DOE/ORO/2102

ENVIRONMENTAL MONITORING ON THE OAK RIDGE RESERVATION: 1999 RESULTS

Compiled by
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East Tennessee Technology Park

Y-12 Plant

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Y-12 Plant (continued)

Constituents Detected in Groundwater at the Y-12 Plant Site for 1999

Regime = Bear Creek

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Y-12 Plant (continued)

Regime = Chestnut Ridge

Regime = East Fork

Regime = Special Request Group

List of Tables

Oak Ridge National Laboratory

ORR SURVEILLANCE

Table 1.1. 1999 NPDES Permit Number TN 0002950

ETTP Storm Drain Discharge Points

Parameter	Number of samples	Concentration[a]			Reference Value[b]	No. of values exceeding reference
		Max	Min	Avg		
Discharge Point SD 05A						
Flow, GPD	12	20000	300	4170		
Total Suspended Solids, mg/L	12	5.8	<1.0	<1.6		
pH, Standard Units	12	8.2	7	7.7	4.0 - 9.0	0
Oil & Grease	12	6.1	<5.4	<5.4		
Discharge Point SD 100						
Flow, GPD	52	4020000	472000	972000		
Total Suspended Solids, mg/L	52	69.5	<1.0	8.4		
pH, Standard Units	52	8.4	6.5	7.6	6.0 - 9.0	0
Oil & Grease	52	16.8	<5.4	<6.1		
Chlorine, Total Residual	52	0.19	<0.05	<0.06	0.14	1
Discharge Point SD 120						
Flow, GPD	12	558000	0	202000		
Total Suspended Solids, mg/L	7	22.6	1.2	<4.9		
pH, Standard Units	7	7.4	6.6	6.9	4.0 - 9.0	0
Oil & Grease	7	<5.4	<5.4	<5.4		
Discharge Point SD 124						
Flow, GPD	48	497000	0	124000		
Total Suspended Solids, mg/L	48	64	<1.0	<8.2		
pH, Standard Units	48	8.2	6.8	7.6	6.0 - 9.0	0
Oil & Grease	48	<5.4	1.8	<5.1		
Chlorine, Total Residual	48	<0.05	0.0025	<0.04		
Discharge Point SD 130						
Flow, GPD	52	6580000	452000	969200		
Total Suspended Solids, mg/L	52	88	5.0	14.4		
pH, Standard Units	52	7.6	6.1	6.5	6.0 - 9.0	0
Oil & Grease	52	<.5.4	1.6	<5.1		
Chlorine, Total Residual	52	<0.05	0.0025	<0.04		
Discharge Point SD 140						
Flow, GPD	4	83115	33327	61300		
Total Suspended Solids, mg/L	4	3.6	<1.0	<2.0		
pH, Standard Units	4	7.8	7.3	7.6	4.0 - 9.0	0
Discharge Point SD 142						
Flow, GPD	12	133000	16600	66600		
Total Suspended Solids, mg/L	12	7.4	<1.0	<2.4		
pH, Standard Units	12	7.8	5.8	7.3	4.0 - 9.0	0

Table 1.1 (continued)

Parameter	Number of samples	Concentration[a]			Reference Value[b]	No. of values exceeding reference
		Max	Min	Avg		
Discharge Point SD 144						
Flow, GPD	12	264900	0	37120		
Total Suspended Solids, mg/L	9	4.4	<1.0	<3.3		
pH, Standard Units	9	7.6	7.1	7.4	4.0 - 9.0	0
Oil & Grease	9	<5.4	<5.4	<5.4		
Discharge Point SD 146						
Flow, GPD	12	28830	0	15630		
Total Suspended Solids, mg/L	9	5.4	<1.0	<2.1		
pH, Standard Units	9	7.6	5.5	7.1	4.0 - 9.0	0
Discharge Point SD 148						
Flow, GPD	12	16250	0	8860		
Total Suspended Solids, mg/L	9	2.4	<1.0	<2.1		
pH, Standard Units	9	8.1	7.4	7.6	4.0 - 9.0	0
Discharge Point SD 150						
Flow, GPD	12	443800	0	250100		
Total Suspended Solids, mg/L	9	2.8	<1.0	<1.4		
pH, Standard Units	9	7.6	6.9	7.3	4.0 - 9.0	0
Discharge Point SD 154						
Flow, GPD	12	205800	0	105700		
Total Suspended Solids, mg/L	9	85.4	<1.0	<11.7		
pH, Standard Units	9	7.4	6.3	7.1	4.0 - 9.0	0
Oil & Grease	9	8.6	<5.4	<5.8		
Discharge Point SD 156						
Flow, GPD	1	18182500	18182500	18182500		
pH, Standard Units	1	7.4	7.4	7.4	4.0 - 9.0	0
Discharge Point SD 158						
Flow, GPD	4	57130	25128	43300		
Total Suspended Solids, mg/L	4	<1.0	<1.0	<1.0		
pH, Standard Units	4	7.2	6.6	7.0	4.0 - 9.0	0
Discharge Point SD 160						
Flow, GPD	4	169900	75600	129200		
Total Suspended Solids, mg/L	4	1.2	<1.0	<1.1		
pH, Standard Units	4	7.4	7.0	7.2	4.0 - 9.0	0
Discharge Point SD 162						
Flow, GPD	12	132400	0	78280		
Total Suspended Solids, mg/L	2	2.0	<1.0	<1.5		
pH, Standard Units	2	7.2	7.0	7.1	4.0 - 9.0	0

Table 1.1 (continued)

Parameter	Number of samples	Concentration[a]			Reference Value[b]	No. of values exceeding reference
		Max	Min	Avg		
		Discharge Point SD 170				
Flow, GPD	53	1530600	175600	360160		
Total Suspended Solids, mg/L	52	3.6	<1.0	<1.9		
pH, Standard Units	52	8.2	6.7	7.4	6.0 - 9.0	0
Oil & Grease	52	<5.4	2.6	<5.2		
		Discharge Point SD 180				
Flow, GPD	52	1332300	97300	274780		
Total Suspended Solids, mg/L	52	15.6	<1.0	<3.4		
pH, Standard Units	52	8.1	6.7	7.6	6.0 - 9.0	0
Oil & Grease	52	<5.4	2.4	<5.2		
		Discharge Point SD 190				
Flow, GPD	52	1844300	235800	508520		
Total Suspended Solids, mg/L	52	15.4	<1.0	<3.3		
pH, Standard Units	52	8.0	5.9	7.1	6.0 - 9.0	1
		Discharge Point SD 192				
Flow, GPD	1	64220	64220	64220		
pH, Standard Units	1	7.3	7.3	7.3	4.0 - 9.0	0
		Discharge Point SD 194				
Flow, GPD	2	64220	13950	39090		
pH, Standard Units	2	7.0	6.6	6.8	4.0 - 9.0	0
		Discharge Point SD 195				
Flow, GPD	1	72250	72250	72250		
pH, Standard Units	1	6.9	6.9	6.9	4.0 - 9.0	0
		Discharge Point SD 196				
Flow, GPD	1	63800	63800	63800		
pH, Standard Units	1	7.1	7.1	7.1	4.0 - 9.0	0
		Discharge Point SD 197				
Flow, GPD	12	43720	0	25620		
Total Suspended Solids, mg/L	2	7.6	<1.0	<4.8		
pH, Standard Units	2	7.3	6.6	7.0	4.0 - 9.0	0
		Discharge Point SD 198				
Flow, GPD	4	279700	123300	212130		
Total Suspended Solids, mg/L	4	4.8	<1.0	<2.9		
pH, Standard Units	4	7.7	6.9	7.2	4.0 - 9.0	0
		Discharge Point SD 200				
Flow, GPD	12	594400	0	349200		
Total Suspended Solids, mg/L	5	10.2	<1.0	<6.0		
pH, Standard Units	5	7.6	5.5	6.9	4.0-9.0	0

Table 1.1 (continued)

Parameter	Number of samples	Concentration[a]			Reference Value[b]	No. of values exceeding reference
		Max	Min	Avg		
		Discharge Point SD 210				
Flow, GPD	4	957100	0	825730		
Total Suspended Solids, mg/L	4	3.2	2.2	2.6		
pH, Standard Units	4	7.3	6.2	6.8	4.0 - 9.0	0
		Discharge Point SD 220				
Flow, GPD	12	66520	0	24980		
Total Suspended Solids, mg/L	7	35.5	1.0	13.9		
pH, Standard Units	7	8.3	7.1	7.6	4.0 - 9.0	0
		Discharge Point SD 230				
Flow, GPD	12	1094900	145400	550040		
Total Suspended Solids, mg/L	12	44	<1.0	<5.1		
pH, Standard Units	12	8.1	6.7	7.6	4.0 - 9.0	0
		Discharge Point SD 238				
Flow, GPD	1	4400	4400	4400		
pH, Standard Units	1	7.0	7.0	7.0	4.0 - 9.0	0
		Discharge Point SD 240				
Flow, GPD	12	778700	0	414260		
Total Suspended Solids, mg/L	9	3.6	<1.0	<1.9		
pH, Standard Units	9	7.5	6.8	7.1	4.0 - 9.0	0
		Discharge Point SD 292				
Flow, GPD	1	52200	52200	52200		
pH, Standard Units	1	7.2	7.2	7.2	4.0 - 9.0	0
		Discharge Point SD 294				
Flow, GPD	1	92020	92020	92020		
pH, Standard Units	1	7.3	7.3	7.3	4.0 - 9.0	0
		Discharge Point SD 297				
Flow, GPD	1	39950	39950	39950		
pH, Standard Units	1	7.3	7.3	7.3	4.0 - 9.0	0
		Discharge Point SD 322				
Flow, GPD	1	25230	25230	25230		
pH, Standard Units	1	6.9	6.9	6.9	4.0 - 9.0	0
		Discharge Point SD 330				
Flow, GPD	4	463700	0	463700		
Total Suspended Solids, mg/L	1	1.8	1.80	1.8		
pH, Standard Units	1	7.1	7.1	7.1	4.0 - 9.0	0
		Discharge Point SD 340				
Flow, GPD	1	480500	480500	480500		
pH, Standard Units	1	7.6	7.6	7.6	4.0 - 9.0	0
		Discharge Point SD 350				
Flow, GPD	1	45050	45050	45050		
pH, Standard Units	1	7.2	7.2	7.2	4.0 - 9.0	0

Table 1.1 (continued)

Parameter	Number of samples	Concentration[a]			Reference Value[b]	No. of values exceeding reference
		Max	Min	Avg		
		Discharge Point SD 380				
Flow, GPD	12	977800	0	512270		
Total Suspended Solids, mg/L	11	2.1	<1.0	<1.3		
pH, Standard Units	11	8.2	6.5	7.5	4.0 - 9.0	0
		Discharge Point SD 382				
Flow, GPD	3	108700	45480	78800		
pH, Standard Units	3	7.4	7.3	7.4	4.0 - 9.0	0
		Discharge Point SD 390				
Flow, GPD	12	294700	0	294700		
Suspended Solids,	1	1.2	1.2	1.2		
pH, Standard Units	1	7.0	7.0	7.0	4.0 - 9.0	0
		Discharge Point SD 400				
Flow, GPD	1	450	450	450		
pH, Standard Units	1	7.2	7.2	7.2	4.0 - 9.0	0
		Discharge Point SD 410				
Flow, GPD	1	42960	42960	42960		
pH, Standard Units	1	7.1	7.1	7.1	4.0 - 9.0	0
		Discharge Point SD 420				
Flow, GPD	1	158800	158800	158800		
pH, Standard Units	1	7.4	7.4	7.4	4.0 - 9.0	0
		Discharge Point SD 430				
Flow, GPD	12	879000	100900	428380		
Suspended Solids,	12	2.8	<1.0	<1.3		
pH, Standard Units	12	7.7	6.6	7.2	4.0 - 9.0	0
		Discharge Point SD 440				
Flow, GPD	12	479200	0	188880		
Total Suspended Solids, mg/L	11	11.2	<1.0	<2.4		
pH, Standard Units	11	7.7	6.8	7.3	4.0 - 9.0	0
		Discharge Point SD 450				
Flow, GPD	1	41110	41110	41110		
pH, Standard Units	1	7.6	7.6	7.6	4.0 - 9.0	0
		Discharge Point SD 470				
Flow, GPD	1	27230	27230	27230		
pH, Standard Units	1	7.5	7.5	7.5	4.0 - 9.0	0
		Discharge Point SD 490				
Flow, GPD	12	4146800	860200	2140600		
Suspended Solids, mg/L	12	4.6	<1.0	<1.5		
pH, Standard Units	12	7.6	6.6	7.1	4.0 - 9.0	0
		Discharge Point SD 500				
Flow, GPD	2	29290	19540	24410		
pH, Standard Units	2	7.4	6.8	7.1	4.0 - 9.0	0

Table 1.1 (continued)

Parameter	Number of samples	Concentration[a]			Reference Value[b]	No. of values exceeding reference
		Max	Min	Avg		
		Discharge Point SD 510				
Flow, GPD	12	689800	0	345480		
Total Suspended Solids, mg/L	11	3.6	<1.0	<1.5		
pH, Standard Units	11	7.6	5.5	6.9	4.0 - 9.0	0
		Discharge Point SD 520				
Flow, GPD	1	38150	38150	38150		
pH, Standard Units	1	6.8	6.8	6.8	4.0 - 9.0	0
		Discharge Point SD 522				
Flow, GPD	2	83860	54840	69350		
pH, Standard Units	2	7.1	6.9	7.0	4.0 - 9.0	0
		Discharge Point SD 530				
Flow, GPD	12	539100	0	539100		
pH, Standard Units	1	6.4	6.4	6.4	4.0 - 9.0	0
Suspended Solids,	1	4	4	4		
		Discharge Point SD 560				
Flow, GPD	12	224100	0	107880		
Total Suspended Solids, mg/L	5	4.0	<1.0	<1.9		
pH, Standard Units	5	7.5	6.3	6.8	4.0 - 9.0	0
		Discharge Point SD 590				
Flow, GPD	1	9430	9430	9430		
pH, Standard Units	1	6.6	6.6	6.6	4.0 - 9.0	0
		Discharge Point SD 610				
Flow, GPD	12	127400	0	79650		
Total Suspended Solids, mg/L	2	6.4	<1.6	4.0		
pH, Standard Units	2	6.8	6.7	6.8	4.0 - 9.0	0
		Discharge Point SD 640				
Flow, GPD	4	37650	0	37650		
Total Suspended Solids, mg/L	1	3.4	3.4	3.4		
pH, Standard Units	1	7.4	7.4	7.4	4.0 - 9.0	0
		Discharge Point SD 660				
Flow, GPD	4	2370	0	1280		
Total Suspended Solids, mg/L	2	6	2.4	4.2		
pH, Standard Units	2	7.6	7.5	7.6	4.0 - 9.0	0
		Discharge Point SD 680				
Flow, GPD	4	51210	0	41060		
Total Suspended Solids, mg/L	2	<1.0	<1.0	<1.0		
pH, Standard Units	2	7.6	7.4	7.5	4.0 - 9.0	0
		Discharge Point SD 690				
Flow, GPD	12	1526500	0	863570		
Total Suspended Solids, mg/L	10	2.8	<1.0	<1.4		
pH, Standard Units	10	7.5	6.7	7.1	4.0 - 9.0	0

Table 1.1 (continued)

Parameter	Number of samples	Concentration[a]			Reference Value[b]	No. of values exceeding reference
		Max	Min	Avg		
		Discharge Point SD 692				
Flow, GPD	2	22730	7020	14880		
pH, Standard Units	2	7.2	7.1	7.2	4.0 - 9.0	0
		Discharge Point SD 694				
Flow, GPD	1	14110	14110	14110		0
pH, Standard Units	1	7.2	7.2	7.2	4.0 - 9.0	0
		Discharge Point SD 700				
Flow, GPD	12	1300000	0	620000		
Total Suspended Solids, mg/L	10	5.2	<1.0	<2.5		
pH, Standard Units	10	7.9	6.5	7.1	4.0 - 9.0	0
		Discharge Point SD 710				
Flow, GPD	12	1900000	220000	940000		
Total Suspended Solids, mg/L	12	2.1	<1.0	<1.2		
pH, Standard Units	12	7.7	6.6	7.3	4.0 - 9.0	0
		Discharge Point SD 720				
Flow, GPD	12	290000	0	190000		
Total Suspended Solids, mg/L	3	7.2	2.2	5.3		
pH, Standard Units	3	7.4	7.1	7.2	4.0 - 9.0	0
		Discharge Point SD 724				
Flow, GPD	1	170000	170000	170000		
pH, Standard Units	1	7.8	7.8	7.8	4.0 - 9.0	0
		Discharge Point SD 730				
Flow, GPD	2	50400	9200	30000		
pH, Standard Untis	2	8.0	7.1	7.6	4.0 - 9.0	0
		Discharge Point SD 740				
Flow, GPD	2	27000	5000	16000		
pH, Standard Units	2	7.5	6.9	7.2	4.0 - 9.0	0
		Discharge Point SD 750				
Flow, GPD	12	18000	0	8040		
pH, Standard Units	3	8.1	6.9	7.5	4.0 - 9.0	0
		Discharge Point SD 760				
Flow, GPD	12	17000	0	7000		
Total Suspended Solids, mg/L	3	1	<1.0	<1.0		
pH, Standard Units	3	7.2	7.0	7.1	4.0 - 9.0	0
		Discharge Point SD 770				
Flow, GPD	12	7100	0	7030		
Total Suspended Solids, mg/L	2	1	<1.0	<1.0		
pH, Standard Units	12	7.4	7.4	7.4	4.0 - 9.0	0

Table 1.1 (continued)

Parameter	Number of samples	Concentration[a]			Reference Value[b]	No. of values exceeding reference
		Max	Min	Avg		
Discharge Point SD 780						
Flow, GPD	4	207000	0	160000		
Total Suspended Solids, mg/L	2	7.2	<1.0	<4.1		
pH, Standard Units	2	6.8	6.7	6.8	4.0 - 9.0	0
Discharge Point SD 810						
Flow, GPD	4	46000	1140	2850		
Total Suspended Solids, mg/L	2	2.2	2.2	2.2		
pH, Standard Units	2	7.4	6.8	7.1	4.0 - 9.0	0
Discharge Point SD 820						
Flow, GPD	4	81000	0	63000		
Total Suspended Solids, mg/L	2	4.6	<1.0	<2.8		
pH, Standard Units	2	7.7	7.2	7.4	4.0 - 9.0	0
Discharge Point SD 830						
Flow, GPD	4	140000	0	110000		
Total Suspended Solids, mg/L	2	<1.0	<1.0	<1.0		
pH, Standard Units	2	7.5	7.0	7.3	4.0 - 9.0	0
Discharge Point SD 850						
Flow, GPD	4	2300	0	1700		
Total Suspended Solids, mg/L	1	8	8	8		
pH, Standard Units	1	7.1	7.1	7.1	4.0 - 9.0	0
Discharge Point SD 860						
Flow, GPD	4	190	0	140		
Total Suspended Solids, mg/L	1	8	8	8		
pH, Standard Units	1	7.1	7.1	7.1	4.0 - 9.0	0
Discharge Point SD 870						
Flow, GPD	4	70400	0	56000		
Total Suspended Solids, mg/L	2	8.0	2.0	5.0		
pH, Standard Units	2	8.0	7.1	7.6	4.0 - 9.0	0
Discharge Point SD 880						
Flow, GPD	4	50000	0	40000		
Total Suspended Solids, mg/L	2	4.6	<1.0	<2.8		
pH, Standard Units	2	7.7	7.0	7.4	4.0 - 9.0	0
Discharge Point SD 890						
Flow, GPD	4	150000	0	110000		
Total Suspended Solids, mg/L	2	1.2	<1.0	<1.1		
pH, Standard Units	2	7.6	7.2	7.4	4.0 - 9.0	0
Discharge Point SD 900						
Flow, GPD	4	77000	15000	49000		
Total Suspended Solids, mg/L	3	3	<1.0	<1.6		
pH, Standard Units	3	7.3	7.2	7.3	4.0 - 9.0	0

Table 1.1 (continued)

Parameter	Number of samples	Concentration[a]			Reference Value[b]	No. of values exceeding reference
		Max	Min	Avg		
		Discharge Point SD 910				
Flow, GPD	1	150000	150000	150000		
pH, Standard Units	1	7.4	7.4	7.4	4.0 - 9.0	0
		Discharge Point SD 920				
Flow, GPD	2	130000	25000	77000		
pH, Standard Units	2	7.4	6.9	7.2	4.0 - 9.0	0
		Discharge Point SD 929				
Flow, GPD	1	380	380	380		
pH, Standard Units	1	7.1	7.1	7.1	4.0 - 9.0	0
		Discharge Point SD 930				
Flow, GPD	3	80000	30000	56000		
pH, Standard Units	3	7.4	7.4	7.4	4.0 - 9.0	0
		Discharge Point SD 934				
Flow, GPD	1	3800	3800	3800		
pH, Standard Units	1	7.1	7.1	7.1	4.0-9.0	0
		Discharge Point SD 960				
Flow, GPD	1	200	200	200		
pH, Standard Units	1	7.3	7.3	7.34	4.0-9.0	0
		Discharge Point SD 992				
Flow, GPD	12	395800	0	166040		
Total Suspended Solids, mg/L	5	47.4	13.4	25.2		
pH, Standard Units	5	6.9	4.8	5.8	4.0 - 9.0	0

[a] - Units are mg/L unless otherwise noted

[b] - NPDES permit limit

Table 1.2. 1999 NPDES Permit Number TN 0002950

Discharge Point 005, Sewage Treatment Plant, ETTP

Parameter	Number of samples	Concentration[a]			Reference Value[b]	No. of values exceeding reference
		Max	Min	Avg		
			K-1203			
Biological Oxygen Demand	156	8.8	<5.0	<5.0		
Ammonia Nitrogen	156	0.89	<0.2	<0.2	7	0
Dissolved Oxygen, mg/L	365	9.4	7.4	8.1	5.0 min[c]	0
Fecal Coliform,	156	1060	4	130	400	1
Flow Total (MGD)	365	796900	267000	493230		
Settleable Solids, ml/L	260	<0.1	<0.1	<0.1	0.5	0
Suspended Solids, mg/L	156	15.6	2.4	8.5	45	0
pH, Standard Units	365	7.9	7.2	7.6	6.0 - 9.0	0

[a] - Units are mg/L unless otherwise noted

[b] - NPDES permit limit

[c] - Daily minimum

Table 1.3. 1999 NPDES Permit Number TN 0002950

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

Parameter	Number of samples	Concentration[a]			Reference Value[b]	No. of values exceeding reference
		Max	Min	Avg		
			K-1407J			
Oil & Grease	104	6.0	1.3	<4.7		
Acetone, mg/L	4	0.010	<0.01	<0.01		
Cadmium, mg/L	4	0.0016	<0.001	<0.001	0.069	0
Chemical Oxygen Demand, mg/L	52	34	6	20		
Chloride, mg/L	208	1498	145	370	70000	0
Chromium, mg/L	4	0.15	0.02	0.065	2.8	0
Flow, GPD	365	211600	79500	174390		
Lead, mg/L	4	0.003	<0.0005	< 0.001	0.69	0
Nickel, mg/L	4	0.01	<0.01	<0.01	4.0	0
pH, Standard Units	365	9.8	6.2	7.1	6.0 - 9.0	1
Suspended Solids, mg/L	208	17.0	<1.0	<7.0	40	0
Uranium, mg/L	12	0.23	0.03	0.12		
Zinc, mg/L	4	0.05	0.02	0.03	2.6	
Silver	4	0.0031	<0.0005	<0.001	0.43	

[a] - Units are mg/L unless otherwise noted

[b] - NPDES permit limit

Table 1.4. 1999 NPDES Permit Number TN 0002950

Discharge Point 009, Holding Pond, ETTP

Parameter	Number of samples	Concentration[a]			Reference Value[b]	No. of values exceeding reference
		Max	Min	Avg		
			K-1515F			
Aluminum, mg/L	52	3.19	0.31	0.94	2.0	1
Chlorine, Total Residual,	52	0.2	<0.05	<0.06	1.0	0
Flow, GPD	365	131900	221800	477100		
Settleable Solids, ml/L	52	<0.1	<0.1	<0.1	0.5	0
Suspended Solids, mg/L	52	6.4	1.6	3.7	40	0
pH, Standard Units	52	8.2	7.2	7.6	6.0 - 9.0	0

[a] - Units are mg/L unless otherwise noted.
[b] - NPDES permit limit

Table 1.5. Radionuclide concentrations at ETTP discharges and surface water monitoring locations

Radionuclid	No. of samples	Concentration (pCi/L)				DCG	Percent of DCG	Sum of the fractions of the DCGs
		Max	Min	Median[b]	Average[b]			
K-716 (Poplar Creek)								
U-234	10	9.4e-01	3.1e-01	6.5e-01	6.5e-01	5.0e+02	1.3e-01	1.3e-03
U-235	10	4.7e-02	1.6e-02	3.0e-02	3.0e-02	6.0e+02	5.1e-03	5.1e-03
U-238	10	1.0e+00	8.3e-01	6.9e-01	6.9e-01	6.0e+02	1.2e-01	1.2e-03
Tc-99	10	1.1e+01	-8.3e+00	8.5e+00	3.0e+00	1.0e+05	3.0e-03	3.0e-05
Gross Alpha	10	3.3e+00	4.0e-01	1.9e+00	1.9e+00	*a*	*a*	*a*
Gross Beta	10	5.3e+00	-2.0e+00	2.0e+00	2.0e+00	*a*	*a*	*a*
All listed isotopes								2.5e-03

[a]Not applicable
[b]This calculated value includes sampling results that are at or below the detection limits and/or below background activities.

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

Radionuclid	No. of samples	Concentration (pCi/L)				DCG	Percent of DCG	Sum of the fractions the DCGs
		Max	Min	Median[b]	Average[b]			
K-901-A (settling basin for surface water runoff)								
U-234	10	4.6e+01	5.6e-01	7.5e-01	5.3e+00	5.0e+02	1.1e+00	1.1e-02
U-235	10	6.4e-02	2.8e-02	3.7e-02	4.2e-02	6.0e+02	6.7e-03	6.7e-05
U-238	10	1.1e+00	6.0e-01	7.8e-01	7.9e-01	6.0e+02	1.3e-01	1.3e-03
Tc-99	10	3.2e+01	-4.0e-01	8.7e+00	8.7e+00	1.0e+05	8.7e-03	8.7e-05
Gross Alpha	10	4.6e+00	-4.9e-01	2.9e-01	2.5e+00	*a*	*a*	*a*
Gross Beta	10	1.6e+01	2.0e+00	8.1e+00	7.6e+00	*a*	*a*	*a*
All listed isotopes								1.2e-02

[a]Not applicable
[b]This calculated value includes sampling results that are at or below the detection limits and/or below background activities.

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

Radionuclide	No. of samples	Concentration (pCi/L)				DCG	Percent of DCG	Sum of the fractions of the DCGs
		Max	Min	Median[b]	Average[b]			
K-1007-B (settling basin for surface water runoff)								
U-234	10	6.8e-01	1.6e-01	3.1e-01	3.5e-01	5.00e+02	6.9e-02	6.9e-04
U-235	10	4.6e-02	8.1e-03	1.9e-02	2.1e-02	6.00e+02	3.5e-03	3.5e-05
U-238	10	7.3e+00	1.7e-01	3.7e-01	3.7e-01	6.00e+02	6.1e-02	6.1e-04
Tc-99	10	1.3e+01	-1.0e-01	5.2e+00	4.6e+00	1.00e+05	4.6e-03	4.6e-05
Gross Alpha	10	4.0e+00	8.6e-02	1.8e+00	1.8e+00	*a*	*a*	*a*
Gross Beta	10	1.3e+01	-1.8e-01	5.5e+00	5.5e+00	*a*	*a*	*a*
All listed isotopes								1.4e-03

[a]Not applicable

[b]This calculated value includes sampling results that are at or below the detection limits and/or below background activities.

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

Radionuclide	No. of samples	Concentration (pCi/L)				DCG	Percent of DCG	Sum of the fractions of the DCGs
		Max	Min	Median[b]	Average[b]			
K-1203 (sewage treatment plant)								
U-234	9	1.1e+00	1.6e-01	4.0e-01	4.1e-01	5.0e+02	8.3e-02	8.3e-04
U-235	9	9.6e-02	7.8e-03	2.2e-02	2.7e-02	6.0e+02	4.5e-03	4.5e-05
U-238	9	1.2e+00	1.7e-01	4.2e-01	4.4e-01	6.0e+02	7.4e-02	7.4e-04
Tc-99	9	1.7e+01	-1.3e+00	4.9e+00	5.2e+00	1.0e+05	5.2e-03	5.2e-05
Gross Alpha	9	6.8e+00	7.9e-02	3.1e+00	3.1e+00	*a*	*a*	*a*
Gross Beta	9	1.5e+01	2.6e+00	8.0e+00	8.1e+00	*a*	*a*	*a*
All listed isotopes								1.7e-03

[a]Not applicable

[b]This calculated value includes sampling results that are at or below the detection limits and/or below background activities.

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

Radionuclide	No. of samples	Concentration (pCi/L)				DCG	Percent of DCG	Sum of the fractions of the DCGs
		Max	Min	Median[b]	Average[b]			
K-1407-J (treated effluents from Central Neutralization Facility and TSCA Incinerator)								
U-234	12	5.9e+01	7.5e+00	2.2e+01	2.8e+01	5.0e+02	5.6e+00	5.6e-02
U-235	12	4.5e+01	4.3e-01	3.2e+00	8.5e+00	6.0e+02	1.4e+00	1.4e-02
U-236	12	2.2e+00	3.4e-02	4.9e-01	8.1e-01	5.0e+02	1.6e-01	1.6e-03
U-238	12	8.6e+01	1.3e+01	3.7e+01	4.4e+01	6.0e+02	7.3e+00	7.3e-02
Cs-137	12	6.2e+01	-3.1e-01	5.3e+00	9.5e+00	3.0e+03	3.2e-01	3.2e-03
Tc-99	12	2.9e+03	5.9e+01	4.5e+02	6.5e+02	1.0e+05	6.5e-01	6.5e-03
Np-237	12	2.4e+00	-4.5e-02	1.8e-01	6.4e-01	3.0e+01	2.1e+00	2.1e-02
Pu-238	12	5.2e-01	-5.0e-02	3.7e-02	1.1e-01	4.0e+01	2.9e-01	2.9e-03
Pu-239	12	3.1e-01	-3.7e-02	2.2e-05	5.9e-02	3.0e+01	2.0e-01	2.0e-03
H_3	12	1.4e+05	7.4e+02	1.5e+04	2.7e+04		6.4e+00	1.4e-02
C-14	12	1.9e+03	-1.8e+03	6.5e+02	3.2e+02		4.6e-01	4.6e-03
Co^{-60}	1	3.1e+00	3.1e+00	3.1e+00	3.0e+00		5.1e-03	5.1e-05
Gross Alpha	12	1.9e+03	-4.3e+00	5.2e+01	6.2e+01	*a*	*a*	*a*
Gross Beta	12	1.6e+03	1.8e+01	1.6e+02	1.7e+01	*a*	*a*	*a*
All listed isotopes								1.9e-01

[a]Not applicable

[b]This calculated value includes sampling results that are at or below the detection limits and/or below background activities.

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

Radionuclide	No. of samples	Concentration (pCi/L)				DCG	Percent of DCG	Sum of the fractions the DCGs
		Max	Min	Median[b]	Average[b]			
K-1700 (Mitchell Branch)								
U-234	10	6.7e+01	3.0e+00	4.3e+00	4.3e+00	5.0e+02	8.6e-01	8.6e-03
U-235	10	4.5e-01	4.2e-02	3.6e-01	3.6e-01	6.0e+02	5.9e-02	5.9e-04
U-238	10	7.2e+00	3.2e+00	4.6e+00	4.6e+00	6.0e+02	7.6e-01	7.6e-03
Tc-99	10	2.6e+01	-6.2e+00	7.6e+01	7.8e+01	1.0e+05	7.8e-03	7.8e-05
Gross Alpha	10	2.1e+01	9.1e+00	9.0e+00	1.4e+01	*a*	*a*	*a*
Gross Beta	10	1.7e+01	2.4e+00	1.1e+01	1.2e+01	*a*	*a*	*a*
All listed isotopes								1.7e-02

[a]Not applicable

[b]This calculated value includes sampling results that are at or below the detection limits and/or below background activities

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

Radionuclide	No. of samples	Concentration (pCi/L)				DCG	Percent of DCG	Sum of the fractions of the DCGs
		Max	Min	Median[b]	Average[b]			
K-1710 (Poplar Creek upstream of the ETTP)								
U-234	10	1.3e+00	1.6e-01	8.3e-01	8.3e-01	5.0e+02	1.7e-01	1.7e-03
U-235	10	4.5e-01	7.8e-03	4.0e-02	7.6e-02	6.0e+02	1.3e-02	1.3e-04
U-238	10	1.3e+00	3.6e-01	8.8e-01	8.8e-01	6.0e+02	1.5e-01	1.5e-03
Tc-99	10	1.6e+01	-2.8e+00	5.2e+00	5.2e+00	1.0e+05	5.2e-03	5.2e-05
Gross Alpha	10	6.3e+00	0.0e+00	3.2e+00	3.2e+00	*a*	*a*	*a*
Gross Beta	10	9.0e+00	1.9e+00	4.1e+00	4.2e+00	*a*	*a*	*a*
All listed isotopes								3.3e-03

[a]Not applicable

[b]This calculated value includes sampling results that are at or below the detection limits and/or below background activities.

Table 1. 12. 1999 ETTP parameters detected at K-716

Parameter	Number detected/ number of samples	Detected results[a]			Reference Value[b]	Number of values exceeding reference
		Max	Min	Avg		
Alkalinity	3/3	120	94	100		
Chromium	1/9	0.005	<0.0025	<0.0046	0.016	0
Dissolved Oxygen	5/5	10	6.8	8.6	5.0 min	0
Dissolved Solids	3/3	150	150	150		
Fluoride	2/3	0.13	<0.1	<0.12		
Lead	9/9	0.0019	0.0006	0.0011	0.082	0
Manganese	9/9	0.160	0.045	0.096		
Suspended Solids	3/3	20	6.2	11		
Temperature (C°)	5/5	33	10	19		
Uranium	10/10	0.003	0.0005	0.0021		
Zinc	5/9	0.012	<0.005	0.0068	0.120	0
pH (standard units)	5/5	7.9	6.8	7.9	6.5 - 8.5	0

a Units in mg/L unless otherwise noted.

b All reference values are Tennessee Water Quality Criteria for fish and aquatic life.

