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ENVIRONMENTAL RADIATION DATA

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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
July 1997

Location	Number of Samples	5-hour Field Estimate			NAREL Lab Measurement		
		Max	Min	Avg	Max	Min	Avg
		(pCi/m³)			(pCi/m³)		
AK: Fairbanks	2	0.0	0.0	0.0	0.010	0.006	0.008
AL: Montgomery	5	0.0	0.0	0.0	0.031	0.014	0.023
AR: Little Rock	9	0.5	0.1	0.2	0.026	0.009	0.016
AZ: Phoenix	5	0.4	0.3	0.4	0.021	0.012	0.014
CA: Berkeley	9	0.1	0.0	0.0	0.005	0.002	0.004
CA: Los Angeles	8	0.1	0.0	0.1	0.011	0.007	0.009
CO: Denver	9	0.6	0.1	0.3	0.013	0.008	0.011
CT: Hartford	9	0.1	0.0	0.1	0.011	0.005	0.008
DE: Wilmington	8	0.5	0.1	0.2	0.024	0.007	0.012
FL: Jacksonville	9	0.1	0.0	0.0	0.013	0.005	0.008
FL: Miami	5	0.0	0.0	0.0	0.009	0.006	0.007
HI: Honolulu	9	0.2	0.1	0.1	0.004	0.002	0.003
IA: Iowa City	8	0.8	0.1	0.4	0.015	0.006	0.011
ID: Boise	8	0.7	0.2	0.4	0.011	0.005	0.009
ID: Idaho Falls	8				0.010	0.005	0.008
IN: Indianapolis	9	0.7	0.2	0.4	0.027	0.010	0.015
KS: Topeka	8	0.8	0.2	0.4	0.017	0.007	0.011
ME: Augusta	7	0.3	0.1	0.1	0.010	0.004	0.007
MI: Lansing	9	0.4	0.1	0.2	0.013	0.005	0.009
MN: Welch	18	0.7	0.1	0.2	0.013	0.005	0.009
MS: Jackson	9	0.5	0.1	0.3	0.043	0.010	0.021
NC: Charlotte	7	0.2	0.0	0.1	0.024	0.002	0.016
NC: Wilmington	4				0.014	0.009	0.011
ND: Bismarck	5	1.1	0.0	0.3	0.017	0.007	0.011
NH: Concord	9	0.2	0.0	0.1	0.011	0.005	0.008
NV: Las Vegas	9	0.3	0.1	0.1	0.016	0.008	0.012
NY: Albany	5	0.1	0.1	0.1	0.012	0.008	0.009
NY: New York City	8	0.2	0.0	0.1	0.022	0.008	0.011
NY: Syracuse	5	0.1	0.0	0.0	0.104	0.007	0.028
NY: Yaphank	9	0.4	0.0	0.1	0.022	0.006	0.009
OH: Columbus	5	0.1	0.1	0.1	0.016	0.009	0.013
OH: Painesville	6	0.5	0.1	0.2	0.013	0.009	0.010
OH: Ross	9				0.029	0.010	0.019
PA: Harrisburg	9	0.8	0.1	0.4	0.020	0.007	0.012
SC: Barnwell	2	0.0	0.0	0.0	0.012	0.009	0.010
SC: Columbia	8	0.2	0.1	0.2	0.019	0.007	0.014
SD: Pierre	2	0.2	0.1	0.2	0.008	0.006	0.007
TN: Knoxville	7	1.1	0.0	0.2	0.034	0.011	0.023

Table 2 (continued)

Gross Beta in Airborne Particulates
July 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	0.5	0.1	0.3	0.024	0.008	0.017
TN: Oak Ridge/Bethel	9	1.1	0.2	0.5	0.029	0.009	0.016
TN: Oak Ridge/K25	9	0.9	0.2	0.5	0.023	0.008	0.014
TN: Oak Ridge/Melton	9	0.8	0.2	0.5	0.023	0.010	0.014
TN: Oak Ridge/Y12 E	9	0.9	0.1	0.5	0.027	0.009	0.015
TN: Oak Ridge/Y12 W	9	0.7	0.1	0.4	0.026	0.007	0.016
TX: Austin	8	0.2	0.0	0.2	0.015	0.007	0.012
TX: El Paso	9	0.7	0.3	0.5	0.014	0.008	0.011
UT: Salt Lake City	9	0.5	0.1	0.2	0.017	0.008	0.012
VA: Lynchburg	8	0.8	0.3	0.6	0.018	0.009	0.012
WA: Olympia	7	0.1	0.0	0.0	0.006	0.001	0.004
WA: Spokane	8	0.2	0.1	0.2	0.013	0.004	0.008
WI: Madison	8	0.5	0.1	0.3	0.016	0.006	0.010

