-6	0	0.0	0.0
24C	06/06/93	-1.7	3.2	5.2	0.4	-0.03	0.16	2.5	2.0	9.8	4.1	0	5	0.6	2.0
24C	07/06/93	0.6	2.3	4.1	0.3	-0.03	0.11	0.2	1.8	15.0	4.0	-3	6	-1.9	2.1
24C	08/09/93	1.5	1.8	3.7	0.2	0.01	0.11	-1.5	1.6	15.5	3.5	4	5	0.0	2.2
24C	09/13/93	-0.1	1.7	3.9	0.3	0.05	0.09	0.0	1.9	9.4	2.5	-6	6	-0.8	2.0
24C	10/13/93	-0.9	2.6	6.5	0.4	0.17	0.18	0.2	1.9	7.7	3.7	-9	6	-1.9	2.5

Neither goat milk nor pasture grass were available in Feb.-Apr. at Locations 23 and 24C.
Starting May 1, sampling of new goat farms (21) and (22) was initiated as per REMODCM requirements.
Neither goat milk nor pasture grass were available in Nov. or Dec. at any goat milk locations.

TABLE 9
PASTURE GRASS *
(PCI/G WET WT.)

LOCATION	COLLECTION DATE	BE-7	(+/-)	K-40	(+/-)	CR-51	(+/-)	MN-54	(+/-)	CO-58	(+/-)	FE-59	(+/-)
21	05/10/93	0.18	0.07	5.88	0.59	-0.01	0.04	-0.003	0.004	0.000	0.005	-0.009	0.010
21	06/07/93	0.41	0.09	5.23	0.52	-0.04	0.04	0.006	0.005	-0.003	0.005	0.005	0.012
21	07/07/93	0.26	0.03	5.76	0.58	0.03	0.02	-0.001	0.002	-0.002	0.003	-0.003	0.006
21	08/10/93	0.69	0.07	2.56	0.26	-0.02	0.02	0.001	0.002	0.001	0.002	-0.002	0.004
21	09/13/93	1.22	0.12	3.16	0.32	-0.02	0.04	0.004	0.004	-0.006	0.004	0.002	0.009
21	10/13/93	2.12	0.21	2.81	0.28	-0.02	0.04	0.000	0.004	0.000	0.004	0.005	0.010
22	05/10/93	0.13	0.06	5.60	0.56	-0.02	0.03	-0.001	0.003	0.000	0.004	-0.001	0.008
22	06/07/93	0.84	0.11	4.39	0.44	0.03	0.05	0.004	0.006	-0.007	0.006	-0.011	0.013
22	07/07/93	0.38	0.09	8.51	0.85	0.06	0.06	-0.002	0.007	-0.003	0.007	-0.009	0.014
22	08/10/93	0.41	0.12	9.38	0.94	0.00	0.05	0.000	0.007	-0.001	0.006	-0.006	0.015
22	09/13/93	0.88	0.09	8.74	0.87	-0.01	0.04	0.005	0.005	0.002	0.005	-0.005	0.010
22	10/13/93	1.85	0.18	6.34	0.63	-0.03	0.04	0.002	0.005	-0.002	0.005	-0.008	0.011
23	05/10/93	0.72	0.10	6.45	0.65	0.03	0.04	0.002	0.005	0.001	0.005	0.005	0.012

LOCATION	COLLECTION DATE	CO-60	(+/-)	ZN-65	(+/-)	ZR-95	(+/-)	NB-95	(+/-)	RU-103	(+/-)	RU-106	(+/-)
21	05/10/93	-0.004	0.004	0.000	0.011	0.007	0.010	0.002	0.005	-0.001	0.005	0.034	0.041
21	06/07/93	0.003	0.005	0.001	0.012	0.000	0.012	0.005	0.005	0.003	0.006	-0.006	0.047
21	07/07/93	0.002	0.003	0.006	0.006	-0.008	0.005	0.000	0.003	0.000	0.002	0.009	0.024
21	08/10/93	0.001	0.002	0.000	0.005	0.004	0.004	0.000	0.002	0.001	0.002	0.001	0.018
21	09/13/93	0.005	0.005	-0.004	0.018	0.000	0.010	0.005	0.004	0.001	0.005	0.042	0.041
21	10/13/93	-0.002	0.004	-0.014	0.010	0.004	0.009	0.000	0.005	-0.004	0.005	0.025	0.040
22	05/10/93	-0.001	0.004	0.000	0.009	0.000	0.008	0.003	0.004	-0.002	0.004	0.033	0.033
22	06/07/93	-0.008	0.006	0.001	0.014	-0.048	0.011	0.000	0.006	0.005	0.006	-0.010	0.054
22	07/07/93	0.000	0.007	0.011	0.016	-0.006	0.014	0.000	0.007	0.004	0.007	-0.046	0.065
22	08/10/93	0.006	0.007	-0.003	0.016	0.000	0.014	0.002	0.007	0.000	0.007	0.015	0.059
22	09/13/93	0.002	0.005	0.009	0.011	0.003	0.009	0.005	0.005	-0.005	0.005	-0.010	0.041
22	10/13/93	-0.002	0.005	-0.005	0.012	-0.033	0.010	-0.003	0.005	-0.001	0.005	-0.003	0.043
23	05/10/93	-0.001	0.005	0.000	0.013	0.012	0.012	0.005	0.005	0.001	0.005	0.036	0.046

* Samples taken as a substitute for unavailable goat milk.

TABLE 9
PASTURE GRASS *
(PCI/G WET WT.)

LOCATION	COLLECTION DATE	I-131	(+/-)	CS-134	(+/-)	CS-137	(+/-)	BA-140	(+/-)	LA-140	(+/-)	CE-141	(+/-)
21	05/10/93	0.002	0.008	-0.001	0.005	0.004	0.001	-0.005	0.016	0.005	0.006	0.005	0.007
21	06/07/93	0.000	0.003	0.000	0.006	0.000	0.006	-0.006	0.016	-0.002	0.006	-0.002	0.008
21	07/07/93	0.001	0.004	0.000	0.003	0.145	0.014	-0.004	0.009	-0.002	0.003	-0.011	0.003
21	08/10/93	0.000	0.004	0.000	0.002	0.840	0.084	0.002	0.007	-0.007	0.002	-0.006	0.003
21	09/13/93	0.003	0.007	0.001	0.005	0.260	0.026	-0.004	0.014	0.000	0.005	0.006	0.006
21	10/13/93	-0.003	0.004	-0.005	0.005	0.277	0.028	0.011	0.018	-0.003	0.006	-0.005	0.007
22	05/10/93	-0.003	0.006	0.001	0.004	0.000	0.004	0.011	0.013	0.002	0.005	-0.003	0.005
22	06/07/93	0.000	0.008	0.007	0.007	0.000	0.007	0.004	0.018	0.001	0.007	-0.001	0.009
22	07/07/93	-0.007	0.011	0.005	0.008	0.026	0.011	0.002	0.025	-0.003	0.007	0.007	0.009
22	08/10/93	0.008	0.011	-0.003	0.007	0.107	0.015	0.005	0.023	-0.016	0.008	0.004	0.009
22	09/13/93	0.001	0.006	-0.004	0.005	0.019	0.009	0.005	0.014	-0.010	0.005	0.000	0.007
22	10/13/93	0.008	0.009	0.004	0.005	0.006	0.005	0.003	0.018	0.006	0.007	-0.003	0.007
23	05/10/93	-0.007	0.009	0.000	0.006	0.000	0.006	0.008	0.019	0.004	0.007	-0.010	0.007

LOCATION	COLLECTION DATE	CE-144	(+/-)	RA-226	(+/-)	TH-228	(+/-)	SR-89	(+/-)	SR-90	(+/-)
21	05/10/93	-0.001	0.027	-0.069	0.086	-0.011	0.007	-0.004	0.008	0.032	0.004
21	06/07/93	-0.019	0.032	-0.340	0.096	-0.014	0.009	-0.002	0.003	0.027	0.002
21	07/07/93	-0.024	0.013	-0.049	0.049	0.020	0.006	-0.014	0.011	0.083	0.007
21	08/10/93	-0.002	0.013	0.036	0.040	0.000	0.003	.	.	.	.
21	09/13/93	-0.033	0.025	-0.045	0.079	0.001	0.008	.	.	.	.
21	10/13/93	-0.024	0.026	-0.141	0.084	-0.005	0.007	-0.004	0.014	0.128	0.007
22	05/10/93	-0.028	0.020	-0.019	0.062	0.000	0.006	0.001	0.008	0.065	0.004
22	06/07/93	-0.020	0.039	-0.309	0.117	-0.006	0.010	-0.015	0.004	0.092	0.003
22	07/07/93	-0.027	0.036	-0.082	0.124	0.000	0.012	-0.001	0.010	0.055	0.006
22	08/10/93	-0.025	0.036	-0.234	0.111	-0.002	0.011	.	.	.	.
22	09/13/93	-0.016	0.027	-0.057	0.086	0.000	0.008	.	.	.	.
22	10/13/93	0.001	0.027	-0.030	0.081	-0.017	0.008	-0.003	0.011	0.071	0.006
23	05/10/93	-0.022	0.030	-0.180	0.090	-0.016	0.008	-0.009	0.010	0.061	0.006

* Samples taken as a substitute for unavailable goat milk.

TABLE 12
FRUITS & VEGETABLES
(PCI/G WET WT.)

LOCATION	COLLECTION DATE	TYPE	BE-7	(+/-)	K-40	(+/-)	CR-51	(+/-)	MN-54	(+/-)	CO-58	(+/-)	FE-59	(+/-)
25	06/15/93	LETTUCE	0.21	0.09	3.35	0.34	0.03	0.04	0.002	0.004	0.001	0.005	-0.009	0.011
25	06/15/93	STRAWBERRIES	0.00	0.02	1.65	0.17	-0.01	0.01	0.001	0.002	-0.001	0.002	-0.001	0.004
25	09/23/93	APPLES	0.01	0.02	0.52	0.06	0.00	0.02	0.000	0.002	-0.003	0.002	0.001	0.005
25	09/23/93	CABBAGE	0.00	0.05	3.39	0.34	0.01	0.04	0.000	0.005	-0.003	0.005	-0.012	0.010
26C	06/15/93	OTHER	-0.02	0.03	3.38	0.34	-0.02	0.03	0.000	0.003	-0.002	0.003	-0.010	0.007
26C	06/15/93	STRAWBERRIES	0.00	0.01	1.43	0.14	-0.01	0.01	-0.001	0.001	-0.002	0.001	-0.002	0.003
26C	09/23/93	APPLES	-0.03	0.03	0.68	0.08	-0.01	0.03	0.002	0.003	0.000	0.003	-0.001	0.007
26C	09/23/93	CABBAGE	0.00	0.03	2.63	0.26	-0.03	0.03	0.002	0.003	-0.002	0.003	-0.002	0.008

LOCATION	COLLECTION DATE	TYPE	CO-60	(+/-)	ZN-65	(+/-)	ZR-95	(+/-)	NB-95	(+/-)	RU-103	(+/-)	RU-106	(+/-)
25	06/15/93	LETTUCE	0.004	0.005	0.012	0.011	0.006	0.010	0.006	0.005	0.000	0.005	0.022	0.043
25	06/15/93	STRAWBERRIES	-0.001	0.002	0.000	0.004	-0.001	0.003	0.000	0.002	0.001	0.002	-0.005	0.014
25	09/23/93	APPLES	-0.000	0.002	0.003	0.005	0.005	0.005	0.003	0.002	0.001	0.003	0.000	0.022
25	09/23/93	CABBAGE	0.002	0.005	-0.024	0.010	-0.019	0.010	0.005	0.005	-0.003	0.005	0.015	0.045
26C	06/15/93	OTHER	0.002	0.003	0.002	0.008	0.002	0.007	0.000	0.003	0.000	0.004	-0.044	0.028
26C	06/15/93	STRAWBERRIES	0.001	0.001	0.001	0.003	-0.001	0.003	0.000	0.001	-0.001	0.001	0.007	0.012
26C	09/23/93	APPLES	0.001	0.003	0.001	0.007	0.005	0.007	0.000	0.003	0.000	0.004	0.009	0.030
26C	09/23/93	CABBAGE	-0.001	0.004	0.006	0.009	-0.005	0.007	0.001	0.004	0.000	0.004	-0.024	0.029

TABLE 12
FRUITS & VEGETABLES
(PCI/G WET WT.)

LOCATION	COLLECTION DATE	TYPE	I-131	(+/-)	CS-134	(+/-)	CS-137	(+/-)	BA-140	(+/-)	LA-140	(+/-)	CE-141	(+/-)
25	06/15/93	LETTUCE	0.011	0.014	-0.004	0.004	0.003	0.005	0.001	0.022	0.006	0.009	0.002	0.008
25	06/15/93	STRAWBERRIES	-0.001	0.003	0.000	0.002	0.002	0.002	-0.001	0.006	0.000	0.003	-0.002	0.003
25	09/23/93	APPLES	0.000	0.004	-0.001	0.002	0.000	0.003	0.003	0.008	-0.009	0.003	0.002	0.004
25	09/23/93	CABBAGE	-0.009	0.009	0.000	0.006	0.006	0.005	-0.005	0.017	-0.003	0.007	0.000	0.010
26C	06/15/93	OTHER	0.001	0.007	-0.001	0.003	0.003	0.003	-0.011	0.013	0.003	0.005	0.001	0.006
26C	06/15/93	STRAWBERRIES	-0.001	0.003	0.002	0.001	0.000	0.001	0.002	0.005	-0.001	0.002	0.002	0.003
26C	09/23/93	APPLES	-0.002	0.006	0.000	0.004	0.000	0.012	0.016	0.012	0.002	0.005	-0.002	0.006
26C	09/23/93	CABBAGE	-0.005	0.005	-0.002	0.003	0.001	0.003	0.000	0.011	-0.001	0.005	-0.003	0.005

LOCATION	COLLECTION DATE	TYPE	CE-144	(+/-)	RA-226	(+/-)	TH-228	(+/-)	SR-89	(+/-)	SR-90	(+/-)
25	06/15/93	LETTUCE	-0.033	0.027	0.005	0.081	0.000	0.008	-0.005	0.008	0.032	0.004
25	06/15/93	STRAWBERRIES	-0.014	0.011	0.011	0.029	-0.001	0.003	-0.001	0.004	0.001	0.002
25	09/23/93	APPLES	0.002	0.015	-0.014	0.046	-0.017	0.004	-0.004	0.005	0.003	0.004
25	09/23/93	CABBAGE	-0.044	0.041	-0.169	0.111	-0.001	0.011	0.004	0.004	0.022	0.002
26C	06/15/93	OTHER	-0.004	0.021	-0.140	0.061	0.001	0.005	0.001	0.003	0.002	0.001
26C	06/15/93	STRAWBERRIES	0.001	0.011	-0.008	0.029	0.001	0.003	0.001	0.004	0.001	0.001
26C	09/23/93	APPLES	0.000	0.022	0.039	0.066	-0.003	0.005	0.001	0.003	0.001	0.001
26C	09/23/93	CABBAGE	-0.020	0.022	0.002	0.061	-0.013	0.005	0.004	0.004	0.005	0.002

TABLE 13
BROADLEAF VEGETATION
(PCI/G WET WT.)