Table 1.13. 1999 ETTP parameters detected at K-901-A

Parameter	Number detected/ number of samples	Detected Results[a]			Referenc Value[b]	Number of values exceeding reference
		Max	Min	Avg		
Alkalinity	3/3	150	110	130		
Cadmium	1/9	0.0013	<0.005	<0.0006		
Chromium	1/9	0.0068	<0.0025	<.0068	.016	0
Dissolved Oxygen	5/5	9.2	3.3	6.4	5.0 min	2
Dissolved Solids	3/3	200	140	170		
Fluoride	2/3	0.15	<0.1	<0.12		
Lead	7/9	0.0023	<0.0005	<0.0011	0.082	0
Manganese	9/9	0.18	0.037	0.092		
Suspended Solids	3/3	18	4	13		
Temperature (C°)	5/5	29	10	17		
Uranium	10/10	0.0032	0.0018	0.0024		
Zinc	6/12	0.012	<0.005	<0.0060	0.12	0
pH (standard units)	5/5	7.8	6.4	7.2	6.5-8.5	0
Biochemical Oxygen Demand	1/3	10	<5	<6.8		

a Units in mg/L unless otherwise noted.

b All reference values are Tennessee Water Quality Criteria for fish and aquatic life.

Table 1.14. 1999 ETTP parameters detected at K-1007-B

Parameter	Number detected/ number of samples	Detected results[a]			Reference Value[b]	Number of exceeding reference
		Max	Min	Avg		
Alkalinity	3/3	110	94	100		
Chromium	1/9	0.0036	<0.0025	<0.0045	0.016	0
Dissolved	5/5	11	6.8	8.6	5.0 min	0
Dissolved Solids	3/3	150	150	150		
Fluoride	2/3	0.13	<0.10	0.12		
Lead	9/9	0.0019	0.0006	0.0011	.082	0
Manganese	9/9	0.160	0.045	0.096		
Suspended	3/3	20	6.2	11		
Temperature (C°)	5/5	33	10.0	19		
Uranium	10/10	0.0022	0.0005	0.0011		
Zinc	5/9	0.012	<0.005	<0.0068	0.12	0
pH (standard	5/5	8.7	6.8	7.9	6.5 - 8.5	2

a Units in mg/L unless otherwise noted.

b All Reference values are Tennessee Water Quality Standards for fish and aquatic life.

Table 1.15. 1999 ETTP parameters detected at K-1203

Parameter	Number detected/ number of samples	Detected results[a]			Reference Value[b]	Number of values exceeding reference
		Max	Min	Avg		
Lead	4/9	0.0013	<0.0005	0.0006	0.082	0
Manganese	9/9	0.071	0.007	0.026		
Silver	1/9	0.0008	<0.0005	<0.0005		
Uranium	8/9	0.0035	<0.0005	0.0013		
Zinc	9/9	0.073	0.0051	0.025	0.12	0

a Units in mg/L unless otherwise noted.

b All Reference values are Tennessee Water Quality Standards for fish and aquatic life.

Table 1.16. 1999 ETTP parameters detected at K-1407-J

Parameter	Number detected/ number of samples	Detected results[a]			Reference Value	Number of values exceeding reference
		Max	Min	Avg		
Uranium	12/12	0.23	0.034	0.123		

a Units in mg/L unless otherwise noted.

Table 1.17. 1999 ETTP parameters detected at K-1700

Parameter	Number detected/ number of samples	Detected results[a]			Reference Value[b]	Number of values exceeding reference
		Max	Min	Avg		
1,2 Dichloroethene (µg/L)	4/4	48	17	30		
Acetone (ug/L)	3/4	11	3	8.8		
Alkalinity	3/3	200	130	170		
Cadmium	1/9	0.0007	<0.0005	<0.0005		
Carbon disulfide	1/4	3	<5	4.3		
Carbon tetrachloride	1/5	3	<5	4.6		
Chromium	1/9	0.003	<0.0025	<0.0039	0.016	0
Chloroform	2/5	6	4	5		
Dissolved Oxygen	4/4	11	10	11	5.0 min	0
Dissolved Solids	3/3	300	190	240		
Fluoride	3/4	0.39	0.15	0.24		
Lead	7/9	0.017	<0.0005	<0.0025	0.082	0
Manganese	9/9	0.23	0.11	0.18		
Nickel	9/9	0.016	0.008	0.012	1.4	0
Suspended Solids	3/3	37	1.6	15		
Temperature (C°)	5/5	24	11	16		
Trichloroethene (µg/L)	5/5	66	12	42	810	0
Uranium	10/10	0.022	0.0095	0.014		
Vinyl Chloride	1/5	6	<10	6.2		
Zinc	7/9	0.010	<0.005	0.021	0.12	0
pH (standard units)	5/5	7.7	7.0	7.3	6.5 - 8.5	0

a Units in mg/L unless otherwise noted.

b All Reference values are Tennessee Water Quality Standards for fish and aquatic life.

Table 1.18. 1999 ETTP parameters detected at K-1710

Parameter	Number detected/ number of samples	Detected results[a]			Reference Value[b]	Number of values exceeding reference
		Max	Min	Avg		
Alkalinity	3/3	130	80	100		
Dissolved Oxygen	4/4	9.8	6.4	8.1	5.0 min	0
Dissolved Solids	3/3	230	150	190		
Fluoride	3/3	0.25	0.13	0.18		
Lead	4/9	0.0018	<0.00050	0.0007	0.082	0
Manganese	9/9	0.09	0.041	0.068		
Suspended Solids	3/3	15	6.8	11		
Temperature (Co)	4/4	25	12	18		
Uranium	9/10	0.004	0.0005	0.0026		
Zinc	8/9	0.0096	<0.005	0.0077	0.12	0
pH (standard units)	5/5	7.6	7.1	7.4	6.5 - 8.5	0

a All Reference values are Tennessee Water Quality Standards for fish and aquatic life.

b Units in mg/L unless otherwise noted.

Table 2.1. Y-12 Plant Discharge Point 017, OUTFALL 017
From: 1999/01/01 To: 1999/12/31

Parameter	Number of Samples	Concentration(a) Max	Min	Avg	Reference Value(b)	Number of Values Exceeding Reference
Flow, mgd	345	0.408	0.0021	0.050	d	d
pH, Standard Units	55	7.6	6.7	d	9/ 6(e)	0
Kjeldahl Nitrogen, mg/L	54	17.0	<0.2	<3	d	d
Ammonia as Nitrogen, mg/L	52	6.42	<0.2	<2	64.8	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 Point 021, OUTFALL 021
From: 1999/01/01 To: 1999/12/31

Parameter	Number of Samples	Concentration(a) Max	Min	Avg	Reference Value(b)	Number of Values Exceeding Reference
Flow, mgd	159	1.3965	0.1498	0.3562	d	d
pH, Standard Units	158	8.4	6.6	d	9/ 6(e)	0
Temperature, degrees C	157	24.0	13.5	20.1	30.5	0
Total Residual Chlorine	157	<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 2.3. Y-12 Plant Discharge Point 051, OUTFALL 051
From: 1999/01/01 To: 1999/12/31

Parameter	Number of Samples	Concentration(a) Max	Min	Avg	Reference Value(b)	Number of Values Exceeding Reference
Flow, mgd	362	1.1332	0.021	0.22	d	d
pH, Standard Units	105	8.1	6.7	d	9/ 6(e)	0
Mercury	52	0.0102	<0.00021	<0.0023	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 055, OUTFALL 055
From: 1999/01/01 To: 1999/12/31

Parameter	Number of Samples	Concentration(a) Max	Min	Avg	Reference Value(b)	Number of Values Exceeding Reference
Flow, mgd	365	0.0914	0.0121	0.0307	d	d
pH, Standard Units	105	8.3	6.8	d	9/ 6(e)	0
Total Residual Chlorine, mg/L	105	<0.05	<0.05	<0.05	0.5	0
Mercury, mg/L	104	0.00189	0.00015	<0.00023	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.

Table 2.5. Y-12 Plant Discharge Points, Outfalls 066,068, and 117
From: 1999/01/01 To: 1999/12/31

Parameter	Number of Samples	Concentration(a) Max	Min	Avg	Reference Value(b)	Number of Values Exceeding Reference
Outfall 066						
Flow, mgd		eliminated				
pH, Standard Units						
Outfall 068						
Flow, mgd	7	0.0001	0.00007	0.00009	d	d
pH, Standard Units	6	9.3	7.9	d	9/ 6(e)	1
Outfall 117						
Flow, mgd	6	0.0003	0.000001	0.0002	d	d
pH, Standard Units	6	8.5	7.0	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.

Table 2.6. Y-12 Plant Discharge Points, Outfalls 073, 077, 122, and 133
From: 1999/01/01 To: 1999/12/31

Parameter	Number of Samples	Concentration(a) Max	Min	Avg	Reference Value(b)	Number of Values Exceeding Reference
Outfall 073						
Flow, mgd	15	0.0015	0.00000079	0.00086	d	d
pH, Standard Units	13	8.2	6.8	d	9/ 6(e)	0
Total Residual Chlorine	12	<0.05	<0.05	<0.05	0.5	0
Outfall 077						
Flow, mgd	13	0.072	0.00002	0.006	d	d
pH, Standard Units	14	8.0	7.2	d	9/ 6(e)	0
Total Residual Chlorine	13	<0.05	<0.05	<0.05	0.5	0
Outfall 122						
Eliminated						
Outfall 133						
Eliminated						

(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 2.7. Y-12 Plant Discharge Point 125, OUTFALL 125
From: 1999/01/01 To: 1999/12/31

Parameter	Number of Samples	Concentration(a) Max	Min	Avg	Reference Value(b)	Number of Values Exceeding Reference
Flow, mgd	16	0.3714	0.0864	0.254	d	d
pH, Standard Units	15	7.5	6.3	d	9/ 6(e)	0
Total Residual Chlorine	12	<0.05	<0.05	<0.05	0.5	0
Mercury	6	0.00039	<0.00021	<0.00029	d	d
Lead	5	<0.1	<0.0002	<0.02	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 2.8. Y-12 Plant Discharge Point 135, OUTFALL 135
From: 1999/01/01 To: 1999/12/31

Parameter	Number of Samples	Concentration(a) Max	Min	Avg	Reference Value(b)	Number of Values Exceeding Reference
Flow, mgd	199	0.936	0.136	0.206	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 2.9. Y-12 Plant Discharge Point 200, NORTH-SOUTH PIPES
From: 1999/01/01 To: 1999/12/31

Parameter	Number of Samples	Concentration(a) Max	Min	Avg	Reference Value(b)	Number of Values Exceeding Reference
Flow, mgd	158	16.65	0.48	1.0	d	d
Beryllium	13	<0.001	<0.0005	<0.001	d	d
Cadmium	13	<0.01	0.0011	<0.009	d	d
Copper	13	<0.02	0.0089	<0.02	d	d
Iron	12	0.929	<0.05	<0.2	d	d
Fluoride	12	1.23	0.68	0.97	d	d
Mercury	52	0.0011	0.00027	0.00050	d	d
Nitrate/Nitrite as Nitrogen	12	8.29	4.29	6.07	d	d
Oil and Grease	157	<11.6	<5.4	<5.8	15	0
Lead	13	<0.1	<0.0005	<0.09	d	d
Phosphate as Phosphorus	12	1.28	<0.31	<0.88	d	d
Sulfate	53	154.0	24.96	51.51	d	d
Zinc	12	0.107	0.0533	0.0701	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 2.10. Y-12 Plant Discharge Point 200, NORTH-SOUTH PIPES
From: 1999/01/01 To: 1999/12/31

Parameter	Number of Samples	Concentration Max	+/-	Min	+/-	Median	+/-	Standard Error	Percentage of DCG	Total Curies
Alpha activity (pCi/L)	52	110.0	13	1.9*	3.5	12	e	2.5	e	2.3E-02
Americium-241 (pCi/L)	52	1.2	.84	0.008*	.16	0.2	e	0.03	0.8	4E-04
Beta activity (pCi/L)	52	46.0	7.7	2.3*	5.6	14	e	1.1	e	2.2E-02
Cobalt-60 (pCi/L)	52	2.7*	2.1	-2.0*	3.5	0.40	e	0.14	0.0080	5.6E-04
Cesium-137 (pCi/L)	52	2.7*	2	-1.6*	2.3	0.60	e	0.14	0.020	9.6E-04
Gamma Activity (pCi/L)	52	32.0	16	-11.0*	15	3.45	e	1.18	e	6.32E-03
Neptunium-237 (pCi/L)	52	0.74	.43	-0.21*	.15	0.11	e	0.025	0.37	2.1E-04
Plutonium-238 (pCi/L)	52	0.42	.28	-0.14*	.1	0.066	e	0.015	0.16	1.1E-04
Plutonium-239/240 (pCi/L)	52	0.12	.12	-0.076*	.095	0.0090	e	0.0054	0.030	1.8E-05
Radium-226 (pCi/L)	22	0.55	.44	-0.27*	.76	0.12	e	0.046	0.12	1.8E-04
Radium-228 (pCi/L)	52	16.0	7.9	-14.0*	9.8	0.740	e	0.780	0.740	2.79E-03
Strontium-89/90 (pCi/L)	52	12.0	3.3	-4.1*	4.7	0.76	e	0.37	e	1.5E-03
Total Radium Alpha (pCi/L)	52	2.2	1.4	-0.72*	.56	0.30	e	0.076	e	5.5E-04
Technetium-99 (pCi/L)	52	52.0	8.6	-12.0*	7.9	17.0	e	1.54	0.0170	2.31E-02
Thorium-228 (pCi/L)	52	0.76	.4	-0.22*	.24	0.067	e	0.026	0.017	1.3E-04
Thorium-230 (pCi/L)	52	5.0	1.3	-0.073*	.21	0.30	e	0.11	0.10	7.3E-04
Thorium-232 (pCi/L)	52	0.14	.13	-0.18*	.19	0.0	e	0.0079	0.0	3.4E-06
Thorium-234 (pCi/L)	52	110.0	12	2.5	.57	8.0	e	2.5	0.080	2.0E-02
Tritium (pCi/L)	52	1100.0	500	-390.0*	540	415.0	e	39.21	0.0207	5.84E-01
Uranium (mg/L)	52	0.3	.03	0.008	.001	0.03	e	0.008	e	e
Uranium-234 (pCi/L)	52	18.0	2.3	1.1	.36	2.6	e	0.41	0.52	5.2E-03
Uranium-235 (pCi/L)	52	1.4	.48	-0.043*	.06	0.17	e	0.036	0.028	3.3E-04
Uranium-238 (pCi/L)	52	110.0	12	2.5	.57	8.0	e	2.5	1.3	2.0E-02
U-235 Weight %	52	0.59	.05	0.21	.05	0.28	e	0.012	e	e

(e) Not applicable
* Below the minimum detectable activity

Table 2.11. Y-12 Plant Discharge Point 201, OUTFALL 201
From: 1999/01/01 To: 1999/12/31

Parameter	Number of Samples	Concentration(a) Max	Min	Avg	Reference Value(b)	Number of Values Exceeding Reference
96-Hour Toxicity Test with Ceriodaphnia, %	4	>100.0	>100.0	>100.0	d/ 100(e)	0
96-Hour Toxicity Test with Fathead Minnows, %	4	>100.0	>100.0	>100.0	d/ 100(e)	0
NOEC, Reproduction/ Growth with Ceriodaphnia, %	4	100.0	100.0	100.0	d/ 100(e)	0
NOEC, Reproduction/Growth With Fathead Minnows, %	4	100.0	100.0	100.0	d/ 100(e)	0
pH, Standard Units	157	8.7	7.0	d	8.5/ 6.5(e)	1
Temperature, degrees C	157	20.5	8.4	15	30.5	0
Total Residual Chlorine	156	<0.05	<0.05	<0.05	0.019	6
Suspended Solids	52	18.8	2.2	6.0	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 2.12. Y-12 Plant Discharge Point 501, CENTRAL POLLUTION CONTROL FACILITY
From: 1999/01/01 To: 1999/12/31

Parameter	Number of Samples	Concentration(a) Max	Min	Avg	Reference Value(b)	Number of Values Exceeding Reference
48-Hour Toxicity Test with Ceriodaphnia, %	4	>100.0	71.8	>89.1	d	d
Flow, mgd	20	0.01326	0.00665	0.0105	d	d
pH, Standard Units	21	8.3	6.6	d	9/ 6(e)	0
Temperature, degrees C	21	28.4	15.5	22.1	d	d
Silver	21	<0.2	<0.0005	<0.04	0.05	0
Boron	20	4.42	<0.2	<1	d	d
Beryllium	21	<0.01	<0.0005	<0.003	d	d
Calcium	20	740.0	2.47	275	d	d
Cadmium	21	<0.1	<0.0005	<0.02	0.15	0
Chloride	20	202.0	18.0	63.8	d	d
Chromium	21	<0.2	0.003	<0.06	1	0
Copper	21	<0.2	0.006	<0.07	1	0
Cyanide	20	0.0713	<0.01	<0.01	1.2	0
Iron	20	1.98	<0.1	<0.4	d	d
Fluoride	20	2.78	0.41	1.1	d	d
Mercury	20	0.0056	<0.0001	<0.0005	d	d
Potassium	20	70.9	15.3	<37.0	d	d
Lithium	20	12.4	0.938	3.68	d	d
Magnesium	20	5.66	<0.4	<1	d	d
Sodium	20	3390.0	50.7	1000	d	d
Nickel	21	<0.5	0.0324	<0.2	3.98	0
Nitrate/Nitrite as Nitrogen	20	53.4	<0.05	<3	100	0
Oil and Grease	20	15.0	<5.4	<6.1	15	0

Table 2.12. Y-12 Plant Discharge Point 501, Central Pollution Control Facility (continued)

Lead	21	0.009	<0.0005	<0.001	0.2	0
PCB, Total	1	0.00021	0.00021	0.00021	0.001	0
Phosphate as Phosphorus	20	13.7	<0.1	<1	d	d
Sulfate	21	7890.0	1110.0	2670.0	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 2.13. Y-12 Plant Discharge Point 501, CENTRAL POLLUTION CONTROL FACILITY
From: 1999/01/01 To: 1999/12/31

Parameter	Number of Samples	Concentration(a) Max	Min	Avg	Reference Value(b)	Number of Values Exceeding Reference
Surfactant	1	0.753	0.753	0.753	d	d
Suspended Solids	20	5.6	<1.0	<1.9	40	0
Sum of TTO Analysis	1	0.025	0.025	0.025	2.13	0
Zinc	20	<0.5	0.0087	<0.2	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 2.14. Y-12 Plant Discharge Point 501, CENTRAL POLLUTION CONTROL FACILITY
From: 1999/01/01 To: 1999/12/31

	Number of	Concentration							Percentage of	
Parameter	**Samples**	**Max**	**+/-**	**Min**	**+/-**	**Median**	**+/-**	**Standard Error**	**DCG**	**Total Curies**
Alpha activity (pCi/L)	20	470.0	98	-81.0*	250	11.0	e	25.9	e	7.71E-04
Americium-241 (pCi/L)	20	1.5	.99	0.004*	.17	0.2	e	0.07	0.7	4E-06
Beta activity (pCi/L)	20	440.0	82	-18.0*	48	60.0	e	24.9	e	1.47E-03
Cobalt-60 (pCi/L)	20	3.5*	2.6	-0.84*	2.5	0.96	e	0.24	0.019	1.4E-05
Cesium-137 (pCi/L)	20	59.0	8.8	-0.19*	2.3	3.2	e	3.0	0.11	1.2E-04
Gamma Activity (pCi/L)	20	59.0	17	-7.9*	15	14	e	4.0	e	2.2E-04
Neptunium-237 (pCi/L)	20	1.2	.4	-0.057*	.08	0.14	e	0.075	0.45	3.8E-06
Plutonium-238 (pCi/L)	20	0.21*	.24	-0.12*	.15	0.014	e	0.021	0.036	6.2E-07
Plutonium-239/240 (pCi/L)	20	0.39	.25	-0.038*	.053	0.036	e	0.020	0.12	8.7E-07
Radium-226 (pCi/L)	9	0.4	.55	-0.37*	.93	0.076*	.16	0.09	0.08	6E-07
Radium-228 (pCi/L)	20	12.0*	14	-11.0*	9.9	1.40	e	1.16	1.40	1.94E-05
Strontium-89/90 (pCi/L)	20	10.0	2.2	-2.8*	6.2	1.6	e	0.64	e	2.5E-05
Total Radium Alpha (pCi/L)	20	3.5	1.8	-0.37*	.78	0.38	e	0.20	e	9.6E-06
Technetium-99 (pCi/L)	20	460.0	14	2.4*	8.4	32	e	22	0.032	8.4E-04
Thorium-228 (pCi/L)	20	1.4	.54	-0.33*	.47	0.066	e	0.082	0.017	2.0E-06
Thorium-230 (pCi/L)	20	9.0	1.8	0.006*	.26	0.3	e	0.4	0.1	1E-05
Thorium-232 (pCi/L)	20	0.1*	.14	-0.02*	.05	0.02	e	0.007	0.03	4E-07
Thorium-234 (pCi/L)	20	470.0	69	0.39	.21	11	e	25	0.11	9.0E-04
Tritium (pCi/L)	20	770.0*	530	-580.0*	490	185.0	e	80.78	0.009300	2.500E-03
Uranium (mg/L)	20	1.27	.1	<0.001		0.03	e	0.07	e	e
Uranium-234 (pCi/L)	20	290.0	42	0.21	.15	4.2	e	15	0.83	4.8E-04
Uranium-235 (pCi/L)	20	16.0	3.3	-0.021*	.043	0.28	e	0.80	0.048	2.4E-05
Uranium-238 (pCi/L)	20	470.0	69	0.39	.21	11	e	25	1.8	9.1E-04
U-235 Weight %	19	1.39	.1	0.26	.03	0.42	.05	0.056	e	e

(e) Not applicable

* Result was below the minimum detectable activity.

Table 2.15. Y-12 Plant Discharge Point 502, WEST END TREATMENT FACILITY
From: 1999/01/01 To: 1999/12/31

Parameter	Number of Samples	Concentration(a) Max	Min	Avg	Reference Value(b)	Number of Values Exceeding Reference
48-Hour Toxicity Test with Ceriodaphnia, %	3	19.4	17.3	18.0	d	d
Flow, mgd	86	0.019365	0.000036	0.012	d	d
pH, Sandartd Units	55	8.3	6.6	d	9/ 6(e)	0
Temperature, degrees C	55	30.5	14.6	23.5	d	d
Silver	56	<0.2	<0.0005	<0.02	0.05	0
Arsenic	56	<4.0	0.0823	<2.1	d	d
Boron	55	14.8	3.96	10.5	d	d
Beryllium	56	<0.02	<0.0005	<0.01	d	d
Calcium	55	60.9	9.12	34.2	d	d
Cadmium	56	<0.1	<0.0005	<0.01	0.15	0
Chloride	55	32895.0	1250.0	3460	d	d
Chromium	56	<0.4	<0.005	<0.2	1	0
Copper	56	<0.4	0.0166	<0.2	1	0
Cyanide	56	0.0223	<0.01	<0.01	1.2	0
Iron	55	6.4	<0.5	<2	d	d
Fluoride	21	21.4	<0.1	10	d	d
Mercury	55	0.0024	<0.0002	<0.0003	d	d
Potassium	55	186.0	118.0	161.4	d	d
Lithium	55	5.27	3.25	4.59	d	d
Magnesium	55	33.5	16.7	27.3	d	d
Manganese	55	2.4	0.146	0.81	d	d
Sodium	55	9300.0	4710.0	7030.0	d	d
Nickel	56	2.33	0.205	<0.811	3.98	0
Nitrate/Nitrite as Nitrogen	55	8.23	<0.05	<0.6	150	0
Oil and Grease	55	<6.1	<5.3	<5.6	15	0
Lead	56	0.0217	<0.0005	<0.001	0.2	0
PCB, Total	7	0.0005U	0.00048U	0.0005U	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 2.16. Y-12 Plant Discharge Point 502, WEST END TREATMENT FACILITY
From: 1999/01/01 To: 1999/12/31

Parameter	Number of Samples	Concentration(a) Max	Min	Avg	Reference Value(b)	Number of Values Exceeding Reference
Phosphate as Phosphorus	55	13.9	<0.31	<3.3	d	d
Selenium	56	<4.0	0.297	<1	d	d
Sulfate	56	15900.0	7170.0	1090.0	d	d
Suspended Solids	55	32.6	<1.0	<5.1	40	0
Sum of TTO Analysis	7	<0.01	<0.01	<0.01	2.13	0
Zinc	55	<1.0	<0.5	<0.5	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 2.17. Y-12 Plant Discharge Point 502, WEST END TREATMENT FACILITY
From: 1999/01/01 To: 1999/12/31

Parameter	Number of Samples	Concentration Max	+/-	Min	+/-	Median	+/-	Standard Error	Percentage of DCG	Total Curies
Alpha activity (pCi/L)	21	210.0*	240	-80.0*	120	39.0*	55	17.8	e	9.20E-04
Americium-241 (pCi/L)	21	0.64	.35	-0.03*	.15	0.29	.19	0.03	1	5-06
Beta activity (pCi/L)	21	500.0*	500	12.0	5.6	250.0*	530	32.6	e	4.26E-03
Cobalt-60 (pCi/L)	21	3.4*	3	-0.84*	2	0.75*	1.5	0.26	0.015	1.8E-05
Cesium-137 (pCi/L)	21	110.0	18	48.0	7.3	70.0	13	2.99	2.33	1.19E-03
Gamma Activity (pCi/L)	21	100.0	20	31.0	8.1	67.0	18	3.79	e	1.09E-03
Neptunium-237 (pCi/L)	21	0.47	.12	-0.089*	.18	0.069*	.17	0.028	0.23	1.6E-06
Plutonium-238 (pCi/L)	21	0.41	.21	-0.1*	.14	0.068*	.17	0.03	0.2	2E-06
Plutonium-239/240 (pCi/L)	21	0.23	.17	-0.031*	.09	0.031*	.074	0.012	0.10	6.9E-07
Radium-226 (pCi/L)	14	1.3	.92	-0.32*	.6	0.16	e	0.11	0.16	3.1E-06
Radium-228 (pCi/L)	21	9.8*	15	-8.2*	11	0.69*	2.6	0.74	0.69	1.2E-05
Strontium-89/90 (pCi/L)	21	76.0	6.6	-0.91*	3.8	1.8*	2	3.5	e	1.1E-04
Total Radium Alpha (pCi/L)	21	3.1	1.5	0.35*	.31	1.3*	1.2	0.14	e	2.1E-05
Technetium-99 (pCi/L)	21	43.0	7.3	-3.6*	8.1	9.5*	7.6	2.6	0.0095	2.3E-04
Thorium-228 (pCi/L)	21	0.81	.57	-1.6*	1.7	0.31*	.45	0.11	0.078	3.8E-06
Thorium-230 (pCi/L)	21	2.4*	2.4	0.11*	.51	0.42*	.44	0.12	0.14	1.0E-05
Thorium-232 (pCi/L)	21	0.14*	.2	-0.81*	.94	0.0*	0	0.050	0.0	-1.2E-06
Thorium-234 (pCi/L)	21	21.0	2.6	0.049*	.12	1.6	.45	0.99	0.016	5.3E-05
Tritium (pCi/L)	21	15000.0	900	4300.0	660	5400.0	670	610.0	0.27	1.05E-01
Uranium (mg/L)	21	0.065	.006	<0.001		0.004	.001	0.003	e	e
Uranium-234 (pCi/L)	21	14.0	1.9	0.065*	.15	1.1	.4	0.66	0.22	3.5E-05
Uranium-235 (pCi/L)	21	0.77	.33	-0.054*	.076	0.036*	.072	0.038	0.0060	1.5E-06
Uranium-238 (pCi/L)	21	21.0	2.6	0.049*	.12	1.6	.45	0.99	0.27	5.3E-05
U-235 Weight %	18	0.64	.1	0.35	.05	0.46	e	0.020	e	e

(e) Not applicable

* Result was below the minimum detectable activity.

Table 2.18. Y-12 Plant Discharge Point 512, GROUNDWATER TREATMENT FACILITY
From: 1999/01/01 To: 1999/12/31

Parameter	Number of Samples	Concentration(a) Max	Min	Avg	Reference Value(b)	Number of Values Exceeding Reference
48-Hour Toxicity Testing with Ceroidaphnia, %	4	78.5	33.1	61.7	d	d
Flow, mgd	199	0.024131	0.00027	0.012	d	d
pH, Std Unit	141	8.2	7.0	d	9/ 6(e)	0
Copper, mg/L	142	<0.02	<0.02	<0.02	d	d
Iron, mg/L	142	0.316	<0.05	<0.06	1	0
Manganese, mg/L	142	4.71	0.0056	0.61	d	d
Lead, mg/L	142	<0.1	<0.1	<0.1	d	d
PCB, Total, mg/L	14	0.0005U	0.00048U	0.0005U	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 2.19. Y-12 Plant Discharge Point 512, GROUNDWATER TREATMENT FACILITY
From: 1999/01/01 To: 1999/12/31

Parameter	Number of Samples	Concentration Max	+/-	Min	+/-	Median	+/-	Standard Error	Percentage of DCG	Total Curies
Alpha activity (pCi/L)	52	18.0	6	1.1*	3.4	7.2	e	0.57	e	1.3E-04
Americium-241 (pCi/L)	52	1.3	.87	-0.021*	.13	0.23	e	0.027	0.77	3.8E-06
Beta activity (pCi/L)	52	29.0	7	1.4*	5.9	10	e	0.66	e	1.6E-04
Cobalt-60 (pCi/L)	52	3.1*	2	-2.6*	3.5	0.55	e	0.16	0.011	9.1E-06
Cesium-137 (pCi/L)	52	3.3*	3.5	-2.2*	2.2	0.32	e	0.16	0.010	5.7E-06
Gamma Activity (pCi/L)	52	31.0	16	-22.0*	16	5.85	e	1.40	e	1.10E-04
Neptunium-237 (pCi/L)	52	0.72	.48	-0.21*	.24	0.10	e	0.022	0.35	2.2E-06
Plutonium-238 (pCi/L)	52	0.3	.22	-0.065*	.18	0.07	e	0.01	0.2	1E-06
Plutonium-239/240 (pCi/L)	52	0.21	.15	-0.071*	.072	0.0070	e	0.0075	0.023	2.8E-07
Radium-226 (pCi/L)	21	4.9	1.2	-0.36*	2.1	0.0019*	.0024	0.24	0.0019	5.3E-06
Radium-228 (pCi/L)	52	21.0	11	-9.1*	9.5	1.6	e	0.80	1.6	4.0E-05
Strontium-89/90 (pCi/L)	52	18.0	4.3	-46.0*	2.4	0.81	e	1.0	e	6.5E-06
Total Radium Alpha (pCi/L)	52	5.1	.82	-0.79*	.7	0.44	e	0.14	e	1.0E-05
Technetium-99 (pCi/L)	52	39.0	7.2	-30.0*	6	6.55	e	1.53	0.00660	8.95E-05
Thorium-228 (pCi/L)	52	1.6	.7	-0.47*	1.5	0.060	e	0.041	0.015	1.7E-06
Thorium-230 (pCi/L)	52	2.4	1.6	-0.054*	.34	0.37	e	0.060	0.12	7.2E-06
Thorium-232 (pCi/L)	52	0.32*	.64	-0.14*	.14	0.0	e	0.0096	0.0	5.2E-09
Thorium-234 (pCi/L)	52	58.0	12	0.22	.16	7.2	e	1.1	0.072	1.3E-04
Tritium (pCi/L)	52	2700.0	600	890.0	540	1600.0	e	54	0.080	2.6E-02
Uranium (mg/L)	52	0.046	.005	0.004	.001	0.02	e	0.001	e	e
Uranium-234 (pCi/L)	52	31.0	8.6	0.65	.27	3.5	e	0.56	0.70	6.5E-05
Uranium-235 (pCi/L)	52	1.2*	1.7	0.0*	0	0.18	e	0.025	0.031	3.4E-06
Uranium-238 (pCi/L)	52	58.0	12	0.22	.16	7.2	e	1.1	1.2	1.3E-04
U-235 Weight %	52	0.67	.1	0.27	.05	0.38	e	0.0094	e	e

(e) Not applicable

* Result was below minimum detectable activity.

Table 2.20. Y-12 Plant Discharge Point 520, OUTFALL 520
From: 1999/01/01 To: 1999/12/31

Parameter	Number of Samples	Concentration(a) Max	Min	Avg	Reference Value(b)	Number of Values Exceeding Reference
pH, Standard Units	12	8.5	6.6	d	9/ 6(e)	0
Dissolved Solids, mg/L	11	224.0	<1.0	<84	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 2.21. Y-12 Plant Discharge Point 520, OUTFALL 520
From: 1999/01/01 To: 1999/12/31

Parameter	Number of Samples	Concentration Max	+/-	Percentage of Min	+/-	Median	+/-	Standard Error	DCG	Total Curies
Alpha activity (pCi/L)	4	2.7*	3.1	-0.9*	2	2	e	2	e	e
Americium-241 (pCi/L)	4	1.1	0.71	0.24	0.18	0.36	e	0.40	1.7	e
Beta activity (pCi/L)	4	1.8*	4.8	-3.6*	5.4	-0.95	e	3.0	e	e
Cobalt-60 (pCi/L)	4	1.5*	0.21	0.6*	1.5	1	e	0.4	0.02	e
Cesium-137 (pCi/L)	4	2.5*	2.2	-0.66*	2	1.8	e	1.4	0.047	e
Gamma Activity (pCi/L)	4	15.0*	18	1.6*	15	4.0	e	6.2	e	e
Neptunium-237 (pCi/L)	4	0.3	0.22	-0.072*	0.14	0.05	e	0.2	0.3	e
Plutonium-238 (pCi/L)	4	0.21*	0.18	0.015*	0.086	0.061	e	0.085	0.22	e
Plutonium-239/240 (pCi/L)	4	0.063	0.072	-0.025*	0.18	0.028	e	0.044	0.077	e
Radium-226 (pCi/L)	1	0.0078*	0.18	0.0078*	0.18	0.0078	0.18	e	0.0078	e
Radium-228 (pCi/L)	4	1.5*	11	-6.3*	9.2	-1.6	e	3.5	-2.0	e
Strontium-89/90 (pCi/L)	4	10.0	2.8	-0.49*	2.3	0.88	e	4.9	0.28	e
Total Radium Alpha (pCi/L)	4	1.5*	1.2	-0.18*	0.53	0.095	e	0.79	e	e
Technetium-99 (pCi/L)	4	57.0	8.7	-24.0*	7.5	-2.4	e	34.8	0.0071	e
Thorium-228 (pCi/L)	4	0.13*	0.3	-0.053*	0.27	0.078	e	0.080	0.014	e
Thorium-230 (pCi/L)	4	0.87	0.5	0.45	0.26	0.50	e	0.20	0.19	e
Thorium-232 (pCi/L)	4	0.0*	0	-0.046*	0.093	-0.027	e	0.020	-0.050	e
Thorium-234 (pCi/L)	4	1.3	0.4	0.031*	0.077	0.28	e	0.60	0.0047	e
Tritium (pCi/L)	4	50000.0	1400	640.0*	520	8860	e	23000	0.85	e
Uranium (mg/L)	4	0.003	0.001	<0.001	e	0.002	e	0.001	e	e
Uranium-234 (pCi/L)	4	0.3*	0.23	-0.009*	0.068	0.13	e	0.2	0.03	e
Uranium-235 (pCi/L)	4	0.01*	0.083	0.0*	e	0.004	e	0.006	0.0008	e
Uranium-238 (pCi/L)	4	1.3	0.4	0.031*	0.077	0.28	e	0.60	0.078	e
U-235 Weight %	2	0.63	0.05	0.47	0.55	0.05	e	0.11	e	e

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

Table 2.22. Y-12 Plant Discharge Point 550, OUTFALL 550
From: 1999/01/01 To: 1999/12/31

Parameter	Number of Samples	Concentration(a) Max	Min	Avg	Reference Value(b)	Number of Values Exceeding Reference
Flow, mgd	366	0.03398	0.000029	0.010	d	d
pH, Standard Units	52	8.2	7.2	d	9/ 6(e)	0
Mercury	52	0.0025	<0.00011	<0.00021	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.

