



ES/ESH-75

**OAK RIDGE
NATIONAL
LABORATORY**



**ENVIRONMENTAL MONITORING
AND SURVEILLANCE ON THE
OAK RIDGE RESERVATION**

1996 DATA

MANAGED AND OPERATED BY
LOCKHEED MARTIN ENERGY RESEARCH CORPORATION
FOR THE UNITED STATES
DEPARTMENT OF ENERGY

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Table 1.1. 1996 NPDES Permit Number TN 0002950

ETTP Storm Drain Discharge Points

Parameter	Number of samples	Concentration			Reference Value ^a	Number of Values exceeding reference
		Max	Min	Avg		
Discharge Point SD 05A						
Flow, MGD	12	0.74	0.015	0.2195	b	b
Oil and Grease, mg/L	12	<7.8	<5.4	<6.0	b	b
Total Suspended Solids, mg/L	12	3.0	<1.0	<1.4	b	b
pH, Standard Units	12	7.5	6.9	b	4.0/9.0	0
Discharge Point SD 100						
Chlorine, Total Residual, mg/L	52	<0.05	<0.05	< 0.05	0.14	0
Flow, MGD	52	3.3393	0.0552	0.5659	b	b
Oil and Grease, mg/L	52	42.7	< 5.4	< 6.6	b	b
Total Suspended Solids, mg/L	52	7.6	<1.0	<1.3	b	b
pH, Standard Units	52	8.1	6.6	b	6.0/9.0	0
Discharge Point SD 120						
Flow, MGD	12	0.4309	0.0143	0.1883	b	b
Oil and Grease, mg/L	12	<7.6	< 5.6	< 6.0	b	b
Total Suspended Solids, mg/L	12	24	< 1.0	< 7.9	b	b
pH, Standard Units	12	7.3	6.4	b	6.0/9.0	0
Discharge Point SD 124						
Chlorine, Total Residual, mg/L	52	< 0.05	< 0.05	< 0.05	0.14	b
Flow, GPD	52	372400	76	23684	b	b
Oil and Grease, mg/L	52	123.2	< 5.4	< 8.4	b	b
Total Suspended Solids, mg/L	52	4.2	< 1	< 1.1	b	b
pH, Standard Units	52	8.3	6.7	b	6.0/9.0	0
Discharge Point SD 130						
Chlorine, Total Residual, mg/L	52	<0.05	<0.05	<0.05	0.14	0
Flow, MGD	52	3.0652	0.0585	0.5980	b	b
Oil and Grease, mg/L	52	15.8	<5.4	<6.4	b	b
Total Suspended Solids, mg/L	52	10	<1.0	<5.3	b	b
pH, Standard Units	52	7.5	6.1	b	6.0/9.0	0
Discharge Point SD 140						
Flow, GPD	4	53263	2670	32560	b	b
Total Suspended Solids, mg/L	4	7.4	<1.0	<2.8	b	b
pH, Standard Units	4	7.9	7.2	b	4.0/9.0	0

Table 1.1 (continued)

Parameter	Number of samples	Concentration			Reference Value*	Number of Values exceeding reference
		Max	Min	Avg		
Discharge Point SD 142						
Flow, GPD	12	124900	95	34184	b	b
Oil and Grease, mg/L	12	<6.1	< 5.3	< 5.6	b	b
Total Suspended Solids, mg/L	12	4.2	<1.0	<1.9	b	b
pH, Standard Units	12	7.8	6.2	b	4.0/9.0	0
Discharge Point SD 144						
Flow, GPD	12	711200	571	164998	b	b
Oil and Grease, mg/L	12	5.9	<5.4	<5.6	b	b
Total Suspended Solids, mg/L	12	10.2	< 1.0	< 2.9	b	b
pH, Standard Units	12	7.8	6.8	b	4.0/9.0	0
Discharge Point SD 146						
Flow, GPD	12	227000	380	31442	b	b
Oil and Grease, mg/L	12	<5.7	<5.4	<5.6	b	b
Total Suspended Solids, mg/L	12	3.8	<1.0	<1.9	b	b
pH, Standard Units	12	7.9	6.7	b	4.0/9.0	0
Discharge Point SD 148						
Flow, GPD	12	51840	190	6046	b	b
Oil and Grease, mg/L	12	7.6	<5.4	<6.0	b	b
Total Suspended Solids, mg/L	12	9.2	<1.0	<2.3	b	b
pH, Standard Units	12	8.0	6.9	b	4.0/9.0	0
Discharge Point SD 150						
Flow, MGD	12	0.32	0.0077	0.1222	b	b
Oil and Grease, mg/L	12	< 7.8	< 5.4	<5.8	b	b
Total Suspended Solids, mg/L	12	10	<1.0	<2.8	b	b
pH, Standard Units	12	7.5	6.8	b	4.0/9.0	0
Discharge Point SD 154						
Flow, MGD	12	0.2663	0.0472	0.1271	b	b
Oil and Grease, mg/L	12	< 8.0	< 5.3	< 6.2	b	b
Total Suspended Solids, mg/L	12	3.8	<1.0	<1.7	b	b
pH, Standard Units	12	7.5	6.8	b	4.0/9.0	0

Table 1.1 (continued)

Parameter	Number of samples	Concentration			Reference Value ^a	Number of Values exceeding reference
		Max	Min	Avg		
Discharge Point SD 156						
Flow, MGD	2	10.3140	0.2356	5.2748	b	b
pH, Standard Units	2	7.5	6.5	b	4.0/9.0	0
Discharge Point SD 158						
Flow, GPD	4	37504	1332	11040	b	b
Total Suspended Solids, mg/L	4	<1.0	<1.0	<1.0	b	b
pH, Standard Units	4	6.9	6.7	b	4.0/9.0	0
Discharge Point SD 160						
Flow, GPD	4	112300	761	35874	b	b
Total Suspended Solids, mg/L	4	3.8	<1.0	<1.7	b	b
pH, Standard Units	4	7.5	7.0	b	4.0/9.0	0
Discharge Point SD 162						
Flow, MGD	12	0.3690	0.0852	0.1809	b	b
Oil and Grease, mg/L	12	8.1	5.5	6.2	b	b
Total Suspended Solids, mg/L	12	7.2	<1.0	<2.5	b	b
pH, Standard Units	12	7.1	6.4	b	4.0/9.0	0
Discharge Point SD 168						
Flow, GPD	4	380	95	238	b	b
Total Suspended Solids, mg/L	4	40.6	1.8	21.2	b	b
pH, Standard Units	4	6.9	6.9	b	4.0/9.0	0
Discharge Point SD 170						
Chlorine, Total Residual, mg/L	4	<0.05	<0.05	<0.05	0.019	0
Flow, MGD	52	0.9359	0.0108	0.0108	b	b
Oil and Grease, mg/L	52	11.1	<5.3	<5.6	b	b
Total Suspended Solids, mg/L	52	4.8	<1.0	<1.3	b	b
pH, Standard Units	52	8.2	6.9	b	4.0/9.0	0

Table 1.1 (continued)

Parameter	Number of samples	Concentration			Reference Value ^a	Number of Values exceeding reference
		Max	Min	Avg		
Discharge Point SD 180						
Chlorine, Total Residual, mg/L	4	<0.05	<0.05	<0.05	0.019	0
Flow, MGD	52	0.7935	0.0015	0.1042	b	b
Oil and Grease, mg/L	52	16.9	<5.2	<5.8	b	b
Total Suspended Solids, mg/L	52	65	<1.0	<5.4	b	b
pH, Standard Units	52	7.8	6.6	b	4.0/9.0	0
Discharge Point SD 190						
Chlorine, Total Residual, mg/L	4	<0.05	<0.05	<0.05	0.019	0
Flow, MGD	52	1.4327	0.1293	0.2618	b	b
Oil and Grease, mg/L	52	11.8	<5.2	<5.8	b	b
Total Suspended Solids, mg/L	52	8.0	<1.0	<1.6	b	b
pH, Standard Units	52	8.2	6.7	b	4.0/9.0	0
Discharge Point SD 192						
Flow, GPD	2	35902	1622	18762	b	b
pH, Standard Units	2	7.5	7.2	b	4.0/9.0	0
Discharge Point SD 194						
Flow, GPD	2	35902	2283	19093	b	b
pH, Standard Units	2	7.2	7.2	b	4.0/9.0	0
Discharge Point SD 195						
Flow, GPD	2	40390	10673	25532	b	b
pH, Standard Units	2	7.1	6.9	b	4.0/9.0	0
Discharge Point SD 196						
Flow, GPD	2	37147	5760	21453	b	b
pH, Standard Units	2	7.4	7.3	b	4.0/9.0	0
Discharge Point SD 197						
Flow, GPD	12	80116	741	18220	b	b
Oil and Grease, mg/L	12	< 6.9	< 5.4	< 5.7	b	b
Total Suspended Solids, mg/L	12	29	<1.0	<7.0	b	b
pH, Standard Units	12	8.0	6.8	b	4.0/9.0	0

Table 1.1 (continued)

Parameter	Number of samples	Concentration			Reference Value ^a	Number of Values exceeding reference
		Max	Min	Avg		
Discharge Point SD 198						
Flow, GPD	4	189300	761	48846	b	b
Total Suspended Solids, mg/L	4	<1.0	<1.0	<1.0	b	b
pH, Standard Units	4	8.3	6.8	b	4.0/9.0	0
Discharge Point SD 200						
Flow, MGD	12	2.5853	0.0007	0.2946	b	b
Oil and Grease, mg/L	12	<6.2	<5.4	<5.7	b	b
Total Suspended Solids, mg/L	12	19	<1.0	<4.6	b	b
pH, Standard Units	12	7.9	6.7	b	4.0/9.0	0
Discharge Point SD 210						
Flow, MGD	4	0.6257	0.0101	0.2367	b	b
Total Suspended Solids, mg/L	4	7.6	1.0	3.9	b	b
pH, Standard Units	4	7.2	6.8	b	4.0/9.0	0
Discharge Point SD 220						
Flow, GPD	12	32671	1795	12130	b	b
Oil and Grease, mg/L	12	7.4	<5.4	<5.9	b	b
Total Suspended Solids, mg/L	12	94.4	<1.0	<14.6	b	b
pH, Standard Units	12	8.2	7.2	b	4.0/9.0	0
Discharge Point SD 230						
Flow, GPD	12	706000	7609	117322	b	b
Oil and Grease, mg/L	12	69.9	<5.5	<11.3	b	b
Total Suspended Solids, mg/L	12	1.4	<1.0	<1.1	b	b
pH, Standard Units	12	8.5	6.9	b	4.0/9.0	0
Discharge Point SD 238						
Flow, GPD	2	4051	380	2216	b	b
pH, Standard Units	2	7.2	7.0	b	4.0/9.0	0

Table 1.1 (continued)

Parameter	Number of samples	Concentration			Reference Value*	Number of Values exceeding reference
		Max	Min	Avg		
Discharge Point SD 240						
Flow, MGD	12	0.8200	0.0007	0.1741	b	b
Oil and Grease, mg/L	12	74.8	<5.5	<11.73	b	b
Total Suspended Solids, mg/L	12	4.0	<1.0	<1.6	b	b
pH, Standard Units	12	7.7	6.8	b	4.0/9.0	0
Discharge Point SD 264						
Flow, GPD	2	8079	1178	4629	b	b
pH, Standard Units	2	7.3	7.1	b	4.0/9.0	0
Discharge Point SD 270						
Flow, GPD	2	2205	190	1198	b	b
pH, Standard Units	2	7.5	7.4	b	4.0/9.0	0
Discharge Point SD 280						
Flow, GPD	2	761	476	618	b	b
pH, Standard Units	2	8.0	7.9	b	4.0/9.0	0
Discharge Point SD 290						
Flow, GPD	2	95	95	95	b	b
pH, Standard Units	2	7.5	7.4	b	4.0/9.0	0
Discharge Point SD 292						
Flow, GPD	2	31449	4488	17968	b	b
pH, Standard Units	2	7.1	7.0	b	4.0/9.0	0
Discharge Point SD 294						
Flow, GPD	2	24765	8603	16684	b	b
pH, Standard Units	2	7.7	7.4	b	4.0/9.0	0
Discharge Point SD 296						
Flow, GPD	2	917	720	818.5	b	b
pH, Standard Units	2	7.7	7.4	b	4.0/9.0	0
Discharge Point SD 297						
Flow, GPD	2	4320	38	2179	b	b
pH, Standard Units	2	7.8	7.2	b	4.0/9.0	0

Table 1.1 (continued)

Parameter	Number of samples	Concentration			Reference Value*	Number of Values exceeding reference
		Max	Min	Avg		
Discharge Point SD 300						
Flow, GPD	2	21600	21600	21600	b	b
pH, Standard Units	2	7.4	7.4	b	4.0/9.0	0
Discharge Point SD 310						
Flow, GPD	2	285	190	238	b	b
pH, Standard Units	2	7.2	6.9	b	4.0/9.0	0
Discharge Point SD 320						
Flow, GPD	2	45271	17922	31597	b	b
pH, Standard Units	2	6.9	6.6	b	4.0/9.0	0
Discharge Point SD 322						
Flow, GPD	2	34477	7809	21143	b	b
pH, Standard Units	2	7.2	7.0	b	4.0/9.0	0
Discharge Point SD 326						
Flow, GPD	2	11563	4824	8194	b	b
pH, Standard Units	2	7.2	7.0	b	4.0/9.0	0
Discharge Point SD 330						
Flow, GPD	4	154200	285	54375	b	b
Total Suspended Solids, mg/L	4	20	<1.0	<7.9	b	b
pH, Standard Units	4	7.7	7.0	b	4.0/9.0	0
Discharge Point SD 332						
Flow, GPD	2	96947	8079	52513	b	b
pH, Standard Units	2	6.9	6.3	b	4.0/9.0	0
Discharge Point SD 334						
Flow, GPD	2	31260	21063	26162	b	b
pH, Standard Units	2	7.2	6.5	b	4.0/9.0	0
Discharge Point SD 340						
Flow, GPD	2	9131	9131	9131	b	b
pH, Standard Units	2	7.3	7.3	b	4.0/9.0	0

Table 1.1 (continued)

Parameter	Number of samples	Concentration			Reference Value ^a	Number of Values exceeding reference
		Max	Min	Avg		
Discharge Point SD 350						
Flow, GPD	2	1522	1522	1522	b	b
pH, Standard Units	2	7.3	7.3	b	4.0/9.0	0
Discharge Point SD 352						
Flow, GPD	4	2853	211	1051	b	b
Total Suspended Solids, mg/L	4	15	1.4	6.5	b	b
pH, Standard Units	4	7.5	6.6	b	4.0/9.0	0
Discharge Point SD 360						
Flow, GPD	2	35345	23160	29253	b	b
pH, Standard Units	2	6.8	6.8	b	4.0/9.0	0
Discharge Point SD 362						
Flow, GPD	2	1522	1522	1522	b	b
pH, Standard Units	2	7.0	7.0	b	4.0/9.0	0
Discharge Point SD 370						
Flow, GPD	2	2880	2880	2880	b	b
pH, Standard Units	2	7.7	7.7	b	4.0/9.0	0
Discharge Point SD 374						
Flow, GPD	2	2524	1126	1825	b	b
pH, Standard Units	2	7.4	7.3	b	4.0/9.0	0
Discharge Point SD 380						
Flow, GPD	12	743500	2283	234611	b	b
Oil and Grease, mg/L	12	<5.7	<5.4	<5.6	b	b
	12	17	<1.0	<3.2	b	b
Total Suspended Solids, mg/L						
pH, Standard Units	12	8.1	6.7	b	4.0/9.0	0
Discharge Point SD 382						
Flow, GPD	2	9131	1522	5327	b	b
pH, Standard Units	2	7.7	7.6	b	4.0/9.0	0

Table 1.1 (continued)

Parameter	Number of samples	Concentration			Reference Value ^a	Number of Values exceeding reference
		Max	Min	Avg		
Discharge Point SD 390						
Flow, GPD	12	199700	44935	89270	b	b
Oil and Grease, mg/L	12	10.7	<5.6	<6.8	b	b
Total Suspended Solids, mg/L	12	8.5	<1.0	<4.1	b	b
pH, Standard Units	12	7.0	6.6	b	4.0/9.0	0
Discharge Point SD 400						
Flow, GPD	2	8065	8065	8065	b	b
pH, Standard Units	2	7.2	7.2	b	4.0/9.0	0
Discharge Point SD 410						
Flow, GPD	2	4565	1902	3234	b	b
pH, Standard Units	2	7.5	7.2	b	4.0/9.0	0
Discharge Point SD 420						
Flow, GPD	2	20211	5386	12799	b	b
pH, Standard Units	2	7.5	7.1	b	4.0/9.0	0
Discharge Point SD 430						
Flow, MGD	12	0.7886	0.0013	0.2767	b	b
Oil and Grease, mg/L	12	9.9	<5.5	<6.4	b	b
Total Suspended Solids, mg/L	12	20	<1.0	<3.5	b	b
pH, Standard Units	12	8.1	6.7	b	4.0/9.0	0
Discharge Point SD 440						
Flow, MGD	12	0.7038	0.0091	0.1551	b	b
Oil and Grease, mg/L	12	8.9	<5.6	<5.9	b	b
Total Suspended Solids, mg/L	12	12	<1.0	<4.0	b	b
pH, Standard Units	12	7.8	6.7	b	4.0/9.0	0
Discharge Point SD 450						
Flow, GPD	2	9131	761	4946	b	b
pH, Standard Units	2	7.5	7.4	b	4.0/9.0	0

Table 1.1 (continued)

Parameter	Number of samples	Concentration			Reference Value ^a	Number of Values exceeding reference
		Max	Min	Avg		
Discharge Point SD 460						
Flow, GPD	2	7596	1616	4606	b	b
pH, Standard Units	2	7.5	7.2	b	4.0/9.0	0
Discharge Point SD 470						
Flow, GPD	2	73249	6282	39766	b	b
pH, Standard Units	2	7.4	7.3	b	4.0/9.0	0
Discharge Point SD 480						
Flow, MGD	12	6.7217	0.1374	1.5229	b	b
Oil and Grease, mg/L	12	<7.7	<5.4	<5.9	b	b
Total Suspended Solids, mg/L	12	15	<1.0	<2.8	b	b
pH, Standard Units	12	7.6	6.8	b	4.0/9.0	0
Discharge Point SD 490						
Flow, MGD	12	6.7217	0.1374	1.5229	b	b
Oil and Grease, mg/L	12	<7.7	<5.4	<5.9	b	b
Total Suspended Solids, mg/L	12	15	<1.0	<2.8	b	b
pH, Standard Units	12	7.6	6.8	b	4.0/9.0	0
Discharge Point SD 500						
Flow, GPD	2	27208	21032	24120	b	b
pH, Standard Units	2	7.8	7.3	b	4.0/9.0	0
Discharge Point SD 510						
Flow, MGD	12	1.0843	0.0019	0.2828	b	b
Oil and Grease, mg/L	12	<8.3	<5.6	<5.9	b	b
Total Suspended Solids, mg/L	12	52	<1.0	<6.7	b	b
pH, Standard Units	12	7.4	6.4	b	4.0/9.0	0
Discharge Point SD 520						
Flow, GPD	2	3104	1578	2341	b	b
pH, Standard Units	2	7.6	7.1	b	4.0/9.0	0

Table 1.1 (continued)

Parameter	Number of samples	Concentration			Reference Value ^a	Number of Values exceeding reference
		Max	Min	Avg		
Discharge Point SD 522						
Flow, GPD	2	56553	1141	28847	b	b
pH, Standard Units	2	7.8	7.3	b	4.0/9.0	0
Discharge Point SD 530						
Flow, GPD	12	22021	4785	13403	b	b
Oil and Grease, mg/L	12	<5.7	<5.6	<5.7	b	b
Total Suspended Solids, mg/L	12	40	6.0	23	b	b
pH, Standard Units	12	6.4	6.3	b	4.0/9.0	0
Discharge Point SD 532						
Flow, MGD	2	0.1854	0.014	0.100	b	b
pH, Standard Units	2	7.7	7.0	b	4.0/9.0	0
Discharge Point SD 540						
Flow, GPD	2	22280	2160	12220	b	b
pH, Standard Units	2	7.1	7.1	b	4.0/9.0	0
Discharge Point SD 550						
Flow, GPD	2	21620	190	10905	b	b
pH, Standard Units	2	7.5	7.2	b	4.0/9.0	0
Discharge Point SD 560						
Flow, GPD	12	139000	1153	62825	b	b
Oil and Grease, mg/L	12	<7.7	<5.6	<5.9	b	b
Total Suspended Solids, mg/L	12	71	1.0	15.7	b	b
pH, Standard Units	12	7.5	6.1	b	4.0/9.0	0
Discharge Point SD 570						
Flow, GPD	2	34947	380	17664	b	b
Discharge Point SD 580						
Flow, GPD	2	600	600	600	b	b
pH, Standard Units	2	6.4	6.4	b	4.0/9.0	0
pH, Standard Units	2	7.2	6.8	b	4.0/9.0	0

Table 1.1 (continued)

Parameter	Number of samples	Concentration			Reference Value*	Number of Values exceeding reference
		Max	Min	Avg		
Discharge Point SD 590						
Flow, GPD	2	99910	99910	99910	b	b
pH, Standard Units	2	7.3	7.3	b	4.0/9.0	0
Discharge Point SD 610						
Flow, MGD	12	0.8271	0.0163	0.2519	b	b
Oil and Grease, mg/L	12	<5.8	<5.5	<5.64	b	b
Total Suspended Solids, mg/L	12	41	<1.0	10.4	b	b
pH, Standard Units	12	7.4	6.1	b	4.0/9.0	0
Discharge Point SD 620						
Flow, GPD	2	25612	951	13282	b	b
pH, Standard Units	2	6.8	6.8	b	4.0/9.0	0
Discharge Point SD 650						
Flow, GPD	2	1141	1141	1141	b	b
pH, Standard Units	2	7.0	7.0	b	4.0/9.0	0
Discharge Point SD 660						
Flow, GPD	4	380	95	285	b	b
Total Suspended Solids, mg/L	4	64	7.4	32	b	b
pH, Standard Units	4	8.1	7.6	b	4.0/9.0	0
Discharge Point SD 670						
Flow, GPD	3	761	285	580	b	b
Total Suspended Solids, mg/L	4	5.6	<1.0	2.7	b	b
pH, Standard Units	4	7.8	7.1	b	4.0/9.0	0
Discharge Point SD 680						
Flow, GPD	4	49281	190	17646	b	b
Total Suspended Solids, mg/L	4	15	<1.0	<5.7	b	b
pH, Standard Units	4	7.9	7.1	b	4.0/9.0	0

Table 1.1 (continued)

Parameter	Number of samples	Concentration			Number of Values	
		Max	Min	Avg	Reference Value ^a	exceeding reference
Discharge Point SD 690						
Flow, MGD	12	4.7756	0.0009	0.7061	b	b
Oil and Grease, mg/L	12	11.8	<5.6	<6.2	b	b
Total Suspended Solids, mg/L	12	5.6	<1.0	<2.2	b	b
pH, Standard Units	12	7.6	6.4	b	4.0/9.0	0
Discharge Point SD 692						
Flow, GPD	2	14340	8629	11485	b	b
pH, Standard Units	2	7.3	6.8	b	4.0/9.0	0
Discharge Point SD 694						
Flow, GPD	2	28607	4565	16586	b	b
pH, Standard Units	2	7.4	7.1	b	4.0/9.0	0
Discharge Point SD 696						
Flow, GPD	2	3424	3424	3424	b	b
pH, Standard Units	2	6.6	6.6	b	4.0/9.0	0
Discharge Point SD 700						
Flow, MGD	12	1.0415	0.0610	0.4431	b	b
Total Suspended Solids, mg/L	12	10	<1.0	2.96	b	b
pH, Standard Units	12	7.9	6.4	b	4.0/9.0	0
Discharge Point SD 710						
Flow, MGD	12	3146	0.0067	0.0003	b	b
Oil and Grease, mg/L	12	<6.2	<5.4	<5.6	b	b
Total Suspended Solids, mg/L	12	9.6	<1.0	<2.3	b	b
pH, Standard Units	12	8.0	6.7	b	4.0/9.0	0
Discharge Point SD 720						
Flow, MGD	12	0.4306	0.0293	0.1186	b	b
Oil and Grease, mg/L	12	<8.3	<5.5	<5.9	b	b
Total Suspended Solids, mg/L	12	47.5	<1.0	<11.6	b	b
pH, Standard Units	12	7.6	6.9	b	4.0/9.0	0

Table 1.1 (continued)

Parameter	Number of samples	Concentration			Number of Values	
		Max	Min	Avg	Reference Value ^a	exceeding reference
Discharge Point SD 730						
Flow, GPD	2	27321	2283	14802	b	b
pH, Standard Units	2	7.4	6.8	b	4.0/9.0	0
Discharge Point SD 750						
Flow, GPD	12	17821	1522	7082	b	b
Oil and Grease, mg/L	12	<5.6	<5.4	<5.5	b	b
Total Suspended Solids, mg/L	12	<1.0	<1.0	<1.0	b	b
pH, Standard Units	12	7.3	6.5	b	4.0/9.0	0
Discharge Point SD 760						
Flow, GPD	12	16219	3804	7942	b	b
Oil and Grease, mg/L	12	<7.4	<5.4	<6.1	b	b
Total Suspended Solids, mg/L	12	<1.0	<1.0	<1.0	b	b
pH, Standard Units	12	7.3	6.7	b	4.0/9.0	0
Discharge Point SD 770						
Flow, GPD	12	1522	190	697	b	b
Oil and Grease, mg/L	12	<6.1	<5.6	<5.8	b	b
Total Suspended Solids, mg/L	12	2.6	1.0	1.5	b	b
pH, Standard Units	12	7.5	6.7	b	4.0/9.0	0
Discharge Point SD 780						
Flow, MGD	4	0.1947	0.0038	0.0992	b	b
Total Suspended Solids, mg/L	4	14	4.6	9.3	b	b
pH, Standard Units	4	6.8	6.6	b	4.0/9.0	0
Discharge Point SD 800						
Flow, GPD	4	19063	114	9589	b	b
Total Suspended Solids, mg/L	4	6.2	1.0	3.6	b	b
pH, Standard Units	4	7.7	7.0	b	4.0/9.0	0

Table 1.1 (continued)

Parameter	Number of samples	Concentration			Reference Value ^a	Number of Values exceeding reference
		Max	Min	Avg		
Discharge Point SD 810						
Flow, GPD	2	11520	5707	8614	b	b
Total Suspended Solids, mg/L	2	6.8	<1.0	<3.9	b	b
pH, Standard Units	2	7.0	6.5	b	4.0/9.0	0
Discharge Point SD 820						
Flow, GPD	4	8370	8370	8370	b	b
Total Suspended Solids, mg/L	4	3.2	3.2	3.2	b	b
pH, Standard Units	4	6.5	6.5	b	4.0/9.0	0
Discharge Point SD 830						
Flow, MGD	2	0.2973	0.1363	0.2168	b	b
Total Suspended Solids, mg/L	2	<1.6	<1.0	<1.3	b	b
pH, Standard Units	2	7.3	6.5	b	4.0/9.0	0
Discharge Point SD 850						
Flow, GPD	4	1522	1522	1522	b	b
Total Suspended Solids, mg/L	4	<1.0	<1.0	<1.0	b	b
pH, Standard Units	4	6.6	6.6	b	4.0/9.0	0
Discharge Point SD 860						
Flow, GPD	4	114	114	114	b	b
Total Suspended Solids, mg/L	4	<1.0	<1.0	<1.0	b	b
pH, Standard Units	4	7.7	7.7	b	4.0/9.0	0
Discharge Point SD 880						
Flow, GPD	4	47730	5707	26719	b	b
Total Suspended Solids, mg/L	4	16	<1.0	<8.5	b	b
pH, Standard Units	4	8.1	6.6	b	4.0/9.0	0

Table 1.1 (continued)

Parameter	Number of samples	Concentration			Number of Values	
		Max	Min	Avg	Reference Value ^a	exceeding reference
Discharge Point SD 890						
Flow, GPD	4	7609	7609	7609	b	b
Total Suspended Solids, mg/L	4	13	13	13	b	b
pH, Standard Units	4	6.7	6.7	b	4.0/9.0	0
-						
Discharge Point SD 900						
Flow, GPD	4	185600	4565	56101	b	b
Total Suspended Solids, mg/L	4	1.4	<1.0	<1.1	b	b
pH, Standard Units	4	7.2	6.5	b	4.0/9.0	0
Discharge Point SD 910						
Flow, GPD	2	4565	4565	4565	b	b
pH, Standard Units	2	7.7	7.7	b	4.0/9.0	0
Discharge Point SD 929						
Flow, GPD	2	1141	1141	1141	b	b
pH, Standard Units	2	7.0	7.0	b	4.0/9.0	0
Discharge Point SD 930						
Flow, GPD	2	1902	190	1046	b	b
pH, Standard Units	2	7.6	7.4	b	4.0/9.0	0
Discharge Point SD 934						
Flow, GPD	2	1141	1141	1141	b	b
pH, Standard Units	2	7.0	7.0	b	4.0/9.0	0
Discharge Point SD 940						
Flow, GPD	2	95	95	95	b	b
pH, Standard Units	2	7.5	7.5	b	4.0/9.0	0
Discharge Point SD 950						
Flow, GPD	2	4565	581	2573	b	b
pH, Standard Units	2	7.3	6.8	b	4.0/9.0	0

Table 1.1 (continued)

Parameter	Number of samples	Concentration			Number of Values	
		Max	Min	Avg	Reference Value ^a	exceeding reference
Discharge Point SD 960						
Flow, GPD	2	1902	734	1318	b	b
pH, Standard Units	2	7.5	7.4	b	4.0/9.0	0
Discharge Point SD 992						
Flow, MGD	12	0.0533	0.0404	0.1067	b	b
Oil and Grease, mg/L	12	<6.1	<5.5	<5.7	b	b
Total Suspended Solids, mg/L	12	199	18	55.4	b	b
pH, Standard Units	12	6.8	6.0	b	4.0/9.0	0
Discharge Point SD 996						
Flow, GPD	2	53305	10653	31979	b	b
pH, Standard Units	2	7.2	7.1	b	4.0/9.0	0

^a NPDES permit limit

^b Not applicable

Table 1.2. 1996 NPDES Permit Number TN 0002950
 Discharge Point 005, Sewage Treatment Plant, ETTP

Parameter	Number of samples	Concentration			Reference Value ^a	Number of Values exceeding reference
		Max	Min	Avg		
K-1203						
Ammonia Nitrogen, mg/L	158	2.42	<0.20	<0.26	7	0
Biochemical Oxygen Demand (BOD), mg/L	156	6.6	<5.0	<5.0	20	0
Chlorine, Total Residual, mg/L	22	<0.05	<0.05	<0.05	0.24	0
Dissolved Oxygen, mg/L	366	12.8	7.1	9.2	5 ^c	0
Fecal Coliform, col/100ml	157	300	<1.0	<7.0	1000	0
Flow Total (MGD)	366	0.685	0.1082	0.2641	b	b
Settleable Solids, ml/L	263	0.2	<0.1	<0.10	0.5	0
Suspended Solids, mg/L	156	16	<1.0	<3.5	45	0
pH, Standard Units	366	8.2	7.1	b	6.0/9.0	0

^a NPDES permit limit

^b Not applicable

^c Daily minimum

Table 1.3. 1996 NPDES Permit Number TN 0002950

Discharge Point 014, Central Neutralization Facility to Clinch River, ETTP

Parameter	Number of samples	Concentration			Reference Value ^a	Number of Values exceeding reference
		Max	Min	Avg		
K-1407-J						
1,1,1-Trichloroethane, mg/L	13	<0.01	<0.01	<0.01	b	b
Acetone, mg/L	4	<0.01	<0.01	<0.01	b	b
Acetonitrile, mg/L	4	0.012	<0.01	0.011	b	b
Benzene, mg/L	25	<0.005	<0.005	<0.005	0.005	0
Bromoform, mg/L	13	<0.01	<0.01	<0.01	b	b
Cadmium, mg/L	4	0.00073	<0.0005	<0.0005	0.69	0
Carbon Tetrachloride, mg/L	13	<0.01	<0.01	<0.01	0.5	0
Chemical Oxygen Demand (COD), mg/L	53	2300	<5.0	<134	b	b
Chloride, mg/L	210	4250	116	456	70000	0
Chlorine, Total Residual, mg/L	104	0.1	<0.05	<0.06	1.0	0
Chlorodibromomethane, mg/L	13	<0.01	<0.01	<0.01	b	b
Chloroform, mg/L	13	0.01	<0.003	<0.008	0.5	0
Chromium, mg/L	4	0.022	0.0045	0.0153	2.77	0
Copper, mg/L	4	0.0078	<0.0050	<0.0059	2.15	0
Dichlorobromomethane, mg/L	13	<0.01	<0.01	<0.01	b	b
Ethylbenzene, mg/L	25	<0.01	<0.01	<0.01	0.01	0
Flow, MGD	Continuous	0.1707	0	0.0753	b	b
Lead, mg/L	4	0.0041	<0.0005	<0.0014	0.69	0
Methylene Chloride, mg/L	25	<0.01	<0.01	<0.01	b	b
Methyl Ethyl Ketone, mg/L	4	0.01	0.003	0.0082	b	b
Naphthalene, mg/L	12	<0.02	<0.0009	<0.0055	b	b
Nickel, mg/L	4	0.041	0.0076	0.0219	3.98	0
Oil and Grease, mg/L	105	9.7	<5.3	<6.1	30	0
PCBs, mg/L	12	<0.0005	<0.0005	<0.0005	0.00045	0
Petroleum Hydrocarbons, mg/L	13	1.5	<1.0	<1.0	0.1	1
pH, Standard Units	Continuous	8.9	6.3	b	6.0/9.0	0
Silver, mg/L	4	0.0061	<0.0005	<0.0019	0.43	0
Suspended Solids, mg/L	210	23	<1.0	<2.2	40	0
Tetrachloroethylene, mg/L	13	<0.01	<0.01	<0.01	0.7	0
Toluene, mg/L	25	<0.01	<0.01	<0.01	0.01	0
Total Toxic Organics, mg/L	4	0.009	<0.01	<0.01	2.13	0
Trichloroethylene, mg/L	12	<0.01	<0.01	<0.01	0.5	0
Uranium, mg/L	12	0.5	0.0068	0.13	b	b
Vinyl Chloride, mg/L	13	<0.01	<0.01	<0.01	0.2	0
Zinc, mg/L	4	0.02	0.011	0.0157	2.61	0

^a NPDES permit limit^b Not applicable

Table I.4. 1996 NPDES Permit Number TN 0002950

Discharge Point 009, Holding Pond, ETPP

Parameter	Number of samples	Concentration			Reference Value ^a	Number of Values exceeding reference
		Max	Min	Avg		
K-1515-F						
Aluminum, mg/L	59	1.5	0.16	0.52	2.0	0
Chlorine, Total Residual, mg/L	53	0.87	<0.05	<0.21	1.0	0
Flow, MGD	366	3.4542	0	0.1369	b	0
Settleable Solids, ml/L	53	0.35	<0.1	<0.11	0.5	0
Suspended Solids, mg/L	53	9.4	<1.0	<1.9	40	0
pH, Standard Units	53	8.9	7.0	b	6.0/9.0	0

^a NPDES permit limit^b Not applicable

Table 1.5. Radionuclide concentrations at ETP discharges

Radionuclide	Number of samples	Concentration (pCi/L)				DCG	Percent of DCG	Sum of the fractions of the DCGs
		Max	Min	Median ^b	Average ^b			
<i>K-1407-J (treated effluents from Central Neutralization Facility and TSCA Incinerator)</i>								
U-234	12	8.7e+01	1.7e+00	1.6e+01	2.4e+01	5.0e+02	4.8e+00	4.8e-02
U-235	12	7.8e+00	-1.2e+00	2.3e+00	2.6e+00	6.0e+02	4.3e-01	4.3e-03
U-236	12	1.8e+00	0.0e+00	3.3e-01	5.2e-01	5.0e+02	1.0e-01	1.0e-03
U-238	12	1.4e+02	3.2e+00	2.2e+01	3.8e+01	6.0e+02	6.3e+00	6.3e-02
Cs-137	12	8.5e+00	-1.2e+01	5.0e-01	2.9e-01	3.0e+03	9.7e-03	9.7e-05
Tc-99	12	6.0e+03	-1.7e+01	1.2e+02	6.2e+02	1.0e+05	6.2e-01	6.2e-03
Np-237	12	8.0e-01	0.0e+00	5.6e-02	1.6e-01	3.0e+01	5.2e-01	5.2e-03
Pu-238	12	5.0e+00	0.0e+00	7.1e-01	1.6e+00	4.0e+01	4.0e+00	4.0e-02
Pu-239	12	2.3e+00	0.0e+00	0.0e+00	2.6e-01	3.0e+01	8.8e-01	8.8e-03
Gross Alpha	12	2.0e+02	-1.5e+01	3.6e+01	5.6e+01	<i>a</i>	<i>a</i>	<i>a</i>
Gross Beta	12	3.8e+02	-4.9e+01	4.6e+01	7.4e+01	<i>a</i>	<i>a</i>	<i>a</i>
All listed isotopes								1.8e-01

^aNot applicable.

^bThis calculated value includes sampling results that are at or below the detection limits and/or below background activities.

Table 1.6. Radionuclide concentrations at ETPP discharges and surface water monitoring locations

Radionuclide	Number of samples	Concentration (pCi/L)				DCG	Percent of DCG	Sum of fractions the DCGs
		Max	Min	Median ^a	Average ^b			
<i>K-716 (Poplar Creek)</i>								
U-234	12	8.1e-01	1.6e-01	6.1e-01	5.4e-01	5.0e+02	1.1e-01	1.1e-03
U-235	12	5.6e-01	7.8e-03	2.4e-02	7.8e-02	6.0e+02	1.3e-02	1.3e-04
U-236	12	0.0e+00	0.0e+00	0.0e+00	0.0e+00	5.0e+02	0.0e+00	0.0e+00
U-238	12	8.7e-01	1.7e-01	6.5e-01	5.7e-01	6.0e+02	9.6e-02	9.6e-04
Tc-99	12	1.6e+01	-1.6e+01	3.4e+00	5.1e-01	1.0e+05	5.1e-04	5.1e-06
Gross Alpha	12	1.8e+00	-1.4e+00	4.9e-01	4.1e-01	<i>a</i>	<i>a</i>	<i>a</i>
Gross Beta	12	4.1e+00	-1.3e+00	1.4e+00	1.5e+00	<i>a</i>	<i>a</i>	<i>a</i>
All listed isotopes								2.2e-03

^aNot applicable.

^bThis calculated value includes sampling results that are at or below the detection limits and/or below background activities.

Table 1.7. Radionuclide concentrations at ETP discharges and surface water monitoring locations

Radionuclide	Number of samples	Concentration (pCi/L)				DCG	Percent of DCG	Sum of fractions the DCGs
		Max	Min	Median ^a	Average ^b			
<i>K-901-A (settling basin for surface water runoff)</i>								
U-234	12	1.4e+00	3.8e-01	6.1e-01	7.2e-01	5.0e+02	1.4e-01	1.4e-03
U-235	12	1.3e-01	1.9e-02	3.0e-02	4.1e-02	6.0e+02	6.8e-03	6.8e-05
U-236	12	0.0e+00	0.0e+00	0.0e+00	0.0e+00	5.0e+02	0.0e+00	0.0e+00
U-238	12	1.5e+00	4.0e-01	6.5e-01	7.7e-01	6.0e+02	1.3e-01	1.3e-03
Tc-99	12	3.4e+01	-1.7e+01	5.7e+00	6.5e+00	1.0e+05	6.5e-03	6.5e-05
Gross Alpha	12	2.7e+00	-7.3e-01	1.1e+00	9.3e-01	<i>a</i>	<i>a</i>	<i>a</i>
Gross Beta	12	1.9e+01	1.8e+00	6.9e+00	8.7e+00	<i>a</i>	<i>a</i>	<i>a</i>
All listed isotopes								2.9e-03

^aNot applicable.

^bThis calculated value includes sampling results that are at or below the detection limits and/or below background activities.

Table 1.8. Radionuclide concentrations at ETP discharges and surface water monitoring locations

Radionuclide	Number of samples	Concentration (pCi/L)				DCG	Percent of DCG	Sum of fractions the DCGs
		Max	Min	Median ^a	Average ^b			
<i>K-1007-B (settling basin for surface water runoff)</i>								
U-234	12	3.8e-01	1.6e-01	2.7e-01	2.5e-01	5.00e+02	5.1e-02	5.1e-04
U-235	12	2.5e-02	8.9e-03	1.4e-02	1.4e-02	6.00e+02	2.3e-03	2.3e-04
U-236	12	0.0e+00	0.0e+00	0.0e+00	0.0e+00	5.00e+02	0.0e+00	0.0e+00
U-238	12	4.0e-01	1.7e-01	2.8e-01	2.7e-01	6.00e+02	4.5e-02	4.5e-04
Tc-99	12	1.8e+01	-2.2e+01	6.3e+00	1.9e+00	1.00e+05	1.4e-03	1.4e-05
Gross Alpha	12	2.3e+00	-1.3e+00	9.1e-01	8.7e-01	a	a	a
Gross Beta	12	9.0e+00	1.9e+00	4.8e+00	5.3e+00	a	a	a
All listed isotopes								9.9e-04

^aNot applicable.

^bThis calculated value includes sampling results that are at or below the detection limits and/or below background activities.

Table 1.9. Radionuclide concentrations at ETP discharges and surface water monitoring locations

Radionuclide	Number of samples	Concentration (pCi/L)				DCG	Percent of DCG	Sum of fractions the DCGs
		Max	Min	Median ^a	Average ^b			
<i>K-1700 (Mitchell Branch)</i>								
U-234	12	8.1e+00	2.6e+00	3.8e+00	3.8e+00	5.0e+02	7.6e-01	7.6e-03
U-235	12	3.9e-01	1.5e-01	3.3e-01	3.1e-01	6.0e+02	5.2e-02	5.2e-04
U-236	12	0.0e+00	0.0e+00	0.0e+00	0.0e+00	5.0e+02	0.0e+00	0.0e+00
U-238	12	4.3e+00	2.7e+00	3.6e+00	3.6e+00	6.0e+02	6.1e-01	6.0e-03
Tc-99	12	3.2e+01	-2.3e+00	1.4e+01	1.3e+01	1.0e+05	1.4e-02	1.4e-04
Gross Alpha	12	1.1e+01	6.1e+00	8.9e+00	8.6e+00	a	a	a
Gross Beta	12	1.8e+01	7.0e+00	1.4e+00	1.3e+01	a	a	a
All listed isotopes								1.4e-02

^aNot applicable.

^bThis calculated value includes sampling results that are at or below the detection limits and/or below background activities.

Table 1.10. Radionuclide concentrations at ETPP discharges and surface water monitoring locations

Radionuclide	Number of samples	Concentration (pCi/L)				DCG	Percent of DCG	Sum of fractions the DCGs
		Max	Min	Median ^b	Average ^b			
<i>K-1710 (Poplar Creek upstream of the ETPP)</i>								
U-234	12	8.8e-01	1.6e-02	2.7e-01	3.4e-01	5.0e+02	6.8e-02	6.8e-04
U-235	12	7.8e-01	5.1e-03	1.5e-02	8.2e-02	6.0e+02	1.4e-02	1.4e-04
U-236	12	0.0e+00	0.0e+00	0.0e+00	0.0e+00	5.0e+02	0.0e+00	0.0e+00
U-238	12	8.7e-01	1.6e-01	2.9e-01	3.7e-01	6.0e+02	6.2e-02	6.2e-04
Tc-99	12	3.0e+01	-2.3e+01	4.4e+00	1.2e+00	1.0e+05	1.2e-03	1.2e-05
Gross Alpha	12	1.3e+00	-9.6e-01	3.0e-01	2.6e-01	a	a	a
Gross Beta	12	2.2e+00	-3.5e+00	7.9e-01	5.8e-01	a	a	a
All listed isotopes								1.5e-03

^aNot applicable.

^bThis calculated value includes sampling results that are at or below the detection limits and/or below background activities.

Table 1.11. Radionuclide concentrations at ETP discharges and surface water monitoring locations

Radionuclide	Number of samples	Concentration (pCi/L)				DCG	Percent of DCG	Sum of fractions the DCGs
		Max	Min	Median ^b	Average ^b			
<i>West Fork Poplar Creek (upstream of the ETP)</i>								
U-234	10	3.1e-01	1.6e-01	1.6e-01	1.7e-01	5.0e+02	3.4e-02	3.4e-04
U-235	10	5.6e-02	7.8e-03	7.8e-03	1.3e-02	6.0e+02	2.1e-03	2.1e-05
U-236	10	0.0e+00	0.0e+00	0.0e+00	0.0e+00	5.0e+02	0.0e+00	0.0e+00
U-238	10	3.2e-01	1.7e-01	1.7e-01	1.8e+00	6.0e+02	3.1e-02	3.1e-04
Tc-99	10	9.2e+00	-1.6e+01	1.1e+00	-1.2e+00	1.0e+05	-1.2e-03	-1.2e-05
Gross Alpha	10	8.9e-01	-2.7e+00	3.5e-02	-2.9e-01	a	a	a
Gross Beta	10	4.5e+00	-2.1e+00	8.6e-01	1.1e+00	a	a	a
All listed isotopes								6.6e-04

^aNot applicable.

^bThis calculated value includes sampling results that are at or below the detection limits and/or below background activities.

Table 1.12. 1996 ETPP parameters detected at K-716

Parameter	Number detected/ number of samples	Detected results ^b			Reference Value	Number of exceeding reference
		Max	Min	Avg		
Alkalinity	4/4	110	68	90		
Calcium Hardness	3/3	130	66	98		
Chemical Oxygen Demand	1/3	8	<5	<6		
Chloride	3/3	6.1	3.8	5.3		
Color (nm)	3/3	500	500	500		
Conductivity (umho/cm)	3/3	280	210	230		
Dissolved Oxygen	4/4	9.4	7.4	8.4	5.0 min	0
Dissolved Solids	4/4	220	130	180		
Fluoride	1/4	<0.55	<0.10	<0.39		
Iron	3/3	1.2	.19	.63		
Lead	2/12	.0026	<0.0005	<.00093	0.082	0
Manganese	12/12	0.180	.032	.093		
Nickel	2/12	.046	<0.005	<0.0089	1.4	0
Nitrate	3/3	3.8	2.0	2.9		
Phosphate	1/3	<1.0	.24	<0.75		
Potassium	3/3	2.2	1.5	1.8		
Silver	2/12	.00086	<0.0005	<0.00053	0.0041	0
Sodium	3/3	5.5	3.7	4.9		
Sulfate	3/3	25	24	24		
Suspended Solids	4/4	24	6.4	13		
Temperature (C°)	4/4	26	10	18		
Thallium	2/10	.00092	<0.0005	<0.00056		
Uranium	10/12	.0026	<0.0005	<0.0017		
Vanadium	4/10	.075	<0.005	<0.013		
Zinc	6/12	.072	<0.005	<0.013	0.120	0
pH (standard units)	4/4	7.6	6.8	7.2	6.5 - 8.5	0

^aAll reference values are Tennessee Water Quality Criteria for fish and aquatic life.

^bUnits in mg/L unless otherwise noted.

^cNot applicable.

Table 1.13. 1996 ETPP parameters detected at K-901-A

Parameter	Number detected/ number of samples	Detected results ^b			Reference Value	Number of exceeding reference
		Max	Min	Avg		
Alkalinity	4/4	160	110	130		
Hardness	3/3	150	88	110		
Chemical Oxygen Demand	4/4	18	8	11		
Chloride	3/3	2.3	0.71	1.6		
Chromium	2/12	0.0036	0.0019	0.0028	.016	0
Color (nm)	3/3	500	500	500		
Conductivity (umho/cm)	3/3	290	220	260		
Dissolved Oxygen	4/4	9.4	2.4	5.3	5.0 min	2
Dissolved Solids	4/4	190	110	140		
Fluoride	1/4	<0.55	<0.1	<0.36		
Iron	3/3	1.3	0.95	1.1		
Lead	3/3	0.0033	0.0005	0.0013	0.082	0
Manganese	10/12	0.13	0.025	0.066		
Nitrate	1/3	<1.0	0.2	<0.73		
Phosphate	1/3	<1.0	0.31	<0.78		
Potassium	3/3	2.3	1.8	2.0		
Sodium	3/3	1.5	0.92	1.2		
Sulfate	3/3	9.6	4.8	6.9		
Suspended Solids	4/4	22	4.2	12		
Temperature (C°)	5/5	26	5.3	15		
Uranium	12/12	0.0046	0.0012	0.0023		
Vanadium	1/10	0.0084	<0.005	<0.0053		
Zinc	12/12	0.05	0.011	0.0210	0.12	0
pH (standard units)	7/7	7.8	6.7	7.1	6.5 -	0

^aAll Reference values are Tennessee Water Quality Standards for fish and aquatic life.

^bUnits in mg/L unless otherwise noted.

^cNot applicable.

Table 1.14. 1996 ETPP parameters detected at K-1007-B

Parameter	Number detected/ number of samples	Detected results ^b			Reference Value	Number of exceeding reference
		Max	Min	Avg		
Alkalinity	4/4	110	99	110		
Hardness	3/3	134	82	100		
Chemical Oxygen	4/4	58	11	25		
Chloride	3/3	34	5.6	16		
Chromium	2/2	0.0033	0.0028	0.0031		
Color (nm)	3/3	500	500	500		
Conductivity	3/3	350	250	290		
Dissolved Oxygen	4/4	13	8.5	10	5.0 min	0
Dissolved Solids	4/4	180	150	170		
Chloride	2/4	<0.55	0.11	<0.37		
Iron	3/3	0.34	0.14	0.25		
Lead	10/12	0.005	<0.0005	<0.0015	.082	0
Manganese	12/12	0.15	0.056	0.090		
Nitrate	1/3	1.2	<0.13	<0.77		
Phosphate	1/3	<1.01	0.25	<0.76		
Potassium	3/3	3	2.1	2.6		
Silver	1/12	0.0012	<0.0005	<0.0005	0.004	0
Sodium	3/3	19	3.8	9.6		
Sulfate	3/3	19	17	18		
Suspended Solids	4/4	8	3.6	5.5		
Temperature (C°)	4/4	27	9	18		
Thallium	1/10	0.00052	<0.0005	<0.00050		
Uranium	12/12	0.0012	0.00052	<0.00081		
Vanadium	1/10	0.011	<0.0056	<0.0056		
Zinc	9 /12	0.1	0.005	<0.029	0.12	0
pH (standard	9/9	8.7	7.9	7.9	6.5 - 8.5	1

^aAll Reference values are Tennessee Water Quality Standards for fish and aquatic life.

^bUnits in mg/L unless otherwise noted.

^cNot applicable.

Table 1.15. 1996 ETPP parameters detected at K-1700

Parameter	Number detected/ number of samples	Detected results ^b			Reference Value	Number of exceeding reference
		Max	Min	Avg		
1,2 Dichloroethene (µg/L)	4/4	41	19	29		
2-Butanone (µg/L)	2/4	16	<10	<12		
Alkalinity	4/4	170	120	160		
Hardness	3/3	200	110	150		
Chemical Oxygen Demand	1/3	11	<5	<7		
Chloride	3/3	14	12	13		
Chromium	2/2	.0073	.0023	.0048	.016	0
Color (nm)	4/4	500	500	500		
Conductivity (umho/cm)	3/3	410	330	380		
Dissolved Oxygen	4/4	12	7.5	9.8	5.0 min	0
Dissolved Solids	4/4	26	92	210		
Fluoride	2/4	<0.55	.21	<0.4		
Iron	2/2	1.5	.34	.92		
Lead	6/12	.0017	<0.0005	<0.00083	0.082	0
Manganese	12/12	.190	.089	.151		
Nickel	10/12	.012	<0.005	.0082	1.4	0
Nitrate	3/3	2.0	1.2	1.6		
Phosphate	3/3	2.6	.98	1.6		
Potassium	2/2	2.0	2.0	2.0		
Sodium	2/2	9.0	6.6	7.8		
Sulfate	3/3	28	25	27		
Suspended Solids	3/4	6.4	<1.0	<3.4		
Temperature (C°)	5/5	22	8.8	15		
Thallium	1/10	.00074	<0.0005	<0.00052		
Trichloroethene (µg/L)	4/4	81	35	50	810	0
Uranium	12/12	.013	.0082	.011		
Vanadium	1/10	.0069	<0.005	<0.0052		
Zinc	11/12	.059	<0.005	<0.016	0.12	0
pH (standard units)	8/8	7.6	6.8	7.13	6.5 - 8.5	0

^aAll Reference values are Tennessee Water Quality Standards for fish and aquatic life.

^bUnits in mg/L unless otherwise noted.

^cNot applicable.

Table 1.16. 1996 ETPP parameters detected at K-1710

Parameter	Number detected/ number of samples	Detected results ^b			Reference Value	Number of exceeding reference
		Max	Min	Avg		
Alkalinity	4/4	94	61	77		
Hardness	3/3	120	60	92		
Chemical Oxygen Demand	1/3	5.9	5	5.3		
Chloride	3/3	4.1	2.8	3.3		
Chromium	2/2	0.0021	0.0017	0.0019	0.016	0
Color (nm)	3/3	500	500	500		
Conductivity (umho/cm)	4/4	2600	190	230		
Dissolved Oxygen	4/4	11	6	8.2	5.0 min	0
Dissolved Solids	4/4	20	120	170		
Fluoride	2/4	<0.55	0.13	<0.39		
Iron	3/3	0.49	0.26	0.4		
Lead	10/12	0.0033	<0.0005	<0.0012	0.082	0
Manganese	12/12	0.15	0.051	0.098		
Nitrate	3/3	2.0	1.3	1.6		
Phosphate	1/3	<1.0	0.13	<0.72		
Potassium	3/3	1.6	1.5	1.6		
Silver	3/12	0.0013	<0.0005	<0.00062	0.0041	0
Sodium	3/3	4.1	3.3	3.8		
Sulfate	3/3	34	27	30		
Suspended Solids	4/4	6.6	4.2	5.6		
Temperature (C°)	4/4	25	6.9	16		
Thallium	3/10	0.0019	<0.0005	<0.001		
Uranium	9/12	0.0028	<0.0005	<0.0012		
Vanadium	6/10	0.066	<0.005	<0.016		
Zinc	9/12	0.034	<0.005	<0.010	0.12	0
pH (standard units)	4/4	7.5	6.4	7.1	6.5 - 8.5	1

^aAll Reference values are Tennessee Water Quality Standards for fish and aquatic life.

^bUnits in mg/L unless otherwise noted.

^cNot applicable.

Table 1.17. 1996 ETPP parameters detected at WFPC

Parameter	Number detected/ number of samples	Detected results ^b			Reference Value ^a	Number of exceeding reference
		Max	Min	Avg		
Alkalinity	3/3	95	52	72		
Hardness	3/3	120	52	89		
Chemical Oxygen Demand	1/3	5.6	5.0	5.2		
Chloride	3/3	3.2	2.9	3.0		
Color	3/3	500	500	500		
Conductivity	3/3	260	180	210		
Dissolved Oxygen	3/3	9.8	5.8	7.5	5.0 min	0
Dissolved Solids	3/3	190	94	150		
Fluoride	1/3	<0.55	.31	<0.4		
Iron	3/3	.64	.32	.50		
Lead	7/10	0.0028	0.0005	0.0010	0.082	0
Manganese	10/10	.180	.071	.12		
Nitrate	3/3	1.5	1.2	1.3		
Potassium	3/3	1.8	1.5	1.6		
Silver	1/10	.00093	.0005	.00054	0.0041	0
Sodium	3/3	4.0	3.3	3.6		
Sulfate	3/3	33	28	30		
Suspended Solids	3/3	10.0	8.0	9.1		
Temperature (C°)	3/3	24	10	19		
Thallium	2/10	0.00220	0.0005	.00072		
Uranium	1/10	.00099	0.0005	.00055		
Vanadium	5/10	.081	.005	0.016		
Zinc	7/10	.026	.005	.012	0.12	0
pH	3/3	7.2	6.3	6.8	6.5 - 8.5	1

^aAll reference values are Tennessee Water Quality Standards for fish and aquatic life.

^bUnits are in mg/L unless otherwise noted.

^cNot applicable.

Table 1.18. Radionuclide concentrations at ETPP discharges and surface water monitoring locations

Radionuclide	Number of samples	Concentration (pCi/L)				DCG	Percent of DCG	Sum of fractions the DCGs
		Max	Min	Median ^b	Average ^b			
<i>K-1203 (sewage treatment plant)</i>								
U-234	13	8.6e+00	1.6e-01	5.3e-01	1.4e+00	5.0e+02	2.7e-01	2.7e-03
U-235	13	7.8e-01	9.8e-03	2.8e-02	1.7e-01	6.0e+02	2.8e-02	2.8e-04
U-236	13	0.0e+00	0.0e+00	0.0e+00	0.0e+00	5.0e+02	0.0e+00	0.0e+00
U-238	13	1.4e+00	1.7e-01	5.7e-01	7.3e-01	6.0e+02	1.2e-01	1.2e-03
Tc-99	13	3.3e+01	-1.0e+01	6.3e+00	8.0e+00	1.0e+05	8.0e-03	8.0e-05
Gross Alpha	13	1.4e+01	4.6e-01	7.4e+00	6.7e+00	<i>a</i>	<i>a</i>	<i>a</i>
Gross Beta	13	1.2e+01	1.9e+00	7.9e+00	7.9e+00	<i>a</i>	<i>a</i>	<i>a</i>
All listed isotopes								4.3e-03

^aNot applicable.

^bThis calculated value includes sampling results that are at or below the detection limits and/or below background activities.

Table 1.19. 1996 Parameters Detected at K1515-F

Radionuclide	Number of samples	Concentration (pCi/L)				DCG	Percent of DCG	Sum of fractions the DCGs
		Max	Min	Median ^b	Average ^b			
<i>K-1515-F (filter backwash from the Sanitary Water Treatment Facility)</i>								
U-234	11	1.6e+00	1.6e-01	1.6e-01	2.9e-01	5.0e+02	5.8e-02	5.8e-04
U-235	11	1.7e-02	7.8e-03	7.8e-03	8.7e-03	6.0e+02	1.4e-03	1.4e-05
U-236	11	0.0e+00	0.0e+00	0.0e+00	0.0e+00	5.0e+02	0.0e+00	0.0e+00
U-238	11	4.8e-01	1.7e-01	1.7e-01	1.8e-01	6.0e+02	3.1e-02	3.1e-04
Tc-99	11	1.8e+01	-1.4e+01	7.9e+00	3.7e+00	1.0e+05	3.7e-03	3.7e-05
Gross Alpha	11	3.9e+00	-1.4e+00	7.5e-01	8.7e-01	<i>a</i>	<i>a</i>	<i>a</i>
Gross Beta	11	1.1e+01	-1.9e+00	2.8e+00	3.3e+00	<i>a</i>	<i>a</i>	<i>a</i>
All listed isotopes								9.4e-04

^aNot applicable.

^bThis calculated value includes sampling results that are at or below the detection limits and/or below background activities.

Table 1.20. Constituents in groundwater in the Mitchell Branch Watershed at ETTP, 1996

Analyte	Number detected/ number of results ²	Detected results			Reference value ⁴	Number exceeding reference value ⁵
		Max ³	Min ³	Avg		
<i>Field measurement</i>						
Conductivity ($\mu\text{mho/cm}$)	n/4	1410	766	972.75	-	-
Conductivity - initial ($\mu\text{mho/cm}$)	n/4	1920	763	1009.17	-	-
Dissolved oxygen (ppm)	n/3	8.5	2.7	6.13	-	-
Dissolved oxygen - initial (ppm)	n/3	15.8	1.9	7.82	-	-
Redox (mv)	n/4	257	10	97.75	-	-
Redox - initial (mv)	n/4	254	3	133.83	-	-
Temperature (degrees C)	n/4	22.6	10.5	16.3	-	-
Temperature - initial (degrees C)	n/4	22.8	10.3	16.366	-	-
pH (std units)	n/4	7.1	5.5	6.4	6.5 - 8.5 ⁵	2
pH - initial (std units)	n/4	7.1	5.5	6.408	6.5 - 8.5 ⁵	2
<i>Total¹ metals by ICP (mg/L)</i>						
Barium	4/4	0.067	0.04	0.049	2	0
Cadmium	0/4	-	-	-	0.005	x
Iron	3/4	3.6	0.45	1.75	0.3 ⁵	3
Manganese	4/4	11	6	8.6	0.05 ⁵	4
Sodium	4/4	120	75	108.75	-	-
<i>Total¹ radiochemistry (pCi/L)</i>						
Alpha activity	n/4	8.76 \pm 6.9	-3.07 \pm 3.2	3.68 \pm 4.97	15 ^P	0
Beta activity	n/4	19.3 \pm 9.6	0.926 \pm 3.2	9.95 \pm 6.375	50 ^P	0
Cesium-137	n/4	E 0.41 \pm 39	F-59.4 \pm 95	-16.63 \pm 34.98	120 ^D	0

Table 1.20 (continued)

Strontium	n/4	C- 1.36±4.4	-165±77	-71.6±41.67	8 ^P	0
Technetium-99	n/4	164±150	- 18.6±140	41.47±4.8	4000 ^D	0
Thorium-230	n/4	30.1±14	0.16±0.19	11.83±14	400 ^D	0
Thorium-232	n/4	3.35±4.7	0.0±0.0	1.3±2.1	400 ^D	0
Uranium-234	n/4	3.46±4.4	0.12±0.2	1.99±1.97	20 ^D	0
Uranium-235	n/4	2.77±3.9	- 0.09±0.13	1.23±1.82	24 ^D	0
Uranium-238	n/4	1.72±0.6	0.0±4.8	0.604±1.8	24 ^D	0
<i>Total¹ metals by spectrochemistry (mg/L)</i>						
Arsenic	0/4				0.05 ^P	x
Lead	0/4				0.015 ^P	x
Mercury	0/4				0.002 ^P	x
Selenium	0/4				0.05 ^P	x
Thallium	0/4				0.002	x
<i>Total¹ wet chemistry</i>						
Nitrate brucine (mg/L)	3/4	4.43	1.19	3.29	10 ^P	0

¹Total = unfiltered sample (soluble + suspended) and Dissolved = filtered sample (soluble only). ICP = inductively coupled plasma

²Both the number of detected results and the total number of results include all duplicate and replicate measurements. No blanks, matrix spikes, equipment rinsate or other QA/QC data are reported in this table. n denotes not applicable.

³The minimum and maximum detected results are listed with their laboratory analytical qualifiers. No analytical qualifiers are listed for the average.

E denotes for radiochemistry parameters the result is less than the minimum detectable activity (MDA), confidence level is less than 95%. Also denotes for organics the measurement exceeded the instrument calibration range.

F denotes result less than background

C denotes control analysis outside of control limits

J denotes an estimated value (usually below the detection limit)

+ denotes the duplicate control limits do not apply, duplicate and sample near the MDA

⁴If a reference value exists it originates from the following sources:

P 40 CFR Part 141 National Primary Drinking Water Regulations, Subparts B and G, as amended

S 40 CFR Part 143 National Secondary Drinking Water Regulations, as amended

D DOE Order 5400.5, Chapter III, Derived Concentration Guides (DCG) for Air and Water. Four percent of the DOE DCG represents the DOE criterion of 4 mrem effective dose equivalent from ingestion of drinking water.

- denotes no reference value exists for this analyte

⁵The number of detected results exceeding the reference value is given.

- denotes that since no reference value exists for this analyte, the number exceeding is not applicable.

x denotes that no detected measurements were reported for this analyte so that no comparisons were made to the reference value.

Table 1.21. Constituents in springs at ETTP, 1996

Analyte	Number detected/ number of results	Detected results			Reference value ²	Number exceeding reference value ³
		Max ¹	Min ¹	Avg		
<i>Field measurements</i>						
Conductivity (μ mho/cm)	n/2	796	199.5	497.75	-	-
Temperature (degrees C)	n/2	20.6	15.3	17.95	-	-
pH (std units)	n/2	6.5	5.72	6.11	6.5-8.5 ^S	1
<i>Volatile organics (μg/L)</i>						
1,1,1-Trichloroethane	1/2	2	2	2	200 ^P	0
1,1,2,2-Tetrachloroethane	0/2				-	-
1,1,2-Trichloroethane	0/2					-
1,1-Dichloroethane	0/2					-
1,1-Dichloroethene	0/2				7 ^P	x
1,2-Dichloroethane	0/2				5 ^P	x
1,2-Dichloroethene (total)	2/2	53	12	27.5	70 ^P	0
1,2-Dichloropropane	0/2				5 ^P	x
2-Butanone	0/2				-	-
2-Hexanone	0/2				-	-
4-Methyl-2-pentanone	0/2				-	-
Acetone	0/2				-	-
Benzene	0/2				5 ^P	x
Bromodichloromethane	0/2				100 ^P	x
Bromoform	0/2				100 ^P	x
Bromomethane	0/2				-	-
Carbon disulfide	0/2				-	-
Carbon tetrachloride	0/2				5 ^P	x

Table 1.21. (continued)

Chlorobenzene	0/2				100 ^P	x
Chloroethane	0/2				200 ^P	x
Chloroform	0/2				100	x
Chloromethane	0/2				-	-
Dibromochloromethane	0/2				100 ^P	x
Ethylbenzene	0/2				700 ^P	x
Methylene chloride	0/2				-	x
Styrene	0/2				100 ^P	x
Tetrachloroethene	2/2	110	38	74	5 ^P	2
Toluene	0/2				1000 ^P	x
Trichloroethene	2/2	490	40	265	5 ^P	2
Vinyl acetate	0/2				-	-
Vinyl chloride	0/2				2 ^P	x
Xylene (total)	0/2				10,000 ^P	x
cis-1,3-Dichloropropene	0/2				-	-
trans-1,3-Dichloropropene	0/2				-	-
<i>Volatile organics, tentatively compounds (µg/L)</i>						
Freon 113	2/2	J 360	J 27	20.87	-	-
Freon 123	1/2	J 54	J 54	54	-	-
Chlorotrifluoroethene	1/2	J 7	J 7	7	-	-

¹The minimum and maximum detected results are listed with their laboratory analytical qualifiers.

J denotes an estimated value (usually below the detection limit)

²If a reference value exists it originates from the following sources:

P 40 CFR Part 141 National Primary Drinking Water Regulations, Subpart B and G, as amended

S 40 CFR Part 143 National Secondary Drinking Water Regulations, as amended

D DOE Order 5400.5, Chapter III, Derived Concentration Guides (DCG) for Air and Water. Four percent of the DOE DCG represents the DOE criterion of 4 mrem effective dose equivalent from ingestion of drinking water.

- denotes no reference value exists for this analyte

³The number of detected results exceeding the reference value is given.

- denotes that since no reference value exists for this analyte, the number exceeding is not applicable.

x denotes that no detected measurements were reported for this analyte so that no comparisons were made to the reference value.

Table 2.1. Y-12 Plant Discharge Points

From: 1996/01/01 To: 1996/12/31

Outfall	Parameter	Number of Samples	Max	Concentration (a)	Avg	Reference Value (b)	Number of Values Exceeding Reference
				Min			
5A	Flow (c), mgd	3	0.216	0.144	0.19	d	d
	pH, Standard Units	3	7.9	7.3	d	9/6(e)	0
	Carbon tetrachloride	3	0.009	0.004	0.007	d	d
	Tetrachloroethene	3	0.004	0.002	0.0033	d	d
	Methylene chloride	3	0.01	0.01	0.01	d	d
17	Flow (c), mgd	356	0.452	0.0092	0.091	d	d
	pH, Standard Units	55	7.4	6.8	d	9/6(e)	0
	Kjeldahl Nitrogen	54	37	0.78	8.4	d	d
	Ammonia as Nitrogen	52	41	1.9	8.2	64.8	0
21	Flow (c), mgd	160	2.3746	0.146	0.49	d	d
	pH, Standard Units	161	8.1	7	d	9/6(e)	0
	Temperature, deg C	157	27.3	8	20.5	30.5	0
	Total Residual Chlorine	158	<0.05	<0.05	<0.05	0.188	0

(a) Units in mg/L unless otherwise indicated.

(b) NPDES permit limits.

(c) Flow during operations and/or discharging.

(d) Not applicable.

(e) Maximum value/minimum value.

Table 2.2. Y-12 Plant Discharge Points

From: 1996/01/01 To: 1996/12/31

Outfall	Parameter	Number of Samples	Concentration(a)			Avg	Reference Value(b)	Number of Values Exceeding Reference
			Max	Min				
51	Flow(c), mgd	362	4.635	0.0578	0.54	d	d	
	pH, Standard Unit	110	7.9	6.5	d	9/6(e)	0	
	Mercury	60	0.0046	0.0014	0.003	d	d	
55	Flow(c), mgd	385	0.1365	0.0143	0.062	d	d	
	pH, Standard Units	110	8.4	6.8	d	9/6(e)	0	
	Total Residual Chlorine	110	0.19	<0.05	<0.0523	0.5	0	
	Mercury	106	0.001	<0.0002	<0.0002	0.004	0	
55A	Flow(c), mgd	113	0.0275	0.0047	0.014	d	d	
	pH, Standard Unit	26	7.9	7.1	d	9/6(e)	0	
	Mercury	26	<0.0002	<0.0002	<0.0002	0.004	0	
66	Flow(c), mgd	5	0.003	0.0001	0.0007	d	d	
	pH, Standard Units	5	8.2	7	d	9/6(e)	0	
68	Flow(c), mgd	12	0.0004	0.00004	0.0002	d	d	
	pH, Standard Units	12	8.2	7.2	d	9/6(e)	0	

(a) Units in mg/L unless otherwise indicated.

(b) NPDES permit limits.

(c) Flow during operations and/or discharging.

(d) Not applicable.

(e) Maximum value/minimum value.

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Table 2.3. Y-12 Plant Discharge Points

From: 1996/01/01 To: 1996/12/31

Outfall	Parameter	Number of Samples	Max	Concentration (a)	Min	Avg	Reference Value (b)	Number of Values Exceeding Reference
73	Residual Chlorine	12	<0.05	<0.05	<0.05	0.5	0.5	0
	Flow (c), mgd	12	0.0004	0.0001	0.0002	d	d	d
	pH, Standard Units	12	8.3	7.3	d	9/6(e)	9/6(e)	0
77	Residual Chlorine	12	0.1	<0.05	<0.05	0.5	0.5	0
	Flow (c), mgd	12	0.072	0.00003	0.006	d	d	d
	pH, Standard Units	12	7.8	7.2	d	9/6(e)	9/6(e)	0
117	Flow (c), mgd	7	0.0004	0.0001	0.0002	d	d	d
	pH, Standard Units	7	8.2	7.4	d	9/6(e)	9/6(e)	0
122	Eliminated							
125	Flow, mgd	12	0.4104	0.1526	0.3	d	d	d
	pH, Standard Units	12	7.8	6.7	7.1	9/6(e)	9/6(e)	0
	Total Residual Chlorine	12	<0.05	<0.05	<0.05	0.5	0.5	0
	Mercury	4	<0.0002	<0.0002	<0.0002	d	d	d
133	Lead	4	<0.005	<0.005	<0.005	d	d	d
	Eliminated							
135	Flow, mgd	169	0.5904	0.1	0.17	d	d	d

(a) Units in mg/L unless otherwise indicated.
 (b) NPDES permit limits.
 (c) Flow during operations and/or discharging.
 (d) Not applicable.
 (e) Maximum value/minimum value.

Table 2.4. Y-12 Plant Discharge Point 200, EFPC at the North/South Pipes

From: 1996/01/01 To: 1996/12/31

Outfall	Parameter	Number of Samples	Max	Concentration(a)	Avg	Reference Value(b)	Number of Values Exceeding Reference
				Min			
200	Flow(c), mgd	178	11.78	0.95	2.9	d	d
	Beryllium	18	<0.0004	<0.0004	<0.0004	d	d
	Cadmium	18	0.025	<0.004	<0.0052	d	d
	Copper	18	0.012	<0.006	<0.0075	d	d
	Iron	18	1.3	<0.06	<0.3139	d	d
	Fluoride	12	1.2	0.44	0.82	d	d
	Mercury	98	0.0027	0.0006	0.001	d	d
	Nitrate/Nitrite as Nitrogen	12	8.3	5.4	6.9	d	d
	Oil and Grease	160	4.4	<2.0	<2.0287	15	0
	Lead	18	<0.02	<0.02	<0.02	d	d
	Phosphate as Phosphorus,	12	3.9	0.72	1.5	d	d
	Sulfate	57	110	19	48.6	d	d
	Uranium	57	0.13	0.001	0.051	d	d
	U235, weight %	57	6.8	0.14	0.4	d	d
	Zinc	18	0.17	0.07	0.11	d	d

- (a) Units in mg/L unless otherwise indicated.
- (b) NPDES permit limits.
- (c) Flow during operations and/or discharging.
- (d) Not applicable.

Table 2.5. Y-12 Plant Discharge Point 200, Radiological Data

From: 1996/01/01 To: 1996/12/31

Parameter	Number of Samples	Activity Max	% of +/-	Min	+/-	Median	+/-	Standard		Total Curies
								Error	% DCG	
Alpha activity (pCi/L)	57	61	13	0.38*	7.6	21	12	1.855	a	9.33E-02
Americium-241 (pCi/L)	57	0.59	0.24	-0.16*	0.14	0.067*	0.16	0.0193	0.2233	4.00E-04
Beta activity (pCi/L)	57	35	12	2.1*	11	17	11	1.2127	a	6.90E-02
Cobalt-60 (pCi/L)	57	10	2.9	-3.5*	4.6	1.7*	2	0.3832	0.034	8.91E-03
Cesium-137 (pCi/L)	57	11	4.2	-4.0*	4.1	1.2*	3.8	0.3611	0.04	5.69E-03
Gamma Activity (pCi/L)	57	340	47	-17.0*	31	24.0*	31	8.1807	a	1.76E-01
Neptunium-237 (pCi/L)	57	0.28*	0.45	-0.058*	0.083	0.011*	0.084	0.0076	0.0367	9.33E-05
Plutonium-238 (pCi/L)	57	0.32*	0.35	-0.33*	0.34	0.006*	0.13	0.0131	0.015	5.36E-05
Plutonium-239/240 (pCi/L)	57	0.18*	0.2	-0.12*	0.19	0.0*	0	0.0069	0	2.36E-05
Radium-228 (pCi/L)	57	7	3.2	-8.3*	7.3	-0.86*	1	0.3169	-0.86	-3.48E-03
Strontium-89/90 (pCi/L)	57	8.4*	3.5	-9.2*	6.8	-1.6*	4.8	0.5013	a	-6.35E-03
Total Radium Alpha (pCi/L)	57	2.9	1	-0.69*	0.64	0.041*	0.41	0.0668	a	4.42E-04
Technetium-99 (pCi/L)	57	33	9.6	-34.0*	12	14	9	1.3581	0.014	5.50E-02
Thorium-228 (pCi/L)	57	0.74	0.35	-0.2*	0.15	0.096*	0.16	0.025	0.024	5.15E-04
Thorium-230 (pCi/L)	57	1.1	0.44	-0.11*	0.15	0.36	0.3	0.0331	0.12	1.52E-03
Thorium-232 (pCi/L)	57	0.65	0.29	-0.14*	0.14	0.0*	0	0.0142	0	1.07E-04
Thorium-234 (pCi/L)	57	59	9.6	5.1	1.3	20	3.2	1.6906	0.2	8.83E-02
Tritium (pCi/L)	53	690	220	4.0*	2	370.0*	210	23.0518	0.0185	1.43E+00
Uranium-234 (pCi/L)	57	12	2.3	1.8	0.7	4.9	1.1	0.3488	0.98	2.26E-02
Uranium-235 (pCi/L)	113	20.0*	13	-15.0*	18	0.65	0.4	0.4745	0.1083	8.54E-03
Uranium-236 (pCi/L)	57	0.32	0.25	-0.034*	0.09	0.11*	0.16	0.0125	0.022	5.21E-04
Uranium-238 (pCi/L)	57	59	9.6	5.1	1.3	20	3.2	1.6906	3.3333	8.83E-02

(a) Not applicable

* Result was below the minimum detectable activity.

Table 2.6. Y-12 Plant Discharge Point 201, EFPC below North/South Pipes

From: 1996/01/01 To: 1996/12/31

Outfall	Parameter	Number of Samples	Max	Concentration(a)	Avg	Reference Value(b)	Number of Values Exceeding Reference
201	96 Hour Toxicity Test with Ceriodaphnia, %	5	>100.0	>100.0	>100.0	c/100(d)	0
	96 Hour Toxicity Test with Fathead Minnows, %	3	>100.0	>100.0	>100.0	c/100(d)	0
	NOEC, Reproduction/Growth in Ceriodaphnia, %	5	100	80	92	c/100(d)	0
	NOEC, Reproduction/Growth in Fathead Minnows, %	3	100	100	100	c/100(d)	0
	pH, Standard Units	160	9.3	7	c	8.5/6.5(d)	0
	Temperature, deg C	160	25.7	9.8	17.6	30.5	0
	Total Residual Chlorine	160	<0.05	<0.05	<0.05	0.019	0
	Suspended Solids	53	18	<5.0	<5.9623	c	c

(a) Units in mg/L unless otherwise indicated.

(b) NPDES permit limits.

(c) Not applicable.

(d) Maximum value/minimum value.

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Table 2.7. Y-12 Plant Discharge Point 501, Central Pollution Control Facility

From: 1996/01/01 To: 1996/12/31

Outfall	Parameter	Number of Samples	Max	Concentration (a)	Min	Avg	Reference Value (b)	Number of Values Exceeding Reference
501	48 hour toxicity test with Ceriodaphnia, %	3	>100.0	67.7	>89.2333	d	d	d
	Flow (c), mgd	8	0.0144	0.0036	0.0072	d	d	d
	pH, Standard Units	8	8.7	7.3	7.9	9/6(e)	0	0
	Temperature, deg C	8	27.5	16.9	21.6	d	d	d
	Silver	8	<0.03	<0.03	<0.03	0.05	0	0
	Boron	8	20.1	7.1	11.9	d	d	d
	Beryllium	8	<0.002	<0.002	<0.002	d	d	d
	Calcium	8	592	30.5	381	d	d	d
	Cadmium	8	<0.02	<0.02	<0.02	0.15	0	0
	Chloride	8	410	40	156	d	d	d
	Chromium	8	<0.03	<0.03	<0.03	1	0	0
	Copper	8	<0.03	<0.03	<0.03	1	0	0
	Cyanide	8	<0.01	<0.01	<0.01	1.2	0	0
	Iron	8	1.1	0.4	0.61	d	d	d
	Fluoride	8	5.9	0.2	1.7	d	d	d
	Mercury	8	<0.0002	<0.0002	<0.0002	d	d	d
	Potassium	8	37	12	20.6	d	d	d
	Lithium	8	2.86	<0.08	<1.4162	d	d	d
	Magnesium	8	8.4	0.4	5.5	d	d	d
	Sodium	8	417	60.2	222	d	d	d
	Nickel	8	0.33	0.05	0.12	3.98	0	0
	Nitrate/Nitrite as Nitrogen	8	100	0.28	30.9	100	0	0
	Oil and Grease	8	3.9	<2.0	<2.2375	15	0	0
	Lead	8	<0.1	<0.1	<0.1	0.2	0	0
	Phosphate as Phosphorus	8	9.4	0.22	1.9	d	d	d
	Sulfate	8	1900	200	1209	d	d	d
	Suspended Solids	8	8	<5.0	<5.625	40	0	0

Table 2.7 (continued)

Outfall	Parameter	Number of Samples	Concentration (a)			Avg	Reference Value (b)	Number of Values Exceeding Reference
			Max	Min				
501	Uranium	6	0.011	<0.001	<0.0055	d	d	
	U235 WEIGHT %, wt %	6	0.62	0	0.38	d	d	
	Zinc	8	<0.05	<0.05	<0.05	2	0	

- (a) Units in mg/L unless otherwise indicated.
- (b) NPDES permit limits.
- (c) Flow during operations and/or discharging.
- (d) Not applicable.
- (e) Maximum value/minimum value.

Table 2.8. Y-12 Plant Discharge Point 501, Central Pollution Control Facility Radiological Data

From: 1996/01/01 To: 1996/12/31

Parameter	Number of Samples	Activity		% of +/-	Min	+/-	Median	+/-	Standard		Total Curies
		Max							Error	% DCG	
Alpha activity (pCi/L)	6	32.0*		45	-15.0*	1.3	2.525	a	6.5689	a	3.11E-05
Americium-241 (pCi/L)	6	0.16*		0.23	-0.14*	0.39	-0.002	a	0.0426	-0.0067	1.38E-07
Beta activity (pCi/L)	6	72.0*		46	3.2*	7.8	15.8	a	11.1666	a	2.51E-04
Cobalt-60 (pCi/L)	6	3.6*		3.1	-1.0*	3.7	2.5	a	0.7046	0.05	1.87E-05
Cesium-137 (pCi/L)	6	5.5		4.8	-1.0*	4.2	1.03	a	0.917	0.0343	1.38E-05
Gamma Activity (pCi/L)	6	29.0*		31	-1.3*	30	17.5	a	4.471	a	1.51E-04
Neptunium-237 (pCi/L)	6	0.11*		0.15	-0.067*	0.095	-0.028	a	0.0267	-0.0933	-1.10E-07
Plutonium-238 (pCi/L)	6	0.15*		0.26	-0.086*	0.25	-0.019	a	0.0336	-0.0475	5.98E-08
Plutonium-239/240 (pCi/L)	6	0.052*		0.1	-0.081*	0.12	-0.008	a	0.0183	-0.0267	-1.46E-07
Radium-228 (pCi/L)	6	2.6		8.6	-4.6*	5.7	-0.955	a	0.9332	-0.955	-9.76E-06
Strontium-89/90 (pCi/L)	6	0.35*		1.4	-10.0*	11	-1.135	a	1.6026	a	-2.43E-05
Total Radium Alpha (pCi/L)	6	0.095*		0.65	-0.78*	0.68	-0.22	a	0.1242	a	-2.58E-06
Technetium-99 (pCi/L)	6	6.0*		11	-13.0*	7.9	-5	a	2.8373	-0.005	-4.48E-05
Thorium-228 (pCi/L)	6	1.3		0.43	-0.12*	0.17	0.28	a	0.2029	0.07	3.59E-06
Thorium-230 (pCi/L)	6	0.54		0.37	0.063*	0.09	0.26	a	0.073	0.0867	2.63E-06
Thorium-232 (pCi/L)	6	0.48		0.24	-0.07*	0.14	0.0075	a	0.082	0.015	7.60E-07
Thorium-234 (pCi/L)	6	4.3		1.3	0.21	0.19	2.3	a	0.7507	0.023	2.19E-05
Tritium (pCi/L)	6	690		160	-110.0*	150	260	a	115.8625	0.013	2.55E-03
Uranium-234 (pCi/L)	6	3.7		1.2	0.21	0.19	2	a	0.63	0.4	1.88E-05
Uranium-235 (pCi/L)	12	9.9*		9.6	0.0*	0	0.53	a	0.8336	0.0883	1.84E-05
Uranium-236 (pCi/L)	6	0.15*		0.17	0.0*	0	0.033	a	0.0258	0.0066	5.20E-07
Uranium-238 (pCi/L)	6	4.3		1.3	0.21	0.19	2.3	a	0.7507	0.3833	2.19E-05

(a) Not applicable

* Result was below the minimum detectable activity.

Table 2.9. Y-12 Plant Discharge Point 502, West End Treatment Facility

From: 1996/01/01 To: 1996/12/31

Outfall	Parameter	Number of Samples	Concentration (a)			Avg	Reference Value (b)	Number of Values Exceeding Reference
			Max	Min				
502	48hour toxicity test with Ceriodaphnia, %	2	39.4	11.2	25.3	d	d	
	Flow (c), mgd	62	0.0178	0.0003	0.012	d	d	
	pH, Standard Unit	39	8.8	6.6	d	9/ 6 (e)	0	
	Temperature, deg C	39	26.1	14	18.6	d	d	
	Silver	39	<0.03	<0.03	<0.03	0.05	0	
	Arsenic	39	<0.2	<0.2	<0.2	d	d	
	Boron	39	6	1.8	4.1	d	d	
	Beryllium	39	<0.002	<0.002	<0.002	d	d	
	Calcium	39	200	33.9	105	d	d	
	Cadmium	39	<0.02	<0.02	<0.02	0.15	0	
	Chloride	39	807	350	591	d	d	
	Chromium	39	<0.03	<0.03	<0.03	1	0	
	Copper	39	0.08	<0.03	<0.0331	1	0	
	Cyanide	39	<0.01	<0.01	<0.01	1.2	0	
	Iron	39	10.5	<0.3	<0.7	d	d	
	Fluoride	14	4.9	1.2	2.7	d	d	
	Mercury	39	<0.0002	<0.0002	<0.0002	d	d	
	Potassium	39	134	92	114	d	d	
	Lithium	39	6.77	2.07	4.2	d	d	
	Magnesium	39	14.4	11.2	13.4	d	d	
	Manganese	39	1.22	0.014	0.13	d	d	
	Sodium	39	3380	1960	2852	d	d	
	Nickel	39	1.31	<0.04	<0.3749	3.98	0	
	Nitrate/Nitrite as Nitrogen	39	1.6	<0.1	<0.4377	150	0	
	Oil and Grease	39	3.2	<2.0	<2.0308	15	0	
	Lead	39	<0.02	<0.005	<0.0076	0.2	0	
	PCB, Total	5	0.0005	0	0.0004	0.001	0	

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Table 2.9 (continued)

Outfall	Parameter	Number of Samples	Concentration (a)			Avg	Reference Value (b)	Number of Values Exceeding Reference
			Max	Min				
502	Phosphate as Phosphorus	39	5.6	0.18	3.2	d	d	
	Selenium	39	<0.5	<0.5	<0.5	d	d	
	Sulfate	39	7600	3600	5769	d	d	
	Suspended Solids	39	15	<5.0	<7.0769	40	0	
	Sum of TFO Analysis	5	0	0	0	2.13	0	
	Uranium	14	0.015	<0.001	<0.0044	d	d	
	U235 WEIGHT %, wt %	13	0.49	0.32	0.39	d	d	
	Zinc	39	0.87	<0.05	<0.1405	2	0	

(a) Units in mg/L unless otherwise indicated.

(b) NPDES permit limits.

(c) Flow during operations and/or discharging.

(d) Not applicable.

(e) Maximum value/minimum value.