LOCATION	COLLECTION DATE	BE-7	(+/-)	K-40	(+/-)	CR-51	(+/-)	MN-54	(+/-)	CO-58	(+/-)	FE-59	(+/-)
1	04/27/93	0.09	0.05	3.07	0.31	0.00	0.04	0.001	0.005	-0.003	0.005	-0.021	0.011
1	05/25/93	0.64	0.11	3.01	0.30	0.05	0.05	0.000	0.005	-0.001	0.005	0.012	0.012
1	06/15/93	0.52	0.08	3.16	0.32	-0.05	0.05	0.000	0.005	-0.001	0.005	-0.003	0.011
1	07/09/93	0.83	0.15	2.50	0.25	-0.01	0.07	-0.001	0.007	-0.002	0.008	-0.003	0.018
1	08/24/93	2.58	0.26	3.10	0.31	-0.04	0.08	0.005	0.008	-0.002	0.008	-0.017	0.017
1	09/23/93	4.42	0.44	2.98	0.30	-0.01	0.07	0.000	0.007	-0.001	0.008	-0.018	0.017
1	10/20/93	1.13	0.12	2.59	0.26	-0.02	0.05	0.004	0.005	0.005	0.006	0.015	0.014
10	04/27/93	0.07	0.07	2.62	0.26	0.01	0.06	0.002	0.006	0.004	0.006	0.014	0.014
10	05/25/93	0.23	0.09	2.58	0.26	-0.01	0.04	0.002	0.005	-0.006	0.005	0.014	0.012
10	06/15/93	0.46	0.09	4.70	0.47	0.00	0.04	0.003	0.005	0.002	0.005	0.008	0.012
10	07/09/93	0.41	0.17	3.41	0.34	-0.03	0.10	-0.005	0.010	-0.009	0.010	0.002	0.023
10	08/24/93	0.91	0.10	3.22	0.32	-0.02	0.04	0.003	0.005	0.000	0.005	0.001	0.011
10	09/23/93	1.28	0.13	3.91	0.39	-0.02	0.03	-0.001	0.004	-0.001	0.004	-0.002	0.009
10	10/20/93	1.60	0.16	2.20	0.22	0.01	0.05	-0.002	0.005	0.000	0.005	0.013	0.012
17	05/25/93 *	0.49	0.13	2.84	0.28	-0.02	0.06	0.005	0.007	0.000	0.007	0.006	0.015
17	06/15/93	0.84	0.13	3.59	0.36	0.06	0.07	-0.001	0.006	-0.002	0.007	0.002	0.016
17	07/09/93	0.41	0.11	2.45	0.24	0.01	0.06	0.000	0.006	0.000	0.006	-0.008	0.014
17	08/24/93	1.48	0.15	3.99	0.40	-0.02	0.05	-0.001	0.006	0.001	0.006	0.002	0.012
17	09/23/93	1.99	0.20	3.11	0.31	-0.01	0.05	0.002	0.005	0.003	0.005	0.001	0.010
17	10/20/93	1.57	0.16	2.07	0.21	-0.01	0.06	0.004	0.005	0.003	0.005	0.006	0.011

* No sample was available at the Site Boundary location (17) in the month of April.
A: I-131 MDL of 0.025 was not met due to insufficient count time.
B: The Sr-89 analysis was not performed due to a laboratory oversight.

TABLE 13
BROADLEAF VEGETATION
(PCI/G WET WT.)

LOCATION	COLLECTION DATE	CO-60	(+/-)	ZN-65	(+/-)	ZR-95	(+/-)	NB-95	(+/-)	RU-103	(+/-)	RU-106	(+/-)
1	04/27/93	0.005	0.006	0.004	0.012	-0.004	0.010	0.006	0.005	0.004	0.005	-0.038	0.043
1	05/25/93	0.003	0.006	-0.005	0.013	-0.002	0.011	0.000	0.006	-0.005	0.006	-0.030	0.053
1	06/15/93	-0.002	0.005	0.001	0.011	0.000	0.011	0.000	0.005	0.003	0.006	-0.010	0.045
1	07/09/93	0.010	0.008	0.003	0.018	-0.002	0.016	0.000	0.008	-0.006	0.009	-0.034	0.071
1	08/24/93	0.003	0.009	-0.008	0.019	0.014	0.018	0.000	0.009	-0.004	0.009	0.024	0.076
1	09/23/93	-0.004	0.008	-0.010	0.016	0.000	0.017	0.007	0.008	0.003	0.009	0.000	0.067
1	10/20/93	0.000	0.006	0.001	0.012	0.000	0.013	-0.003	0.006	-0.003	0.006	-0.008	0.049
10	04/27/93	-0.007	0.006	0.000	0.014	-0.003	0.013	0.001	0.006	-0.004	0.007	-0.009	0.058
10	05/25/93	0.005	0.006	-0.008	0.012	0.000	0.012	0.000	0.006	-0.003	0.006	-0.017	0.051
10	06/15/93	0.000	0.005	0.012	0.011	-0.005	0.010	0.000	0.005	0.007	0.006	0.000	0.045
10	07/09/93	-0.010	0.009	0.006	0.023	-0.018	0.021	0.006	0.011	0.013	0.012	0.113	0.094
10	08/24/93	0.004	0.005	-0.003	0.012	0.000	0.012	0.003	0.005	-0.001	0.006	0.000	0.047
10	09/23/93	0.001	0.004	-0.004	0.009	0.007	0.008	0.000	0.004	-0.003	0.004	0.008	0.034
10	10/20/93	0.004	0.006	0.007	0.011	-0.003	0.010	0.000	0.006	0.003	0.006	0.022	0.043
17	05/25/93 *	0.012	0.008	0.006	0.017	-0.001	0.014	0.006	0.007	0.001	0.007	-0.008	0.064
17	06/15/93	-0.008	0.006	0.006	0.016	0.000	0.015	0.009	0.008	0.000	0.008	0.014	0.065
17	07/09/93	0.006	0.006	-0.003	0.013	0.001	0.014	0.013	0.007	0.008	0.007	0.034	0.055
17	08/24/93	0.000	0.006	0.001	0.013	-0.002	0.011	0.002	0.006	-0.001	0.006	0.045	0.055
17	09/23/93	-0.001	0.004	0.001	0.010	0.010	0.010	-0.002	0.005	0.003	0.006	0.007	0.042
17	10/20/93	0.000	0.005	0.008	0.010	-0.015	0.010	0.004	0.005	-0.002	0.006	-0.001	0.044

* No sample was available at the Site Boundary location (17) in the month of April.
A: I-131 MDL of 0.025 was not met due to insufficient count time.
B: The Sr-89 analysis was not performed due to a laboratory oversight.

TABLE 13
BROADLEAF VEGETATION
(PCI/G WET WT.)

LOCATION	COLLECTION DATE	I-131	(+/-)		CS-134	(+/-)	CS-137	(+/-)	BA-140	(+/-)	LA-140	(+/-)	CE-141	(+/-)
1	04/27/93	0.000	0.009		-0.003	0.005	0.001	0.005	0.011	0.018	-0.001	0.005	0.005	0.008
1	05/25/93	-0.003	0.007		-0.006	0.006	0.000	0.007	0.003	0.016	0.007	0.007	-0.010	0.008
1	06/15/93	0.003	0.012		0.002	0.005	0.024	0.009	0.006	0.022	0.003	0.009	0.003	0.008
1	07/09/93	-0.013	0.020		0.001	0.009	0.103	0.018	0.031	0.038	-0.018	0.015	0.004	0.013
1	08/24/93	-0.019	0.016		0.000	0.009	0.068	0.019	0.033	0.032	0.000	0.012	0.010	0.014
1	09/23/93	-0.001	0.020		0.007	0.008	0.044	0.015	-0.023	0.035	-0.003	0.013	-0.013	0.012
1	10/20/93	0.010	0.019		0.002	0.006	0.018	0.010	-0.007	0.030	-0.003	0.012	0.002	0.009
10	04/27/93	-0.007	0.012		0.003	0.007	0.031	0.012	-0.007	0.024	0.013	0.011	0.001	0.014
10	05/25/93	-0.002	0.007		-0.004	0.006	0.084	0.013	-0.006	0.017	-0.003	0.006	-0.005	0.008
10	06/15/93	0.002	0.012		0.002	0.005	0.020	0.010	0.004	0.021	-0.001	0.008	-0.009	0.008
10	07/09/93	-0.010	0.027	A	0.005	0.011	0.007	0.011	-0.017	0.047	0.009	0.019	-0.043	0.018
10	08/24/93	-0.007	0.010		-0.004	0.005	0.000	0.006	0.013	0.019	0.002	0.007	0.000	0.008
10	09/23/93	0.007	0.010		0.000	0.008	0.022	0.008	0.013	0.017	-0.012	0.006	-0.001	0.006
10	10/20/93	-0.003	0.018		-0.004	0.005	0.005	0.005	0.021	0.028	-0.002	0.011	-0.004	0.009
17	05/25/93	* 0.002	0.009		-0.001	0.008	0.000	0.008	0.024	0.022	0.006	0.008	0.002	0.011
17	06/15/93	-0.008	0.018		0.001	0.008	0.070	0.014	0.005	0.032	0.009	0.012	-0.006	0.012
17	07/09/93	0.008	0.016		-0.001	0.006	0.044	0.013	-0.006	0.027	0.007	0.011	-0.010	0.010
17	08/24/93	-0.005	0.010		0.008	0.007	0.056	0.013	0.007	0.022	0.003	0.008	-0.007	0.009
17	09/23/93	0.003	0.010		0.000	0.006	0.035	0.010	0.000	0.019	-0.011	0.007	0.003	0.010
17	10/20/93	0.012	0.020		0.000	0.006	0.032	0.011	0.001	0.028	-0.003	0.012	-0.007	0.011

* No sample was available at the Site Boundary location (17) in the month of April.
A: I-131 MDL of 0.025 was not met due to insufficient count time.
B: The Sr-89 analysis was not performed due to a laboratory oversight.

TABLE 13
BROADLEAF VEGETATION
(PCI/G WET WT.)

LOCATION	COLLECTION DATE	CE-144	(+/-)	RA-226	(+/-)	TH-228	(+/-)	SR-89	(+/-)		SR-90	(+/-)
1	04/27/93	-0.060	0.032	-0.098	0.089	-0.004	0.008	-0.008	0.007		0.020	0.003
1	05/25/93	-0.034	0.034	0.000	0.107	0.035	0.011	.	.	B	0.107	0.011
1	06/15/93	-0.022	0.031	-0.066	0.094	-0.017	0.008	-0.033	0.015		0.131	0.012
1	07/09/93	-0.009	0.045	0.000	0.151	0.000	0.014	-0.011	0.016		0.158	0.011
1	08/24/93	0.023	0.056	-0.175	0.165	0.000	0.014	-0.025	0.022		0.092	0.009
1	09/23/93	-0.013	0.044	-0.036	0.137	-0.009	0.013	-0.001	0.007		0.015	0.003
1	10/20/93	-0.020	0.030	0.087	0.093	0.041	0.016	.	.	B	0.068	0.008
10	04/27/93	0.002	0.055	0.000	0.151	-0.018	0.015	-0.029	0.016		0.117	0.007
10	05/25/93	-0.023	0.034	-0.223	0.104	-0.005	0.010	.	.	B	0.046	0.006
10	06/15/93	-0.095	0.029	-0.043	0.086	0.000	0.008	-0.011	0.014		0.109	0.011
10	07/09/93	-0.085	0.065	-0.119	0.195	0.001	0.016	-0.045	0.021		0.200	0.011
10	08/24/93	-0.040	0.031	-0.271	0.095	-0.042	0.008	-0.013	0.020		0.165	0.008
10	09/23/93	-0.034	0.022	0.066	0.073	0.085	0.012	-0.192	0.024		0.255	0.018
10	10/20/93	-0.047	0.033	-0.023	0.088	0.051	0.012	.	.	B	0.201	0.012
17	05/25/93 *	0.011	0.046	-0.379	0.137	0.100	0.023	.	.	B	0.075	0.013
17	06/15/93	-0.013	0.046	-0.237	0.135	0.013	0.011	-0.032	0.018		0.174	0.013
17	07/09/93	-0.035	0.037	-0.420	0.113	0.002	0.010	-0.003	0.007		0.031	0.003
17	08/24/93	0.001	0.035	-0.041	0.103	0.000	0.010	0.005	0.015		0.040	0.005
17	09/23/93	-0.032	0.038	0.114	0.111	0.108	0.019	0.003	0.007		0.016	0.004
17	10/20/93	-0.029	0.039	0.188	0.111	0.091	0.013	.	.	B	0.159	0.009

* No sample was available at the Site Boundary location (17) in the month of April.
A: I-131 MDL of 0.025 was not met due to insufficient count time.
B: The Sr-89 analysis was not performed due to a laboratory oversight.

TABLE 14
SEA WATER
(PCI/L)

LOCATION	COLLECTION DATE	K-40	(+/-)	CR-51	(+/-)	MN-54	(+/-)	CO-58	(+/-)	FE-59	(+/-)	CO-60	(+/-)
32	02/08/93	239	30	-17	35	0.2	1.4	-1.6	2.0	4.4	5.8	-1.5	1.2
32	05/10/93	288	42	-12	38	1.1	1.7	-1.1	2.2	1.7	6.5	0.3	1.8
32	07/12/93	337	41	41	86	1.9	1.7	-0.1	2.7	-1.5	9.4	0.6	1.6
32	11/08/93	342	38	20	39	0.0	1.3	0.3	1.9	-5.1	5.1	-0.5	1.3
37C	01/25/93	265	39	17	26	0.2	1.5	-1.8	18.1	-4.3	4.1	0.5	1.5
37C	04/19/93	148	32	-4	28	1.3	1.4	0.5	1.6	4.7	4.0	-1.3	1.3
37C	10/25/93 *	262	39	-7	23	0.8	1.5	0.3	1.7	2.5	4.3	0.9	1.6

LOCATION	COLLECTION DATE	ZN-65	(+/-)	ZR-95	(+/-)	NB-95	(+/-)	RU-103	(+/-)	RU-106	(+/-)	I-131	(+/-)
32	02/08/93	-1.6	3.3	0.8	4.5	1.8	2.2	-2.8	3.2	5	14	35	113
32	05/10/93	1.1	4.1	-1.1	4.9	2.0	2.5	-0.9	3.4	3	15	-32	83
32	07/12/93	1.0	3.8	1.6	6.3	2.2	3.3	-0.2	5.8	0	15	-36	1370
32	11/08/93	2.1	3.1	-1.6	4.0	0.0	2.3	0.2	3.2	-3	12	-48	130
37C	01/25/93	-2.6	3.6	-4.6	3.4	0.6	1.9	-1.2	2.5	12	15	0	21
37C	04/19/93	-4.1	2.9	2.7	3.3	-5.1	1.6	0.1	2.0	-4	12	-8	12
37C	10/25/93 *	0.4	3.3	2.1	3.8	0.9	1.9	3.2	2.6	0	3	8	15

* Location (37C) third quarter sample was lost in transit.

TABLE 14
SEA WATER
(PCI/L)

LOCATION	COLLECTION DATE	CS-134	(+/-)	CS-137	(+/-)	BA-140	(+/-)	LA-140	(+/-)	RA-226	(+/-)	TH-228	(+/-)
32	02/08/93	-3.1	1.4	0.5	1.4	17	55	-11	20	-77.8	25.7	-0.4	2.4
32	05/10/93	0.4	1.9	0.7	1.7	-43	45	8	23	0.0	36.8	-3.3	3.3
32	07/12/93	-0.5	1.5	0.6	1.5	29	265	61	119	-93.6	35.0	-5.8	3.0
32	11/08/93	0.0	1.4	1.5	1.4	-56	56	-17	22	-26.5	30.1	0.0	2.9
37C	01/25/93	-0.5	1.6	-0.7	1.6	7	19	4	8	-41.8	36.8	0.0	3.2
37C	04/19/93	-0.1	1.4	0.6	1.4	0	13	-3	5	9.2	32.6	-4.2	2.8
37C	10/25/93 *	0.4	1.6	1.5	1.7	3	16	5	7	0.0	37.0	-0.5	3.1

LOCATION	COLLECTION DATE	H-3	(+/-)
32	02/08/93	270	90
32	05/10/93	811	141
32	07/12/93	436	114
32	11/08/93	65	99
37C	01/25/93	116	105
37C	04/19/93	69	118
37C	10/25/93 *	-72	86

* Location (37C) third quarter sample was lost in transit.

TABLE 15
BOTTOM SEDIMENT
(PCI/G DRY WT.)

