

Table 2
Representative Minimum Detectable Concentrations for Radiological Analyses

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Note: The minimum detectable concentrations (MDCs) are calculated at the 95-percent confidence level using instrument background measurements and typical detector efficiencies, decay times, and counting intervals. Chemical recoveries, air filter collection efficiencies, and line loss factors are assumed to be 100 percent, except for plutonium, uranium, americium, and curium species for which typical chemical recoveries are used. Sample sizes are presented in table 1, "Sample Media Information." The MDCs for actual samples may be different because of variations in the sample preparation, size, and content, and because of variations in the chemical recoveries, line loss factors, counting efficiencies, reagent blanks, decay times, counting times, and instrument backgrounds.

Nuclide	Surveillance Air	Rainwater ^a	Stream/Effluent Water	River Water ^b
	pCi/m ³	pCi/m ²	pCi/L	pCi/L
H-3	4.90E+01	1.20E+03	1.20E+03	4.40E+02
Be-7	7.27E-02	1.70E+02	4.70E+01	7.34E+00
K-40	2.00E-01	4.10E+02	1.30E+01	1.67E+01
Co-58	1.20E-02	3.00E+01	7.40E+00	8.00E-01
Co-60	1.09E-02	3.20E+01	9.10E+00	1.27E+00
Ru-103	7.77E-03	2.80E+01	6.70E+00	8.67E-01
Ru-106	7.33E-02	2.80E+02	5.90E+01	7.34E+00
I-131	1.60E-02	7.20E+01	1.60E+01	1.53E+00
Cs-134	1.06E-02	2.70E+01	5.80E+00	8.67E-01
Cs-137	9.54E-03	2.60E+01	7.10E+00	9.34E-01
Ce-141	1.30E-02	3.60E+01	8.50E+00	1.00E+00
Ce-144	3.62E-02	1.30E+02	2.90E+01	3.94E+00
Sr-89,90	9.20E-04	4.50E+01	1.40E+00	2.30E-01
Sr-90				
Tc-99			9.6E+00	9.6E+00
U-234	3.99E-05	3.07E-01	9.51E-03	1.27E-03
U-235	1.32E-05	3.27E-01	1.01E-02	1.35E-03
U-238	3.58E-05	2.60E-01	8.07E-03	1.08E-03
Pu-238	9.09E-06	2.69E-01	8.34E-03	8.34E-03
Pu-239	9.31E-06	2.62E-01	8.13E-03	8.13E-03
Am-241	3.17E-05	2.68E-01	8.32E-03	1.11E-03
Cm-244	1.14E-05	2.62E-01	8.13E-03	1.08E-03
Gross alpha	1.20E-03	9.70E+00	9.00E-01	9.00E-01
Gross beta	1.90E-03	1.50E+01	1.40E+00	1.40E+00
Total activity				

^a Values, except for tritium, reflect wet/dry deposition; tritium values are in pCi/L.

^b For actinides, the chemical yields used in the calculations are the historical means for the water procedure, which are higher than those for the river sample ion exchange column method. The river sample procedure is under development.

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	Drinking Water	Soil/Sediment ^a	Vegetation ^a	Highway 301 Fish (edible portion)
Nuclide	pCi/L	pCi/g	pCi/g	pCi/g
H-3	4.40E+02		4.40E+02	4.40E+02
Be-7	4.70E+01	3.40E-01	4.20E-01	7.20E-01
K-40	1.30E+01	5.50E-01	1.40E+00	3.50E-01
Co-58	7.40E+00	4.40E-02	5.50E-02	5.50E-02
Co-60	9.10E+00	4.70E-02	5.70E-02	2.40E-02
Ru-103	6.70E+00	5.00E-02	5.00E-02	1.40E-01
Ru-106	5.90E+01	3.20E-01	4.50E-01	2.10E-01
I-131	1.60E+01	8.00E-02	8.80E-02	
Cs-134	5.80E+00	3.80E-02	4.40E-02	2.20E-02
Cs-137	7.10E+00	4.20E-02	4.90E-02	2.10E-02
Ce-141	8.50E+00	7.80E-02	8.40E-02	3.80E-01
Ce-144	2.90E+01	3.00E-01	3.40E-01	1.70E-01
Sr-89,90	1.40E+00	1.40E-01	1.40E-01	
Sr-90				
Tc-99				
U-234	9.51E-03	3.02E-03	9.51E-04	
U-235	1.01E-02	3.22E-03	1.01E-03	
U-238	8.07E-03	2.56E-03	8.07E-04	
Pu-238	8.34E-03	3.82E-03	1.92E-03	7.89E-05
Pu-239	8.13E-03	3.81E-03	1.93E-03	7.87E-05
Am-241	8.32E-03	2.51E-03	8.32E-04	
Cm-244	8.13E-03	2.45E-03	8.13E-04	
Gross alpha	9.00E-01	9.00E+00	9.00E-01	
Gross beta	1.40E+00	1.40E+01	1.40E+00	
Total activity				

^a For plutonium, data is estimated using the electroplate method. For uranium, americium, and curium, data is estimated using the actinide column method, with an estimated chemical yield of 63 percent.