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Table 2.10. Y-12 Plant Discharge Point 502, West End Treatment Facility Radiological Data

From: 1996/01/01 To: 1996/12/31

Parameter	Number of Samples		Activity		% of		Min	+/-	Median	+/-	Standard Error		% DCG	Total Curies
	Max	% of	+	-	+	-					Error	%		
Alpha activity (pCi/L)	14	120	59		-29.0*	28	4.575	a	9.2155	a	1.90E-04			
Americium-241 (pCi/L)	14	0.25	0.18		-0.15*	0.21	0.0355	a	0.0267	a	8.99E-07			
Beta activity (pCi/L)	14	430	140		-70.0*	92	54.5	a	32.6987	a	1.32E-03			
Cobalt-60 (pCi/L)	14	3.0*	2.6		-4.1*	5	1.35	a	0.4923	a	1.65E-05			
Cesium-137 (pCi/L)	14	12	4.2		5	2.9	8.95	a	0.5311	a	1.48E-04			
Gamma Activity (pCi/L)	14	66	31		0.12*	30	36	a	4.3778	a	5.52E-04			
Neptunium-237 (pCi/L)	14	0.13*	0.14		-0.066*	0.076	0.009	a	0.0131	a	1.60E-07			
Plutonium-238 (pCi/L)	14	0.18*	0.2		-0.12*	0.17	0.0015	a	0.0232	a	1.60E-07			
Plutonium-239/240 (pCi/L)	14	0.11*	0.16		-0.053*	0.075	0	a	0.0117	a	1.60E-07			
Radium-228 (pCi/L)	14	2.2*	2.9		-3.1*	1.9	-1.15	a	0.4857	a	-1.06E-05			
Strontium-89/90 (pCi/L)	14	7.0*	7.4		-11.0*	9.1	-3.9	a	1.2652	a	-6.68E-05			
Total Radium Alpha (pCi/L)	14	0.89*	0.59		-0.11*	0.58	0.135	a	0.091	a	4.34E-06			
Technetium-99 (pCi/L)	14	7.0*	8.4		-7.0*	7.2	0	a	1.0317	a	-2.45E-06			
Thorium-228 (pCi/L)	14	0.78	0.39		-0.044*	0.13	0.092	a	0.0719	a	3.14E-06			
Thorium-230 (pCi/L)	14	0.75	0.54		0.15*	0.15	0.235	a	0.0477	a	5.20E-06			
Thorium-232 (pCi/L)	14	0.69	0.47		-0.11*	0.16	0	a	0.0508	a	7.84E-07			
Thorium-234 (pCi/L)	14	5.4	1.2		0.22	0.18	0.905	a	0.4811	a	2.85E-05			
Tritium (pCi/L)	14	1400	390		360.0*	230	920	a	99.7288	a	1.53E-02			
Uranium-234 (pCi/L)	14	3.3	0.87		0.23*	0.31	0.55	a	0.2707	a	1.54E-05			
Uranium-235 (pCi/L)	28	7.1*	15		-8.4*	16	0.125	a	0.5545	a	1.47E-05			
Uranium-236 (pCi/L)	14	0.23	0.19		-0.064*	0.091	0	a	0.0196	a	6.91E-07			
Uranium-238 (pCi/L)	14	5.4	1.2		0.22	0.18	0.905	a	0.4811	a	2.85E-05			

(a) Not applicable

* Result was below the minimum detectable activity.

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Table 2.11. Y-12 Plant Discharge Point 512, Groundwater Treatment Facility (GWTF)

From: 1996/01/01 To: 1996/12/31

Outfall	Parameter	Number of Samples	Concentration (a)			Avg	Reference Value(b)	Number of Values Exceeding Reference
			Max	Min				
512	48 Hour Toxicity Test with Ceriodaphnia, %	4	64	42.4	53.8	d	d	
	Flow(c) , mgd	247	0.0358	0.0001	0.016	d	d	
	pH, Standard Units	155	8.7	7	d	9/6(e)	0	
	Copper	157	<0.03	<0.03	<0.03	d	d	
	Iron	157	2	<0.3	<0.3439	1	0	
	Manganese	157	5.07	<0.009	<0.5	d	d	
	Lead	157	<0.1	<0.1	<0.1	d	d	
	PCB, Total	12	<0.0005	0	<0.0005	0.001	0	

- (a) Units in mg/L, unless otherwise indicated.
- (b) NPDES permit limits.
- (c) Flow during operations and/or discharging.
- (d) Not applicable.
- (e) Maximum value/minimum value.

Table 2.12. Y-12 Plant Discharge Point 512, Groundwater Treatment Facility (GWTF) Radiological Data

From: 1996/01/01 To: 1996/12/31

Parameter	Number of Samples	Activity		% of +/-	Min	+/-	Median	+/-	Error	% DCG	Total Curies
		Max	% of +/-								
Alpha activity (pCi/L)	53	73	19	0.43	0.0*	0.43	14	7.4	1.5	a	3.30E-04
Americium-241 (pCi/L)	53	0.69	0.36	0.1	-0.071*	0.1	0.044*	0.16	0.024	0.15	2.10E-06
Beta activity (pCi/L)	53	56	13	12	-6.4*	12	9.5*	7.5	1.4	a	2.30E-04
Cobalt-60 (pCi/L)	53	8.9*	4.5	4.2	-7.3*	4.2	1.4*	3.7	0.44	0.028	3.40E-05
Cesium-137 (pCi/L)	53	7.9	3.1	3.9	-10.0*	3.9	0.73*	3.9	0.38	0.024	2.20E-05
Gamma Activity (pCi/L)	53	460	57	30	-12.0*	30	25.0*	31	9.5	a	9.30E-04
Neptunium-237 (pCi/L)	53	0.43	0.34	0.051	-0.25*	0.051	0.0*	0	0.012	0	2.00E-07
Plutonium-238 (pCi/L)	53	0.89	0.61	0.35	-0.23*	0.35	-0.014*	0.14	0.024	-0.035	4.30E-07
Plutonium-239/240 (pCi/L)	53	0.76	0.36	0.19	-0.13*	0.19	0.0*	0	0.017	0	5.50E-07
Radium-228 (pCi/L)	53	4	3.8	5.5	-8.1*	5.5	-0.92*	5.1	0.28	-0.92	-1.70E-05
Strontium-89/90 (pCi/L)	53	14.0*	9.4	2.4	-12.0*	2.4	-0.63*	1.4	0.68	a	-9.00E-06
Total Radium Alpha (pCi/L)	53	0.89	0.61	0.55	-0.74*	0.55	0.026*	0.53	0.048	a	1.30E-06
Technetium-99 (pCi/L)	53	14	8.3	8.9	-15.0*	8.9	0.0*	8.4	0.77	0	-1.10E-05
Thorium-228 (pCi/L)	53	0.43	0.21	0.12	-0.12*	0.12	0.1*	0.14	0.014	0.025	2.50E-06
Thorium-230 (pCi/L)	53	1	0.5	0.18	0.023*	0.18	0.25*	0.23	0.038	0.083	7.30E-06
Thorium-232 (pCi/L)	53	0.63	0.33	0.16	-0.13*	0.16	0.012*	0.092	0.014	0.024	9.30E-07
Thorium-234 (pCi/L)	53	30	5.4	0.89	2.6	0.89	15	2.5	0.92	0.15	3.40E-04
Tritium (pCi/L)	53	6000	650	210	580	210	1600	250	110	0.08	3.60E-02
Uranium-234 (pCi/L)	53	8.8	2.1	0.39	0.6	0.39	3.5	0.98	0.21	0.7	8.20E-05
Uranium-235 (pCi/L)	53	1.3	0.64	0	0.0*	0	0.25	0.25	0.03	0.042	6.10E-06
Uranium-236 (pCi/L)	53	0.46	0.34	0.18	-0.025*	0.18	0.11*	0.16	0.014	0.022	2.40E-06
Uranium-238 (pCi/L)	53	30	5.4	0.93	2.7	0.93	15	2.5	0.89	2.5	3.40E-04

(a) Not applicable

* Results below minimum detectable activity

Table 2.13. Y-12 Plant Discharge Point 551, Central Mercury Treatment Unit

From: 1996/01/01 To: 1996/12/31

Outfall	Parameter	Flow (c), mgd	Number of Samples			Concentration (a)			Reference Value (b)	Number of Values Exceeding Reference
			Max	Min	Avg	Max	Min	Avg		
551	Flow (c), mgd		0.04	0.0072	0.013	0.04	0.0072	d	d	
	pH, Standard Units		7.8	7.2	d	7.8	7.2	9/6(e)	0	
	Mercury		0.0002	<0.0002	<0.0002	0.0002	<0.0002	0.004	0	

(a) Units in mg/L unless otherwise indicated.
 (b) NPDES permit limits.
 (c) Flow during operations and/or discharging.
 (d) Not applicable.
 (e) Maximum value/minimum value.

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Table 2.14. Y-12 Discharge Points, Category I Outfalls

From: 1996/01/01 To: 1996/12/31

Outfall	Parameter	Number of Samples	Concentration (a)			Avg	Reference Value (a)	Number of Values Exceeding Reference
			Max	Min				
3	Flow(b), mgd	2	0.0015	0.0002	0.0009	C	C	
	pH, Standard Units	3	7.9	7.3	C	9/4(d)	0	
6	Flow(b), mgd	2	0.0114	0.0011	0.0063	C	C	
	pH, Standard Units	2	7.9	7.9	C	9/4(d)	0	
7	Flow(b), mgd	2	0.0076	0.0008	0.0042	C	C	
	pH, Standard Units	3	8.6	7.7	C	9/4(d)	0	
8	Flow(b), mgd	2	0.0015	0.0004	0.001	C	C	
	pH, Standard Units	2	8.1	7.4	C	9/4(d)	0	
9	Flow(b), mgd	2	0.0304	0.0152	0.0228	C	C	
	pH, Standard Units	2	7.8	7.7	C	9/4(d)	0	
11	Flow(b), mgd	2	0.0038	0.0008	0.0023	C	C	
	pH, Standard Units	2	8	7.6	C	9/4(d)	0	
15	Flow(b), mgd	2	0.007	0.0023	0.0046	C	C	
	pH, Standard Units	3	8	7.3	C	9/4(d)	0	
18	Flow(b), mgd	2	0.0038	0.0001	0.002	C	C	
	pH, Standard Units	2	7.7	7.4	C	9/4(d)	0	
32	eliminated							
33	Flow(b), mgd	2	0.0019	0.0015	0.0017	C	C	
	pH, Standard Units	3	8.1	7.4	C	9/4(d)	0	

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Table 2.14 (continued)

Outfall	Parameter	Number of Samples	Concentration (a)			Avg	Reference Value (a)	Number of Values Exceeding Reference
			Max	Min				
45	Flow (b), mgd pH, Standard Units	2 3	0.0038 7.8	0.0004 7.7	0.0021 c	c 9/4 (d)	c 0	
46	Flow (b), mgd pH, Standard Units	2 2	0.0039 7.9	0.0002 7.5	0.002 c	c 9/4 (d)	c 0	
58	Flow (b), mgd PH, Std Unit	2 2	0.0014 8.1	0.0003 7.7	0.0008 c	c 9/4 (d)	c 0	
62	Flow (b), mgd pH, Standard Units	2 2	0.0114 8.2	0.0027 7.6	0.007 c	c 9/4 (d)	c 0	
86	Flow (b), mgd pH, Standard Units	2 2	0.0008 7.4	0.0002 7.3	0.0005 c	c 9/4 (d)	c 0	
87	Flow (b), mgd pH, Standard Units	2 2	0.0008 7.7	0.0001 7.6	0.0004 c	c 9/4 (d)	c 0	
98	Flow (b), mgd pH, Standard Units	2 2	0.0019 7.6	0.0002 7.5	0.0011 c	c 9/4 (d)	c 0	
110	Flow (b), mgd pH, Standard Units	2 2	0.0001 8.2	0.0001 8	0.0001 c	c 9/4 (d)	c 0	
134	Flow (b), mgd pH, Standard Units	2 2	0.0046 7.9	0.0023 7.5	0.0034 c	c 9/4 (d)	c 0	
213	Flow (b), mgd pH, Standard Units	2 2	0.0008 7.3	0.0004 7.3	0.0006 c	c 9/4 (d)	c 0	

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Table 2.14 (continued)

Outfall	Parameter	Number of Samples	Max	Concentration (a)	Avg	Reference Value(a)	Number of Values Exceeding Reference
				Min			
S01	Flow(b), mgd pH, Standard Units	2 3	0.0008 7.3	0.0002 8.1	0.0005 C	C 9/4(d)	C 0
S03	Flow(b), mgd pH, Standard Units	2 2	0.137 7.6	0.0043 7.2	0.0707 C	C 9/4(d)	C 0
S04	Flow(b), mgd pH, Standard Units	2 2	0.158 7.6	0.0015 7.3	0.0798 C	C 9/4(d)	C 0
S06	Flow(b), mgd pH, Standard Units	2 2	0.19 7.6	0.0864 7.4	0.138 C	C 9/4(d)	C 0
S07	Flow(b), mgd pH, Standard Units	2 2	0.114 7.9	0.0144 7.2	0.0642 C	C 9/4(d)	C 0
S09	Flow(b), mgd pH, Standard Units	2 3	0.0095 7.6	0.0008 7.2	0.0051 C	C 9/4(d)	C 0
S18	Flow(b), mgd pH, Standard Units	2 3	0.194 8.1	0.0951 7.8	0.145 C	C 9/4(d)	C 0
S15	Flow(b), mgd pH, Standard Units	3 3	0.0864 8	0.0004 7.7	0.0321 C	C 10/6(d)	C 0
S16	Flow(b), mgd pH, Standard Units	2 3	0.0038 8.1	0.0023 7.5	0.003 C	C 10/6(d)	C 0

- (a) NPDES permit limits.
- (b) Flow during operations and/or discharging.
- (c) Not applicable.
- (d) Maximum value/minimum value.

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Table 2.15. Y-12 Discharge Points, Category II Outfalls

From: 1996/01/01 To: 1996/12/31

Outfall	Parameter	Number of Samples	Concentration (a)			AVG	Reference Value (b)	Number of Values Exceeding Reference
			Max	Min				
4	Residual Chlorine	4	0.25	<0.05	<0.1	0.5	0	
	Flow(c), mgd	4	0.0152	0.0023	0.0094	d	d	
	pH, Standard Units	4	8.5	7.8	d	9/4(e)	0	
10	Residual Chlorine	4	0.09	<0.05	<0.06	0.5	0	
	Flow(c), mgd	4	0.0076	0.0066	0.0073	d	d	
	pH, Standard Units	4	7.8	7.6	d	9/4(e)	0	
14	Residual Chlorine	4	0.28	<0.05	<0.18	0.5	0	
	Flow(c), mgd	4	0.0244	0.0228	0.0232	d	d	
	pH, Standard Units	6	8.2	7.7	d	9/4(e)	0	
16	Residual Chlorine	4	<0.05	<0.05	<0.05	0.5	0	
	Flow(c), mgd	4	0.0913	0.0004	0.0009	d	d	
	pH, Standard Units	5	7.8	7.1	d	9/4(e)	0	
19	Residual Chlorine	4	<0.05	<0.05	<0.05	0.5	0	
	Flow(c), mgd	4	0.1141	0.0001	0.04	d	d	
	pH, Standard Units	4	8	7.4	d	9/4(e)	0	
20	Residual Chlorine	4	<0.05	<0.05	<0.05	0.5	0	
	Flow(c), mgd	4	0.0913	0.0001	0.026	d	d	
	pH, Standard Units	4	7.8	7.4	d	9/4(e)	0	
41	Residual Chlorine	4	0.05	<0.05	<0.05	0.5	0	
	Flow(c), mgd	4	0.0046	0.0002	0.0014	d	d	
	pH, Standard Units	5	8.1	7.4	d	9/4(e)	0	

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Table 2.15 (continued)

Outfall	Parameter	Number of Samples	Concentration (a)			Avg	Reference Value (b)	Number of Values Exceeding Reference
			Max	Min				
44	Residual Chlorine	4	<0.05	<0.05	<0.05	0.5	0	
	Flow(c), mgd	4	0.0091	0.0004	0.0046	d	d	
	pH, Standard Units	4	7.6	7.3	d	9/4(e)	0	
57	Residual Chlorine	4	<0.05	<0.05	<0.05	0.5	0	
	Flow(c), mgd	4	0.0171	0.0004	0.008	d	d	
	pH, Standard Units	4	8.2	7.3	d	9/4(e)	0	
63	Residual Chlorine	4	<0.05	<0.05	<0.05	0.5	0	
	Flow(c), mgd	4	0.0457	0.003	0.0143	d	d	
	pH, Standard Units	4	8	7.3	d	9/4(e)	0	
64	Residual Chlorine	4	<0.05	<0.05	<0.05	0.5	0	
	Flow(c), mgd	4	0.0457	0.0002	0.0213	d	d	
	pH, Standard Units	4	8.2	7.6	d	9/4(e)	0	
67	Residual Chlorine	4	0.3	<0.05	<0.11	0.5	0	
	Flow(c), mgd	4	0.038	0.0114	0.0265	d	d	
	pH, Standard Units	4	7.9	7.5	d	9/4(e)	0	
83	Residual Chlorine	4	0.08	<0.05	<0.06	0.5	0	
	Flow(c), mgd	4	0.0685	0.0125	0.0296	d	d	
	pH, Standard Units	4	8.3	7.3	d	9/4(e)	0	
88	Residual Chlorine	4	<0.05	<0.05	<0.05	0.5	0	
	Flow(c), mgd	4	0.0228	0.0001	0.008	d	d	
	pH, Standard Units	4	7.6	7.4	d	9/4(e)	0	
99	Residual Chlorine	4	<0.05	<0.05	<0.05	0.5	0	
	Flow(c), mgd	4	0.019	0.0076	0.014	d	d	
	pH, Standard Units	4	7.8	7.4	d	9/4(e)	0	

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Table 2.15 (continued)

Outfall	Parameter	Number of Samples	Concentration (a)			Avg	Reference Value (b)	Number of Values Exceeding Reference
			Max	Min	Avg			
126	Residual Chlorine	4	<0.05	<0.05	<0.05	0.5	0	
	Flow(c), mgd	4	0.457	0.0001	0.0138	d	d	
	pH, Standard Units	4	8.4	7.7	d	9/4(e)	0	
S02	Residual Chlorine	4	<0.05	<0.05	<0.05	0.5	0	
	low(c), mgd	3	0.147	0.0003	0.0554	d	d	
	pH, Standard Units	6	7.7	7.1	d	9/4(e)	0	
S08	Flow(c), mgd	4	0.576	0.0761	0.328	d	d	
	pH, Standard Units	4	7.7	7.4	d	9/4(e)	0	
S10	Flow(c), mgd	4	0.576	0.0761	0.328	d	d	
	pH, Standard Units	4	7.6	6.7	d	9/4(e)	0	
S11	Flow(c), mgd	4	0.892	0.032	0.327	d	d	
	pH, Standard Units	5	7.3	7	d	9/4(e)	0	
S12	Flow(c), mgd	4	0.0074	0.0001	0.004	d	d	
	pH, Standard Units	4	7.9	6.6	d	9/4(e)	0	
S13	Flow(c), mgd	4	0.776	0.0057	0.0318	d	d	
	pH, Standard Units	4	7.4	7.2	d	9/4(e)	0	
S17	Flow(c), mgd	4	0.864	0.216	0.489	d	d	
	pH, Standard Units	6	7.7	7.5	d	9/4(e)	0	
S20	Residual Chlorine	4	<0.05	<0.05	<0.05	0.5	0	
	Flow(c), mgd	4	0.295	0.0648	0.219	d	d	
	pH, Standard Units	5	8.1	7.6	d	9/4(e)	0	

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Table 2.15 (continued)

Outfall	Parameter	Number of Samples	Max	Min	Avg	Reference Value (b)	Number of Values Exceeding Reference
S21	Flow(c), mgd	3	0.0068	0.0004	0.0758	d	d
	pH, Standard Units	4	8.1	7.8	d	9/4(e)	0
S22	Flow(c), mgd	4	0.0228	0.0008	0.0073	d	d
	pH, Standard Units	4	8.2	7.8	d	9/4(e)	0
S24	Flow(c), mgd	275	51	0.006	1.98	d	d
	pH, Standard Units	5	7.5	6.9	d	9/4(e)	0
S25	Flow(c), mgd	4	0.0144	0.0014	0.0066	d	d
	pH, Standard Units	4	8.1	7.7	d	9/4(e)	0
S26	Flow(c), mgd	4	0.259	0.0038	0.127	d	d
	pH, Standard Units	5	8	7.3	d	9/4(e)	0
S27	Flow(c), mgd	4	0.288	0.0002	0.122	d	d
	pH, Standard Units	4	8.2	6.7	d	9/4(e)	0
S28	Flow(c), mgd	4	0.288	0.0014	0.118	d	d
	pH, Standard Units	4	8.2	6.8	d	9/4(e)	0
S29	Flow(c), mgd	1	0.0288	0.0228	0.0228	d	d
	pH, Standard Units	1	8	8	d	9/4(e)	0

(a) Units in mg/L unless otherwise

(b) NPDES permit limits.

(c) Flow during operations and/or discharging.

(d) Not applicable.

(e) Maximum value/minimum value.

Oak Ridge Reservation

Annual Site Environmental Data

Table 2.16. Y-12 Discharge Points, Category III Outfalls

From: 1996/01/01 To: 1996/12/31

Outfall	Parameter	Number of Samples	Max	Concentration (a)	Min	Avg	Reference Value (b)	Number of Values Exceeding Reference
2	Residual Chlorine	12	<0.05	<0.05	<0.05	<0.05	0.5	0
	Flow(c), mgd	12	0.864	0.0171	0.18	d	d	d
	pH, Standard Units	12	8.3	7.3	d	9/4 (e)	9/4 (e)	0
34	Residual Chlorine	12	0.27	<0.05	<0.07	<0.07	0.5	0
	Flow(c), mgd	12	0.324	0.0262	0.13	d	d	d
	pH, Standard Units	12	8	7.4	d	9/4 (e)	9/4 (e)	0
42	Residual Chlorine	12	<0.05	<0.05	<0.05	<0.05	0.5	0
	Flow(c), mgd	12	0.0288	0.0007	0.011	d	d	d
	pH, Standard Units	12	8.2	7.3	d	9/4 (e)	9/4 (e)	0
47	Residual Chlorine	12	0.06	<0.05	<0.05	<0.05	0.5	0
	Flow(c), mgd	22	0.0749	0.0002	0.029	d	d	d
	pH, Standard Units	22	8.3	7	d	9/4 (e)	9/4 (e)	0
48	Residual Chlorine	12	0.06	<0.05	<0.05	<0.05	0.5	0
	Flow(c), mgd	12	0.0317	0.0002	0.0047	d	d	d
	pH, Standard Units	12	8.2	7.5	d	9/4 (e)	9/4 (e)	0
54	Residual Chlorine	12	<0.05	<0.05	<0.05	<0.05	0.5	0
	Flow(c), mgd	12	0.0041	0.0002	0.0027	d	d	d
	pH, Standard Units	13	8.7	7.5	d	9/4 (e)	9/4 (e)	0
71	Residual Chlorine	12	0.12	<0.05	<0.06	<0.06	0.5	0
	Flow(c), mgd	12	0.0216	0.0023	0.0066	d	d	d
	pH, Standard Units	13	8	7	d	9/4 (e)	9/4 (e)	0

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Table 2.16 (continued)

Outfall	Parameter	Number of Samples	Concentration (a)			Avg	Reference Value (b)	Number of Values Exceeding Reference
			Max	Min				
109	Residual Chlorine	12	0.25	<0.05	<0.07	0.5	0	
	Flow(c), mgd	12	0.0936	0.0152	0.18	d	d	
	pH, Standard Units	13	8	7.2	d	9/4(e)	0	
113	Residual Chlorine	12	<0.05	<0.05	<0.05	0.5	0	
	Flow(c), mgd	22	0.0038	0.0001	0.0012	d	d	
	pH, Standard Units	22	8.4	7.4	d	9/4(e)	0	
114	Residual Chlorine	12	0.15	<0.05	<0.07	0.5	0	
	Flow(c), mgd	12	0.001	0.0001	0.0005	d	d	
	pH, Standard Units	12	8	7.4	d	9/4(e)	0	
S05	Flow(c), mgd	5	0.0076	0.0002	0.0019	d	d	
	pH, Standard Units	13	8	6.5	d	9/4(e)	0	
S14	Flow(c), mgd	12	0.648	0.0216	0.18	d	d	
	pH, Standard Units	13	8	6.9	d	9/4(e)	0	

(a) Units in mg/L unless otherwise

(b) NPDES permit limits.

(c) Flow during operations and/or discharging.

(d) Not applicable.

(e) Maximum value/minimum value.

Table 2.17. Y-12 Plant Station 17 (SWHSS Station 9422-1) in EFPC km 23.4

From: 1996/01/01 To: 1996/12/31

Outfall	Parameter	Number of Samples	Concentration (a)			Avg	Reference Value (b)	Number of Values Exceeding Reference
			Max	Min				
Station 17	Flow, mgd	367	86.6042	2.6498	7.1	C	C	
in EFPC	Temperature, deg C	56	27.22	9.44	17.7	30.5	0	
	1,1,1-Trichloroethane	167	0.01U	0.001J	0.0099J	170	0	
	1,1-Dichloroethane	167	0.01U	0.01U	0.01U	C	C	
	1,1-Dichloroethene	167	0.01U	0.01U	0.01U	0.032	0	
	1,1,2,2-Tetrachloroethane	167	0.01U	0.01U	0.01U	C	C	
	1,1,2-Trichloroethane	167	0.01U	0.01U	0.01U	0.42	0	
	1,2-Dichloroethane	167	0.01U	0.01U	0.01U	0.99	0	
	1,2-Dichloropropane	167	0.01U	0.01U	0.01U	C	C	
	Silver	218	<0.006	<0.006	<0.006	0.0041	0	
	Arsenic	218	<0.04	<0.04	<0.04	0.0014	0	
	Boron	218	0.35	<0.02	<0.10	C	C	
	Bromodichloromethane	167	0.01U	0.01U	0.01U	C	C	
	Beryllium	218	<0.0004	<0.0004	<0.0004	0.0013	0	
	Benzene	167	0.01U	0.01U	0.01U	0.71	0	
	Dibromochloromethane	167	0.01U	0.01U	0.01U	4.7	0	
	Bromoform	167	0.01U	0.01U	0.01U	4.7	0	
	Calcium	218	59.4	24.7	44.9	C	C	
	Carbon tetrachloride	167	0.01U	0.001J	0.007J	44	0	
	Cadmium	218	<0.004	<0.004	<0.004	0.0039	0	
	cis-1,3-Dichloropropene	167	0.01U	0.01U	0.01U	1.7	0	
	Chloroethane	167	0.01U	0.01U	0.01U	C	C	
	Bromomethane	167	0.01U	0.01U	0.01U	C	C	
	Chloromethane	167	0.01U	0.01U	0.01U	C	C	
	Chloroform	167	0.01U	0.001J	0.006J	4.7	0	

Table 2.17 (continued)

Outfall Station	Parameter	Number of Samples	Concentration(a)			Avg	Reference Value(b)	Number of Values Exceeding Reference
			Max	Min				
17	Tetrachloroethene	167	0.01U	0.001J	0.008J	0.088	0	
	Chlorobenzene	167	0.01U	0.01U	0.01U	C	C	
	Cobalt	218	0.004	<0.002	<0.002	C	C	
	Chromium	218	<0.006	<0.006	<0.006	0.016	0	
	Copper	218	0.018	<0.006	<0.0064	0.0177	0	
	Ethylbenzene	167	0.01U	0.01U	0.01U	29	0	
	TrichlorofluoromethaneL	167	0.01U	0.01U	0.01U	C	C	
	Mercury	526	0.0066	<0.0002	<0.0008	0.00015	526	
	Potassium	218	2.5	1.3	1.8	C	C	
	Lithium	218	0.19	<0.02	<0.0532	C	C	
	Methylene chloride	167	0.01U	0.01U	0.01U	16	0	
	Magnesium	218	13.8	3.85	10.3	C	C	
	Molybdenum	218	<0.006	<0.006	<0.006	C	C	
	Sodium	218	121	3.63	14.9	C	C	
	Nickel, mg/L	218	0.102	<0.008	<0.0085	1.418	0	
	Nitrate/Nitrite as Nitrogen	167	5.6	0.81	3.5	C	C	
	Lead	218	<0.02	<0.02	<0.02	0.0817	0	
	Antimony	218	<0.04	<0.04	<0.04	4.31	0	
	Selenium	218	<0.1	<0.1	<0.1	0.02	0	
	Strontium	218	0.16	0.063	0.11	C	C	
	trans-1,2-Dichloroethene	167	0.01U	0.01U	0.01U	C	C	
	trans-1,3-Dichloropropene	167	0.01U	0.01U	0.01U	1.7	0	
	Titanium	218	0.04	0.01	<0.02	C	C	
	Thallium	218	<0.03	<0.03	<0.03	0.0063	0	
	Toluene	167	0.01U	0.01U	0.01U	300	0	
	Trichloroethene	167	0.01U	0.01U	0.01U	0.807	0	
	Uranium	52	0.06	0.002	0.022	C	C	
	U235, weight %	52	0.67	0.18	0.34	C	C	
	Vanadium	218	0.006	<0.004	<0.004	C	C	

Table 2.17 (continued)

Outfall	Parameter	Number of Samples	Concentration (a)			Avg	Reference Value (b)	Number of Values Exceeding Reference
			Max	Min				
Station 17 Vinyl chloride		167	0.01U	0.01U	0.01U	C	C	
	Zinc	218	0.18	0.02	0.05	0.117	6	
	Zirconium	218	<0.004	<0.004	<0.004	C	C	

(a) Units in mg/L unless otherwise indicated.

(b) Tennessee water quality for fish and aquatic life.

(c) Not applicable.

Table 2.18. Y-12 Plant Station 17 (SWISS Station 9422-1), Radiological Data

From: 1996/01/01 To: 1996/12/31

Parameter	Number of Samples	Activity		% of +/-	Min	+/-	Median	+/-	Standard Error	% DCG	Total Curies
		Max									
Alpha activity (pCi/L)	52	29		6.6	-1.2*	3.5	9.65	a	0.9946	a	1.03E-01
Americium-241 (pCi/L)	52	0.89		0.42	-0.097*	0.28	0.0475	a	0.0204	0.1583	7.51E-04
Beta activity (pCi/L)	52	28		11	-12.0*	10	7.1	a	0.995	a	6.68E-02
Cobalt-60 (pCi/L)	52	8.8		3.7	-7.2*	3.7	1.05	a	0.4879	0.021	1.77E-02
Cesium-137 (pCi/L)	52	10		4.5	-9.4*	3.9	0.4	a	0.3519	0.0133	6.91E-03
Gamma Activity (pCi/L)	52	560		66	-22.0*	30	27	a	11.2823	a	4.04E-01
Neptunium-237 (pCi/L)	52	0.22		0.26	-0.071*	0.1	0	a	0.0076	0	1.66E-04
Plutonium-238 (pCi/L)	52	0.53*		0.54	-0.17*	0.21	0.01	a	0.0177	0.025	3.98E-04
Plutonium-239/240 (pCi/L)	52	0.26		0.21	-0.11*	0.11	0.012	a	0.0103	0.04	2.48E-04
Radium-228 (pCi/L)	52	6.2		2.8	-6.0*	4.7	-0.985	a	0.3931	-0.985	-7.71E-03
Strontium-89/90 (pCi/L)	52	13.0*		11	-9.3*	2	-0.7	a	0.6465	a	-6.66E-03
Total Radium Alpha (pCi/L)	52	1.2		0.7	-0.5*	0.85	0.0475	a	0.0481	a	9.21E-04
Technetium-99 (pCi/L)	52	18		8.9	-8.0*	6.3	7	a	0.8123	0.007	6.92E-02
Thorium-228 (pCi/L)	52	0.55*		0.57	-0.11*	0.28	0.14	a	0.023	0.035	1.55E-03
Thorium-230 (pCi/L)	52	0.93		0.47	-0.023*	0.047	0.285	a	0.0295	0.095	3.23E-03
Thorium-232 (pCi/L)	52	0.97		0.44	-0.053*	0.075	0.033	a	0.0243	0.066	7.25E-04
Thorium-234 (pCi/L)	52	20		3	1.2	0.42	9.3	a	0.6522	0.093	9.05E-02
Tritium (pCi/L)	52	1800		280	-190.0*	190	125	a	44.5817	0.0063	1.79E+00
Uranium-234 (pCi/L)	52	7.5		1.3	0.64	0.38	3.95	a	0.2245	0.79	3.72E-02
Uranium-235 (pCi/L)	104	21.0*		12	-19.0*	18	0.25	a	0.4711	0.0417	1.33E-02
Uranium-236 (pCi/L)	52	0.31		0.24	-0.033*	0.067	0.07	a	0.0105	0.014	7.83E-04
Uranium-238 (pCi/L)	52	24		4.2	1.8	0.65	9.4	a	0.6929	1.5667	9.48E-02

(e) Not applicable

* Result below minimum detectable activity.

Table 2.19. Y-12 Plant Station 8 (SWHIS Station 9422-3) in EFPC km 24.6

From: 1996/01/01 To: 1996/12/31

Outfall	Parameter	Number of Samples	Concentration(a)			Avg	Reference Value(b)	Number of Values Exceeding Reference
			Max	Min				
Station 8	Flow, mgd	277	31.6687	1.9389	4.2	c	c	
EFPC	Mercury, mg/L	217	0.015	0.0003	0.0012	0.00015	217	
	Uranium, mg/L	52	0.32	0.004	0.038	c	c	
	U-235, weight %	52	0.58	0.17	0.31	c	c	

(a) Units in mg/L unless otherwise indicated.

(b) Tennessee water quality for fish and aquatic life.

(c) Not applicable.

Table 2.20. Y-12 Plant Station 8 (SWHSS Station 9422-3) in EFPC km 24.6 Radiological Data

From: 1996/01/01 To: 1996/12/31

Parameter	Number of Samples	Activity		% of +/-	Min	+/-	Median	+/-	Standard Error	% DCG	Total Curies
		Max									
Alpha activity (pCi/L)	52	41		14	-0.83*	0.47	12	a	1.3584	a	8.37E-02
Americium-241 (pCi/L)	52	0.37		0.19	-0.19*	0.19	0.066	a	0.0154	0.22	3.58E-04
Beta activity (pCi/L)	52	34		11	-9.7*	12	9.15	a	1.2326	a	5.44E-02
Cobalt-60 (pCi/L)	52	8.6		2.7	-8.6*	4.2	1.1	a	0.4429	0.022	9.36E-03
Cesium-137 (pCi/L)	52	6.1		3.7	-2.6*	4	0.895	a	0.2408	0.0298	5.94E-03
Gamma Activity (pCi/L)	52	190		37	-14.0*	30	22	a	5.7563	a	1.80E-01
Neptunium-237 (pCi/L)	52	0.63		0.27	-0.34*	0.68	0.0105	a	0.015	0.035	1.59E-04
Plutonium-238 (pCi/L)	52	0.29		0.24	-0.14*	0.13	0.0035	a	0.0136	0.0088	1.76E-04
Plutonium-239/240 (pCi/L)	52	0.35		0.29	-0.12*	0.13	0	a	0.0105	0	4.44E-05
Radium-228 (pCi/L)	52	8.7		3.1	-5.3*	6	-0.285	a	0.3328	-0.285	-2.36E-03
Strontium-89/90 (pCi/L)	52	6.6*		4.6	-8.7*	2	-1.35	a	0.5393	a	-6.75E-03
Technetium-99 (pCi/L)	52	26		14	-4.0*	12	10	a	1.0002	0.01	5.58E-02
Thorium-228 (pCi/L)	52	2.7		1.1	-0.055*	0.2	0.15	a	0.0541	0.0375	1.39E-03
Thorium-230 (pCi/L)	52	2		0.88	0.039*	0.097	0.3	a	0.0399	0.1	2.13E-03
Thorium-232 (pCi/L)	52	0.71		0.3	-0.07*	0.082	0.0325	a	0.0147	0.065	3.02E-04
Thorium-234 (pCi/L)	52	35		5.3	0.11	0.033	11.5	a	1.3158	0.115	7.81E-02
Uranium-234 (pCi/L)	52	10		1.8	0.038	0.018	4.6	a	0.3688	0.92	2.66E-02
Uranium-235 (pCi/L)	103	21.0*		16	-18.0*	17	0.43	0.31	0.6061	0.0717	1.28E-02
Uranium-236 (pCi/L)	52	0.41		0.28	-0.049*	0.099	0.0895	a	0.013	0.0179	5.85E-04
Uranium-238 (pCi/L)	52	35		5.3	0.11	0.033	11.5	a	1.3192	1.9167	7.82E-02

(a) Not applicable

* Results below minimum detectable activity

Table 2.21. Y-12 Plant Discharge Point S17, Unnamed Tributary to the Clinch River Radiological Data

From: 1996/01/01 To: 1996/12/31

Parameter	Number of Samples	Activity		% of +/-	Min	+/-	Median	+/-	Standard		Total Curies
		Max	% of +/-						Error	% DCG	
Alpha activity (pCi/L)	16	6.6*	8	1.5	-10.0*	0.36	2.55	a	1.0447	a	1.14E-03
Americium-241 (pCi/L)	16	8	13.0*	9.6	-0.058*	0.09	0.0735	a	0.4966	0.245	3.76E-04
Beta activity (pCi/L)	16	8.2*	8.2*	3.3	-4.2*	3.9	1.05	a	0.7894	0.021	-3.10E-04
Cobalt-60 (pCi/L)	16	5.5	5.5	4	-4.9*	4.1	0.925	a	0.6724	0.0308	8.57E-04
Cesium-137 (pCi/L)	16	110	110	32	-19.0*	30	28	a	8.1577	a	7.81E-04
Gamma Activity (pCi/L)	16	0.24*	0.21	0.21	-0.059*	0.11	0.0115	a	0.0175	0.0383	2.22E-02
Neptunium-237 (pCi/L)	16	0.12*	0.2	0.2	-0.21*	0.31	-0.0025	a	0.0213	-0.0062	1.45E-05
Plutonium-238 (pCi/L)	16	0.37*	0.42	0.42	-0.33*	0.39	0	a	0.0347	0	-9.31E-06
Plutonium-239/240 (pCi/L)	16	5.4*	11	1.8	-11.0*	13	-1.45	a	0.9367	-1.45	9.35E-06
Radium-228 (pCi/L)	16	1.9*	1.8	1.8	-5.2*	5.2	-2.4	a	0.6275	a	-7.61E-04
Strontium-89/90 (pCi/L)	16	0.72	0.52	0.52	-0.37*	0.39	0.175	a	0.0727	a	-1.45E-03
Total Radium Alpha (pCi/L)	16	31	35	35	-6.0*	7.2	2	a	2.176	0.002	1.01E-04
Technetium-99 (pCi/L)	16	0.27	0.21	0.21	-0.028*	0.15	0.056	a	0.0212	0.014	2.16E-03
Thorium-228 (pCi/L)	16	0.9	0.36	0.36	0.0*	0	0.21	a	0.0594	0.07	4.97E-05
Thorium-230 (pCi/L)	16	0.27	0.2	0.2	-0.063*	0.12	0.0375	a	0.0206	0.075	2.00E-04
Thorium-232 (pCi/L)	16	1.2	0.63	0.63	0.19*	0.19	0.49	a	0.0705	0.0049	3.16E-05
Thorium-234 (pCi/L)	12	120.0*	120	120	-120.0*	230	4.4	a	21.4002	0.0002	3.47E-04
Tritium (pCi/L)	16	1.3	0.74	0.74	0.29	0.21	0.79	a	0.0712	0.158	1.53E-02
Uranium-234 (pCi/L)	32	15.0*	15	15	-12.0*	15	0.091	a	0.9738	0.0152	5.30E-04
Uranium-235 (pCi/L)	16	0.093*	0.19	0.19	-0.049*	0.099	0	a	0.0085	0	6.82E-04
Uranium-236 (pCi/L)	16	1.2	0.63	0.63	0.19*	0.19	0.49	a	0.0705	0.0817	5.42E-06
Uranium-238 (pCi/L)	16	1.2	0.63	0.63	0.19*	0.19	0.49	a	0.0705	0.0817	3.47E-04

(a) Not applicable

* Result below the minimum detectable activity.

Table 2.22. Y-12 Plant Discharge Point S19, ROGER'S QUARRY

From: 1996/01/01 To: 1996/12/31

Outfall	Parameter	Number of Samples	Concentration (a)			Avg	Reference Value (b)	Number of Values Exceeding Reference
			Max	Min	Avg			
S19	Flow (c), mgd	342	1.585	0.06	0.41	d	d	
	pH, Std Unit	15	7.9	6.6	7.5	9/6(e)	0	
	Silver	15	<0.006	<0.006	<0.006	d	d	
	Aluminum, mg/L	15	<0.04	<0.04	<0.04	d	d	
	Arsenic	15	<0.04	<0.04	<0.04	d	d	
	Boron	15	0.09	0.06	0.075	d	d	
	Barium	15	0.0556	0.0471	0.05	d	d	
	Beryllium	15	<0.0004	<0.0004	<0.0004	d	d	
	Calcium	15	40.2	35.9	38.1	d	d	
	Cadmium	15	<0.004	<0.004	<0.004	d	d	
	Cobalt	15	<0.002	<0.002	<0.002	d	d	
	Chromium	15	<0.006	<0.006	<0.006	d	d	
	Copper	15	<0.006	<0.006	<0.006	d	d	
	Iron	15	<0.06	<0.06	<0.06	d	d	
	Potassium	15	1.9	1.6	1.8	d	d	
	Lithium	15	<0.02	<0.02	<0.02	d	d	
	Magnesium	15	10.1	9.43	9.7	d	d	
	Manganese	15	0.158	0.007	0.041	d	d	
	Molybdenum	15	<0.006	<0.006	<0.006	d	d	
	Sodium	15	2.44	1.39	2	d	d	
	Nickel	15	<0.008	<0.008	<0.008	d	d	
	Lead	15	<0.02	<0.02	<0.02	d	d	
	Antimony	15	<0.04	<0.04	<0.04	d	d	
	Strontium	15	0.243	0.208	0.22	d	d	
	Thallium	15	<0.03	<0.03	<0.03	d	d	

Table 2.22 (continued)

Outfall	Parameter	Number of Samples	Concentration (a)			Avg	Reference Value (b)	Number of Values Exceeding Reference
			Max	Min				
S19	Uranium	15	0.002	<0.001	<0.0011	d	d	
	Vanadium	15	<0.004	<0.004	<0.004	d	d	
	Zinc	15	0.02	<0.01	<0.0107	d	d	

- (a) Units in mg/L unless otherwise indicated.
- (b) NPDES permit limits.
- (c) Flow during operations and/or discharging.
- (d) Not applicable.
- (e) Maximum value/minimum value.

Table 2.23. Y-12 Plant Discharge Point S19, Rogers Quarry Radiological Data

From: 1996/01/01 To: 1996/12/31

Parameter	Number of Concentration % of			Median	+/-	Standard				
	Max	+/-	% of			Error	% DCG	Total Curies		
Alpha activity (pCi/L)	15	5.4*	8.1	-7.7*	0.34	1.0*	3.1	0.8586	a	1.15E-04
Americium-241 (pCi/L)	15	0.2*	0.23	-0.13*	0.13	0.005*	0.22	0.0245	0.0167	5.90E-06
Beta activity (pCi/L)	15	12.0*	9.5	-16.0*	0.09	-3.6*	11	1.7852	a	-2.04E-03
Cobalt-60 (pCi/L)	15	4.1	3	-0.77*	2.5	1.4*	1.9	0.414	0.028	7.35E-04
Cesium-137 (pCi/L)	15	3.2*	4.7	-7.4*	4	-0.23*	2.2	0.6445	-0.0077	-1.58E-04
Gamma Activity (pCi/L)	15	630	72	0.6*	31	36.0*	31	43.4983	a	5.21E-02
Neptunium-237 (pCi/L)	15	0.091	0.11	-0.044*	0.062	0.013*	0.01	0.0108	0.0433	1.08E-05
Plutonium-238 (pCi/L)	15	0.42*	0.46	-0.13*	0.13	-0.021*	0.042	0.0338	-0.0525	4.29E-06
Plutonium-239/240 (pCi/L)	15	0.59	0.49	-0.11*	0.16	-0.012*	0.084	0.0418	-0.04	1.08E-05
Radium-228 (pCi/L)	15	6.4	3.4	-10.0*	15	-2.6*	7	0.8943	-2.6	-1.23E-03
Strontium-89/90 (pCi/L)	15	15.0*	11	-6.2*	4.1	-0.82*	5.3	1.3056	a	2.09E-04
Total Radium Alpha (pCi/L)	15	5.1	1.4	-0.42*	0.6	0.27*	0.39	0.3417	a	3.00E-04
Technetium-99 (pCi/L)	15	5.0*	15	-7.0*	8.2	1.0*	8.6	1.0022	0.001	-3.76E-05
Thorium-238 (pCi/L)	15	0.75	0.32	-0.091*	0.13	0.064*	0.16	0.0541	0.016	7.01E-05
Thorium-230 (pCi/L)	15	1.1	0.37	-0.021*	0.15	0.28*	0.16	0.0826	0.0933	2.16E-04
Thorium-232 (pCi/L)	15	0.57	0.27	-0.076*	0.11	0.0*	0	0.0404	0	2.58E-05
Thorium-234 (pCi/L)	15	0.71	0.38	0.085*	0.14	0.16	0.16	0.0408	0.0016	1.26E-04
Tritium (pCi/L)	12	250.0*	140	-170.0*	190	77.5	a	37.0717	0.0039	3.36E-02
Uranium-234 (pCi/L)	15	0.67	0.45	0.0*	0	0.29	0.24	0.0463	0.058	1.71E-04
Uranium-235 (pCi/L)	30	16.0*	16	-17.0*	17	0	a	1.098	0	8.75E-04
Uranium-236 (pCi/L)	15	0.042*	0.084	-0.046*	0.093	0.0*	0	0.0062	0	-2.33E-06
Uranium-238 (pCi/L)	15	0.71	0.38	0.085*	0.14	0.16	0.16	0.0408	0.0267	1.27E-04

(a) Not applicable

* Result below the minimum detectable activity.

Table 2.24. Y-12 Plant Discharge Point 11.97, Upper Bear Creek near km 11.97

From: 1996/01/01 To: 1996/12/31

Outfall	Parameter	Number of Samples	Concentration (a)			Avg	Reference Value (b)	Number of Values Exceeding Reference
			Max	Min				
BCK 11.97	Flow, mgd	310	8.4019	0.0194	0.36	c	c	
	Silver	35	<0.03	<0.03	<0.03	0.0041	0	
	Arsenic	35	<0.2	<0.2	<0.2	0.0014	0	
	Beryllium	35	<0.002	<0.002	<0.002	0.0013	0	
	Cadmium	35	<0.02	<0.02	<0.02	0.0039	0	
	Chromium	35	<0.03	<0.03	<0.03	0.016	0	
	Copper	35	<0.03	<0.03	<0.03	0.0177	0	
	Cyanide	35	<0.01	<0.01	<0.01	0.022	0	
	Mercury	35	<0.0002	<0.0002	<0.0002	0.00015	0	
	Nickel	35	<0.04	<0.04	<0.04	1.418	0	
	Lead	35	<0.1	<0.1	<0.1	0.0817	0	
	Phenols - Total Recoverable	35	0.037	<0.005	<0.0064	c	c	
	Antimony	35	<0.2	<0.2	<0.2	4.31	0	
	Selenium	35	<0.5	<0.5	<0.5	0.02	0	
	Thallium	35	<0.2	<0.2	<0.2	c	c	
	Uranium	31	0.25	0.039	0.11	c	c	
	U235, weight %	31	0.59	0.24	0.36	c	c	
	Zinc	35	0.12	<0.05	<0.052	0.117	1	

(a) Units in mg/L unless otherwise indicated.

(b) Tennessee water quality limits for fish and aquatic life.

(c) Not applicable.

Table 2.25. Y-12 Plant Discharge Point 11.97, Upper Bear Creek near km 11.97 Radiological Data

From: 1996/01/01 To: 1996/12/31

Parameter	Number of Samples	Concentration			% of			Median	+/-	Standard Error	% DCG	Total Curies
		Max	Min	+/-	+	-	+/-					
Alpha activity (pCi/L)	31	120	19	10	49	15	4.1945	a	2.68E-02			
Americium-241 (pCi/L)	31	0.73	-0.11*	0.21	0.096*	0.14	0.0285	0.32	6.49E-05			
Beta activity (pCi/L)	31	250	19	11	110	21	11.1449	a	5.40E-02			
Cobalt-60 (pCi/L)	31	19.0*	-8.5*	4.5	2.5*	7.2	0.7996	0.05	1.38E-03			
Cesium-137 (pCi/L)	31	9.8	-3.5*	3.9	1.9*	2.9	0.5752	0.0633	1.18E-03			
Gamma Activity (pCi/L)	31	160	-26.0*	31	17.0*	30	6.2793	a	1.32E-02			
Neptunium-237 (pCi/L)	31	1.7	0.11*	0.17	0.88	0.36	0.0785	2.9333	4.24E-04			
Plutonium-238 (pCi/L)	31	0.45	-0.15*	0.3	0.022*	0.1	0.02	0.055	1.92E-05			
Plutonium-239/240 (pCi/L)	31	0.27	-0.047*	0.095	0.009*	0.18	0.0115	0.03	1.57E-05			
Radium-228 (pCi/L)	31	3.9	-9.1*	5.5	-0.79*	0.86	0.5118	-0.79	-4.98E-04			
Strontium-89/90 (pCi/L)	31	6.3*	-9.9*	2.1	-0.68*	5.1	0.7124	a	-1.17E-04			
Total Radium Alpha (pCi/L)	31	0.96*	-0.67*	0.55	0.1*	0.82	0.0641	a	3.97E-05			
Technetium-99 (pCi/L)	31	790	40	13	190	22	27.3659	0.19	1.10E-01			
Thorium-228 (pCi/L)	31	0.89	-0.003*	0.12	0.14*	0.19	0.0369	0.035	1.09E-04			
Thorium-230 (pCi/L)	31	0.85	0.14*	0.18	0.35	0.25	0.0342	0.1167	1.88E-04			
Thorium-232 (pCi/L)	31	0.82	-0.066*	0.095	0.031*	0.074	0.0274	0.062	2.98E-05			
Thorium-234 (pCi/L)	31	100	15	2.7	39	7.1	3.7013	0.39	2.18E-02			
Tritium (pCi/L)	31	280.0*	-270.0*	780	-24.0*	240	23.2515	-0.0012	-9.70E-03			
Uranium-234 (pCi/L)	31	56	7.8	1.6	20	3.5	2.0963	4	1.13E-02			
Uranium-235 (pCi/L)	62	19.0*	-20.0*	17	1.45	a	0.7359	0.2417	9.79E-04			
Uranium-236 (pCi/L)	31	1.3	0.045*	0.09	0.44	0.23	0.0573	0.088	2.85E-04			
Uranium-238 (pCi/L)	31	100	15	2.7	39	7.1	3.7013	6.5	2.18E-02			

(a) Not applicable

* Result below the minimum detectable activity.

Oak Ridge Reservation

Annual Site Environmental Data

Table 2.26. Y-12 Plant Station 304 at Bear Creek km 4.55 near Highway 95

From: 1996/01/01 To: 1996/12/31

Outfall	Parameter	Number of Samples	Concentration (a)			Avg	Reference Value (b)	Number of Values Exceeding Reference
			Max	Min				
BCK 4.55	Flow, mgd	367	69.8004	0.738	d	c	c	
	Silver	12	<0.006	<0.006	<0.006	0.0041	0	
	Arsenic	12	<0.04	<0.04	<0.04	0.0014	0	
	Boron	12	0.08	<0.02	<0.04	c	c	
	Beryllium	12	<0.0004	<0.0004	<0.0004	0.0013	0	
	Calcium	12	64.5	29.9	40.3	c	c	
	Cadmium	12	<0.004	<0.004	<0.004	0.0039	0	
	Cobalt	12	<0.002	<0.002	<0.002	c	c	
	Chromium	12	<0.006	<0.006	<0.006	0.016	0	
	Copper	12	<0.006	<0.006	<0.006	0.0177	0	
	Mercury	12	<0.0002	<0.0002	<0.0002	0.00015	0	
	Potassium	12	2.1	1	1.3	c	c	
	Lithium	12	<0.02	<0.02	<0.02	c	c	
	Magnesium	12	15.2	7.47	11.4	c	c	
	Molybdenum	12	<0.006	<0.006	<0.006	c	c	
	Sodium	12	8.06	2.2	4.3	c	c	
	Nickel	12	<0.008	<0.008	<0.008	1.418	0	
	Lead	12	<0.02	<0.02	<0.02	0.0817	0	
	Phenols - Total Recoverable	11	0.0053	<0.005	<0.005	c	c	
	Antimony	12	<0.04	<0.04	<0.04	4.31	0	
	Selenium	12	<0.1	<0.1	<0.1	0.02	0	
	Strontium	12	0.135	0.046	0.07	c	c	
	Titanium	12	<0.02	<0.02	<0.02	c	c	
	Thallium	12	<0.03	<0.03	<0.03	0.0063	0	

Table 2.26 (continued)

Outfall	Parameter	Number of Samples	Concentration (a)			Avg	Reference Value (b)	Number of Values Exceeding Reference
			Max	Min				
	Uranium	12	0.036	0.008		0.026	c	c
	U235, weight %	12	0.42	0.29		0.37	c	c
	Vanadium	12	<0.004	<0.004		<0.004	c	c
	Zinc	12	<0.01	<0.01		<0.01	0.117	0
	Zirconium	12	<0.004	<0.004		<0.004	c	c

(a) Units in mg/L unless otherwise indicated.

(b) Tennessee water quality limits for fish and aquatic life.

(c) Not applicable.

Oak Ridge Reservation

Annual Site Environmental Data

Table 2.27. Y-12 Plant Discharge Point STA304, Station 304, Bear Creek km 4.55 near Highway 95 Radiological Data

From: 1996/01/01 To: 1996/12/31

Parameter	Number of Samples	Concentration		% of Max	Min	+/-	Median	+/-	Standard		Total Curies
		Max	+/-						Error	% DCG	
Alpha activity (pCi/L)	12	27	11	4.3*	9	15	a	a	2.1695	a	1.41E-01
Americium-241 (pCi/L)	12	0.48	0.29	-0.035*	0.13	0.089	a	a	0.0444	0.2967	1.38E-03
Beta activity (pCi/L)	12	18	10	2.2*	13	10.65	a	a	1.5072	a	1.06E-01
Cobalt-60 (pCi/L)	12	9.3	3.8	-3.7*	4.6	0.165	a	a	1.2235	0.0033	1.57E-02
Cesium-137 (pCi/L)	12	3.8	4.3	-2.1*	4.8	0.65	a	a	0.4938	0.0217	7.50E-03
Gamma Activity (pCi/L)	12	130	34	-1.5*	30	26.5	a	a	10.9688	a	3.89E-01
Neptunium-237 (pCi/L)	12	0.13*	0.16	-0.094*	0.12	0.0395	a	a	0.0196	0.1317	3.35E-04
Plutonium-238 (pCi/L)	12	0.16*	0.22	-0.11*	0.17	-0.003	a	a	0.0235	-0.0075	7.96E-05
Plutonium-239/240 (pCi/L)	12	0.092*	0.23	-0.18*	0.19	-0.02	a	a	0.018	-0.0667	-2.65E-04
Radium-228 (pCi/L)	12	22	4.1	-3.8*	3.7	-1.2	a	a	2.0037	-1.2	5.10E-03
Strontium-89/90 (pCi/L)	12	8.4*	2.8	-8.0*	4.4	-2.5	a	a	1.3626	a	-1.72E-02
Total Radium Alpha (pCi/L)	12	0.41*	0.58	-0.61*	0.71	0.201	a	a	0.1068	a	8.53E-04
Technetium-99 (pCi/L)	12	34	10	-3.0*	5.6	14.5	a	a	3.4075	0.0145	1.27E-01
Thorium-228 (pCi/L)	12	0.31	0.24	-0.03*	0.15	0.11	a	a	0.0319	0.0275	1.19E-03
Thorium-230 (pCi/L)	12	1.4	0.55	0.061*	0.15	0.355	a	a	0.1109	0.1183	4.31E-03
Thorium-232 (pCi/L)	12	0.11*	0.17	-0.049*	0.14	0.0405	a	a	0.0141	0.081	3.50E-04
Thorium-234 (pCi/L)	12	15	2.6	3.5	1.1	10.5	a	a	0.993	0.105	1.04E-01
Tritium (pCi/L)	12	310.0*	830	-190.0*	190	23	a	a	40.5909	0.0012	4.74E-01
Uranium-234 (pCi/L)	12	7.7	1.6	1.6	0.68	5.2	a	a	0.5796	1.04	5.02E-02
Uranium-235 (pCi/L)	24	19.0*	11	-13.0*	18	0.55	a	a	1.2353	0.0917	1.56E-02
Uranium-236 (pCi/L)	12	0.22	0.23	0.0*	0	0.0495	a	a	0.0212	0.0099	7.01E-04
Uranium-238 (pCi/L)	12	15	2.6	3.5	1.1	10.5	a	a	0.993	1.75	1.04E-01

(e) Not applicable
 * Result was below the minimum detectable activity.

Table 2.28. Y-12 Plant Discharge Point SS6, SANITARY SEWER STATION 6

From: 1996/01/01 To: 1996/12/31

Outfall	Parameter	Number of Samples	Max	Concentration (a)	Avg	Reference Value (b)	Number of Values Exceeding Reference
SS6	Flow (c), gpd	366	2601718	227610	852312	d	d
	pH, Standard Unit	53	8.4	7	d	9/ 6(e)	0
	Silver	53	0.027	<0.006	<0.0074	0.1	0
	Boron	53	0.05	<0.02	<0.0313	d	d
	Cadmium	53	<0.004	<0.004	<0.004	0.00024	0
	Chemical Oxygen Demand	42	170	25	56.6	d	d
	Chromium	53	0.009	<0.006	<0.0061	0.44	0
	Chromium, hexavalent	42	<0.01	<0.01	<0.01	0.002	0
	Copper	53	0.024	0.01	0.016	0.04	0
	Cyanide	42	<0.01	<0.01	<0.01	0.007	0
	Iron	53	1.02	0.26	0.48	1.5	0
	Mercury	249	0.066	0.0004	0.0056	0.1/0.035(f)	2
	Kjeldahl Nitrogen	53	28	5.2	11.9	90	0
	Manganese	53	0.141	0.028	0.057	1	0
	Ammonia as Nitrogen	39	9.1	1.7	6	d	d
	Nickel	53	<0.008	<0.008	<0.008	0.1	0
	Oil and Grease	53	28	<2.0	<4.6321	50	0
	Lead	53	<0.02	<0.02	<0.02	0.0016	0
	Phenols - Total Recoverable	42	0.26	<0.005	<0.0269	5	0
	Selenium	53	<0.1	<0.1	<0.1	d	d
	Suspended Solids	53	100	<5.0	<45.6698	300	0
	Uranium	54	0.019	0.001	0.0061	d	d
	U235, weightt %	54	1.8	0	0.74	d	d
	Zinc	53	0.23	0.09	0.13	2	0

(a) Units in mg/L unless otherwise indicated.

(e) Maximum value/minimum value.

(b) Sanitary Sewer permit limits.

(f) Reference value prior to April 14, 1996/Reference value after April 14, 1996.

(c) Flow during operations and/or discharging.

(d) Not applicable.

Table 2.29. Y-12 Plant Discharge Point SS6, Sanitary Sewer Station 6 Radiological Data

From: 1996/01/01 To: 1996/12/31

Parameter	Number of Concentration		Max	% of		Min	+/-	Median	+/-	Standard		Total Curies
	Samples	Max		+	-					Error	% DCG	
Alpha activity (pCi/L)	53	22.0*	29	-10.0*	0.43	3.1*	4.3	0.7151	a	5.35E-03		
Beta activity (pCi/L)	53	20	9.8	-130.0*	99	5.2*	10	3.1536	a	1.91E-03		
Gamma Activity (pCi/L)	53	460	57	-15.0*	31	23.0*	30	9.6637	a	4.52E-02		
Plutonium-238 (pCi/L)	39	0.23*	0.2	-0.26*	0.19	0.017*	0.14	0.0171	0.0425	9.26E-06		
Plutonium-239/240 (pCi/L)	39	0.2	0.23	-0.13*	0.15	0.0*	0	0.0093	0	-3.24E-06		
Uranium-234 (pCi/L)	53	9	2.1	0.043	0.021	3	0.93	0.2397	0.6	4.02E-03		
Uranium-235 (pCi/L)	53	0.44	0.4	-0.049*	0.098	0.13*	0.18	0.0163	0.0217	1.72E-04		
Uranium-236 (pCi/L)	53	0.43	0.36	-0.14*	0.41	0.048*	0.097	0.0127	0.0096	7.00E-05		
Uranium-238 (pCi/L)	53	18	3.3	0.014*	0.013	2.4	0.9	0.3611	0.4	3.40E-03		

(a) Not applicable

* Result below the minimum detectable activity.

Table 2.30. Constituents Detected in Groundwater at the Y-12 Plant for 1996

REGIME=BC AREA NAME=Above Grade Low-Level Stor. Fac.

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
Chloride	(mg/L)		6	6	9.48	0.78	4.728333	250	0
Fluoride	(mg/L)		6	1	0.11	0.11	0.11	2	0
Nitrate Nitrogen	(mg/L)		6	2	0.45	0.42	0.435	10	0
Sulfate	(mg/L)		6	6	23.3	4.87	16.37	250	0
Aluminum, ICAP	(mg/L)		6	4	0.58	0.02	0.24825	0.2	2
Aluminum, ICAP	(mg/L)	Filtered	6	2	0.037	0.026	0.0315	0.2	0
Barium, ICAP	(mg/L)		6	6	0.15	0.05	0.093667	2	0
Barium, ICAP	(mg/L)	Filtered	6	6	0.15	0.049	0.091667	2	0
Boron, ICAP	(mg/L)		6	5	0.071	0.013	0.0452	NR	NA
Boron, ICAP	(mg/L)	Filtered	6	6	0.077	0.0067	0.03845	NR	NA
Calcium, ICAP	(mg/L)		6	6	94	49	76.33333	NR	NA
Calcium, ICAP	(mg/L)	Filtered	6	6	91	50	75.83333	NR	NA
Iron, ICAP	(mg/L)		6	4	0.74	0.031	0.30525	0.3	2
Iron, ICAP	(mg/L)	Filtered	6	4	0.0094	0.0055	0.0071	0.3	0
Lead, ICP/MS	(mg/L)		3	1	0.00086	0.00086	0.00086	NR	NA
Lead, ICP/MS	(mg/L)	Filtered	3	1	0.004	0.004	0.004	NR	NA
Lithium, ICAP	(mg/L)		6	1	0.0082	0.0082	0.0082	NR	NA
Lithium, ICAP	(mg/L)	Filtered	6	2	0.0075	0.0043	0.0059	NR	NA
Magnesium, ICAP	(mg/L)		6	6	9	3.3	5.566667	NR	NA
Magnesium, ICAP	(mg/L)	Filtered	6	6	8.7	3.3	5.5	NR	NA
Manganese, ICAP	(mg/L)		6	6	0.043	0.0015	0.022417	0.05	0
Manganese, ICAP	(mg/L)	Filtered	6	6	0.044	0.0013	0.0154	0.05	0
Potassium, ICAP	(mg/L)		6	5	2.2	0.71	1.322	NR	NA
Potassium, ICAP	(mg/L)	Filtered	6	6	2.2	0.78	1.381667	NR	NA
Selenium, ICAP	(mg/L)		6	1	0.069	0.069	0.069	0.05	1
Sodium, ICAP	(mg/L)		6	6	3.9	1.9	3.116667	NR	NA
Sodium, ICAP	(mg/L)	Filtered	6	6	3.9	1.9	3.1	NR	NA
Strontium, ICAP	(mg/L)		6	6	0.17	0.085	0.130667	NR	NA
Strontium, ICAP	(mg/L)	Filtered	6	6	0.16	0.087	0.129333	NR	NA
Thallium, ICP/MS	(mg/L)		3	1	0.00094	0.00094	0.00094	NR	NA
Thallium, ICP/MS	(mg/L)	Filtered	3	1	0.0012	0.0012	0.0012	NR	NA
Uranium, ICP/MS	(mg/L)		6	2	0.002	0.00072	0.00136	NR	NA

Table 2.30 (continued)

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
Uranium, ICP/MS	(mg/L)	Filtered	6	2	0.0022	0.00062	0.00141	NR	NA
Zinc, ICAP	(mg/L)		6	5	0.0078	0.0022	0.00486	5	0
Zinc, ICAP	(mg/L)	Filtered	6	6	0.01	0.0022	0.004317	5	0
Conductivity, field measurement	(umhos/cm)		6	NA	523	247	380	NR	NA
Dissolved Oxygen, field measure	(ppm)		6	NA	5.4	1.1	2.416667	NR	NA
pH, field measurement	(pH)		6	NA	7.7	5	6.75	6.5/8.5	2
REDOX, field measurement	(mV)		6	NA	183	137	157	NR	NA
Static Water Level	(ft - toc)		6	NA	-3.6	-17.31	-8.69667	NR	NA
Temperature, field measurement	(Deg C)		6	NA	16.6	13.2	14.8	NR	NA
Alkalinity as HCO3	(mg/L)		6	6	232	153	194.8333	NR	NA
Conductivity	(umhos/cm)		6	6	507	304	413.6667	NR	NA
Dissolved Solids	(mg/L)		6	6	366	204	275.3333	500	0
pH	(pH)		6	6	7.49	7.13 L	7.293333	6.5/8.5	0
Total Suspended Solids	(mg/L)		6	2	5	2	3.5	NR	NA
Turbidity	(NTU)		6	6	21.9	0.06	6.284667	1	4
Gross Alpha	(pCi/L)		6	6	4.14	-1.57	1.264	15 f	0
Gross Beta	(pCi/L)		6	6	5.63	-5.21	0.24	50 a	0

Table 2.31. Constituents Detected in Groundwater at the Y-12 Plant for 1996

REGIME=BC AREA NAME=Background

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
Chloride	(mg/L)		29	25	10	1.04	2.702	250	0
Fluoride	(mg/L)		29	15	1.46	0.11	0.373333	2	0
Nitrate Nitrogen	(mg/L)		29	1	0.27	0.27	0.27	10	0
Sulfate	(mg/L)		29	29	31.5	5.63	14.33069	250	0
Aluminum, ICAP	(mg/L)		29	20	12	0.023	1.5569	0.2	11
Aluminum, ICAP	(mg/L)	Filtered	29	17	0.53	0.021	0.094588	0.2	2
Antimony, ICAP	(mg/L)		29	2	0.38	0.26	0.32	0.006	2
Antimony, ICAP	(mg/L)	Filtered	29	3	0.24	0.062	0.150667	0.006	3
Barium, ICAP	(mg/L)		29	29	0.31	0.019	0.14231	2	0
Barium, ICAP	(mg/L)	Filtered	29	29	0.28	0.015	0.12531	2	0
Beryllium, ICAP	(mg/L)		29	2	0.0004	0.0003	0.00035	0.004	0
Boron, ICAP	(mg/L)		29	29	0.2	0.006	0.045407	NR	NA
Boron, ICAP	(mg/L)	Filtered	29	29	0.21	0.0076	0.042603	NR	NA
Cadmium, ICAP	(mg/L)		29	3	0.01	0.0042	0.007033	0.005	2
Cadmium, ICAP	(mg/L)	Filtered	29	2	0.016	0.0087	0.01235	0.005	2
Calcium, ICAP	(mg/L)		29	29	80	1.2	31.85862	NR	NA
Calcium, ICAP	(mg/L)	Filtered	29	29	82	1.1	31.65172	NR	NA
Chromium, ICAP	(mg/L)		29	2	0.035	0.028	0.0315	0.1	0
Chromium, ICAP	(mg/L)	Filtered	29	1	0.031	0.031	0.031	0.1	0
Chromium, ICAP	(mg/L)		29	3	0.013	0.005	0.0083	NR	NA
Cobalt, ICAP	(mg/L)		29	1	0.0058	0.0058	0.0058	NR	NA
Cobalt, ICAP	(mg/L)	Filtered	29	11	0.053	0.0041	0.012309	1	0
Copper, ICAP	(mg/L)		29	6	0.021	0.0043	0.009017	1	0
Copper, ICAP	(mg/L)	Filtered	29	27	20	0.0065	2.245759	0.3	20
Iron, ICAP	(mg/L)		29	25	3.8	0.0061	0.471592	0.3	7
Iron, ICAP	(mg/L)	Filtered	14	3	0.025	0.0044	0.011767	0.015 c	1
Lead, AAS	(mg/L)		15	10	0.012	0.0007	0.00431	NR	NA
Lead, ICP/MS	(mg/L)		15	3	0.002	0.00051	0.001017	NR	NA
Lead, ICP/MS	(mg/L)	Filtered	29	29	0.042	0.006	0.018848	NR	NA
Lithium, ICAP	(mg/L)		29	29	0.039	0.0048	0.0171	NR	NA
Lithium, ICAP	(mg/L)	Filtered	29	29	12	0.15	6.112414	NR	NA
Magnesium, ICAP	(mg/L)		29	29	12	0.12	5.808276	NR	NA
Magnesium, ICAP	(mg/L)	Filtered	29	29	12	0.12	5.808276	NR	NA

Table 2.31 (continued)

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
Manganese, ICAP	(mg/L)		29	27	1.4	0.0025	0.266819	0.05	16
Manganese, ICAP	(mg/L)	Filtered	29	25	1.3	0.0017	0.267744	0.05	13
Molybdenum, ICAP	(mg/L)		29	1	0.012	0.012	0.012	NR	NA
Nickel, ICAP	(mg/L)		29	6	0.031	0.01	0.0185	0.1 d	0
Nickel, ICAP	(mg/L)	Filtered	29	5	0.016	0.01	0.0138	0.1 d	0
Potassium, ICAP	(mg/L)		29	27	5	0.61	1.958519	NR	NA
Potassium, ICAP	(mg/L)	Filtered	29	26	3.1	0.75	1.764231	NR	NA
Selenium, ICAP	(mg/L)		29	2	0.13	0.065	0.0975	0.05	2
Selenium, ICAP	(mg/L)	Filtered	29	2	0.062	0.051	0.0565	0.05	2
Silver, ICAP	(mg/L)		29	3	0.015	0.0066	0.010867	0.1	0
Silver, ICAP	(mg/L)	Filtered	29	1	0.0073	0.0073	0.0073	0.1	0
Sodium, ICAP	(mg/L)		29	29	110	3.3	14.94138	NR	NA
Sodium, ICAP	(mg/L)	Filtered	29	29	110	3.4	14.95172	NR	NA
Strontium, ICAP	(mg/L)		29	29	0.86	0.015	0.153103	NR	NA
Strontium, ICAP	(mg/L)	Filtered	29	29	0.77	0.014	0.148207	NR	NA
Uranium, ICP/MS	(mg/L)		29	1	0.00056	0.00056	0.00056	NR	NA
Vanadium, ICAP	(mg/L)		29	5	0.016	0.0051	0.0082	NR	NA
Vanadium, ICAP	(mg/L)	Filtered	29	1	0.0053	0.0053	0.0053	NR	NA
Zinc, ICAP	(mg/L)		29	27	0.074	0.0024	0.013244	5	0
Zinc, ICAP	(mg/L)	Filtered	29	25	0.046	0.0025	0.008756	5	0
Conductivity, field measurement	(umhos/cm)		29	NA	487	73	258.069	NR	NA
Dissolved Oxygen, field measure	(ppm)		29	NA	6.8	0.6	2.758621	NR	NA
pH, field measurement	(pH)		29	NA	9.5	5.3	7.058621	6.5/8.5	11
REDOX, field measurement	(mV)		29	NA	209	-54.3	120.6931	NR	NA
Static Water Level	(ft - toc)		30	NA	-1.81	-25.19	-16.8137	NR	NA
Temperature, field measurement	(Deg C)		29	NA	19.2	11.5	15.26552	NR	NA
Alkalinity as CO3	(mg/L)		29	2	36	30	33	NR	NA
Alkalinity as HCO3	(mg/L)		29	29	246	30	121.1724	NR	NA
Conductivity	(umhos/cm)		29	29	511	81.1	270.7552	NR	NA
Dissolved Solids	(mg/L)		29	29	324	30	176.8276	500	0
pH	(pH)		29	29	9.3	6.14 L	7.254828	6.5/8.5	8
Total Suspended Solids	(mg/L)		29	17	764	1	57.27059	NR	NA
Turbidity	(NTU)		29	29	340	0.105	37.09817	1	26
Iodine-129	(pCi/L)		1	1	10.7	10.7	10.7	NR	NA
Iodine-129, X-10 lab	(pCi/L)		28	28	18	-32	0.336071	NR	NA

Table 2.31 (continued)

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
Cesium-137, Y-12 lab	(pCi/L)	Filtered	1	1	12	12	12	120	0
Lead-212, Y-12 lab	(pCi/L)	Filtered	1	1	7.2	7.2	7.2	NR	NA
Radium - Total Alpha	(pCi/L)	Filtered	1	1	-6.9	-6.9	-6.9	5 g	0
Radium - Total Alpha, Y-12 lab	(pCi/L)	Filtered	1	1	0.19	0.19	0.19	5 g	0
Radium-228, Y-12 lab	(pCi/L)	Filtered	1	1	-1.6	-1.6	-1.6	5 g	0
Thorium-228, Y-12 lab	(pCi/L)	Filtered	1	1	0.16	0.16	0.16	16	0
Thorium-230, Y-12 lab	(pCi/L)	Filtered	1	1	0.021	0.021	0.021	12	0
Thorium-232, Y-12 lab	(pCi/L)	Filtered	1	1	0	0	0	2	0
Protactinium-234, Y-12 lab	(pCi/L)	Filtered	1	1	1.9	1.9	1.9	NR	NA
Uranium-234	(pCi/L)	Filtered	29	29	0.23	-0.197 J	0.085003	20	0
Uranium-234, Y-12 lab	(pCi/L)	Filtered	1	1	0.27	0.27	0.27	20	0
Uranium-235	(pCi/L)	Filtered	29	29	0.171 J	-0.0769 J	0.002479	24	0
Uranium-235, Y-12 lab	(pCi/L)	Filtered	1	1	0.014	0.014	0.014	24	0
Uranium-236, Y-12 lab	(pCi/L)	Filtered	1	1	0.011	0.011	0.011	NR	NA
Neptunium-237	(pCi/L)	Filtered	29	29	0.248	-0.137 J	0.022963	1.2	0
Neptunium-237, Y-12 lab	(pCi/L)	Filtered	1	1	0.014	0.014	0.014	1.2	0
Plutonium-238	(pCi/L)	Filtered	29	29	1.54	-0.245 J	0.102323	1.6	0
Plutonium-238, Y-12 lab	(pCi/L)	Filtered	1	1	-0.033	-0.033	-0.033	1.6	0
Uranium-238	(pCi/L)	Filtered	29	29	0.361 J	-0.065 J	0.080159	24	0
Uranium-238, Y-12 lab	(pCi/L)	Filtered	1	1	0.033	0.033	0.033	24	0
Plutonium-239	(pCi/L)	Filtered	29	29	0.494	-0.125 J	0.024	1.2	0
Plutonium-239, Y-12 lab	(pCi/L)	Filtered	1	1	-0.033	-0.033	-0.033	1.2	0
Americium-241	(pCi/L)	Filtered	29	29	0.461	-0.0688 J	0.075255	1.2	0
Americium-241, Y-12 lab	(pCi/L)	Filtered	1	1	0.099	0.099	0.099	1.2	0
Strontium-89/90	(pCi/L)	Filtered	29	29	0.68	-3.59	-1.11483	8	0
Strontium-89/90, Y-12 lab	(pCi/L)	Filtered	1	1	-0.06	-0.06	-0.06	8	0
Technetium-99	(pCi/L)	Filtered	29	29	4	-12	-1.72414	4000	0
Technetium-99, Y-12 lab	(pCi/L)	Filtered	1	1	-11	-11	-11	4000	0
Gross Alpha	(pCi/L)	Filtered	29	29	20.3	-3.95	1.316897	15 f	1
Gross Alpha, Y-12 lab	(pCi/L)	Filtered	1	1	2	2	2	15 f	0

Table 2.31 (continued)

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
Gross Beta	(pCi/L)		29	29	11.9	-14.7	-4.16907	50 a	0
Gross Beta, Y-12 lab	(pCi/L)	Filtered	1	1	6.8	6.8	6.8	50 a	0
Radium, X-10 lab	(pCi/L)		28	28	3	-0.54	0.564643	NR	NA
Tritium	(pCi/L)		1	1	-43.9	-43.9	-43.9	20000	0
Tritium, X-10 lab	(pCi/L)		28	28	240	-90	83.71429	20000	0
Tritium, Y-12 lab	(pCi/L)		1	1	320	320	320	20000	0

Table 2.32. Constituents Detected in Groundwater at the Y-12 Plant for 1996

REGIME=BC AREA NAME=Bear Creek Burial Grounds WMA

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference		No. of Meas. > Reference
								Value	Value	
Chloride	(mg/L)		12	12	50.8	0.88	17.06083	250	0	0
Fluoride	(mg/L)		12	7	5.32	0.11	1.688571	2	2	2
Nitrate Nitrogen	(mg/L)		12	2	0.03	0.03	0.03	10	10	0
Sulfate	(mg/L)		12	12	31.6	2.32	12.33083	250	250	0
Aluminum, ICAP	(mg/L)		12	11	2.4	0.021	0.611818	0.2	0.2	4
Aluminum, ICAP	(mg/L)	Filtered	12	8	0.09	0.024	0.041625	0.2	0.2	0
Arsenic, ICAP	(mg/L)	Filtered	12	2	0.057	0.05	0.0535	0.05	0.05	1
Barium, ICAP	(mg/L)		12	12	0.37	0.025	0.14	2	2	0
Barium, ICAP	(mg/L)	Filtered	12	12	0.36	0.025	0.13325	2	2	0
Boron, ICAP	(mg/L)		12	12	0.92	0.021	0.319917	NR	NR	NA
Boron, ICAP	(mg/L)	Filtered	12	12	0.94	0.014	0.31825	NR	NR	NA
Calcium, ICAP	(mg/L)		12	12	130	1	30.99167	NR	NR	NA
Calcium, ICAP	(mg/L)	Filtered	12	12	130	0.96	30.08833	NR	NR	NA
Chromium, ICAP	(mg/L)		12	3	0.13	0.012	0.061667	0.1	0.1	1
Copper, ICAP	(mg/L)		12	2	0.0089	0.0066	0.00775	1	1	0
Copper, ICAP	(mg/L)	Filtered	12	1	0.0051	0.0051	0.0051	1	1	0
Iron, ICAP	(mg/L)		12	12	1.5	0.013	0.459917	0.3	0.3	7
Iron, ICAP	(mg/L)	Filtered	12	10	0.14	0.021	0.0521	0.3	0.3	0
Lead, ICP/MS	(mg/L)		6	6	0.0026	0.00061	0.001747	NR	NR	NA
Lead, ICP/MS	(mg/L)	Filtered	6	4	0.0037	0.0016	0.00245	NR	NR	NA
Lithium, ICAP	(mg/L)		12	9	0.42	0.0092	0.130467	NR	NR	NA
Lithium, ICAP	(mg/L)	Filtered	12	9	0.42	0.0087	0.129856	NR	NR	NA
Magnesium, ICAP	(mg/L)		12	12	15	0.22	4.796667	NR	NR	NA
Magnesium, ICAP	(mg/L)	Filtered	12	12	15	0.22	4.7925	NR	NR	NA
Magnesium, ICAP	(mg/L)		12	12	0.089	0.0013	0.027117	0.05	0.05	2
Manganese, ICAP	(mg/L)	Filtered	12	12	0.1	0.0012	0.019183	0.05	0.05	2
Manganese, ICAP	(mg/L)		12	4	0.084	0.01	0.03475	0.1 d	0.1 d	0
Nickel, ICAP	(mg/L)	Filtered	12	4	0.023	0.017	0.019	0.1 d	0.1 d	0
Nickel, ICAP	(mg/L)		12	12	4.8	0.8	2.209167	NR	NR	NA
Potassium, ICAP	(mg/L)	Filtered	12	12	4.2	0.72	2.053333	NR	NR	NA
Potassium, ICAP	(mg/L)	Filtered	12	1	0.0098	0.0098	0.0098	0.1	0.1	0
Silver, ICAP	(mg/L)		12	12	310	2.6	84.89167	NR	NR	NA

Table 2.32 (continued)

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
Sodium, ICAP	(mg/L)	Filtered	12	12	310	2.5	84.35	NR	NA
Strontium, ICAP	(mg/L)		12	12	0.86	0.02	0.252917	NR	NA
Strontium, ICAP	(mg/L)	Filtered	12	12	0.78	0.019	0.248417	NR	NA
Thallium, ICP/MS	(mg/L)		6	1	0.00053	0.00053	0.00053	NR	NA
Uranium, ICP/MS	(mg/L)		12	2	0.002	0.0015	0.00175	NR	NA
Uranium, ICP/MS	(mg/L)	Filtered	12	2	0.0022	0.0014	0.0018	NR	NA
Zinc, ICAP	(mg/L)		12	12	0.041	0.002	0.013208	5	0
Zinc, ICAP	(mg/L)	Filtered	12	12	0.07	0.0036	0.016817	5	0
Conductivity, field measurement	(umhos/cm)		12	NA	1132	38	483.0833	NR	NA
Dissolved Oxygen, field measure	(ppm)		12	NA	8	0.6	2.575	NR	NA
pH, field measurement	(pH)		12	NA	11	4.4	7.75	6.5/8.5	7
REDOX, field measurement	(mV)		12	NA	294	-80	119.4167	NR	NA
Static Water Level	(ft - loc)		12	NA	-3.27	-23.59	-12.2942	NR	NA
Temperature, field measurement	(Deg C)		12	NA	21.7	11.2	15.33333	NR	NA
Alkalinity as CO3	(mg/L)		12	4	80	30	52.5	NR	NA
Alkalinity as HCO3	(mg/L)		12	12	511	13	222.25	NR	NA
Conductivity	(umhos/cm)		12	12	1221	35.6	523.575	NR	NA
Dissolved Solids	(mg/L)		12	12	760	58	330.8333	500	2
pH	(pH)		12	12	9.14 L	5.52	7.770833	6.5/8.5	8
Total Suspended Solids	(mg/L)		12	5	67	4	23.4	NR	NA
Turbidity	(NTU)		12	12	87	0.615	14.84933	1	8
Iodine-129, X-10 lab	(pCi/l)		2	2	1	-10	-4.5	NR	NA
Uranium-234	(pCi/l)		2	2	0.101 J	-0.0179 J	0.04155	20	0
Uranium-235	(pCi/l)		2	2	0 J	-0.0398 J	-0.0199	24	0
Neptunium-237	(pCi/l)		2	2	0.309 J	0.029	0.169	1.2	0
Plutonium-238	(pCi/l)		2	2	0.0566	-0.0307	0.01295	1.6	0
Uranium-238	(pCi/l)		2	2	0.092 J	-0.0306 J	0.0307	24	0
Plutonium-239	(pCi/l)		2	2	0.00865	0	0.004325	1.2	0
Americium-241	(pCi/l)		2	2	0.152 J	0.0559	0.10395	1.2	0
Strontium-89/90	(pCi/l)		2	2	1.62	-1.24	0.19	8	0
Technetium-99	(pCi/l)		2	2	3	0.5	1.75	4000	0

Table 2.32 (continued)

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
Gross Alpha	(pCi/L)		12	12	6.47	-0.291	1.95625	15 f	0
Gross Beta	(pCi/L)		12	12	14.7	-4.69	3.865417	50 a	0
Radium, X-10 lab	(pCi/L)		2	2	0.3	-0.2	0.05	NR	NA
Tritium, X-10 lab	(pCi/L)		2	2	140	-60	40	20000	0
1,1-Dichloroethane	(ug/L)		12	5	7 J	2 J	4.8	NR	NA
1,1-Dichloroethene	(ug/L)		12	3	1 J	1 J	1	7	0
1,2-Dichloroethene (Total)	(ug/L)		10	4	31	11	17.25	NR b	NA
2-Butanone	(ug/L)		12	2	11 B	11 B	11	NR	NA
Acetone	(ug/L)		12	1	4 J	4 J	4	NR	NA
Tetrachloroethene	(ug/L)		12	4	56	2 J	27.25	5	2
Trichloroethene	(ug/L)		12	5	9 J	2 J	4.6	5	2
Vinyl chloride	(ug/L)		12	3	6 J	2 J	4.333333	2	2

Table 2.33. Constituents Detected in Groundwater at the Y-12 Plant for 1996

REGIME=BC AREA NAME=Bear Creek Exit Pathway

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
Chloride	(mg/L)		63	62	2130	3.89	97.24274	250	4
Fluoride	(mg/L)		63	52	1.7	0.11	0.370385	2	0
Nitrate Nitrogen	(mg/L)		63	55	67.9	0.31	11.79273	10	23
Sulfate	(mg/L)		63	63	2650	3.84	164.856	250	4
Aluminum, ICAP	(mg/L)		63	51	4.6	0.026	0.422647	0.2	23
Aluminum, ICAP	(mg/L)	Filtered	63	28	2.4	0.02	0.128786	0.2	1
Arsenic, ICAP	(mg/L)		63	2	0.065	0.054	0.0595	0.05	2
Barium, ICAP	(mg/L)		63	63	0.4	0.0024	0.089983	2	0
Barium, ICAP	(mg/L)	Filtered	63	63	0.39	0.004	0.086071	2	0
Beryllium, ICAP	(mg/L)		63	3	0.0083	0.00033	0.00308	0.004	1
Beryllium, ICAP	(mg/L)	Filtered	63	3	0.0099	0.00065	0.004183	0.004	1
Boron, ICAP	(mg/L)		63	63	1.3	0.011	0.128635	NR	NA
Boron, ICAP	(mg/L)	Filtered	63	63	1.3	0.01	0.136841	NR	NA
Cadmium, ICAP	(mg/L)		63	4	0.011	0.0034	0.00715	0.005	3
Cadmium, ICAP	(mg/L)	Filtered	63	2	0.0098	0.0094	0.0096	0.005	2
Calcium, ICAP	(mg/L)		63	63	520	29	103.5397	NR	NA
Calcium, ICAP	(mg/L)	Filtered	63	63	530	27	104.8095	NR	NA
Chromium, ICAP	(mg/L)		63	7	0.1	0.014	0.052857	0.1	0
Chromium, ICAP	(mg/L)	Filtered	63	3	0.015	0.011	0.012667	0.1	0
Cobalt, ICAP	(mg/L)		63	1	0.0071	0.0071	0.0071	NR	NA
Cobalt, ICAP	(mg/L)	Filtered	63	2	0.0057	0.0053	0.0055	NR	NA
Copper, ICAP	(mg/L)		63	17	0.069	0.0041	0.009453	1	0
Copper, ICAP	(mg/L)	Filtered	63	15	0.012	0.0045	0.007707	1	0
Iron, ICAP	(mg/L)		63	61	25	0.0056	2.398207	0.3	38
Iron, ICAP	(mg/L)	Filtered	63	42	17	0.0075	1.02434	0.3	10
Lead, AAS	(mg/L)		9	1	0.0064	0.0064	0.0064	0.015 c	0
Lead, ICP/MS	(mg/L)		32	27	0.0062	0.00067	0.001627	NR	NA
Lead, ICP/MS	(mg/L)	Filtered	32	12	0.0055	0.00051	0.001658	NR	NA
Lithium, ICAP	(mg/L)		63	52	0.75	0.0044	0.04576	NR	NA
Lithium, ICAP	(mg/L)	Filtered	63	50	0.74	0.0049	0.04797	NR	NA
Magnesium, ICAP	(mg/L)		63	63	230	7.8	32.30159	NR	NA
Magnesium, ICAP	(mg/L)	Filtered	63	63	250	7.2	32.88413	NR	NA

Table 2.33 (continued)