Table 2.23. Y-12 Plant Discharge Point 551, CENTRAL MERCURY TREATMENT UNIT
From: 1999/01/01 To: 1999/12/31

Parameter	Number of Samples	Concentration(a) Max	Min	Avg	Reference Value(b)	Number of Values Exceeding Reference
Flow, mgd	363	0.05741	0.00321	0.0120	d	d
pH, Standard Units	53	8.4	6.8	d	9/ 6(e)	0
Mercury	53	0.00271	0.00017	<0.00055	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.

Table 2.24. Y-12 Plant Discharge Point 551, CENTRAL MERCURY TREATMENT UNIT
From: 1999/01/01 To: 1999/12/31

Parameter	Number of Samples	Concentration Max	+/-	Min	+/-	Median	+/-	Standard Error	Percentage of DCG	Total Curies
Alpha activity (pCi/L)	13	10.0	5.7	0.12*	2.4	3.0*	3.5	0.95	e	7.2E-05
Americium-241 (pCi/L)	13	0.85*	.95	0.0031	.0018	0.22*	.24	0.058	0.73	4.1E-06
Beta activity (pCi/L)	13	120.0	11	1.2*	5.3	31.0	7.2	9.4	e	7.3E-04
Cobalt-60 (pCi/L)	13	2.8*	2.2	-0.59*	2	0.94*	2.1	0.31	0.019	1.7E-05
Cesium-137 (pCi/L)	13	1.7*	2.3	-1.2*	2.1	0.32*	1.6	0.25	0.011	6.3E-06
Gamma Activity (pCi/L)	13	21.0*	16	-9.0*	15	3.1*	18	2.3	e	8.9E-05
Neptunium-237 (pCi/L)	13	0.29	.21	-0.097*	.12	0.11*	.26	0.026	0.37	1.8E-06
Plutonium-238 (pCi/L)	13	0.36	.24	-0.091*	.15	0.033*	.15	0.032	0.082	9.8E-07
Plutonium-239/240 (pCi/L)	13	0.14*	.15	-0.053*	.1	0.011*	.089	0.014	0.037	3.8E-07
Radium-226 (pCi/L)	4	1.9	1.5	-0.44*	.37	0.00050	e	0.52	0.00050	6.1E-06
Radium-228 (pCi/L)	13	17.0	9.6	-7.4*	15	1.7*	4.4	2.0	1.7	5.7E-05
Strontium-89/90 (pCi/L)	13	5.5	2.5	-1.2*	2.1	0.96*	2.8	0.50	e	1.9E-05
Total Radium Alpha (pCi/L)	13	12.0	1.6	-0.035*	.73	1.2	.76	0.87	e	3.0E-05
Technetium-99 (pCi/L)	13	230.0	11	-0.42*	7.9	59.0	8.6	19	0.059	1.3E-03
Thorium-228 (pCi/L)	13	0.78	.46	-0.087*	.31	0.085*	.11	0.062	0.021	2.0E-06
Thorium-230 (pCi/L)	13	3.2	2.1	-0.063*	.13	0.24*	.2	0.23	0.080	7.7E-06
Thorium-232 (pCi/L)	13	0.18*	.26	-0.044*	.062	0.027*	.055	0.015	0.054	4.0E-07
Thorium-234 (pCi/L)	13	12.0	1.8	0.41	.2	2.8	.58	0.88	0.028	5.7E-05
Tritium (pCi/L)	13	1700.0	600	-270.0*	510	70.0*	540	148	0.00350	3.28E-03
Uranium (mg/L)	13	0.037	.004	<0.001		0.008	.001	0.003	e	e
Uranium-234 (pCi/L)	13	7.3	1.3	0.3	.17	2.0	.52	0.5	0.4	4E-05
Uranium-235 (pCi/L)	13	0.28	.19	-0.018*	.036	0.045*	.11	0.027	0.0075	1.5E-06
Uranium-238 (pCi/L)	13	12.0	1.8	0.41	.2	2.8	.58	0.88	0.47	5.7E-05
U-235 Weight % (%)	12	0.56	.05	0.29	.05	0.46	e	0.024	e	e

(e) Not applicable

* Result was below the minimum detectable activity.

Table 2.25. Y-12 Plant Discharge Point SWHISS Station 9422-1 or Station 17
From: 1999/01/01 To: 1999/12/31

Parameter	Number of Samples	Concentration(a) Max	Min	Avg	Reference Value(b)	Number of Values Exceeding Reference
Flow, mgd	365	65.0	5.8167	8.95	d	d
pH, Standard Units	151	8.4	7.1	d	9/ 6(e)	0
1,1,1-Trichloroethane, mg/L	1	0.01U	0.01U	0.01U	d	d
1,1-Dichloroethane, mg/L	1	0.01U	0.01U	0.01U	d	d
1,1-Dichloroethene, mg/L	1	0.01U	0.01U	0.01U	0.032	0
1,1,2,2-Tetrachloroethane,	1	0.01U	0.01U	0.01U	0.110	0
1,1,2-Trichloroethane, mg/L	1	0.01U	0.01U	0.01U	0.420	0
1,2-Dichloroethane, mg/L	1	0.01U	0.01U	0.01U	0.990	0
1,2-Dichloropropane, mg/L	1	0.01U	0.01U	0.01U	0.039	0
Silver, mg/L	152	<0.02	<0.0005	<0.02	0.0041	0
Aluminum, mg/L	152	4.41	<0.2	<0.5	d	d
Arsenic, mg/L	152	<0.2	<0.005	<0.2	0.0014	0
Boron, mg/L	152	0.137	<0.1	<0.1	d	d
Barium, mg/L	152	0.0949	0.0375	0.0459	d	d
Bromodichloromethane, mg/L	1	0.01U	0.01U	0.01U	0.220	0
Beryllium, mg/L	152	<0.001	<0.0005	<0.001	d	d
Benzene, mg/L	1	0.01U	0.01U	0.01U	0.710	0
Dibromochloromethane, mg/L	1	0.01U	0.01U	0.01U	0.340	0
Bromoform, mg/L	1	0.01U	0.01U	0.01U	3.600	0
Calcium, mg/L	152	49.9	27.1	41.5	d	d
Carbon tetrachloride, mg/L	1	0.01U	0.01U	0.01U	0.044	0
Cadmium, mg/L	152	<0.01	<0.0005	<0.01	0.0039	0
cis-1,3-Dichloropropene, mg/L	1	0.01U	0.01U	0.01U	1.700	0
Chloroethane, mg/L	1	0.01U	0.01U	0.01U	d	d
2-Chloroethylvinyl ether, mg/L	1	0.01U	0.01U	0.01U	d	d
Bromomethane, mg/L	1	0.01U	0.01U	0.01U	d	d
Chloromethane, mg/L	1	0.01U	0.01U	0.01U	d	d

(a) Units in mg/L unless otherwise indicated.
(b) Tennessee Water Quality Criteria
(c) Flow during operations and/or discharging.
(d) Not applicable.
(e) Maximum value/minimum value.

Table 2.26. Y-12 Plant Discharge Point SWHISS Station 9422-1 or Station 17
From: 1999/01/01 To: 1999/12/31

Parameter	Number of Samples	Concentration(a) Max	Min	Avg	Reference Value(b)	Number of Values Exceeding Reference
Chloroform, mg/L	1	0.003	0.003	0.003	4.700	0
Tetrachloroethene, mg/L	1	0.01U	0.01U	0.01U	0.0885	0
Chlorobenzene, mg/L	1	0.01U	0.01U	0.01U	21	0
Chromium, mg/L	152	<0.02	<0.005	<0.02	d	d
Copper, mg/L	152	<0.02	<0.005	<0.02	0.0177	0
Ethylbenzene, mg/L	1	0.01U	0.01U	0.01U	29	0
Iron, mg/L	152	5.46	0.111	0.5058	d	d
Trichlorofluoromethane, mg/L	1	0.01U	0.01U	0.01U	d	d
Mercury, mg/L	400	0.0152	<0.0002	<0.0007	0.000051	398
Potassium, mg/L	152	3.3	<2.0	<2.1	d	d
Lithium, mg/L	152	0.259	<0.01	<0.0219	d	d
Methylene chloride, mg/L	1	0.01U	0.01U	0.01U	16	0
Magnesium, mg/L	152	12.8	6.08	10.5	d	d
Manganese, mg/L	152	0.406	0.0332	0.105	d	d
Molybdenum, mg/L	152	<0.05	<0.0025	<0.05	d	d
Sodium, mg/L	152	48.2	4.31	11.5	d	d
Ammonia as Nitrogen, mg/L	151	0.202	0.14	<0.20	d	d
Nickel, mg/L	152	<0.05	<0.005	<0.05	1.418	0
Nitrate/Nitrite as Nitrogen, mg/L	95	712.0	0.25	8.6	d	d
Lead, mg/L	152	<0.1	0.0011	<0.01	0.0817	0
Antimony, mg/L	152	<0.2	<0.0025	<0.2	4.30	0
Selenium, mg/L	152	<0.2	<0.01	<0.2	0.02	0
Strontium, mg/L	152	0.133	0.0719	0.105	d	d
Sulfate, mg/L	1	20.86	20.86	20.86	d	d
Suspended Solids, mg/L	151	131.0	2.0	18	d	d
trans-1,2-Dichloroethene, mg/L	1	0.01U	0.01U	0.01U	d	d
trans-1,3-Dichloropropene, mg/L	1	0.01U	0.01U	0.01U	1.7	0

(a) Units in mg/L unless otherwise indicated.
(b) Tennessee Water Quality Criteria
(c) Flow during operations and/or discharging.
(d) Not applicable.
(e) Maximum value/minimum value.

Table 2.27. Y-12 Plant Discharge Point SWHISS Station 9422-1 or Station 17
From: 1999/01/01 To: 1999/12/31

Parameter	Number of Samples	Concentration(a) Max	Min	Avg	Reference Value(b)	Number of Values Exceeding Reference
Thorium, mg/L	152	<0.2	<0.2	<0.2	d	d
Titanium, mg/L	152	0.0647	<0.05	<0.05	d	d
Thallium, mg/L	152	<0.2	<0.0005	<0.2	0.0063	0
Toluene, mg/L	1	0.01U	0.01U	0.01U	200	0
Trichloroethene, mg/L	1	0.01U	0.01U	0.01U	0.810	0
Vanadium, mg/L	152	<0.02	<0.02	<0.02	d	d
Vinyl chloride, mg/L	1	0.01U	0.01U	0.01U	5.250	0
Zinc, mg/L	152	0.147	0.0286	<0.0598	0.117	5
Zirconium, mg/L	152	<0.2	<0.2	<0.2	d	d

(a) Units in mg/L unless otherwise indicated.
(b) Tennessee Water Quality Criteria
(c) Flow during operations and/or discharging.
(d) Not applicable.
(e) Maximum value/minimum value.

Table 2.28. Y-12 Plant Discharge Point Station 17 or SWHISS Station 9422-1
From: 1999/01/01 To: 1999/12/31

Parameter	Number of Samples	Concentration Max	+/-	Min	+/-	Median	+/-	Standard Error	Percentage of DCG	Total Curies	Average
Alpha activity (pCi/L)	52	27.0	6.6	-0.51*	2.3	4.6	e	0.82	e	8.0E-02	6.5
Americium-241 (pCi/L)	52	0.53	.28	0.067*	.27	0.22	e	0.014	0.75	3.0E-03	0.24
Beta activity (pCi/L)	52	14.0	5.4	-2.5*	5	5.7	e	0.50	e	7.3E-02	5.9
Cobalt-60 (pCi/L)	52	3.3*	3.5	-2.9*	3.5	0.62	e	0.17	0.012	8.8E-03	0.71
Cesium-137 (pCi/L)	52	4.6	2.4	-3.1*	3.3	0.60	e	0.19	0.020	7.4E-03	0.60
Gamma Activity (pCi/L)	52	32.0	17	-15.0*	16	4.4	e	1.4	e	6.3E-02	5.1
Neptunium-237 (pCi/L)	52	1.2	.51	-0.17*	.32	0.10	e	0.036	0.34	2.0E-03	0.16
Plutonium-238 (pCi/L)	52	0.43	.22	-0.079*	.13	0.10	e	0.015	0.25	1.3E-03	0.11
Plutonium-239/240 (pCi/L)	52	0.18*	.17	-0.085*	.11	0.018	e	0.0069	0.058	3.0E-04	0.024
Radium-226 (pCi/L)	21	0.73	.39	-0.31*	1.4	0.21*	.56	0.063	0.21	2.7E-03	0.22
Radium-228 (pCi/L)	52	24.0	15	-12.0*	13	0.500	e	0.922	0.500	2.43E-02	1.97
Strontium-89/90 (pCi/L)	52	12.0	3.1	-1.9*	1.7	0.74	e	0.33	e	1.4E-02	1.1
Total Radium Alpha (pCi/L)	52	3.9	1.8	-0.9*	.8	0.3	e	0.1	e	5E-03	0.4
Technetium-99 (pCi/L)	52	51.0	8.9	-24.0*	6.6	3.50	e	1.67	0.00350	5.36E-02	4.33
Thorium-228 (pCi/L)	52	1.5*	1.2	-0.37*	.4	0.10	e	0.048	0.026	2.2E-03	0.18
Thorium-230 (pCi/L)	52	5.1	3.9	-0.16*	.31	0.34	e	0.10	0.11	6.5E-03	0.52
Thorium-232 (pCi/L)	52	0.22	.22	-0.43*	.86	0.0	e	0.012	0.0	-3.0E-05	-0.0025
Thorium-234 (pCi/L)	52	16.0	2	0.89	.34	2.8	e	0.45	0.028	4.8E-02	3.9
Tritium (pCi/L)	52	680.0*	520	-480.0*	520	175.0	e	44.74	0.0088	1.77E+00	143
Uranium (mg/L)	52	0.047	.005	0.003	.001	0.008	e	0.001	e	e	0.01
Uranium-234 (pCi/L)	52	4.2	.73	0.47	.26	1.5	e	0.12	0.30	2.1E-02	1.7
Uranium-235 (pCi/L)	52	0.32	.21	-0.022*	.045	0.072	e	0.011	0.012	1.1E-03	0.092
Uranium-238 (pCi/L)	52	16.0	2	0.89	.34	2.8	e	0.45	0.47	4.8E-02	3.9
U-235 weight %	52	0.7	.1	0.27	.05	0.4	e	0.01	e	e	0.40

(e) Not applicable
* Below the minimum detectable activity

Table 2.29. Y-12 Plant Category I Outfalls
From: 1999/01/01 To: 1999/12/31

Outfall	Parameter	Number of Samples	Concentration(a) Max	Min	Avg	Reference Value(b)	Number of Values Exceeding Reference
003	Flow, mgd	5	0.0038	0.0004	0.001	d	d
	pH, Standard Units	3	7.9	7.6	d	9/ 4(e)	0
006	Flow, mgd	5	0.001	0.000024	0.0004	d	d
	pH, Standard Units	9	8.4	7.6	d	9/ 4(e)	0
007	Flow, mgd	3	0.036	0.0004	0.02	d	d
	pH, Standard Units	2	8.0	7.9	d	9/ 4(e)	0
008	Flow, mgd	2	0.0864	0.0011	0.044	d	d
	pH, Standard Units	2	8.3	7.6	d	9/ 4(e)	0
009	Flow, mgd	5	0.0288	0.0007	0.009	d	d
	pH, Standard Units	3	8.1	7.5	d	9/ 4(e)	0
011	Flow, mgd	5	0.0038	0.0004	0.002	d	d
	pH, Standard Units	3	9.0	7.6	d	9/ 4(e)	0
015	Flow, mgd	6	0.0187	0.0001	0.007	d	d
	pH, Standard Units	4	8.1	7.5	d	9/ 4(e)	0
018	Flow, mgd	4	0.0043	0.0001	0.002	d	d
	pH, Standard Units	2	7.6	7.6	d	9/ 4(e)	0
032	Outfall was eliminated						
033	Flow, mgd	4	0.0173	0.0002	0.005	d	d
	pH, Standard Units	3	8.3	7.9	d	9/ 4(e)	0
045	Flow, mgd	4	0.0564	0.0002	0.01	d	d
	pH, Standard Units	3	8.5	7.6	d	9/ 4(e)	0

Table 2.29. Y-12 Plant Category I Outfalls (continued)

Outfall	Parameter	Number of Samples	Concentration(a) Max	Min	Avg	Reference Value(b)	Number of Values Exceeding Reference
046	Flow, mgd	5	0.0693	0.0004	0.03	d	d
	pH, Standard Units	3	8.1	7.4	d	9/ 4(e)	0
058	Flow, mgd	4	0.0043	0.0004	0.002	d	d
	pH, Standard Units	3	8.3	7.6	d	9/ 4(e)	0
062	Flow, mgd	3	0.0024	0.0001	0.001	d	d
	pH, Standard Units	3	8.1	7.6	d	9/ 4(e)	0
086	Flow, mgd	4	0.0187	0.00001	0.005	d	d
	pH, Standard Units	3	8.2	7.8	d	9/ 4(e)	0
087	Flow, mgd	3	0.0038	0.0004	0.003	d	d
	pH, Standard Units	2	8.2	7.9	d	9/ 4(e)	0
098	Flow, mgd	4	0.0098	0.0004	0.003	d	d
	pH, Standard Units	3	8.6	7.6	d	9/ 4(e)	0
110	Flow, mgd	3	0.0101	0.0023	0.0065	d	d
	pH, Standard Units	2	8.1	7.7	d	9/ 4(e)	0
134	Flow, mgd	5	0.0228	0.000005	0.008	d	d
	pH, Standard Units	3	8.6	7.4	d	9/ 4(e)	0
213	Flow, mgd	3	0.0036	0.0011	0.002	d	d
	pH, Standard Units	2	8.3	7.8	d	9/ 4(e)	0
S01	Flow, mgd	4	0.216	0.0216	0.0839	d	d
	pH, Standard Units	2	8.0	8.0	d	9/ 4(e)	0
S03	Flow, mgd	6	0.1482	0.0004	0.03	d	d
	pH, Standard Units	3	8.4	7.4	d	9/ 4(e)	0

Table 2.29. Y-12 Plant Category I Outfalls (continued)

Outfall	Parameter	Number of Samples	Concentration(a) Max	Min	Avg	Reference Value(b)	Number of Values Exceeding Reference
S04	Flow, mgd	3	0.036	0.0002	0.0169	d	d
	pH, Standard Units	2	7.9	7.5	d	9/ 4(e)	0
S06	Flow, mgd	356	6.6634	0.0065	0.20	d	d
	pH, Standard Units	6	7.5	5.7	d	9/ 4(e)	0
S07	Flow, mgd	3	0.0432	0.036	0.038	d	d
	pH, Standard Units	2	7.8	7.7	d	9/ 4(e)	0
S09	Flow, mgd	5	0.0751	0.0432	0.0524	d	d
	pH, Standard Units	3	8.1	7.5	d	9/ 4(e)	0
S15	Flow, mgd	3	0.288	0.1005	0.226	d	d
	pH, Standard Units	3	8.1	7.8	d	10/ 6(e)	0
S16	Flow, mgd	3	0.0576	0.0007	0.03	d	d
	pH, Standard Units	3	8.5	7.9	d	10/ 6(e)	0
S18	Flow, mgd	4	3.456	0.0014	1.0	d	d
	pH, Standard Units	3	8.5	8.2	d	9/ 4(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.

Table 2.30. Y-12 Plant Category II Outfalls
From: 1999/01/01 To: 1999/12/31

Outfall	Parameter	Number of Samples	Concentration(a) Max	Min	Avg	Reference Value(b)	Number of Values Exceeding Reference
004	Flow, mgd	7	0.5616	0.0057	0.12	d	d
	pH, Standard Units	5	8.8	7.8	d	9/ 4(e)	0
	Total Residual Chlorine	5	<0.05	<0.05	<0.05	0.5	0
010	Flow, mgd	6	0.0864	0.0076	0.039	d	d
	pH, Standard Units	6	8.4	7.0	d	9/ 4(e)	0
	Total Residual Chlorine	5	<0.05	<0.05	<0.05	0.5	0
014	Flow, mgd	6	0.3744	0.0075	0.12	d	d
	pH, Standard Units	5	8.4	7.5	d	9/ 4(e)	0
	Total Residual Chlorine	5	<0.05	<0.05	<0.05	0.5	0
016	Flow, mgd	6	0.0432	0.0007	0.01	d	d
	pH, Standard Units	5	8.4	7.4	d	9/ 4(e)	0
	Total Residual Chlorine	5	<0.05	<0.05	<0.05	0.5	0
019	Flow, mgd	6	0.054	0.0004	0.02	d	d
	pH, Standard Units	5	8.3	7.5	d	9/ 4(e)	0
	Total Residual Chlorine	5	<0.05	<0.05	<0.05	0.5	0
020	Flow, mgd	6	0.054	0.0015	0.017	d	d
	pH, Standard Units	5	8.0	7.4	d	9/ 4(e)	0
	Total Residual Chlorine	5	<0.05	<0.05	<0.05	0.5	0
041	Flow, mgd	4	0.0301	0.0006	0.008	d	d
	pH, Standard Units	3	8.2	7.5	d	9/ 4(e)	0
	Total Residual Chlorine	3	<0.05	<0.05	<0.05	0.5	0
044	Flow, mgd	6	0.1192	0.0002	0.02	d	d
	pH, Standard Units	5	8.2	7.6	d	9/ 4(e)	0
	Total Residual Chlorine	4	<0.05	<0.05	<0.05	0.5	0

Table 2.30. Y-12 Plant Category II Outfalls (continued)

Outfall	Parameter	Number of Samples	Concentration(a) Max	Min	Avg	Reference Value(b)	Number of Values Exceeding Reference
057	Flow, mgd	8	0.0288	0.0001	0.004	d	d
	pH, Standard Units	6	8.2	7.4	d	9/ 4(e)	0
	Total Residual Chlorine	5	<0.05	<0.05	<0.05	0.5	0
063	Flow, mgd	7	0.0307	0.0002	0.01	d	d
	pH, Standard Units	6	8.0	7.3	d	9/ 4(e)	0
	Total Residual Chlorine	5	<0.05	<0.05	<0.05	0.5	0
064	Flow, mgd	6	0.0173	0.0002	0.005	d	d
	pH, Standard Units	5	8.4	7.6	d	9/ 4(e)	0
	Total Residual Chlorine	5	<0.05	<0.05	<0.05	0.5	0
067	Flow, mgd	7	0.1723	0.0057	0.06	d	d
	pH, Standard Units	5	8.0	7.4	d	9/ 4(e)	0
	Total Residual Chlorine	5	<0.05	<0.05	<0.05	0.5	0
083	Flow, mgd	7	0.0432	0.0042	0.017	d	d
	pH, Standard Units	6	8.0	7.7	d	9/ 4(e)	0
	Total Residual Chlorine	5	<0.05	<0.05	<0.05	0.5	0
088	Flow, mgd	5	0.0029	0.0004	0.001	d	d
	pH, Standard Units	4	10.8	7.6	d	9/ 4(e)	1
	Total Residual Chlorine	4	<0.05	<0.05	<0.05	0.5	0
099	Flow, mgd	8	0.0432	0.0015	0.017	d	d
	pH, Standard Units	5	8.7	7.4	d	9/ 4(e)	0
	Total Residual Chlorine	5	<0.05	<0.05	<0.05	0.5	0
126	Flow, mgd	6	0.0432	0.0001	0.008	d	d
	pH, Standard Units	5	8.3	7.6	d	9/ 4(e)	0
	Total Residual Chlorine	5	<0.05	<0.05	<0.05	0.5	0

Table 2.30. Y-12 Plant Category II Outfalls (continued)

Outfall	Parameter	Number of Samples	Concentration(a) Max	Min	Avg	Reference Value(b)	Number of Values Exceeding Reference
S02	Flow, mgd	339	4.623126	0.00228	0.443	d	d
	pH, Standard Units	6	8.1	7.4	d	9/ 4(e)	0
	Total Residual Chlorine	1	<0.05	<0.05	<0.05	0.5	0
S08	Flow, mgd	205	3.8086	0.0006	0.2	d	d
	pH, Standard Units	4	8.0	7.2	d	9/ 4(e)	0
	Total Residual Chlorine	1	<0.05	<0.05	<0.05	0.5	0
S10	Flow, mgd	6	0.1738	0.0007	0.03	d	d
	pH, Standard Units	5	8.0	7.1	d	9/ 4(e)	0
	Total Residual Chlorine	1	<0.05	<0.05	<0.05	0.5	0
S11	Flow, mgd	8	0.3024	0.0032	0.080	d	d
	pH, Standard Units	5	7.8	6.6	d	9/ 4(e)	0
	Total Residual Chlorine	1	<0.05	<0.05	<0.05	0.5	0
S12	Flow, mgd	6	0.0864	0.0001	0.03	d	d
	pH, Standard Units	4	8.1	6.0	d	9/ 4(e)	0
	Total Residual Chlorine	1	<0.05	<0.05	<0.05	0.5	0
S13	Flow, mgd	7	0.329	0.0009	0.06	d	d
	pH, Standard Units	6	7.9	6.8	d	9/ 4(e)	0
	Total Residual Chlorine	1	<0.05	<0.05	<0.05	0.5	0
S17	Flow, mgd	11	0.6912	0.0734	0.257	d	d
	pH, Standard Units	7	8.1	7.3	d	9/ 4(e)	0
	Total Residual Chlorine	1	<0.05	<0.05	<0.05	0.5	0
S20	Flow, mgd	5	0.144	0.00003	0.04	d	d
	pH, Standard Units	3	8.3	7.2	d	9/ 4(e)	0
	Total Residual Chlorine	2	<0.05	<0.05	<0.05	0.5	0

Table 2.30. Y-12 Plant Category II Outfalls (continued)

Outfall	Parameter	Number of Samples	Concentration(a) Max	Min	Avg	Reference Value(b)	Number of Values Exceeding Reference
S21	Outfall eliminated						
S22	Flow, mgd	6	0.057	0.0002	0.01	d	d
	pH, Standard Units	3	7.9	7.4	d	10/ 6(e)	0
S24	Flow, mgd	59	62.5909	0.0006	2	d	d
	pH, Standard Units	7	8.4	7.4	d	9/ 4(e)	0
	Total Residual Chlorine	1	<0.05	<0.05	<0.05	0.5	0
S25	Flow, mgd	5	0.216	0.0072	0.077	d	d
	pH, Standard Units	5	8.1	7.4	d	10/ 6(e)	0
S26	Flow, mgd	9	0.2592	0.0004	0.05	d	d
	pH, Standard Units	6	8.1	7.3	d	10/ 6(e)	0
S27	Flow, mgd	6	0.5184	0.0008	0.1	d	d
	pH, Standard Units	4	8.4	7.2	d	10/ 6(e)	0
S28	Flow, mgd	6	0.6912	0.0004	0.82	d	d
	pH, Standard Units	4	8.1	7.3	d	10/ 6(e)	0
S29	Flow, mgd	7	0.1728	0.0006	0.0417	d	d
	pH, Standard Units	5	8.8	7.4	d	10/ 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.

Table 2.31. Y-12 Plant Category III Outfalls
From: 1999/01/01 To: 1999/12/31

Outfall	Parameter	Number of Samples	Concentration(a) Max	Min	Avg	Reference Value(b)	Number of Values Exceeding Reference
002	Flow, mgd	15	0.216	0.0432	0.0985	d	d
	pH, Standard Units	13	8.4	7.1	d	9/ 4(e)	0
	Total Residual Chlorine	14	0.06	<0.05	<0.05	0.5	0
034	Flow, mgd	17	0.5409	0.0228	0.161	d	d
	pH, Standard Units	17	8.3	7.1	d	9/ 4(e)	0
	Total Residual Chlorine	13	<0.05	<0.05	<0.05	0.5	0
042	Flow, mgd	14	0.0238	0.0003	0.01	d	d
	pH, Standard Units	13	8.5	7.5	d	9/ 4(e)	0
	Total Residual Chlorine	12	<0.05	<0.05	<0.05	0.5	0
047	Flow, mgd	16	0.0576	0.0015	0.022	d	d
	pH, Standard Units	14	8.2	7.1	d	9/ 4(e)	0
	Total Residual Chlorine	12	<0.05	<0.05	<0.05	0.5	0
048	Flow, mgd	14	0.0864	0.00005	0.01	d	d
	pH, Standard Units	12	8.1	7.2	d	9/ 4(e)	0
	Total Residual Chlorine	12	<0.05	<0.05	<0.05	0.5	0
054	Flow, mgd	17	0.0216	0.0011	0.0055	d	d
	pH, Standard Units	14	8.9	7.5	d	9/ 4(e)	0
	Total Residual Chlorine	13	<0.05	<0.05	<0.05	0.5	0
071	Flow, mgd	15	0.013	0.0038	0.0097	d	d
	pH, Standard Units	13	8.4	7.5	d	9/ 4(e)	0
	Total Residual Chlorine	13	<0.05	<0.05	<0.05	0.5	0
109	Flow, mgd	19	0.19	0.0432	0.11	d	d
	pH, Standard Units	19	8.3	7.2	d	9/ 4(e)	0
	Total Residual Chlorine	13	<0.05	<0.05	<0.05	0.5	0

Table 2.31. Y-12 Plant Category III Outfalls (continued)

Outfall	Parameter	Number of Samples	Concentration(a) Max	Min	Avg	Reference Value(b)	Number of Values Exceeding Reference
113	Flow, mgd	17	0.6949	0.0003	0.04	d	d
	pH, Standard Units	15	8.7	7.4	d	9/ 4(e)	0
	Total Residual Chlorine	13	<0.05	<0.05	<0.05	0.5	0
114	Flow, mgd	15	0.0228	0.0023	0.012	d	d
	pH, Standard Units	14	8.5	7.0	d	9/ 4(e)	0
	Total Residual Chlorine	14	<0.05	<0.05	<0.05	0.5	0
S05	Flow, mgd	13	0.2592	0.0005	0.05	d	d
	pH, Standard Units	14	7.8	6.7	d	9/ 4(e)	0
	Total Residual Chlorine	1	<0.05	<0.05	<0.05	0.5	0
S14	Flow, mgd	15	0.425	0.0072	0.11	d	d
	pH, Standard Units	15	8.5	7.2	d	9/ 4(e)	0
	Total Residual Chlorine	1	<0.05	<0.05	<0.05	0.5	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 2.32. Y-12 Plant Discharge Point S17, UNNAMED TRIBUTARY TO THE CLINCH RIVER
From: 1999/01/01 To: 1999/12/31

Parameter	Number of Samples	Concentration Max	+/-	Min	+/-	Median	+/-	Standard Error	Percentage of DCG	Total Curies
Alpha activity (pCi/L)	12	11.0	4.6	-0.34*	2.5	3.0	e	1.0	e	1.2E-03
Americium-241 (pCi/L)	12	0.46	.24	0.05*	.15	0.3	e	0.04	0.9	9E-05
Beta activity (pCi/L)	12	8.5*	5.6	-2.4*	5.1	1.9	e	1.1	e	9.4E-04
Cobalt-60 (pCi/L)	12	2.1*	2.2	-1.0*	2.2	0.40	e	0.25	0.0080	1.9E-04
Cesium-137 (pCi/L)	12	2.8*	2.3	-2.5*	2.2	0.26	e	0.46	0.0088	-5.3E-06
Gamma Activity (pCi/L)	12	44.0	17	-5.7*	15	11	e	4.0	e	4.1E-03
Neptunium-237 (pCi/L)	12	0.45	.25	-0.03*	.059	0.1	e	0.04	0.4	5E-05
Plutonium-238 (pCi/L)	12	0.2*	.18	-0.069*	.1	0.08	e	0.02	0.2	2E-05
Plutonium-239/240 (pCi/L)	12	0.18*	.17	-0.052*	.061	0.0095	e	0.018	0.032	8.3E-06
Radium-226 (pCi/L)	5	1.0	.4	-0.21*	.46	0.092*	.16	0.21	0.092	7.7E-05
Radium-228 (pCi/L)	12	21.0	10	-9.1*	14	1.5	e	2.5	1.5	4.8E-04
Strontium-89/90 (pCi/L)	12	10.0	2.9	-0.085*	2.2	0.90	e	0.78	e	6.8E-04
Total Radium Alpha (pCi/L)	12	2.0	1.5	-0.038*	.79	0.22	e	0.16	e	1.4E-04
Technetium-99 (pCi/L)	12	33.0	7.1	-11.0*	8.2	0.900	e	3.27	0.000900	1.58E-03
Thorium-228 (pCi/L)	12	1.5	.77	-0.24*	.36	0.14	e	0.13	0.035	7.4E-05
Thorium-230 (pCi/L)	12	1.1	.66	-0.12*	.24	0.43	e	0.088	0.14	1.6E-04
Thorium-232 (pCi/L)	12	0.075*	.12	-0.086*	.12	0.0	e	0.014	0.0	-3.2E-06
Thorium-234 (pCi/L)	12	0.77	.28	0.18	.14	0.39	e	0.043	0.0039	1.5E-04
Tritium (pCi/L)	12	820.0	500	-250.0*	530	180.0	e	92	0.0090	7.8E-02
Uranium (mg/L)	12	0.002	.001	<0.001	e	0.001	e	0.0001	e	e
Uranium-234 (pCi/L)	12	8.4	1.3	0.24	.17	1.2	e	0.72	0.24	8.2E-04
Uranium-235 (pCi/L)	12	0.31	.2	-0.023*	.047	0.056	e	0.031	0.0093	3.5E-05
Uranium-238 (pCi/L)	12	0.77	.28	0.18	.14	0.39	e	0.043	0.065	1.5E-04
U235 Weight %	6	8.89		1.3	.1	2.9	e	1.2	e	1.5E-04

