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ENVIRONMENTAL RADIATION DATA

REPORT 89

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United States Environmental Protection Agency

Office of Radiation and Indoor Air

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Preface

Environmental Radiation Data (ERD) is compiled and published quarterly by the Office of Radiation and Indoor Air's National Air and Radiation Environmental Laboratory (NAREL) in Montgomery, Alabama, and contains data from the Environmental Radiation Ambient Monitoring System (ERAMS). ERD is published in both hard-copy and electronic formats. Electronic reports are available online at www.epa.gov/narel.

The United States Environmental Protection Agency established ERAMS in 1973 with an emphasis on identifying trends in the accumulation of long-lived radionuclides in the environment. ERAMS is comprised of a nationwide network of sampling stations that provide air, precipitation, surface water, drinking water, and milk samples.

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 analyses, gamma analyses, and radionuclide-specific analyses for uranium, plutonium, strontium, iodine, radium, and tritium. This monitoring effort also provides ancillary information on natural background levels and on routine and accidental releases into the environment from stationary sources.

The radiochemical procedures used by NAREL to analyze the ERAMS samples are contained in the *Eastern Environmental Radiation Facility Radiochemistry Procedures Manual* (EPA 520/5-84-006). Station operation and sample collection are in accordance with procedures contained in the *ERAMS Manual* (EPA 520/5-84-007, 008, 009).

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Acknowledgments

All sampling for the Environmental Radiation Ambient Monitoring System (ERAMS) is performed by volunteer collectors who are frequently members of the health departments or related environmental agencies of their respective states. The National Air and Radiation Environmental Laboratory (NAREL) on behalf of the U.S. Environmental Protection Agency would like to acknowledge the time and effort of these volunteer collectors who are so essential to the successful operation of ERAMS. The efforts of the sample collectors are especially appreciated during times of emergency operation when sampling frequencies are increased and schedules are sometimes demanding.

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Data Reporting Conventions

Every laboratory measurement involves uncertainty. When there is little or no radioactivity in a sample, one consequence of measurement uncertainty is the possibility of obtaining a measured value that is less than zero. Such a negative result occurs when random effects in the measurement process cause the measured value for the sample to be less than that of the blank or background, which is subtracted from it. From April 1991 to December 1995, negative results were reported as "not detected" or "ND," and gamma analysis results that were less than their estimated measurement uncertainties were also reported as "ND." In January 1996 both of these practices were discontinued. Although negative activities are physically impossible, the inclusion of negative results in the report allows better statistical analysis of the data.

Results of gamma analyses are still reported as "ND" when gamma-emitting radionuclides are not detected.

Measurement Uncertainty

Each measured value y is reported with an expanded uncertainty $U = k\,u_c(y)$, which is determined from the combined standard uncertainty $u_c(y)$ and the coverage factor $k = 2$. The interval from $y - U$ to $y + U$ is estimated to have a level of confidence of approximately 95%.

Significant Figures

Expanded uncertainties are reported to two significant figures. Measurement results are rounded to the corresponding number of decimal places.

Detection Capability

The minimum detectable concentrations (MDCs) for each radionuclide are shown in Table 1. The MDC is defined as the minimum concentration that gives a 95% probability of detection when the detection criteria are chosen to give only a 5% probability of false detection in a blank sample.

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Table 1

Reporting Units and Minimum Detectable Concentrations for Radionuclide Analyses

Radionuclide	Media	Reporting Unit	Minimum Detectable Concentration
Gross Alpha	Water	pCi/L	2
Gross Beta	Air	pCi/m³	0.0015
	Water	pCi/L	2
	Precipitation	pCi/L	2
Tritium	Water	pCi/L	150
	Milk	pCi/L	150
* Plutonium-238,239/240	Air	aCi/m³	0.75
	Water	pCi/L	0.1
† Uranium-234,235,238	Air	aCi/m³	0.75
	Water	pCi/L	0.1
Radium-226	Water	pCi/L	0.02
Strontium-90	Milk	pCi/L	2
	Water	pCi/L	1
‡ Iodine-131	Milk (gamma)	pCi/L	4
	Water (gamma)	pCi/L	4
	Water	pCi/L	0.3
Cesium-137	Milk	pCi/L	5
	Water	pCi/L	5
‡ Barium-140	Milk	pCi/L	15
	Water	pCi/L	15
Potassium	Milk	g/L	0.06
	Water	g/L	0.06
Potassium-40	Water	pCi/L	50

* The MDC for air is based on an assumed total sample volume of 120,000 m³. Measurement by alpha spectrometry includes combined activities of ^{239}Pu and ^{240}Pu, since the relative contributions of these two isotopes cannot be determined.

† The MDC for air is based on an assumed total sample volume of 120,000 m³.

‡ Activity as of the day of counting.

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1. 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 after collection to allow for decay of natural radon isotopes and their progeny. Field estimates are reported to appropriate EPA officials by telephone or mail depending on the activity levels found.

The filters are sent to NAREL 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/m^3. 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 most field stations collecting air filters. These samples are also sent to NAREL where they are composited monthly for gamma scans, tritium, and gross beta activity measurements. A composite of the March, April, and May precipitation samples is analyzed for plutonium-238, combined plutonium-239 and 240, and uranium-234, 235, and 238.

A compilation of individual measurements is available from the National Air and Radiation Environmental Laboratory, 540 South Morris Avenue, Montgomery, AL 36115-2601.