LOCATION	COLLECTION DATE	BE-7	(+/-)	K-40	(+/-)	CR-51	(+/-)	MN-54	(+/-)	CO-58	(+/-)	FE-59	(+/-)
30C	04/13/93	0.13	0.17	13.8	1.4	-0.08	0.18	0.01	0.02	0.00	0.02	-0.01	0.04
30C	10/20/93	0.00	0.14	17.6	1.8	-0.15	0.15	-0.00	0.01	-0.01	0.01	0.01	0.04
31	04/13/93	0.18	0.11	17.1	1.7	-0.07	0.11	0.01	0.01	-0.01	0.01	-0.01	0.03
31	10/21/93	0.13	0.14	16.0	1.6	-0.12	0.14	0.01	0.01	0.00	0.01	-0.00	0.03
32	04/13/93	0.09	0.09	10.1	1.0	-0.07	0.09	0.00	0.01	-0.01	0.01	0.00	0.03
32	10/21/93	-0.06	0.08	8.4	0.8	-0.03	0.10	-0.00	0.01	-0.00	0.01	-0.01	0.02
33	04/13/93	0.02	0.09	18.1	1.8	-0.08	0.09	-0.00	0.01	-0.01	0.01	0.02	0.03
33	10/21/93	0.09	0.12	18.5	1.9	-0.08	0.13	0.00	0.01	0.01	0.01	0.03	0.04
34	04/13/93	-0.00	0.09	18.5	1.9	-0.02	0.09	0.01	0.01	-0.01	0.01	-0.02	0.03
34	10/21/93	0.01	0.09	19.6	2.0	-0.01	0.10	0.00	0.01	-0.01	0.01	-0.04	0.03
36	04/13/93	0.13	0.10	15.8	1.6	-0.04	0.10	0.00	0.01	-0.01	0.01	-0.01	0.03
36	10/21/93	0.01	0.09	16.6	1.7	0.05	0.10	-0.00	0.01	-0.00	0.01	0.02	0.03
37C	04/13/93	0.17	0.11	14.5	1.5	0.03	0.12	0.00	0.01	0.00	0.01	-0.01	0.03
37C	10/21/93	0.16	0.10	14.5	1.4	-0.06	0.10	-0.01	0.01	0.00	0.01	-0.03	0.03

TABLE 15
BOTTOM SEDIMENT
(PCI/G DRY WT.)

LOCATION	COLLECTION DATE	CO-60	(+/-)	ZN-65	(+/-)	ZR-95	(+/-)	NB-95	(+/-)	RU-103	(+/-)	RU-106	(+/-)
30C	04/13/93	0.00	0.02	0.01	0.04	0.04	0.04	0.03	0.02	0.02	0.02	-0.03	0.16
30C	10/20/93	0.01	0.01	0.04	0.03	0.00	0.04	0.00	0.02	0.00	0.02	0.05	0.12
31	04/13/93	0.01	0.01	-0.01	0.03	0.00	0.03	0.00	0.01	-0.01	0.01	-0.02	0.10
31	10/21/93	0.12	0.03	-0.04	0.03	0.01	0.03	0.00	0.02	-0.00	0.02	-0.10	0.12
32	04/13/93	0.00	0.01	-0.00	0.03	0.00	0.02	0.00	0.01	-0.01	0.01	-0.00	0.08
32	10/21/93	-0.01	0.01	0.01	0.02	0.01	0.02	0.00	0.01	-0.01	0.01	-0.03	0.08
33	04/13/93	-0.00	0.01	0.00	0.03	-0.00	0.02	0.00	0.01	0.00	0.01	-0.01	0.08
33	10/21/93	0.01	0.01	0.01	0.03	0.03	0.03	0.01	0.01	0.00	0.02	0.08	0.11
34	04/13/93	-0.02	0.01	-0.01	0.03	0.00	0.03	0.00	0.01	0.00	0.01	-0.02	0.08
34	10/21/93	-0.00	0.01	-0.02	0.03	-0.02	0.02	0.00	0.01	-0.00	0.01	0.07	0.09
36	04/13/93	0.01	0.01	0.01	0.03	0.03	0.03	0.00	0.01	-0.01	0.01	-0.00	0.09
36	10/21/93	-0.00	0.01	0.00	0.02	-0.01	0.02	0.00	0.01	0.00	0.01	-0.03	0.08
37C	04/13/93	0.01	0.01	-0.00	0.03	0.01	0.03	0.00	0.01	-0.01	0.01	-0.01	0.10
37C	10/21/93	0.00	0.01	-0.01	0.03	0.02	0.02	0.00	0.01	-0.01	0.01	0.00	0.09

TABLE 15
BOTTOM SEDIMENT
(PCI/G DRY WT.)

LOCATION	COLLECTION DATE	AG-110M	(+/-)	I-131	(+/-)	CS-134	(+/-)	CS-137	(+/-)	RA-226	(+/-)	TH-228	(+/-)
30C	04/13/93	0.00	0.02	0.05	0.05	0.02	0.02	0.39	0.05	0.00	0.38	0.96	0.10
30C	10/20/93	-0.00	0.02	0.08	0.08	0.04	0.02	0.20	0.03	1.40	0.41	1.19	0.12
31	04/13/93	0.02	0.01	0.03	0.03	0.00	0.01	0.00	0.01	1.03	0.42	1.21	0.12
31	10/21/93	0.00	0.02	-0.01	0.06	0.00	0.02	0.02	0.02	0.00	0.25	2.02	0.20
32	04/13/93	0.01	0.01	0.03	0.03	0.00	0.01	0.00	0.01	0.00	0.20	0.31	0.03
32	10/21/93	-0.00	0.01	0.01	0.04	0.01	0.01	0.00	0.01	0.15	0.17	0.23	0.02
33	04/13/93	0.00	0.01	-0.03	0.03	0.00	0.01	0.00	0.01	0.57	0.33	0.25	0.03
33	10/21/93	0.01	0.02	0.00	0.05	0.00	0.01	0.00	0 01	0.13	0.26	0.24	0.03
34	04/13/93	-0.01	0.01	0.00	0.03	0.00	0.01	0.01	0.01	0.00	0.20	0.17	0.03
34	10/21/93	-0.00	0.01	0.02	0.05	0.00	0.01	0.00	0.01	0.23	0.17	0.22	0.03
36	04/13/93	-0.01	0.01	0.02	0.03	0.00	0.01	0.01	0.01	0.02	0.20	0.31	0.03
36	10/21/93	-0.01	0.01	0.02	0.04	0.00	0.01	0.00	0.01	0.00	0.03	0.36	0.04
37C	04/13/93	0.02	0.02	0.03	0.04	0.00	0.02	0.00	0.01	0.13	0.27	0.27	0.05
37C	10/21/93	0.00	0.01	0.02	0.04	0.01	0.01	0.01	0.01	0.14	0.15	0.17	0.02

TABLE 16
AQUATIC FLORA-FUCUS
(PCI/G WET WT.)

LOCATION	COLLECTION DATE	BE-7	(+/-)	K-40	(+/-)	CR-51	(+/-)	MN-54	(+/-)	CO-58	(+/-)	FE-59	(+/-)
32X	04/13/93	0.039	0.034	5.4	0.5	0.031	0.035	0.004	0.004	0.016	0.007	-.001	0.009
32X	10/21/93	0.000	0.044	7.4	0.7	-.038	0.041	0.000	0.004	0.145	0.014	0.002	0.011
33X	04/13/93	0.076	0.040	4.7	0.5	-.023	0.026	0.000	0.003	0.000	0.003	0.002	0.007
33X	10/21/93	0.000	0.033	7.0	0.7	-.031	0.031	0.000	0.003	0.015	0.006	-.001	0.008
36X	04/13/93	0.222	0.062	4.5	0.4	-.056	0.032	-.003	0.003	-.001	0.004	-.001	0.009
36X	10/21/93	0.221	0.057	6.7	0.7	-.011	0.032	0.000	0.003	0.024	0.007	0.005	0.009

LOCATION	COLLECTION DATE	CO-60	(+/-)	ZN-65	(+/-)	ZR-95	(+/-)	NB-95	(+/-)	RU-103	(+/-)	RU-106	(+/-)
32X	04/13/93	0.023	0.007	0.009	0.009	0.005	0.008	0.000	0.004	-.003	0.004	-.013	0.031
32X	10/21/93	0.022	0.009	0.000	0.011	-.020	0.009	-.001	0.004	-.001	0.005	-.033	0.037
33X	04/13/93	0.001	0.003	0.009	0.007	-.007	0.006	0.001	0.003	-.001	0.003	-.022	0.023
33X	10/21/93	0.000	0.004	0.000	0.008	-.004	0.007	0.000	0.004	-.001	0.004	-.003	0.028
36X	04/13/93	0.002	0.004	-.001	0.008	0.001	0.007	0.000	0.004	-.002	0.004	-.009	0.030
36X	10/21/93	0.001	0.003	-.003	0.008	0.003	0.007	0.000	0.004	0.000	0.004	0.007	0.031

TABLE 16
AQUATIC FLORA-FUCUS
(PCI/G WET WT.)

LOCATION	COLLECTION DATE	AG-110M	(+/-)	I-131	(+/-)	CS-134	(+/-)	CS-137	(+/-)	RA-226	(+/-)	TH-228	(+/-)
32X	04/13/93	0.025	0.006	0.005	0.011	0.000	0.004	0.000	0.004	-.037	0.061	0.006	0.005
32X	10/21/93	0.048	0.009	0.006	0.014	0.002	0.004	-.025	0.004	-.154	0.073	0.001	0.006
33X	04/13/93	0.002	0.004	0.001	0.008	0.000	0.003	0.003	0.003	-.119	0.047	-.014	0.004
33X	10/21/93	0.001	0.004	0.000	0.011	0.000	0.003	0.000	0.003	-.033	0.056	0.001	0.005
36X	04/13/93	-.002	0.004	0.002	0.010	0.001	0.004	0.003	0.004	-.010	0.061	0.000	0.006
36X	10/21/93	0.004	0.004	-.010	0.011	0.004	0.004	0.000	0.004	0.015	0.062	0.002	0.006

TABLE 17A
FISH-FLOUNDER
(PCI/G WET WT.)

LOCATION	COLLECTION DATE	BE-7	(+/-)	K-40	(+/-)	CR-51	(+/-)	MN-54	(+/-)	CO-58	(+/-)	FE-59	(+/-)
32	03/23/93	0.034	0.058	2.5	0.0	0.021	0.055	-.005	0.006	-.009	0.006	0.012	0.014
32	04/21/93	-.004	0.006	3.2	0.3	0.018	0.074	-.003	0.007	-.007	0.006	-.020	0.015
32	07/12/93	0.122	0.095	3.7	0.4	0.030	0.095	0.000	0.010	-.007	0.009	-.025	0.020
32	10/05/93	-.033	0.058	3.4	0.3	0.053	0.082	0.004	0.005	0.002	0.006	-.019	0.013
35	04/21/93 *	-.030	0.043	2.5	0.3	0.003	0.040	0.000	0.005	-.005	0.004	0.000	0.010
35	07/13/93	0.005	0.077	4.3	0.4	-.051	0.080	0.009	0.008	0.007	0.008	0.007	0.018
35	10/05/93	-.061	0.073	3.0	0.3	-.053	0.096	0.004	0.007	-.008	0.007	-.005	0.018

LOCATION	COLLECTION DATE	CO-60	(+/-)	ZN-65	(+/-)	ZR-95	(+/-)	NB-95	(+/-)	RU-103	(+/-)	RU-106	(+/-)
32	03/23/93	0.007	0.006	-.004	0.013	0.010	0.013	-.011	0.006	-.007	0.007	-.084	0.053
32	04/21/93	-.011	0.006	-.009	0.014	0.012	0.015	0.002	0.007	0.003	0.008	0.049	0.060
32	07/12/93	-.003	0.009	-.001	0.022	0.005	0.020	0.006	0.010	0.008	0.011	-.113	0.078
32	10/05/93	0.000	0.006	-.005	0.012	-.009	0.011	0.000	0.006	0.003	0.008	-.008	0.042
35	04/21/93 *	0.004	0.005	0.007	0.010	0.000	0.010	0.001	0.005	0.002	0.005	0.002	0.045
35	07/13/93	-.002	0.008	0.006	0.018	-.005	0.016	0.010	0.009	0.005	0.010	0.000	0.070
35	10/05/93	0.007	0.007	0.000	0.015	-.048	0.017	0.002	0.008	0.007	0.010	0.000	0.061

No sample was available at Niantic Bay location (35) in the first quarter.

TABLE 17A
FISH-FLOUNDER
(PCI/G WET WT.)

LOCATION	COLLECTION DATE	AG-110M	(+/-)	I-131	(+/-)	CS-134	(+/-)	CS-137	(+/-)	RA-226	(+/-)	TH-228	(+/-)
32	03/23/93	0.003	0.008	-.004	0.013	0.002	0.007	0.005	0.007	-.061	0.111	0.009	0.011
32	04/21/93	-.014	0.008	-.009	0.023	0.000	0.007	0.021	0.012	0.168	0.140	-.037	0.014
32	07/12/93	0.000	0.011	0.000	0.024	0.009	0.010	0.000	0.011	-.369	0.200	-.012	0.018
32	10/05/93	-.003	0.006	-.008	0.060	0.002	0.005	0.004	0.005	0.036	0.109	0.010	0.010
35	04/21/93 *	-.003	0.006	-.008	0.008	-.003	0.005	0.000	0.005	-.137	0.094	-.012	0.008
35	07/13/93	0.010	0.010	-.024	0.019	0.000	0.008	0.002	0.008	-.241	0.169	-.003	0.015
35	10/05/93	0.001	0.009	0.020	0.077	-.001	0.007	0.009	0.007	-.091	0.139	-.022	0.014

No sample was available at Niantic Bay location (35) in the first quarter.

TABLE 17B
FISH-OTHER
(PCI/G WET WT.)

LOCATION	COLLECTION DATE	TYPE	BE-7	(+/-)	K-40	(+/-)	CR-51	(+/-)	MN-54	(+/-)	CO-58	(+/-)	FE-59	(+/-)
32	03/23/93	SKATE	-0.04	0.06	1.89	0.20	0.02	0.06	0.004	0.005	0.003	0.006	-0.001	0.012
32	04/07/93	SKATE	-0.06	0.06	2.07	0.21	-0.11	0.08	0.000	0.006	-0.004	0.006	0.005	0.016
32	07/12/93	SKATE	0.01	0.06	2.13	0.23	-0.04	0.06	-0.092	0.006	-0.002	0.006	-0.019	0.013
32	10/05/93	SKATE	0.03	0.09	2.53	0.25	-0.15	0.11	-0.002	0.008	-0.003	0.009	0.006	0.023
35	03/23/93	SKATE	0.04	0.05	2.20	0.22	0.00	0.05	0.000	0.005	-0.002	0.005	0.000	0.011
35	04/07/93	SKATE	-0.04	0.06	1.95	0.20	0.03	0.07	0.002	0.006	0.002	0.007	0.004	0.015
35	07/13/93	SKATE	0.05	0.08	3.15	0.32	0.08	0.09	0.000	0.007	-0.005	0.008	-0.004	0.019
35	10/05/93	SKATE	-0.01	0.06	2.43	0.24	-0.08	0.08	-0.001	0.006	-0.004	0.006	0.022	0.019
40X	01/07/93	BLACKFISH	0.02	0.05	3.97	0.39	-0.04	0.05	0.003	0.005	0.008	0.006	0.003	0.013
40X	04/29/93 A	MIXTURE	0.04	0.05	3.81	0.38	-0.06	0.04	0.001	0.006	-0.001	0.006	0.005	0.014
40X	07/14/93	BASS	0.10	0.07	4.05	0.41	0.07	0.08	0.005	0.007	0.002	0.007	0.021	0.018
40X	10/06/93	BASS	-0.10	0.08	2.30	0.23	-0.03	0.10	0.002	0.007	-0.013	0.008	-0.015	0.020

LOCATION	COLLECTION DATE	TYPE	CO-60	(+/-)	ZN-65	(+/-)	ZR-95	(+/-)	NB-95	(+/-)	RU-103	(+/-)	RU-106	(+/-)
32	03/23/93	SKATE	-0.006	0.006	-0.002	0.012	0.015	0.013	0.000	0.006	-0.001	0.007	0.008	0.049
32	04/07/93	SKATE	0.000	0.006	0.007	0.014	0.013	0.014	-0.001	0.007	-0.001	0.009	0.049	0.058
32	07/12/93	SKATE	0.002	0.007	0.003	0.015	0.015	0.014	-0.001	0.006	-0.007	0.007	0.007	0.058
32	10/05/93	SKATE	0.002	0.008	0.001	0.018	0.000	0.0[illegible]	-0.008	0.010	-0.005	0.012	-0.095	0.071
35	03/23/93	SKATE	0.003	0.005	0.001	0.011	0.009	0.011	0.002	0.005	-0.003	0.006	0.006	0.050
35	04/07/93	SKATE	0.000	0.006	-0.031	0.012	-0.008	0.014	0.000	0.007	0.003	0.008	-0.014	0.055
35	07/13/93	SKATE	0.002	0.009	0.011	0.017	-0.003	0.017	0.009	0.009	-0.002	0.010	0.070	0.077
35	10/05/93	SKATE	0.001	0.007	-0.021	0.013	0.011	0.014	0.004	0.007	0.005	0.009	0.012	0.055
40X	01/07/93	BLACKFISH	0.028	0.010	0.000	0.014	-0.002	0.012	0.008	0.006	0.001	0.007	-0.039	0.049
40X	04/29/93 A	MIXTURE	0.001	0.007	-0.006	0.015	-0.001	0.011	0.007	0.006	0.000	0.006	0.021	0.054
40X	07/14/93	BASS	-0.002	0.007	0.004	0.016	0.006	0.015	0.000	0.008	-0.015	0.008	-0.026	0.065
40X	10/06/93	BASS	0.000	0.007	0.016	0.017	0.008	0.018	-0.001	0.009	-0.002	0.011	-0.003	0.067

A: Skate and Bass.