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

Table 2.33. Y-12 Plant Discharge Point S19, ROGERS QUARRY
From: 1999/01/01 To: 1999/12/31

Parameter	Number of Samples	Concentration(a) Max	Min	Avg	Reference Value(b)	Number of Values Exceeding Reference
Flow, mgd	328	1.4572	0.0209	0.2103	d	d
pH, Std Unit	14	8.3	7.3	d	9/ 6(e)	0
Silver, mg/L	12	<0.02	<0.02	<0.02	d	d
Aluminum, mg/L	12	<0.2	<0.2	<0.2	d	d
Arsenic, mg/L	12	<0.2	<0.2	<0.2	d	d
Boron, mg/L	12	<0.1	<0.1	<0.1	d	d
Barium, mg/L	12	0.0557	0.0453	0.0511	d	d
Beryllium, mg/L	12	<0.001	<0.001	<0.001	d	d
Calcium, mg/L	12	40.4	34.9	38.4	d	d
Cadmium, mg/L	12	<0.01	<0.01	<0.01	d	d
Cobalt, mg/L	12	<0.02	<0.02	<0.02	d	d
Chromium, mg/L	12	<0.02	<0.02	<0.02	d	d
Copper, mg/L	12	<0.02	<0.02	<0.02	d	d
Iron, mg/L	12	0.0951	<0.05	<0.06	d	d
Potassium, mg/L	12	<2.0	<2.0	<2.0	d	d
Lithium, mg/L	12	0.016	0.0111	0.014	d	d
Magnesium, mg/L	12	10.2	9.25	9.76	d	d
Manganese, mg/L	12	0.227	0.0162	0.0977	d	d
Molybdenum, mg/L	12	<0.05	<0.05	<0.05	d	d
Sodium, mg/L	12	1.92	1.38	1.67	d	d
Nickel, mg/L	12	<0.05	<0.05	<0.05	d	d
Lead, mg/L	12	<0.1	<0.1	<0.1	d	d
Antimony, mg/L	12	<0.2	<0.2	<0.2	d	d
Strontium, mg/L	12	0.224	0.193	0.210	d	d
Thallium, mg/L	12	<0.2	<0.2	<0.2	d	d
Vanadium, mg/L	12	<0.02	<0.02	<0.02	d	d
Zinc, mg/L	12	<0.05	<0.05	<0.05	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 2.34. Y-12 Plant Discharge Point S19, ROGERS QUARRY
From: 1999/01/01 To: 1999/12/31

Parameter	Number of Samples	Concentration(a) Max	Min	Avg	Reference Value(b)	Number of Values Exceeding Reference
Flow, mgd	328	1.4572	0.0209	0.2103	d	d
pH, Std Unit	14	8.3	7.3	d	9/ 6(e)	0
Silver, mg/L	12	<0.02	<0.02	<0.02	d	d
Aluminum, mg/L	12	<0.2	<0.2	<0.2	d	d
Arsenic, mg/L	12	<0.2	<0.2	<0.2	d	d
Boron, mg/L	12	<0.1	<0.1	<0.1	d	d
Barium, mg/L	12	0.0557	0.0453	0.0511	d	d
Beryllium, mg/L	12	<0.001	<0.001	<0.001	d	d
Calcium, mg/L	12	40.4	34.9	38.4	d	d
Cadmium, mg/L	12	<0.01	<0.01	<0.01	d	d
Cobalt, mg/L	12	<0.02	<0.02	<0.02	d	d
Chromium, mg/L	12	<0.02	<0.02	<0.02	d	d
Copper, mg/L	12	<0.02	<0.02	<0.02	d	d
Iron, mg/L	12	0.0951	<0.05	<0.06	d	d
Potassium, mg/L	12	<2.0	<2.0	<2.0	d	d
Lithium, mg/L	12	0.016	0.0111	0.014	d	d
Magnesium, mg/L	12	10.2	9.25	9.76	d	d
Manganese, mg/L	12	0.227	0.0162	0.0977	d	d
Molybdenum, mg/L	12	<0.05	<0.05	<0.05	d	d
Sodium, mg/L	12	1.92	1.38	1.67	d	d
Nickel, mg/L	12	<0.05	<0.05	<0.05	d	d
Lead, mg/L	12	<0.1	<0.1	<0.1	d	d
Antimony, mg/L	12	<0.2	<0.2	<0.2	d	d
Strontium, mg/L	12	0.224	0.193	0.210	d	d
Thallium, mg/L	12	<0.2	<0.2	<0.2	d	d
Vanadium, mg/L	12	<0.02	<0.02	<0.02	d	d
Zinc, mg/L	12	<0.05	<0.05	<0.05	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 2.35. Y-12 Plant Discharge Point S19, ROGERS QUARRY
From: 1999/01/01 To: 1999/12/31

Parameter	Number of Samples	Concentration Max	+/-	Min	+/-	Median	+/-	Standard Error	Percentage of DCG	Total Curies	Average
Alpha activity (pCi/L)	12	43.0	8.8	0.0*	2.8	1.6	e	3.5	e	1.5E-03	5.1
Americium-241 (pCi/L)	12	0.44	.23	0.056*	.2	0.22	e	0.032	0.73	6.1E-05	0.21
Beta activity (pCi/L)	12	23.0	7	-2.0*	5.3	2.4	e	1.9	e	1.1E-03	3.8
Cobalt-60 (pCi/L)	12	3.4*	2.1	-0.47*	2.1	0.82	e	0.37	0.016	3.5E-04	1.2
Cesium-137 (pCi/L)	12	3.5	2.5	-0.96*	2.1	0.048	e	0.39	0.0016	1.6E-04	0.55
Gamma Activity (pCi/L)	12	23.0*	16	-11.0*	15	9.25	e	2.86	e	1.95E-03	6.71
Neptunium-237 (pCi/L)	12	0.49	.29	-0.069*	.08	0.14	e	0.046	0.47	4.3E-05	0.15
Plutonium-238 (pCi/L)	12	0.16*	.15	-0.1*	.091	0.02	e	0.02	0.04	2E-06	0.006
Plutonium-239/240 (pCi/L)	12	0.17	.12	-0.015*	.03	0.018	e	0.014	0.062	9.1E-06	0.031
Radium-226 (pCi/L)	5	0.61*	2.4	-0.56*	2.5	-0.12*	.31	0.20	-0.12	-2.7E-05	-0.092
Radium-228 (pCi/L)	12	21.0	12	-14.0*	13	2.0	e	2.89	2.0	1.33E-03	4.58
Strontium-89/90 (pCi/L)	12	13.0	2.9	-2.5*	2.3	1.4	e	1.1	e	5.6E-04	1.9
Total Radium Alpha (pCi/L)	12	0.71	.71	-0.082*	.25	0.32	e	0.087	e	9.3E-05	0.32
Technetium-99 (pCi/L)	12	29.0	7	-11.0*	8.2	1.86	e	3.17	0.0019	8.96E-04	3.08
Thorium-228 (pCi/L)	12	0.2	.18	-0.33*	.19	-0.04	e	0.05	-0.01	-6.E-06	-0.02
Thorium-230 (pCi/L)	12	0.87	.39	-0.1*	.26	0.2	e	0.09	0.07	9E-05	0.3
Thorium-232 (pCi/L)	12	0.09*	.13	-0.093*	.11	0.006	e	0.02	0.01	4E-06	0.01
Thorium-234 (pCi/L)	12	11.0	1.7	0.082*	.09	0.14	e	0.91	0.0015	3.6E-04	1.2
Tritium (pCi/L)	12	750.0*	530	-340.0*	500	66.0	e	98.0	0.0033	2.81E-02	96.6
Uranium (mg/L)	12	<0.001		<0.001		<0.001	e	0.0	e	e	<0.001
Uranium-234 (pCi/L)	12	4.0	.84	0.037*	.089	0.19	e	0.32	0.038	1.5E-04	0.50
Uranium-235 (pCi/L)	12	0.13*	.17	-0.023*	.046	0.010	e	0.012	0.0018	6.2E-06	0.021
Uranium-238 (pCi/L)	12	11.0	1.7	0.08*	.09	0.145	e	0.9035	0.0242	3.09E-04	1

(e) Not applicable
* Below the minimum detectable activity

Table 2.36. Y-12 Plant Discharge Point SS6, SANITARY SEWER STATION 6
From: 1999/01/01 To: 1999/12/31

Parameter	Number of Samples	Concentration(a) Max	Min	Avg	Reference Value(b)	Number of Values Exceeding Reference
Flow, gpd	365	1969725.0	388349.0	677899.2	d	d
pH, Std Unit	53	8.5	6.8	d	9/ 6(e)	0
Silver, mg/L	53	0.0614	<0.0002	<0.004	0.1	0
Arsenic, mg/L	53	0.0042	<0.002	<0.002	0.0045	0
Boron, mg/L	53	<0.1	<0.1	<0.1	d	d
Beryllium, mg/L	53	<0.001	<0.0002	<0.0009	d	d
Benzene, mg/L	13	0.01U	0.005U	0.01U	0.015	0
Biochemical Oxygen Demand	53	61.0	10.0	34.4	300	0
Cadmium, mg/L	53	<0.001	<0.0002	<0.0005	0.0045	0
Chromium, mg/L	53	0.0162	<0.001	<0.002	0.075	0
Copper, mg/L	53	0.0926	0.0086	0.031	0.092	1
Cyanide, mg/L	13	<0.01	<0.01	<0.01	0.062	0
Iron, mg/L	53	2.27	0.225	0.686	15	0
Mercury, mg/L	84	0.0054	<0.0002	<0.0009	0.035	0
Kjeldahl Nitrogen, mg/L	53	16.3	0.362	<9.36	90	0
Methylene chloride, mg/L	13	0.01U	0.005U	0.01U	0.041	0
Manganese, mg/L	53	0.0838	0.0204	0.0398	d	d
Nickel, mg/L	53	0.0114	<0.002	<0.004	0.032	0
Oil and Grease, mg/L	53	14.4	<5.6	<6.4	50	0
Lead, mg/L	53	0.0042	<0.0002	<0.001	0.074	0
Phenols - Total Recoverable,	53	0.0196	<0.005	<0.01	0.5	0
Selenium, mg/L	53	<0.2	<0.004	<0.05	d	d
Suspended Solids, mg/L	53	107.0	12.8	52.7	300	0
Toluene, mg/L	13	0.01U	0.005U	0.01U	0.02	0
Trichloroethene, mg/L	13	0.01U	0.001	0.009U	0.027	0
Zinc, mg/L	53	0.302	0.0381	0.117	0.75	0

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

Table 2.37. Y-12 Plant Discharge Point SS6, SANITARY SEWER STATION 6
From: 1999/01/01 To: 1999/12/31

Parameter	Number of Samples	Concentration Max	+/-	Min	+/-	Median	+/-	Standard Error	Percentage of DCG	Total Curies
Alpha activity (pCi/L)	52	10.0	5.6	-2.4*	3	3.0	e	0.35	e	2.8E-03
Beta activity (pCi/L)	52	34.0*	53	-10.0*	44	5.25	e	0.776	e	5.36E-03
Cobalt-60 (pCi/L)	1	0.19*	2.2	0.19*	2.2	0.19*	2.2	e	0.0038	1.8E-04
Cesium-137 (pCi/L)	1	1.9*	2.1	1.9*	2.1	1.9*	2.1	e	0.063	1.8E-03
Gamma Activity (pCi/L)	52	28.0	17	-17.0*	16	6.3	e	1.3	e	5.7E-03
Plutonium-238 (pCi/L)	1	-0.01*	.072	-0.01*	.072	-0.01*	.072	e	-0.02	-9E-06
Plutonium-239/240 (pCi/L)	1	0.0*	0	0.0*	0	0.0*	0	e	0.0	0.00E+00
Radium-228 (pCi/L)	1	-5.7*	12	-5.7*	12	-5.7*	12	e	-5.7	-5.3E-03
Uranium (mg/L)	52	0.009	.001	0.002	.001	0.004	e	0.0002	e	e
Uranium-234 (pCi/L)	52	4.7	.82	0.67	.28	1.9	e	0.15	0.38	2.0E-03
Uranium-235 (pCi/L)	52	0.28*	.23	-0.024*	.048	0.066	e	0.0083	0.011	7.2E-05
Uranium-238 (pCi/L)	52	2.9	.6	0.27	.18	1.0	e	0.080	0.18	1.1E-03
U-235 Weight %	52	2.67	.1	0.67	.1	0.94	e	0.039	e	e

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

Table 2.38. Y-12 Plant Discharge Point STATION 304, BEAR CREEK AT HIGHWAY 95
From: 1999/01/01 To: 1999/12/31

Parameter	Number of Samples	Concentration(a) Max	Min	Avg	Reference Value(b)	Number of Values Exceeding Reference
Flow, mgd	365	164.1602	0.4007	4.4167	d	d
pH, Std Unit	24	8.6	6.8	d	9/ 6(e)	0
Silver, mg/L	12	<0.02	<0.02	<0.02	0.0041	0
Aluminum, mg/L	12	3.4	<0.2	<0.6	d	d
Arsenic, mg/L	12	<0.2	<0.2	<0.2	0.0014	0
Boron, mg/L	12	0.117	<0.1	<0.1	d	d
Barium, mg/L	12	0.0653	0.0416	0.0523	d	d
Beryllium, mg/L	12	<0.001	<0.001	<0.001	d	d
Calcium, mg/L	12	54.6	14.1	36.4	d	d
Cadmium, mg/L	12	<0.01	<0.01	<0.01	0.0039	0
Chloride, mg/L	12	12.2	1.487	6.10	d	d
Chromium, mg/L	12	<0.02	<0.02	<0.02	d	d
Copper, mg/L	12	<0.02	<0.02	<0.02	0.0177	0
Iron, mg/L	12	2.48	0.0545	0.436	d	d
Mercury, mg/L	12	<0.0002	<0.0001	<0.0002	0.000051	0
Potassium, mg/L	12	2.58	<2.0	<2.1	d	d
Lithium, mg/L	12	0.033	<0.01	<0.01	d	d
Magnesium, mg/L	12	19.1	3.14	11.6	d	d
Manganese, mg/L	12	0.173	0.0151	0.0561	d	d
Molybdenum, mg/L	12	<0.05	<0.05	<0.05	d	d
Sodium, mg/L	12	6.25	1.24	3.40	d	d
Nickel, mg/L	12	<0.05	<0.05	<0.05	1.418	0
Nitrite as Nitrogen, mg/L	12	<0.6	<0.015	<0.08	d	d
Nitrate as Nitrogen, mg/L	12	5.4	0.268	1.6	d	d
Lead, mg/L	12	<0.1	<0.1	<0.1	0.0817	0
Phenols - Total Recoverable,	12	<0.005	<0.005	<0.005	d	d
Antimony, mg/L	12	<0.2	<0.2	<0.2	4.30	0

(a) Units in mg/L unless otherwise indicated.
(b) Tennessee Water Quality Criteria
(c) Flow during operations and/or discharging.
(d) Not applicable.
(e) Maximum value/minimum value.

Table 2.39. Y-12 Plant Discharge Point STATION 304, BEAR CREEK AT HIGHWAY 95
From: 1999/01/01 To: 1999/12/31

Parameter	Number of Samples	Concentration(a) Max	Min	Avg	Reference Value(b)	Number of Values Exceeding Reference
Selenium, mg/L	12	<0.2	<0.2	<0.2	0.02	0
Strontium, mg/L	12	0.0899	0.0363	0.0587	d	d
Sulfate, mg/L	12	18.0	3.002	9.28	d	d
Suspended Solids, mg/L	12	62.8	<1.0	<12	d	d
Thorium, mg/L	12	<0.2	<0.2	<0.2	d	d
Titanium, mg/L	12	<0.05	<0.05	<0.05	d	d
Thallium, mg/L	12	<0.2	<0.2	<0.2	0.0063	0
Vanadium, mg/L	12	<0.02	<0.02	<0.02	d	d
Zinc, mg/L	12	<0.05	<0.05	<0.05	0.117	0
Zirconium, mg/L	12	<0.2	<0.2	<0.2	d	d

(a) Units in mg/L unless otherwise indicated.
(b) Tennessee Water Quality Criteria
(c) Flow during operations and/or discharging.
(d) Not applicable.
(e) Maximum value/minimum value.

Table 2.40. Y-12 Plant Discharge Point STATION 304, BEAR CREEK AT HIGHWAY 95
From: 1999/01/01 To: 1999/12/31

Parameter	Number of Samples	Concentration Max	+/-	Min	+/-	Median	+/-	Standard Error	Percentage of DCG	Total Curies	Average
Alpha activity (pCi/L)	12	36.0	8	5.2	3.6	14	e	2.6	e	9.3E-02	15
Americium-241 (pCi/L)	12	0.35	.25	0.09*	.16	0.2	e	0.02	0.7	1E-03	0.2
Beta activity (pCi/L)	12	66.0	8.9	1.8*	5.7	12	e	5.1	e	1.1E-01	18
Cobalt-60 (pCi/L)	12	3.9*	2.1	-0.11*	1.6	1.3	e	0.33	0.026	7.7E-03	1.2
Cesium-137 (pCi/L)	12	1.5*	2.4	-0.97*	2.3	0.31	e	0.21	0.010	2.3E-03	0.38
Gamma Activity (pCi/L)	12	34.0	16	-6.3*	15	2.3	e	3.2	e	2.9E-02	4.8
Neptunium-237 (pCi/L)	12	0.43*	.37	-0.027*	.078	0.14	e	0.038	0.45	9.6E-04	0.16
Plutonium-238 (pCi/L)	12	0.27*	.23	-0.061*	.16	0.076	e	0.031	0.19	4.0E-04	0.066
Plutonium-239/240 (pCi/L)	12	0.097*	.13	-0.16*	.19	0.0	e	0.018	0.0	2.8E-12	0.0
Radium-226 (pCi/L)	4	0.26*	.27	-0.28*	1.5	-0.037	e	0.12	-0.037	-1.4E-04	-0.024
Radium-228 (pCi/L)	12	13.0	13	0.56*	.77	5.0	e	1.1	5.0	3.1E-02	5.0
Strontium-89/90 (pCi/L)	12	8.8	2.4	-2.0*	2.7	0.75	e	0.80	e	7.9E-03	1.3
Total Radium Alpha (pCi/L)	12	1.4*	1	-0.18*	.54	0.41	e	0.13	e	2.9E-03	0.48
Technetium-99 (pCi/L)	12	18.0	8	0.19*	7.5	10	e	2.0	0.010	6.0E-02	9.8
Thorium-228 (pCi/L)	12	0.8	.42	-0.56*	.66	0.1	e	0.09	0.03	7E-04	0.1
Thorium-230 (pCi/L)	12	1.7	.63	-0.02*	.22	0.2	e	0.1	0.07	2E-03	0.3
Thorium-232 (pCi/L)	12	0.079*	.19	-0.023*	.046	0.028	e	0.0091	0.056	1.6E-04	0.026
Thorium-234 (pCi/L)	12	27.0	3	1.7	.46	10	e	1.9	0.10	6.5E-02	11
Tritium (pCi/L)	12	640.0*	550	-540.0*	520	67.0	e	92.4	0.0034	9.17E-01	150
Uranium (mg/L)	12	0.08	.008	0.006	.001	0.03	e	0.006	e	e	0.03
Uranium-234 (pCi/L)	12	11.0	1.4	0.97	.34	4.6	e	0.73	0.93	3.0E-02	5.0
Uranium-235 (pCi/L)	12	0.69	.28	0.065*	.092	0.18	e	0.047	0.031	1.4E-03	0.22
Uranium-238 (pCi/L)	12	27.0	3	1.7	.46	10	e	1.9	1.7	6.5E-02	11
U235 Weight %	12	0.57	.05	0.34	.05	0.37	e	0.020	e	e	0.39

(e) Not applicable
*Below the minimum detectable activity

Table 2.41. CONSTITUENTS DETECTED IN GROUNDWATER AT THE Y-12 PLANT SITE 1999

REGIME=BC AREA NAME=Bear Creek Burial Grounds WMA

COMPOUND	UNITS	FILTERED STATUS	# SAMPLES	# DETECTED	MAXIMUM DETECTED MMT.	MINIMUM DETECTED MMT.	AVERAGE DETECTED MMTS.	REFERENCE VALUE	# MMTS. > REF
Chloride	(mg/L)		20	20	1556	0.87	216.6374	250	4
Fluoride	(mg/L)		20	14	6.48	0.11	3.245	4	6
Nitrate Nitrogen	(mg/L)		20	2	0.21	0.04766	0.12883	10	0
Sulfate	(mg/L)		20	20	47.36	0.38	17.31465	250	0
Aluminum, ICAP	(mg/L)		20	8	4.17	0.209	1.10875	0.2	8
Antimony, PMS	(mg/L)		20	1	0.000828	0.000828	0.000828	0.006	0
Arsenic, PMS	(mg/L)		20	3	0.0295	0.0121	0.017967	0.05	0
Arsenic, PMS	(mg/L)	FILTERED	11	2	0.0326	0.0146	0.0236	0.05	0
Barium, ICAP	(mg/L)		20	20	0.905	0.0333	0.154995	2	0
Barium, ICAP	(mg/L)	FILTERED	11	11	0.873	0.0322	0.199527	2	0
Boron, ICAP	(mg/L)		20	14	9.32	0.27	1.156857	NR	NA
Boron, ICAP	(mg/L)	FILTERED	11	10	8.63	0.32	1.3933	NR	NA
Cadmium, PMS	(mg/L)		20	1	0.000698	0.000698	0.000698	0.005	0
Cadmium, PMS	(mg/L)	FILTERED	11	2	0.000914	0.000658	0.000786	0.005	0
Calcium, ICAP	(mg/L)		20	20	140	1.04	26.504	NR	NA
Calcium, ICAP	(mg/L)	FILTERED	11	11	137	1.1	18.89727	NR	NA
Chromium, ICAP	(mg/L)		20	1	0.0369	0.0369	0.0369	0.1	0
Copper, ICAP	(mg/L)	FILTERED	11	1	0.022	0.022	0.022	1.3	0
Iron, ICAP	(mg/L)		20	18	6.8	0.0665	0.7456	0.3	7
Iron, ICAP	(mg/L)	FILTERED	11	4	5	0.0667	1.3063	0.3	1
Lead, PMS	(mg/L)		20	11	0.00198	0.000509	0.000818	0.015 c	0
Lead, PMS	(mg/L)	FILTERED	11	4	0.00135	0.00054	0.000761	0.015 c	0
Lithium, ICAP	(mg/L)		20	15	0.438	0.0623	0.224793	NR	NA
Lithium, ICAP	(mg/L)	FILTERED	11	11	0.442	0.0617	0.210682	NR	NA
Magnesium, ICAP	(mg/L)		20	20	15.4	0.234	3.89695	NR	NA
Magnesium, ICAP	(mg/L)	FILTERED	11	11	15.2	0.204	3.378	NR	NA
Manganese, ICAP	(mg/L)		20	12	2.34	0.00551	0.302	0.05	5
Manganese, ICAP	(mg/L)	FILTERED	11	4	2.28	0.00575	0.772295	0.05	2
Nickel, ICAP	(mg/L)		20	1	0.0533	0.0533	0.0533	0.1 d	0
Nickel, ICAP	(mg/L)	FILTERED	11	1	0.0531	0.0531	0.0531	0.1 d	0
Potassium, ICAP	(mg/L)		20	13	7.21	2.02	3.201538	NR	NA
Potassium, ICAP	(mg/L)	FILTERED	11	9	6.09	2.03	3.385556	NR	NA
Selenium, PMS	(mg/L)		20	6	0.159	0.0154	0.06465	0.05	4
Selenium, PMS	(mg/L)	FILTERED	11	5	0.176	0.0108	0.07774	0.05	4
Sodium, ICAP	(mg/L)		20	20	1230	1.82	287.9555	NR	NA

Table 2.41. (continued)

COMPOUND	UNITS	FILTERED STATUS	# SAMPLES	# DETECTED	MAXIMUM DETECTED MMT.	MINIMUM DETECTED MMT.	AVERAGE DETECTED MMTS.	REFERENCE VALUE	# MMTS. > REF
Sodium, ICAP	(mg/L)	FILTERED	11	11	1210	7.4	462.3273	NR	NA
Strontium, ICAP	(mg/L)		20	20	1.13	0.0174	0.25757	NR	NA
Strontium, ICAP	(mg/L)	FILTERED	11	11	1.1	0.0768	0.356982	NR	NA
Uranium, PMS	(mg/L)		20	5	0.0363	0.000862	0.008476	NR	NA
Uranium, PMS	(mg/L)	FILTERED	11	2	0.00212	0.00076	0.00144	NR	NA
Zinc, ICAP	(mg/L)		20	7	0.225	0.065	0.107643	5	0
Conductivity, field measurement	(umhos/cm)		20	NA	5070	35	1062.8	NR	NA
Dissolved Oxygen, field measurement	(ppm)		20	NA	8.3	0.08	3.2115	NR	NA
pH, field measurement	(pH)		20	NA	9.63	5.52	7.5385	6.5/8.5	7
REDOX, field measurement	(mV)		20	NA	263	-244	102.4	NR	NA
Static Water Level	(ft - toc)		20	NA	-5.89	-35.1	-22.286	NR	NA
Temperature, field measurement	(Deg C)	20	NA	24.7	11.4	16.08	NR	NA	
Alkalinity as CO3	(mg/L)		20	10	112	28	71.2	NR	NA
Alkalinity as HCO3	(mg/L)		20	20	698	10	329.1	NR	NA
Conductivity	(umhos/cm)		20	20	5630	32	1395.655	NR	NA
Dissolved Solids	(mg/L)		20	20	3130	32	832.1	500	10
pH	(pH)		20	20	9.3 L	5.35 L	7.8625	6.5/8.5	13
Total Suspended Solids	(mg/L)		20	6	23	1	9	NR	NA
Turbidity	(NTU)		20	20	49.6	0.163	8.08195	1	12
Gross Alpha	(pCi/L)	20	20	5	-26	-2.3342	15 f	0	
Gross Beta	(pCi/L)	20	20	45	-22	3.5715	50 a	0	
1,1-Dichloroethane	(ug/L)		20	7	410 D	2 J	76.42857	NR	NA
1,1-Dichloroethene	(ug/L)		20	3	15	8	12	7	3
1,2-Dichloroethene (Total)	(ug/L)		20	8	380 D	10 J	70.625	NR b	NA
Acetone	(ug/L)		20	1	4 J	4 J	4	NR	NA
Acrylonitrile	(ug/L)		20	1	5 J	5 J	5	NR	NA
Benzene	(ug/L)		20	1	6	6	6	5	1
Carbon disulfide	(ug/L)		20	1	7	7	7	NR	NA
Chloroethane	(ug/L)		20	1	12	12	12	NR	NA
cis-1,2-Dichloroethene	(ug/L)		20	8	380 D	7	69.875	70	2
Styrene	(ug/L)		20	1	2 J	2 J	2	100	0
Tetrachloroethene	(ug/L)		20	5	470 D	2 J	167.8	5	2
trans-1,2-Dichloroethene	(ug/L)		20	2	3 J	3 J	3	100	0
Trichloroethene	(ug/L)		20	6	150	2 J	46.83333	5	2
Vinyl chloride	(ug/L)		20	6	150	5 J	38	2	6

Table 2.42. CONSTITUENTS DETECTED IN GROUNDWATER AT THE Y-12 PLANT SITE 1999

REGIME=BC AREA NAME=Exit Pathway Monitoring Location A

COMPOUND	UNITS	FILTERED STATUS	# SAMPLES	# DETECTED	MAXIMUM DETECTED MMT.	MINIMUM DETECTED MMT.	AVERAGE DETECTED MMTS.	REFERENCE VALUE	# MMTS. > REF
Chloride	(mg/L)		8	8	143	4.586	51.46825	250	0
Fluoride	(mg/L)		8	6	0.21	0.11	0.151667	4	0
Nitrate Nitrogen	(mg/L)		8	8	4.88	0.2896	2.0943	10	0
Sulfate	(mg/L)		8	8	29	10.74	19.64375	250	0
Aluminum, ICAP	(mg/L)		8	2	1.71	1.7	1.705	0.2	2
Antimony, PMS	(mg/L)		8	1	0.0009	0.0009	0.0009	0.006	0
Arsenic, PMS	(mg/L)		8	1	0.0058	0.0058	0.0058	0.05	0
Barium, ICAP	(mg/L)		8	8	0.114	0.0873	0.100763	2	0
Cadmium, PMS	(mg/L)		8	2	0.00122	0.0012	0.00121	0.005	0
Calcium, ICAP	(mg/L)		8	8	99.6 k	45.5	73.4	NR	NA
Chromium, ICAP	(mg/L)		8	2	0.257	0.103	0.18	0.1	2
Iron, ICAP	(mg/L)		8	5	5.66	0.119	3.0398	0.3	4
Lead, PMS	(mg/L)		8	2	0.0124	0.00743	0.009915	0.015 c	0
Lithium, ICAP	(mg/L)		8	2	0.0278	0.0253	0.02655	NR	NA
Magnesium, ICAP	(mg/L)		8	8	30	15.8	21.2	NR	NA
Manganese, ICAP	(mg/L)		8	6	0.264	0.0138	0.13975	0.05	4
Nickel, ICAP	(mg/L)		8	2	0.247	0.0997	0.17335	0.1 d	1
Potassium, ICAP	(mg/L)		8	2	7.33	7.19	7.26	NR	NA
Sodium, ICAP	(mg/L)		8	8	68.8 k	3.35	26.9525	NR	NA
Strontium, ICAP	(mg/L)		8	8	0.15	0.0964	0.1226	NR	NA
Uranium, PMS	(mg/L)		8	8	0.0446	0.00358	0.017139	NR	NA
Zinc, ICAP	(mg/L)		8	1	0.0547	0.0547	0.0547	5	0
Conductivity, field measurement	(umhos/cm)		8	NA	815	340	583.875	NR	NA
Dissolved Oxygen, field measurement	(ppm)		8	NA	3.62	0.22	1.4275	NR	NA
pH, field measurement	(pH)		8	NA	7.77	6.52	7.295	6.5/8.5	0
REDOX, field measurement	(mV)		8	NA	190	-3	81.375	NR	NA
Static Water Level	(ft - toc)		8	NA	-6.93	-88.8	-29.9475	NR	NA
Temperature, field measurement	(Deg C)	8	NA	19.9	13.1	15.1875	NR	NA	
Alkalinity as HCO3	(mg/L)		8	8	314	158	232.5	NR	NA
Conductivity	(umhos/cm)		8	8	937	388	629.5	NR	NA
Dissolved Solids	(mg/L)		8	8	509	215	363.5	500	1
pH	(pH)		8	8	7.76 L	7.37 L	7.58125	6.5/8.5	0
Total Suspended Solids	(mg/L)		8	4	217	1	73.75	NR	NA
Turbidity	(NTU)		8	8	135	0.377	38.35188	1	5
Gross Alpha	(pCi/L)	8	8	26	4.9	12.2125	15 f	2	
Gross Beta	(pCi/L)	8	8	28	7.2	16.4	50 a	0	
Acetone	(ug/L)		8	1	5 J	5 J	5	NR	NA

Table 2.43. CONSTITUENTS DETECTED IN GROUNDWATER AT THE Y-12 PLANT SITE 1999

REGIME=BC AREA NAME=Exit Pathway Monitoring Location B

COMPOUND	UNITS	FILTERED STATUS	# SAMPLES	# DETECTED	MAXIMUM DETECTED MMT.	MINIMUM DETECTED MMT.	AVERAGE DETECTED MMTS.	REFERENCE VALUE	# MMTS. > REF
Chloride	(mg/L)		10	10	52.9	2.72	20.873	250	0
Fluoride	(mg/L)		10	6	0.32	0.14	0.203333	4	0
Nitrate Nitrogen	(mg/L)		10	10	44.6	0.98	12.6001	10	4
Sulfate	(mg/L)		10	10	36.2	2.333	17.5633	250	0
Aluminum, ICAP	(mg/L)		10	2	2.2	1.72	1.96	0.2	2
Barium, ICAP	(mg/L)		10	10	0.167	0.0292	0.077	2	0
Calcium, ICAP	(mg/L)		10	10	111	35.7	65.25	NR	NA
Chromium, ICAP	(mg/L)		10	1	0.0229	0.0229	0.0229	0.1	0
Iron, ICAP	(mg/L)		10	8	2.22	0.0883	0.882788	0.3	6
Lead, PMS	(mg/L)		10	4	0.002	0.000572	0.001353	0.015 c	0
Lithium, ICAP	(mg/L)		10	7	0.0262	0.011	0.021071	NR	NA
Magnesium, ICAP	(mg/L)		10	10	31.6	9.3	24.001	NR	NA
Manganese, ICAP	(mg/L)		10	7	0.109	0.00601	0.052073	0.05	3
Potassium, ICAP	(mg/L)		10	8	13.4	2.36	6.46	NR	NA
Sodium, ICAP	(mg/L)		10	10	19.7	1.5	9.897	NR	NA
Strontium, ICAP	(mg/L)		10	10	0.435	0.0601	0.20975	NR	NA
Uranium, PMS	(mg/L)		10	10	0.113	0.000773	0.023063	NR	NA
Conductivity, field measurement	(umhos/cm)		10	NA	899	350	545.1	NR	NA
Dissolved Oxygen, field measurement	(ppm)		10	NA	4.32	0.1	1.665	NR	NA
pH, field measurement	(pH)		10	NA	8.03	6.43	7.597	6.5/8.5	1
REDOX, field measurement	(mV)		10	NA	263	91	165.5	NR	NA
Static Water Level	(ft - toc)		12	NA	-11.89	-41.09	-26.6875	NR	NA
Temperature, field measurement	(Deg C)10		NA	18.1	10.9	14.65	NR	NA	
Alkalinity as HCO3	(mg/L)		10	10	224	166	195.8	NR	NA
Conductivity	(umhos/cm)		10	10	895	331	567.8	NR	NA
Dissolved Solids	(mg/L)		10	10	507	194	324.6	500	1
pH	(pH)		10	10	8.09 L	7.69 L	7.882	6.5/8.5	0
Total Suspended Solids	(mg/L)		10	3	16	2	10.33333	NR	NA
Turbidity	(NTU)		10	10	38.3	0.615	9.3959	1	5
Gross Alpha	(pCi/L)10		10	43	0.088	10.7018	15 f	2	
Gross Beta	(pCi/L)10		10	120	5.6	35.34	50 a	2	
1,1-Dichloroethane	(ug/L)		10	1	2 J	2 J	2	NR	NA
1,1-Dichloroethene	(ug/L)		10	2	6	4 J	5	7	0
1,2-Dichloroethene (Total)	(ug/L)		10	6	12	2 J	5.5	NR b	NA
Carbon disulfide	(ug/L)		10	1	4 J	4 J	4	NR	NA
cis-1,2-Dichloroethene	(ug/L)		10	8	12	2 J	5.125	70	0
Trichloroethene	(ug/L)		10	8	79	4 J	26.5	5	7