Table 2

Gross Beta in Airborne Particulates
January 1997

Location	Number of Samples	5-hour Field Estimate (pCi/m³)			NAREL Lab Measurement (pCi/m³)		
		Max	Min	Avg	Max	Min	Avg
AK: Fairbanks	3	0.0	0.0	0.0	0.029	0.007	0.018
AL: Montgomery	6	0.0	0.0	0.0	0.014	0.008	0.012
AR: Little Rock	8	0.1	0.0	0.1	0.021	0.010	0.017
CA: Berkeley	9	0.2	0.0	0.1	0.014	0.002	0.007
CA: Los Angeles	9	0.3	0.0	0.1	0.018	0.003	0.009
CO: Denver	9	0.7	0.1	0.3	0.018	0.006	0.012
CT: Hartford	8	0.1	0.0	0.0	0.014	0.007	0.010
DE: Wilmington	8	0.1	0.0	0.1	0.015	0.011	0.013
FL: Jacksonville	7	0.2	0.0	0.1	0.013	0.004	0.008
FL: Miami	6				0.013	0.003	0.006
GA: Atlanta	1				0.012	0.012	0.012
HI: Honolulu	8	0.2	0.1	0.1	0.006	0.001	0.004
IA: Iowa City	9	0.7	0.0	0.1	0.029	0.011	0.020
ID: Boise	9	0.4	0.1	0.2	0.028	0.002	0.013
ID: Idaho Falls	9				0.027	0.005	0.013
IN: Indianapolis	5	0.1	0.0	0.1	0.033	0.015	0.019
KS: Topeka	9	1.4	0.1	0.5	0.029	0.012	0.019
ME: Augusta	7	0.1	0.0	0.0	0.014	0.009	0.011
MI: Lansing	9	0.1	0.0	0.0	0.019	0.008	0.014
MN: Welch	9	0.2	0.0	0.1	0.037	0.013	0.020
MS: Jackson	9	0.1	0.0	0.1	0.024	0.005	0.015
NC: Charlotte	7	0.1	0.0	0.0	0.017	0.009	0.014
NC: Wilmington	2				0.012	0.009	0.010
ND: Bismarck	7	0.1	0.0	0.0	0.027	0.015	0.021
NH: Concord	9	0.0	0.0	0.0	0.015	0.008	0.011
NJ: Trenton	4	0.1	0.0	0.1	0.017	0.013	0.014
NM: Santa Fe	1	0.0	0.0	0.0	0.006	0.006	0.006
NV: Las Vegas	8	0.2	0.0	0.1	0.018	0.004	0.010
NY: Albany	5	0.1	0.0	0.0	0.022	0.012	0.016
NY: New York City	5	0.2	0.0	0.1	0.018	0.010	0.014
NY: Yaphank	9	0.1	0.1	0.1	0.014	0.008	0.011
OH: Columbus	4	0.1	0.0	0.1	0.020	0.014	0.016
OH: Painesville	8	0.2	0.0	0.1	0.018	0.010	0.014
OH: Ross	8	0.0	0.0	0.0	0.026	0.011	0.016
PA: Harrisburg	9	0.1	0.0	0.1	0.021	0.012	0.015
SC: Barnwell	2	0.0	0.0	0.0	0.013	0.011	0.012
SC: Columbia	9	0.2	0.0	0.1	0.034	0.008	0.014
SD: Pierre	7	0.1	0.0	0.0	0.028	0.012	0.018

Table 2 (continued)

Gross Beta in Airborne Particulates
January 1997

Location	Number of Samples	5-hour Field Estimate (pCi/m³)			NAREL Lab Measurement (pCi/m³)		
		Max	Min	Avg	Max	Min	Avg
TN: Knoxville	7	0.2	0.0	0.1	0.025	0.013	0.017
TN: Nashville	9	0.1	0.0	0.1	0.024	0.010	0.015
TN: Oak Ridge/Bethel	9	0.2	0.0	0.1	0.017	0.008	0.012
TN: Oak Ridge/K25	9	0.2	0.0	0.1	0.017	0.007	0.012
TN: Oak Ridge/Melton	9	0.3	0.0	0.1	0.017	0.008	0.012
TN: Oak Ridge/Y12 E	9	0.2	0.0	0.1	0.017	0.008	0.012
TN: Oak Ridge/Y12 W	9	0.1	0.0	0.1	0.017	0.008	0.012
TX: Austin	8	0.3	0.0	0.1	0.017	0.006	0.012
TX: El Paso	8	0.5	0.1	0.2	0.023	0.007	0.015
UT: Salt Lake City	8	0.2	0.0	0.0	0.025	0.005	0.013
VA: Lynchburg	9	0.4	0.1	0.2	0.011	0.008	0.010
WA: Olympia	7	0.0	0.0	0.0	0.012	0.001	0.006
WA: Spokane	9	0.1	0.0	0.0	0.036	0.003	0.015
WI: Madison	9	0.2	0.0	0.1	0.026	0.012	0.018

Table 3

Gross Beta in Airborne Particulates
February 1997

Location	Number of Samples	5-hour Field Estimate (pCi/m³)			NAREL Lab Measurement (pCi/m³)		
		Max	Min	Avg	Max	Min	Avg
AK: Fairbanks	5	0.3	0.0	0.1	0.022	0.006	0.013
AL: Montgomery	1	0.0	0.0	0.0	0.015	0.015	0.015
AR: Little Rock	8	0.2	0.0	0.1	0.024	0.007	0.015
CA: Berkeley	8	0.1	0.0	0.1	0.008	0.003	0.005
CA: Los Angeles	8	0.1	0.0	0.0	0.016	0.007	0.011
CO: Denver	5	1.1	0.8	0.8	0.026	0.008	0.015
CT: Hartford	7	0.1	0.0	0.0	0.019	0.006	0.011
DE: Wilmington	7	0.1	0.0	0.1	0.017	0.008	0.012
FL: Jacksonville	7	0.1	0.0	0.0	0.014	0.007	0.010
FL: Miami	7	0.1	0.0	0.0	0.010	0.003	0.006
HI: Honolulu	7	0.2	0.1	0.1	0.004	0.001	0.003
IA: Iowa City	7	0.2	0.0	0.1	0.020	0.016	0.018
ID: Boise	8	0.5	0.2	0.3	0.020	0.004	0.009
ID: Idaho Falls	8				0.024	0.004	0.011
IN: Indianapolis	8	0.3	0.1	0.1	0.020	0.011	0.016
KS: Topeka	8	0.6	0.1	0.3	0.026	0.010	0.016
ME: Augusta	7	0.1	0.0	0.0	0.019	0.010	0.015
MI: Lansing	8	0.1	0.0	0.0	0.024	0.009	0.014
MN: Minneapolis	3	0.1	0.1	0.1	0.014	0.007	0.011
MN: Welch	8	0.1	0.0	0.0	0.026	0.001	0.018
MS: Jackson	8	0.1	0.0	0.1	0.017	0.007	0.013
NC: Charlotte	7	0.1	0.0	0.0	0.020	0.009	0.013
NC: Wilmington	3				0.014	0.010	0.012
ND: Bismarck	6	0.0	0.0	0.0	0.017	0.008	0.014
NH: Concord	8	0.0	0.0	0.0	0.016	0.006	0.011
NM: Santa Fe	3	0.1	0.0	0.1	0.014	0.009	0.013
NV: Las Vegas	8	0.3	0.1	0.2	0.021	0.006	0.012
NY: Albany	4	0.1	0.0	0.1	0.017	0.011	0.015
NY: New York City	8	0.1	0.0	0.0	0.019	0.007	0.012
NY: Yaphank	8	0.8	0.2	0.4	0.015	0.007	0.011
OH: Columbus	4	0.1	0.0	0.0	0.017	0.012	0.015
OH: Painesville	8	0.1	0.0	0.0	0.024	0.007	0.013
OH: Ross	8				0.019	0.008	0.014
PA: Harrisburg	8	0.2	0.1	0.1	0.018	0.009	0.014
SC: Barnwell	2	0.0	0.0	0.0	0.013	0.009	0.011
SC: Columbia	8	0.3	0.0	0.1	0.028	0.007	0.015
SD: Pierre	7	0.1	0.0	0.0	0.018	0.007	0.013
TN: Knoxville	5	0.4	0.0	0.1	0.021	0.011	0.016

