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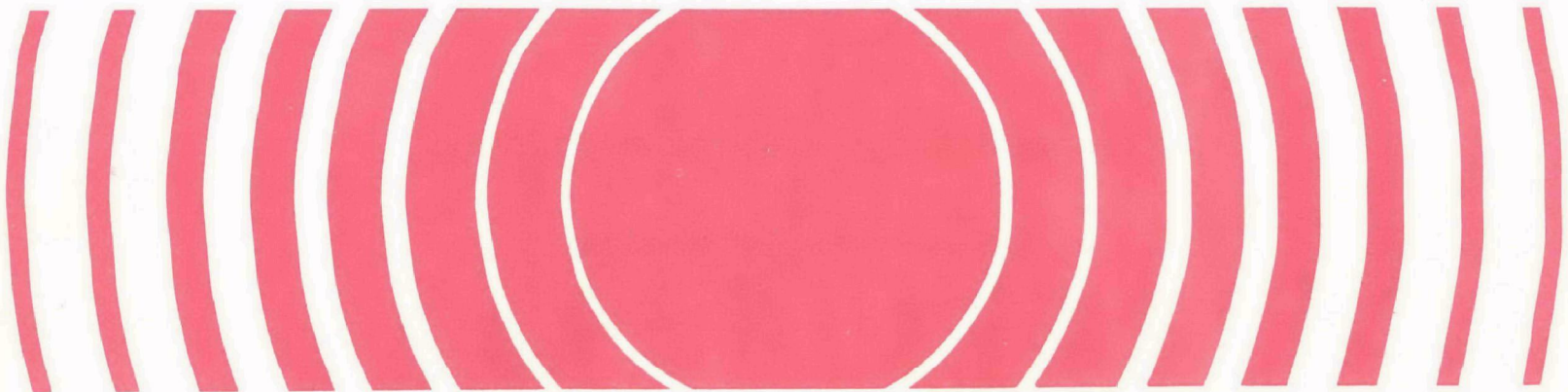
Radiation



Environmental Radiation Data

Report 43

July—September 1985



E N V I R O N M E N T A L

R A D I A T I O N

D A T A

REPORT 43

July - September 1985

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Office of Radiation Programs

Preface

Environmental Radiation Data (ERD) is compiled and distributed quarterly by the Office of Radiation Programs' Eastern Environmental Radiation Facility (EERF), Montgomery, Alabama, and contains data from the Environmental Radiation Ambient Monitoring System (ERAMS). Data from similar networks operated by contributing States, Canada, Mexico, and the Pan American Health Organization are reported in the ERD when available.

ERAMS was established in 1973 by the U. S. Environmental Protection Agency's Office of Radiation Programs (ORP). The ERAMS is comprised of nationwide sampling stations that provide air, surface and drinking water, and milk samples from which environmental radiation levels are derived. The major emphasis for ERAMS is toward identifying trends in the accumulation of long-lived radionuclides in the environment.

Sampling locations are selected to provide optimal population coverage while functioning to monitor fallout from nuclear devices and other forms of radioactive contamination of the environment. The radiation analyses performed on these samples include gross alpha and gross beta levels, gamma analyses for fission products, and specific analyses for uranium, plutonium, strontium, iodine, radium, krypton, and tritium. This monitoring effort also provides ancillary information on natural background levels and on releases into the environment from stationary sources such as nuclear power reactors, fuel fabrication facilities, and reprocessing plants.

The radiochemical procedures used by the EERF in processing the ERAMS samples are contained in Eastern Environmental Radiation Facility Radiochemistry Procedures Manual.

ENVIRONMENTAL RADIATION
DATA

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DATA - Reporting Rationale and Procedures

In 1973, the U.S. Environmental Protection Agency's Office of Radiation Programs, established the Environmental Radiation Monitoring System (ERAMS) to provide continuous, accurate, and usable environmental radiation data to the public. For completeness, ERAMS data for all specific radionuclide analyses are reported as the counting results indicate, whether the numbers are negative, zero, or positive.

Reporting Rationale

Frequently, concentrations of a radionuclide in environmental media are close to zero. When the actual concentration of a nuclide is zero, the net counting results should statistically show a distribution of negative and positive numbers about zero. This occurs when the background count is subtracted from a sample which has only background activity. Prior to July 1975, ERAMS data were not reported numerically when the results were less than a specified reporting level or minimum detectable level. The present reporting procedure allows all the data to be reported and evaluated statistically without an arbitrary cutoff of small or negative numbers. This approach will facilitate estimates of bias in the nuclide analyses and will allow better evaluation of distributions and trends in environmental data.

When reviewing the data in this report, caution should be exercised in the interpretation of individual negative values. Obviously, a negative activity value has no physical significance. Such numbers, however, are significant when taken together with other observations which indicate that the true value of a distribution is near zero. When an average of many measurements produces a result less than zero, this indicates a negative bias in the measurement procedure.

(1) Reported Values

Specific Analyses - All specific radionuclide analyses will be reported as the counting results indicate, whether the number is negative, zero, or positive. All reported values are corrected for decay to the collection date.

Potassium concentrations are determined by specific activity analyses.

Gross Analyses - The actual value of gross radioactivity measurements will be reported, unless the value is below the

minimum detectable level (MDL) at the 2 sigma confidence level, then < minimum detectable level will be reported.

MDL is defined as the 3 sigma error of the background. A tabulation of MDL's is given in the following table.

(2) Reported Error Terms

Each reported value for specific analyses will be accompanied by a counting error term at the 2 sigma (95%) confidence interval. Error terms are therefore reported as counting errors. At the very low levels characteristic of most ERAMS measurements, counting error is the greatest contributor to overall error.

(3) Significant Figures

All reported values will be rounded to no more than three significant figures. The last significant figure will be increased by one if the figure following is five or greater, otherwise it is left unchanged.

(4) Reporting Levels

The reporting units, smallest increments for reporting, and minimum detectable levels for each isotope are shown in Table 1. Smallest increments are sometimes considerably smaller than minimum detectable amounts to avoid truncation errors in averaging.

(5) Averages

Averages will be calculated along with appropriate error terms in an annual summary and analysis of ERAMS data. In calculating these averages, all values of individual data including negative numbers will be utilized. Averages will not be included in ERD quarterly reports.

TABLE 1

ERAMS Reporting Increments and Minimum Detectable Levels
for Radionuclide Analyses

<u>Radionuclide</u>	<u>Media</u>	<u>Reporting Units</u>	<u>Reporting Increments</u>	<u>Minimum Detectable Levels</u>
Gross alpha	Water	pCi/l	1 pCi/l	2 pCi/l
Gross beta	Air	pCi/m ³	.01 pCi/m ³	.01 pCi/m ³
	Water	pCi/l	1 pCi/l	1 pCi/l
	Precipitation	nCi/m ²	.01 nCi/m ²	.01 nCi/m ^{2(a)}
Tritium	Water	nCi/l	.1 nCi/l	.2 nCi/l
	Milk	nCi/l	.1 nCi/l	.2 nCi/l
Carbon-14	Milk	pCi/l	1 pCi/l	15 pCi/l
Krypton-85	Ambient Air	pCi/m ³	.1 pCi/m ³	2 pCi/m ³
Plutonium-238, 239	Air	aCi/m ³	.1 aCi/m ³	.015 pCi ^(b) per sample
	Milk	pCi/l	.001 pCi/l	.015 pCi per sample
	Water	pCi/l	.001 pCi/l	.015 pCi per sample
Uranium-234, 235,238	Air	aCi/m ³	.1 aCi/m ³	.015 pCi ^(b) per sample
	Milk	pCi/l	.001 pCi/l	.015 pCi per sample
	Water	pCi/l	.001 pCi/l	.015 pCi per sample
Radium-226	Water	pCi/l	.1 pCi/l	.1 pCi/l

<u>Radionuclide</u>	<u>Media</u>	<u>Reporting Units</u>	<u>Reporting Increments</u>	<u>Minimum Detectable Levels</u>
Strontium-90	Milk	pCi/l	.1 pCi/l	1 pCi/l
	Water	pCi/l	.1 pCi/l	1 pCi/l
Strontium-89	Milk	pCi/l	1 pCi/l	5 pCi/l ^(c)
Iodine-131	Milk	pCi/l	1 pCi/l	10 pCi/l ^(c)
	Water	pCi/l	1 pCi/l	10 pCi/l ^(c)
	Water (specific radiochemical analysis)	pCi/l	.1 pCi/l	.4 pCi/l
Iodine-129	Milk	fCi/l	.1 fCi/l	.4 fCi/l
Cesium-137	Milk	pCi/l	1 pCi/l	10 pCi/l
	Water	pCi/l	1 pCi/l	10 pCi/l
Barium-140	Milk	pCi/l	1 pCi/l	10 pCi/l ^(c)
	Water	pCi/l	1 pCi/l	10 pCi/l ^(c)
Potassium	Milk	g/l	.1 g/l	.12 g/l
	Water	g/l	.1 g/l	.12 g/l
Potassium-40	Water	pCi/l	1 pCi/l	100 pCi/l

- (a) The value in terms of nCi/m² would be dependent on precipitation (mm).
(b) This value in terms of pCi/m³ would be dependent on the air volume.
(c) Activity as of the day of counting.

ENVIRONMENTAL RADIATION
AMBIENT MONITORING SYSTEM (ERAMS)

SECTION I. Air Program

Airborne Particulates and Precipitation

Gross beta radioactivity measurements and certain specific analyses are performed on air particulates and precipitation samples as indicator measurements in assessing the general (national) impact of all contributing sources on environmental levels of radiation.

Airborne particulates are collected continuously at field stations representing wide geographic coverage, including present and potential sources of environmental radioactivity. Sampling sites are located throughout the United States.

Filters (10-cm diameter synthetic fiber) from air samplers are changed twice weekly and field measurements are made with a G-M survey meter at 5 hours and 29 hours after collection to allow for radon and thoron daughter product decay. Field estimates are reported to appropriate EPA officials by telephone or mail depending on the activity levels found.

The filters are sent to EERF for more sensitive analyses in a low background beta counter. Gamma scans are performed on all filters showing gross beta counts greater than 1 pCi/m³. The laboratory obtained values are usually lower than the field estimates due to the decay of naturally occurring radionuclides between the times of the two measurements.

Precipitation samples are collected at these field stations collecting air filters. These samples are also sent to EERF where they are composited monthly for gamma scans, tritium, and gross beta activity measurements. Plutonium-238, -239, and uranium-234, -235, and -238 analyses are performed on samples which exceed 2 pCi/liter gross alpha.

Tables 2 - 4 present the monthly average gross beta concentrations in airborne particulates for July - September 1985.

Tables 5 - 7 present the monthly average gross beta concentration in precipitation July - September 1985.

The tritium in precipitation samples for July - September 1985 at the selected stations are shown in Table 8.

A compilation of individual measurements is available from the EPA, EERF, Montgomery, AL 36109.

TABLE 2

AIRBORNE PARTICULATES
GROSS BETA CONCENTRATION
JULY 1985

LOCATION	# SAM	5-HR FIELD ESTIMATE			EERF LAB MEASUREMENT		
		MAX	MIN	AVG	MAX	MIN	AVG
		(pCi/m ³)			(pCi/m ³)		
AL:ASHFORD	5	0.0	0.0	0.0	0.01	0.01	0.01
AL:MONTGOMERY	3	1.6	0.2	0.6	0.01	0.00	0.01
AR:LITTLE ROCK	6	0.2	0.0	0.1	0.01	0.01	0.01
AZ:TEMPE	3	0.3	0.2	0.2	0.01	0.01	0.01
CA:BERKELEY	9	0.0	0.0	0.0	0.01	0.00	0.00
CA:LOS ANGELES	11	0.5	0.1	0.3	0.01	0.01	0.01
CO:DENVER	11	1.4	0.4	0.7	0.02	0.01	0.01
CT:HARTFORD	11	0.2	0.1	0.2	0.01	0.00	0.01
DE:WILMINGTON	8	0.4	0.1	0.2	0.02	0.00	0.01
FL:JACKSONVILLE	9	0.1	0.0	0.1	0.01	0.00	0.01
FL:MIAMI	9	0.0	0.0	0.0	0.01	0.00	0.01
HI:HONOLULU	10	0.1	0.0	0.1	0.01	0.00	0.01
IA:IOWA CITY	10	1.6	0.1	0.7	0.02	0.01	0.01
ID:BOISE	7	0.9	0.0	0.6	0.02	0.01	0.02
ID:IDAHO FALLS	11	0.0	0.0	0.0	0.02	0.01	0.02
IL:CHICAGO	9	0.7	0.1	0.3	0.03	0.01	0.01
IN:INDIANAPOLIS	7	1.3	0.4	0.7	0.02	0.01	0.02
KS:TOPEKA	10	2.5	0.8	1.6	0.02	0.01	0.02
ME:AUGUSTA	10	0.3	0.1	0.2	0.01	0.00	0.01
MI:LANSING	10	0.6	0.1	0.3	0.03	0.00	0.01
MN:MINNEAPOLIS	9	0.4	0.1	0.3	0.04	0.01	0.02
MO:JEFFERSON CITY	10	3.1	0.6	1.2	0.04	0.01	0.01
MS:JACKSON	10	0.7	0.2	0.4	0.02	0.01	0.02
NC:CHARLOTTE	8	0.3	0.0	0.1	0.03	0.01	0.02
NC:WILMINGTON	6	0.1	0.0	0.1	0.01	0.00	0.01
ND:BISMARCK	9	0.5	0.0	0.3	0.02	0.01	0.01
NH:CONCORD	9	0.5	0.1	0.2	0.01	0.00	0.01
NJ:TRENTON	9	0.4	0.2	0.3	0.01	0.00	0.01
NM:SANTA FE	9	0.7	0.2	0.5	0.01	0.01	0.01
NV:LAS VEGAS	9	0.3	0.1	0.2	0.03	0.01	0.02
NY:ALBANY	4	0.1	0.1	0.1	0.01	0.00	0.01
NY:NEW YORK CITY	10	0.2	0.1	0.2	0.02	0.00	0.01
NY:NIAGARA FALLS	9	0.5	0.1	0.3	0.01	0.01	0.01
NY:SYRACUSE	5	0.2	0.0	0.1	0.01	0.00	0.01
NY:YAPHANK	9	0.1	0.0	0.0	0.01	0.00	0.01
OH:COLUMBUS	11	0.5	0.1	0.4	0.03	0.00	0.01
OH:PAINESVILLE	9	0.4	0.1	0.2	0.01	0.00	0.01
OH:TOLEDO	9	0.4	0.1	0.2	0.05	0.00	0.02

TABLE 2 (CONTINUED)

AIRBORNE PARTICULATES
GROSS BETA CONCENTRATION
JULY 1985

LOCATION	# SAM	5-HR FIELD ESTIMATE			EERF LAB MEASUREMENT		
		MAX	MIN	AVG	MAX	MIN	AVG
		(pCi/m ³)			(pCi/m ³)		
OK:OKLAHOMA CITY	10	0.8	0.4	0.6	0.02	0.01	0.01
OR:PORTLAND	9	0.0	0.0	0.0	0.01	0.00	0.00
PA:GOLDSBORO	12	1.2	0.1	0.4	0.05	0.00	0.02
PA:HARRISBURG	10	0.5	0.1	0.3	0.02	0.01	0.01
PA:PITTSBURGH	11	0.1	0.1	0.1	0.03	0.01	0.01
RI:PROVIDENCE	6	0.4	0.1	0.2	0.01	0.01	0.01
SC:BARNWELL	2	0.2	0.0	0.1	0.01	0.00	0.00
SC:COLUMBIA	11	0.6	0.1	0.3	0.03	0.01	0.02
SD:PIERRE	10	0.6	0.2	0.4	0.02	0.00	0.01
TN:KNOXVILLE	10	1.2	0.4	0.7	0.02	0.01	0.01
TN:NASHVILLE	4	0.9	0.1	0.3	0.02	0.01	0.01
TX:AUSTIN	11	0.3	0.1	0.2	0.02	0.01	0.01
TX:EL PASO	11	1.0	0.1	0.4	0.02	0.01	0.01
VA:LYNCHBURG	9	1.3	0.2	0.6	0.02	0.01	0.01
VA:VIRGINIA BEACH	2	0.1	0.1	0.1	0.01	0.01	0.01
WA:SPOKANE	10	0.3	0.2	0.3	0.04	0.01	0.01
WI:MADISON	10	0.9	0.3	0.5	0.01	0.00	0.01
WV:CHARLESTON	9	0.6	0.1	0.3	0.02	0.01	0.01

MINIMUM DETECTABLE LIMIT FOR FIELD ESTIMATES - .1 pCi/m³
 MINIMUM DETECTABLE LIMIT FOR LAB MEASUREMENT - .01 pCi/m³

TABLE 3

AIRBORNE PARTICULATES
GROSS BETA CONCENTRATION
AUGUST 1985

LOCATION	# SAM	5-HR FIELD ESTIMATE			EERF LAB MEASUREMENT		
		MAX	MIN	AVG	MAX	MIN	AVG
		(pCi/m ³)			(pCi/m ³)		
AL:ASHFORD	6	0.0	0.0	0.0	0.01	0.00	0.01
AL:MONTGOMERY	10	1.1	0.2	0.5	0.01	0.01	0.01
AR:LITTLE ROCK	9	0.6	0.0	0.2	0.02	0.01	0.01
AZ:TEMPE	7	2.1	0.2	0.8	0.03	0.01	0.01
CA:BERKELEY	9	0.1	0.0	0.0	0.01	0.00	0.01
CA:LOS ANGELES	12	1.2	0.0	0.5	0.01	0.01	0.01
CO:DENVER	8	1.8	0.4	1.0	0.02	0.01	0.01
CT:HARTFORD	5	0.3	0.1	0.2	0.01	0.00	0.01
DE:WILMINGTON	11	0.7	0.0	0.2	0.02	0.00	0.01
FL:JACKSONVILLE	9	0.1	0.0	0.0	0.01	0.00	0.01
FL:MIAMI	11	0.0	0.0	0.0	0.01	0.00	0.01
HI:HONOLULU	11	0.2	0.1	0.1	0.01	0.00	0.00
IA:IOWA CITY	10	0.6	0.1	0.3	0.02	0.01	0.01
ID:BOISE	8	0.6	0.2	0.4	0.01	0.01	0.01
ID:IDAHO FALLS	9	0.0	0.0	0.0	0.02	0.01	0.01
IL:CHICAGO	8	0.4	0.1	0.2	0.02	0.00	0.01
IN:INDIANAPOLIS	9	1.0	0.3	0.6	0.02	0.01	0.01
KS:TOPEKA	9	1.6	0.3	0.7	0.02	0.01	0.01
ME:AUGUSTA	9	0.6	0.0	0.2	0.01	0.00	0.01
MI:LANSING	10	0.8	0.1	0.4	0.01	0.01	0.01
MN:MINNEAPOLIS	9	0.6	0.1	0.3	0.04	0.01	0.01
MO:JEFFERSON CITY	9	1.2	0.1	0.6	0.04	0.01	0.02
MS:JACKSON	10	0.7	0.1	0.4	0.02	0.01	0.01
NC:CHARLOTTE	7	0.2	0.0	0.1	0.01	0.01	0.01
NC:WILMINGTON	6	0.1	0.0	0.1	0.02	0.00	0.01
ND:BISMARCK	11	0.8	0.1	0.3	0.02	0.01	0.01
NH:CONCORD	8	0.4	0.1	0.2	0.01	0.00	0.01
NJ:TRENTON	11	0.9	0.1	0.3	0.02	0.00	0.01
NM:SANTA FE	10	0.6	0.0	0.3	0.01	0.00	0.01
NV:LAS VEGAS	10	0.3	0.1	0.2	0.01	0.00	0.01
NY:ALBANY	5	0.1	0.1	0.1	0.01	0.01	0.01
NY:NEW YORK CITY	10	0.3	0.1	0.2	0.02	0.01	0.01
NY:NIAGARA FALLS	10	0.4	0.1	0.2	0.02	0.00	0.01
NY:SYRACUSE	4	0.1	0.1	0.1	0.01	0.01	0.01
NY:YAPHANK	9	0.1	0.0	0.0	0.01	0.00	0.01
OH:COLUMBUS	11	0.6	0.1	0.4	0.02	0.01	0.02
OH:PAINESVILLE	11	0.3	0.1	0.2	0.02	0.00	0.01
OH:TOLEDO	8	0.7	0.1	0.3	0.02	0.01	0.01

TABLE 3 (CONTINUED)

AIRBORNE PARTICULATES
GROSS BETA CONCENTRATION
AUGUST 1985

LOCATION	# SAM	5-HR FIELD ESTIMATE			EERF LAB MEASUREMENT		
		MAX	MIN	AVG	MAX	MIN	AVG
		(pCi/m ³)			(pCi/m ³)		
OK:OKLAHOMA CITY	9	1.1	0.5	0.8	0.02	0.01	0.01
OR:PORTLAND	9	0.0	0.0	0.0	0.01	0.00	0.01
PA:GOLDSBORO	9	0.8	0.1	0.3	0.04	0.00	0.01
PA:HARRISBURG	10	0.6	0.1	0.3	0.02	0.01	0.01
PA:PITTSBURGH	9	0.2	0.1	0.2	0.02	0.01	0.01
RI:PROVIDENCE	5	0.2	0.1	0.1	0.01	0.00	0.01
SC:BARNWELL	2	0.0	0.0	0.0	0.01	0.00	0.00
SC:COLUMBIA	10	0.4	0.1	0.2	0.06	0.01	0.02
SD:PIERRE	9	0.8	0.2	0.4	0.03	0.01	0.01
TN:KNOXVILLE	9	1.8	0.1	0.7	0.03	0.01	0.02
TN:NASHVILLE	6	0.6	0.4	0.5	0.02	0.01	0.01
TX:AUSTIN	10	0.5	0.2	0.3	0.01	0.01	0.01
TX:EL PASO	10	0.8	0.2	0.4	0.01	0.01	0.01
VA:LYNCHBURG	11	1.3	0.2	0.5	0.02	0.01	0.01
WA:SPOKANE	11	0.6	0.2	0.3	0.03	0.01	0.01
WI:MADISON	10	1.1	0.1	0.5	0.02	0.00	0.01
WV:CHARLESTON	10	1.1	0.3	0.6	0.02	0.01	0.01