Table 3

Gross Beta in Airborne Particulates
August 1997

Location	Number of Samples	5-hour Field Estimate			NAREL Lab Measurement		
		Max	Min	Avg	Max	Min	Avg
		(pCi/m³)			(pCi/m³)		
AK: Fairbanks	1	0.0	0.0	0.0	0.005	0.005	0.005
AL: Montgomery	3	0.2	0.0	0.1	0.064	0.019	0.035
AR: Little Rock	8	0.4	0.0	0.2	0.025	0.009	0.015
AZ: Phoenix	4	0.2	0.0	0.2	0.019	0.007	0.013
CA: Berkeley	9	0.1	0.0	0.0	0.009	0.003	0.004
CA: Los Angeles	9	0.3	0.1	0.1	0.012	0.004	0.009
CO: Denver	7	0.7	0.2	0.4	0.011	0.007	0.009
CT: Hartford	8	0.2	0.0	0.1	0.012	0.005	0.008
DE: Wilmington	9	0.4	0.0	0.3	0.016	0.006	0.011
FL: Jacksonville	8	0.1	0.0	0.0	0.014	0.005	0.008
FL: Miami	4	0.0	0.0	0.0	0.009	0.004	0.006
HI: Honolulu	8	0.2	0.1	0.1	0.004	0.002	0.003
IA: Iowa City	7	1.0	0.1	0.5	0.020	0.007	0.012
ID: Boise	9	0.7	0.2	0.4	0.012	0.006	0.009
ID: Idaho Falls	8	0.0	0.0	0.0	0.010	0.006	0.008
IN: Indianapolis	9	0.7	0.1	0.3	0.025	0.005	0.014
KS: Topeka	9	3.3	0.3	1.4	0.023	0.008	0.014
ME: Augusta	9	0.3	0.1	0.2	0.012	0.004	0.007
MI: Lansing	8	0.2	0.1	0.1	0.015	0.005	0.008
MN: Welch	16	0.5	0.1	0.2	0.016	0.005	0.009
MS: Jackson	9	1.1	0.2	0.5	0.029	0.010	0.017
NC: Charlotte	6	0.1	0.0	0.1	0.017	0.009	0.013
NC: Wilmington	2				0.011	0.008	0.010
ND: Bismarck	6	1.1	0.0	0.5	0.013	0.007	0.010
NH: Concord	9	0.3	0.0	0.1	0.012	0.004	0.008
NV: Las Vegas	8	0.2	0.1	0.2	0.017	0.009	0.012
NY: Albany	4	0.1	0.1	0.1	0.013	0.006	0.010
NY: New York City	7	0.2	0.0	0.1	0.014	0.003	0.010
NY: Syracuse	3	0.1	0.0	0.0	0.013	0.005	0.008
NY: Yaphank	8	0.2	0.0	0.1	0.015	0.004	0.010
OH: Columbus	4	0.3	0.0	0.1	0.032	0.009	0.017
OH: Painesville	7	0.2	0.1	0.2	0.020	0.006	0.011
OH: Ross	9				0.029	0.008	0.015
PA: Harrisburg	8	0.5	0.2	0.3	0.014	0.004	0.010
SC: Barnwell	2	0.1	0.0	0.1	0.013	0.011	0.012
SC: Columbia	8	0.5	0.0	0.2	0.016	0.008	0.012
TN: Knoxville	7	1.4	0.3	0.6	0.032	0.018	0.022
TN: Nashville	9	0.4	0.1	0.2	0.036	0.008	0.016

Table 3 (continued)

Gross Beta in Airborne Particulates
August 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	8	1.4	0.1	0.5	0.023	0.010	0.014
TN: Oak Ridge/K25	8	1.4	0.1	0.7	0.024	0.008	0.014
TN: Oak Ridge/Melton	5	2.0	0.2	1.0	0.022	0.013	0.016
TN: Oak Ridge/Y12 E	8	1.4	0.1	0.5	0.027	0.008	0.015
TN: Oak Ridge/Y12 W	8	0.6	0.1	0.3	0.028	0.009	0.015
TX: Austin	8	0.2	0.1	0.2	0.018	0.006	0.012
TX: El Paso	8	0.9	0.1	0.4	0.021	0.010	0.014
UT: Salt Lake City	8	0.3	0.0	0.1	0.013	0.007	0.010
VA: Lynchburg	8	0.9	0.1	0.7	0.016	0.006	0.012
WA: Olympia	9	0.2	0.0	0.1	0.007	0.003	0.004
WA: Spokane	8	0.3	0.1	0.2	0.013	0.003	0.008
WI: Madison	9	0.4	0.1	0.2	0.015	0.005	0.010

Table 4

Gross Beta in Airborne Particulates
September 1997

Location	Number of Samples	5-hour Field Estimate			NAREL Lab Measurement		
		Max	Min	Avg	Max	Min	Avg
		(pCi/m³)			(pCi/m³)		
AK: Fairbanks	2	0.0	0.0	0.0	0.006	0.005	0.005
AL: Montgomery	3	0.0	0.0	0.0	0.058	0.026	0.045
AR: Little Rock	6	0.4	0.1	0.3	0.031	0.018	0.023
AZ: Phoenix	5	0.7	0.3	0.6	0.020	0.013	0.016
CA: Berkeley	9	0.1	0.0	0.1	0.018	0.003	0.007
CA: Los Angeles	9	0.3	0.0	0.1	0.018	0.009	0.013
CO: Denver	9	1.9	0.1	0.8	0.022	0.008	0.013
CT: Hartford	9	0.2	0.1	0.1	0.012	0.006	0.009
DE: Wilmington	9	0.4	0.1	0.2	0.023	0.008	0.013
FL: Jacksonville	4	0.1	0.0	0.0	0.025	0.006	0.012
FL: Miami	5	0.0	0.0	0.0	0.006	0.003	0.005
HI: Honolulu	7	0.2	0.1	0.1	0.005	0.003	0.004
IA: Iowa City	6	0.5	0.1	0.3	0.022	0.008	0.015
ID: Boise	9	0.9	0.2	0.4	0.015	0.006	0.010
ID: Idaho Falls	8				0.011	0.005	0.008
IN: Indianapolis	9	1.7	0.0	0.6	0.025	0.013	0.018
KS: Topeka	10	2.1	0.2	0.9	0.022	0.007	0.015
ME: Augusta	8	0.2	0.1	0.1	0.010	0.006	0.008
MI: Lansing	9	0.2	0.1	0.1	0.019	0.006	0.010
MN: Welch	16	0.4	0.0	0.2	0.023	0.005	0.012
MS: Jackson	7	0.6	0.0	0.4	0.028	0.012	0.022
NC: Charlotte	6	0.1	0.0	0.0	0.034	0.012	0.021
NC: Wilmington	5				0.025	0.007	0.013
ND: Bismarck	6	1.5	0.0	0.9	0.015	0.007	0.011
NH: Concord	9	0.4	0.1	0.2	0.014	0.006	0.009
NV: Las Vegas	9	0.2	0.0	0.2	0.017	0.007	0.011
NY: Albany	4	0.2	0.0	0.1	0.014	0.009	0.011
NY: New York City	9	0.2	-0.1	0.1	0.016	0.006	0.011
NY: Syracuse	2	0.1	0.0	0.1	0.012	0.012	0.012
NY: Yaphank	9	0.7	0.0	0.2	0.020	0.006	0.011
OH: Columbus	3	0.2	0.1	0.1	0.024	0.018	0.020
OH: Painesville	7	0.5	0.0	0.2	0.013	0.007	0.011
OH: Ross	9	0.0	0.0	0.0	0.023	0.007	0.016
PA: Harrisburg	9	0.9	0.2	0.4	0.027	0.011	0.015
SC: Barnwell	2	1.0	0.0	0.5	0.019	0.015	0.017
SC: Columbia	7	0.4	0.1	0.2	0.034	0.011	0.019
TN: Knoxville	8	1.0	0.2	0.5	0.040	0.015	0.028
TN: Nashville	9	0.6	0.1	0.3	0.129	0.014	0.033