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Nuclide	River Mouth Fish (edible portion)	Onsite Fish (edible portion)	Panfish (edible portion)	Fish (nonedible portion)
	pCi/g	pCi/g	pCi/g	pCi/g
H-3	4.40E+02	4.40E+02	4.40E+02	
Be-7	1.50E+00	5.00E-01	5.00E-01	
K-40	9.30E-01	6.70E-01	6.70E-01	
Co-58	1.10E-01	7.40E-02	7.40E-02	
Co-60	4.60E-02	5.20E-02	5.20E-02	
Ru-103	3.00E-01	1.00E-01	1.00E-01	
Ru-106	4.20E-01	4.90E-01	4.90E-01	
I-131		6.80E+00	6.80E+00	
Cs-134	3.80E-02	4.50E-02	4.50E-02	
Cs-137	4.00E-02	4.20E-02	4.20E-02	
Ce-141	7.10E-01	1.60E-01	1.60E-01	
Ce-144	3.70E-01	2.30E-01	2.30E-01	
Sr-89,90		7.00E-03	5.60E-03	5.60E-02
Sr-90				
Tc-99				
U-234				
U-235				
U-238				
Pu-238	7.89E-05	7.89E-05	1.58E-04	
Pu-239	7.87E-05	7.87E-05	1.57E-04	
Am-241				
Cm-244				
Gross alpha		9.00E-01	9.00E-01	9.00E-01
Gross beta		1.40E+00	1.40E+00	1.40E+00
Total activity				

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Nuclide	Panfish (nonedible portion)	Oysters/Crabs	Food Products	Milk
	pCi/g	pCi/g	pCi/g	pCi/L
H-3			4.40E+02	4.40E+02
Be-7		5.00E-01	2.30E-01	1.80E+01
K-40		6.70E-01	1.20E-01	4.30E+01
Co-58		7.40E-02	2.10E-02	2.50E+00
Co-60		5.20E-02	7.50E-03	2.80E+00
Ru-103		1.00E-01	5.00E-02	2.40E+00
Ru-106		4.90E-01	7.20E-02	2.30E+01
I-131		6.80E+00		2.90E+00
Cs-134		4.50E-02	7.30E-03	2.40E+00
Cs-137		4.20E-02	7.20E-03	2.70E+00
Ce-141		1.60E-01	9.80E-02	2.80E+00
Ce-144		2.30E-01	4.00E-02	1.20E+01
Sr-89,90	1.40E-02	1.40E-02	7.00E-02	3.95E+00
Sr-90				2.80E-03
Tc-99				
U-234				
U-235				
U-238				
Pu-238			1.86E-04	
Pu-239			1.86E-04	
Am-241				
Cm-244				
Gross alpha	9.00E-01	1.80E+00		4.40E-01
Gross beta	1.40E+00	2.80E+00		2.90E-03
Total activity				

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Nuclide	Deer Muscle	Deer Bone	Beef
	pCi/g	pCi/g	pCi/g
H-3			4.40E+02
Be-7	5.00E-01		5.00E-01
K-40	6.70E-01		6.70E-01
Co-58	7.40E-02		7.40E-02
Co-60	5.20E-02		5.20E-02
Ru-103	1.00E-01		1.00E-01
Ru-106	4.90E-01		4.90E-01
I-131	6.80E+00		6.80E+00
Cs-134	4.50E-02		4.50E-02
Cs-137	4.20E-02		4.20E-02
Ce-141	1.60E-01		1.60E-01
Ce-144	2.30E-01		2.30E-01
Sr-89,90	1.40E-02	1.40E+00	7.00E-02
Sr-90			
Tc-99			
U-234			
U-235			
U-238			
Pu-238			1.86E-04
Pu-239			1.86E-04
Am-241			
Cm-244			
Gross alpha			
Gross beta			
Total activity			