TABLE 17B
FISH-OTHER
(PCI/G WET WT.)

LOCATION	COLLECTION DATE	TYPE	AG-110M	(+/-)	I-131	(+/-)	CS-134	(+/-)	CS-137	(+/-)	RA-226	(+/-)	TH-228	(+/-)
32	03/23/93	SKATE	0.000	0.007	-0.024	0.013	0.006	0.006	0.004	0.006	-0.389	0.132	0.000	0.012
32	04/07/93	SKATE	-0.005	0.007	0.009	0.038	0.000	0.006	0.004	0.007	-0.225	0.140	0.000	0.013
32	07/12/93	SKATE	-0.005	0.007	-0.012	0.017	0.000	0.006	0.000	0.007	-0.283	0.131	-0.015	0.012
32	10/05/93	SKATE	-0.007	0.010	0.014	0.088	0.003	0.008	0.000	0.009	-0 143	0.129	0.011	0.013
35	03/23/93	SKATE	0.006	0.007	-0.003	0.012	-0.007	0.005	0.007	0.006	-0.239	0.100	-0.016	0.009
35	04/07/93	SKATE	0.000	0.008	-0.020	0.033	-0.006	0.006	0.000	0.006	-0.303	0.104	0.008	0.011
35	07/13/93	SKATE	-0.020	0.008	-0.008	0.022	0.001	0.009	0.011	0.009	-0.315	0.188	-0.005	0.016
35	10/05/93	SKATE	-0.002	0.008	0.043	0.062	-0.010	0.006	0.006	0.006	-0.133	0.096	-0.001	0.009
40X	01/07/93	BLACKFISH	-0.003	0.007	-0.005	0.019	-0.001	0.006	0.025	0.012	0.042	0.103	-0.022	0.009
40X	04/29/93	A MIXTURE	-0.001	0.007	-0.003	0.009	-0.003	0.006	0.006	0.006	-0.040	0.099	-0.010	0.009
40X	07/14/93	BASS	-0.001	0.010	-0.014	0.017	-0.004	0.007	0.000	0.019	-0.357	0.204	0.017	0.017
40X	10/06/93	BASS	0.005	0.010	0.061	0.075	-0.005	0.008	0.013	0.008	0.095	0.131	-0.002	0.012

A: Skate and Bass.

TABLE 18
MUSSELS
(PCI/G WET WT.)

LOCATION	COLLECTION DATE	BE-7	(+/-)	K-40	(+/-)	CR-51	(+/-)	MN-54	(+/-)	CO-58	(+/-)	FE-59	(+/-)
28	02/25/93	0.013	0.039	1.5	0.1	0.001	0.038	0.001	0.004	-.001	0.004	0.004	0.009
28	05/20/93	0.048	0.065	2.5	0.3	0.051	0.061	0.002	0.007	-.004	0.007	0.012	0.015
28	08/26/93	0.044	0.084	2.2	0.2	-.013	0.087	-.004	0.007	0.002	0.008	-.011	0.017
28	11/16/93	0.001	0.043	1.5	0.1	0.003	0.046	0.004	0.004	0.005	0.005	-.012	0.010
31	02/25/93	0.058	0.041	1.3	0.1	0.005	0.038	0.000	0.004	0.001	0.004	0.000	0.010
31	05/20/93	0.000	0.045	1.8	0.2	0.001	0.042	0.000	0.005	0.001	0.005	-.009	0.009
31	08/26/93	0.080	0.064	2.0	0.2	-.031	0.065	0.002	0.006	0.000	0.007	0.013	0.014
31	11/16/93	0.000	0.042	1.5	0.1	-.017	0.040	0.003	0.004	0.000	0.004	-.003	0.009

LOCATION	COLLECTION DATE	CO-60	(+/-)	ZN-65	(+/-)	ZR-95	(+/-)	NB-95	(+/-)	RU-103	(+/-)	RU-106	(+/-)
28	02/25/93	0.000	0.005	0.004	0.009	0.000	0.009	0.000	0.004	-.001	0.005	0.000	0.037
28	05/20/93	0.002	0.007	0.009	0.014	0.019	0.015	0.003	0.007	0.007	0.008	0.032	0.065
28	08/26/93	0.003	0.008	0.010	0.017	0.012	0.017	0.006	0.008	0.007	0.010	0.043	0.071
28	11/16/93	0.007	0.005	-.001	0.010	0.008	0.010	0.006	0.005	0.000	0.005	0.026	0.042
31	02/25/93	0.000	0.005	0.006	0.009	0.005	0.008	0.005	0.004	0.000	0.005	-.011	0.037
31	05/20/93	0.000	0.005	-.005	0.009	-.009	0.013	0.004	0.005	0.001	0.005	-.045	0.045
31	08/26/93	0.002	0.007	0.000	0.014	0.000	0.013	0.000	0.007	0.009	0.008	-.020	0.056
31	11/16/93	0.000	0.005	0.008	0.010	-.001	0.008	0.004	0.004	0.001	0.005	-.033	0.035

TABLE 18
MUSSELS
(PCI/G WET WT.)

LOCATION	COLLECTION DATE	AG-110M	(+/-)	I-131	(+/-)	CS-134	(+/-)	CS-137	(+/-)	RA-226	(+/-)	TH-228	(+/-)
28	02/25/93	0.003	0.005	-.006	0.008	-.005	0.004	-.001	0.006	-.514	0.080	-.039	0.007
28	05/20/93	0.004	0.008	-.005	0.013	0.003	0.007	-.001	0.007	-.203	0.128	0.000	0.011
28	08/26/93	0.000	0.010	-.010	0.024	-.001	0.008	0.001	0.008	-.405	0.222	-.008	0.019
28	11/16/93	0.001	0.006	-.001	0.012	0.000	0.005	-.005	0.005	0.000	0.101	0.000	0.009
31	02/25/93	0.003	0.005	0.012	0.009	0.001	0.004	-.011	0.006	-.128	0.086	0.000	0.008
31	05/20/93	-.005	0.006	0.006	0.008	0.004	0.005	0.003	0.005	-.206	0.089	0.024	0.009
31	08/26/93	-.004	0.008	0.002	0.018	0.001	0.006	0.004	0.007	0.192	0.144	-.014	0.012
31	11/16/93	0.003	0.005	0.002	0.010	-.003	0.004	0.006	0.004	-.009	0.087	0.010	0.008

TABLE 19
OYSTERS
(PCI/G WET WT.)

LOCATION	COLLECTION DATE	BE-7	(+/-)	K-40	(+/-)	CR-51	(+/-)	MN-54	(+/-)	CO-58	(+/-)	FE-59	(+/-)
31	02/12/93	-.005	0.060	1.7	0.2	-.029	0.058	-.003	0.006	-.004	0.006	0.011	0.014
31	05/18/93	0.013	0.053	1.9	0.2	-.016	0.051	0.000	0.005	0.001	0.005	0.000	0.011
31	08/18/93	-.007	0.058	1.1	0.2	-.077	0.062	0.000	0.006	0.000	0.007	0.002	0.014
31	11/17/93	0.018	0.038	1.5	0.1	0.024	0.037	0.000	0.004	0.005	0.004	0.007	0.009
32	02/12/93	-.013	0.081	1.4	0.2	-.065	0.072	-.005	0.007	0.038	0.014	-.004	0.015
32	05/18/93	0.027	0.057	1.4	0.1	-.009	0.053	0.004	0.006	0.002	0.007	-.003	0.012
32	08/18/93	-.054	0.074	0.2	0.1	0.061	0.074	0.000	0.007	0.277	0.028	0.012	0.015
32	11/17/93	-.124	0.107	1.3	0.2	-.008	0.092	0.011	0.010	0.154	0.018	-.017	0.020
34X	02/12/93	0.038	0.053	1.0	0.1	-.035	0.050	-.001	0.005	0.003	0.006	0.000	0.012
34X	05/18/93	0.016	0.044	1.7	0.2	-.006	0.044	0.000	0.004	0.001	0.005	0.011	0.011
34X	08/18/93	-.044	0.059	0.9	0.1	0.013	0.060	0.005	0.006	-.003	0.006	0.002	0.014
34X	11/17/93	-.008	0.042	1.8	0.2	0.035	0.045	0.000	0.004	0.002	0.004	0.004	0.010
36	08/26/93 B	-.079	0.056	0.1	0.1	-.029	0.061	-.007	0.005	0.002	0.006	0.009	0.013
36	11/16/93	0.001	0.041	1.1	0.1	0.020	0.041	0.000	0.004	-.003	0.004	0.002	0.009
37C	02/12/93	-.006	0.051	1.1	0.1	-.033	0.050	0.000	0.005	0.003	0.005	0.004	0.012
37C	05/18/93	0.016	0.057	2.0	0.2	-.060	0.057	0.003	0.005	-.002	0.005	0.009	0.012
37C	11/17/93 A	0.000	0.050	1.4	0.1	0.002	0.049	0.004	0.005	0.003	0.005	-.009	0.010
40X	02/12/93	-.150	0.133	1.7	0.2	-.047	0.114	0.006	0.013	0.048	0.019	-.020	0.025
40X	04/29/93	0.001	0.095	2.0	0.2	-.097	0.074	0.009	0.010	-.002	0.011	-.027	0.017
40X	08/19/93	0.119	0.140	1.2	0.2	0.034	0.124	0.012	0.012	0.227	0.026	0.000	0.024
40X	11/19/93	0.044	0.136	1.5	0.2	-.054	0.124	0.005	0.012	0.109	0.025	-.033	0.023

A: No sample was available at Giant's Neck location (37C) in the third quarter.
B: No sample was available at Black Point location (36) in the first and second quarters.

TABLE 19
OYSTERS
(PCI/G WET WT.)

LOCATION	COLLECTION DATE	CO-60	(+/-)	ZN-65	(+/-)	ZR-95	(+/-)	NB-95	(+/-)	RU-103	(+/-)	RU-106	(+/-)
31	02/12/93	0.004	0.006	0.001	0.001	0.005	0.014	0.002	0.006	0.006	0.007	-.043	0.056
31	05/18/93	0.006	0.006	0.003	0.012	0.003	0.011	0.001	0.006	-.004	0.006	0.000	0.048
31	08/18/93	0.000	0.007	-.024	0.013	0.000	0.012	-.012	0.006	0.006	0.007	-.052	0.049
31	11/17/93	0.002	0.004	0.000	0.010	0.008	0.008	0.001	0.004	0.003	0.005	0.000	0.037
32	02/12/93	0.057	0.014	0.095	0.029	0.020	0.017	0.000	0.010	-.001	0.010	-.013	0.077
32	05/18/93	0.022	0.010	0.287	0.029	0.014	0.013	0.000	0.007	0.002	0.007	0.029	0.059
32	08/18/93	0.047	0.012	1.290	0.130	-.005	0.015	0.000	0.013	-.003	0.009	0.000	0.075
32	11/17/93	0.064	0.017	2.160	0.220	-.004	0.022	0.000	0.019	0.003	0.013	0.000	0.196
34X	02/12/93	0.000	0.005	0.005	0.013	0.016	0.012	-.013	0.006	-.001	0.006	0.009	0.051
34X	05/18/93	0.006	0.005	0.004	0.010	-.001	0.010	0.001	0.005	0.000	0.005	0.035	0.046
34X	08/18/93	-.001	0.006	0.001	0.013	-.001	0.013	0.004	0.007	0.001	0.007	0.039	0.057
34X	11/17/93	-.003	0.004	0.006	0.010	-.004	0.009	0.002	0.004	0.003	0.005	0.042	0.041
36	08/26/93 B	0.007	0.006	0.000	0.013	0.005	0.013	0.000	0.006	0.002	0.007	0.009	0.054
36	11/16/93	0.002	0.004	0.000	0.015	-.003	0.009	0.000	0.005	0.001	0.005	0.020	0.041
37C	02/12/93	0.003	0.005	0.000	0.013	-.036	0.012	0.000	0.006	-.010	0.006	-.011	0.050
37C	05/18/93	0.000	0.005	0.001	0.012	0.006	0.012	0.004	0.006	0.004	0.007	0.003	0.053
37C	11/17/93 A	0.003	0.005	0.000	0.013	-.001	0.010	0.006	0.005	-.008	0.005	0.006	0.043
40X	02/12/93	0.113	0.021	6.380	0.640	-.021	0.029	0.000	0.016	-.001	0.016	0.007	0.137
40X	04/29/93	0.063	0.016	5.180	0.520	0.006	0.021	0.008	0.019	-.012	0.011	0.083	0.179
40X	08/19/93	0.058	0.021	3.050	0.300	0.000	0.029	0.000	0.021	0.012	0.017	0.000	0.136
40X	11/19/93	0.034	0.011	3.150	0.310	0.033	0.029	0.000	0.022	-.002	0.017	0.000	0.208

A: No sample was available at Giant's Neck location (37C) in the third quarter.
B: No sample was available at Black Point location (36) in the first and second quarters.

TABLE 19
OYSTERS
(PCI/G WE, WT.)

LOCATION	COLLECTION DATE	AG-110M	(+/-)	I-131	(+/-)	CS-134	(+/-)	CS-137	(+/-)	RA-226	(+/-)	TH-228	(+/-)
31	02/12/93	0.001	0.008	-.008	0.015	-.001	0.006	0.003	0.007	-.239	0.108	0.006	0.010
31	05/18/93	0.012	0.007	0.003	0.012	0.002	0.006	0.000	0.006	-.422	0.115	-.002	0.012
31	08/18/93	0.006	0.007	0.010	0.021	0.004	0.006	0.001	0.006	-.008	0.125	-.002	0.011
31	11/17/93	-.001	0.005	-.006	0.009	0.001	0.004	0.000	0.004	0.064	0.075	0.001	0.006
32	02/12/93	0.772	0.077	-.009	0.021	0.001	0.008	0.000	0.009	0.017	0.150	-.012	0.013
32	05/18/93	0.322	0.032	-.003	0.012	-.001	0.006	0.000	0.007	-.014	0.110	-.023	0.010
32	08/18/93	0.606	0.061	0.000	0.025	0.005	0.007	0.000	0.010	-.098	0.130	0.011	0.012
32	11/17/93	2.470	0.250	0.010	0.025	-.001	0.010	0.000	0.012	0.000	0.014	-.014	0.014
34X	02/12/93	0.007	0.007	-.002	0.014	0.001	0.006	0.000	0.006	-.119	0.103	0.010	0.009
34X	05/18/93	-.005	0.006	-.006	0.010	-.004	0.005	0.003	0.005	-.121	0.090	0.000	0.008
34X	08/18/93	0.000	0.008	-.015	0.020	-.004	0.006	-.003	0.006	-.079	0.108	0.000	0.010
34X	11/17/93	-.001	0.005	0.005	0.011	-.002	0.004	0.005	0.005	-.218	0.102	0.006	0.009
36	08/26/93 B	0.000	0.008	0.010	0.018	0.003	0.006	-.015	0.009	0.039	0.131	0.005	0.012
36	11/16/93	0.015	0.008	0.012	0.011	0.001	0.004	0.000	0.005	-.110	0.081	0.007	0.008
37C	02/12/93	-.001	0.007	-.003	0.013	-.002	0.006	0.005	0.006	-.039	0.099	-.008	0.009
37C	05/18/93	0.001	0.007	0.002	0.013	0.006	0.006	0.001	0.006	-.005	0.138	-.035	0.011
37C	11/17/93 A	0.006	0.006	-.003	0.013	0.007	0.005	0.000	0.005	0.057	0.110	-.012	0.009
40X	02/12/93	2.500	0.250	0.010	0.031	0.010	0.014	0.000	0.015	-.095	0.184	0.000	0.018
40X	04/29/93	2.040	0.200	-.011	0.016	0.002	0.010	0.000	0.013	0.000	0.149	0.007	0.013
40X	08/19/93	1.870	0.190	-.027	0.042	0.000	0.013	0.000	0.015	0.002	0.207	-.006	0.018
40X	11/19/93	1.790	0.180	-.038	0.051	0.000	0.012	0.000	0.014	0.072	0.198	-.015	0.017

A: No sample was available at Giant's Neck location (37C) in the third quarter.
B: No sample was available at Black Point location (36) in the first and second quarters.