Table 3 (continued)

Gross Beta in Airborne Particulates
February 1997

Location	Number of Samples	5-hour Field Estimate (pCi/m³)			NAREL Lab Measurement (pCi/m³)		
		Max	Min	Avg	Max	Min	Avg
TN: Nashville	8	0.1	0.1	0.1	0.023	0.006	0.014
TN: Oak Ridge/Bethel	8	0.4	0.0	0.2	0.018	0.008	0.013
TN: Oak Ridge/K25	8	0.4	0.1	0.2	0.018	0.007	0.013
TN: Oak Ridge/Melton	8	0.3	0.0	0.2	0.019	0.008	0.013
TN: Oak Ridge/Y12 E	8	0.4	0.0	0.2	0.019	0.007	0.013
TN: Oak Ridge/Y12 W	8	0.2	0.0	0.1	0.019	0.008	0.013
TX: Austin	8	0.3	0.0	0.1	0.040	0.003	0.013
TX: El Paso	8	1.1	0.1	0.4	0.027	0.009	0.019
UT: Salt Lake City	8	0.1	0.0	0.1	0.024	0.005	0.012
VA: Lynchburg	8	0.4	0.1	0.3	0.013	0.006	0.010
WA: Olympia	7	0.2	0.0	0.1	0.017	0.002	0.007
WA: Spokane	8	0.1	0.0	0.1	0.029	0.002	0.012
WI: Madison	8	0.1	0.0	0.0	0.020	0.013	0.016

Table 4

Gross Beta in Airborne Particulates
March 1997

Location	Number of Samples	5-hour Field Estimate (pCi/m³)			NAREL Lab Measurement (pCi/m³)		
		Max	Min	Avg	Max	Min	Avg
AK: Fairbanks	3	0.0	0.0	0.0	0.026	0.016	0.022
AR: Little Rock	9	0.2	0.0	0.1	0.014	0.009	0.012
CA: Berkeley	8	0.1	0.0	0.1	0.009	0.003	0.006
CA: Los Angeles	8	0.2	0.0	0.1	0.021	0.007	0.015
CO: Denver	3	1.2	0.5	0.9	0.014	0.008	0.011
CT: Hartford	9	0.1	0.0	0.0	0.015	0.003	0.008
DE: Wilmington	9	0.1	0.0	0.1	0.015	0.006	0.010
FL: Jacksonville	7	0.1	0.0	0.0	0.011	0.006	0.009
FL: Miami	7	0.1	0.0	0.0	0.011	0.004	0.008
HI: Honolulu	8	0.2	0.1	0.1	0.004	0.001	0.003
IA: Iowa City	8	0.4	0.0	0.1	0.018	0.008	0.014
ID: Boise	8	0.4	0.2	0.3	0.010	0.005	0.007
ID: Idaho Falls	9				0.011	0.004	0.008
IN: Indianapolis	8	0.2	0.0	0.1	0.029	0.010	0.015
KS: Topeka	9	2.0	0.2	0.8	0.015	0.006	0.012
ME: Augusta	8	0.1	0.0	0.0	0.019	0.008	0.012
MI: Lansing	9	0.1	0.0	0.1	0.017	0.009	0.013
MN: Minneapolis	5	0.1	0.0	0.1	0.013	0.007	0.011
MN: Welch	8	0.2	0.0	0.1	0.030	0.010	0.018
MS: Jackson	8	0.1	0.0	0.1	0.012	0.007	0.010
NC: Charlotte	6	0.1	0.0	0.0	0.015	0.006	0.010
NC: Wilmington	5				0.011	0.007	0.009
ND: Bismarck	5	0.0	0.0	0.0	0.026	0.012	0.019
NH: Concord	8	0.0	0.0	0.0	0.015	0.006	0.010
NM: Santa Fe	3	0.1	0.0	0.1	0.015	0.009	0.012
NV: Las Vegas	9	0.3	0.1	0.2	0.023	0.008	0.015
NY: Albany	4	0.1	0.0	0.0	0.015	0.009	0.013
NY: New York City	8	0.1	0.0	0.1	0.015	0.006	0.011
NY: Yaphank	8	0.5	0.1	0.3	0.012	0.006	0.010
OH: Columbus	6	0.1	0.0	0.1	0.015	0.011	0.012
OH: Painesville	7	0.1	0.0	0.1	0.014	0.006	0.010
OH: Ross	8				0.027	0.004	0.013
PA: Harrisburg	9	0.2	0.1	0.1	0.015	0.004	0.010
SC: Barnwell	2	0.0	0.0	0.0	0.010	0.007	0.008
SC: Columbia	4	0.2	0.0	0.1	0.025	0.008	0.014
SD: Pierre	8	0.2	0.0	0.1	0.022	0.005	0.014
TN: Knoxville	6	0.4	0.0	0.1	0.016	0.007	0.012
TN: Nashville	8	0.1	0.0	0.1	0.014	0.007	0.011

Table 4 (continued)

Gross Beta in Airborne Particulates
March 1997

Location	Number of Samples	5-hour Field Estimate (pCi/m³)			NAREL Lab Measurement (pCi/m³)		
		Max	Min	Avg	Max	Min	Avg
TN: Oak Ridge/Bethel	9	0.3	0.0	0.2	0.012	0.005	0.009
TN: Oak Ridge/K25	9	0.3	0.0	0.2	0.012	0.005	0.009
TN: Oak Ridge/Melton	9	0.3	0.0	0.2	0.012	0.005	0.009
TN: Oak Ridge/Y12 E	9	0.2	0.0	0.1	0.011	0.004	0.009
TN: Oak Ridge/Y12 W	9	0.2	0.0	0.1	0.011	0.006	0.009
TX: Austin	6	0.2	0.1	0.1	0.012	0.008	0.010
TX: El Paso	9	1.1	0.0	0.4	0.021	0.010	0.016
UT: Salt Lake City	8	0.5	0.0	0.1	0.014	0.007	0.011
VA: Lynchburg	9	0.4	0.1	0.3	0.013	0.004	0.008
WA: Olympia	6	0.1	0.0	0.0	0.005	0.002	0.004
WA: Spokane	9	0.1	0.0	0.1	0.012	0.003	0.006
WI: Madison	9	0.2	0.0	0.1	0.020	0.008	0.014