MINIMUM DETECTABLE LIMIT FOR FIELD ESTIMATES - .1 pCi/m³
 MINIMUM DETECTABLE LIMIT FOR LAB MEASUREMENT - .01 pCi/m³

TABLE 4

AIRBORNE PARTICULATES
GROSS BETA CONCENTRATION
SEPTEMBER 1985

LOCATION	# SAM	5-HR FIELD ESTIMATE			EERF LAB MEASUREMENT		
		MAX	MIN	AVG	MAX	MIN	AVG
		(pCi/m ³)			(pCi/m ³)		
AL:ASHFORD	4	0.0	0.0	0.0	0.01	0.01	0.01
AL:MONTGOMERY	10	1.6	0.2	0.7	0.01	0.01	0.01
AR:LITTLE ROCK	8	0.7	0.0	0.3	0.02	0.00	0.01
AZ:TEMPE	3	1.5	0.2	0.9	0.01	0.01	0.01
CA:BERKELEY	8	0.3	0.0	0.1	0.01	0.00	0.00
CA:LOS ANGELES	8	1.8	0.1	0.9	0.01	0.00	0.01
CO:DENVER	7	0.8	0.4	0.6	0.01	0.01	0.01
CT:HARTFORD	7	0.2	0.1	0.1	0.01	0.00	0.01
DE:WILMINGTON	9	1.4	0.0	0.4	0.02	0.00	0.01
FL:JACKSONVILLE	10	0.1	0.0	0.1	0.02	0.00	0.01
FL:MIAMI	9	0.0	0.0	0.0	0.01	0.00	0.01
HI:HONOLULU	12	0.2	0.0	0.1	0.01	0.00	0.01
IA:IOWA CITY	9	0.9	0.1	0.4	0.08	0.01	0.02
ID:BOISE	9	0.6	0.1	0.4	0.01	0.00	0.01
ID:IDAHO FALLS	10	0.0	0.0	0.0	0.02	0.01	0.01
IL:CHICAGO	8	0.8	0.0	0.3	0.04	0.01	0.01
IN:INDIANAPOLIS	5	0.9	0.4	0.6	0.05	0.01	0.02
KS:TOPEKA	10	2.7	0.1	1.0	0.02	0.01	0.01
ME:AUGUSTA	9	0.6	0.1	0.3	0.01	0.00	0.01
MI:LANSING	10	0.4	0.1	0.2	0.02	0.01	0.01
MN:MINN/ST. PAUL	7	0.6	0.1	0.4	0.02	0.01	0.01
MN:MINNEAPOLIS	4	0.3	0.1	0.2	0.01	0.00	0.01
MO:JEFFERSON CITY	9	0.9	0.4	0.6	0.04	0.00	0.01
MS:JACKSON	9	0.8	0.2	0.4	0.03	0.01	0.01
NC:CHARLOTTE	6	0.2	0.0	0.1	0.04	0.01	0.02
NC:WILMINGTON	7	0.1	0.0	0.1	0.01	0.01	0.01
ND:BISMARCK	8	4.7	0.1	0.8	0.01	0.00	0.01
NH:CONCORD	9	0.7	0.0	0.2	0.01	0.00	0.01
NJ:TRENTON	4	0.7	0.4	0.5	0.01	0.00	0.01
NM:SANTA FE	6	0.4	0.1	0.3	0.01	0.00	0.01
NV:LAS VEGAS	11	0.3	0.1	0.2	0.03	0.00	0.01
NY:ALBANY	4	0.2	0.1	0.1	0.02	0.01	0.01
NY:NEW YORK CITY	9	0.6	0.1	0.2	0.02	0.01	0.01
NY:NIAGARA FALLS	9	0.7	0.1	0.2	0.02	0.01	0.01
NY:SYRACUSE	4	0.2	0.0	0.1	0.01	0.01	0.01
NY:YAPHANK	6	0.1	0.0	0.0	0.02	0.01	0.01
OH:COLUMBUS	11	1.2	0.3	0.7	0.05	0.01	0.02
OH:PAINESVILLE	8	0.4	0.1	0.2	0.03	0.01	0.01

TABLE 4 (CONTINUED)

AIRBORNE PARTICULATES
GROSS BETA CONCENTRATION
SEPTEMBER 1985

LOCATION	# SAM	5-HR FIELD ESTIMATE			EERF LAB MEASUREMENT		
		MAX	MIN	AVG	MAX	MIN	AVG
		(pCi/m ³)			(pCi/m ³)		
OH:TOLEDO	8	1.1	0.1	0.4	0.02	0.01	0.02
OK:OKLAHOMA CITY	6	0.8	0.5	0.7	0.02	0.01	0.01
OR:PORTLAND	9	0.0	0.0	0.0	0.01	0.00	0.00
PA:GOLDSBORO	8	1.0	0.1	0.6	0.02	0.01	0.01
PA:HARRISBURG	4	0.8	0.1	0.4	0.02	0.01	0.01
PA:PITTSBURGH	11	0.5	0.1	0.3	0.06	0.01	0.02
RI:PROVIDENCE	6	0.4	0.2	0.2	0.02	0.01	0.01
SC:BARNWELL	2	0.1	0.0	0.1	0.01	0.01	0.01
SC:COLUMBIA	8	0.6	0.2	0.3	0.07	0.01	0.02
SD:PIERRE	9	0.7	0.1	0.4	0.03	0.00	0.01
TN:KNOXVILLE	8	1.9	0.2	0.9	0.03	0.01	0.02
TN:NASHVILLE	5	0.5	0.1	0.2	0.02	0.01	0.01
TX:AUSTIN	8	0.5	0.2	0.3	0.02	0.00	0.01
TX:EL PASO	7	0.7	0.1	0.4	0.02	0.01	0.01
VA:LYNCHBURG	8	0.9	0.0	0.3	0.02	0.00	0.01
WA:SPOKANE	9	0.8	0.1	0.3	0.02	0.00	0.01
WI:MADISON	9	0.5	0.1	0.3	0.01	0.01	0.01
WV:CHARLESTON	10	0.8	0.2	0.5	0.02	0.01	0.02

MINIMUM DETECTABLE LIMIT FOR FIELD ESTIMATES - .1 pCi/m³
 MINIMUM DETECTABLE LIMIT FOR LAB MEASUREMENT - .01 pCi/m³

TABLE 5
GROSS BETA CONCENTRATION IN PRECIPITATION

JULY 1985

LOCATION	DEPTH (mm)	ACT. \pm 2s (nCi/m ²)		SPECIFIC GAMMA ACT. (pCi/l)
AL:MONTGOMERY	200.0	0.06	0.09	ND
AR:LITTLE ROCK	100.0	0.21	0.05	ND
AZ:PHOENIX	44.0	0.04	0.02	ND
CO:DENVER	28.0	0.06	0.02	ND
CT:HARTFORD	93.9	0.28	0.06	ND
DE:WILMINGTON	127.0	0.31	0.08	ND
FL:JACKSONVILLE	258.3	0.14	0.12	ND
FL:MIAMI	213.8	0.15	0.09	ND
ID:IDAHO FALLS	16.8	0.02	0.01	ND
IL:CHICAGO	51.6	0.07	0.03	ND
MI:LANSING	22.1	0.05	0.01	ND
MN:MINNEAPOLIS	65.1	0.09	0.03	ND
MS:JACKSON	86.3	0.04	0.04	ND
ND:BISMARCK	9.8	0.01	0.01	ND
NH:CONCORD	46.5	0.10	0.03	ND
NJ:TRENTON	102.5	0.31	0.07	ND
NY:ALBANY	33.6	0.04	0.02	ND
NY:NEW YORK CITY	54.5	0.05	0.02	ND
NY:NIAGARA FALLS	59.5	0.08	0.03	ND
NY:SYRACUSE	45.6	0.08	0.02	ND
NY:YAPHANK	87.5	0.11	0.04	ND
OH:COLUMBUS	124.0	0.28	0.07	ND
OH:PAINESVILLE	87.5	0.21	0.05	ND
OH:TOLEDO	80.0	0.14	0.04	ND
PA:HARRISBURG	102.4	0.45	0.07	ND
PA:MIDDLETOWN	92.5	0.20	0.04	ND
PA:PITTSBURGH	126.0	0.16	0.06	ND
RI:PROVIDENCE	102.5	0.28	0.06	ND
SC:BARNWELL	31.3	0.02	0.01	ND
SC:COLUMBIA	236.3	0.26	0.13	ND
TN:KNOXVILLE	40.0	0.03	0.02	ND
TN:NASHVILLE	51.8	0.09	0.03	ND
TX:AUSTIN	27.5	0.02	0.01	ND
VA:LYNCHBURG	19.3	0.23	0.02	ND
WI:MADISON	76.0	0.13	0.04	ND

ND NO GAMMA ACTIVITY DETECTABLE
s SIGMA COUNTING ERROR

TABLE 6

GROSS BETA CONCENTRATION IN PRECIPITATION

AUGUST 1985

LOCATION	DEPTH (mm)	ACT. \pm 2s (nCi/m ²)		SPECIFIC GAMMA ACT. (pCi/l)
AL:MONTGOMERY	88.3	0.19	0.05	ND
AR:LITTLE ROCK	60.0	0.07	0.03	ND
AZ:PHOENIX	9.1	0.02	0.00	ND
CT:HARTFORD	179.4	0.40	0.10	ND
DE:WILMINGTON	202.5	0.59	0.12	ND
FL:JACKSONVILLE	114.4	0.06	0.05	ND
FL:MIAMI	185.0	0.10	0.07	ND
ID:BOISE	50.0	0.24	0.05	ND
ID:IDAHO FALLS	28.1	0.05	0.02	ND
IL:CHICAGO	86.1	0.13	0.04	ND
MI:LANSING	253.6	0.28	0.12	ND
MN:MINN/ST. PAUL	119.4	0.08	0.05	ND
MS:JACKSON	37.5	0.23	0.03	²¹⁴ Bi 149 \pm 64%
ND:BISMARCK	86.3	0.11	0.05	ND
NH:CONCORD	86.8	0.16	0.05	²¹⁴ Bi 48 \pm 87%
NJ:TRENTON	75.9	0.18	0.05	ND
NY:ALBANY	42.9	0.10	0.03	ND
NY:NEW YORK CITY	37.9	0.06	0.02	ND
NY:NIAGARA FALLS	94.4	0.05	0.04	ND
NY:SYRACUSE	56.3	0.04	0.02	ND
NY:YAPHANK	67.5	0.06	0.04	ND
OH:COLUMBUS	90.0	0.06	0.04	ND
OH:PAINESVILLE	145.6	0.50	0.10	ND
OH:TOLEDO	90.0	0.13	0.05	ND
OR:PORTLAND	24.8	0.04	0.01	²¹⁴ Bi 110 \pm 86%
PA:MIDDLETOWN	47.5	0.20	0.03	ND
PA:PITTSBURGH	85.0	0.24	0.05	ND
RI:PROVIDENCE	50.0	0.06	0.02	ND
SC:BARNWELL	95.0	0.08	0.05	ND
SC:COLUMBIA	55.0	0.13	0.03	ND
SD:PIERRE	138.8	0.19	0.08	ND
TN:KNOXVILLE	40.0	0.02	0.02	ND
TN:NASHVILLE	25.3	0.01	0.01	ND
VA:LYNCHBURG	83.8	0.48	0.06	ND
VA:VIRGINIA BEACH	45.0	0.04	0.02	ND
WI:MADISON	87.0	0.06	0.04	ND

ND NO GAMMA ACTIVITY DETECTABLE
s SIGMA COUNTING ERROR

TABLE 7

GROSS BETA CONCENTRATION IN PRECIPITATION

SEPTEMBER 1985

LOCATION	DEPTH (mm)	ACT. \pm 2s (nCi/m ²)		SPECIFIC GAMMA ACT. (pCi/l)
AL:MONTGOMERY	50.0	0.03	0.02	ND
AR:LITTLE ROCK	57.5	0.09	0.03	ND
AZ:PHOENIX	2.5	0.00	0.00	ND
CA:BERKELEY	18.3	0.03	0.01	ND
CT:HARTFORD	42.0	0.09	0.02	ND
DC:WASHINGTON	120.8	0.04	0.05	ND
DE:WILMINGTON	26.3	0.74	0.04	ND
FL:JACKSONVILLE	216.3	0.15	0.09	ND
FL:MIAMI	77.5	0.02	0.03	ND
ID:BOISE	47.5	0.05	0.02	ND
ID:IDAHO FALLS	35.4	0.03	0.01	ND
IL:CHICAGO	89.6	0.16	0.05	ND
MI:LANSING	60.6	0.04	0.03	ND
MN:MINNEAPOLIS	88.4	0.05	0.04	ND
MS:JACKSON	41.5	0.03	0.02	ND
ND:BISMARCK	45.8	0.12	0.03	ND
NH:CONCORD	38.3	0.08	0.02	ND
NJ:TRENTON	151.1	0.23	0.09	ND
NV:LAS VEGAS	10.0	0.05	0.01	ND
NY:ALBANY	36.9	0.13	0.02	ND
NY:NEW YORK CITY	50.0	0.05	0.02	ND
NY:NIAGARA FALLS	53.5	0.00	0.00	ND
NY:SYRACUSE	17.5	0.02	0.01	ND
NY:YAPHANK	15.0	0.13	0.01	ND
OH:COLUMBUS	25.0	0.01	0.01	ND
OH:PAINESVILLE	50.0	0.03	0.02	ND
OH:TOLEDO	35.0	0.03	0.02	ND
OR:PORTLAND	71.0	0.09	0.04	ND
PA:HARRISBURG	191.5	0.40	0.11	ND
PA:MIDDLETOWN	42.5	0.03	0.02	ND
PA:PITTSBURGH	31.8	0.06	0.02	ND
RI:PROVIDENCE	50.0	0.13	0.03	ND
SC:BARNWELL	35.0	0.01	0.01	ND
SC:COLUMBIA	60.0	0.03	0.02	ND
TN:KNOXVILLE	20.0	0.01	0.01	ND
TN:NASHVILLE	46.0	0.05	0.02	ND
TX:AUSTIN	60.3	0.09	0.04	ND
TX:EL PASO	95.0	0.10	0.04	ND
VA:LYNCHBURG	206.0	0.50	0.12	ND
WI:MADISON	188.3	0.13	0.10	ND

ND NO GAMMA ACTIVITY DETECTABLE
s SIGMA COUNTING ERROR

TABLE 8
 PRECIPITATION
 TRITIUM CONCENTRATION
 JULY - SEPTEMBER 1985

LOCATION	JULY	AUGUST	SEPTEMBER
	nCi/1 \pm 2s	nCi/1 \pm 2s	nCi/1 \pm 2s
AL:MONTGOMERY	0.2 0.2	0.1 0.2	0.2 0.2
AR:LITTLE ROCK	0.1 0.2	0.1 0.2	0.1 0.2
AZ:PHOENIX	0.2 0.2	0.1 0.2	0.2 0.2
CA:BERKELEY	NS	NS	0.2 0.2
CO:DENVER	0.2 0.2	NS	NS
CT:HARTFORD	0.2 0.2	0.2 0.2	0.2 0.2
DC:WASHINGTON	NS	NS	0.1 0.2
DE:WILMINGTON	0.2 0.2	0.2 0.2	0.2 0.2
FL:JACKSONVILLE	0.1 0.2	0.1 0.2	0.2 0.2
FL:MIAMI	0.2 0.2	0.1 0.2	0.3 0.2
ID:BOISE	NS	0.2 0.2	0.2 0.2
ID:IDAHO FALLS	0.2 0.2	0.2 0.2	0.2 0.2
IL:CHICAGO	0.2 0.2	0.2 0.2	0.1 0.2
MI:LANSING	0.2 0.2	0.2 0.2	0.2 0.2
MN:MINNEAPOLIS	0.2 0.2	0.2 0.2	0.2 0.2
MS:JACKSON	0.1 0.2	0.2 0.2	0.2 0.2
ND:BISMARCK	0.2 0.2	0.3 0.2	0.2 0.2
NH:CONCORD	0.2 0.2	0.2 0.2	0.1 0.2
NJ:TRENTON	0.2 0.2	0.2 0.2	0.1 0.2
NV:LAS VEGAS	NS	NS	0.2 0.2
NY:ALBANY	0.2 0.2	0.2 0.2	0.2 0.2
NY:NEW YORK CITY	0.2 0.2	0.2 0.2	0.2 0.2
NY:NIAGARA FALLS	0.2 0.2	0.3 0.2	0.2 0.2
NY:SYRACUSE	0.2 0.2	0.2 0.2	0.3 0.2
NY:YAPHANK	0.1 0.2	0.2 0.2	0.2 0.2
OH:COLUMBUS	0.1 0.2	0.2 0.2	0.2 0.2
OH:PAINESVILLE	0.2 0.2	0.3 0.2	0.2 0.2
OH:TOLEDO	0.2 0.2	0.2 0.2	0.2 0.2
OR:PORTLAND	NS	0.2 0.2	0.2 0.2
PA:HARRISBURG	0.2 0.2	NS	0.2 0.2
PA:MIDDLETOWN	0.2 0.2	0.2 0.2	0.2 0.2
PA:PITTSBURGH	0.2 0.2	0.2 0.2	0.3 0.2
RI:PROVIDENCE	0.3 0.2	0.2 0.2	0.1 0.2
SC:BARNWELL	2.5 0.2	2.2 0.2	0.3 0.2
SC:COLUMBIA	0.7 0.2	0.3 0.2	0.5 0.2

TABLE 8 (CONTINUED)

PRECIPITATION
TRITIUM CONCENTRATION

JULY - SEPTEMBER 1985

LOCATION	JULY	AUGUST	SEPTEMBER
	nCi/l \pm 2s	nCi/l \pm 2s	nCi/l \pm 2s
SD:PIERRE	NS	0.2 0.2	NS
TN:KNOXVILLE	0.2 0.2	0.2 0.2	0.6 0.2
TN:NASHVILLE	0.2 0.2	0.3 0.2	0.2 0.2
TX:AUSTIN	0.1 0.2	NS	0.2 0.2
TX:EL PASO	NS	NS	0.1 0.2
VA:LYNCHBURG	0.2 0.2	0.3 0.2	0.2 0.2
VA:VIRGINIA BEACH	NS	0.2 0.2	NS
WI:MADISON	0.2 0.2	0.2 0.2	0.1 0.2

NS NO SAMPLE
s SIGMA COUNTING ERROR

Plutonium and Uranium in Airborne Particulates and Precipitation

Environmental radiation levels of plutonium and uranium are determined by the analyses of quarterly composited samples (air filters) collected from the continuously operating airborne particulate samplers.

Concentration of the specific isotopes of plutonium-238, -239, and uranium-234, -235, and -238 are determined by alpha spectroscopy following chemical separation. The volume of air represented by the quarterly composite ranges from 25,000 to 40,000 m³ for each quarterly composite.

Plutonium and uranium in airborne particulates data for October - December 1984 are shown in Table 9.

Table 9.1 contains the results of plutonium and uranium analyses on selected precipitation composite samples for 1985. The composite samples are those ERAMS stations that have the longest history of continuous collection.