TABLE 20
CLAMS
(PCI/G WET WT.)

LOCATION	COLLECTION DATE	BE-7	(+/-)	K-40	(+/-)	CR-51	(+/-)	MN-54	(+/-)	CO-58	(+/-)	FE-59	(+/-)
29	02/25/93	0.035	0.031	1.1	0.1	-.005	0.031	-.001	0.003	0.000	0.003	-.002	0.006
29	05/20/93	0.033	0.054	0.7	0.1	0.023	0.056	0.001	0.006	-.003	0.006	0.011	0.013
29	08/26/93	-.013	0.077	1.3	0.2	0.041	0.082	0.001	0.007	0.003	0.008	0.007	0.018
29	11/16/93	0.006	0.034	1.2	0.1	-.030	0.033	0.002	0.004	-.008	0.034	-.012	0.008
38	02/25/93	0.052	0.055	2.0	0.2	0.053	0.057	-.014	0.005	0.002	0.005	-.007	0.011
38	05/20/93	-.006	0.038	2.0	0.2	-.028	0.039	-.003	0.004	0.002	0.004	-.001	0.008
38	08/26/93	-.032	0.079	2.2	0.2	0.027	0.082	0.007	0.008	0.005	0.009	0.001	0.019
38	11/16/93	0.017	0.039	1.6	0.2	0.002	0.039	0.001	0.004	0.001	0.004	-.001	0.009
39X	02/25/93	0.012	0.043	1.4	0.1	-.016	0.042	0.000	0.004	0.003	0.005	0.011	0.010
39X	05/20/93	0.117	0.061	2.1	0.2	0.051	0.056	0.003	0.006	0.001	0.006	0.005	0.014
39X	08/26/93	0.000	0.078	1.9	0.2	0.033	0.083	0.008	0.008	0.007	0.008	0.011	0.018
39X	11/16/93	0.060	0.050	1.8	0.2	-.008	0.051	0.001	0.005	0.000	0.006	-.004	0.011

LOCATION	COLLECTION DATE	CO-60	(+/-)	ZN-65	(+/-)	ZR-95	(+/-)	NB-95	(+/-)	RU-103	(+/-)	RU-106	(+/-)
29	02/25/93	0.017	0.006	-.002	0.007	0.026	0.007	0.000	0.003	-.001	0.004	-.022	0.027
29	05/20/93	0.000	0.007	0.008	0.013	-.003	0.013	0.001	0.006	-.009	0.006	-.004	0.059
29	08/26/93	0.000	0.009	0.006	0.018	-.002	0.017	0.005	0.008	-.009	0.009	-.010	0.072
29	11/16/93	0.000	0.004	0.000	0.009	0.000	0.008	0.003	0.004	-.001	0.004	-.012	0.034
38	02/25/93	0.000	0.007	0.014	0.012	0.004	0.011	0.000	0.006	-.001	0.006	-.022	0.048
38	05/20/93	0.001	0.005	0.000	0.009	-.007	0.008	0.004	0.004	0.008	0.005	0.009	0.038
38	08/26/93	0.000	0.009	-.001	0.019	0.015	0.019	0.008	0.009	-.006	0.010	-.042	0.079
38	11/16/93	0.005	0.004	0.010	0.009	0.000	0.009	0.000	0.004	0.001	0.005	-.002	0.037
39X	02/25/93	0.047	0.008	0.004	0.010	0.010	0.010	0.003	0.005	-.006	0.005	-.006	0.041
39X	05/20/93	0.051	0.013	-.004	0.014	-.013	0.014	0.000	0.007	-.007	0.007	-.001	0.057
39X	08/26/93	0.008	0.009	0.009	0.016	0.000	0.016	0.001	0.008	-.001	0.009	-.026	0.065
39X	11/16/93	0.025	0.010	0.000	0.011	0.003	0.010	0.006	0.006	-.001	0.006	0.059	0.050

TABLE 20
CLAMS
(PCI/G WET WT.)

LOCATION	COLLECTION DATE	AG-110M	(+/-)	I-131	(+/-)	CS-134	(+/-)	CS-137	(+/-)	RA-226	(+/-)	TH-228	(+/-)
29	02/25/93	0.004	0.004	-.008	0.007	0.000	0.003	-.005	0.003	-.009	0.073	0.000	0.006
29	05/20/93	0.000	0.009	0.001	0.010	0.000	0.007	0.004	0.007	0.120	0.116	0.011	0.011
29	08/26/93	0.000	0.010	0.000	0.025	0.003	0.009	-.020	0.012	0.009	0.166	0.007	0.015
29	11/16/93	0.003	0.005	0.003	0.009	-.003	0.004	-.003	0.004	-.196	0.064	-.008	0.006
38	02/25/93	0.000	0.007	0.001	0.015	0.005	0.006	0.001	0.006	-.214	0.122	0.012	0.011
38	05/20/93	0.004	0.005	-.003	0.008	0.000	0.004	0.002	0.005	0.041	0.093	-.004	0.008
38	08/26/93	0.000	0.012	0.011	0.024	-.006	0.008	0.000	0.010	0.074	0.158	-.003	0.014
38	11/16/93	0.000	0.005	-.004	0.010	0.000	0.004	0.000	0.006	-.264	0.083	-.034	0.008
39X	02/25/93	0.028	0.007	-.002	0.012	-.006	0.005	0.000	0.005	-.123	0.082	-.002	0.007
39X	05/20/93	0.034	0.010	-.004	0.012	-.001	0.007	0.000	0.007	-.048	0.105	-.008	0.010
39X	08/26/93	0.000	0.011	-.002	0.022	-.022	0.007	-.012	0.008	-.491	0.172	-.038	0.015
39X	11/16/93	0.043	0.011	0.004	0.013	0.005	0.005	0.000	0.006	-.363	0.106	-.004	0.010

TABLE 22
LOBSTER
(PCI/G WET WT.)

LOCATION	COLLECTION DATE	BE-7	(+/-)	K-40	(+/-)	CR-51	(+/-)	MN-54	(+/-)	CO-58	(+/-)	FE-59	(+/-)
32	03/25/93	-.040	0.087	3.6	0.4	-.048	0.065	0.005	0.008	0.007	0.009	-.001	0.019
32	06/08/93	0.000	0.046	3.3	0.3	0.042	0.040	0.004	0.005	-.001	0.005	-.008	0.009
32	09/16/93	0.007	0.109	1.5	0.3	-.113	0.133	-.003	0.010	-.005	0.011	0.012	0.026
32	12/10/93	0.064	0.213	1.4	0.4	0.119	0.210	-.005	0.022	-.027	0.022	-.009	0.046
35	03/25/93	0.048	0.106	3.3	0.3	0.039	0.104	0.011	0.011	0.000	0.010	0.001	0.022
35	06/08/93	0.009	0.033	2.7	0.3	-.005	0.027	0.000	0.004	0.000	0.004	0.001	0.008
35	09/16/93	-.047	0.075	1.3	0.2	0.031	0.084	0.002	0.007	-.001	0.008	0.013	0.018
35	12/10/93	0.023	0.121	1.8	0.3	0.000	0.133	0.000	0.011	0.000	0.014	-.006	0.026
37C	03/25/93	0.002	0.124	4.6	0.5	-.043	0.119	0.012	0.014	0.006	0.014	0.013	0.030
37C	06/08/93	0.033	0.069	3.8	0.4	0.054	0.063	0.005	0.007	-.005	0.007	0.008	0.016
37C	09/16/93	-.086	0.108	2.8	0.3	0.073	0.117	0.013	0.012	-.003	0.012	0.008	0.028
37C	12/10/93	-.038	0.101	2.7	0.3	-.054	0.103	0.007	0.011	0.005	0.011	0.013	0.024

LOCATION	COLLECTION DATE	CO-60	(+/-)	ZN-65	(+/-)	ZR-95	(+/-)	NB-95	(+/-)	RU-103	(+/-)	RU-106	(+/-)
32	03/25/93	0.012	0.010	-.001	0.020	0.013	0.017	0.004	0.008	-.002	0.008	-.027	0.075
32	06/08/93	0.004	0.006	0.014	0.012	0.005	0.010	0.000	0.005	0.000	0.005	-.038	0.048
32	09/16/93	-.003	0.011	0.003	0.023	0.003	0.023	0.000	0.013	0.008	0.014	0.101	0.104
32	12/10/93	0.025	0.022	-.015	0.048	0.032	0.048	0.009	0.023	0.009	0.027	0.091	0.213
35	03/25/93	0.000	0.011	0.016	0.024	0.007	0.021	0.000	0.011	0.013	0.012	0.095	0.103
35	06/08/93	0.000	0.005	0.009	0.011	-.011	0.007	0.000	0.004	0.002	0.004	0.029	0.043
35	09/16/93	-.001	0.007	-.001	0.018	-.001	0.016	0.000	0.009	-.002	0.009	0.053	0.073
35	12/10/93	0.000	0.012	0.030	0.026	0.006	0.025	0.010	0.013	0.000	0.015	-.088	0.112
37C	03/25/93	0.000	0.014	0.039	0.031	-.053	0.029	0.000	0.015	-.003	0.015	-.038	0.126
37C	06/08/93	0.005	0.008	0.002	0.017	0.006	0.016	-.002	0.007	0.007	0.008	0.018	0.073
37C	09/16/93	0.014	0.012	0.021	0.026	0.007	0.025	0.000	0.013	-.011	0.014	-.029	0.105
37C	12/10/93	-.006	0.010	0.000	0.023	0.000	0.024	0.000	0.011	0.000	0.013	-.035	0.100

TABLE 22
LOBSTER
(PCI/G WET WT.)

LOCATION	COLLECTION DATE	AG-110M	(+/-)	I-131	(+/-)	CS-134	(+/-)	CS-137	(+/-)	RA-226	(+/-)	TH-228	(+/-)
32	03/25/93	0.000	0.013	-.003	0.014	0.000	0.009	-.026	0.009	-.087	0.142	-.040	0.012
32	06/08/93	0.036	0.009	0.000	0.003	0.007	0.006	0.000	0.006	0.072	0.127	0.000	0.011
32	09/16/93	0.017	0.015	0.022	0.036	0.006	0.012	-.012	0.011	-.285	0.231	0.000	0.020
32	12/10/93	0.000	0.030	0.017	0.058	0.001	0.024	0.008	0.024	-.747	0.406	0.000	0.040
35	03/25/93	0.014	0.014	-.060	0.021	0.011	0.012	-.015	0.011	-.590	0.246	0.012	0.021
35	06/08/93	0.007	0.006	0.002	0.003	-.004	0.005	-.008	0.005	-.057	0.082	-.001	0.007
35	09/16/93	0.010	0.010	-.006	0.024	0.003	0.008	-.010	0.007	0.093	0.188	-.012	0.017
35	12/10/93	0.005	0.016	0.006	0.035	-.005	0.011	0.004	0.014	0.199	0.288	0.000	0.024
37C	03/25/93	-.011	0.017	-.040	0.026	0.001	0.015	0.011	0.015	-.650	0.257	-.014	0.023
37C	06/08/93	0.004	0.010	0.000	0.011	-.004	0.008	0.000	0.007	-.218	0.149	-.005	0.013
37C	09/16/93	0.004	0.015	0.005	0.036	0.000	0.013	-.020	0.013	0.056	0.219	-.003	0.020
37C	12/10/93	0.010	0.014	0.021	0.030	-.008	0.011	0.007	0.012	-.366	0.204	0.017	0.017

4.0 DISCUSSION OF RESULTS

This section summarizes the results of the analyses of environmental media sampled. NUSCO has carefully examined the data throughout the year and has presented in this section all cases where plant related radioactivity could be detected and compared the results with previous environmental surveillance data. Few impacts of the plant operation on the environment were observed. Sub-sections contain a description of each particular media or potential exposure pathway.

Naturally occurring nuclides such as Be-7, K-40, Ra-226 and Th-228 were detected in numerous samples. Be-7, which is produced by cosmic processes, was observed predominantly in airborne and vegetation samples. Ra-226 and Th-228 results were variable and are generally at levels higher than plant related radionuclides.

Cs-137 and Sr-90 were observed at levels similar to those of past years. In general, the detectable levels of Cs-137 and Sr-90 were the result of atmospheric nuclear weapons testing of years past.

Gamma Exposure Rate (Table 1)

The gamma exposure rate is determined from the integrated exposure measured over a time period of approximately one month using CaF2 (Mn) thermoluminescent dosimeters. These glass bulb dosimeters are subject to inherent self-irradiation which has been experimentally measured for each dosimeter. Consequently, the results, shown in Table 1 have been adjusted for self-irradiation effects. The range of this correction is 0.4 μR/hr to 2.0 μR/hr, with a mean of approximately 1 μR/hr.

The exposure rate measurements exhibit the same trends as those of past years. These measurements demonstrate the general variations in natural background radiation between the various on-site and off-site locations and include gamma exposure from all sources including cosmic, terrestrial, and artificial radioactivity. For example, the Weather Shack (location 02) and Environmental Laboratory (location 08) experience higher exposure rates due to their proximity to granite beds while the Ledyard location (location 14C) experiences relatively higher background exposure rates than the other control locations at Mystic, Norwich, and Old Lyme (locations 13C, 15C, and 16C).

During Unit 1 operation, a small increase in exposure rates is caused by the direct exposure pathway of "skyshine" (i.e., scattered radiation from nitrogen-16 decay in the turbine; this pathway is unique to boiling water reactors). Skyshine decreases rapidly with distance from the turbine building, to levels that are virtually undetectable at the off-site locations. Special surveys performed in 1980, 1984 and 1987 with a high pressure ion chamber support this premise. During any Unit 1 shutdown, a small decrease in exposure levels is normally observed at on-site locations (Weather Shack (2), MP3 Discharge (5), Quarry Discharge (6), Env. Lab Dock (7), Millstone

Environmental Laboratory (8), and Bay Point Beach (9)). However, Unit 1 operated at a capacity factor of 92.8% in 1993. The only apparent decrease in exposure can be seen in October at the MP3 Discharge (5) and Bay Point Beach (9), the most sensitive skyshine indicator locations. Unit 1 was shutdown twice in October for a total of 8 days making the decrease very slight. Comparison of the data with historical background levels during periods of Unit 1 shutdown reveal exposure rates due to skyshine anywhere from 0.5 μR/hr to 5 μR/hr. The maximum off-site direct exposure due to Unit 1 was determined to be 0.1 μR/hr. The dose consequence attributable to this direct dose is discussed in Section 5.0.

Further evaluation of the data reveals a decrease in background at all locations (indicators and controls) during the period of January - April. This decrease is most likely caused by the amount of snow cover that was experienced during this period. This same effect was seen around the Haddam Neck Station. As shown in previous years, snow tends to provide a shielding effect.

With the installation of the augmented off-gas treatment system in May of 1978, the plant gaseous effluents decreased significantly to levels that are essentially undetectable by TLD's, even at the on-site monitoring stations. The only appreciable effect, aside from that of skyshine, seen in the TLD data is that attributable to the variation in the background radiation which has been noted as being consistent with previous years.

Air Particulates and Iodine **(Table 2, 3, 4 A-D and 5)**

Air is continuously sampled at seven inner ring and two outer ring locations by passing it through glass fiber particulate filters. These are collected weekly and analyzed for gross beta radioactivity. Results are shown on Figure 4-1 and Table 2. Gross beta activity remained at levels similar to that seen over the last ten years. Inner and outer ring monitoring locations showed no significant variation in measured activities. This indicates that any plant contribution is not measurable.

Charcoal cartridges are included at all of the Radiological Effluent Monitoring Manual (REMM) required air particulate stations for the collection of atmospheric iodine. These cartridges are analyzed on a weekly basis for I-131. No detectable levels of I-131 were seen in the 1993 charcoal samples. This is confirmed by the absence of I-131 in any of the milk samples. Milk from cows and goats is a much more sensitive indicator of I-131 presence in the environment.

The air particulate samples that are utilized for the weekly gross beta analyses are composited and analyzed quarterly for gamma emitting isotopes. The results, as shown in Tables 4A-4D, indicate the presence of naturally occurring Be-7, which is produced by cosmic processes. No other positive results were seen. These analyses indicate the lack of plant effects.