Table 5

Gross Beta and Specific Gamma in Precipitation
January 1997

Location	Gross Beta Activity		Specific Gamma Activity		
	pCi/L	± 2*u*	Nuclide	pCi/L	± 2*u*
AL: Montgomery	0.68	0.25	Pb212	2.7	7.1
			Pb214	7.0	8.3
AR: Little Rock	2.50	0.38	Bi214	5.6	6.8
			Pb214	9.5	6.0
CT: Hartford	5.09	0.51		ND	
FL: Jacksonville	0.67	0.26		ND	
FL: Miami	0.75	0.28		ND	
HI: Honolulu	0.77	0.26	Pb212	3.2	5.9
			Pb214	7.0	5.1
IA: Iowa City	0.76	0.26		ND	
ID: Boise	0.68	0.26	Pb214	14.9	5.8
ID: Idaho Falls	4.95	0.49		ND	
MN: Minneapolis	1.88	0.34		ND	
MS: Jackson	0.75	0.36	Pb212	4.5	5.3
			Pb214	7.1	5.3
NC: Charlotte	2.06	0.35	Pb214	13.7	8.9
NC: Wilmington	1.03	0.29	Pb214	9.9	5.3
ND: Bismarck	0.87	0.27		ND	
NV: Las Vegas	5.37	0.56	Pb214	9.0	7.6
			Tl208	4.9	3.7
NY: Albany	0.62	0.26		ND	
OH: Painesville	6.04	0.55	Bi212	36	31
			Pb212	4.5	8.3
OR: Portland	0.65	0.26		ND	
PA: Harrisburg	6.66	0.57		ND	
SC: Columbia	1.02	0.28	Pb212	3.0	8.0
			Tl208	3.3	2.3
TN: Knoxville	0.95	0.28		ND	
TN: Nashville	1.45	0.31	Tl208	3.1	5.5
UT: Salt Lake City	0.70	0.28		ND	
VA: Lynchburg	1.35	0.31	Pb214	11.9	8.1
WA: Olympia	0.50	0.25	Bi214	13.1	9.1
			Pb212	5.1	7.7
WI: Madison	1.37	0.31	Pb212	3.5	8.1
			Tl208	7.0	2.5

Note: ND = Not Detected

Table 6

Gross Beta and Specific Gamma in Precipitation
February 1997

Location	Gross Beta Activity		Specific Gamma Activity		
	pCi/L	± 2*u*	Nuclide	pCi/L	± 2*u*
AR: Little Rock	2.44	0.37	Bi214	9.7	4.6
CO: Denver	1.21	0.30		ND	
FL: Jacksonville	0.51	0.30		ND	
FL: Miami	0.99	0.36	K40	32	53
			Pb212	2.9	7.9
HI: Honolulu	0.96	0.29		ND	
IA: Iowa City	0.64	0.24	Pb212	2.8	5.7
MN: Minneapolis	6.84	0.62		ND	
MS: Jackson	0.51	0.23		ND	
NC: Charlotte	2.28	0.39	Be7	86	64
NC: Wilmington	1.04	0.34	Pb212	3.6	5.3
			Pb214	11.5	6.1
			Tl208	3.2	3.5
NE: Lincoln	1.56	0.32	Tl208	5.5	6.6
NY: Albany	1.38	0.36	Be7	51	39
NY: Yaphank	1.18	0.34	K40	24	39
OH: Painesville	3.45	0.42		ND	
OR: Portland	1.32	0.31	K40	40	75
PA: Harrisburg	1.30	0.37	Be7	73	37
SC: Columbia	2.96	0.44		ND	
TN: Knoxville	1.02	0.28		ND	
TN: Nashville	1.49	0.38	Pb212	3.5	7.7
TX: Austin	0.95	0.28		ND	
UT: Salt Lake City	0.67	0.27	Tl208	2.7	2.3
VA: Lynchburg	1.76	0.37		ND	
WA: Olympia	1.01	0.28		ND	
WI: Madison	1.92	0.35		ND	

Note: ND = Not Detected

Table 7

Gross Beta and Specific Gamma in Precipitation
March 1997

Location	Gross Beta Activity		Specific Gamma Activity		
	pCi/L	± 2*u*	Nuclide	pCi/L	± 2*u*
AR: Little Rock	1.44	0.31	Pb212	3.1	6.8
			Ra224	44	30
AZ: Phoenix	0.67	0.26	Pb212	10.5	8.2
			Ra224	56	58
			Tl208	3.6	5.4
CT: Hartford	1.56	0.31	Tl208	6.0	3.0
DE: Wilmington	1.95	0.35	Be7	77	81
FL: Jacksonville	0.91	0.27	Be7	68	51
FL: Miami	0.91	0.29	Tl208	3.5	3.4
HI: Honolulu	0.32	0.21	Bi214	11.9	8.3
IA: Iowa City	1.07	0.29	Pb212	5.2	7.5
ID: Idaho Falls	1.95	0.34		ND	
MN: Minneapolis	1.63	0.35	Bi214	12	10
			Pb212	8.5	9.0
			Ra224	39	33
MN: Welch	13.10	0.81	Be7	254	70
			Tl208	2.6	4.1
MS: Jackson	0.36	0.22		ND	
NC: Charlotte	1.59	0.32	Be7	66	42
NC: Wilmington	1.51	0.31		ND	
ND: Bismarck	0.55	0.24		ND	
NY: Albany	0.55	0.25		ND	
NY: Yaphank	2.70	0.38	Bi212	39	29
			Tl208	2.0	5.2
OH: Painesville	2.72	0.39	Be7	61	63
OR: Portland	0.98	0.26	Pb212	2.8	7.4
PA: Harrisburg	2.54	0.38		ND	
SC: Barnwell	1.07	0.29	K40	26	62
SC: Columbia	1.67	0.34		ND	
TN: Knoxville	0.55	0.25	Pb212	12.1	7.8
			Ra224	35	35
TN: Nashville	0.64	0.25		ND	
TX: Austin	1.15	0.28		ND	
TX: El Paso	0.89	0.28	Pb214	11.9	7.7
UT: Salt Lake City	1.11	0.29		ND	
VA: Lynchburg	0.89	0.28	Tl208	4.6	6.6
WA: Olympia	0.51	0.24	Pb212	6.7	9.3