Table 4 (continued)

Gross Beta in Airborne Particulates
September 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	1.2	0.3	0.6	0.029	0.012	0.021
TN: Oak Ridge/K25	9	1.6	0.3	0.7	0.029	0.014	0.022
TN: Oak Ridge/Melton	9	1.9	0.4	0.8	0.029	0.012	0.020
TN: Oak Ridge/Y12 E	9	1.5	0.3	0.6	0.029	0.013	0.021
TN: Oak Ridge/Y12 W	9	0.6	0.2	0.4	0.030	0.013	0.022
TX: Austin	9	0.4	0.1	0.2	0.024	0.005	0.014
TX: El Paso	9	1.1	0.1	0.8	0.027	0.012	0.020
UT: Salt Lake City	2	0.3	0.0	0.2	0.011	0.010	0.010
VA: Lynchburg	9	1.3	0.3	0.6	0.020	0.011	0.016
WA: Olympia	6	0.1	0.0	0.1	0.010	0.003	0.005
WA: Spokane	9	0.4	0.1	0.2	0.019	0.004	0.011
WI: Madison	9	0.8	0.0	0.3	0.017	0.007	0.011

Table 5

Gross Beta and Specific Gamma in Precipitation
July 1997

Location	Gross Beta Activity		Specific Gamma Activity		
	pCi/L	± 2*u*	Nuclide	pCi/L	± 2*u*
AL: Montgomery	1.69	0.33	Be7	50	24
AR: Little Rock	2.23	0.37	Be7	106	27
AZ: Phoenix	1.66	0.33	Be7	75	38
			Pb212	3.2	5.4
CO: Denver	1.38	0.30	Be7	60	30
CT: Hartford	2.32	0.36		ND	
DE: Wilmington	2.94	0.41	Be7	70	35
FL: Jacksonville	0.82	0.27	Be7	36	22
			Bi214	9.2	3.4
			K40	10	17
FL: Miami	1.00	0.29	K40	12	17
HI: Honolulu	1.07	0.30		ND	
IA: Iowa City	1.01	0.29		ND	
ID: Idaho Falls	1.20	0.29	Bi214	4.3	3.4
ME: Augusta	0.98	0.28	Be7	49	41
			Bi214	12.9	7.6
MI: Lansing	0.95	0.28		ND	
MN: Minneapolis	0.90	0.27		ND	
MN: Welch	0.55	0.26		ND	
MS: Jackson	0.18	0.22		ND	
NC: Charlotte	4.10	0.45	Be7	73	56
NC: Wilmington	3.63	0.45	Be7	87	28
ND: Bismarck	1.15	0.29		ND	
NE: Lincoln	1.32	0.30	K40	11	17
NH: Concord	1.59	0.32	Tl208	2.5	3.6
NV: Las Vegas	5.42	0.56	Be7	80	36
			Pb212	4.8	5.5
NY: Albany	4.44	0.47	Be7	107	32
NY: Syracuse	0.33	0.22		ND	
NY: Yaphank	4.19	0.46		ND	
OH: Painesville	1.33	0.32	Be7	65	26
OR: Portland	0.69	0.26		ND	
PA: Harrisburg	1.65	0.32	Be7	50	27
			Pb212	2.5	4.0
SC: Barnwell	1.90	0.33		ND	
SC: Columbia	1.73	0.33	Be7	53	23
			Bi214	5.7	3.6

Note: ND = Not Detected

Table 5 (continued)

Gross Beta and Specific Gamma in Precipitation
July 1997

Location	Gross Beta Activity		Specific Gamma Activity		
	pCi/L	± 2*u*	Nuclide	pCi/L	± 2*u*
TN: Knoxville	1.56	0.31	Be7	30	22
TN: Nashville	0.76	0.26	Be7	40	27
			Bi214	8.5	3.7
			Pb214	5.2	4.0
TX: Austin	0.62	0.25		ND	
TX: El Paso	2.46	0.40		ND	
UT: Salt Lake City	1.84	0.34		ND	
VA: Lynchburg	5.98	0.53		ND	
WA: Olympia	0.85	0.27	Be7	57	42
WI: Madison	0.93	0.27	Be7	32	24