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
Manganese, ICAP	(mg/L)	Filtered	63	61	1.9	0.0017	0.141474	0.05	29
Manganese, ICAP	(mg/L)	Filtered	63	56	2	0.0011	0.110439	0.05	17
Nickel, ICAP	(mg/L)	Filtered	63	9	0.61	0.011	0.112778	0.1 d	3
Nickel, ICAP	(mg/L)	Filtered	63	5	0.59	0.019	0.1672	0.1 d	2
Potassium, ICAP	(mg/L)	Filtered	63	62	24	1.1	3.480645	NR	NA
Potassium, ICAP	(mg/L)	Filtered	63	62	22	0.65	3.379194	NR	NA
Selenium, ICAP	(mg/L)	Filtered	63	6	0.15	0.05	0.077	0.05	5
Selenium, ICAP	(mg/L)	Filtered	63	6	0.087	0.053	0.0625	0.05	6
Silver, ICAP	(mg/L)	Filtered	63	2	0.0094	0.0083	0.00885	0.1	0
Silver, ICAP	(mg/L)	Filtered	63	1	0.0081	0.0081	0.0081	0.1	0
Sodium, ICAP	(mg/L)	Filtered	63	63	1100	2	55.11429	NR	NA
Sodium, ICAP	(mg/L)	Filtered	63	63	1200	2	56.96508	NR	NA
Strontium, ICAP	(mg/L)	Filtered	63	63	13	0.046	0.974302	NR	NA
Strontium, ICAP	(mg/L)	Filtered	63	63	13	0.047	1.005667	NR	NA
Uranium, ICP/MS	(mg/L)	Filtered	63	53	0.13	0.0005	0.035013	NR	NA
Uranium, ICP/MS	(mg/L)	Filtered	63	50	0.16	0.00057	0.03932	NR	NA
Vanadium, ICAP	(mg/L)	Filtered	63	5	0.0087	0.0054	0.00658	NR	NA
Vanadium, ICAP	(mg/L)	Filtered	63	3	0.011	0.0054	0.008167	NR	NA
Zinc, ICAP	(mg/L)	Filtered	63	59	0.12	0.0025	0.013669	5	0
Zinc, ICAP	(mg/L)	Filtered	63	56	0.13	0.002	0.016357	5	0
Conductivity, field measurement	(umhos/cm)		63	NA	7640	31	743.8413	NR	NA
Dissolved Oxygen, field measure	(ppm)		63	NA	12.7	0.3	4.620635	NR	NA
pH, field measurement	(pH)		63	NA	8.2	5.6	7.188889	6.5/8.5	5
REDOX, field measurement	(mV)		63	NA	222	-78	110.5556	NR	NA
Static Water Level	(ft - toc)		42	NA	-5.55	-87.68	-33.7302	NR	NA
Temperature, field measurement	(Deg C)		63	NA	22.6	7.5	14.72222	NR	NA
Alkalinity as HCO3	(mg/L)		63	63	358	86	194.4127	NR	NA
Conductivity	(umhos/cm)		63	63	8390	222	953.4603	NR	NA
Dissolved Solids	(mg/L)		63	63	5832	112	617.0159	500	13
pH	(pH)		63	63	9.32 L	6.84	7.585556	6.5/8.5	1
Total Suspended Solids	(mg/L)		63	37	58	1	11.63514	NR	NA
Turbidity	(NTU)		63	63	157	0.801	24.94081	1	62
Iodine-129, X-10 lab	(pCi/L)		12	12	11	-11	0.5	NR	NA
Uranium-234	(pCi/L)		12	12	1.42	0.0131	0.369308	20	0
Uranium-235	(pCi/L)		12	12	0.0812	-0.0428	0.017123	24	0

Table 2.33 (continued)

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
Neptunium-237	(pCi/L)		12	12	0.11	-0.0552	0.023625	1.2	0
Plutonium-238	(pCi/L)		12	12	1.24	-0.0908	0.120129	1.6	0
Uranium-238	(pCi/L)		12	12	0.726	-0.0528 J	0.213483	24	0
Plutonium-239	(pCi/L)		12	12	0.0406 J	-0.0489	-0.00503	1.2	0
Americium-241	(pCi/L)		12	12	1.34 J	-0.25 J	0.144404	1.2	1
Strontium-89/90	(pCi/L)		28	28	1.35	-2.16	-0.78757	8	0
Technetium-99	(pCi/L)		28	28	313	-9	44.66071	4000	0
Gross Alpha	(pCi/L)		63	63	68.4	-43.1	14.78124	15 f	20
Gross Beta	(pCi/L)		63	63	173	-4.21	23.24692	50 a	6
Radium, X-10 lab	(pCi/L)		12	12	5.4	-5.9	1.125833	NR	NA
Tritium	(pCi/L)		8	8	255	-106	113.5	20000	0
Tritium, X-10 lab	(pCi/L)		20	20	280	-190	36.35	20000	0
1,1,1-Trichloroethane	(ug/L)		63	7	2 J	1 J	1.142857	200	0
1,1-Dichloroethene	(ug/L)		63	2	7 J	5 J	6	7	0
1,2-Dichloroethene (Total)	(ug/L)		51	21	14	1 J	4.571429	NR b	NA
2-Butanone	(ug/L)		63	3	11 B	10 B	10.66667	NR	NA
Acetone	(ug/L)		63	1	7 JB	7 JB	7	NR	NA
Carbon tetrachloride	(ug/L)		63	4	3 J	1 J	2	5	0
Chloroform	(ug/L)		63	4	2 J	1 J	1.25	100 i	0
Tetrachloroethene	(ug/L)		63	5	4 J	1 J	2.4	5	0
Trichloroethene	(ug/L)		63	26	160	1 J	26.11538	5	18

Table 2.34. Constituents Detected in Groundwater at the Y-12 Plant for 1996

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference		No. of Meas. > Reference
								Value	Value	
Chloride	(mg/L)		10	9	35.2	1.77	13.23556	250		0
Fluoride	(mg/L)		10	6	1.7	0.2	0.755	2		0
Nitrate Nitrogen	(mg/L)		10	8	780	0.73	239.285	10		6
Sulfate	(mg/L)		10	10	25.6	4.34	11.775	250		0
Aluminum, ICAP	(mg/L)		10	10	4	0.072	0.9262	0.2		8
Aluminum, ICAP	(mg/L)	Filtered	10	8	0.27	0.023	0.094875	0.2		1
Barium, ICAP	(mg/L)		10	10	2.7	0.06	0.8243	2		2
Barium, ICAP	(mg/L)	Filtered	10	10	2.5	0.05	0.7779	2		2
Beryllium, ICAP	(mg/L)		10	2	0.00071	0.00042	0.000565	0.004		0
Boron, ICAP	(mg/L)		10	8	0.48	0.019	0.2635	NR		NA
Boron, ICAP	(mg/L)	Filtered	10	8	0.45	0.0089	0.254363	NR		NA
Calcium, ICAP	(mg/L)		10	10	1200	2.1	291.98	NR		NA
Calcium, ICAP	(mg/L)	Filtered	10	10	1100	1.7	283.41	NR		NA
Cobalt, ICAP	(mg/L)		10	1	0.0089	0.0089	0.0089	NR		NA
Copper, ICAP	(mg/L)		10	2	0.011	0.0083	0.00965	1		0
Copper, ICAP	(mg/L)	Filtered	10	3	0.0057	0.0044	0.005167	1		0
Iron, ICAP	(mg/L)		10	9	3	0.11	0.973333	0.3		5
Iron, ICAP	(mg/L)	Filtered	10	6	0.086	0.01	0.0515	0.3		0
Lead, AAS	(mg/L)		3	1	0.0043	0.0043	0.0043	0.015 c		0
Lead, ICP/MS	(mg/L)		5	3	0.0045	0.0011	0.002467	NR		NA
Lead, ICP/MS	(mg/L)	Filtered	5	3	0.0015	0.00083	0.001103	NR		NA
Lithium, ICAP	(mg/L)		10	10	0.067	0.014	0.0435	NR		NA
Lithium, ICAP	(mg/L)	Filtered	10	10	0.061	0.014	0.0407	NR		NA
Magnesium, ICAP	(mg/L)		10	10	83	0.53	21.121	NR		NA
Magnesium, ICAP	(mg/L)	Filtered	10	10	76	0.44	20.424	NR		NA
Manganese, ICAP	(mg/L)		10	10	0.12	0.0039	0.02555	0.05		2
Manganese, ICAP	(mg/L)	Filtered	10	6	0.0076	0.001	0.0038	0.05		0
Potassium, ICAP	(mg/L)		10	10	7.2	1.6	3.64	NR		NA
Potassium, ICAP	(mg/L)	Filtered	10	10	6.2	1.4	3.22	NR		NA
Potassium, ICAP	(mg/L)		10	1	0.0073	0.0073	0.0073	0.1		0
Silver, ICAP	(mg/L)	Filtered	10	1	0.012	0.012	0.012	0.1		0
Silver, ICAP	(mg/L)		10	10	190	9.8	88.68	NR		NA
Sodium, ICAP	(mg/L)		10	10						

REGIME=BC AREA NAME=Oil Landfarm WMA

Table 2.34 (continued)

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
Sodium, ICAP	(mg/L)	Filtered	10	10	180	9.9	87.69	NR	NA
Strontium, ICAP	(mg/L)		10	10	3.1	0.08	1.0285	NR	NA
Strontium, ICAP	(mg/L)	Filtered	10	10	2.9	0.075	0.9869	NR	NA
Uranium, ICP/MS	(mg/L)		10	5	0.0024	0.00052	0.001424	NR	NA
Uranium, ICP/MS	(mg/L)	Filtered	10	5	0.0013	0.00097	0.001154	NR	NA
Vanadium, ICAP	(mg/L)	Filtered	10	1	0.0076	0.0076	0.0076	NR	NA
Zinc, ICAP	(mg/L)		10	8	0.02	0.0032	0.011125	5	0
Zinc, ICAP	(mg/L)	Filtered	10	6	0.09	0.0034	0.021717	5	0
Conductivity, field measurement	(umhos/cm)		10	NA	5690	408	1740	NR	NA
Dissolved Oxygen, field measure	(ppm)		10	NA	4	0.8	2.34	NR	NA
pH, field measurement	(pH)		10	NA	9.7	6.4	7.92	6.5/8.5	4
REDOX, field measurement	(mV)		10	NA	230	75	165.4	NR	NA
Static Water Level	(ft - toc)		10	NA	0	-13.35	-7.522	NR	NA
Temperature, field measurement	(Deg C)		10	NA	21.2	9.5	15.86	NR	NA
Alkalinity as CO3	(mg/L)		10	5	70	24	45.2	NR	NA
Alkalinity as HCO3	(mg/L)		10	10	289	150	212.9	NR	NA
Conductivity	(umhos/cm)		10	10	6180	452	1919.8	NR	NA
Dissolved Solids	(mg/L)		10	10	5214	244	1561.4	500	4
pH	(pH)		10	10	9.38 L	6.7	8.225	6.5/8.5	6
Total Suspended Solids	(mg/L)		10	8	698.5	2	94.9375	NR	NA
Turbidity	(NTU)		10	10	60.5	1.03	16.905	1	10
Iodine-129, X-10 lab	(pCi/L)		2	2	5	1	3	NR	NA
Uranium-234	(pCi/L)		2	2	0.238 J	0.0601 J	0.14905	20	0
Uranium-235	(pCi/L)		2	2	0.115 J	0 J	0.0575	24	0
Neptunium-237	(pCi/L)		2	2	0.0539	0.0124	0.03315	1.2	0
Plutonium-238	(pCi/L)		2	2	0.296 J	0.0611 J	0.17855	1.6	0
Plutonium-239	(pCi/L)		2	2	0.153	0 J	0.0765	24	0
Americium-241	(pCi/L)		2	2	-0.0446 J	-0.0735 J	-0.05905	1.2	0
Strontium-89/90	(pCi/L)		2	2	0.0526	-0.0157	0.01845	1.2	0
Technetium-99	(pCi/L)		8	8	2.51	-1.74	-0.1375	8	0
Gross Alpha	(pCi/L)		8	8	1200	-7	343	4000	0
Gross Beta	(pCi/L)		10	10	18	-5.97	5.479	15 f	2
Radium, X-10 lab	(pCi/L)		10	10	401	-2.49	79.414	50 a	4
Tritium	(pCi/L)		2	2	1.7	0.24	0.97	NR	NA
	(pCi/L)		3	3	103	-192	-19.9	20000	0

Table 2.34 (continued)

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
Tritium, X-10 lab	(pCi/L)		5	5	230	-160	62	20000	0
2-Butanone	(ug/L)		10	2	10 JB	9 JB	9.5	NR	NA
Acetone	(ug/L)		10	2	13	5 JB	9	NR	NA
Chloroform	(ug/L)		10	2	1 J	1 J	1	100 i	0
Tetrachloroethene	(ug/L)		10	1	1 J	1 J	1	5	0

Table 2.35. Constituents Detected in Groundwater at the Y-12 Plant for 1996

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
Chloride	(mg/L)		2	2	2.48	1.88	2.18	250	0
Nitrate Nitrogen	(mg/L)		2	2	0.34	0.27	0.305	10	0
Sulfate	(mg/L)		2	2	3.16	2.81	2.985	250	0
Aluminum, ICAP	(mg/L)		2	1	0.022	0.022	0.022	0.2	0
Barium, ICAP	(mg/L)		2	2	0.019	0.017	0.018	2	0
Barium, ICAP	(mg/L)	Filtered	2	2	0.018	0.017	0.0175	2	0
Calcium, ICAP	(mg/L)		2	2	79	79	79	NR	NA
Calcium, ICAP	(mg/L)	Filtered	2	2	78	76	77	NR	NA
Iron, ICAP	(mg/L)		2	1	0.023	0.023	0.023	0.3	0
Lead, ICP/MS	(mg/L)		1	1	0.0039	0.0039	0.0039	NR	NA
Magnesium, ICAP	(mg/L)		2	2	5.9	5.1	5.5	NR	NA
Magnesium, ICAP	(mg/L)	Filtered	2	2	5.7	5.1	5.4	NR	NA
Manganese, ICAP	(mg/L)		2	1	0.0029	0.0029	0.0029	0.05	0
Manganese, ICAP	(mg/L)	Filtered	2	1	0.0017	0.0017	0.0017	0.05	0
Potassium, ICAP	(mg/L)		2	1	1.8	1.8	1.8	NR	NA
Potassium, ICAP	(mg/L)	Filtered	2	2	1.5	1.4	1.45	NR	NA
Sodium, ICAP	(mg/L)		2	2	2.7	2.2	2.45	NR	NA
Sodium, ICAP	(mg/L)	Filtered	2	2	2.6	2.2	2.4	NR	NA
Strontium, ICAP	(mg/L)		2	2	0.073	0.065	0.069	NR	NA
Strontium, ICAP	(mg/L)	Filtered	2	2	0.07	0.063	0.0665	NR	NA
Zinc, ICAP	(mg/L)		2	2	0.0082	0.0062	0.0072	5	0
Zinc, ICAP	(mg/L)	Filtered	2	2	0.007	0.0043	0.00565	5	0
Conductivity, field measurement	(umhos/cm)		2	NA	392	366	379	NR	NA
Dissolved Oxygen, field measure	(ppm)		2	NA	6.1	4.5	5.3	NR	NA
pH, field measurement	(pH)		2	NA	7.3	6.7	7	6.5/8.5	0
REDOX, field measurement	(mV)		2	NA	190	188	189	NR	NA
Static Water Level	(ft - loc)		2	NA	-32.27	-33.43	-32.85	NR	NA
Temperature, field measurement	(Deg C)		2	NA	17.8	14.1	15.95	NR	NA
Alkalinity as HCO3	(mg/L)		2	2	220	210	215	NR	NA
Conductivity	(umhos/cm)		2	2	428	398	413	NR	NA
Dissolved Solids	(mg/L)		2	2	262	242	252	500	0
pH	(pH)		2	2	7.37 L	7.34	7.355	6.5/8.5	0

Table 2.35 (continued)

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
Turbidity	(NTU)		2	2	2.18	1.56	1.87	1	2
Gross Alpha	(pCi/L)		2	2	0.984	-0.41	0.287	15 f	0
Gross Beta	(pCi/L)		2	2	4.89	-4.23	0.33	50 a	0
Trichloroethene	(ug/L)		2	2	8 J	5 J	6.5	5	1

Table 2.36. Constituents Detected in Groundwater at the Y-12 Plant for 1996

REGIME=BC AREA NAME=S-3 Site

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
Chloride	(mg/L)		2	2	192	187	189.5	250	0
Fluoride	(mg/L)		2	2	4.87	4.6	4.735	2	2
Nitrate Nitrogen	(mg/L)		2	2	129	129	129	10	2
Sulfate	(mg/L)		2	2	40.1	30.4	35.25	250	0
Aluminum, ICAP	(mg/L)		2	2	13	11	12	0.2	2
Aluminum, ICAP	(mg/L)	Filtered	2	2	13	11	12	0.2	2
Barium, ICAP	(mg/L)		2	2	0.52	0.5	0.51	2	0
Barium, ICAP	(mg/L)	Filtered	2	2	0.49	0.48	0.485	2	0
Beryllium, ICAP	(mg/L)		2	2	0.0094	0.009	0.0092	0.004	2
Beryllium, ICAP	(mg/L)	Filtered	2	2	0.0092	0.0088	0.009	0.004	2
Boron, ICAP	(mg/L)		2	2	0.048	0.041	0.0445	NR	NA
Boron, ICAP	(mg/L)	Filtered	2	2	0.18	0.033	0.1065	NR	NA
Cadmium, ICAP	(mg/L)		2	2	0.047	0.045	0.046	0.005	2
Cadmium, ICAP	(mg/L)	Filtered	2	2	0.047	0.044	0.0455	0.005	2
Calcium, ICAP	(mg/L)		2	2	150	130	140	NR	NA
Calcium, ICAP	(mg/L)	Filtered	2	2	150	130	140	NR	NA
Cobalt, ICAP	(mg/L)		2	2	0.19	0.18	0.185	NR	NA
Cobalt, ICAP	(mg/L)	Filtered	2	2	0.18	0.18	0.18	NR	NA
Copper, ICAP	(mg/L)		2	1	0.03	0.03	0.03	1	0
Copper, ICAP	(mg/L)	Filtered	2	1	0.028	0.028	0.028	1	0
Iron, ICAP	(mg/L)		2	1	0.37	0.37	0.37	0.3	1
Lead, ICP/MS	(mg/L)		1	1	0.0032	0.0032	0.0032	NR	NA
Lead, ICP/MS	(mg/L)	Filtered	1	1	0.0024	0.0024	0.0024	NR	NA
Lithium, ICAP	(mg/L)		2	2	0.033	0.025	0.029	NR	NA
Lithium, ICAP	(mg/L)	Filtered	2	2	0.032	0.023	0.0275	NR	NA
Magnesium, ICAP	(mg/L)		2	2	27	26	26.5	NR	NA
Magnesium, ICAP	(mg/L)	Filtered	2	2	26	25	25.5	NR	NA
Manganese, ICAP	(mg/L)		2	2	8.8	8.6	8.7	0.05	2
Manganese, ICAP	(mg/L)	Filtered	2	2	8.7	8.4	8.55	0.05	2
Manganese, ICAP	(mg/L)		2	2	0.51	0.5	0.505	0.1 d	2
Nickel, ICAP	(mg/L)		2	2	0.5	0.48	0.49	0.1 d	2
Nickel, ICAP	(mg/L)	Filtered	2	2	0.5	0.48	0.49	0.1 d	2
Potassium, ICAP	(mg/L)		2	2	14	11	12.5	NR	NA

Table 2.36 (continued)

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
Potassium, ICAP	(mg/L)	Filtered	2	2	13	11	12	NR	NA
Silver, ICAP	(mg/L)	Filtered	2	1	0.0075	0.0075	0.0075	0.1	0
Sodium, ICAP	(mg/L)	Filtered	2	2	85	84	84.5	NR	NA
Sodium, ICAP	(mg/L)	Filtered	2	2	85	82	83.5	NR	NA
Strontium, ICAP	(mg/L)	Filtered	2	2	0.35	0.32	0.335	NR	NA
Strontium, ICAP	(mg/L)	Filtered	2	2	0.35	0.32	0.335	NR	NA
Uranium, ICP/MS	(mg/L)	Filtered	2	2	1.9	1.2	1.55	NR	NA
Uranium, ICP/MS	(mg/L)	Filtered	2	2	1.6	1.1	1.35	NR	NA
Vanadium, ICAP	(mg/L)	Filtered	2	1	0.0059	0.0059	0.0059	NR	NA
Zinc, ICAP	(mg/L)	Filtered	2	2	0.14	0.13	0.135	5	0
Zinc, ICAP	(mg/L)	Filtered	2	2	0.14	0.13	0.135	5	0
Conductivity, field measurement	(umhos/cm)	Filtered	2	NA	1527	1500	1513.5	NR	NA
Dissolved Oxygen, field measure	(ppm)		2	NA	6.5	3.4	4.95	NR	NA
pH, field measurement	(pH)		2	NA	5.4	4	4.7	6.5/8.5	2
REDOX, field measurement	(mV)		2	NA	291	279	285	NR	NA
Static Water Level	(ft - toc)		2	NA	-5.79	-6.8	-6.295	NR	NA
Temperature, field measurement	(Deg C)		2	NA	18.1	8.7	13.4	NR	NA
Conductivity	(umhos/cm)		2	2	1729	1676	1702.5	NR	NA
Dissolved Solids	(mg/L)		2	2	1372	1334	1353	500	2
pH	(pH)		2	2	4.55 L	4.4	4.475	6.5/8.5	2
Total Suspended Solids	(mg/L)		2	1	11	11	11	NR	NA
Turbidity	(NTU)		2	2	9.73	2.79 *	6.26	1	2
Iodine-129, X-10 lab	(pCi/L)		2	2	1	1	1	NR	NA
Cesium-137, Y-12 lab	(pCi/L)		1	1	3.5	3.5	3.5	120	0
Cesium-137, Y-12 lab	(pCi/L)	Filtered	1	1	0.1	0.1	0.1	120	0
Thallium-208, Y-12 lab	(pCi/L)	Filtered	1	1	17	17	17	NR	NA
Lead-212, Y-12 lab	(pCi/L)	Filtered	1	1	7.8	7.8	7.8	NR	NA
Radium - Total Alpha, Y-12 lab	(pCi/L)		1	1	1.5	1.5	1.5	59	0
Radium - Total Alpha, Y-12 lab	(pCi/L)	Filtered	1	1	1.2	1.2	1.2	59	0
Radium-228, Y-12 lab	(pCi/L)		1	1	4.9	4.9	4.9	59	0
Radium-228, Y-12 lab	(pCi/L)	Filtered	1	1	5.4	5.4	5.4	59	1
Thorium-228, Y-12 lab	(pCi/L)		1	1	0.23	0.23	0.23	16	0
Thorium-228, Y-12 lab	(pCi/L)	Filtered	1	1	0.26	0.26	0.26	16	0
Thorium-230, Y-12 lab	(pCi/L)		1	1	0.95	0.95	0.95	12	0
Thorium-230, Y-12 lab	(pCi/L)	Filtered	1	1	0.48	0.48	0.48	12	0

Table 2.36 (continued)

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
Thorium-231+234, Y-12 lab	(pCi/L)		1	1	410	410	410	400	1
Thorium-231+234, Y-12 lab	(pCi/L)	Filtered	1	1	560	560	560	400	1
Thorium-232, Y-12 lab	(pCi/L)		1	1	0	0	0	2	0
Thorium-232, Y-12 lab	(pCi/L)	Filtered	1	1	0.034	0.034	0.034	2	0
Protactinium-234, Y-12 lab	(pCi/L)		1	1	5.3	5.3	5.3	NR	NA
Protactinium-234, Y-12 lab	(pCi/L)	Filtered	1	1	-13	-13	-13	NR	NA
Uranium-234	(pCi/L)		1	1	0.0229 J	0.0229 J	0.0229 J	20	0
Uranium-234, Y-12 lab	(pCi/L)		1	1	180	180	180	20	1
Uranium-234, Y-12 lab	(pCi/L)	Filtered	1	1	170	170	170	20	1
Protactinium-234m, Y-12 lab	(pCi/L)		1	1	1100 ?	1100 ?	1100	2800	0
Protactinium-234m, Y-12 lab	(pCi/L)	Filtered	1	1	1100	1100	1100	2800	0
Uranium-235	(pCi/L)		1	1	0 J	0 J	0	24	0
Uranium-235, Y-12 lab	(pCi/L)		1	1	10	10	10	24	0
Uranium-235, Y-12 lab	(pCi/L)	Filtered	1	1	8.6	8.6	8.6	24	0
Uranium-236, Y-12 lab	(pCi/L)		1	1	5.5	5.5	5.5	NR	NA
Uranium-236, Y-12 lab	(pCi/L)	Filtered	1	1	6.2	6.2	6.2	NR	NA
Neptunium-237	(pCi/L)		1	1	19.8	19.8	19.8	1.2	1
Neptunium-237, Y-12 lab	(pCi/L)		1	1	25	25	25	1.2	1
Neptunium-237, Y-12 lab	(pCi/L)	Filtered	1	1	25	25	25	1.2	1
Plutonium-238	(pCi/L)		1	1	0.0573	0.0573	0.0573	1.6	0
Plutonium-238, Y-12 lab	(pCi/L)		1	1	0.039	0.039	0.039	1.6	0
Plutonium-238, Y-12 lab	(pCi/L)	Filtered	1	1	0.037	0.037	0.037	1.6	0
Uranium-238	(pCi/L)		1	1	0.075 J	0.075 J	0.075	24	0
Uranium-238, Y-12 lab	(pCi/L)		1	1	410	410	410	24	1
Uranium-238, Y-12 lab	(pCi/L)	Filtered	1	1	410	410	410	24	1
Plutonium-239	(pCi/L)		1	1	0	0	0	1.2	0
Plutonium-239, Y-12 lab	(pCi/L)		1	1	0.009	0.009	0.009	1.2	0
Plutonium-239, Y-12 lab	(pCi/L)	Filtered	1	1	0.009	0.009	0.009	1.2	0
Americium-241	(pCi/L)		1	1	-0.0137	-0.0137	-0.0137	1.2	0
Americium-241, Y-12 lab	(pCi/L)		1	1	0.18	0.18	0.18	1.2	0
Americium-241, Y-12 lab	(pCi/L)	Filtered	1	1	0.2	0.2	0.2	1.2	0
Potassium-40, Y-12 lab	(pCi/L)		1	1	48	48	48	280	0
Strontium-89/90	(pCi/L)		1	1	3.38	3.38	3.38	8	0
Strontium-89/90, Y-12 lab	(pCi/L)		1	1	2.7	2.7	2.7	8	0
Strontium-89/90, Y-12 lab	(pCi/L)	Filtered	1	1	2.4	2.4	2.4	8	0

Table 2.36 (continued)

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
Technetium-99	(pCi/L)		1	1	1020	1020	1020	4000	0
Technetium-99, Y-12 lab	(pCi/L)		1	1	1100	1100	1100	4000	0
Technetium-99, Y-12 lab	(pCi/L)	Filtered	1	1	950	950	950	4000	0
Gross Alpha	(pCi/L)		1	1	368	368	368	15 f	1
Gross Alpha, Y-12 lab	(pCi/L)		1	1	310	310	310	15 f	1
Gross Alpha, Y-12 lab	(pCi/L)	Filtered	1	1	410	410	410	15 f	1
Gross Beta	(pCi/L)		1	1	575	575	575	50 a	1
Gross Beta, Y-12 lab	(pCi/L)		1	1	830	830	830	50 a	1
Gross Beta, Y-12 lab	(pCi/L)	Filtered	1	1	810	810	810	50 a	1
Radium, X-10 lab	(pCi/L)		2	2	3.5	1.3	2.4	NR	NA
Tritium, X-10 lab	(pCi/L)		1	1	130	130	130	20000	0
Tritium, Y-12 lab	(pCi/L)		1	1	200	200	200	20000	0
Tritium, Y-12 lab	(pCi/L)	Filtered	1	1	-40	-40	-40	20000	0
Chloroform	(ug/L)		2	2	1 J	1 J	1	100 i	0
Tetrachloroethene	(ug/L)		2	2	22	18	20	5	2

Table 2.37. Constituents Detected in Groundwater at the Y-12 Plant for 1996

REGIME=BC AREA NAME=Spill Area I

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
Chloride	(mg/L)		2	2	11.7	10.1	10.9	250	0
Nitrate Nitrogen	(mg/L)		2	2	8.56	7.95	8.255	10	0
Sulfate	(mg/L)		2	2	91.3	57.2	74.25	250	0
Barium, ICAP	(mg/L)		2	2	0.058	0.056	0.057	2	0
Barium, ICAP	(mg/L)	Filtered	2	2	0.063	0.055	0.059	2	0
Boron, ICAP	(mg/L)		2	1	0.027	0.027	0.027	NR	NA
Boron, ICAP	(mg/L)	Filtered	2	1	0.014	0.014	0.014	NR	NA
Calcium, ICAP	(mg/L)		2	2	120	120	120	NR	NA
Calcium, ICAP	(mg/L)	Filtered	2	2	130	120	125	NR	NA
Iron, ICAP	(mg/L)		2	1	0.04	0.04	0.04	0.3	0
Iron, ICAP	(mg/L)	Filtered	2	1	0.009	0.009	0.009	0.3	0
Lead, ICP/MS	(mg/L)	Filtered	1	1	0.0027	0.0027	0.0027	NR	NA
Magnesium, ICAP	(mg/L)		2	2	13	13	13	NR	NA
Magnesium, ICAP	(mg/L)	Filtered	2	2	14	13	13.5	NR	NA
Potassium, ICAP	(mg/L)		2	2	4.3	3.3	3.8	NR	NA
Potassium, ICAP	(mg/L)	Filtered	2	2	4.3	3.4	3.85	NR	NA
Sodium, ICAP	(mg/L)		2	2	6.6	6.5	6.55	NR	NA
Sodium, ICAP	(mg/L)	Filtered	2	2	7	6.5	6.75	NR	NA
Strontium, ICAP	(mg/L)		2	2	0.2	0.19	0.195	NR	NA
Strontium, ICAP	(mg/L)	Filtered	2	2	0.22	0.19	0.205	NR	NA
Uranium, ICP/MS	(mg/L)		2	2	0.0018	0.0018	0.0018	NR	NA
Uranium, ICP/MS	(mg/L)	Filtered	2	2	0.0019	0.0019	0.0019	NR	NA
Zinc, ICAP	(mg/L)		2	2	0.0041	0.0032	0.00365	5	0
Zinc, ICAP	(mg/L)	Filtered	2	2	0.0055	0.0044	0.00495	5	0
Conductivity, field measurement	(umhos/cm)		2	NA	623	551	587	NR	NA
Dissolved Oxygen, field measure	(ppm)		2	NA	4.5	4	4.25	NR	NA
pH, field measurement	(pH)		2	NA	6.9	6.7	6.8	6.5/8.5	0
REDOX, field measurement	(mV)		2	NA	230	168	199	NR	NA
Static Water Level	(ft - toc)		2	NA	-54.91	-54.95	-54.93	NR	NA
Temperature, field measurement	(Deg C)		2	NA	16.6	14.5	15.55	NR	NA
Alkalinity as HCO3	(mg/L)		2	2	243	236	239.5	NR	NA
Conductivity	(umhos/cm)		2	2	731	671	701	NR	NA

Table 2.37 (continued)

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
Dissolved Solids	(mg/L)		2	2	470	448	459	500	0
pH	(pH)		2	2	6.94	6.93 L	6.935	6.5/8.5	0
Turbidity	(NTU)		2	2	0.715	0.278	0.4965	1	0
Gross Alpha	(pCi/L)		2	2	3.47	1.43	2.45	15 f	0
Gross Beta	(pCi/L)		2	2	24.4	21.1	22.75	50 a	0
1,2-Dichloroethene (Total)	(ug/L)		2	2	4 J	3 J	3.5	NR b	NA
Chloroform	(ug/L)		2	2	1 J	1 J	1	100 i	0
Tetrachloroethene	(ug/L)		2	2	14	9 J	11.5	5	2
Trichloroethene	(ug/L)		2	1	5 J	5 J	5	5	0

Table 2.38. Constituents Detected in Groundwater at the Y-12 Plant for 1996

Variable	Units	Filtered Status	No. Samples	No. Detected	No. Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
Chloride	(mg/L)		4	4	1.8	1.57	1.6725	250	0
Nitrate Nitrogen	(mg/L)		4	1	0.24	0.24	0.24	10	0
Sulfate	(mg/L)		4	4	4.3	1.96	2.675	250	0
Aluminum, ICAP	(mg/L)		4	4	0.17	0.029	0.09725	0.2	0
Aluminum, ICAP	(mg/L)	Filtered	4	4	0.038	0.023	0.03075	0.2	0
Barium, ICAP	(mg/L)		4	4	0.053	0.007	0.0229	2	0
Barium, ICAP	(mg/L)	Filtered	4	4	0.05	0.0068	0.0221	2	0
Boron, ICAP	(mg/L)		4	4	0.08	0.024	0.03975	NR	NA
Boron, ICAP	(mg/L)	Filtered	4	4	0.062	0.022	0.045	NR	NA
Calcium, ICAP	(mg/L)		4	4	38	26	33.25	NR	NA
Calcium, ICAP	(mg/L)	Filtered	4	4	37	25	33.25	NR	NA
Iron, ICAP	(mg/L)		4	4	0.48	0.026	0.19625	0.3	1
Iron, ICAP	(mg/L)	Filtered	4	3	0.33	0.0052	0.1146	0.3	1
Magnesium, ICAP	(mg/L)		4	4	23	15	19.75	NR	NA
Magnesium, ICAP	(mg/L)	Filtered	4	4	22	14	19.5	NR	NA
Magnesium, ICAP	(mg/L)		4	4	0.0078	0.0028	0.004575	0.05	0
Manganese, ICAP	(mg/L)		4	2	0.0049	0.0032	0.00405	0.05	0
Potassium, ICAP	(mg/L)		4	3	3.8	0.93	2.043333	NR	NA
Potassium, ICAP	(mg/L)	Filtered	4	3	4.1	0.88	2.16	NR	NA
Sodium, ICAP	(mg/L)		4	4	0.95	0.47	0.7175	NR	NA
Sodium, ICAP	(mg/L)	Filtered	4	4	1	0.47	0.7325	NR	NA
Strontium, ICAP	(mg/L)		4	4	0.024	0.018	0.02125	NR	NA
Strontium, ICAP	(mg/L)	Filtered	4	4	0.024	0.017	0.02075	NR	NA
Zinc, ICAP	(mg/L)		4	4	0.015	0.0071	0.011025	5	0
Zinc, ICAP	(mg/L)	Filtered	4	4	0.015	0.0037	0.009825	5	0
Conductivity, field measurement	(umhos/cm)		4	NA	309	224	280	NR	NA
Dissolved Oxygen, field measurement	(ppm)		4	NA	9.8	3.9	6.35	NR	NA
pH, field measurement	(pH)		4	NA	8	7.1	7.6	6.5/8.5	0
REDOX, field measurement	(mV)		4	NA	208	152	177.5	NR	NA
Static Water Level	(ft - toc)		4	NA	-14.86	-17.82	-16.91	NR	NA
Temperature, field measurement	(Deg C)		4	NA	16.2	14.8	15.425	NR	NA
Alkalinity as HCO3	(mg/L)		4	4	183	130	166.75	NR	NA

Table 2.38 (continued)

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
Conductivity	(umhos/cm)		4	4	342	242	310.75	NR	NA
Dissolved Solids	(mg/L)		4	4	196	152	182	500	0
pH	(pH)		4	4	7.99 L	7.24 L	7.6675	6.5/8.5	0
Total Suspended Solids	(mg/L)		4	3	2*	1	1.666667	NR	NA
Turbidity	(NTU)		4	4	5.96	3.55	4.3425	1	4
Gross Alpha	(pCi/L)		4	4	3.99	-3.43	0.2975	15 f	0
Gross Beta	(pCi/L)		4	4	0.73	-3.84	-1.6325	50 a	0

Table 2.39. Constituents Detected in Groundwater at the Y-12 Plant for 1996

REGIME=CR AREA NAME=C. Ridge Borrow Area Waste Pile

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
Chloride	(mg/L)		7	7	6.93	0.89	2.331429	250	0
Nitrate Nitrogen	(mg/L)		7	4	0.63	0.27	0.4	10	0
Sulfate	(mg/L)		7	7	7.04	1.55	3.4	250	0
Aluminum, ICAP	(mg/L)		7	3	14	0.2	5.166667	0.2	2
Arsenic, ICAP	(mg/L)		7	1	0.06	0.06	0.06	0.05	1
Barium, ICAP	(mg/L)		7	7	0.031	0.0095	0.017771	2	0
Beryllium, ICAP	(mg/L)	Filtered	7	7	0.019	0.0091	0.013586	2	0
Boron, ICAP	(mg/L)		7	1	0.0017	0.0017	0.0017	0.004	0
Boron, ICAP	(mg/L)		7	7	0.055	0.0056	0.022229	NR	NA
Boron, ICAP	(mg/L)	Filtered	7	6	0.042	0.0065	0.021583	NR	NA
Calcium, ICAP	(mg/L)		7	7	49	27	37	NR	NA
Calcium, ICAP	(mg/L)	Filtered	7	7	47	25	35	NR	NA
Chromium, ICAP	(mg/L)		7	4	0.02	0.01	0.01325	0.1	0
Cobalt, ICAP	(mg/L)		7	2	0.0069	0.005	0.00595	NR	NA
Cobalt, ICAP	(mg/L)	Filtered	7	1	0.007	0.007	0.007	NR	NA
Copper, ICAP	(mg/L)		7	6	0.021	0.0046	0.010267	1	0
Copper, ICAP	(mg/L)	Filtered	7	2	0.0061	0.006	0.00605	1	0
Iron, ICAP	(mg/L)		7	7	18	0.021	2.848857	0.3	2
Iron, ICAP	(mg/L)	Filtered	7	6	0.024	0.0051	0.012667	0.3	0
Lead, AAS	(mg/L)		1	1	0.0074	0.0074	0.0074	0.015 c	0
Lead, ICP/MS	(mg/L)		1	1	0.012	0.012	0.012	NR	NA
Lead, ICAP	(mg/L)		7	1	0.062	0.062	0.062	0.015 c	1
Lithium, ICAP	(mg/L)		7	4	0.016	0.0042	0.007275	NR	NA
Lithium, ICAP	(mg/L)	Filtered	7	1	0.0044	0.0044	0.0044	NR	NA
Magnesium, ICAP	(mg/L)		7	7	31	17	23.71429	NR	NA
Magnesium, ICAP	(mg/L)	Filtered	7	7	30	16	22.57143	NR	NA
Manganese, ICAP	(mg/L)		7	7	0.29	0.0016	0.050214	0.05	1
Manganese, ICAP	(mg/L)	Filtered	7	7	0.0083	0.001	0.003	0.05	0
Molybdenum, ICAP	(mg/L)		7	1	0.012	0.012	0.012	NR	NA
Molybdenum, ICAP	(mg/L)	Filtered	7	1	0.01	0.01	0.01	NR	NA
Nickel, ICAP	(mg/L)		7	1	0.023	0.023	0.023	0.1 d	0
Potassium, ICAP	(mg/L)		7	7	3.8	1.3	1.928571	NR	NA

Table 2.39 (continued)

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
Potassium, ICAP	(mg/L)	Filtered	7	7	1.7	0.99	1.427143	NR	NA
Silver, ICAP	(mg/L)		7	2	0.0095	0.007	0.00825	0.1	0
Silver, ICAP	(mg/L)	Filtered	7	4	0.01	0.007	0.008175	0.1	0
Sodium, ICAP	(mg/L)		7	7	3.1	0.66	1.321429	NR	NA
Sodium, ICAP	(mg/L)	Filtered	7	7	3.2	0.6	1.337143	NR	NA
Strontium, ICAP	(mg/L)		7	7	0.026	0.012	0.02	NR	NA
Strontium, ICAP	(mg/L)	Filtered	7	7	0.024	0.013	0.018714	NR	NA
Uranium, ICP/MS	(mg/L)		7	2	0.0015	0.0005	0.001	NR	NA
Uranium, ICP/MS	(mg/L)	Filtered	7	1	0.0017	0.0017	0.0017	NR	NA
Vanadium, ICAP	(mg/L)		7	2	0.039	0.0071	0.02305	NR	NA
Zinc, ICAP	(mg/L)		7	6	0.11	0.0029	0.028333	5	0
Zinc, ICAP	(mg/L)	Filtered	7	3	0.026	0.0061	0.015033	5	0
Conductivity, field measurement	(umhos/cm)		7	NA	395	235	299.2857	NR	NA
Dissolved Oxygen, field measure	(ppm)		7	NA	9	1.6	6.157143	NR	NA
pH, field measurement	(pH)		7	NA	8	7.1	7.685714	6.5/8.5	0
REDOX, field measurement	(mV)		7	NA	197	146	172.5714	NR	NA
Static Water Level	(ft - toc)		7	NA	-90.4	-157.5	-123.036	NR	NA
Temperature, field measurement	(Deg C)		7	NA	16.3	12.6	14.52857	NR	NA
Alkalinity as HCO3	(mg/L)		7	7	226	127	176.2857	NR	NA
Conductivity	(umhos/cm)		7	7	436	244	331.2857	NR	NA
Dissolved Solids	(mg/L)		7	7	302	142	193.4286	500	0
pH	(pH)		7	7	8.01 L	7.38 L	7.748571	6.5/8.5	0
Total Suspended Solids	(mg/L)		7	4	162	4	47.125	NR	NA
Turbidity	(NTU)		7	7	351	0.735	58.195	1	6
Gross Alpha	(pCi/L)		7	7	12.2	-1.01	2.829714	15 f	0
Gross Beta	(pCi/L)		7	7	9.32	-4.88	-0.19571	50 a	0

Table 2.40. Constituents Detected in Groundwater at the Y-12 Plant for 1996

REGIME=CR AREA NAME=C. Ridge Security Pits

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
Chloride	(mg/L)		14	14	10	0.62	2.585714	250	0
Nitrate Nitrogen	(mg/L)		14	12	3.6	0.05	0.884167	10	0
Sulfate	(mg/L)		14	14	12.6	1.09	3.802857	250	0
Aluminum, ICAP	(mg/L)		14	8	11	0.022	1.766875	0.2	3
Aluminum, ICAP	(mg/L)	Filtered	14	8	0.14	0.022	0.052	0.2	0
Barium, ICAP	(mg/L)		14	14	0.12	0.011	0.033357	2	0
Barium, ICAP	(mg/L)	Filtered	14	14	0.12	0.011	0.032143	2	0
Beryllium, ICAP	(mg/L)		14	3	0.001	0.00031	0.000593	0.004	0
Boron, ICAP	(mg/L)		14	14	0.3	0.0066	0.058914	NR	NA
Boron, ICAP	(mg/L)	Filtered	14	12	0.29	0.012	0.067333	NR	NA
Calcium, ICAP	(mg/L)		14	14	56	27	42.07143	NR	NA
Calcium, ICAP	(mg/L)	Filtered	14	14	55	28	41.71429	NR	NA
Chromium, ICAP	(mg/L)		14	3	0.065	0.015	0.032667	0.1	0
Copper, ICAP	(mg/L)		14	5	0.028	0.0045	0.01334	1	0
Copper, ICAP	(mg/L)	Filtered	14	3	0.0048	0.0044	0.0046	1	0
Iron, ICAP	(mg/L)		14	14	12	0.011	1.346643	0.3	5
Iron, ICAP	(mg/L)	Filtered	14	8	0.13	0.0052	0.039875	0.3	0
Lead, ICP/MS	(mg/L)		5	5	0.01	0.001	0.00436	NR	NA
Lead, ICP/MS	(mg/L)	Filtered	5	4	0.092	0.00058	0.023763	NR	NA
Lithium, ICAP	(mg/L)		14	3	0.013	0.0046	0.0078	NR	NA
Lithium, ICAP	(mg/L)	Filtered	14	2	0.0041	0.0041	0.0041	NR	NA
Magnesium, ICAP	(mg/L)		14	14	37	18	26.92857	NR	NA
Magnesium, ICAP	(mg/L)	Filtered	14	14	36	18	26.57143	NR	NA
Manganese, ICAP	(mg/L)		14	11	0.29	0.0012	0.043373	0.05	2
Manganese, ICAP	(mg/L)	Filtered	14	7	0.062	0.0032	0.021014	0.05	1
Nickel, ICAP	(mg/L)		14	3	0.078	0.012	0.049333	0.1 d	0
Potassium, ICAP	(mg/L)		14	12	5.3	0.88	1.904167	NR	NA
Potassium, ICAP	(mg/L)	Filtered	14	12	3.1	0.62	1.75	NR	NA
Silver, ICAP	(mg/L)		14	3	0.0095	0.0061	0.0074	0.1	0
Sodium, ICAP	(mg/L)		14	14	5.5	0.56	1.346429	NR	NA
Sodium, ICAP	(mg/L)	Filtered	14	14	4.8	0.56	1.280714	NR	NA
Strontium, ICAP	(mg/L)		14	14	0.044	0.014	0.020071	NR	NA

Table 2.40 (continued)

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
Strontium, ICAP	(mg/L)	Filtered	14	14	0.031	0.013	0.018571	NR	NA
Uranium, ICP/MS	(mg/L)		14	7	0.002	0.00052	0.000997	NR	NA
Uranium, ICP/MS	(mg/L)	Filtered	14	4	0.002	0.00051	0.001055	NR	NA
Vanadium, ICAP	(mg/L)		14	2	0.028	0.0052	0.0166	NR	NA
Zinc, ICAP	(mg/L)		14	14	0.086	0.003	0.028864	5	0
Zinc, ICAP	(mg/L)	Filtered	14	13	0.081	0.0036	0.0187	5	0
Conductivity, field measurement	(umhos/cm)		14	NA	498	261	359.7857	NR	NA
Dissolved Oxygen, field measure	(ppm)		14	NA	9.5	0.9	6.5	NR	NA
pH, field measurement	(pH)		14	NA	7.8	7.2	7.571429	6.5/8.5	0
REDOX, field measurement	(mV)		14	NA	211	127	179.5714	NR	NA
Static Water Level	(ft - toc)		14	NA	-80.15	-169.45	-124.489	NR	NA
Temperature, field measurement	(Deg C)		14	NA	17.5	12	14.98571	NR	NA
Alkalinity as HCO3	(mg/L)		14	14	286	132	202.1429	NR	NA
Conductivity	(umhos/cm)		14	14	530	270	395.7857	NR	NA
Dissolved Solids	(mg/L)		14	14	302	130	211.2857	500	0
pH	(pH)		14	14	7.85 L	7.41	7.698571	6.5/8.5	0
Total Suspended Solids	(mg/L)		14	4	93	2.5	44.125	NR	NA
Turbidity	(NTU)		14	14	300	0.494	31.77657	1	11
Gross Alpha	(pCi/L)		14	14	2.59	-2.44	0.232964	15 f	0
Gross Beta	(pCi/L)		14	14	8.68	-2.98	1.915	50 a	0
1,1,1-Trichloroethane	(ug/L)		14	5	120	2 J	28.4	200	0
1,1-Dichloroethane	(ug/L)		14	3	83	5 J	32.66667	NR	NA
1,1-Dichloroethane	(ug/L)		14	4	52	1 J	14.5	7	1
1,2-Dichloroethane	(ug/L)		14	1	4 J	4 J	4	5	0
1,2-Dichloroethane (Total)	(ug/L)		14	5	14	1 J	5.8	NR b	NA
2-Butanone	(ug/L)		14	2	12 B	12 B	12	NR	NA
cis-1,2-Dichloroethene	(ug/L)		2	1	7 J	7 J	7	70	0
Tetrachloroethene	(ug/L)		14	7	18	3 J	9.265714	5	5
Trichloroethene	(ug/L)		14	1	2 J	2 J	2	5	0

Table 2.41. Constituents Detected in Groundwater at the Y-12 Plant for 1996

REGIME=CR AREA NAME=C. Ridge Sediment Disposal Basin

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
Chloride	(mg/L)		32	32	2.88	0.6 *	1.522813	250	0
Nitrate Nitrogen	(mg/L)		32	23	0.32	0.04	0.228261	10	0
Sulfate	(mg/L)		32	32	11.1	1.52	5.341875	250	0
Aluminum, ICAP	(mg/L)		32	30	4.3	0.021	0.5434	0.2	13
Aluminum, ICAP	(mg/L)	Filtered	32	10	0.35	0.02	0.0616	0.2	1
Arsenic, ICP/MS	(mg/L)		16	1	0.0076	0.0076	0.0076	NR	NA
Barium, ICAP	(mg/L)		32	32	0.04	0.007	0.017969	2	0
Barium, ICAP	(mg/L)	Filtered	32	32	0.038	0.0062	0.015456	2	0
Boron, ICAP	(mg/L)		32	24	0.052	0.005	0.020167	NR	NA
Boron, ICAP	(mg/L)	Filtered	32	25	0.067	0.0051	0.019248	NR	NA
Calcium, ICAP	(mg/L)		32	32	190	19	48.5	NR	NA
Calcium, ICAP	(mg/L)	Filtered	32	32	66	20	37.59375	NR	NA
Copper, ICAP	(mg/L)		32	8	0.033	0.0045	0.0124	1	0
Copper, ICAP	(mg/L)	Filtered	32	3	0.01	0.0047	0.007767	1	0
Iron, ICAP	(mg/L)		32	32	7.5	0.02	0.666906	0.3	12
Iron, ICAP	(mg/L)	Filtered	32	18	0.59	0.0051	0.047306	0.3	1
Lead, AAS	(mg/L)		16	1	0.036	0.036	0.036	0.015 c	1
Lead, ICP/MS	(mg/L)		16	16	0.022	0.00053	0.003457	NR	NA
Lead, ICP/MS	(mg/L)	Filtered	16	11	0.0028	0.00057	0.001043	NR	NA
Lithium, ICAP	(mg/L)		32	2	0.0087	0.0051	0.0069	NR	NA
Lithium, ICAP	(mg/L)	Filtered	32	1	0.0072	0.0072	0.0072	NR	NA
Magnesium, ICAP	(mg/L)		32	32	120	13	30.5625	NR	NA
Magnesium, ICAP	(mg/L)	Filtered	32	32	40	11	24.15625	NR	NA
Manganese, ICAP	(mg/L)		32	27	0.36	0.0013	0.040837	0.05	5
Manganese, ICAP	(mg/L)	Filtered	32	18	0.038	0.001	0.004694	0.05	0
Nickel, ICAP	(mg/L)		32	2	0.017	0.011	0.014	0.1 d	0
Potassium, ICAP	(mg/L)		32	32	10	0.74	3.696875	NR	NA
Potassium, ICAP	(mg/L)	Filtered	32	32	12	0.77	3.74125	NR	NA
Silver, ICAP	(mg/L)		32	1	0.21	0.21	0.21	0.1	1
Silver, ICAP	(mg/L)	Filtered	32	2	0.27	0.11	0.19	0.1	2
Sodium, ICAP	(mg/L)		32	32	4.5	0.35	1.584688	NR	NA
Sodium, ICAP	(mg/L)	Filtered	32	32	5.5	0.37	1.656563	NR	NA

Table 2.41 (continued)

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
Strontium, ICAP	(mg/L)		32	32	0.1	0.015	0.028156	NR	NA
Strontium, ICAP	(mg/L)	Filtered	32	32	0.033	0.012	0.023375	NR	NA
Thallium, ICP/MS	(mg/L)	Filtered	16	2	0.00072	0.00062	0.00067	NR	NA
Thallium, ICP/MS	(mg/L)	Filtered	16	1	0.00075	0.00075	0.00075	NR	NA
Uranium, ICP/MS	(mg/L)	Filtered	32	18	0.003	0.00056	0.001759	NR	NA
Uranium, ICP/MS	(mg/L)	Filtered	32	16	0.0044	0.00066	0.001991	NR	NA
Vanadium, ICAP	(mg/L)		32	2	0.01	0.0076	0.0088	NR	NA
Zinc, ICAP	(mg/L)		32	32	0.083	0.0039	0.020278	5	0
Zinc, ICAP	(mg/L)	Filtered	32	32	0.05	0.0036	0.013334	5	0
Conductivity, field measurement	(umhos/cm)		32	NA	588	199	351.0625	NR	NA
Dissolved Oxygen, field measure	(ppm)		32	NA	11.6	4.5	7.19375	NR	NA
pH, field measurement	(pH)		32	NA	8.8	7.1	7.809375	6.5/8.5	2
REDOX, field measurement	(mV)		32	NA	228	124	177.7188	NR	NA
Static Water Level	(ft - toc)		32	NA	-116.74	-157.65	-140.663	NR	NA
Temperature, field measurement	(Deg C)		32	NA	21.3	13.6	15.14375	NR	NA
Alkalinity as CO3	(mg/L)		32	1	12	12	12	NR	NA
Alkalinity as HCO3	(mg/L)		32	32	369	117	210.5625	NR	NA
Conductivity	(umhos/cm)		32	32	643	233	388.4688	NR	NA
Dissolved Solids	(mg/L)		32	32	386	114	207.5	500	0
pH	(pH)		32	32	8.93 L	7.32 L	7.8875	6.5/8.5	2
Total Suspended Solids	(mg/L)		32	25	2710	1	162.596	NR	NA
Turbidity	(NTU)		32	32	488	0.87	53.06219	1	31
Gross Alpha	(pCi/l)		32	32	450	-3.18	16.0685	15 f	1
Gross Beta	(pCi/l)		32	32	535	-10.3	18.34887	50 a	1

Table 2.42. Constituents Detected in Groundwater at the Y-12 Plant for 1996

REGIME=CR AREA NAME=Const./Debris Landfill VI

Variable	Units	Filtered Status	No. Samples Detected	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
Chloride	(mg/L)		11	11	12.3	0.62	3.531818	250	0
Nitrate Nitrogen	(mg/L)		11	7	0.76	0.07	0.378571	10	0
Sulfate	(mg/L)		11	11	11.4	1.72	4.892727	250	0
Aluminum, ICAP	(mg/L)		11	7	3.9	0.041	0.852857	0.2	4
Aluminum, ICAP	(mg/L)	Filtered	11	8	0.053	0.023	0.036	0.2	0
Barium, ICAP	(mg/L)	Filtered	11	11	0.022	0.0044	0.010645	2	0
Barium, ICAP	(mg/L)	Filtered	11	11	0.021	0.0035	0.009918	2	0
Beryllium, ICAP	(mg/L)	Filtered	11	5	0.00062	0.00032	0.000404	0.004	0
Beryllium, ICAP	(mg/L)	Filtered	11	1	0.00043	0.00043	0.00043	0.004	0
Boron, ICAP	(mg/L)	Filtered	11	11	0.03	0.0093	0.017373	NR	NA
Boron, ICAP	(mg/L)	Filtered	11	11	0.13	0.0068	0.0289	NR	NA
Calcium, ICAP	(mg/L)	Filtered	11	11	53	18	38.90909	NR	NA
Calcium, ICAP	(mg/L)	Filtered	11	11	51	17	37.18182	NR	NA
Copper, ICAP	(mg/L)	Filtered	11	1	0.011	0.011	0.011	1	0
Iron, ICAP	(mg/L)	Filtered	11	11	2.8	0.0094	0.3824	0.3	2
Iron, ICAP	(mg/L)	Filtered	11	5	0.039	0.0052	0.01548	0.3	0
Lead, ICP/MS	(mg/L)	Filtered	4	1	0.0054	0.0054	0.0054	NR	NA
Lead, ICP/MS	(mg/L)	Filtered	4	1	0.00058	0.00058	0.00058	NR	NA
Magnesium, ICAP	(mg/L)	Filtered	11	11	29	8.2	21.29091	NR	NA
Magnesium, ICAP	(mg/L)	Filtered	11	11	29	7.4	20.58182	NR	NA
Manganese, ICAP	(mg/L)	Filtered	11	9	0.078	0.001	0.014667	0.05	1
Manganese, ICAP	(mg/L)	Filtered	11	3	0.0084	0.0015	0.005067	0.05	0
Molybdenum, ICAP	(mg/L)	Filtered	11	1	0.027	0.027	0.027	NR	NA
Molybdenum, ICAP	(mg/L)	Filtered	11	1	0.026	0.026	0.026	NR	NA
Potassium, ICAP	(mg/L)	Filtered	11	11	2.8	0.8	1.485455	NR	NA
Potassium, ICAP	(mg/L)	Filtered	11	11	2.5	0.76	1.449091	NR	NA
Sodium, ICAP	(mg/L)	Filtered	11	11	4.9	0.59	1.814545	NR	NA
Sodium, ICAP	(mg/L)	Filtered	11	11	15	0.59	2.76	NR	NA
Strontium, ICAP	(mg/L)	Filtered	11	11	0.029	0.016	0.022455	NR	NA
Strontium, ICAP	(mg/L)	Filtered	11	11	0.029	0.016	0.022091	NR	NA
Uranium, ICP/MS	(mg/L)	Filtered	11	2	0.0023	0.0012	0.00175	NR	NA
Uranium, ICP/MS	(mg/L)	Filtered	11	2	0.0023	0.0021	0.0022	NR	NA

Table 2.42 (continued)

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
Vanadium, ICAP	(mg/L)		11	1	0.0072	0.0072	0.0072	NR	NA
Zinc, ICAP	(mg/L)		11	11	0.13	0.0064	0.0294	5	0
Zinc, ICAP	(mg/L)	Filtered	11	11	0.027	0.0047	0.014491	5	0
Conductivity, field measurement	(umhos/cm)		15	NA	456	131	322.1333	NR	NA
Dissolved Oxygen, field measure	(ppm)		15	NA	9.9	3.6	5.493333	NR	NA
pH, field measurement	(pH)		15	NA	8.3	6.7	7.626667	6.5/8.5	0
REDOX, field measurement	(mV)		15	NA	248	144	187.5333	NR	NA
Static Water Level	(ft - toc)		15	NA	-38.92	-78.35	-62.26	NR	NA
Temperature, field measurement	(Deg C)		15	NA	18.7	12.6	14.14667	NR	NA
Alkalinity as HCO3	(mg/L)		11	11	246	76	177.0909	NR	NA
Chemical Oxygen Demand	(mg/L)		7	3	7.4	5.3	6.2	NR	NA
Conductivity	(umhos/cm)		11	11	461	137	340	NR	NA
Dissolved Solids	(mg/L)		11	11	244	126	182.7273	500	0
pH	(pH)		11	11	7.97 L	6.44 L	7.440909	6.5/8.5	1
Total Organic Carbon	(mg/L)		7	5	21.4	3.2	7.62	NR	NA
Total Suspended Solids	(mg/L)		11	4	48	3*	17.5	NR	NA
Turbidity	(NTU)		11	11	83.5	0.651	12.745	1	9
Cesium-137	(pCi/L)		7	7	6.28	0.000245	3.879606	120	0
Thorium-231+234	(pCi/L)		7	7	469	7.04	214.0771	400	2
Uranium-234	(pCi/L)		7	7	0.557	0.0662 J	0.191929	20	0
Protactinium-234m	(pCi/L)		7	7	599	141	425.7143	2800	0
Uranium-235	(pCi/L)		7	7	0.0777 J	-0.158	-0.0087	24	0
Uranium-238	(pCi/L)		7	7	0.835	0.0138	0.181143	24	0
Gross Alpha	(pCi/L)		11	11	3.68	-2	1.754518	15 f	0
Gross Beta	(pCi/L)		11	11	6.38	-3.02	0.397273	50 a	0
1,1,1-Trichloroethane	(ug/L)		11	1	1 JB	1 JB	1	200	0
2-Butanone	(ug/L)		11	1	7 J	7 J	7	NR	NA

Table 2.43. Constituents Detected in Groundwater at the Y-12 Plant for 1996

REGIME=CR AREA NAME=Const./Debris Landfill VII

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
Chloride	(mg/L)		8	8	2.18	0.77	1.4075	250	0
Nitrate Nitrogen	(mg/L)		8	7	0.69	0.11	0.462857	10	0
Sulfate	(mg/L)		8	8	2.65	1.02	1.895	250	0
Aluminum, ICAP	(mg/L)		9	5	0.69	0.02	0.2024	0.2	1
Aluminum, ICAP	(mg/L)	Filtered	9	3	0.089	0.022	0.050333	0.2	0
Barium, ICAP	(mg/L)		9	9	0.23	0.0087	0.059078	2	0
Barium, ICAP	(mg/L)	Filtered	9	9	0.23	0.0085	0.0731	2	0
Boron, ICAP	(mg/L)		9	9	0.064	0.0068	0.025478	NR	NA
Boron, ICAP	(mg/L)	Filtered	9	9	0.031	0.0048	0.0192	NR	NA
Calcium, ICAP	(mg/L)		9	9	38	27	33.33333	NR	NA
Calcium, ICAP	(mg/L)	Filtered	9	9	38	27	33.11111	NR	NA
Copper, ICAP	(mg/L)		9	1	0.0048	0.0048	0.0048	1	0
Iron, ICAP	(mg/L)		9	6	0.59	0.0069	0.167867	0.3	2
Iron, ICAP	(mg/L)	Filtered	9	1	0.018	0.018	0.018	0.3	0
Lead, ICP/MS	(mg/L)		4	4	0.00097	0.00061	0.000775	NR	NA
Lead, ICP/MS	(mg/L)	Filtered	4	4	0.0062	0.00056	0.00212	NR	NA
Magnesium, ICAP	(mg/L)		9	9	24	14	17.77778	NR	NA
Magnesium, ICAP	(mg/L)	Filtered	9	9	23	14	17.44444	NR	NA
Manganese, ICAP	(mg/L)		9	4	0.017	0.0011	0.0075	0.05	0
Potassium, ICAP	(mg/L)		9	8	1.7	0.65	1.015	NR	NA
Potassium, ICAP	(mg/L)	Filtered	9	6	1.6	0.73	1.286667	NR	NA
Selenium, ICAP	(mg/L)		9	1	0.058	0.058	0.058	0.05	1
Sodium, ICAP	(mg/L)		9	9	0.94	0.56	0.711111	NR	NA
Sodium, ICAP	(mg/L)	Filtered	9	9	1.4	0.53	0.781111	NR	NA
Strontium, ICAP	(mg/L)		9	9	0.023	0.015	0.018556	NR	NA
Strontium, ICAP	(mg/L)	Filtered	9	9	0.023	0.015	0.018444	NR	NA
Thallium, ICP/MS	(mg/L)		4	1	0.00062	0.00062	0.00062	NR	NA
Zinc, ICAP	(mg/L)		9	9	0.022	0.0072	0.013178	5	0
Zinc, ICAP	(mg/L)	Filtered	9	9	0.021	0.0025	0.011589	5	0
Conductivity, field measurement	umhos/cm		11	NA	311	229	265.8182	NR	NA
Dissolved Oxygen, field measure	ppm		11	NA	7.7	4	6.636364	NR	NA
pH, field measurement	pH		11	NA	7.8	7.3	7.490909	6.5/8.5	0

Table 2.43 (continued)

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
REDOX, field measurement	(mV)		11	NA	210	139	179.4545	NR	NA
Static Water Level	(ft - toc)		11	NA	-2.15	-76.6	-23.4373	NR	NA
Temperature, field measurement	(Deg C)		11	NA	16	13.4	14.54545	NR	NA
Alkalinity as HCO3	(mg/L)		8	8	192	134	152.625	NR	NA
Chemical Oxygen Demand	(mg/L)		4	2	6.8	5	5.9	NR	NA
Conductivity	(umhos/cm)		8	8	354	256	290.25	NR	NA
Dissolved Solids	(mg/L)		8	8	196	92	152	500	0
pH	(pH)		8	8	7.86 L	7.48 L	7.6775	6.5/8.5	0
Total Organic Carbon	(mg/L)		4	3	11	1.8	4.966667	NR	NA
Total Suspended Solids	(mg/L)		8	2	4*	1	2.5	NR	NA
Diesel Range Organics, X-10 lab	(mg/L)		4	4	0.1	0.1	0.1	0.1 e	0
Turbidity	(NTU)		8	8	19.1	0.237	3.7085	1	4
Cesium-137	(pCi/L)		4	4	4.64	1.2	2.6275	120	0
Thorium-231+234	(pCi/L)		4	4	340	0.191	140.1478	400	0
Uranium-234	(pCi/L)		4	4	0.13	0.0632 J	0.09245	20	0
Protactinium-234m	(pCi/L)		4	4	468	110	321	2800	0
Uranium-235	(pCi/L)		4	4	0.0964 J	-0.034 J	0.0113	24	0
Uranium-238	(pCi/L)		4	4	0.103	0.0438 J	0.078675	24	0
Gross Alpha	(pCi/L)		8	8	1.61	-0.319	0.498875	15 f	0
Gross Beta	(pCi/L)		8	8	1.76	-3.8	-0.24263	50 a	0
Acetone	(ug/L)		18	3	24	7 JB	14.66667	NR	NA

Table 2.44. Constituents Detected in Groundwater at the Y-12 Plant for 1996

REGIME=CR AREA NAME=East Chestnut Ridge Waste Pile

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
Chloride	(mg/L)		4	4	12.5	5.58	9.305	250	0
Nitrate Nitrogen	(mg/L)		4	3	2.49	0.58	1.216667	10	0
Sulfate	(mg/L)		4	4	3.86	1.56	3.0325	250	0
Aluminum, ICAP	(mg/L)		4	4	0.077	0.032	0.05775	0.2	0
Aluminum, ICAP	(mg/L)	Filtered	4	2	0.057	0.037	0.047	0.2	0
Barium, ICAP	(mg/L)		4	4	0.2	0.0097	0.087675	2	0
Barium, ICAP	(mg/L)	Filtered	4	4	0.2	0.011	0.088	2	0
Beryllium, ICAP	(mg/L)	Filtered	4	1	0.00034	0.00034	0.00034	0.004	0
Boron, ICAP	(mg/L)		4	4	0.033	0.019	0.026	NR	NA
Boron, ICAP	(mg/L)	Filtered	4	4	0.039	0.025	0.032	NR	NA
Calcium, ICAP	(mg/L)		4	4	57	47	51.5	NR	NA
Calcium, ICAP	(mg/L)	Filtered	4	4	54	46	51.5	NR	NA
Iron, ICAP	(mg/L)		4	4	6.7	0.022	1.726	0.3	1
Iron, ICAP	(mg/L)	Filtered	4	2	0.027	0.013	0.02	0.3	0
Magnesium, ICAP	(mg/L)		4	4	34	29	31.5	NR	NA
Magnesium, ICAP	(mg/L)	Filtered	4	4	33	29	31.75	NR	NA
Manganese, ICAP	(mg/L)		4	3	0.044	0.0014	0.015867	0.05	0
Manganese, ICAP	(mg/L)	Filtered	4	1	0.022	0.022	0.022	0.05	0
Potassium, ICAP	(mg/L)		4	4	1.4	0.73	0.96	NR	NA
Potassium, ICAP	(mg/L)	Filtered	4	4	1.3	0.65	0.965	NR	NA
Sodium, ICAP	(mg/L)		4	4	6	2.6	4.275	NR	NA
Sodium, ICAP	(mg/L)	Filtered	4	4	5.9	2.7	4.625	NR	NA
Strontium, ICAP	(mg/L)		4	4	0.023	0.018	0.02	NR	NA
Strontium, ICAP	(mg/L)	Filtered	4	4	0.026	0.018	0.0205	NR	NA
Zinc, ICAP	(mg/L)		4	4	0.014	0.0094	0.01185	5	0
Zinc, ICAP	(mg/L)	Filtered	4	4	0.056	0.0066	0.021275	5	0
Conductivity, field measurement	(umhos/cm)		4	NA	457	372	421.25	NR	NA
Dissolved Oxygen, field measurement	(ppm)		4	NA	7.8	5.1	6.95	NR	NA
pH, field measurement	(pH)		4	NA	7.3	6.7	7	6.5/8.5	0
REDOX, field measurement	(mV)		4	NA	188	137	163.25	NR	NA
Static Water Level	(ft - toc)		4	NA	-94.8	-117.15	-109.213	NR	NA
Temperature, field measurement	(Deg C)		4	NA	15.8	14.3	15.075	NR	NA

Table 2.44 (continued)

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
Alkalinity as HCO ₃	(mg/L)		4	4	258	218	240.5	NR	NA
Conductivity	(umhos/cm)		4	4	516	416	476.75	NR	NA
Dissolved Solids	(mg/L)		4	4	278	238	252.5	500	0
pH	(pH)		4	4	7.61 L	7.44 L	7.5125	6.5/8.5	0
Total Suspended Solids	(mg/L)		4	2	9	3.5	6.25	NR	NA
Turbidity	(NTU)		4	4	36.1	0.685	9.8155	1	2
Gross Alpha	(pCi/L)		4	4	2.67	-1.01	1.3	15 f	0
Gross Beta	(pCi/L)		4	4	2.09	-4.37	-0.36	50 a	0

Table 2.45. Constituents Detected in Groundwater at the Y-12 Plant for 1996

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected		Minimum Detected		Average	Reference Value	No. of Meas. > Reference
					Detected	Detected	Detected	Detected			
Chloride	(mg/L)		6	6	14.8	14.4	5.996667	250	0	0	
Fluoride	(mg/L)		6	2	2.04	1.8	1.92	2	1	1	
Nitrate Nitrogen	(mg/L)		6	4	0.39	0.09	0.2325	10	0	0	
Sulfate	(mg/L)		6	6	11.4	1.98	6.773333	250	0	0	
Aluminum, ICAP	(mg/L)		7	7	7.9	0.052	1.346	0.2	4	4	
Aluminum, ICAP	(mg/L)	Filtered	7	4	0.036	0.023	0.027	0.2	0	0	
Barium, ICAP	(mg/L)		7	7	0.27	0.011	0.159	2	0	0	
Barium, ICAP	(mg/L)	Filtered	7	6	0.26	0.011	0.157	2	0	0	
Beryllium, ICAP	(mg/L)		7	1	0.00055	0.00055	0.00055	0.004	0	0	
Boron, ICAP	(mg/L)		7	7	0.064	0.0074	0.024486	NR	NA	NA	
Boron, ICAP	(mg/L)	Filtered	7	7	0.028	0.0059	0.013571	NR	NA	NA	
Calcium, ICAP	(mg/L)		7	7	150	29	51.42857	NR	NA	NA	
Calcium, ICAP	(mg/L)	Filtered	7	7	39	0.49	29.78429	NR	NA	NA	
Chromium, ICAP	(mg/L)		7	5	8.5	0.011	1.7338	0.1	1	1	
Chromium, ICAP	(mg/L)	Filtered	7	1	0.013	0.013	0.013	0.1	0	0	
Cobalt, ICAP	(mg/L)		7	1	0.055	0.055	0.055	NR	NA	NA	
Copper, ICAP	(mg/L)		7	4	0.34	0.0052	0.089975	1	0	0	
Copper, ICAP	(mg/L)	Filtered	7	1	0.0072	0.0072	0.0072	1	0	0	
Iron, ICAP	(mg/L)		7	7	91	0.047	13.40814	0.3	4	4	
Iron, ICAP	(mg/L)	Filtered	7	3	0.22	0.013	0.102	0.3	0	0	
Lead, ICP/MS	(mg/L)		4	4	0.08	0.0007	0.021275	NR	NA	NA	
Lead, ICP/MS	(mg/L)	Filtered	4	2	0.0023	0.00066	0.00148	NR	NA	NA	
Lead, ICAP	(mg/L)		7	1	0.073	0.073	0.073	0.015 c	1	1	
Lithium, ICAP	(mg/L)		7	1	0.004	0.004	0.004	NR	NA	NA	
Magnesium, ICAP	(mg/L)		7	7	39	17	23.28571	NR	NA	NA	
Magnesium, ICAP	(mg/L)	Filtered	7	7	23	0.22	17.88857	NR	NA	NA	
Manganese, ICAP	(mg/L)		7	6	1.2	0.0023	0.20795	0.05	1	1	
Manganese, ICAP	(mg/L)	Filtered	7	4	0.0056	0.0011	0.0026	0.05	0	0	
Molybdenum, ICAP	(mg/L)		7	1	0.068	0.068	0.068	NR	NA	NA	
Nickel, ICAP	(mg/L)		7	3	2.6	0.12	0.96	0.1 d	3	3	
Nickel, ICAP	(mg/L)	Filtered	7	2	0.13	0.074	0.102	0.1 d	1	1	
Potassium, ICAP	(mg/L)		7	6	3.1	0.62	1.365	NR	NA	NA	

Table 2.45 (continued)

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
Potassium, ICAP	(mg/L)	Filtered	7	5	2.7	0.82	1.47	NR	NA
Sodium, ICAP	(mg/L)		7	7	5.8	0.67	2.421429	NR	NA
Sodium, ICAP	(mg/L)	Filtered	7	7	5.1	0.13	2.142857	NR	NA
Strontium, ICAP	(mg/L)		7	7	0.8	0.019	0.249571	NR	NA
Strontium, ICAP	(mg/L)	Filtered	7	6	0.75	0.023	0.264833	NR	NA
Thallium, ICP/MS	(mg/L)		4	1	0.00072	0.00072	0.00072	NR	NA
Thallium, ICP/MS	(mg/L)	Filtered	4	1	0.00059	0.00059	0.00059	NR	NA
Uranium, ICP/MS	(mg/L)		7	5	0.0045	0.00069	0.002746	NR	NA
Uranium, ICP/MS	(mg/L)	Filtered	7	5	0.0044	0.00059	0.00253	NR	NA
Vanadium, ICAP	(mg/L)		7	1	0.049	0.049	0.049	NR	NA
Zinc, ICAP	(mg/L)		7	7	0.51	0.0087	0.091814	5	0
Zinc, ICAP	(mg/L)	Filtered	7	7	0.02	0.0074	0.012757	5	0
Conductivity, field measurement	(umhos/cm)		8	NA	326	263	295.5	NR	NA
Dissolved Oxygen, field measure	(ppm)		8	NA	11.1	5.6	8.4	NR	NA
pH, field measurement	(pH)		8	NA	8.3	8	8.175	6.5/8.5	0
REDOX, field measurement	(mV)		8	NA	212	105	170.875	NR	NA
Static Water Level	(ft - toc)		8	NA	-27.97	-107.8	-77.4325	NR	NA
Temperature, field measurement	(Deg C)		8	NA	15	9.8	13.4625	NR	NA
Alkalinity as HCO3	(mg/L)		6	6	192	143	163.6667	NR	NA
Conductivity	(umhos/cm)		6	6	363	293 h	332.8333	NR	NA
Dissolved Solids	(mg/L)		6	6	210	154 *	186.6667	500	0
pH	(pH)		6	6	8.15 L	7.77 L	8.018333	6.5/8.5	0
Total Organic Carbon	(mg/L)		3	3	3.4	2.3	2.866667	NR	NA
Total Suspended Solids	(mg/L)		6	5	32	2	15.8	NR	NA
Turbidity	(NTU)		6	6	63.1	0.766	14.37767	1	5
Cesium-137	(pCi/L)		1	1	2.16	2.16	2.16	120	0
Thorium-231+234	(pCi/L)		1	1	-38.5	-38.5	-38.5	400	0
Uranium-234	(pCi/L)		1	1	0.26 J	0.26 J	0.26	20	0
Protactinium-234m	(pCi/L)		1	1	595	595	595	2800	0
Uranium-235	(pCi/L)		1	1	0 J	0 J	0	24	0
Uranium-238	(pCi/L)		1	1	0.0515 J	0.0515 J	0.0515	24	0
Gross Alpha	(pCi/L)		6	6	8.5	1.63	4.901667	15 f	0
Gross Beta	(pCi/L)		6	6	4.82	-0.385	2.040833	50 a	0
2-Butanone	(ug/L)		9	2	11	10 B	10.5	NR	NA
Acetone	(ug/L)		9	2	4 JB	4 JB	4	NR	NA

Table 2.46. Constituents Detected in Groundwater at the Y-12 Plant for 1996

REGIME=CR AREA NAME=Industrial Landfill IV

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
Chloride	(mg/L)		12	12	3.3	0.93	2.058333	250	0
Nitrate Nitrogen	(mg/L)		12	12	0.78	0.2	0.432167	10	0
Sulfate	(mg/L)		12	9	6.97	1.04	3.06	250	0
Aluminum, ICAP	(mg/L)		12	12	12	0.042	1.72875	0.2	8
Aluminum, ICAP	(mg/L)	Filtered	12	10	0.17	0.025	0.0687	0.2	0
Antimony, ICAP	(mg/L)	Filtered	12	1	0.19	0.19	0.19	0.006	1
Barium, ICAP	(mg/L)		12	12	0.041	0.0076	0.016575	2	0
Barium, ICAP	(mg/L)	Filtered	12	12	0.041	0.0064	0.014783	2	0
Beryllium, ICAP	(mg/L)		12	3	0.0036	0.0011	0.002133	0.004	0
Boron, ICAP	(mg/L)		12	12	0.18	0.014	0.0525	NR	NA
Boron, ICAP	(mg/L)	Filtered	12	12	0.18	0.013	0.053583	NR	NA
Cadmium, ICAP	(mg/L)		12	2	0.0032	0.0032	0.0032	0.005	0
Calcium, ICAP	(mg/L)		12	12	56	29	36.41667	NR	NA
Calcium, ICAP	(mg/L)	Filtered	12	12	53	26	33.08333	NR	NA
Copper, ICAP	(mg/L)		12	4	0.016	0.0042	0.0112	1	0
Copper, ICAP	(mg/L)	Filtered	12	2	0.0066	0.0045	0.00555	1	0
Iron, ICAP	(mg/L)		12	12	10	0.041	1.724667	0.3	6
Iron, ICAP	(mg/L)	Filtered	12	7	0.071	0.014	0.036	0.3	0
Lead, AAS	(mg/L)		6	1	0.023	0.023	0.023	0.015 c	1
Lead, ICP/MS	(mg/L)		6	5	0.0072	0.00089	0.004058	NR	NA
Lead, ICP/MS	(mg/L)	Filtered	6	4	0.0016	0.00063	0.000985	NR	NA
Lithium, ICAP	(mg/L)		12	2	0.02	0.0042	0.0121	NR	NA
Magnesium, ICAP	(mg/L)		12	12	34	18	22.58333	NR	NA
Magnesium, ICAP	(mg/L)	Filtered	12	12	32	16	20.16667	NR	NA
Manganese, ICAP	(mg/L)		12	12	0.15	0.0038	0.032033	0.05	3
Manganese, ICAP	(mg/L)	Filtered	12	8	0.022	0.0011	0.004913	0.05	0
Molybdenum, ICAP	(mg/L)		12	1	0.018	0.018	0.018	NR	NA
Nickel, ICAP	(mg/L)		12	2	0.018	0.011	0.0145	0.1 d	0
Nickel, ICAP	(mg/L)	Filtered	12	2	0.012	0.012	0.012	0.1 d	0
Potassium, ICAP	(mg/L)		12	11	3.5	0.66	1.416364	NR	NA
Potassium, ICAP	(mg/L)	Filtered	12	12	3.7	0.62	1.254167	NR	NA
Selenium, ICAP	(mg/L)		12	1	0.067	0.067	0.067	0.05	1

Table 2.46 (continued)

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
Silver, ICAP	(mg/L)		12	1	0.013	0.013	0.013	0.1	0
Silver, ICAP	(mg/L)	Filtered	12	2	0.0066	0.006	0.0063	0.1	0
Sodium, ICAP	(mg/L)		12	12	6.3	0.63	1.933333	NR	NA
Sodium, ICAP	(mg/L)	Filtered	12	12	5.9	0.61	1.933333	NR	NA
Strontium, ICAP	(mg/L)		12	12	0.03	0.01	0.014583	NR	NA
Strontium, ICAP	(mg/L)	Filtered	12	12	0.029	0.0092	0.014617	NR	NA
Thallium, ICP/MS	(mg/L)		6	1	0.001	0.001	0.001	NR	NA
Uranium, ICP/MS	(mg/L)	Filtered	12	2	0.00076	0.00057	0.000665	NR	NA
Vanadium, ICAP	(mg/L)		12	5	0.025	0.0054	0.01174	NR	NA
Zinc, ICAP	(mg/L)		12	12	0.2	0.01	0.056167	5	0
Zinc, ICAP	(mg/L)	Filtered	12	12	0.053	0.0047	0.016442	5	0
Conductivity, field measurement	(umhos/cm)		12	NA	436	242	290.0833	NR	NA
Dissolved Oxygen, field measure	(ppm)		12	NA	9	4.4	6.783333	NR	NA
pH, field measurement	(pH)		12	NA	8.3	6	7.45	6.5/8.5	2
REDOX, field measurement	(mV)		12	NA	241	130	178.3333	NR	NA
Static Water Level	(ft - toc)		12	NA	-81.1	-121.65	-97.7792	NR	NA
Temperature, field measurement	(Deg C)		12	NA	21.3	10.6	15.21667	NR	NA
Alkalinity as HCO3	(mg/L)		12	12	247	133	163.75	NR	NA
Chemical Oxygen Demand	(mg/L)		12	3	8.9	6.7	7.566667	NR	NA
Conductivity	(umhos/cm)		12	12	456	242	308.8333	NR	NA
Dissolved Solids	(mg/L)		12	12	284	138	174	500	0
pH	(pH)		12	12	8.26	7.24	7.848333	6.5/8.5	0
Total Organic Carbon	(mg/L)		12	6	37	2.04	8.72	NR	NA
Total Organic Halides	(ug/L)		12	2	12	10.2	11.1	NR	NA
Total Suspended Solids	(mg/L)		12	9	170	2	37.36667	NR	NA
Turbidity	(NTU)		12	12	241	3.64	46.12167	1	12
Iodine-129	(pCi/L)		1	1	-12	-12	-12	NR	NA
Iodine-129, X-10 lab	(pCi/L)		3	3	6	-1	2	NR	NA
Radium - Total Alpha	(pCi/L)		1	1	0.437	0.437	0.437	5.9	0
Uranium-234	(pCi/L)		4	4	0.296 J	0.0983 J	0.183575	20	0
Uranium-235	(pCi/L)		4	4	0	-0.0502	-0.0232	24	0
Neptunium-237	(pCi/L)		4	4	0.06	0.00882	0.036305	1.2	0
Plutonium-238	(pCi/L)		4	4	0.0664	-0.0509	0.004808	1.6	0
Uranium-238	(pCi/L)		4	4	0.182	0 J	0.09	24	0
Plutonium-239	(pCi/L)		4	4	0.247	-0.0344	0.073825	1.2	0

Table 2.46 (continued)

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
Americium-241	(pCi/L)		4	4	0.155	-0.00454	0.07009	1.2	0
Strontium-89/90	(pCi/L)		4	4	1.65	-3.06	-0.58	8	0
Technetium-99	(pCi/L)		4	4	11.5	-11	1.625	4000	0
Gross Alpha	(pCi/L)		12	12	16.6	-2.01	2.363333	15 f	1
Gross Beta	(pCi/L)		12	12	6.26	-4.96	-0.42667	50 a	0
Radium, X-10 lab	(pCi/L)		3	3	0.77	0.13	0.53	NR	NA
Tritium	(pCi/L)		1	1	40	40	40	20000	0
Tritium, X-10 lab	(pCi/L)		3	3	340	190	246.6667	20000	0
1,1,1-Trichloroethane	(ug/L)		24	4	9 J	9 J	9	200	0
1,1-Dichloroethane	(ug/L)		24	1	1 J	1 J	1	NR	NA
1,1-Dichloroethene	(ug/L)		24	2	1 J	1 J	1	7	0
2-Butanone	(ug/L)		24	1	7 JB	7 JB	7	NR	NA
Acetone	(ug/L)		24	2	16 B	9 J	12.5	NR	NA

Table 2.47. Constituents Detected in Groundwater at the Y-12 Plant for 1996

REGIME=CR AREA NAME=Industrial Landfill V

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
Chloride	(mg/L)		12	12	5.1	1.12	2.221667	250	0
Nitrate Nitrogen	(mg/L)		12	9	2.77	0.06	0.746111	10	0
Sulfate	(mg/L)		12	12	8.85	1.18	3.368333	250	0
Aluminum, ICAP	(mg/L)		13	12	0.46	0.02	0.099083	0.2	1
Aluminum, ICAP	(mg/L)	Filtered	13	6	0.044	0.021	0.031167	0.2	0
Barium, ICAP	(mg/L)		13	13	0.12	0.0019	0.021423	2	0
Barium, ICAP	(mg/L)	Filtered	13	13	0.12	0.0018	0.0204	2	0
Boron, ICAP	(mg/L)		13	12	0.039	0.006	0.015425	NR	NA
Boron, ICAP	(mg/L)	Filtered	13	13	0.064	0.0077	0.030285	NR	NA
Calcium, ICAP	(mg/L)		13	13	36	22	29.69231	NR	NA
Calcium, ICAP	(mg/L)	Filtered	13	13	36	22	29.38462	NR	NA
Chromium, ICAP	(mg/L)		13	1	0.25	0.25	0.25	0.1	1
Iron, ICAP	(mg/L)		13	13	0.58	0.0092	0.088508	0.3	1
Iron, ICAP	(mg/L)	Filtered	13	6	0.099	0.0053	0.02625	0.3	0
Lead, ICP/MS	(mg/L)	Filtered	6	1	0.067	0.067	0.067	NR	NA
Magnesium, ICAP	(mg/L)		13	13	21	7.9	16.3	NR	NA
Magnesium, ICAP	(mg/L)	Filtered	13	13	22	8.4	16.26154	NR	NA
Magnesium, ICAP	(mg/L)		13	7	0.032	0.0012	0.007529	0.05	0
Manganese, ICAP	(mg/L)	Filtered	13	5	0.0059	0.001	0.00272	0.05	0
Potassium, ICAP	(mg/L)		13	12	2.9	0.66	1.408333	NR	NA
Potassium, ICAP	(mg/L)	Filtered	13	12	2.9	0.66	1.480833	NR	NA
Selenium, ICAP	(mg/L)		13	1	0.066	0.066	0.066	0.05	1
Selenium, ICAP	(mg/L)	Filtered	13	1	0.057	0.057	0.057	0.05	1
Sodium, ICAP	(mg/L)		13	13	3.1	0.53	1.206923	NR	NA
Sodium, ICAP	(mg/L)	Filtered	13	13	3.2	0.49	1.280769	NR	NA
Strontium, ICAP	(mg/L)		13	13	0.065	0.014	0.025154	NR	NA
Strontium, ICAP	(mg/L)	Filtered	13	13	0.067	0.014	0.025462	NR	NA
Thallium, ICP/MS	(mg/L)		6	1	0.00061	0.00061	0.00061	NR	NA
Zinc, ICAP	(mg/L)		13	13	0.011	0.0024	0.006331	5	0
Zinc, ICAP	(mg/L)	Filtered	13	13	0.097	0.0032	0.013354	5	0
Conductivity, field measurement	(umhos/cm)		13	NA	595	193	282.1538	NR	NA
Dissolved Oxygen, field measure	(ppm)		13	NA	9.4	6.6	7.907692	NR	NA

Table 2.47 (continued)

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
pH, field measurement	(pH)		13	NA	8.9	6.9	7.730769	6.5/8.5	2
REDOX, field measurement	(mV)		13	NA	186	111	153.0769	NR	NA
Static Water Level	(ft - toc)		11	NA	-5.99	-117.58	-76.7455	NR	NA
Temperature, field measurement (Deg C)	(Deg C)		13	NA	16.7	11.2	14.57692	NR	NA
Alkalinity as HCO3	(mg/L)		12	12	174	85	138.6667	NR	NA
Chemical Oxygen Demand	(mg/L)		6	3	8	6.2	6.8	NR	NA
Conductivity	(umhos/cm)		12	12	326	200	268.6667	NR	NA
Dissolved Solids	(mg/L)		12	12	212	78	146.1667	500	0
pH	(pH)		12	12	8.72 L	6.62 L	7.755833	6.5/8.5	1
Total Organic Carbon	(mg/L)		6	5	21.4	1.2	5.88	NR	NA
Total Suspended Solids	(mg/L)		12	5	12 *	1	3.7	NR	NA
Diesel Range Organics, X-10 lab	(mg/L)		1	1	0.1	0.1	0.1	0.1 e	0
Turbidity	(NTU)		12	12	31.4	1.03	5.593333	1	12
Cesium-137	(pCi/L)		6	6	6.1	-0.707	2.311167	120	0
Thorium-231+234	(pCi/L)		6	6	396	11.4	201.5333	400	0
Uranium-234	(pCi/L)		6	6	0.391	0.0994	0.231233	20	0
Protactinium-234m	(pCi/L)		6	6	628	5.13	352.6883	2800	0
Uranium-235	(pCi/L)		6	6	0.0249 J	0	0.007117	24	0
Uranium-238	(pCi/L)		6	6	0.114	-0.0411	0.027517	24	0
Gross Alpha	(pCi/L)		12	12	6.92	-1.39	0.958783	15 f	0
Gross Beta	(pCi/L)		12	12	13.5	-5.11	0.712167	50 a	0
1,1,1-Trichloroethane	(ug/L)		24	2	2 JB	1 J	1.5	200	0
2-Butanone	(ug/L)		24	1	9 JB	9 JB	9	NR	NA
Acetone	(ug/L)		24	2	5 JB	4 JB	4.5	NR	NA