Note: ND = Not Detected

Table 7 (continued)

Gross Beta and Specific Gamma in Precipitation
March 1997

Location	Gross Beta Activity		Specific Gamma Activity	
	pCi/L	± 2*u*	Nuclide	pCi/L ± 2*u*
WA: Olympia	0.51	0.24	Ra224	64 57
WI: Madison	1.48	0.32	Pb212	12.2 8.4
			Ra224	37 40
			Tl208	3.4 5.4

Table 8

Tritium in Precipitation
January - March 1997

Location	January 1997		February 1997		March 1997	
	pCi/L	± 2*u*	pCi/L	± 2*u*	pCi/L	± 2*u*
AL: Montgomery	15	85	NS		NS	
AR: Little Rock	27	83	-10	88	-20	87
AZ: Phoenix	NS		NS		-10	88
CO: Denver	NS		-42	73	NS	
CT: Hartford	15	85	NS		-4	89
DE: Wilmington	NS		NS		23	89
FL: Jacksonville	-22	83	2	81	28	89
FL: Miami	-68	81	-19	80	-54	86
HI: Honolulu	NS		-66	82	-2	89
IA: Iowa City	17	85	-15	86	-14	88
ID: Boise	56	84	NS		NS	
ID: Idaho Falls	-5	81	NS		-24	87
MN: Minneapolis	58	84	-16	84	9	89
MN: Welch	NS		NS		-54	87
MS: Jackson	71	87	-18	76	-10	88
NC: Charlotte	78	88	54	83	-42	87
NC: Wilmington	-10	84	22	82	-12	88
ND: Bismarck	-29	81	NS		-16	88
NE: Lincoln	NS		-16	75	NS	
NV: Las Vegas	95	85	NS		NS	
NY: Albany	-15	84	131	86	5	89
NY: Yaphank	NS		12	82	-87	85
OH: Painesville	0	84	52	76	-35	88
OR: Portland	31	83	-20	74	8	89
PA: Harrisburg	2	84	24	82	-86	85
SC: Barnwell	NS		NS		88	92
SC: Columbia	46	86	27	82	-32	87
TN: Knoxville	-44	83	-52	74	14	89
TN: Nashville	-42	82	10	82	-82	85
TX: Austin	NS		-54	73	-20	88
TX: El Paso	NS		NS		-4	88
UT: Salt Lake City	8	82	-33	84	61	91
VA: Lynchburg	76	87	56	83	-42	87
WA: Olympia	24	82	-46	86	-55	86
WI: Madison	-20	84	-48	86	-61	86

Note: NS = No Sample

Plutonium and Uranium in Airborne Particulates and Precipitation

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

Concentrations of plutonium-238, combined plutonium-239 and 240, and uranium-234, 235, and 238 are determined by alpha spectrometry following chemical separation. The volume of air represented by the annual composite ranges from 120,000 to 500,000 cubic meters.

Plutonium and uranium results are published when they become available.

2. Water Program

The ERAMS water program provides data on radionuclide concentrations in the nation's rivers, streams, and drinking water supplies.

Surface Water

Quarterly grab samples are taken downstream from nuclear facilities at 58 stations. Surface water samples are analyzed for tritium quarterly and gamma-emitting radionuclides annually. Tritium is a primary potential radioactive pollutant from nuclear power plants and weapons production activities.

Table 9

Tritium in Surface Water
January - March 1997

Location	Source	Date Collected	^{3}H pCi/L	± 2*u*
AL: Decatur	Tennessee River	01/23/97	66	82
AL: Gordon	Chattahoochee River	01/13/97	28	71
AL: Scottsboro	Tennessee River	01/21/97	79	83
AR: Little Rock	Arkansas River	01/06/97	55	70
CA: Clay Station	Folsom S. Canal	01/07/97	-16	76
CA: Diablo Canyon	Pacific Ocean	01/02/97	-73	73
CA: Eureka	Humboldt Bay	01/10/97	19	71
CO: Platteville	South Platte River	01/10/97	20	71
CT: E. Haddam	Connecticut River	01/23/97	-47	74
CT: Waterford	Long Island Sound	01/23/97	45	78
FL: Crystal River	Gulf Of Mexico	01/13/97	12	80
FL: Ft. Pierce	Atlantic Ocean	01/15/97	29	81
FL: Homestead	Biscayne Bay	01/08/97	-24	79
GA: Baxley	Altamaha River	01/06/97	43	79
IA: Cedar Rapids	Cedar River	01/07/97	23	71
ID: Buhl	Snake River	01/08/97	4	71
IL: Moline	Mississippi River	02/11/97	15	77
IL: Morris	Illinois River	01/15/97	459	93
IL: Zion	Lake Michigan	02/15/97	5	78
KS: Le Roy	Neosho River	03/25/97	67	73
LA: New Orleans	Mississippi River	02/25/97	79	87
MD: Conowingo	Susquehanna River	01/21/97	2	80
MD: Lusby	Chesapeake Bay	01/06/97	88	71
ME: Wiscasset	Montseway Bay	01/08/97	56	82
MI: Bridgman	Lake Michigan	03/30/97	271	81
MI: Charlevoix	Lake Michigan	01/08/97	64	79
MI: S. Haven	Lake Michigan	03/30/97	83	74
MN: Monticello	Mississippi River	01/21/97	67	82
MN: Red Wing	Mississippi River	01/27/97	40	78
MS: Port Gibson	Mississippi River	01/07/97	29	71
NC: Charlotte	Catawba River	01/08/97	218	85
NC: Southport	Atlantic Ocean	01/06/97	93	77
NV: Boulder City	Colorado River	03/25/97	63	73
NY: Chelsea	Hudson River	01/06/97	84	81
NY: Croton-On-Hudson	Hudson River	01/29/97	47	78
NY: Oswego	Lake Ontario	02/28/97	155	90
OR: Bradwood	Columbia River	01/30/97	-49	75
PA: Danville	Susquehanna River	01/22/97	39	81
PA: Philadelphia	Schuylkill River - Queen Lane	01/10/97	-55	74
PA: Philadelphia	Delaware River - Baxter Lab	01/10/97	-7	71