Table 2.44. CONSTITUENTS DETECTED IN GROUNDWATER AT THE Y-12 PLANT SITE 1999

REGIME=BC AREA NAME=Exit Pathway Monitoring Location C

COMPOUND	UNITS	FILTERED STATUS	# SAMPLES	# DETECTED	MAXIMUM DETECTED MMT.	MINIMUM DETECTED MMT.	AVERAGE DETECTED MMTS.	REFERENCE VALUE	# MMTS. > REF
Chloride	(mg/L)		8	8	92.8	5.132	44.174	250	0
Fluoride	(mg/L)		8	6	0.23	0.17	0.196667	4	0
Nitrate Nitrogen	(mg/L)		8	8	30.6	2.19	16.84525	10	6
Sulfate	(mg/L)		8	8	46.7	11.04	27.66375	250	0
Antimony, PMS	(mg/L)		8	1	0.000585	0.000585	0.000585	0.006	0
Barium, ICAP	(mg/L)		8	8	0.241	0.0492	0.137725	2	0
Calcium, ICAP	(mg/L)		8	8	163	64.5	110.1	NR	NA
Iron, ICAP	(mg/L)		8	5	2.27	0.0845	0.8195	0.3	4
Lead, PMS	(mg/L)		8	1	0.0014	0.0014	0.0014	0.015 c	0
Lithium, ICAP	(mg/L)		8	4	0.0182	0.016	0.016925	NR	NA
Magnesium, ICAP	(mg/L)		8	8	41.6 k	25	30.775	NR	NA
Manganese, ICAP	(mg/L)		8	4	0.785	0.0117	0.361	0.05	2
Potassium, ICAP	(mg/L)		8	6	3.17	2.02	2.463333	NR	NA
Sodium, ICAP	(mg/L)		8	8	26.9	1.85	15.5825	NR	NA
Strontium, ICAP	(mg/L)		8	8	1.25 k	0.0556	0.460788	NR	NA
Uranium, PMS	(mg/L)		8	7	0.0089	0.000543	0.003291	NR	NA
Conductivity, field measurement	(umhos/cm)		8	NA	930	503	754	NR	NA
Dissolved Oxygen, field measurement	(ppm)		8	NA	7.06	0.05	1.75375	NR	NA
pH, field measurement	(pH)		8	NA	7.64	6.73	7.28625	6.5/8.5	0
REDOX, field measurement	(mV)		8	NA	211	114	164	NR	NA
Static Water Level	(ft - toc)		10	NA	-9.91	-73.15	-38.504	NR	NA
Temperature, field measurement	(Deg C)8		NA	16.3	13.1	14.35	NR	NA	
Alkalinity as HCO3	(mg/L)		8	8	338	222	287.25	NR	NA
Conductivity	(umhos/cm)		8	8	1067	530	817.625	NR	NA
Dissolved Solids	(mg/L)		8	8	696	305	497.125	500	4
pH	(pH)		8	8	8.04 L	7.07 L	7.47625	6.5/8.5	0
Total Suspended Solids	(mg/L)		8	1	4	4	4	NR	NA
Turbidity	(NTU)		8	8	8.5	0.217	2.86925	1	4
Gross Alpha	(pCi/L)8		8	4.6	-0.85	1.7725	15 f	0	
Gross Beta	(pCi/L)8		8	46	3.6	27.0125	50 a	0	
1,1,1-Trichloroethane	(ug/L)		8	1	3 J	3 J	3	200	0
1,2-Dichloroethene (Total)	(ug/L)		8	8	4 J	2 J	2.75	NR b	NA
Carbon tetrachloride	(ug/L)		8	2	2 J	2 J	2	5	0
cis-1,2-Dichloroethene	(ug/L)		8	8	4 J	2 J	2.75	70	0
Tetrachloroethene	(ug/L)		8	2	4 J	3 J	3.5	5	0
Trichloroethene	(ug/L)		8	8	120	19	60.125	5	8

Table 2.45. CONSTITUENTS DETECTED IN GROUNDWATER AT THE Y-12 PLANT SITE 1999

REGIME=BC AREA NAME=Exit Pathway Spring/Surface Water

COMPOUND	UNITS	FILTERED STATUS	# SAMPLES	# DETECTED	MAXIMUM DETECTED MMT.	MINIMUM DETECTED MMT.	AVERAGE DETECTED MMTS.	REFERENCE VALUE	# MMTS. > REF
Chloride	(mg/L)		25	25	105	3.54	27.00276	250	0
Fluoride	(mg/L)		25	20	1.38	0.11	0.393	4	0
Nitrate Nitrogen	(mg/L)		25	24	520.2	0.27	38.36958	10	11
Sulfate	(mg/L)		25	25	59	7.339	24.43316	250	0
Aluminum, ICAP	(mg/L)		25	8	1.07	0.312	0.56175	0.2	8
Barium, ICAP	(mg/L)		25	25	2.08	0.0346	0.182932	2	1
Boron, ICAP	(mg/L)		25	5	0.382	0.102	0.2234	NR	NA
Cadmium, PMS	(mg/L)		25	6	0.0102	0.000516	0.003775	0.005	2
Calcium, ICAP	(mg/L)		25	25	648	19.1	99.932	NR	NA
Iron, ICAP	(mg/L)		25	18	1.02	0.0528	0.2778	0.3	7
Lead, PMS	(mg/L)		25	8	0.0014	0.000507	0.000774	0.015 c	0
Lithium, ICAP	(mg/L)		25	10	0.118	0.0105	0.03319	NR	NA
Magnesium, ICAP	(mg/L)		25	25	70.6	3.63	16.7376	NR	NA
Manganese, ICAP	(mg/L)		25	22	1.3	0.00577	0.175533	0.05	7
Potassium, ICAP	(mg/L)		25	11	7.76	2.09	3.559091	NR	NA
Sodium, ICAP	(mg/L)		25	25	55	2.51	13.2328	NR	NA
Strontium, ICAP	(mg/L)		25	25	2.22	0.0463	0.30684	NR	NA
Uranium, PMS	(mg/L)		25	24	0.35	0.00625	0.096028	NR	NA
Conductivity, field measurement	(umhos/cm)		25	NA	4620	162	775.56	NR	NA
Dissolved Oxygen, field measurement	(ppm)		25	NA	9.02	2.07	5.866	NR	NA
pH, field measurement	(pH)		25	NA	8.61	6.58	7.746	6.5/8.5	1
REDOX, field measurement	(mV)		25	NA	213	13	172.08	NR	NA
Temperature, field measurement	(Deg C)25		NA	28.4	5.4	13.388	NR	NA	
Alkalinity as HCO3	(mg/L)		25	25	354	34	164.72	NR	NA
Conductivity	(umhos/cm)		25	25	4310	148.3	699.452	NR	NA
Dissolved Solids	(mg/L)		25	25	3370	121	462.84	500	6
pH	(pH)		25	25	8.3 L	7.03 L	7.7648	6.5/8.5	0
Total Suspended Solids	(mg/L)		25	9	106	2	19.88889	NR	NA
Turbidity	(NTU)		25	25	12	0.512	3.4608	1	21
Iodine-129	(pCi/L)2		2	2.8	-0.57	1.115	NR	NA	
Thorium-228	(pCi/L)2		2	0.4	0.1	0.25	16	0	
Thorium-230	(pCi/L)2		2	0.43	0.27	0.35	12	0	
Thorium-231+234	(pCi/L)2		2	66	48	57	400	0	
Uranium-234	(pCi/L)2		2	33	25	29	20	2	
Uranium-235	(wt %)		2	2	0.39	0.38	0.385	NR	NA
Uranium-235	(pCi/L)2		2	1.5	1.3	1.4	24	0	
Neptunium-237	(pCi/L)2		2	1.4	0.12	0.76	1.2	1	

Table 2.45. (continued)

COMPOUND	UNITS	FILTERED STATUS	# SAMPLES	# DETECTED	MAXIMUM DETECTED MMT.	MINIMUM DETECTED MMT.	AVERAGE DETECTED MMTS.	REFERENCE VALUE	# MMTS. > REF
Plutonium-238	(pCi/L)	2	2	0.37	-0.018	0.176	1.6	0	
Uranium-238	(pCi/L)	2	2	66	48	57	24	2	
Plutonium-239	(pCi/L)	2	2	0.026	-0.016	0.005	NR	NA	
Americium-241	(pCi/L)	2	2	0.51	0.43	0.47	1.2	0	
Strontium-89/90	(pCi/L)	2	2	3.7	-0.64	1.53	NR h	NA	
Technetium-99	(pCi/L)	2	2	260	180	220	4000	0	
Gross Alpha	(pCi/L)	25	25	140	1.9	38.836	15 f	18	
Gross Beta	(pCi/L)	25	25	500	-0.43	62.8308	50 a	7	
Tritium	(pCi/L)	2	2	25	-150	-62.5	20000	0	
Uranium, Total	(mg/L)		2	2	0.2	0.14	0.17	NR h	NA
1,1,1-Trichloroethane	(ug/L)		25	2	4 J	3 J	3.5	200	0
1,1-Dichloroethane	(ug/L)		25	2	7	5	6	NR	NA
1,1-Dichloroethene	(ug/L)		25	2	3 J	2 J	2.5	7	0
1,2-Dichloroethene (Total)	(ug/L)		25	7	83	2 J	28	NR b	NA
4-Methyl-2-pentanone	(ug/L)		25	1	3 J	3 J	3	NR	NA
cis-1,2-Dichloroethene	(ug/L)		25	7	83	2 J	28	70	2
Tetrachloroethene	(ug/L)		25	5	28	3 J	10	5	2
Trichloroethene	(ug/L)		25	5	21	2 J	9.6	5	4
Vinyl chloride	(ug/L)		25	2	3 J	3 J	3	2	2

Table 2.46. CONSTITUENTS DETECTED IN GROUNDWATER AT THE Y-12 PLANT SITE 1999

REGIME=BC AREA NAME=Oil Landfarm WMA

COMPOUND	UNITS	FILTERED STATUS	# SAMPLES	# DETECTED	MAXIMUM DETECTED MMT.	MINIMUM DETECTED MMT.	AVERAGE DETECTED MMTS.	REFERENCE VALUE	# MMTS. > REF
Chloride	(mg/L)		11	11	75.6	2.251	26.18182	250	0
Fluoride	(mg/L)		11	5	0.51	0.11	0.332	4	0
Nitrate Nitrogen	(mg/L)		11	10	897.2	3.17	179.6018	10	7
Sulfate	(mg/L)		11	11	49.3	3.489	18.76991	250	0
Aluminum, ICAP	(mg/L)		11	3	2.81	0.314	1.578	0.2	3
Antimony, PMS	(mg/L)		11	1	0.00077	0.00077	0.00077	0.006	0
Barium, ICAP	(mg/L)		11	11	2.2	0.0518	0.651718	2	2
Barium, ICAP	(mg/L)	FILTERED	2	2	0.102	0.0883	0.09515	2	0
Boron, ICAP	(mg/L)		11	5	0.278	0.114	0.1928	NR	NA
Boron, ICAP	(mg/L)	FILTERED	2	2	0.214	0.119	0.1665	NR	NA
Cadmium, PMS	(mg/L)		11	1	0.000518	0.000518	0.000518	0.005	0
Calcium, ICAP	(mg/L)		11	11	964	11.7	249.7727	NR	NA
Calcium, ICAP	(mg/L)	FILTERED	2	2	89.8	41.6	65.7	NR	NA
Iron, ICAP	(mg/L)		11	7	2	0.358	1.287	0.3	7
Iron, ICAP	(mg/L)	FILTERED	2	1	0.354	0.354	0.354	0.3	1
Lead, PMS	(mg/L)		11	6	0.0104	0.000579	0.002805	0.015 c	0
Lithium, ICAP	(mg/L)		11	11	0.0552	0.0118	0.029282	NR	NA
Lithium, ICAP	(mg/L)	FILTERED	2	1	0.0359	0.0359	0.0359	NR	NA
Magnesium, ICAP	(mg/L)		11	11	68.9 k	5.29	28.69727	NR	NA
Magnesium, ICAP	(mg/L)	FILTERED	2	2	47.5	6.4	26.95	NR	NA
Manganese, ICAP	(mg/L)		11	7	1.15	0.0128	0.427771	0.05	5
Manganese, ICAP	(mg/L)	FILTERED	2	2	1.07	0.192	0.631	0.05	2
Potassium, ICAP	(mg/L)		11	9	5.96	2.37	4.077778	NR	NA
Potassium, ICAP	(mg/L)	FILTERED	2	2	5.92	2.67	4.295	NR	NA
Sodium, ICAP	(mg/L)		11	11	114	10.2	39.8	NR	NA
Sodium, ICAP	(mg/L)	FILTERED	2	2	47.2	14.7	30.95	NR	NA
Strontium, ICAP	(mg/L)		11	11	2.57 k	0.11	0.981455	NR	NA
Strontium, ICAP	(mg/L)	FILTERED	2	2	1.5	0.0976	0.7988	NR	NA
Uranium, PMS	(mg/L)		11	7	0.0806	0.00115	0.015276	NR	NA
Uranium, PMS	(mg/L)	FILTERED	2	1	0.104	0.104	0.104	NR	NA
Conductivity, field measurement	(umhos/cm)		11	NA	4900	314	1476.182	NR	NA
Dissolved Oxygen, field measurement	(ppm)		11	NA	2.2	0.09	0.83	NR	NA
pH, field measurement	(pH)		11	NA	9.16	5.05	7.369091	6.5/8.5	4
REDOX, field measurement	(mV)		11	NA	177	21	104.5455	NR	NA
Static Water Level	(ft - toc)		11	NA	-5.69	-64.55	-16.52	NR	NA
Temperature, field measurement	(Deg C)	11	NA	18.8	11.7	15.97273	NR	NA	
Alkalinity as CO3	(mg/L)		11	3	36	20	25.33333	NR	NA

Table 2.46. (continued)

COMPOUND	UNITS	FILTERED STATUS	# SAMPLES	# DETECTED	MAXIMUM DETECTED MMT.	MINIMUM DETECTED MMT.	AVERAGE DETECTED MMTS.	REFERENCE VALUE	# MMTS. > REF
Alkalinity as HCO3	(mg/L)		11	11	314	26	190.9091	NR	NA
Conductivity	(umhos/cm)		11	11	5470	327	1625.273	NR	NA
Dissolved Solids	(mg/L)		11	11	4210	214	1208.545	500	6
pH	(pH)		11	11	9.21 L	6.3 L	7.678182	6.5/8.5	4
Total Suspended Solids	(mg/L)		11	5	45	1	18	NR	NA
Turbidity	(NTU)		11	11	37.4	0.818	11.135	1	9
Gross Alpha	(pCi/L)11		11	36	-9.5	4.418182	15 f	1	
Gross Beta	(pCi/L)11		11	580	0.96	112.5418	50 a	3	
1,1-Dichloroethene	(ug/L)		11	1	2 J	2 J	2	7	0
1,2-Dichloroethene (Total)	(ug/L)		11	4	55	3 J	17.5	NR b	NA
Carbon tetrachloride	(ug/L)		11	2	3 J	2 J	2.5	5	0
Chloroform	(ug/L)		11	1	2 J	2 J	2	100 i	0
cis-1,2-Dichloroethene	(ug/L)		11	4	55	3 J	17.5	70	0
Tetrachloroethene	(ug/L)		11	1	31	31	31	5	1
Trichloroethene	(ug/L)		11	5	210 D	43	102.8	5	5

Table 2.47. CONSTITUENTS DETECTED IN GROUNDWATER AT THE Y-12 PLANT SITE 1999

REGIME=BC AREA NAME=Rust Spoil Area

COMPOUND	UNITS	FILTERED STATUS	# SAMPLES	# DETECTED	MAXIMUM DETECTED MMT.	MINIMUM DETECTED MMT.	AVERAGE DETECTED MMTS.	REFERENCE VALUE	# MMTS. > REF
Chloride	(mg/L)		2	2	3.12	1.551	2.3355	250	0
Nitrate Nitrogen	(mg/L)		2	2	0.67	0.2905	0.48025	10	0
Sulfate	(mg/L)		2	2	3.101	3.07	3.0855	250	0
Barium, ICAP	(mg/L)		2	2	0.02	0.0191	0.01955	2	0
Calcium, ICAP	(mg/L)		2	2	90.7	85.7	88.2	NR	NA
Magnesium, ICAP	(mg/L)		2	2	6	5.75	5.875	NR	NA
Sodium, ICAP	(mg/L)		2	2	2.88	2.76	2.82	NR	NA
Strontium, ICAP	(mg/L)		2	2	0.0766	0.0706	0.0736	NR	NA
Uranium, PMS	(mg/L)		2	1	0.000668	0.000668	0.000668	NR	NA
Conductivity, field measurement	(umhos/cm)		2	NA	425	424	424.5	NR	NA
Dissolved Oxygen, field measurement	(ppm)		2	NA	3.7	3.16	3.43	NR	NA
pH, field measurement	(pH)		2	NA	7.52	7.46	7.49	6.5/8.5	0
REDOX, field measurement	(mV)		2	NA	116	95	105.5	NR	NA
Static Water Level	(ft - toc)		2	NA	-28.5	-39.48	-33.99	NR	NA
Temperature, field measurement	(Deg C)2		NA	18.1	15.5	16.8	NR	NA	
Alkalinity as HCO3	(mg/L)		2	2	246	230	238	NR	NA
Conductivity	(umhos/cm)		2	2	475	280	377.5	NR	NA
Dissolved Solids	(mg/L)		2	2	266	241	253.5	500	0
pH	(pH)		2	2	7.45 L	7.41 L	7.43	6.5/8.5	0
Turbidity	(NTU)		2	2	1.08	0.354	0.717	1	1
Gross Alpha	(pCi/L)2		2	-0.42	-0.89	-0.655	15 f	0	
Gross Beta	(pCi/L)2		2	5.1	4.3	4.7	50 a	0	
Trichloroethene	(ug/L)		2	2	7	7	7	5	2

Table 2.48. CONSTITUENTS DETECTED IN GROUNDWATER AT THE Y-12 PLANT SITE 1999

REGIME=BC AREA NAME=S-3 Site

COMPOUND	UNITS	FILTERED STATUS	# SAMPLES	# DETECTED	MAXIMUM DETECTED MMT.	MINIMUM DETECTED MMT.	AVERAGE DETECTED MMTS.	REFERENCE VALUE	# MMTS. > REF
Chloride	(mg/L)		39	39	22660	1.076	674.0272	250	3
Fluoride	(mg/L)		39	30	5.68	0.17	1.539	4	2
Nitrate Nitrogen	(mg/L)		39	17	3987	0.0323	668.2544	10	11
Sulfate	(mg/L)		39	38	2822	0.337	299.9627	250	5
Aluminum, ICAP	(mg/L)		39	11	23.8	0.202	3.733364	0.2	11
Aluminum, ICAP	(mg/L)	FILTERED	38	2	7.48	0.676	4.078	0.2	2
Barium, ICAP	(mg/L)		39	37	14.9	0.0141	1.107978	2	4
Barium, ICAP	(mg/L)	FILTERED	38	37	15	0.0153	1.096324	2	4
Beryllium, ICAP	(mg/L)		39	1	0.00235	0.00235	0.00235	0.004	0
Boron, ICAP	(mg/L)		39	26	3.11	0.187	0.727077	NR	NA
Boron, ICAP	(mg/L)	FILTERED	38	25	3.12	0.17	0.74312	NR	NA
Cadmium, PMS	(mg/L)		39	6	0.00409	0.000572	0.00152	0.005	0
Cadmium, PMS	(mg/L)	FILTERED	38	7	0.00309	0.000513	0.000981	0.005	0
Calcium, ICAP	(mg/L)		39	39	1750	0.606	146.9368	NR	NA
Calcium, ICAP	(mg/L)	FILTERED	38	38	1780	0.565	149.6378	NR	NA
Chromium, ICAP	(mg/L)		39	1	0.0646	0.0646	0.0646	0.1	0
Iron, ICAP	(mg/L)		39	27	29.4	0.06	1.807774	0.3	15
Iron, ICAP	(mg/L)	FILTERED	38	14	4.69	0.0555	0.787064	0.3	5
Lead, PMS	(mg/L)		39	18	0.00788	0.000517	0.001822	0.015 c	0
Lead, PMS	(mg/L)	FILTERED	38	8	0.00172	0.000611	0.000947	0.015 c	0
Lithium, ICAP	(mg/L)		39	32	9.97	0.0186	0.616209	NR	NA
Lithium, ICAP	(mg/L)	FILTERED	38	32	9.83	0.0174	0.598703	NR	NA
Magnesium, ICAP	(mg/L)		39	34	746	0.214	59.93465	NR	NA
Magnesium, ICAP	(mg/L)	FILTERED	38	29	755	0.257	70.20197	NR	NA
Manganese, ICAP	(mg/L)		39	27	2.88	0.00594	0.163856	0.05	9
Manganese, ICAP	(mg/L)	FILTERED	38	21	0.31	0.00509	0.051379	0.05	8
Molybdenum, ICAP	(mg/L)		39	3	0.242	0.0657	0.127033	NR	NA
Molybdenum, ICAP	(mg/L)	FILTERED	38	3	0.252	0.0623	0.128067	NR	NA
Potassium, ICAP	(mg/L)		39	23	101	2.02	16.68174	NR	NA
Potassium, ICAP	(mg/L)	FILTERED	38	20	99.4	2.26	18.5145	NR	NA
Selenium, PMS	(mg/L)		39	4	1.25	0.0188	0.35435	0.05	2
Selenium, PMS	(mg/L)	FILTERED	38	5	1.32	0.0135	0.30084	0.05	2
Sodium, ICAP	(mg/L)		39	39	13800	0.541	856.6072	NR	NA
Sodium, ICAP	(mg/L)	FILTERED	38	38	13800	0.705	887.1774	NR	NA
Strontium, ICAP	(mg/L)		39	39	38.8	0.0114	3.940841	NR	NA
Strontium, ICAP	(mg/L)	FILTERED	38	38	38.6	0.0155	4.077942	NR	NA
Uranium, PMS	(mg/L)		39	15	0.00696	0.000533	0.001885	NR	NA

Table 2.48. (continued)

COMPOUND	UNITS	FILTERED STATUS	# SAMPLES	# DETECTED	MAXIMUM DETECTED MMT.	MINIMUM DETECTED MMT.	AVERAGE DETECTED MMTS.	REFERENCE VALUE	# MMTS. > REF
Uranium, PMS	(mg/L)	FILTERED	38	14	0.00352	0.000508	0.001715	NR	NA
Vanadium, ICAP	(mg/L)		39	1	0.0254	0.0254	0.0254	NR	NA
Zinc, ICAP	(mg/L)		39	20	1.21	0.0515	0.21357	5	0
Zinc, ICAP	(mg/L)	FILTERED	38	6	0.296	0.0553	0.125683	5	0
Conductivity, field measurement	(umhos/cm)		39	NA	63200	106	4502.872	NR	NA
Dissolved Oxygen, field measurement	(ppm)		39	NA	12.74	0.22	5.971538	NR	NA
pH, field measurement	(pH)		39	NA	9.6	4.73	7.746154	6.5/8.5	9
REDOX, field measurement	(mV)		36	NA	321	-156	31.80556	NR	NA
Static Water Level	(ft - toc)		42	NA	-12.61	-192.97	-96.0605	NR	NA
Temperature, field measurement	(Deg C)	39	NA	25.2	7.33	18.87256	NR	NA	
Alkalinity as CO3	(mg/L)		39	13	88	20	50.76923	NR	NA
Alkalinity as HCO3	(mg/L)		39	39	928	10	316.5128	NR	NA
Conductivity	(umhos/cm)		39	39	64800	86.6	4533.246	NR	NA
Dissolved Solids	(mg/L)		39	38	43700	76	3411.447	500	22
pH	(pH)		39	39	9.57 L	4.93 L	8.075128	6.5/8.5	16
Total Suspended Solids	(mg/L)		39	20	156	1	13.025	NR	NA
Turbidity	(NTU)		39	39	204	0.145	18.31782	1	31
Gross Alpha	(pCi/L)	39	39	270	-55	11.93897	15 f	6	
Gross Beta	(pCi/L)	39	39	480	-360	26.98385	50 a	7	
1,1,1-Trichloroethane	(ug/L)		39	2	2 J	1 J	1.5	200	0
1,1-Dichloroethane	(ug/L)		39	1	2 J	2 J	2	NR	NA
1,2-Dichloroethene (Total)	(ug/L)		39	2	14	13	13.5	NR b	NA
Acrylonitrile	(ug/L)		39	1	13	13	13	NR	NA
Benzene	(ug/L)		39	8	34	1 J	9	5	3
Carbon disulfide	(ug/L)		39	1	2 J	2 J	2	NR	NA
Carbon tetrachloride	(ug/L)		39	1	2 J	2 J	2	5	0
Chloroform	(ug/L)		39	2	3 J	3 J	3	100 i	0
cis-1,2-Dichloroethene	(ug/L)		39	2	14	13	13.5	70	0
Ethylbenzene	(ug/L)		39	5	8	1 J	3.6	700	0
Styrene	(ug/L)		39	8	3 J	1 J	1.875	100	0
Tetrachloroethene	(ug/L)		39	2	11	10	10.5	5	2
Toluene	(ug/L)		39	2	3 J	2 J	2.5	1000	0
Trichloroethene	(ug/L)		39	2	30	19	24.5	5	2

Table 2.49. CONSTITUENTS DETECTED IN GROUNDWATER AT THE Y-12 PLANT SITE 1999

REGIME=BC AREA NAME=Spoil Area I

COMPOUND	UNITS	FILTERED STATUS	# SAMPLES	# DETECTED	MAXIMUM DETECTED MMT.	MINIMUM DETECTED MMT.	AVERAGE DETECTED MMTS.	REFERENCE VALUE	# MMTS. > REF
Chloride	(mg/L)		2	2	18.4	17.21	17.805	250	0
Nitrate Nitrogen	(mg/L)		2	2	9.785	8.04	8.9125	10	0
Sulfate	(mg/L)		2	2	73.8	56.65	65.225	250	0
Barium, ICAP	(mg/L)		2	2	0.0706	0.0598	0.0652	2	0
Cadmium, PMS	(mg/L)		2	2	0.000597	0.000519	0.000558	0.005	0
Calcium, ICAP	(mg/L)		2	2	144	126	135	NR	NA
Magnesium, ICAP	(mg/L)		2	2	16.2	13.1	14.65	NR	NA
Manganese, ICAP	(mg/L)		2	2	0.0493	0.0267	0.038	0.05	0
Potassium, ICAP	(mg/L)		2	2	3.94	3.7	3.82	NR	NA
Sodium, ICAP	(mg/L)		2	2	10.6	9.58	10.09	NR	NA
Strontium, ICAP	(mg/L)		2	2	0.234	0.198	0.216	NR	NA
Uranium, PMS	(mg/L)		2	2	0.0028	0.00179	0.002295	NR	NA
Conductivity, field measurement	(umhos/cm)		2	NA	773	630	701.5	NR	NA
Dissolved Oxygen, field measurement	(ppm)		2	NA	0.3	0.15	0.225	NR	NA
pH, field measurement	(pH)		2	NA	7.53	7.42	7.475	6.5/8.5	0
REDOX, field measurement	(mV)		2	NA	184	125	154.5	NR	NA
Static Water Level	(ft - toc)		2	NA	-49.89	-60.79	-55.34	NR	NA
Temperature, field measurement	(Deg C)2		NA	15.4	14.6	15	NR	NA	
Alkalinity as HCO3	(mg/L)		2	2	284	262	273	NR	NA
Conductivity	(umhos/cm)		2	2	777	694	735.5	NR	NA
Dissolved Solids	(mg/L)		2	2	482	444	463	500	0
pH	(pH)		2	2	7.34 L	7.13 L	7.235	6.5/8.5	0
Turbidity	(NTU)		2	2	0.335	0.097	0.216	1	0
Gross Alpha	(pCi/L)2		2	3.4	1.9	2.65	15 f	0	
Gross Beta	(pCi/L)2		2	31	30	30.5	50 a	0	
1,2-Dichloroethene (Total)	(ug/L)		2	2	3 J	3 J	3	NR b	NA
cis-1,2-Dichloroethene	(ug/L)		2	2	3 J	3 J	3	70	0
Tetrachloroethene	(ug/L)		2	2	14	13	13.5	5	2
Trichloroethene	(ug/L)		2	2	6	6	6	5	2

Table 2.50. CONSTITUENTS DETECTED IN GROUNDWATER AT THE Y-12 PLANT SITE 1999

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

COMPOUND	UNITS	FILTERED STATUS	# SAMPLES	# DETECTED	MAXIMUM DETECTED MMT.	MINIMUM DETECTED MMT.	AVERAGE DETECTED MMTS.	REFERENCE VALUE	# MMTS. > REF
Chloride	(mg/L)		8	8	11.7	0.724	3.699	250	0
Nitrate Nitrogen	(mg/L)		8	8	0.571	0.0513	0.297538	10	0
Sulfate	(mg/L)		8	8	12.3	1.43	6.39375	250	0
Aluminum, ICAP	(mg/L)		8	2	0.511	0.402	0.4565	0.2	2
Barium, ICAP	(mg/L)		8	8	0.017	0.00792	0.011508	2	0
Barium, ICAP	(mg/L)	FILTERED	8	8	0.0158	0.00814	0.011255	2	0
Calcium, ICAP	(mg/L)		8	8	54.4	19.7	39.75	NR	NA
Calcium, ICAP	(mg/L)	FILTERED	8	8	51.6	20.2	39.4875	NR	NA
Iron, ICAP	(mg/L)		8	3	0.564	0.0562	0.3354	0.3	2
Lead, PMS	(mg/L)		8	2	0.000551	0.000538	0.000545	0.015 c	0
Magnesium, ICAP	(mg/L)		8	8	32.6	11	23.9375	NR	NA
Magnesium, ICAP	(mg/L)	FILTERED	8	8	31.4	11.4	23.975	NR	NA
Manganese, ICAP	(mg/L)		8	2	0.0107	0.00621	0.008455	0.05	0
Manganese, ICAP	(mg/L)	FILTERED	8	3	0.0131	0.0073	0.010933	0.05	0
Potassium, ICAP	(mg/L)		8	1	2.3	2.3	2.3	NR	NA
Potassium, ICAP	(mg/L)	FILTERED	8	2	2.35	2.01	2.18	NR	NA
Sodium, ICAP	(mg/L)		8	8	5.3	0.698	1.965875	NR	NA
Sodium, ICAP	(mg/L)	FILTERED	8	8	5.35	0.696	1.98275	NR	NA
Strontium, ICAP	(mg/L)		8	8	0.0269	0.0154	0.021838	NR	NA
Strontium, ICAP	(mg/L)	FILTERED	8	8	0.0263	0.0158	0.021863	NR	NA
Thallium, PMS	(mg/L)		8	1	0.000513	0.000513	0.000513	0.002	0
Uranium, PMS	(mg/L)		8	3	0.00233	0.000629	0.001241	NR	NA
Uranium, PMS	(mg/L)	FILTERED	8	3	0.0016	0.000686	0.000992	NR	NA
Conductivity, field measurement	(umhos/cm)		8	NA	448	158	340.75	NR	NA
Dissolved Oxygen, field measurement	(ppm)		8	NA	6.66	0.85	3.145	NR	NA
pH, field measurement	(pH)		8	NA	7.9	6.67	7.42125	6.5/8.5	0
REDOX, field measurement	(mV)		8	NA	181	115	154	NR	NA
Static Water Level	(ft - toc)		8	NA	-41.57	-71.06	-60.5175	NR	NA
Temperature, field measurement	(Deg C)	8	NA	15.4	14	14.6375	NR	NA	
Alkalinity as HCO3	(mg/L)		8	8	244	100	188.25	NR	NA
Conductivity	(umhos/cm)		8	8	485	197	362.25	NR	NA
Dissolved Solids	(mg/L)		8	8	280	117	194.875	500	0
pH	(pH)		8	8	8.06 L	6.8 L	7.51375	6.5/8.5	0
Total Suspended Solids	(mg/L)		8	2	6	4	5	NR	NA
Turbidity	(NTU)		8	8	9.33	0.165	2.413125	1	2
Gross Alpha	(pCi/L)	8	8	4.4	-1.5	1.3895	15 f	0	
Gross Beta	(pCi/L)	8	8	6.9	1.2	4.1625	50 a	0	

Table 2.51. CONSTITUENTS DETECTED IN GROUNDWATER AT THE Y-12 PLANT SITE 1999

REGIME=CR AREA NAME=Exit Pathway Spring/Surface Water

COMPOUND	UNITS	FILTERED STATUS	# SAMPLES	# DETECTED	MAXIMUM DETECTED MMT.	MINIMUM DETECTED MMT.	AVERAGE DETECTED MMTS.	REFERENCE VALUE	# MMTS. > REF
Chloride	(mg/L)		10	10	11.6	1.101	4.7975	250	0
Nitrate Nitrogen	(mg/L)		10	10	2.89	0.1556	1.37062	10	0
Sulfate	(mg/L)		10	10	13.022	2.96	7.3726	250	0
Aluminum, ICAP	(mg/L)		10	7	0.544	0.202	0.337857	0.2	7
Barium, ICAP	(mg/L)		10	10	0.0602	0.0189	0.0325	2	0
Barium, ICAP	(mg/L)	FILTERED	10	10	0.0614	0.0179	0.03159	2	0
Calcium, ICAP	(mg/L)		10	10	72.4	14.4	39.33	NR	NA
Calcium, ICAP	(mg/L)	FILTERED	10	10	73.6	15.3	39.98	NR	NA
Iron, ICAP	(mg/L)		10	10	0.415	0.0657	0.21907	0.3	3
Iron, ICAP	(mg/L)	FILTERED	10	2	0.0612	0.0508	0.056	0.3	0
Lead, PMS	(mg/L)		10	1	0.0007	0.0007	0.0007	0.015 c	0
Lead, PMS	(mg/L)	FILTERED	10	2	0.0007	0.0006	0.00065	0.015 c	0
Magnesium, ICAP	(mg/L)		10	10	14.7	5.54	8.962	NR	NA
Magnesium, ICAP	(mg/L)	FILTERED	10	10	15.9	5.47	9.163	NR	NA
Manganese, ICAP	(mg/L)		10	6	0.0253	0.00501	0.01084	0.05	0
Manganese, ICAP	(mg/L)	FILTERED	10	1	0.0318	0.0318	0.0318	0.05	0
Potassium, ICAP	(mg/L)	FILTERED	10	2	3.41	2.79	3.1	NR	NA
Sodium, ICAP	(mg/L)		10	10	5.11	0.591	2.3574	NR	NA
Sodium, ICAP	(mg/L)	FILTERED	10	10	5.41	0.63	2.4548	NR	NA
Strontium, ICAP	(mg/L)		10	10	0.123	0.0158	0.07024	NR	NA
Strontium, ICAP	(mg/L)	FILTERED	10	10	0.125	0.0162	0.07123	NR	NA
Uranium, PMS	(mg/L)		10	2	0.00251	0.0011	0.001805	NR	NA
Uranium, PMS	(mg/L)	FILTERED	10	2	0.00234	0.0011	0.00172	NR	NA
Zinc, ICAP	(mg/L)	FILTERED	10	1	0.092	0.092	0.092	5	0
Conductivity, field measurement	(umhos/cm)		10	NA	634	192	397	NR	NA
Dissolved Oxygen, field measurement	(ppm)		10	NA	9.94	3.02	5.995	NR	NA
pH, field measurement	(pH)		10	NA	7.5	6.48	7.023	6.5/8.5	1
REDOX, field measurement	(mV)		10	NA	175	114	144.8	NR	NA
Temperature, field measurement	(Deg C)	10	NA	16.8	11.6	14.08	NR	NA	
Alkalinity as HCO3	(mg/L)		10	10	186	58	121.8	NR	NA
Conductivity	(umhos/cm)		10	10	422	131	235.67	NR	NA
Dissolved Solids	(mg/L)		10	10	242	67	154.5	500	0
pH	(pH)		10	10	7.71 X	6.75 L	7.307	6.5/8.5	0
Total Suspended Solids	(mg/L)		10	7	9	1	2.714286	NR	NA
Turbidity	(NTU)		10	10	9.71	2.42	5.317	1	10
Gross Alpha	(pCi/L)	10	10	5.8	-0.89	0.9081	15 f	0	
Gross Beta	(pCi/L)	10	10	27	-2.7	3.811	50 a	0	