Note: ND = Not Detected

Table 6

Gross Beta and Specific Gamma in Precipitation
August 1997

Location	Gross Beta Activity		Specific Gamma Activity		
	pCi/L	± 2*u*	Nuclide	pCi/L	± 2*u*
AL: Montgomery	1.37	0.31	Be7	55	43
AR: Little Rock	4.10	0.45	Be7	74	25
			Bi214	12.6	3.0
			Pb214	9.0	3.4
AZ: Phoenix	2.28	0.37		ND	
CO: Denver	5.32	0.55	Be7	47	21
CT: Hartford	0.70	0.34	Be7	50	28
DE: Wilmington	1.37	0.37	Be7	51	21
FL: Jacksonville	1.01	0.28	Be7	58	22
			Pb212	4.1	4.4
			Tl208	2.8	2.6
FL: Miami	0.87	0.28		ND	
IA: Iowa City	0.84	0.28	Bi214	4.6	1.9
			Pb214	5.7	2.0
			Tl208	0.8	1.1
ID: Idaho Falls	1.60	0.33	Bi214	9.2	3.0
			Tl208	1.7	1.7
ME: Augusta	0.96	0.36	Be7	68	27
MI: Lansing	0.60	0.24		ND	
MN: Minneapolis	0.71	0.26	Be7	19	12
MN: Welch	3.00	0.41	Be7	44	10
			Bi214	2.8	2.1
NC: Charlotte	5.16	0.51	Be7	141	24
NC: Wilmington	5.15	0.50	Be7	61	20
ND: Bismarck	1.44	0.31	Pb212	5.4	8.4
NE: Lincoln	0.77	0.25		ND	
NH: Concord	2.03	0.41	Be7	54	20
			Pb212	3.8	3.5
NV: Las Vegas	0.54	0.24	K40	30	39
NY: Albany	0.66	0.31	Be7	39	21
			Bi214	12.7	2.9
			Pb214	9.3	3.1
			Tl208	1.1	1.5
NY: Syracuse	0.23	0.23		ND	
NY: Yaphank	3.72	0.45		ND	
OH: Painesville	2.24	0.35	Be7	83	12
OR: Portland	1.33	0.30	Be7	55	25

Note: ND = Not Detected

Table 6 (continued)

Gross Beta and Specific Gamma in Precipitation
August 1997

Location	Gross Beta Activity		Specific Gamma Activity	
	pCi/L	± 2*u*	Nuclide	pCi/L ± 2*u*
OR: Portland	1.33	0.30	Bi214	4.8 2.7
			Tl208	1.4 1.6
PA: Harrisburg	2.07	0.39	Be7	57 21
SC: Barnwell	2.02	0.36		ND
SC: Columbia	0.70	0.25		ND
TN: Knoxville	2.08	0.37		ND
TN: Nashville	0.48	0.26		ND
TX: Austin	0.22	0.21	Bi214	7.6 3.1
TX: El Paso	0.87	0.26		ND
UT: Salt Lake City	3.09	0.43	Be7	32 21
			Bi214	2.6 2.7
			Tl208	1.9 1.6
VA: Lynchburg	4.00	0.45		ND
WA: Olympia	1.20	0.30	Bi214	4.1 3.0
WI: Madison	0.77	0.27		ND

Note: ND = Not Detected

Table 7

Gross Beta and Specific Gamma in Precipitation
September 1997

Location	Gross Beta Activity		Specific Gamma Activity		
	pCi/L	± 2*u*	Nuclide	pCi/L	± 2*u*
AL: Montgomery	2.29	0.38	Be7	30	20
AR: Little Rock	1.02	0.29		ND	
CO: Denver	0.93	0.29		ND	
CT: Hartford	1.07	0.28	Be7	27	23
DE: Wilmington	2.50	0.37	Bi214	3.2	2.9
FL: Jacksonville	2.20	0.35		ND	
FL: Miami	0.31	0.22		ND	
HI: Honolulu	0.77	0.26		ND	
IA: Iowa City	0.88	0.27		ND	
ME: Augusta	0.62	0.25	Be7	34	24
MI: Lansing	0.27	0.22		ND	
MN: Minneapolis	0.39	0.24		ND	
MN: Welch	0.54	0.25	Be7	26	23
MS: Jackson	0.53	0.24		ND	
NC: Charlotte	0.79	0.26	Be7	39	21
NC: Wilmington	1.75	0.33	Be7	31	19
ND: Bismarck	0.75	0.27		ND	
NE: Lincoln	0.88	0.29	Tl208	2.4	4.3
NH: Concord	2.48	0.37	Be7	63	25
NM: Santa Fe	0.82	0.26		ND	
NV: Las Vegas	0.90	0.28		ND	
NY: Albany	1.66	0.33	Be7	74	21
NY: Syracuse	0.48	0.24		ND	
NY: Yaphank	7.74	0.59		ND	
OH: Painesville	1.48	0.31	Be7	44	21
OR: Portland	0.53	0.24	Be7	180	49
			K40	44	57
PA: Harrisburg	1.83	0.33	Be7	47	29
SC: Barnwell	2.57	0.40	Bi214	4.8	3.0
SC: Columbia	2.67	0.37		ND	
TN: Knoxville	1.36	0.31	Tl208	1.2	1.5
TN: Nashville	1.17	0.29	Be7	39	19
			Tl208	1.4	1.5
TX: Austin	0.51	0.24		ND	
TX: El Paso	1.15	0.30		ND	
UT: Salt Lake City	1.95	0.36	Bi214	9.9	7.3
			Pb214	8.6	6.9

Note: ND = Not Detected

Table 7 (continued)

Gross Beta and Specific Gamma in Precipitation
September 1997

Location	Gross Beta Activity		Specific Gamma Activity	
	pCi/L	± 2*u*	Nuclide	pCi/L ± 2*u*
VA: Lynchburg	4.11	0.46		ND
WA: Olympia	0.10	0.20		ND
WI: Madison	0.69	0.26		ND