Table 9 (continued)

Tritium in Surface Water
January - March 1997

Location	Source	Date Collected	^{3}H pCi/L	± 2*u*
PA: Philadelphia	Schuylkill River - Belmont	01/10/97	19	71
SC: Allendale	Savannah River	01/02/97	1720	130
SC: Broad River	Broad River	01/07/97	210	76
SC: Hartsville	Lake Robinson	01/10/97	1430	120
TN: Daisy	Tennessee River	01/16/97	41	82
TN: Kingston	Clinch River	01/08/97	137	73
TN: Oak Ridge	Clinch River	02/18/97	278	82
TX: Matagorda	Colorado River	01/06/97	-32	75
VA: Doswell	North Anna River	01/03/97	2120	140
VA: Newport News	James River	01/07/97	41	79
VT: Vernon	Connecticut River	01/14/97	22	81
WA: Northport	Columbia River	01/13/97	3	74
WI: Victory	Mississippi River	01/13/97	35	81
WV: Wheeling	Ohio River	01/02/97	-63	74

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) iodine-131 on one quarterly sample per year for each station; and (e) an annual composite for plutonium-238, combined plutonium-239 and 240, and uranium-234, 235, and 238 for stations that demonstrate gross alpha levels greater than 2 pCi/L.

Table 10

Tritium in Drinking Water
January - March 1997

Location	Date Collected	^{3}H pCi/L	± 2*u*
AK: Fairbanks	01/07/97	41	70
AL: Dothan	01/13/97	-19	69
AL: Montgomery	01/23/97	66	82
AL: Muscle Shoals	01/22/97	127	85
AL: Scottsboro	01/21/97	92	83
AR: Little Rock	01/03/97	-56	74
CA: Los Angeles	01/06/97	29	69
CO: Denver	01/10/97	10	77
CO: Platteville	01/10/97	-44	75
CT: Hartford	01/02/97	44	70
DC: Washington	01/08/97	-1	67
DE: Dover	01/10/97	10	71
FL: Miami	01/22/97	276	91
FL: Tampa	01/02/97	-2	77
GA: Baxley	01/06/97	-22	67
GA: Savannah	03/26/97	-25	85
IA: Cedar Rapids	01/06/97	-28	75
ID: Boise	01/03/97	177	75
ID: Idaho Falls	01/30/97	-37	75
IL: Morris	01/02/97	51	70
IL: W. Chicago	01/10/97	52	79
KS: Topeka	01/02/97	21	80
MA: Lawrence	02/18/97	-74	73
MA: Plymouth	01/15/97	35	71
MD: Baltimore	01/03/97	31	69
MD: Conowingo	01/21/97	32	81
ME: Augusta	01/09/97	46	79
MI: Detroit	01/07/97	225	77
MI: Grand Rapids	01/13/97	76	73
MI: Monroe	01/13/97	88	74
MN: Minneapolis	01/13/97	9	74
MN: Red Wing	01/10/97	-25	70
MO: Jefferson City	01/02/97	8	79
MS: Jackson	01/10/97	64	80
MS: Port Gibson	01/07/97	-3	70
MT: Helena	02/03/97	59	86
NC: Charlotte	01/08/97	247	78
NC: Wilmington	01/07/97	50	70
ND: Bismarck	01/02/97	-50	74
NE: Lincoln	01/30/97	1	74

Table 10 (continued)

Tritium in Drinking Water
January - March 1997

Location	Date Collected	^{3}H pCi/L	± 2*u*
NH: Concord	01/02/97	-72	74
NM: Santa Fe	01/09/97	-1	70
NV: Las Vegas	01/06/97	101	72
NY: Albany	01/03/97	-56	74
NY: Niagara Falls	01/02/97	68	81
NY: Syracuse	01/17/97	33	75
OH: Cincinnati	02/25/97	-7	82
OH: Columbus	02/05/97	-18	76
OH: E. Liverpool	02/13/97	-2	76
OH: Painesville	01/09/97	118	82
OH: Toledo	01/03/97	-18	76
OK: Oklahoma City	01/10/97	29	72
OR: Portland	01/08/97	-7	67
PA: Columbia	01/23/97	22	81
PA: Harrisburg	01/23/97	42	78
PA: Philadelphia - Belmont	01/10/97	-29	75
PA: Philadelphia - Queen Lane	01/10/97	-64	74
PA: Philadelphia - Baxter	01/10/97	72	80
PA: Pittsburgh	02/13/97	-33	75
PC: Corozal	01/16/97	101	84
RI: Providence	01/10/97	13	71
SC: Barnwell	01/14/97	-80	67
SC: Columbia	01/02/97	270	89
SC: Jenkinsville	01/13/97	28	71
TN: Chattanooga	01/06/97	70	79
TN: Knoxville	01/02/97	-61	74
TN: Oak Ridge - Anderson Co #768	03/25/97	9	74
TN: Oak Ridge - Anderson Co #772	03/25/97	-21	88
TN: Oak Ridge - Roane Co #360	03/26/97	-45	84
TN: Oak Ridge - Roane Co #4442	03/26/97	153	90
TX: Austin	02/24/97	-65	74
VA: Doswell	01/23/97	-42	74
WA: Richland	01/13/97	3	70
WA: Richland	01/13/97	8	70
WA: Seattle	01/02/97	-48	74
WI: Genoa City	01/13/97	-15	73
WI: Madison	01/02/97	-3	68
WI: Two Creeks	01/14/97	110	74

3. Milk Program

Pasteurized Milk

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 can contain several of the biologically significant radionuclides that result 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 approximately 55 sampling sites. 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 gamma-emitting nuclides, including iodine-131, barium-140, cesium-137, and potassium-40. Total potassium concentrations in g/L are determined from potassium-40 activities assuming natural isotopic abundances. All samples collected in July are analyzed for strontium-90.

Iodine-131, barium-140, cesium-137, and potassium-40 are determined by gamma spectral analysis. Strontium-90 is determined by beta counting a total strontium precipitate that has been chemically separated by ion exchange.