TABLE 9

 PLUTONIUM AND URANIUM IN AIRBORNE PARTICULATES
 OCTOBER - DECEMBER 1984 COMPOSITES

LOCATION	^{238}Pu		^{239}Pu		^{234}U		^{235}U		^{238}U		
	aCi/m ³ + 2s		aCi/m ³ + 2s		aCi/m ³ + 2s		aCi/m ³ + 2s		aCi/m ³ + 2s		
AL:ASHFORD	0.7	1.1	0.3	0.4	17.1	3.4	1.2	0.8	15.2	3.1	
AL:MONTGOMERY	1.0	0.9	0.2	0.6	18.1	3.6	0.5	0.5	12.4	2.8	
AR:LITTLE ROCK	0.4	0.5	0.2	0.7	14.5	2.7	0.8	0.5	12.6	2.4	
AZ:TEMPE	0.8	2.0	1.0	0.9	52.0	9.4	2.6	1.8	47.6	8.9	
CA:BERKELEY	0.3	0.5	0.5	0.5	6.2	1.7	0.2	0.3	5.2	1.5	
CA:LOS ANGELES	0.8	1.1	0.9	0.7	30.2	5.2	1.1	0.8	29.1	5.1	
CO:DENVER	0.8	1.0	0.3	0.4	22.3	3.7	1.3	0.7	22.3	3.7	
CT:HARTFORD	-0.1	0.4	0.2	0.3	15.6	3.6	0.3	0.4	15.0	3.4	
DE:WILMINGTON	-0.2	0.2	0.2	0.2	23.2	4.7	0.4	0.5	14.2	3.5	
FL:JACKSONVILLE	1.4	0.9	-0.2	1.0	28.1	4.1	0.8	0.6	26.9	4.0	
FL:MIAMI	1.5	1.3	-1.3	1.3	25.3	3.7	1.1	0.7	19.9	3.1	
HI:HONOLULU	-0.1	0.6	0.2	0.6	9.9	2.3	0.2	0.4	6.4	1.8	
IA:IOWA CITY	0.6	0.7	0.8	0.6	16.4	3.0	0.9	0.6	16.2	3.0	
ID:BOISE	0.7	0.7	0.6	0.5	20.5	3.7	0.1	0.2	15.8	3.1	
ID:IDAHO FALLS	0.7	0.6	0.1	0.2	24.8	4.0	0.9	0.6	26.9	4.2	
IL:CHICAGO	1.5	1.0	1.0	0.6	26.1	4.2	1.0	0.8	32.1	4.8	
IN:INDIANAPOLIS	3.7	1.7	0.7	0.7	41.1	6.7	0.9	0.8	37.3	6.3	
KS:TOPEKA	0.0	0.4	0.3	0.3	3.0	1.1	0.0	0.0	3.0	1.1	
ME:AUGUSTA	0.3	0.6	0.2	0.3	25.8	3.9	2.0	0.8	25.2	3.8	
MI:LANSING	0.4	0.6	0.3	0.4	20.8	3.3	1.5	0.8	20.6	3.3	
MN:MINNEAPOLIS	0.4	0.4	0.5	0.5	16.0	2.9	0.6	0.5	17.0	3.0	
MO:JEFFERSON CITY	1.4	1.0	0.4	0.4	16.6	3.1	0.5	0.5	16.2	3.1	
MS:JACKSON	1.2	0.7	0.4	0.3	23.1	3.5	1.3	0.7	23.2	3.5	
NC:CHARLOTTE	1.5	0.8	0.9	0.7	23.3	3.9	0.8	0.6	18.0	3.3	
NC:WILMINGTON	0.5	0.6	0.5	0.4	18.5	3.1	0.4	0.4	13.7	2.5	
ND:BISMARCK	0.7	0.6	0.6	0.5	33.2	5.0	0.8	0.6	27.0	4.3	
NH:CONCORD	0.6	0.6	0.5	0.5	18.3	2.9	1.0	0.6	15.8	2.6	
NJ:TRENTON	-0.2	1.3	-0.4	1.4	48.3	6.4	0.9	0.7	13.5	2.8	
NM:SANTA FE	1.0	0.8	0.4	0.5	16.4	3.3	0.5	0.6	15.5	3.1	
NV:LAS VEGAS	2.9	1.9	-0.4	1.3	99.1	14.4	1.5	1.2	67.7	10.8	
NY:ALBANY	1.4	1.3	0.2	0.3	41.2	6.6	1.2	0.9	31.7	5.6	
NY:NEW YORK CITY	0.2	0.6	0.2	0.8	18.9	3.1	0.9	0.6	15.7	2.8	
NY:NIAGARA FALLS	0.3	0.3	0.1	0.2	43.3	5.3	2.3	0.9	46.7	5.6	
NY:SYRACUSE	0.3	0.6	0.2	0.3	21.6	3.3	0.2	0.4	21.3	3.3	
NY:SYRACUSE	*	0.4	0.5	0.7	0.6	25.1	4.3	0.8	0.6	20.2	3.7
NY:YAPHANK	1.1	1.0	0.3	0.4	7.7	1.6	0.6	0.4	7.4	1.6	
OH:COLUMBUS	0.8	0.6	0.3	0.3	40.5	5.1	0.7	0.5	38.3	4.9	
OH:COLUMBUS	**	0.2	0.2	0.6	0.5	53.7	6.3	3.9	1.2	52.3	6.2
OH:PAINESVILLE	0.4	0.8	0.2	0.3	24.0	4.4	1.1	0.8	20.3	3.9	
OH:TOLEDO	1.0	0.8	0.3	0.5	31.3	5.0	0.7	0.6	27.0	4.5	
OK:OKLAHOMA CITY	0.6	0.8	0.0	0.4	14.7	3.3	0.5	0.7	13.7	3.1	
OR:PORTLAND	0.4	0.9	0.1	0.2	9.1	2.3	0.4	0.5	8.9	2.2	

TABLE 9 (CONTINUED)

 PLUTONIUM AND URANIUM IN AIRBORNE PARTICULATES
 OCTOBER - DECEMBER 1984 COMPOSITES

LOCATION	^{238}Pu		^{239}Pu		^{234}U		^{235}U		^{238}U	
	aCi/m ³	+ 2s	aCi/m ³	+ 2s	aCi/m ³	+ 2s	aCi/m ³	+ 2s	aCi/m ³	+ 2s
PA:GOLDSBORO	0.3	0.7	0.5	0.6	10.3	2.2	1.6	0.8	5.6	1.6
PA:HARRISBURG	-0.1	0.3	0.2	0.3	15.1	2.9	0.3	0.5	13.1	2.7
PA:TMI	0.1	0.8	0.2	0.5	22.1	4.4	0.3	0.5	13.5	3.3
RI:PROVIDENCE	0.0	0.6	0.0	0.2	15.1	2.7	0.7	0.5	12.9	2.4
SC:BARNWELL	2.1	1.3	0.7	0.7	11.2	2.8	0.0	0.0	11.9	2.9
SC:COLUMBIA	1.7	2.5	1.2	1.6	38.6	4.8	1.6	0.8	36.0	4.6
SD:PIERRE	-0.3	0.9	-0.3	0.4	18.7	4.4	0.1	0.6	14.5	3.7
TN:KNOXVILLE	0.8	0.5	0.4	0.3	33.8	4.4	1.6	0.7	16.3	2.7
TN:NASHVILLE	-0.3	1.5	-0.1	0.6	36.9	6.0	1.8	1.1	36.7	6.0
TX:AUSTIN	0.1	0.6	0.3	0.4	12.1	2.7	0.6	0.5	10.7	2.5
TX:EL PASO	1.1	1.2	1.0	2.4	48.0	8.0	0.2	0.4	44.0	7.5
VA:LYNCHBURG	0.9	0.7	0.2	0.3	227.6	20.9	6.0	1.5	14.8	2.6
VA:VIRGINIA BEACH	0.3	0.4	0.1	0.3	25.2	3.5	1.0	0.6	21.0	3.1
WA:SEATTLE	1.0	0.7	0.1	0.6	6.6	1.6	0.3	0.3	6.6	1.6
WA:SPOKANE	0.7	1.0	0.5	0.7	22.9	5.5	1.0	1.2	23.4	5.5
WI:MADISON	0.3	0.4	0.1	0.3	15.7	2.6	0.3	0.4	11.8	2.2
WV:CHARLESTON	2.1	1.2	0.2	0.6	40.4	6.3	0.7	0.7	38.1	6.0

* RESULTS FROM JULY - SEPTEMBER 1984

** RESULTS FROM APRIL - JUNE 1984

s SIGMA COUNTING ERROR

TABLE 9.1

PLUTONIUM AND URANIUM ANALYSES
OF
SELECTED PRECIPITATION COMPOSITE SAMPLES

1985

LOCATION	^{238}Pu		^{239}Pu		^{234}U		^{235}U		^{238}U	
	pCi/l \pm 2s		pCi/l \pm 2s		pCi/l \pm 2s		pCi/l \pm 2s		pCi/l \pm 2s	
AL:MONTGOMERY	0.004	0.009	0.002	0.003	0.061	0.022	0.006	0.006	0.009	0.008
CA:BERKELEY	0.004	0.004	0.004	0.004	0.037	0.015	0.003	0.005	0.035	0.014
CO:DENVER	-0.005	0.015	0.002	0.004	0.029	0.012	0.005	0.005	0.020	0.011
FL:MIAMI	0.007	0.011	0.000	0.000	0.074	0.020	0.002	0.003	0.038	0.014
ID:IDAHO FALLS	0.014	0.015	0.002	0.004	0.044	0.020	0.009	0.008	0.048	0.019
IL:CHICAGO	0.010	0.011	0.000	0.000	0.058	0.019	0.004	0.004	0.041	0.015
MN:MINNEAPOLIS	0.011	0.012	0.008	0.016	0.053	0.019	0.010	0.008	0.039	0.016
ND:BISMARCK	0.009	0.010	0.000	0.000	0.046	0.016	0.001	0.002	0.013	0.008
NJ:TRENTON	0.001	0.008	0.002	0.003	0.079	0.021	-0.001	0.004	0.028	0.013
NY:NEW YORK CITY	0.021	0.013	0.005	0.008	0.078	0.021	0.004	0.004	0.026	0.012
NY:NIAGARA FALLS	0.001	0.008	0.002	0.003	0.097	0.025	0.005	0.007	0.052	0.018
OH:COLUMBUS	0.001	0.007	0.007	0.006	0.056	0.020	0.000	0.001	0.031	0.014
OR:PORTLAND	0.017	0.028	0.011	0.023	0.200	0.073	0.013	0.018	0.088	0.048
PA:HARRISBURG	0.001	0.008	0.003	0.003	0.136	0.029	0.001	0.006	0.045	0.016
SC:BARNWELL	0.006	0.011	-0.001	0.003	0.012	0.008	0.002	0.003	0.013	0.008
SC:COLUMBIA	0.008	0.014	0.002	0.003	0.078	0.023	0.006	0.009	0.013	0.010
TN:KNOXVILLE	0.011	0.010	0.000	0.003	0.092	0.022	0.001	0.005	0.047	0.016
VA:LYNCHBURG	0.010	0.010	0.000	0.000	0.122	0.026	0.016	0.009	0.045	0.015

THE MINIMUM DETECTABLE LIMIT IS .015 pCi/SAMPLE, FOR EACH INDIVIDUAL ISOTOPE.

s SIGMA COUNTING ERROR

Krypton-85

Krypton-85 is a long-lived noble gas with a half life of 10.8 years. It is released into the atmosphere by nuclear reactor operations, fuel reprocessing, weapons tests, and research and defense related activities. Krypton-85 also occurs naturally in minor quantities primarily from the neutron capture of stable krypton-84 as well as spontaneous fission and neutron-induced fission of uranium. Monitoring of krypton-85 in the atmosphere has been conducted to identify and establish baseline levels and long-term trends.

Krypton-85 analysis began in January 1973 with sample collections and analyses being performed for 12 sampling locations. These locations were selected to provide atmospheric coverage of the United States with considerations being given to the proximity to fuel reprocessing plants, nuclear reactors, and wide geographic coverage.

Dry compressed air samples, collected at each location, are purchased from commercial air suppliers annually and shipped to the EERF where the krypton-85 is cryogenically separated and counted in a liquid scintillation system.

The Kr-85 results will be published when they are available.

ERAMS

SECTION II. Water Program

The ERAMS water program provides data on ambient radiation levels in the nation's rivers, streams and drinking water supplies.

Surface Water

Quarterly grab samples are taken downstream from operating or future nuclear facilities at 58 stations.

Surface water samples are analyzed for tritium quarterly and specific gamma activity annually. Tritium is a primary radioactive pollutant from nuclear power plants and weapons production activities.

Tritium concentrations are determined by liquid scintillation counting of distilled samples. Gamma scans are performed annually to determine levels of gamma emitting radionuclides.

Tritium concentrations for surface water samples for July - September 1985 are given in Table 10.

Results from the 1985 annual gamma analyses of surface water are shown in Table 11.

TABLE 10

SURFACE WATER
TRITIUM CONCENTRATION

JULY - SEPTEMBER 1985

LOCATION	SOURCE	DATE COLLECTED	nCi/1	+ 2s
AL:DECATUR	TENNESSEE RIVER	7/25/85	0.5	0.2
AL:DOTHAN	CHATTAHOOCHEE R.	7/10/85	0.2	0.2
AL:SCOTTSBORO	TENNESSEE RIVER	7/23/85	0.4	0.2
AR:LITTLE ROCK	ARKANSAS RIVER	7/ 3/85	0.3	0.2
CA:CLAY STATION	FOLSOM S. CANAL	7/ 5/85	0.2	0.2
CA:DIABLO CANYON	PACIFIC OCEAN	7/24/85	0.1	0.2
CA:EUREKA	HUMBOLDT BAY	7/18/85	0.2	0.2
CA:SAN ONOFRE	PACIFIC OCEAN	8/15/85	0.1	0.2
CO:GREELEY	SOUTH PLATTE RIVER	7/25/85	0.2	0.2
CT:E. HADDAM	CONNECTICUT RIVER	8/27/85	0.4	0.2
CT:WATERFORD	LONG ISLAND SOUND	8/27/85	0.1	0.2
FL:CRYSTAL RIVER	GULF OF MEXICO	7/ 8/85	0.1	0.2
FL:FT. PIERCE	ATLANTIC OCEAN	7/ 2/85	0.2	0.2
FL:HOMESTEAD	BISCAYNE BAY	9/24/85	0.1	0.2
IA:CEDAR RAPIDS	CEDAR RIVER	7/23/85	0.2	0.2
ID:BUHL	SNAKE RIVER	7/30/85	0.5	0.2
IL:E. MOLINE	MISSISSIPPI RIVER	8/15/85	0.2	0.2
IL:MORRIS	ILLINOIS RIVER	7/ 9/85	0.2	0.2
IL:ZION	LAKE MICHIGAN	8/15/85	0.1	0.2
LA:NEW ORLEANS	MISSISSIPPI RIVER	7/12/85	0.2	0.2
MA:PLYMOUTH	CAPE CODE BAY	7/ 8/85	0.2	0.2
MA:ROWE	DEERFIELD RIVER	8/20/85	0.3	0.2
MD:CONOWINGO	SUSQUEHANNA RIVER	7/ 9/85	0.2	0.2
MD:LUSBY	CHESAPEAKE BAY	7/ 9/85	0.1	0.2
ME:WISCASSET	MONTSEWAY BAY	7/ 9/85	0.2	0.2
MI:BRIDGMAN	LAKE MICHIGAN	7/ 8/85	0.3	0.2
MI:CHARLEVOIX	LAKE MICHIGAN	7/ 6/85	0.2	0.2
MI:MONROE	LAKE ERIE	7/ 8/85	0.2	0.2
MI:SO. HAVEN	LAKE MICHIGAN	7/10/85	0.2	0.2
MN:MONTICELLO	MISSISSIPPI RIVER	7/ 3/85	0.3	0.2
MN:RED WING	MISSISSIPPI RIVER	8/ 6/85	6.7	0.2
MS:PORT GIBSON	MISSISSIPPI RIVER	7/18/85	0.3	0.2
NC:CHARLOTTE	CATAWBA RIVER	7/10/85	0.5	0.2
NC:SOUTHPORT	ATLANTIC OCEAN	7/10/85	0.2	0.2
NE:RULO	MISSOURI RIVER	7/ 3/85	0.2	0.2

TABLE 10 (CONTINUED)

SURFACE WATER
TRITIUM CONCENTRATION

JULY - SEPTEMBER 1985

LOCATION	SOURCE	DATE COLLECTED	nCi/l	+ 2s
NJ:BAYSIDE	DELAWARE RIVER	7/10/85	0.3	0.2
NJ:OYSTER CREEK	OYSTER CREEK	7/17/85	0.2	0.2
NV:BOULDER CITY	COLORADO RIVER	7/25/85	0.3	0.2
NY:CHELSEA	HUDSON RIVER	7/ 3/85	0.3	0.2
NY:OSSINING	HUDSON RIVER	7/11/85	0.3	0.2
NY:OSWEGO	LAKE ONTARIO	8/15/85	0.2	0.2
OH:TOLEDO	LAKE ERIE	7/ 7/85	0.2	0.2
OR:BRADWOOD	COLUMBIA RIVER	9/25/85	0.2	0.2
PA:DANVILLE	SUSQUEHANNA RIVER	8/ 7/85	0.2	0.2
SC:ALLENDALE	SAVANNAH RIVER	7/18/85	0.2	0.2
SC:BROAD RIVER	BROAD RIVER	7/15/85	0.3	0.2
SC:HARTSVILLE	LAKE ROBINSON	7/ 8/85	1.7	0.2
TN:DAISY	TENNESSEE RIVER	8/29/85	0.1	0.2
TN:KINGSTON	CLINCH RIVER	7/15/85	0.6	0.2
TX:EL PASO	RIO GRANDE	7/15/85	0.2	0.2
TX:MATAGORDA	COLORADO RIVER	8/13/85	0.1	0.2
VA:DOSWELL	NORTH ANNA RIVER	7/11/85	4.0	0.2
WA:NORTHPORT	COLUMBIA RIVER	7/17/85	0.1	0.2
WA:RICHLAND	COLUMBIA RIVER	7/22/85	0.4	0.2
WI:TWO CREEKS	LAKE MICHIGAN	7/ 8/85	0.3	0.2
WI:VICTORY	MISSISSIPPI RIVER	7/ 8/85	0.2	0.2
WV:WHEELING	OHIO RIVER	7/15/85	0.3	0.2

s SIGMA COUNTING ERROR

TABLE 11

SURFACE WATER
ANNUAL GAMMA ANALYSIS

1985

LOCATION	SOURCE	DATE COLLECTED	GAMMA pCi/l \pm 2s
AL:GORDAN	CHATTAHOOCHEE R.	4/11/85	ND
AL:DECATUR	TENNESSEE RIVER	4/ 4/85	ND
AL:SCOTTSBORO	TENNESSEE RIVER	4/ 5/85	ND
AR:LITTLE ROCK	ARKANSAS RIVER	4/15/85	ND
CA:DIABLO CANYON	PACIFIC OCEAN	4/23/85	ND
CA:EUREKA	HUMBOLDT BAY	4/ 4/85	ND
CA:SAN ONOFRE	PACIFIC OCEAN	6/20/85	40K 292 \pm 64%
CO:GREELEY	SOUTH PLATTE RIVER	4/11/85	ND
CT:EAST HADDAM	CONNECTICUT RIVER	5/10/85	ND
CT:WATERFORD	LONG ISLAND SOUND	5/ 9/85	40K 298 \pm 29%
FL:CRYSTAL RIVER	GULF OF MEXICO	4/22/85	ND
FL:FT. PIERCE	ATLANTIC OCEAN	4/16/85	40K 103 \pm 81%
FL:HOMESTEAD	BISCAYNE BAY	5/21/85	ND
IA:CEDAR RAPIDS	CEDAR RIVER	4/ 8/85	ND
ID:BUHL	SNAKE RIVER	5/30/85	ND
IL:MORRIS	ILLINOIS RIVER	6/11/85	ND
IL:OREGON	ROCK RIVER	6/30/85	ND
IL:ZION	LAKE MICHIGAN	5/15/85	ND
LA:NEW ORLEANS	MISSISSIPPI RIVER	4/ 9/85	ND
MA:PLYMOUTH	CAPE CODE BAY	4/ 2/85	ND
MA:ROWE	DEERFIELD RIVER	5/ 3/85	ND
MD:CONOWINGO	SUSQUEHANNA RIVER	4/ 2/85	ND
MD:LUSBY	CHESAPEAKE BAY	4/ 9/85	ND
ME:WISCASSET	MONTSEWAY BAY	4/ 9/85	40K 180 \pm 48%
NI:BRIDGMAN	LAKE MICHIGAN	4/15/85	ND
MI:CHARLEVOIX	LAKE MICHIGAN	4/ 6/85	ND
MI:MONROE	LAKE ERIE	4/ 8/85	ND
MI:SO. HAVEN	LAKE MICHIGAN	4/15/85	ND
MN:MONTICELLO	MISSISSIPPI RIVER	4/ 4/85	ND
MN:RED WING	MISSISSIPPI RIVER	4/ 8/85	ND
MS:PORT GIBSON	MISSISSIPPI RIVER	4/18/85	ND
NC:CHARLOTTE	CATAWBA RIVER	4/15/85	ND
NC:SOUTHPORT	ATLANTIC OCEAN	4/11/85	40K 291 \pm 64%
NE:RULO	MISSOURI RIVER	4/ 1/85	ND
NJ:BAYSIDE	DELAWARE RIVER	4/10/85	40K 124 \pm 68%
NJ:OYSTER CREEK	OYSTER CREEK	4/17/85	40K 206 \pm 42%
NV:BOULDER CITY	COLORADO RIVER	4/11/85	ND

TABLE 11 (CONTINUED)

SURFACE WATER
ANNUAL GAMMA ANALYSIS

1985

LOCATION	SOURCE	DATE COLLECTED	GAMMA pCi/l \pm 2s
NY:CHELSEA	HUDSON RIVER	4/ 2/85	ND
NY:OSSINING	HUDSON RIVER	4/ 4/85	ND
NY:OSSINING	HUDSON RIVER	5/15/85	ND
OH:TOLEDO	LAKE ERIE	4/ 1/85	ND
PA:DANVILLE	SUSQUEHANNA RIVER	4/10/85	ND
SC:ALLENDALE	SAVANNAH RIVER	4/15/85	ND
SC:BROAD RIVER	BROAD RIVER	4/18/85	ND
SC:HARTSVILLE	LAKE ROBINSON	4/ 8/85	ND
TN:DAISY	TENNESSEE RIVER	5/21/85	ND
TN:KINGSTON	CLINCH RIVER	4/ 9/85	ND
TX:EL PASO	RIO GRANDE	4/30/85	ND
TX:MATAGORDA	COLORADO RIVER	6/ 6/85	ND
VA:DOSWELL	NORTH ANNA RIVER	4/12/85	ND
VA:NEWPORT NEWS	JAMES RIVER	4/30/85	ND
WA:NORTHPORT	COLUMBIA RIVER	5/22/85	ND
WA:RICHLAND	COLUMBIA RIVER	4/10/85	ND
WI:TWO CREEKS	LAKE MICHIGAN	4/15/85	ND
WI:VICTORY	MISSISSIPPI RIVER	4/ 8/85	ND
WV:WHEELING	OHIO RIVER	4/19/85	ND

ND NO GAMMA ACTIVITY DETECTABLE
s SIGMA COUNTING ERROR

Drinking Water

This program monitors ambient radiation levels in drinking water at 78 sites. These data serve to assess trends and anomalies in concentrations, and to compare with standards set forth in the EPA "National Interim Primary Drinking Water Regulations." These regulations provide for approval of supplies when the combined radium-226 and radium-228 levels do not exceed 5 pCi/l, when the gross alpha (excluding radon and uranium) levels do not exceed 15 pCi/l, when tritium levels do not exceed 20,000 pCi/l, when the strontium-90 levels do not exceed 8 pCi/l, and when the gross beta levels do not exceed 50 pCi/l.