Table 5 in past years was used to report the measurement of Sr-89 and Sr-90 in quarterly composited air particulate filters. These measurements are not required by the Radiological Effluent Monitoring Manual (REMM) and have been discontinued. Previous data has shown the lack of detectable station activity in this media. This fact, and the fact that milk samples are a much more sensitive indicator of fission product existence in the environment, prompted the decision for discontinuation. In the event of widespread plant contamination or special event such as the Chernobyl incident, these measurements may be made.

Soil (Table 6)

Soil samples are special samples not required by the REMM. Previous data has shown the lack of detectable station activity in this media resulting in the discontinuation of these samples. In the event of widespread plant contamination or special studies, these sample would be collected.

Cow Milk (Table 7)

The most sensitive indicator of fission product existence in the terrestrial environment is usually milk samples. This, in combination with the fact that milk is a widely consumed food, results in this pathway being the most critical. This pathway also shows significant amounts of weapons testing fallout. Therefore, this media should be carefully evaluated when trying to determine what are the actual plant effects.

Routine levels of Sr-90 and Cs-137 similar to those from past years were observed. The range of results were 1.0 to 3.4 pCi/l and 0 to 8.9 pCi/l for Sr-90 and Cs-137, respectively. Detailed analysis of this data has concluded that these levels are from weapons testing fallout and are not plant related (see Section 6.0 for details to this argument).

All samples showed a lack of I-131 detectable above the MDL of 0.5 pCi/l. These results are consistent with previous years' results. The only occasions when this nuclide has been detected are those immediately following atmospheric testing of nuclear weapons and the Chernobyl accident.

A number of small local dairy farms have gone out of business over the last few years. As a result, as shown in Appendix A, only one milking dairy farm exists within 10 miles of Millstone. However, five goat farms exist within this same area. Starting May 1, 1993, the REMM was revised to eliminate the sampling inconsistencies and provide a more representative sampling population to monitor radioactivity in milk from the environment surrounding Millstone. The program was changed from the requirement to sample 4 cow milk and 2 goat milk locations per month to 2 cow milk nd 4 goat milk locations per month. Table 2-1 lists the changes to the sample locations and types.

Goat Milk (Table 8)

Goat milk samples can be a more sensitive indicator of fission products in the terrestrial environment than cow milk samples. This is dependent on a number of parameters, including: metabolism of these animals, feeding habits, and feed type. Samples taken during weapons testing periods have demonstrated higher uptake of fresh fallout nuclides (Sr-89 and I-131) at the indicator goat location (23). This trend helps to explain the usual, higher than normal Sr-90 and Cs-137 concentrations at the indicator location (23) as compared to the control location (24c). One sample from location (23) indicates a Cs-137 level in excess of the Reporting Level of 70 pci/l as specified in the REMM. However, positive indications of Sr-89 and Cs-134 were not observed. Therefore, as with cow milk, detailed analysis of the data has concluded that the Sr-90 and Cs-137 levels are from weapons testing fallout (see Section 6.0 for more details) and thus a Special Report is not required.

No plant related I-131 was seen in this media. For the last seven years, no detectable levels of I-131 have been seen in goat milk samples except for the period immediately following the Chernobyl accident.

Pasture Grass (Table 9)

When the routine milk samples are unavailable, samples of pasture grass are required as a replacement. These samples may also be taken to further investigate the levels of radioactivity in milk. From February - April, these samples were not available as a replacement at goat locations (23) and (24c). Pasture grass was again unavailable November through December, as a substitute for unavailable goat milk at all locations. May through October, pasture grass was sampled at locations (21) and (22) because of goat milk unavailability. No plant effects are seen in this media.

Well Water (Table 10)

Well water samples are not required by the REMM. Data from 1973-1985 has shown the lack of detectable station activity in this media. Therefore, the sampling of well water has been discontinued. In the event of widespread plant contamination, these samples may be collected.

Reservoir Water (Table 11)

Reservoir water samples are special samples not required by the REMM. Previous data has shown the lack of detectable station activity in this media. This fact and the extremely unlikely possibility of observing routine plant effluents in this media has resulted in discontinuing these samples. In the event of widespread plant contamination, these samples may be collected.

Fruits and Vegetables (Table 12)

Consistent with past years, this media did not show any plant effects. Concentrations of Sr-90 in these samples existed at levels comparable to those observed for the past sixteen years. Naturally occurring K-40 was detected in all samples. Since there was no fresh fallout, no other nuclides were detected.

Broad Leaf Vegetation (Table 13)

Consistent with past years, this media did not show any plant effects. Concentrations of Sr-90 and Cs-137 in these samples are at levels comparable to past years and are due to fallout.

In the past, this media has shown early indication of I-131 release from the plant from both unplanned releases and normal operations. Therefore, to enhance program monitoring effectiveness, samples of broadleaf vegetation are collected monthly during the growing season, May - October, even though requirements are to collect twice a year.

Seawater (Table 14)

These samples are quarterly composites. Samples from the vicinity of discharge (32) are continuous samples; samples from Giants Neck (37C) are composites of weekly grab samples. The third quarter control sample was lost in transit. Three indicator samples show tritium (H-3) concentrations above the background level seen at the control location. These elevated levels are attributable to plant operation and are similar to those of past years. Due to the decay characteristics of H-3, the dose consequence of the observed H-3 concentrations is negligible (see Section 5.0 for a discussion of the maximum dose consequences). Because sea water is not a direct source of consumption, other media are utilized in the determination of dose consequences (e.g. see Shellfish & Fish results).

Bottom Sediment (Table 15)

Plant related Co-60 was detected in one indicator sample. The level is comparable to that measured in other media. Cs-137 was detected in the samples from Golden Spur (30C), one of the control locations. Levels at this location are higher than those in the samples from the vicinity of the discharge. This is consistent with previous data. The absence of detectable Cs-134 in the Golden Spur samples and the relative distance and direction indicate that this Cs-137 is not plant related. This area is a fresh water area and the levels of Cs-137 at this location are comparable to those observed in river water sediments (see Connecticut Yankee Annual Radiological Environmental Operating Report).

Aquatic Flora (Table 16)

Indications of plant effluents were observed. Detectable levels of Co-58, Co-60, and Ag-110m were apparent. The detection of these nuclides throughout the year, as witnessed by positives detected in other aquatic media, corresponds to routine effluents and to the increased curies released due to multiple shutdowns and outages by Millstone Units 2 and 3.

Sampling of this media provides useful information because it is very sensitive to plant discharges. However, since seaweed is not consumed, other media are utilized in the determination of dose consequences (e.g., see Shellfish and Fish results).

Fish Flounder (Table 17A)

The activity in Flounder is the same as that seen for the past decade. Cs-137 was observed in one vicinity of discharge sample. Even though Cs-134 was not observed, a portion of the Cs-137 in this sample could be due to plant operation. No other activity was observed except for the naturally occurring radionuclides.

Fish - Other (Table 17B)

As in previous years, plant related activity was detected in some 1993 quarry samples (location 40X). Positive values of Cs-137 and Co-60 were observed.

The quarry location is not accessible to members of the general public and with the dilution of the Long Island Sound, the levels of radioactivity generally become undetectable in fish samples outside of the quarry. Using the concentrations measured in the quarry and diluting them by the near field dilution factor of 3 determined for quarry discharges into the Sound, doses to the maximum individual can be calculated. See Section 5.0 for these results.

Mussels (Table 18)

The plant effects for this sampling media are insignificant at all locations.

Oysters (Table 19)

Native oysters are sampled at the quarry discharge (location 40X) which is an extra location. The remaining locations utilize stocked oysters; trays are kept at these sampling areas to guarantee samples and facilitate sample collection.

Plant related activity was observed at all but one location. Samples from within the plant discharge area (locations 32 and 40X) show the highest levels. Although location 32 is labelled as vicinity of the discharge, it is actually at the end of the quarry. This activity included Co-58, Co-60, Zn-65, and Ag-110m. All nuclides detected were seen at levels similar to last year. Plant related Zn-65 and Ag-110m were also observed in samples from beyond the plant discharge area.

The 1993 Zn-65 levels are comparable to those measured for the past four years. The reason Zn-65 is unique to Unit 1 is because since 1987 zinc has been injected into the reactor coolant to reduce the plateout of Co-60 on piping walls and hence radiation worker exposure is reduced.

Zn-65 was not detected in other aquatic media. The high levels in oysters is caused by their distinct capacity to accumulate zinc. Studies have shown that oysters can accumulate as much as 50 times or more the amount of zinc compared to most other seafoods (Wolfe, 1979). As Figure 4.2 shows, Zn-65 concentration in quarry oysters has closely followed the amount of curies of Zn-65 discharged in Unit 1 liquid effluents.

Plant related Co-60, Zn-65, and Ag-110m were also observed in samples from beyond the plant discharge area. The levels are comparable to those observed last year.

Since the two locations near the quarry are on-site and not available for public use, the actual concentration of radionuclides in oysters available for public consumption is much less. The dose consequence of the plant related radioactivity via this pathway is discussed in Section 5.0.

Clams (Table 20)

GeLi analyses indicated the presence of plant related Co-60, and Ag-110m. These levels correspond to the elevated levels seen in other aquatic samples for the same period. The dose consequence of radioactivity via this pathway is discussed in Section 5.0.

Scallops (Table 21)

Scallops are not required by the REMM. However, this media is sampled to confirm plant effects because scallops are available for public consumption. Unfortunately, scallops were unavailable all year for taking samples.

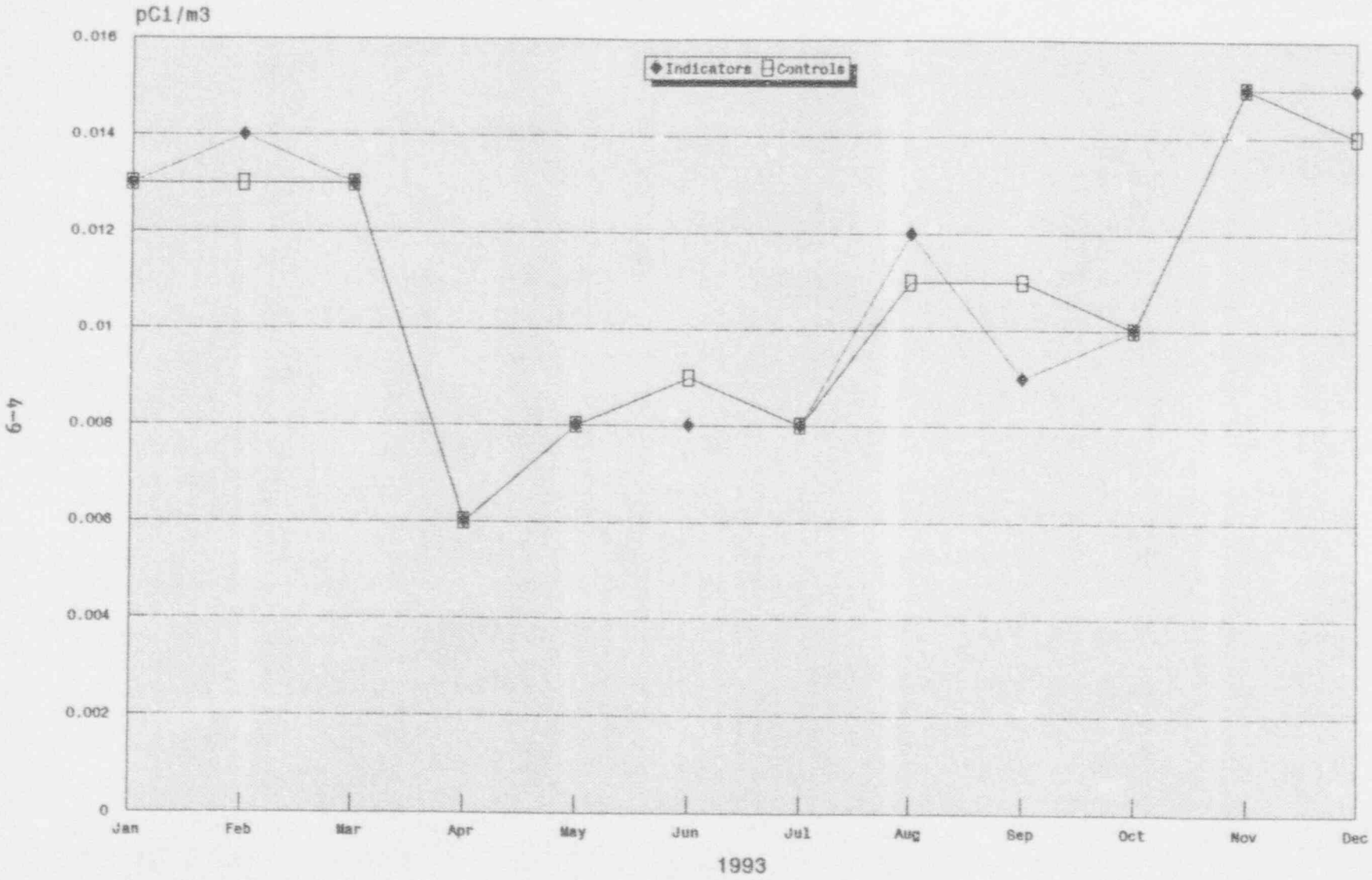
Lobsters (and Crabs) (Table 22)

Plant related Ag-110m is shown in one lobster sample from the discharge area location (location 32). The dose consequence from levels observed in these samples is lower than those from the oyster samples. The level is similar to that seen over the past few years. See Section 5.0 for a discussion of the dose consequences.

Figure 4-1

MP AIR PARTICULATE

Gross Beta Radioactivity

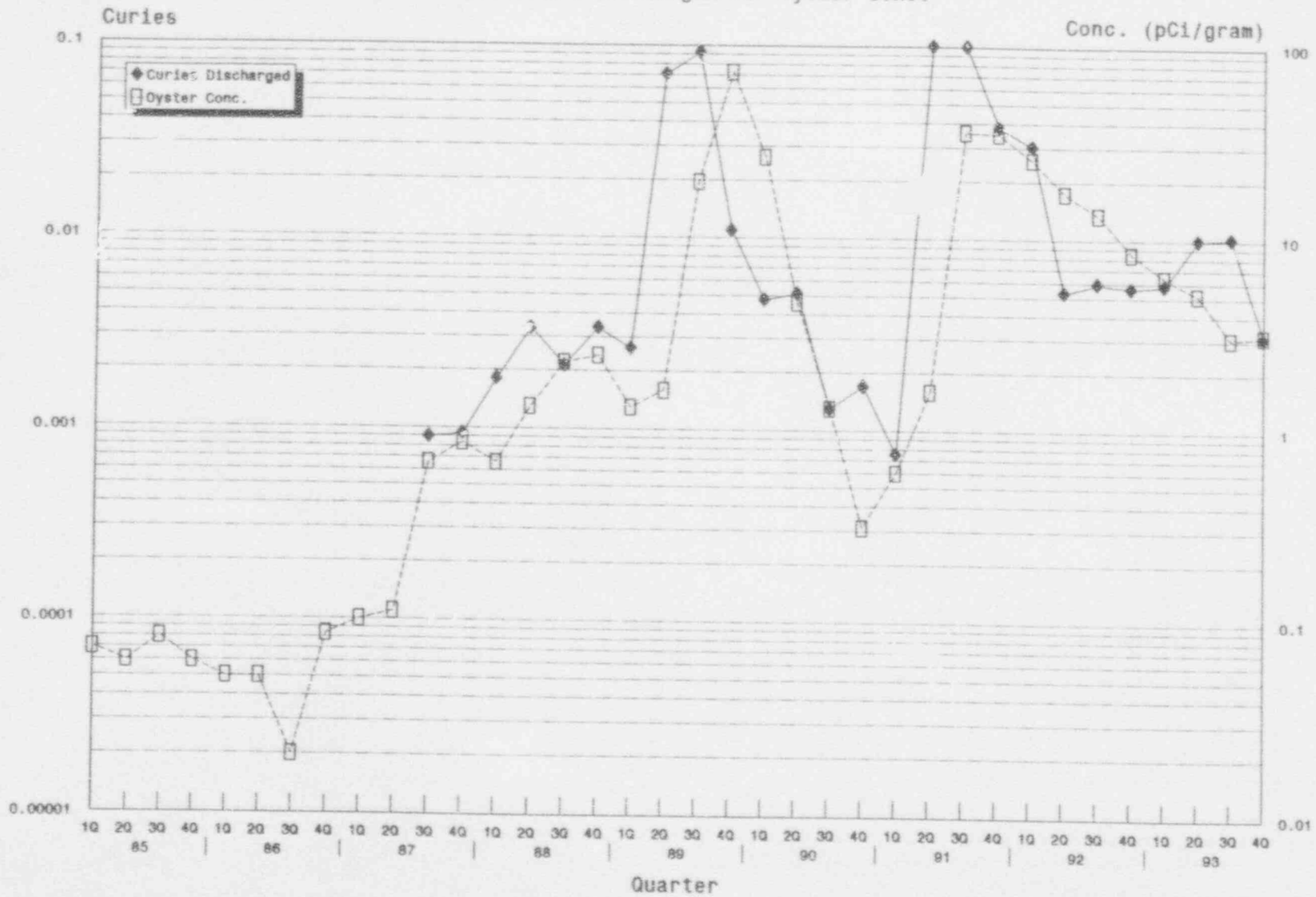


Average error of these values is 0.003

Figure 4-2

Zn-65 COMPARISON

Curies Discharged vs. Oyster Conc.