Table 11

Radionuclides in Pasteurized Milk
January 1997

Location	Date Collected	K g/L ± 2*u*		^{137}Cs pCi/L ± 2*u*		^{140}Ba pCi/L ± 2*u*	^{131}I pCi/L ± 2*u*
AL: Montgomery	01/06/97	1.513	0.078	ND		ND	ND
AZ: Phoenix	01/17/97	1.668	0.061	ND		ND	ND
CA: Los Angeles	01/08/97	1.69	0.11	ND		ND	ND
CA: Sacramento	01/27/97	1.609	0.060	ND		ND	ND
CA: San Francisco	01/15/97	1.609	0.060	ND		ND	ND
DE: Wilmington	01/29/97	1.632	0.060	ND		ND	ND
FL: Tampa	01/06/97	1.55	0.11	3.4	3.2	ND	ND
GA: Atlanta	01/28/97	1.537	0.059	ND		ND	ND
HI: Honolulu	01/23/97	1.704	0.061	ND		ND	ND
IA: Des Moines	01/06/97	1.728	0.080	ND		ND	ND
IN: Indianapolis	01/06/97	1.64	0.12	ND		ND	ND
KS: Wichita	01/27/97	1.656	0.060	ND		ND	ND
KY: Louisville	01/13/97	1.680	0.061	ND		ND	ND
MA: Boston	01/10/97	1.501	0.075	ND		ND	ND
MD: Baltimore	01/03/97	1.597	0.090	ND		ND	ND
ME: Portland	01/08/97	1.62	0.14	ND		ND	ND
MI: Detroit	01/09/97	1.680	0.060	ND		ND	ND
MI: Grand Rapids	01/06/97	1.704	0.091	ND		ND	ND
MN: St. Paul	01/06/97	1.632	0.080	ND		ND	ND
MO: Kansas City	01/28/97	1.597	0.058	ND		ND	ND
MS: Jackson	01/07/97	1.525	0.087	ND		ND	ND
NC: Charlotte	01/07/97	1.680	0.091	ND		ND	ND
ND: Minot	01/23/97	1.668	0.060	ND		ND	ND
NJ: Trenton	01/08/97	1.597	0.081	ND		ND	ND
NM: Albuquerque	01/18/97	1.680	0.061	ND		ND	ND
NV: Las Vegas	01/13/97	1.573	0.059	ND		ND	ND
NY: Buffalo	01/10/97	1.69	0.10	ND		ND	ND
NY: Syracuse	01/06/97	1.67	0.12	ND		ND	ND
OH: Cincinnati	01/13/97	1.668	0.061	ND		ND	ND
OH: Cleveland	01/14/97	1.644	0.060	ND		ND	ND
OR: Portland	01/06/97	1.632	0.081	ND		ND	ND
PA: Philadelphia	01/06/97	1.597	0.089	ND		ND	ND
PA: Pittsburgh	01/08/97	1.644	0.059	ND		ND	ND
PC: Cristobal	01/16/97	1.621	0.060	2.8	1.9	ND	ND
PR: San Juan	01/17/97	1.656	0.061	ND		ND	ND
SC: Charleston	01/14/97	1.597	0.058	ND		ND	ND
TN: Memphis	01/24/97	1.704	0.060	ND		ND	ND
TX: Ft. Worth	01/14/97	1.597	0.059	ND		ND	ND
VA: Norfolk	01/02/97	1.644	0.079	ND		ND	ND

Note: ND = Not Detected

Table 11 (continued)

Radionuclides in Pasteurized Milk
January 1997

Location	Date Collected	K g/L ± 2*u*	^{137}Cs pCi/L ± 2*u*	^{140}Ba pCi/L ± 2*u*	^{131}I pCi/L ± 2*u*
VA: Norfolk	01/28/97	1.597 0.059	ND	ND	ND
VT: Burlington	01/31/97	1.632 0.059	ND	ND	ND
WA: Seattle	01/07/97	1.632 0.090	ND	ND	ND
WA: Spokane	01/21/97	1.632 0.060	ND	ND	ND
WV: Charleston	01/06/97	1.621 0.080	ND	ND	ND

Note: ND = Not Detected

Table 12

Radionuclides in Pasteurized Milk
February 1997

Location	Date Collected	K g/L ± 2*u*	^{137}Cs pCi/L ± 2*u*	^{140}Ba pCi/L ± 2*u*	^{131}I pCi/L ± 2*u*
AL: Montgomery	02/10/97	1.621 0.080	ND	ND	ND
AR: Little Rock	02/10/97	1.49 0.14	ND	ND	ND
AZ: Phoenix	02/25/97	1.609 0.057	ND	ND	ND
CA: Los Angeles	02/05/97	1.609 0.061	ND	ND	ND
CA: Sacramento	02/10/97	1.644 0.092	ND	ND	ND
CA: San Francisco	02/05/97	1.632 0.061	ND	ND	ND
CO: Denver	02/10/97	1.609 0.057	ND	ND	ND
CT: Hartford	02/03/97	1.644 0.061	ND	ND	ND
CT: Hartford	02/03/97	1.644 0.060	ND	ND	ND
DE: Wilmington	02/14/97	1.69 0.14	ND	ND	ND
FL: Tampa	02/06/97	1.644 0.059	2.3 1.5	ND	ND
GA: Atlanta	02/26/97	1.513 0.078	ND	ND	ND
HI: Honolulu	02/20/97	1.537 0.056	ND	ND	ND
IA: Des Moines	02/03/97	1.573 0.060	ND	ND	ND
IL: Chicago	02/13/97	1.549 0.080	ND	ND	ND
IN: Indianapolis	02/03/97	1.573 0.060	ND	ND	ND
KS: Wichita	02/10/97	1.680 0.084	ND	ND	ND
KY: Louisville	02/10/97	1.656 0.083	ND	ND	ND
MA: Boston	02/07/97	1.573 0.060	ND	ND	ND
MD: Baltimore	02/07/97	1.644 0.062	ND	ND	ND
ME: Portland	02/04/97	1.704 0.091	ND	ND	ND
MI: Detroit	02/10/97	1.680 0.092	ND	ND	ND
MI: Grand Rapids	02/06/97	1.585 0.061	ND	ND	ND
MN: St. Paul	02/03/97	1.704 0.061	ND	ND	ND
MO: Kansas City	02/05/97	1.597 0.058	ND	ND	ND
MS: Jackson	02/11/97	1.632 0.081	ND	ND	ND
NC: Charlotte	02/04/97	1.585 0.061	ND	ND	ND
ND: Minot	02/04/97	1.632 0.061	ND	ND	ND
NJ: Trenton	02/11/97	1.621 0.087	ND	ND	ND
NM: Albuquerque	02/12/97	1.692 0.084	ND	ND	ND
NV: Las Vegas	02/24/97	1.549 0.060	ND	ND	ND
NY: Buffalo	02/05/97	1.716 0.059	ND	ND	ND
NY: Syracuse	02/05/97	1.621 0.061	ND	ND	ND
OH: Cincinnati	02/20/97	1.632 0.059	ND	ND	ND
OH: Cleveland	02/10/97	1.585 0.087	ND	ND	ND
OR: Portland	02/05/97	1.585 0.081	ND	ND	ND
PA: Philadelphia	02/04/97	1.51 0.15	ND	ND	ND
PA: Pittsburgh	02/03/97	1.573 0.060	ND	ND	ND
PR: San Juan	02/20/97	1.621 0.059	ND	ND	ND