Table 2.51. (continued)

COMPOUND	UNITS	FILTERED STATUS	# SAMPLES	# DETECTED	MAXIMUM DETECTED MMT.	MINIMUM DETECTED MMT.	AVERAGE DETECTED MMTS.	REFERENCE VALUE	# MMTS. > REF
1,1,1-Trichloroethane	(ug/L)		10	1	2 J	2 J	2	200	0
Acetone	(ug/L)		10	3	16	3 J	9.666667	NR	NA
Carbon disulfide	(ug/L)		10	1	1 J	1 J	1	NR	NA

Table 2.52. CONSTITUENTS DETECTED IN GROUNDWATER AT THE Y-12 PLANT SITE 1999

REGIME=CR AREA NAME=Industrial Landfill II

COMPOUND	UNITS	FILTERED STATUS	# SAMPLES	# DETECTED	MAXIMUM DETECTED MMT.	MINIMUM DETECTED MMT.	AVERAGE DETECTED MMTS.	REFERENCE VALUE	# MMTS. > REF
Chloride	(mg/L)		6	6	1.7	1.32	1.495	250	0
Fluoride	(mg/L)		6	2	1.95	1.5	1.725	4	0
Nitrate Nitrogen	(mg/L)		6	4	0.13	0.07	0.1013	10	0
Sulfate	(mg/L)		6	6	13.6	2.15	6.536667	250	0
Barium, ICAP	(mg/L)		6	6	0.266	0.0102	0.135967	2	0
Barium, ICAP	(mg/L)	FILTERED	6	6	0.286	0.0112	0.126417	2	0
Calcium, ICAP	(mg/L)		6	6	39.9	5.39	19.89333	NR	NA
Calcium, ICAP	(mg/L)	FILTERED	6	6	43	5.39	19.865	NR	NA
Lead, PMS	(mg/L)	FILTERED	6	1	0.00384	0.00384	0.00384	0.015 c	0
Lithium, ICAP	(mg/L)		6	2	0.0258	0.0132	0.0195	NR	NA
Lithium, ICAP	(mg/L)	FILTERED	6	2	0.0255	0.0149	0.0202	NR	NA
Magnesium, ICAP	(mg/L)		6	6	27.7	13 k	22.65	NR	NA
Magnesium, ICAP	(mg/L)	FILTERED	6	6	29.9	11.9	23.2	NR	NA
Manganese, ICAP	(mg/L)	FILTERED	6	1	0.0162	0.0162	0.0162	0.05	0
Potassium, ICAP	(mg/L)		6	2	14	8.28	11.14	NR	NA
Potassium, ICAP	(mg/L)	FILTERED	6	2	14.2	9.4	11.8	NR	NA
Sodium, ICAP	(mg/L)		6	6	26.7	0.884	9.202333	NR	NA
Sodium, ICAP	(mg/L)	FILTERED	6	6	26.6	0.941	9.6885	NR	NA
Strontium, ICAP	(mg/L)		6	6	0.625	0.0189	0.186317	NR	NA
Strontium, ICAP	(mg/L)	FILTERED	6	6	0.546	0.0132	0.172733	NR	NA
Uranium, PMS	(mg/L)		6	4	0.00383	0.000617	0.002209	NR	NA
Uranium, PMS	(mg/L)	FILTERED	6	2	0.00393	0.00392	0.003925	NR	NA
Conductivity, field measurement	(umhos/cm)		6	NA	351	237	278.6667	NR	NA
Dissolved Oxygen, field measurement	(ppm)		6	NA	5.62	0.31	1.651667	NR	NA
pH, field measurement	(pH)		6	NA	9.94	8.01	8.968333	6.5/8.5	4
REDOX, field measurement	(mV)		6	NA	167	49	118.3333	NR	NA
Static Water Level	(ft - toc)		6	NA	-28.55	-85.48	-65.8	NR	NA
Temperature, field measurement	(Deg C)6		NA	20.2	14.8	16.91667	NR	NA	
Alkalinity as CO3	(mg/L)		6	4	48	20	39	NR	NA
Alkalinity as HCO3	(mg/L)		6	6	214	80	131	NR	NA
Conductivity	(umhos/cm)		6	6	385	231	298.5	NR	NA
Dissolved Solids	(mg/L)		6	6	209	122	160.3333	500	0
pH	(pH)		6	6	9.65 L	8.15 L	8.956667	6.5/8.5	4
Total Suspended Solids	(mg/L)		6	2	1	1	1	NR	NA
Turbidity	(NTU)		6	6	1.17	0.196	0.4505	1	1
Gross Alpha	(pCi/L)6		6	4	-0.86	1.753333	15 f	0	
Gross Beta	(pCi/L)6		6	17	-6.2	4.783333	50 a	0	

Table 2.52. (continued)

COMPOUND	UNITS	FILTERED STATUS	# SAMPLES	# DETECTED	MAXIMUM DETECTED MMT.	MINIMUM DETECTED MMT.	AVERAGE DETECTED MMTS.	REFERENCE VALUE	# MMTS. > REF
1,1,1-Trichloroethane	(ug/L)		6	1	4 J	4 J	4	200	0
Acetone	(ug/L)		6	1	6 J	6 J	6	NR	NA

Table 2.53. CONSTITUENTS DETECTED IN GROUNDWATER AT THE Y-12 PLANT SITE 1999

REGIME=CR AREA NAME=Industrial Landfill IV

COMPOUND	UNITS	FILTERED STATUS	# SAMPLES	# DETECTED	MAXIMUM DETECTED MMT.	MINIMUM DETECTED MMT.	AVERAGE DETECTED MMTS.	REFERENCE VALUE	# MMTS. > REF
Chloride	(mg/L)		12	12	3.8	1.15	1.948	250	0
Nitrate Nitrogen	(mg/L)		12	12	0.768	0.21	0.403792	10	0
Sulfate	(mg/L)		12	12	9.55	0.866	4.136	250	0
Aluminum, ICAP	(mg/L)		12	1	0.72	0.72	0.72	0.2	1
Barium, ICAP	(mg/L)		12	12	0.0301	0.00762	0.014957	2	0
Barium, ICAP	(mg/L)	FILTERED	12	12	0.0314	0.00753	0.014109	2	0
Boron, ICAP	(mg/L)		12	2	0.124	0.117	0.1205	NR	NA
Boron, ICAP	(mg/L)	FILTERED	12	2	0.127	0.12	0.1235	NR	NA
Calcium, ICAP	(mg/L)		12	12	43.5	23.7	30.14167	NR	NA
Calcium, ICAP	(mg/L)	FILTERED	12	12	44.8	23.5 k	30.28333	NR	NA
Chromium, ICAP	(mg/L)		12	1	0.0216	0.0216	0.0216	0.1	0
Iron, ICAP	(mg/L)		12	6	1.31	0.0713	0.44805	0.3	2
Iron Related Bacteria	(cfu/ml)		2	2	5000 >	5000 >	5000	NR	NA
Lead, PMS	(mg/L)		12	1	0.0032	0.0032	0.0032	0.015 c	0
Lead, PMS	(mg/L)	FILTERED	12	2	0.0011	0.0005	0.0008	0.015 c	0
Magnesium, ICAP	(mg/L)		12	12	25.9	17.4	20.55	NR	NA
Magnesium, ICAP	(mg/L)	FILTERED	12	12	26.6	16.6	20.825	NR	NA
Manganese, ICAP	(mg/L)		12	4	0.13	0.00502	0.04188	0.05	1
Manganese, ICAP	(mg/L)	FILTERED	12	2	0.00877	0.00593	0.00735	0.05	0
Nickel, ICAP	(mg/L)		12	4	0.689	0.0713	0.283075	0.1 d	3
Nickel, ICAP	(mg/L)	FILTERED	12	4	0.137	0.0682	0.098825	0.1 d	2
Potassium, ICAP	(mg/L)		12	2	2.56	2.5	2.53	NR	NA
Potassium, ICAP	(mg/L)	FILTERED	12	2	2.55	2.33	2.44	NR	NA
Slime Forming Bacteria	(cfu/ml)		2	2	50000	50000	50000	NR	NA
Sodium, ICAP	(mg/L)		12	12	7.39	0.569	3.04375	NR	NA
Sodium, ICAP	(mg/L)	FILTERED	12	12	7.64	0.577	3.018083	NR	NA
Strontium, ICAP	(mg/L)		12	12	0.024	0.00943	0.014894	NR	NA
Strontium, ICAP	(mg/L)	FILTERED	12	12	0.0173	0.0097	0.013983	NR	NA
Sulfate Reducing Bacteria	(cfu/ml)		2	2	10000 >	10000 >	10000	NR	NA
Uranium, PMS	(mg/L)		12	2	0.00122	0.0005	0.00086	NR	NA
Uranium, PMS	(mg/L)	FILTERED	12	2	0.0008	0.000591	0.000696	NR	NA
Zinc, ICAP	(mg/L)		12	1	0.0591	0.0591	0.0591	5	0
Zinc, ICAP	(mg/L)	FILTERED	12	2	0.0728	0.0634	0.0681	5	0
Conductivity, field measurement	(umhos/cm)		12	NA	371	231	288.9167	NR	NA
Dissolved Oxygen, field measurement	(ppm)		12	NA	7.11	3.48	5.1675	NR	NA
pH, field measurement	(pH)		12	NA	8.59	6.83	7.973333	6.5/8.5	1
REDOX, field measurement	(mV)		12	NA	238	80	160.9167	NR	NA

Table 2.53. (continued)

COMPOUND	UNITS	FILTERED STATUS	# SAMPLES	# DETECTED	MAXIMUM DETECTED MMT.	MINIMUM DETECTED MMT.	AVERAGE DETECTED MMTS.	REFERENCE VALUE	# MMTS. > REF
Static Water Level	(ft - toc)		12	NA	-80.53	-128.5	-106.612	NR	NA
Temperature, field measurement	(Deg C)	12	NA	19.2	10.3	14.84167	NR	NA	
Alkalinity as HCO3	(mg/L)		10	10	208	134	161.6	NR	NA
Conductivity	(umhos/cm)		10	10	394	172.2	294.82	NR	NA
Dissolved Solids	(mg/L)		12	12	192	137	167.5	500	0
pH	(pH)		10	10	8.41 L	7.21 L	7.885	6.5/8.5	0
Total Suspended Solids	(mg/L)		12	2	9	2	5.5	NR	NA
Turbidity	(NTU)		10	10	17.9	0.262	3.6414	1	5
Gross Alpha	(pCi/L)	10	10	3.2	-0.84	1.0859	15 f	0	
Gross Beta	(pCi/L)	10	10	5.8	-3.3	2.079	50 a	0	
1,1,1-Trichloroethane	(ug/L)		10	2	19	18	18.5	200	0
1,1-Dichloroethane	(ug/L)		10	2	7	5	6	NR	NA
1,1-Dichloroethene	(ug/L)		10	2	4 J	3 J	3.5	7	0
Carbon disulfide	(ug/L)		10	1	2 J	2 J	2	NR	NA

Table 2.54. CONSTITUENTS DETECTED IN GROUNDWATER AT THE Y-12 PLANT SITE 1999

REGIME=CR AREA NAME=Industrial Landfill V

COMPOUND	UNITS	FILTERED STATUS	# SAMPLES	# DETECTED	MAXIMUM DETECTED MMT.	MINIMUM DETECTED MMT.	AVERAGE DETECTED MMTS.	REFERENCE VALUE	# MMTS. > REF
Chloride	(mg/L)		12	12	6.87	0.12	1.9395	250	0
Fluoride	(mg/L)		12	2	0.13	0.11	0.12	4	0
Nitrate Nitrogen	(mg/L)		12	12	2.885	0.05	0.608698	10	0
Sulfate	(mg/L)		12	12	11.4	0.5	5.16225	250	0
Aluminum, ICAP	(mg/L)		12	3	0.954	0.33	0.730667	0.2	3
Antimony, PMS	(mg/L)	FILTERED	12	1	0.0005	0.0005	0.0005	0.006	0
Barium, ICAP	(mg/L)		12	10	0.0619	0.00504	0.018662	2	0
Barium, ICAP	(mg/L)	FILTERED	12	10	0.0605	0.00571	0.017932	2	0
Calcium, ICAP	(mg/L)		12	12	42.9	20.8	30.61667	NR	NA
Calcium, ICAP	(mg/L)	FILTERED	12	12	37.4	20.8 p	29.80833	NR	NA
Chromium, ICAP	(mg/L)		12	3	0.0418	0.025	0.031233	0.1	0
Chromium, ICAP	(mg/L)	FILTERED	12	2	0.0416	0.027	0.0343	0.1	0
Iron, ICAP	(mg/L)		12	7	1.85	0.0585	0.457129	0.3	3
Iron, ICAP	(mg/L)	FILTERED	12	2	0.0685	0.0613 p	0.0649	0.3	0
Lead, PMS	(mg/L)		12	3	0.0015	0.0007	0.001016	0.015 c	0
Lead, PMS	(mg/L)	FILTERED	12	1	0.00125	0.00125	0.00125	0.015 c	0
Magnesium, ICAP	(mg/L)		12	12	26.1	6.71	17.2575	NR	NA
Magnesium, ICAP	(mg/L)	FILTERED	12	12	22.7	6.52 p	16.87333	NR	NA
Manganese, ICAP	(mg/L)		12	3	0.0385	0.00847	0.018907	0.05	0
Sodium, ICAP	(mg/L)		12	12	5.35	0.512	1.642333	NR	NA
Sodium, ICAP	(mg/L)	FILTERED	12	12	5.27	0.507	1.614333	NR	NA
Strontium, ICAP	(mg/L)		12	12	0.0524	0.0128	0.023533	NR	NA
Strontium, ICAP	(mg/L)	FILTERED	12	12	0.0509 p	0.0121	0.023017	NR	NA
Uranium, PMS	(mg/L)		12	2	0.0017	0.00156	0.00163	NR	NA
Uranium, PMS	(mg/L)	FILTERED	12	2	0.0016	0.00137	0.001485	NR	NA
Conductivity, field measurement	(umhos/cm)		12	NA	366	169	268.0833	NR	NA
Dissolved Oxygen, field measurement	(ppm)		12	NA	9.42	0.53	4.644167	NR	NA
pH, field measurement	(pH)		12	NA	8.41	6.65	7.8225	6.5/8.5	0
REDOX, field measurement	(mV)		12	NA	200	119	171	NR	NA
Static Water Level	(ft - toc)		10	NA	-11.46	-121.15	-77.412	NR	NA
Temperature, field measurement	(Deg C)	12	NA	17.2	11.8	14.85	NR	NA	
Alkalinity as CO3	(mg/L)		12	2	28	4	16	NR	NA
Alkalinity as HCO3	(mg/L)		12	12	180	68	135.1667	NR	NA
Conductivity	(umhos/cm)		12	12	339	164.4	266.2833	NR	NA
Dissolved Solids	(mg/L)		12	12	190	115	150.5	500	0
pH	(pH)		12	12	8.4 L	6.6 L	7.876667	6.5/8.5	0
Total Suspended Solids	(mg/L)		12	4	47	1	13	NR	NA

Table 2.54. (continued)

COMPOUND	UNITS	FILTERED STATUS	# SAMPLES	# DETECTED	MAXIMUM DETECTED MMT.	MINIMUM DETECTED MMT.	AVERAGE DETECTED MMTS.	REFERENCE VALUE	# MMTS. > REF
Turbidity	(NTU)		12	12	40.6	0.154	6.646	1	8
Gross Alpha	(pCi/L)	12	12	4.4	-0.5	1.9075	15 f	0	
Gross Beta	(pCi/L)	12	12	7.2	-3.1	2.583333	50 a	0	

Table 2.55. CONSTITUENTS DETECTED IN GROUNDWATER AT THE Y-12 PLANT SITE 1999

REGIME=EF AREA NAME=Beta-4 Security Pits

COMPOUND	UNITS	FILTERED STATUS	# SAMPLES	# DETECTED	MAXIMUM DETECTED MMT.	MINIMUM DETECTED MMT.	AVERAGE DETECTED MMTS.	REFERENCE VALUE	# MMTS. > REF
Chloride	(mg/L)		2	2	17.84	15.7	16.77	250	0
Fluoride	(mg/L)		2	2	0.252	0.2	0.226	4	0
Nitrate Nitrogen	(mg/L)		2	1	0.0477	0.0477	0.0477	10	0
Sulfate	(mg/L)		2	2	4.83	3.58	4.205	250	0
Arsenic, PMS	(mg/L)		2	2	0.0103	0.00836	0.00933	0.05	0
Barium, ICAP	(mg/L)		2	2	0.175	0.168	0.1715	2	0
Calcium, ICAP	(mg/L)		2	2	118	111	114.5	NR	NA
Iron, ICAP	(mg/L)		2	2	6.61	5.85	6.23	0.3	2
Lithium, ICAP	(mg/L)		2	1	0.0122	0.0122	0.0122	NR	NA
Magnesium, ICAP	(mg/L)		2	2	15.4	11.7	13.55	NR	NA
Manganese, ICAP	(mg/L)		2	2	1.93	1.33	1.63	0.05	2
Potassium, ICAP	(mg/L)		2	1	4.37	4.37	4.37	NR	NA
Sodium, ICAP	(mg/L)		2	2	7.66	7.64	7.65	NR	NA
Strontium, ICAP	(mg/L)		2	2	0.254	0.201	0.2275	NR	NA
Conductivity, field measurement	(umhos/cm)		2	NA	679	568	623.5	NR	NA
Dissolved Oxygen, field measurement	(ppm)		2	NA	1.25	0.25	0.75	NR	NA
pH, field measurement	(pH)		2	NA	7.03	6.6	6.815	6.5/8.5	0
REDOX, field measurement	(mV)		2	NA	5	-44	-19.5	NR	NA
Static Water Level	(ft - toc)		3	NA	-6.35	-7.55	-6.76	NR	NA
Temperature, field measurement	(Deg C)2		NA	19.6	16.8	18.2	NR	NA	
Alkalinity as HCO3	(mg/L)		2	2	370	308	339	NR	NA
Conductivity	(umhos/cm)		2	2	734	619	676.5	NR	NA
Dissolved Solids	(mg/L)		2	2	409	359	384	500	0
pH	(pH)		2	2	6.99 L	6.85 L	6.92	6.5/8.5	0
Total Suspended Solids	(mg/L)		2	2	10	7	8.5	NR	NA
Turbidity	(NTU)		2	2	71.5	47.1	59.3	1	2
Gross Alpha	(pCi/L)2		2	2.5	0	1.25	15 f	0	
Gross Beta	(pCi/L)2		2	9.9	0.38	5.14	50 a	0	
1,1-Dichloroethane	(ug/L)		2	1	2 J	2 J	2	NR	NA
1,2-Dichloroethene (Total)	(ug/L)		2	2	24	6	15	NR b	NA
cis-1,2-Dichloroethene	(ug/L)		2	2	24	6	15	70	0
Tetrachloroethene	(ug/L)		2	1	5	5	5	5	0
Trichloroethene	(ug/L)		2	1	7	7	7	5	1

Table 2.56. CONSTITUENTS DETECTED IN GROUNDWATER AT THE Y-12 PLANT SITE 1999

REGIME=EF AREA NAME=Building 9201-2

COMPOUND	UNITS	FILTERED STATUS	# SAMPLES	# DETECTED	MAXIMUM DETECTED MMT.	MINIMUM DETECTED MMT.	AVERAGE DETECTED MMTS.	REFERENCE VALUE	# MMTS. > REF
Chloride	(mg/L)		1	1	18.7	18.7	18.7	250	0
Fluoride	(mg/L)		1	1	0.24	0.24	0.24	4	0
Sulfate	(mg/L)		1	1	34.46	34.46	34.46	250	0
Barium, ICAP	(mg/L)		1	1	0.226	0.226	0.226	2	0
Calcium, ICAP	(mg/L)		1	1	76.5	76.5	76.5	NR	NA
Iron, ICAP	(mg/L)		1	1	0.456	0.456	0.456	0.3	1
Lead, PMS	(mg/L)		1	1	0.000696	0.000696	0.000696	0.015 c	0
Magnesium, ICAP	(mg/L)		1	1	11.8	11.8	11.8	NR	NA
Manganese, ICAP	(mg/L)		1	1	0.953	0.953	0.953	0.05	1
Potassium, ICAP	(mg/L)		1	1	2.75	2.75	2.75	NR	NA
Selenium, PMS	(mg/L)		1	1	0.114	0.114	0.114	0.05	1
Sodium, ICAP	(mg/L)		1	1	8.87	8.87	8.87	NR	NA
Strontium, ICAP	(mg/L)		1	1	0.277	0.277	0.277	NR	NA
Conductivity, field measurement	(umhos/cm)		1	NA	519	519	519	NR	NA
Dissolved Oxygen, field measurement	(ppm)		1	NA	0.2	0.2	0.2	NR	NA
pH, field measurement	(pH)		1	NA	7.26	7.26	7.26	6.5/8.5	0
REDOX, field measurement	(mV)		1	NA	-84	-84	-84	NR	NA
Static Water Level	(ft - toc)		1	NA	-9.76	-9.76	-9.76	NR	NA
Temperature, field measurement	(Deg C)1		NA	22.6	22.6	22.6	NR	NA	
Alkalinity as HCO3	(mg/L)		1	1	200	200	200	NR	NA
Conductivity	(umhos/cm)		1	1	510	510	510	NR	NA
Dissolved Solids	(mg/L)		1	1	234	234	234	500	0
pH	(pH)		1	1	7.45 L	7.45 L	7.45	6.5/8.5	0
Total Suspended Solids	(mg/L)		1	1	1	1	1	NR	NA
Turbidity	(NTU)		1	1	1.12	1.12	1.12	1	1
Gross Alpha	(pCi/L)1		1	4.2	4.2	4.2	15 f	0	
Gross Beta	(pCi/L)1		1	-0.22	-0.22	-0.22	50 a	0	
1,1-Dichloroethene	(ug/L)		1	1	4 J	4 J	4	7	0
1,2-Dichloroethene (Total)	(ug/L)		1	1	960 D	960 D	960	NR b	NA
1,4-Dichlorobenzene	(ug/L)		1	1	4 J	4 J	4	75	0
cis-1,2-Dichloroethene	(ug/L)		1	1	940 D	940 D	940	70	1
Tetrachloroethene	(ug/L)		1	1	1500 D	1500 D	1500	5	1
trans-1,2-Dichloroethene	(ug/L)		1	1	16	16	16	100	0
Trichloroethene	(ug/L)		1	1	250 D	250 D	250	5	1
Vinyl chloride	(ug/L)		1	1	130	130	130	2	1

Table 2.57. CONSTITUENTS DETECTED IN GROUNDWATER AT THE Y-12 PLANT SITE 1999

REGIME=EF AREA NAME=Exit Pathway Monitoring Location E

COMPOUND	UNITS	FILTERED STATUS	# SAMPLES	# DETECTED	MAXIMUM DETECTED MMT.	MINIMUM DETECTED MMT.	AVERAGE DETECTED MMTS.	REFERENCE VALUE	# MMTS. > REF
Chloride	(mg/L)		2	2	15.88	14.7	15.29	250	0
Fluoride	(mg/L)		2	2	0.25	0.241	0.2455	4	0
Nitrate Nitrogen	(mg/L)		2	2	0.465	0.28	0.3725	10	0
Sulfate	(mg/L)		2	2	20.33	20.2	20.265	250	0
Barium, ICAP	(mg/L)		2	2	0.0582	0.0546	0.0564	2	0
Boron, ICAP	(mg/L)		2	2	0.123	0.11	0.1165	NR	NA
Cadmium, PMS	(mg/L)		2	2	0.00913	0.00577	0.00745	0.005	2
Calcium, ICAP	(mg/L)		2	2	107	106	106.5	NR	NA
Iron, ICAP	(mg/L)		2	2	0.533	0.418	0.4755	0.3	2
Magnesium, ICAP	(mg/L)		2	2	8.89	8.67	8.78	NR	NA
Manganese, ICAP	(mg/L)		2	2	1.71	1.51	1.61	0.05	2
Potassium, ICAP	(mg/L)		2	2	4.3	3.8	4.05	NR	NA
Sodium, ICAP	(mg/L)		2	2	17.7	17.4	17.55	NR	NA
Strontium, ICAP	(mg/L)		2	2	0.205	0.194	0.1995	NR	NA
Uranium, PMS	(mg/L)		2	1	0.000783	0.000783	0.000783	NR	NA
Conductivity, field measurement	(umhos/cm)		2	NA	621	620	620.5	NR	NA
Dissolved Oxygen, field measurement	(ppm)		2	NA	0.06	0.05	0.055	NR	NA
pH, field measurement	(pH)		2	NA	7.02	6.77	6.895	6.5/8.5	0
REDOX, field measurement	(mV)		2	NA	-48	-60	-54	NR	NA
Static Water Level	(ft - toc)		2	NA	-13.78	-15.39	-14.585	NR	NA
Temperature, field measurement	(Deg C)2		NA	18	17	17.5	NR	NA	
Alkalinity as HCO3	(mg/L)		2	2	326	322	324	NR	NA
Conductivity	(umhos/cm)		2	2	678	669	673.5	NR	NA
Dissolved Solids	(mg/L)		2	2	369	348	358.5	500	0
pH	(pH)		2	2	7.11 L	6.89 L	7	6.5/8.5	0
Turbidity	(NTU)		2	2	3.61	0.338	1.974	1	1
Gross Alpha	(pCi/L)2		2	1.4	0.37	0.885	15 f	0	
Gross Beta	(pCi/L)2		2	6.3	4.6	5.45	50 a	0	
1,2-Dichloroethene (Total)	(ug/L)		2	2	22	19	20.5	NR b	NA
cis-1,2-Dichloroethene	(ug/L)		2	2	22	19	20.5	70	0
Tetrachloroethene	(ug/L)		2	2	13	12	12.5	5	2
Trichloroethene	(ug/L)		2	2	12	12	12	5	2

Table 2.58. CONSTITUENTS DETECTED IN GROUNDWATER AT THE Y-12 PLANT SITE 1999

REGIME=EF AREA NAME=Exit Pathway Monitoring Location J

COMPOUND	UNITS	FILTERED STATUS	# SAMPLES	# DETECTED	MAXIMUM DETECTED MMT.	MINIMUM DETECTED MMT.	AVERAGE DETECTED MMTS.	REFERENCE VALUE	# MMTS. > REF
Chloride	(mg/L)		34	34	185	1.108	36.91179	250	0
Fluoride	(mg/L)		34	25	2.64	0.1	0.844	4	0
Nitrate Nitrogen	(mg/L)		34	16	2.66	0.09194	1.09484	10	0
Sulfate	(mg/L)		34	32	1718	0.636	172.3175	250	3
Aluminum, ICAP	(mg/L)		34	5	0.775	0.248	0.5102	0.2	5
Antimony, PMS	(mg/L)		34	1	0.000711	0.000711	0.000711	0.006	0
Antimony, PMS	(mg/L)	FILTERED	34	1	0.000534	0.000534	0.000534	0.006	0
Barium, ICAP	(mg/L)		34	34	0.796	0.00924	0.144701	2	0
Barium, ICAP	(mg/L)	FILTERED	34	34	0.759	0.0131	0.144591	2	0
Boron, ICAP	(mg/L)		34	12	0.657	0.109	0.353167	NR	NA
Boron, ICAP	(mg/L)	FILTERED	34	12	0.663	0.104	0.358667	NR	NA
Cadmium, PMS	(mg/L)	FILTERED	34	3	0.00185	0.000549	0.001143	0.005	0
Calcium, ICAP	(mg/L)		34	34	378	21	81.10294	NR	NA
Calcium, ICAP	(mg/L)	FILTERED	34	34	395	19.3	81.48824	NR	NA
Iron, ICAP	(mg/L)		34	32	2.52	0.0594	0.534756	0.3	12
Iron, ICAP	(mg/L)	FILTERED	34	20	2.71	0.05	0.49239	0.3	6
Lead, PMS	(mg/L)		34	11	0.00435	0.000503	0.001409	0.015 c	0
Lead, PMS	(mg/L)	FILTERED	34	11	0.0198	0.000514	0.003493	0.015 c	1
Lithium, ICAP	(mg/L)		34	23	0.244	0.0114	0.06973	NR	NA
Lithium, ICAP	(mg/L)	FILTERED	34	25	0.245	0.0101	0.068156	NR	NA
Magnesium, ICAP	(mg/L)		34	34	229	9.25	36.94088	NR	NA
Magnesium, ICAP	(mg/L)	FILTERED	34	34	217	9.33	37.40176	NR	NA
Manganese, ICAP	(mg/L)		34	21	0.638	0.00511	0.083353	0.05	6
Manganese, ICAP	(mg/L)	FILTERED	34	19	0.63	0.00688	0.089587	0.05	6
Potassium, ICAP	(mg/L)		34	20	18.6	2.11	5.8585	NR	NA
Potassium, ICAP	(mg/L)	FILTERED	34	21	19	2.03	5.829048	NR	NA
Selenium, PMS	(mg/L)		34	6	0.0311	0.0129	0.019867	0.05	0
Selenium, PMS	(mg/L)	FILTERED	34	5	0.0306	0.0129	0.02044	0.05	0
Sodium, ICAP	(mg/L)		34	34	329 k	0.542	44.80038	NR	NA
Sodium, ICAP	(mg/L)	FILTERED	34	34	330	0.602	45.41262	NR	NA
Strontium, ICAP	(mg/L)		34	34	13.4	0.0264	2.230644	NR	NA
Strontium, ICAP	(mg/L)	FILTERED	34	34	13.4	0.0443	2.275885	NR	NA
Uranium, PMS	(mg/L)		34	2	0.00426	0.00149	0.002875	NR	NA
Uranium, PMS	(mg/L)	FILTERED	34	2	0.00424	0.000675	0.002458	NR	NA
Zinc, ICAP	(mg/L)		34	16	0.268	0.0636	0.118788	5	0
Zinc, ICAP	(mg/L)	FILTERED	34	6	0.634	0.055	0.206383	5	0
Conductivity, field measurement	(umhos/cm)		32	NA	2890	291	792.625	NR	NA

Table 2.58. (continued)

COMPOUND	UNITS	FILTERED STATUS	# SAMPLES	# DETECTED	MAXIMUM DETECTED MMT.	MINIMUM DETECTED MMT.	AVERAGE DETECTED MMTS.	REFERENCE VALUE	# MMTS. > REF
Dissolved Oxygen, field measurement	(ppm)		32	NA	11.98	0.11	4.80625	NR	NA
pH, field measurement	(pH)		32	NA	8.21	6.61	7.064688	6.5/8.5	0
REDOX, field measurement	(mV)		32	NA	258	-149	74.96875	NR	NA
Static Water Level	(ft - toc)		34	NA	-14.12	-114.16	-78.0171	NR	NA
Temperature, field measurement	(Deg C)	32	NA	19.8	13.9	17.20938	NR	NA	
Alkalinity as HCO3	(mg/L)		34	34	462	126	228.9412	NR	NA
Conductivity	(umhos/cm)		34	34	2680	150.4	762.8941	NR	NA
Dissolved Solids	(mg/L)		34	34	2640	155	543.2059	500	9
pH	(pH)		34	34	8.29 L	6.92 L	7.748235	6.5/8.5	0
Total Suspended Solids	(mg/L)		34	24	15	1	4	NR	NA
Turbidity	(NTU)		34	34	55.8	0.844	12.70894	1	33
Gross Alpha	(pCi/L)	34	34	17	-0.48	1.867441	15 f	1	
Gross Beta	(pCi/L)	34	34	36	-9.9	4.567353	50 a	0	
1,1,1-Trichloroethane	(ug/L)		34	2	2 J	2 J	2	200	0
1,1-Dichloroethene	(ug/L)		34	2	2 J	2 J	2	7	0
1,2-Dichloroethene (Total)	(ug/L)		34	7	5	3 J	4	NR b	NA
Acetone	(ug/L)		34	4	15	4 J	11.25	NR	NA
Acrylonitrile	(ug/L)		34	5	20	2 J	11.8	NR	NA
Benzene	(ug/L)		34	2	6	1 J	3.5	5	1
Carbon disulfide	(ug/L)		34	4	7	2 J	4	NR	NA
Carbon tetrachloride	(ug/L)		34	10	700 D	24	381	5	10
Chloroform	(ug/L)		34	12	51	1 J	31.16667	100 i	0
cis-1,2-Dichloroethene	(ug/L)		34	8	5	3 J	3.875	70	0
Ethylbenzene	(ug/L)		34	1	3 J	3 J	3	700	0
Styrene	(ug/L)		34	3	3 J	2 J	2.333333	100	0
Tetrachloroethene	(ug/L)		34	10	53	6	29	5	10
Toluene	(ug/L)		34	2	3 J	2 J	2.5	1000	0
Trichloroethene	(ug/L)		34	9	6	2 J	4.555556	5	2
Trichlorofluoromethane	(ug/L)		34	8	7	3 J	4.875	NR	NA