Note: ND = Not Detected

Table 8

Tritium in Precipitation
July - September 1997

Location	July 1997		August 1997		September 1997	
	pCi/L	± 2*u*	pCi/L	± 2*u*	pCi/L	± 2*u*
AL: Montgomery	19	87	80			85
AR: Little Rock	16	90		89	-46	82
AZ: Phoenix	-16		-58	86	NS	
CO: Denver	-33	88	-33			85
CT: Hartford	60	86		84	-86	84
DE: Wilmington	10		122	84	-31	87
FL: Jacksonville	12	87	51			82
FL: Miami	-14	85		81	-5	82
HI: Honolulu	-54		NS		-3	84
IA: Iowa City	8	87	-66	87	40	83
ID: Idaho Falls	-17	89			NS	
ME: Augusta	55		77	82	21	90
MI: Lansing	25	87	104	83	-2	81
MN: Minneapolis	25	88			3	83
MN: Welch	-2		-67	86	9	83
MS: Jackson	25	87	NS		-31	82
NC: Charlotte	37	88			-25	87
NC: Wilmington	25		153	85	0	89
ND: Bismarck		88	37	91	2	83
NE: Lincoln	-58	86			5	83
NH: Concord			83	82	48	91
NM: Santa Fe	NS		NS		22	83
NV: Las Vegas		87		87	0	84
NY: Albany	82	86	87		15	90
NY: Syracuse			82	82	23	89
NY: Yaphank	58	89		82	-44	87
OH: Painesville		90	10		203	89
OR: Portland	-33		-90	85	-2	84
PA: Harrisburg		86		82	19	89
SC: Barnwell	109	91	293		70	86
SC: Columbia	89		51	81	-2	83
TN: Knoxville		88		81	56	84
TN: Nashville	16	87	70		38	84
TX: Austin	25		-77	86	34	84
TX: El Paso		87		86	41	84
UT: Salt Lake City	-82	86	-4		-62	81
VA: Lynchburg	44		77	82	42	84
WA: Olympia		88	29	90	55	86

Note: NS = No Sample

Table 8 (continued)

Tritium in Precipitation
July - September 1997

Location	July 1997		August 1997		September 1997	
	pCi/L	± 2*u*	pCi/L	± 2*u*	pCi/L	± 2*u*
WI: Madison	23	87	70	77	53	85

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
July - September 1997

Location	Source	Date Collected	^{3}H pCi/L	± 2*u*
AL: Decatur	Tennessee River	07/17/97	113	93
AL: Gordon	Chattahoochee River	07/02/97	240	93
AL: Scottsboro	Tennessee River	07/16/97	88	92
AR: Little Rock	Arkansas River	07/07/97	36	87
CA: Clay Station	Folsom S. Canal	07/29/97	-23	87
CA: Eureka	Humboldt Bay	07/18/97	-39	86
CA: San Onofre	Pacific Ocean	07/28/97	0	85
CO: Platteville	South Platte River	07/11/97	39	82
CT: E. Haddam	Connecticut River	09/03/97	-19	87
CT: Waterford	Long Island Sound	09/03/97	-105	84
FL: Crystal River	Gulf Of Mexico	08/18/97	-72	84
FL: Ft. Pierce	Atlantic Ocean	07/10/97	-4	80
FL: Homestead	Biscayne Bay	07/24/97	850	110
GA: Baxley	Altamaha River	07/09/97	23	85
IA: Cedar Rapids	Cedar River	07/08/97	17	85
ID: Buhl	Snake River	07/09/97	80	88
IL: Morris	Illinois River	07/10/97	127	86
IL: Zion	Lake Michigan	08/30/97	28	83
KS: Le Roy	Neosho River	09/30/97	-56	85
LA: New Orleans	Mississippi River	07/31/97	-25	86
MA: Plymouth	Cape Cod Bay	07/30/97	21	86
MD: Conowingo	Susquehanna River	07/15/97	102	89
MD: Lusby	Chesapeake Bay	07/15/97	41	86
ME: Wiscasset	Montseway Bay	07/08/97	60	83
MI: Bridgman	Lake Michigan	07/15/97	35	90
MI: Charlevoix	Lake Michigan	07/09/97	56	86
MI: Monroe	Lake Erie	07/14/97	95	89
MI: S. Haven	Lake Michigan	07/15/97	109	89
MN: Monticello	Mississippi River	07/07/97	47	87
MN: Red Wing	Mississippi River	07/14/97	60	87
MS: Port Gibson	Mississippi River	07/08/97	61	84
NC: Charlotte	Catawba River	07/09/97	369	97
NC: Southport	Atlantic Ocean	07/11/97	41	83
NE: Rulo	Missouri River	07/30/97	-33	84
NV: Boulder City	Colorado River	08/16/97	23	88
NY: Chelsea	Hudson River	07/03/97	-57	83
NY: Croton-On-Hudson	Hudson River	09/04/97	-53	74
NY: Oswego	Lake Ontario	09/26/97	148	95
OH: Toledo	Lake Erie	07/23/97	-29	84
OR: Bradwood	Columbia River	07/16/97	-21	84

Table 9 (continued)

Tritium in Surface Water
July - September 1997

Location	Source	Date Collected	^{3}H pCi/L	± 2*u*
PA: Danville	Susquehanna River	07/16/97	-12	83
PA: Philadelphia	Delaware River - Baxter	07/10/97	8	84
PA: Philadelphia	Schuylkill River - Belmont	07/10/97	-18	85
PA: Philadelphia	Schuylkill River - Queen Lane	07/10/97	-4	86
SC: Allendale	Savannah River	07/29/97	1010	120
SC: Broad River	Broad River	07/30/97	67	87
SC: Hartsville	Lake Robinson	07/08/97	1940	150
TN: Daisy	Tennessee River	07/09/97	560	100
TN: Kingston	Clinch River	08/06/97	4	88
TN: Oak Ridge	Clinch River	08/19/97	21	89
VA: Doswell	North Anna River	07/02/97	2900	170
VT: Vernon	Connecticut River	07/22/97	85	88
WA: Northport	Columbia River	07/15/97	78	88
WA: Richland	Columbia River	07/09/97	41	86
WI: Two Creeks	Lake Michigan	07/10/97	111	86
WI: Victory	Mississippi River	07/07/97	96	89
WV: Wheeling	Ohio River	07/07/97	-14	85