Grab samples are taken at the 78 sites which are either major population centers or selected nuclear facility environs.

The analyses include (a) tritium on a quarterly basis; (b) gross alpha, gross beta, strontium-90, and gamma on annual composites; (c) radium-226 if the gross alpha exceeds 2 pCi/l and radium-228 if the radium-226 falls between 3 and 5 pCi/l; (d) specific iodine-131 on one quarterly sample per year for each station; and (e) an annual composite for plutonium-238 and -239 and uranium-234, -235, and -238 for stations that demonstrate gross alpha levels greater than 2 pCi/l.

Tritium analyses are performed by scintillation counting of the distilled samples. Gross beta and alpha are determined by evaporating an aliquot on a stainless steel planchet for counting. Radium-226 is determined by the standard emanation technique. Strontium-90 is determined by beta counting a strontium carbonate precipitate isolated by ion exchange.

The results of tritium in drinking water analyses for July - September 1985 are shown in Table 12.

Plutonium and uranium analyses are similar to procedures given for air particulate samples. Analyses were altered to coincide with revised EPA standards. The results of 1984 composite samples are shown in Table 13.

TABLE 12

DRINKING WATER
TRITIUM CONCENTRATION

JULY - SEPTEMBER 1985

LOCATION	DATE COLLECTED	nCi/l	+ 2s
AK: FAIRBANKS	7/12/85	0.2	0.2
AL: DOTHAN	7/10/85	0.1	0.2
AL: MONTGOMERY	7/ 8/85	0.1	0.2
AL: MUSCLE SHOALS	7/24/85	0.4	0.2
AL: SCOTTSBORO	7/23/85	0.6	0.2
AR: LITTLE ROCK	7/ 3/85	0.1	0.2
CA: BERKELEY	7/ 3/85	0.2	0.2
CA: LOS ANGELES	7/ 9/85	0.2	0.2
CO: DENVER	7/22/85	0.2	0.2
CO: PLATTEVILLE	7/22/85	0.3	0.2
CT: HARTFORD	7/10/85	0.2	0.2
DE: DOVER	7/ 8/85	0.1	0.2
FL: MIAMI	7/ 2/85	0.1	0.2
FL: TAMPA	7/15/85	0.2	0.2
GA: SAVANNAH	7/25/85	3.8	0.2
HI: HONOLULU	7/24/85	0.2	0.2
IA: CEDAR RAPIDS	7/19/85	0.2	0.2
ID: BOISE	9/20/85	0.1	0.2
ID: IDAHO FALLS	9/ 5/85	0.2	0.2
IL: MORRIS	7/10/85	0.1	0.2
IL: W. CHICAGO	7/ 2/85	0.2	0.2
KS: TOPEKA	7/ 2/85	0.1	0.2
LA: NEW ORLEANS	7/30/85	0.3	0.2
MA: LAWRENCE	7/10/85	0.2	0.2
MA: ROWE	8/20/85	0.1	0.2
MD: BALTIMORE	7/ 3/85	0.1	0.2
MD: CONOWINGO	7/ 9/85	0.3	0.2
ME: AUGUSTA	7/ 2/85	0.2	0.2
MI: DETROIT	7/10/85	0.3	0.2
MN: MINNEAPOLIS	7/11/85	0.1	0.2
MN: RED WING	8/ 6/85	0.1	0.2
MS: JACKSON	7/ 1/85	0.2	0.2
MS: PORT GIBSON	7/ 9/85	0.1	0.2
MT: HELENA	7/11/85	0.3	0.2
NC: CHARLOTTE	6/10/85	0.6	0.2
NC: WILMINGTON	7/19/85	0.3	0.2
ND: BISMARCK	7/ 8/85	0.2	0.2
NE: LINCOLN	7/22/85	0.2	0.2

TABLE 12 (CONTINUED)

DRINKING WATER
TRITIUM CONCENTRATION

JULY - SEPTEMBER 1985

LOCATION	DATE COLLECTED	nCi/l	\pm 2s
NH:CONCORD	7/ 5/85	0.3	0.2
NJ:TRENTON	7/ 9/85	0.1	0.2
NJ:WARETOWN	7/17/85	0.1	0.2
NM:SANTA FE	7/16/85	0.2	0.2
NV:LAS VEGAS	7/ 8/85	0.3	0.2
NY:ALBANY	7/ 3/85	0.2	0.2
NY:NEW YORK CITY	7/ 3/85	0.1	0.2
NY:NIAGARA FALLS	7/ 2/85	0.3	0.2
NY:SYRACUSE	9/11/85	0.2	0.2
OH:COLUMBUS	7/11/85	0.3	0.2
OH:EAST LIVERPOOL	7/24/85	0.2	0.2
OH:PAINESVILLE	7/ 8/85	0.3	0.2
OH:TOLEDO	7/ 7/85	0.2	0.2
OK:OKLAHOMA CITY	7/10/85	0.1	0.2
OR:PORTLAND	7/ 9/85	0.2	0.2
PA:COLUMBIA	7/ 5/85	0.3	0.2
PA:COLUMBIA	8/29/85	0.1	0.2
PA:HARRISBURG	7/ 8/85	0.2	0.2
PA:PITTSBURGH	7/24/85	0.2	0.2
RI:PROVIDENCE	7/16/85	0.1	0.2
SC:BARNWELL	7/11/85	0.1	0.2
SC:HARTSVILLE	7/ 8/85	0.2	0.2
SC:JENKINSVILLE	7/ 5/85	0.2	0.2
SC:SENECA	7/30/85	0.2	0.2
TN:CHATTANOOGA	7/ 1/85	0.4	0.2
TN:KNOXVILLE	7/ 2/85	0.1	0.2
TX:AUSTIN	7/ 2/85	0.1	0.2
VA:DOSWELL	8/ 6/85	0.2	0.2
VA:LYNCHBURG	7/ 2/85	0.2	0.2
VA:VIRGINIA BEACH	7/18/85	0.2	0.2
WA:RICHLAND	7/22/85	0.4	0.2
WA:SEATTLE	7/ 9/85	0.2	0.2
WI:GENOA CITY	7/ 8/85	0.1	0.2
WI:MADISON	7/11/85	0.1	0.2

s SIGMA COUNTING ERROR

TABLE 13

PLUTONIUM AND URANIUM ANALYSES
OF
SELECTED DRINKING WATER COMPOSITE SAMPLES

1984

LOCATION	^{238}Pu		^{239}Pu		^{234}U		^{235}U		^{238}U	
	pCi/l	$\pm 2s$	pCi/l	$\pm 2s$	pCi/l	$\pm 2s$	pCi/l	$\pm 2s$	pCi/l	$\pm 2s$
CA:LOS ANGELES	0.004	0.008	0.001	0.003	2.908	0.320	0.076	0.025	1.753	0.206
CO:DENVER	0.008	0.011	0.002	0.003	1.145	0.132	0.012	0.011	0.543	0.075
CO:PLATTEVILLE	0.038	0.049	0.012	0.016	7.158	0.752	0.233	0.075	5.479	0.599
IL:MORRIS	0.011	0.065	0.012	0.022	1.175	0.273	0.047	0.047	0.270	0.122
IL:W. CHICAGO	0.011	0.030	0.012	0.038	1.433	0.259	0.004	0.010	0.133	0.066
MN:RED WING	0.010	0.022	0.010	0.012	0.409	0.088	0.005	0.013	0.152	0.049
NE:LINCOLN	0.005	0.011	0.002	0.004	4.945	0.633	0.195	0.045	3.257	0.427
NV:LAS VEGAS	-0.001	0.006	0.000	0.000	2.243	0.251	0.062	0.022	1.845	0.212
NY:NEW YORK CITY	0.000	0.000	0.000	0.001	0.014	0.010	0.002	0.006	0.007	0.006
SC:JENKINSVILLE	0.023	0.029	0.001	0.004	15.380	1.431	0.074	0.039	3.766	0.424
SC:SENECA	0.006	0.020	-0.005	0.009	8.384	0.868	0.093	0.037	2.082	0.259

THE MINIMUM DETECTABLE LEVEL IS .015 pCi/SAMPLE, FOR EACH INDIVIDUAL ISOTOPE.

s SIGMA COUNTING ERROR

Radon-222 in Drinking Water

Special Study in Pennsylvania

Selected water supplies have been sampled and analyzed for Radon-222 in the Reading Prong, a geologic area in eastern Pennsylvania with elevated levels of uranium in the soil and surrounding rock. The Reading Prong also extends into New Jersey and New York in a northeasterly direction. Radon-222 in water results for private wells, public groundwater supplies, and public surface water supplies as well as all water supplies that were sampled during 1985 and that are associated with the Reading Prong in Pennsylvania are shown in Tables 14 - 16.

TABLE 14

RADON IN PRIVATE GROUNDWATER SUPPLIES

LOCATION	COLLECTION DATE		POPULATION SERVED	Rn-222 CONCENTRATION	
				pCi/l	+ 2s
PA:ALBURTIS	3/25/85	<	100	2579.0	103.2
PA:ALBURTIS	6/ 5/85	<	100	2893.0	144.7
PA:ALBURTIS	6/ 6/85	<	100	2851.0	171.1
PA:ALBURTIS	6/ 6/85	<	100	5823.5	174.8
PA:ALBURTIS	6/ 6/85	<	100	1430.5	100.1
PA:ALBURTIS	6/ 6/85	<	100	5062.5	151.9
PA:ALBURTIS	6/ 6/85	<	100	1754.0	105.2
PA:ALBURTIS	6/ 7/85	<	100	1657.0	106.9
PA:ALBURTIS	6/ 7/85	<	100	3238.5	129.6
PA:ALBURTIS	6/10/85	<	100	1316.0	98.2
PA:ALBURTIS	6/10/85	<	100	1318.0	79.1
PA:ALBURTIS	6/17/85	<	100	4234.5	127.1
PA:ALBURTIS	6/17/85	<	100	2205.5	99.2
PA:ALBURTIS	6/17/85	<	100	10023.5	100.3
PA:ALBURTIS	6/17/85	<	100	5249.0	210.0
PA:ALBURTIS	6/18/85	<	100	1623.0	88.7
PA:ALBURTIS	6/18/85	<	100	3264.5	98.0
PA:ALBURTIS	6/18/85	<	100	492.4	76.3
PA:ALBURTIS	6/18/85	<	100	1720.5	94.5
PA:ALBURTIS	6/18/85	<	100	5069.0	101.4
PA:ALBURTIS	6/18/85	<	100	285.1	75.9
PA:ALBURTIS	6/18/85	<	100	2903.5	99.7
PA:ALBURTIS	6/21/85	<	100	3808.5	114.3
PA:ALBURTIS	6/24/85	<	100	1494.0	162.8
PA:ALBURTIS	7/ 1/85	<	100	1339.0	107.1
PA:ALBURTIS	7/ 2/85	<	100	581.6	124.9
PA:ALBURTIS	7/ 2/85	<	100	17820.0	178.2
PA:ALBURTIS	7/ 2/85	<	100	466.5	127.7
PA:ALBURTIS	7/ 9/85	<	100	2713.0	162.8
PA:ALBURTIS	7/11/85	<	100	13300.0	205.4
PA:ALBURTIS	7/22/85	<	100	2507.0	125.4
PA:ALBURTIS	8/13/85	<	100	336.0	80.5
PA:ALBURTIS	10/ 2/85	<	100	2779.5	139.0
PA:ALLENTOWN	6/20/85	<	1000	298.0	92.4
PA:ALLENTOWN	10/ 4/85	<	1000	178.1	71.2
PA:ALLENTOWN	10/18/85	<	100	7549.5	151.0
PA:ALLENTOWN	12/ 5/85	<	100	550.3	98.8
PA:ATGLEN	10/25/85	<	100	24125.0	241.3
PA:BALLY	3/28/85	<	100	606.9	72.8
PA:BALLY	5/29/85	<	100	4945.5	148.7
PA:BALLY	6/ 6/85	<	100	1003.5	100.4
PA:BALLY	6/24/85	<	100	1607.5	184.6
PA:BALLY	8/22/85	<	100	1342.5	120.8
PA:BARTO	3/28/85	<	1000	5197.0	104.0
PA:BARTO	4/ 1/85	<	100	1936.0	58.2
PA:BARTO	4/ 4/85	<	100	5632.5	169.0
PA:BARTO	5/31/85	<	100	67.4	72.1

TABLE 14 (CONTINUED)

RADON IN PRIVATE GROUNDWATER SUPPLIES

LOCATION	COLLECTION DATE	POPULATION SERVED	Rn-222 CONCENTRATION	
			pCi/l	+ 2s
PA: BARTO	6/ 6/85	< 1000	68.6	87.4
PA: BARTO	6/ 6/85	< 100	2399.5	120.0
PA: BARTO	6/10/85	< 100	1322.0	151.7
PA: BARTO	6/11/85	< 100	1050.2	131.0
PA: BARTO	6/17/85	< 100	751.7	93.8
PA: BARTO	6/18/85	< 100	10635.0	106.4
PA: BARTO	6/18/85	< 100	2558.0	102.4
PA: BARTO	6/19/85	< 100	8135.0	162.7
PA: BARTO	6/19/85	< 100	4343.0	130.3
PA: BARTO	6/21/85	< 100	593.3	85.9
PA: BARTO	6/21/85	< 100	1678.0	100.7
PA: BARTO	6/21/85	< 100	2774.5	111.1
PA: BARTO	6/21/85	< 100	1687.0	101.2
PA: BARTO	6/21/85	< 100	9652.0	147.5
PA: BARTO	6/21/85	< 100	1034.5	87.9
PA: BARTO	6/21/85	< 100	5490.5	109.8
PA: BARTO	6/21/85	< 100	1494.0	97.0
PA: BARTO	6/24/85	< 100	831.8	153.1
PA: BARTO	6/24/85	< 100	107.7	166.7
PA: BARTO	6/24/85	< 100	1597.5	159.8
PA: BARTO	6/24/85	< 100	1259.0	157.2
PA: BARTO	6/24/85	< 100	1507.5	200.5
PA: BARTO	6/25/85	< 100	3112.5	170.5
PA: BARTO	6/25/85	< 100	32.1	126.1
PA: BARTO	6/25/85	< 100	3504.5	175.2
PA: BARTO	6/25/85	< 100	13155.0	263.3
PA: BARTO	6/25/85	< 100	1023.5	127.6
PA: BARTO	6/25/85	< 100	977.0	140.2
PA: BARTO	6/26/85	< 100	6766.5	203.0
PA: BARTO	6/26/85	< 100	424.0	110.4
PA: BARTO	6/26/85	< 100	2634.5	131.8
PA: BARTO	6/26/85	< 100	1522.5	129.0
PA: BARTO	6/26/85	< 100	2626.0	143.1
PA: BARTO	6/26/85	< 100	531.5	106.3
PA: BARTO	6/27/85	< 100	990.6	103.9
PA: BARTO	6/27/85	< 100	4642.0	139.3
PA: BARTO	6/27/85	< 100	4719.0	141.6
PA: BARTO	6/27/85	< 100	6390.5	127.8
PA: BARTO	6/27/85	< 100	2428.0	121.4
PA: BARTO	6/27/85	< 100	907.1	104.3
PA: BARTO	6/27/85	< 100	1498.5	119.9
PA: BARTO	6/28/85	< 100	3454.5	138.3
PA: BARTO	6/28/85	< 100	1371.5	102.3
PA: BARTO	6/28/85	< 100	1550.0	108.5
PA: BARTO	6/28/85	< 100	1312.5	105.0
PA: BARTO	7/ 1/85	< 100	2116.5	105.9
PA: BARTO	7/ 1/85	< 100	-21.2	78.3

TABLE 14 (CONTINUED)

RADON IN PRIVATE GROUNDWATER SUPPLIES

LOCATION	COLLECTION DATE		POPULATION SERVED	Rn-222 CONCENTRATION	
				pCi/l	\pm 2s
PA: BARTO	7/ 1/85	<	100	9327.0	186.7
PA: BARTO	7/ 1/85	<	100	5722.0	145.4
PA: BARTO	7/ 1/85	<	100	1175.5	182.1
PA: BARTO	7/ 2/85	<	100	2061.0	164.9
PA: BARTO	7/ 2/85	<	100	2850.0	155.6
PA: BARTO	7/ 3/85	<	100	2701.5	135.2
PA: BARTO	7/ 3/85	<	100	850.4	399.0
PA: BARTO	7/ 3/85	<	100	2766.0	138.4
PA: BARTO	7/ 3/85	<	100	4284.0	171.4
PA: BARTO	7/ 5/85	<	100	19.0	67.6
PA: BARTO	7/ 9/85	<	100	7017.0	210.5
PA: BARTO	7/ 9/85	<	100	932.7	139.2
PA: BARTO	7/10/85	<	100	2446.5	146.8
PA: BARTO	7/10/85	<	100	2686.0	134.5
PA: BARTO	7/10/85	<	100	10665.0	213.3
PA: BARTO	7/11/85	<	100	2303.0	115.2
PA: BARTO	7/11/85	<	100	657.9	95.2
PA: BARTO	7/11/85	<	100	890.4	133.2
PA: BARTO	7/12/85	<	100	378.2	107.8
PA: BARTO	7/15/85	<	100	1066.6	184.9
PA: BARTO	7/15/85	<	100	14360.0	287.5
PA: BARTO	7/16/85	<	100	5107.5	204.3
PA: BARTO	7/17/85	<	100	982.3	132.4
PA: BARTO	7/19/85	<	100	1079.5	86.5
PA: BARTO	8/19/85	<	100	3237.5	97.1
PA: BARTO	8/20/85	<	100	437.2	139.1
PA: BARTO	8/20/85	<	100	365.3	133.1
PA: BARTO	8/20/85	<	100	948.2	137.4
PA: BARTO	9/ 6/85	<	100	2042.5	132.5
PA: BARTO	10/25/85	<	100	14090.0	140.9
PA: BARTO	11/22/84	<	100	2258.5	314.6
PA: BECHTELSVILLE	1/31/85	<	100	540.0	70.2
PA: BECHTELSVILLE	2/11/85	<	100	328.7	57.5
PA: BECHTELSVILLE	2/11/85	<	100	3303.5	66.1
PA: BECHTELSVILLE	2/11/85	<	100	1555.0	132.4
PA: BECHTELSVILLE	2/28/85	<	100	1871.0	121.7
PA: BECHTELSVILLE	2/28/85	<	100	501.7	107.2
PA: BECHTELSVILLE	3/ 5/85	<	100	591.3	85.7
PA: BECHTELSVILLE	3/ 6/85	<	100	3396.0	101.9
PA: BECHTELSVILLE	3/ 6/85	<	100	2497.5	99.9
PA: BECHTELSVILLE	3/ 6/85	<	100	320.9	79.1
PA: BECHTELSVILLE	3/ 6/85	<	100	442.5	80.3
PA: BECHTELSVILLE	3/ 6/85	<	100	914.5	82.3
PA: BECHTELSVILLE	3/ 6/85	<	100	3073.0	92.2
PA: BECHTELSVILLE	3/15/85	<	100	761.3	53.3
PA: BECHTELSVILLE	3/15/85	<	100	615.9	55.4
PA: BECHTELSVILLE	3/18/85	<	100	427.3	59.8

TABLE 14 (CONTINUED)

RADON IN PRIVATE GROUNDWATER SUPPLIES

LOCATION	COLLECTION DATE		POPULATION SERVED	Rn-222 CONCENTRATION	
				pCi/l	+ 2s
PA: BECHTELSVILLE	3/18/85	<	100	284.3	97.4
PA: BECHTELSVILLE	3/21/85	<	100	296.0	66.6
PA: BECHTELSVILLE	3/27/85	<	100	14755.0	147.6
PA: BECHTELSVILLE	3/28/85	<	100	1021.5	71.5
PA: BECHTELSVILLE	3/28/85	<	100	1020.5	76.4
PA: BECHTELSVILLE	3/28/85	<	100	4454.0	89.1
PA: BECHTELSVILLE	3/30/85	<	100	3310.5	264.8
PA: BECHTELSVILLE	3/30/85	<	100	1658.0	232.1
PA: BECHTELSVILLE	3/30/85	<	100	699.1	69.5
PA: BECHTELSVILLE	3/30/85	<	100	1069.5	229.8
PA: BECHTELSVILLE	3/30/85	<	100	902.0	229.2
PA: BECHTELSVILLE	3/30/85	<	100	745.4	70.6
PA: BECHTELSVILLE	4/ 1/85	<	100	8336.5	166.7
PA: BECHTELSVILLE	4/ 1/85	<	100	1880.5	196.8
PA: BECHTELSVILLE	4/ 1/85	<	100	951.5	161.1
PA: BECHTELSVILLE	4/ 1/85	<	100	1198.0	159.8
PA: BECHTELSVILLE	4/ 2/85	<	100	10864.0	218.2
PA: BECHTELSVILLE	4/ 2/85	<	100	4190.5	189.7
PA: BECHTELSVILLE	4/ 2/85	<	100	581.1	80.9
PA: BECHTELSVILLE	4/ 2/85	<	100	1436.0	143.6
PA: BECHTELSVILLE	4/ 2/85	<	100	172.7	72.7
PA: BECHTELSVILLE	4/ 2/85	<	100	306.1	127.0
PA: BECHTELSVILLE	4/ 2/85	<	100	14995.0	299.9
PA: BECHTELSVILLE	4/ 3/85	<	100	3323.0	149.5
PA: BECHTELSVILLE	4/ 3/85	<	100	59.9	102.3
PA: BECHTELSVILLE	4/ 3/85	<	100	1374.0	135.8
PA: BECHTELSVILLE	4/ 3/85	<	100	2908.0	145.4
PA: BECHTELSVILLE	4/ 3/85	<	100	4599.0	159.6
PA: BECHTELSVILLE	4/ 4/85	<	100	14810.0	148.2
PA: BECHTELSVILLE	4/ 9/85	<	100	1243.0	142.8
PA: BECHTELSVILLE	4/ 9/85	<	100	1251.0	143.7
PA: BECHTELSVILLE	4/10/85	<	100	217.8	113.4
PA: BECHTELSVILLE	4/10/85	<	100	255.8	114.6
PA: BECHTELSVILLE	4/10/85	<	100	2314.5	138.9
PA: BECHTELSVILLE	4/10/85	<	100	2533.5	152.1
PA: BECHTELSVILLE	4/10/85	<	100	350.5	115.3
PA: BECHTELSVILLE	4/10/85	<	100	413.1	116.2
PA: BECHTELSVILLE	4/11/85	<	100	1436.5	115.1
PA: BECHTELSVILLE	4/22/85	<	100	4615.5	138.5
PA: BECHTELSVILLE	4/22/85	<	100	7025.0	140.5
PA: BECHTELSVILLE	4/23/85	<	100	1775.0	142.0
PA: BECHTELSVILLE	4/23/85	<	100	1750.5	140.1
PA: BECHTELSVILLE	4/24/85	<	100	23115.0	231.2
PA: BECHTELSVILLE	4/24/85	<	100	3109.5	139.7
PA: BECHTELSVILLE	4/25/85	<	100	491.6	88.5
PA: BECHTELSVILLE	5/ 1/85	<	100	8490.5	169.8
PA: BECHTELSVILLE	5/ 3/85	<	100	904.9	151.6