Table 2.59. CONSTITUENTS DETECTED IN GROUNDWATER AT THE Y-12 PLANT SITE 1999

REGIME=EF AREA NAME=Exit Pathway Scarboro Road/Pine Ridge

COMPOUND	UNITS	FILTERED STATUS	# SAMPLES	# DETECTED	MAXIMUM DETECTED MMT.	MINIMUM DETECTED MMT.	AVERAGE DETECTED MMTS.	REFERENCE VALUE	# MMTS. > REF
Chloride	(mg/L)		6	6	5.11	1.07	2.638333	250	0
Fluoride	(mg/L)		6	5	0.3	0.12	0.2238	4	0
Sulfate	(mg/L)		6	6	124	2.19	64.31667	250	0
Barium, ICAP	(mg/L)		6	6	0.298	0.0425	0.110083	2	0
Barium, ICAP	(mg/L)	FILTERED	6	6	0.296	0.0432	0.108833	2	0
Boron, ICAP	(mg/L)		6	4	0.238	0.103	0.1755	NR	NA
Boron, ICAP	(mg/L)	FILTERED	6	4	0.243	0.109	0.17875	NR	NA
Cadmium, PMS	(mg/L)		6	1	0.000628	0.000628	0.000628	0.005	0
Calcium, ICAP	(mg/L)		6	6	83.7	50.2	65.68333	NR	NA
Calcium, ICAP	(mg/L)	FILTERED	6	6	83.5	50.6	65.48333	NR	NA
Iron, ICAP	(mg/L)		6	6	15.1	0.232	3.553	0.3	5
Iron, ICAP	(mg/L)	FILTERED	6	6	14.7	0.24	3.431333	0.3	5
Lead, PMS	(mg/L)		6	3	0.0017	0.00112	0.001447	0.015 c	0
Lead, PMS	(mg/L)	FILTERED	6	2	0.000744	0.000612	0.000678	0.015 c	0
Lithium, ICAP	(mg/L)		6	4	0.0337	0.032	0.03275	NR	NA
Lithium, ICAP	(mg/L)	FILTERED	6	4	0.0335	0.0313	0.03265	NR	NA
Magnesium, ICAP	(mg/L)		6	6	42.1	16.2	27.81667	NR	NA
Magnesium, ICAP	(mg/L)	FILTERED	6	6	41.5	15.9	27.85	NR	NA
Manganese, ICAP	(mg/L)		6	6	0.957	0.0114	0.307867	0.05	2
Manganese, ICAP	(mg/L)	FILTERED	6	6	0.955	0.0116	0.309833	0.05	2
Potassium, ICAP	(mg/L)		6	6	5.98	2.91	3.776667	NR	NA
Potassium, ICAP	(mg/L)	FILTERED	6	6	6.02	2.98	3.83	NR	NA
Sodium, ICAP	(mg/L)		6	6	17.1	3.77	10.55	NR	NA
Sodium, ICAP	(mg/L)	FILTERED	6	6	17.2	3.8	10.60833	NR	NA
Strontium, ICAP	(mg/L)		6	6	1.61	0.082	0.750833	NR	NA
Strontium, ICAP	(mg/L)	FILTERED	6	6	1.63	0.0824	0.7554	NR	NA
Uranium, PMS	(mg/L)	FILTERED	6	1	0.0011	0.0011	0.0011	NR	NA
Zinc, ICAP	(mg/L)		6	2	2.71	1.14	1.925	5	0
Zinc, ICAP	(mg/L)	FILTERED	6	2	2.23	0.804	1.517	5	0
Conductivity, field measurement	(umhos/cm)		6	NA	605	422	530.5	NR	NA
Dissolved Oxygen, field measurement	(ppm)		6	NA	1.26	0.37	0.845	NR	NA
pH, field measurement	(pH)		6	NA	7.76	6.41	7.145	6.5/8.5	1
REDOX, field measurement	(mV)		6	NA	35	-145	-64	NR	NA
Static Water Level	(ft - toc)		6	NA	0	-13.93	-5.58667	NR	NA
Temperature, field measurement	(Deg C)	6	NA	19.7	13.7	16.18333	NR	NA	
Alkalinity as HCO3	(mg/L)		6	6	270	200	236.6667	NR	NA
Conductivity	(umhos/cm)		6	6	687	412	559.8333	NR	NA

Table 2.59. (continued)

COMPOUND	UNITS	FILTERED STATUS	# SAMPLES	# DETECTED	MAXIMUM DETECTED MMT.	MINIMUM DETECTED MMT.	AVERAGE DETECTED MMTS.	REFERENCE VALUE	# MMTS. > REF
Dissolved Solids	(mg/L)		6	6	498	218	355.1667	500	0
pH	(pH)		6	6	7.92 L	6.58 L	7.388333	6.5/8.5	0
Total Suspended Solids	(mg/L)		6	2	14	2	8	NR	NA
Turbidity	(NTU)		6	6	58	2.55	17.52167	1	6
Gross Alpha	(pCi/L)	6	6	9.4	0.52	2.801667	15 f	0	
Gross Beta	(pCi/L)	6	6	9.8	4	6.75	50 a	0	

Table 2.60. CONSTITUENTS DETECTED IN GROUNDWATER AT THE Y-12 PLANT SITE 1999

REGIME=EF AREA NAME=Exit Pathway Spring/Surface Water

COMPOUND	UNITS	FILTERED STATUS	# SAMPLES	# DETECTED	MAXIMUM DETECTED MMT.	MINIMUM DETECTED MMT.	AVERAGE DETECTED MMTS.	REFERENCE VALUE	# MMTS. > REF
Chloride	(mg/L)		2	2	13.29	11.4	12.345	250	0
Fluoride	(mg/L)		2	2	0.39	0.369	0.3795	4	0
Nitrate Nitrogen	(mg/L)		2	2	1.5	1.47	1.485	10	0
Sulfate	(mg/L)		2	2	25.9	22.81	24.355	250	0
Aluminum, ICAP	(mg/L)		2	1	0.222	0.222	0.222	0.2	1
Barium, ICAP	(mg/L)		2	2	0.0542	0.0441	0.04915	2	0
Barium, ICAP	(mg/L)	FILTERED	1	1	0.0515	0.0515	0.0515	2	0
Cadmium, PMS	(mg/L)		2	1	0.000521	0.000521	0.000521	0.005	0
Cadmium, PMS	(mg/L)	FILTERED	1	1	0.000508	0.000508	0.000508	0.005	0
Calcium, ICAP	(mg/L)		2	2	52.8	45.1	48.95	NR	NA
Calcium, ICAP	(mg/L)	FILTERED	1	1	52.1	52.1	52.1	NR	NA
Iron, ICAP	(mg/L)		2	2	0.256	0.0544	0.1552	0.3	0
Lead, PMS	(mg/L)		2	1	0.000916	0.000916	0.000916	0.015 c	0
Lithium, ICAP	(mg/L)		2	2	0.0109	0.0101	0.0105	NR	NA
Lithium, ICAP	(mg/L)	FILTERED	1	1	0.0106	0.0106	0.0106	NR	NA
Magnesium, ICAP	(mg/L)		2	2	11.9	11.8	11.85	NR	NA
Magnesium, ICAP	(mg/L)	FILTERED	1	1	11.7	11.7	11.7	NR	NA
Manganese, ICAP	(mg/L)		2	2	0.0484	0.00924	0.02882	0.05	0
Potassium, ICAP	(mg/L)		2	2	2.38	2.08	2.23	NR	NA
Sodium, ICAP	(mg/L)		2	2	11.8	10.6	11.2	NR	NA
Sodium, ICAP	(mg/L)	FILTERED	1	1	10.6	10.6	10.6	NR	NA
Strontium, ICAP	(mg/L)		2	2	0.113	0.106	0.1095	NR	NA
Strontium, ICAP	(mg/L)	FILTERED	1	1	0.113	0.113	0.113	NR	NA
Uranium, PMS	(mg/L)		2	2	0.00538	0.00418	0.00478	NR	NA
Uranium, PMS	(mg/L)	FILTERED	1	1	0.00547	0.00547	0.00547	NR	NA
Conductivity, field measurement	(umhos/cm)		2	NA	598	410	504	NR	NA
Dissolved Oxygen, field measurement	(ppm)		2	NA	4.35	3.5	3.925	NR	NA
pH, field measurement	(pH)		2	NA	8.2	7.44	7.82	6.5/8.5	0
REDOX, field measurement	(mV)		2	NA	184	125	154.5	NR	NA
Temperature, field measurement	(Deg C)2		NA	20.6	15.8	18.2	NR	NA	
Alkalinity as HCO3	(mg/L)		2	2	158	136	147	NR	NA
Conductivity	(umhos/cm)		2	2	390	371	380.5	NR	NA
Dissolved Solids	(mg/L)		2	2	241	199	220	500	0
pH	(pH)		2	2	7.6 L	7.38 L	7.49	6.5/8.5	0
Total Suspended Solids	(mg/L)		2	1	3	3	3	NR	NA
Turbidity	(NTU)		2	2	2.22	0.692	1.456	1	1
Gross Alpha	(pCi/L)2		2	3.1	1.2	2.15	15 f	0	

Table 2.60. (continued)

COMPOUND	UNITS	FILTERED STATUS	# SAMPLES	# DETECTED	MAXIMUM DETECTED MMT.	MINIMUM DETECTED MMT.	AVERAGE DETECTED MMTS.	REFERENCE VALUE	# MMTS. > REF
Gross Beta	(pCi/L)	2	2	5.5	3.2	4.35	50 a	0	
Carbon tetrachloride	(ug/L)		2	2	50	31	40.5	5	2
Chloroform	(ug/L)		2	2	7	3 J	5	100 i	0
Tetrachloroethene	(ug/L)		2	2	7	5 J	6	5	1

Table 2.61. CONSTITUENTS DETECTED IN GROUNDWATER AT THE Y-12 PLANT SITE 1999

REGIME=EF AREA NAME=Fire Training Facility

COMPOUND	UNITS	FILTERED STATUS	# SAMPLES	# DETECTED	MAXIMUM DETECTED MMT.	MINIMUM DETECTED MMT.	AVERAGE DETECTED MMTS.	REFERENCE VALUE	# MMTS. > REF
Chloride	(mg/L)		2	2	2.01	1.94	1.975	250	0
Fluoride	(mg/L)		2	1	0.14	0.14	0.14	4	0
Nitrate Nitrogen	(mg/L)		2	2	1.46	1.07	1.265	10	0
Sulfate	(mg/L)		2	2	5.67	5.28	5.475	250	0
Aluminum, ICAP	(mg/L)		2	1	1.12	1.12	1.12	0.2	1
Barium, ICAP	(mg/L)		2	2	0.0421	0.0338	0.03795	2	0
Calcium, ICAP	(mg/L)		2	2	121	10	65.5	NR	NA
Lithium, ICAP	(mg/L)		2	2	0.0187	0.0127	0.0157	NR	NA
Magnesium, ICAP	(mg/L)		2	1	0.424	0.424	0.424	NR	NA
Potassium, ICAP	(mg/L)		2	2	15	15	15	NR	NA
Sodium, ICAP	(mg/L)		2	2	2.39	2.26	2.325	NR	NA
Strontium, ICAP	(mg/L)		2	2	0.48	0.381	0.4305	NR	NA
Conductivity, field measurement	(umhos/cm)		2	NA	1459	299	879	NR	NA
Dissolved Oxygen, field measurement	(ppm)		2	NA	3.44	0.82	2.13	NR	NA
pH, field measurement	(pH)		2	NA	11.9	10.97	11.435	6.5/8.5	2
REDOX, field measurement	(mV)		2	NA	42	-107	-32.5	NR	NA
Static Water Level	(ft - toc)		2	NA	-25.92	-30.96	-28.44	NR	NA
Temperature, field measurement	(Deg C)2		NA	19	17.5	18.25	NR	NA	
Alkalinity as CO3	(mg/L)		2	2	40	28	34	NR	NA
Conductivity	(umhos/cm)		2	2	1230	219	724.5	NR	NA
Dissolved Solids	(mg/L)		2	2	358	82	220	500	0
pH	(pH)		2	2	11.88 L	10.77 L	11.325	6.5/8.5	2
Total Suspended Solids	(mg/L)		2	1	2	2	2	NR	NA
Turbidity	(NTU)		2	2	0.62	0.573	0.5965	1	0
Gross Alpha	(pCi/L)2		2	1.2	0.091	0.6455	15 f	0	
Gross Beta	(pCi/L)2		2	15	10	12.5	50 a	0	
1,2-Dichloroethene (Total)	(ug/L)		2	2	26	6	16	NR b	NA
cis-1,2-Dichloroethene	(ug/L)		2	2	26	6	16	70	0
Tetrachloroethene	(ug/L)		2	2	25	11	18	5	2
Toluene	(ug/L)		2	1	2 J	2 J	2	1000	0
Trichloroethene	(ug/L)		2	2	11	2 J	6.5	5	1
Xylenes	(ug/L)		2	1	4 J	4 J	4	10000	0
Xylenes	(ug/L)		2	1	4 J	4 J	4	10000	0

Table 2.62. CONSTITUENTS DETECTED IN GROUNDWATER AT THE Y-12 PLANT SITE 1999

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

COMPOUND	UNITS	FILTERED STATUS	# SAMPLES	# DETECTED	MAXIMUM DETECTED MMT.	MINIMUM DETECTED MMT.	AVERAGE DETECTED MMTS.	REFERENCE VALUE	# MMTS. > REF
Chloride	(mg/L)		4	4	47.9	5.78	25.6075	250	0
Fluoride	(mg/L)		4	2	0.17	0.13	0.15	4	0
Nitrate Nitrogen	(mg/L)		4	2	5.56	5.2	5.38	10	0
Sulfate	(mg/L)		4	4	24.4	10.4	17.585	250	0
Barium, ICAP	(mg/L)		4	4	0.257	0.112	0.188	2	0
Calcium, ICAP	(mg/L)		4	4	67.5	47.5	57.4	NR	NA
Iron, ICAP	(mg/L)		4	2	0.0935	0.0614	0.07745	0.3	0
Lithium, ICAP	(mg/L)		4	1	0.0121	0.0121	0.0121	NR	NA
Magnesium, ICAP	(mg/L)		4	4	13.9	5.18	9.535	NR	NA
Manganese, ICAP	(mg/L)		4	4	0.031	0.0142	0.0197	0.05	0
Nickel, ICAP	(mg/L)		4	2	0.147	0.056	0.1015	0.1 d	1
Potassium, ICAP	(mg/L)		4	2	2.12	2.1	2.11	NR	NA
Sodium, ICAP	(mg/L)		4	4	11.4	7.06	8.98	NR	NA
Strontium, ICAP	(mg/L)		4	4	0.416	0.0971	0.256025	NR	NA
Conductivity, field measurement	(umhos/cm)		4	NA	460	337	386	NR	NA
Dissolved Oxygen, field measurement	(ppm)		4	NA	0.79	0.27	0.64	NR	NA
pH, field measurement	(pH)		4	NA	7.48	6.13	6.79	6.5/8.5	2
REDOX, field measurement	(mV)		4	NA	203	27	121.25	NR	NA
Static Water Level	(ft - toc)		4	NA	-23.55	-25.94	-24.8075	NR	NA
Temperature, field measurement	(Deg C)4		NA	22	20.2	21.375	NR	NA	
Alkalinity as HCO3	(mg/L)		4	4	224	64	143	NR	NA
Conductivity	(umhos/cm)		4	4	448	354	410.25	NR	NA
Dissolved Solids	(mg/L)		4	4	270	237	254	500	0
pH	(pH)		4	4	7.5 L	6.06 L	6.83	6.5/8.5	2
Turbidity	(NTU)		4	4	0.502	0.25	0.32975	1	0
Technetium-99	(pCi/L)4		4	14	1.3	5.425	4000	0	
Gross Alpha	(pCi/L)4		4	2	-0.35	0.35325	15 f	0	
Gross Beta	(pCi/L)4		4	3.3	1.4	2.425	50 a	0	
Tetrachloroethene	(ug/L)		4	4	220 D	5	76.25	5	3
Trichloroethene	(ug/L)		4	1	2 J	2 J	2	5	0

Table 2.63. CONSTITUENTS DETECTED IN GROUNDWATER AT THE Y-12 PLANT SITE 1999

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

COMPOUND	UNITS	FILTERED STATUS	# SAMPLES	# DETECTED	MAXIMUM DETECTED MMT.	MINIMUM DETECTED MMT.	AVERAGE DETECTED MMTS.	REFERENCE VALUE	# MMTS. > REF
Chloride	(mg/L)		6	6	45.05	8.95	19.265	250	0
Fluoride	(mg/L)		6	4	0.14	0.11	0.1225	4	0
Nitrate Nitrogen	(mg/L)		6	3	2.39	0.11	1.343333	10	0
Sulfate	(mg/L)		6	6	22.4	8.33	16.12167	250	0
Barium, ICAP	(mg/L)		6	6	0.65	0.105	0.339333	2	0
Boron, ICAP	(mg/L)		6	4	0.514	0.112	0.3135	NR	NA
Calcium, ICAP	(mg/L)		6	6	95.9	9.53	60.655	NR	NA
Chromium, ICAP	(mg/L)		6	2	0.598	0.0428	0.3204	0.1	1
Copper, ICAP	(mg/L)		6	1	0.024	0.024	0.024	1.3	0
Iron, ICAP	(mg/L)		6	4	4.18	0.226	1.724	0.3	3
Lead, PMS	(mg/L)		6	1	0.00883	0.00883	0.00883	0.015 c	0
Lithium, ICAP	(mg/L)		6	4	0.0601	0.0128	0.035725	NR	NA
Magnesium, ICAP	(mg/L)		6	6	17	3.27	8.656667	NR	NA
Manganese, ICAP	(mg/L)		6	5	0.116	0.0055	0.05466	0.05	2
Nickel, ICAP	(mg/L)		6	2	0.698	0.287	0.4925	0.1 d	2
Potassium, ICAP	(mg/L)		6	4	5.82	5.07	5.44	NR	NA
Sodium, ICAP	(mg/L)		6	6	80.5	8.8	35.20667	NR	NA
Strontium, ICAP	(mg/L)		6	6	1.17	0.173	0.637167	NR	NA
Uranium, PMS	(mg/L)		6	4	0.00154	0.00109	0.001233	NR	NA
Conductivity, field measurement	(umhos/cm)		6	NA	564	385	486.8333	NR	NA
Dissolved Oxygen, field measurement	(ppm)		6	NA	0.96	0.15	0.471667	NR	NA
pH, field measurement	(pH)		6	NA	8.68	7.12	7.646667	6.5/8.5	1
REDOX, field measurement	(mV)		6	NA	199	-1	82.5	NR	NA
Static Water Level	(ft - toc)		6	NA	-8.56	-10.98	-9.81833	NR	NA
Temperature, field measurement	(Deg C)6		NA	20.2	16.5	17.88333	NR	NA	
Alkalinity as CO3	(mg/L)		6	2	16	8	12	NR	NA
Alkalinity as HCO3	(mg/L)		6	6	268	184	221.3333	NR	NA
Conductivity	(umhos/cm)		6	6	596	394	508.3333	NR	NA
Dissolved Solids	(mg/L)		6	6	333	247	298.6667	500	0
pH	(pH)		6	6	8.67 L	7.32 L	7.85	6.5/8.5	2
Total Suspended Solids	(mg/L)		6	3	7	1	3.333333	NR	NA
Turbidity	(NTU)		6	6	30.3	0.248	9.448	1	5
Technetium-99	(pCi/L)6		6	13	-4.5	3.833333	4000	0	
Gross Alpha	(pCi/L)6		6	59	-0.54	17.98333	15 f	2	
Gross Beta	(pCi/L)6		6	16	2	6.216667	50 a	0	
1,1,1-Trichloroethane	(ug/L)		6	2	15	5	10	200	0
1,1-Dichloroethane	(ug/L)		6	4	160	3 J	71	NR	NA

Table 2.63. (continued)

COMPOUND	UNITS	FILTERED STATUS	# SAMPLES	# DETECTED	MAXIMUM DETECTED MMT.	MINIMUM DETECTED MMT.	AVERAGE DETECTED MMTS.	REFERENCE VALUE	# MMTS. > REF
1,1-Dichloroethene	(ug/L)		6	2	43	32	37.5	7	2
1,2-Dichloroethene (Total)	(ug/L)		6	4	24	9 J	16.25	NR b	NA
Benzene	(ug/L)		6	1	2 J	2 J	2	5	0
Carbon tetrachloride	(ug/L)		6	1	2 J	2 J	2	5	0
Chlorobenzene	(ug/L)		6	1	2 J	2 J	2	100	0
Chloroethane	(ug/L)		6	2	8	2 J	5	NR	NA
cis-1,2-Dichloroethene	(ug/L)		6	4	17	6	12.5	70	0
Tetrachloroethene	(ug/L)		6	6	180 D	5	68	5	5
Toluene	(ug/L)		6	1	2 J	2 J	2	1000	0
trans-1,2-Dichloroethene	(ug/L)		6	3	7	3 J	5	100	0
Trichloroethene	(ug/L)		6	4	62	5	32	5	3
Vinyl chloride	(ug/L)		6	2	3 J	2 J	2.5	2	1

Table 2.64. CONSTITUENTS DETECTED IN GROUNDWATER AT THE Y-12 PLANT SITE 1999

REGIME=EF AREA NAME=GW Monitoring Plan Grid Location F3

COMPOUND	UNITS	FILTERED STATUS	# SAMPLES	# DETECTED	MAXIMUM DETECTED MMT.	MINIMUM DETECTED MMT.	AVERAGE DETECTED MMTS.	REFERENCE VALUE	# MMTS. > REF
Chloride	(mg/L)		4	4	8.33	6.36	7.79	250	0
Fluoride	(mg/L)		4	3	1.29	0.14	0.893333	4	0
Nitrate Nitrogen	(mg/L)		4	3	0.73	0.11	0.478667	10	0
Sulfate	(mg/L)		4	4	28.1	17.9	22.825	250	0
Barium, ICAP	(mg/L)		4	4	0.358	0.138	0.24675	2	0
Boron, ICAP	(mg/L)		4	2	1.48	1.42	1.45	NR	NA
Calcium, ICAP	(mg/L)		4	4	62.2	10	36.35	NR	NA
Lithium, ICAP	(mg/L)		4	4	0.0836	0.0119	0.047	NR	NA
Magnesium, ICAP	(mg/L)		4	4	11.1	3.35	7.1775	NR	NA
Manganese, ICAP	(mg/L)		4	2	0.0197	0.0161	0.0179	0.05	0
Mercury, CVAA	(mg/L)		4	1	0.00022	0.00022	0.00022	0.002	0
Potassium, ICAP	(mg/L)		4	4	5.7	2.91	4.2675	NR	NA
Sodium, ICAP	(mg/L)		4	4	131	5.98	67.5325	NR	NA
Strontium, ICAP	(mg/L)		4	4	0.591	0.312	0.44575	NR	NA
Thallium, PMS	(mg/L)		4	1	0.0005	0.0005	0.0005	0.002	0
Uranium, PMS	(mg/L)		4	2	0.00142	0.0012	0.00131	NR	NA
Conductivity, field measurement	(umhos/cm)		4	NA	562	382	478.75	NR	NA
Dissolved Oxygen, field measurement	(ppm)		4	NA	0.64	0.19	0.3825	NR	NA
pH, field measurement	(pH)		4	NA	8.4	7.5	7.975	6.5/8.5	0
REDOX, field measurement	(mV)		4	NA	158	89	125.25	NR	NA
Static Water Level	(ft - toc)		4	NA	-0.92	-4.12	-2.485	NR	NA
Temperature, field measurement	(Deg C)4		NA	19.7	16	18.525	NR	NA	
Alkalinity as HCO3	(mg/L)		4	4	278	182	229.5	NR	NA
Conductivity	(umhos/cm)		4	4	604	400	503.5	NR	NA
Dissolved Solids	(mg/L)		4	4	374	230	299	500	0
pH	(pH)		4	4	8.36 L	7.55 L	7.9725	6.5/8.5	0
Turbidity	(NTU)		4	4	0.442	0.165	0.293	1	0
Technetium-99	(pCi/L)4		4	13	3.7	8.05	4000	0	
Gross Alpha	(pCi/L)4		4	20	1.6	6.45	15 f	1	
Gross Beta	(pCi/L)4		4	6.4	2.6	4.9	50 a	0	
Chloroform	(ug/L)		4	1	1 J	1 J	1	100 i	0

Table 2.65. CONSTITUENTS DETECTED IN GROUNDWATER AT THE Y-12 PLANT SITE 1999

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

COMPOUND	UNITS	FILTERED STATUS	# SAMPLES	# DETECTED	MAXIMUM DETECTED MMT.	MINIMUM DETECTED MMT.	AVERAGE DETECTED MMTS.	REFERENCE VALUE	# MMTS. > REF
Chloride	(mg/L)		4	4	14.2	9.24	11.51	250	0
Fluoride	(mg/L)		4	2	0.25	0.21	0.23	4	0
Nitrate Nitrogen	(mg/L)		4	4	0.223	0.0752	0.12955	10	0
Sulfate	(mg/L)		4	4	27.2	15.2	21.725	250	0
Barium, ICAP	(mg/L)		4	4	0.416	0.0607	0.23445	2	0
Calcium, ICAP	(mg/L)		4	4	75.9	55.6	66.05	NR	NA
Iron, ICAP	(mg/L)		4	1	0.112	0.112	0.112	0.3	0
Lead, PMS	(mg/L)		4	1	0.000598	0.000598	0.000598	0.015 c	0
Lithium, ICAP	(mg/L)		4	1	0.0154	0.0154	0.0154	NR	NA
Magnesium, ICAP	(mg/L)		4	4	10	4.71	7.145	NR	NA
Manganese, ICAP	(mg/L)		4	2	0.0109	0.00815	0.009525	0.05	0
Potassium, ICAP	(mg/L)		4	4	3.05	2.17	2.5725	NR	NA
Sodium, ICAP	(mg/L)		4	4	8.45	6.22	7.3125	NR	NA
Strontium, ICAP	(mg/L)		4	4	0.412	0.0789	0.242075	NR	NA
Uranium, PMS	(mg/L)		4	1	0.00106	0.00106	0.00106	NR	NA
Conductivity, field measurement	(umhos/cm)		4	NA	430	317	388.25	NR	NA
Dissolved Oxygen, field measurement	(ppm)		4	NA	4.69	0.22	2.2425	NR	NA
pH, field measurement	(pH)		4	NA	7.42	7.06	7.24	6.5/8.5	0
REDOX, field measurement	(mV)		4	NA	163	55	110.75	NR	NA
Static Water Level	(ft - toc)		4	NA	-10.93	-13.51	-12.22	NR	NA
Temperature, field measurement	(Deg C)	4	NA	22.1	17	19.3	NR	NA	
Alkalinity as HCO3	(mg/L)		4	4	212	130	177	NR	NA
Conductivity	(umhos/cm)		4	4	473	344	413.25	NR	NA
Dissolved Solids	(mg/L)		4	4	280	200	245	500	0
pH	(pH)		4	4	7.48 L	7.12 L	7.3175	6.5/8.5	0
Turbidity	(NTU)		4	4	1.37	0.272	0.57675	1	1
Technetium-99	(pCi/L)	4	4	16	-12	1.95	4000	0	
Gross Alpha	(pCi/L)	4	4	3.7	0.79	1.5775	15 f	0	
Gross Beta	(pCi/L)	4	4	10	-0.8	3.5	50 a	0	
Carbon tetrachloride	(ug/L)		4	2	9	7	8	5	2
Chloroform	(ug/L)		4	2	7	5	6	100 i	0
Tetrachloroethene	(ug/L)		4	2	5	4 J	4.5	5	0

Table. 2.66. CONSTITUENTS DETECTED IN GROUNDWATER AT THE Y-12 PLANT SITE 1999

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

COMPOUND	UNITS	FILTERED STATUS	# SAMPLES	# DETECTED	MAXIMUM DETECTED MMT.	MINIMUM DETECTED MMT.	AVERAGE DETECTED MMTS.	REFERENCE VALUE	# MMTS. > REF
Chloride	(mg/L)		4	4	41.9	30.1	35.85	250	0
Nitrate Nitrogen	(mg/L)		4	4	1.52	0.377	1.01175	10	0
Sulfate	(mg/L)		4	4	41.7	30.1	35.05	250	0
Barium, ICAP	(mg/L)		4	4	0.212	0.0919	0.151375	2	0
Calcium, ICAP	(mg/L)		4	4	99.2	93.2	96.65	NR	NA
Chromium, ICAP	(mg/L)		4	2	0.0694	0.0432	0.0563	0.1	0
Iron, ICAP	(mg/L)		4	2	0.667	0.58	0.6235	0.3	2
Magnesium, ICAP	(mg/L)		4	4	8.09	5.35	6.86	NR	NA
Manganese, ICAP	(mg/L)		4	2	0.031	0.00934	0.02017	0.05	0
Nickel, ICAP	(mg/L)		4	2	0.814	0.589	0.7015	0.1 d	2
Potassium, ICAP	(mg/L)		4	4	3.11	2.37	2.8025	NR	NA
Sodium, ICAP	(mg/L)		4	4	15.9	4.37	9.56	NR	NA
Strontium, ICAP	(mg/L)		4	4	0.253	0.171	0.2135	NR	NA
Uranium, PMS	(mg/L)		4	1	0.000891	0.000891	0.000891	NR	NA
Conductivity, field measurement	(umhos/cm)		4	NA	549	476	515	NR	NA
Dissolved Oxygen, field measurement	(ppm)		4	NA	2.51	0.44	1.075	NR	NA
pH, field measurement	(pH)		4	NA	7.54	7.25	7.425	6.5/8.5	0
REDOX, field measurement	(mV)		4	NA	137	57	95.75	NR	NA
Static Water Level	(ft - toc)		4	NA	-15.4	-17.3	-16.11	NR	NA
Temperature, field measurement	(Deg C)4		NA	19.7	17.4	18.4	NR	NA	
Alkalinity as HCO3	(mg/L)		4	4	198	192	196	NR	NA
Conductivity	(umhos/cm)		4	4	622	543	581.75	NR	NA
Dissolved Solids	(mg/L)		4	4	379	283	328.5	500	0
pH	(pH)		4	4	7.59 L	7.24 L	7.4475	6.5/8.5	0
Turbidity	(NTU)		4	4	7.37	0.239	3.275	1	2
Technetium-99	(pCi/L)4		4	17	2.9	10.3	4000	0	
Gross Alpha	(pCi/L)4		4	6.4	-1.9	1.3295	15 f	0	
Gross Beta	(pCi/L)4		4	3.1	-2.6	0.8025	50 a	0	
Trichloroethene	(ug/L)		4	4	5	3 J	3.75	5	0

Table 2.67. CONSTITUENTS DETECTED IN GROUNDWATER AT THE Y-12 PLANT SITE 1999

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

COMPOUND	UNITS	FILTERED STATUS	# SAMPLES	# DETECTED	MAXIMUM DETECTED MMT.	MINIMUM DETECTED MMT.	AVERAGE DETECTED MMTS.	REFERENCE VALUE	# MMTS. > REF
Chloride	(mg/L)		2	2	8.36	7.317	7.8385	250	0
Nitrate Nitrogen	(mg/L)		2	1	0.05	0.05	0.05	10	0
Sulfate	(mg/L)		2	2	13.5	11.99	12.745	250	0
Barium, ICAP	(mg/L)		2	2	0.294	0.242	0.268	2	0
Barium, ICAP	(mg/L)	FILTERED	2	2	0.296	0.244	0.27	2	0
Calcium, ICAP	(mg/L)		2	2	45.9	45.8	45.85	NR	NA
Calcium, ICAP	(mg/L)	FILTERED	2	2	46.6	46.4	46.5	NR	NA
Iron, ICAP	(mg/L)		2	1	0.0984	0.0984	0.0984	0.3	0
Lithium, ICAP	(mg/L)		2	2	0.0282	0.0275	0.02785	NR	NA
Lithium, ICAP	(mg/L)	FILTERED	2	2	0.0284	0.027	0.0277	NR	NA
Magnesium, ICAP	(mg/L)		2	2	11.5	11.3	11.4	NR	NA
Magnesium, ICAP	(mg/L)	FILTERED	2	2	11.6	11.3	11.45	NR	NA
Manganese, ICAP	(mg/L)		2	2	0.0519	0.0348	0.04335	0.05	1
Manganese, ICAP	(mg/L)	FILTERED	2	2	0.0536	0.0528	0.0532	0.05	2
Potassium, ICAP	(mg/L)		2	2	3.72	3.07	3.395	NR	NA
Potassium, ICAP	(mg/L)	FILTERED	2	2	3.46	3.16	3.31	NR	NA
Sodium, ICAP	(mg/L)		2	2	35.6	35	35.3	NR	NA
Sodium, ICAP	(mg/L)	FILTERED	2	2	36.2	35.5	35.85	NR	NA
Strontium, ICAP	(mg/L)		2	2	1.35	1.28	1.315	NR	NA
Strontium, ICAP	(mg/L)	FILTERED	2	2	1.36	1.29	1.325	NR	NA
Conductivity, field measurement	(umhos/cm)		2	NA	436	400	418	NR	NA
Dissolved Oxygen, field measurement	(ppm)		2	NA	0.5	0.26	0.38	NR	NA
pH, field measurement	(pH)		2	NA	8.1	7.98	8.04	6.5/8.5	0
REDOX, field measurement	(mV)		2	NA	-219	-271	-245	NR	NA
Static Water Level	(ft - toc)		2	NA	-7.25	-8.13	-7.69	NR	NA
Temperature, field measurement	(Deg C)2		NA	17.6	17.5	17.55	NR	NA	
Alkalinity as HCO3	(mg/L)		2	2	226	218	222	NR	NA
Conductivity	(umhos/cm)		2	2	459	427	443	NR	NA
Dissolved Solids	(mg/L)		2	2	274	271	272.5	500	0
pH	(pH)		2	2	8.19 L	7.84 L	8.015	6.5/8.5	0
Turbidity	(NTU)		2	2	1.72	0.469	1.0945	1	1
Gross Alpha	(pCi/L)2		2	2.3	1.5	1.9	15 f	0	
Gross Beta	(pCi/L)2		2	3	-1.4	0.8	50 a	0	