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
July - September 1997

Location	Date Collected	^{3}H pCi/L	± 2*u*
AK: Fairbanks	09/16/97	-62	85
AL: Dothan	07/03/97	33	84
AL: Montgomery	07/21/97	-2	85
AL: Muscle Shoals	07/17/97	90	88
AL: Scottsboro	07/16/97	163	90
AR: Little Rock	07/07/97	-3	85
CA: Berkeley	09/04/97	-45	86
CA: Los Angeles	07/02/97	-4	82
CO: Denver	07/11/97	29	84
CO: Platteville	07/11/97	55	85
CT: Hartford	07/03/97	40	87
DC: Washington	07/16/97	-33	84
DE: Dover	07/15/97	-56	82
FL: Miami	07/02/97	8	83
FL: Tampa	07/23/97	-2	85
GA: Baxley	07/09/97	4	85
GA: Savannah	08/21/97	179	95
HI: Honolulu	07/07/97	-33	84
IA: Cedar Rapids	07/07/97	64	83
ID: Boise	07/07/97	39	82
ID: Idaho Falls	08/25/97	18	88
IL: W. Chicago	08/01/97	-58	85
KS: Topeka	07/02/97	57	85
LA: New Orleans	07/07/97	2	86
MA: Lawrence	07/31/97	-15	84
MD: Baltimore	07/02/97	-4	83
MD: Conowingo	07/15/97	-12	84
ME: Augusta	07/08/97	-2	85
MI: Detroit	07/09/97	281	96
MI: Grand Rapids	07/24/97	65	88
MN: Minneapolis	07/21/97	45	90
MN: Red Wing	07/14/97	-9	84
MO: Jefferson City	07/02/97	39	84
MS: Jackson	07/10/97	-21	85
MS: Port Gibson	07/08/97	-31	84
MT: Helena	07/28/97	-19	84
NC: Charlotte	07/09/97	350	96
NC: Wilmington	07/11/97	88	85
ND: Bismarck	07/02/97	14	84
NE: Lincoln	08/01/97	17	86

Table 10 (continued)

Tritium in Drinking Water
July - September 1997

Location	Date Collected	^{3}H pCi/L ± 2*u*	
NH: Concord	07/02/97	-82	84
NM: Santa Fe	08/25/97	-64	84
NV: Las Vegas	07/03/97	59	85
NY: Albany	07/07/97	26	87
NY: Albany	10/03/97	37	90
NY: Niagara Falls	07/24/97	150	91
NY: Syracuse	08/19/97	25	89
OH: Cincinnati	08/27/97	-8	87
OH: E. Liverpool	07/11/97	37	86
OH: Painesville	07/03/97	139	89
OH: Toledo	07/02/97	162	92
OK: Oklahoma City	07/02/97	0	82
OR: Portland	07/02/97	49	85
PA: Columbia	07/17/97	61	91
PA: Harrisburg	07/17/97	9	85
PA: Philadelphia - Baxter	07/10/97	-16	84
PA: Philadelphia - Queen Lane	07/10/97	41	86
PA: Philadelphia - Belmont	07/10/97	94	89
PA: Pittsburgh	07/11/97	101	85
PC: Corozal	07/07/97	-14	85
RI: Providence	07/03/97	9	85
SC: Barnwell	07/15/97	-69	81
SC: Columbia	07/03/97	172	90
SC: Jenkinsville	07/08/97	36	87
SC: Seneca	07/02/97	92	87
TN: Chattanooga	07/07/97	237	95
TN: Knoxville	07/07/97	-47	84
TN: Oak Ridge - Anderson Co #772	09/15/97	-37	86
TN: Oak Ridge - Knox Co #371	09/15/97	-4	88
TN: Oak Ridge - Roane Co #360	09/16/97	23	89
TN: Oak Ridge - Roane Co #4442	09/16/97	25	89
TX: Austin	07/03/97	16	83
VA: Doswell	07/07/97	-12	85
VA: Lynchburg	07/28/97	-19	84
WA: Richland	07/09/97	14	86
WA: Seattle	07/03/97	-61	84
WI: Genoa City	07/07/97	-31	84
WI: Madison	07/03/97	-12	82

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
July 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	07/03/97	1.64	0.17	ND		ND	ND
CA: Los Angeles	07/07/97	1.668	0.049	ND		ND	ND
CA: Sacramento	07/14/97	1.656	0.079	ND		ND	ND
CA: San Francisco	07/08/97	1.704	0.050	ND		ND	ND
CO: Denver	07/14/97	1.585	0.086	ND		ND	ND
CT: Hartford	07/10/97	1.656	0.049	ND		ND	ND
DE: Wilmington	07/09/97	1.704	0.050	ND		ND	ND
FL: Tampa	07/07/97	1.644	0.048	1.6	1.4	ND	ND
GA: Atlanta	07/29/97	1.513	0.074	ND		ND	ND
HI: Honolulu	07/29/97	1.728	0.069	ND		ND	ND
IA: Des Moines	07/07/97	1.621	0.049	ND		ND	ND
IL: Chicago	07/02/97	1.609	0.049	ND		ND	ND
IN: Indianapolis	07/07/97	1.632	0.049	ND		ND	ND
KY: Louisville	07/07/97	1.668	0.049	ND		ND	ND
MA: Boston	07/07/97	1.45	0.17	ND		ND	ND
MD: Baltimore	07/03/97	1.704	0.050	ND		ND	ND
MI: Detroit	07/08/97	1.55	0.17	ND		ND	ND
MI: Grand Rapids	07/08/97	1.644	0.049	ND		ND	ND
MN: St. Paul	07/01/97	1.656	0.049	ND		ND	ND
MO: Kansas City	07/24/97	1.49	0.14	ND		ND	ND
MS: Jackson	07/07/97	1.644	0.049	ND		ND	ND
NC: Charlotte	07/08/97	1.632	0.050	ND		ND	ND
ND: Minot	07/07/97	1.597	0.049	ND		ND	ND
NJ: Trenton	07/18/97	1.704	0.092	ND		ND	ND
NM: Albuquerque	07/14/97	1.54	0.17	ND		ND	ND
NV: Las Vegas	07/07/97	1.692	0.049	ND		ND	ND
NY: Buffalo	07/10/97	1.680	0.050	ND		ND	ND
NY: Syracuse	07/07/97	1.668	0.049	ND		ND	ND
OH: Cincinnati	07/16/97	1.644	0.077	ND		ND	ND
OH: Cleveland	07/14/97	1.62	0.15	ND		ND	ND
OR: Portland	07/07/97	1.668	0.049	ND		ND	ND
PA: Philadelphia	07/14/97	1.70	0.10	ND		ND	ND
PA: Pittsburgh	07/07/97	1.656	0.050	ND		ND	ND
PC: Cristobal	07/10/97	1.58	0.14	5.1	2.9	ND	ND
PR: San Juan	07/17/97	1.621	0.092	ND		ND	ND
SC: Charleston	07/10/97	1.585	0.048	ND		ND	ND
TN: Memphis	07/09/97	1.644	0.048	ND		ND	ND
TX: Austin	07/22/97	1.49	0.14	ND		ND	ND
TX: Ft. Worth	07/08/97	1.597	0.093	ND		ND	ND