5.0 OFFSITE DOSE EQUIVALENT COMMITMENTS

The off-site dose consequences (dose equivalent commitments) of the stations' radioactive liquid and airborne effluents have been evaluated using two methods.

The first method utilizes the stations' measured radioactive discharges as input parameters into conservative models to simulate the transport mechanism through the environment to man. This results in the calculation of the maximum dose consequences to individuals and the 0 to 50 mile population dose commitment. The results of these computations have been submitted to the NRC in the Annual Radioactive Effluent Report written in accordance with the Radiological Effluent Monitoring Manual, Section F.2. This method, which is usually conservative (i.e., computes higher doses than that which actually occur) has the advantage of approximating an upper bound to the dose consequences. This is important in those cases where the actual dose consequence cannot be measured because they are so small as to be well below the capabilities of conventional monitoring techniques.

The second method utilizes the actual measurements of the concentrations of radioactivity in various environmental media (e.g., milk, fish) and then computes the dose consequences resulting from the consumption of these foods.

The results of both methods are compared in Table 5.1 for those pathways where a potential dose consequence exists and a comparison is possible. The doses presented in this table are the maximum doses to an individual. That is, the dose is calculated at the location of maximum effect from the plant effluents for that pathway and for the critical age group. For example, the external gamma dose from gaseous effluents is calculated for the site boundary location which is not only the nearest but also has the greatest directional wind frequency and fish and shellfish doses are calculated assuming they are from an area within 500 feet of the station discharge.

As indicated by Table 5.1, there is also a direct gamma dose attributable to the operation of Unit I. This direct dose is inherent to BWR's (Boiling Water Reactors). It is due to direct and scattered radiation (sky shine) of the high energy gamma rays from Nitrogen-16 in the radioactive steam which circulates through the turbine. It should be noted that the indicated dose due to direct radiation is to the maximum individual and is corrected for periods when Unit I is not operating (i.e., there is no direct dose when steam is not generated). Summarizing the data in Table 5.1, the maximum total doses to an individual are: 3.4 mrem whole body to an adult, 0.22 mrem to a child's thyroid, and 0.6 mrem to an adult's GI(LLI).

Since the maximum dose consequence to an individual is at the location of highest dose consequence, doses will be less for all other locations. The average dose to an individual within 50 miles from the site cannot be calculated using the second method. However, the first method yields the following results for the period January-December 1993 for the average individual:

ANNUAL AVERAGE WHOLE BODY DOSE :

DUE TO AIRBORNE EFFLUENTS = 0.000079 mrem

DUE TO LIQUID EFFLUENTS = 0.00017 mrem

Thus, it can be seen that the average whole body dose to an individual is much less than the maximum whole body dose to an individual as shown in Table 5.1.

In order to provide perspective on the doses in Table 5.1, the standards for 1993 on the allowable maximum dose to an individual of the general public are given in 40CFR190 as 25 mrem whole body, 75 mrem thyroid, and 25 mrem any other organ. These standards are a fraction of the normal background radiation dose of 280 mrem per year and are designed to be inconsequential in regard to public health and safety. Since plant related doses are even a smaller fraction of natural background, they have insignificant public health consequences. In fact, the plant related doses to the maximum individual are less than 10% of the variation in natural background in Connecticut.

TABLE 6.1

COMPARISON OF DOSE CALCULATION METHODS

MILLSTONE NUCLEAR POWER STATION

JANUARY - DECEMBER 1993

PATHWAY	ORGAN	ANNUAL DOSE (MILLIREM) METHOD 1[1] Unit 1 (BWR)	Unit 2 (PWR)	Unit 3 (PWR)	Station Total	METHOD 2[1]
AIRBORNE EFFLUENTS						
1. External Gamma Dose	[2] Max. Ind.-Whole Body	0.0037	0.0019	0.011	0.017	0.021[5]
2. a, Inhalation	Max. Ind. - Thyroid	0.00013	0.010	0.0043	0.014	ND[3], <0.6
b. Vegetables	Max. Ind. - Thyroid	0.00017	0.037	0.012	0.050	ND
c. Goat's Milk	Max. Ind. - Thyroid	0.0023	0.062	0.10	0.16	ND, <1.8
LIQUID EFFLUENTS						
1. Fish	Adult - Whole Body	0.0011	0.0024	0.0025	0.0060	0.0073
	Adult - GI(LLI)[4]	0.0019	0.039	0.13	0.171	0.024
	Teen - Liver	0.0022	0.0050	0.0048	0.012	0.0084
2. Shellfish	Child - Whole Body	0.12	0.0023	0.017	0.139	0.059[8]
	Adult - GI(LLI)	0.15	0.12	0.13	0.40	0.29[8]
	Teen - Liver	0.23	0.0050	0.032	0.267	0.12[8]
DIRECT DOSE - Skyshine						
1. Nearest Residence	Max. Ind.-Whole Body	1.6[7]	N/A[6]	N/A	1.6	0.81[9]
2. Critical Fisherman	Max. Ind.-Whole Body	N/A	N/A	N/A	N/A	3.3[9]

(1) Method 1 uses measured station discharges and meteorological data as input parameters to conservative transport to man models. Method 2 uses actual measured concentrations in environmental media.

(2) Maximum individual - The maximum individual dose is the dose to the most critical age group (teen for inhalation, infant for milk, and child for vegetables), at the location of maximum concentration of plant related activity. The dose to the average individual is much less than the maximum individual dose. The doses for inhalation and vegetable consumption assume that the individual resides at the point of maximum quarterly dose. Therefore, his residence is subject to variation for conservatism.

(3) ND - Not Detectable - No plant related activity could be detected above natural background or above the minimum detectable level (MDL). The value reported is the dose corresponding to the MDL.

(4) GI (LLI) - Gastrointestinal Tract - Lower Large Intestine.

(5) Based upon high pressure ion chamber data for 1993 (neglecting building shielding and occupancy factors). TLD's cannot detect levels which are such a small fraction of natural background. Effluent calculations at actual high pressure ion chamber location result in 0.013 mrem.

(6) Not applicable.

(7) Based on calculations performed utilizing the computer code, SKYSHINE, developed by Oak Ridge National Laboratories.

(8) Based on measured levels in oysters.

(9) Based on prior measurements performed with a high pressure ion chamber and ratioed to the actual operating power.

6.0 DISCUSSION

The evaluation of the effects of station operation on the environment requires the careful consideration of many factors. Those factors depend upon the media being effected. They include station release rates, effluent dispersion, occurrence of nuclear weapons tests, seasonal variability of fallout, local environment, and locational variability of fallout. Additional factors affecting the uptake of radionuclides in milk include soil conditions (mineral content, pH, etc.), quality of fertilization, quality of land management (e.g., irrigation), pasturing habits of animals, and type of pasturage. Any of these factors could cause significant variations in the measured radioactivity. A failure to consider these factors could cause erroneous conclusions.

Consider, for example, the problem of deciphering the effect of station releases on the radioactivity measured in milk samples. This is an important problem because this product is widely consumed and fission products readily concentrate in this media. Some of these fission products, such as I-131 and Sr-89 are relatively short-lived. Therefore they result from either plant effluents, recent nuclear weapons tests or recent nuclear incidents (e.g. Chernobyl). Sr-89's lifetime is longer than I-131's, therefore it must be remembered that it will remain around for much longer periods of time. Problems are caused by the long-lived fission products, Sr-90 and Cs-137. These isotopes are still remaining from the high weapons testing era of the 1960's. This results in significant amounts of Sr-90 and Cs-137 appearing in milk samples. Distinguishing between this "background" of fallout activity and plant effects is a difficult problem.

In reviewing the Sr-90 and Cs-137 measured in cow and goat milk in the areas around the Millstone and Haddam Neck stations, a casual observer could notice that in some cases the levels of these isotopes are higher at farms closer to the station than at those further away from the stations. The stations effluents might at first appear to be responsible. However, the investigation of the following facts prove this conclusion wrong.

1. The stations accurately measure many fission products, including Sr-90 and Cs-137 in their releases. Based on these measurements and proven models developed by the Nuclear Regulatory Commission, concentrations in the environment can be calculated. These calculations (generally conservative, see Section 5.0) show that insufficient quantities of Sr-90 and Cs-137 have been released from the stations to yield the measured concentrations in milk.

2. Over the many years of plant operation, Sr-89 has often been released in comparable quantity to Sr-90. Since they are chemically similar, comparable levels should have been detected in milk in the Sr-90 was plant related. No plant related Sr-89 has ever been detected in milk samples.

3. Similar to Sr-89, Cs-134 can be used as an indication of plant related Cs-137. Although not as conclusive as Sr-89, the lack of any measurable Cs-134 in any of the milk samples suggests that the Cs-137 is not plant related. This is further confirmed by the evaluation of the air particulate data. The only occurrences of detectable Cs-134 in milk resulted from the Chernobyl incident.

4. Since dairy milk sampling began in the 1960's, years prior to plant operation, the immediate station areas have always shown higher levels of weapons fallout related Sr-90 and Cs-137 (see Figures 6-1 and 6-2). The ratio of activity between the locations has not changed with plant operation. All areas show the same significant decrease in radioactivity since the 1964 Nuclear Test Ban Treaty.

5. Local variability of Sr-90 and Cs-137 in milk is common throughout the United States. Due to the variability in soil conditions, pasturing methods, rainfall, etc., it is the rule rather than the exception. Therefore, it is not surprising that certain farms have higher levels of radioactivity than other farms. In fact, there are some cases where the farms further from the station have higher Sr-90 and Cs-137 values than the farms that are closer to the station (e.g., see pre-1984 Haddam Neck Goat Milk data.)

6. The Millstone goat farm with the highest levels of Sr-90 and Cs-137 has also experienced the highest levels of short-lived activity from the 1976 and 1977 Chinese Tests and the 1986 Chernobyl accident. This indicates that for some unknown reason this farm has the ability for higher reconcentration. Special studies performed at this and other farms failed to find any link to the plant.

Based on these facts, the observation that the station effluents are responsible is obviously false. The cause must be one or more of the other variables.

Northeast Utilities has carefully examined the data throughout the year and has presented in this report all cases where plant related radioactivity can be detected. An analysis of the potential exposure to the population from any plant related activity has been performed and shows that in all cases the exposure is insignificant.

Throughout the year, the Connecticut Department of environmental Protection performs a parallel environmental program under contract with the Nuclear Regulatory Commission. On a regular basis, the results of their analyses are compared to the results from this program's analyses. The comparisons are tracked and used as a cross-reference to verify measured plant activity. During 1993, both programs showed similar results.

As in previous years, this data is being submitted to, and will be reviewed by the appropriate regulatory bodies such as the Nuclear Regulatory Commission, Environmental Protection Agency and Connecticut Department of Environmental Protection.

Figure 6-1

Strontium-90 in Milk

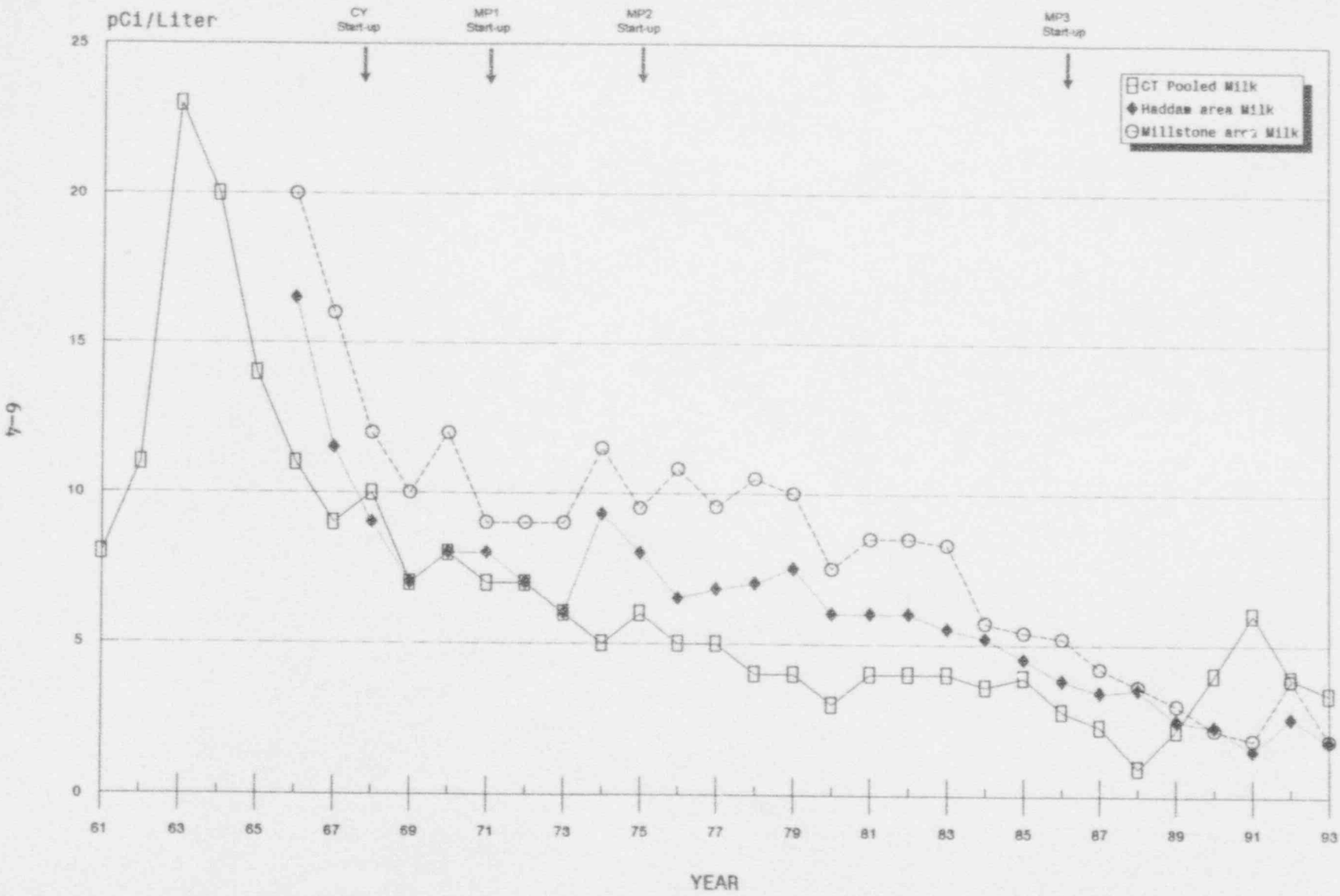
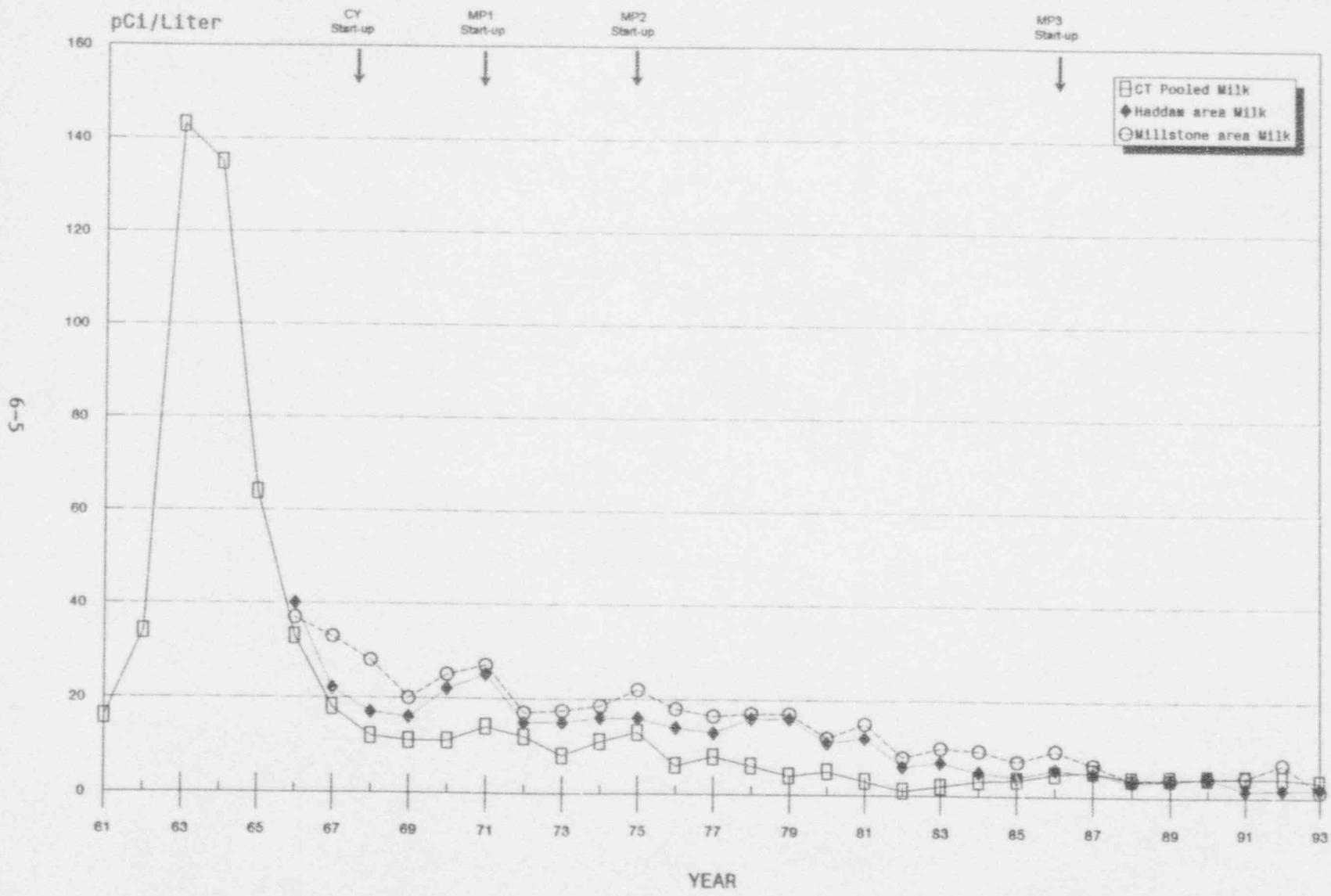