Table 2.48. Constituents Detected in Groundwater at the Y-12 Plant for 1996

REGIME=CR AREA NAME=Kerr Hollow Quarry

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
Chloride	(mg/L)		34	34	12.2	1.27	4.893235	250	0
Fluoride	(mg/L)		34	27	3.01	0.1	1.554074	2	14
Nitrate Nitrogen	(mg/L)		34	24	6.21	0.04	1.160125	10	0
Sulfate	(mg/L)		34	34	68.9	3.79	20.555	250	0
Aluminum, ICAP	(mg/L)		36	30	1.1	0.02	0.205133	0.2	9
Aluminum, ICAP	(mg/L)	Filtered	34	20	0.51	0.021	0.0907	0.2	1
Arsenic, ICP/MS	(mg/L)	Filtered	20	1	0.0052	0.0052	0.0052	NR	NA
Barium, ICP/MS	(mg/L)		2	2	0.053	0.052	0.0525	NR	NA
Barium, ICAP	(mg/L)		34	34	0.48	0.026	0.138265	2	0
Barium, ICAP	(mg/L)		34	34	0.46	0.027	0.1305	2	0
Beryllium, ICAP	(mg/L)		34	1	0.0034	0.0034	0.0034	0.004	0
Boron, ICAP	(mg/L)		36	34	0.99	0.0075	0.272515	NR	NA
Boron, ICAP	(mg/L)		34	33	0.99	0.0066	0.261033	NR	NA
Calcium, ICAP	(mg/L)		36	36	51	28	39.75	NR	NA
Calcium, ICAP	(mg/L)		34	34	50	29	38.70588	NR	NA
Chromium, ICP/MS	(mg/L)		2	1	0.0012	0.0012	0.0012	NR	NA
Chromium, ICAP	(mg/L)		34	1	0.028	0.028	0.028	0.1	0
Copper, ICAP	(mg/L)		34	4	0.014	0.0058	0.010125	1	0
Copper, ICAP	(mg/L)	Filtered	34	3	0.0093	0.0043	0.0063	1	0
Iron, ICAP	(mg/L)		36	29	24	0.0081	2.039638	0.3	16
Iron, ICAP	(mg/L)		34	16	1.3	0.0057	0.133406	0.3	2
Lead, ICP/MS	(mg/L)		22	10	0.0045	0.00051	0.001393	NR	NA
Lead, ICP/MS	(mg/L)		20	4	0.0014	0.00062	0.000908	NR	NA
Lithium, ICP/MS	(mg/L)		2	2	0.0053	0.00092	0.00311	NR	NA
Lithium, ICAP	(mg/L)		34	28	0.31	0.02	0.112679	NR	NA
Lithium, ICAP	(mg/L)	Filtered	34	28	0.31	0.021	0.111036	NR	NA
Magnesium, ICAP	(mg/L)		36	36	39	14	25.83333	NR	NA
Magnesium, ICAP	(mg/L)	Filtered	34	34	38	15	25.58824	NR	NA
Manganese, ICP/MS	(mg/L)		2	2	0.0037	0.0019	0.0028	NR	NA
Manganese, ICAP	(mg/L)		34	28	0.15	0.0015	0.03115	0.05	4
Manganese, ICAP	(mg/L)	Filtered	34	25	0.055	0.0018	0.01568	0.05	1
Mercury, CVAA	(mg/L)		36	1	0.0003	0.0003	0.0003	0.002	0

Table 2.48 (continued)

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
Mercury, CVAA	(mg/L)	Filtered	34	1	0.00026	0.00026	0.00026	0.002	0
Molybdenum, ICAP	(mg/L)		34	3	0.014	0.011	0.012	NR	NA
Molybdenum, ICAP	(mg/L)	Filtered	34	2	0.011	0.011	0.011	NR	NA
Nickel, ICAP	(mg/L)		34	1	0.011	0.011	0.011	0.1 d	0
Potassium, ICAP	(mg/L)		36	36	18	0.92	7.44	NR	NA
Potassium, ICAP	(mg/L)	Filtered	34	34	18	0.84	7.639118	NR	NA
Silver, ICAP	(mg/L)		34	4	0.057	0.006	0.019125	0.1	0
Silver, ICAP	(mg/L)	Filtered	34	5	0.014	0.0069	0.00884	0.1	0
Sodium, ICAP	(mg/L)		36	36	27	0.74	6.766389	NR	NA
Sodium, ICAP	(mg/L)	Filtered	34	34	27	0.8	6.923824	NR	NA
Strontium, ICP/MS	(mg/L)		2	2	0.038	0.036	0.037	NR	NA
Strontium, ICAP	(mg/L)		34	34	8	0.027	2.366971	NR	NA
Strontium, ICAP	(mg/L)	Filtered	34	34	7.7	0.032	2.265647	NR	NA
Thallium, ICP/MS	(mg/L)		22	1	0.00051	0.00051	0.00051	NR	NA
Titanium, ICP/MS	(mg/L)		2	2	0.014	0.012	0.013	NR	NA
Uranium, ICP/MS	(mg/L)		36	30	0.029	0.00063	0.005501	NR	NA
Uranium, ICP/MS	(mg/L)	Filtered	34	28	0.028	0.001	0.005493	NR	NA
Uranium, ICP/MS	(mg/L)		36	36	0.024	0.0021	0.007961	5	0
Zinc, ICAP	(mg/L)		34	31	0.015	0.0022	0.005819	5	0
Zinc, ICAP	(mg/L)	Filtered	2	1	0.0051	0.0051	0.0051	NR	NA
Zirconium, ICAP	(mg/L)		36	NA	1496	246	434	NR	NA
Conductivity, field measurement	(umhos/cm)		36	NA	10.8	0.4	4.372222	NR	NA
Dissolved Oxygen, field measurement	(ppm)		36	NA	10.8	0.4	4.372222	NR	NA
pH, field measurement	(pH)		36	NA	8.5	6.6	7.759444	6.5/8.5	0
REDOX, field measurement	(mV)		36	NA	411	-80	149.8333	NR	NA
Static Water Level	(ft - toc)		34	NA	-3	-183.85	-76.1679	NR	NA
Temperature, field measurement	(Deg C)		36	NA	21.4	10	14.77778	NR	NA
Alkalinity as HCO3	(mg/L)		34	34	244	129	200.7941	NR	NA
Conductivity	(umhos/cm)		34	34	575	262	433.2059	NR	NA
Conductivity	(umhos/cm)		14	14	574	261	431.8571	NR	NA
Conductivity	(umhos/cm)		14	14	576	262	430.0714	NR	NA
Conductivity	(umhos/cm)		14	14	576	263	431.3571	NR	NA
Dissolved Solids	(mg/L)		34	34	314	126	228.1176	500	0
pH	(pH)		34	34	8.08	7.28 L	7.752647	6.5/8.5	0
pH	(pH)		14	14	8.06	7.56	7.837143	6.5/8.5	0
pH	(pH)		14	14	8.16	7.58	7.848571	6.5/8.5	0

Table 2.48 (continued)

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
pH	(pH)		14	14	8.08	7.58	7.862857	6.5/8.5	0
Total Organic Carbon	(mg/L)		14	13	16	1.1	3.9	NR	NA
Total Organic Carbon	(mg/L)		14	13	7.3	1.1	3.653846	NR	NA
Total Organic Carbon	(mg/L)		14	13	7.8	1.1	3.330769	NR	NA
Total Organic Carbon	(mg/L)		14	13	14.9	1.2	4.576923	NR	NA
Total Organic Halides	(ug/L)		14	1	11.6	11.6	11.6	NR	NA
Total Suspended Solids	(mg/L)		36	19	44	1	12.13158	NR	NA
Turbidity	(NTU)		34	34	43.6	0.307	12.68444	1	26
Radium - Total Alpha	(pCi/L)		2	2	0.338	0.26	0.299	5.9	0
Radium-228	(pCi/L)		2	2	0.0844	0.00135	0.042875	5.9	0
Thorium-228	(pCi/L)		2	2	0.276	0	0.138	16	0
Thorium-230	(pCi/L)		2	2	0.219	0.129	0.174	12	0
Thorium-231+234	(pCi/L)		2	2	0.319	-0.0657	0.12665	400	0
Thorium-232	(pCi/L)		2	2	0.0364	-0.0267	0.00485	2	0
Uranium-234	(pCi/L)		16	16	9.38	0.0509	2.713481	20	0
Uranium-235	(pCi/L)		16	16	0.374	-0.082	0.069806	24	0
Neptunium-237	(pCi/L)		2	2	0.0459	0.0	0.02295	1.2	0
Uranium-238	(pCi/L)		16	16	9.09	0.049 J	1.533625	24	0
Americium-241	(pCi/L)		2	2	0.0404	0.0039	0.02215	1.2	0
Strontium-89/90	(pCi/L)		2	2	-0.13	-1.34	-0.735	8	0
Technetium-99	(pCi/L)		2	2	4	0.5	2.25	4000	0
Gross Alpha	(pCi/L)		36	36	16.8	0.0315	5.18585	15 f	1
Gross Beta	(pCi/L)		36	36	21.7	-5.98	6.127611	50 a	0
Tritium	(pCi/L)		2	2	116	-35.8	40.1	20000	0
2-Butanone	(ug/L)		34	8	17	10 B	13.5	NR	NA
Carbon tetrachloride	(ug/L)		34	2	4 J	3 J	3.5	5	0

Table 2.49. Constituents Detected in Groundwater at the Y-12 Plant for 1996

REGIME=CR AREA NAME=Rogers Quarry

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
Chloride	(mg/L)		4	4	124	2.05	37.225	250	0
Fluoride	(mg/L)		4	3	1.1	0.19	0.65	2	0
Nitrate Nitrogen	(mg/L)		4	1	3.76	3.76	3.76	10	0
Sulfate	(mg/L)		4	4	58.1	17.4	33.575	250	0
Aluminum, ICAP	(mg/L)		4	4	0.65	0.036	0.228	0.2	1
Aluminum, ICAP	(mg/L)	Filtered	4	3	0.033	0.021	0.026667	0.2	0
Barium, ICAP	(mg/L)		4	4	0.32	0.021	0.12375	2	0
Barium, ICAP	(mg/L)	Filtered	4	4	0.32	0.018	0.1225	2	0
Boron, ICAP	(mg/L)		4	4	0.59	0.036	0.244	NR	NA
Boron, ICAP	(mg/L)	Filtered	4	4	0.58	0.049	0.24475	NR	NA
Calcium, ICAP	(mg/L)		4	4	110	36	67.75	NR	NA
Calcium, ICAP	(mg/L)	Filtered	4	4	110	36	67.5	NR	NA
Copper, ICAP	(mg/L)		4	1	0.01	0.01	0.01	1	0
Iron, ICAP	(mg/L)		4	4	0.88	0.062	0.383	0.3	2
Iron, ICAP	(mg/L)	Filtered	4	4	0.88	0.0079	0.234975	0.3	1
Lithium, ICAP	(mg/L)		4	3	0.21	0.02	0.086667	NR	NA
Lithium, ICAP	(mg/L)	Filtered	4	3	0.21	0.019	0.088333	NR	NA
Magnesium, ICAP	(mg/L)		4	4	32	6.2	22.05	NR	NA
Magnesium, ICAP	(mg/L)	Filtered	4	4	33	6.2	22.55	NR	NA
Manganese, ICAP	(mg/L)		4	4	0.13	0.0052	0.0475	0.05	1
Manganese, ICAP	(mg/L)	Filtered	4	4	0.14	0.0012	0.045575	0.05	1
Potassium, ICAP	(mg/L)		4	4	3	1.1	2.15	NR	NA
Potassium, ICAP	(mg/L)	Filtered	4	4	3	1.1	2.1	NR	NA
Sodium, ICAP	(mg/L)		4	4	160	1.5	57.625	NR	NA
Sodium, ICAP	(mg/L)	Filtered	4	4	160	1.5	57.375	NR	NA
Strontium, ICAP	(mg/L)		4	4	2	0.14	1.235	NR	NA
Strontium, ICAP	(mg/L)	Filtered	4	4	2.1	0.14	1.26	NR	NA
Zinc, ICAP	(mg/L)		4	4	0.037	0.0081	0.016825	5	0
Zinc, ICAP	(mg/L)	Filtered	4	4	0.018	0.0047	0.010225	5	0
Conductivity, field measurement	(umhos/cm)		4	NA	1017	360	656.5	NR	NA
Dissolved Oxygen, field measure	(ppm)		4	NA	5.1	0.4	2.025	NR	NA
pH, field measurement	(pH)		4	NA	7.9	7.1	7.45	6.5/8.5	0

Table 2.49 (continued)

Variable	Units	Filtered		No. Samples Detected	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
		Status	No.							
REDOX, field measurement	(mV)		4	NA	191	-13.81	-265	-14.5	NR	NA
Static Water Level	(ft - toc)		4	NA		-109.1		-40.225	NR	NA
Temperature, field measurement	(Deg C)		4	NA	15.7	13.1		14.425	NR	NA
Alkalinity as HCO ₃	(mg/L)		4	4	433	176		284.75	NR	NA
Conductivity	(umhos/cm)		4	4	1133	401		726.5	NR	NA
Dissolved Solids	(mg/L)		4	4	642	252		436.5	500	2
pH	(pH)		4	4	7.81 L	7.05 L		7.4625	6.5/8.5	0
Total Suspended Solids	(mg/L)		4	4	7 *	2		3.5	NR	NA
Turbidity	(NTU)		4	4	47.1	4.13		18.8075	1	4
Gross Alpha	(pCi/L)		4	4	2.35	1.43		1.87	15 f	0
Gross Beta	(pCi/L)		4	4	3.96	-3.13		-0.1975	50 a	0

Table 2.50. Constituents Detected in Groundwater at the Y-12 Plant for 1996

REGIME=CR AREA NAME=United Nuclear Corporation Site

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
Chloride	(mg/L)		12	12	33.7	1.14	16.3025	250	0
Nitrate Nitrogen	(mg/L)		12	12	1.17	0.17	0.711667	10	0
Sulfate	(mg/L)		12	12	4.58	0.79	2.9975	250	0
Aluminum, ICAP	(mg/L)		12	10	0.76	0.021	0.2054	0.2	3
Aluminum, ICAP	(mg/L)	Filtered	12	7	0.11	0.02	0.038429	0.2	0
Barium, ICAP	(mg/L)		12	12	0.029	0.0065	0.017583	2	0
Barium, ICAP	(mg/L)	Filtered	12	12	0.029	0.0078	0.016517	2	0
Boron, ICAP	(mg/L)		12	12	0.068	0.011	0.0265	NR	NA
Boron, ICAP	(mg/L)	Filtered	12	12	0.15	0.0062	0.027883	NR	NA
Calcium, ICAP	(mg/L)		12	12	59	26	42.91667	NR	NA
Calcium, ICAP	(mg/L)	Filtered	12	12	57	24	42.41667	NR	NA
Chromium, ICAP	(mg/L)		12	3	0.58	0.12	0.413333	0.1	3
Chromium, ICAP	(mg/L)	Filtered	12	1	0.023	0.023	0.023	0.1	0
Copper, ICAP	(mg/L)		12	2	0.0088	0.0076	0.0082	1	0
Iron, ICAP	(mg/L)		12	12	4.5	0.019	0.848583	0.3	5
Iron, ICAP	(mg/L)	Filtered	12	7	0.18	0.0065	0.040943	0.3	0
Lead, ICP/MS	(mg/L)		6	4	0.0016	0.00059	0.001148	NR	NA
Magnesium, ICAP	(mg/L)		12	12	38	17	26.91667	NR	NA
Magnesium, ICAP	(mg/L)	Filtered	12	12	37	17	26.75	NR	NA
Manganese, ICAP	(mg/L)		12	10	0.13	0.0012	0.02876	0.05	2
Manganese, ICAP	(mg/L)	Filtered	12	7	0.0091	0.0019	0.0062	0.05	0
Manganese, ICAP	(mg/L)		12	4	0.36	0.063	0.1875	0.1 d	2
Nickel, ICAP	(mg/L)		12	4	0.3	0.056	0.14	0.1 d	2
Nickel, ICAP	(mg/L)	Filtered	12	9	4.9	0.63	1.368889	NR	NA
Potassium, ICAP	(mg/L)		12	10	5.7	0.65	1.582	NR	NA
Potassium, ICAP	(mg/L)	Filtered	12	3	0.06	0.051	0.056333	0.05	3
Selenium, ICAP	(mg/L)		12	1	0.055	0.055	0.055	0.05	1
Selenium, ICAP	(mg/L)	Filtered	12	1	0.007	0.007	0.007	0.1	0
Silver, ICAP	(mg/L)		12	12	14	0.54	6.795	NR	NA
Sodium, ICAP	(mg/L)		12	12	13	0.61	6.835	NR	NA
Sodium, ICAP	(mg/L)	Filtered	12	12	0.026	0.0093	0.016425	NR	NA
Strontium, ICAP	(mg/L)		12	12	0.025	0.0082	0.016433	NR	NA
Strontium, ICAP	(mg/L)	Filtered	12	12	0.025	0.0082	0.016433	NR	NA

Table 2.50 (continued)

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
Uranium, ICP/MS	(mg/L)		12	2	0.00079	0.00055	0.00067	NR	NA
Uranium, ICP/MS	(mg/L)	Filtered	12	2	0.00073	0.00052	0.000625	NR	NA
Vanadium, ICAP	(mg/L)		12	1	0.0068	0.0068	0.0068	NR	NA
Zinc, ICAP	(mg/L)		12	12	0.019	0.0025	0.006483	5	0
Zinc, ICAP	(mg/L)	Filtered	12	10	0.021	0.0026	0.00811	5	0
Conductivity, field measurement	(umhos/cm)		12	NA	497	238	360.75	NR	NA
Dissolved Oxygen, field measure	(ppm)		12	NA	9	1.4	4.533333	NR	NA
pH, field measurement	(pH)		12	NA	7.9	7.1	7.566667	6.5/8.5	0
REDOX, field measurement	(mV)		12	NA	220	132	172.8333	NR	NA
Static Water Level	(ft - toc)		12	NA	-48.79	-102	-74.8142	NR	NA
Temperature, field measurement	(Deg C)		12	NA	22.6	15.2	16.44167	NR	NA
Alkalinity as HCO3	(mg/L)		12	12	280	145	207.6667	NR	NA
Conductivity	(umhos/cm)		12	12	596	274	428.5	NR	NA
Dissolved Solids	(mg/L)		12	12	324	138	230.1667	500	0
pH	(pH)		12	12	8.02 L	7.39 L	7.681667	6.5/8.5	0
Total Suspended Solids	(mg/L)		12	7	17	1	8.214286	NR	NA
Turbidity	(NTU)		12	12	39.7	0.651	12.83925	1	10
Uranium-234	(pCi/L)		6	6	1.11 J	0.228	0.563667	20	0
Uranium-235	(pCi/L)		6	6	0.062 J	-0.0985	-0.0098	24	0
Uranium-238	(pCi/L)		6	6	0.747 J	0	0.166733	24	0
Strontium-89/90	(pCi/L)		6	6	13	-32.6	-3.53167	8	1
Gross Alpha	(pCi/L)		12	12	2.13	-1.66	0.519	15 f	0
Gross Beta	(pCi/L)		12	12	6.46	-6.14	-0.63539	50 a	0
Radium, X-10 lab	(pCi/L)		6	6	2.2	-0.28	1.153333	NR	NA
2-Butanone	(ug/L)		12	2	7 BJ	5 BJ	6	NR	NA
Acetone	(ug/L)		12	1	1 BJ	1 BJ	1	NR	NA

Table 2.51. Constituents Detected in Groundwater at the Y-12 Plant for 1996

REGIME=EF AREA NAME=B8110

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
Chloride	(mg/L)		2	2	18.2	17.7	17.95	250	0
Nitrate Nitrogen	(mg/L)		2	2	25.3	0.75	13.025	10	1
Sulfate	(mg/L)		2	2	98.1	35.8	66.95	250	0
Aluminum, ICAP	(mg/L)		2	2	12	0.26	6.13	0.2	2
Aluminum, ICAP	(mg/L)	Filtered	2	2	0.26	0.032	0.146	0.2	1
Barium, ICAP	(mg/L)		2	2	0.16	0.096	0.128	2	0
Barium, ICAP	(mg/L)	Filtered	2	2	0.09	0.029	0.0595	2	0
Beryllium, ICAP	(mg/L)		2	1	0.00079	0.00079	0.00079	0.004	0
Boron, ICAP	(mg/L)		2	2	0.14	0.022	0.081	NR	NA
Boron, ICAP	(mg/L)	Filtered	2	2	0.12	0.022	0.071	NR	NA
Calcium, ICAP	(mg/L)		2	2	98	88	93	NR	NA
Calcium, ICAP	(mg/L)	Filtered	2	2	98	70	84	NR	NA
Chromium, ICAP	(mg/L)		2	1	0.02	0.02	0.02	0.1	0
Cobalt, ICAP	(mg/L)		2	1	0.012	0.012	0.012	NR	NA
Copper, ICAP	(mg/L)		2	2	0.015	0.0054	0.0102	1	0
Iron, ICAP	(mg/L)		2	2	13	0.3	6.65	0.3	1
Iron, ICAP	(mg/L)	Filtered	2	2	0.2	0.0084	0.1042	0.3	0
Lithium, ICAP	(mg/L)		2	1	0.012	0.012	0.012	NR	NA
Magnesium, ICAP	(mg/L)		2	2	29	9.1	19.05	NR	NA
Magnesium, ICAP	(mg/L)	Filtered	2	2	29	6.1	17.55	NR	NA
Manganese, ICAP	(mg/L)		2	2	1.1	0.59	0.845	0.05	2
Manganese, ICAP	(mg/L)	Filtered	2	2	0.49	0.32	0.405	0.05	2
Mercury, CVAA	(mg/L)		2	1	0.0054	0.0054	0.0054	0.002	1
Mercury, CVAA	(mg/L)	Filtered	2	1	0.004	0.004	0.004	0.002	1
Nickel, ICAP	(mg/L)		2	1	0.016	0.016	0.016	0.1 d	0
Potassium, ICAP	(mg/L)		2	2	5.9	2.8	4.35	NR	NA
Potassium, ICAP	(mg/L)	Filtered	2	2	1.8	1.3	1.55	NR	NA
Sodium, ICAP	(mg/L)		2	2	17	9.9	13.45	NR	NA
Sodium, ICAP	(mg/L)	Filtered	2	2	14	9.6	11.8	NR	NA
Strontium, ICAP	(mg/L)		2	2	0.2	0.13	0.165	NR	NA
Strontium, ICAP	(mg/L)	Filtered	2	2	0.19	0.097	0.1435	NR	NA
Uranium, ICP/MS	(mg/L)		2	2	0.0021	0.00084	0.00147	NR	NA

Table 2.51 (continued)

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
Uranium, ICP/MS	(mg/L)	Filtered	2	1	0.0018	0.0018	0.0018	NR	NA
Vanadium, ICAP	(mg/L)		2	1	0.019	0.019	0.019	NR	NA
Zinc, ICAP	(mg/L)		2	2	0.081	0.0032	0.0421	5	0
Zinc, ICAP	(mg/L)	Filtered	2	2	0.006	0.0025	0.00425	5	0
Conductivity, field measurement	(umhos/cm)		2	NA	754	549	651.5	NR	NA
Dissolved Oxygen, field measure	(ppm)		2	NA	0.8	0.8	0.8	NR	NA
pH, field measurement	(pH)		2	NA	7.1	6.7	6.9	6.5/8.5	0
REDOX, field measurement	(mV)		2	NA	181	126	153.5	NR	NA
Static Water Level	(ft - toc)		3	NA	-19.15	-28.8	-25.2767	NR	NA
Temperature, field measurement	(Deg C)		2	NA	16.7	16.4	16.55	NR	NA
Alkalinity as HCO3	(mg/L)		2	2	281	182	231.5	NR	NA
Conductivity	(umhos/cm)		2	2	830	606	718	NR	NA
Dissolved Solids	(mg/L)		2	2	546	450	498	500	1
pH	(pH)		2	2	6.78 L	6.61 L	6.695	6.5/8.5	0
Total Suspended Solids	(mg/L)		2	2	393	6	199.5	NR	NA
Turbidity	(NTU)		2	2	355	13.9	184.45	1	2
Cesium-137, Y-12 lab	(pCi/L)	Filtered	1	1	0.53	0.53	0.53	120	0
Radium - Total Alpha, Y-12 lab	(pCi/L)	Filtered	1	1	0.22	0.22	0.22	5 g	0
Radium-228, Y-12 lab	(pCi/L)	Filtered	1	1	-0.35	-0.35	-0.35	5 g	0
Thorium-228, Y-12 lab	(pCi/L)	Filtered	1	1	0.078	0.078	0.078	16	0
Thorium-230, Y-12 lab	(pCi/L)	Filtered	1	1	0.13	0.13	0.13	12	0
Thorium-232, Y-12 lab	(pCi/L)	Filtered	1	1	0	0	0	2	0
Protactinium-234, Y-12 lab	(pCi/L)	Filtered	1	1	13	13	13	NR	NA
Uranium-234	(pCi/L)		2	2	0.814 J	0.595	0.7045	20	0
Uranium-234, Y-12 lab	(pCi/L)	Filtered	1	1	0.91	0.91	0.91	20	0
Protactinium-234m, Y-12 lab	(pCi/L)	Filtered	1	1	380	380	380	2800	0
Uranium-235	(pCi/L)		2	2	0.0597 J	0.053	0.05635	24	0
Uranium-235, Y-12 lab	(pCi/L)	Filtered	1	1	0	0	0	24	0
Uranium-236, Y-12 lab	(pCi/L)	Filtered	1	1	0	0	0	NR	NA
Neptunium-237, Y-12 lab	(pCi/L)	Filtered	1	1	0	0	0	1.2	0
Plutonium-238, Y-12 lab	(pCi/L)	Filtered	1	1	-0.021	-0.021	-0.021	1.6	0
Uranium-238	(pCi/L)		2	2	0.845 J	0.511	0.678	24	0
Uranium-238, Y-12 lab	(pCi/L)	Filtered	1	1	0.68	0.68	0.68	24	0
Plutonium-239, Y-12 lab	(pCi/L)	Filtered	1	1	0.053	0.053	0.053	1.2	0
Americium-241, Y-12 lab	(pCi/L)	Filtered	1	1	0.084	0.084	0.084	1.2	0

Table 2.51 (continued)

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
Strontium-89/90	(pCi/L)		2	2	0.69	0.1	0.395	8	0
Strontium-89/90, Y-12 lab	(pCi/L)	Filtered	1	1	-0.89	-0.89	-0.89	8	0
Technetium-99	(pCi/L)		2	2	26	-1	12.5	4000	0
Technetium-99, Y-12 lab	(pCi/L)	Filtered	1	1	-3	-3	-3	4000	0
Gross Alpha	(pCi/L)		2	2	4.09	1.07	2.58	15 f	0
Gross Alpha, Y-12 lab	(pCi/L)	Filtered	1	1	-1.6	-1.6	-1.6	15 f	0
Gross Beta	(pCi/L)		2	2	15.9	0	7.95	50 a	0
Gross Beta, Y-12 lab	(pCi/L)	Filtered	1	1	-4	-4	-4	50 a	0
Tritium, Y-12 lab	(pCi/L)		1	1	490	490	490	20000	0
1,1,2-Trichloroethane	(ug/L)		2	1	4 J	4 J	4	5	0
1,2-Dichloroethene (Total)	(ug/L)		2	2	46	3 J	24.5	NR b	NA
Tetrachloroethene	(ug/L)		2	2	360	6 J	183	5	2
Trichloroethene	(ug/L)		2	2	15 J	11	13	5	2

Table 2.52. Constituents Detected in Groundwater at the Y-12 Plant for 1996

REGIME=EF AREA NAME=Beta-4 Security Pits

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
Chloride	(mg/L)		12	12	19.6	2.66	9.205833	250	0
Fluoride	(mg/L)		12	4	0.17	0.12	0.135	2	0
Nitrate Nitrogen	(mg/L)		12	4	0.24	0.03	0.1225	10	0
Sulfate	(mg/L)		12	12	14.3	2.9	9.376667	250	0
Aluminum, ICAP	(mg/L)		12	12	7.4	0.035	1.849417	0.2	8
Aluminum, ICAP	(mg/L)	Filtered	12	7	0.23	0.021	0.086571	0.2	1
Arsenic, ICP/MS	(mg/L)		4	1	0.0075	0.0075	0.0075	NR	NA
Arsenic, ICP/MS	(mg/L)	Filtered	4	1	0.0076	0.0076	0.0076	NR	NA
Barium, ICAP	(mg/L)		12	12	0.38	0.16	0.288333	2	0
Barium, ICAP	(mg/L)	Filtered	12	12	0.37	0.15	0.241667	2	0
Beryllium, ICAP	(mg/L)		12	1	0.00035	0.00035	0.00035	0.004	0
Boron, ICAP	(mg/L)		12	11	0.21	0.0072	0.043827	NR	NA
Boron, ICAP	(mg/L)	Filtered	12	11	0.042	0.0074	0.026445	NR	NA
Calcium, ICAP	(mg/L)		12	12	120	62	88.58333	NR	NA
Calcium, ICAP	(mg/L)	Filtered	12	12	130	63	87.66667	NR	NA
Chromium, ICAP	(mg/L)		12	2	0.012	0.011	0.0115	0.1	0
Cobalt, ICAP	(mg/L)		12	3	0.0092	0.006	0.007167	NR	NA
Copper, ICAP	(mg/L)		12	5	0.022	0.0059	0.01266	1	0
Copper, ICAP	(mg/L)	Filtered	12	2	0.02	0.004	0.012	1	0
Iron, ICAP	(mg/L)		12	12	12	0.018	4.117167	0.3	8
Iron, ICAP	(mg/L)	Filtered	12	10	3	0.011	0.882	0.3	3
Lead, ICP/MS	(mg/L)		4	3	0.0034	0.00081	0.00237	NR	NA
Lead, ICP/MS	(mg/L)	Filtered	4	2	0.0017	0.00064	0.00117	NR	NA
Lithium, ICAP	(mg/L)		12	12	0.024	0.0099	0.014908	NR	NA
Lithium, ICAP	(mg/L)	Filtered	12	12	0.023	0.009	0.012933	NR	NA
Magnesium, ICAP	(mg/L)		12	12	12	6.2	9.3	NR	NA
Magnesium, ICAP	(mg/L)	Filtered	12	12	12	5.7	8.791667	NR	NA
Manganese, ICAP	(mg/L)		12	12	2.1	0.0027	0.905392	0.05	10
Manganese, ICAP	(mg/L)	Filtered	12	12	1.9	0.0083	0.5229	0.05	7
Nickel, ICAP	(mg/L)		12	4	0.02	0.01	0.01425	0.1 d	0
Potassium, ICAP	(mg/L)		12	12	10	1.1	2.758333	NR	NA
Potassium, ICAP	(mg/L)	Filtered	12	10	9.6	0.62	2.274	NR	NA

Table 2.52 (continued)

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
Selenium, ICAP	(mg/L)		12	2	0.074	0.062	0.068	0.05	2
Sodium, ICAP	(mg/L)		12	12	21	5.7	8.791667	NR	NA
Sodium, ICAP	(mg/L)	Filtered	12	12	24	5.7	8.916667	NR	NA
Strontium, ICAP	(mg/L)		12	12	0.48	0.13	0.241667	NR	NA
Strontium, ICAP	(mg/L)	Filtered	12	12	0.48	0.13	0.24	NR	NA
Uranium, ICP/MS	(mg/L)		12	3	0.003	0.00052	0.0015	NR	NA
Uranium, ICP/MS	(mg/L)	Filtered	12	2	0.0021	0.0013	0.0017	NR	NA
Vanadium, ICAP	(mg/L)		12	1	0.0072	0.0072	0.0072	NR	NA
Zinc, ICAP	(mg/L)		12	10	0.075	0.0025	0.03471	5	0
Zinc, ICAP	(mg/L)	Filtered	12	10	0.049	0.0034	0.0223	5	0
Conductivity, field measurement	(umhos/cm)		12	NA	586	315	467.0833	NR	NA
Dissolved Oxygen, field measure	(ppm)		12	NA	6.7	0.6	3.325	NR	NA
pH, field measurement	(pH)		12	NA	7.8	6.5	7.033333	6.5/8.5	0
REDOX, field measurement	(mV)		12	NA	230	-8	160.3333	NR	NA
Static Water Level	(ft - toc)		12	NA	-4.25	-7.89	-5.86917	NR	NA
Temperature, field measurement	(Deg C)		12	NA	21.5	11.7	16.43333	NR	NA
Alkalinity as HCO3	(mg/L)		12	12	364	182	260.5	NR	NA
Conductivity	(umhos/cm)		12	12	675	373	515.4167	NR	NA
Dissolved Solids	(mg/L)		12	12	406	200	304.8333	NR	NA
pH	(pH)		12	12	7.65 L	6.51 L	7.019167	6.5/8.5	0
Total Suspended Solids	(mg/L)		12	10	246	2.5	84.8	NR	NA
Turbidity	(NTU)		12	12	492	2.15	90.24167	1	12
Cesium-137, Y-12 lab	(pCi/L)	Filtered	2	2	7.1	4.7	5.9	120	0
Thallium-208, Y-12 lab	(pCi/L)	Filtered	1	1	22	22	22	NR	NA
Lead-212, Y-12 lab	(pCi/L)	Filtered	2	2	10	6.9	8.45	NR	NA
Radium - Total Alpha, Y-12 lab	(pCi/L)	Filtered	2	2	0.4	0.36	0.38	5.9	0
Radium-228, Y-12 lab	(pCi/L)	Filtered	2	2	-0.37	-0.5	-0.435	5.9	0
Radium-228, Y-12 lab	(pCi/L)	Filtered	2	2	0.49	0.17	0.33	16	0
Thorium-230, Y-12 lab	(pCi/L)	Filtered	2	2	0.91	0.59	0.75	12	0
Thorium-232, Y-12 lab	(pCi/L)	Filtered	2	2	0.049	0	0.0245	2	0
Protactinium-234, Y-12 lab	(pCi/L)	Filtered	2	2	24	9.5	16.75	NR	NA
Uranium-234, Y-12 lab	(pCi/L)	Filtered	2	2	0.73	0.58	0.655	20	0
Uranium-235, Y-12 lab	(pCi/L)	Filtered	2	2	0.051	0.041	0.046	24	0
Uranium-236, Y-12 lab	(pCi/L)	Filtered	2	2	0.033	0.01	0.0215	NR	NA
Neptunium-237, Y-12 lab	(pCi/L)	Filtered	2	2	0	-0.036	-0.018	1.2	0

Table 2.52 (continued)

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
Plutonium-238, Y-12 lab	(pCi/L)	Filtered	2	2	0.036	-0.003	0.0165	1.6	0
Uranium-238, Y-12 lab	(pCi/L)	Filtered	2	2	0.96	0.42	0.69	24	0
Plutonium-239, Y-12 lab	(pCi/L)	Filtered	2	2	0.011	0	0.0055	1.2	0
Americium-241, Y-12 lab	(pCi/L)	Filtered	2	2	0.033	0.021	0.027	1.2	0
Strontium-89/90, Y-12 lab	(pCi/L)	Filtered	2	2	-0.22	-0.22	-0.22	8	0
Technetium-99, Y-12 lab	(pCi/L)	Filtered	2	2	1	-9	-4	4000	0
Gross Alpha	(pCi/L)	Filtered	10	10	5.37	-2.25	0.6402	15 f	0
Gross Alpha, Y-12 lab	(pCi/L)	Filtered	2	2	3.1	1	2.05	15 f	0
Gross Beta	(pCi/L)	Filtered	10	10	23.9	-3.96	6.763	50 a	0
Gross Beta, Y-12 lab	(pCi/L)	Filtered	2	2	6.2	5.7	5.95	50 a	0
Tritium, Y-12 lab	(pCi/L)	Filtered	2	2	640	120	380	20000	0
1,2-Dichloroethene (Total)	(ug/L)		11	2	25	21	23	NR b	NA
2-Butanone	(ug/L)		12	1	4 BJ	4 BJ	4	NR	NA
Acetone	(ug/L)		12	1	2 BJ	2 BJ	2	NR	NA
cis-1,2-Dichloroethene	(ug/L)		4	1	7 J	7 J	7	70	0
Tetrachloroethene	(ug/L)		12	1	2 J	2 J	2	5	0
Trichloroethene	(ug/L)		12	2	3 J	2 J	2.5	5	0

Table 2.53. Constituents Detected in Groundwater at the Y-12 Plant for 1996

REGIME=EF AREA NAME=CPT

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
Chloride	(mg/L)		3	3	24.1	6.31	16.93667	250	0
Fluoride	(mg/L)		3	1	0.68	0.68	0.68	2	0
Nitrate Nitrogen	(mg/L)		3	2	2.01	0.3	1.155	10	0
Sulfate	(mg/L)		3	3	775	328	524.6667	250	3
Aluminum, ICAP	(mg/L)		3	3	9.1	1.5	6.233333	0.2	3
Aluminum, ICAP	(mg/L)	Filtered	3	3	0.25	0.065	0.175	0.2	2
Barium, ICAP	(mg/L)		3	3	0.13	0.049	0.082333	2	0
Barium, ICAP	(mg/L)	Filtered	3	3	0.068	0.017	0.037	2	0
Beryllium, ICAP	(mg/L)		3	2	0.0018	0.00031	0.001055	0.004	0
Boron, ICAP	(mg/L)		3	3	0.2	0.027	0.096	NR	NA
Boron, ICAP	(mg/L)	Filtered	3	3	0.17	0.034	0.085667	NR	NA
Calcium, ICAP	(mg/L)		3	3	340	130	236.6667	NR	NA
Calcium, ICAP	(mg/L)	Filtered	3	3	360	130	240	NR	NA
Chromium, ICAP	(mg/L)		3	2	0.017	0.014	0.0155	0.1	0
Cobalt, ICAP	(mg/L)		3	3	0.021	0.0072	0.012067	NR	NA
Cobalt, ICAP	(mg/L)	Filtered	3	2	0.016	0.0063	0.01115	NR	NA
Copper, ICAP	(mg/L)		3	3	0.018	0.0047	0.0102	1	0
Copper, ICAP	(mg/L)	Filtered	3	2	0.01	0.0044	0.0072	1	0
Iron, ICAP	(mg/L)		3	3	9.3	1.5	6.633333	0.3	3
Iron, ICAP	(mg/L)	Filtered	3	3	0.25	0.047	0.162333	0.3	0
Lithium, ICAP	(mg/L)		3	3	0.022	0.011	0.018333	NR	NA
Lithium, ICAP	(mg/L)	Filtered	3	3	0.025	0.0077	0.0169	NR	NA
Magnesium, ICAP	(mg/L)		3	3	42	28	34.66667	NR	NA
Magnesium, ICAP	(mg/L)	Filtered	3	3	43	31	36.66667	NR	NA
Manganese, ICAP	(mg/L)		3	3	5.9	0.21	2.236667	0.05	3
Manganese, ICAP	(mg/L)	Filtered	3	3	5.8	0.042	2.147333	0.05	2
Manganese, ICAP	(mg/L)		3	1	0.0008	0.0008	0.0008	0.002	0
Mercury, CVAA	(mg/L)		3	2	0.043	0.012	0.0275	0.1 d	0
Nickel, ICAP	(mg/L)	Filtered	3	1	0.028	0.028	0.028	0.1 d	0
Nickel, ICAP	(mg/L)		3	3	8.9	5.9	7.333333	NR	NA
Potassium, ICAP	(mg/L)	Filtered	3	3	8.3	2.9	6.1	NR	NA
Potassium, ICAP	(mg/L)		3	3	0.058	0.058	0.058	0.05	1
Selenium, ICAP	(mg/L)		3	1					

Table 2.53 (continued)

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
Selenium, ICAP	(mg/L)	Filtered	3	2	0.077	0.053	0.065	0.05	2
Silver, ICAP	(mg/L)	Filtered	3	1	0.0068	0.0068	0.0068	0.1	0
Silver, ICAP	(mg/L)	Filtered	3	1	0.016	0.016	0.016	0.1	0
Sodium, ICAP	(mg/L)	Filtered	3	3	21	5.1	11.4	NR	NA
Sodium, ICAP	(mg/L)	Filtered	3	3	23	5.9	12.33333	NR	NA
Strontium, ICAP	(mg/L)	Filtered	3	3	0.54	0.31	0.4	NR	NA
Strontium, ICAP	(mg/L)	Filtered	3	3	0.56	0.32	0.406667	NR	NA
Uranium, ICP/MS	(mg/L)	Filtered	3	3	0.0016	0.00057	0.001033	NR	NA
Uranium, ICP/MS	(mg/L)	Filtered	3	3	0.00095	0.00051	0.000747	NR	NA
Vanadium, ICAP	(mg/L)	Filtered	3	3	0.01	0.0082	0.009	NR	NA
Vanadium, ICAP	(mg/L)	Filtered	3	2	0.0075	0.0054	0.00645	NR	NA
Zinc, ICAP	(mg/L)	Filtered	3	3	0.041	0.017	0.029	5	0
Zinc, ICAP	(mg/L)	Filtered	3	3	0.017	0.0086	0.0122	5	0
Conductivity, field measurement	(umhos/cm)		3	NA	1619	934	1276	NR	NA
Dissolved Oxygen, field measure	(ppm)		3	NA	4.9	1.5	2.8	NR	NA
pH, field measurement	(pH)		3	NA	7.3	6.8	7.1	6.5/8.5	0
REDOX, field measurement	(mV)		3	NA	191	28	105.6667	NR	NA
Static Water Level	(ft - toc)		4	NA	-8.18	-12.65	-10.1875	NR	NA
Temperature, field measurement	(Deg C)		3	NA	19.2	18.4	18.76667	NR	NA
Alkalinity as HCO3	(mg/L)		3	3	274	171	217.3333	NR	NA
Conductivity	(umhos/cm)		3	3	1702	1042	1357	NR	NA
Dissolved Solids	(mg/L)		3	3	1462	778	1161.333	500	3
pH	(pH)		3	3	6.88 L	6.38 L	6.673333	6.5/8.5	1
Total Suspended Solids	(mg/L)		3	3	439	21	243	NR	NA
Turbidity	(NTU)		3	3	280	38.4	188.8	1	3
Cesium-137, Y-12 lab	(pCi/L)	Filtered	1	1	7	7	7	120	0
Radium - Total Alpha, Y-12 lab	(pCi/L)	Filtered	1	1	1.3	1.3	1.3	5 g	0
Radium-228, Y-12 lab	(pCi/L)	Filtered	1	1	0.081	0.081	0.081	5 g	0
Thorium-228, Y-12 lab	(pCi/L)	Filtered	1	1	0.38	0.38	0.38	16	0
Thorium-230, Y-12 lab	(pCi/L)	Filtered	1	1	0.25	0.25	0.25	12	0
Thorium-232, Y-12 lab	(pCi/L)	Filtered	1	1	0.1	0.1	0.1	2	0
Protactinium-234, Y-12 lab	(pCi/L)	Filtered	1	1	4.1	4.1	4.1	NR	NA
Uranium-234	(pCi/L)	Filtered	3	3	1.26	0.301	0.665667	20	0
Uranium-234	(pCi/L)	Filtered	1	1	0.24	0.24	0.24	20	0
Protactinium-234m, Y-12 lab	(pCi/L)	Filtered	1	1	180	180	180	2800	0

Table 2.53 (continued)

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
Uranium-235	(pCi/L)	Filtered	3	3	0.114	-0.0366	0.0258	24	0
Uranium-235, Y-12 lab	(pCi/L)	Filtered	1	1	0.11	0.11	0.11	24	0
Uranium-236, Y-12 lab	(pCi/L)	Filtered	1	1	0	0	0	NR	NA
Neptunium-237, Y-12 lab	(pCi/L)	Filtered	1	1	0	0	0	1.2	0
Plutonium-238, Y-12 lab	(pCi/L)	Filtered	1	1	-0.019	-0.019	-0.019	1.6	0
Uranium-238	(pCi/L)	Filtered	3	3	1.28	0.196	0.675667	24	0
Uranium-238, Y-12 lab	(pCi/L)	Filtered	1	1	0.35	0.35	0.35	24	0
Plutonium-239, Y-12 lab	(pCi/L)	Filtered	1	1	-0.034	-0.034	-0.034	1.2	0
Americium-241, Y-12 lab	(pCi/L)	Filtered	1	1	0.04	0.04	0.04	1.2	0
Strontium-89/90	(pCi/L)	Filtered	3	3	0.95	-1.62	-0.66667	8	0
Strontium-89/90, Y-12 lab	(pCi/L)	Filtered	1	1	-0.05	-0.05	-0.05	8	0
Technetium-99	(pCi/L)	Filtered	3	3	28	11	20	4000	0
Technetium-99, Y-12 lab	(pCi/L)	Filtered	1	1	-7	-7	-7	4000	0
Gross Alpha	(pCi/L)	Filtered	3	3	19.8	2.02	8.2	15f	1
Gross Alpha, Y-12 lab	(pCi/L)	Filtered	1	1	4.4	4.4	4.4	15f	0
Gross Beta	(pCi/L)	Filtered	3	3	51.8	5.36	29.35333	50 a	1
Gross Beta, Y-12 lab	(pCi/L)	Filtered	1	1	0.84	0.84	0.84	50 a	0
Tritium, Y-12 lab	(pCi/L)	Filtered	1	1	58	58	58	20000	0
1,2-Dichloroethene (Total)	(ug/L)		3	2	44 J	27	35.5	NR b	NA
Chloroform	(ug/L)		3	1	14	14	14	100 i	0
Tetrachloroethene	(ug/L)		3	2	720	120	420	5	2
Trichloroethene	(ug/L)		3	2	26 J	7 J	16.5	5	2

Table 2.54. Constituents Detected in Groundwater at the Y-12 Plant for 1996

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
Chloride	(mg/L)		50	50	45.4	0.91	13.8778	250	0
Fluoride	(mg/L)		50	34	0.51	0.1	0.217941	2	0
Nitrate Nitrogen	(mg/L)		50	34	2.65	0.04	0.914412	10	0
Sulfate	(mg/L)		50	50	122	1.48	31.4138	250	0
Aluminum, ICAP	(mg/L)		50	36	7.4	0.02	0.581028	0.2	11
Aluminum, ICAP	(mg/L)	Filtered	50	24	2.2	0.02	0.21125	0.2	2
Arsenic, ICP/MS	(mg/L)		12	1	0.0054	0.0054	0.0054	NR	NA
Barium, ICAP	(mg/L)		50	50	0.81	0.022	0.14764	2	0
Barium, ICAP	(mg/L)	Filtered	50	50	0.81	0.022	0.14574	2	0
Beryllium, ICAP	(mg/L)		50	4	0.00047	0.00033	0.000375	0.004	0
Beryllium, ICAP	(mg/L)	Filtered	50	1	0.022	0.022	0.022	0.004	1
Boron, ICAP	(mg/L)		50	50	0.41	0.0047	0.101194	NR	NA
Boron, ICAP	(mg/L)	Filtered	50	50	0.43	0.0052	0.102014	NR	NA
Cadmium, ICAP	(mg/L)		50	3	0.021	0.02	0.020667	0.005	3
Cadmium, ICAP	(mg/L)	Filtered	50	4	0.022	0.02	0.021	0.005	4
Calcium, ICAP	(mg/L)		50	50	120	22	67.46	NR	NA
Calcium, ICAP	(mg/L)	Filtered	50	50	120	22	67	NR	NA
Chromium, ICAP	(mg/L)		50	7	0.21	0.011	0.086857	0.1	3
Chromium, ICAP	(mg/L)	Filtered	50	1	0.02	0.02	0.02	0.1	0
Cobalt, ICAP	(mg/L)		50	2	0.0079	0.005	0.00645	NR	NA
Cobalt, ICAP	(mg/L)	Filtered	50	3	0.022	0.0052	0.010933	NR	NA
Copper, ICAP	(mg/L)		50	9	0.035	0.0045	0.009922	1	0
Copper, ICAP	(mg/L)	Filtered	50	5	0.025	0.0043	0.01066	1	0
Iron, ICAP	(mg/L)		50	50	27	0.0066	2.447552	0.3	25
Iron, ICAP	(mg/L)	Filtered	50	38	22	0.005	1.801905	0.3	9
Lead, ICP/MS	(mg/L)		24	16	0.014	0.00055	0.002523	NR	NA
Lead, ICP/MS	(mg/L)	Filtered	24	10	0.0011	0.00051	0.000736	NR	NA
Lithium, ICAP	(mg/L)		50	34	0.033	0.0041	0.015826	NR	NA
Lithium, ICAP	(mg/L)	Filtered	50	30	0.032	0.0044	0.01723	NR	NA
Magnesium, ICAP	(mg/L)		50	50	43	5.5	19.292	NR	NA
Magnesium, ICAP	(mg/L)	Filtered	50	50	43	5.5	19.148	NR	NA
Manganese, ICAP	(mg/L)		50	50	2.7	0.0013	0.318488	0.05	24

Table 2.54 (continued)

Variable	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
Manganese, ICAP	Filtered	50	47	2.7	0.0011	0.3292	0.05	20
Molybdenum, ICAP		50	2	0.015	0.011	0.013	NR	NA
Nickel, ICAP		50	6	0.28	0.026	0.174333	0.1 d	4
Nickel, ICAP	Filtered	50	6	0.29	0.023	0.141667	0.1 d	4
Potassium, ICAP		50	50	6.9	0.8	3.1198	NR	NA
Potassium, ICAP	Filtered	50	50	6.1	0.97	3.1954	NR	NA
Selenium, ICAP		50	1	0.051	0.051	0.051	0.05	1
Selenium, ICAP	Filtered	50	3	0.15	0.057	0.088	0.05	3
Silver, ICAP	Filtered	50	1	0.023	0.023	0.023	0.1	0
Sodium, ICAP		50	50	20	2	7.992	NR	NA
Sodium, ICAP	Filtered	50	50	20	1.9	8.006	NR	NA
Strontium, ICAP		50	50	1.5	0.04	0.3375	NR	NA
Strontium, ICAP	Filtered	50	50	1.5	0.039	0.33902	NR	NA
Thallium, ICP/MS		24	3	0.0067	0.0059	0.00623	NR	NA
Thallium, ICP/MS	Filtered	24	3	0.0012	0.00057	0.000827	NR	NA
Uranium, ICP/MS		50	20	0.23	0.00053	0.043605	NR	NA
Uranium, ICP/MS	Filtered	50	17	0.23	0.00051	0.047819	NR	NA
Vanadium, ICAP		50	2	0.012	0.006	0.009	NR	NA
Vanadium, ICAP	Filtered	50	1	0.024	0.024	0.024	NR	NA
Zinc, ICAP		50	47	4.4	0.0024	0.15226	5	0
Zinc, ICAP	Filtered	50	45	1.7	0.0021	0.090531	5	0
Conductivity, field measurement		49	NA	850	198	488.3265	NR	NA
Dissolved Oxygen, field measure		49	NA	11	0.4	2.740816	NR	NA
pH, field measurement		49	NA	7.9	4.2	6.961224	6.5/8.5	8
REDOX, field measurement		49	NA	228	-47	116.4694	NR	NA
Static Water Level		46	NA	0	-59.44	-22.8998	NR	NA
Temperature, field measurement		49	NA	20.9	11.3	15.9	NR	NA
Alkalinity as HCO3		50	50	322	42	224.52	NR	NA
Conductivity		50	50	679	199	524.42	NR	NA
Dissolved Solids		50	50	486	126	312.12	500	0
pH		50	50	8.08	5.7 L	7.1842	6.5/8.5	5
Total Suspended Solids		50	24	64	1	14.69583	NR	NA
Turbidity		50	50	219	0.547	25.10486	1	45
Iodine-129		3	3	6.2	-4.04	0.96	NR	NA
Cesium-137		1	1	-0.741	-0.741	-0.741	120	0

Table 2.54 (continued)

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
Cesium-137, Y-12 lab	(pCi/L)	Filtered	9	9	8.2	-0.15	2.503333	120	0
Cesium-137, Y-12 lab	(pCi/L)	Filtered	2	2	8.4	1.2	4.8	120	0
Thallium-208, Y-12 lab	(pCi/L)	Filtered	2	2	18	17	17.5	NR	NA
Lead-212, Y-12 lab	(pCi/L)	Filtered	4	4	15	5.7	11.175	NR	NA
Radium - Total Alpha	(pCi/L)	Filtered	4	4	0.247	-8.47	-4.39275	5 g	0
Radium - Total Alpha, Y-12 lab	(pCi/L)	Filtered	9	9	0.96	-0.24	0.211556	5 g	0
Radium-226, Y-12 lab	(pCi/L)	Filtered	1	1	78	78	78	5 g	1
Radium-228	(pCi/L)	Filtered	1	1	2.26	2.26	2.26	5 g	0
Radium-228, Y-12 lab	(pCi/L)	Filtered	9	9	0.91	-2.2	-0.83167	5 g	0
Thorium-228	(pCi/L)	Filtered	1	1	-0.057	-0.057	-0.057	16	0
Thorium-228, Y-12 lab	(pCi/L)	Filtered	9	9	0.43	-0.1	0.139111	16	0
Thorium-230	(pCi/L)	Filtered	1	1	0.0876	0.0876	0.0876	12	0
Thorium-230, Y-12 lab	(pCi/L)	Filtered	9	9	0.52	-0.023	0.262778	12	0
Thorium-231+234	(pCi/L)	Filtered	1	1	1.1	1.1	1.1	400	0
Thorium-231+234, Y-12 lab	(pCi/L)	Filtered	1	1	490	490	490	400	1
Thorium-232	(pCi/L)	Filtered	1	1	0.0379	0.0379	0.0379	2	0
Thorium-232, Y-12 lab	(pCi/L)	Filtered	9	9	0.11	-0.047	0.017667	2	0
Protactinium-234, Y-12 lab	(pCi/L)	Filtered	9	9	440	-5.8	82.42811	NR	NA
Protactinium-234, Y-12 lab	(pCi/L)	Filtered	2	2	300	9.8	154.9	NR	NA
Uranium-234	(pCi/L)	Filtered	4	4	74.4 J	1.19	20.1575	20	1
Uranium-234, Y-12 lab	(pCi/L)	Filtered	9	9	68	-0.068	8.96	20	1
Protactinium-234m	(pCi/L)	Filtered	1	1	522	522	522	2800	0
Protactinium-234m, Y-12 lab	(pCi/L)	Filtered	6	6	1000	230	486.6667	2800	0
Protactinium-234m, Y-12 lab	(pCi/L)	Filtered	1	1	360	360	360	2800	0
Uranium-235	(pCi/L)	Filtered	4	4	3.69 J	0	0.96575	24	0
Uranium-235, Y-12 lab	(pCi/L)	Filtered	9	9	3.1	-0.042	0.400667	24	0
Uranium-236, Y-12 lab	(pCi/L)	Filtered	9	9	0.26	-0.054	0.029111	NR	NA
Neptunium-237	(pCi/L)	Filtered	4	4	0.0709	-0.0175	0.011015	1.2	0
Neptunium-237, Y-12 lab	(pCi/L)	Filtered	9	9	0.16	-0.23	-0.01467	1.2	0
Plutonium-238	(pCi/L)	Filtered	4	4	0.202 J	0.0546	0.13175	1.6	0
Plutonium-238, Y-12 lab	(pCi/L)	Filtered	9	9	0.71	-0.087	0.110778	1.6	0
Uranium-238	(pCi/L)	Filtered	4	4	73.5 J	0.107	19.12175	24	1
Uranium-238, Y-12 lab	(pCi/L)	Filtered	9	9	74	0.055	9.711444	24	1
Plutonium-239	(pCi/L)	Filtered	4	4	0.118 J	-0.0389 J	0.052	1.2	0
Plutonium-239, Y-12 lab	(pCi/L)	Filtered	9	9	0.13	-0.049	-0.00069	1.2	0

Table 2.54 (continued)

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
Americium-241	(pCi/L)		4	4	0.165	0.0192	0.080525	1.2	0
Americium-241, Y-12 lab	(pCi/L)	Filtered	9	9	0.22	0.006	0.065889	1.2	0
Potassium-40, Y-12 lab	(pCi/L)	Filtered	1	1	170	170	170	280	0
Cobalt-60, Y-12 lab	(pCi/L)	Filtered	2	2	11	5.4	8.2	200	0
Strontium-89/90	(pCi/L)		4	4	3.81	-1.2	0.665	8	0
Strontium-89/90, Y-12 lab	(pCi/L)	Filtered	9	9	0.78	-0.49	-0.04778	8	0
Technetium-99	(pCi/L)		4	4	-3	-5.5	-3.875	4000	0
Technetium-99, Y-12 lab	(pCi/L)	Filtered	9	9	10	-13	-3.5	4000	0
Gross Alpha	(pCi/L)		41	41	132	-2.29	7.486624	15f	2
Gross Alpha, Y-12 lab	(pCi/L)	Filtered	9	9	95	0	13.57778	15f	1
Gross Beta	(pCi/L)		41	41	53.9	-5.34	5.643641	50 a	1
Gross Beta, Y-12 lab	(pCi/L)	Filtered	9	9	34	-3.6	4.744444	50 a	0
Tritium	(pCi/L)		4	4	98.5	-172	-49.425	20000	0
Tritium, Y-12 lab	(pCi/L)		9	9	-21	-240	-96.4444	20000	0
1,1-Dichloroethane	(ug/L)		50	1	2 J	2 J	2	NR	NA
1,2-Dichloroethane (Total)	(ug/L)		46	4	27	13	20.5	NR b	NA
1,2-Dichloroethane (Total)	(ug/L)	DILUTED	1	1	19 JD	19 JD	19	NR b	NA
2-Butanone	(ug/L)		50	8	18	3 BJ	9.125	NR	NA
Acetone	(ug/L)		50	7	25	1 BJ	7.428571	NR	NA
Carbon disulfide	(ug/L)		50	1	1 J	1 J	1	NR	NA
Carbon tetrachloride	(ug/L)		50	14	850 E	12	254.7857	5	14
Carbon tetrachloride	(ug/L)	DILUTED	1	1	190 D	190 D	190	5	1
Chloroform	(ug/L)		50	17	240 E	1 J	54.76471	100 i	4
Chloroform	(ug/L)	DILUTED	1	1	25 D	25 D	25	100 i	0
cis-1,2-Dichloroethene	(ug/L)		24	4	46	10	19.25	70	0
Di-n-butylphthalate	(ug/L)		2	1	4 JB	4 JB	4	NR	NA
Tetrachloroethene	(ug/L)		50	15	22	1 J	9.533333	5	11
Tetrachloroethene	(ug/L)	DILUTED	1	1	19 JD	19 JD	19	5	1
Trichloroethene	(ug/L)		50	9	23	1 J	10.11111	5	6
Trichloroethene	(ug/L)	DILUTED	1	1	7 JD	7 JD	7	5	1

Table 2.55. Constituents Detected in Groundwater at the Y-12 Plant for 1996

REGIME=EF AREA NAME=Fire Training Facility

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
Chloride	(mg/L)		6	6	3.19	2.24	2.673333	250	0
Fluoride	(mg/L)		6	1	0.12	0.12	0.12	2	0
Nitrate Nitrogen	(mg/L)		6	6	1.99	0.72	1.431667	10	0
Sulfate	(mg/L)		6	6	6.14	4.34	5.303333	250	0
Aluminum, ICAP	(mg/L)		6	6	1.7	0.18	0.88	0.2	5
Aluminum, ICAP	(mg/L)	Filtered	6	6	2.4	0.026	0.9655	0.2	4
Barium, ICAP	(mg/L)		6	6	0.034	0.0096	0.023933	2	0
Barium, ICAP	(mg/L)	Filtered	6	6	0.035	0.0075	0.018133	2	0
Boron, ICAP	(mg/L)		6	6	0.036	0.014	0.028667	NR	NA
Boron, ICAP	(mg/L)	Filtered	6	6	0.064	0.014	0.032	NR	NA
Calcium, ICAP	(mg/L)		6	6	100	32	50.33333	NR	NA
Calcium, ICAP	(mg/L)	Filtered	6	6	66	23	41.33333	NR	NA
Copper, ICAP	(mg/L)		6	2	0.0057	0.0056	0.00565	1	0
Iron, ICAP	(mg/L)		6	6	0.29	0.018	0.1465	0.3	0
Iron, ICAP	(mg/L)	Filtered	6	3	0.19	0.038	0.122667	0.3	0
Lithium, ICAP	(mg/L)		6	5	0.016	0.0049	0.01012	NR	NA
Lithium, ICAP	(mg/L)	Filtered	6	4	0.016	0.0043	0.0109	NR	NA
Magnesium, ICAP	(mg/L)		6	6	3.4	0.92	2.086667	NR	NA
Magnesium, ICAP	(mg/L)	Filtered	6	6	3.5	1.2	2.183333	NR	NA
Manganese, ICAP	(mg/L)		6	6	0.054	0.0019	0.026667	0.05	1
Manganese, ICAP	(mg/L)	Filtered	6	4	0.0039	0.0016	0.0025	0.05	0
Molybdenum, ICAP	(mg/L)		6	1	0.012	0.012	0.012	NR	NA
Potassium, ICAP	(mg/L)		6	6	20	10	15.16667	NR	NA
Potassium, ICAP	(mg/L)	Filtered	6	6	20	10	14.33333	NR	NA
Selenium, ICAP	(mg/L)		6	1	0.06	0.06	0.06	0.05	1
Sodium, ICAP	(mg/L)		6	6	3	2.3	2.733333	NR	NA
Sodium, ICAP	(mg/L)	Filtered	6	6	2.7	2.3	2.566667	NR	NA
Strontium, ICAP	(mg/L)		6	6	0.37	0.14	0.216667	NR	NA
Strontium, ICAP	(mg/L)	Filtered	6	6	0.24	0.14	0.185	NR	NA
Uranium, ICP/MS	(mg/L)		6	1	0.00057	0.00057	0.00057	NR	NA
Vanadium, ICAP	(mg/L)		6	3	0.0088	0.0068	0.007633	NR	NA
Vanadium, ICAP	(mg/L)	Filtered	6	3	0.0092	0.0064	0.007867	NR	NA

Table 2.55 (continued)

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
Zinc, ICAP	(mg/L)		6	6	0.032	0.0027	0.009583	5	0
Zinc, ICAP	(mg/L)	Filtered	6	5	0.03	0.0027	0.00986	5	0
Conductivity, field measurement	(umhos/cm)		6	NA	1308	182	412.8333	NR	NA
Dissolved Oxygen, field measure	(ppm)		6	NA	8	1.7	4.6	NR	NA
pH, field measurement	(pH)		6	NA	12	9.9	10.68333	6.5/8.5	6
REDOX, field measurement	(mV)		6	NA	96	15	44.66667	NR	NA
Static Water Level	(ft - toc)		6	NA	-15.89	-24.76	-21.7317	NR	NA
Temperature, field measurement	(Deg C)		6	NA	18.4	9.3	14.18333	NR	NA
Alkalinity as CO3	(mg/L)		6	4	24	22	23	NR	NA
Alkalinity as HCO3	(mg/L)		6	5	84	7	40.2	NR	NA
Conductivity	(umhos/cm)		6	6	1175	112	313.1667	NR	NA
Dissolved Solids	(mg/L)		6	6	250	80	127.6667	500	0
pH	(pH)		6	6	11.8	8.61 L	9.833333	6.5/8.5	6
Total Suspended Solids	(mg/L)		6	6	89	26	46.06667	NR	NA
Turbidity	(NTU)		6	6	84.5	21.6	46.06667	1	6
Gross Alpha	(pCi/L)		6	6	4.12	1.02	2.57	15 f	0
Gross Beta	(pCi/L)		6	6	18.8	6.24	12.1	50 a	0
1,2-Dichloroethene (Total)	(ug/L)		4	4	170	15	93	NR b	NA
2-Butanone	(ug/L)		6	2	4 BJ	3 BJ	3.5	NR	NA
Acetone	(ug/L)		6	2	23	1 BJ	12	NR	NA
Chloromethane	(ug/L)		6	1	1 J	1 J	1	NR	NA
cis-1,2-Dichloroethene	(ug/L)		2	2	170	19	94.5	70	1
Tetrachloroethene	(ug/L)		6	6	220 D	33	127	5	6
Trichloroethene	(ug/L)		6	6	64	10 J	36.5	5	6

Table 2.56. Constituents Detected in Groundwater at the Y-12 Plant for 1996

REGIME=EF AREA NAME=GW Monitoring Plan Grid Location B2

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
Chloride	(mg/L)		2	2	137	82	109.5	250	0
Nitrate Nitrogen	(mg/L)		2	2	13.8	2.94	8.37	10	1
Sulfate	(mg/L)		2	2	37.2	27.4	32.3	250	0
Aluminum, ICAP	(mg/L)		2	2	1.4	0.71	1.055	0.2	2
Aluminum, ICAP	(mg/L)	Filtered	2	1	0.039	0.039	0.039	0.2	0
Barium, ICAP	(mg/L)		2	2	0.32	0.28	0.3	2	0
Barium, ICAP	(mg/L)	Filtered	2	2	0.26	0.2	0.23	2	0
Boron, ICAP	(mg/L)		2	2	0.013	0.0078	0.0104	NR	NA
Boron, ICAP	(mg/L)	Filtered	2	2	0.032	0.0073	0.01965	NR	NA
Calcium, ICAP	(mg/L)		2	2	130	100	115	NR	NA
Calcium, ICAP	(mg/L)	Filtered	2	2	120	92	106	NR	NA
Chromium, ICAP	(mg/L)		2	1	1.2	1.2	1.2	0.1	1
Chromium, ICAP	(mg/L)	Filtered	2	1	0.033	0.033	0.033	0.1	0
Cobalt, ICAP	(mg/L)		2	1	0.016	0.016	0.016	NR	NA
Copper, ICAP	(mg/L)		2	1	0.024	0.024	0.024	1	0
Copper, ICAP	(mg/L)	Filtered	2	1	0.0052	0.0052	0.0052	1	0
Iron, ICAP	(mg/L)		2	2	12	0.85	6.425	0.3	2
Iron, ICAP	(mg/L)	Filtered	2	2	0.26	0.016	0.138	0.3	0
Lithium, ICAP	(mg/L)		2	2	0.022	0.019	0.0205	NR	NA
Lithium, ICAP	(mg/L)	Filtered	2	2	0.022	0.016	0.019	NR	NA
Magnesium, ICAP	(mg/L)		2	2	14	13	13.5	NR	NA
Magnesium, ICAP	(mg/L)	Filtered	2	2	13	11	12	NR	NA
Manganese, ICAP	(mg/L)		2	2	0.43	0.24	0.335	0.05	2
Manganese, ICAP	(mg/L)	Filtered	2	2	0.22	0.2	0.21	0.05	2
Manganese, ICAP	(mg/L)		2	1	0.019	0.019	0.019	NR	NA
Molybdenum, ICAP	(mg/L)		2	1	0.59	0.59	0.59	0.1 d	1
Nickel, ICAP	(mg/L)	Filtered	2	1	0.3	0.3	0.3	0.1 d	1
Nickel, ICAP	(mg/L)		2	1	3	2	2.5	NR	NA
Potassium, ICAP	(mg/L)		2	2	3.1	1.8	2.45	NR	NA
Potassium, ICAP	(mg/L)	Filtered	2	2	18	12	15	NR	NA
Sodium, ICAP	(mg/L)		2	2	18	10	14	NR	NA
Sodium, ICAP	(mg/L)	Filtered	2	2	0.46	0.25	0.355	NR	NA
Strontium, ICAP	(mg/L)		2	2					

Table 2.56 (continued)

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
Strontium, ICAP	(mg/L)	Filtered	2	2	0.41	0.25	0.33	NR	NA
Uranium, ICP/MS	(mg/L)		2	2	0.0056	0.0051	0.00535	NR	NA
Vanadium, ICAP	(mg/L)		2	1	0.0076	0.0076	0.0076	NR	NA
Zinc, ICAP	(mg/L)		2	2	0.012	0.011	0.0115	5	0
Zinc, ICAP	(mg/L)	Filtered	2	2	0.0072	0.0062	0.0067	5	0
Conductivity, field measurement	(umhos/cm)		2	NA	832	711	771.5	NR	NA
Dissolved Oxygen, field measure	(ppm)		2	NA	7.6	7	7.3	NR	NA
pH, field measurement	(pH)		2	NA	7.5	6.8	7.15	6.5/8.5	0
REDOX, field measurement	(mV)		2	NA	209	178	193.5	NR	NA
Static Water Level	(ft - toc)		2	NA	-10.62	-11.88	-11.25	NR	NA
Temperature, field measurement	(Deg C)		2	NA	23	20.9	21.95	NR	NA
Alkalinity as HCO3	(mg/L)		2	2	198	168	183	NR	NA
Conductivity	(umhos/cm)		2	2	1019	753	886	NR	NA
Dissolved Solids	(mg/L)		2	2	1000	582	791	500	2
pH	(pH)		2	2	8.26 L	7.14 L	7.7	6.5/8.5	0
Total Suspended Solids	(mg/L)		2	2	310	17	163.5	NR	NA
Turbidity	(NTU)		2	2	441	25.2	233.1	1	2
Uranium-234	(pCi/L)		2	2	0.608 J	0.452	0.53	20	0
Uranium-235	(pCi/L)		2	2	0.0188 J	-0.0675	-0.02435	24	0
Uranium-238	(pCi/L)		2	2	0.129 J	0.0781	0.10355	24	0
Strontium-89/90	(pCi/L)		2	2	1.86	-2.51	-0.325	8	0
Technetium-99	(pCi/L)		2	2	9	0	4.5	4000	0
Gross Alpha	(pCi/L)		2	2	3.28	1.1	2.19	15 f	0
Gross Beta	(pCi/L)		2	2	4.52	0.74	2.63	50 a	0

Table 2.57. Constituents Detected in Groundwater at the Y-12 Plant for 1996

REGIME=EF AREA NAME=GW Monitoring Plan Grid Location B3

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
Chloride	(mg/L)		2	2	14.6	13.9	14.25	250	0
Nitrate Nitrogen	(mg/L)		2	2	118	117	117.5	10	2
Sulfate	(mg/L)		2	2	22.5	20.9	21.7	250	0
Aluminum, ICAP	(mg/L)		2	2	0.27	0.11	0.19	0.2	1
Aluminum, ICAP	(mg/L)	Filtered	2	1	0.023	0.023	0.023	0.2	0
Barium, ICAP	(mg/L)		2	2	1.1	0.63	0.865	2	0
Barium, ICAP	(mg/L)	Filtered	2	2	0.97	0.68	0.825	2	0
Beryllium, ICAP	(mg/L)		2	1	0.00031	0.00031	0.00031	0.004	0
Boron, ICAP	(mg/L)		2	2	0.047	0.0072	0.0271	NR	NA
Boron, ICAP	(mg/L)	Filtered	2	2	0.03	0.013	0.0215	NR	NA
Calcium, ICAP	(mg/L)		2	2	200	170	185	NR	NA
Calcium, ICAP	(mg/L)	Filtered	2	2	210	190	200	NR	NA
Cobalt, ICAP	(mg/L)		2	1	0.0057	0.0057	0.0057	NR	NA
Cobalt, ICAP	(mg/L)	Filtered	2	1	0.0066	0.0066	0.0066	NR	NA
Iron, ICAP	(mg/L)		2	2	0.25	0.11	0.18	0.3	0
Lithium, ICAP	(mg/L)		2	2	0.028	0.011	0.0195	NR	NA
Lithium, ICAP	(mg/L)	Filtered	2	2	0.026	0.012	0.019	NR	NA
Magnesium, ICAP	(mg/L)		2	2	25	16	20.5	NR	NA
Magnesium, ICAP	(mg/L)	Filtered	2	2	23	17	20	NR	NA
Manganese, ICAP	(mg/L)		2	2	1.2	0.75	0.975	0.05	2
Manganese, ICAP	(mg/L)	Filtered	2	2	1.3	0.79	1.045	0.05	2
Potassium, ICAP	(mg/L)		2	2	7.1	1.3	4.2	NR	NA
Potassium, ICAP	(mg/L)	Filtered	2	2	6	2.3	4.15	NR	NA
Sodium, ICAP	(mg/L)		2	2	36	8.3	22.15	NR	NA
Sodium, ICAP	(mg/L)	Filtered	2	2	25	8.7	16.85	NR	NA
Strontium, ICAP	(mg/L)		2	2	2.4	0.6	1.5	NR	NA
Strontium, ICAP	(mg/L)	Filtered	2	2	1.8	0.64	1.22	NR	NA
Uranium, ICP/MS	(mg/L)		2	1	0.0005	0.0005	0.0005	NR	NA
Zinc, ICAP	(mg/L)		2	2	0.0062	0.0044	0.0053	5	0
Zinc, ICAP	(mg/L)	Filtered	2	2	0.0085	0.0031	0.0058	5	0
Conductivity, field measurement	(umhos/cm)		2	NA	1254	1156	1205	NR	NA
Dissolved Oxygen, field measure	(ppm)		2	NA	5.2	1.6	3.4	NR	NA

Table 2.57 (continued)

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
pH, field measurement	(pH)		2	NA	6.8	6.3	6.55	6.5/8.5	1
REDOX, field measurement	(mV)		2	NA	201	184	192.5	NR	NA
Static Water Level	(ft - toc)		2	NA	-6.81	-6.95	-6.88	NR	NA
Static Water Level	(ft - toc)	DILUTED	1	NA	-6.95	-6.95	-6.95	NR	NA
Temperature, field measurement	(Deg C)		2	NA	20.6	18.7	19.65	NR	NA
Alkalinity as HCO3	(mg/L)		2	2	226	173	199.5	NR	NA
Conductivity	(umhos/cm)		2	2	1406	1351	1378.5	NR	NA
Dissolved Solids	(mg/L)		2	2	1486	1216	1351	500	2
pH	(pH)		2	2	6.89 L	6.64 L	6.765	6.5/8.5	0
Total Suspended Solids	(mg/L)		2	2	2	1.5	1.75	NR	NA
Turbidity	(NTU)		2	2	11.7	4.25	7.975	1	2
Uranium-234	(pCi/L)		2	2	0.311 J	0.0983 J	0.20465	20	0
Uranium-235	(pCi/L)		2	2	0.0692 J	-0.0326 J	0.0183	24	0
Uranium-238	(pCi/L)		2	2	0.337 J	0.222 J	0.2795	24	0
Strontium-89/90	(pCi/L)		2	2	-0.01	-0.24	-0.125	8	0
Technetium-99	(pCi/L)		2	2	3	1	2	4000	0
Gross Alpha	(pCi/L)		2	2	4.78	0.23	2.505	151	0
Gross Beta	(pCi/L)		2	2	7.12	5.6	6.36	50 a	0
1,1,1-Trichloroethane	(ug/L)		2	2	34 J	13	23.5	200	0
1,1-Dichloroethane	(ug/L)		2	2	45 J	33	39	NR	NA
1,1-Dichloroethene	(ug/L)		2	1	42	42	42	7	1
1,2-Dichloroethene (Total)	(ug/L)		2	2	2700	1800 E	2250	NR b	NA
1,2-Dichloroethene (Total)	(ug/L)	DILUTED	1	1	2200 D	2200 D	2200	NR b	NA
Chloroform	(ug/L)		2	1	1 J	1 J	1	1001	0
Tetrachloroethene	(ug/L)		2	2	640	540 E	590	5	2
Tetrachloroethene	(ug/L)	DILUTED	1	1	550 D	550 D	550	5	1
Toluene	(ug/L)		2	1	22 J	22 J	22	1000	0
Trichloroethene	(ug/L)		2	2	350	280 E	315	5	2
Trichloroethene	(ug/L)	DILUTED	1	1	300 D	300 D	300	5	1
Vinyl chloride	(ug/L)		2	1	38	38	38	2	1

Table 2.58. Constituents Detected in Groundwater at the Y-12 Plant for 1996

REGIME=EF AREA NAME=GW Monitoring Plan Grid Location C2

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
Chloride	(mg/L)		1	1	4.27	4.27	4.27	250	0
Fluoride	(mg/L)		1	1	0.2	0.2	0.2	2	0
Nitrate Nitrogen	(mg/L)		1	1	1.44	1.44	1.44	10	0
Sulfate	(mg/L)		1	1	33	33	33	250	0
Aluminum, ICAP	(mg/L)		1	1	0.88	0.88	0.88	0.2	1
Barium, ICAP	(mg/L)		1	1	0.1	0.1	0.1	2	0
Barium, ICAP	(mg/L)	Filtered	1	1	0.095	0.095	0.095	2	0
Boron, ICAP	(mg/L)		1	1	0.019	0.019	0.019	NR	NA
Boron, ICAP	(mg/L)	Filtered	1	1	0.02	0.02	0.02	NR	NA
Calcium, ICAP	(mg/L)		1	1	57	57	57	NR	NA
Calcium, ICAP	(mg/L)	Filtered	1	1	59	59	59	NR	NA
Chromium, ICAP	(mg/L)		1	1	0.052	0.052	0.052	0.1	0
Copper, ICAP	(mg/L)		1	1	0.015	0.015	0.015	1	0
Copper, ICAP	(mg/L)	Filtered	1	1	0.0044	0.0044	0.0044	1	0
Iron, ICAP	(mg/L)		1	1	1.2	1.2	1.2	0.3	1
Iron, ICAP	(mg/L)	Filtered	1	1	0.038	0.038	0.038	0.3	0
Lead, ICAP	(mg/L)		1	1	0.25	0.25	0.25	0.015 c	1
Lithium, ICAP	(mg/L)		1	1	0.0079	0.0079	0.0079	NR	NA
Lithium, ICAP	(mg/L)	Filtered	1	1	0.007	0.007	0.007	NR	NA
Magnesium, ICAP	(mg/L)		1	1	9.9	9.9	9.9	NR	NA
Magnesium, ICAP	(mg/L)	Filtered	1	1	10	10	10	NR	NA
Manganese, ICAP	(mg/L)		1	1	0.11	0.11	0.11	0.05	1
Manganese, ICAP	(mg/L)	Filtered	1	1	0.004	0.004	0.004	0.05	0
Manganese, ICAP	(mg/L)		1	1	0.028	0.028	0.028	0.1 d	0
Nickel, ICAP	(mg/L)		1	1	0.014	0.014	0.014	0.1 d	0
Nickel, ICAP	(mg/L)	Filtered	1	1	2.6	2.6	2.6	NR	NA
Potassium, ICAP	(mg/L)		1	1	2.2	2.2	2.2	NR	NA
Potassium, ICAP	(mg/L)	Filtered	1	1	4.4	4.4	4.4	NR	NA
Sodium, ICAP	(mg/L)		1	1	4.3	4.3	4.3	NR	NA
Sodium, ICAP	(mg/L)	Filtered	1	1	0.11	0.11	0.11	NR	NA
Strontium, ICAP	(mg/L)		1	1	0.11	0.11	0.11	NR	NA
Strontium, ICAP	(mg/L)	Filtered	1	1	0.11	0.11	0.11	NR	NA
Uranium, ICP/MS	(mg/L)		1	1	0.00071	0.00071	0.00071	NR	NA

Table 2.58 (continued)

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
Conductivity, field measurement	(umhos/cm)		1	NA	355	355	355	NR	NA
Dissolved Oxygen, field measure	(ppm)		1	NA	6.2	6.2	6.2	NR	NA
pH, field measurement	(pH)		1	NA	6.5	6.5	6.5	6.5/8.5	0
REDOX, field measurement	(mV)		1	NA	221	221	221	NR	NA
Static Water Level	(ft - toc)		1	NA	-8.29	-8.29	-8.29	NR	NA
Temperature, field measurement	(Deg C)		1	NA	19.4	19.4	19.4	NR	NA
Alkalinity as HCO3	(mg/L)		1	1	172	172	172	NR	NA
Conductivity	(umhos/cm)		1	1	410	410	410	NR	NA
Dissolved Solids	(mg/L)		1	1	304	304	304	500	0
pH	(pH)		1	1	6.83 L	6.83 L	6.83	6.5/8.5	0
Total Suspended Solids	(mg/L)		1	1	11.6	11.6	11.6	NR	NA
Turbidity	(NTU)		1	1	21.7	21.7	21.7	1	1
Uranium-234	(pCi/L)		1	1	0.368	0.368	0.368	20	0
Uranium-235	(pCi/L)		1	1	-0.0599	-0.0599	-0.0599	24	0
Uranium-238	(pCi/L)		1	1	0.147	0.147	0.147	24	0
Strontium-89/90	(pCi/L)		1	1	-3.88	-3.88	-3.88	8	0
Technetium-99	(pCi/L)		1	1	0	0	0	4000	0
Gross Alpha	(pCi/L)		1	1	2.66	2.66	2.66	15 f	0
Gross Beta	(pCi/L)		1	1	2.39	2.39	2.39	50 a	0

Table 2.59. Constituents Detected in Groundwater at the Y-12 Plant for 1996

REGIME=EF AREA NAME=GW Monitoring Plan Grid Location D2

Variable	Units	Filtered Status	No. Samples Detected	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
Chloride	(mg/L)		6	6	19.6	4.63	8.081667	250	0
Fluoride	(mg/L)		6	1	0.12	0.12	0.12	2	0
Nitrate Nitrogen	(mg/L)		6	3	4.78	2.54	3.353333	10	0
Sulfate	(mg/L)		6	6	27.2	11.2	19.03333	250	0
Aluminum, ICAP	(mg/L)		6	5	1.1	0.04	0.4294	0.2	2
Aluminum, ICAP	(mg/L)	Filtered	6	3	0.048	0.023	0.038	0.2	0
Barium, ICAP	(mg/L)		6	6	0.27	0.083	0.178	2	0
Barium, ICAP	(mg/L)	Filtered	6	6	0.28	0.07	0.173	2	0
Boron, ICAP	(mg/L)		6	6	0.06	0.023	0.034667	NR	NA
Boron, ICAP	(mg/L)	Filtered	6	6	0.071	0.024	0.046333	NR	NA
Calcium, ICAP	(mg/L)		6	6	76	35	56	NR	NA
Calcium, ICAP	(mg/L)	Filtered	6	6	79	30	54.5	NR	NA
Chromium, ICAP	(mg/L)		6	1	0.011	0.011	0.011	0.1	0
Copper, ICAP	(mg/L)		6	1	0.0075	0.0075	0.0075	1	0
Iron, ICAP	(mg/L)		6	6	1.7	0.14	0.578333	0.3	2
Iron, ICAP	(mg/L)	Filtered	6	6	0.086	0.018	0.041833	0.3	0
Lead, ICP/MS	(mg/L)		2	1	0.0024	0.0024	0.0024	NR	NA
Lithium, ICAP	(mg/L)		6	6	0.014	0.0085	0.011083	NR	NA
Lithium, ICAP	(mg/L)	Filtered	6	6	0.015	0.008	0.010833	NR	NA
Magnesium, ICAP	(mg/L)		6	6	14	3.9	8.85	NR	NA
Magnesium, ICAP	(mg/L)	Filtered	6	6	15	3.4	8.883333	NR	NA
Manganese, ICAP	(mg/L)		6	6	0.16	0.015	0.0555	0.05	2
Manganese, ICAP	(mg/L)	Filtered	6	6	0.019	0.007	0.0134	0.05	0
Manganese, ICAP	(mg/L)		6	2	0.015	0.014	0.0145	0.1 d	0
Nickel, ICAP	(mg/L)		6	6	2.3	0.84	1.656667	NR	NA
Potassium, ICAP	(mg/L)		6	6	2.1	0.72	1.445	NR	NA
Potassium, ICAP	(mg/L)	Filtered	6	6	8.5	7	7.55	NR	NA
Sodium, ICAP	(mg/L)		6	6	9.4	7.1	7.8	NR	NA
Sodium, ICAP	(mg/L)	Filtered	6	6	0.39	0.07	0.222	NR	NA
Strontium, ICAP	(mg/L)		6	6	0.41	0.058	0.2255	NR	NA
Strontium, ICAP	(mg/L)	Filtered	6	6	0.042	0.0034	0.015517	5	0
Zinc, ICAP	(mg/L)		6	6	0.037	0.0036	0.015783	5	0
Zinc, ICAP	(mg/L)	Filtered	6	6					

Table 2.59 (continued)

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
Conductivity, field measurement	(umhos/cm)		6	NA	436	240	334.5	NR	NA
Dissolved Oxygen, field measure	(ppm)		6	NA	5.2	1.2	2.616667	NR	NA
pH, field measurement	(pH)		6	NA	7.4	6	6.766667	6.5/8.5	2
REDOX, field measurement	(mV)		6	NA	228	120	165.8333	NR	NA
Static Water Level	(ft - toc)		6	NA	-21.12	-24.68	-23.3917	NR	NA
Temperature, field measurement	(Deg C)		6	NA	23.9	16.9	21.08333	NR	NA
Alkalinity as HCO3	(mg/L)		6	6	236	66	158.1667	NR	NA
Conductivity	(umhos/cm)		6	6	496	278	379.3333	NR	NA
Dissolved Solids	(mg/L)		6	6	284	108	205	500	0
pH	(pH)		6	6	7.44	5.92 L	6.825	6.5/8.5	2
Total Suspended Solids	(mg/L)		6	3	16	2.5	9.833333	NR	NA
Turbidity	(NTU)		6	6	27.1	0.201	9.231833	1	5
Gross Alpha	(pCi/L)		6	6	5.36	-4.18	0.233333	15 f	0
Gross Beta	(pCi/L)		6	6	6.56	-3.26	0.651667	50 a	0
Tetrachloroethene	(ug/L)		6	6	1400	5 J	505.3333	5	5
Trichloroethene	(ug/L)		6	1	6 J	6 J	6	5	1

Table 2.60. Constituents Detected in Groundwater at the Y-12 Plant for 1996

REGIME=EF AREA NAME=GW Monitoring Plan Grid Location E2

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
Chloride	(mg/L)		6	6	11.8	3.15	6.935	250	0
Fluoride	(mg/L)		6	1	0.13	0.13	0.13	2	0
Nitrate Nitrogen	(mg/L)		6	4	0.46	0.04	0.3375	10	0
Sulfate	(mg/L)		6	6	7.76	1.01	4.341667	250	0
Aluminum, ICAP	(mg/L)		6	5	1.5	0.074	0.5994	0.2	2
Aluminum, ICAP	(mg/L)	Filtered	6	2	0.027	0.024	0.0255	0.2	0
Barium, ICAP	(mg/L)		6	6	0.41	0.035	0.221667	2	0
Barium, ICAP	(mg/L)	Filtered	6	6	0.39	0.032	0.241667	2	0
Boron, ICAP	(mg/L)		6	5	0.046	0.0073	0.02272	NR	NA
Boron, ICAP	(mg/L)	Filtered	6	5	0.042	0.0084	0.02032	NR	NA
Calcium, ICAP	(mg/L)		6	6	72	1.6	36.2	NR	NA
Calcium, ICAP	(mg/L)	Filtered	6	6	73	1.5	36.6	NR	NA
Copper, ICAP	(mg/L)		6	3	0.0098	0.0058	0.007167	1	0
Iron, ICAP	(mg/L)		6	6	2.2	0.097	0.682833	0.3	2
Iron, ICAP	(mg/L)	Filtered	6	4	0.054	0.02	0.04325	0.3	0
Lead, ICP/MS	(mg/L)		2	1	0.0014	0.0014	0.0014	NR	NA
Lithium, ICAP	(mg/L)		6	3	0.018	0.015	0.016	NR	NA
Lithium, ICAP	(mg/L)	Filtered	6	3	0.016	0.013	0.014333	NR	NA
Magnesium, ICAP	(mg/L)		6	6	14	1.1	7.25	NR	NA
Magnesium, ICAP	(mg/L)	Filtered	6	6	13	1	7.133333	NR	NA
Magnesium, ICAP	(mg/L)		6	6	0.03	0.017	0.023333	0.05	0
Manganese, ICAP	(mg/L)	Filtered	6	6	0.038	0.011	0.017167	0.05	0
Manganese, ICAP	(mg/L)	Filtered	6	1	0.011	0.011	0.011	0.1 d	0
Nickel, ICAP	(mg/L)		6	5	2.6	0.61	1.608	NR	NA
Potassium, ICAP	(mg/L)	Filtered	6	4	2.6	1.2	1.9	NR	NA
Potassium, ICAP	(mg/L)		6	6	9	3	5.883333	NR	NA
Sodium, ICAP	(mg/L)	Filtered	6	6	8.9	2.9	5.933333	NR	NA
Sodium, ICAP	(mg/L)		6	6	0.2	0.0096	0.1017	NR	NA
Strontium, ICAP	(mg/L)	Filtered	6	6	0.2	0.0085	0.102883	NR	NA
Strontium, ICAP	(mg/L)	Filtered	6	1	0.0018	0.0018	0.0018	NR	NA
Uranium, ICP/MS	(mg/L)		6	6	0.24	0.0081	0.086017	5	0
Zinc, ICAP	(mg/L)		6	6	0.45	0.0077	0.122283	5	0
Zinc, ICAP	(mg/L)	Filtered	6	6	0.45	0.0077	0.122283	5	0