Note: ND = Not Detected

Table 11 (continued)

Radionuclides in Pasteurized Milk
July 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	07/03/97	1.656 0.049	ND	ND	ND
VT: Burlington	07/24/97	1.585 0.077	ND	ND	ND
WA: Seattle	07/07/97	1.632 0.049	ND	ND	ND
WA: Spokane	07/07/97	1.621 0.049	ND	ND	ND

Note: ND = Not Detected

Table 12

Radionuclides in Pasteurized Milk
August 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	08/08/97	1.656	0.069	ND		ND	ND
AR: Little Rock	08/11/97	1.61	0.12	ND		ND	ND
AZ: Phoenix	08/20/97	1.609	0.090	ND		ND	ND
CA: Sacramento	08/18/97	1.573	0.094	ND		ND	ND
CA: San Francisco	08/07/97	1.692	0.081	ND		ND	ND
CO: Denver	08/15/97	1.561	0.080	ND		ND	ND
CT: Hartford	08/11/97	1.632	0.082	ND		ND	ND
DE: Wilmington	08/20/97	1.704	0.069	ND		ND	ND
FL: Tampa	08/04/97	1.54	0.12	2.7	3.1	ND	ND
GA: Atlanta	08/26/97	1.537	0.088	ND		ND	ND
HI: Honolulu	08/26/97	1.78	0.12	ND		ND	ND
IA: Des Moines	08/04/97	1.62	0.15	ND		ND	ND
IL: Chicago	08/09/97	1.656	0.081	ND		ND	ND
IN: Indianapolis	08/08/97	1.561	0.092	ND		ND	ND
KS: Wichita	08/12/97	1.716	0.070	ND		ND	ND
KY: Louisville	08/06/97	1.644	0.082	ND		ND	ND
MD: Baltimore	08/01/97	1.632	0.079	ND		ND	ND
MI: Detroit	08/05/97	1.50	0.14	ND		ND	ND
MI: Grand Rapids	08/05/97	1.656	0.084	ND		ND	ND
MN: St. Paul	08/01/97	1.692	0.084	ND		ND	ND
MO: Kansas City	08/21/97	1.573	0.079	ND		ND	ND
MS: Jackson	08/04/97	1.58	0.14	ND		ND	ND
NC: Charlotte	08/05/97	1.53	0.12	ND		ND	ND
ND: Minot	08/06/97	1.585	0.092	ND		ND	ND
NV: Las Vegas	08/05/97	1.61	0.12	ND		ND	ND
NY: Buffalo	08/07/97	1.60	0.14	ND		ND	ND
NY: Syracuse	08/06/97	1.668	0.083	ND		ND	ND
OH: Cincinnati	08/20/97	1.621	0.092	ND		ND	ND
OH: Cleveland	08/11/97	1.585	0.077	ND		ND	ND
OR: Portland	08/05/97	1.716	0.085	ND		ND	ND
PA: Philadelphia	08/07/97	1.57	0.12	ND		ND	ND
PA: Pittsburgh	08/05/97	1.549	0.081	ND		ND	ND
PC: Cristobal	08/14/97	1.597	0.067	5.6	2.0	ND	ND
PR: San Juan	08/15/97	1.644	0.082	ND		ND	ND
SC: Charleston	08/05/97	1.621	0.088	ND		ND	ND
TN: Chattanooga	08/05/97	1.597	0.082	ND		ND	ND
TN: Knoxville	08/04/97	1.597	0.077	ND		ND	ND
TX: Austin	08/12/97	1.561	0.076	ND		ND	ND
TX: Ft. Worth	08/05/97	1.656	0.082	ND		ND	ND

Note: ND = Not Detected

Table 12 (continued)

Radionuclides in Pasteurized Milk
August 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	08/05/97	1.573 0.075	ND	ND	ND
VA: Norfolk	08/29/97	1.668 0.069	ND	ND	ND
VT: Burlington	08/27/97	1.668 0.093	ND	ND	ND
WA: Seattle	08/14/97	1.704 0.069	ND	ND	ND
WA: Spokane	08/11/97	1.656 0.083	ND	ND	ND
WV: Charleston	08/04/97	1.60 0.15	ND	ND	ND