Figure 6-2

CESIUM-137 IN MILK



APPENDIX A

COW AND GOAT CENSUS FOR 1993

Dairy Cows Within 15 Miles of Millstone Point

As of December 1993

Direction	Distance	Name and Address	# of Cows
N	6 M	S. Douglas Morgan 16 Douglas Lane Waterford, CT 06385 443-0691	0
N	7 M	Waterford Country School 78 Hunts Brook Road Quaker Hill, CT 06375 - Waterford -	1
N	14 M	Wauwecus Farm Diary RFD #2, Wauwecus Hill Road Norwich, CT 06360 - Bozrah -	35
N	15 M	Joseph Lebejko RFD 2 Norwich, CT 06360	40
NE	13.5 M	Richard H. Morgan RFD #7, Box 1114 Ledyard, CT 06339	60
ENE	13 M	Charles Perkins RFD #1 Stonington, CT 06378	32
WNW	9.5 M	J. Ely Harding Ashlawn Farm Old Lyme, CT 06371 - Lyme -	50
WNW	11 M	Tiffany Farms Sterling City Road Old Lyme, CT 06371 - Lyme -	80
NNW	11.5 M	Salem Valley Farms Dairy Eugene Wilczewski Darling Road Salem, CT 06415	35

Dairy Cows Within 15 Miles of Millstone Point

As of December 1993

Direction	Distance	Name and Address	# of Cows
NNW	13 M	Stuart Gadbois Route 82 Salem, CT 06415	200
NNW	13 M	Garry Vaill Forsythe Road Salem, CT 06415 (call next year 859-1965)	0
NNW	14 M	Robert Avery Rathburn Hill Rd. Colchester, CT 06415 -Salem-	27

DAIRY GOATS WITHIN 20 MILES OF MILLSTONE POINT

AS OF DECEMBER 1993

DIRECTION	DISTANCE	NAME AND ADDRESS	NO. OF GOATS
N	2 M	Mrs. John Mingo 69 Spithead Road Waterford, CT 06385	7
N/NNE	5.2 M	Allen Moran 122 Dayton Road Waterford, CT 06385	12
NE	13 M	Alan J. Starke Rt. 12 Norwich, CT 06360 Near Mohegan Pequot Bridge	2
NE	14 M	Robert Ruest 15 Mathewson Mill Road Ledyard, CT 06339	0
ENE	2 M	Bertram Smith 9 Braman Road Waterford, CT 06385	3
W	16.5 M	Victor Trudeau 174 Horse Hill Road Westbrook, CT 06498	5
WNW	7 M	Roger Kinderman 217 Boston Post Rd. Old Lyme, CT 06371	3
WNW	13.4 M	Laura Parker 95 Plains Road Essex, CT 06426	5

DAIRY GOATS WITHIN 20 MILES OF MILLSTONE POINT

AS OF DECEMBER 1993

DIRECTION	DISTANCE	NAME AND ADDRESS	NO. OF GOATS
WNW	10 M	Dave & Pam Richards 285 Grassy Hill Road Lyme, CT 06371	*
NW	5 M	George Scacciaferro 338 Boston Post Road East Lyme, CT 06333	3
NNW	14 M	Anne B. Henrici Round Hill Road Salem, CT 06415	4

* *UNABLE TO CONTACT AS OF THIS TIME.*

TOTAL NUMBER OF GOATS ARE LISTED FOR THIS CENSUS.

APPENDIX B

NORTHEAST UTILITIES QA PROGRAM

Northeast Utilities Service Company (NUSCO), acting as the agent for both the Northeast Nuclear Energy Company (NNECO) and the Connecticut Yankee Atomic Power Company (CYAPCO), maintains a quality assurance (QA) program as part of the radiological environmental monitoring program (REMP). The QA program consists of contractor appraisals and quality control samples.

Appraisals are conducted of the primary (Teledyne Isotopes) and secondary (Yankee Atomic) radioanalysis contractors, of the Production Operations Support Laboratory (POSL), and of the NUSCO Radiological Engineering Section (RES). A REMP evaluation form is completed for each appraisal and discrepancies are tracked on a separate form until corrective action is taken. Each contractor, POSL, and RES are also audited by other organizations including other customers of the contractors and Northeast Utilities Quality Assessment Services of POSL and RES.

There are three types of quality control samples. They are:

1. Duplicate analyses of actual surveillance samples and TLDs. For samples this type of quality control allows an evaluation of the contractor's precision or reproducibility of results. Duplicate TLD measurements at eight locations with TLDs of different design are made and readout at the NUSCO Personal Dosimetry Laboratory to verify the reliability of POSL's environmental TLD readings.

2. Cross-check analyses of actual surveillance samples with more than one laboratory; e.g., Yankee Atomic Environmental Laboratory. This intercomparison allows the determination of what agreement the primary contractor has with another laboratory.

3. Analyses of "spiked" samples and TLDs. This type of quality control allows a check on the accuracy of results for contractor's sample radioanalyses and for POSL's TLD readings.

The number and type of quality control samples are given in Table 1. In general, the objective was to obtain between 10 and 20 percent of the samples as quality control samples. The results should satisfy acceptance criteria as defined in NUSCO Radiological Assessment Branch Procedure RAB 3-1, "Quality Control of the Environmental TLD Monitoring Program," and in Procedure RAB 3-2, "Quality Control of Radiological Environmental Monitoring Program." An investigation is conducted of any result or trend which does not satisfy acceptance criteria.

The NUSCO QA Program is not the only QA Program which monitors the primary contractor sample radioanalyses performance. Other programs include:

1. Teledyne Isotopes' internal QA program.

2. Teledyne Isotopes' participation in EPA's Environmental Radioactivity Laboratory Intercomparison Studies Program.

3. Nuclear Regulatory Commission-State of Connecticut Independent Verification Program.

Primary contractor participation in the EPA Intercomparison Studies Program is required by plant technical specifications and the results of this program are contained in Appendix C.

The NUSCO QA Program indicated that, in general, the Teledyne Isotopes' environmental radiological analysis program was adequate. Of the fourteen (14) investigations opened in 1993 for analyses which did not satisfy criteria, eight (8) were closed before the end of the year. Because Teledyne Isotope has not been retained as the environmental radioanalysis contractor beyond 1993, the remaining open investigations have been closed. The new contractor, Yankee Atomic, had one quality control sample which failed criteria in 1993. The investigation of this quality control sample result has been closed.

The NUSCO QA Program indicated that the environmental TLD results were reliable. For twelve months of measurements the duplicate TLDs averaged 4.0 percent higher than the environmental TLDs with a range of 14.6 percent to -1.8 percent. For ten months (August and December excluded) the spiked TLDs averaged 2.5 percent below the spiked value with a range of -9.4 percent to 0.6 percent. August and December spike results exceeded the acceptance criteria. Investigation of the August test revealed that the TLD reader required a recalibration. Reader calibration was performed shortly after the spike test and it was determined that the normal environmental TLD readout was not affected by the reader malfunction. The reason for the December spike test failure has not yet been determined. Preliminary investigation indicates that there may be an error with the spiking of the TLDs and not with the POSL readout.

TABLE 1

NUMBER OF QUALITY CONTROL* SAMPLES
1993

SAMPLE TYPE	NUMBER OF QC SAMPLES	NUMBER OF ROUTINE SAMPLES[a]
TLDs	136	526
Milk - Strontium	43	117
Milk - Iodine	11	117
Milk - Gamma	25	117
Water - Gamma	12	22
Water - Tritium	12	22
Fish/Invertebrate	6	108
Vegetation/Aquatic Flora/Bottom Sediment	4	84
Air Particulate - Gross Beta	12	830
- Iodine	9	780
- Gamma	8	60

*An additional program is performed by the contractor.

a - Total for both Millstone and Connecticut Yankee

APPENDIX C

SUMMARY OF EPA INTERLABORATORY COMPARISONS

U.S. INTERLABORATORY COMPARISON PROGRAM 1993
(ENVIRONMENTAL)

DATE	MEDIA	NUCLIDE	EPA(a)	TELEDYNE(b)	YANKEE ATOMIC(b)
1/15/93	Water	Sr-89	15.0 ± 2.9	12.7 ± 1.2	12.0 ± 1.7
		Sr-90	10.0 ± 2.9	8.3 ± 1.2	12.3 ± 0.6
1/29/93	Water	Beta	44.0 ± 2.9	52.0 ± 1.0(c)	No Result
2/5/93	Water	I-131	100.0 ± 5.8	106.7 ± 5.8	109.3 ± 5.5
3/5/93	Water	Ra-226	9.8 ± 0.9	7.7 ± 0.1 (d)	No Result
		Ra-228	18.5 ± 2.7	19.3 ± 2.3	No Result
4/20/93	Water	Beta	177 ± 15.6	150.0 ± 0.0	No Result
		Sr-89	41.0 ± 2.9	35.3 ± 1.5	No Result
		Sr-90	29.0 ± 2.9	27.3 ± 0.6	No Result
		Co-60	39.0 ± 2.9	40.7 ± 3.5	No Result
		Cs-134	27.0 ± 2.9	23.7 ± 1.5	No Result
		Cs-137	32.0 ± 2.9	34.3 ± 2.1	No Result
		Ra-226	24.9 ± 2.1	19.0 ± 1.0 (d)	
		Ra-228	19.0 ± 2.8	18.3 ± 0.6	
6/11/93	Water	Co-60	15.0 ± 2.9	16.3 ± 1.5	No Result
		Zn-65	103.0 ± 5.8	121.3 ± 2.1(e)	No Result
		Ru-106	119.0 ± 6.9	106.3 ± 15.9	No Result
		Cs-134	5.0 ± 2.9	5.7 ± 0.6	No Result
		Cs-137	5.0 ± 2.9	6.7 ± 0.6	No Result
		Ba-133	99.0 ± 5.8	104.3 ± 9.3	No Result
6/4/93	Water	H-3	9844 ± 568	9367 ± 153	10603 ± 452
7/16/93	Water	Sr-89	34.0 ± 2.9	31.7 ± 2.5	No Result
		Sr-90	25.0 ± 2.9	24.0 ± 0.0	No Result
7/23/93	Water	Beta	43.0 ± 2.9	42.7 ± 2.5	42.7 ± 2.9
8/27/93	Air Filter	Beta	47.0 ± 2.9	49.0 ± 1.7	46.0 ± 0.0
		Cs-137	9.0 ± 0.6	9.7 ±0.6	9.0 ± 1.0
9/17/93	Water	Ra-226	14.9 ± 1.3	15.3 ± 0.6	No Result
		Ra-228	20.4 ± 2.9	20.7 ± 1.2	No Result
9/24/93	Milk	Sr-89	30.0 ± 2.9	35.7 ± 3.5	28.0 ± 1.7
		Sr-90	25.0 ± 2.9	24.0 ± 7.0	22.7 ± 1.7
		I-131	120.0 ± 6.9	127.0 ± 6.0	119.7 ± 2.1
		Cs-137	49.0 ± 2.9	50.7 ± 1.2	48.7 ± 0.6
		K	1679 ± 48	1620 ± 17	1692 ± 2.9
10/8/93	Water	I-131	117.0 ± 6.9	103.3 ± 5.8	118.7 ± 14.1

U.S. INTERLABORATORY COMPARISON PROGRAM 1993
(ENVIRONMENTAL)

DATE	MEDIA	NUCLIPE	EPA(a)	TELEDYNE(b)	YANKEE ATOMIC(b)
10/19/93	Water	Beta	58.0 ± 5.8	51.3 ± 3.2	No Result
		Sr-89	15.0 ± 2.9	15.0 ± 1.0	12.7 ± 0.6
		Sr-90	10.0 ± 2.9	10.0 ± 0.0	8.7 ± 0.6
		Co-60	10.0 ± 2.9	12.0 ± 1.0	9.7 ± 0.6
		Cs-134	12.0 ± 2.9	9.0 ± 1.0	9.7 ± 0.6
		Cs-137	10.0 ± 2.9	12.7 ± 2.5	10.6 ± 0.6
10/29/93	Water	Beta	15.0 ± 2.9	15.7 ± 2.1	17.3 ± 1.5
11/5/93	Water	H-3	7398 ± 427	6900 ± 100	7164 ± 387
11/12/93	Water	Co-60	30.0 ± 2.9	28.7 ± 2.9	30.0 ± 1.7
		Zn-65	150.0 ± 8.7	152.0 ± 9.2	152.3 ± 1.2
		Ru-106	201.0 ± 11.5	177.3 ± 5.5	165.7 ± 4.5
		Cs-134	59.0 ± 2.9	53.3 ± 4.9	57.3 ± 0.6
		Cs-137	40.0 ± 2.9	41.3 ± 3.1	42.0 ± 0.0
		Ba-133	79.0 ± 4.6	69.3 ± 3.1	80.0 ± 1.7

FOOTNOTES

Units are pCi/liter for water and milk, except K is in mg/liter. Air particulate filters are in units of total pCi.

(a) EP known value ± standard error of the mean (1 sigma).

(b) Average of three analyses ± one standard deviation of the three analytical results. If the average value is not within the EPA value ± three times EPA standard deviations it is outside of EPA control limits.

(c) By oversight, the special self-absorption curve which had been previously derived using EPA water and Cs-137 standard was not used.

(d) The counting data and backgrounds were verified. Possibly some efficiencies used were erroneously high, causing low values. A less likely cause is an error in dilution. New Ra-226 standards will be prepared. Closer monitoring of out of control efficiencies will be done and extra care in preparation of the sample will be maintained.

(e) The calculations were checked and found to be correct. The results of six gamma emitting isotopes were reported to the EPA. The results of four were within one (1) normalized deviation; a fifth, within two (2) normalized deviations. Only the Zn-65 average was outside the control limits. There is no reason why one isotope should be outside the control limits, while five other isotopes were within control limits.