Table 2.60 (continued)

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference		No. of Meas. > Reference
								Value		
Conductivity, field measurement	(umhos/cm)		6	NA	481	31	236.8333	NR	NR	NA
Dissolved Oxygen, field measure	(ppm)		6	NA	7.7	1.6	5.416667	NR	NR	NA
pH, field measurement	(pH)		6	NA	7.7	5	6.333333	6.5/8.5		3
REDOX, field measurement	(mv)		6	NA	220	48	161.8333	NR	NR	NA
Static Water Level	(ft - toc)		6	NA	-7.25	-17.35	-12.0333	NR	NR	NA
Temperature, field measurement	(Deg C)		6	NA	19.9	14.5	17.71667	NR	NR	NA
Alkalinity as HCO3	(mg/L)		6	6	247	8	105.6667	NR	NR	NA
Conductivity	(umhos/cm)		6	6	484	38.4	260.8833	NR	NR	NA
Dissolved Solids	(mg/L)		6	6	308	50	173.6667	500		0
pH	(pH)		6	6	7.57	5.35 L	6.503333	6.5/8.5		3
Total Suspended Solids	(mg/L)		6	4	34	2	16	NR	NR	NA
Turbidity	(NTU)		6	6	62.8	1.35	18.37333	1		6
Gross Alpha	(pCi/L)		6	6	0.96	-1.62	-0.325	15 f		0
Gross Beta	(pCi/L)		6	6	7.3	-2.76	1.656633	50 a		0

Table 2.61. Constituents Detected in Groundwater at the Y-12 Plant for 1996

REGIME=EF AREA NAME=GW Monitoring Plan Grid Location E3

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
Chloride	(mg/L)		9	9	55.8	8.36	25.96111	250	0
Fluoride	(mg/L)		9	2	0.12	0.1	0.11	2	0
Nitrate Nitrogen	(mg/L)		9	5	1.26	0.32	0.802	10	0
Sulfate	(mg/L)		9	9	22.5	8.18	16.01222	250	0
Aluminum, ICAP	(mg/L)		9	8	2.7	0.028	0.5675	0.2	2
Aluminum, ICAP	(mg/L)	Filtered	9	5	0.049	0.023	0.0352	0.2	0
Barium, ICAP	(mg/L)		9	9	0.76	0.12	0.38	2	0
Barium, ICAP	(mg/L)	Filtered	9	9	0.75	0.12	0.386667	2	0
Boron, ICAP	(mg/L)		9	9	0.58	0.038	0.246444	NR	NA
Boron, ICAP	(mg/L)	Filtered	9	9	0.52	0.041	0.223	NR	NA
Calcium, ICAP	(mg/L)		9	9	97	11	65.11111	NR	NA
Calcium, ICAP	(mg/L)	Filtered	9	9	98	12	62.11111	NR	NA
Chromium, ICAP	(mg/L)		9	3	1	0.37	0.66	0.1	3
Cobalt, ICAP	(mg/L)		9	2	0.01	0.0073	0.00865	NR	NA
Cobalt, ICAP	(mg/L)	Filtered	9	1	0.017	0.017	0.017	NR	NA
Copper, ICAP	(mg/L)		9	4	0.03	0.0045	0.013525	1	0
Iron, ICAP	(mg/L)		9	9	4.6	0.11	1.827778	0.3	6
Iron, ICAP	(mg/L)	Filtered	9	9	1.7	0.013	0.215778	0.3	1
Lead, ICP/MS	(mg/L)		3	1	0.0023	0.0023	0.0023	NR	NA
Lithium, ICAP	(mg/L)		9	8	0.061	0.005	0.030625	NR	NA
Lithium, ICAP	(mg/L)	Filtered	9	8	0.061	0.0046	0.029038	NR	NA
Magnesium, ICAP	(mg/L)		9	9	16	3.5	8.822222	NR	NA
Magnesium, ICAP	(mg/L)	Filtered	9	9	16	3.8	9.022222	NR	NA
Manganese, ICAP	(mg/L)		9	9	0.15	0.01	0.046222	0.05	3
Manganese, ICAP	(mg/L)	Filtered	9	9	0.34	0.0062	0.050278	0.05	1
Molybdenum, ICAP	(mg/L)		9	1	0.011	0.011	0.011	NR	NA
Nickel, ICAP	(mg/L)		9	4	0.69	0.011	0.37275	0.1 d	3
Nickel, ICAP	(mg/L)	Filtered	9	3	0.96	0.19	0.576667	0.1 d	3
Potassium, ICAP	(mg/L)		9	9	6.5	1.7	3.944444	NR	NA
Potassium, ICAP	(mg/L)	Filtered	9	9	5.5	1.4	3.988889	NR	NA
Sodium, ICAP	(mg/L)		9	9	82	10	35.33333	NR	NA
Sodium, ICAP	(mg/L)	Filtered	9	9	80	10	33.33333	NR	NA

Table 2.61 (continued)

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
Strontium, ICAP	(mg/L)		9	9	1.1	0.2	0.624444	NR	NA
Strontium, ICAP	(mg/L)	Filtered	9	9	1.1	0.18	0.66	NR	NA
Uranium, ICP/MS	(mg/L)		9	6	0.0045	0.00088	0.001642	NR	NA
Uranium, ICP/MS	(mg/L)	Filtered	9	6	0.0019	0.00073	0.001082	NR	NA
Zinc, ICAP	(mg/L)		9	8	0.029	0.0037	0.01435	5	0
Zinc, ICAP	(mg/L)	Filtered	9	7	0.014	0.0039	0.008029	5	0
Conductivity, field measurement	(umhos/cm)		9	NA	556	364	473.8889	NR	NA
Dissolved Oxygen, field measure	(ppm)		9	NA	7	0.7	3.233333	NR	NA
pH, field measurement	(pH)		9	NA	8.2	7	7.511111	6.5/8.5	0
REDOX, field measurement	(mV)		9	NA	181	82	147.4444	NR	NA
Static Water Level	(ft - toc)		9	NA	-7.28	-10.37	-8.89556	NR	NA
Temperature, field measurement	(Deg C)		9	NA	20.3	14.7	16.86667	NR	NA
Alkalinity as HCO3	(mg/L)		9	9	262	167	227.1111	NR	NA
Conductivity	(umhos/cm)		9	9	615	412	524.1111	NR	NA
Dissolved Solids	(mg/L)		9	9	354	228 *	304	500	0
pH	(pH)		9	9	8.58 L	6.93 L	7.633333	6.5/8.5	1
Total Suspended Solids	(mg/L)		9	7	101	1.5	24.21429	NR	NA
Turbidity	(NTU)		9	9	108	1.63	38.78333	1	9
Cesium-137, Y-12 lab	(pCi/L)	Filtered	1	1	1.2	1.2	1.2	120	0
Lead-212, Y-12 lab	(pCi/L)	Filtered	1	1	8.6	8.6	8.6	NR	NA
Bismuth-214, Y-12 lab	(pCi/L)	Filtered	1	1	15	15	15	24000	0
Radium - Total Alpha, Y-12 lab	(pCi/L)	Filtered	1	1	0.35	0.35	0.35	5.9	0
Radium-228, Y-12 lab	(pCi/L)	Filtered	2	2	57	-0.55	28.225	5.9	1
Thorium-228, Y-12 lab	(pCi/L)	Filtered	1	1	0.065	0.065	0.065	16	0
Thorium-230, Y-12 lab	(pCi/L)	Filtered	1	1	0.2	0.2	0.2	12	0
Thorium-232, Y-12 lab	(pCi/L)	Filtered	1	1	0.043	0.043	0.043	2	0
Protactinium-234, Y-12 lab	(pCi/L)	Filtered	1	1	-0.17	-0.17	-0.17	NR	NA
Uranium-234, Y-12 lab	(pCi/L)	Filtered	1	1	81	81	81	20	1
Protactinium-234m, Y-12 lab	(pCi/L)	Filtered	1	1	310	310	310	2800	0
Uranium-235, Y-12 lab	(pCi/L)	Filtered	1	1	0.37	0.37	0.37	24	0
Uranium-236, Y-12 lab	(pCi/L)	Filtered	1	1	0.052	0.052	0.052	NR	NA
Neptunium-237, Y-12 lab	(pCi/L)	Filtered	1	1	0.017	0.017	0.017	1.2	0
Plutonium-238, Y-12 lab	(pCi/L)	Filtered	1	1	-0.042	-0.042	-0.042	1.6	0
Uranium-238, Y-12 lab	(pCi/L)	Filtered	1	1	0.99	0.99	0.99	24	0
Plutonium-239, Y-12 lab	(pCi/L)	Filtered	1	1	0	0	0	1.2	0

Table 2.61 (continued)

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
Americium-241, Y-12 lab	(pCi/L)	Filtered	1	1	0.081	0.081	0.081	1.2	0
Strontium-89/90, Y-12 lab	(pCi/L)	Filtered	1	1	0.01	0.01	0.01	8	0
Technetium-99, Y-12 lab	(pCi/L)	Filtered	1	1	-14	-14	-14	4000	0
Gross Alpha	(pCi/L)	Filtered	8	8	30.1	-3.45	7.670125	15f	2
Gross Alpha, Y-12 lab	(pCi/L)	Filtered	1	1	52	52	52	15f	1
Gross Beta	(pCi/L)	Filtered	8	8	6.16	0.21	2.87175	50 a	0
Gross Beta, Y-12 lab	(pCi/L)	Filtered	1	1	11	11	11	50 a	0
Tritium, Y-12 lab	(pCi/L)	Filtered	1	1	-18	-18	-18	20000	0
1,1,1-Trichloroethane	(ug/L)	DILUTED	9	4	21	1 J	9	200	0
1,1,1-Trichloroethane	(ug/L)	DILUTED	1	1	2 JD	2 JD	2	200	0
1,1-Dichloroethane	(ug/L)	DILUTED	9	6	170	6 J	66	NR	NA
1,1-Dichloroethane	(ug/L)	DILUTED	1	1	110 D	110 D	110	NR	NA
1,1-Dichloroethane	(ug/L)	DILUTED	9	5	56	3 J	23	7	4
1,1-Dichloroethane	(ug/L)	DILUTED	1	1	26 D	26 D	26	7	1
1,2-Dichloroethane (Total)	(ug/L)	DILUTED	9	6	35	11	21.83333	NR b	NA
1,2-Dichloroethane (Total)	(ug/L)	DILUTED	1	1	19 JD	19 JD	19	NR b	NA
2-Butanone	(ug/L)	DILUTED	9	1	11	11	11	NR	NA
Carbon tetrachloride	(ug/L)	DILUTED	9	2	6 J	3 J	4.5	5	1
Chloroform	(ug/L)	DILUTED	9	1	2 J	2 J	2	100 i	0
cis-1,2-Dichloroethene	(ug/L)	DILUTED	3	2	23	22	22.5	70	0
Tetrachloroethene	(ug/L)	DILUTED	9	6	270 D	11	119.1667	5	6
trans-1,2-Dichloroethene	(ug/L)	DILUTED	1	1	220 D	220 D	220	5	1
Trichloroethene	(ug/L)	DILUTED	3	2	12	11	11.5	100	0
Trichloroethene	(ug/L)	DILUTED	9	6	69	6 J	33.16667	5	6
Trichloroethene	(ug/L)	DILUTED	1	1	59 D	59 D	59	5	1
Vinyl chloride	(ug/L)	DILUTED	9	1	5 J	5 J	5	2	1

Table 2.62. Constituents Detected in Groundwater at the Y-12 Plant for 1996

REGIME=EF AREA NAME=GW Monitoring Plan Grid Location F2

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
Chloride	(mg/L)		6	6	158	3.58	59.58833	250	0
Fluoride	(mg/L)		6	3	0.56	0.5	0.526667	2	0
Nitrate Nitrogen	(mg/L)		6	2	0.22	0.05	0.135	10	0
Sulfate	(mg/L)		6	6	14.1	8.82	10.86167	250	0
Aluminum, ICAP	(mg/L)		6	6	2.2	0.048	0.841333	0.2	4
Aluminum, ICAP	(mg/L)	Filtered	6	6	0.13	0.022	0.0535	0.2	0
Barium, ICAP	(mg/L)		6	6	0.59	0.26	0.405	2	0
Barium, ICAP	(mg/L)	Filtered	6	6	0.75	0.23	0.416667	2	0
Beryllium, ICAP	(mg/L)		6	1	0.00035	0.00035	0.00035	0.004	0
Boron, ICAP	(mg/L)		6	6	0.22	0.036	0.126667	NR	NA
Boron, ICAP	(mg/L)	Filtered	6	6	0.2	0.033	0.117667	NR	NA
Calcium, ICAP	(mg/L)		6	6	130	7.8	67.81667	NR	NA
Calcium, ICAP	(mg/L)	Filtered	6	6	130	5.6	66.35	NR	NA
Chromium, ICAP	(mg/L)		6	2	0.024	0.02	0.022	0.1	0
Copper, ICAP	(mg/L)		6	2	0.0094	0.0041	0.00675	1	0
Iron, ICAP	(mg/L)		6	6	3.1	0.63	1.688333	0.3	6
Iron, ICAP	(mg/L)	Filtered	6	5	0.85	0.0098	0.45016	0.3	3
Lead, ICP/MS	(mg/L)		2	1	0.0021	0.0021	0.0021	NR	NA
Lithium, ICAP	(mg/L)		6	6	0.034	0.017	0.025333	NR	NA
Lithium, ICAP	(mg/L)	Filtered	6	6	0.03	0.016	0.0235	NR	NA
Magnesium, ICAP	(mg/L)		6	6	19	2.3	10.33333	NR	NA
Magnesium, ICAP	(mg/L)	Filtered	6	6	19	2	10.08333	NR	NA
Manganese, ICAP	(mg/L)		6	6	1.5	0.016	0.697333	0.05	3
Manganese, ICAP	(mg/L)	Filtered	6	4	1.5	0.0016	1.0504	0.05	3
Manganese, ICAP	(mg/L)		6	2	0.033	0.011	0.022	0.1 d	0
Nickel, ICAP	(mg/L)	Filtered	6	2	0.022	0.012	0.017	0.1 d	0
Nickel, ICAP	(mg/L)		6	6	3.5	2.1	2.75	NR	NA
Potassium, ICAP	(mg/L)	Filtered	6	6	2.8	1.9	2.25	NR	NA
Potassium, ICAP	(mg/L)		6	6	95	16	54	NR	NA
Sodium, ICAP	(mg/L)	Filtered	6	6	96	16	54	NR	NA
Sodium, ICAP	(mg/L)		6	6	0.78	0.38	0.578333	NR	NA
Strontium, ICAP	(mg/L)		6	6	0.79	0.39	0.578333	NR	NA
Strontium, ICAP	(mg/L)	Filtered	6	6	0.79	0.39	0.578333	NR	NA

Table 2.62 (continued)

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
Uranium, ICP/MS	(mg/L)		6	1	0.00099	0.00099	0.00099	NR	NA
Uranium, ICP/MS	(mg/L)	Filtered	6	1	0.019	0.019	0.019	NR	NA
Vanadium, ICAP	(mg/L)		6	1	0.0057	0.0057	0.0057	NR	NA
Zinc, ICAP	(mg/L)		6	6	0.045	0.012	0.024833	5	0
Zinc, ICAP	(mg/L)	Filtered	6	4	0.1	0.0073	0.040575	5	0
Conductivity, field measurement	(umhos/cm)		6	NA	848	316	578	NR	NA
Dissolved Oxygen, field measure	(ppm)		6	NA	8.8	2	3.716667	NR	NA
pH, field measurement	(pH)		6	NA	8.9	6.7	7.683333	6.5/8.5	1
REDOX, field measurement	(mV)		6	NA	189	11	135.6667	NR	NA
Static Water Level	(ft - toc)		6	NA	-9.65	-12.58	-11.06	NR	NA
Temperature, field measurement	(Deg C)		6	NA	19.9	16.5	18.5	NR	NA
Alkalinity as CO3	(mg/L)		6	2	8	2	5	NR	NA
Alkalinity as HCO3	(mg/L)		6	6	283	200	236.8333	NR	NA
Conductivity	(umhos/cm)		6	6	1003	395	655.6667	NR	NA
Dissolved Solids	(mg/L)		6	6	630	236	412.3333	500	2
pH	(pH)		6	6	9.04 L	6.94 L	7.945	6.5/8.5	2
Total Suspended Solids	(mg/L)		6	6	96	5	46.75	NR	NA
Turbidity	(NTU)		6	6	110	7.33	44.30333	1	6
Gross Alpha	(pCi/L)		6	6	2.12	-1.88	-0.28333	15 f	0
Gross Beta	(pCi/L)		6	6	7.02	-2.7	3.572667	50 a	0
Acetone	(ug/L)		6	1	18	18	18	NR	NA

Table 2.63. Constituents Detected in Groundwater at the Y-12 Plant for 1996

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference	
								Value	No. of Meas. > Reference
Chloride	(mg/L)		6	6	12.8	6.23	8.616667	250	0
Fluoride	(mg/L)		6	4	1.37	0.16	1.045	2	0
Nitrate Nitrogen	(mg/L)		6	6	1.04	0.33	0.611667	10	0
Sulfate	(mg/L)		6	6	25.1	18.6	21.31667	250	0
Aluminum, ICAP	(mg/L)		6	6	6.9	1.2	3.983333	0.2	6
Aluminum, ICAP	(mg/L)	Filtered	6	6	2	0.021	0.393667	0.2	1
Barium, ICAP	(mg/L)		6	6	0.36	0.12	0.24	2	0
Barium, ICAP	(mg/L)	Filtered	6	6	0.34	0.099	0.1965	2	0
Boron, ICAP	(mg/L)		6	6	1.5	0.075	0.722	NR	NA
Boron, ICAP	(mg/L)	Filtered	6	6	1.4	0.064	0.6715	NR	NA
Cadmium, ICAP	(mg/L)		6	1	0.0056	0.0056	0.0056	0.005	1
Calcium, ICAP	(mg/L)		6	6	72	9.4	39.73333	NR	NA
Calcium, ICAP	(mg/L)	Filtered	6	6	65	8.6	35.66667	NR	NA
Chromium, ICAP	(mg/L)		6	3	0.018	0.011	0.014333	0.1	0
Copper, ICAP	(mg/L)		6	6	0.02	0.0068	0.012567	1	0
Iron, ICAP	(mg/L)		6	6	6	1.6	3.616667	0.3	6
Iron, ICAP	(mg/L)	Filtered	6	6	2	0.0085	0.380417	0.3	1
Lead, ICP/MS	(mg/L)		2	2	0.015	0.00085	0.007925	NR	NA
Lithium, ICAP	(mg/L)		6	6	0.09	0.011	0.048167	NR	NA
Lithium, ICAP	(mg/L)	Filtered	6	6	0.085	0.0094	0.043233	NR	NA
Magnesium, ICAP	(mg/L)		6	6	10	2.7	6.733333	NR	NA
Magnesium, ICAP	(mg/L)	Filtered	6	6	9.8	2.7	6.2	NR	NA
Magnesium, ICAP	(mg/L)		6	6	0.12	0.03	0.0935	0.05	5
Manganese, ICAP	(mg/L)		6	6	0.044	0.0023	0.013617	0.05	0
Manganese, ICAP	(mg/L)	Filtered	6	1	0.021	0.021	0.021	0.1 d	0
Nickel, ICAP	(mg/L)		6	6	7.2	2.7	5.15	NR	NA
Potassium, ICAP	(mg/L)		6	6	5.6	2.5	3.95	NR	NA
Potassium, ICAP	(mg/L)	Filtered	6	2	0.019	0.014	0.0165	0.1	0
Silver, ICAP	(mg/L)		6	6	130	5.9	63.13333	NR	NA
Sodium, ICAP	(mg/L)		6	6	130	5.9	63.2	NR	NA
Sodium, ICAP	(mg/L)	Filtered	6	6	0.56	0.26	0.383333	NR	NA
Strontium, ICAP	(mg/L)		6	6	0.5	0.25	0.36	NR	NA

Table 2.63 (continued)

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
Uranium, ICP/MS	(mg/L)		6	3	0.0014	0.0008	0.0012	NR	NA
Uranium, ICP/MS	(mg/L)	Filtered	6	3	0.0011	0.00082	0.000973	NR	NA
Vanadium, ICAP	(mg/L)		6	2	0.0079	0.0072	0.00755	NR	NA
Zinc, ICAP	(mg/L)		6	6	0.06	0.0091	0.033183	5	0
Zinc, ICAP	(mg/L)	Filtered	6	6	0.026	0.0082	0.013333	5	0
Conductivity, field measurement	(umhos/cm)		6	NA	525	356	455.1667	NR	NA
Dissolved Oxygen, field measure	(ppm)		6	NA	8.1	2.4	4.766667	NR	NA
pH, field measurement	(pH)		6	NA	8.6	7.5	8.066667	6.5/8.5	1
REDOX, field measurement	(mV)		6	NA	190	125	159	NR	NA
Static Water Level	(ft - toc)		6	NA	-0.67	-7	-3.33667	NR	NA
Temperature, field measurement	(Deg C)		6	NA	22.6	14.9	18.23333	NR	NA
Alkalinity as CO3	(mg/L)		6	1	16	16	16	NR	NA
Alkalinity as HCO3	(mg/L)		6	6	281	175	224.5	NR	NA
Conductivity	(umhos/cm)		6	6	584	401	489.6667	NR	NA
Dissolved Solids	(mg/L)		6	6	476	204*	337.6667	500	0
pH	(pH)		6	6	8.78 L	7.31 L	8.055	6.5/8.5	1
Total Suspended Solids	(mg/L)		6	6	79	32	52.33333	NR	NA
Turbidity	(NTU)		6	6	308	71	144	1	6
Gross Alpha	(pCi/L)		6	6	6.59	-2.42	1.054667	15 f	0
Gross Beta	(pCi/L)		6	6	9.77	-1.84	2.541883	50 a	0
Chloroform	(ug/L)		6	1	1 J	1 J	1	100 i	0
Trichloroethene	(ug/L)		6	2	2 J	1 J	1.5	5	0

Table 2.64. Constituents Detected in Groundwater at the Y-12 Plant for 1996

REGIME=EF AREA NAME=GW Monitoring Plan Grid Location G3

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
Chloride	(mg/L)		6	6	17.8	4.66	10.90333	250	0
Fluoride	(mg/L)		6	3	0.22	0.18	0.196667	2	0
Nitrate Nitrogen	(mg/L)		6	5	0.85	0.09	0.582	10	0
Sulfate	(mg/L)		6	6	26.5	16.3	21.23333	250	0
Aluminum, ICAP	(mg/L)		6	5	2.9	0.085	0.9668	0.2	2
Aluminum, ICAP	(mg/L)	Filtered	6	6	0.094	0.035	0.058833	0.2	0
Barium, ICAP	(mg/L)		6	6	0.45	0.066	0.259333	2	0
Barium, ICAP	(mg/L)	Filtered	6	6	0.45	0.061	0.257333	2	0
Beryllium, ICAP	(mg/L)	Filtered	6	1	0.0033	0.0033	0.0033	0.004	0
Boron, ICAP	(mg/L)		6	6	0.12	0.05	0.0775	NR	NA
Boron, ICAP	(mg/L)	Filtered	6	6	0.14	0.048	0.075	NR	NA
Calcium, ICAP	(mg/L)		6	6	73	57	67	NR	NA
Calcium, ICAP	(mg/L)	Filtered	6	6	76	57	67.33333	NR	NA
Cobalt, ICAP	(mg/L)	Filtered	6	1	0.0055	0.0055	0.0055	NR	NA
Copper, ICAP	(mg/L)		6	1	0.0057	0.0057	0.0057	1	0
Copper, ICAP	(mg/L)		6	6	3.6	0.065	0.99	0.3	2
Iron, ICAP	(mg/L)	Filtered	6	4	0.2	0.061	0.1125	0.3	0
Lead, ICP/MS	(mg/L)		2	1	0.0029	0.0029	0.0029	NR	NA
Lead, ICP/MS	(mg/L)	Filtered	2	1	0.0018	0.0018	0.0018	NR	NA
Lithium, ICAP	(mg/L)		6	3	0.016	0.014	0.015333	NR	NA
Lithium, ICAP	(mg/L)	Filtered	6	3	0.018	0.015	0.016667	NR	NA
Magnesium, ICAP	(mg/L)		6	6	11	4.9	7.883333	NR	NA
Magnesium, ICAP	(mg/L)	Filtered	6	6	11	4.9	7.816667	NR	NA
Manganese, ICAP	(mg/L)		6	6	0.23	0.0046	0.060433	0.05	2
Manganese, ICAP	(mg/L)	Filtered	6	6	0.014	0.0015	0.008383	0.05	0
Nickel, ICAP	(mg/L)	Filtered	6	1	0.011	0.011	0.011	0.1 d	0
Potassium, ICAP	(mg/L)		6	6	4.2	2.3	3.1	NR	NA
Potassium, ICAP	(mg/L)	Filtered	6	6	3.6	2.3	2.85	NR	NA
Silver, ICAP	(mg/L)		6	1	0.009	0.009	0.009	0.1	0
Silver, ICAP	(mg/L)	Filtered	6	2	0.0098	0.0074	0.0086	0.1	0
Sodium, ICAP	(mg/L)		6	6	6.7	5.2	5.85	NR	NA
Sodium, ICAP	(mg/L)	Filtered	6	6	6.9	4.9	5.816667	NR	NA

Table 2.64 (continued)

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
Strontium, ICAP	(mg/L)		6	6	0.43	0.082	0.255833	NR	NA
Strontium, ICAP	(mg/L)	Filtered	6	6	0.45	0.084	0.2615	NR	NA
Uranium, ICP/MS	(mg/L)		6	3	0.0011	0.00074	0.000863	NR	NA
Uranium, ICP/MS	(mg/L)	Filtered	6	3	0.00098	0.00063	0.00079	NR	NA
Zinc, ICAP	(mg/L)		6	6	0.012	0.002	0.008333	5	0
Zinc, ICAP	(mg/L)	Filtered	6	6	0.011	0.0034	0.007433	5	0
Conductivity, field measurement	(umhos/cm)		6	NA	466	315	393.1667	NR	NA
Dissolved Oxygen, field measure	(ppm)		6	NA	5.7	0.6	2.8	NR	NA
pH, field measurement	(pH)		6	NA	7.5	6.7	7.15	6.5/8.5	0
REDOX, field measurement	(mV)		6	NA	187	93	138.8333	NR	NA
Static Water Level	(ft - toc)		6	NA	-9.95	-14.82	-12.3267	NR	NA
Temperature, field measurement	(Deg C)		6	NA	20.5	16.2	18.18333	NR	NA
Alkalinity as HCO3	(mg/L)		6	6	214	150	183	NR	NA
Conductivity	(umhos/cm)		6	6	490	353	422.5	NR	NA
Dissolved Solids	(mg/L)		6	6	310	190	261	500	0
pH	(pH)		6	6	7.62 L	7.23	7.39	6.5/8.5	0
Total Suspended Solids	(mg/L)		6	4	30.5	1	12.625	NR	NA
Turbidity	(NTU)		6	6	36.8	0.929	11.75167	1	4
Gross Alpha	(pCi/L)		6	6	7.08	-1.2	2.0225	15 f	0
Gross Beta	(pCi/L)		6	6	6.61	-6.62	1.37	50 a	0
1,1-Dichloroethene	(ug/L)		6	2	1 J	1 J	1	7	0
1,2-Dichloroethene (Total)	(ug/L)		6	2	2 J	2 J	2	NR b	NA
Carbon tetrachloride	(ug/L)		6	4	7 J	3 J	5.25	5	2
Chloroform	(ug/L)		6	5	3 J	1 J	2	100 i	0
Tetrachloroethene	(ug/L)		6	3	8 J	5 J	6.333333	5	2
Trichloroethene	(ug/L)		6	2	2 J	1 J	1.5	5	0

Table 2.65. Constituents Detected in Groundwater at the Y-12 Plant for 1996

REGIME=EF AREA NAME=GW Monitoring Plan Grid Location H3

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
Chloride	(mg/L)		6	6	46.9	15.5	34.15	250	0
Nitrate Nitrogen	(mg/L)		6	6	1.57	0.56	1.071667	10	0
Sulfate	(mg/L)		6	6	45.1	15.3	33.8	250	0
Aluminum, ICAP	(mg/L)		6	6	3.2	0.025	0.782167	0.2	2
Aluminum, ICAP	(mg/L)	Filtered	6	4	0.069	0.04	0.05325	0.2	0
Barium, ICAP	(mg/L)		6	6	0.19	0.085	0.140333	2	0
Barium, ICAP	(mg/L)	Filtered	6	6	0.2	0.082	0.137167	2	0
Boron, ICAP	(mg/L)		6	6	0.058	0.028	0.0365	NR	NA
Boron, ICAP	(mg/L)	Filtered	6	6	0.069	0.031	0.040167	NR	NA
Calcium, ICAP	(mg/L)		6	6	110	82	93.66667	NR	NA
Calcium, ICAP	(mg/L)	Filtered	6	6	100	81	92.16667	NR	NA
Chromium, ICAP	(mg/L)		6	3	0.69	0.41	0.52	0.1	3
Chromium, ICAP	(mg/L)	Filtered	6	1	0.017	0.017	0.017	0.1	0
Cobalt, ICAP	(mg/L)		6	2	0.0094	0.0088	0.0091	NR	NA
Copper, ICAP	(mg/L)		6	3	0.016	0.0052	0.010033	1	0
Iron, ICAP	(mg/L)		6	5	6.7	0.017	2.5426	0.3	3
Iron, ICAP	(mg/L)	Filtered	6	2	0.15	0.022	0.086	0.3	0
Lead, ICP/MS	(mg/L)		2	2	0.0026	0.00052	0.00156	NR	NA
Lead, ICP/MS	(mg/L)	Filtered	2	1	0.00077	0.00077	0.00077	NR	NA
Lithium, ICAP	(mg/L)		6	5	0.012	0.0042	0.0084	NR	NA
Lithium, ICAP	(mg/L)	Filtered	6	3	0.011	0.0092	0.010033	NR	NA
Magnesium, ICAP	(mg/L)		6	6	7.3	5.1	6.433333	NR	NA
Magnesium, ICAP	(mg/L)	Filtered	6	6	7.6	5	6.416667	NR	NA
Magnesium, ICAP	(mg/L)		6	6	0.2	0.0021	0.061583	0.05	3
Manganese, ICAP	(mg/L)	Filtered	6	6	0.041	0.0012	0.01175	0.05	0
Manganese, ICAP	(mg/L)		6	2	0.013	0.011	0.012	NR	NA
Molybdenum, ICAP	(mg/L)		6	3	0.55	0.21	0.43	0.1 d	3
Nickel, ICAP	(mg/L)	Filtered	6	3	0.42	0.16	0.26	0.1 d	3
Nickel, ICAP	(mg/L)		6	6	4.4	2.6	3.433333	NR	NA
Potassium, ICAP	(mg/L)	Filtered	6	6	3.8	2.3	3.083333	NR	NA
Potassium, ICAP	(mg/L)		6	1	0.0081	0.0081	0.0081	0.1	0
Silver, ICAP	(mg/L)	Filtered	6	2	0.017	0.0092	0.0131	0.1	0

Table 2.65 (continued)

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
Sodium, ICAP	(mg/L)		6	6	14	4.3	8.863333	NR	NA
Sodium, ICAP	(mg/L)	Filtered	6	6	13	4.4	8.75	NR	NA
Strontium, ICAP	(mg/L)		6	6	0.23	0.17	0.201667	NR	NA
Strontium, ICAP	(mg/L)	Filtered	6	6	0.23	0.16	0.198333	NR	NA
Uranium, ICP/MS	(mg/L)		6	1	0.00052	0.00052	0.00052	NR	NA
Uranium, ICP/MS	(mg/L)	Filtered	6	1	0.00056	0.00056	0.00056	NR	NA
Zinc, ICAP	(mg/L)		6	6	0.022	0.0046	0.010483	5	0
Zinc, ICAP	(mg/L)	Filtered	6	6	0.015	0.0032	0.006933	5	0
Conductivity, field measurement	(umhos/cm)		6	NA	574	446	504.8333	NR	NA
Dissolved Oxygen, field measure	(ppm)		6	NA	11.1	1.2	4.116667	NR	NA
pH, field measurement	(pH)		6	NA	7.6	7	7.266667	6.5/8.5	0
REDOX, field measurement	(mV)		6	NA	212	-18	140	NR	NA
Static Water Level	(ft - toc)		6	NA	-8.75	-16.9	-12.7183	NR	NA
Temperature, field measurement	(Deg C)		6	NA	20.1	12.6	17.23333	NR	NA
Alkalinity as HCO3	(mg/L)		6	6	203	176	188.1667	NR	NA
Conductivity	(umhos/cm)		6	6	623	485	549.3333	NR	NA
Dissolved Solids	(mg/L)		6	6	438	214	312.6667	500	0
pH	(pH)		6	6	7.74	7.25 L	7.428333	6.5/8.5	0
Total Suspended Solids	(mg/L)		6	3	41	3.5	18.83333	NR	NA
Turbidity	(NTU)		6	6	111	1.02	39.72833	1	6
Gross Alpha	(pCi/L)		6	6	3.18	-4.29	0.94	15 f	0
Gross Beta	(pCi/L)		6	6	6.7	-1.57	2.561667	50 a	0
Tetrachloroethene	(ug/L)		6	2	2 J	2 J	2	5	0
Trichloroethene	(ug/L)		6	6	6 J	3 J	4.166667	5	1

Table 2.66. Constituents Detected in Groundwater at the Y-12 Plant for 1996

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
Chloride	(mg/L)		6	6	5.71	3.63	4.33	250	0
Nitrate Nitrogen	(mg/L)		6	1	0.4	0.4	0.4	10	0
Sulfate	(mg/L)		6	6	9.58	1.71	5.65	250	0
Aluminum, ICAP	(mg/L)		6	6	0.41	0.038	0.174833	0.2	2
Aluminum, ICAP	(mg/L)	Filtered	6	6	0.099	0.039	0.058833	0.2	0
Barium, ICAP	(mg/L)		6	6	0.35	0.047	0.209333	2	0
Barium, ICAP	(mg/L)	Filtered	6	6	0.41	0.046	0.211667	2	0
Boron, ICAP	(mg/L)		6	6	0.061	0.017	0.033667	NR	NA
Boron, ICAP	(mg/L)	Filtered	6	6	0.078	0.033	0.049167	NR	NA
Calcium, ICAP	(mg/L)		6	6	42	2.6	20.56667	NR	NA
Calcium, ICAP	(mg/L)	Filtered	6	6	41	2.1	20.51667	NR	NA
Iron, ICAP	(mg/L)		6	6	0.52	0.036	0.192	0.3	2
Iron, ICAP	(mg/L)	Filtered	6	4	0.067	0.012	0.029	0.3	0
Lead, ICP/MS	(mg/L)		2	1	0.00085	0.00085	0.00085	NR	NA
Lead, ICP/MS	(mg/L)	Filtered	2	1	0.00094	0.00094	0.00094	NR	NA
Lithium, ICAP	(mg/L)		6	5	0.016	0.0042	0.01088	NR	NA
Lithium, ICAP	(mg/L)	Filtered	6	5	0.017	0.0046	0.01112	NR	NA
Magnesium, ICAP	(mg/L)		6	6	8.2	1.1	4.716667	NR	NA
Magnesium, ICAP	(mg/L)	Filtered	6	6	8.8	1.1	4.733333	NR	NA
Manganese, ICAP	(mg/L)		6	6	0.075	0.0052	0.036733	0.05	3
Manganese, ICAP	(mg/L)	Filtered	6	6	0.063	0.005	0.02745	0.05	1
Nickel, ICAP	(mg/L)		6	1	0.011	0.011	0.011	0.1 d	0
Nickel, ICAP	(mg/L)	Filtered	6	1	0.01	0.01	0.01	0.1 d	0
Potassium, ICAP	(mg/L)		6	6	3.6	0.67	2.24	NR	NA
Potassium, ICAP	(mg/L)	Filtered	6	6	3.5	0.75	2.301667	NR	NA
Silver, ICAP	(mg/L)		6	2	0.009	0.0071	0.00805	0.1	0
Sodium, ICAP	(mg/L)		6	6	13	2.7	7.9	NR	NA
Sodium, ICAP	(mg/L)	Filtered	6	6	13	2.7	7.85	NR	NA
Strontium, ICAP	(mg/L)		6	6	0.62	0.011	0.279167	NR	NA
Strontium, ICAP	(mg/L)	Filtered	6	6	0.63	0.0097	0.281617	NR	NA
Zinc, ICAP	(mg/L)		6	6	0.42	0.011	0.137833	5	0
Zinc, ICAP	(mg/L)	Filtered	6	6	0.32	0.01	0.0925	5	0

Table 2.66 (continued)

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
Conductivity, field measurement	(umhos/cm)		6	NA	272	41	135.5	NR	NA
Dissolved Oxygen, field measure	(ppm)		6	NA	8	2.7	5.633333	NR	NA
pH, field measurement	(pH)		6	NA	9.5	4.8	7.166667	6.5/8.5	6
REDOX, field measurement	(mV)		6	NA	243	138	191.1667	NR	NA
Static Water Level	(ft - toc)		6	NA	-10.47	-13.45	-11.9717	NR	NA
Temperature, field measurement	(Deg C)		6	NA	19.9	4.8	15.36667	NR	NA
Alkalinity as HCO3	(mg/L)		6	6	154	9	79.5	NR	NA
Conductivity	(umhos/cm)		6	6	321	36.6	175.85	NR	NA
Dissolved Solids	(mg/L)		6	6	188	42	102.3333	500	0
pH	(pH)		6	6	8.69 L	5.26 L	6.913333	6.5/8.5	4
Total Suspended Solids	(mg/L)		6	3	9	4.5	7.166667	NR	NA
Turbidity	(NTU)		6	6	5.55	1.93 *	3.643333	1	6
Gross Alpha	(pCi/L)		6	6	8.76	-0.38	2.687667	15 f	0
Gross Beta	(pCi/L)		6	6	5.15	-5.46	0.666333	50 a	0
2-Butanone	(ug/L)		6	1	11 B	11 B	11	NR	NA
Acetone	(ug/L)		6	1	11 B	11 B	11	NR	NA

Table 2.67. Constituents Detected in Groundwater at the Y-12 Plant for 1996

REGIME=EF AREA NAME=GW Monitoring Plan Grid Location J3

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
Chloride	(mg/L)		6	6	50.5	16.3	32.86667	250	0
Fluoride	(mg/L)		6	1	0.1	0.1	0.1	2	0
Nitrate Nitrogen	(mg/L)		6	1	0.33	0.33	0.33	10	0
Sulfate	(mg/L)		6	6	6.09	5.1	5.561667	250	0
Aluminum, ICAP	(mg/L)		6	4	0.045	0.026	0.03525	0.2	0
Aluminum, ICAP	(mg/L)		6	2	0.044	0.027	0.0355	0.2	0
Arsenic, ICP/MS	(mg/L)	Filtered	2	1	0.0056	0.0056	0.0056	NR	NA
Arsenic, ICP/MS	(mg/L)	Filtered	2	2	0.0064	0.0063	0.00635	NR	NA
Barium, ICAP	(mg/L)		6	6	0.57	0.12	0.335	2	0
Barium, ICAP	(mg/L)	Filtered	6	6	0.58	0.12	0.335	2	0
Beryllium, ICAP	(mg/L)		6	1	0.00031	0.00031	0.00031	0.004	0
Beryllium, ICAP	(mg/L)	Filtered	6	1	0.00041	0.00041	0.00041	0.004	0
Boron, ICAP	(mg/L)		6	6	0.029	0.0041	0.020017	NR	NA
Boron, ICAP	(mg/L)	Filtered	6	6	0.048	0.0056	0.019933	NR	NA
Calcium, ICAP	(mg/L)		6	6	65	23	42.66667	NR	NA
Calcium, ICAP	(mg/L)	Filtered	6	6	64	25	42.5	NR	NA
Chromium, ICAP	(mg/L)		6	2	0.012	0.01	0.011	0.1	0
Cobalt, ICAP	(mg/L)		6	2	0.0067	0.0066	0.00665	NR	NA
Cobalt, ICAP	(mg/L)	Filtered	6	2	0.0077	0.0068	0.00725	NR	NA
Copper, ICAP	(mg/L)		6	1	0.035	0.035	0.035	1	0
Iron, ICAP	(mg/L)		6	6	0.66	0.14	0.295	0.3	1
Iron, ICAP	(mg/L)	Filtered	6	6	0.34	0.091	0.186833	0.3	1
Lithium, ICAP	(mg/L)		6	3	0.022	0.02	0.020667	NR	NA
Lithium, ICAP	(mg/L)	Filtered	6	3	0.022	0.019	0.020667	NR	NA
Magnesium, ICAP	(mg/L)		6	6	11	3.3	6.85	NR	NA
Magnesium, ICAP	(mg/L)	Filtered	6	6	11	3.5	6.783333	NR	NA
Magnesium, ICAP	(mg/L)		6	6	1.7	0.014	0.767833	0.05	4
Manganese, ICAP	(mg/L)	Filtered	6	6	1.7	0.013	0.760333	0.05	3
Manganese, ICAP	(mg/L)		6	3	0.029	0.024	0.027	0.1 d	0
Nickel, ICAP	(mg/L)	Filtered	6	3	0.032	0.022	0.026667	0.1 d	0
Nickel, ICAP	(mg/L)		6	6	3.6	1.4	2.383333	NR	NA
Potassium, ICAP	(mg/L)		6	6	3.4	1.6	2.366667	NR	NA
Potassium, ICAP	(mg/L)	Filtered	6	6	3.4	1.6	2.366667	NR	NA

Table 2.67 (continued)

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
Sodium, ICAP	(mg/L)		6	6	11	7.7	9.06667	NR	NA
Sodium, ICAP	(mg/L)	Filtered	6	6	11	7.3	9.08333	NR	NA
Strontium, ICAP	(mg/L)		6	6	0.52	0.069	0.270167	NR	NA
Strontium, ICAP	(mg/L)	Filtered	6	6	0.52	0.069	0.267167	NR	NA
Zinc, ICAP	(mg/L)		6	5	0.037	0.0048	0.01824	5	0
Zinc, ICAP	(mg/L)	Filtered	6	6	0.035	0.0027	0.01565	5	0
Conductivity, field measurement	(umhos/cm)		6	NA	424	233	330.8333	NR	NA
Dissolved Oxygen, field measure	(ppm)		6	NA	1.1	0.4	0.733333	NR	NA
pH, field measurement	(pH)		6	NA	7.9	4.3	6.383333	6.5/8.5	3
REDOX, field measurement	(mV)		6	NA	156	27	103.3333	NR	NA
Static Water Level	(ft - toc)		6	NA	-3.35	-4.85	-4.07333	NR	NA
Temperature, field measurement	(Deg C)		6	NA	17.3	13.3	15.45	NR	NA
Alkalinity as HCO3	(mg/L)		6	6	194	34	115.6667	NR	NA
Conductivity	(umhos/cm)		6	6	427	238	340.1667	NR	NA
Dissolved Solids	(mg/L)		6	6	258	104	197.6667	500	0
pH	(pH)		6	6	7.64	5.16 L	6.423333	6.5/8.5	3
Total Suspended Solids	(mg/L)		6	1	3	3	3	NR	NA
Turbidity	(NTU)		6	6	3.06	1.11	2.14	1	6
Gross Alpha	(pCi/L)		6	6	6.17	0.357	2.3745	15 f	0
Gross Beta	(pCi/L)		6	6	1.4	-3.93	-1.37	50 a	0
2-Butanone	(ug/L)		6	1	12 B	12 B	12	NR	NA

Table 2.68. onstituents Detected in Groundwater at the Y-12 Plant for 1996

REGIME=EF AREA NAME=GW Monitoring Plan Grid Location K1

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
Chloride	(mg/L)		12	12	37.2	5.29	16.34333	250	0
Fluoride	(mg/L)		12	5	0.13	0.1	0.118	2	0
Nitrate Nitrogen	(mg/L)		12	5	0.65	0.03	0.446	10	0
Sulfate	(mg/L)		12	12	31.1	13.3	22.88333	250	0
Aluminum, ICAP	(mg/L)		12	7	0.15	0.022	0.051857	0.2	0
Aluminum, ICAP	(mg/L)	Filtered	12	4	0.28	0.03	0.09725	0.2	1
Barium, ICAP	(mg/L)		12	12	0.21	0.13	0.159167	2	0
Barium, ICAP	(mg/L)	Filtered	12	12	0.2	0.12	0.156667	2	0
Beryllium, ICAP	(mg/L)		12	1	0.0003	0.0003	0.0003	0.004	0
Boron, ICAP	(mg/L)		12	12	0.18	0.033	0.065417	NR	NA
Boron, ICAP	(mg/L)	Filtered	12	12	0.13	0.017	0.055	NR	NA
Calcium, ICAP	(mg/L)		12	12	68	14	46.16667	NR	NA
Calcium, ICAP	(mg/L)	Filtered	12	12	67	13	46	NR	NA
Chromium, ICAP	(mg/L)		12	5	0.046	0.018	0.0374	0.1	0
Chromium, ICAP	(mg/L)	Filtered	12	2	0.17	0.013	0.015	0.1	0
Chromium, ICAP	(mg/L)		12	2	0.0055	0.0051	0.0053	NR	NA
Cobalt, ICAP	(mg/L)		12	1	0.0054	0.0054	0.0054	NR	NA
Cobalt, ICAP	(mg/L)	Filtered	12	1	0.0046	0.0046	0.0046	1	0
Copper, ICAP	(mg/L)		12	1	0.004	0.004	0.004	1	0
Copper, ICAP	(mg/L)	Filtered	12	12	0.37	0.0062	0.21435	0.3	1
Iron, ICAP	(mg/L)		12	11	0.26	0.0056	0.139236	0.3	0
Iron, ICAP	(mg/L)	Filtered	12	3	0.0024	0.00091	0.001737	NR	NA
Lead, ICP/MS	(mg/L)		6	3	0.0024	0.001	0.001367	NR	NA
Lead, ICP/MS	(mg/L)	Filtered	6	3	0.0016	0.001	0.001367	NR	NA
Lithium, ICAP	(mg/L)		12	8	0.026	0.023	0.024625	NR	NA
Lithium, ICAP	(mg/L)	Filtered	12	8	0.026	0.02	0.0245	NR	NA
Magnesium, ICAP	(mg/L)		12	12	11	5	8.875	NR	NA
Magnesium, ICAP	(mg/L)	Filtered	12	12	11	4.9	8.883333	NR	NA
Magnesium, ICAP	(mg/L)		12	12	0.67	0.026	0.202417	0.05	8
Magnesium, ICAP	(mg/L)	Filtered	12	12	0.66	0.016	0.212083	0.05	7
Manganese, ICAP	(mg/L)		12	5	0.22	0.023	0.1586	0.1 d	4
Nickel, ICAP	(mg/L)		12	4	0.24	0.14	0.1825	0.1 d	4
Nickel, ICAP	(mg/L)	Filtered	12	4	0.24	0.14	0.1825	NR	NA
Potassium, ICAP	(mg/L)		12	12	3.8	1.7	2.716667	NR	NA

Table 2.68 (continued)

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
Potassium, ICAP	(mg/L)	Filtered	12	12	3.6	1.4	2.566667	NR	NA
Selenium, ICAP	(mg/L)	Filtered	12	1	0.1	0.1	0.1	0.05	1
Sodium, ICAP	(mg/L)	Filtered	12	12	31	8.8	20.18333	NR	NA
Sodium, ICAP	(mg/L)	Filtered	12	12	30	8.8	19.89167	NR	NA
Strontium, ICAP	(mg/L)	Filtered	12	12	1.1	0.066	0.608917	NR	NA
Strontium, ICAP	(mg/L)	Filtered	12	12	1.1	0.062	0.6075	NR	NA
Uranium, ICP/MS	(mg/L)	Filtered	12	2	0.0021	0.00056	0.00133	NR	NA
Zinc, ICAP	(mg/L)	Filtered	12	9	0.012	0.0021	0.006633	5	0
Zinc, ICAP	(mg/L)	Filtered	12	8	0.015	0.0023	0.006525	5	0
Conductivity, field measurement	(umhos/cm)	Filtered	12	NA	486	131	369.5	NR	NA
Dissolved Oxygen, field measure	(ppm)	Filtered	12	NA	6.6	0.8	2.941667	NR	NA
pH, field measurement	(pH)	Filtered	12	NA	7.7	5	6.641667	6.5/8.5	4
REDOX, field measurement	(mV)	Filtered	12	NA	227	-160	16.5	NR	NA
Static Water Level	(ft - toc)	Filtered	12	NA	-3.52	-7.39	-5.98083	NR	NA
Temperature, field measurement	(Deg C)	Filtered	12	NA	21.2	11.6	16.475	NR	NA
Alkalinity as HCO3	(mg/L)	Filtered	12	12	236	36	161.3333	NR	NA
Conductivity	(umhos/cm)	Filtered	12	12	506	182	400.8333	NR	NA
Dissolved Solids	(mg/L)	Filtered	12	12	332	138	228.3333	500	0
pH	(pH)	Filtered	12	12	7.68	5.6 L	6.839167	6.5/8.5	4
Total Suspended Solids	(mg/L)	Filtered	12	1	2.5	2.5	2.5	NR	NA
Turbidity	(NTU)	Filtered	12	12	4.96	0.661	2.585917	1	11
Cesium-137, Y-12 lab	(pCi/L)	Filtered	3	3	8.4 7	-0.34	3.186667	120	0
Bismuth-214, Y-12 lab	(pCi/L)	Filtered	1	1	8.8	8.8	8.8	24000	0
Radium - Total Alpha, Y-12 lab	(pCi/L)	Filtered	3	3	0.25	0.036	0.128667	5 g	0
Radium-228, Y-12 lab	(pCi/L)	Filtered	3	3	-0.99	-1.4	-1.26333	5 g	0
Thorium-228, Y-12 lab	(pCi/L)	Filtered	3	3	0.29	0.099	0.199667	16	0
Thorium-230, Y-12 lab	(pCi/L)	Filtered	3	3	0.5	0.14	0.346667	12	0
Thorium-232, Y-12 lab	(pCi/L)	Filtered	3	3	0	-0.022	-0.00733	2	0
Protactinium-234, Y-12 lab	(pCi/L)	Filtered	3	3	460	240	360	NR	NA
Uranium-234, Y-12 lab	(pCi/L)	Filtered	3	3	0.17	0.033	0.098	20	0
Uranium-235, Y-12 lab	(pCi/L)	Filtered	3	3	0.11	0.054	0.087333	24	0
Uranium-236, Y-12 lab	(pCi/L)	Filtered	3	3	0.039	0	0.013	NR	NA
Neptunium-237, Y-12 lab	(pCi/L)	Filtered	3	3	0.018	-0.024	-0.007	1.2	0
Plutonium-238, Y-12 lab	(pCi/L)	Filtered	3	3	0.085	-0.078	0.027333	1.6	0
Uranium-238, Y-12 lab	(pCi/L)	Filtered	3	3	0.066	0.009	0.037	24	0

Table 2.68 (continued)

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference		No. of Meas. > Reference
								Value	Value	
Plutonium-239, Y-12 lab	(pCi/L)	Filtered	3	3	0.047	0.013	0.025667	1.2	1.2	0
Americium-241, Y-12 lab	(pCi/L)	Filtered	3	3	0.15	0.028	0.102667	1.2	1.2	0
Potassium-40, Y-12 lab	(pCi/L)	Filtered	2	2	84	68	76	280	280	0
Strontium-89/90, Y-12 lab	(pCi/L)	Filtered	3	3	0.61	-0.37	0.263333	8	8	0
Technetium-99, Y-12 lab	(pCi/L)	Filtered	3	3	10	4	7	4000	4000	0
Gross Alpha	(pCi/L)	Filtered	9	9	2.18	-1.6	-0.11967	15 f	15 f	0
Gross Alpha, Y-12 lab	(pCi/L)	Filtered	3	3	3.6	0.63	2.21	15 f	15 f	0
Gross Beta	(pCi/L)	Filtered	9	9	7.45	-5.22	-0.11056	50 a	50 a	0
Gross Beta, Y-12 lab	(pCi/L)	Filtered	3	3	5.1	2	4	50 a	50 a	0
Tritium, Y-12 lab	(pCi/L)	Filtered	3	3	91	2.6	51.53333	20000	20000	0
2-Butanone	(ug/L)		12	1	5 BJ	5 BJ	5	NR	NR	NA
Acetone	(ug/L)		12	2	10 B	2 BJ	6	NR	NR	NA

Table 2.69. Constituents C2973 Detected in Groundwater at the Y-12 Plant for 1996

REGIME=EF AREA NAME=GW Monitoring Plan Grid Location K2

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
Chloride	(mg/L)		12	12	29	2.46	13.26083	250	0
Fluoride	(mg/L)		12	7	0.2	0.11	0.157143	2	0
Nitrate Nitrogen	(mg/L)		12	1	0.04	0.04	0.04	10	0
Sulfate	(mg/L)		12	12	46.4	17.5	31.6	250	0
Aluminum, ICAP	(mg/L)		12	11	0.39	0.021	0.107455	0.2	2
Aluminum, ICAP	(mg/L)	Filtered	12	3	0.066	0.024	0.048	0.2	0
Barium, ICAP	(mg/L)		12	12	0.16	0.11	0.134167	2	0
Barium, ICAP	(mg/L)	Filtered	12	12	0.17	0.1	0.131667	2	0
Boron, ICAP	(mg/L)		12	12	0.26	0.014	0.07275	NR	NA
Boron, ICAP	(mg/L)	Filtered	12	12	0.092	0.0092	0.043767	NR	NA
Calcium, ICAP	(mg/L)		12	12	99	35	71.58333	NR	NA
Calcium, ICAP	(mg/L)	Filtered	12	12	100	36	72.58333	NR	NA
Iron, ICAP	(mg/L)		12	12	1.6	0.024	0.3745	0.3	5
Iron, ICAP	(mg/L)	Filtered	12	9	1.7	0.01	0.323	0.3	2
Lead, ICP/MS	(mg/L)		6	3	0.00071	0.00056	0.00063	NR	NA
Lead, ICP/MS	(mg/L)	Filtered	6	3	0.00078	0.00065	0.0007	NR	NA
Lithium, ICAP	(mg/L)		12	8	0.021	0.005	0.01245	NR	NA
Lithium, ICAP	(mg/L)	Filtered	12	8	0.021	0.0081	0.0132	NR	NA
Magnesium, ICAP	(mg/L)		12	12	10	6.4	8.5	NR	NA
Magnesium, ICAP	(mg/L)	Filtered	12	12	11	6.3	8.625	NR	NA
Magnesium, ICAP	(mg/L)		12	12	3.1	0.0018	0.578783	0.05	4
Manganese, ICAP	(mg/L)	Filtered	12	12	3	0.0016	0.558108	0.05	3
Manganese, ICAP	(mg/L)		12	2	0.02	0.01	0.015	0.1 d	0
Nickel, ICAP	(mg/L)	Filtered	12	1	0.016	0.016	0.016	0.1 d	0
Nickel, ICAP	(mg/L)		12	12	2.7	0.82	1.776667	NR	NA
Potassium, ICAP	(mg/L)	Filtered	12	12	2.6	0.63	1.753333	NR	NA
Potassium, ICAP	(mg/L)	Filtered	12	1	0.064	0.064	0.064	0.05	1
Selenium, ICAP	(mg/L)	Filtered	12	1	0.0073	0.0073	0.0073	0.1	0
Silver, ICAP	(mg/L)		12	12	45	7.9	18.575	NR	NA
Sodium, ICAP	(mg/L)	Filtered	12	12	45	7.3	18.375	NR	NA
Sodium, ICAP	(mg/L)		12	12	0.58	0.15	0.3175	NR	NA
Strontium, ICAP	(mg/L)	Filtered	12	12	0.63	0.15	0.32	NR	NA

Table 2.69 (continued)

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
Uranium, ICP/MS	(mg/L)		12	4	0.0027	0.00078	0.001298	NR	NA
Uranium, ICP/MS	(mg/L)	Filtered	12	4	0.0037	0.00074	0.00156	NR	NA
Zinc, ICAP	(mg/L)		12	8	0.01	0.0024	0.0053	5	0
Zinc, ICAP	(mg/L)	Filtered	12	7	0.01	0.0023	0.005771	5	0
Conductivity, field measurement	(umhos/cm)		12	NA	526	360	450.5	NR	NA
Dissolved Oxygen, field measure	(ppm)		12	NA	4.5	0.4	1.991667	NR	NA
pH, field measurement	(pH)		12	NA	8.6	6.3	7.208333	6.5/8.5	2
REDOX, field measurement	(mV)		12	NA	204	-101	115.4167	NR	NA
Static Water Level	(ft - toc)		12	NA	-3.82	-7.85	-5.92667	NR	NA
Temperature, field measurement	(Deg C)		12	NA	19.8	9.9	15.625	NR	NA
Alkalinity as HCO3	(mg/L)		12	12	268	161	229.8333	NR	NA
Conductivity	(umhos/cm)		12	12	648	426	519.0833	NR	NA
Dissolved Solids	(mg/L)		12	12	434	232	320.6667	500	0
pH	(pH)		12	12	7.84	6.62 L	7.316667	6.5/8.5	0
Total Suspended Solids	(mg/L)		12	5	7.5	1.5	3.9	NR	NA
Turbidity	(NTU)		12	12	16.6	0.06	3.853083	1	8
Cesium-137, Y-12 lab	(pCi/L)	Filtered	3	3	4.3	3.4	3.766667	120	0
Cesium-137, Y-12 lab	(pCi/L)	Filtered	1	1	4	4	4	120	0
Lead-212, Y-12 lab	(pCi/L)	Filtered	1	1	7.3	7.3	7.3	NR	NA
Radium - Total Alpha, Y-12 lab	(pCi/L)	Filtered	3	3	0.16	-0.15	0.011333	5.9	0
Radium-228, Y-12 lab	(pCi/L)	Filtered	3	3	-1.4	-3.1	-2.13333	5.9	0
Thorium-228, Y-12 lab	(pCi/L)	Filtered	3	3	0.12	-0.02	0.054333	16	0
Thorium-230, Y-12 lab	(pCi/L)	Filtered	3	3	0.61	0.25	0.42	12	0
Thorium-232, Y-12 lab	(pCi/L)	Filtered	3	3	0.046	-0.018	0.009333	2	0
Protactinium-234, Y-12 lab	(pCi/L)	Filtered	3	3	440	100 ?	323.3333	NR	NA
Protactinium-234, Y-12 lab	(pCi/L)	Filtered	1	1	71	71	71	NR	NA
Uranium-234, Y-12 lab	(pCi/L)	Filtered	3	3	2.1	0.072	0.770667	20	0
Uranium-235, Y-12 lab	(pCi/L)	Filtered	3	3	0.17	0	0.074667	24	0
Uranium-236, Y-12 lab	(pCi/L)	Filtered	3	3	0	-0.075	-0.025	NR	NA
Neptunium-237, Y-12 lab	(pCi/L)	Filtered	3	3	0.21	0	0.075	1.2	0
Plutonium-238, Y-12 lab	(pCi/L)	Filtered	3	3	-0.021	-0.091	-0.06233	1.6	0
Uranium-238, Y-12 lab	(pCi/L)	Filtered	3	3	1.1	-0.05	0.406667	24	0
Plutonium-239, Y-12 lab	(pCi/L)	Filtered	3	3	0.091	-0.014	0.025667	1.2	0
Americium-241, Y-12 lab	(pCi/L)	Filtered	3	3	0.041	-0.033	0.012667	1.2	0
Cobalt-60, Y-12 lab	(pCi/L)	Filtered	1	1	7.9	7.9	7.9	200	0

Table 2.69 (continued)

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
Strontium-89/90, Y-12 lab	(pCi/L)	Filtered	3	3	0.25	-0.5	-0.02	8	0
Technetium-99, Y-12 lab	(pCi/L)	Filtered	3	3	8	3	5.333333	4000	0
Gross Alpha	(pCi/L)	Filtered	9	9	1.87	-1.23	0.439722	15 f	0
Gross Alpha, Y-12 lab	(pCi/L)	Filtered	3	3	6.4	-0.42	2.063333	15 f	0
Gross Beta	(pCi/L)	Filtered	9	9	6.86	-1.23	2.298556	50 a	0
Gross Beta, Y-12 lab	(pCi/L)	Filtered	3	3	4.2	0.94	2.113333	50 a	0
Tritium, Y-12 lab	(pCi/L)		3	3	1.8	-100	-57.0667	20000	0
2-Butanone	(ug/L)		12	2	4 BJ	3 BJ	3.5	NR	NA
Acetone	(ug/L)		12	2	2 BJ	1 BJ	1.5	NR	NA

Table 2.70. Constituents Detected in Groundwater at the Y-12 Plant for 1996

REGIME=EF AREA NAME=GW Monitoring Plan Grid Location K3

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
Chloride	(mg/L)		4	4	4.31	3.26	3.9075	250	0
Fluoride	(mg/L)		4	4	0.15	0.12	0.135		2
Nitrate Nitrogen	(mg/L)		4	3	0.39	0.03	0.153333		10
Sulfate	(mg/L)		4	4	32.9	13.6	21.175	250	0
Aluminum, ICAP	(mg/L)	Filtered	4	4	1	0.47	0.6775	0.2	4
Aluminum, ICAP	(mg/L)		4	3	0.062	0.032	0.046	0.2	0
Barium, ICAP	(mg/L)		4	4	0.23	0.16	0.195	2	0
Barium, ICAP	(mg/L)	Filtered	4	4	0.23	0.15	0.19	2	0
Beryllium, ICAP	(mg/L)		4	1	0.01	0.01	0.01	0.004	1
Boron, ICAP	(mg/L)		4	4	0.043	0.01	0.0305	NR	NA
Boron, ICAP	(mg/L)		4	4	0.096	0.0097	0.045175	NR	NA
Cadmium, ICAP	(mg/L)	Filtered	4	1	0.01	0.01	0.01	0.005	1
Calcium, ICAP	(mg/L)		4	4	69	49	61.5	NR	NA
Calcium, ICAP	(mg/L)	Filtered	4	4	65	52	60.5	NR	NA
Chromium, ICAP	(mg/L)		4	1	0.016	0.016	0.016	0.1	0
Chromium, ICAP	(mg/L)	Filtered	4	1	0.03	0.03	0.03	0.1	0
Cobalt, ICAP	(mg/L)		4	1	0.011	0.011	0.011	NR	NA
Copper, ICAP	(mg/L)		4	1	0.015	0.015	0.015	1	0
Iron, ICAP	(mg/L)		4	4	0.67	0.36	0.46	0.3	4
Iron, ICAP	(mg/L)	Filtered	4	3	0.2	0.02	0.14	0.3	0
Lead, ICP/MS	(mg/L)		2	2	0.0011	0.00051	0.000805	NR	NA
Lead, ICP/MS	(mg/L)	Filtered	2	1	0.00062	0.00062	0.00062	NR	NA
Lithium, ICAP	(mg/L)		4	4	0.024	0.007	0.01175	NR	NA
Lithium, ICAP	(mg/L)	Filtered	4	4	0.012	0.0056	0.0083	NR	NA
Magnesium, ICAP	(mg/L)		4	4	7.6	5.4	6.8	NR	NA
Magnesium, ICAP	(mg/L)	Filtered	4	4	7.1	5.6	6.575	NR	NA
Manganese, ICAP	(mg/L)		4	4	0.08	0.017	0.04525	0.05	1
Manganese, ICAP	(mg/L)	Filtered	4	4	0.071	0.0024	0.02585	0.05	1
Molybdenum, ICAP	(mg/L)		4	1	0.015	0.015	0.015	NR	NA
Molybdenum, ICAP	(mg/L)	Filtered	4	1	0.021	0.021	0.021	NR	NA
Nickel, ICAP	(mg/L)		4	1	0.012	0.012	0.012	0.1 d	0
Potassium, ICAP	(mg/L)		4	4	5.7	3.7	4.425	NR	NA

Table 2.70 (continued)

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
Potassium, ICAP	(mg/L)	Filtered	4	4	4.9	3.6	4.275	NR	NA
Selenium, ICAP	(mg/L)		4	1	0.053	0.053	0.053	0.05	1
Silver, ICAP	(mg/L)		4	1	0.012	0.012	0.012	0.1	0
Sodium, ICAP	(mg/L)		4	4	26	13	19	NR	NA
Sodium, ICAP	(mg/L)	Filtered	4	4	26	12	18.25	NR	NA
Strontium, ICAP	(mg/L)		4	4	0.18	0.15	0.165	NR	NA
Strontium, ICAP	(mg/L)	Filtered	4	4	0.18	0.14	0.155	NR	NA
Uranium, ICP/MS	(mg/L)		4	4	0.003	0.00052	0.00168	NR	NA
Uranium, ICP/MS	(mg/L)	Filtered	4	3	0.0029	0.00097	0.00199	NR	NA
Vanadium, ICAP	(mg/L)		4	1	0.0084	0.0084	0.0084	NR	NA
Zinc, ICAP	(mg/L)		4	3	0.011	0.0072	0.009067	5	0
Zinc, ICAP	(mg/L)	Filtered	4	3	0.017	0.0079	0.011067	5	0
Conductivity, field measurement	(umhos/cm)		4	NA	425	368	392	NR	NA
Dissolved Oxygen, field measure	(ppm)		4	NA	6	1	2.875	NR	NA
pH, field measurement	(pH)		4	NA	8.4	7	7.525	6.5/8.5	0
REDOX, field measurement	(mV)		4	NA	143	51	100	NR	NA
Static Water Level	(ft - toc)		4	NA	-6.12	-7.82	-7.1175	NR	NA
Temperature, field measurement (Deg C)	(Deg C)		4	NA	17.6	15.1	16.05	NR	NA
Alkalinity as HCO3	(mg/L)		4	4	225	194	209	NR	NA
Conductivity	(umhos/cm)		4	4	462	391	434.75	NR	NA
Dissolved Solids	(mg/L)		4	4	318	250	277.5	500	0
pH	(pH)		4	4	7.93	7.4 L	7.7025	6.5/8.5	0
Total Suspended Solids	(mg/L)		4	4	14	4	8.625	NR	NA
Turbidity	(NTU)		4	4	25.5	13.1	18.4	1	4
Gross Alpha	(pCi/L)		4	4	7.94	0.922	3.1355	15 f	0
Gross Beta	(pCi/L)		4	4	7.71	0.591	4.13775	50 a	0

Table 2.71. Constituents Detected in Groundwater at the Y-12 Plant for 1996

REGIME=EF AREA NAME=Grid J Primary

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
Chloride	(mg/L)		4	4	48.6	45.8	47.275	250	0
Fluoride	(mg/L)		4	4	0.2	0.12	0.16	2	0
Sulfate	(mg/L)		4	4	2.54	1.15	1.9725	250	0
Aluminum, ICAP	(mg/L)		4	4	1.1	0.11	0.605	0.2	3
Aluminum, ICAP	(mg/L)	Filtered	4	2	0.067	0.025	0.046	0.2	0
Arsenic, ICP/MS	(mg/L)		1	1	0.0061	0.0061	0.0061	NR	NA
Arsenic, ICP/MS	(mg/L)	Filtered	1	1	0.0063	0.0063	0.0063	NR	NA
Barium, ICAP	(mg/L)		4	4	0.092	0.08	0.08675	2	0
Barium, ICAP	(mg/L)	Filtered	4	4	0.085	0.078	0.08125	2	0
Boron, ICAP	(mg/L)		4	4	0.29	0.024	0.1035	NR	NA
Boron, ICAP	(mg/L)	Filtered	4	4	0.056	0.027	0.03725	NR	NA
Calcium, ICAP	(mg/L)		4	4	120	100	115	NR	NA
Calcium, ICAP	(mg/L)	Filtered	4	4	110	110	110	NR	NA
Chromium, ICAP	(mg/L)	Filtered	4	1	0.011	0.011	0.011	0.1	0
Copper, ICAP	(mg/L)		4	2	0.0045	0.0043	0.0044	1	0
Iron, ICAP	(mg/L)		4	4	20	16	18	0.3	4
Iron, ICAP	(mg/L)	Filtered	4	4	18	7.5	13.875	0.3	4
Lead, ICP/MS	(mg/L)		2	2	0.00093	0.00062	0.000775	NR	NA
Lithium, ICAP	(mg/L)	Filtered	4	1	0.0044	0.0044	0.0044	NR	NA
Magnesium, ICAP	(mg/L)		4	4	14	12	12.75	NR	NA
Magnesium, ICAP	(mg/L)	Filtered	4	4	13	12	12.75	NR	NA
Manganese, ICAP	(mg/L)		4	4	1.4	1.1	1.275	0.05	4
Manganese, ICAP	(mg/L)	Filtered	4	4	1.4	1.1	1.25	0.05	4
Nickel, ICAP	(mg/L)	Filtered	4	1	0.013	0.013	0.013	0.1 d	0
Potassium, ICAP	(mg/L)		4	4	2.2	0.88	1.29	NR	NA
Potassium, ICAP	(mg/L)	Filtered	4	3	2.4	1	1.5	NR	NA
Sodium, ICAP	(mg/L)		4	4	11	9.6	10.4	NR	NA
Sodium, ICAP	(mg/L)	Filtered	4	4	11	9.9	10.475	NR	NA
Strontium, ICAP	(mg/L)		4	4	0.27	0.22	0.2425	NR	NA
Strontium, ICAP	(mg/L)	Filtered	4	4	0.25	0.22	0.24	NR	NA
Uranium, ICP/MS	(mg/L)		4	1	0.0015	0.0015	0.0015	NR	NA
Zinc, ICAP	(mg/L)		4	4	0.092	0.0061	0.047275	5	0

Table 2.71 (continued)

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
Zinc, ICAP	(mg/L)	Filtered	4	4	0.14	0.004	0.07375	5	0
Conductivity, field measurement	(umhos/cm)		4	NA	725	647	680	NR	NA
Dissolved Oxygen, field measure	(ppm)		4	NA	4.9	1.4	2.725	NR	NA
pH, field measurement	(pH)		4	NA	6.8	6.6	6.725	6.5/8.5	0
REDOX, field measurement	(mV)		4	NA	20	-75	-33.25	NR	NA
Static Water Level	(ft - toc)		4	NA	-8.51	-9.94	-9.455	NR	NA
Temperature, field measurement	(Deg C)		4	NA	22.1	17.9	19.35	NR	NA
Alkalinity as HCO3	(mg/L)		4	4	317	307	312.25	NR	NA
Conductivity	(umhos/cm)		4	4	746	720	732.75	NR	NA
Dissolved Solids	(mg/L)		4	4	416	298	379.5	500	0
pH	(pH)		4	4	9.93	6.51 L	7.5825	6.5/8.5	1
Total Suspended Solids	(mg/L)		4	4	47	25	40.75	NR	NA
Turbidity	(NTU)		4	4	195	82.2	146.55	1	4
Gross Alpha	(pCi/L)		4	4	4.22	0	1.28945	15 f	0
Gross Beta	(pCi/L)		4	4	1.62	-3.55	-0.67413	50 a	0
1,1-Dichloroethane	(ug/L)		4	1	1 J	1 J	1	NR	NA
1,1-Dichloroethene	(ug/L)		4	4	4 J	2 J	2.5	7	0
1,2-Dichloroethene (Total)	(ug/L)		3	3	78	75	76.33333	NR b	NA
2-Butanone	(ug/L)		4	1	4 BJ	4 BJ	4	NR	NA
Acetone	(ug/L)		4	1	3 BJ	3 BJ	3	NR	NA
cis-1,2-Dichloroethene	(ug/L)		1	1	150	150	150	70	1
Tetrachloroethene	(ug/L)		4	4	59 B	18	30	5	4
trans-1,2-Dichloroethene	(ug/L)		1	1	2 J	2 J	2	100	0
Trichloroethene	(ug/L)		4	4	12	5 J	7	5	2
Vinyl chloride	(ug/L)		4	4	26	12	15.75	2	4

Table 2.72. Constituents Detected in Groundwater at the Y-12 Plant for 1996

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
Chloride	(mg/L)		52	52	198	1.96	33.07615	250	0
Fluoride	(mg/L)		52	41	2.7	0.1	0.416585	2	4
Nitrate Nitrogen	(mg/L)		52	27	1.68	0.03	0.798889	10	0
Sulfate	(mg/L)		52	52	108	5.86	25.59	250	0
Aluminum, ICAP	(mg/L)		52	39	8.5	0.023	0.677	0.2	22
Aluminum, ICAP	(mg/L)	Filtered	52	31	0.3	0.022	0.059419	0.2	1
Arsenic, ICP/MS	(mg/L)		13	3	0.0066	0.0054	0.005933	NR	NA
Arsenic, ICP/MS	(mg/L)	Filtered	13	3	0.0062	0.0055	0.005967	NR	NA
Arsenic, ICAP	(mg/L)		52	1	0.054	0.054	0.054	0.05	1
Arsenic, ICAP	(mg/L)	Filtered	52	1	0.058	0.058	0.058	0.05	1
Barium, ICAP	(mg/L)		52	52	0.57	0.029	0.218923	2	0
Barium, ICAP	(mg/L)	Filtered	52	52	0.57	0.028	0.214212	2	0
Beryllium, ICAP	(mg/L)		52	5	0.0016	0.00053	0.000886	0.004	0
Boron, ICAP	(mg/L)		52	52	0.88	0.018	0.156865	NR	NA
Boron, ICAP	(mg/L)	Filtered	52	52	1	0.014	0.159558	NR	NA
Calcium, ICAP	(mg/L)		52	52	160	1	72.59808	NR	NA
Calcium, ICAP	(mg/L)	Filtered	52	52	160	0.96	71.04923	NR	NA
Chromium, ICAP	(mg/L)		52	8	0.83	0.012	0.279	0.1	5
Chromium, ICAP	(mg/L)	Filtered	52	2	0.021	0.015	0.018	0.1	0
Cobalt, ICAP	(mg/L)		52	4	0.014	0.0074	0.01075	NR	NA
Cobalt, ICAP	(mg/L)	Filtered	52	1	0.024	0.024	0.024	NR	NA
Copper, ICAP	(mg/L)		52	11	0.091	0.0048	0.014864	1	0
Copper, ICAP	(mg/L)	Filtered	52	7	0.062	0.0042	0.015457	1	0
Iron, ICAP	(mg/L)		52	50	9.2	0.016	1.08462	0.3	36
Iron, ICAP	(mg/L)	Filtered	52	45	6.7	0.0061	0.52932	0.3	18
Lead, ICP/MS	(mg/L)		26	17	0.0034	0.00054	0.001361	NR	NA
Lead, ICP/MS	(mg/L)	Filtered	26	10	0.0026	0.00054	0.000955	NR	NA
Lead, ICAP	(mg/L)		52	1	0.052	0.052	0.052	0.015 c	1
Lithium, ICAP	(mg/L)		52	43	0.11	0.004	0.022502	NR	NA
Lithium, ICAP	(mg/L)	Filtered	52	37	0.11	0.0046	0.024951	NR	NA
Magnesium, ICAP	(mg/L)		52	52	28	0.28	14.9425	NR	NA
Magnesium, ICAP	(mg/L)	Filtered	52	52	26	0.23	14.69077	NR	NA

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Table 2.72 (continued)

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
Manganese, ICAP	(mg/L)		52	50	0.97	0.001	0.24044	0.05	38
Manganese, ICAP	(mg/L)	Filtered	52	49	1	0.001	0.205549	0.05	27
Mercury, CVAA	(mg/L)		52	1	0.00034	0.00034	0.00034	0.002	0
Nickel, ICAP	(mg/L)		52	6	0.8	0.015	0.3375	0.1 d	5
Nickel, ICAP	(mg/L)	Filtered	52	5	1.4	0.026	0.3912	0.1 d	4
Potassium, ICAP	(mg/L)		52	52	8.2	1.3	3.313462	NR	NA
Potassium, ICAP	(mg/L)	Filtered	52	52	8.8	0.8	3.232692	NR	NA
Selenium, ICAP	(mg/L)		52	1	0.076	0.076	0.076	0.05	1
Selenium, ICAP	(mg/L)	Filtered	52	3	0.084	0.052	0.065667	0.05	3
Silver, ICAP	(mg/L)		52	2	0.0074	0.0068	0.0071	0.1	0
Silver, ICAP	(mg/L)	Filtered	52	4	0.29	0.007	0.092875	0.1	1
Sodium, ICAP	(mg/L)		52	52	210	3.2	37.2	NR	NA
Sodium, ICAP	(mg/L)	Filtered	52	52	210	3.7	36.89423	NR	NA
Strontium, ICAP	(mg/L)		52	52	1.2	0.042	0.359577	NR	NA
Strontium, ICAP	(mg/L)	Filtered	52	52	1.2	0.045	0.358615	NR	NA
Thallium, ICP/MS	(mg/L)		26	1	0.00056	0.00056	0.00056	NR	NA
Uranium, ICP/MS	(mg/L)		52	29	0.47	0.00052	0.069518	NR	NA
Uranium, ICP/MS	(mg/L)	Filtered	52	28	0.46	0.0011	0.065568	NR	NA
Vanadium, ICAP	(mg/L)		52	1	0.011	0.011	0.011	NR	NA
Zinc, ICAP	(mg/L)		52	47	0.072	0.002	0.011028	5	0
Zinc, ICAP	(mg/L)	Filtered	52	50	0.08	0.002	0.01058	5	0
Conductivity, field measurement	(umhos/cm)		52	NA	870	352	564.9615	NR	NA
Dissolved Oxygen, field measure	(ppm)		52	NA	15.1	0.3	3.509615	NR	NA
pH, field measurement	(pH)		52	NA	9.7	5	7.215385	6.5/8.5	11
REDOX, field measurement	(mV)		52	NA	217	-44	94.32692	NR	NA
Static Water Level	(ft - toc)		52	NA	-2.35	-21.52	-10.9213	NR	NA
Temperature, field measurement	(Deg C)		52	NA	24.3	10	16.43077	NR	NA
Alkalinity as CO3	(mg/L)		52	4	56	48	52	NR	NA
Alkalinity as HCO3	(mg/L)		52	52	374	158	257.2308	NR	NA
Conductivity	(umhos/cm)		52	52	1013	398	635.1731	NR	NA
Dissolved Solids	(mg/L)		52	52	594	130	367.0385	500	5
pH	(pH)		52	52	9.19 L	6.21 L	7.367115	6.5/8.5	6
Total Suspended Solids	(mg/L)		52	31	297	1	22.14516	NR	NA
Turbidity	(NTU)		52	52	257	0.118	24.7716	1	47
Cesium-137, Y-12 lab	(pCi/L)	Filtered	1	1	4.9	4.9	4.9	120	0

Table 2.72 (continued)

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
Thallium-208, Y-12 lab	(pCi/L)	Filtered	1	1	11	11	11	NR	NA
Radium - Total Alpha, Y-12 lab	(pCi/L)	Filtered	1	1	0.19	0.19	0.19	5 g	0
Radium-228, Y-12 lab	(pCi/L)	Filtered	1	1	-1.4	-1.4	-1.4	5 g	0
Thorium-228, Y-12 lab	(pCi/L)	Filtered	1	1	0.18	0.18	0.18	16	0
Thorium-230, Y-12 lab	(pCi/L)	Filtered	1	1	0.38	0.38	0.38	12	0
Thorium-231+234, Y-12 lab	(pCi/L)	Filtered	1	1	87	87	87	400	0
Thorium-232, Y-12 lab	(pCi/L)	Filtered	1	1	0.011	0.011	0.011	2	0
Protactinium-234, Y-12 lab	(pCi/L)	Filtered	1	1	4.3	4.3	4.3	NR	NA
Uranium-234, Y-12 lab	(pCi/L)	Filtered	1	1	520	520	520	20	1
Protactinium-234m, Y-12 lab	(pCi/L)	Filtered	1	1	650	650	650	2800	0
Uranium-235, Y-12 lab	(pCi/L)	Filtered	1	1	19	19	19	24	0
Uranium-236, Y-12 lab	(pCi/L)	Filtered	1	1	3.1	3.1	3.1	NR	NA
Neptunium-237, Y-12 lab	(pCi/L)	Filtered	1	1	-0.027	-0.027	-0.027	1.2	0
Plutonium-238, Y-12 lab	(pCi/L)	Filtered	1	1	-0.004	-0.004	-0.004	1.6	0
Plutonium-239, Y-12 lab	(pCi/L)	Filtered	1	1	180	180	180	24	1
Americium-241, Y-12 lab	(pCi/L)	Filtered	1	1	-0.07	-0.07	-0.07	1.2	0
Strontium-89/90, Y-12 lab	(pCi/L)	Filtered	1	1	0.017	0.017	0.017	1.2	0
Technetium-99, Y-12 lab	(pCi/L)	Filtered	1	1	0.08	0.08	0.08	8	0
Gross Alpha	(pCi/L)	Filtered	51	51	447	-2.49	24.06278	4000	0
Gross Beta	(pCi/L)	Filtered	51	51	108	-6.71	6.945882	15 f	7
Tritium, Y-12 lab	(ug/L)	Filtered	52	1	110	110	110	15 f	1
1,1-Dichloroethene	(ug/L)	Filtered	52	1	2 J	2 J	2	50 a	3
1,2-Dichloroethene (Total)	(ug/L)	Filtered	48	17	120	2 J	26.41176	50 a	1
2-Butanone	(ug/L)	Filtered	52	6	11 B	3 BJ	5.666667	NR	NA
Acetone	(ug/L)	DILUTED	52	6	16 JB	1 BJ	5.166667	NR	NA
Carbon tetrachloride	(ug/L)	DILUTED	2	1	57 BD	57 BD	57	NR	NA
Carbon tetrachloride	(ug/L)	DILUTED	52	25	750 E	1 J	182.92	5	20
Chloroform	(ug/L)	DILUTED	2	2	410 D	400 D	405	5	2
Chloroform	(ug/L)	DILUTED	52	19	48	1 J	12.94737	100 i	0
cis-1,2-Dichloroethene	(ug/L)	DILUTED	2	2	20 JD	18 JD	19	100 i	0
Tetrachloroethene	(ug/L)	DILUTED	15	6	120	2 J	32.5	70	1
Tetrachloroethene	(ug/L)	DILUTED	52	26	500 D	1 J	121.5769	5	21

Table 2.72 (continued)

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
Tetrachloroethene	(ug/L)	DILUTED	2	2	24 JD	21 JD	22.5	5	2
trans-1,2-Dichloroethene	(ug/L)		15	1	2 J	2 J	2	100	0
Trichloroethene	(ug/L)		52	20	200	1 J	47.9	5	13
Trichloroethene	(ug/L)	DILUTED	2	2	4 JD	4 JD	4	5	0
Vinyl chloride	(ug/L)		52	1	2 J	2 J	2	2	0

Table 2.73. Constituents Detected in Groundwater at the Y-12 Plant for 1996

REGIME=EF AREA NAME=S-2 Site

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
Chloride	(mg/L)		4	4	89.9	6.01	28.4825	250	0
Fluoride	(mg/L)		4	4	5.89	1.3	2.505	2	1
Nitrate Nitrogen	(mg/L)		4	4	535	44.7	183.525	10	4
Sulfate	(mg/L)		4	4	67.8	15.4	31.5	250	0
Aluminum, ICAP	(mg/L)		4	4	5.6	0.68	3.17	0.2	4
Aluminum, ICAP	(mg/L)	Filtered	4	4	5.4	0.054	1.40025	0.2	1
Barium, ICAP	(mg/L)		4	4	0.27	0.081	0.15025	2	0
Barium, ICAP	(mg/L)	Filtered	4	4	0.26	0.074	0.141	2	0
Beryllium, ICAP	(mg/L)		4	4	0.01	0.00038	0.002965	0.004	1
Beryllium, ICAP	(mg/L)	Filtered	4	2	0.01	0.00054	0.00527	0.004	1
Boron, ICAP	(mg/L)		4	4	0.35	0.0081	0.109525	NR	NA
Boron, ICAP	(mg/L)	Filtered	4	4	0.35	0.0054	0.10485	NR	NA
Cadmium, ICAP	(mg/L)		4	4	3.5	0.079	0.97225	0.005	4
Cadmium, ICAP	(mg/L)	Filtered	4	4	3.5	0.079	0.96975	0.005	4
Calcium, ICAP	(mg/L)		4	4	350	86	169	NR	NA
Calcium, ICAP	(mg/L)	Filtered	4	4	340	86	166.5	NR	NA
Cobalt, ICAP	(mg/L)		4	4	0.33	0.011	0.10025	NR	NA
Cobalt, ICAP	(mg/L)	Filtered	4	4	0.32	0.012	0.09725	NR	NA
Copper, ICAP	(mg/L)		4	4	72	0.25	18.31	1	1
Copper, ICAP	(mg/L)	Filtered	4	4	71	0.21	17.995	1	1
Iron, ICAP	(mg/L)		4	4	3.8	0.094	1.446	0.3	2
Iron, ICAP	(mg/L)	Filtered	4	2	0.0072	0.0069	0.00705	0.3	0
Lead, AAS	(mg/L)		1	1	0.045	0.045	0.045	0.015 c	1
Lead, AAS	(mg/L)	Filtered	1	1	0.044	0.044	0.044	0.015 c	1
Lead, ICP/MS	(mg/L)		1	1	0.005	0.005	0.005	NR	NA
Lead, ICP/MS	(mg/L)	Filtered	1	1	0.0013	0.0013	0.0013	NR	NA
Lithium, ICAP	(mg/L)		4	4	0.073	0.0051	0.023325	NR	NA
Lithium, ICAP	(mg/L)	Filtered	4	2	0.068	0.0042	0.0361	NR	NA
Magnesium, ICAP	(mg/L)		4	4	90	14	35.75	NR	NA
Magnesium, ICAP	(mg/L)	Filtered	4	4	89	14	35	NR	NA
Manganese, ICAP	(mg/L)		4	4	41	2.1	13.15	0.05	4

Table 2.73 (continued)