TABLE 14 (CONTINUED)

RADON IN PRIVATE GROUNDWATER SUPPLIES

LOCATION	COLLECTION DATE		POPULATION SERVED	Rn-222 CONCENTRATION	
				pCi/1	+ 2s
PA: BECHTELSVILLE	5/ 6/85	<	100	682.3	92.1
PA: BECHTELSVILLE	5/ 6/85	<	100	1391.5	103.9
PA: BECHTELSVILLE	5/ 7/85	<	100	225.4	70.0
PA: BECHTELSVILLE	5/16/85	<	100	472.2	94.4
PA: BECHTELSVILLE	5/17/85	<	100	510.0	79.0
PA: BECHTELSVILLE	5/24/85	<	100	696.8	107.0
PA: BECHTELSVILLE	5/29/85	<	100	254.5	99.2
PA: BECHTELSVILLE	5/30/85	<	100	1979.0	306.5
PA: BECHTELSVILLE	6/ 5/85	<	100	264.5	87.2
PA: BECHTELSVILLE	6/ 7/85	<	100	16780.0	167.8
PA: BECHTELSVILLE	6/11/85	<	100	66.8	111.5
PA: BECHTELSVILLE	6/17/85	<	100	950.8	95.1
PA: BECHTELSVILLE	6/18/85	<	100	2469.5	98.8
PA: BECHTELSVILLE	6/19/85	<	100	3466.0	138.7
PA: BECHTELSVILLE	6/20/85	<	100	1087.0	102.9
PA: BECHTELSVILLE	6/20/85	<	100	6911.0	138.2
PA: BECHTELSVILLE	6/24/85	<	100	13545.0	270.9
PA: BECHTELSVILLE	7/ 1/85	<	100	781.0	97.5
PA: BECHTELSVILLE	7/ 2/85	<	100	988.8	158.2
PA: BECHTELSVILLE	7/ 2/85	<	100	301.4	145.4
PA: BECHTELSVILLE	7/10/85	<	100	679.8	122.0
PA: BECHTELSVILLE	7/10/85	<	100	1943.0	145.8
PA: BECHTELSVILLE	7/11/85	<	100	186.4	88.0
PA: BECHTELSVILLE	7/11/85	<	100	1055.5	95.0
PA: BECHTELSVILLE	7/15/85	<	100	1665.5	174.3
PA: BECHTELSVILLE	7/16/85	<	100	13940.0	280.7
PA: BECHTELSVILLE	7/22/85	<	100	1946.5	116.8
PA: BECHTELSVILLE	7/31/85	<	100	830.0	128.5
PA: BECHTELSVILLE	8/13/85	<	100	652.2	71.8
PA: BECHTELSVILLE	8/13/85	<	100	346.0	64.0
PA: BECHTELSVILLE	8/14/85	<	100	1567.0	125.4
PA: BECHTELSVILLE	8/19/85	<	100	1620.5	97.2
PA: BECHTELSVILLE	8/19/85	<	100	2838.0	113.6
PA: BECHTELSVILLE	8/20/85	<	100	3209.0	176.0
PA: BECHTELSVILLE	8/20/85	<	100	1765.5	158.9
PA: BECHTELSVILLE	8/20/85	<	100	1843.5	129.1
PA: BECHTELSVILLE	8/21/85	<	100	778.8	105.0
PA: BECHTELSVILLE	8/22/85	<	100	1235.5	86.6
PA: BECHTELSVILLE	8/23/85	<	100	2466.0	283.0
PA: BECHTELSVILLE	8/26/85	<	100	9829.5	98.3
PA: BECHTELSVILLE	10/ 4/85	<	100	4584.5	137.6
PA: BECHTELSVILLE	10/24/85	<	100	1372.0	96.0
PA: BECHTELSVILLE	10/29/85	<	100	512.5	140.5
PA: BECHTELSVILLE	11/ 8/85	<	100	7415.0	148.3
PA: BECHTELSVILLE	11/14/85	<	100	2404.0	697.1
PA: BECHTELSVILLE	11/20/85	<	100	7146.0	214.4
PA: BECHTELSVILLE	11/22/85	<	100	1745.0	349.0

TABLE 14 (CONTINUED)

RADON IN PRIVATE GROUNDWATER SUPPLIES

LOCATION	COLLECTION DATE		POPULATION SERVED	Rn-222 CONCENTRATION	
				pCi/l	+ 2s
PA: BETHLEHEM	10/ 3/85	<	100	2977.5	119.1
PA: BETHLEHEM	11/15/85	<	100	11695.0	117.0
PA: BETHLEHEM	12/ 2/85	<	100	2921.5	218.2
PA: BETHLEHEM	12/10/85	<	100	102.0	77.1
PA: BOYERTOWN	1/30/85	<	100	29920.0	0.0
PA: BOYERTOWN	1/31/85	<	100	2290.0	68.7
PA: BOYERTOWN	2/ 1/85	<	100	267.5	58.7
PA: BOYERTOWN	2/ 2/85	<	100	2436.0	73.1
PA: BOYERTOWN	2/ 2/85	<	100	8954.5	89.5
PA: BOYERTOWN	2/ 2/85	<	100	3035.0	60.7
PA: BOYERTOWN	2/ 2/85	<	100	6713.5	67.2
PA: BOYERTOWN	2/ 4/85	<	100	917.2	64.2
PA: BOYERTOWN	2/ 4/85	<	100	2342.0	128.8
PA: BOYERTOWN	2/ 6/85	<	100	10135.0	101.4
PA: BOYERTOWN	2/ 7/85	<	100	35225.0	0.0
PA: BOYERTOWN	2/ 7/85	<	100	1414.0	70.8
PA: BOYERTOWN	2/ 7/85	<	100	829.7	62.0
PA: BOYERTOWN	2/ 7/85	<	100	477.2	59.6
PA: BOYERTOWN	2/ 7/85	<	100	883.0	61.9
PA: BOYERTOWN	2/ 7/85	<	100	1380.5	69.1
PA: BOYERTOWN	2/ 8/85	<	100	2482.0	74.5
PA: BOYERTOWN	2/ 8/85	<	100	1023.5	66.1
PA: BOYERTOWN	2/ 8/85	<	100	773.8	54.2
PA: BOYERTOWN	2/ 8/85	<	100	1248.5	62.4
PA: BOYERTOWN	2/ 8/85	<	100	25095.0	0.0
PA: BOYERTOWN	2/11/85	<	100	1924.5	67.8
PA: BOYERTOWN	2/11/85	<	100	9754.0	97.5
PA: BOYERTOWN	2/11/85	<	100	1476.5	132.9
PA: BOYERTOWN	2/11/85	<	100	82.6	119.2
PA: BOYERTOWN	2/11/85	<	100	2402.5	72.2
PA: BOYERTOWN	2/11/85	<	100	4107.0	82.2
PA: BOYERTOWN	2/12/85	<	100	119.6	97.1
PA: BOYERTOWN	2/12/85	<	100	1324.0	112.3
PA: BOYERTOWN	2/12/85	<	100	2451.5	122.6
PA: BOYERTOWN	2/12/85	<	100	193.6	102.5
PA: BOYERTOWN	2/13/85	<	100	535.9	93.8
PA: BOYERTOWN	2/13/85	<	100	1387.0	111.0
PA: BOYERTOWN	2/13/85	<	100	271.6	92.3
PA: BOYERTOWN	2/13/85	<	100	103.6	91.9
PA: BOYERTOWN	2/13/85	<	100	17310.0	173.1
PA: BOYERTOWN	2/14/85	<	100	3448.0	103.4
PA: BOYERTOWN	2/14/85	<	100	10715.0	107.2
PA: BOYERTOWN	2/14/85	<	100	2852.0	85.6
PA: BOYERTOWN	2/14/85	<	100	2084.0	93.9
PA: BOYERTOWN	2/14/85	<	100	12640.0	126.4
PA: BOYERTOWN	2/15/85	<	100	871.5	174.3
PA: BOYERTOWN	2/15/85	<	100	262.6	66.7

TABLE 14 (CONTINUED)

RADON IN PRIVATE GROUNDWATER SUPPLIES

LOCATION	COLLECTION DATE		POPULATION SERVED	Rn-222 CONCENTRATION	
				pCi/l	$\pm 2s$
PA: BOYERTOWN	2/15/85	<	100	48345.0	0.0
PA: BOYERTOWN	2/15/85	<	100	14540.0	145.4
PA: BOYERTOWN	2/21/85	<	100	6638.5	100.4
PA: BOYERTOWN	2/21/85	<	100	6327.0	126.6
PA: BOYERTOWN	2/21/85	<	100	1793.5	80.6
PA: BOYERTOWN	2/22/85	<	100	1124.0	67.4
PA: BOYERTOWN	2/25/85	<	100	16360.0	163.6
PA: BOYERTOWN	2/27/85	<	100	5385.5	161.6
PA: BOYERTOWN	2/28/85	<	100	9616.0	192.3
PA: BOYERTOWN	2/28/85	<	100	1832.0	109.9
PA: BOYERTOWN	2/28/85	<	100	4851.0	145.5
PA: BOYERTOWN	3/ 5/85	<	100	5407.0	108.2
PA: BOYERTOWN	3/ 5/85	<	100	1852.5	92.6
PA: BOYERTOWN	3/ 5/85	<	100	717.5	86.1
PA: BOYERTOWN	3/ 5/85	<	100	2592.0	104.0
PA: BOYERTOWN	3/ 5/85	<	100	27670.0	0.0
PA: BOYERTOWN	3/ 6/85	<	100	1414.5	120.1
PA: BOYERTOWN	3/ 6/85	<	100	6441.0	128.8
PA: BOYERTOWN	3/ 6/85	<	100	210.5	79.5
PA: BOYERTOWN	3/ 6/85	<	100	3479.5	104.4
PA: BOYERTOWN	3/ 7/85	<	100	1805.0	108.4
PA: BOYERTOWN	3/ 8/85	<	100	9834.5	98.3
PA: BOYERTOWN	3/ 8/85	<	100	17150.0	171.5
PA: BOYERTOWN	3/ 8/85	<	100	2327.0	104.3
PA: BOYERTOWN	3/ 8/85	<	100	94400.0	0.0
PA: BOYERTOWN	3/12/85	<	100	4253.5	108.0
PA: BOYERTOWN	3/13/85	<	100	2963.0	88.9
PA: BOYERTOWN	3/15/85	<	100	31390.0	0.0
PA: BOYERTOWN	3/15/85	<	100	3077.0	61.5
PA: BOYERTOWN	3/15/85	<	100	421.0	50.5
PA: BOYERTOWN	3/18/85	<	100	14620.0	584.8
PA: BOYERTOWN	3/18/85	<	100	3455.0	69.1
PA: BOYERTOWN	3/18/85	<	100	312.1	49.9
PA: BOYERTOWN	3/18/85	<	100	6608.0	66.1
PA: BOYERTOWN	3/18/85	<	100	84360.0	0.0
PA: BOYERTOWN	3/19/85	<	100	12140.0	121.4
PA: BOYERTOWN	3/19/85	<	100	5001.5	100.1
PA: BOYERTOWN	3/20/85	<	100	358.5	71.0
PA: BOYERTOWN	3/20/85	<	100	355.9	69.4
PA: BOYERTOWN	3/20/85	<	100	103.2	69.4
PA: BOYERTOWN	3/20/85	<	100	439.9	71.9
PA: BOYERTOWN	3/21/85	<	100	378.5	62.0
PA: BOYERTOWN	3/21/85	<	100	7040.0	70.4
PA: BOYERTOWN	3/22/85	<	100	2897.5	58.0
PA: BOYERTOWN	3/25/85	<	100	2523.0	50.5
PA: BOYERTOWN	3/25/85	<	100	4337.5	86.8
PA: BOYERTOWN	3/25/85	<	100	4591.0	160.2

TABLE 14 (CONTINUED)

RADON IN PRIVATE GROUNDWATER SUPPLIES

LOCATION	COLLECTION DATE		POPULATION SERVED	Rn-222 CONCENTRATION	
				pCi/l	+ 2s
PA: BOYERTOWN	3/26/85	<	100	749.3	93.5
PA: BOYERTOWN	3/26/85	<	100	6043.0	120.9
PA: BOYERTOWN	3/26/85	<	100	90815.0	0.0
PA: BOYERTOWN	3/26/85	<	100	408.2	100.2
PA: BOYERTOWN	3/27/85	<	100	161.0	73.2
PA: BOYERTOWN	3/27/85	<	100	591.7	82.8
PA: BOYERTOWN	3/28/85	<	100	21290.0	0.0
PA: BOYERTOWN	3/28/85	<	100	9384.0	93.9
PA: BOYERTOWN	3/28/85	<	100	19670.0	196.7
PA: BOYERTOWN	3/29/85	<	100	4888.0	48.9
PA: BOYERTOWN	4/ 1/85	<	100	526.2	49.8
PA: BOYERTOWN	4/ 2/85	<	100	2264.0	158.5
PA: BOYERTOWN	4/ 2/85	<	100	1333.5	93.4
PA: BOYERTOWN	4/ 2/85	<	100	152.1	74.6
PA: BOYERTOWN	4/ 2/85	<	100	16940.0	169.4
PA: BOYERTOWN	4/ 2/85	<	100	3209.0	174.8
PA: BOYERTOWN	4/ 2/85	<	100	1247.5	149.7
PA: BOYERTOWN	4/ 2/85	<	100	4521.0	135.7
PA: BOYERTOWN	4/ 3/85	<	100	172.3	74.6
PA: BOYERTOWN	4/ 3/85	<	100	1974.0	147.7
PA: BOYERTOWN	4/ 3/85	<	100	165.1	121.3
PA: BOYERTOWN	4/ 3/85	<	100	3153.5	157.7
PA: BOYERTOWN	4/ 3/85	<	100	644.3	109.0
PA: BOYERTOWN	4/ 3/85	<	100	1044.0	135.7
PA: BOYERTOWN	4/ 3/85	<	100	346.7	121.4
PA: BOYERTOWN	4/ 4/85	<	100	63415.0	0.0
PA: BOYERTOWN	4/ 4/85	<	100	4332.0	130.0
PA: BOYERTOWN	4/ 4/85	<	100	241.2	101.1
PA: BOYERTOWN	4/ 5/85	<	100	1567.5	132.7
PA: BOYERTOWN	4/ 5/85	<	100	589.4	114.9
PA: BOYERTOWN	4/ 5/85	<	100	636.7	114.4
PA: BOYERTOWN	4/ 9/85	<	100	16455.0	329.2
PA: BOYERTOWN	4/10/85	<	100	1227.0	121.8
PA: BOYERTOWN	4/10/85	<	100	2992.5	149.6
PA: BOYERTOWN	4/10/85	<	100	382.9	112.2
PA: BOYERTOWN	4/12/85	<	100	1481.5	103.8
PA: BOYERTOWN	4/12/85	<	100	1246.0	93.2
PA: BOYERTOWN	4/23/85	<	100	1487.0	141.2
PA: BOYERTOWN	4/24/85	<	100	707.4	103.9
PA: BOYERTOWN	5/ 3/85	<	100	543.5	89.6
PA: BOYERTOWN	5/ 3/85	<	100	51.5	80.8
PA: BOYERTOWN	5/ 6/85	<	100	2947.5	176.9
PA: BOYERTOWN	5/ 6/85	<	100	5061.0	202.4
PA: BOYERTOWN	5/ 6/85	<	100	2760.0	179.8
PA: BOYERTOWN	5/ 6/85	<	100	2594.0	181.7
PA: BOYERTOWN	5/ 6/85	<	100	694.7	152.5
PA: BOYERTOWN	5/ 7/85	<	100	2081.0	155.3

TABLE 14 (CONTINUED)

RADON IN PRIVATE GROUNDWATER SUPPLIES

LOCATION	COLLECTION DATE	POPULATION SERVED	Rn-222 CONCENTRATION	
			pCi/l	+ 2s
PA: BOYERTOWN	5/ 7/85	< 100	79.4	122.4
PA: BOYERTOWN	5/ 7/85	< 100	2467.0	159.6
PA: BOYERTOWN	5/ 7/85	< 100	68.7	116.8
PA: BOYERTOWN	5/ 7/85	< 100	420.3	124.0
PA: BOYERTOWN	5/ 8/85	< 100	12125.0	242.6
PA: BOYERTOWN	5/ 8/85	< 100	1605.0	128.4
PA: BOYERTOWN	5/ 8/85	< 100	5430.5	162.9
PA: BOYERTOWN	5/ 8/85	< 100	5149.0	154.5
PA: BOYERTOWN	5/ 9/85	< 100	1152.5	103.8
PA: BOYERTOWN	5/ 9/85	< 100	6528.0	164.4
PA: BOYERTOWN	5/13/85	< 100	3073.0	123.0
PA: BOYERTOWN	5/15/85	< 100	276.2	60.6
PA: BOYERTOWN	5/15/85	< 100	1220.0	115.4
PA: BOYERTOWN	5/15/85	< 100	1198.0	113.7
PA: BOYERTOWN	5/15/85	< 100	210.2	59.9
PA: BOYERTOWN	5/15/85	< 100	329.1	60.8
PA: BOYERTOWN	5/15/85	< 100	224.4	101.0
PA: BOYERTOWN	5/15/85	< 100	1222.5	73.4
PA: BOYERTOWN	5/15/85	< 100	4738.5	94.8
PA: BOYERTOWN	5/15/85	< 100	35640.0	356.4
PA: BOYERTOWN	5/16/85	< 100	1031.5	92.8
PA: BOYERTOWN	5/16/85	< 100	580.4	95.6
PA: BOYERTOWN	5/17/85	< 100	2583.5	103.3
PA: BOYERTOWN	5/17/85	< 100	52670.0	0.0
PA: BOYERTOWN	5/17/85	< 100	3480.0	104.4
PA: BOYERTOWN	5/22/85	< 100	2276.0	169.9
PA: BOYERTOWN	5/24/85	< 100	6770.5	203.2
PA: BOYERTOWN	5/24/85	< 100	2911.5	174.8
PA: BOYERTOWN	5/28/85	< 100	2082.0	146.0
PA: BOYERTOWN	5/28/85	< 100	2280.5	159.7
PA: BOYERTOWN	5/29/85	< 100	3461.0	138.5
PA: BOYERTOWN	5/29/85	< 100	2776.5	138.9
PA: BOYERTOWN	5/30/85	< 100	741.6	88.4
PA: BOYERTOWN	5/30/85	< 100	364.5	87.5
PA: BOYERTOWN	5/30/85	< 100	597.5	89.6
PA: BOYERTOWN	5/30/85	< 100	8064.0	161.3
PA: BOYERTOWN	6/ 4/85	< 100	80.0	34.7
PA: BOYERTOWN	6/ 5/85	< 100	946.6	108.7
PA: BOYERTOWN	6/ 5/85	< 100	9723.5	194.5
PA: BOYERTOWN	6/ 5/85	< 100	4074.5	141.6
PA: BOYERTOWN	6/ 5/85	< 100	3693.0	147.8
PA: BOYERTOWN	6/ 5/85	< 100	1811.0	126.8
PA: BOYERTOWN	6/ 6/85	< 100	121.9	105.3
PA: BOYERTOWN	6/ 6/85	< 100	2828.0	113.1
PA: BOYERTOWN	6/ 7/85	< 100	1941.5	97.1
PA: BOYERTOWN	6/ 7/85	< 100	397.4	81.0
PA: BOYERTOWN	6/ 7/85	< 100	698.8	83.9

TABLE 14 (CONTINUED)