Note: ND = Not Detected

Table 13

Radionuclides in Pasteurized Milk
September 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	09/08/97	1.561	0.088	ND		ND	ND
AZ: Phoenix	09/24/97	1.64	0.12	ND		ND	ND
CA: Los Angeles	09/16/97	1.656	0.069	ND		ND	ND
CA: Sacramento	09/09/97	1.585	0.091	ND		ND	ND
CA: San Francisco	09/09/97	1.597	0.090	ND		ND	ND
CO: Denver	09/12/97	1.54	0.17	ND		ND	ND
CT: Hartford	09/08/97	1.76	0.14	ND		ND	ND
DE: Wilmington	09/16/97	1.573	0.090	ND		ND	ND
FL: Tampa	09/22/97	1.60	0.12	3.7	2.9	ND	ND
GA: Atlanta	09/22/97	1.561	0.092	ND		ND	ND
HI: Honolulu	09/15/97	1.692	0.083	ND		ND	ND
IA: Des Moines	09/08/97	1.60	0.12	ND		ND	ND
IL: Chicago	09/11/97	1.716	0.085	ND		ND	ND
IN: Indianapolis	09/08/97	1.632	0.091	ND		ND	ND
KS: Wichita	09/08/97	1.704	0.069	ND		ND	ND
KY: Louisville	09/10/97	1.692	0.085	ND		ND	ND
MA: Boston	09/12/97	1.644	0.094	ND		ND	ND
MD: Baltimore	09/05/97	1.704	0.083	ND		ND	ND
MI: Detroit	09/11/97	1.644	0.083	ND		ND	ND
MI: Grand Rapids	09/08/97	1.716	0.084	ND		ND	ND
MN: St. Paul	09/08/97	1.597	0.081	ND		ND	ND
MO: Kansas City	09/22/97	1.632	0.088	ND		ND	ND
MS: Jackson	09/03/97	1.56	0.12	ND		ND	ND
NC: Charlotte	09/09/97	1.621	0.081	ND		ND	ND
ND: Minot	09/05/97	1.573	0.090	ND		ND	ND
NJ: Trenton	09/02/97	1.61	0.12	ND		ND	ND
NM: Albuquerque	09/01/97	1.692	0.069	ND		ND	ND
NV: Las Vegas	09/15/97	1.644	0.082	ND		ND	ND
NY: Buffalo	09/10/97	1.656	0.092	ND		ND	ND
NY: Syracuse	09/10/97	1.716	0.085	ND		ND	ND
OH: Cincinnati	09/18/97	1.76	0.14	ND		ND	ND
OH: Cleveland	09/02/97	1.632	0.080	ND		ND	ND
OR: Portland	09/08/97	1.597	0.091	ND		ND	ND
PA: Philadelphia	09/08/97	1.597	0.089	ND		ND	ND
PA: Pittsburgh	09/08/97	1.53	0.12	ND		ND	ND
PC: Cristobal	09/18/97	1.585	0.081	4.7	2.5	ND	ND
PR: San Juan	09/05/97	1.621	0.049	ND		ND	ND
SC: Charleston	09/12/97	1.632	0.069	ND		ND	ND
TN: Chattanooga	09/03/97	1.573	0.080	ND		ND	ND

Note: ND = Not Detected

Table 13 (continued)

Radionuclides in Pasteurized Milk
September 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: Chattanooga	09/29/97	1.58	0.12	ND	ND	ND
TN: Knoxville	09/04/97	1.632	0.094	ND	ND	ND
TN: Memphis	09/04/97	1.54	0.14	ND	ND	ND
TX: Austin	09/09/97	1.704	0.082	ND	ND	ND
TX: Ft. Worth	09/08/97	1.621	0.090	ND	ND	ND
VA: Norfolk	09/26/97	1.597	0.048	ND	ND	ND
VT: Burlington	09/30/97	1.513	0.067	ND	ND	ND
WA: Seattle	09/05/97	1.644	0.090	ND	ND	ND
WA: Spokane	09/15/97	1.632	0.068	ND	ND	ND
WV: Charleston	09/08/97	1.632	0.068	ND	ND	ND

Note: ND = Not Detected

Table 14

Strontium-90 in Pasteurized Milk
July 1997

Location	Date Collected	^{90}Sr pCi/L	± 2*u*
AL: Montgomery	07/03/97	0.98	0.75
CA: Los Angeles	07/07/97	0.66	0.42
CA: Sacramento	07/14/97	0.26	0.45
CA: San Francisco	07/08/97	1.24	0.66
CO: Denver	07/14/97	0.41	0.50
CT: Hartford	07/10/97	1.31	0.65
DE: Wilmington	07/09/97	1.00	0.66
FL: Tampa	07/07/97	0.59	0.43
GA: Atlanta	07/29/97	0.56	0.49
HI: Honolulu	07/29/97	0.38	0.50
IA: Des Moines	07/07/97	0.40	0.69
IL: Chicago	07/02/97	1.38	0.62
IN: Indianapolis	07/07/97	0.96	0.73
KY: Louisville	07/07/97	0.2	1.2
MA: Boston	07/07/97	0.77	0.88
MD: Baltimore	07/03/97	1.06	0.73
MI: Detroit	07/08/97	1.34	0.59
MI: Grand Rapids	07/08/97	1.78	0.62
MN: St. Paul	07/01/97	1.44	0.67
MO: Kansas City	07/24/97	1.14	0.58
MS: Jackson	07/07/97	-0.15	0.69
NC: Charlotte	07/08/97	1.25	0.58
ND: Minot	07/07/97	2.12	0.64
NJ: Trenton	07/18/97	0.75	0.57
NM: Albuquerque	07/14/97	0.53	0.54
NV: Las Vegas	07/07/97	0.2	1.4
NY: Buffalo	07/10/97	0.75	0.62
NY: Syracuse	07/07/97	0.94	0.52
OH: Cincinnati	07/16/97	1.6	1.9
OH: Cleveland	07/14/97	1.60	0.62
OR: Portland	07/07/97	0.79	0.48
PA: Philadelphia	07/14/97	0.84	0.57
PA: Pittsburgh	07/07/97	0.23	0.63
PC: Cristobal	07/10/97	0.27	0.45
PR: San Juan	07/17/97	0.51	0.51
SC: Charleston	07/10/97	0.73	0.60
TN: Memphis	07/09/97	1.54	0.73
TX: Austin	07/22/97	0.29	0.48

Table 14 (continued)

Strontium-90 in Pasteurized Milk
July 1997

Location	Date Collected	^{90}Sr pCi/L	± 2*u*
TX: Ft. Worth	07/08/97	0.50	0.50
VA: Norfolk	07/03/97	0.89	0.56
VT: Burlington	07/24/97	1.10	0.53
WA: Seattle	07/07/97	0.49	0.71
WA: Spokane	07/07/97	1.71	0.70

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