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
Manganese, ICAP	(mg/L)	Filtered	4	4	41	2.1	13.025	0.05	4
Mercury, CVAA	(mg/L)		4	1	0.0084	0.0084	0.0084	0.002	1
Mercury, CVAA	(mg/L)	Filtered	4	1	0.0067	0.0067	0.0067	0.002	1
Nickel, ICAP	(mg/L)		4	4	2.1	0.02	0.5545	0.1 d	1
Nickel, ICAP	(mg/L)	Filtered	4	4	2.1	0.019	0.55125	0.1 d	1
Potassium, ICAP	(mg/L)		4	4	5.7	3	4.325	NR	NA
Potassium, ICAP	(mg/L)	Filtered	4	4	5.7	3.1	3.8	NR	NA
Silver, ICAP	(mg/L)		4	1	0.021	0.021	0.021	0.1	0
Silver, ICAP	(mg/L)	Filtered	4	1	0.019	0.019	0.019	0.1	0
Sodium, ICAP	(mg/L)		4	4	97	11	36.25	NR	NA
Sodium, ICAP	(mg/L)	Filtered	4	4	98	11	36.25	NR	NA
Strontium, ICAP	(mg/L)		4	4	0.87	0.16	0.3675	NR	NA
Strontium, ICAP	(mg/L)	Filtered	4	4	0.86	0.15	0.36	NR	NA
Thallium, ICP/MS	(mg/L)		1	1	0.0018	0.0018	0.0018	NR	NA
Thallium, ICP/MS	(mg/L)	Filtered	1	1	0.0018	0.0018	0.0018	NR	NA
Uranium, ICP/MS	(mg/L)		4	4	0.009	0.0043	0.006725	NR	NA
Uranium, ICP/MS	(mg/L)	Filtered	4	4	0.0082	0.0037	0.0057	NR	NA
Zinc, ICAP	(mg/L)		4	4	5.1	0.039	1.32675	5	1
Zinc, ICAP	(mg/L)	Filtered	4	4	5.1	0.033	1.3175	5	1
Conductivity, field measurement	(umhos/cm)		4	NA	3980	605	1622.5	NR	NA
Dissolved Oxygen, field measure	(ppm)		4	NA	2.2	1	1.525	NR	NA
pH, field measurement	(pH)		4	NA	6.6	5.1	6.1	6.5/8.5	2
REDOX, field measurement	(mV)		4	NA	260	191	227	NR	NA
Static Water Level	(ft - toc)		5	NA	-2.23	-22.65	-11.86	NR	NA
Temperature, field measurement	(Deg C)		4	NA	17.3	14.6	16.125	NR	NA
Alkalinity as HCO3	(mg/L)		4	4	184	60	125.75	NR	NA
Conductivity	(umhos/cm)		4	4	4730	763	1896.25	NR	NA
Dissolved Solids	(mg/L)		4	4	3284	460	1330.5	500	3
pH	(pH)		4	4	6.74 L	5.54 L	6.3375	6.5/8.5	2
Total Suspended Solids	(mg/L)		4	4	42	1.5	19.125	NR	NA
Turbidity	(NTU)		4	4	61	5.74	31.56	1	4
Cesium-137, Y-12 lab	(pCi/L)	Filtered	2	2	4.5	1.8	3.15	120	0
Lead-212, Y-12 lab	(pCi/L)	Filtered	2	2	11	7.1	9.05	NR	NA
Lead-214, Y-12 lab	(pCi/L)	Filtered	1	1	18	18	18	NR	NA
Radium - Total Alpha, Y-12 lab	(pCi/L)	Filtered	2	2	20	2.9	11.45	5.9	1

Table 2.73 (continued)

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
Radium-228, Y-12 lab	(pCi/L)	Filtered	2	2	15	-1.6	6.7	59	1
Thorium-228, Y-12 lab	(pCi/L)	Filtered	2	2	0.42	0.17	0.295	16	0
Thorium-230, Y-12 lab	(pCi/L)	Filtered	2	2	0.54	0.22	0.38	12	0
Thorium-232, Y-12 lab	(pCi/L)	Filtered	2	2	0.082	0.032	0.057	2	0
Protactinium-234, Y-12 lab	(pCi/L)	Filtered	2	2	21	-4.4	8.3	NR	NA
Uranium-234	(pCi/L)	Filtered	1	1	15.1	15.1	15.1	20	0
Uranium-234, Y-12 lab	(pCi/L)	Filtered	2	2	14	10	12	20	0
Protactinium-234m, Y-12 lab	(pCi/L)	Filtered	2	2	330	180	255	2800	0
Uranium-235	(pCi/L)	Filtered	1	1	0.43	0.43	0.43	24	0
Uranium-235, Y-12 lab	(pCi/L)	Filtered	2	2	0.38	0.27	0.325	24	0
Uranium-236, Y-12 lab	(pCi/L)	Filtered	2	2	0	-0.018	-0.009	NR	NA
Neptunium-237, Y-12 lab	(pCi/L)	Filtered	2	2	0	0	0	1.2	0
Plutonium-238, Y-12 lab	(pCi/L)	Filtered	2	2	0.078	0.043	0.0605	1.6	0
Uranium-238	(pCi/L)	Filtered	1	1	4.53	4.53	4.53	24	0
Uranium-238, Y-12 lab	(pCi/L)	Filtered	2	2	3.8	3.5	3.65	24	0
Plutonium-239, Y-12 lab	(pCi/L)	Filtered	2	2	-0.023	-0.07	-0.0465	1.2	0
Americium-241, Y-12 lab	(pCi/L)	Filtered	2	2	0.1	0.068	0.084	1.2	0
Strontium-89/90	(pCi/L)	Filtered	1	1	2.6	2.6	2.6	8	0
Strontium-89/90, Y-12 lab	(pCi/L)	Filtered	2	2	-0.06	-0.11	-0.085	8	0
Technetium-99	(pCi/L)	Filtered	1	1	2	2	2	4000	0
Technetium-99, Y-12 lab	(pCi/L)	Filtered	2	2	-14	-18	-16	4000	0
Gross Alpha	(pCi/L)	Filtered	3	3	47.1	6.77	20.94333	15f	1
Gross Alpha, Y-12 lab	(pCi/L)	Filtered	2	2	33	11	22	15f	1
Gross Beta	(pCi/L)	Filtered	3	3	34.4	1.43	13.93333	50 a	0
Gross Beta, Y-12 lab	(pCi/L)	Filtered	2	2	28	6.3	17.15	50 a	0
Tritium, Y-12 lab	(pCi/L)	Filtered	2	2	-2	-76	-39	20000	0
1,2-Dichloroethene (Total)	(ug/L)	Filtered	4	3	140	5 J	50	NR b	NA
Carbon tetrachloride	(ug/L)	Filtered	4	3	18 J	5 J	9.333333	5	1
Chlorodibromomethane	(ug/L)	Filtered	4	1	140	140	140	100 i	1
Chloroform	(ug/L)	Filtered	4	4	30 J	8 J	14	100 i	0
Tetrachloroethene	(ug/L)	Filtered	4	4	510	130	247.5	5	4
Trichloroethene	(ug/L)	Filtered	4	4	310	40	125.5	5	4
Vinyl chloride	(ug/L)	Filtered	4	1	16 J	16 J	16	2	1

Table 2.74. Constituents Detected in Groundwater at the Y-12 Plant for 1996

REGIME=EF AREA NAME=S-3 Site

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
Chloride	(mg/L)		1	1	116	116	116	250	0
Nitrate Nitrogen	(mg/L)		1	1	10900	10900	10900	10	1
Sulfate	(mg/L)		1	1	2.1	2.1	2.1	250	0
Aluminum, ICAP	(mg/L)		1	1	1.2	1.2	1.2	0.2	1
Arsenic, ICP/MS	(mg/L)		1	1	0.014	0.014	0.014	NR	NA
Arsenic, ICP/MS	(mg/L)	Filtered	1	1	0.0073	0.0073	0.0073	NR	NA
Barium, ICAP	(mg/L)		1	1	130	130	130	2	1
Barium, ICAP	(mg/L)	Filtered	1	1	130	130	130	2	1
Calcium, ICAP	(mg/L)		1	1	15000	15000	15000	NR	NA
Calcium, ICAP	(mg/L)	Filtered	1	1	15000	15000	15000	NR	NA
Lead, ICP/MS	(mg/L)		1	1	0.0012	0.0012	0.0012	NR	NA
Lead, ICP/MS	(mg/L)	Filtered	1	1	0.00084	0.00084	0.00084	NR	NA
Lithium, ICAP	(mg/L)		1	1	0.33	0.33	0.33	NR	NA
Lithium, ICAP	(mg/L)	Filtered	1	1	0.32	0.32	0.32	NR	NA
Magnesium, ICAP	(mg/L)		1	1	1400	1400	1400	NR	NA
Magnesium, ICAP	(mg/L)	Filtered	1	1	1400	1400	1400	NR	NA
Manganese, ICAP	(mg/L)		1	1	130	130	130	NR	NA
Manganese, ICAP	(mg/L)	Filtered	1	1	130	130	130	0.05	1
Sodium, ICAP	(mg/L)		1	1	580	580	580	NR	NA
Sodium, ICAP	(mg/L)	Filtered	1	1	590	590	590	NR	NA
Strontium, ICAP	(mg/L)		1	1	45	45	45	NR	NA
Strontium, ICAP	(mg/L)	Filtered	1	1	45	45	45	NR	NA
Uranium, ICP/MS	(mg/L)		1	1	0.016	0.016	0.016	NR	NA
Uranium, ICP/MS	(mg/L)	Filtered	1	1	0.017	0.017	0.017	NR	NA
Conductivity, field measurement	(umhos/cm)		1	NA	45600	45600	45600	NR	NA
Dissolved Oxygen, field measure	(ppm)		1	NA	1.5	1.5	1.5	NR	NA
pH, field measurement	(pH)		1	NA	5.7	5.7	5.7	6.5/8.5	1
REDOX, field measurement	(mV)		1	NA	130	130	130	NR	NA
Static Water Level	(ft - toc)		2	NA	-8.32	-8.42	-8.37	NR	NA
Temperature, field measurement	(Deg C)		1	NA	17.2	17.2	17.2	NR	NA
Alkalinity as HCO3	(mg/L)		1	1	672	672	672	NR	NA
Conductivity	(umhos/cm)		1	1	53700	53700	53700	NR	NA

Table 2.74 (continued)

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
Dissolved Solids	(mg/L)		1	1	57316	57316	57316	500	1
pH	(pH)		1	1	5.73 L	5.73 L	5.73	6.5/8.5	1
Total Suspended Solids	(mg/L)		1	1	8	8	8	NR	NA
Turbidity	(NTU)		1	1	2.08	2.08	2.08	1	1
Iodine-129	(pCi/L)		1	1	-2.02	-2.02	-2.02	NR	NA
Cesium-137, Y-12 lab	(pCi/L)	Filtered	1	1	2.5	2.5	2.5	120	0
Lead-212, Y-12 lab	(pCi/L)	Filtered	1	1	7.7	7.7	7.7	NR	NA
Radium - Total Alpha	(pCi/L)		1	1	39.4	39.4	39.4	59	1
Radium - Total Alpha, Y-12 lab	(pCi/L)	Filtered	1	1	4.6	4.6	4.6	59	0
Radium-228, Y-12 lab	(pCi/L)	Filtered	1	1	13	13	13	59	1
Thorium-228, Y-12 lab	(pCi/L)	Filtered	1	1	1.7	1.7	1.7	16	0
Thorium-230, Y-12 lab	(pCi/L)	Filtered	1	1	0.62	0.62	0.62	12	0
Thorium-232, Y-12 lab	(pCi/L)	Filtered	1	1	0.11	0.11	0.11	2	0
Protactinium-234, Y-12 lab	(pCi/L)	Filtered	1	1	25	25	25	NR	NA
Uranium-234	(pCi/L)		1	1	13.1 J	13.1 J	13.1	20	0
Uranium-234, Y-12 lab	(pCi/L)	Filtered	1	1	17	17	17	20	0
Protactinium-234m, Y-12 lab	(pCi/L)	Filtered	1	1	240	240	240	2800	0
Uranium-235	(pCi/L)		1	1	0.637 J	0.637 J	0.637	24	0
Uranium-235, Y-12 lab	(pCi/L)	Filtered	1	1	0.26	0.26	0.26	24	0
Uranium-236, Y-12 lab	(pCi/L)	Filtered	1	1	0.03	0.03	0.03	NR	NA
Neptunium-237	(pCi/L)		1	1	0	0	0	1.2	0
Neptunium-237, Y-12 lab	(pCi/L)	Filtered	1	1	-0.19	-0.19	-0.19	1.2	0
Plutonium-238	(pCi/L)		1	1	0.00818	0.00818	0.00818	1.6	0
Plutonium-238, Y-12 lab	(pCi/L)	Filtered	1	1	-0.022	-0.022	-0.022	1.6	0
Uranium-238	(pCi/L)		1	1	6.22	6.22	6.22	24	0
Uranium-238, Y-12 lab	(pCi/L)	Filtered	1	1	6.7	6.7	6.7	24	0
Plutonium-239	(pCi/L)		1	1	-0.0186	-0.0186	-0.0186	1.2	0
Plutonium-239, Y-12 lab	(pCi/L)	Filtered	1	1	0	0	0	1.2	0
Americium-241	(pCi/L)		1	1	0.58	0.58	0.58	1.2	0
Americium-241, Y-12 lab	(pCi/L)	Filtered	1	1	-0.05	-0.05	-0.05	1.2	0
Strontium-89/90	(pCi/L)		1	1	0.12	0.12	0.12	8	0
Technetium-99	(pCi/L)		1	1	8690	8690	8690	4000	1
Technetium-99, Y-12 lab	(pCi/L)	Filtered	1	1	16000	16000	16000	4000	1
Gross Alpha	(pCi/L)		1	1	700	700	700	15 f	1
Gross Alpha, Y-12 lab	(pCi/L)	Filtered	1	1	230	230	230	15 f	1

Table 2.74 (continued)

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
Gross Beta	(pCi/L)		1	1	5690	5690	5690	50 a	1
Gross Beta, Y-12 lab	(pCi/L)	Filtered	1	1	3500	3500	3500	50 a	1
Tritium	(pCi/L)		1	1	1340	1340	1340	20000	0
Tritium, Y-12 lab	(pCi/L)		1	1	940	940	940	20000	0
2-Butanone	(ug/L)		1	1	17	17	17	NR	NA
Acetone	(ug/L)		1	1	32	32	32	NR	NA
Chloroform	(ug/L)		1	1	30	30	30	100 i	0
Methylene chloride	(ug/L)		1	1	53	53	53	5	1

Table 2.75. Constituents Detected in Groundwater at the Y-12 Plant for 1996

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
Barium, ICAP, Y-12 lab	(mg/L)	Filtered	1	1	8.14	8.14	8.14	2	1
Barium, ICAP, Y-12 lab	(mg/L)	Filtered	5	5	7.72	0.03	3.078	2	2
Boron, ICAP, Y-12 lab	(mg/L)	Filtered	5	2	2.9	0.6	1.75	NR	NA
Calcium, ICAP, Y-12 lab	(mg/L)	Filtered	1	1	1810	1810	1810	NR	NA
Calcium, ICAP, Y-12 lab	(mg/L)	Filtered	5	5	1860	38.8	782.78	NR	NA
Chromium, ICAP, Y-12 lab	(mg/L)	Filtered	5	1	0.2	0.2	0.2	0.1	1
Iron, ICAP, Y-12 lab	(mg/L)	Filtered	5	2	2	0.7	1.35	0.3	2
Lithium, ICAP, Y-12 lab	(mg/L)	Filtered	1	1	0.09	0.09	0.09	NR	NA
Lithium, ICAP, Y-12 lab	(mg/L)	Filtered	5	5	11	0.05	2.558	NR	NA
Magnesium, ICAP, Y-12 lab	(mg/L)	Filtered	1	1	137	137	137	NR	NA
Magnesium, ICAP, Y-12 lab	(mg/L)	Filtered	5	5	753	14.7	196.56	NR	NA
Manganese, ICAP, Y-12 lab	(mg/L)	Filtered	1	1	0.92	0.92	0.92	0.05	1
Manganese, ICAP, Y-12 lab	(mg/L)	Filtered	5	3	0.88	0.05	0.4	0.05	2
Phosphorus, ICAP, Y-12 lab	(mg/L)	Filtered	5	2	26	2	14	NR	NA
Potassium, ICAP, Y-12 lab	(mg/L)	Filtered	1	1	5	5	5	NR	NA
Potassium, ICAP, Y-12 lab	(mg/L)	Filtered	5	3	119.7	5	50	NR	NA
Sodium, ICAP, Y-12 lab	(mg/L)	Filtered	1	1	50	50	50	NR	NA
Sodium, ICAP, Y-12 lab	(mg/L)	Filtered	5	4	14000	10	4535	NR	NA
Strontium, ICAP, Y-12 lab	(mg/L)	Filtered	1	1	4.2	4.2	4.2	NR	NA
Strontium, ICAP, Y-12 lab	(mg/L)	Filtered	5	5	39	0.09	13.464	NR	NA
Zinc, ICAP, Y-12 lab	(mg/L)	Filtered	5	2	0.4	0.1	0.25	5	0
Static Water Level	(ft - toc)	Filtered	11	NA	-3.05	-22.68	-9.44091	NR	NA
Cesium-137, Y-12 lab	(pCi/L)	Filtered	1	1	-0.71	-0.71	-0.71	120	0
Cesium-137, Y-12 lab	(pCi/L)	Filtered	17	17	13	-1.7	2.313529	120	0
Cesium-137, Y-12 lab	(pCi/L)	Filtered	1	1	4	4	4	120	0
Thallium-208, Y-12 lab	(pCi/L)	Filtered	6	6	20	11	16.16667	NR	NA
Bismuth-212, Y-12 lab	(pCi/L)	Filtered	2	2	53	49	51	NR	NA
Lead-212, Y-12 lab	(pCi/L)	Filtered	3	3	16	9.4	11.63333	NR	NA
Lead-214, Y-12 lab	(pCi/L)	Filtered	1	1	28	28	28	NR	NA
Lead-214, Y-12 lab	(pCi/L)	Filtered	5	5	26	15	19.6	NR	NA
Radium - Total Alpha, Y-12 lab	(pCi/L)	Filtered	1	1	3.3	3.3	3.3	5.9	0
Radium - Total Alpha, Y-12 lab	(pCi/L)	Filtered	17	17	15	-0.21	1.777529	5.9	2

Table 2.75 (continued)

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
Radium-226, Y-12 lab	(pCi/L)	Filtered	2	2	68	66	67	59	2
Radium-228, Y-12 lab	(pCi/L)	Filtered	1	1	3.7	3.7	3.7	59	0
Radium-228, Y-12 lab	(pCi/L)	Filtered	18	18	33	-6.5	1.889333	59	2
Thorium-228, Y-12 lab	(pCi/L)	Filtered	1	1	0.31	0.31	0.31	16	0
Thorium-228, Y-12 lab	(pCi/L)	Filtered	17	17	8.8	-0.073	0.708471	16	0
Thorium-230, Y-12 lab	(pCi/L)	Filtered	1	1	0.29	0.29	0.29	12	0
Thorium-230, Y-12 lab	(pCi/L)	Filtered	17	17	4.5	0.047	0.646294	12	0
Thorium-231+234, Y-12 lab	(pCi/L)	Filtered	2	2	500	0.33	250.165	400	1
Thorium-232, Y-12 lab	(pCi/L)	Filtered	1	1	0.058	0.058	0.058	2	0
Thorium-232, Y-12 lab	(pCi/L)	Filtered	17	17	0.1	-0.051	0.025353	2	0
Protactinium-234, Y-12 lab	(pCi/L)	Filtered	1	1	-140	-140	-140	NR	NA
Protactinium-234, Y-12 lab	(pCi/L)	Filtered	17	17	690	-16	218.8706	NR	NA
Protactinium-234, Y-12 lab	(pCi/L)	Filtered	1	1	340	340	340	NR	NA
Uranium-234, Y-12 lab	(pCi/L)	Filtered	1	1	2.9	2.9	2.9	20	0
Uranium-234, Y-12 lab	(pCi/L)	Filtered	17	17	65	-0.017	8.833529	20	2
Protactinium-234m, Y-12 lab	(pCi/L)	Filtered	4	4	360	77	209.25	2800	2
Uranium-235, Y-12 lab	(pCi/L)	Filtered	1	1	0	0	0	24	0
Uranium-235, Y-12 lab	(pCi/L)	Filtered	17	17	3.4	-0.075	0.435353	24	0
Uranium-236, Y-12 lab	(pCi/L)	Filtered	1	1	0.038	0.038	0.038	NR	NA
Uranium-236, Y-12 lab	(pCi/L)	Filtered	17	17	2	-0.14	0.175294	NR	NA
Neptunium-237, Y-12 lab	(pCi/L)	Filtered	1	1	-0.015	-0.015	-0.015	1.2	0
Neptunium-237, Y-12 lab	(pCi/L)	Filtered	17	17	0.27	-0.053	0.036	1.2	0
Plutonium-238, Y-12 lab	(pCi/L)	Filtered	1	1	0.036	0.036	0.036	1.6	0
Plutonium-238, Y-12 lab	(pCi/L)	Filtered	17	17	0.53	-0.068	0.038647	1.6	0
Uranium-238, Y-12 lab	(pCi/L)	Filtered	1	1	2.3	2.3	2.3	24	0
Uranium-238, Y-12 lab	(pCi/L)	Filtered	17	17	58	-0.14	8.482118	24	2
Plutonium-239, Y-12 lab	(pCi/L)	Filtered	1	1	0	0	0	1.2	0
Plutonium-239, Y-12 lab	(pCi/L)	Filtered	17	17	0.14	-0.16	-0.00365	1.2	0
Americium-241, Y-12 lab	(pCi/L)	Filtered	1	1	-0.029	-0.029	-0.029	1.2	0
Americium-241, Y-12 lab	(pCi/L)	Filtered	17	17	0.19	-0.039	0.042471	1.2	0
Potassium-40, Y-12 lab	(pCi/L)	Filtered	3	3	180	48	98	280	0
Cobalt-60, Y-12 lab	(pCi/L)	Filtered	1	1	13	13	13	200	0
Cobalt-60, Y-12 lab	(pCi/L)	Filtered	2	2	7.9	7.5	7.7	200	0
Strontium-89/90, Y-12 lab	(pCi/L)	Filtered	1	1	-2.6	-2.6	-2.6	8	0
Strontium-89/90, Y-12 lab	(pCi/L)	Filtered	17	17	39	-9.4	1.859412	8	1

Table 2.75 (continued)

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
Technetium-99, Y-12 lab	(pCi/L)		1	1	860	860	860	4000	0
Technetium-99, Y-12 lab	(pCi/L)	Filtered	17	17	15000	-15	934.9412	4000	1
Gross Alpha, Y-12 lab	(pCi/L)		1	1	0	0	0	15 f	0
Gross Alpha, Y-12 lab	(pCi/L)	Filtered	17	17	140	-220	8.148235	15 f	5
Gross Alpha, Y-12 lab	(pCi/L)	Filtered	1	1	140	140	140	15 f	1
Gross Beta, Y-12 lab	(pCi/L)		1	1	11	11	11	50 a	0
Gross Beta, Y-12 lab	(pCi/L)	Filtered	17	17	4500	-1	298.9376	50 a	3
Gross Beta, Y-12 lab	(pCi/L)	Filtered	1	1	4400	4400	4400	50 a	1
Tritium, Y-12 lab	(pCi/L)		17	17	1600	-100	321.8765	20000	0
Tritium, Y-12 lab	(pCi/L)	Filtered	1	1	160	160	160	20000	0

Table 2.76. Constituents Detected in Groundwater at the Y-12 Plant for 1996
 REGIME=EF AREA NAME=Tank 2331-U, near Building 9201-1

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
Chloride	(mg/L)		1	1	7.88	7.88	7.88	250	0
Fluoride	(mg/L)		1	1	0.57	0.57	0.57	2	0
Sulfate	(mg/L)		1	1	8.1	8.1	8.1	250	0
Aluminum, ICAP	(mg/L)		1	1	0.041	0.041	0.041	0.2	0
Aluminum, ICAP	(mg/L)	Filtered	1	1	0.021	0.021	0.021	0.2	0
Barium, ICAP	(mg/L)		1	1	0.12	0.12	0.12	2	0
Barium, ICAP	(mg/L)	Filtered	1	1	0.13	0.13	0.13	2	0
Boron, ICAP	(mg/L)		1	1	0.09	0.09	0.09	NR	NA
Boron, ICAP	(mg/L)	Filtered	1	1	0.13	0.13	0.13	NR	NA
Calcium, ICAP	(mg/L)		1	1	85	85	85	NR	NA
Calcium, ICAP	(mg/L)	Filtered	1	1	89	89	89	NR	NA
Iron, ICAP	(mg/L)		1	1	0.2	0.2	0.2	0.3	0
Iron, ICAP	(mg/L)	Filtered	1	1	0.19	0.19	0.19	0.3	0
Magnesium, ICAP	(mg/L)		1	1	17	17	17	NR	NA
Magnesium, ICAP	(mg/L)	Filtered	1	1	17	17	17	NR	NA
Manganese, ICAP	(mg/L)		1	1	0.62	0.62	0.62	0.05	1
Manganese, ICAP	(mg/L)	Filtered	1	1	0.72	0.72	0.72	0.05	1
Potassium, ICAP	(mg/L)		1	1	6.4	6.4	6.4	NR	NA
Potassium, ICAP	(mg/L)	Filtered	1	1	6.7	6.7	6.7	NR	NA
Sodium, ICAP	(mg/L)		1	1	5.3	5.3	5.3	NR	NA
Sodium, ICAP	(mg/L)	Filtered	1	1	5.6	5.6	5.6	NR	NA
Strontium, ICAP	(mg/L)		1	1	0.44	0.44	0.44	NR	NA
Strontium, ICAP	(mg/L)	Filtered	1	1	0.45	0.45	0.45	NR	NA
Uranium, ICP/MS	(mg/L)		1	1	0.018	0.018	0.018	NR	NA
Uranium, ICP/MS	(mg/L)	Filtered	1	1	0.039	0.039	0.039	NR	NA
Zinc, ICAP	(mg/L)		1	1	0.002	0.002	0.002	5	0
Zinc, ICAP	(mg/L)	Filtered	1	1	0.002	0.002	0.002	5	0
Conductivity, field measurement	(umhos/cm)		1	NA	540	540	540	NR	NA
Dissolved Oxygen, field measure	(ppm)		1	1	1	1	1	NR	NA
pH, field measurement	(pH)		1	NA	7.3	7.3	7.3	6.5/8.5	0
REDOX, field measurement	(mV)		1	NA	-152	-152	-152	NR	NA
Static Water Level	(ft - toc)		2	NA	-8.36	-8.89	-8.625	NR	NA
Temperature, field measurement	(Deg C)		1	NA	19.9	19.9	19.9	NR	NA

Table 2.76 (continued)

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected		Minimum Detected		Average	Reference Value	No. of Meas. > Reference
					Detected	Detected	Detected	Detected			
Alkalinity as HCO ₃	(mg/L)		1	1	312	312	312	312	312	NR	NA
Conductivity	(umhos/cm)		1	1	612	612	612	612	612	NR	NA
Dissolved Solids	(mg/L)		1	1	364	364	364	364	364	500	0
pH	(pH)		1	1	7.31 L	7.31 L	7.31 L	7.31 L	7.31	6.5/8.5	0
Turbidity	(NTU)		1	1	3.4	3.4	3.4	3.4	3.4	1	1
Iodine-129	(pCi/L)	Filtered	1	1	8.37	8.37	8.37	8.37	8.37	NR	NA
Cesium-137, Y-12 lab	(pCi/L)	Filtered	1	1	-0.24	-0.24	-0.24	-0.24	-0.24	120	0
Cesium-137, Y-12 lab	(pCi/L)	Filtered	1	1	-4	-4	-4	-4	-4	120	0
Radium - Total Alpha	(pCi/L)		1	1	-4.38	-4.38	-4.38	-4.38	-4.38	5 g	0
Radium - Total Alpha, Y-12 lab	(pCi/L)	Filtered	1	1	0.18	0.18	0.18	0.18	0.18	5 g	0
Radium-228, Y-12 lab	(pCi/L)	Filtered	1	1	0.51	0.51	0.51	0.51	0.51	5 g	0
Thorium-228, Y-12 lab	(pCi/L)	Filtered	1	1	0.11	0.11	0.11	0.11	0.11	16	0
Thorium-230, Y-12 lab	(pCi/L)	Filtered	1	1	0.34	0.34	0.34	0.34	0.34	12	0
Thorium-232, Y-12 lab	(pCi/L)	Filtered	1	1	0.014	0.014	0.014	0.014	0.014	2	0
Protactinium-234, Y-12 lab	(pCi/L)	Filtered	1	1	-4.9	-4.9	-4.9	-4.9	-4.9	NR	NA
Protactinium-234, Y-12 lab	(pCi/L)	Filtered	1	1	-0.55	-0.55	-0.55	-0.55	-0.55	NR	NA
Uranium-234	(pCi/L)		1	1	4.5 J	4.5 J	4.5 J	4.5 J	4.5	20	0
Uranium-234, Y-12 lab	(pCi/L)	Filtered	1	1	1.2	1.2	1.2	1.2	1.2	20	0
Uranium-235	(pCi/L)		1	1	0.319 J	0.319 J	0.319 J	0.319 J	0.319	24	0
Uranium-235, Y-12 lab	(pCi/L)	Filtered	1	1	0.036	0.036	0.036	0.036	0.036	24	0
Uranium-236, Y-12 lab	(pCi/L)	Filtered	1	1	0.029	0.029	0.029	0.029	0.029	NR	NA
Neptunium-237	(pCi/L)		1	1	0	0	0	0	0	1.2	0
Neptunium-237, Y-12 lab	(pCi/L)	Filtered	1	1	-0.03	-0.03	-0.03	-0.03	-0.03	1.2	0
Plutonium-238	(pCi/L)		1	1	0.65	0.65	0.65	0.65	0.65	1.6	0
Plutonium-238, Y-12 lab	(pCi/L)	Filtered	1	1	0.016	0.016	0.016	0.016	0.016	1.6	0
Uranium-238	(pCi/L)		1	1	6.93 J	6.93 J	6.93 J	6.93 J	6.93	24	0
Uranium-238, Y-12 lab	(pCi/L)	Filtered	1	1	2.1	2.1	2.1	2.1	2.1	24	0
Plutonium-239	(pCi/L)		1	1	0	0	0	0	0	1.2	0
Plutonium-239, Y-12 lab	(pCi/L)	Filtered	1	1	-0.036	-0.036	-0.036	-0.036	-0.036	1.2	0
Americium-241	(pCi/L)		1	1	0.321	0.321	0.321	0.321	0.321	1.2	0
Americium-241, Y-12 lab	(pCi/L)	Filtered	1	1	0.13	0.13	0.13	0.13	0.13	1.2	0
Strontium-89/90	(pCi/L)		1	1	-12.9	-12.9	-12.9	-12.9	-12.9	8	0
Strontium-89/90, Y-12 lab	(pCi/L)	Filtered	1	1	0	0	0	0	0	8	0
Technetium-99	(pCi/L)		1	1	4	4	4	4	4	4000	0
Technetium-99, Y-12 lab	(pCi/L)	Filtered	1	1	-9	-9	-9	-9	-9	4000	0

Table 2.76 (continued)

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
Gross Alpha	(pCi/L)		1	1	9.7	9.7	9.7	15 f	0
Gross Alpha, Y-12 lab	(pCi/L)	Filtered	1	1	1.6	1.6	1.6	15 f	0
Gross Beta	(pCi/L)		1	1	0.628	0.628	0.628	50 a	0
Gross Beta, Y-12 lab	(pCi/L)	Filtered	1	1	5.7	5.7	5.7	50 a	0
Tritium	(pCi/L)		1	1	-28.5	-28.5	-28.5	20000	0
Tritium, Y-12 lab	(pCi/L)		1	1	-110	-110	-110	20000	0
Benzene	(ug/L)		1	1	270 E	270 E	270	5	1
Ethylbenzene	(ug/L)		1	1	48	48	48	700	0
Toluene	(ug/L)		1	1	27	27	27	1000	0
Xylenes	(ug/L)		1	1	59	59	59	10000	0
Xylenes	(ug/L)		1	1	59	59	59	10000	0

Table 2.77. Constituents Detected in Groundwater at the Y-12 Plant for 1996

REGIME=EF AREA NAME=Union Valley - Exit Pathway

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
Chloride	(mg/L)		20	19	138	1.51	23.52105	250	0
Fluoride	(mg/L)		20	6	2	0.1	0.453333	2	0
Nitrate Nitrogen	(mg/L)		20	11	1.03	0.41	0.700909	10	0
Sulfate	(mg/L)		20	19	34.2	1.16	13.86895	250	0
Aluminum, ICAP	(mg/L)		20	17	8.2	0.036	0.942118	0.2	11
Aluminum, ICAP	(mg/L)	Filtered	20	10	0.043	0.024	0.0306	0.2	0
Barium, ICAP	(mg/L)		20	20	0.55	0.0091	0.134855	2	0
Barium, ICAP	(mg/L)	Filtered	20	20	0.43	0.01	0.1222	2	0
Beryllium, ICAP	(mg/L)		20	2	0.00038	0.00033	0.000355	0.004	0
Boron, ICAP	(mg/L)		20	20	1.2	0.018	0.1469	NR	NA
Boron, ICAP	(mg/L)	Filtered	20	20	1.2	0.018	0.15775	NR	NA
Calcium, ICAP	(mg/L)		20	20	140	1.6	67.48	NR	NA
Calcium, ICAP	(mg/L)	Filtered	20	20	140	1.9	67.595	NR	NA
Chromium, ICAP	(mg/L)		20	1	0.01	0.01	0.01	0.1	0
Cobalt, ICAP	(mg/L)		20	2	0.0063	0.0053	0.0058	NR	NA
Copper, ICAP	(mg/L)		20	5	0.0088	0.0043	0.00556	1	0
Copper, ICAP	(mg/L)	Filtered	20	8	0.0058	0.0043	0.005088	1	0
Iron, ICAP	(mg/L)		20	20	44	0.091	4.93355	0.3	13
Iron, ICAP	(mg/L)	Filtered	20	15	26	0.0054	2.735567	0.3	5
Lead, AAS	(mg/L)		14	3	0.021	0.0053	0.0121	0.015 c	1
Lithium, ICAP	(mg/L)		20	9	0.13	0.0046	0.0231	NR	NA
Lithium, ICAP	(mg/L)	Filtered	20	7	0.13	0.0068	0.028686	NR	NA
Magnesium, ICAP	(mg/L)		20	20	42	0.82	16.151	NR	NA
Magnesium, ICAP	(mg/L)	Filtered	20	20	44	0.86	16.583	NR	NA
Manganese, ICAP	(mg/L)		20	20	8.8	0.0028	0.923585	0.05	10
Manganese, ICAP	(mg/L)	Filtered	20	18	7.7	0.0013	0.903228	0.05	10
Potassium, ICAP	(mg/L)		20	20	65	0.76	6.482	NR	NA
Potassium, ICAP	(mg/L)	Filtered	20	20	68	0.84	6.572	NR	NA
Selenium, ICAP	(mg/L)	Filtered	20	1	0.069	0.069	0.069	0.05	1
Silver, ICAP	(mg/L)		20	6	0.0097	0.0068	0.0076	0.1	0
Silver, ICAP	(mg/L)	Filtered	20	5	0.01	0.0062	0.00766	0.1	0
Sodium, ICAP	(mg/L)		20	20	220	1.3	23.155	NR	NA

Table 2.77 (continued)

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
Sodium, ICAP	(mg/L)	Filtered	20	20	220	1.4	23.665	NR	NA
Strontium, ICAP	(mg/L)		20	20	0.78	0.02	0.25695	NR	NA
Strontium, ICAP	(mg/L)	Filtered	20	20	0.8	0.02	0.25925	NR	NA
Uranium, ICP/MS	(mg/L)		20	3	0.0012	0.0005	0.000827	NR	NA
Uranium, ICP/MS	(mg/L)	Filtered	20	3	0.00082	0.00051	0.00069	NR	NA
Vanadium, ICAP	(mg/L)		20	1	0.012	0.012	0.012	NR	NA
Vanadium, ICAP	(mg/L)	Filtered	20	1	0.005	0.005	0.005	NR	NA
Zinc, ICAP	(mg/L)		20	19	12	0.0021	1.271458	5	2
Zinc, ICAP	(mg/L)	Filtered	20	20	12	0.0023	1.158915	5	2
Conductivity, field measurement	(umhos/cm)		20	NA	1932	16	591.4	NR	NA
Dissolved Oxygen, field measure	(ppm)		20	NA	7.8	0.6	3.96	NR	NA
pH, field measurement	(pH)		20	NA	9.3	6	7.24	6.5/8.5	2
REDOX, field measurement	(mV)		20	NA	205	-49	119.305	NR	NA
Static Water Level	(ft - toc)		9	NA	-7	-31.45	-19.8678	NR	NA
Temperature, field measurement	(Deg C)		20	NA	19.1	4.6	13.62	NR	NA
Alkalinity as CO3	(mg/L)		20	1	86	86	86	NR	NA
Alkalinity as HCO3	(mg/L)		20	20	872	132	271.15	NR	NA
Conductivity	(umhos/cm)		20	20	2140	258	606.95	NR	NA
Dissolved Solids	(mg/L)		20	20	802	148	318.2	500	3
pH			20	20	9.27	6.57	7.498	6.5/8.5	1
Total Suspended Solids	(mg/L)		20	15	429	1	82.83333	NR	NA
Turbidity	(NTU)		20	20	468	2.39	74.543	1	20
Cesium-137	(pCi/L)		7	7	3.36	-0.0838	1.594743	120	0
Cesium-137, Y-12 lab	(pCi/L)	Filtered	7	7	9.1	-1.1	2.411429	120	0
Cesium-137, Y-12 lab	(pCi/L)	Filtered	1	1	2.3	2.3	2.3	120	0
Thallium-208, Y-12 lab	(pCi/L)	Filtered	1	1	13	13	13	NR	NA
Radium - Total Alpha	(pCi/L)		7	7	1.27	0.101	0.474429	5.9	0
Radium - Total Alpha, Y-12 lab	(pCi/L)	Filtered	7	7	0.99	-0.086	0.269857	5.9	0
Radium-228	(pCi/L)		7	7	2.16	-0.371	0.857086	5.9	0
Radium-228, Y-12 lab	(pCi/L)	Filtered	7	7	6.6	-0.88	1.008571	5.9	1
Radium-228	(pCi/L)		7	7	0.456 J	0.0788	0.224743	16	0
Thorium-228	(pCi/L)		7	7	0.57	0.12	0.231429	16	0
Thorium-228, Y-12 lab	(pCi/L)	Filtered	7	7	0.532 J	0.168	0.305	12	0
Thorium-230	(pCi/L)		7	7	0.97	0.078	0.419714	12	0
Thorium-230, Y-12 lab	(pCi/L)	Filtered	7	7	550	550	550	400	1
Thorium-231+234, Y-12 lab	(pCi/L)	Filtered	1	1					

Table 2.77 (continued)

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
Thorium-232	(pCi/L)		7	7	0.155 J	0	0.032911	2	0
Thorium-232, Y-12 lab	(pCi/L)	Filtered	7	7	0.11	-0.19	0.004571	2	0
Protactinium-234, Y-12 lab	(pCi/L)	Filtered	7	7	480	-7.1	207.7571	NR	NA
Protactinium-234, Y-12 lab	(pCi/L)	Filtered	1	1	560	560	560	NR	NA
Uranium-234	(pCi/L)		12	12	9.19 J	0.0676	1.130117	20	0
Uranium-234, Y-12 lab	(pCi/L)	Filtered	7	7	0.36	0.055	0.194857	20	0
Protactinium-234m, Y-12 lab	(pCi/L)	Filtered	3	3	680 ?	180	473.3333	2800	0
Uranium-235	(pCi/L)		12	12	0.181 J	-0.038	0.022225	24	0
Uranium-235, Y-12 lab	(pCi/L)	Filtered	7	7	0.13	-0.057	0.012714	24	0
Uranium-236, Y-12 lab	(pCi/L)	Filtered	7	7	0.1	0	0.023571	NR	NA
Neptunium-237	(pCi/L)		7	7	0.125 J	-0.0785	-0.0123	1.2	0
Neptunium-237, Y-12 lab	(pCi/L)	Filtered	6	6	0.074	-0.027	0.016833	1.2	0
Plutonium-238	(pCi/L)		7	7	0.135	-0.0138	0.045214	1.6	0
Plutonium-238, Y-12 lab	(pCi/L)	Filtered	7	7	0.18	-0.057	0.070714	1.6	0
Uranium-238	(pCi/L)		12	12	0.56	0.00907	0.176689	24	0
Uranium-238, Y-12 lab	(pCi/L)	Filtered	7	7	0.23	0.062	0.124286	24	0
Plutonium-239	(pCi/L)		8	8	0.223	-0.0317	0.040174	1.2	0
Plutonium-239, Y-12 lab	(pCi/L)	Filtered	7	7	0	-0.11	-0.03843	1.2	0
Americium-241	(pCi/L)		7	7	0.25	-0.0275	0.043617	1.2	0
Americium-241, Y-12 lab	(pCi/L)	Filtered	7	7	0.086	-0.089	0.013429	1.2	0
Potassium-40, Y-12 lab	(pCi/L)		2	2	430	160	295	280	1
Cobalt-60, Y-12 lab	(pCi/L)	Filtered	2	2	7	5	6	200	0
Strontium-89/90	(pCi/L)		12	12	6.3	-2.41	-0.06583	8	0
Strontium-89/90, Y-12 lab	(pCi/L)	Filtered	7	7	9.6	-0.44	1.172857	8	1
Technetium-99	(pCi/L)		12	12	3.5	-4	1.291667	4000	0
Technetium-99, Y-12 lab	(pCi/L)	Filtered	7	7	3	-11	-1.76571	4000	0
Gross Alpha	(pCi/L)		14	14	5.27	-2.23	1.466429	15 f	0
Gross Alpha, Y-12 lab	(pCi/L)	Filtered	7	7	1.7	-3.1	0.242857	15 f	0
Gross Beta	(pCi/L)		14	14	42.2	-2.11	7.066429	50 a	0
Gross Beta, Y-12 lab	(pCi/L)	Filtered	7	7	4.1	-0.52	1.81	50 a	0
Tritium	(pCi/L)		7	7	90.5	-143	-17.3829	20000	0
Tritium, Y-12 lab	(pCi/L)		7	7	120	-280	-80	20000	0
1,1,1-Trichloroethane	(ug/L)		21	3	2 J	1 J	1.333333	200	0
1,1-Dichloroethane	(ug/L)		21	1	3 J	3 J	3	NR	NA
1,2-Dichloroethane (Total)	(ug/L)		7	3	13	1 J	5.333333	NR b	NA

Table 2.77 (continued)

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
Acetone	(ug/L)		21	1	30	30	30	NR	NA
Benzene	(ug/L)		21	1	7 J	7 J	7	5	1
Carbon tetrachloride	(ug/L)		21	5	81	3 J	32	5	2
Chlorobenzene	(ug/L)		21	1	9 J	9 J	9	100	0
Chloroform	(ug/L)		21	2	9 J	7 J	8	100 i	0
cis-1,2-Dichloroethene	(ug/L)		14	1	19	19	19	70	0
Tetrachloroethene	(ug/L)		21	5	5 J	1 J	2.8	5	0
Toluene	(ug/L)		21	1	3 J	3 J	3	1000	0
Trichloroethene	(ug/L)		21	6	4 J	1 J	2.333333	5	0
Vinyl chloride	(ug/L)		21	2	5 J	4 J	4.5	2	2

Table 2.78. Constituents Detected in Groundwater at the Y-12 Plant for 1996

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected		Minimum Detected		Average	Reference Value	No. of Meas. > Reference
					Detected	Detected	Detected	Detected			
Chloride	(mg/L)		1	1	21.1	21.1	21.1	21.1	21.1	250	0
Fluoride	(mg/L)		1	1	0.15	0.15	0.15	0.15	0.15	2	0
Nitrate Nitrogen	(mg/L)		1	1	2.83	2.83	2.83	2.83	2.83	10	0
Sulfate	(mg/L)		1	1	17.3	17.3	17.3	17.3	17.3	250	0
Aluminum, ICAP	(mg/L)		1	1	0.057	0.057	0.057	0.057	0.057	0.2	0
Barium, ICAP	(mg/L)		1	1	0.038	0.038	0.038	0.038	0.038	2	0
Barium, ICAP	(mg/L)	Filtered	1	1	0.036	0.036	0.036	0.036	0.036	2	0
Boron, ICAP	(mg/L)		1	1	0.043	0.043	0.043	0.043	0.043	NR	NA
Boron, ICAP	(mg/L)	Filtered	1	1	0.044	0.044	0.044	0.044	0.044	NR	NA
Calcium, ICAP	(mg/L)		1	1	51	51	51	51	51	NR	NA
Calcium, ICAP	(mg/L)	Filtered	1	1	50	50	50	50	50	NR	NA
Chromium, ICAP	(mg/L)		1	1	0.2	0.2	0.2	0.2	0.2	0.1	1
Cobalt, ICAP	(mg/L)		1	1	0.011	0.011	0.011	0.011	0.011	NR	NA
Copper, ICAP	(mg/L)		1	1	0.0058	0.0058	0.0058	0.0058	0.0058	1	0
Iron, ICAP	(mg/L)		1	1	1.7	1.7	1.7	1.7	1.7	0.3	1
Iron, ICAP	(mg/L)	Filtered	1	1	0.083	0.083	0.083	0.083	0.083	0.3	0
Lithium, ICAP	(mg/L)		1	1	0.006	0.006	0.006	0.006	0.006	NR	NA
Magnesium, ICAP	(mg/L)		1	1	15	15	15	15	15	NR	NA
Magnesium, ICAP	(mg/L)	Filtered	1	1	15	15	15	15	15	NR	NA
Manganese, ICAP	(mg/L)		1	1	0.093	0.093	0.093	0.093	0.093	0.05	1
Manganese, ICAP	(mg/L)	Filtered	1	1	0.02	0.02	0.02	0.02	0.02	0.05	0
Nickel, ICAP	(mg/L)		1	1	0.11	0.11	0.11	0.11	0.11	0.1 d	1
Nickel, ICAP	(mg/L)	Filtered	1	1	0.045	0.045	0.045	0.045	0.045	0.1 d	0
Potassium, ICAP	(mg/L)		1	1	3	3	3	3	3	NR	NA
Potassium, ICAP	(mg/L)	Filtered	1	1	2.7	2.7	2.7	2.7	2.7	NR	NA
Sodium, ICAP	(mg/L)		1	1	13	13	13	13	13	NR	NA
Sodium, ICAP	(mg/L)	Filtered	1	1	13	13	13	13	13	NR	NA
Strontium, ICAP	(mg/L)		1	1	0.067	0.067	0.067	0.067	0.067	NR	NA
Strontium, ICAP	(mg/L)	Filtered	1	1	0.068	0.068	0.068	0.068	0.068	NR	NA
Uranium, ICP/MS	(mg/L)		1	1	0.0075	0.0075	0.0075	0.0075	0.0075	NR	NA
Uranium, ICP/MS	(mg/L)	Filtered	1	1	0.0071	0.0071	0.0071	0.0071	0.0071	NR	NA
Zinc, ICAP	(mg/L)		1	1	0.0067	0.0067	0.0067	0.0067	0.0067	5	0

Table 2.78 (continued)

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
Zinc, ICAP	(mg/L)	Filtered	1	1	0.0039	0.0039	0.0039	5	0
Conductivity, field measurement	(umhos/cm)		1	NA	448	448	448	NR	NA
Dissolved Oxygen, field measure	(ppm)		1	NA	2.2	2.2	2.2	NR	NA
pH, field measurement	(pH)		1	NA	7.2	7.2	7.2	6.5/8.5	0
REDOX, field measurement	(mV)		1	NA	182	182	182	NR	NA
Static Water Level	(ft - toc)		1	NA	-12.78	-12.78	-12.78	NR	NA
Temperature, field measurement	(Deg C)		1	NA	17.8	17.8	17.8	NR	NA
Alkalinity as HCO ₃	(mg/L)		1	1	202	202	202	NR	NA
Conductivity	(umhos/cm)		1	1	500	500	500	NR	NA
Dissolved Solids	(mg/L)		1	1	426	426	426	500	0
pH	(pH)		1	1	7.3 L	7.3 L	7.3	6.5/8.5	0
Turbidity	(NTU)		1	1	8.2	8.2	8.2	1	1
Uranium-234	(pCi/L)		1	1	1.55	1.55	1.55	20	0
Uranium-235	(pCi/L)		1	1	0.117	0.117	0.117	24	0
Uranium-238	(pCi/L)		1	1	2.98	2.98	2.98	24	0
Strontium-89/90	(pCi/L)		1	1	-5.02	-5.02	-5.02	8	0
Technetium-99	(pCi/L)		1	1	2	2	2	4000	0
Gross Alpha	(pCi/L)		1	1	2.05	2.05	2.05	15 f	0
Gross Beta	(pCi/L)		1	1	2.81	2.81	2.81	50 a	0
1,2-Dichloroethene (Total)	(ug/L)		1	1	4 J	4 J	4	NR b	NA

Table 2.79. Constituents Detected in Groundwater at the Y-12 Plant for 1996

REGIME=EF AREA NAME=Waste Coolant Processing Area

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
Chloride	(mg/L)		3	3	8.19	6.88	7.32	250	0
Fluoride	(mg/L)		3	1	0.12	0.12	0.12	2	0
Nitrate Nitrogen	(mg/L)		3	3	1.12	0.7	0.883333	10	0
Sulfate	(mg/L)		3	3	19.4	17.2	17.96667	250	0
Aluminum, ICAP	(mg/L)		3	3	1.5	1.1	1.333333	0.2	3
Aluminum, ICAP	(mg/L)	Filtered	3	2	0.36	0.029	0.1945	0.2	1
Barium, ICAP	(mg/L)		3	3	0.4	0.31	0.356667	2	0
Barium, ICAP	(mg/L)	Filtered	3	3	0.38	0.31	0.346667	2	0
Boron, ICAP	(mg/L)		3	3	0.067	0.017	0.037667	NR	NA
Boron, ICAP	(mg/L)	Filtered	3	3	0.045	0.015	0.03	NR	NA
Calcium, ICAP	(mg/L)		3	3	100	85	91.33333	NR	NA
Calcium, ICAP	(mg/L)	Filtered	3	3	100	85	90.33333	NR	NA
Copper, ICAP	(mg/L)		3	2	0.017	0.0043	0.01065	1	0
Iron, ICAP	(mg/L)		3	3	1.9	0.91	1.37	0.3	3
Iron, ICAP	(mg/L)	Filtered	3	2	0.037	0.006	0.0215	0.3	0
Lead, ICP/MS	(mg/L)		1	1	0.0011	0.0011	0.0011	NR	NA
Lithium, ICAP	(mg/L)		3	3	0.02	0.018	0.019	NR	NA
Lithium, ICAP	(mg/L)	Filtered	3	3	0.019	0.018	0.018333	NR	NA
Magnesium, ICAP	(mg/L)		3	3	11	9.5	10.16667	NR	NA
Magnesium, ICAP	(mg/L)	Filtered	3	3	11	9.2	9.933333	NR	NA
Manganese, ICAP	(mg/L)		3	3	0.29	0.11	0.213333	0.05	3
Manganese, ICAP	(mg/L)	Filtered	3	3	0.069	0.0096	0.0412	0.05	1
Potassium, ICAP	(mg/L)		3	3	2.6	1.9	2.233333	NR	NA
Potassium, ICAP	(mg/L)	Filtered	3	3	2	1.6	1.733333	NR	NA
Sodium, ICAP	(mg/L)		3	3	5.9	5.2	5.633333	NR	NA
Sodium, ICAP	(mg/L)	Filtered	3	3	6	5.1	5.533333	NR	NA
Strontium, ICAP	(mg/L)		3	3	0.28	0.24	0.256667	NR	NA
Strontium, ICAP	(mg/L)	Filtered	3	3	0.28	0.24	0.253333	NR	NA
Uranium, ICP/MS	(mg/L)		3	1	0.00057	0.00057	0.00057	NR	NA
Zinc, ICAP	(mg/L)		3	3	0.013	0.013	0.013	5	0
Zinc, ICAP	(mg/L)	Filtered	3	3	0.014	0.0091	0.011367	5	0
Conductivity, field measurement	(umhos/cm)		3	NA	541	467	502.3333	NR	NA

Table 2.79 (continued)

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
Dissolved Oxygen, field measure	(ppm)		3	NA	5.4	4.2	4.866667	NR	NA
pH, field measurement	(pH)		3	NA	7.5	7.3	7.4	6.5/8.5	0
REDOX, field measurement	(mV)		3	NA	228	212	219.6667	NR	NA
Static Water Level	(ft - toc)		3	NA	-8.32	-9	-8.67333	NR	NA
Temperature, field measurement	(Deg C)		3	NA	17.3	12.2	14.5	NR	NA
Alkalinity as HCO ₃	(mg/L)		3	3	259	137	217.3333	NR	NA
Conductivity	(umhos/cm)		3	3	538	527	532.6667	NR	NA
Dissolved Solids	(mg/L)		3	3	368	310	326	500	0
pH	(pH)		3	3	7.64 L	6.83 L	7.266667	6.5/8.5	0
Total Suspended Solids	(mg/L)		3	3	20	7	11.5	NR	NA
Turbidity	(NTU)		3	3	24.9	21.8	23.66667	1	3
Gross Alpha	(pCi/L)		3	3	5.36	-1.2	2.083333	15 f	0
Gross Beta	(pCi/L)		3	3	1.98	-5.03	-1.78	50 a	0

Table 2.80. Constituents Detected in Groundwater at the Y-12 Plant for 1996

REGIME=SP AREA NAME=New Hope Pond

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
Chloride	(mg/L)		1	1	20.1	20.1	20.1	250	0
Fluoride	(mg/L)		1	1	0.51	0.51	0.51	2	0
Nitrate Nitrogen	(mg/L)		1	1	2.98	2.98	2.98	10	0
Sulfate	(mg/L)		1	1	31.7	31.7	31.7	250	0
Aluminum, ICAP	(mg/L)		1	1	3.5	3.5	3.5	0.2	1
Aluminum, ICAP	(mg/L)	Filtered	1	1	0.054	0.054	0.054	0.2	0
Barium, ICAP	(mg/L)		1	1	0.18	0.18	0.18	2	0
Barium, ICAP	(mg/L)	Filtered	1	1	0.058	0.058	0.058	2	0
Beryllium, ICAP	(mg/L)		1	1	0.00039	0.00039	0.00039	0.004	0
Boron, ICAP	(mg/L)		1	1	0.19	0.19	0.19	NR	NA
Boron, ICAP	(mg/L)		1	1	0.15	0.15	0.15	NR	NA
Calcium, ICAP	(mg/L)		1	1	110	110	110	NR	NA
Calcium, ICAP	(mg/L)	Filtered	1	1	69	69	69	NR	NA
Chromium, ICAP	(mg/L)		1	1	0.011	0.011	0.011	0.1	0
Chromium, ICAP	(mg/L)	Filtered	1	1	0.014	0.014	0.014	0.1	0
Copper, ICAP	(mg/L)		1	1	0.0046	0.0046	0.0046	1	0
Copper, ICAP	(mg/L)	Filtered	1	1	0.0054	0.0054	0.0054	1	0
Iron, ICAP	(mg/L)		1	1	6.5	6.5	6.5	0.3	1
Iron, ICAP	(mg/L)	Filtered	1	1	0.04	0.04	0.04	0.3	0
Lithium, ICAP	(mg/L)		1	1	0.05	0.05	0.05	NR	NA
Lithium, ICAP	(mg/L)	Filtered	1	1	0.042	0.042	0.042	NR	NA
Magnesium, ICAP	(mg/L)		1	1	28	28	28	NR	NA
Magnesium, ICAP	(mg/L)	Filtered	1	1	12	12	12	NR	NA
Magnesium, ICAP	(mg/L)		1	1	0.16	0.16	0.16	0.05	1
Manganese, ICAP	(mg/L)	Filtered	1	1	0.015	0.015	0.015	0.05	0
Manganese, ICAP	(mg/L)		1	1	3.8	3.8	3.8	NR	NA
Potassium, ICAP	(mg/L)	Filtered	1	1	2	2	2	NR	NA
Potassium, ICAP	(mg/L)		1	1	13	13	13	NR	NA
Sodium, ICAP	(mg/L)	Filtered	1	1	13	13	13	NR	NA
Sodium, ICAP	(mg/L)		1	1	0.16	0.16	0.16	NR	NA
Strontium, ICAP	(mg/L)	Filtered	1	1	0.13	0.13	0.13	NR	NA
Strontium, ICAP	(mg/L)		1	1	0.011	0.011	0.011	NR	NA
Uranium, ICP/MS	(mg/L)		1	1					

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Table 2.80 (continued)

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
Uranium, ICP/MS	(mg/L)	Filtered	1	1	0.01	0.01	0.01	NR	NA
Zinc, ICAP	(mg/L)		1	1	0.058	0.058	0.058	5	0
Zinc, ICAP	(mg/L)	Filtered	1	1	0.052	0.052	0.052	5	0
Conductivity, field measurement	(umhos/cm)		1	NA	836	836	836	NR	NA
Dissolved Oxygen, field measure	(ppm)		1	NA	3.4	3.4	3.4	NR	NA
pH, field measurement	(pH)		1	NA	6.9	6.9	6.9	6.5/8.5	0
REDOX, field measurement	(mV)		1	NA	203	203	203	NR	NA
Static Water Level	(ft - toc)		1	NA	-8.6	-8.6	-8.6	NR	NA
Temperature, field measurement	(Deg C)		1	NA	17.3	17.3	17.3	NR	NA
Alkalinity as HCO3	(mg/L)		1	1	183	183	183	NR	NA
Conductivity	(umhos/cm)		1	1	489	489	489	NR	NA
Dissolved Solids	(mg/L)		1	1	310	310	310	500	0
pH	(pH)		1	1	7.3 L	7.3 L	7.3	6.5/8.5	0
Turbidity	(NTU)		1	1	3.63	3.63	3.63	1	1
Gross Alpha	(pCi/L)		1	1	7.04	7.04	7.04	15f	0
Gross Beta	(pCi/L)		1	1	4.92	4.92	4.92	50 a	0
Carbon tetrachloride	(ug/L)		1	1	23	23	23	5	1
Chloroform	(ug/L)		1	1	3 J	3 J	3	100 i	0
Tetrachloroethene	(ug/L)		1	1	6 J	6 J	6	5	1
Trichloroethene	(ug/L)		1	1	1 J	1 J	1	5	0

Table 2.81. Constituents Detected in Groundwater at the Y-12 Plant for 1996

REGIME=SP AREA NAME=Union Valley

Variable	Units	Filtered Status	No. Samples	No. Detected	Maximum Detected	Minimum Detected	Average	Reference Value	No. of Meas. > Reference
Chloride	(mg/L)		2	2	5.66	1.96	3.81	250	0
Fluoride	(mg/L)		2	1	0.3	0.3	0.3	2	0
Nitrate Nitrogen	(mg/L)		2	1	3.01	3.01	3.01	10	0
Sulfate	(mg/L)		2	2	80.5	17	48.75	250	0
Conductivity, field measurement	(umhos/cm)		3	NA	781	480	588.3333	NR	NA
Dissolved Oxygen, field measure	(ppm)		3	NA	4.9	2.5	3.9	NR	NA
pH, field measurement	(pH)		3	NA	7.3	6.7	7.033333	6.5/8.5	0
REDOX, field measurement	(mV)		3	NA	184	137	162	NR	NA
Temperature, field measurement	(Deg C)		3	NA	22.8	17.9	20.56667	NR	NA
Alkalinity as HCO3	(mg/L)		2	2	223	132	177.5	NR	NA
Conductivity	(umhos/cm)		2	2	450	427	438.5	NR	NA
Dissolved Solids	(mg/L)		2	2	280	260	270	500	0
pH	(pH)		2	2	7.71 L	7.27 L	7.49	6.5/8.5	0
Total Suspended Solids	(mg/L)		2	2	77	1	39	NR	NA
Turbidity	(NTU)		2	2	85.5	7.31	46.405	1	2

Table 3.1. Major sources of radiological airborne emissions at ORNL, 1996 (in curies)^a

Isotope	Stack			
	2026	3020	3039	7911
³ H	7.9E-01		8.1E+01	1.1E+02
⁷ Be	7.4E-07		2.2E-05	1.3E-06
⁴⁰ K	4.2E-07			
⁴¹ Ar				2.0E+03
⁶⁰ Co			2.1E-04	
⁸⁵ Kr			1.0E+02	1.8E+02
^{85m} Kr				8.6E+00
⁸⁷ Kr				2.0E+01
⁸⁸ Kr				1.9E+01
⁸⁹ Kr				9.9E+00
Total-Sr	1.7E-06	3.4E-07	4.0E-05	3.1E-05
¹³¹ I	4.8E-06		4.3E-05	2.8E-01
¹³² I				1.5E-01
¹³³ I	2.8E-07		8.3E-04	1.4E+00
¹³⁵ I			2.2E-04	2.8E+00
^{131m} Xe				5.3E+00
¹³³ Xe				1.1E+00
^{133m} Xe				7.4E-01
¹³⁵ Xe	4.5E-06	9.1E-07	2.2E-04	1.6E+02
^{135m} Xe				1.2E+02
¹³⁷ Xe				2.0E+02
¹³⁸ Xe				8.0E+02
¹³⁴ Cs				8.8E-06
¹³⁷ Cs	1.4E-05	6.0E-07	1.2E-04	9.0E-06
¹³⁸ Cs				2.9E+03
¹³⁹ Ba				1.5E-01
¹⁴⁰ Ba				7.9E-04
¹⁹¹ Os			1.2E-01	
²¹² Pb	1.3E-01	3.6E-01	9.6E-01	2.5E-01
²²⁸ Th	3.9E-08	1.5E-08	2.0E-08	3.0E-08
²³⁰ Th	4.4E-08	8.6E-08	2.0E-07	1.8E-07
²³² Th	4.2E-09	1.3E-08	1.5E-08	3.5E-06
²³⁴ U	4.6E-07	2.7E-08	3.4E-07	1.6E-08
²³⁵ U	6.7E-09		3.6E-09	9.3E-09
²³⁸ U	1.2E-08	1.6E-08	6.0E-08	2.2E-08
²³⁸ Pu	1.5E-07	2.9E-09	4.8E-08	2.9E-09
²³⁹ Pu	4.7E-07	4.4E-08	8.2E-07	3.5E-08
²⁴¹ Am	3.6E-07	5.9E-08	3.6E-07	8.1E-09
²⁴⁴ Cm	4.9E-06	6.1E-09	1.7E-07	1.7E-07
¹⁵² Eu			2.1E-06	
¹⁵⁴ Eu			8.5E-07	
¹⁴⁰ La				5.3E-06

^a1 Ci = 3.7E+10 Bq.

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Table 3.2. NPDES Permit Number TN 0002941, 1996 ORNL ambient and facility discharge points

Parameter	N det/ N total	Concentration (mg/L)			Standard error ^c
		Max ^a	Min ^a	Av ^b	
Sewage Treatment Plant (X01)					
Flow rates (1x10 ⁶ L/d) -- Max: 2.0, Min: 0.40, Avg: 0.95					
Anions					
Ammonia, as N	121/158	4.0	<0.030	-0.36	0.047
Field Measurements					
Chlorine, total residual	157/157	0.44	0.060	0.22	0.0060
Dissolved oxygen	250/250	12	6.4	8.6	0.069
Downstream pH (SU)	53/53	8.2	7.0	7.6	0.035
pH (SU)	53/53	7.9	7.0	7.4	0.027
Metals					
Copper, total	7/12	0.0079	<0.0010	-0.0027	0.00061
Cyanide, total	1/12	0.018	<0.0020	-0.0041	0.0013
Mercury, total	4/12	0.00032	0.000062	-0.00020	0.000019
Silver, total	0/12	<0.0010	<0.0010	-0.0010	0
Zinc, total	12/12	0.081	0.020	0.052	0.0053
Others					
Biochemical oxygen demand	2/158	11	<5.0	-5.0	0.039
Oil and grease	0/157	<5.0	<5.0	-5.0	0
Phenolics, total recoverable	1/12	0.070	<0.0010	-0.0074	0.0057
Physical					
Fecal coliform (col/100 mL) ^d	145/157	>5,000	0	-5.1	1.2
Total suspended solids	24/158	26	<5.0	-5.5	0.17
Volatile Organics					
Bromodichloromethane	10/12	U0.0050	U0.0010	-0.0023	0.00046
Trichloroethene	0/12	U0.0050	U0.0050	-0.0050	0
Coal Yard Runoff Treatment Facility (X02)					
Flow rates (1x10 ⁶ L/d) -- Max: 0.72, Min: 0, Avg: 0.13					
Anions					
Sulfate, as SO ₄	12/12	2,900	1,200	1,900	150
Field Measurements					
Downstream pH (SU)	52/52	8.3	7.1	7.7	0.036
pH (SU)	52/52	8.4	6.4	7.3	0.051
Temperature (°C)	52/52	29	6.4	17	0.98
Metals					
Arsenic, total	40/52	0.0065	<0.0010	-0.0028	0.00024
Cadmium, total	0/52	<0.0010	<0.0010	-0.0010	0
Chromium, total	40/52	0.017	<0.0010	-0.0029	0.00044

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Table 3.2 (continued)

Parameter	N det/ N total	Concentration (mg/L)			Standard error ^c
		Max ^a	Min ^a	Av ^b	
Copper, total	32/52	0.027	<0.0010	-0.0039	0.00064
Iron, total	52/52	1.6	0.18	0.47	0.036
Lead, total	5/52	0.012	<0.0010	-0.0014	0.00026
Manganese, total	52/52	0.078	0.0092	0.035	0.0024
Nickel, total	6/52	0.19	<0.010	-0.014	0.0035
Selenium, total	41/52	0.059	<0.0020	-0.0097	0.0015
Silver, total	0/52	<0.0010	<0.0010	-0.0010	0
Zinc, total	52/52	0.17	0.0011	0.038	0.0049
Others					
Oil and grease	0/52	<5.0	<5.0	-5.0	0
Physical					
Total suspended solids	21/52	25	<5.0	-6.3	0.46
Nonradiological Wastewater Treatment Facility (X12) Flow rates (1x10 ⁶ L/d) -- Max: 3.1, Min: 1.1, Avg: 2.2					
Anions					
Fluoride	53/53	2.4	0.40	1.0	0.047
Nitrate, as N	53/53	7.7	0.54	2.7	0.22
Sulfate, as SO ₄	53/53	200	69	110	3.0
Field Measurements					
Downstream pH (SU)	250/250	8.4	7.0	7.6	0.015
pH (SU)	250/250	7.9	6.7	7.4	0.0089
Temperature (°C)	250/250	26	7.4	19	0.26
Metals					
Arsenic, total	12/53	0.0052	<0.0010	-0.0013	0.00010
Cadmium, total	1/53	0.0010	<0.0010	-0.0010	0
Chromium, total	35/53	0.0085	<0.0010	-0.0022	0.00021
Copper, total	42/53	0.059	<0.0010	-0.0054	0.0011
Cyanide, total	0/53	<0.0050	<0.0020	-0.0028	0.00018
Iron, total	1/53	0.061	<0.050	-0.050	0.00021
Lead, total	10/53	0.0054	<0.0010	-0.0012	0.000094
Mercury, total	7/53	0.00025	<0.000050	-0.00017	0.0000082
Nickel, total	0/53	<0.010	<0.010	-0.010	0
Phosphorus, total	49/53	0.39	<0.20	-0.31	0.0073
Selenium, total	9/53	0.020	<0.0020	-0.0030	0.00049
Silver, total	1/53	0.0010	<0.0010	-0.0010	0
Zinc, total	53/53	0.25	0.025	0.052	0.0043

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Table 3.2 (continued)

Parameter	N det/ N total	Concentration (mg/L)			Standard error ^c
		Max ^a	Min ^a	Av ^b	
Others					
Biochemical oxygen demand	0/53	<5.0	<5.0	~5.0	0
Oil and grease	0/53	<5.0	<5.0	~5.0	0
Phenolics, total recoverable	6/53	0.032	<0.0010	~0.0036	0.00084
Total toxic organics	0/53	<0.010	<0.010	~0.010	0
Physical					
Total suspended solids	0/53	<5.0	<5.0	~5.0	0
Volatile Organics					
1,1-Dichloroethane	0/53	U0.0050	U0.0050	~0.0050	0
Benzene	0/53	U0.0050	U0.0050	~0.0050	0
Bromodichloromethane	0/53	U0.0050	U0.0050	~0.0050	0
Chlorobenzene	0/53	U0.0050	U0.0050	~0.0050	0
Chloroform	0/53	U0.0050	U0.0050	~0.0050	0
Methylene chloride	0/53	U0.0050	U0.0050	~0.0050	0
Tetrachloroethene	0/53	U0.0050	U0.0050	~0.0050	0
Trichloroethene	0/53	U0.0050	U0.0050	~0.0050	0
Melton Branch (X13)					
Flow rates (1x10 ⁶ L/d) -- Max: 91, Min: 0.57, Avg: 7.9					
Anions					
Ammonia, as N	7/12	<0.20	<0.030	~0.084	0.021
Fluoride	10/12	2.6	<0.10	~1.0	0.23
Nitrate, as N	11/12	2.8	<0.10	~0.93	0.23
Sulfate, as SO ₄	12/12	240	14	92	19
Field Measurements					
Chlorine, total residual	0/53	<0.020	<0.020	~0.020	0
Conductivity (mS/cm)	12/12	0.92	0.10	0.43	0.062
Dissolved oxygen	53/53	13	6.1	8.8	0.24
pH (SU)	12/12	7.9	7.0	7.6	0.073
Temperature (°C)	65/65	24	1.4	14	0.80
Turbidity (NTU)	12/12	190	5.0	42	19
Metals					
Aluminum, total	12/12	6.8	0.067	1.4	0.64
Arsenic, total	7/12	0.014	<0.0010	~0.0026	0.0011
Cadmium, total	0/12	<0.0010	<0.0010	~0.0010	0
Chromium, total	9/12	0.0073	<0.0010	~0.0030	0.00067
Copper, total	7/12	0.014	<0.0010	~0.0041	0.0013

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Table 3.2 (continued)

Parameter	N det/ N total	Concentration (mg/L)			
		Max ^a	Min ^a	Av ^b	Standard error ^c
Iron, total	12/12	7.8	0.081	1.5	0.74
Lead, total	1/12	0.0043	<0.0010	-0.0013	0.00028
Manganese, total	12/12	0.83	0.061	0.18	0.062
Mercury, total	2/12	<0.00020	<0.000050	-0.00017	0.000015
Nickel, total	1/12	0.011	<0.010	-0.010	0.000083
Phosphorus, total	11/12	0.86	<0.20	-0.46	0.062
Silver, total	0/12	<0.0010	<0.0010	-0.0010	0
Zinc, total	11/12	0.24	<0.0010	-0.046	0.019
Others					
Biochemical oxygen demand	0/12	<5.0	<5.0	-5.0	0
Oil and grease	0/53	<5.0	<5.0	-5.0	0
Phenolics, total recoverable	3/12	0.023	<0.0010	-0.0049	0.0022
Total organic carbon	12/12	11	1.4	4.0	0.78
Physical					
Total dissolved solids	12/12	600	110	310	44
Total suspended solids	4/12	130	<5.0	-19	11
PCBs					
Total aroclors	0/12	U0.0020	U0.00050	-0.0018	0.00017
Volatile Organics					
Chloroform	0/12	U0.0050	U0.0050	-0.0050	0
Trichloroethene	0/12	U0.0050	U0.0050	-0.0050	0
White Oak Creek (X14)					
Flow rates (1x10 ⁶ L/d) -- Max: 250, Min: 10, Avg: 29					
Anions					
Ammonia, as N	8/12	<0.20	<0.030	-0.093	0.021
Fluoride	11/12	1.1	0.17	-0.60	0.082
Nitrate, as N	12/12	1.5	0.42	1.1	0.090
Sulfate, as SO ₄	12/12	73	19	38	4.7
Field Measurements					
Chlorine, total residual	0/53	<0.020	<0.020	-0.020	0
Conductivity (mS/cm)	12/12	0.57	0.16	0.33	0.036
Dissolved oxygen	53/53	12	6.5	8.6	0.17
pH (SU)	12/12	7.9	7.4	7.7	0.049
Temperature (°C)	65/65	23	5.9	16	0.64
Turbidity (NTU)	12/12	140	6.0	20	11

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Table 3.2 (continued)

Parameter	N det/ N total	Concentration (mg/L)			Standard error ^c
		Max ^a	Min ^a	Av ^b	
Metals					
Aluminum, total	12/12	3.1	0.073	0.77	0.28
Arsenic, total	5/12	0.0077	<0.0010	~0.0017	0.00056
Cadmium, total	0/12	<0.0010	<0.0010	~0.0010	0
Chromium, total	9/12	0.0041	<0.0010	-0.0022	0.00035
Copper, total	7/12	0.017	<0.0010	-0.0053	0.0017
Iron, total	12/12	3.7	0.11	1.2	0.37
Lead, total	3/12	0.0070	<0.0010	-0.0019	0.00054
Manganese, total	12/12	0.32	0.017	0.11	0.033
Mercury, total	4/12	0.00037	<0.000050	-0.00021	0.000023
Nickel, total	0/12	<0.010	<0.010	~0.010	0
Phosphorus, total	10/12	0.75	<0.20	~0.37	0.042
Silver, total	0/12	<0.0010	<0.0010	~0.0010	0
Zinc, total	11/12	0.13	<0.0010	~0.050	0.013
Others					
Biochemical oxygen demand	0/12	<5.0	<5.0	-5.0	0
Oil and grease	0/53	<5.0	<5.0	-5.0	0
Phenolics, total recoverable	2/12	0.0080	<0.0010	~0.0023	0.00069
Total organic carbon	12/12	5.1	1.2	2.3	0.41
Physical					
Total dissolved solids	12/12	410	130	220	24
Total suspended solids	9/12	330	<5.0	~62	29
PCBs					
Total aroclors	0/12	U0.0020	U0.00050	~0.0018	0.00017
Volatile Organics					
Chloroform	10/12	U0.0050	J0.0010	-0.0023	0.00038
Trichloroethene	0/12	U0.0050	U0.0050	~0.0050	0
White Oak Dam (X15)					
Flow rates (1x10 ⁶ L/d) -- Max: 360, Min: 11, Avg: 39					
Anions					
Ammonia, as N	8/12	<0.20	<0.030	~0.082	0.021
Fluoride	10/12	0.95	<0.050	~0.51	0.076
Nitrate, as N	11/12	0.88	<0.10	~0.49	0.061
Sulfate, as SO ₄	12/12	75	21	45	5.1
Field Measurements					
Chlorine, total residual	0/53	<0.020	<0.020	~0.020	0
Conductivity (mS/cm)	12/12	0.45	0.19	0.33	0.021
Dissolved oxygen	53/53	14	3.5	8.3	0.26
pH (SU)	12/12	8.7	7.6	8.0	0.086

Annual Site Environmental Data

Table 3.2 (continued)

Parameter	N det/ N total	Concentration (mg/L)			Standard error ^c
		Max ^a	Min ^a	Av ^b	
Temperature (°C)	65/65	29	3.3	16	0.94
Turbidity (NTU)	12/12	160	10	45	12
Metals					
Aluminum, total	12/12	3.6	0.21	1.2	0.27
Arsenic, total	2/12	0.0026	<0.0010	-0.0012	0.00013
Cadmium, total	0/12	<0.0010	<0.0010	-0.0010	0
Chromium, total	12/12	0.043	0.0040	0.012	0.0030
Copper, total	11/12	0.079	<0.0010	-0.0099	0.0064
Iron, total	12/12	3.1	0.34	1.1	0.22
Lead, total	6/12	0.0059	<0.0010	-0.0017	0.00040
Manganese, total	12/12	0.24	0.040	0.14	0.019
Mercury, total	3/12	0.00084	<0.00020	-0.00026	0.000053
Nickel, total	2/12	0.012	<0.010	-0.010	0.00017
Phosphorus, total	10/12	0.43	<0.20	-0.30	0.023
Silver, total	1/12	0.0015	<0.0010	-0.0010	0.000042
Zinc, total	12/12	0.11	0.0011	0.030	0.011
Others					
Biochemical oxygen demand	1/12	6.9	<5.0	-5.2	0.16
Oil and grease	0/53	<5.0	<5.0	-5.0	0
Total organic carbon	12/12	8.0	1.7	4.0	0.58
Physical					
Total dissolved solids	12/12	280	160	210	13
Total suspended solids	11/12	65	<5.0	-29	5.5
PCBs					
Total aroclors	0/12	U0.0020	U0.00050	-0.0018	0.00017
Volatile Organics					
Chloroform	0/12	U0.0050	U0.0050	-0.0050	0
Trichloroethene	0/12	U0.0050	U0.0050	-0.0050	0

*Prefix "<" indicates the value for a parameter (excluding organics) was not quantifiable at the analytical detection limit; "U" indicates the value for an organic parameter was undetected at the analytical detection limit; "J" indicates the value was estimated at or below the analytical detection limit by the laboratory; and ">" indicates that the actual value was above the given value.

^bA tilde (~) indicates that estimated values and/or detection limits were used in the calculation.

^cStandard error of the mean.

^dThe geometric mean is computed rather than the average.

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Table 3.3. NPDES Permit Number TN 0002941, 1996 ORNL categories and cooling systems

Parameter	N det/ N total	Concentration (mg/L)			Standard error ^c
		Max ^a	Min ^a	Av ^b	
Category I outfalls					
Field Measurements					
Downstream pH (SU)	22/22	8.7	7.2	7.8	0.065
Flow (MGD)	22/22	0.042	0.0011	0.0074	0.0020
pH (SU)	22/22	8.2	6.8	7.7	0.066
Temperature (°C)	22/22	15	9.6	12	0.26
Others					
Oil and grease	0/22	<5.0	<5.0	-5.0	0
Physical					
Total suspended solids	21/22	180	<5.0	-31	8.9
Category II outfalls					
Field Measurements					
Downstream pH (SU)	163/163	8.9	7.2	7.7	0.018
Downstream temperature (°C)	39/39	25	9.8	17	0.61
Flow (MGD)	163/163	0.13	0.00018	0.018	0.0018
pH (SU)	163/163	8.9	6.5	7.7	0.025
Temperature (°C)	163/163	60	8.4	18	0.56
Others					
Oil and grease	0/163	<5.0	<5.0	-5.0	0
Physical					
Total suspended solids	67/163	1,200	<5.0	-21	7.7
Category III outfalls					
Field Measurements					
Flow (MGD)	50/50	0.16	0.00036	0.019	0.0045
pH (SU)	50/50	8.7	7.2	7.9	0.035
Cooling Systems					
Field Measurements					
Chlorine, total residual	7/12	0.18	<0.020	-0.060	0.016
Downstream pH (SU)	12/12	8.3	7.3	7.9	0.086
Flow (MGD)	12/12	0.19	0.0043	0.069	0.025
pH (SU)	12/12	8.7	7.2	8.1	0.15
Temperature (°C)	12/12	30	6.6	22	1.9

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Table 3.3 (continued)

Parameter	N det/ N total	Concentration (mg/L)			
		Max ^a	Min ^a	Av ^b	Standard error ^c
Metals					
Chromium, total	6/12	0.057	<0.0040	-0.016	0.0051
Copper, total	11/12	0.088	<0.0070	-0.049	0.0089
Zinc, total	12/12	0.48	0.015	0.18	0.043

^aPrefix "<" indicates the value for a parameter (excluding organics) was not quantifiable at the analytical detection limit.

^bA tilde (-) indicates that estimated values and/or detection limits were used in the calculation.

^cStandard error of the mean.

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Table 3.4. 1996 radionuclide concentrations at ORNL category outfalls

Radionuclide	N det/ Ntotal	Concentration (pCi/L)			Standard error ^c
		Max ^a	Min ^a	Av ^b	
Category I outfalls					
Gross beta	17/22	100*	-0.81	14*	5.2
Category II outfalls					
Gross beta	101/163	320*	-57	23*	4.6

^aIndividual radionuclide concentrations significantly greater than zero are identified by an *.

^bAverage radionuclide concentrations significantly greater than zero are identified by an *.

^cStandard error of the mean.

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Table 3.5. 1996 mercury concentrations in ORNL sediment

Location	N det/ N total	Concentration ($\mu\text{g/g}$)			
		Max ^a	Min ^a	Av ^b	Standard error ^c
Fifth Creek					
Outfall 261	6/6	120	13	48	17
Outfall 362	6/6	37	6.6	17	5.3
Melton Branch					
Headwaters	0/6	<0.092	<0.018	-0.056	0.015
Upstream White Oak Creek	3/6	0.10	0.022	-0.060	0.016
Northwest Tributary					
Upstream First Creek	6/6	0.38	0.072	0.22	0.064
White Oak Creek					
Upstream Fifth Creek	6/6	36	1.8	8.5	5.5
Downstream First Creek	6/6	4.7	2.0	3.0	0.47
Headwaters	3/6	<0.098	0.070	-0.084	0.0048
Downstream White Oak Dam	4/6	0.15	0.041	-0.089	0.017

^aPrefix "<" indicates the value for a parameter (excluding organics) was not quantifiable at the analytical detection limit.

^bA tilde (-) indicates that estimated values and/or detection limits were used in the calculation.

^cStandard error of the mean.

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Table 3.6. 1996 mercury concentrations in ORNL surface water

Location	N det/ N total	Concentration ($\mu\text{g/L}$)			Standard error ^c	Percent of TWQ ^d
		Max ^a	Min ^a	Av ^b		
First Creek						
Outfall 341	0/6	<0.20	<0.050	-0.13	0.034	8.3
Fifth Creek						
Outfall 261	0/6	<0.20	<0.050	-0.13	0.034	8.3
Outfall 363	0/6	<0.20	<0.050	-0.13	0.034	8.3
Outfall 367	0/6	<0.20	<0.050	-0.13	0.034	8.3
White Oak Creek						
Outfall 106	0/6	<0.20	<0.050	-0.13	0.034	8.3
Outfall 202	3/6	<0.20	0.063	-0.15	0.024	8.3
Outfall 207	3/6	0.55	<0.20	-0.36	0.070	23
Outfall 222	0/6	<0.20	<0.050	-0.13	0.034	8.3
Outfall 301	0/6	<0.20	<0.050	-0.13	0.034	8.3
Outfall 302	2/6	<0.20	<0.050	-0.13	0.033	8.3
Outfall 304	3/6	<0.20	0.061	-0.13	0.030	8.3
Headwaters	0/6	<0.20	<0.050	-0.13	0.034	8.3
Sewage Treatment Plant	0/6	<0.20	<0.050	-0.13	0.034	8.3

^aPrefix "<" indicates the value for a parameter (excluding organics) was not quantifiable at the analytical detection limit.

^bA tilde (-) indicates that estimated values and/or detection limits were used in the calculation.

^cStandard error of the mean.

^dMaximum concentration as a percentage of the Tennessee General Water Quality (TWQ) standard, 2.4 $\mu\text{g/L}$, for the protection of fish and aquatic life.

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Table 3.7. 1996 PCB concentrations in ORNL sediment

Parameter	N det/ N total	Concentration ($\mu\text{g}/\text{kg}$)			Standard error ^c
		Max ^a	Min ^a	Av ^b	
Site 04-Confluence of Fifth Creek and White Oak Creek					
Aroclor-1016	0/4	U67	U61	-64	1.6
Aroclor-1221	0/4	U130	U120	-130	3.3
Aroclor-1232	0/4	U67	U61	-64	1.6
Aroclor-1242	0/4	U67	U61	-64	1.6
Aroclor-1248	0/4	U67	U61	-64	1.6
Aroclor-1254	4/4	880	J9.1	-420	230
Aroclor-1260	2/4	530	U61	-290	130
Site 06-Upstream of Weir at 7500 Road Bridge					
Aroclor-1016	0/4	U410	U69	-160	86
Aroclor-1221	0/4	U830	U140	-310	170
Aroclor-1232	0/4	U410	U69	-160	86
Aroclor-1242	0/4	U410	U69	-160	86
Aroclor-1248	0/4	U410	U69	-160	86
Aroclor-1254	2/4	440	U69	-330	88
Aroclor-1260	4/4	1,900	640	1,100	300
Site 07-Upstream of Weir at Melton Branch					
Aroclor-1016	0/4	U440	U68	-170	91
Aroclor-1221	0/4	U880	U140	-330	180
Aroclor-1232	0/4	U440	U68	-170	91
Aroclor-1242	0/4	U440	U68	-170	91
Aroclor-1248	0/4	U440	U68	-170	91
Aroclor-1254	0/4	U440	U68	-170	91
Aroclor-1260	2/4	U78	J16	-54	14
Site 08-Melton Hill Lake southeast of 7600					
Aroclor-1016	0/4	U88	U60	-72	6.7
Aroclor-1221	0/4	U180	U120	-140	13
Aroclor-1232	0/4	U88	U60	-72	6.7
Aroclor-1242	0/4	U88	U60	-72	6.7
Aroclor-1248	0/4	U88	U60	-72	6.7
Aroclor-1254	1/4	U88	J11	-55	16
Aroclor-1260	0/4	U88	U60	-72	6.7

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Table 3.7 (continued)

Parameter	N det/ N total	Concentration ($\mu\text{g}/\text{kg}$)			Standard error ^c
		Max ^a	Min ^a	Av ^b	
Site 09-Melton Hill Lake west of PCB Storage Areas 7652 and 7656					
Aroclor-1016	0/4	U85	U66	-75	3.8
Aroclor-1221	0/4	U170	U130	-150	7.7
Aroclor-1232	0/4	U85	U66	-75	3.8
Aroclor-1242	0/4	U85	U66	-75	3.8
Aroclor-1248	0/4	U85	U66	-75	3.8
Aroclor-1254	2/4	U74	J11	-43	16
Aroclor-1260	0/4	U85	U66	-75	3.8
Site 10-White Oak Lake at mouth of White Oak Creek					
Aroclor-1016	0/4	U140	U63	-88	19
Aroclor-1221	0/4	U280	U130	-180	37
Aroclor-1232	0/4	U140	U63	-88	19
Aroclor-1242	0/4	U140	U63	-88	19
Aroclor-1248	0/4	U140	U63	-88	19
Aroclor-1254	0/4	U140	U63	-88	19
Aroclor-1260	2/4	280	U63	-130	51
Site 11-Melton Hill Lake east of 7600 and south of 7709					
Aroclor-1016	0/4	U140	U79	-110	15
Aroclor-1221	0/4	U270	U160	-220	29
Aroclor-1232	0/4	U140	U79	-110	15
Aroclor-1242	0/4	U140	U79	-110	15
Aroclor-1248	0/4	U140	U79	-110	15
Aroclor-1254	2/4	U89	J29	-57	16
Aroclor-1260	0/4	U140	U79	-110	15
Site 12-Watts Bar Lake south of 7700, Tower Shielding Facility					
Aroclor-1016	0/4	U73	U58	-66	3.7
Aroclor-1221	0/4	U150	U120	-130	7.5
Aroclor-1232	0/4	U73	U58	-66	3.7
Aroclor-1242	0/4	U73	U58	-66	3.7
Aroclor-1248	0/4	U73	U58	-66	3.7
Aroclor-1254	0/4	U73	U58	-66	3.7
Aroclor-1260	0/4	U73	U58	-66	3.7

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Table 3.7 (continued)

Parameter	N det/ N total	Concentration ($\mu\text{g}/\text{kg}$)			Standard error ^c
		Max ^a	Min ^a	Av ^b	
Site 13-White Oak Dam					
Aroclor-1016	0/4	U71	U66	-68	1.0
Aroclor-1221	0/4	U140	U130	-140	2.0
Aroclor-1232	0/4	U71	U66	-68	1.0
Aroclor-1242	0/4	U71	U66	-68	1.0
Aroclor-1248	0/4	U71	U66	-68	1.0
Aroclor-1254	2/4	U67	J8.0	-40	16
Aroclor-1260	0/4	U71	U66	-68	1.0
Site 14-Headwaters of White Oak Creek					
Aroclor-1016	0/4	U82	U68	-73	3.1
Aroclor-1221	0/4	U160	U140	-150	6.1
Aroclor-1232	0/4	U82	U68	-73	3.1
Aroclor-1242	0/4	U82	U68	-73	3.1
Aroclor-1248	0/4	U82	U68	-73	3.1
Aroclor-1254	2/4	U71	J19	-51	12
Aroclor-1260	0/4	U82	U68	-73	3.1

^aPrefix "U" indicates the value for an organic parameter was undetected at the analytical detection limit and "J" indicates the value was estimated at or below the analytical detection limit by the laboratory.

^bA tilde (-) indicates that estimated values and/or detection limits were used in the calculation.

^cStandard error of the mean.