Note: ND = Not Detected

Table 12 (continued)

Radionuclides in Pasteurized Milk
February 1997

Location	Date Collected	K g/L ± 2*u*	^{137}Cs pCi/L ± 2*u*	^{140}Ba pCi/L ± 2*u*	^{131}I pCi/L ± 2*u*
SC: Charleston	02/04/97	1.609 0.061	ND	ND	ND
SD: Rapid City	02/06/97	1.537 0.060	ND	ND	ND
TN: Chattanooga	02/10/97	1.513 0.085	ND	ND	ND
TN: Knoxville	02/11/97	1.668 0.087	ND	ND	ND
TN: Memphis	02/14/97	1.668 0.061	ND	ND	ND
TX: Austin	02/04/97	1.585 0.060	ND	ND	ND
TX: Ft. Worth	02/05/97	1.597 0.090	ND	ND	ND
VT: Burlington	02/14/97	1.680 0.083	ND	ND	ND
WA: Seattle	02/07/97	1.656 0.058	ND	ND	ND
WA: Spokane	02/10/97	1.561 0.080	ND	ND	ND
WV: Charleston	02/03/97	1.680 0.067	ND	ND	ND

Note: ND = Not Detected

Table 13

Radionuclides in Pasteurized Milk
March 1997

Location	Date Collected	K g/L ± 2*u*		^{137}Cs pCi/L ± 2*u*		^{140}Ba pCi/L ± 2*u*	^{131}I pCi/L ± 2*u*
AL: Montgomery	03/05/97	1.53	0.12	ND		ND	ND
AZ: Phoenix	03/18/97	1.632	0.088	ND		ND	ND
CA: Los Angeles	03/05/97	1.61	0.12	ND		ND	ND
CA: Sacramento	03/18/97	1.597	0.082	ND		ND	ND
CA: San Francisco	03/05/97	1.585	0.090	ND		ND	ND
CO: Denver	03/24/97	1.62	0.13	ND		ND	ND
DE: Wilmington	03/26/97	1.609	0.089	ND		ND	ND
FL: Tampa	03/03/97	1.609	0.093	4.0	2.8	ND	ND
GA: Atlanta	03/25/97	1.53	0.12	ND		ND	ND
HI: Honolulu	03/06/97	1.70	0.15	ND		ND	ND
IA: Des Moines	03/10/97	1.609	0.078	ND		ND	ND
IL: Chicago	03/06/97	1.51	0.14	ND		ND	ND
IN: Indianapolis	03/03/97	1.561	0.078	ND		ND	ND
KS: Wichita	03/03/97	1.585	0.078	ND		ND	ND
KY: Louisville	03/05/97	1.609	0.078	ND		ND	ND
MA: Boston	03/07/97	1.621	0.081	ND		ND	ND
MD: Baltimore	03/07/97	1.668	0.078	ND		ND	ND
MI: Detroit	03/04/97	1.692	0.082	ND		ND	ND
MI: Grand Rapids	03/14/97	1.644	0.081	ND		ND	ND
MN: St. Paul	03/05/97	1.609	0.092	ND		ND	ND
MO: Kansas City	03/17/97	1.51	0.12	ND		ND	ND
MS: Jackson	03/04/97	1.51	0.15	ND		ND	ND
NC: Charlotte	03/05/97	1.537	0.089	ND		ND	ND
ND: Minot	03/07/97	1.740	0.090	ND		ND	ND
NJ: Trenton	03/06/97	1.644	0.082	ND		ND	ND
NM: Albuquerque	03/18/97	1.656	0.081	ND		ND	ND
NV: Las Vegas	03/24/97	1.609	0.059	ND		ND	ND
NY: Buffalo	03/07/97	1.609	0.089	ND		ND	ND
NY: Syracuse	03/05/97	1.692	0.084	ND		ND	ND
OH: Cincinnati	03/19/97	1.621	0.083	ND		ND	ND
OH: Cleveland	03/04/97	1.60	0.15	ND		ND	ND
OR: Portland	03/03/97	1.621	0.078	ND		ND	ND
OR: Portland	03/04/97	1.680	0.078	ND		ND	ND
PA: Philadelphia	03/11/97	1.680	0.089	ND		ND	ND
PA: Pittsburgh	03/05/97	1.585	0.081	ND		ND	ND
PC: Cristobal	03/03/97	1.525	0.079	3.3	2.3	ND	ND
SC: Charleston	03/05/97	1.644	0.089	ND		ND	ND
SD: Rapid City	03/06/97	1.585	0.089	ND		ND	ND
TN: Chattanooga	03/03/97	1.537	0.087	ND		ND	ND

Note: ND = Not Detected

Table 13 (continued)

Radionuclides in Pasteurized Milk
March 1997

Location	Date Collected	K g/L ± 2*u*	^{137}Cs pCi/L ± 2*u*	^{140}Ba pCi/L ± 2*u*	^{131}I pCi/L ± 2*u*
TN: Knoxville	03/03/97	1.585 0.081	ND	ND	ND
TN: Memphis	03/31/97	1.597 0.081	ND	ND	ND
TX: Austin	03/04/97	1.656 0.083	ND	ND	ND
TX: Austin	03/04/97	1.704 0.083	ND	ND	ND
TX: Ft. Worth	03/06/97	1.62 0.10	ND	ND	ND
VA: Norfolk	03/02/97	1.549 0.077	ND	ND	ND
VT: Burlington	03/24/97	1.668 0.094	ND	ND	ND
WA: Seattle	03/03/97	1.597 0.088	ND	ND	ND
WA: Spokane	03/17/97	1.573 0.077	ND	ND	ND

Note: ND = Not Detected

For More Information

Environmental Radiation Data (ERD) is published quarterly by the U.S. Environmental Protection Agency's Office of Radiation and Indoor Air.

Requests for information concerning the operation of ERAMS and the data that are generated should be directed as follows:

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