RADON IN PRIVATE GROUNDWATER SUPPLIES

LOCATION	COLLECTION DATE		POPULATION SERVED	Rn-222 CONCENTRATION	
				pCi/l	<u>± 2s</u>
PA: BOYERTOWN	6/17/85	<	100	2004.0	100.2
PA: BOYERTOWN	6/18/85	<	100	1060.5	137.9
PA: BOYERTOWN	6/18/85	<	100	2803.5	112.2
PA: BOYERTOWN	6/18/85	<	100	1575.0	141.7
PA: BOYERTOWN	6/18/85	<	100	6051.5	121.1
PA: BOYERTOWN	6/18/85	<	100	3466.5	104.0
PA: BOYERTOWN	6/18/85	<	100	595.8	77.4
PA: BOYERTOWN	6/18/85	<	100	4023.5	161.0
PA: BOYERTOWN	6/18/85	<	100	2.6	65.5
PA: BOYERTOWN	6/19/85	<	100	2153.0	129.3
PA: BOYERTOWN	6/19/85	<	100	8568.0	171.4
PA: BOYERTOWN	7/ 3/85	<	100	1612.5	129.0
PA: BOYERTOWN	7/ 3/85	<	100	76.8	98.4
PA: BOYERTOWN	7/ 9/85	<	100	864.8	151.3
PA: BOYERTOWN	7/ 9/85	<	100	40145.0	402.6
PA: BOYERTOWN	7/10/85	<	100	14320.0	286.5
PA: BOYERTOWN	7/10/85	<	100	1967.5	137.8
PA: BOYERTOWN	7/12/85	<	100	1210.0	121.0
PA: BOYERTOWN	7/12/85	<	100	3510.0	140.4
PA: BOYERTOWN	7/16/85	<	100	257.0	117.1
PA: BOYERTOWN	7/16/85	<	100	74025.0	0.0
PA: BOYERTOWN	7/22/85	<	100	1315.5	105.3
PA: BOYERTOWN	7/31/85	<	100	2200.0	132.0
PA: BOYERTOWN	7/31/85	<	100	1236.0	134.7
PA: BOYERTOWN	8/ 1/85	<	100	2256.5	112.8
PA: BOYERTOWN	8/ 1/85	<	100	938.5	98.3
PA: BOYERTOWN	8/ 1/85	<	100	870.8	100.1
PA: BOYERTOWN	8/ 1/85	<	100	1343.5	107.5
PA: BOYERTOWN	8/ 1/85	<	100	347.6	93.7
PA: BOYERTOWN	8/ 2/85	<	100	659.5	82.3
PA: BOYERTOWN	8/ 2/85	<	100	634.2	85.5
PA: BOYERTOWN	8/ 2/85	<	100	1083.5	92.2
PA: BOYERTOWN	8/ 2/85	<	100	1105.5	88.4
PA: BOYERTOWN	8/ 2/85	<	100	1017.7	86.3
PA: BOYERTOWN	8/ 5/85	<	100	1576.0	78.8
PA: BOYERTOWN	8/ 6/85	<	100	2221.0	88.9
PA: BOYERTOWN	8/ 7/85	<	100	1546.0	121.6
PA: BOYERTOWN	8/ 7/85	<	100	506.7	98.8
PA: BOYERTOWN	8/ 7/85	<	100	1207.5	126.5
PA: BOYERTOWN	8/ 7/85	<	100	74.5	100.0
PA: BOYERTOWN	8/ 7/85	<	100	16730.0	167.3
PA: BOYERTOWN	8/ 8/85	<	100	1419.5	106.1
PA: BOYERTOWN	8/ 9/85	<	100	1141.5	91.3
PA: BOYERTOWN	8/ 9/85	<	100	1968.0	98.6
PA: BOYERTOWN	8/ 9/85	<	100	13115.0	131.2
PA: BOYERTOWN	8/ 9/85	<	100	9890.0	197.8
PA: BOYERTOWN	8/ 9/85	<	100	915.3	82.4

TABLE 14 (CONTINUED)

RADON IN PRIVATE GROUNDWATER SUPPLIES

LOCATION	COLLECTION DATE		POPULATION SERVED	Rn-222 CONCENTRATION	
				pCi/l	+ 2s
PA: BOYERTOWN	8/ 9/85	<	100	2151.0	107.6
PA: BOYERTOWN	8/12/85	<	100	159.0	71.9
PA: BOYERTOWN	8/12/85	<	100	2896.5	115.9
PA: BOYERTOWN	8/12/85	<	100	1248.0	74.9
PA: BOYERTOWN	8/12/85	<	100	1608.5	96.5
PA: BOYERTOWN	8/12/85	<	100	2974.5	119.0
PA: BOYERTOWN	8/13/85	<	100	143.7	57.3
PA: BOYERTOWN	8/13/85	<	100	879.1	74.6
PA: BOYERTOWN	8/13/85	<	100	1703.5	85.2
PA: BOYERTOWN	8/13/85	<	100	278.8	66.4
PA: BOYERTOWN	8/13/85	<	100	855.2	72.8
PA: BOYERTOWN	8/13/85	<	100	825.0	69.8
PA: BOYERTOWN	8/14/85	<	100	1437.0	129.4
PA: BOYERTOWN	8/14/85	<	100	1262.0	119.7
PA: BOYERTOWN	8/14/85	<	100	872.5	113.0
PA: BOYERTOWN	8/15/85	<	100	1130.5	101.8
PA: BOYERTOWN	8/15/85	<	100	2756.5	123.7
PA: BOYERTOWN	8/15/85	<	100	1125.0	101.3
PA: BOYERTOWN	8/16/85	<	100	31.9	73.1
PA: BOYERTOWN	8/16/85	<	100	1274.5	89.3
PA: BOYERTOWN	8/16/85	<	100	360.1	77.0
PA: BOYERTOWN	8/16/85	<	100	255.3	73.5
PA: BOYERTOWN	8/19/85	<	100	2960.0	118.4
PA: BOYERTOWN	8/19/85	<	100	6984.5	139.7
PA: BOYERTOWN	8/19/85	<	100	1588.0	95.6
PA: BOYERTOWN	8/19/85	<	100	601.2	81.0
PA: BOYERTOWN	8/19/85	<	100	310.9	74.6
PA: BOYERTOWN	8/19/85	<	100	118.5	72.0
PA: BOYERTOWN	8/19/85	<	100	701.4	80.7
PA: BOYERTOWN	8/20/85	<	100	454.4	127.0
PA: BOYERTOWN	8/20/85	<	100	679.7	135.9
PA: BOYERTOWN	8/20/85	<	100	3159.5	158.0
PA: BOYERTOWN	8/20/85	<	100	624.2	141.0
PA: BOYERTOWN	8/21/85	<	100	17800.0	178.0
PA: BOYERTOWN	8/21/85	<	100	1916.5	134.2
PA: BOYERTOWN	8/22/85	<	100	1474.0	117.9
PA: BOYERTOWN	8/22/85	<	100	173.2	92.3
PA: BOYERTOWN	8/26/85	<	100	2485.0	124.4
PA: BOYERTOWN	8/26/85	<	100	244.4	81.2
PA: BOYERTOWN	8/26/85	<	100	1949.0	117.0
PA: BOYERTOWN	8/26/85	<	100	1014.5	101.5
PA: BOYERTOWN	8/26/85	<	100	2521.5	126.1
PA: BOYERTOWN	8/26/85	<	100	730.8	91.3
PA: BOYERTOWN	9/23/85	<	100	47020.0	0.0
PA: BOYERTOWN	10/ 2/85	<	100	3908.0	156.4
PA: BOYERTOWN	10/ 7/85	<	100	1526.0	76.3
PA: BOYERTOWN	10/ 7/85	<	100	1069.0	85.5

TABLE 14 (CONTINUED)

RADON IN PRIVATE GROUNDWATER SUPPLIES

LOCATION	COLLECTION DATE	POPULATION SERVED	Rn-222 CONCENTRATION	
			pCi/l	$\pm 2s$
PA:BOYERTOWN	10/11/85	< 100	1397.5	97.8
PA:BOYERTOWN	10/16/85	< 100	903.9	121.9
PA:BOYERTOWN	10/16/85	< 100	1429.0	114.4
PA:BOYERTOWN	10/16/85	< 100	2002.0	120.1
PA:BOYERTOWN	10/18/85	< 100	5370.5	107.5
PA:BOYERTOWN	10/23/85	< 100	178.6	100.2
PA:BOYERTOWN	10/24/85	< 100	1630.0	106.0
PA:BOYERTOWN	10/28/85	< 100	1315.5	72.0
PA:BOYERTOWN	10/30/85	< 100	6558.0	131.2
PA:BOYERTOWN	10/31/85	< 100	2058.5	103.0
PA:BOYERTOWN	10/31/85	< 100	26705.0	267.1
PA:BOYERTOWN	10/31/85	< 100	1065.0	95.9
PA:BOYERTOWN	11/ 4/85	< 100	59910.0	599.2
PA:BOYERTOWN	11/ 6/85	< 100	360.6	137.6
PA:BOYERTOWN	11/19/85	< 100	9884.0	153.6
PA:CENTER VALLEY	5/14/85	< 1000	1561.0	140.6
PA:CENTER VALLEY	7/17/85	< 100	4537.0	136.2
PA:CENTER VALLEY	7/17/85	< 100	40225.0	402.3
PA:CENTER VALLEY	10/22/85	< 100	53545.0	0.0
PA:CENTER VALLEY	10/29/85	< 100	58340.0	0.0
PA:COOPERSBURG	10/ 4/85	< 100	26640.0	266.4
PA:COOPERSBURG	10/16/85	< 100	637.3	114.8
PA:COOPERSBURG	10/16/85	< 100	6236.0	187.1
PA:COOPERSBURG	10/16/85	< 100	3229.5	129.2
PA:COOPERSBURG	10/17/85	< 100	345.7	87.8
PA:COOPERSBURG	10/23/85	< 100	378.4	101.3
PA:COOPERSBURG	10/25/85	< 100	1065.5	117.3
PA:EARLVILLE	3/22/85	< 100	2302.5	69.1
PA:EARLVILLE	4/ 5/85	< 100	2787.0	139.5
PA:EARLVILLE	4/ 8/85	< 100	2358.0	117.9
PA:EARLVILLE	4/11/85	< 100	431.6	101.1
PA:EARLVILLE	7/18/85	< 100	864.1	116.4
PA:EARLVILLE	8/15/85	< 100	13645.0	136.5
PA:EAST GREENVILLE	7/10/85	< 1000	237.7	99.8
PA:EMMAUS	5/23/85	< 1000	237.4	114.6
PA:EMMAUS	5/23/85	< 1000	3725.5	167.4
PA:EMMAUS	5/23/85	< 1000	163.1	114.2
PA:EMMAUS	5/23/85	< 1000	7030.5	211.0
PA:EMMAUS	10/ 2/85	< 100	32335.0	323.6
PA:EMMAUS	10/17/85	< 100	20380.0	203.8
PA:EMMAUS	10/17/85	< 100	4227.5	126.9
PA:EMMAUS	10/29/85	< 100	13230.0	132.3
PA:EMMAUS	12/ 4/85	< 100	2593.0	155.6
PA:ENGELSVILLE	8/21/85	< 100	826.7	126.8
PA:FLEETWOOD	8/ 2/85	< 100	2363.0	94.5
PA:FLEETWOOD	8/ 2/85	< 100	122500.0	0.0
PA:FLEETWOOD	8/ 5/85	< 100	68835.0	0.0

TABLE 14 (CONTINUED)

RADON IN PRIVATE GROUNDWATER SUPPLIES

LOCATION	COLLECTION DATE		POPULATION SERVED	Rn-222 CONCENTRATION	
				pCi/l	$\pm 2s$
PA:FLEETWOOD	8/ 6/85	<	100	42755.0	0.0
PA:FLEETWOOD	8/ 6/85	<	100	38580.0	0.0
PA:FLEETWOOD	8/12/85	<	100	104.6	60.9
PA:FLEETWOOD	8/16/85	<	100	9777.5	146.0
PA:FLEETWOOD	8/21/85	<	100	1525.0	122.0
PA:FLEETWOOD	8/21/85	<	100	26340.0	263.4
PA:FLEETWOOD	8/21/85	<	100	36560.0	365.6
PA:FLEETWOOD	8/21/85	<	100	73675.0	0.0
PA:FLEETWOOD	8/22/85	<	100	458.7	111.0
PA:FLEETWOOD	8/22/85	<	100	758.0	109.7
PA:FLEETWOOD	8/22/85	<	100	43060.0	430.8
PA:FLEETWOOD	8/22/85	<	100	5820.0	174.7
PA:FLEETWOOD	8/27/85	<	100	296.9	71.2
PA:FLEETWOOD	8/27/85	<	100	1474.5	95.4
PA:FLEETWOOD	8/27/85	<	100	2090.5	104.6
PA:FLEETWOOD	8/27/85	<	100	2520.0	100.8
PA:FLEETWOOD	8/27/85	<	100	1257.0	88.0
PA:FLEETWOOD	8/27/85	<	100	4118.5	123.6
PA:FLEETWOOD	8/27/85	<	100	1158.0	92.6
PA:FLEETWOOD	8/27/85	<	100	301.7	70.1
PA:FLEETWOOD	8/28/85	<	100	195.7	133.0
PA:FLEETWOOD	8/28/85	<	100	1625.0	162.5
PA:FLEETWOOD	8/28/85	<	100	1001.0	150.1
PA:FLEETWOOD	8/28/85	<	100	858.5	136.7
PA:FLEETWOOD	8/28/85	<	100	1683.0	159.6
PA:FLEETWOOD	8/28/85	<	100	249.8	126.2
PA:FLEETWOOD	8/29/85	<	100	764.8	115.5
PA:FLEETWOOD	8/30/85	<	100	247.8	88.0
PA:FLEETWOOD	8/30/85	<	100	479.4	90.9
PA:FLEETWOOD	8/30/85	<	100	1381.0	117.2
PA:FLEETWOOD	8/30/85	<	100	53935.0	0.0
PA:FLEETWOOD	8/30/85	<	100	1520.5	106.7
PA:FLEETWOOD	8/30/85	<	100	953.4	99.8
PA:FLEETWOOD	8/30/85	<	100	1933.0	116.0
PA:FLEETWOOD	9/ 4/85	<	100	1564.0	179.6
PA:FLEETWOOD	9/ 4/85	<	100	1820.5	182.1
PA:FLEETWOOD	9/ 4/85	<	100	484.8	162.7
PA:FLEETWOOD	9/ 4/85	<	100	263.9	151.6
PA:FLEETWOOD	9/ 5/85	<	100	953.9	138.2
PA:FLEETWOOD	9/11/85	<	100	617.5	110.8
PA:GABELSVILLE	3/ 5/85	<	100	8147.5	81.5
PA:GILBERTSVILLE	2/ 2/85	<	100	2711.0	54.2
PA:GILBERTSVILLE	4/12/85	<	100	814.7	85.4
PA:GILBERTSVILLE	4/22/85	<	100	4604.5	138.2
PA:GILBERTSVILLE	5/ 8/85	<	100	938.7	126.5
PA:GILBERTSVILLE	5/22/85	<	100	759.0	151.9
PA:GILBERTSVILLE	5/29/85	<	100	1119.0	117.2

TABLE 14 (CONTINUED)

RADON IN PRIVATE GROUNDWATER SUPPLIES

LOCATION	COLLECTION DATE		POPULATION SERVED	Rn-222 CONCENTRATION	
				pCi/l	<u>± 2s</u>
PA:GILBERTSVILLE	5/29/85	<	100	1367.5	129.5
PA:GILBERTSVILLE	5/31/85	<	100	929.0	88.1
PA:GILBERTSVILLE	6/19/85	<	100	1444.0	115.5
PA:GILBERTSVILLE	7/ 3/85	<	100	1227.5	110.5
PA:GILBERTSVILLE	7/ 9/85	<	100	1786.5	160.8
PA:GILBERTSVILLE	7/ 9/85	<	100	1565.5	164.2
PA:GILBERTSVILLE	7/ 9/85	<	100	1307.0	156.9
PA:GILBERTSVILLE	7/ 9/85	<	100	1963.0	166.0
PA:GILBERTSVILLE	7/ 9/85	<	100	1893.5	170.5
PA:GILBERTSVILLE	7/10/85	<	100	1260.0	132.1
PA:GILBERTSVILLE	7/11/85	<	100	1641.5	106.4
PA:GILBERTSVILLE	7/22/85	<	100	225.2	86.4
PA:GILBERTSVILLE	8/ 5/85	<	100	6135.0	122.7
PA:GILBERTSVILLE	8/12/85	<	100	974.5	82.5
PA:GILBERTSVILLE	8/12/85	<	100	1490.0	89.4
PA:GILBERTSVILLE	8/15/85	<	100	786.2	102.2
PA:GILBERTSVILLE	8/16/85	<	100	832.0	82.3
PA:GILBERTSVILLE	8/20/85	<	100	1367.0	156.7
PA:GILBERTSVILLE	8/20/85	<	100	2186.5	153.1
PA:GILBERTSVILLE	8/22/85	<	100	1593.5	119.5
PA:GILBERTSVILLE	8/26/85	<	100	1595.5	111.7
PA:GILBERTSVILLE	9/ 3/85	<	100	7793.5	155.9
PA:GILBERTSVILLE	10/ 7/85	<	100	216.4	59.3
PA:GILBERTSVILLE	10/30/85	<	100	1330.0	119.9
PA:GILBERTSVILLE	11/ 5/85	<	100	1034.5	175.3
PA:GILBERTSVILLE	11/12/85	<	100	286.8	71.3
PA:GILBERTSVILLE	11/18/85	<	100	1268.5	82.3
PA:GILBERTSVILLE	11/26/85	<	100	704.5	144.4
PA:GILBERTSVILLE	11/26/85	<	100	2377.0	166.4
PA:GILBERTSVILLE	11/27/85	<	100	2843.0	142.2
PA:GREENVILLE	7/ 2/85	<	100	608.1	152.0
PA:GREENVILLE	7/ 2/85	<	100	998.2	159.7
PA:HELLERTOWN	12/ 5/85	<	100	9568.0	191.4
PA:HEREFORD	6/24/85	<	100	482.2	146.2
PA:HEREFORD	6/26/85	<	100	11160.0	223.4
PA:HEREFORD	6/27/85	<	100	10485.0	209.8
PA:HEREFORD	7/ 1/85	<	100	6083.5	153.3
PA:HEREFORD	7/ 2/85	<	100	700.3	154.1
PA:HEREFORD	7/ 2/85	<	100	691.0	124.4
PA:HEREFORD	7/ 3/85	<	100	5834.0	175.0
PA:HEREFORD	7/ 3/85	<	100	191.9	99.8
PA:HEREFORD	7/15/85	<	100	793.0	154.7
PA:HEREFORD	7/16/85	<	100	3933.5	175.9
PA:HEREFORD	8/13/85	<	100	1222.5	73.4
PA:HEREFORD	9/23/85	<	100	2296.5	114.9
PA:LIMEPORT	12/10/85	<	100	3577.0	107.3
PA:MACUNGIE	6/24/85	<	100	359.2	140.2

TABLE 14 (CONTINUED)

RADON IN PRIVATE GROUNDWATER SUPPLIES

LOCATION	COLLECTION DATE	POPULATION SERVED	Rn-222 CONCENTRATION	
			pCi/l	\pm 2s
PA:MACUNGIE	6/25/85	< 100	1711.5	154.1
PA:MACUNGIE	6/25/85	< 100	505.9	131.3
PA:MACUNGIE	6/25/85	< 100	739.7	129.3
PA:MACUNGIE	6/25/85	< 100	576.7	138.1
PA:MACUNGIE	6/25/85	< 100	1137.0	147.8
PA:MACUNGIE	6/28/85	< 100	644.4	96.1
PA:MACUNGIE	6/28/85	< 100	8961.0	179.3
PA:MACUNGIE	6/28/85	< 100	1845.0	110.8
PA:MACUNGIE	6/28/85	< 100	1476.5	103.4
PA:MACUNGIE	6/28/85	< 100	1752.5	113.5
PA:MACUNGIE	7/ 1/85	< 100	1761.5	105.8
PA:MACUNGIE	7/ 1/85	< 100	2217.0	110.8
PA:MACUNGIE	7/ 2/85	< 100	629.3	154.8
PA:MACUNGIE	7/ 3/85	< 100	119.3	99.5
PA:MACUNGIE	7/ 5/85	< 100	293.0	74.7
PA:MACUNGIE	7/ 5/85	< 100	575.0	78.9
PA:MACUNGIE	7/ 8/85	< 100	2627.0	183.9
PA:MACUNGIE	7/ 9/85	< 100	37350.0	373.6
PA:MACUNGIE	7/ 9/85	< 100	5516.5	220.8
PA:MACUNGIE	7/ 9/85	< 100	17755.0	355.2
PA:MACUNGIE	7/ 9/85	< 100	10645.0	213.0
PA:MACUNGIE	7/ 9/85	< 100	10018.5	200.8
PA:MACUNGIE	7/ 9/85	< 100	18585.0	279.6
PA:MACUNGIE	7/17/85	< 100	3622.0	181.2
PA:MACUNGIE	8/13/85	< 100	1673.0	74.3
PA:MACUNGIE	8/13/85	< 100	1525.0	76.3
PA:MACUNGIE	8/13/85	< 100	23590.0	238.2
PA:MACUNGIE	8/20/85	< 100	101595.0	0.0
PA:MACUNGIE	10/17/85	< 100	1332.5	106.6
PA:MERTZTOWN	10/29/85	< 100	9194.0	183.9
PA:NEW BERLINVILLE	1/30/85	< 100	236.6	79.8
PA:NEW BERLINVILLE	1/31/85	< 100	878.5	70.3
PA:NEW BERLINVILLE	3/27/85	< 100	657.2	81.2
PA:NEW BERLINVILLE	3/27/85	< 100	1386.5	83.2
PA:NEW BERLINVILLE	3/27/85	< 100	730.8	94.5
PA:NEW BERLINVILLE	3/27/85	< 100	527.3	73.8
PA:NEW BERLINVILLE	4/ 8/85	< 100	287.1	94.7
PA:NEW BERLINVILLE	4/ 9/85	< 100	1273.0	146.0
PA:NEW BERLINVILLE	4/12/85	< 100	1743.5	104.6
PA:NEW BERLINVILLE	4/12/85	< 100	466.5	90.9
PA:NEW BERLINVILLE	4/26/85	< 100	1869.5	93.8
PA:NEW BERLINVILLE	6/19/85	< 100	120.1	95.2
PA:NEW BERLINVILLE	8/ 6/85	< 100	1564.5	93.9
PA:NEW BERLINVILLE	8/ 8/85	< 100	814.8	97.8
PA:NEW BERLINVILLE	8/ 9/85	< 100	1135.5	90.9
PA:NEW BERLINVILLE	8/16/85	< 100	1594.0	95.7
PA:NEW BERLINVILLE	8/19/85	< 100	393.9	74.0