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Table 3.8. 1996 analyses for ORNL off-site treated water monitoring

Parameter	N det/ N total	Concentration ($\mu\text{g/L}$)			Standard error ^c	DWS ^d	Percent of DWS ^e
		Max ^a	Min ^a	Av ^b			
Gallaher							
Metals (mg/L)							
Uranium, total ^f	2/4	0.00023	0.00010	0.00014*	0.000032	g	g
Radionuclides (pCi/L)							
Co-60	1/4	1.9*	-0.19	0.74	0.45	200	g
Cs-137	3/4	2.3*	-1.1	1.1	0.75	120	g
Gross alpha	0/4	0.84	0.57	0.70*	0.067	15	4.6
Gross beta	2/4	5.7*	0.62	2.8*	1.1	50	5.6
H-3	1/4	570*	140	310*	100	20,000	1.6
Pu-238	1/4	0.14	0.014	0.049	0.031	1.6	g
Pu-239	0/4	0.011	-0.26	-0.062	0.068	1.2	g
Total rad Sr	3/4	3.8*	0.70	2.0*	0.67	8	25
Total U ^{g,h}	2/4	0.15	0.066	0.089*	0.021	20	0.45
Kingston							
Metals (mg/L)							
Uranium, total ^f	3/4	0.00048	0.00010	0.00021	0.000092	g	g
Radionuclides (pCi/L)							
Co-60	2/4	3.0*	-3.8	-0.034	1.6	200	g
Cs-137	2/4	4.1*	1.1	2.2*	0.67	120	1.9
Gross alpha	1/4	0.73*	-0.16	0.22	0.19	15	g
Gross beta	3/4	3.8*	0.54	1.9*	0.68	50	3.8
H-3	0/4	410	-220	180	140	20,000	g
Pu-238	2/4	0.22	0.021*	0.090	0.044	1.6	g
Pu-239	0/4	0.19	-0.0032	0.064	0.044	1.2	g
Total rad Sr	0/4	0.92	0.027	0.42	0.19	8	g
Total U ^{g,h}	3/4	0.32	0.066	0.14	0.061	20	g

^aIndividual radionuclide concentrations significantly greater than zero are identified by an *.

^bAverage radionuclide concentrations significantly greater than zero are identified by an *.

^cStandard error of the mean.

^dDrinking Water Standards (from 40 CFR Parts 141 and 143, and the Tennessee General Water Quality Criteria for Domestic Water Supply. For radionuclides that do not have a drinking water standard, 4% of DCG for ingestion of water (from DOE Order 5400.5) is used.

^eAverage concentration as a percentage of the drinking water standards, calculated when a reference exists and the parameter is a contaminant. For radionuclides, percentage of DWS is calculated only when a reference exists and the average concentration is significantly greater than zero.

^fLaboratory method does not permit a test of significance for the maximum and minimum values.

^gNot applicable.

^hActivity derived from mass assuming natural abundance of U-234, U-235, and U-238.

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Table 3.9. 1996 monthly stream flows, ORNL

Month	Flow (10 ⁹ L)				Average Ratio ^d
	Melton Branch 1	White Oak Creek ^a	White Oak Dam ^b	Clinch River ^c	
January	0.51	1.4	2.1	600	0.0041
February	0.34	1.0	1.5	770	0.0020
March	0.34	1.1	1.6	430	0.0072
April	0.23	0.80	1.1	260	0.0062
May	0.33	1.3	1.7	270	0.012
June	0.26	0.97	1.3	480	0.0025
July	0.16	0.74	0.86	340	0.0023
August	0.12	0.68	0.87	430	0.0021
September	0.055	0.40	0.48	460	0.0011
October	0.031	0.36	0.41	570	0.00074
November	0.34	1.0	1.5	540	0.0029
December	0.37	1.1	1.6	870	0.0021

^aWhite Oak Creek above its confluence with Melton Branch.

^bWhite Oak Creek at White Oak Dam.

^cClinch River at Melton Hill Dam.

^dFlow ratios (White Oak Creek at White Oak Dam:Clinch River at Melton Hill Dam) are calculated daily and averaged for the month.

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Table 3.10. 1996 radionuclide concentrations at ORNL NPDES locations

Radionuclide	N det/ N total	Concentration (pCi/L)			Standard error ^c	DCG ^d	Percent of DCG ^e
		Max ^a	Min ^a	Av ^b			
Sewage Treatment Plant (X01)							
Co-60	1/12	15	-35	1.6	3.8	5,000	f
Cs-137	3/12	24	-12	5.3	3.4	3,000	f
Gross beta	12/12	620*	160*	360*	40	f	f
Total rad Sr	12/12	240*	73*	150*	16	1,000	15
Nonradiological Wastewater Treatment Facility (X12)							
Co-60	3/12	16	-27	3.3	4.1	5,000	f
Cs-137	12/12	570*	180*	360*	36	3,000	12
Gross alpha	12/12	62*	15*	30*	4.6	f	f
Gross beta	12/12	1,900*	510*	1,100*	120	f	f
H-3	12/12	170,000*	46,000*	98,000*	9,500	2,000,000	4.9
Total rad Sr	12/12	840*	150*	430*	70	1,000	43
Melton Branch 1 (X13)							
Co-60	2/12	38*	-14	5.0	4.6	5,000	f
Cs-137	2/12	11	-13	0.29	1.8	3,000	f
H-3	12/12	1,300,000*	460,000*	680,000*	62,000	2,000,000	34
Total rad Sr	12/12	490*	95*	230*	32	1,000	23
White Oak Creek (X14)							
Co-60	1/12	16	-20	0.95	2.4	5,000	f
Cs-137	7/12	51*	1.6	22*	3.7	3,000	0.72
H-3	12/12	59,000*	21,000*	39,000*	3,000	2,000,000	1.9
Total rad Sr	12/12	190*	84*	120*	10	1,000	12
White Oak Dam (X15)							
Co-60	21/52	9.2*	-3.0	2.3*	0.31	5,000	0.047
Cs-137	52/52	24*	4.6*	13*	0.66	3,000	0.45
Gross alpha	52/52	16*	2.6*	7.5*	0.40	f	f
Gross beta	52/52	430*	160*	300*	8.0	f	f

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Table 3.10 (continued)

Radionuclide	N det/ N total	Concentration (pCi/L)			Standard error ^c	DCG ^d	Percent of DCG ^e
		Max ^a	Min ^a	Av ^b			
H-3	12/12	180,000*	97,000*	150,000*	8,900	2,000,000	7.4
Total rad Sr	12/12	200*	97*	140*	7.6	1,000	14

^aIndividual radionuclide concentrations significantly greater than zero are identified by an *.

^bAverage radionuclide concentrations significantly greater than zero are identified by an *.

^cStandard error of the mean.

^dDerived concentration guide for ingestion of water. From DOE Order 5400.5.

^eAverage concentration as a percentage of the derived concentration guide (DCG), calculated only when a DCG exists and the average concentration is significantly greater than zero.

*Not applicable.

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Table 3.11. 1996 radionuclide concentrations in surface waters around ORNL

Radionuclide	N det/ N total	Concentration (pCi/L)			Standard error ^c	DCG ^d	Percent of DCG ^e
		Max ^a	Min ^a	Av ^b			
Melton Hill Dam							
Co-60	3/12	41*	-4.6	6.8*	3.4	5,000	0.14
Cs-137	0/12	5.7	-30	-3.8	2.6	3,000	f
Gross alpha	3/12	2.5*	-0.70	0.60*	0.25	f	f
Gross beta	6/12	22*	-0.27	4.6*	1.7	f	f
White Oak Creek Headwaters							
Co-60	0/12	14	-41	-3.0	4.0	5,000	f
Cs-137	0/12	6.5	-7.0	-1.1	1.1	3,000	f
Gross alpha	3/12	2.7*	-0.27	0.94*	0.28	f	f
Gross beta	8/12	11*	-1.1	3.5*	0.91	f	f
7500 Road Bridge							
Co-60	1/12	13	-14	0.19	2.6	5,000	f
Cs-137	6/12	32	2.7	15*	2.8	3,000	0.51
H-3	12/12	22,000*	3,500*	10,000*	1,700	2,000,000	0.52
Total rad Sr	12/12	110*	32*	65*	6.7	1,000	6.5
First Creek							
Co-60	1/12	14	-19	-0.70	3.1	5,000	f
Cs-137	0/12	11	-26	-2.1	2.9	3,000	f
Total rad Sr	12/12	230*	15*	65*	22	1,000	6.5
Fifth Creek							
Co-60	1/12	20*	-32	-0.59	3.8	5,000	f
Cs-137	1/12	14	-24	1.6	3.0	3,000	f
Total rad Sr	12/12	65*	10*	18*	4.4	1,000	1.8
Melton Branch 2							
Co-60	2/12	17	-22	-1.9	3.4	5,000	f
Cs-137	0/12	14	-11	0.52	1.9	3,000	f
H-3	12/12	92,000*	3,000*	20,000*	7,600	2,000,000	1.0
Total rad Sr	7/12	7.3*	0.16	2.4*	0.55	1,000	0.24

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Table 3.11 (continued)

Radionuclide	N det/ N total	Concentration (pCi/L)			Standard error ^c	DCG ^d	Percent of DCG ^e
		Max ^a	Min ^a	Av ^b			
Northwest Tributary							
Co-60	4/12	32*	-4.6	11*	3.0	5,000	0.23
Cs-137	2/12	16*	-17	0.38	2.8	3,000	f
Total rad Sr	12/12	68*	38*	53*	2.7	1,000	5.3
Raccoon Creek							
Co-60	1/12	14	-27	1.9	3.3	5,000	f
Cs-137	0/12	24	-18	2.7	3.4	3,000	f
Total rad Sr	11/12	21*	1.1	8.1*	1.9	1,000	0.81

^aIndividual radionuclide concentrations significantly greater than zero are identified by an *.

^bAverage radionuclide concentrations significantly greater than zero are identified by an *.

^cStandard error of the mean.

^dDerived concentration guide for ingestion of water. From DOE Order 5400.5.

^eAverage concentration as a percentage of the derived concentration guide (DCG), calculated only when a DCG exists and the average concentration is significantly greater than zero.

^fNot applicable.

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Table 3.12. 1996 analyses for ORNL reference surface waters

Parameter	N det/ N total	Concentration (mg/L)			Standard error ^c	Ref. Value ^d	Percent of Ref. Value ^e
		Max ^a	Min ^a	Av ^b			
Melton Hill Dam							
Anions							
Fluoride	1/12	0.11	<0.050	-0.097	0.0043	f	f
Nitrate, as N	12/12	1.4	0.38	0.82	0.089	f	f
Sulfate, as SO ₄	12/12	28	19	22	0.93	f	f
Field Measurements							
Conductivity (mS/cm)	12/12	0.30	0.19	0.26	0.0081	f	f
Dissolved oxygen (ppm)	12/12	12	6.5	8.9	0.52	f	f
pH (SU)	12/12	8.0	7.3	7.7	0.053	f	f
Temperature (°C)	12/12	24	4.9	14	1.8	f	f
Turbidity (NTU)	12/12	32	8.0	17	2.1	f	f
Metals							
Aluminum, total	12/12	1.1	0.091	0.31	0.081	f	f
Arsenic, total	0/12	<0.050	<0.050	-0.050	0	0.05	f
Cadmium, total	0/12	<0.0050	<0.0050	-0.0050	0	0.005	f
Chromium, total	0/12	<0.0040	<0.0040	-0.0040	0	0.1	f
Copper, total	0/12	<0.0070	<0.0070	-0.0070	0	f	f
Iron, total	12/12	1.0	0.099	0.36	0.081	f	f
Lead, total	0/12	<0.050	<0.050	-0.050	0	0.005	f
Manganese, total	12/12	0.21	0.021	0.080	0.019	f	f
Nickel, total	0/12	<0.010	<0.010	-0.010	0	0.1	f
Phosphorus, total	8/12	0.37	<0.20	-0.27	0.019	f	f
Silver, total	0/12	<0.0050	<0.0050	-0.0050	0	f	f
Zinc, total	9/12	0.023	<0.0050	-0.0090	0.0015	f	f
Others							
Oil and grease	0/12	<5.0	<5.0	-5.0	0	f	f
Total organic carbon	12/12	27	0.63	4.1	2.1	f	f
Physical							
Total dissolved solids	12/12	220	130	160	7.0	f	f
Total suspended solids	5/12	25	<5.0	-7.8	1.7	f	f
White Oak Creek Headwaters							
Anions							
Fluoride	0/12	<0.10	<0.050	-0.096	0.0042	f	f
Nitrate, as N	9/12	1.0	<0.10	-0.29	0.092	f	f
Sulfate, as SO ₄	12/12	7.6	2.0	3.6	0.43	f	f

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Table 3.12 (continued)

Parameter	N det/ N total	Concentration (mg/L)			Standard error ^c	Ref. Value ^d	Percent of Ref. Value ^e
		Max ^a	Min ^a	Av ^b			
Field Measurements							
Conductivity (mS/cm)	12/12	0.23	0.098	0.17	0.012	f	f
Dissolved oxygen (ppm)	12/12	11	7.3	9.5	0.31	f	f
pH (SU)	12/12	8.1	7.2	7.6	0.098	f	f
Temperature (°C)	12/12	16	7.7	13	0.85	f	f
Turbidity (NTU)	12/12	95	5.0	25	7.5	f	f
Metals							
Aluminum, total	12/12	2.4	0.072	1.1	0.25	f	f
Arsenic, total	0/12	<0.050	<0.050	-0.050	0	f	f
Cadmium, total	0/12	<0.0050	<0.0050	-0.0050	0	0.0039	f
Chromium, total	0/12	<0.0040	<0.0040	-0.0040	0	0.016	f
Copper, total	0/12	<0.0070	<0.0070	-0.0070	0	0.0177	f
Iron, total	12/12	2.7	0.093	1.1	0.27	f	f
Lead, total	0/12	<0.050	<0.050	-0.050	0	0.0817	f
Manganese, total	12/12	0.39	0.0068	0.12	0.033	f	f
Nickel, total	0/12	<0.010	<0.010	-0.010	0	1.418	f
Phosphorus, total	7/12	0.37	<0.20	-0.27	0.021	f	f
Silver, total	0/12	<0.0050	<0.0050	-0.0050	0	0.0041	f
Zinc, total	10/12	0.026	<0.0050	-0.013	0.0022	0.117	11
Others							
Oil and grease	0/12	<5.0	<5.0	-5.0	0	f	f
Total organic carbon	12/12	4.3	0.50	1.6	0.35	f	f
Physical							
Total dissolved solids	12/12	170	62	110	11	f	f
Total suspended solids	10/12	100	<5.0	-47	11	f	f

^aPrefix "<" indicates the value of a parameter (excluding organics) was not quantifiable at the analytical detection limit.

^bA tilde (~) indicates that estimated values and/or detection limits were used in the calculation.

^cStandard error of the mean.

^dTennessee General Water Quality Criteria for Domestic Water Supply is used as a reference value for Melton Hill Dam; Tennessee General Water Quality Criteria for Fish and Aquatic Life is used as a reference value for White Oak Creek headwaters.

^eAverage concentration as a percentage of the reference value, calculated when a reference exists, the parameter is a contaminant, and the parameter is detected.

^fNot applicable.

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Table 3.13. Constituents in Waste Area Grouping (WAG) 1 groundwater at ORNL, April 30-June 6, 1996.

Parameter	N det/ N total	Concentration			Reference value	Number of values exceeding reference [ref] ^c
		Max ^a	Min ^a	Max ^b		
Downgradient Wells						
Anions, unfiltered (mg/L)						
Bromide	9/21	1.1	<0.10	~0.24	d	[d]
Chloride	21/21	110	1.9	29	250	0[3]
Fluoride	8/21	4.3	<0.10	~0.65	4	1[2]
Nitrate	14/21	12	<0.10	~2.1	10	1[2]
Phosphate	1/21	0.72	<0.50	~0.51	d	[d]
Sulfate, as SO ₄	21/21	130	0.62	35	250	0[3]
Field measurements, unfiltered						
Conductivity (mS/cm)	21/21	1.2	0.35	0.69	d	[d]
Dissolved oxygen (mg/L)	21/21	12	7.2	11	d	[d]
Redox (mV)	21/21	410	31	190	d	[d]
Temperature (°C)	21/21	20	14	16	30.5	0[1]
Turbidity (JTU)	21/21	160	0	44	1	18[2]
pH (SU)	21/21	8.8	6.2	6.9	(6.0, 9.0)	0[1]
Metals, unfiltered (mg/L)						
Aluminum, total	9/21	3.0	<0.050	~0.37	(0.05, 0.20)	5[3]
Barium, total	21/21	0.26	0.0086	0.10	2	0[1]
Boron, total	9/21	1.1	<0.080	~0.20	d	[d]
Calcium, total	21/21	180	1.2	82	d	[d]
Chromium, total	2/21	0.20	<0.0040	~0.014	0.1	1[1]
Copper, total	1/21	0.0095	<0.0070	~0.0071	1.3	0[2]
Iron, total	16/21	11	<0.050	~2.2	0.3	13[3]
Magnesium, total	21/21	30	0.55	17	d	[d]
Manganese, total	18/21	7.2	<0.0010	~0.77	0.05	11[3]
Nickel, total	1/21	0.083	<0.010	~0.013	0.1	0[1]
Potassium, total	12/21	7.2	<2.0	~2.7	d	[d]
Silicon, total	21/21	10	3.1	5.5	d	[d]
Sodium, total	21/21	290	2.1	42	d	[d]
Vanadium, total	8/21	0.0050	<0.0020	~0.0025	d	[d]
Zinc, total	2/21	0.028	<0.0050	~0.0064	5	0[3]
Others, unfiltered						
Alkalinity (mg/L)	21/21	470	180	310	d	[d]
Total organic carbon (mg/L)	21/21	4.5	0.51	1.6	d	[d]
Total organic halides (µg/L)	11/21	190	<10	~28	d	[d]
Total suspended solids (mg/L)	7/21	87	<5.0	~13	d	[d]

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Table 3.13 (continued)

Parameter	N det/ N total	Concentration			Reference value	Number of values exceeding reference [ref] ^c
		Max ^a	Min ^a	Max ^b		
Radionuclides, filtered (pCi/L) ^e						
Co-60	2/21	3.2*	-2.4	0.79*	200	0[4]
Gross alpha	10/21	700*	-1.9	34	15	1[2]
Gross beta	16/21	18,000*	-2.2	890	50	2[2]
H-3	16/21	7,300*	-220	1,400*	20,000	0[2]
Total rad Sr	6/21	6,500*	-0.70	320	8	3[2]
Radionuclides, unfiltered (pCi/L) ^e						
Co-60	1/21	3.8*	-4.3	0.32	200	0[4]
Gross alpha	7/21	780*	-3.2	38	15	1[2]
Gross beta	13/21	19,000*	-1.4	950	50	2[2]
H-3	17/21	7,300*	-460	1,300*	20,000	0[2]
Total rad Sr	9/21	6,800*	-0.32	330	8	3[2]
Volatile organics, unfiltered (µg/L)						
1,1,1-Trichloroethane	2/21	U5.0	J1.0	~4.7	200	0[1]
1,2-Dichloroethene, total	1/21	U5.0	J1.0	~4.8	70	0[2]
2-Butanone	21/21	J84.0	J82.0	~2.7	d	[d]
Carbon tetrachloride	1/21	U5.0	J3.0	~4.9	5	0[1]
Chloroform	2/21	6.0	U5.0	~5.0	100	0[2]
Toluene	1/21	U5.0	J1.0	~4.8	1,000	0[1]
Trichloroethene	2/21	7.0	J3.0	~5.0	5	1[1]
Vinyl chloride	1/21	18	U10	~10	2	21[1]
Xylene, m&p	1/21	U5.0	J1.0	~4.8	d	[d]
Xylene, total	1/21	U5.0	J1.0	~4.8	10,000	0[1]
cis-1,2-Dichloroethene	1/21	U5.0	J1.0	~4.8	d	[d]
Upgradient Wells						
Anions, unfiltered (mg/L)						
Chloride	3/3	46	2.8	18	250	0[3]
Fluoride	1/3	1.0	<0.10	~0.40	4	0[2]
Nitrate	3/3	6.6	0.41	4.1	10	0[2]
Sulfate, as SO ₄	3/3	31	20	27	250	0[3]
Field measurements, unfiltered						
Conductivity (mS/cm)	3/3	0.69	0.47	0.61	d	[d]
Dissolved oxygen (mg/L)	3/3	11	11	11	d	[d]
Redox (mV)	3/3	290	170	240	d	[d]
Temperature (°C)	3/3	17	16	16	30.5	0[1]
Turbidity (JTU)	3/3	10	6.0	8.7	1	3[2]
pH (SU)	3/3	8.0	7.3	7.6	(6.0, 9.0)	0[1]

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Table 3.13 (continued)

Parameter	N det/ N total	Concentration			Reference value	Number of values exceeding reference [ref] ^c
		Max ^d	Min ^d	Max ^b		
Metals, unfiltered (mg/L)						
Barium, total	3/3	0.18	0.025	0.097	2	0[1]
Boron, total	1/3	0.24	<0.080	~0.13	d	[d]
Calcium, total	3/3	130	30	87	d	[d]
Iron, total	1/3	0.051	<0.050	~0.050	0.3	0[3]
Magnesium, total	3/3	26	7.2	16	d	[d]
Manganese, total	3/3	0.0032	0.0010	0.0024	0.05	0[3]
Mercury, total	1/3	0.000086	<0.000050	~0.000062	0.002	0[1]
Nickel, total	1/3	0.026	<0.010	~0.015	0.1	0[1]
Potassium, total	1/3	2.0	<2.0	~2.0	d	[d]
Silicon, total	3/3	6.8	3.0	4.8	d	[d]
Sodium, total	3/3	35	3.7	16	d	[d]
Others, unfiltered						
Alkalinity (mg/L)	3/3	360	250	290	d	[d]
Total organic carbon (mg/L)	3/3	1.1	0.56	0.81	d	[d]
Total organic halides (µg/L)	1/3	14	<10	~11	d	[d]
Radionuclides, filtered (pCi/L)^e						
Gross alpha	1/3	3.0*	0.70	1.5	15	0[2]
Gross beta	1/3	5.1*	-4.1	0.81	50	0[2]
H-3	2/3	1,500*	570	960*	20,000	0[2]
Total rad Sr	1/3	3.8*	0.70	1.8	8	0[2]
Radionuclides, unfiltered (pCi/L)^e						
Gross alpha	1/3	1.3*	0.70	1.1*	15	0[2]
Gross beta	1/3	4.3*	-1.1	1.8	50	0[2]
H-3	2/3	1,500*	410	830	20,000	0[2]
Volatile organics, unfiltered (µg/L)						
2-Butanone	3/3	JB3.0	JB2.0	~2.7	d	[d]
Chloroform	1/3	7.0	U5.0	~5.7	100	0[2]

^aPrefix "<" indicates the value for a parameter (excluding organics) was not quantifiable at the analytical detection limit; "J" indicates the value was estimated at or below the analytical detection limit by the laboratory; "JB" indicates the value was estimated at or below the analytical detection limit and was found in the laboratory blank; and "U" indicates the value for an organic parameter was undetected at the analytical detection limit.

^bA tilde (~) indicates that estimated and/or undetected values were used in the calculation.

^cIf a reference limit exists, the source is coded as:

1 Rules of Tennessee Department of Environment and Conservation, Division of Water Pollution Control, Chapter 1200-4-3, General Water Quality Criteria, Domestic Water Supply, as amended.

2 40 CFR Part 141--National Primary Drinking Water Regulations, Subparts B and G, as amended.

3 40 CFR Part 143--National Secondary Drinking Water Regulations, as amended.

4 DOE Order 5400.5, Chapter III, Derived Concentration Guides for Air and Water.

^dNot applicable.

^eIndividual and average radionuclide concentrations significantly greater than zero are identified by an *.

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Table 3.14. Constituents in Waste Area Grouping (WAG) 2 groundwater at ORNL, March 13-April 9, 1996.

Parameter	N det/ N total	Concentration			Reference value	Number of values exceeding reference [ref] ^c
		Max ^a	Min ^a	Max ^b		
Downgradient Wells						
Anions, unfiltered (mg/L)						
Bromide	3/8	0.78	<0.10	~0.21	d	[d]
Chloride	8/8	55	1.4	16	250	0[3]
Fluoride	1/8	3.0	<0.10	~0.46	4	0[2]
Nitrate	3/8	5.5	<0.10	~1.1	10	0[2]
Phosphate	2/8	0.79	<0.50	~0.57	d	[d]
Sulfate, as SO ₄	8/8	35	0.54	12	250	0[3]
Field measurements, unfiltered						
Conductivity (mS/cm)	8/8	0.88	0.24	0.59	d	[d]
Dissolved oxygen (mg/L)	8/8	12	9.1	11	d	[d]
Redox (mV)	8/8	350	140	220	d	[d]
Temperature (°C)	8/8	16	13	15	30.5	0[1]
Turbidity (JTU)	8/8	61	0	20	1	6[2]
pH (SU)	8/8	9.1	6.2	7.3	(6.0, 9.0)	1[1]
Metals, unfiltered (mg/L)						
Aluminum, total	4/8	0.58	<0.050	~0.13	(0.05, 0.20)	1[3]
Arsenic, total	1/8	0.046	<0.010	~0.015	0.05	0[1]
Barium, total	8/8	0.95	0.046	0.23	2	0[1]
Boron, total	2/8	0.97	<0.080	~0.19	d	[d]
Calcium, total	8/8	150	0.89	63	d	[d]
Chromium, total	4/8	0.28	<0.0040	~0.058	0.1	2[1]
Copper, total	1/8	0.0078	<0.0070	~0.0071	1.3	0[2]
Iron, total	8/8	17	0.056	4.1	0.3	7[3]
Magnesium, total	8/8	20	0.29	8.8	d	[d]
Manganese, total	8/8	0.87	0.0034	0.21	0.05	4[3]
Nickel, total	2/8	0.027	<0.010	~0.013	0.1	0[1]
Potassium, total	2/8	3.2	<2.0	~2.2	d	[d]
Silicon, total	8/8	8.9	3.2	6.2	d	[d]
Sodium, total	8/8	190	41	49	d	[d]
Vanadium, total	2/8	0.0028	<0.0020	~0.0021	d	[d]
Others, unfiltered						
Alkalinity (mg/L)	8/8	470	100	300	d	[d]
Total organic carbon (mg/L)	8/8	4.5	0.57	1.2	d	[d]
Total organic halides (µg/L)	2/8	270	<5.0	~45	d	[d]
Total suspended solids (mg/L)	4/8	32	<5.0	~14	d	[d]
Radionuclides, filtered (pCi/L) ^e						
Gross alpha	4/8	7.3*	-0.54	2.7*	15	0[2]
Gross beta	4/8	730*	-16	92	50	1[2]
H-3	5/8	160,000*	-81	43,000*	20,000	3[2]
Total rad Sr	1/8	350*	-1.6	44	8	1[2]

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Table 3.14 (continued)

Parameter	N det/ N total	Concentration			Reference value	Number of values exceeding reference [ref] ^c
		Max ^a	Min ^d	Max ^e		
Radionuclides, unfiltered (pCi/L) ^f						
Co-60	2/8	3.8*	-0.81	1.1*	200	0 [4]
Gross alpha	5/8	8.9*	-1.6	3.1*	15	0 [2]
Gross beta	3/8	700*	-2.4	89	50	1 [2]
H-3	6/8	150,000*	-54	42,000*	20,000	3 [2]
Total rad Sr	2/8	320*	-0.97	41	8	1 [2]
Volatile organics, unfiltered (µg/L)						
2-Butanone	8/8	JB4.0	JB2.0	~2.5	d	[d]
Upgradient Wells						
Anions, unfiltered (mg/L)						
Chloride	12/12	9.7	0.86	4.0	250	0 [3]
Fluoride	1/12	0.45	<0.10	~0.13	4	0 [2]
Nitrate	6/12	2.5	<0.10	~0.45	10	0 [2]
Sulfate, as SO ₄	12/12	87	6.4	36	250	0 [3]
Field measurements, unfiltered						
Conductivity (mS/cm)	12/12	0.73	0.27	0.53	d	[d]
Dissolved oxygen (mg/L)	12/12	13	10	12	d	[d]
Redox (mV)	12/12	300	130	250	d	[d]
Temperature (°C)	12/12	16	10	12	30.5	0 [1]
Turbidity (JTU)	12/12	99	0	11	1	5 [2]
pH (SU)	12/12	9.1	6.3	7.3	(6.0, 9.0)	1 [1]
Metals, unfiltered (mg/L)						
Aluminum, total	3/12	0.24	<0.050	~0.068	(0.05, 0.20)	1 [3]
Barium, total	12/12	0.50	0.034	0.16	2	0 [1]
Boron, total	7/12	0.80	<0.080	~0.18	d	[d]
Calcium, total	12/12	110	1.0	55	d	[d]
Cobalt, total	2/12	0.011	<0.0040	~0.0046	d	[d]
Iron, total	7/12	3.2	<0.050	~0.37	0.3	2 [3]
Magnesium, total	12/12	24	0.26	13	d	[d]
Manganese, total	12/12	6.4	0.0016	0.69	0.05	5 [3]
Nickel, total	2/12	0.022	<0.010	~0.011	0.1	0 [1]
Potassium, total	5/12	5.6	<2.0	~2.6	d	[d]
Silicon, total	12/12	9.0	2.9	6.3	d	[d]
Sodium, total	12/12	170	5.2	43	d	[d]
Vanadium, total	1/12	<0.020	<0.0020	~0.0035	d	[d]
Others, unfiltered						
Alkalinity (mg/L)	12/12	400	140	260	d	[d]
Total organic carbon (mg/L)	10/12	2.1	<0.50	~0.82	d	[d]
Total suspended solids (mg/L)	2/12	8.8	<5.0	~5.5	d	[d]

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Table 3.14 (continued)

Parameter	N det/ N total	Concentration			Reference value	Number of values exceeding reference [ref] ^c
		Max ²	Min ³	Max ²		
Radionuclides, filtered (pCi/L)^e						
Co-60	2/12	110*	-5.1	9.4	200	0 [4]
Gross alpha	6/12	10*	0.22	3.7*	15	0 [2]
Gross beta	6/12	300*	-1.6	30	50	1 [2]
H-3	5/12	350,000*	0	32,000	20,000	2 [2]
Total rad Sr	2/12	3.8*	-2.1	0.40	8	0 [2]
Radionuclides, unfiltered (pCi/L)^e						
Co-60	1/12	100*	-2.4	9.4	200	0 [4]
Cs-137	1/12	4.1*	-2.7	0.34	120	0 [4]
Gross alpha	8/12	9.2*	0.65	3.4*	15	0 [2]
Gross beta	9/12	350*	1.6	36	50	1 [2]
H-3	5/12	350,000*	-380	32,000	20,000	2 [2]
Total rad Sr	2/12	7.8*	-0.95	1.0	8	0 [2]
Volatile organics, unfiltered (µg/L)						
2-Butanone	12/12	JB3.0	JB2.0	~2.7	d	[d]

^aPrefix "<" indicates the value or a parameter (excluding organics) was not quantifiable at the analytical detection limit, and "JB" indicates the value was estimated at or below the analytical detection limit and was found in the laboratory blank.

^bA tilde (~) indicates that estimated and/or undetected values were used in the calculation.

^cIf a reference limit exists, the source is coded as:

1 Rules of Tennessee Department of Environment and Conservation, Division of Water Pollution Control, Chapter 1200-4-3, General Water Quality Criteria, Domestic Water Supply, as amended.

2 40 CFR Part 141--National Primary Drinking Water Regulations, Subparts B and G, as amended.

3 40 CFR Part 143--National Secondary Drinking Water Regulations, as amended.

4 DOE Order 5400.5, Chapter III, Derived Concentration Guides for Air and Water.

^dNot applicable.

^eIndividual and average radionuclide concentrations significantly greater than zero are identified by an *.

Oak Ridge Reservation

Table 3.15. Constituents in Waste Area Grouping (WAG) 3 groundwater at ORNL, June 18-July 18, 1996.

Parameter	N det/ N total	Concentration			Reference value	Number of values exceeding reference [ref] ^c
		Max ^a	Min ^a	Max ^b		
Downgradient Wells						
Anions, unfiltered (mg/L)						
Bromide	3/10	0.27	<0.10	~0.13	d	[d]
Chloride	10/10	370	2.2	85	250	1[3]
Fluoride	2/10	0.81	<0.10	~0.22	4	0[2]
Nitrate	2/10	3.0	<0.10	~0.42	10	0[2]
Sulfate, as SO ₄	10/10	250	2.7	61	250	1[3]
Field measurements, unfiltered						
Conductivity (mS/cm)	10/10	1.6	0.57	0.91	d	[d]
Dissolved oxygen (mg/L)	10/10	13	1.3	8.1	d	[d]
Redox (mV)	10/10	760	120	290	d	[d]
Temperature (°C)	10/10	17	14	15	30.5	0[1]
Turbidity (JTU)	10/10	300	2.0	100	1	10[2]
pH (SU)	10/10	8.1	6.3	6.9	(6.0, 9.0)	0[1]
Metals, unfiltered (mg/L)						
Aluminum, total	2/10	0.054	<0.050	~0.051	(0.05, 0.20)	0[3]
Barium, total	10/10	0.65	0.054	0.17	2	0[1]
Boron, total	7/10	3.8	<0.080	~0.69	d	[d]
Calcium, total	10/10	220	31	120	d	[d]
Chromium, total	1/10	0.018	<0.0040	~0.0054	0.1	0[1]
Cobalt, total	1/10	0.0059	<0.0040	~0.0042	d	[d]
Iron, total	7/10	2.8	<0.050	~0.59	0.3	3[3]
Magnesium, total	10/10	57	11	28	d	[d]
Manganese, total	9/10	2.7	<0.0010	~0.41	0.05	5[3]
Mercury, total	1/10	0.000055	<0.000050	~0.000051	0.002	0[1]
Potassium, total	7/10	22	<2.0	~5.0	d	[d]
Silicon, total	10/10	7.1	4.9	5.7	d	[d]
Sodium, total	10/10	100	4.7	37	d	[d]
Zinc, total	1/10	0.0057	<0.0050	~0.0051	5	0[3]
Others, unfiltered						
Alkalinity (mg/L)	10/10	440	280	360	d	[d]
Total organic carbon (mg/L)	10/10	7.8	0.59	2.3	d	[d]
Total organic halides (µg/L)	6/10	71	<10	~26	d	[d]
Total suspended solids (mg/L)	1/10	11	<5.0	~5.6	d	[d]
Radionuclides, filtered (pCi/L) ^e						
Co-60	3/10	8.6*	-2.2	2.7*	200	0[4]
Cs-137	2/10	7.6*	-4.3	1.2	120	0[4]
Gross alpha	4/10	12*	-0.19	2.6*	15	0[2]
Gross beta	10/10	1,100*	3.5*	230	50	4[2]
H-3	9/10	16,000*	540*	2,400	20,000	0[2]
Total rad Sr	7/10	650*	-0.38	110	8	4[2]

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Table 3.15 (continued)

Parameter	N det/ N total	Concentration			Reference value	Number of values exceeding reference [ref] ^c
		Max ^a	Min ^b	Max ^b		
Radionuclides, unfiltered (pCi/L) ^e						
Cs-137	2/10	16	-43	-1.6	120	0 [4]
Gross alpha	5/10	4.6*	-0.89	1.4*	15	0 [2]
Gross beta	10/10	1,700*	2.1*	260	50	3 [2]
H-3	7/10	15,000*	54	2,100	20,000	0 [2]
Total rad Sr	7/10	730*	-0.62	120	8	4 [2]
Volatile organics, unfiltered (µg/L)						
1,2-Dichloroethene, total	3/10	U5.0	J2.0	~4.3	70	0 [2]
2-Butanone	8/10	B34	JB2.0	~7.3	d	[d]
Trichloroethene	1/10	5.0	U5.0	~5.0	5	0 [1]
Vinyl chloride	3/10	U10	J2.0	~7.7	2	8 [1]
cis-1,2-Dichloroethene	4/10	6.0	J2.0	~4.6	d	[d]
Upgradient Wells						
Anions, unfiltered (mg/L)						
Chloride	3/3	2.4	1.5	1.9	250	0 [3]
Nitrate	2/3	0.88	<0.10	~0.49	10	0 [2]
Sulfate, as SO ₄	3/3	17	5.4	10	250	0 [3]
Field measurements, unfiltered						
Conductivity (mS/cm)	3/3	0.64	0.25	0.48	d	[d]
Dissolved oxygen (mg/L)	3/3	13	13	13	d	[d]
Redox (mV)	3/3	260	200	230	d	[d]
Temperature (°C)	3/3	16	14	15	30.5	0 [1]
Turbidity (JTU)	3/3	220	6.0	93	1	3 [2]
pH (SU)	3/3	6.9	5.9	6.3	(6.0, 9.0)	1 [1]
Metals, unfiltered (mg/L)						
Aluminum, total	3/3	0.27	0.15	0.20	(0.05, 0.20)	1 [3]
Barium, total	3/3	0.060	0.020	0.034	2	0 [1]
Calcium, total	3/3	130	42	97	d	[d]
Iron, total	3/3	0.53	0.15	0.33	0.3	1 [3]
Magnesium, total	3/3	15	2.4	6.8	d	[d]
Manganese, total	3/3	0.063	0.0017	0.023	0.05	1 [3]
Mercury, total	2/3	0.00011	<0.000050	~0.000072	0.002	0 [1]
Silicon, total	3/3	4.7	2.6	3.9	d	[d]
Sodium, total	3/3	2.9	1.9	2.3	d	[d]
Zinc, total	2/3	0.012	<0.0050	~0.0076	5	0 [3]
Others, unfiltered						
Alkalinity (mg/L)	3/3	420	130	290	d	[d]
Total organic carbon (mg/L)	3/3	2.1	0.82	1.5	d	[d]
Total suspended solids (mg/L)	1/3	5.2	<5.0	~5.1	d	[d]

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Table 3.15 (continued)

Parameter	N det/ N total	Concentration			Reference value	Number of values exceeding reference [ref] ^c
		Max ^d	Min ^d	Max ^b		
Radionuclides, filtered (pCi/L) ^e						
Co-60	2/3	3.8*	-1.9	1.2	200	0[4]
Gross beta	1/3	4.3*	0.54	1.9	50	0[2]
H-3	3/3	1,400*	1,200*	1,300*	20,000	0[2]
Radionuclides, unfiltered (pCi/L) ^e						
Co-60	1/3	2.0*	-0.27	0.93	200	0[4]
Gross alpha	1/3	1.5*	0.24	0.86	15	0[2]
Gross beta	2/3	5.1*	0.54	3.2	50	0[2]
H-3	3/3	1,200*	620*	880*	20,000	0[2]
Volatile organics, unfiltered (µg/L)						
2-Butanone	3/3	JB2.0	JB2.0	~2.0	d	[d]

^aPrefix "<" indicates the value for a parameter (excluding organics) was not quantifiable at the analytical detection limit; "J" indicates the value was estimated at or below the analytical detection limit by the laboratory; "B" indicates the compound was found in the laboratory blank; "JB" indicates the value was estimated at or below the analytical detection limit and was found in the laboratory blank; and "U" indicates the value for an organic parameter was undetected at the analytical detection limit.

^bA tilde (~) indicates that estimated and/or undetected values were used in the calculation.

^cIf a reference limit exists, the source is coded as:

1 Rules of Tennessee Department of Environment and Conservation, Division of Water Pollution Control, Chapter 1200-4-3, General Water Quality Criteria, Domestic Water Supply, as amended.

2 40 CFR Part 141--National Primary Drinking Water Regulations, Subparts B and G, as amended.

3 40 CFR Part 143--National Secondary Drinking Water Regulations, as amended.

4 DOE Order 5400.5, Chapter III, Derived Concentration Guides for Air and Water.

^dNot applicable.

^eIndividual and average radionuclide concentrations significantly greater than zero are identified by an *.

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Table 3.16. Constituents in Waste Area Grouping (WAG) 4 groundwater at ORNL, March 13-April 9, 1996.

Parameter	N det/ N total	Concentration			Reference value	Number of values exceeding reference [ref] ^c
		Max ^a	Min ^a	Max ^b		
Downgradient Wells						
Anions, unfiltered (mg/L)						
Bromide	7/11	1.5	<0.10	~0.44	d	[d]
Chloride	11/11	260	2.6	55	250	1[3]
Fluoride	5/11	7.4	<0.10	~1.2	4	1[2]
Nitrate	2/11	5.2	<0.10	~0.62	10	0[2]
Phosphate	3/11	0.79	<0.50	~0.55	d	[d]
Sulfate, as SO ₄	11/11	200	0.44	56	250	0[3]
Field measurements, unfiltered						
Conductivity (mS/cm)	11/11	1.5	0.42	0.87	d	[d]
Dissolved oxygen (mg/L)	11/11	14	7.7	11	d	[d]
Redox (mV)	11/11	320	32	190	d	[d]
Temperature (°C)	11/11	16	11	14	30.5	0[1]
Turbidity (JTU)	11/11	170	0	27	1	7[2]
pH (SU)	11/11	9.6	6.5	7.5	(6.0, 9.0)	1[1]
Metals, unfiltered (mg/L)						
Aluminum, total	3/11	1.1	<0.050	~0.20	(0.05, 0.20)	2[3]
Barium, total	11/11	0.56	0.016	0.14	2	0[1]
Boron, total	7/11	0.67	<0.080	~0.23	d	[d]
Calcium, total	11/11	130	1.4	60	d	[d]
Chromium, total	1/11	0.0054	<0.0040	~0.0041	0.1	0[1]
Iron, total	10/11	20	<0.050	~2.6	0.3	6[3]
Magnesium, total	11/11	31	0.31	15	d	[d]
Manganese, total	11/11	3.1	0.0039	0.44	0.05	6[3]
Mercury, total	1/11	0.000058	<0.000050	~0.000051	0.002	0[1]
Nickel, total	6/11	0.16	<0.010	~0.048	0.1	2[1]
Potassium, total	10/11	4.6	<2.0	~3.3	d	[d]
Silicon, total	11/11	15	3.9	8.5	d	[d]
Sodium, total	11/11	370	10	110	d	[d]
Vanadium, total	1/11	0.0086	<0.0020	~0.0026	d	[d]
Zinc, total	1/11	0.013	<0.0050	~0.0057	5	0[3]
Others, unfiltered						
Alkalinity (mg/L)	11/11	500	130	350	d	[d]
Total organic carbon (mg/L)	7/11	6.7	<0.50	~1.5	d	[d]
Total organic halides (µg/L)	6/11	2,600	<5.0	~270	d	[d]
Total suspended solids (mg/L)	4/11	34	<5.0	~8.9	d	[d]
Radionuclides, filtered (pCi/L) ^e						
Co-60	2/11	5.9*	-3.5	0.32	200	0[4]
Cs-137	1/11	4.6*	-1.4	1.1*	120	0[4]

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Table 3.16 (continued)

Parameter	N det/ N total	Concentration			Reference value	Number of values exceeding reference [ref] ^c
		Max ^d	Min ^d	Max ^b		
Gross alpha	9/11	13*	-3.2	4.6*	15	0[2]
Gross beta	9/11	1,200*	-0.54	110	50	1[2]
H-3	10/11	7,300,000*	-270	1,400,000	20,000	6[2]
Total rad Sr	3/11	540*	-4.9	50	8	2[2]
Radionuclides, unfiltered (pCi/L) ^e						
Cs-137	1/11	7.0*	-2.7	0.69	120	0[4]
Gross alpha	7/11	13*	-1.6	3.9*	15	0[2]
Gross beta	7/11	1,100*	-6.8	100	50	1[2]
H-3	9/11	7,300,000*	-27	1,300,000	20,000	6[2]
Total rad Sr	4/11	620*	-0.89	58	8	1[2]
Volatile organics, unfiltered (µg/L)						
1,1-Dichloroethene	2/11	30	2.0	7.0	7	1[1]
1,2-Dichloroethane	1/11	5.0	0.5	5.0	5	0[1]
1,2-Dichloroethene, total	2/11	2,300	0.5	220	70	1[2]
2-Butanone	11/11	86.0	83.0	3.8	d	[d]
Chlorobenzene	1/11	0.5	1.0	4.6	100	0[2]
Styrene	1/11	0.5	2.0	4.7	100	0[1]
Trichloroethene	2/11	640	0.5	63	5	2[1]
Vinyl chloride	3/11	1,400	2.0	140	2	10[1]
cis-1,2-Dichloroethene	2/11	2,200	0.5	210	d	[d]
trans-1,2-Dichloroethene	2/11	130	2.0	16	d	[d]
Upgradient Wells						
Anions, unfiltered (mg/L)						
Chloride	4/4	3.5	1.8	2.4	250	0[3]
Fluoride	2/4	0.40	<0.10	0.24	4	0[2]
Phosphate	2/4	0.87	<0.50	0.65	d	[d]
Sulfate, as SO ₄	4/4	51	12	27	250	0[3]
Field measurements, unfiltered						
Conductivity (mS/cm)	4/4	0.46	0.20	0.31	d	[d]
Dissolved oxygen (mg/L)	4/4	9.4	8.0	8.8	d	[d]
Redox (mV)	4/4	420	220	330	d	[d]
Temperature (°C)	4/4	15	14	14	30.5	0[1]
Turbidity (JTU)	4/4	32	10	18	1	4[2]
pH (SU)	4/4	6.9	5.8	6.3	(6.0, 9.0)	1[1]
Metals, unfiltered (mg/L)						
Aluminum, total	2/4	0.39	<0.050	0.14	(0.05, 0.20)	1[3]
Barium, total	4/4	0.20	0.041	0.14	2	0[1]
Calcium, total	4/4	63	13	36	d	[d]
Iron, total	4/4	9.0	0.63	4.6	0.3	4[3]
Magnesium, total	4/4	13	7.9	11	d	[d]
Manganese, total	4/4	3.0	0.79	1.7	0.05	4[3]

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Table 3.16 (continued)

Parameter	N det/ N total	Concentration			Reference value	Number of values exceeding reference [ref] ^c
		Max ^a	Min ^a	Max ^b		
Mercury, total	2/4	0.000057	<0.000050	0.000053	0.002	0 [1]
Potassium, total	4/4	4.6	2.1	3.2	d	[d]
Silicon, total	4/4	18	13	15	d	[d]
Sodium, total	4/4	15	7.8	11	d	[d]
Others, unfiltered						
Alkalinity (mg/L)	4/4	200	65	130	d	[d]
Total suspended solids (mg/L)	2/4	13	<5.0	7.3	d	[d]
Radionuclides, filtered (pCi/L) ^e						
Gross alpha	2/4	2.4*	-0.054	1.2	15	0 [2]
Gross beta	3/4	5.7*	-0.65	3.4*	50	0 [2]
H-3	2/4	1,300*	54	520	20,000	0 [2]
Radionuclides, unfiltered (pCi/L) ^e						
Gross beta	4/4	10*	3.5*	5.6*	50	0 [2]
H-3	1/4	840*	27	330	20,000	0 [2]
Volatile organics, unfiltered (µg/L)						
2-Butanone	4/4	JB4.0	JB3.0	3.3	d	[d]

^aPrefix "<" indicates the value for a parameter (excluding organics) was not quantifiable at the analytical detection limit; "J" indicates the value was estimated at or below the analytical detection limit by the laboratory; "JB" indicates the value was estimated at or below the analytical detection limit and was found in the laboratory blank; "Y" indicates the value exceeded the calibration range and the sample was diluted and was reanalyzed; and "U" indicates the value for an organic parameter was undetected at the analytical detection limit.

^bA tilde (~) indicates that estimated and/or undetected values were used in the calculation.

^cIf a reference limit exists, the source is coded as:

1 Rules of Tennessee Department of Environment and Conservation, Division of Water Pollution Control, Chapter 1200-4-3, General Water Quality Criteria, Domestic Water Supply, as amended.

2 40 CFR Part 141--National Primary Drinking Water Regulations, Subparts B and G, as amended.

3 40 CFR Part 143--National Secondary Drinking Water Regulations, as amended.

4 DOE Order 5400.5, Chapter III, Derived Concentration Guides for Air and Water.

^dNot applicable.

^eIndividual and average radionuclide concentrations significantly greater than zero are identified by an *.

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Table 3.17. Constituents in Waste Area Grouping (WAG) 5 groundwater at ORNL, August 23-September 25, 1996.

Parameter	N det/ N total	Concentration			Reference value	Number of values exceeding reference [ref] ^c
		Max ^a	Min ^a	Max ^b		
Downgradient Wells						
Anions, unfiltered (mg/L)						
Bromide	10/18	0.45	<0.10	~0.15	d	[d]
Chloride	18/18	31	1.5	12	250	0[3]
Fluoride	1/18	0.41	<0.10	~0.12	4	0[2]
Nitrate	5/18	0.82	<0.10	~0.24	10	0[2]
Sulfate, as SO ₄	18/18	310	1.2	41	250	1[3]
Field measurements, unfiltered						
Conductivity (mS/cm)	16/16	0.99	0.32	0.64	d	[d]
Dissolved oxygen (mg/L)	16/16	11	2.0	9.9	d	[d]
Redox (mV)	16/16	410	200	290	d	[d]
Temperature (°C)	16/16	19	15	16	30.5	0[1]
Turbidity (JTU)	16/16	78	0	13	1	12[2]
pH (SU)	16/16	7.6	6.0	6.8	(6.0, 9.0)	0[1]
Metals, unfiltered (mg/L)						
Aluminum, total	7/18	0.47	<0.050	~0.11	(0.05, 0.20)	2[3]
Barium, total	18/18	0.75	0.017	0.26	2	0[1]
Boron, total	8/18	1.2	<0.080	~0.19	d	[d]
Calcium, total	18/18	180	2.4	99	d	[d]
Cobalt, total	1/18	0.0049	<0.0040	~0.0041	d	[d]
Iron, total	14/18	1.2	<0.050	~0.39	0.3	7[3]
Magnesium, total	18/18	33	1.1	17	d	[d]
Manganese, total	18/18	1.0	0.0029	0.22	0.05	11[3]
Nickel, total	2/18	0.028	<0.010	~0.012	0.1	0[1]
Potassium, total	4/18	7.5	<2.0	~2.5	d	[d]
Silicon, total	18/18	13	1.9	8.2	d	[d]
Sodium, total	18/18	130	4.6	23	d	[d]
Vanadium, total	3/18	0.0029	<0.0020	~0.0021	d	[d]
Zinc, total	3/18	0.0081	<0.0050	~0.0053	5	0[3]
Others, unfiltered						
Alkalinity (mg/L)	18/18	550	180	330	d	[d]
Phenolics, total recoverable (mg/L)	2/18	0.019	<0.0010	~0.0041	d	[d]
Total organic carbon (mg/L)	3/7	2.4	<0.50	~0.87	d	[d]
Total organic halides (µg/L)	7/18	4,400	<10	~270	d	[d]
Total suspended solids (mg/L)	4/18	12	<5.0	~5.9	d	[d]

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Table 3.17 (continued)

Parameter	N det/ N total	Concentration			Reference value	Number of values exceeding reference [ref] ^c
		Max ^a	Min ^a	Max ^b		
Radionuclides, filtered (pCi/L)^e						
Co-60	5/18	13*	-2.7	1.6*	200	0 [4]
Cs-137	2/18	1.8*	-4.6	-0.45	120	0 [4]
Gross alpha	9/18	15*	-0.81	1.7*	15	0 [2]
Gross beta	10/18	1,900*	-1.9	150	50	3 [2]
H-3	16/18	270,000,000	300	20,000,000	20,000	10 [2]
Total rad Sr	6/18	1,000*	-1.5	71	8	4 [2]
Radionuclides, unfiltered (pCi/L)^e						
Co-60	7/18	16*	-1.1	2.1*	200	0 [4]
Cs-137	2/18	3.2*	-2.1	0.22	120	0 [4]
Gross alpha	7/18	18*	-1.4	1.9*	15	1 [2]
Gross beta	10/18	1,600*	-3.5	130	50	3 [2]
H-3	17/18	270,000,000	380	20,000,000	20,000	10 [2]
Total rad Sr	6/18	890*	-2.3	66	8	4 [2]
Volatile organics, unfiltered (µg/L)						
1,1-Dichloroethane	1/18	U5.0	J2.0	~4.8	d	[d]
1,1-Dichloroethene	2/18	J5.0	J3.0	~4.9	7	0 [1]
1,2-Dichloroethene, total	5/18	Y3,200	J2.0	~190	70	2 [2]
2-Butanone	18/18	10	J3.0	~5.3	d	[d]
Acetone	10/18	B11	J1.0	~6.7	d	[d]
Benzene	1/18	27	U5.0	~6.2	5	1 [1]
Chloroethane	1/18	U10	J3.0	~9.6	d	[d]
Methylene chloride	4/18	U5.0	J1.0	~4.4	5	0 [1]
Tetrachloroethene	1/18	U5.0	J3.0	~4.9	5	0 [1]
Trichloroethene	5/18	44	J3.0	~8.0	5	2 [1]
Vinyl chloride	3/18	Y3,500	J4.0	~200	2	18 [1]
Xylene, o	1/18	U5.0	J2.0	~4.8	d	[d]
Xylene, total	1/18	U5.0	J2.0	~4.8	10,000	0 [1]
cis-1,2-Dichloroethene	5/18	Y3,200	J2.0	~190	d	[d]
trans-1,2-Dichloroethene	1/18	U5.0	J4.0	~4.9	d	[d]
Upgradient Wells						
Anions, unfiltered (mg/L)						
Chloride	2/2	2.4	1.7	2.1	250	0 [3]
Nitrate	1/2	0.53	<0.10	~0.32	10	0 [2]
Phosphate	1/2	0.94	<0.50	~0.72	d	[d]
Sulfate, as SO ₄	2/2	25	11	18	250	0 [3]
Field measurements, unfiltered						
Conductivity (mS/cm)	2/2	0.45	0.42	0.44	d	[d]
Dissolved oxygen (mg/L)	2/2	13	13	13	d	[d]
Redox (mV)	2/2	330	260	300	d	[d]
Temperature (°C)	2/2	16	16	16	30.5	0 [1]

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Table 3.17 (continued)

Parameter	N det/ N total	Concentration			Reference value	Number of values exceeding reference [ref] ^c
		Max ^d	Min ^d	Max ^e		
Turbidity (JTU)	2/2	29	12	21	1	2[2]
pH (SU)	2/2	7.0	6.7	6.9	(6.0, 9.0)	0[1]
Metals, unfiltered (mg/L)						
Aluminum, total	1/2	0.17	<0.050	~0.11	(0.05, 0.20)	0[3]
Barium, total	2/2	0.16	0.13	0.15	2	0[1]
Calcium, total	2/2	90	84	87	d	[d]
Iron, total	1/2	0.12	<0.050	~0.085	0.3	0[3]
Magnesium, total	2/2	13	4.6	8.8	d	[d]
Manganese, total	2/2	0.044	0.020	0.032	0.05	0[3]
Silicon, total	2/2	13	7.9	10	d	[d]
Sodium, total	2/2	8.1	7.3	7.7	d	[d]
Others, unfiltered						
Alkalinity (mg/L)	2/2	260	250	260	d	[d]
Total organic carbon (mg/L)	1/2	0.66	<0.50	~0.58	d	[d]
Radionuclides, filtered (pCi/L) ^e						
Co-60	1/2	5.4*	0.81	3.1	200	0[4]
Gross alpha	1/2	4.3*	1.1	2.7	15	0[2]
Gross beta	1/2	3.0*	1.6	2.3	50	0[2]
H-3	1/2	1,100*	490	800	20,000	0[2]
Total rad Sr	1/2	1.6*	-0.92	0.32	8	0[2]
Radionuclides, unfiltered (pCi/L) ^e						
Co-60	1/2	2.5*	-3.2	-0.35	200	0[4]
Gross alpha	1/2	1.9*	-0.081	0.91	15	0[2]
Volatile organics, unfiltered (µg/L)						
2-Butanone	2/2	JB3.0	JB3.0	~3.0	d	[d]

²Prefix "<" indicates the value for a parameter (excluding organics) was not quantifiable at the analytical detection limit; "J" indicates the value was estimated at or below the analytical detection limit by the laboratory; "B" indicates the compound was found in the laboratory blank; "JB" indicates the value was estimated at or below the analytical detection limit and was found in the laboratory blank; "Y" indicates the value exceeded the calibration range and the sample was diluted and was reanalyzed; and "U" indicates the value for an organic parameter was undetected at the analytical detection limit.

³A tilde (~) indicates that estimated and/or undetected values were used in the calculation.

⁴If a reference limit exists, the source is coded as:

1 Rules of Tennessee Department of Environment and Conservation, Division of Water Pollution Control, Chapter 1200-4-3, General Water Quality Criteria, Domestic Water Supply, as amended.

2 40 CFR Part 141--National Primary Drinking Water Regulations, Subparts B and G, as amended.

3 40 CFR Part 143--National Secondary Drinking Water Regulations, as amended.

4 DOE Order 5400.5, Chapter III, Derived Concentration Guides for Air and Water.

⁵Not applicable.

⁶Individual and average radionuclide concentrations significantly greater than zero are identified by an *.

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Table 3.18. Constituents in Waste Area Grouping (WAG) 6 groundwater at ORNL,
May, November-December, 1996.

Parameter	N det/ N total	Concentration			Reference value	Number of values exceeding reference [ref] ^c
		Max ^a	Min ^a	Max ^b		
Downgradient Wells						
Field measurements, unfiltered						
Conductivity (mS/cm)	22/22	0.79	0.018	0.46	d	[d]
Temperature (°C)	22/22	20	12	15	d	[d]
pH (standard units)	22/22	7.5	4.5	6.6	d	[d]
Metals, unfiltered (mg/L)						
Lead, total	1/4	<0.050	0.0040	~0.038	0.005	3[1]
Radionuclides, unfiltered (pCi/L) ^e						
Co-60	3/18	24	-20*	8.4*	200	0[4]
Cs-137	1/18	33	-16	9.8*	120	0[4]
Gross alpha	7/18	25*	-0.79	4.5*	15	1[2]
H-3	20/20	3,400,000*	940*	350,000*	20,000	12[2]
Total rad Sr	2/20	41	-3.0*	5.6*	8	3[2]
Volatile organics, unfiltered (µg/L)						
1,1,1-Trichloroethane	1/18	U250	U5.0	~19	200	1[1]
1,1-Dichloroethane	1/18	U250	J1.0	~19	d	[d]
1,2-Dichloroethane	3/18	U250	J1.0	~19	5	4[1]
1,2-Dichloroethene, total	3/18	U250	J1.0	~19	70	1[2]
2-Butanone	5/18	U500	J82.0	~36	d	[d]
Acetone	4/18	U500	J82.0	~36	d	[d]
Carbon tetrachloride	2/18	U250	U5.0	~21	5	4[1]
Chloroform	4/18	U250	1.0	~21	100	1[2]
Methylene chloride	1/18	U250	U5.0	~19	5	2[1]
Trichloroethene	3/18	U250	U5.0	~32	5	5[1]
cis-1,2-Dichloroethene	5/18	U250	J1.0	~19	d	[d]
Upgradient Wells						
Field measurements, unfiltered						
Conductivity (mS/cm)	6/6	0.99	0.0090	0.36	d	[d]
Temperature (°C)	6/6	18	12	15	d	[d]
pH (standard units)	6/6	8.4	4.4	6.6	d	[d]
Radionuclides, unfiltered (pCi/L) ^e						
Gross alpha	2/6	4.5	0.40	2.7*	15	0[2]
Gross beta	1/1	4.5*	4.5*	4.5	50	0[2]
H-3	5/6	2,200*	-380	860*	20,000	0[2]
Total rad Sr	2/6	7.2*	0.60	2.7*	8	0[2]

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Table 3.18 (continued)

Parameter	N det/ N total	Concentration			Reference value	Number of values exceeding reference [ref] ^c
		Max ^a	Min ^a	Max ^b		
Volatile organics, unfiltered (µg/L)						
2-Butanone	3/6	U10	JB3.0	~6.5	d	[d]
Acetone	3/6	U10	JB2.0	~6.0	d	[d]

^aPrefix "<" indicates the value for a parameter (excluding organics) was not quantifiable at the analytical detection limit; "J" indicates the value was estimated at or below the analytical detection limit by the laboratory; "JB" indicates the value was estimated at or below the analytical detection limit and was found in the laboratory blank; and "U" indicates the value for an organic parameter was undetected at the analytical detection limit.

^bA tilde (~) indicates that estimated and/or undetected values were used in the calculation.

^cIf a reference limit exists, the source is coded as:

1 Rules of Tennessee Department of Environment and Conservation, Division of Water Pollution Control, Chapter 1200-4-3, General Water Quality Criteria, Domestic Water Supply, as amended.

2 40 CFR Part 141--National Primary Drinking Water Regulations, Subparts B and G, as amended.

3 40 CFR Part 143--National Secondary Drinking Water Regulations, as amended.

4 DOE Order 5400.5, Chapter III, Derived Concentration Guides for Air and Water

^dNot applicable.

^eIndividual and average radionuclide concentrations significantly greater than zero are identified by an *.

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Table 3.19. Constituents in Waste Area Grouping (WAG) 17 groundwater at ORNL, April 15-23, 1996.

Parameter	N det/ N total	Concentration			Reference value	Number of values exceeding reference [ref] ^c
		Max ^a	Min ^a	Max ^b		
Downgradient Wells						
Anions, unfiltered (mg/L)						
Bromide	2/4	0.17	<0.10	~0.13	d	[d]
Chloride	4/4	24	4.5	15	250	0 [3]
Fluoride	1/4	0.32	<0.10	~0.16	4	0 [2]
Nitrate	2/4	4.9	<0.10	~1.4	10	0 [2]
Sulfate, as SO ₄	4/4	49	29	38	250	0 [3]
Field measurements, unfiltered						
Conductivity (mS/cm)	4/4	0.85	0.46	0.69	d	[d]
Dissolved oxygen(mg/L)	4/4	12	11	11	d	[d]
Redox (mV)	4/4	430	210	280	d	[d]
Temperature (°C)	4/4	18	12	15	30.5	0 [1]
Turbidity (JTU)	4/4	4.0	0	1.5	1	2 [2]
pH (SU)	4/4	7.0	6.4	6.7	(6.0, 9.0)	0 [1]
Metals, unfiltered (mg/L)						
Barium, total	4/4	0.18	0.027	0.091	2	0 [1]
Calcium, total	4/4	130	75	110	d	[d]
Chromium, total	1/4	0.021	<0.0040	~0.0083	0.1	0 [1]
Iron, total	2/4	0.39	<0.050	~0.18	0.3	1 [3]
Magnesium, total	4/4	36	8.0	24	d	[d]
Manganese, total	4/4	0.14	0.0016	0.053	0.05	2 [3]
Nickel, total	2/4	0.057	<0.010	~0.025	0.1	0 [1]
Silicon, total	4/4	6.2	2.1	4.3	d	[d]
Sodium, total	4/4	10	6.2	8.1	d	[d]
Vanadium, total	1/4	0.0023	<0.0020	~0.0021	d	[d]
Others, unfiltered						
Alkalinity (mg/L)	4/4	440	180	320	d	[d]
Total organic carbon (mg/L)	4/4	1.5	0.97	1.2	d	[d]
Total organic halides (µg/L)	3/4	10,000	<10	~2,600	d	[d]
Radionuclides, filtered (pCi/L) ^e						
Gross alpha	4/4	5.4*	1.7*	3.9*	15	0 [2]
Gross beta	4/4	5.1*	3.2*	4.3*	50	0 [2]
H-3	4/4	6,200*	2,700*	4,100*	20,000	0 [2]
Total rad Sr	1/4	1.7*	0.11	0.63	8	0 [2]
Radionuclides, unfiltered (pCi/L) ^e						
Gross alpha	4/4	8.6*	3.5*	5.3*	15	0 [2]
Gross beta	3/4	6.5*	2.2	3.8*	50	0 [2]
H-3	4/4	5,700*	3,000*	4,200*	20,000	0 [2]
Volatile organics, unfiltered (µg/L)						
1,1-Dichloroethene	1/4	23	U5.0	~9.5	7	1 [1]
1,2-Dichloroethene, total	2/4	Y2,700	J2.0	~680	70	1 [2]
2-Butanone	4/4	JB3.0	JB3.0	~3.0	d	[d]

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Table 3.19 (continued)

Parameter	N det/ N total	Concentration			Reference value	Number of values exceeding reference [ref] ^c
		Max ^a	Min ^a	Max ^b		
Benzene	1/4	16	0.5	7.8	5	1[1]
Tetrachloroethene	1/4	26	0.5	10	5	1[1]
Trichloroethene	3/4	15,000	1.0	3,800	5	1[1]
Vinyl chloride	1/4	120	0.10	38	2	4[1]
cis-1,2-Dichloroethene	2/4	2,700	2.0	680	d	[d]
trans-1,2-Dichloroethene	1/4	30	0.5	11	d	[d]
Upgradient Wells						
Anions, unfiltered (mg/L)						
Chloride	3/4	6.2	<0.10	3.5	250	0[3]
Nitrate	3/4	1.7	<0.10	0.80	10	0[2]
Sulfate, as SO ₄	4/4	66	11	36	250	0[3]
Field measurements, unfiltered						
Conductivity (mS/cm)	4/4	0.71	0.51	0.63	d	[d]
Dissolved oxygen (mg/L)	4/4	13	11	11	d	[d]
Redox (mV)	4/4	380	230	320	d	[d]
Temperature (°C)	4/4	16	13	15	30.5	0[1]
Turbidity (JTU)	4/4	15	1.0	4.5	1	1[2]
pH (SU)	4/4	7.5	6.7	7.1	(6.0, 9.0)	0[1]
Metals, unfiltered (mg/L)						
Aluminum, total	1/4	0.080	<0.050	0.058	(0.05, 0.20)	0[3]
Barium, total	4/4	0.096	0.026	0.059	2	0[1]
Boron, total	2/4	0.18	<0.080	0.11	d	[d]
Calcium, total	4/4	130	45	98	d	[d]
Iron, total	3/4	0.093	<0.050	0.073	0.3	0[3]
Magnesium, total	4/4	38	5.2	23	d	[d]
Manganese, total	1/4	0.018	<0.0010	0.0053	0.05	0[3]
Potassium, total	1/4	3.1	<2.0	2.3	d	[d]
Silicon, total	4/4	7.4	3.6	5.6	d	[d]
Sodium, total	4/4	7.8	5.4	6.3	d	[d]
Others, unfiltered						
Alkalinity (mg/L)	4/4	340	320	330	d	[d]
Total organic carbon (mg/L)	3/4	1.3	<0.50	0.89	d	[d]
Radionuclides, filtered (pCi/L) ^e						
Cs-137	1/4	3.0*	1.4	1.8*	120	0[4]
Gross alpha	2/4	5.7*	0.027	2.5	15	0[2]
Gross beta	3/4	7.3*	-3.8	2.8	50	0[2]
H-3	4/4	5,900*	2,400*	4,400*	20,000	0[2]
Radionuclides, unfiltered (pCi/L) ^e						
Gross alpha	3/4	2.5*	0.027	1.4*	15	0[2]
Gross beta	3/4	7.0*	2.4	4.3*	50	0[2]
H-3	4/4	5,900*	2,200*	4,200*	20,000	0[2]

Table 3.19 (continued)

Parameter	N det/ N total	Concentration			Reference value	Number of values exceeding reference [ref] ^c
		Max ^a	Min ^a	Max ^b		
Volatile organics, unfiltered ($\mu\text{g/L}$)						
2-Butanone	4/4	JB6.0	JB3.0	~3.8	d	[d]

^aPrefix "<" indicates the value for a parameter (excluding organics) was not quantifiable at the analytical detection limit; "J" indicates the value was estimated at or below the analytical detection limit by the laboratory; "JB" indicates the value was estimated at or below the analytical detection limit and was found in the laboratory blank; "Y" indicates the value exceeded the calibration range and the sample was diluted and reanalyzed; and "U" indicates the value for an organic parameter was undetected at the analytical detection limit.

^bA tilde (~) indicates that estimated and/or undetected values were used in the calculation.

^cIf a reference limit exists, the source is coded as:

- 1 Rules of Tennessee Department of Environment and Conservation, Division of Water Pollution Control, Chapter 1200-4-3, General Water Quality Criteria, Domestic Water Supply, as amended.
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- 3 40 CFR Part 143--National Secondary Drinking Water Regulations, as amended.
- 4 DOE Order 5400.5, Chapter III, Derived Concentration Guides for Air and Water.

^dNot applicable.

^eIndividual and average radionuclide concentrations significantly greater than zero are identified by an *.

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Table 4.1. 1996 surface water analyses at EMP surface water locations^a

Parameter	N det/ N total	Concentration			Standard error ^d	TWQC ^e
		Max ^b	Min ^b	Av ^c		
Bear Creek downstream from all possible DOE inputs (BCK 0.6)						
Anions (mg/L)						
Ammonia	4/6	<0.20	<0.030	~0.068	0.027	f
Chloride	6/6	9.7	3.7	5.9	0.84	f
Fluoride	2/6	0.17	<0.050	~0.11	0.017	f
Nitrate	6/6	8.1	4.1	6.7	0.55	f
Sulfate, as SO ₄	6/6	30	14	20	2.5	f
Field Measurements						
Conductivity (mS/cm)	6/6	0.35	0.17	0.25	0.033	f
Dissolved oxygen (ppm)	7/7	11	6.0	9.0	0.68	f
pH (SU)	7/7	7.9	7.2	7.7	0.11	f
Temperature (°C)	7/7	20	7.2	14	1.8	f
Metals (mg/L)						
Aluminum, total	5/6	5.7	<0.050	~1.4	0.88	f
Barium, total	6/6	0.072	0.041	0.055	0.0048	f
Calcium, total	6/6	44	21	33	3.9	
Iron, total	6/6	3.8	0.084	1.1	0.57	f
Magnesium, total	6/6	15	4.9	10	1.8	f
Manganese, total	6/6	0.21	0.017	0.086	0.031	f
Mercury, total	3/6	0.00025	<0.000050	~0.00013	0.000033	0.0024
Phosphorus, total	2/6	0.27	<0.20	~0.21	0.011	f
Potassium, total	2/6	2.2	<2.0	~2.1	0.034	f
Sodium, total	6/6	5.0	2.4	3.6	0.35	f
Uranium, total	6/6	0.020	0.0071	0.014	0.0017	f
Vanadium, total	1/6	0.0041	<0.0020	~0.0024	0.00035	f
Others						
Alkalinity (mg/L)	6/6	150	62	110	15	
Chemical oxygen demand (mg/L)	2/6	14	<5.0	~6.8	1.5	f
Color (CPU)	6/6	25	4.0	9.8	3.5	f
Total hardness (mg/L)	6/6	180	70	130	18	f
Physical						
Total dissolved solids	6/6	230	120	160	17	f
Total suspended solids	3/6	70	<5.0	~20	11	f
Radionuclides (pCi/L)g						
Co-60	1/6	3.5	-1.9	0.65	0.85	200
Gross alpha	6/6	10*	4.9*	6.4*	0.78	f
Gross beta	6/6	19*	4.9*	9.0*	2.1	f
Tc-99	4/6	9.7*	2.7	6.2*	1.2	4,000
Total rad Sr	1/6	2.6*	-0.16	0.72	0.42	40

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Table 4.1 (continued)

Parameter	N det/ N total	Concentration			Standard error ^c	TWQC ^e
		Max ^b	Min ^b	Av ^c		
Total uranium	7/7	11*	5.9*	8.3*	0.66	20
U-234	7/7	4.3*	2.2*	2.9*	0.28	20
U-235	4/7	0.24	-0.019	0.13*	0.036	24
U-238	7/7	7.0*	3.8*	5.3*	0.43	24
Volatile Organics (µg/L)						
2-Butanone	4/6	821	JB6.0	~9.8	2.4	f
Acetone	1/6	U10	J1.0	~8.5	1.5	f
Benzene	1/6	6.0	U5.0	~5.2	0.17	f
Carbon disulfide	1/6	U5.0	J2.0	~4.5	0.50	f
Bear Creek downstream from the Y-12 Plant burial grounds (BCK 9.4)						
Anions (mg/L)						
Ammonia	5/6	<0.20	0.034	~0.073	0.026	f
Chloride	6/6	35	7.5	20	4.5	f
Fluoride	5/6	0.58	<0.10	~0.32	0.079	f
Nitrate	6/6	160	17	75	24	f
Sulfate, as SO ₄	6/6	34	16	26	2.4	f
Field Measurements						
Conductivity (mS/cm)	6/6	0.82	0.22	0.50	0.098	f
Dissolved oxygen (ppm)	6/6	12	7.6	9.0	0.60	f
pH (SU)	6/6	8.0	7.3	7.8	0.11	f
Temperature (°C)	6/6	21	6.7	15	2.3	f
Metals (mg/L)						
Aluminum, total	5/6	2.6	<0.050	~0.62	0.40	f
Barium, total	6/6	0.17	0.054	0.10	0.019	f
Beryllium, total	1/6	0.0014	<0.0010	~0.0011	0.000067	f
Calcium, total	6/6	120	27	70	14	f
Iron, total	6/6	1.7	0.055	0.50	0.25	f
Magnesium, total	6/6	23	5.1	13	2.9	f
Manganese, total	6/6	0.11	0.0081	0.046	0.016	f
Mercury, total	4/6	<0.00020	0.000052	~0.00013	0.000026	0.0024
Phosphorus, total	4/6	0.36	<0.20	~0.27	0.025	f
Potassium, total	3/6	3.4	<2.0	~2.4	0.25	f
Sodium, total	6/6	15	4.6	9.6	1.8	f
Uranium, total	6/6	0.16	0.039	0.10	0.021	f
Others						
Alkalinity (mg/L)	6/6	230	68	150	28	f
Chemical oxygen demand (mg/L)	5/6	12	<5.0	~7.8	1.3	f

Oak Ridge Reservation

Table 4.1 (continued)

Parameter	N det/ N total	Concentration			Standard error ^d	TWQC ^e
		Max ^b	Min ^b	Av ^c		
Color (CPU)	6/6	25	2.0	7.8	3.6	f
Total hardness (mg/L)	6/6	390	91	230	46	f
Physical						
Total dissolved solids	6/6	620	170	340	72	f
Total suspended solids	1/6	17	<5.0	~7.0	2.0	f
Radionuclides (pCi/L) ^g						
Co-60	1/6	2.4*	-4.1	-0.61	0.85	200
Cs-137	1/6	4.6*	-3.0	-0.0045	1.0	120
Gross alpha	6/6	68*	16*	37*	6.9	f
Gross beta	6/6	76*	17*	47*	9.7	f
H-3	1/6	620*	-140	230	120	80,000
Tc-99	6/6	110*	1.6*	43*	18	4,000
Total uranium	6/6	92*	22*	59*	9.6	20
U-234	6/6	32*	7.6*	20*	3.4	20
U-235	6/6	1.5*	0.27*	1.0*	0.17	24
U-238	6/6	59*	14*	38*	6.3	24
Volatile Organics (µg/L)						
1,2-Dichloroethene, total	5/6	8.0	~2.0	~4.2	0.87	f
2-Butanone	5/6	829	~83.0	~10	3.9	f
Acetone	1/6	~10	~2.0	~8.7	1.3	f
Tetrachloroethene	4/6	~5.0	~1.0	~2.7	0.80	f
Trichloroethene	4/6	~5.0	~1.0	~2.8	0.75	f
Clinch River downstream from all DOE inputs (CRK 16)						
Anions (mg/L)						
Ammonia	4/6	<0.20	0.030	~0.11	0.034	f
Chloride	6/6	4.8	3.8	4.3	0.16	f
Fluoride	1/6	<0.50	<0.050	~0.16	0.068	f
Nitrate	6/6	3.0	1.3	2.1	0.26	f
Sulfate, as SO ₄	6/6	19	8.8	15	1.5	f
Field Measurements						
Conductivity (mS/cm)	6/6	0.24	0.14	0.20	0.016	f
Dissolved oxygen (ppm)	7/7	9.5	6.7	7.9	0.33	f
pH (SU)	7/7	7.9	7.2	7.6	0.085	f
Temperature (°C)	7/7	22	6.7	13	1.9	f
Metals (mg/L)						
Aluminum, total	6/6	4.3	0.096	1.2	0.64	f
Barium, total	6/6	0.080	0.031	0.042	0.0077	f
Calcium, total	6/6	37	17	29	3.1	f

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Table 4.1 (continued)

Parameter	N det/ N total	Concentration			Standard error ^d	TWQC ^e
		Max ^b	Min ^b	Av ^c		
Iron, total	6/6	2.5	0.14	0.81	0.35	f
Magnesium, total	6/6	10	5.0	8.0	0.76	f
Manganese, total	6/6	0.13	0.036	0.068	0.015	f
Phosphorus, total	4/6	0.38	<0.20	~0.30	0.033	f
Potassium, total	3/6	3.3	<2.0	~2.2	0.22	f
Sodium, total	6/6	5.6	1.6	3.7	0.59	f
Uranium, total	6/6	0.00040	0.00014	0.00025	0.000038	f
Vanadium, total	2/6	0.0047	<0.0020	~0.0029	0.00055	f
Zinc, total	5/6	0.017	<0.0050	~0.0087	0.0018	f
Others						
Alkalinity (mg/L)	6/6	140	55	97	11	f
Chemical oxygen demand (mg/L)	4/6	16	<5.0	~7.8	1.7	f
Color (CPU)	6/6	25	4.0	11	3.0	f
Total hardness (mg/L)	6/6	130	68	100	8.6	f
Physical						
Total dissolved solids	6/6	160	110	140	9.3	f
Total suspended solids	6/6	25	5.5	11	3.0	f
Radionuclides (pCi/L) ^g						
Co-60	2/6	3.8*	0.027	1.8*	0.66	200
Cs-137	1/6	4.9*	-1.4	1.0	0.84	120
Gross alpha	3/6	2.4*	0.24	1.1*	0.37	f
Gross beta	6/6	5.7*	1.6*	3.2*	0.63	f
H-3	1/6	730*	-220	210	130	80,000
Tc-99	1/6	7.3*	-2.7	1.6	1.4	4,000
Total rad Sr	1/6	3.5*	-0.54	0.46	0.64	40
Total uranium	4/6	13*	0.24	2.9	2.0	20
Volatile Organics (µg/L)						
2-Butanone	6/6	JB7.0	JB3.0	~4.8	0.60	f
Acetone	1/6	U10	JB3.0	~8.8	1.2	f
Carbon disulfide	1/6	U5.0	JB2.0	~4.5	0.50	f

Water supply intake for the K-25 Site (CRK 23)

Anions (mg/L)						
Ammonia	4/6	<0.20	0.033	~0.092	0.034	f
Chloride	6/6	6.9	4.6	5.4	0.33	f
Nitrate	6/6	3.5	1.7	2.6	0.29	f
Sulfate, as SO ₄	6/6	21	17	19	0.54	f

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Table 4.1 (continued)

Parameter	N det/ N total	Concentration			Standard error ^d	TWQC ^e
		Max ^b	Min ^b	Av ^c		
Field Measurements						
Conductivity (mS/cm)	6/6	0.26	0.23	0.24	0.0037	f
Dissolved oxygen (ppm)	8/8	10	6.4	8.3	0.43	f
pH (SU)	8/8	8.0	7.2	7.7	0.096	f
Temperature (°C)	8/8	21	6.2	14	1.6	f
Metals (mg/L)						
Aluminum, total	7/7	0.56	0.069	0.23	0.063	f
Barium, total	7/7	0.034	0.029	0.031	0.00085	f
Calcium, total	7/7	39	31	33	1.3	f
Iron, total	7/7	0.62	0.076	0.24	0.070	f
Magnesium, total	7/7	11	8.6	0.5	0.30	f
Manganese, total	7/7	0.076	0.025	0.043	0.0068	f
Mercury, total	1/7	<0.00020	<0.000050	~0.00015	0.000027	f
Phosphorus, total	4/6	0.40	<0.20	~0.30	0.034	f
Potassium, total	2/7	2.1	<2.0	~2.0	0.018	f
Sodium, total	7/7	5.7	4.2	5.0	0.24	f
Uranium, total	7/7	0.00046	0.00016	0.00023	0.000040	f
Zinc, total	1/7	0.0085	<0.0050	~0.0055	0.00050	f
Others						
Alkalinity (mg/L)	6/6	120	110	110	2.1	f
Chemical oxygen demand (mg/L)	2/6	7.0	<5.0	~5.3	0.33	f
Color (CPU)	6/6	7.0	3.0	4.5	0.56	f
Total hardness (mg/L)	6/6	130	72	110	8.6	f
Physical						
Total dissolved solids	6/6	200	140	160	9.3	f
Total suspended solids	3/6	20	<5.0	~7.6	2.5	f
Radionuclides (pCi/L)^g						
Co-60	2/7	5.4*	-3.0	1.1	1.1	f
Cs-137	2/7	4.1*	-2.7	0.42	0.85	f
Gross alpha	2/7	0.92*	0.16	0.59*	0.10	f
Gross beta	5/7	5.4*	1.1	2.9*	0.66	f
H-3	2/7	1,700	27	620*	210	f
Tc-99	2/6	5.4*	-6.2	0.86	1.7	f
Total rad Sr	1/7	3.0*	-1.4	0.47	0.56	f
Total uranium	4/6	1.5*	0.22	0.60*	0.19	f
Volatile Organics (µg/L)						
2-Butanone	7/7	JB6.0	JB3.0	~4.7	0.52	f
Acetone	1/7	U10	JB3.0	~9.0	1.0	f

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Table 4.1 (continued)

Parameter	N det/ N total	Concentration			Standard error ^c	TWQC ^e
		Max ^d	Min ^d	Av ^c		
Carbon disulfide	1/7	U5.0	JB2.0	~4.6	0.43	f
Toluene	1/7	U5.0	J1.0	~4.4	0.57	f
Xylene, total	1/7	U5.0	J1.0	~4.4	0.57	f
Clinch River downstream from ORNL (CRK 32)						
Anions (mg/L)						
Ammonia	4/6	<0.20	0.036	~0.095	0.033	f
Chloride	6/6	7.4	4.6	5.5	0.41	f
Fluoride	1/6	0.10	<0.050	~0.083	0.011	f
Nitrate	6/6	3.5	2.1	2.8	0.23	f
Sulfate, as SO ₄	6/6	21	18	19	0.48	f
Field Measurements						
Conductivity (mS/cm)	6/6	0.26	0.21	0.24	0.0070	f
Dissolved oxygen (ppm)	8/8	11	6.5	8.4	0.51	f
pH (SU)	8/8	8.0	6.9	7.7	0.16	f
Temperature (°C)	8/8	21	5.8	14	1.6	f
Metals (mg/L)						
Aluminum, total	6/6	2.3	0.073	0.62	0.34	f
Barium, total	6/6	0.048	0.028	0.033	0.0032	f
Calcium, total	6/6	39	30	33	1.5	f
Cobalt, total	1/6	0.0049	<0.0040	~0.0042	0.00015	f
Iron, total	6/6	2.4	0.094	0.63	0.36	f
Magnesium, total	6/6	10	8.4	9.2	0.23	f
Manganese, total	6/6	0.15	0.027	0.060	0.020	f
Mercury, total	1/6	<0.00020	<0.000050	~0.00013	0.000032	f
Phosphorus, total	4/6	0.36	<0.20	~0.29	0.028	f
Potassium, total	1/6	2.2	<2.0	~2.0	0.033	f
Sodium, total	6/6	5.9	4.2	5.0	0.34	f
Uranium, total	6/6	0.00025	0.00013	0.00018	0.000020	f
Vanadium, total	2/6	0.0039	<0.0020	~0.0025	0.00032	f
Zinc, total	3/6	0.018	<0.0050	~0.0079	0.0021	f
Others						
Alkalinity (mg/L)	6/6	120	95	110	3.8	f
Chemical oxygen demand (mg/L)	4/6	14	<5.0	~7.7	1.4	f
Color (CPU)	6/6	9.0	3.0	5.3	1.1	f
Total hardness (mg/L)	6/6	140	110	120	3.1	f

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Table 4.1 (continued)

Parameter	N det/ N total	Concentration			Standard error ^d	TWQC ^e
		Max ^b	Min ^b	Av ^c		
Physical						
Total dissolved solids	6/6	180	140	160	6.4	f
Total suspended solids	3/6	60	<5.0	~14	9.1	f
Radionuclides (pCi/L)^g						
Gross alpha	4/7	1.2*	-0.027	0.64*	0.16	f
Gross beta	7/7	5.7*	2.0*	3.3*	0.45	f
H-3	5/7	1,500*	-3,500	200	650	f
Total rad Sr	2/7	3.2*	-0.081	1.3*	0.48	f
Total uranium	5/6	1.5*	0.27	0.52*	0.20	f
Volatile Organics (µg/L)						
2-Butanone	5/6	U10	JB3.0	~5.5	0.99	f
Acetone	1/6	U10	JB2.0	~8.7	1.3	f
Water supply intake for Knox County (CRK 58)						
Anions (mg/L)						
Ammonia	4/6	<0.20	0.031	~0.093	0.034	f
Chloride	6/6	8.3	4.7	5.9	0.52	f
Nitrate	6/6	3.7	1.7	2.7	0.34	f
Sulfate, as SO ₄	6/6	22	12	18	1.4	f
Field Measurements						
Conductivity (mS/cm)	6/6	0.26	0.23	0.24	0.0040	f
Dissolved oxygen (ppm)	8/8	10	6.2	8.7	0.60	f
pH (SU)	8/8	8.3	7.2	7.8	0.11	f
Temperature (°C)	8/8	24	6.0	13	1.9	f
Metals (mg/L)						
Aluminum, total	6/6	1.6	0.12	0.48	0.23	f
Barium, total	6/6	0.044	0.027	0.032	0.0025	f
Calcium, total	6/6	39	24	31	2.0	f
Iron, total	6/6	2.4	0.15	0.61	0.36	f
Magnesium, total	6/6	10	5.4	8.5	0.65	f
Manganese, total	6/6	0.35	0.025	0.094	0.052	f
Mercury, total	1/6	0.00021	<0.000050	~0.00013	0.000034	f
Phosphorus, total	3/6	0.38	<0.20	~0.27	0.031	f
Sodium, total	6/6	8.4	4.3	5.3	0.65	f
Uranium, total	6/6	0.00024	0.00011	0.00017	0.000018	f
Vanadium, total	2/6	0.0060	<0.0020	~0.0029	0.00066	f
Zinc, total	4/6	0.024	<0.0050	~0.0089	0.0030	f

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Table 4.1 (continued)

Parameter	N det/ N total	Concentration			Standard error ^d	TWQC ^e
		Max ^b	Min ^c	Av ^c		
Others						
Alkalinity (mg/L)	6/6	120	70	100	7.0	f
Chemical oxygen demand (mg/L)	5/6	14	<5.0	7.3	1.4	f
Color (CPU)	6/6	10	3.0	5.7	1.0	f
Total hardness (mg/L)	6/6	140	80	120	7.8	f
Physical						
Total dissolved solids	6/6	170	110	150	9.6	f
Total suspended solids	3/6	73	<5.0	17	11	f
Radionuclides (pCi/L) ^g						
Co-60	1/7	2.2*	-0.27	1.4*	0.34	f
Gross alpha	1/7	1.4*	-0.027	0.41*	0.18	f
Gross beta	5/7	7.3*	0.54	2.6*	0.86	f
H-3	1/7	1,300*	-3,200	-240	540	f
Tc-99	1/6	5.1	-4.9	1.0	1.5	f
Total rad Sr	2/7	4.1*	0.081	1.3*	0.52	f
Total uranium	3/6	0.51*	-0.027	0.30*	0.076	f
Volatile Organics (µg/L)						
2-Butanone	5/6	U10	J83.0	76.0	1.1	f
Acetone	1/6	U10	J4.0	9.0	1.0	f
Toluene	1/6	U5.0	J3.0	4.7	0.33	f
Xylene, total	1/6	J6.0	U5.0	5.2	0.17	f
Melton Hill Reservoir above City of Oak Ridge water intake (CRK 66)						
Anions (mg/L)						
Ammonia	4/6	<0.20	0.031	0.11	0.032	f
Chloride	6/6	5.5	4.5	4.9	0.19	f
Nitrate	6/6	4.2	1.3	3.0	0.46	f
Sulfate, as SO4	6/6	21	18	20	0.50	f
Field Measurements						
Conductivity (mS/cm)	6/6	0.26	0.23	0.24	0.0050	f
Dissolved oxygen (ppm)	8/8	11	6.0	8.8	0.65	f
pH (SU)	8/8	7.9	7.2	7.7	0.085	f
Temperature (°C)	8/8	24	6.1	14	1.8	f
Metals (mg/L)						
Aluminum, total	6/6	0.52	0.12	0.28	0.065	f
Barium, total	6/6	0.033	0.028	0.031	0.00070	f
Calcium, total	6/6	38	30	33	1.4	f
Cobalt, total	2/6	0.0057	<0.0040	0.0043	0.00028	f