TABLE 14 (CONTINUED)

RADON IN PRIVATE GROUNDWATER SUPPLIES

LOCATION	COLLECTION DATE	POPULATION SERVED	Rn-222 CONCENTRATION	
			pCi/l	+ 2s
PA:NEW BERLINVILLE	8/21/85	< 100	2930.0	161.2
PA:NEW BERLINVILLE	8/26/85	< 100	741.8	92.6
PA:OARFIELD	6/20/85	< 100	207.3	90.2
PA:OLEY	4/ 9/85	< 100	4774.5	191.2
PA:OLEY	4/ 9/85	< 100	256.4	129.4
PA:OLEY	4/23/85	< 100	611.5	128.1
PA:OLEY	5/ 8/85	< 100	2641.0	145.5
PA:OLEY	5/ 8/85	< 100	976.5	135.7
PA:OLEY	5/ 8/85	< 100	1181.0	123.7
PA:OLEY	5/ 8/85	< 100	152.4	107.5
PA:OLEY	5/10/85	< 100	710.7	95.9
PA:OLEY	5/15/85	< 100	4607.0	138.2
PA:OLEY	5/22/85	< 100	440.5	145.4
PA:OLEY	5/29/85	< 100	266.0	97.1
PA:OLEY	6/ 5/85	< 100	342.6	100.7
PA:OLEY	6/ 5/85	< 100	711.0	110.1
PA:OLEY	6/18/85	< 100	21830.0	218.4
PA:OLEY	6/20/85	< 100	592.4	94.6
PA:OLEY	6/28/85	< 1000	6426.0	158.6
PA:OLEY	7/10/85	< 100	696.7	123.9
PA:OLEY	7/12/85	< 100	2610.5	130.5
PA:OLEY	7/12/85	< 100	507.4	104.0
PA:OLEY	7/16/85	< 100	1346.5	141.1
PA:OLEY	7/26/85	< 100	6443.5	129.0
PA:OLEY	7/26/85	< 100	577.8	272.0
PA:OLEY	7/26/85	< 100	236.6	75.6
PA:OLEY	7/29/85	< 100	794.6	151.0
PA:OLEY	7/31/85	< 100	266.1	114.9
PA:OLEY	7/31/85	< 100	292.9	112.3
PA:OLEY	7/31/85	< 100	17055.0	170.6
PA:OLEY	7/31/85	< 100	839.9	120.5
PA:OLEY	8/ 1/85	< 100	4033.0	121.1
PA:OLEY	8/ 1/85	< 100	10845.0	166.4
PA:OLEY	8/ 2/85	< 100	524.3	73.4
PA:OLEY	8/ 6/85	< 100	4321.5	129.7
PA:OLEY	8/ 8/85	< 100	2654.5	119.9
PA:OLEY	8/16/85	< 100	7043.0	140.9
PA:OLEY	8/16/85	< 100	1982.0	107.9
PA:OLEY	8/19/85	< 100	68.9	70.3
PA:OLEY	8/20/85	< 100	503.8	122.9
PA:OLEY	8/21/85	< 100	760.3	113.4
PA:OLEY	8/26/85	< 100	432.4	90.7
PA:OLEY	8/27/85	< 100	450.1	78.7
PA:OLEY	9/ 4/85	< 100	1423.5	114.0
PA:OLEY	9/ 4/85	< 100	28475.0	285.0
PA:OLEY	10/16/85	< 100	198.0	101.6
PA:OLEY	11/ 7/85	< 100	82505.0	825.1

TABLE 14 (CONTINUED)

RADON IN PRIVATE GROUNDWATER SUPPLIES

LOCATION	COLLECTION DATE	POPULATION SERVED	Rn-222 CONCENTRATION	
			pCi/l	+ 2s
PA:OLEY	11/15/85	< 100	215.9	82.0
PA:OREFIELD	6/18/85	< 5000	470.6	125.4
PA:ORRFIELD	6/20/85	< 1000	464.9	92.7
PA:PAILA	8/26/85	< 100	1809.5	217.2
PA:PALM	7/ 1/85	< 100	2111.5	105.6
PA:PALM	7/ 1/85	< 100	284.3	86.7
PA:PALM	7/ 1/85	< 100	2143.0	107.1
PA:PALM	8/20/85	< 100	2172.0	163.1
PA:PARKERFORD	9/30/85	< 100	4841.5	145.3
PA:PINE FORGE	7/10/85	< 100	889.1	115.6
PA:POTTSTOWN	4/24/85	< 100	919.8	105.5
PA:POTTSTOWN	12/ 4/85	< 100	723.0	129.7
PA:RAMBLING RICHES	8/27/85	< 100	799.2	91.7
PA:READING	7/31/85	< 100	7136.5	214.1
PA:READING	7/31/85	< 100	5318.5	159.6
PA:READING	7/31/85	< 100	1332.5	139.6
PA:READING	8/ 1/85	< 100	1303.0	104.2
PA:READING	8/ 2/85	< 100	235700.0	0.0
PA:READING	8/ 2/85	< 100	2676.5	107.1
PA:READING	8/ 6/85	< 100	890.9	80.3
PA:READING	8/ 8/85	< 100	2188.5	109.4
PA:READING	8/ 8/85	< 100	3727.5	149.2
PA:READING	8/ 8/85	< 100	4383.0	131.5
PA:READING	8/ 8/85	< 100	2597.5	117.4
PA:READING	8/ 9/85	< 100	8070.5	161.8
PA:READING	8/ 9/85	< 100	1481.5	126.0
PA:READING	8/ 9/85	< 100	3116.5	139.3
PA:READING	8/ 9/85	< 100	1568.5	117.3
PA:READING	8/ 9/85	< 100	1908.0	133.7
PA:READING	8/12/85	< 100	322.1	63.8
PA:READING	8/12/85	< 100	4213.5	127.2
PA:READING	8/12/85	< 100	44.9	67.8
PA:READING	8/12/85	< 100	2045.5	81.9
PA:READING	8/21/85	< 100	177.8	113.3
PA:READING	8/21/85	< 100	2830.0	169.8
PA:READING	8/21/85	< 100	1951.5	136.6
PA:READING	8/21/85	< 100	16095.0	322.0
PA:READING	8/21/85	< 100	8030.0	160.6
PA:READING	8/21/85	< 100	329.9	108.4
PA:READING	8/21/85	< 100	1569.5	141.3
PA:READING	8/21/85	< 100	4568.0	182.8
PA:READING	8/29/85	< 100	1491.5	126.3
PA:READING	8/29/85	< 100	268.5	108.8
PA:READING	8/29/85	< 100	955.8	117.8
PA:READING	8/29/85	< 100	2755.5	137.8
PA:READING	8/30/85	< 100	9576.0	191.6
PA:READING	10/22/85	< 100	309800.0	0.0

TABLE 14 (CONTINUED)

RADON IN PRIVATE GROUNDWATER SUPPLIES

LOCATION	COLLECTION DATE	POPULATION SERVED	Rn-222 CONCENTRATION	
			pCi/l	<u>± 2s</u>
PA:RIEGSVILLE	12/ 3/85	< 100	2293.5	171.5
PA:SCHNECKSVILLE	9/28/85	< 1000	210.4	84.5
PA:SHANESVILLE	2/19/85	< 100	4569.0	91.4
PA:TEMPLE	7/24/85	< 100	5932.5	178.1
PA:TEMPLE	7/24/85	< 100	9447.5	189.0
PA:TEMPLE	7/24/85	< 100	194500.0	0.0
PA:TEMPLE	7/24/85	< 100	88955.0	0.0
PA:TEMPLE	7/24/85	< 100	35510.0	355.1
PA:TEMPLE	7/24/85	< 100	7045.5	178.6
PA:TEMPLE	7/24/85	< 100	55615.0	0.0
PA:TEMPLE	7/24/85	< 100	1655.5	132.5
PA:TEMPLE	7/24/85	< 100	24560.0	245.7
PA:TEMPLE	7/24/85	< 100	4284.5	171.4
PA:TEMPLE	7/24/85	< 100	240500.0	0.0
PA:TEMPLE	7/25/85	< 100	17745.0	177.5
PA:TEMPLE	7/25/85	< 100	3621.0	108.7
PA:TEMPLE	7/25/85	< 100	5060.5	152.0
PA:TEMPLE	7/25/85	< 100	80855.0	0.0
PA:TEMPLE	7/25/85	< 100	51630.0	0.0
PA:TEMPLE	7/25/85	< 100	9792.0	196.0
PA:TEMPLE	7/25/85	< 100	15345.0	153.5
PA:TEMPLE	7/25/85	< 100	1112.5	105.5
PA:TEMPLE	7/25/85	< 100	28055.0	280.6
PA:TEMPLE	7/25/85	< 100	25470.0	255.0
PA:TEMPLE	7/25/85	< 100	10091.0	201.9
PA:TEMPLE	7/25/85	< 100	5649.0	169.5
PA:TEMPLE	7/25/85	< 100	2814.0	140.8
PA:TEMPLE	7/25/85	< 100	11530.0	230.6
PA:TEMPLE	7/25/85	< 100	60515.0	0.0
PA:TEMPLE	7/25/85	< 100	97825.0	0.0
PA:TEMPLE	7/25/85	< 100	8210.0	164.5
PA:TEMPLE	7/25/85	< 100	6115.5	183.5
PA:TEMPLE	7/25/85	< 100	1572.0	110.1
PA:TEMPLE	7/26/85	< 100	10855.0	108.6
PA:TEMPLE	7/26/85	< 100	11530.0	115.8
PA:TEMPLE	7/26/85	< 100	11275.0	112.8
PA:TEMPLE	7/26/85	< 100	17370.0	427.9
PA:TEMPLE	7/31/85	< 100	139.1	111.8
PA:TEMPLE	8/ 1/85	< 100	408.9	91.9
PA:TEMPLE	8/ 1/85	< 100	466.2	90.9
PA:TEMPLE	8/ 2/85	< 100	5630.0	113.2
PA:TEMPLE	8/ 2/85	< 100	10282.5	206.4
PA:TEMPLE	8/ 2/85	< 100	2727.0	109.1
PA:TEMPLE	8/ 5/85	< 100	698.0	97.2
PA:TEMPLE	8/ 5/85	< 100	3792.0	113.8
PA:TEMPLE	8/ 6/85	< 100	618.4	78.4
PA:TEMPLE	8/ 6/85	< 100	7503.5	150.3

TABLE 14 (CONTINUED)

RADON IN PRIVATE GROUNDWATER SUPPLIES

LOCATION	COLLECTION DATE	POPULATION SERVED	Rn-222 CONCENTRATION	
			pCi/l	+ 2s
PA:TEMPLE	8/ 6/85	< 100	16050.0	160.6
PA:TEMPLE	8/ 9/85	< 100	7348.5	176.6
PA:TEMPLE	8/ 9/85	< 100	688.8	110.2
PA:TEMPLE	8/ 9/85	< 100	3048.5	152.5
PA:TEMPLE	8/ 9/85	< 100	10263.0	205.3
PA:TEMPLE	8/12/85	< 100	820.8	82.1
PA:TEMPLE	8/12/85	< 100	47540.0	0.0
PA:TEMPLE	8/16/85	< 100	4838.0	145.2
PA:TEMPLE	8/21/85	< 100	88470.0	0.0
PA:TEMPLE	8/21/85	< 100	18265.0	373.3
PA:TEMPLE	8/22/85	< 100	125450.0	0.0
PA:TEMPLE	8/22/85	< 100	12940.0	258.9
PA:TEMPLE	8/22/85	< 100	5187.5	208.0
PA:TEMPLE	8/28/85	< 100	1092.5	136.4
PA:TEMPLE	8/28/85	< 100	3062.0	168.0
PA:TEMPLE	8/29/85	< 100	2420.0	145.2
PA:TEMPLE	9/ 5/85	< 100	1325.0	145.8
PA:VERA CRUZ	9/25/85	< 1000	3659.5	146.7
PA:WESCOSVILLE	6/20/85	< 1000	192.6	88.7
PA:ZIONSVILLE	6/27/85	< 100	2407.5	132.5
PA:ZIONSVILLE	7/ 3/85	< 100	228.1	379.2
PA:ZIONSVILLE	7/ 8/85	< 100	158.9	158.9
PA:ZIONSVILLE	10/ 1/85	< 100	762.0	80.0
PA:ZIONSVILLE	10/ 1/85	< 100	578.8	75.2
PA:ZIONSVILLE	10/18/85	< 100	9250.0	185.0
PA:ZIONSVILLE	10/22/85	< 100	23690.0	236.9
PA:ZIONSVILLE	11/14/85	< 100	17925.0	179.3
PA:ZIONSVILLE	12/ 4/85	< 100	5991.5	179.8

TABLE 15

RADON IN PUBLIC GROUNDWATER SUPPLIES

LOCATION	COLLECTION DATE	POPULATION SERVED	Rn-222 CONCENTRATION	
			pCi/l	<u>± 2s</u>
PA:ALLENTOWN	10/ 8/85	> 10000	70.9	67.5
PA:ALLENTOWN	10/29/85	< 10000	257.2	73.1
PA:BALLY	3/22/85	< 5000	33.8	56.3
PA:BARTO	6/28/85	< 100	918.2	101.0
PA:BOYERTOWN	10/31/85	< 10000	56.7	86.3
PA:BRANDYWINE HGTS	7/ 2/85	< 100	22875.0	229.5
PA:COLUMBIA MHP	9/ 9/85	< 100	1646.0	172.8
PA:COOPERSBURG	7/17/85	< 1000	502.0	103.3
PA:E. BRANDYWINE	7/11/85	< 1000	2868.0	143.4
PA:E. BRANDYWINE	7/11/85	< 1000	2411.0	120.6
PA:E. BRANDYWINE	7/11/85	< 1000	2448.0	122.4
PA:E. BRANDYWINE	7/11/85	< 1000	2968.0	148.4
PA:EARLVILLE	3/26/85	< 100	93.7	80.0
PA:EASTON	12/11/85	> 10000	480.7	123.3
PA:FLEETWOOD	11/12/85	< 100	495.0	76.7
PA:FOGELSVILLE	9/27/85	< 1000	174.8	101.8
PA:GILBERTSVILLE	3/28/85	< 5000	2758.5	82.9
PA:HELLERTOWN	6/26/85	> 10000	499.2	110.3
PA:HELLERTOWN	6/26/85	< 1000	496.7	109.0
PA:IRONTON	9/28/85	< 1000	63.3	79.6
PA:LANCASTER	7/10/85	< 1000	961.8	114.4
PA:LANCASTER	7/10/85	< 1000	6512.5	195.4
PA:LANCASTER	7/10/85	< 1000	2557.0	128.0
PA:LANCASTER	7/10/85	< 1000	1697.5	118.9
PA:LANCASTER	7/11/85	< 1000	2360.5	118.1
PA:LANCASTER	7/11/85	< 1000	9141.5	183.0
PA:MOUNTAINTOP MHP	9/10/85	< 100	1700.0	144.0
PA:MOUNTAINTOP MHP	9/10/85	< 100	353.7	125.7
PA:NEW BERLINVILLE	4/ 8/85	< 1000	65.9	90.2
PA:OLEY	6/28/85	< 5000	251.2	86.9
PA:OLEY	9/28/85	> 10000	420.8	92.4
PA:OLEY	9/29/85	< 5000	519.0	80.3
PA:STONEY HILL MHP	9/11/85	< 100	5970.0	179.5
PA:STONEY HILL MHP	9/11/85	< 100	4456.0	178.3
PA:STONEYHILL MHP	9/11/85	< 100	1149.5	120.7
PA:TOPTON	7/ 2/85	< 1000	41.1	111.1

TABLE 16

RADON IN PUBLIC SURFACE WATER SUPPLIES

LOCATION	COLLECTION DATE	POPULATION SERVED	Rn-222 CONCENTRATION	
			pCi/l	<u>±</u> 2s
PA:BALLY	3/22/85	< 5000	759.5	64.4
PA:BOYERTOWN	3/ 5/85	< 10000	64.3	81.1
PA:CENTER VALLEY	10/ 1/85	< 1000	11.0	66.3
PA:CENTER VALLEY	10/ 1/85	< 100	14.3	66.4
PA:CENTER VALLEY	10/ 1/85	< 1000	15.7	67.1
PA:EMMAUS	10/ 2/85	< 100	346.6	105.5
PA:TOPTON	11/20/85	< 1000	40.9	128.6

SECTION III. External Gamma Ambient Monitoring Program

The external gamma monitoring program, which began in October 1978, provides a continuous measurement of ambient gamma exposure rates, including cosmic, at selected sites throughout the continental United States. Data from this program are used to evaluate fluctuations in natural background due to variations in environmental conditions and to provide a means of monitoring any significant increases in ambient gamma levels. The program consists of approximately 22 sites representing a wide geographic coverage throughout the country.* Although exposure measurements at these few sites are not totally representative of nationwide exposures, they will be indicative of national trends.

The monitoring program utilizes $\text{CaF}_2:\text{Mn}$ thermoluminescent dosimeters (TLD's). These dosimeters are commercially available glass-bulb type dosimeters with energy compensating shields. A group of three TLD's is located at each station or site. Dosimeters are annealed by the station operator prior to positioning in the field. The dosimeters are returned to EERF for readout approximately every three months. Several dosimeters are annealed by the station operator as controls and returned with the exposed field dosimeters to correct for any exposures accumulated during shipment.

Results from the period July - September 1985 are shown in Table 17.

* Some of these sites may not return dosimeters each period and consequently the number of sites listed may vary slightly.

TABLE 17

ENVIRONMENTAL GAMMA AMBIENT MONITORING PROGRAM				
LOCATION	DATE RANGE	INTEGRATED	EXPOSURE	
		EXPOSURE	RATE	
		MR	MICRO R/HR	+ 2 s *
AL:MONTGOMERY	70385-100385	18.8	8.5	4.9
CA:BERKELEY	70185-100285	14.0	6.3	8.7
CO:DENVER	70385-100385	35.1	15.9	9.3
FL:ORLANDO	70185-100185	15.4	7.0	4.5
ID:BOISE	70185-101585	33.6	13.2	6.0
IL:CHICAGO	70385-102085	23.9	9.1	3.0
ND:BISHARCK	62885-100885	24.5	10.0	6.9
NJ:TRENTON	62885-100185	24.7	10.8	6.1
NM:SANTA FE	70585-100185	31.4	14.8	3.9
NV:LAS VEGAS	70185-100185	17.5	7.9	4.7
NY:NEW YORK	72485-102385	20.8	9.5	4.1
OH:COLUMBUS	70985-100185	17.2	8.5	6.6
OK:OKLAHOMA CITY	70985-100185	16.0	8.0	5.8
OR:PORTLAND	70285-100285	17.3	7.8	8.6
PA:HARRISBURG	70885-100285	13.5	6.6	8.0
PA:PITTSBURGH	70185-100285	27.5	12.3	3.3
RI:PROVIDENCE	62885-100885	30.7	12.5	1.5
SC:BARNWELL	71185-100385	17.3	8.6	3.5
SC:COLUMBIA	62885- 92785	20.7	9.5	5.7
TN:KNOXVILLE	70285-100385	22.1	9.9	5.4
VA:RICHMOND	70985-100185	20.5	10.2	6.3
VT:MONTPELIER	70285-100985	21.6	9.1	6.6

* s = SIGMA ERROR (IN PERCENT)

SECTION IV. Milk Program

Pasteurized Milk

This is a cooperative program with the Dairy and Lipid Products Branch, Milk Sanitation Section, Food and Drug Administration. Milk is a reliable indicator of the general population's intake of radionuclides since it is consumed fresh by a large segment of the population and contains several of the biologically important contaminants resulting from environmental releases from nuclear activities. A primary function of this program is to obtain reliable monitoring data relative to current radionuclide concentrations and determine any long-term trends.

Monthly samples are collected at 65 sampling sites with one or more located in each state and Puerto Rico. The samples are composited, according to production, from the major milk suppliers representing more than 80 percent of the milk consumed in a given population center.

The samples are analyzed for iodine-131, barium-140, cesium-137, and potassium. All 65 samples are analyzed annually in July for strontium-89, and strontium-90. Also, for the first month of the three quarters beginning January, April and October, 10 regional composite samples of milk made up from the states within each of EPA's 10 regions are analyzed for strontium-89 and strontium-90.

Iodine-131, barium-140, cesium-137 and potassium are determined by gamma spectral analysis. Strontium-89 and strontium-90 are determined by beta counting a total strontium precipitate which has been chemically separated by ion-exchange.

The values from the pasteurized milk samples for July - September 1985 are shown in Tables 18 - 20.

Strontium values from regional composite samples collected July - September are shown in Table 21.