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Table 4.1 (continued)

Parameter	N det/ N total	Concentration			Standard error ^d	TWQC ^e
		Max ^b	Min ^b	Av ^c		
Iron, total	6/6	0.39	0.16	0.27	0.043	f
Magnesium, total	6/6	10	8.4	9.3	0.27	f
Manganese, total	6/6	0.053	0.031	0.041	0.0031	f
Mercury, total	1/6	0.00027	<0.000050	~0.00014	0.000040	f
Phosphorus, total	4/6	0.40	<0.20	~0.28	0.034	f
Potassium, total	1/6	2.1	<2.0	~2.0	0.017	f
Sodium, total	6/6	5.7	4.1	4.8	0.28	f
Uranium, total	5/6	0.00024	<0.00010	~0.00017	0.000021	f
Vanadium, total	2/6	0.0032	<0.0020	~0.0022	0.00020	f
Zinc, total	5/6	0.011	<0.0050	~0.0081	0.00091	f
Others						
Alkalinity (mg/L)	6/6	120	100	110	2.6	f
Chemical oxygen demand (mg/L)	2/6	11	<5.0	~6.2	0.98	f
Color (CPU)	5/6	15	<2.0	~6.0	1.9	f
Total hardness (mg/L)	6/6	130	120	120	1.8	f
Physical						
Total dissolved solids	6/6	180	140	160	5.5	f
Total suspended solids	3/6	11	<5.0	~6.3	0.95	f
Radionuclides (pCi/L)^g						
Co-60	2/7	2.5*	-1.1	1.3*	0.49	f
Gross beta	5/7	5.9*	0.62	2.6*	0.77	f
Tc-99	1/6	8.9*	-5.7	-0.41	2.2	f
Total rad Sr	1/7	2.0*	-1.0	0.15	0.35	f
Total uranium	1/6	0.70	-3.2	-0.28	0.60	f
Volatile Organics (µg/L)						
2-Butanone	5/6	U10	J83.0	~6.0	1.0	f
Acetone	1/6	U10	J3.0	~8.8	1.2	f

Melton Hill Reservoir - Oak Ridge Marina (CRK 80)

Anions (mg/L)						
Ammonia	5/6	<0.20	0.031	~0.068	0.027	f
Chloride	6/6	5.9	4.7	5.3	0.20	f
Fluoride	1/6	0.11	<0.050	~0.093	0.0088	f
Nitrate	6/6	16	1.2	4.7	2.3	f
Sulfate, as SO4	6/6	26	20	22	0.88	f
Field Measurements						
Conductivity (mS/cm)	6/6	0.28	0.21	0.25	0.0095	f
Dissolved oxygen (ppm)	6/6	9.2	6.2	7.8	0.50	f

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Table 4.1 (continued)

Parameter	N det/ N total	Concentration			Standard error ^d	TWQC ^e
		Max ^b	Min ^b	Av ^c		
pH (SU)	6/6	7.9	7.1	7.5	0.13	f
Temperature (°C)	6/6	17	7.0	13	1.6	f
Metals (mg/L)						
Aluminum, total	6/6	0.62	0.087	0.25	0.082	f
Arsenic, total	1/6	0.058	<0.050	~0.051	0.0013	f
Barium, total	6/6	0.034	0.028	0.031	0.00092	f
Calcium, total	6/6	32	30	31	0.45	f
Iron, total	6/6	0.56	0.11	0.30	0.083	f
Magnesium, total	6/6	11	8.8	9.5	0.33	f
Manganese, total	6/6	0.14	0.036	0.076	0.016	f
Mercury, total	1/6	<0.00020	<0.000050	~0.00011	0.000030	f
Phosphorus, total	3/6	0.33	<0.20	~0.25	0.025	f
Sodium, total	6/6	5.7	4.4	4.9	0.19	f
Uranium, total	3/6	0.00031	<0.00010	~0.00014	0.000034	f
Zinc, total	4/6	0.018	<0.0050	~0.0084	0.0020	f
Others						
Alkalinity (mg/L)	6/6	110	100	110	1.8	f
Chemical oxygen demand (mg/L)	4/6	10	<5.0	~6.0	0.82	f
Color (CPU)	6/6	9.0	2.0	4.7	1.3	f
Total hardness (mg/L)	6/6	140	120	120	3.0	f
Physical						
Total dissolved solids	6/6	250	130	160	18	f
Total suspended solids	5/6	11	<5.0	~6.6	1.0	f
Radionuclides (pCi/L) ^g						
Co-60	2/6	3.2*	-0.27	1.7*	0.53	f
Gross alpha	1/6	0.76*	-0.57	0.15	0.18	f
Gross beta	4/6	3.2*	0.11	1.6*	0.42	f
H-3	1/6	590*	-510	140	180	f
Total rad Sr	1/6	1.5*	-1.3	-0.036	0.44	f
Total uranium	3/6	0.57*	0.054	0.30*	0.076	f
Volatile Organics (µg/L)						
2-Butanone	5/6	B10	JB4.0	~6.5	1.1	f
Acetone	1/6	U10	JB2.0	~8.7	1.3	f
Melton Hill Reservoir above all DOE inputs (CRK 84)						
Anions (mg/L)						
Ammonia	5/6	<0.20	0.034	~0.069	0.026	f
Chloride	6/6	6.2	4.2	5.0	0.31	f

Oak Ridge Reservation

Table 4.1 (continued)

Parameter	N det/ N total	Concentration			Standard error ^d	TWQC ^e
		Max ^b	Min ^b	Av ^c		
Fluoride	1/6	<0.55	<0.050	~0.17	0.077	f
Nitrate	6/6	7.9	1.3	3.5	0.92	f
Sulfate, as SO ₄	6/6	24	21	22	0.40	f
Field Measurements						
Conductivity (mS/cm)	6/6	0.28	0.24	0.26	0.0070	f
Dissolved oxygen (ppm)	6/6	10	6.1	7.7	0.68	f
pH (SU)	6/6	8.0	7.1	7.5	0.14	f
Temperature (°C)	6/6	16	7.4	12	1.4	f
Metals (mg/L)						
Aluminum, total	6/6	0.31	0.056	0.14	0.038	f
Barium, total	6/6	0.032	0.028	0.030	0.00067	f
Calcium, total	6/6	34	30	32	0.61	f
Iron, total	6/6	0.27	0.094	0.15	0.026	f
Magnesium, total	6/6	11	9.0	9.5	0.31	f
Manganese, total	6/6	0.11	0.032	0.067	0.012	f
Mercury, total	1/6	<0.00020	<0.000050	~0.00011	0.000030	f
Phosphorus, total	4/6	0.31	<0.20	~0.24	0.019	f
Sodium, total	6/6	5.8	4.4	5.0	0.21	f
Uranium, total	2/6	0.00029	<0.00010	~0.00013	0.000031	f
Zinc, total	3/6	0.028	<0.0050	~0.012	0.042	f
Others						
Alkalinity (mg/L)	6/6	110	99	110	2.1	f
Chemical oxygen demand (mg/L)	3/6	10	<5.0	~6.2	0.79	f
Color (CPU)	4/6	7.0	<2.0	~4.0	0.82	f
Total hardness (mg/L)	6/6	130	120	120	1.9	f
Physical						
Total dissolved solids	6/6	170	130	150	4.8	f
Total suspended solids	2/6	7.0	<5.0	~5.6	0.36	f
Radionuclides (pCi/L)^g						
Co-60	1/6	4.6*	-1.6	0.34	0.92	f
Gross alpha	2/6	0.76*	-0.23	0.29	0.17	f
Gross beta	3/6	2.4*	0.027	1.2*	0.36	f
Total uranium	2/6	0.46	0.027	0.30*	0.070	f
Volatile Organics (µg/L)						
2-Butanone	5/6	B25	JB2.0	~9.2	3.3	f
Acetone	1/6	U10	J2.0	~8.7	1.3	f

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Table 4.1 (continued)

Parameter	N det/ N total	Concentration			Standard error ^c	TWOC ^e
		Max ^b	Min ^b	Av ^c		
East Fork Poplar Creek downstream from the Y-12 Plant (EFK 23.4)						
Anions (mg/L)						
Ammonia	4/6	<0.20	<0.030	~0.091	0.025	f
Chloride	6/6	24	9.2	17	2.5	f
Fluoride	6/6	0.96	0.20	0.63	0.13	f
Nitrate	6/6	23	10	17	1.8	f
Sulfate, as SO ₄	6/6	38	28	32	1.6	f
Field Measurements						
Conductivity (mS/cm)	6/6	0.42	0.27	0.35	0.022	f
Dissolved oxygen (ppm)	6/6	12	7.8	9.1	0.59	f
pH (SU)	6/6	8.4	7.0	7.9	0.23	f
Temperature (°C)	6/6	26	11	18	2.4	f
Metals (mg/L)						
Aluminum, total	6/6	0.54	0.070	0.20	0.077	f
Barium, total	6/6	0.054	0.036	0.049	0.0027	f
Calcium, total	6/6	51	32	43	2.8	f
Iron, total	6/6	0.48	0.093	0.24	0.072	f
Magnesium, total	6/6	12	8.4	10	0.65	f
Manganese, total	6/6	0.086	0.044	0.063	0.0074	f
Mercury, total	6/6	0.00093	0.00045	0.00066	0.000086	0.0024
Phosphorus, total	5/6	0.34	<0.20	~0.29	0.023	f
Potassium, total	2/6	2.3	<2.0	~2.1	0.063	f
Sodium, total	6/6	12	5.8	9.3	1.1	f
Thallium, total	1/6	0.0050	<0.0050	~0.0050	0	f
Uranium, total	6/6	0.038	0.0093	0.020	0.0040	f
Others						
Alkalinity (mg/L)	6/6	130	95	120	6.7	f
Chemical oxygen demand (mg/L)	3/6	10	<5.0	~7.0	0.93	f
Color (CPU)	6/6	15	3.0	7.5	1.9	f
Total hardness (mg/L)	6/6	170	130	160	7.7	f
Physical						
Total dissolved solids	6/6	260	170	210	15	f
Total suspended solids	1/6	9.0	<5.0	~5.7	0.67	f
Radionuclides (pCi/L) ^g						
Co-60	1/6	3.2*	-1.4	1.3	0.65	200
Cs-137	2/6	3.8*	-0.81	1.7*	0.65	120
Gross alpha	6/6	11*	5.4*	7.9*	0.92	f
Gross beta	6/6	15*	5.7*	9.1*	1.4	f
H-3	2/6	3,600*	-240	750	600	80,000

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Table 4.1 (continued)

Parameter	N det/ N total	Concentration			Standard error ^d	TWQC ^e
		Max ^b	Min ^b	Av ^c		
Tc-99	4/6	11*	2.7	7.1*	1.3	4,000
Total rad Sr	1/6	1.7*	0.081	0.91*	0.24	40
Total uranium	6/6	21*	7.8*	14*	2.2	20
U-234	5/5	6.8*	3.0*	4.1*	0.73	20
U-235	4/5	0.43*	0.0027	0.21*	0.075	24
U-238	5/5	14*	4.3*	9.4*	2.0	24
Volatile Organics (µg/L)						
1,1,2,2-Tetrachloroethane	1/6	U5.0	J81.0	~4.3	0.67	f
2-Butanone	4/6	J810	J85.0	~7.7	1.1	f
Acetone	1/6	U10	J82.0	~8.7	1.3	f
Chloroform	4/6	U5.0	J1.0	~2.8	0.70	f
Tetrachloroethene	1/6	U5.0	J1.0	~4.3	0.67	f
East Fork Poplar Creek downstream from floodplain (EFK 5.4)						
Anions (mg/L)						
Ammonia	4/6	<0.20	0.036	~0.10	0.031	f
Chloride	6/6	18	12	14	1.1	f
Fluoride	6/6	0.57	0.070	0.26	0.078	f
Nitrate	6/6	17	5.4	12	1.6	f
Sulfate, as SO ₄	6/6	28	17	24	1.6	f
Field Measurements						
Conductivity (mS/cm)	6/6	0.37	0.27	0.32	0.017	f
Dissolved oxygen (ppm)	7/7	9.7	6.4	8.8	0.45	f
pH (SU)	7/7	7.9	7.3	7.6	0.072	f
Temperature (°C)	7/7	21	7.9	14	1.8	f
Metals (mg/L)						
Aluminum, total	6/6	1.4	0.11	0.47	0.19	f
Barium, total	6/6	0.039	0.024	0.031	0.0025	f
Calcium, total	6/6	53	32	43	3.4	f
Iron, total	6/6	1.6	0.15	0.51	0.22	f
Magnesium, total	6/6	8.9	5.4	7.6	0.61	f
Manganese, total	6/6	0.11	0.019	0.044	0.014	f
Mercury, total	5/6	0.0014	0.00014	~0.00044	0.00020	0.0024
Phosphorus, total	5/6	0.33	<0.20	~0.29	0.019	f
Potassium, total	4/6	3.0	<2.0	~2.4	0.16	f
Sodium, total	6/6	11	6.9	8.8	0.59	f
Uranium, total	6/6	0.0091	0.0049	0.0068	0.00064	f
Vanadium, total	1/6	0.0033	<0.0020	~0.0022	0.00022	f

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Table 4.1 (continued)

Parameter	N det/ N total	Concentration			Standard error ^d	TWQC ^e
		Max ^b	Min ^b	Av ^f		
Others						
Alkalinity (mg/L)	6/6	140	100	120	6.4	f
Biochemical oxygen demand (mg/L)	1/6	20	<5.0	7.5	2.5	f
Chemical oxygen demand (mg/L)	3/6	13	<5.0	7.5	1.5	f
Color (CPU)	6/6	8.0	3.0	5.2	0.79	f
Total hardness (mg/L)	6/6	170	120	140	7.7	f
Physical						
Total dissolved solids	6/6	250	150	210	15	f
Total suspended solids	5/6	46	<5.0	14	6.5	f
Radionuclides (pCi/L)^g						
Co-60	2/6	7.3*	-1.6	2.6	1.4	200
Cs-137	1/6	4.3*	-1.1	0.82	0.94	120
Gross alpha	6/6	4.3*	1.6*	2.6*	0.40	f
Gross beta	6/6	4.9*	1.7*	3.7*	0.48	f
H-3	1/6	3,200*	-320	590	560	80,000
Tc-99	2/6	6.2*	-0.54	3.6*	1.3	4,000
Total uranium	6/6	6.2*	3.0*	4.4*	0.51	20
U-234	4/4	2.2*	1.4*	1.6*	0.19	20
U-235	2/4	0.17*	0.035	0.11*	0.031	24
U-238	4/4	3.8*	1.5*	2.5*	0.48	24
Volatile Organics (µg/L)						
2-Butanone	5/6	U10	JB3.0	7.5	0.99	f
Acetone	1/6	U10	JB2.0	8.7	1.3	f
Hinds Creek (reference site for East Fork Poplar Creek) (HC)						
Anions (mg/L)						
Ammonia	5/6	<0.20	0.043	0.091	0.025	f
Chloride	6/6	4.7	3.4	4.0	0.22	f
Fluoride	2/6	<0.55	<0.050	0.18	0.076	f
Nitrate	6/6	4.3	2.2	3.0	0.35	f
Sulfate, as SO ₄	6/6	13	10	12	0.42	f
Field Measurements						
Conductivity (mS/cm)	6/6	0.35	0.20	0.27	0.026	f
Dissolved oxygen (ppm)	6/6	11	6.0	8.0	0.69	f
pH (SU)	6/6	7.9	7.3	7.6	0.10	f
Temperature (°C)	6/6	23	7.9	15	2.7	f

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Table 4.1 (continued)

Parameter	N det/ N total	Concentration			Standard error ^d	TWQC ^e
		Max ^b	Min ^b	Av ^c		
Metals (mg/L)						
Aluminum, total	6/6	7.5	0.32	3.3	1.3	f
Barium, total	6/6	0.074	0.036	0.054	0.0059	f
Calcium, total	6/6	46	31	37	2.9	f
Cobalt, total	1/6	0.0056	<0.0040	~0.0043	0.00027	f
Iron, total	6/6	6.3	0.36	2.8	1.1	f
Magnesium, total	6/6	14	6.2	9.3	1.4	f
Manganese, total	6/6	0.31	0.037	0.14	0.046	f
Mercury, total	2/6	<0.00020	<0.000050	~0.00011	0.000030	0.0024
Phosphorus, total	4/6	0.45	<0.20	~0.26	0.039	f
Potassium, total	5/6	4.3	<2.0	~2.8	0.38	f
Sodium, total	6/6	2.6	1.6	2.2	0.16	f
Uranium, total	4/6	0.00023	<0.00010	~0.00014	0.000020	f
Vanadium, total	4/6	0.0091	<0.0020	~0.0054	0.0014	f
Others						
Alkalinity (mg/L)	6/6	180	100	130	14	f
Chemical oxygen demand (mg/L)	4/6	32	<5.0	~15	4.4	f
Color (CPU)	6/6	25	3.0	14	3.7	f
Total hardness (mg/L)	6/6	180	110	140	13	f
Physical						
Total dissolved solids	6/6	210	140	170	12	f
Total suspended solids	6/6	180	9.0	76	28	f
Radionuclides (pCi/L)^g						
Co-60	1/6	5.9*	-1.5	0.70	1.1	200
Gross alpha	4/6	2.3*	0.46	1.1*	0.27	f
Gross beta	6/6	3.2*	2.1*	2.5*	0.18	f
H-3	2/6	890*	-730	190	250	80,000
Total rad Sr	1/6	2.3*	-0.46	0.48	0.42	40
Total uranium	3/6	0.54*	0.21*	0.39*	0.054	20
Volatile Organics (µg/L)						
2-Butanone	5/6	B11	J83.0	~6.5	1.3	f
Carbon disulfide	1/6	U5.0	J1.0	~4.3	0.67	f
Melton Branch downstream from ORNL (MEK 0.2)						
Anions (mg/L)						
Ammonia	5/6	<0.20	0.030	~0.066	0.027	f
Chloride	6/6	110	5.6	28	17	f

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Table 4.1 (continued)

Parameter	N det/ N total	Concentration			Standard error ^d	TWCC ^e
		Max ^b	Min ^b	Av ^c		
Fluoride	5/6	1.9	0.20	~0.83	0.29	f
Nitrate	6/6	5.2	0.74	2.2	0.64	f
Sulfate, as SO ₄	6/6	190	28	83	23	f
Field Measurements						
Conductivity (mS/cm)	6/6	0.67	0.18	0.38	0.069	f
Dissolved oxygen (ppm)	7/7	12	6.8	8.4	0.60	f
pH (SU)	7/7	8.4	7.1	7.7	0.19	f
Temperature (°C)	7/7	26	5.4	14	2.8	f
Metals (mg/L)						
Aluminum, total	6/6	1.0	0.10	0.46	0.16	f
Barium, total	6/6	0.083	0.038	0.058	0.0069	f
Calcium, total	6/6	92	40	60	9.1	f
Cyanide, total, total	1/6	<0.0050	<0.0020	~0.0025	0.00050	f
Iron, total	6/6	1.1	0.11	0.45	0.17	f
Magnesium, total	6/6	19	6.6	11	2.0	f
Manganese, total	6/6	0.20	0.066	0.12	0.022	f
Mercury, total	1/6	<0.00020	<0.000050	~0.00011	0.000030	0.0024
Phosphorus, total	6/6	0.58	0.22	0.41	0.062	f
Potassium, total	3/6	2.7	<2.0	~2.3	0.13	f
Sodium, total	6/6	14	4.5	8.0	1.6	f
Uranium, total	5/6	0.0020	<0.00010	~0.0011	0.00029	f
Others						
Alkalinity (mg/L)	6/6	150	85	110	9.3	f
Chemical oxygen demand (mg/L)	4/6	13	<5.0	~6.7	1.3	f
Color (CPU)	5/6	9.0	<2.0	~48	1.1	f
Total hardness (mg/L)	6/6	290	130	190	27	f
Physical						
Total dissolved solids	6/6	410	190	280	37	f
Total suspended solids	3/6	22	<5.0	~8.7	2.7	f
Radionuclides (pCi/L) ^g						
Co-60	4/6	8.6*	1.6	4.5*	1.3	200
Cs-137	1/6	3.5	-3.0	0.81	1.1	120
Gross alpha	3/6	2.7*	0.59	1.4*	0.39	f
Gross beta	6/6	1,200*	320*	740*	140	f
H-3	6/6	1,600,000*	570,000*	1,000,000*	170,000	80,000
Total rad Sr	6/6	540*	150*	310*	60	40
Total uranium	3/6	15	0.11	3.0	2.3	20

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Table 4.1 (continued)

Parameter	N det/ N total	Concentration			Standard error ^d	TWQC ^e
		Max ^b	Min ^b	Av ^c		
Volatile Organics (µg/L)						
2-Butanone	4/6	U10	JB4.0	7.3	1.1	f
Melton Branch upstream from ORNL (MEK 2.1)						
Anions (mg/L)						
Ammonia	2/6	<0.20	<0.030	0.061	0.028	f
Chloride	6/6	6.5	2.5	3.4	0.63	f
Nitrate	4/6	3.7	<0.10	1.1	0.59	f
Sulfate, as SO ₄	6/6	18	8.1	13	1.3	f
Field Measurements						
Conductivity (mS/cm)	6/6	0.38	0.18	0.25	0.031	f
Dissolved oxygen (ppm)	6/6	11	5.6	8.7	0.75	f
pH (SU)	6/6	7.9	7.0	7.5	0.15	f
Temperature (°C)	6/6	23	4.6	14	2.8	f
Metals (mg/L)						
Aluminum, total	6/6	1.1	0.12	0.64	0.14	f
Arsenic, total	1/6	0.070	<0.050	0.053	0.0033	f
Barium, total	6/6	0.056	0.029	0.042	0.0046	f
Calcium, total	6/6	65	28	44	6.4	f
Cobalt, total	1/6	0.0040	<0.0040	0.0040	0	f
Iron, total	6/6	0.86	0.15	0.48	0.10	f
Magnesium, total	6/6	6.8	3.7	5.0	0.51	f
Manganese, total	6/6	0.036	0.0060	0.020	0.0048	f
Mercury, total	2/6	<0.00020	<0.000050	0.00012	0.000027	0.0024
Phosphorus, total	4/6	0.27	<0.20	0.24	0.012	f
Potassium, total	1/6	2.0	<2.0	2.0	0	f
Sodium, total	6/6	4.9	2.0	3.1	0.42	f
Uranium, total	2/6	0.00029	<0.00010	0.00014	0.000031	f
Vanadium, total	2/6	0.0024	<0.0020	0.0021	0.000065	f
Others						
Alkalinity (mg/L)	6/6	190	75	120	20	f
Chemical oxygen demand (mg/L)	3/6	17	<5.0	8.0	2.0	f
Color (CPU)	5/6	15	<2.0	8.2	2.3	f
Total hardness (mg/L)	6/6	180	81	130	15	f
Physical						
Total dissolved solids	5/6	200	<5.0	130	29	f
Total suspended solids	2/6	16	<5.0	7.8	1.9	f

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Table 4.1 (continued)

Parameter	N det/ N total	Concentration			Standard error ^d	TWQC ^e
		Max ^b	Min ^b	Av ^c		
Radionuclides (pCi/L)^a						
Co-60	1/6	7.3*	-0.54	2.0	1.2	200
Gross alpha	1/6	1.2*	-0.16	0.32	0.20	f
Gross beta	4/6	4.3*	0.57	2.2*	0.55	f
H-3	2/6	1,100*	-460	330	250	80,000
Tc-99	2/6	10*	-5.1	1.4	2.2	4,000
Total rad Sr	2/6	2.3*	-0.46	0.96*	0.41	40
Total uranium	2/6	0.73*	-0.027	0.28*	0.11	20
Volatile Organics (µg/L)						
2-Butanone	4/6	U10	JB5.0	7.5	0.92	f
Mitchell Branch downstream from the K-25 Site (MIK 0.1)						
Anions (mg/L)						
Ammonia	4/6	<0.20	0.036	70.11	0.030	f
Chloride	6/6	16	6.8	12	1.4	f
Fluoride	4/6	0.25	<0.050	70.15	0.032	f
Nitrate	6/6	3.2	1.1	1.8	0.31	f
Sulfate, as SO ₄	6/6	36	22	28	1.9	f
Field Measurements						
Conductivity (mS/cm)	6/6	0.41	0.23	0.33	0.027	f
Dissolved oxygen (ppm)	6/6	9.4	6.3	8.3	0.57	f
pH (SU)	6/6	7.6	7.3	7.4	0.060	f
Temperature (°C)	6/6	21	8.1	14	2.0	f
Metals (mg/L)						
Aluminum, total	6/6	0.85	0.13	0.40	0.12	f
Barium, total	6/6	0.052	0.032	0.042	0.0027	f
Calcium, total	6/6	73	32	49	5.8	f
Iron, total	6/6	1.0	0.22	0.48	0.11	f
Magnesium, total	6/6	13	8.8	11	0.68	f
Manganese, total	6/6	0.20	0.11	0.15	0.013	f
Phosphorus, total	4/6	0.38	<0.20	70.29	0.032	f
Potassium, total	2/6	2.7	<2.0	72.2	0.11	f
Sodium, total	6/6	6.8	4.2	5.4	0.37	f
Uranium, total	6/6	0.012	0.0074	0.0096	0.00075	f
Zinc, total	6/6	0.017	0.0063	0.011	0.0018	f
Others						
Alkalinity (mg/L)	6/6	180	110	140	9.8	f
Chemical oxygen demand (mg/L)	3/6	9.0	<5.0	76.3	0.84	f

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Table 4.1 (continued)

Parameter	N det/ N total	Concentration			Standard error ^d	TWQC ^e
		Max ^b	Min ^b	Av ^c		
Color (CPU)	6/6	15	3.0	7.8	1.7	f
Total hardness (mg/L)	6/6	200	140	170	10	f
Physical						
Total dissolved solids	6/6	260	170	200	14	f
Total suspended solids	3/6	8.0	<5.0	~5.7	0.48	f
Radionuclides (pCi/L) ^g						
Co-60	1/6	4.6*	-0.54	0.65	0.80	f
Cs-137	1/6	7.3*	-3.0	0.77	1.4	f
Gross alpha	6/6	13*	4.9*	9.1*	1.2	f
Gross beta	6/6	15*	4.9*	11*	1.5	f
Tc-99	6/6	16*	5.1*	9.8*	1.9	4,000
Total uranium	6/6	16*	8.4*	12*	1.1	f
U-234	6/6	11*	5.1*	7.8*	0.72	f
U-235	5/6	0.57*	0.078	0.32*	0.069	f
U-238	6/6	5.1*	3.0*	4.0*	0.33	f
Volatile Organics (µg/L)						
1,1-Dichloroethane	2/6	U5.0	J1.0	~3.7	0.84	f
1,2-Dichloroethene, total	3/6	27	U5.0	~15	4.3	f
2-Butanone	6/6	JB6.0	JB3.0	~4.5	0.56	f
Acetone	1/6	U10	JB3.0	~88	1.2	f
Carbon disulfide	1/6	U5.0	JB2.0	~4.5	0.50	f
Tetrachloroethene	4/6	U5.0	J1.0	~2.7	0.80	f
Trichloroethene	5/6	47	U5.0	~34	6.2	f
Vinyl chloride	5/6	U10	J1.0	~3.8	1.3	f
Mitchell Branch upstream from the K-25 Site (MIK 1.4)						
Anions (mg/L)						
Ammonia	3/6	<0.20	<0.030	~0.090	0.035	f
Chloride	6/6	3.8	2.2	2.8	0.23	f
Nitrate	6/6	1.9	0.63	1.3	0.19	f
Sulfate, as SO ₄	6/6	8.7	5.3	7.1	0.55	f
Field Measurements						
Conductivity (mS/cm)	6/6	0.16	0.097	0.13	0.0098	f
Dissolved oxygen (ppm)	7/7	11	6.1	8.5	0.60	f
pH (SU)	7/7	7.7	7.4	7.5	0.044	f
Temperature (°C)	7/7	20	5.9	12	1.8	f
Metals (mg/L)						
Aluminum, total	6/6	2.9	0.10	1.2	0.39	f
Barium, total	6/6	0.070	0.026	0.049	0.0073	f

Annual Site Environmental Data

Table 4.1 (continued)

Parameter	N det/ N total	Concentration			Standard error ^d	TWQC ^e
		Max ^b	Min ^b	AV ^c		
Calcium, total	6/6	18	9.6	15	1.3	f
Iron, total	6/6	3.1	0.53	1.2	0.41	f
Magnesium, total	6/6	8.4	4.8	6.7	0.56	f
Manganese, total	6/6	0.21	0.033	0.087	0.026	f
Phosphorus, total	4/6	0.36	<0.20	~0.27	0.030	f
Sodium, total	6/6	2.0	1.5	1.7	0.080	f
Uranium, total	4/6	0.00022	<0.00010	~0.00013	0.000019	f
Vanadium, total	2/6	0.0034	<0.0020	~0.0025	0.00028	f
Zinc, total	1/6	0.0098	<0.0050	~0.0058	0.00080	f
Others						
Alkalinity (mg/L)	6/6	75	40	61	5.4	f
Chemical oxygen demand (mg/L)	3/6	11	<5.0	~7.7	1.2	f
Color (CPU)	6/6	18	5.0	13	1.8	f
Total hardness (mg/L)	6/6	80	46	65	4.8	f
Physical						
Total dissolved solids	6/6	130	60	100	10	f
Total suspended solids	6/6	21	6.0	10	2.3	f
Radionuclides (pCi/L) ^g						
Co-60	2/6	5.1*	-0.54	1.3	0.89	f
Gross alpha	3/6	1.6*	0.24	0.78*	0.20	f
Gross beta	5/6	3.8*	-0.19	2.5*	0.60	f
Total rad Sr	2/6	2.5*	-0.84	0.89	0.50	f
Total uranium	2/6	0.43*	-0.81	0.014	0.18	f
Volatile Organics (µg/L)						
2-Butanone	6/6	JB7.0	JB3.0	~4.3	0.67	f
Acetone	3/6	U10	J2.0	~6.3	1.6	f
Poplar Creek downstream from the K-25 Site (PCK 2.2)						
Anions (mg/L)						
Ammonia	4/6	<0.20	0.044	~0.11	0.029	f
Chloride	6/6	7.0	2.7	4.5	0.58	f
Fluoride	3/6	0.20	<0.050	~0.11	0.024	f
Nitrate	6/6	11	1.8	4.1	1.4	f
Sulfate, as SO ₄	6/6	25	18	23	1.0	f

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Table 4.1 (continued)

Parameter	N det/ N total	Concentration			Standard error ^d	TWQC ^e
		Max ^b	Min ^b	Av ^c		
Field Measurements						
Conductivity (mS/cm)	6/6	0.22	0.12	0.18	0.014	f
Dissolved oxygen (ppm)	6/6	10	6.1	7.8	0.66	f
pH (SU)	6/6	7.5	7.3	7.4	0.040	f
Temperature (°C)	6/6	22	7.1	13	2.3	f
Metals (mg/L)						
Aluminum, total	6/6	1.1	0.36	0.68	0.13	f
Barium, total	6/6	0.041	0.028	0.034	0.0024	f
Calcium, total	6/6	31	19	24	2.2	f
Iron, total	6/6	1.1	0.41	0.82	0.10	f
Magnesium, total	6/6	7.8	5.1	6.5	0.47	f
Manganese, total	6/6	0.19	0.08	0.12	0.016	f
Mercury, total	1/6	<0.00020	<0.000050	~0.00013	0.000032	0.0024
Phosphorus, total	4/6	0.36	<0.20	~0.27	0.027	f
Potassium, total	1/6	2.3	<2.0	~2.1	0.050	f
Sodium, total	6/6	4.3	2.6	3.4	0.23	f
Uranium, total	6/6	0.0044	0.0012	0.0021	0.00049	f
Vanadium, total	1/6	0.0032	<0.0020	~0.0022	0.00020	f
Others						
Alkalinity (mg/L)	6/6	82	52	68	5.6	f
Chemical oxygen demand (mg/L)	3/6	10	<5.0	~6.3	0.88	f
Color (CPU)	6/6	9.0	3.0	6.2	1.1	f
Total hardness (mg/L)	6/6	110	74	88	5.8	f
Physical						
Total dissolved solids	6/6	150	110	130	8.1	f
Total suspended solids	6/6	17	8.0	13	1.5	f
Radionuclides (pCi/L)^g						
Co-60	1/6	2.7*	-2.7	-0.081	0.81	200
Gross alpha	6/6	2.2*	0.84*	1.5*	0.20	f
Gross beta	6/6	5.1*	1.7*	2.8*	0.49	f
Tc-99	1/6	5.1*	-6.5	0.72	1.9	4,000
Total uranium	6/6	2.2*	1.0*	1.4*	0.20	20
Volatile Organics (µg/L)						
1,2-Dichloroethene, total	1/6	17	U5.0	~7.0	2.0	f
2-Butanone	6/6	JB6.0	JB3.0	~4.3	0.49	f
Acetone	2/6	U10	JB3.0	~7.7	1.5	f
Trichloroethene	1/6	28	U5.0	~8.8	3.8	f
Vinyl chloride	1/6	U10	J2.0	~8.7	1.3	f

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Table 4.1 (continued)

Parameter	N det/ N total	Concentration			Standard error ^d	TWQC ^e
		Max ^b	Min ^b	Av ^c		
Poplar Creek upstream from the K-25 Site and East Fork Poplar Creek (PCK 22)						
Anions (mg/L)						
Ammonia	4/6	<0.20	0.032	~0.095	0.034	f
Chloride	6/6	3.5	1.9	2.6	0.25	f
Nitrate	6/6	4.0	0.96	2.2	0.47	f
Sulfate, as SO ₄	6/6	35	24	29	1.7	f
Field Measurements						
Conductivity (mS/cm)	6/6	0.24	0.13	0.17	0.018	f
Dissolved oxygen (ppm)	6/6	11	6.3	8.7	0.70	f
pH (SU)	6/6	7.9	7.5	7.6	0.075	f
Temperature (°C)	6/6	21	6.2	12	2.3	f
Metals (mg/L)						
Aluminum, total	6/6	0.89	0.25	0.43	0.099	f
Barium, total	6/6	0.043	0.027	0.034	0.0028	f
Calcium, total	6/6	29	14	20	2.4	f
Iron, total	6/6	1.2	0.31	0.60	0.13	f
Magnesium, total	6/6	9.5	5.6	7.3	0.71	f
Manganese, total	6/6	0.14	0.076	0.10	0.0086	f
Phosphorus, total	4/6	0.37	<0.20	~0.28	0.029	f
Sodium, total	6/6	3.6	2.2	2.8	0.22	f
Uranium, total	2/6	0.00015	<0.00010	~0.00011	0.0000088	f
Others						
Alkalinity (mg/L)	6/6	90	40	57	8.2	f
Chemical oxygen demand (mg/L)	2/6	9.0	<5.0	~6.2	0.75	f
Color (CPU)	6/6	9.0	3.0	6.0	0.97	f
Total hardness (mg/L)	6/6	110	60	81	9.5	f
Physical						
Total dissolved solids	6/6	160	88	120	13	f
Total suspended solids	6/6	34	6.0	16	4.4	f
Radionuclides (pCi/L) ^g						
Co-60	1/6	4.9*	-1.1	0.82	0.88	200
Gross beta	4/6	4.1*	0.32	2.2*	0.61	f
Total rad Sr	2/6	1.6*	-1.1	0.19	0.44	40
Total uranium	2/6	0.54*	-0.054	0.19*	0.081	20
Volatile Organics (µg/L)						
2-Butanone	5/6	U10	JB3.0	~5.7	0.99	f
Acetone	1/6	U10	JB3.0	~8.8	1.2	f

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Table 4.1 (continued)

Parameter	N det/ N total	Concentration			Standard error ^d	TWQC ^e
		Max ^b	Min ^b	Av ^c		
Water supply intake for City of Kingston (TRK 915)						
Anions (mg/L)						
Ammonia	3/6	<0.20	<0.030	~0.097	0.033	f
Chloride	6/6	9.7	4.5	6.7	0.87	f
Fluoride	2/6	0.18	<0.050	~0.10	0.020	f
Nitrate	6/6	3.5	0.96	2.1	0.39	f
Sulfate, as SO ₄	6/6	18	8.6	13	1.5	f
Field Measurements						
Conductivity (mS/cm)	6/6	0.19	0.13	0.15	0.0090	f
Dissolved oxygen (ppm)	6/6	13	6.0	8.5	1.1	f
pH (SU)	6/6	8.2	7.1	7.6	0.15	f
Temperature (°C)	6/6	25	5.1	14	3.1	f
Metals (mg/L)						
Aluminum, total	6/6	1.1	0.14	0.48	0.14	f
Barium, total	6/6	0.031	0.022	0.026	0.0013	f
Calcium, total	6/6	38	13	21	3.7	f
Cobalt, total	1/6	0.0047	<0.0040	~0.0041	0.00012	f
Iron, total	6/6	1.0	0.16	0.45	0.13	f
Magnesium, total	6/6	10	3.6	5.7	0.94	f
Manganese, total	6/6	0.062	0.046	0.052	0.0023	f
Mercury, total	1/6	0.00025	<0.000050	~0.00013	0.000038	f
Phosphorus, total	3/6	0.39	<0.20	~0.28	0.035	f
Potassium, total	2/6	2.2	<2.0	~2.1	0.034	f
Sodium, total	6/6	9.3	3.4	5.8	0.91	f
Uranium, total	4/6	0.00022	<0.00010	~0.00015	0.000021	f
Vanadium, total	1/6	0.0028	<0.0020	~0.0021	0.00013	f
Zinc, total	6/6	0.013	0.0070	0.0094	0.00097	f
Others						
Alkalinity (mg/L)	6/6	110	48	72	11	f
Chemical oxygen demand (mg/L)	3/6	12	<5.0	~6.8	1.1	f
Color (CPU)	6/6	15	6.0	8.7	1.4	f
Total hardness (mg/L)	6/6	130	53	77	11	f
Physical						
Total dissolved solids	6/6	160	77	110	14	f
Total suspended solids	5/6	11	<5.0	~7.2	1.0	f

Annual Site Environmental Data

Table 4.1 (continued)

Parameter	N det/ N total	Concentration			Standard error ^c	TWQC ^e
		Max ^b	Min ^b	Av ^c		
Radionuclides (pCi/L) ^a						
Cs-137	2/6	2.0*	-1.1	0.61	0.52	f
Gross alpha	3/6	1.1*	-0.16	0.41*	0.20	f
Gross beta	4/6	4.9*	-0.49	2.0*	0.80	f
Tc-99	2/6	8.1*	0.27	3.6*	1.2	f
Total uranium	1/6	2.1*	0.054	0.44	0.33	f
Volatile Organics (µg/L)						
2-Butanone	5/6	U10	J83.0	~5.8	0.95	f
Acetone	2/6	U10	J82.0	~7.7	1.5	f
White Oak Lake at White Oak Dam (WCK 1.0)						
Anions (mg/L)						
Ammonia	5/6	<0.20	0.046	~0.091	0.023	f
Chloride	6/6	16	5.7	9.5	1.8	f
Fluoride	5/6	0.95	0.060	~0.47	0.14	f
Nitrate	6/6	2.6	0.42	1.6	0.36	f
Sulfate, as SO ₄	6/6	68	18	38	7.2	f
Field Measurements						
Conductivity (mS/cm)	6/6	0.38	0.20	0.27	0.024	f
Dissolved oxygen (ppm)	8/8	8.3	6.0	7.1	0.33	f
pH (SU)	8/8	8.3	6.8	7.6	0.18	f
Temperature (°C)	8/8	28	5.3	17	2.7	f
Metals (mg/L)						
Aluminum, total	6/6	3.1	0.91	1.7	0.33	f
Barium, total	6/6	0.059	0.040	0.046	0.0032	f
Calcium, total	6/6	50	30	41	3.0	f
Chromium, total	2/6	0.022	<0.0040	~0.0085	0.0031	0.016
Iron, total	6/6	1.9	0.75	1.2	0.17	f
Magnesium, total	6/6	10	5.5	7.5	0.77	f
Manganese, total	6/6	0.21	0.084	0.13	0.019	f
Mercury, total	4/6	0.00029	0.000075	~0.00016	0.000035	0.0024
Phosphorus, total	5/6	0.40	<0.20	~0.29	0.035	f
Potassium, total	4/6	2.4	<2.0	~2.1	0.065	f
Sodium, total	6/6	20	5.7	10	2.4	f
Uranium, total	6/6	0.011	0.0012	0.0038	0.0015	f
Vanadium, total	3/6	0.0032	<0.0020	~0.0023	0.00020	f

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Table 4.1 (continued)

Parameter	N det/ N total	Concentration			Standard error ^d	TWQC ^e
		Max ^b	Min ^b	Av ^c		
Others						
Alkalinity (mg/L)	6/6	230	90	130	21	f
Chemical oxygen demand (mg/L)	4/6	24	<5.0	~12	2.9	f
Color (CPU)	6/6	25	12	18	2.2	f
Total hardness (mg/L)	6/6	160	97	130	9.8	f
Physical						
Total dissolved solids	6/6	270	150	200	22	f
Total suspended solids	6/6	58	5.0	24	7.8	f
Radionuclides (pCi/L)^g						
Co-60	1/7	12*	-1.1	3.1	1.6	200
Cs-137	6/7	140*	7.8	42*	18	120
Gross alpha	7/7	8.1*	3.0*	5.9*	0.81	f
Gross beta	7/7	410*	250*	320*	24	f
H-3	7/7	180,000*	100,000*	140,000*	10,000	80,000
Tc-99	5/6	18*	1.1	9.1*	2.4	4,000
Total rad Sr	7/7	140*	110*	130*	5.1	40
Total uranium	7/8	14*	0.11	5.7*	1.5	20
U-234	7/8	12*	0.070	4.9*	1.4	20
U-235	2/8	0.24*	-0.19	0.046	0.049	24
U-238	6/8	1.4*	0.041	0.77*	0.14	24
Volatile Organics (µg/L)						
2-Butanone	5/6	U10	J3.0	~6.5	0.99	f
Acetone	1/6	U10	J82.0	~8.7	1.3	f
White Oak Creek downstream from ORNL (WCK 2.6)						
Anions (mg/L)						
Ammonia	5/6	<0.20	0.032	~0.066	0.027	f
Chloride	6/6	17	5.0	8.8	2.0	f
Fluoride	5/6	1.1	0.10	~0.55	0.17	f
Nitrate	6/6	9.6	2.7	5.0	1.0	f
Sulfate, as SO ₄	6/6	65	13	32	7.3	f
Field Measurements						
Conductivity (mS/cm)	6/6	0.38	0.16	0.29	0.032	f
Dissolved oxygen (ppm)	7/7	9.8	6.0	8.0	0.46	f
pH (SU)	7/7	8.3	6.8	7.7	0.19	f
Temperature (°C)	7/7	25	7.5	16	2.3	f

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Table 4.1 (continued)

Parameter	N det/ N total	Concentration			Standard error ^d	TWQC ^e
		Max ^b	Min ^b	Av ^c		
Metals (mg/L)						
Aluminum, total	6/6	3.1	0.056	0.61	0.50	f
Barium, total	6/6	0.048	0.032	0.037	0.0024	f
Calcium, total	6/6	41	28	37	1.9	f
Iron, total	6/6	2.1	0.13	0.53	0.32	f
Magnesium, total	6/6	9.8	4.6	7.9	0.78	f
Manganese, total	6/6	0.051	0.026	0.037	0.0045	f
Mercury, total	4/6	<0.00020	0.000050	~0.00014	0.000024	0.0024
Phosphorus, total	4/6	0.40	<0.20	~0.29	0.033	f
Potassium, total	2/6	2.5	<2.0	~2.1	0.083	f
Sodium, total	6/6	20	3.2	12	2.7	f
Uranium, total	6/6	0.0036	0.00088	0.0021	0.00047	f
Vanadium, total	1/6	0.0029	<0.0020	~0.0022	0.00015	f
Others						
Alkalinity (mg/L)	6/6	150	82	120	8.4	f
Chemical oxygen demand (mg/L)	4/6	16	<5.0	~9.2	2.1	f
Color (CPU)	6/6	25	2.0	7.7	3.6	f
Total hardness (mg/L)	6/6	160	90	130	9.0	f
Physical						
Total dissolved solids	6/6	250	140	190	15	f
Total suspended solids	2/6	28	<5.0	~8.9	3.8	f
Radionuclides (pCi/L)^g						
Co-60	2/6	8.4*	-1.6	2.4	1.4	200
Cs-137	6/6	41*	19*	26*	3.1	120
Gross alpha	6/6	5.4*	1.6*	3.5*	0.52	f
Gross beta	6/6	240*	160*	210*	11	f
H-3	6/6	73,000*	11,000*	36,000*	11,000	80,000
Tc-99	1/6	5.9*	-5.7	-0.68	1.7	4,000
Total rad Sr	6/6	120*	68*	95*	8.8	40
Total uranium	7/7	6.8*	2.4*	3.6*	0.57	20
U-234	5/5	5.9*	2.3*	3.2*	0.69	20
U-235	1/5	0.027*	-0.027	-0.0027	0.0099	24
U-238	4/5	1.2*	0.18	0.76*	0.16	24
Volatile Organics (µg/L)						
2-Butanone	4/6	JB10	JB5.0	~8.0	0.93	f
Chloroform	5/6	U5.0	J1.0	~2.2	0.60	f

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Table 4.1 (continued)

Parameter	N det/ N total	Concentration			Standard error ^d	TWQC ^e
		Max ^b	Min ^b	Av ^c		
White Oak Creek upstream from ORNL (WCK 6.8)						
Anions (mg/L)						
Ammonia	3/6	<0.20	<0.030	~0.064	0.027	f
Chloride	6/6	1.7	0.83	1.2	0.13	f
Nitrate	6/6	2.0	0.39	0.79	0.24	f
Sulfate, as SO ₄	6/6	5.1	2.0	3.2	0.47	f
Field Measurements						
Conductivity (mS/cm)	6/6	0.24	0.075	0.15	0.028	f
Dissolved oxygen (ppm)	7/7	10	6.9	9.0	0.49	f
pH (SU)	7/7	8.1	7.0	7.4	0.18	f
Temperature (°C)	7/7	19	9.2	13	1.2	f
Metals (mg/L)						
Aluminum, total	5/6	2.0	<0.050	~0.44	0.31	f
Barium, total	6/6	0.077	0.036	0.049	0.0067	f
Calcium, total	6/6	27	11	18	2.8	f
Iron, total	5/6	1.5	<0.050	~0.36	0.23	f
Magnesium, total	6/6	15	4.4	8.9	1.8	f
Manganese, total	6/6	0.12	0.0068	0.028	0.018	f
Mercury, total	3/6	<0.00020	<0.000050	~0.00013	0.000026	0.0024
Phosphorus, total	3/6	0.42	<0.20	~0.25	0.035	f
Sodium, total	6/6	0.49	0.045	0.36	0.067	f
Uranium, total	3/6	0.00042	<0.00010	~0.00016	0.000052	f
Others						
Alkalinity (mg/L)	6/6	140	40	79	16	f
Chemical oxygen demand (mg/L)	2/6	8.0	<5.0	~5.8	0.54	f
Color (CPU)	6/6	22	2.0	6.0	3.2	f
Total hardness (mg/L)	6/6	140	56	87	13	f
Physical						
Total dissolved solids	6/6	150	70	97	13	f
Total suspended solids	2/6	52	<5.0	~15	7.7	f
Radionuclides (pCi/L) ^g						
Gross alpha	1/6	1.2*	-0.35	0.19	0.21	f
Gross beta	5/6	2.5*	0.43	1.7*	0.31	f
H-3	2/6	8,100*	0.027*	1,500	1,300	80,000
Tc-99	1/6	5.4*	-0.81	1.5	0.87	4,000
Total rad Sr	1/7	2.7*	-2.2	-0.10	0.58	40
Total uranium	1/6	0.76	-0.054	0.35*	0.11	20

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Table 4.1 (continued)

Parameter	N det/ N total	Concentration			Standard error ^d	TWQC ^e
		Max ^b	Min ^b	Av ^c		
Volatile Organics (µg/L)						
2-Butanone	4/6	U10	JB5.0	7.3	1.1	f

^aAll values were included in the calculations. Only parameters that have one or more samples detected are listed in the table. The sampling and analysis plan contains a complete list of analyses performed.

^bPrefix "<" indicates the value for a parameter (excluding organics) was not quantifiable at the analytical detection limit; "B" indicates the compound was found in the laboratory blank; "JB" indicates the value was estimated at or below the analytical detection limit and the compound was found in the laboratory blank; "U" indicates the value for an organic parameter was undetected at the analytical detection limit; and "J" indicates the value was estimated at or below the analytical detection limit by the laboratory.

^cA tilde (~) indicates that estimated values and/or detection limits were used in the calculation.

^dStandard error of the mean.

^eTennessee General Water Quality Criteria for Recreation and Domestic Use, as amended (CRK 16, CRK 23, CRK 32, CRK 58, CRK 66, CRK 70, CRK 80, CRK 84, TRK 915) or Tennessee General Water Quality Criteria for Freshwater Fish and Aquatic Life, as amended (BCK 0.6, BCK 9.4, EFK 0.1, EFK 23.4, EFK 5.4, HC, MEK 0.2, MEK 2.1, PCK 2.2, PCK 22, WCK 1.0, WCK 2.6, WCK 6.8). 4% of DOE DCG used for radionuclides, where applicable.

^fNot applicable.

^gIndividual and average radionuclide concentrations significantly greater than zero are identified by an *.

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Table 4.2. 1996 concentrations at EMP sediment locations^a

Parameter	Concentration ^b
Bear Creek downstream from all DOE inputs (BCK 0.6)	
Metals (g/kg)	
Aluminum, total	9.0
Arsenic, total	0.0043
Barium, total	0.042
Beryllium, total	0.00064
Cadmium, total	0.0020
Calcium, total	4.7
Chromium, total	0.016
Cobalt, total	0.0062
Copper, total	0.018
Iron, total	10
Lead, total	0.0068
Magnesium, total	3.3
Manganese, total	0.43
Mercury, total	0.000030
Nickel, total	0.0051
Potassium, total	1.3
Sodium, total	0.031
Uranium, total	0.0013
Vanadium, total	0.024
Zinc, total	0.015
PCBs (μ g/kg)	
AroClor-1254	140
Radionuclides (pCi/g) ^c	
Gross alpha	2.5*
Gross beta	1.7*
K-40	4.1*
Np-237	0.011*
Pu-238	0.0078*
Th-228	0.46*
Th-230	0.57*
Th-232	0.32*
U-234	0.32*
U-235	0.022*
U-238	0.43*
Bear Creek downstream from Y-12 Plant burial grounds (BCK 9.4)	
Metals (g/kg)	
Aluminum, total	13
Arsenic, total	0.0065
Barium, total	0.12
Beryllium, total	0.00097
Cadmium, total	0.0080
Calcium, total	3.4
Chromium, total	0.020
Cobalt, total	0.017
Copper, total	0.012
Iron, total	15
Lead, total	0.013
Magnesium, total	1.5
Manganese, total	1.8
Mercury, total	0.00031
Nickel, total	0.039
Potassium, total	2.4

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Table 4.2 (continued)

Parameter	Concentration ^b
Sodium, total	0.042
Uranium, total	0.018
Vanadium, total	0.018
Zinc, total	0.044
PCBs ($\mu\text{g}/\text{kg}$)	
AroClor-1254	230
Radionuclides (pCi/g) ^c	
Am-241	0.041*
Cs-137	0.097*
Gross alpha	11*
Gross beta	11*
K-40	10*
Np-237	0.013*
Pu-238	0.0070*
Pu-239	0.010*
Tc-99	0.54*
Th-228	0.78*
Th-230	0.59*
Th-232	0.38*
U-234	3.8*
U-235	0.26*
U-238	7.6*
Semi-Volatile Organics ($\mu\text{g}/\text{kg}$)	
Di-n-butylphthalate	JB700
Clinch River downstream from all DOE inputs (CRK 16)	
Metals (g/kg)	
Aluminum, total	7.5
Arsenic, total	0.035
Barium, total	0.050
Beryllium, total	0.00041
Cadmium, total	0.0019
Calcium, total	25
Chromium, total	0.010
Cobalt, total	0.0055
Copper, total	0.0056
Iron, total	8.4
Magnesium, total	3.8
Manganese, total	0.73
Mercury, total	0.00011
Nickel, total	0.0036
Potassium, total	0.98
Sodium, total	0.043
Uranium, total	0.00019
Vanadium, total	0.012
Zinc, total	0.046
Radionuclides (pCi/g) ^c	
Cs-137	0.89*
Gross alpha	2.7*
Gross beta	1.6*
K-40	9.5*
Th-228	0.32*
Th-230	0.59*
Th-232	0.27*
U-234	0.12*
U-238	0.11*

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Table 4.2 (continued)

Parameter	Concentration ^b
Semi-Volatile Organics (μg/kg)	
Anthracene	J140
Benzo(a)pyrene	J400
Benzo(b)fluoranthene	J620
Fluoranthene	J1,700
Phenanthrene	J910
Pyrene	J1,500
Clinch River downstream from ORNL (CRK 32)	
Metals (g/kg)	
Aluminum, total	19
Arsenic, total	0.0073
Barium, total	0.090
Beryllium, total	0.00092
Cadmium, total	0.0026
Calcium, total	3.5
Chromium, total	0.018
Cobalt, total	0.0091
Copper, total	0.011
Iron, total	14
Lead, total	0.019
Magnesium, total	2.1
Manganese, total	0.63
Mercury, total	0.000043
Nickel, total	0.014
Potassium, total	3.2
Sodium, total	0.077
Uranium, total	0.00030
Vanadium, total	0.024
Zinc, total	0.052
Pesticides (μg/kg)	
Endosulfan sulfate	J3.3
Radionuclides (pCi/g)^c	
Am-241	0.014*
Co-60	0.015*
Cs-137	0.32*
Gross alpha	4.1*
Gross beta	3.8*
K-40	13*
Np-237	0.00078*
Th-228	1.1*
Th-230	0.81*
Th-232	0.62*
U-234	0.21*
U-235	0.012*
U-238	0.18*
Semi-Volatile Organics (μg/kg)	
Di-n-butylphthalate	J83,000
Melton Hill Reservoir - Oak Ridge Marina (CRK 80)	
Metals (g/kg)	
Aluminum, total	19
Arsenic, total	0.0071
Barium, total	0.098
Beryllium, total	0.0011
Cadmium, total	0.0035

Table 4.2 (continued)

Parameter	Concentration ^b
Calcium, total	1.7
Chromium, total	0.019
Cobalt, total	0.012
Copper, total	0.012
Iron, total	19
Lead, total	0.016
Magnesium, total	2.2
Manganese, total	0.69
Mercury, total	0.000035
Nickel, total	0.014
Potassium, total	2.8
Sodium, total	0.070
Uranium, total	0.00053
Vanadium, total	0.027
Zinc, total	0.048
Radionuclides (pCi/g) ^c	
Gross alpha	3.5*
Gross beta	3.0*
K-40	15*
Th-228	1.0*
Th-230	0.92*
Th-232	0.81*
U-234	0.23*
U-235	0.0081*
U-238	0.19*
Semi-Volatile Organics ($\mu\text{g}/\text{kg}$)	
Di-n-butylphthalate	JB620
Melton Hill Reservoir above all DOE inputs (CRK 84)	
Metals (g/kg)	
Aluminum, total	14
Arsenic, total	0.0052
Barium, total	0.090
Beryllium, total	0.00084
Cadmium, total	0.0023
Calcium, total	2.4
Chromium, total	0.014
Cobalt, total	0.0083
Copper, total	0.0073
Iron, total	11
Lead, total	0.016
Magnesium, total	1.8
Manganese, total	0.64
Mercury, total	0.000038
Nickel, total	0.0099
Potassium, total	2.4
Sodium, total	0.059
Uranium, total	0.00039
Vanadium, total	0.019
Zinc, total	0.055
Radionuclides (pCi/g) ^c	
Am-241	0.0095*
Cs-137	0.15*
Gross alpha	1.7*
Gross beta	1.7*
K-40	8.9*
Pu-239	0.0078*

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Table 4.2 (continued)

Parameter	Concentration ^b
Th-228	0.57*
Th-230	0.68*
Th-232	0.32*
U-234	0.18*
U-238	0.13*
East Fork Poplar Creek downstream from the Y-12 Plant (EFK 23.4)	
Metals (g/kg)	
Aluminum, total	16
Arsenic, total	0.0058
Barium, total	0.10
Beryllium, total	0.0022
Cadmium, total	0.0077
Calcium, total	12
Chromium, total	0.029
Cobalt, total	0.010
Copper, total	0.079
Iron, total	15
Lead, total	0.029
Magnesium, total	3.5
Manganese, total	0.65
Mercury, total	0.032
Nickel, total	0.049
Potassium, total	3.2
Silver, total	0.0037
Sodium, total	0.060
Uranium, total	0.013
Vanadium, total	0.018
Zinc, total	0.17
NO CODE FOR ANALYSIS ($\mu\text{g}/\text{kg}$)	
2,4,5-Tp (silvex)	J36
PCBs ($\mu\text{g}/\text{kg}$)	
AroClor-1254	380
AroClor-1260	640
Radionuclides (pCi/g) ^c	
Cs-137	0.38*
Gross alpha	19*
Gross beta	9.2*
K-40	9.5*
Np-237	0.0013*
Pu-238	0.018*
Pu-239	0.026*
Tc-99	0.16*
Th-228	0.86*
Th-230	0.70*
Th-232	0.51*
U-234	3.5*
U-235	0.14*
U-238	4.1*
Semi-Volatile Organics ($\mu\text{g}/\text{kg}$)	
Benzo(a)pyrene	J2,000
Benzo(b)fluoranthene	J1,800
Benzo(k)fluoranthene	J3,100
Chrysene	J6,000
Fluoranthene	J8,400

Table 4.2 (continued)

Parameter	Concentration ^b
Indeno(1,2,3-cd)pyrene	J780
Phenanthrene	J2,400
Pyrene	J7,300
East Fork Poplar Creek downstream from floodplain (EFK 5.4)	
Metals (g/kg)	
Aluminum, total	8.4
Arsenic, total	0.0041
Barium, total	0.051
Beryllium, total	0.00049
Cadmium, total	0.0019
Calcium, total	1.9
Chromium, total	0.015
Cobalt, total	0.0058
Copper, total	0.014
Iron, total	8.4
Lead, total	0.012
Magnesium, total	1.0
Manganese, total	0.44
Mercury, total	0.011
Nickel, total	0.0066
Potassium, total	1.4
Sodium, total	0.048
Uranium, total	0.0032
Vanadium, total	0.012
Zinc, total	0.051
Pesticides ($\mu\text{g}/\text{kg}$)	
Alpha-Chlordane	8.9
Endosulfan I	J6.1
Endrin aldehyde	J2.3
Gamma-Chlordane	24
Radionuclides (pCi/g) ^c	
Co-60	0.019*
Cs-137	0.30*
Gross alpha	4.3*
Gross beta	4.3*
K-40	5.7*
Pu-239	0.0073*
Th-228	0.38*
Th-230	1.3*
U-234	1.0*
U-235	0.049*
U-238	0.92*
Semi-Volatile Organics ($\mu\text{g}/\text{kg}$)	
Di-n-butylphthalate	J8290
Hinds Creek (reference site for East Fork Poplar Creek)	
Metals (g/kg)	
Aluminum, total	15
Arsenic, total	0.0072
Barium, total	0.076
Beryllium, total	0.00075
Cadmium, total	0.0023
Calcium, total	1.7
Chromium, total	0.017
Cobalt, total	0.0081

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Table 4.2 (continued)

Parameter	Concentration ^b
Copper, total	0.0078
Iron, total	13
Lead, total	0.016
Magnesium, total	1.8
Manganese, total	0.73
Mercury, total	0.000054
Nickel, total	0.0090
Potassium, total	2.7
Sodium, total	0.054
Uranium, total	0.00035
Vanadium, total	0.018
Zinc, total	0.036
PCBs ($\mu\text{g}/\text{kg}$)	
AroClor-1254	110
Radionuclides (pCi/g) ^c	
Cs-137	0.35*
Gross alpha	1.9*
Gross beta	2.1*
K-40	11*
Pu-239	0.015*
Th-228	0.70*
Th-230	0.51*
Th-232	0.49*
U-234	0.14*
U-235	0.015*
U-238	0.084*
Melton Branch upstream from ORNL (MEK 2.1)	
Metals (g/kg)	
Aluminum, total	19
Arsenic, total	0.0083
Barium, total	0.24
Beryllium, total	0.0016
Cadmium, total	0.0059
Calcium, total	2.9
Chromium, total	0.034
Cobalt, total	0.027
Copper, total	0.013
Iron, total	35
Lead, total	0.018
Magnesium, total	3.5
Manganese, total	2.4
Mercury, total	0.000018
Nickel, total	0.027
Potassium, total	4.0
Sodium, total	0.062
Uranium, total	0.00024
Vanadium, total	0.032
Zinc, total	0.046
Pesticides ($\mu\text{g}/\text{kg}$)	
Endosulfan sulfate	12.5
Radionuclides (pCi/g) ^c	
Am-241	0.0078*
Cs-137	0.092*
Gross alpha	4.1*
Gross beta	3.2*

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Table 4.2 (continued)

Parameter	Concentration ^b
K-40	2.4*
Th-228	1.0*
Th-230	0.57*
Th-232	0.41*
U-234	0.068*
U-235	0.0062*
U-238	0.049*
Mitchell Branch downstream from the K-25 Site (MIK 0.1)	
Metals (g/kg)	
Aluminum, total	8.9
Arsenic, total	0.0070
Barium, total	0.048
Beryllium, total	0.00038
Cadmium, total	0.0018
Calcium, total	5.9
Chromium, total	0.021
Cobalt, total	0.0049
Copper, total	0.044
Iron, total	8.5
Lead, total	0.027
Magnesium, total	2.1
Manganese, total	0.41
Mercury, total	0.00067
Nickel, total	0.079
Potassium, total	1.3
Sodium, total	0.041
Uranium, total	0.0040
Vanadium, total	0.012
Zinc, total	0.11
PCBs ($\mu\text{g}/\text{kg}$)	
AroClor-1254	2,600
Pesticides ($\mu\text{g}/\text{kg}$)	
4,4'-DDE	J33
Endrin aldehyde	J140
Radionuclides (pCi/g) ^c	
Cs-137	0.25*
Gross alpha	6.2*
Gross beta	23*
K-40	5.1*
Np-237	0.0019*
Pu-239	0.051*
Tc-99	19*
Th-228	0.43*
Th-230	1.8*
Th-232	0.27*
U-234	2.3*
U-235	0.16*
U-238	1.3*
Semi-Volatile Organics ($\mu\text{g}/\text{kg}$)	
Chrysene	J1,400
Di-n-butylphthalate	JB2,300
Fluoranthene	J1,600
Pyrene	J1,400

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Table 4.2 (continued)

Parameter	Concentration ^b
Mitchell Branch upstream from the K-25 Site (MIK 1.4)	
Metals (g/kg)	
Aluminum, total	15
Arsenic, total	0.0061
Barium, total	0.14
Beryllium, total	0.00081
Cadmium, total	0.0025
Calcium, total	1.2
Chromium, total	0.033
Cobalt, total	0.011
Copper, total	0.012
Iron, total	18
Lead, total	0.011
Magnesium, total	2.1
Manganese, total	0.85
Mercury, total	0.000033
Nickel, total	0.035
Potassium, total	2.7
Sodium, total	0.052
Uranium, total	0.00050
Vanadium, total	0.022
Zinc, total	0.029
Pesticides ($\mu\text{g}/\text{kg}$)	
Endosulfan I	J4.2
Endrin ketone	J12
Radionuclides (pCi/g) ^c	
Am-241	0.00062*
Cs-137	0.059*
Gross alpha	2.7*
Gross beta	3.2*
K-40	8.1*
Th-228	0.54*
Th-230	0.59*
Th-232	0.43*
U-234	0.14*
U-238	0.097*
Poplar Creek downstream from the K-25 Site (PCK 2.2)	
Metals (g/kg)	
Aluminum, total	15
Arsenic, total	0.072
Barium, total	0.089
Beryllium, total	0.00075
Cadmium, total	0.0033
Calcium, total	1.8
Chromium, total	0.018
Cobalt, total	0.0091
Copper, total	0.015
Iron, total	12
Magnesium, total	1.9
Manganese, total	0.47
Mercury, total	0.0023
Nickel, total	0.016
Potassium, total	2.9
Sodium, total	0.069
Uranium, total	0.0019
Vanadium, total	0.017
Zinc, total	0.071

Table 4.2 (continued)

Parameter	Concentration ^a
Pesticides ($\mu\text{g}/\text{kg}$)	
Alpha-Chlordane	J15
Radionuclides (pCi/g) ^c	
Cs-137	0.11*
Gross alpha	3.2*
Gross beta	4.9*
K-40	4.9*
Pu-239	0.0089*
Tc-99	0.59*
Th-228	0.59*
Th-230	1.1*
Th-232	0.46*
U-234	0.62*
U-235	0.030*
U-238	0.62*
Semi-Volatile Organics ($\mu\text{g}/\text{kg}$)	
Phenanthrene	J260
Poplar Creek upstream from the K-25 Site and East Fork (PCK 22)	
Metals (g/kg)	
Aluminum, total	15
Arsenic, total	0.073
Barium, total	0.097
Beryllium, total	0.00091
Cadmium, total	0.0034
Calcium, total	2.2
Chromium, total	0.017
Cobalt, total	0.012
Copper, total	0.015
Iron, total	16
Magnesium, total	2.2
Manganese, total	0.86
Mercury, total	0.000041
Nickel, total	0.022
Potassium, total	2.8
Sodium, total	0.075
Uranium, total	0.00062
Vanadium, total	0.020
Zinc, total	0.077
Pesticides ($\mu\text{g}/\text{kg}$)	
Endrin ketone	J17
Radionuclides (pCi/g) ^c	
Gross alpha	3.0*
Gross beta	3.2*
K-40	4.9*
Pu-239	0.019*
Th-228	0.43*
Th-230	0.43*
Th-232	0.27*
U-234	0.13*
U-238	0.11*
Semi-Volatile Organics ($\mu\text{g}/\text{kg}$)	
2-Methylnaphthalene	J990
Chrysene	J310
Dibenzofuran	J220

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Table 4.2 (continued)

Parameter	Concentration ^b
Fluoranthene	J160
Naphthalene	J830
Phenanthrene	J690
White Oak Lake at White Oak Dam (WCK 1.0)	
Metals (g/kg)	
Aluminum, total	17
Arsenic, total	0.0045
Barium, total	0.049
Beryllium, total	0.00058
Cadmium, total	0.0028
Calcium, total	2.9
Chromium, total	0.021
Cobalt, total	0.0053
Copper, total	0.012
Iron, total	15
Lead, total	0.0064
Magnesium, total	2.4
Manganese, total	0.31
Mercury, total	0.000047
Nickel, total	0.011
Potassium, total	3.2
Silver, total	0.0011
Sodium, total	0.054
Uranium, total	0.00055
Vanadium, total	0.017
Zinc, total	0.032
Radionuclides (pCi/g) ^c	
Am-241	0.038*
Cm-244	0.018*
Co-60	0.22*
Cs-137	9.7*
Gross alpha	3.5*
Gross beta	25*
K-40	11*
Pu-238	0.016*
Pu-239	0.027*
Tc-99	0.41*
Th-228	0.41*
Th-230	0.49*
Th-232	0.32*
U-234	0.18*
U-235	0.010*
U-238	0.097*
White Oak Creek upstream from ORNL (WCK 6.8)	
Metals (g/kg)	
Aluminum, total	5.5
Arsenic, total	0.0055
Barium, total	0.030
Calcium, total	1.3
Chromium, total	0.010
Cobalt, total	0.0041
Copper, total	0.0035
Iron, total	6.5
Lead, total	0.0075
Magnesium, total	0.74
Manganese, total	0.17

Table 4.2 (continued)

Parameter	Concentration ^a
Mercury, total	0.000055
Sodium, total	0.019
Uranium, total	0.00053
Vanadium, total	0.014
Zinc, total	0.026
PCBs ($\mu\text{g}/\text{kg}$)	
AroClor-1254	230
Radionuclides (pCi/g) ^c	
Am-241	0.013*
Co-60	0.0070*
Cs-137	0.18*
Gross alpha	1.7*
Gross beta	1.8*
K-40	1.3*
Pu-238	0.0095*
Pu-239	0.0095*
Th-228	0.41*
Th-230	0.65*
Th-232	0.38*
U-234	0.32*
U-235	0.014*
U-238	0.19*

^aAll values were included in the calculations. Only parameters that have one or more samples detected are listed in the table. The sampling and analysis plan contains a complete list of analyses performed.

^bPrefix "J" indicates the value was estimated at or below the analytical detection limit by the laboratory and "JB" indicates the value was estimated at or below the analytical detection limit and the compound was found in the laboratory blank.

^cIndividual radionuclide concentrations significantly greater than zero are identified by an *.

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Table 4.3. ORNL Plant Perimeter Monitoring summary statistics from 1996 sampling events.

Parameter	N det/ N total	Concentration			Reference Value	Number of values exceeding reference [ref] ^c
		Max ^b	Min ^b	Av ^c		
East Bethel Valley Exit Pathway						
Field Measurements -- Unfiltered						
Conductivity (mS/cm)	5/5	0.71	0.20	0.55	d	[d]
Dissolved oxygen (ppm)	5/5	13	8.5	11	d	[d]
Temperature (°C)	5/5	20	13	16	d	[d]
pH (SU)	5/5	7.7	6.7	7.2	d	[d]
Radionuclides (pCi/L) -- Filtered ^e						
Cs-137	1/5	3.0*	1.4	1.7*	120	0[1]
Gross alpha	2/5	5.7*	0.027	2.1	15	0[3]
Gross beta	3/5	7.3*	-3.8	2.3	50	0[3]
H-3	4/5	5,900*	-270	3,500*	80,000	0[1]
Radionuclides (pCi/L) -- Unfiltered ^e						
Gross alpha	3/5	2.5*	0.027	1.4*	15	0[3]
Gross beta	3/5	7.0*	1.9	3.8*	50	0[3]
H-3	4/5	5,900*	220	3,400*	80,000	0[1]
Total rad Sr	1/5	1.9*	-1.1	0.42	40	0[1]
Volatile Organics (µg/L) -- Unfiltered						
2-Butanone	5/5	JB 6.0	JB 3.0	4.2	d	[d]
Melton Valley Exit Pathway						
Field Measurements -- Unfiltered						
Conductivity (mS/cm)	5/10	0.78	0.0090	0.39	d	[d]
Dissolved oxygen (ppm)	5/5	12	9.1	10	d	[d]
Temperature (°C)	5/10	24	12	15	d	[d]
pH (SU)	5/10	9.6	4.4	7.1	d	[d]
Radionuclides (pCi/L) -- Filtered ^e						
Cs-137	1/5	21*	-0.81	4.9	120	0[1]
Gross alpha	3/5	7.0*	0.081	3.1	15	0[3]
Gross beta	4/5	730*	2.4	210	50	2[3]
H-3	4/5	120,000*	160	58,000	80,000	2[1]
Total rad Sr	2/5	350*	-0.30	99	40	2[1]
Radionuclides (pCi/L) -- Unfiltered ^e						
Co-60	1/8	17	-0.81	6.4*	200	0[1]
Cs-137	1/8	27*	-2.7	9.3*	120	0[1]
Gross alpha	3/8	8.9*	-1.6	3.5*	15	0[3]
Gross beta	3/6	700*	0.27	190	50	2[3]
H-3	4/8	130,000*	-54	37,000	80,000	2[1]
Total rad Sr	2/8	320*	-0.22	60	40	2[1]

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Table 4.3 (continued)

Parameter	N det/ N total	Concentration			Reference Value	Number of values exceeding reference [ref] ^c
		Max ^b	Min ^b	Av ^c		
Volatile Organics (µg/L) -- Unfiltered						
2-Butanone	5/7	U 10	JB 2.0	~ 5.1	d	[d]
Acetone	1/7	U 10	J 1.0	~ 8.7	d	[d]
West Bethel Valley Exit Pathway						
Field Measurements -- Unfiltered						
Conductivity (mS/cm)	2/2	0.62	0.51	0.57	d	[d]
Dissolved oxygen (ppm)	2/2	4.4	1.3	2.9	d	[d]
Temperature (°C)	2/2	19	15	17	d	[d]
pH (SU)	2/2	7.6	7.2	7.4	d	[d]
Radionuclides (pCi/L) -- Filtered ^d						
Gross alpha	1/2	2.0*	1.2	1.6	15	0 [3]
Gross beta	2/2	54*	4.3*	29	50	1 [3]
H-3	2/2	730*	700*	720*	80,000	0 [1]
Total rad Sr	1/2	24*	-0.38	12	40	0 [1]
Radionuclides (pCi/L) -- Unfiltered ^d						
Gross beta	2/2	51*	3.2*	27	50	1 [3]
H-3	2/2	890*	760*	820*	80,000	0 [1]
Total rad Sr	1/2	24*	1.7	13	40	0 [1]
Volatile Organics (µg/L) -- Unfiltered						
2-Butanone	1/2	U 10	JB 6.0	~ 8.0	d	[d]
Acetone	1/2	U 10	J 1.0	~ 5.5	d	[d]
White Wing Scrapyard Exit Pathway						
Field Measurements -- Unfiltered						
Conductivity (mS/cm)	1/1	0.29	0.29	0.29	d	[d]
Dissolved oxygen (ppm)	1/1	8.6	8.6	8.6	d	[d]
Temperature (°C)	1/1	18	18	18	d	[d]
pH (SU)	1/1	8.1	8.1	8.1	d	[d]
Radionuclides (pCi/L) -- Filtered ^d						
Cs-137	1/1	4.1*	4.1*	4.1	120	0 [1]
Gross alpha	1/1	9.7*	9.7*	9.7	15	0 [3]
Gross beta	1/1	12*	12*	12	50	0 [3]

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Table 4.3 (continued)

Parameter	N det/ N total	Concentration			Reference Value	Number of values exceeding reference [ref] ^e
		Max ^b	Min ^b	Av ^c		
Radionuclides (pCi/L) -- Unfiltered ^f						
Co-60	1/1	5.4*	5.4*	5.4	200	0[1]
Gross alpha	1/1	10*	10*	10	15	0[3]
Gross beta	1/1	12*	12*	12	50	0[3]
Volatile Organics (µg/L) -- Unfiltered						
2-Butanone	1/1	B 6.0	JB 6.0	~ 6.0	d	[d]

^aPrefix "J" indicates the value was estimated at or below the analytical detection limit by the laboratory; "JB" indicates the value was estimated at or below the analytical detection limit and was found in the laboratory blank; and "U" indicates the value for an organic parameter was undetected at the analytical detection limit.

^bA tilde (~) indicates that estimated and/or undetected values were used in the calculation.

^cIf a reference limit exists, the source is coded as:

1 Rules of Tennessee Department of Environment and Conservation, Division of Water Pollution Control, Chapter 1200-4-3, General Water Quality Criteria, Domestic Water Supply, as amended.

2 40 CFR Part 141--National Primary Drinking Water Regulations, Subparts B and G, as amended.

3 40 CFR Part 143--National Secondary Drinking Water Regulations, as amended.

4 DOE Order 5400.5, Chapter III, Derived Concentration Guides for Air and Water.

^dNot applicable.

^eIndividual and average radionuclide concentrations significantly greater than zero are identified by an *.

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Table 4.4. 1996 tissue concentrations in Catfish^a

Parameter	Concentration ^b
Clinch River downstream from all DOE inputs (CRK 16)	
Metals (mg/kg wet wt)	
Chromium, total	0.28
Copper, total	0.34
Lead, total	4.4
Mercury, total	0.21
Nickel, total	2.2
Zinc, total	3.8
Pesticides (µg/kg wet wt)	
4,4'-DDT	16
Alpha-Chlordane	7.4
Dieldrin	9.1
Gamma-Chlordane	3.4
Radionuclides (pCi/g ash wt) ^c	
Cs-137	4.8*
K-40	510*
Radionuclides (pCi/g wet wt) ^c	
Cs-137	0.39*
K-40	42*
Clinch River downstream from ORNL (CRK 32)	
Metals (mg/kg wet wt)	
Copper, total	0.25
Mercury, total	0.071
Thallium, total	0.029
Zinc, total	4.4
Pesticides (µg/kg wet wt)	
4,4'-DDE	J270
Alpha-Chlordane	160
Endosulfan II	380
Endosulfan sulfate	J20
Endrin	J200
Gamma-Chlordane	J62
Radionuclides (pCi/g ash wt) ^c	
Am-241	7.3*
Cs-137	2.8*
K-40	460*
Radionuclides (pCi/g wet wt) ^c	
Am-241	0.78*
Cs-137	0.30*
K-40	49*

^a Only parameters that are detected are listed in the table. The sampling and analysis plan contains a complete list of analyses performed.

^b Prefix "J" indicates the value was estimated at or below the analytical detection limit by the laboratory.

^c Individual and average radionuclide concentrations significantly greater than zero are identified by an *.

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Table 4.5. 1996 tissue concentrations in Sunfish^a

Parameter	N det/ N total	Concentration			
		Max ^b	Min ^b	AV ^c	Standard Error ^d
Poplar Creek downstream from the K-25 Site (PCK 2.2)					
Metals (mg/kg wet wt)					
Copper, total	4/6	0.62	<0.18	~0.27	0.071
Mercury, total	6/6	0.10	0.036	0.063	0.012
Phosphorus, total	6/6	2,700	1,500	2,100	210
Thallium, total	1/6	0.019	<0.010	~0.012	0.0015
Zinc, total	6/6	17	9.7	13	0.98
Pesticides (µg/kg wet wt)					
4,4'-DDE	4/6	U11	J0.80	~4.4	1.9
Alpha-Chlordane	2/6	U5.4	J0.50	~3.7	0.75
Beta-BHC	1/6	U6.0	J1.9	~4.5	0.59
Endosulfan II	5/6	14	J1.1	~5.7	2.2
Endrin	1/6	U12	J0.50	~8.5	1.7
Endrin ketone	1/6	U12	J0.40	~8.4	1.7
Heptachlor epoxide	3/6	U5.1	J0.60	~3.1	0.79
PCBs (µg/kg wet wt)					
Aroclor-1254	1/6	65	U41	~52	3.8
Aroclor-1260	4/6	160	J17	~58	22
Radionuclides (pCi/g ash wt) ^e					
Cs-137	3/3	1.0*	0.86*	0.93*	0.039
K-40 ^f	3/3	210*	210*	210*	1.6
Total rad Sr	3/3	0.73*	0.49*	0.61*	0.070
Radionuclides (pCi/g wet wt) ^e					
Cs-137	3/3	0.11*	0.084*	0.094*	0.0062
K-40 ^f	3/3	22*	20*	21	0.57
Total rad Sr	3/3	0.071*	0.051*	0.062*	0.0057
Clinch River downstream from all DOE inputs (CRK 16)					
Metals (mg/kg wet wt)					
Mercury, total	6/6	0.18	0.065	0.10	0.017
Phosphorus, total	6/6	3,700	2,000	2,600	270
Thallium, total	1/6	0.022	<0.010	~0.013	0.0020
Zinc, total	6/6	16	11	14	0.67

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Table 4.5 (continued)

Parameter	N det/ N total	Concentration			
		Max ^b	Min ^b	Av ^c	Standard Error ^d
Pesticides ($\mu\text{g}/\text{kg}$ wet wt)					
4,4'-DDE	2/6	U10	J1.5	$\bar{6}$.8	1.6
4,4'-DDT	1/6	U11	J2.6	$\bar{8}$.4	1.3
Alpha-Chlordane	3/6	U5.6	J2.3	$\bar{3}$.9	0.51
Beta-BHC	1/6	6.0	U3.7	$\bar{5}$.0	0.32
Dieldrin	1/6	U11	J6.6	$\bar{9}$.5	0.62
Endosulfan I	1/6	U5.6	J2.9	$\bar{4}$.8	0.39
Endosulfan II	1/6	U10	J3.2	$\bar{8}$.3	1.1
Endrin	4/6	U10	J0.70	$\bar{6}$.4	1.4
Gamma-Chlordane	1/6	U51	J2.6	$\bar{12}$	7.8
Heptachlor	1/6	U5.6	J2.8	$\bar{4}$.5	0.43
Heptachlor epoxide	1/6	U5.6	J1.3	$\bar{4}$.3	0.66
PCBs ($\mu\text{g}/\text{kg}$ wet wt)					
Aroclor-1254	5/6	180	37	$\bar{96}$	20
Aroclor-1260	6/6	230	J23	$\bar{130}$	30
Radionuclides (pCi/g ash wt) ^e					
Cs-137	2/3	1.1*	0.24	0.71	0.25
K-40 ^f	3/3	170*	150*	160*	7.0
Total rad Sr	1/3	1.0*	0.027	0.44	0.29
Radionuclides (pCi/g wet wt) ^e					
Cs-137	2/3	0.13*	0.030	0.084	0.029
K-40 ^f	3/3	20*	18*	19*	0.56
Total rad Sr	1/3	0.11*	0.0033	0.051	0.033
Clinch River downstream from ORNL (CRK 32)					
Metals (mg/kg wet wt)					
Copper, total	2/6	0.28	<0.18	$\bar{0}$.20	0.016
Mercury, total	5/6	0.18	<0.025	$\bar{0}$.065	0.023
Phosphorus, total	6/6	3,900	2,000	2,500	290
Selenium, total	1/6	1.8	<1.3	$\bar{1}$.4	0.083
Zinc, total	6/6	16	9.4	13	1.0
Pesticides ($\mu\text{g}/\text{kg}$ wet wt)					
4,4'-DDE	2/6	U10	J0.80	$\bar{6}$.7	1.7
Alpha-Chlordane	1/6	U5.1	J1.0	$\bar{3}$.9	0.64
Delta-BHC	1/6	U5.5	J1.2	$\bar{4}$.3	0.64
Dieldrin	2/6	U11	J0.50	$\bar{6}$.1	1.8

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Table 4.5 (continued)

Parameter	N det/ N total	Concentration			
		Max ^b	Min ^b	Av ^c	Standard Error ^d
Endosulfan II	1/6	U10	J2.2	~7.7	1.2
Endrin	1/6	U11	J0.60	~8.2	1.6
Heptachlor epoxide	1/6	U5.5	J0.60	~4.2	0.74
Methoxychlor	1/6	U55	J2.2	~39	8.1
PCBs (µg/kg wet wt)					
Aroclor-1260	6/6	J38	J18	~27	3.3
Radionuclides (pCi/g ash wt) ^e					
Cs-137	3/3	4.6*	3.0*	3.9*	0.48
K-40 ^f	3/3	220*	190*	210*	9.4
Total rad Sr	3/3	4.6*	1.2*	3.3*	1.1
Radionuclides (pCi/g wet wt) ^e					
Cs-137	3/3	0.38*	0.26*	0.34*	0.038
K-40 ^f	3/3	19*	18*	18*	0.34
Total rad Sr	3/3	0.42*	0.11*	0.29*	0.094

Melton Hill Reservoir above City of Oak Ridge water intake (CRK 66)

Metals (mg/kg wet wt)					
Chromium, total	1/6	<0.048	<0.039	~0.042	0.0014
Copper, total	6/6	0.26	0.16	0.20	0.014
Selenium, total	1/6	<0.60	<0.49	~0.52	0.017
Thallium, total	6/6	0.0061	0.0035	0.0051	0.00039
Zinc, total	6/6	10	9.2	9.7	0.15
PCBs (µg/kg wet wt)					
Aroclor-1260	1/6	150	U48	~78	15
Radionuclides (pCi/g ash wt) ^e					
Be-7 ^f	1/1	6.5*	6.5*	6.5	g
Cs-137	2/3	1.3*	0.41	0.76	0.29
Total rad Sr	1/3	1.2*	-0.81	0.12	0.57
Radionuclides (pCi/g wet wt) ^e					
Be-7 ^f	1/1	0.88*	0.88*	0.88	g
Cs-137	2/3	0.23*	0.053	0.12	0.054
Total rad Sr	1/3	0.15*	-0.11	0.014	0.076

Melton Hill Reservoir - Oak Ridge Marina (CRK 80)

Metals (mg/kg wet wt)					
Arsenic, total	1/6	1.1	<0.73	~0.87	0.059
Copper, total	6/6	0.76	0.24	0.43	0.081
Selenium, total	1/6	0.66	<0.49	~0.53	0.027
Thallium, total	6/6	0.0069	0.0045	0.0054	0.00038
Zinc, total	6/6	14	8.4	10	0.86

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Table 4.5 (continued)

Parameter	N det/ N total	Concentration			
		Max ^b	Min ^b	Av ^c	Standard Error ^d
PCBs (µg/kg wet wt)					
Aroclor-1260	2/6	88	U50	72	5.6
Radionuclides (pCi/g ash wt) ^e					
Co-60	2/3	1.4*	-0.78	0.60	0.70
Total rad Sr	1/3	1.3*	0.081	0.67	0.36
Radionuclides (pCi/g wet wt) ^e					
Co-60	2/3	0.19*	-0.11	0.076	0.094
Total rad Sr	1/3	0.18*	0.0097	0.092	0.051
Melton Hill Reservoir above all DOE inputs (CRK 84)					
Metals (mg/kg wet wt)					
Arsenic, total	2/6	<1.2	<0.59	0.85	0.094
Chromium, total	1/6	0.60	<0.037	0.13	0.094
Copper, total	6/6	0.26	0.18	0.23	0.014
Mercury, total	1/6	<0.097	<0.079	0.089	0.0024
Thallium, total	6/6	0.0057	0.0040	0.0047	0.00027
Zinc, total	6/6	14	6.6	11	1.1
Radionuclides (pCi/g ash wt) ^e					
Cs-137	1/3	0.84*	0.27	0.49	0.18
Total rad Sr	1/3	0.92*	-0.11	0.28	0.32
Radionuclides (pCi/g wet wt) ^e					
Cs-137	1/3	0.11*	0.037	0.067	0.023
Total rad Sr	1/3	0.13*	-0.015	0.038	0.045

^a All values were included in the calculations. Only parameters that have detections in one or more samples are listed in the table. The sampling and analysis plan contains a complete list of analyses performed.

^b Prefix "<" indicates the value for a parameter (excluding organics) was not quantifiable at the analytical detection limit; "U" indicates the value for an organic parameter was undetected at the analytical detection limit; and "J" indicates the value was estimated at or below the analytical detection limit by the laboratory.

^c A tilde (~) indicates that estimated values and/or detection limits were used in the calculation.

^d Standard error of the mean.

^e Individual and average radionuclide concentrations significantly greater than zero are identified by an *.

^f Occurs naturally in the environment.

^g Not applicable

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Table 4.6. 1996 EMP radionuclide concentrations at ORNL category outfalls

Radionuclide	N det/ N total	Concentration (pCi/L)			Standard error ^c	DCG ^d	Percent of DCG ^e
		Max ^a	Min ^a	AV ^b			
Category I outfalls							
Co-60	0/14	3.5	-0.81	0.87*	0.31	5,000	0.017
Cs-137	0/14	2.2	-4.3	-0.039	0.51	3,000	f
Total rad Sr	2/14	70*	-1.0	6.0	5.0	1,000	f
H-3	3/14	1,200*	-320	270*	120	2,000,000	0.014
Category II outfalls							
Co-60	7/81	7.8*	-3.5	0.97*	0.22	5,000	0.019
Cs-137	4/81	6.5*	-4.3	0.66*	0.20	3,000	0.022
Total rad Sr	29/81	140*	-1.4	8.9*	2.7	1,000	0.89
H-3	31/81	100,000*	-840	2,600*	1,300	2,000,000	0.13

^aIndividual radionuclide concentrations significantly greater than zero are identified by an *.

^bAverage radionuclide concentrations significantly greater than zero are identified by an *.

^cStandard error of the mean.

^dDerived concentration guide for ingestion of water. From DOE Order 5400.5.

^eAverage concentration as a percentage of the derived concentration guide (DCG), calculated only when a DCG exists and the average concentration is significantly greater than zero.

^fNot applicable.