TABLE 18

CONCENTRATIONS OF RADIONUCLIDES IN PASTEURIZED MILK

JULY 1985

LOCATION	DATE COLLECTED	K g/1+2s	^{137}Cs pCi/1+2s	^{140}Ba pCi/1+2s	^{131}I pCi/1+2s
AL:MONTGOMERY	7/ 3/85	1.45 0.12	8 7	1 9	0 7
AR:LITTLE ROCK	7/ 8/85	1.53 0.13	7 7	4 9	2 7
AZ:PHOENIX	7/11/85	1.56 0.13	-2 7	0 9	6 7
CA:LOS ANGELES	7/18/85	1.64 0.09	1 5	3 6	-1 5
CA:SACRAMENTO	7/ 2/85	1.69 0.13	3 7	-2 9	2 7
CA:SAN FRANCISCO	7/ 9/85	1.78 0.13	8 7	1 9	3 7
CO:DENVER	7/31/85	1.50 0.12	6 7	3 9	4 7
CT:HARTFORD	7/ 8/85	1.57 0.13	5 7	7 9	5 7
FL:TAMPA	7/ 2/85	1.62 0.13	9 7	-4 9	6 7
HI:HONOLULU	7/23/85	1.53 0.13	1 7	1 9	2 7
IA:DES MOINES	7/15/85	1.66 0.13	5 7	-7 9	2 7
IL:CHICAGO	7/ 1/85	1.48 0.12	4 7	-1 9	6 7
IN:INDIANAPOLIS	7/ 8/85	1.49 0.12	5 7	0 9	5 7
KS:WICHITA	7/11/85	1.50 0.09	3 5	-3 6	3 5
KY:LOUISVILLE	7/ 2/85	1.70 0.13	-3 7	5 9	1 7
LA:NEW ORLEANS	7/23/85	1.47 0.12	3 7	-3 9	6 7
MA:BOSTON	7/ 9/85	1.59 0.09	3 5	-2 6	6 5
MD:BALTIMORE	7/ 5/85	1.55 0.09	-2 5	6	3 5
ME:PORTLAND	7/ 2/85	1.55 0.13	5 7	-2 9	4 7
MI:DETROIT	7/12/85	1.48 0.12	3 7	4 9	2 7
MI:GRAND RAPIDS	7/ 8/85	1.67 0.13	2 7	4 9	4 7
MN:MINNEAPOLIS	7/ 8/85	1.63 0.13	4 7	-3 9	8 7
MN:ST. PAUL	7/ 1/85	1.54 0.09	2 5	-2 6	5 5
MO:KANSAS CITY	7/12/85	1.58 0.13	1 7	-3 9	3 7
MO:ST. LOUIS	7/ 5/85	1.60 0.13	-3 7	2 9	0 7
MS:JACKSON	7/16/85	1.59 0.13	3 7	2 9	3 7
MT:HELENA	7/15/85	1.61 0.13	2 7	4 9	1 7
NC:CHARLOTTE	7/16/85	1.74 0.17	16 13	-1 13	6 10
ND:MINOT	7/17/85	1.61 0.13	2 7	0 9	2 7
NE:OMAHA	7/ 5/85	1.60 0.13	0 7	0 9	6 7
NH:MANCHESTER	7/ 8/85	1.66 0.13	8 7	1 9	5 7
NJ:TRENTON	7/10/85	1.53 0.13	-2 7	0 9	3 7
NM:ALBUQUERQUE	7/ 5/85	1.47 0.12	5 7	2 9	3 7
NV:LAS VEGAS	7/ 8/85	1.59 0.13	6 7	1 9	6 7
NY:BUFFALO	7/ 8/85	1.61 0.09	4 5	-2 6	7 5
NY:NEW YORK CITY	7/ 1/85	1.56 0.13	0 7	4 9	3 7
NY:SYRACUSE	7/ 1/85	1.49 0.12	0 7	-3 9	4 7
OK:OKLAHOMA CITY	7/ 1/85	1.50 0.12	6 7	-2 9	0 7

TABLE 18 (CONTINUED)

CONCENTRATIONS OF RADIONUCLIDES IN PASTEURIZED MILK

JULY 1985

LOCATION	DATE COLLECTED	K		^{137}Cs		^{140}Ba		^{131}I	
		g/1+2s		pCi/1+2s		pCi/1+2s		pCi/1+2s	
OR:PORTLAND	7/ 8/85	1.57	0.09	2	5	2	6	5	5
PA:PHILADELPHIA	7/ 8/85	1.63	0.13	2	7	2	9	3	7
PC:CRISTOBAL	7/25/85	1.59	0.13	13	7	-8	9	1	7
SC:CHARLESTON	7/17/85	1.48	0.12	8	7	0	9	5	7
SD:RAPID CITY	7/ 1/85	1.62	0.13	4	7	0	9	2	7
TN:CHATTANOOGA	7/ 8/85	1.55	0.13	1	7	2	9	4	7
TN:KNOXVILLE	7/ 8/85	1.64	0.13	7	7	0	9	8	7
TN:MEMPHIS	7/31/85	1.50	0.12	2	7	-3	9	3	7
UT:SALT LAKE CITY	7/ 1/85	1.50	0.12	5	7	3	9	7	7
VA:NORFOLK	7/11/85	1.66	0.13	0	7	5	9	3	7
VT:BURLINGTON	7/ 8/85	1.48	0.12	7	7	-2	9	5	7
WA:SEATTLE	7/ 1/85	1.55	0.13	4	7	5	9	8	7
WI:MILWAUKEE	7/30/85	1.50	0.12	2	7	2	9	8	7
WY:LARAMIE	7/ 9/85	1.57	0.09	3	5	-3	6	5	5

s SIGMA COUNTING ERROR

TABLE 19

CONCENTRATIONS OF RADIONUCLIDES IN PASTEURIZED MILK

AUGUST 1985

LOCATION	DATE COLLECTED	K		^{137}Cs		^{140}Ba		^{131}I	
		g/1+2s		pCi/1+2s		pCi/1+2s		pCi/1+2s	
AK:PALMER	8/ 6/85	1.50	0.12	4	7	4	9	0	7
AL:MONTGOMERY	8/ 9/85	1.61	0.13	6	7	3	9	4	7
AR:LITTLE ROCK	8/ 6/85	1.66	0.13	4	7	-8	9	4	7
AZ:PHOENIX	8/ 8/85	1.55	0.13	2	7	1	9	2	7
CA:LOS ANGELES	8/12/85	1.70	0.13	0	7	1	9	7	7
CA:SACRAMENTO	8/ 1/85	1.65	0.13	2	7	-1	9	4	7
CA:SAN FRANCISCO	8/14/85	1.63	0.09	1	5	1	6	5	5
CO:DENVER	8/30/85	1.51	0.13	-3	7	2	9	-1	7
CT:HARTFORD	8/ 5/85	1.60	0.09	2	5	3	6	4	5
FL:TAMPA	8/ 6/85	1.46	0.12	9	7	1	9	-1	7
GA:ATLANTA	8/13/85	1.57	0.13	1	7	-1	9	7	7
HI:HONOLULU	8/ 6/85	1.51	0.12	0	7	-4	9	2	7
IA:DES MOINES	8/ 5/85	1.57	0.13	2	7	-2	9	3	7
ID:IDAHO FALLS	8/13/85	1.56	0.13	8	7	-7	9	6	7
IL:CHICAGO	8/ 5/85	1.51	0.13	6	7	-1	9	6	7
IN:INDIANAPOLIS	8/ 5/85	1.63	0.13	2	7	-4	9	-2	7
KS:WICHITA	8/ 8/85	1.60	0.13	0	7	2	9	2	7
KY:LOUISVILLE	8/ 6/85	1.61	0.13	0	7	4	9	6	7
LA:NEW ORLEANS	8/12/85	1.61	0.13	-3	7	-3	9	7	7
MA:BOSTON	8/ 6/85	1.63	0.13	4	7	3	9	1	7
MD:BALTIMORE	8/ 2/85	1.56	0.13	2	7	6	9	0	7
ME:PORTLAND	8/ 6/85	1.61	0.13	5	7	3	9	5	7
MI:DETROIT	8/ 8/85	1.60	0.09	-1	5	1	6	-1	5
MI:GRAND RAPIDS	8/ 5/85	1.65	0.13	1	7	0	9	3	7
MN:MINNEAPOLIS	8/ 5/85	1.59	0.13	2	7	2	9	0	7
MN:ST. PAUL	8/ 6/85	1.52	0.24	8	18	4	19	6	14
MO:KANSAS CITY	8/ 9/85	1.65	0.13	2	7	-3	9	-1	7
MO:ST. LOUIS	8/ 7/85	1.61	0.13	-3	7	-3	9	7	7
MS:JACKSON	8/ 6/85	1.56	0.09	7	5	2	6	3	5
MT:HELENA	8/15/85	1.61	0.13	-3	7	-3	9	7	7
NC:CHARLOTTE	8/12/85	1.69	0.24	-3	18	-2	18	5	14
ND:MINOT	8/30/85	1.50	0.09	1	5	-3	6	2	5
NE:OMAHA	8/ 6/85	1.02	0.08	2	5	1	6	6	5
NH:MANCHESTER	8/12/85	1.59	0.13	3	7	-5	9	3	7
NJ:TRENTON	8/ 7/85	1.56	0.13	0	7	6	9	1	7
NM:ALBUQUERQUE	8/ 6/85	1.52	0.13	4	7	1	9	5	7
NY:BUFFALO	8/19/85	1.70	0.13	-1	7	-2	9	5	7
NY:NEW YORK CITY	8/ 5/85	1.59	0.09	5	5	-2	6	4	5

TABLE 19 (CONTINUED)

CONCENTRATIONS OF RADIONUCLIDES IN PASTEURIZED MILK

AUGUST 1985

LOCATION	DATE COLLECTED	K		^{137}Cs		^{140}Ba		^{131}I	
		g/1+2s		pCi/1+2s		pCi/1+2s		pCi/1+2s	
NY:SYRACUSE	8/ 5/85	1.58	0.13	-3	7	-5	9	8	7
OK:OKLAHOMA CITY	8/12/85	1.61	0.09	2	5	-3	6	0	5
OR:PORTLAND	8/ 5/85	1.53	0.13	-2	7	6	9	0	7
PA:PHILADELPHIA	8/ 5/85	1.63	0.13	1	7	6	9	-3	7
PA:PITTSBURGH	8/ 6/85	1.55	0.13	-1	7	-1	9	1	7
PC:CRISTOBAL	8/22/85	1.48	0.12	7	7	-7	9	3	7
PR:SAN JUAN	8/21/85	1.62	0.13	5	7	-8	9	2	7
SC:CHARLESTON	8/14/85	1.50	0.13	3	7	7	9	-3	7
SD:RAPID CITY	8/ 8/85	1.61	0.13	1	7	3	9	0	7
TN:CHATTANOOGA	8/ 5/85	1.56	0.13	2	7	4	9	1	7
TN:KNOXVILLE	8/ 5/85	1.61	0.13	1	7	-1	9	4	7
TN:MEMPHIS	8/29/85	1.50	0.09	-1	5	-2	6	0	5
UT:SALT LAKE CITY	8/ 5/85	1.53	0.13	2	7	2	9	5	7
VA:NORFOLK	8/22/85	1.55	0.13	8	7	-5	9	1	7
VT:BURLINGTON	8/ 6/85	1.55	0.13	-2	7	7	9	-3	7
WA:SEATTLE	8/ 8/85	1.65	0.09	-2	5	-2	6	0	5
WI:MILWAUKEE	8/30/85	1.53	0.13	2	7	-2	9	0	7
WV:CHARLESTON	8/ 6/85	1.79	0.17	10	13	8	13	2	10
WY:LARAMIE	8/ 6/85	1.70	0.24	5	18	11	19	15	14

s SIGMA COUNTING ERROR

TABLE 20

CONCENTRATIONS OF RADIONUCLIDES IN PASTEURIZED MILK

SEPTEMBER 1985

LOCATION	DATE COLLECTED	K g/1+2s	^{137}Cs pCi/1+2s	^{140}Ba pCi/1+2s	^{131}I pCi/1+2s
AK:PALMER	9/ 3/85	1.52 0.09	4 5	-1 6	2 5
AL:MONTGOMERY	9/ 5/85	1.56 0.13	-1 7	-1 9	-1 7
AR:LITTLE ROCK	9/10/85	1.56 0.13	-2 7	2 9	4 7
AZ:PHOENIX	9/ 5/85	1.57 0.13	2 7	0 9	1 7
CA:LOS ANGELES	9/16/85	1.55 0.13	4 7	-4 9	7 7
CA:SACRAMENTO	9/ 5/85	1.58 0.13	1 7	-3 9	3 7
CA:SAN FRANCISCO	9/12/85	1.67 0.13	1 7	-2 9	-3 7
CO:DENVER	9/27/85	1.61 0.13	3 7	-2 9	0 7
CT:HARTFORD	9/ 9/85	1.55 0.13	4 7	2 9	-1 7
FL:TAMPA	9/ 3/85	1.50 0.12	1 7	-1 9	3 7
GA:ATLANTA	9/24/85	1.48 0.09	0 5	3 6	1 5
HI:HONOLULU	9/ 3/85	1.52 0.07	0 4	-1 5	3 4
IA:DES MOINES	9/ 3/85	1.59 0.13	0 7	-2 9	0 7
IL:CHICAGO	9/ 3/85	1.55 0.09	1 5	-4 6	5 5
IN:INDIANAPOLIS	9/ 9/85	1.52 0.13	0 7	2 9	7 7
KS:WICHITA	9/ 9/85	1.53 0.13	4 7	-2 9	3 7
KY:LOUISVILLE	9/ 3/85	1.54 0.13	2 7	-3 9	8 7
LA:NEW ORLEANS	9/ 5/85	1.50 0.09	7 5	1 6	3 5
MA:BOSTON	9/ 9/85	1.64 0.13	6 7	3 9	1 7
MD:BALTIMORE	9/ 6/85	1.55 0.13	1 7	-1 9	5 7
ME:PORTLAND	9/ 4/85	1.50 0.09	4 5	-1 6	0 5
MI:DETROIT	9/ 6/85	1.48 0.12	3 7	-2 9	3 7
MI:GRAND RAPIDS	9/ 3/85	1.59 0.13	1 7	-6 9	2 7
MN:MINNEAPOLIS	9/ 9/85	1.62 0.13	-2 7	-5 9	6 7
MN:ST PAUL	9/ 3/85	1.46 0.12	7 7	5 9	4 7
MO:KANSAS CITY	9/ 6/85	1.56 0.09	2 5	-2 6	3 5
MS:JACKSON	9/11/85	1.60 0.13	0 7	0 9	1 7
MT:HELENA	9/ 5/85	1.51 0.12	0 7	-5 9	4 7
NC:CHARLOTTE	9/13/85	1.62 0.24	-2 18	7 19	-7 14
NE:OMAHA	9/ 6/85	1.50 0.12	2 7	-2 9	0 7
NH:MANCHESTER	9/ 9/85	1.50 0.12	-2 7	-7 9	2 7
NJ:TRENTON	9/ 4/85	1.48 0.12	6 7	3 9	3 7
NM:ALBUQUERQUE	9/ 3/85	1.59 0.13	-4 7	4 9	-2 7
NY:BUFFALO	9/10/85	1.60 0.13	-1 7	-3 9	7 7
NY:NEW YORK CITY	9/ 9/85	1.58 0.13	-3 7	-1 9	3 7
NY:SYRACUSE	9/ 3/85	1.55 0.13	2 7	2 9	0 7
OK:OKLAHOMA CITY	9/ 9/85	1.66 0.24	14 18	-9 18	11 14
OR:PORTLAND	9/ 3/85	1.52 0.13	2 7	0 9	0 7

TABLE 20 (CONTINUED)

CONCENTRATIONS OF RADIONUCLIDES IN PASTEURIZED MILK

SEPTEMBER 1985

LOCATION	DATE COLLECTED	K		^{137}Cs		^{140}Ba		^{131}I	
		g/1+2s		pCi/1+2s		pCi/1+2s		pCi/1+2s	
PA:PHILADELPHIA	9/ 3/85	1.64	0.13	-2	7	-4	9	2	7
PR:SAN JUAN	9/25/85	1.64	0.09	3	5	-5	6	3	5
SC:CHARLESTON	9/10/85	1.56	0.13	6	7	1	9	2	7
SD:RAPID CITY	9/ 3/85	1.62	0.13	2	7	-1	9	6	7
TN:CHATTANOOGA	9/ 3/85	1.45	0.12	6	7	4	9	11	7
TN:KNOXVILLE	9/ 3/85	1.64	0.13	3	7	-2	9	2	7
TN:MEMPHIS	9/26/85	1.50	0.12	3	7	0	9	1	7
TX:AUSTIN	9/23/85	1.54	0.13	4	7	-3	9	4	7
UT:SALT LAKE CITY	9/ 3/85	1.67	0.09	2	5	-3	6	2	5
VA:NORFOLK	9/11/85	1.52	0.09	3	5	-4	6	3	5
VT:BURLINGTON	9/ 3/85	1.49	0.12	1	7	3	9	3	7
WA:SEATTLE	9/ 3/85	1.53	0.13	-3	7	-4	9	1	7
WV:CHARLESTON	9/16/85	1.68	0.24	13	18	15	19	12	14
WY:LARAMIE	9/ 5/85	1.57	0.13	4	7	2	9	4	7

s SIGMA COUNTING ERROR

TABLE 21

STRONTIUM-90 AND STRONTIUM-89 IN PASTEURIZED MILK

ANNUAL REPORT

JULY - SEPTEMBER 1985

EPA LOCATION		⁹⁰ Sr		⁸⁹ Sr	
		pCi/l	$\pm 2s$	pCi/l	$\pm 2s^*$
AK:PALMER	8/ 6/85	2.5	0.5	0	1
AL:MONTGOMERY	7/ 3/85	2.3	0.6	0	1
AR:LITTLE ROCK	7/ 8/85	4.5	1.1	-1	2
AZ:PHOENIX	7/11/85	0.5	0.5	0	1
CA:LOS ANGELES	7/18/85	0.3	0.4	1	1
CA:SACRAMENTO	7/ 2/85	0.3	0.3	1	0
CA:SAN FRANCISCO	7/ 9/85	0.4	0.2	1	0
CO:DENVER	7/ 1/85	1.6	0.4	-1	1
CT:HARTFORD	7/ 8/85	2.8	0.9	-1	2
FL:TAMPA	7/ 2/85	1.6	0.4	0	1
GA:ATLANTA	7/ 1/85	1.9	0.5	0	1
HI:HONOLULU	7/23/85	0.9	0.6	0	1
IA:DES MOINES	7/15/85	1.6	0.6	0	1
ID:IDAHO FALLS	8/13/85	2.8	0.5	-1	1
IL:CHICAGO	7/ 1/85	1.7	0.5	0	1
IN:INDIANAPOLIS	7/ 8/85	2.2	0.3	0	1
KS:WICHITA	7/11/85	2.4	0.7	0	2
KY:LOUISVILLE	7/ 2/85	3.4	1.1	-1	2
LA:NEW ORLEANS	7/ 3/85	3.4	0.6	0	1
MA:BOSTON	7/ 9/85	1.6	0.4	1	1
MD:BALTIMORE	7/ 5/85	2.6	0.8	0	1
ME:PORTLAND	7/ 2/85	3.5	0.9	0	1
MI:DETROIT	7/12/85	3.0	0.6	-2	1
MI:GRAND RAPIDS	7/ 8/85	2.3	0.7	1	1
MN:MINNEAPOLIS	7/ 8/85	2.5	1.1	1	2
MN:ST. PAUL	7/ 1/85	2.7	0.9	0	1
MO:KANSAS CITY	7/12/85	2.6	0.2	-1	0
MO:ST. LOUIS	7/ 5/85	2.6	0.4	0	1
MS:JACKSON	7/16/85	2.0	0.7	1	1
MT:HELENA	7/15/85	1.7	0.2	0	0
NC:CHARLOTTE	7/16/85	2.1	1.1	0	2
ND:MINOT	7/17/85	2.3	0.6	1	1
NE:OMAHA	7/ 5/85	2.0	0.7	0	1
NH:MANCHESTER	7/ 8/85	2.8	0.3	-1	1
NJ:TRENTON	7/10/85	2.5	0.4	0	1
NM:ALBUQUERQUE	7/ 5/85	0.9	0.4	0	1
NV:LAS VEGAS	7/ 8/85	0.7	0.2	0	0

TABLE 21 (CONTINUED)

STRONTIUM-90 AND STRONTIUM-89 IN PASTEURIZED MILK

ANNUAL REPORT

JULY - SEPTEMBER 1985

EPA LOCATION		⁹⁰ Sr		⁸⁹ Sr	
		pCi/l	$\pm 2s$	pCi/l	$\pm 2s^*$
NY:BUFFALO	7/ 8/85	2.9	0.8	-1	2
NY:NEW YORK CITY	7/ 1/85	1.8	0.6	1	1
NY:SYRACUSE	7/ 1/85	2.6	0.5	1	1
OK:OKLAHOMA CITY	7/ 1/85	2.6	1.0	0	1
OR:PORTLAND	7/ 8/85	2.0	0.3	0	1
PA:PHILADELPHIA	7/ 8/85	2.7	0.6	0	1
PA:PITTSBURGH	7/10/85	3.5	0.7	0	2
PC:CRISTOBAL	7/ 1/85	1.1	0.5	0	1
PR:SAN JUAN	7/ 1/85	0.6	0.5	1	1
SC:CHARLESTON	7/17/85	2.0	0.7	1	1
SD:RAPID CITY	7/ 1/85	2.2	0.8	-1	2
TN:CHATTANOOGA	7/ 8/85	2.2	0.4	0	1
TN:KNOXVILLE	7/ 8/85	2.0	0.9	2	2
TN:MEMPHIS	7/31/85	2.5	0.4	0	1
UT:SALT LAKE CITY	7/ 1/85	1.8	0.4	0	1
VA:NORFOLK	7/11/85	2.0	0.3	0	1
VT:BURLINGTON	7/ 8/85	1.9	1.4	1	3
WA:SEATTLE	7/ 1/85	1.9	0.2	-1	1
WI:MILWAUKEE	7/ 1/85	1.9	0.3	0	0
WV:CHARLESTON	8/ 6/85	1.3	0.6	0	1
WY:LARAMIE	7/ 9/85	2.1	0.9	0	2

s SIGMA COUNTING ERROR

s* ANALYTICAL ERROR TERM WHICH CLOSELY APPROXIMATES
THE COUNTING ERROR

Carbon-14 in Milk

Nine stations, chosen for wide geographical distribution, contribute milk samples for annual analysis for carbon-14. These samples have monitored the carbon-14 levels in the food chain resulting from nuclear testing.

Analysis consists of combusting the samples and measuring released carbon dioxide through liquid scintillation.

Data will be published as it becomes available.

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