Table 2.68. CONSTITUENTS DETECTED IN GROUNDWATER AT THE Y-12 PLANT SITE 1999

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

COMPOUND	UNITS	FILTERED STATUS	# SAMPLES	# DETECTED	MAXIMUM DETECTED MMT.	MINIMUM DETECTED MMT.	AVERAGE DETECTED MMTS.	REFERENCE VALUE	# MMTS. > REF
Chloride	(mg/L)		2	2	4.82	1.53	3.175	250	0
Fluoride	(mg/L)		2	2	0.3	0.15	0.225	4	0
Sulfate	(mg/L)		2	2	15.73	14.4	15.065	250	0
Barium, ICAP	(mg/L)		2	2	0.161	0.148	0.1545	2	0
Barium, ICAP	(mg/L)	FILTERED	2	2	0.161	0.148	0.1545	2	0
Boron, ICAP	(mg/L)	FILTERED	2	1	0.1	0.1	0.1	NR	NA
Calcium, ICAP	(mg/L)		2	2	42.2	32.3	37.25	NR	NA
Calcium, ICAP	(mg/L)	FILTERED	2	2	42.6	32.4	37.5	NR	NA
Lithium, ICAP	(mg/L)		2	2	0.0219	0.0183	0.0201	NR	NA
Lithium, ICAP	(mg/L)	FILTERED	2	2	0.0224	0.0172	0.0198	NR	NA
Magnesium, ICAP	(mg/L)		2	2	9.8	6.77	8.285	NR	NA
Magnesium, ICAP	(mg/L)	FILTERED	2	2	9.62	6.81	8.215	NR	NA
Manganese, ICAP	(mg/L)		2	2	0.0121	0.00922	0.01066	0.05	0
Manganese, ICAP	(mg/L)	FILTERED	2	2	0.013	0.0117	0.01235	0.05	0
Potassium, ICAP	(mg/L)		2	1	2.12	2.12	2.12	NR	NA
Potassium, ICAP	(mg/L)	FILTERED	2	1	2.01	2.01	2.01	NR	NA
Sodium, ICAP	(mg/L)		2	2	49.1	35.4	42.25	NR	NA
Sodium, ICAP	(mg/L)	FILTERED	2	2	49.1	36	42.55	NR	NA
Strontium, ICAP	(mg/L)		2	2	0.593	0.444	0.5185	NR	NA
Strontium, ICAP	(mg/L)	FILTERED	2	2	0.596	0.444	0.52	NR	NA
Conductivity, field measurement	(umhos/cm)		2	NA	379	372	375.5	NR	NA
Dissolved Oxygen, field measurement	(ppm)		2	NA	0.31	0.28	0.295	NR	NA
pH, field measurement	(pH)		2	NA	7.94	7.22	7.58	6.5/8.5	0
REDOX, field measurement	(mV)		2	NA	51	31	41	NR	NA
Static Water Level	(ft - toc)		2	NA	-6.48	-6.86	-6.67	NR	NA
Temperature, field measurement	(Deg C)2		NA	20.1	17.3	18.7	NR	NA	
Alkalinity as HCO3	(mg/L)		2	2	206	188	197	NR	NA
Conductivity	(umhos/cm)		2	2	401	346	373.5	NR	NA
Dissolved Solids	(mg/L)		2	2	256	247	251.5	500	0
pH	(pH)		2	2	8 X	7.53 L	7.765	6.5/8.5	0
Turbidity	(NTU)		2	2	0.458	0.316	0.387	1	0
Gross Alpha	(pCi/L)2		2	2.3	0.23	1.265	15 f	0	
Gross Beta	(pCi/L)2		2	2.6	1.2	1.9	50 a	0	

Table 2.69. CONSTITUENTS DETECTED IN GROUNDWATER AT THE Y-12 PLANT SITE 1999

REGIME=EF AREA NAME=Grid J Primary

COMPOUND	UNITS	FILTERED STATUS	# SAMPLES	# DETECTED	MAXIMUM DETECTED MMT.	MINIMUM DETECTED MMT.	AVERAGE DETECTED MMTS.	REFERENCE VALUE	# MMTS. > REF
Chloride	(mg/L)		2	2	65.7	58.94	62.32	250	0
Fluoride	(mg/L)		2	2	0.265	0.26	0.2625	4	0
Sulfate	(mg/L)		2	2	1.52	1.09	1.305	250	0
Barium, ICAP	(mg/L)		2	2	0.0499	0.0492	0.04955	2	0
Calcium, ICAP	(mg/L)		2	2	107	104	105.5	NR	NA
Iron, ICAP	(mg/L)		2	2	23.8	21.6	22.7	0.3	2
Magnesium, ICAP	(mg/L)		2	2	14.3	13.8	14.05	NR	NA
Manganese, ICAP	(mg/L)		2	2	0.84	0.734	0.787	0.05	2
Sodium, ICAP	(mg/L)		2	2	15.8	13.3	14.55	NR	NA
Strontium, ICAP	(mg/L)		2	2	0.209	0.207	0.208	NR	NA
Conductivity, field measurement	(umhos/cm)		2	NA	794	719	756.5	NR	NA
Dissolved Oxygen, field measurement	(ppm)		2	NA	0.12	0.07	0.095	NR	NA
pH, field measurement	(pH)		2	NA	6.93	6.87	6.9	6.5/8.5	0
REDOX, field measurement	(mV)		2	NA	-124	-125	-124.5	NR	NA
Static Water Level	(ft - toc)		2	NA	-9.95	-10.19	-10.07	NR	NA
Temperature, field measurement	(Deg C)2		NA	23	18.5	20.75	NR	NA	
Alkalinity as HCO3	(mg/L)		2	2	296	274	285	NR	NA
Conductivity	(umhos/cm)		2	2	717	707	712	NR	NA
Dissolved Solids	(mg/L)		2	2	391	385	388	500	0
pH	(pH)		2	2	6.81 L	6.65 L	6.73	6.5/8.5	0
Total Suspended Solids	(mg/L)		2	2	37	33	35	NR	NA
Turbidity	(NTU)		2	2	293	143	218	1	2
Gross Alpha	(pCi/L)2		2	1.4	-0.086	0.657	15 f	0	
Gross Beta	(pCi/L)2		2	0.55	-2.7	-1.075	50 a	0	
1,2-Dichloroethene (Total)	(ug/L)		2	1	29	29	29	NR b	NA
cis-1,2-Dichloroethene	(ug/L)		2	1	29	29	29	70	0
Tetrachloroethene	(ug/L)		2	1	12	12	12	5	1
Trichloroethene	(ug/L)		2	1	3 J	3 J	3	5	0
Vinyl chloride	(ug/L)		2	1	4 J	4 J	4	2	1

Table 2.70. CONSTITUENTS DETECTED IN GROUNDWATER AT THE Y-12 PLANT SITE 1999

REGIME=EF AREA NAME=New Hope Pond

COMPOUND	UNITS	FILTERED STATUS	# SAMPLES	# DETECTED	MAXIMUM DETECTED MMT.	MINIMUM DETECTED MMT.	AVERAGE DETECTED MMTS.	REFERENCE VALUE	# MMTS. > REF
Chloride	(mg/L)		11	11	100.47	11.94	41.92818	250	0
Fluoride	(mg/L)		11	5	0.185	0.11	0.1612	4	0
Nitrate Nitrogen	(mg/L)		11	7	1.8	0.05308	0.883726	10	0
Sulfate	(mg/L)		11	11	34.28	13.3	20.96273	250	0
Arsenic, PMS	(mg/L)		11	1	0.00572	0.00572	0.00572	0.05	0
Barium, ICAP	(mg/L)		11	11	0.674	0.0291	0.233864	2	0
Cadmium, PMS	(mg/L)		11	1	0.00251	0.00251	0.00251	0.005	0
Calcium, ICAP	(mg/L)		11	11	163	34.2	82.49091	NR	NA
Chromium, ICAP	(mg/L)		11	2	0.0426	0.0337	0.03815	0.1	0
Iron, ICAP	(mg/L)		11	5	1.56	0.46	0.874	0.3	5
Lithium, ICAP	(mg/L)		11	2	0.0158	0.011	0.0134	NR	NA
Magnesium, ICAP	(mg/L)		11	11	25.2	10.5	16.21818	NR	NA
Manganese, ICAP	(mg/L)		11	7	0.756	0.0636	0.226886	0.05	7
Nickel, ICAP	(mg/L)		11	2	0.268	0.211	0.2395	0.1 d	2
Potassium, ICAP	(mg/L)		11	9	3.56	2.06	2.634444	NR	NA
Selenium, PMS	(mg/L)		11	2	0.0341	0.0291	0.0316	0.05	0
Sodium, ICAP	(mg/L)		11	11	53.7 k	4.79	18.26364	NR	NA
Strontium, ICAP	(mg/L)		11	11	0.569	0.0395	0.330236	NR	NA
Uranium, PMS	(mg/L)		11	8	0.0236	0.000666	0.003925	NR	NA
Conductivity, field measurement	(umhos/cm)		11	NA	899	406	577.7273	NR	NA
Dissolved Oxygen, field measurement	(ppm)		11	NA	4.24	0.18	1.344545	NR	NA
pH, field measurement	(pH)		11	NA	7.87	6.73	7.267273	6.5/8.5	0
REDOX, field measurement	(mV)		11	NA	192	-77	67.54545	NR	NA
Static Water Level	(ft - toc)		11	NA	-8.64	-20.51	-13.0018	NR	NA
Temperature, field measurement	(Deg C)11		NA	21	15.4	17.99091	NR	NA	
Alkalinity as HCO3	(mg/L)		11	11	344	164	234.3636	NR	NA
Conductivity	(umhos/cm)		11	11	969	391	596.7273	NR	NA
Dissolved Solids	(mg/L)		11	11	665	228	353.3636	500	2
pH	(pH)		11	11	7.92 L	6.83 L	7.273636	6.5/8.5	0
Total Suspended Solids	(mg/L)		11	4	3	1	1.75	NR	NA
Turbidity	(NTU)		11	11	10.2	0.172	4.527727	1	9
Gross Alpha	(pCi/L)11		11	16	0.84	3.1	15 f	1	
Gross Beta	(pCi/L)11		11	9.4	-3.6	3.38	50 a	0	
1,1-Dichloroethene	(ug/L)		11	1	3 J	3 J	3	7	0
1,2-Dichloroethene (Total)	(ug/L)		11	7	150	4 J	56.71429	NR b	NA
Bromodichloromethane	(ug/L)		11	2	4 J	4 J	4	100 i	0
Bromoform	(ug/L)		11	2	14	13	13.5	100 i	0

Table 2.70. (continued)

COMPOUND	UNITS	FILTERED STATUS	# SAMPLES	# DETECTED	MAXIMUM DETECTED MMT.	MINIMUM DETECTED MMT.	AVERAGE DETECTED MMTS.	REFERENCE VALUE	# MMTS. > REF
Carbon tetrachloride	(ug/L)		11	4	610 D	260 D	410	5	4
Chlorodibromomethane	(ug/L)		11	2	9	7	8	100 i	0
Chloroform	(ug/L)		11	5	40	2 J	20.8	100 i	0
cis-1,2-Dichloroethene	(ug/L)		11	7	150	4 J	56.71429	70	2
Tetrachloroethene	(ug/L)		11	7	550 D	5 J	168.4286	5	6
Trichloroethene	(ug/L)		11	6	160	2 J	63	5	5
Vinyl chloride	(ug/L)		11	1	2 J	2 J	2	2	0

Table 2.71. CONSTITUENTS DETECTED IN GROUNDWATER AT THE Y-12 PLANT SITE 1999

REGIME=EF AREA NAME=S-2 Site

COMPOUND	UNITS	FILTERED STATUS	# SAMPLES	# DETECTED	MAXIMUM DETECTED MMT.	MINIMUM DETECTED MMT.	AVERAGE DETECTED MMTS.	REFERENCE VALUE	# MMTS. > REF
Chloride	(mg/L)		2	2	8.65	4.91	6.78	250	0
Fluoride	(mg/L)		2	2	1.49	1.13	1.31	4	0
Nitrate Nitrogen	(mg/L)		2	2	73.33	25.5	49.415	10	2
Sulfate	(mg/L)		2	2	19.75	8.72	14.235	250	0
Barium, ICAP	(mg/L)		2	2	0.113	0.0565	0.08475	2	0
Cadmium, PMS	(mg/L)		2	2	0.12	0.0498	0.0849	0.005	2
Calcium, ICAP	(mg/L)		2	2	115	80.6	97.8	NR	NA
Copper, ICAP	(mg/L)		2	2	0.268	0.092	0.18	1.3	0
Lead, PMS	(mg/L)		2	1	0.000523	0.000523	0.000523	0.015 c	0
Magnesium, ICAP	(mg/L)		2	2	15.6	11.3	13.45	NR	NA
Manganese, ICAP	(mg/L)		2	2	4.15	1.2	2.675	0.05	2
Potassium, ICAP	(mg/L)		2	1	4.54	4.54	4.54	NR	NA
Sodium, ICAP	(mg/L)		2	2	15.7	8.05	11.875	NR	NA
Strontium, ICAP	(mg/L)		2	2	0.206	0.112	0.159	NR	NA
Thallium, PMS	(mg/L)		2	2	0.00226	0.00116	0.00171	0.002	1
Uranium, PMS	(mg/L)		2	2	0.0045	0.00275	0.003625	NR	NA
Zinc, ICAP	(mg/L)		2	1	0.0609	0.0609	0.0609	5	0
Conductivity, field measurement	(umhos/cm)		2	NA	860	641	750.5	NR	NA
Dissolved Oxygen, field measurement	(ppm)		2	NA	0.56	0.24	0.4	NR	NA
pH, field measurement	(pH)		2	NA	6.74	6.55	6.645	6.5/8.5	0
REDOX, field measurement	(mV)		2	NA	251	248	249.5	NR	NA
Static Water Level	(ft - toc)		2	NA	-17.71	-23.85	-20.78	NR	NA
Temperature, field measurement	(Deg C)2		NA	15.8	14.4	15.1	NR	NA	
Alkalinity as HCO3	(mg/L)		2	2	176	176	176	NR	NA
Conductivity	(umhos/cm)		2	2	907	608	757.5	NR	NA
Dissolved Solids	(mg/L)		2	2	778	375	576.5	500	1
pH	(pH)		2	2	6.87 L	6.54 L	6.705	6.5/8.5	0
Total Suspended Solids	(mg/L)		2	1	2	2	2	NR	NA
Turbidity	(NTU)		2	2	1.42	0.609	1.0145	1	1
Gross Alpha	(pCi/L)2		2	9.8	0.74	5.27	15 f	0	
Gross Beta	(pCi/L)2		2	5.8	0.38	3.09	50 a	0	
1,2-Dichloroethene (Total)	(ug/L)		2	1	10	10	10	NR b	NA
Carbon tetrachloride	(ug/L)		2	1	8	8	8	5	1
Chloroform	(ug/L)		2	2	13	5 J	9	100 i	0
cis-1,2-Dichloroethene	(ug/L)		2	1	10	10	10	70	0
Tetrachloroethene	(ug/L)		2	2	310 D	60	185	5	2
Trichloroethene	(ug/L)		2	2	140	23	81.5	5	2

Table 2.72. CONSTITUENTS DETECTED IN GROUNDWATER AT THE Y-12 PLANT SITE 1999

REGIME=EF AREA NAME=Scarboro Road

COMPOUND	UNITS	FILTERED STATUS	# SAMPLES	# DETECTED	MAXIMUM DETECTED MMT.	MINIMUM DETECTED MMT.	AVERAGE DETECTED MMTS.	REFERENCE VALUE	# MMTS. > REF
Chloride	(mg/L)		1	1	18.31	18.31	18.31	250	0
Fluoride	(mg/L)		1	1	0.12	0.12	0.12	4	0
Nitrate Nitrogen	(mg/L)		1	1	0.2733	0.2733	0.2733	10	0
Sulfate	(mg/L)		1	1	11.53	11.53	11.53	250	0
Barium, ICAP	(mg/L)		1	1	0.127	0.127	0.127	2	0
Calcium, ICAP	(mg/L)		1	1	86.1	86.1	86.1	NR	NA
Iron, ICAP	(mg/L)		1	1	2.5	2.5	2.5	0.3	1
Magnesium, ICAP	(mg/L)		1	1	23.7	23.7	23.7	NR	NA
Manganese, ICAP	(mg/L)		1	1	0.0168	0.0168	0.0168	0.05	0
Potassium, ICAP	(mg/L)		1	1	2.93	2.93	2.93	NR	NA
Sodium, ICAP	(mg/L)		1	1	5.42	5.42	5.42	NR	NA
Strontium, ICAP	(mg/L)		1	1	0.562	0.562	0.562	NR	NA
Conductivity, field measurement	(umhos/cm)		1	NA	533	533	533	NR	NA
Dissolved Oxygen, field measurement	(ppm)		1	NA	1.23	1.23	1.23	NR	NA
pH, field measurement	(pH)		1	NA	7.35	7.35	7.35	6.5/8.5	0
REDOX, field measurement	(mV)		1	NA	13	13	13	NR	NA
Static Water Level	(ft - toc)		1	NA	-31.81	-31.81	-31.81	NR	NA
Temperature, field measurement	(Deg C)	1	NA	16.9	16.9	16.9	NR	NA	
Alkalinity as HCO3	(mg/L)		1	1	284	284	284	NR	NA
Conductivity	(umhos/cm)		1	1	619	619	619	NR	NA
Dissolved Solids	(mg/L)		1	1	548	548	548	500	1
pH	(pH)		1	1	7.46 L	7.46 L	7.46	6.5/8.5	0
Total Suspended Solids	(mg/L)		1	1	7	7	7	NR	NA
Turbidity	(NTU)		1	1	19.9	19.9	19.9	1	1
Gross Alpha	(pCi/L)	1	1	0.54	0.54	0.54	15 f	0	
Gross Beta	(pCi/L)	1	1	1.2	1.2	1.2	50 a	0	

Table 2.73. CONSTITUENTS DETECTED IN GROUNDWATER AT THE Y-12 PLANT SITE 1999

REGIME=EF AREA NAME=Special Radiological Sampling

COMPOUND	UNITS	FILTERED STATUS	# SAMPLES	# DETECTED	MAXIMUM DETECTED MMT.	MINIMUM DETECTED MMT.	AVERAGE DETECTED MMTS.	REFERENCE VALUE	# MMTS. > REF
Chloride	(mg/L)		1	1	7.333	7.333	7.333	250	0
Fluoride	(mg/L)		1	1	0.68	0.68	0.68	4	0
Sulfate	(mg/L)		1	1	189.5	189.5	189.5	250	0
Barium, ICAP	(mg/L)		1	1	0.153	0.153	0.153	2	0
Cadmium, PMS	(mg/L)		1	1	0.00255	0.00255	0.00255	0.005	0
Calcium, ICAP	(mg/L)		1	1	124	124	124	NR	NA
Lead, PMS	(mg/L)		1	1	0.00133	0.00133	0.00133	0.015 c	0
Lithium, ICAP	(mg/L)		1	1	0.194	0.194	0.194	NR	NA
Magnesium, ICAP	(mg/L)		1	1	19.8	19.8	19.8	NR	NA
Manganese, ICAP	(mg/L)		1	1	0.017	0.017	0.017	0.05	0
Potassium, ICAP	(mg/L)		1	1	3.76	3.76	3.76	NR	NA
Sodium, ICAP	(mg/L)		1	1	10.2	10.2	10.2	NR	NA
Strontium, ICAP	(mg/L)		1	1	0.303	0.303	0.303	NR	NA
Uranium, PMS	(mg/L)		1	1	0.143	0.143	0.143	NR	NA
Conductivity, field measurement	(umhos/cm)		1	NA	760	760	760	NR	NA
Dissolved Oxygen, field measurement	(ppm)		1	NA	0.67	0.67	0.67	NR	NA
pH, field measurement	(pH)		1	NA	7.22	7.22	7.22	6.5/8.5	0
REDOX, field measurement	(mV)		1	NA	114	114	114	NR	NA
Static Water Level	(ft - toc)		1	NA	-11.46	-11.46	-11.46	NR	NA
Temperature, field measurement	(Deg C)1		NA	22.8	22.8	22.8	NR	NA	
Alkalinity as HCO3	(mg/L)		1	1	212	212	212	NR	NA
Conductivity	(umhos/cm)		1	1	768	768	768	NR	NA
Dissolved Solids	(mg/L)		1	1	525	525	525	500	1
pH	(pH)		1	1	7.45 L	7.45 L	7.45	6.5/8.5	0
Turbidity	(NTU)		1	1	0.31	0.31	0.31	1	0
Gross Alpha	(pCi/L)1		1	95	95	95	15 f	1	
Gross Beta	(pCi/L)1		1	30	30	30	50 a	0	
Tetrachloroethene	(ug/L)		1	1	16	16	16	5	1
Trichloroethene	(ug/L)		1	1	2 J	2 J	2	5	0

Table 2.74. CONSTITUENTS DETECTED IN GROUNDWATER AT THE Y-12 PLANT SITE 1999

REGIME=EF AREA NAME=Uranium Oxide Vault

COMPOUND	UNITS	FILTERED STATUS	# SAMPLES	# DETECTED	MAXIMUM DETECTED MMT.	MINIMUM DETECTED MMT.	AVERAGE DETECTED MMTS.	REFERENCE VALUE	# MMTS. > REF
Chloride	(mg/L)		2	2	17.6	3.95	10.775	250	0
Fluoride	(mg/L)		2	2	0.189	0.146	0.1675	4	0
Nitrate Nitrogen	(mg/L)		2	2	2.73	0.216	1.473	10	0
Sulfate	(mg/L)		2	2	46.7	19.7	33.2	250	0
Barium, ICAP	(mg/L)		2	2	0.0642	0.0539	0.05905	2	0
Barium, ICAP	(mg/L)	FILTERED	2	2	0.0655	0.0547	0.0601	2	0
Boron, ICAP	(mg/L)	FILTERED	2	1	0.101	0.101	0.101	NR	NA
Calcium, ICAP	(mg/L)		2	2	90.5	66 k	78.25	NR	NA
Calcium, ICAP	(mg/L)	FILTERED	2	2	93.8	65.4	79.6	NR	NA
Iron, ICAP	(mg/L)		2	2	0.142	0.108	0.125	0.3	0
Lead, PMS	(mg/L)		2	1	0.000969	0.000969	0.000969	0.015 c	0
Lead, PMS	(mg/L)	FILTERED	2	1	0.000635	0.000635	0.000635	0.015 c	0
Magnesium, ICAP	(mg/L)		2	2	19.6 k	10.8	15.2	NR	NA
Magnesium, ICAP	(mg/L)	FILTERED	2	2	19.2	11.1	15.15	NR	NA
Manganese, ICAP	(mg/L)		2	2	0.254	0.023	0.1385	0.05	1
Manganese, ICAP	(mg/L)	FILTERED	2	2	0.187	0.012	0.0995	0.05	1
Potassium, ICAP	(mg/L)		2	2	4.14	3.23	3.685	NR	NA
Potassium, ICAP	(mg/L)	FILTERED	2	2	4.39	3.21	3.8	NR	NA
Sodium, ICAP	(mg/L)		2	2	20.4	13.5 k	16.95	NR	NA
Sodium, ICAP	(mg/L)	FILTERED	2	2	21	13.7	17.35	NR	NA
Strontium, ICAP	(mg/L)		2	2	0.184	0.0781	0.13105	NR	NA
Strontium, ICAP	(mg/L)	FILTERED	2	2	0.189	0.0785	0.13375	NR	NA
Thallium, PMS	(mg/L)		2	1	0.0009	0.0009	0.0009	0.002	0
Uranium, PMS	(mg/L)		2	2	0.599	0.0049	0.30195	NR	NA
Uranium, PMS	(mg/L)	FILTERED	2	2	0.614	0.00439	0.309195	NR	NA
Conductivity, field measurement	(umhos/cm)		2	NA	565	507	536	NR	NA
Dissolved Oxygen, field measurement	(ppm)		2	NA	7.13	0.19	3.66	NR	NA
pH, field measurement	(pH)		2	NA	7.35	7.1	7.225	6.5/8.5	0
REDOX, field measurement	(mV)		2	NA	161	143	152	NR	NA
Static Water Level	(ft - toc)		2	NA	-10.45	-15.05	-12.75	NR	NA
Temperature, field measurement	(Deg C)2		NA	18.3	16.9	17.6	NR	NA	
Alkalinity as HCO3	(mg/L)		2	2	286	248	267	NR	NA
Conductivity	(umhos/cm)		2	2	604	539	571.5	NR	NA
Dissolved Solids	(mg/L)		2	2	370	295	332.5	500	0
pH	(pH)		2	2	7.52 L	7.4 L	7.46	6.5/8.5	0
Total Suspended Solids	(mg/L)		2	1	2	2	2	NR	NA
Turbidity	(NTU)		2	2	2.43	2.17	2.3	1	2

Table 2.74. (continued)

COMPOUND	UNITS	FILTERED STATUS	# SAMPLES	# DETECTED	MAXIMUM DETECTED MMT.	MINIMUM DETECTED MMT.	AVERAGE DETECTED MMTS.	REFERENCE VALUE	# MMTS. > REF
Iodine-129	(pCi/L)2		2	7.4	3.9	5.65	NR	NA	
Thorium-228	(pCi/L)2		2	0.28	-0.008	0.136	16	0	
Thorium-230	(pCi/L)2		2	0.18	0.15	0.165	12	0	
Thorium-231+234	(pCi/L)2		2	220	1.1	110.55	400	0	
Thorium-232	(pCi/L)2		2	0.092	0	0.046	2	0	
Uranium-234	(pCi/L)2		2	31	1.3	16.15	20	1	
Uranium-235	(pCi/L)2		2	2.1	0.064	1.082	24	0	
Neptunium-237	(pCi/L)2		2	0.27	0.11	0.19	1.2	0	
Plutonium-238	(pCi/L)2		2	0.097	0.061	0.079	1.6	0	
Uranium-238	(pCi/L)2		2	220	1.1	110.55	24	1	
Americium-241	(pCi/L)2		2	0.27	0.057	0.1635	1.2	0	
Strontium-89/90	(pCi/L)2		2	1.4	-0.91	0.245	NR h	NA	
Technetium-99	(pCi/L)2		2	22	7.6	14.8	4000	0	
Gross Alpha	(pCi/L)2		2	180	3.4	91.7	15 f	1	
Gross Beta	(pCi/L)2		2	140	8	74	50 a	1	
Radium - Total Alpha	(pCi/L)2		2	0.61	0.38	0.495	5 g	0	
Tritium	(pCi/L)2		2	350	300	325	20000	0	

Table 2.75. CONSTITUENTS DETECTED IN GROUNDWATER AT THE Y-12 PLANT SITE 1999

REGIME=EF AREA NAME=Waste Coolant Processing Area

COMPOUND	UNITS	FILTERED STATUS	# SAMPLES	# DETECTED	MAXIMUM DETECTED MMT.	MINIMUM DETECTED MMT.	AVERAGE DETECTED MMTS.	REFERENCE VALUE	# MMTS. > REF
Chloride	(mg/L)		1	1	14.24	14.24	14.24	250	0
Sulfate	(mg/L)		1	1	7.636	7.636	7.636	250	0
Barium, ICAP	(mg/L)		1	1	0.202	0.202	0.202	2	0
Cadmium, PMS	(mg/L)		1	1	0.00292	0.00292	0.00292	0.005	0
Calcium, ICAP	(mg/L)		1	1	94.7	94.7	94.7	NR	NA
Magnesium, ICAP	(mg/L)		1	1	9.1	9.1	9.1	NR	NA
Manganese, ICAP	(mg/L)		1	1	0.0536	0.0536	0.0536	0.05	1
Sodium, ICAP	(mg/L)		1	1	4.39	4.39	4.39	NR	NA
Strontium, ICAP	(mg/L)		1	1	0.233	0.233	0.233	NR	NA
Uranium, PMS	(mg/L)		1	1	0.00109	0.00109	0.00109	NR	NA
Conductivity, field measurement	(umhos/cm)		1	NA	493	493	493	NR	NA
Dissolved Oxygen, field measurement	(ppm)		1	NA	0.14	0.14	0.14	NR	NA
pH, field measurement	(pH)		1	NA	6.61	6.61	6.61	6.5/8.5	0
REDOX, field measurement	(mV)		1	NA	149	149	149	NR	NA
Static Water Level	(ft - toc)		1	NA	-11.63	-11.63	-11.63	NR	NA
Temperature, field measurement	(Deg C)1		NA	19.4	19.4	19.4	NR	NA	
Alkalinity as HCO3	(mg/L)		1	1	232	232	232	NR	NA
Conductivity	(umhos/cm)		1	1	527	527	527	NR	NA
Dissolved Solids	(mg/L)		1	1	210	210	210	500	0
pH	(pH)		1	1	7.04 L	7.04 L	7.04	6.5/8.5	0
Turbidity	(NTU)		1	1	0.236	0.236	0.236	1	0
Gross Alpha	(pCi/L)1		1	-1.1	-1.1	-1.1	15 f	0	
Gross Beta	(pCi/L)1		1	0.57	0.57	0.57	50 a	0	
1,1,1-Trichloroethane	(ug/L)		1	1	180	180	180	200	0
1,1-Dichloroethane	(ug/L)		1	1	130	130	130	NR	NA
1,1-Dichloroethene	(ug/L)		1	1	130	130	130	7	1
1,2-Dichloroethene (Total)	(ug/L)		1	1	5700 D	5700 D	5700	NR b	NA
Acetone	(ug/L)		1	1	19	19	19	NR	NA
cis-1,2-Dichloroethene	(ug/L)		1	1	5600 D	5600 D	5600	70	1
Tetrachloroethene	(ug/L)		1	1	940 D	940 D	940	5	1
trans-1,2-Dichloroethene	(ug/L)		1	1	57	57	57	100	0
Trichloroethene	(ug/L)		1	1	1000 D	1000 D	1000	5	1
Vinyl chloride	(ug/L)		1	1	66	66	66	2	1

Table 2.76. CONSTITUENTS DETECTED IN GROUNDWATER AT THE Y-12 PLANT SITE 1999

REGIME=EF AREA NAME=Y-12 Salvage Yard

COMPOUND	UNITS	FILTERED STATUS	# SAMPLES	# DETECTED	MAXIMUM DETECTED MMT.	MINIMUM DETECTED MMT.	AVERAGE DETECTED MMTS.	REFERENCE VALUE	# MMTS. > REF
Chloride	(mg/L)		1	1	175.7	175.7	175.7	250	0
Fluoride	(mg/L)		1	1	14.3	14.3	14.3	4	1
Nitrate Nitrogen	(mg/L)		1	1	9180	9180	9180	10	1
Sulfate	(mg/L)		1	1	11.89	11.89	11.89	250	0
Aluminum, ICAP	(mg/L)		1	1	6.01 k	6.01 k	6.01	0.2	1
Barium, ICAP	(mg/L)		1	1	59.8 k	59.8 k	59.8	2	1
Cadmium, PMS	(mg/L)		1	1	1.76	1.76	1.76	0.005	1
Calcium, ICAP	(mg/L)		1	1	10400 k	10400 k	10400	NR	NA
Cobalt, ICAP	(mg/L)		1	1	0.584	0.584	0.584	NR	NA
Lead, PMS	(mg/L)		1	1	0.00855	0.00855	0.00855	0.015 c	0
Lithium, ICAP	(mg/L)		1	1	0.552	0.552	0.552	NR	NA
Magnesium, ICAP	(mg/L)		1	1	1290 k	1290 k	1290	NR	NA
Manganese, ICAP	(mg/L)		1	1	112 k	112 k	112	0.05	1
Mercury, CVAA	(mg/L)		1	1	0.00592 k	0.00592 k	0.00592	0.002	1
Nickel, ICAP	(mg/L)		1	1	4.36 k	4.36 k	4.36	0.1 d	1
Potassium, ICAP	(mg/L)		1	1	94.3 k	94.3 k	94.3	NR	NA
Selenium, PMS	(mg/L)		1	1	0.0251	0.0251	0.0251	0.05	0
Sodium, ICAP	(mg/L)		1	1	538 k	538 k	538	NR	NA
Strontium, ICAP	(mg/L)		1	1	51.6 k	51.6 k	51.6	NR	NA
Thallium, PMS	(mg/L)		1	1	0.0032	0.0032	0.0032	0.002	1
Uranium, PMS	(mg/L)		1	1	0.0169	0.0169	0.0169	NR	NA
Conductivity, field measurement	(umhos/cm)		1	NA	44800	44800	44800	NR	NA
Dissolved Oxygen, field measurement	(ppm)		1	NA	1.87	1.87	1.87	NR	NA
pH, field measurement	(pH)		1	NA	5.49	5.49	5.49	6.5/8.5	1
REDOX, field measurement	(mV)		1	NA	254	254	254	NR	NA
Static Water Level	(ft - toc)		1	NA	-5	-5	-5	NR	NA
Temperature, field measurement	(Deg C)1		NA	22.1	22.1	22.1	NR	NA	
Alkalinity as HCO3	(mg/L)		1	1	840	840	840	NR	NA
Conductivity	(umhos/cm)		1	1	49900	49900	49900	NR	NA
Dissolved Solids	(mg/L)		1	1	52200	52200	52200	500	1
pH	(pH)		1	1	6.25 L	6.25 L	6.25	6.5/8.5	1
Total Suspended Solids	(mg/L)		1	1	1	1	1	NR	NA
Turbidity	(NTU)		1	1	1.19	1.19	1.19	1	1
Gross Alpha	(pCi/L)1		1	120	120	120	15 f	1	
Gross Beta	(pCi/L)1		1	11000	11000	11000	50 a	1	
1,2-Dichloroethene (Total)	(ug/L)		1	1	2 J	2 J	2	NR b	NA
2-Butanone	(ug/L)		1	1	4 J	4 J	4	NR	NA

Table 2.76. (continued)

COMPOUND	UNITS	FILTERED STATUS	# SAMPLES	# DETECTED	MAXIMUM DETECTED MMT.	MINIMUM DETECTED MMT.	AVERAGE DETECTED MMTS.	REFERENCE VALUE	# MMTS. > REF
Acetone	(ug/L)		1	1	63	63	63	NR	NA
Bromoform	(ug/L)		1	1	4 J	4 J	4	100 i	0
Carbon disulfide	(ug/L)		1	1	2 J	2 J	2	NR	NA
Chloroform	(ug/L)		1	1	14	14	14	100 i	0
cis-1,2-Dichloroethene	(ug/L)		1	1	2 J	2 J	2	70	0
Methylene chloride	(ug/L)		1	1	15	15	15	5	1
Tetrachloroethene	(ug/L)		1	1	170	170	170	5	1
Trichloroethene	(ug/L)		1	1	6	6	6	5	1

Table 2.77. CONSTITUENTS DETECTED IN GROUNDWATER AT THE Y-12 PLANT SITE 1999

REGIME=SP AREA NAME=Country Club Estates

COMPOUND	UNITS	FILTERED STATUS	# SAMPLES	# DETECTED	MAXIMUM DETECTED MMT.	MINIMUM DETECTED MMT.	AVERAGE DETECTED MMTS.	REFERENCE VALUE	# MMTS. > REF
Chloride	(mg/L)		2	2	0.696	0.682	0.689	250	0
Nitrate Nitrogen	(mg/L)		2	2	0.07612	0.07115	0.073635	10	0
Sulfate	(mg/L)		2	2	38.51	36.72	37.615	250	0
Barium, ICAP	(mg/L)		2	2	0.0669	0.0662	0.06655	2	0
Barium, ICAP	(mg/L)	FILTERED	2	2	0.0642	0.0639	0.06405	2	0
Calcium, ICAP	(mg/L)		2	2	37	36.9	36.95	NR	NA
Calcium, ICAP	(mg/L)	FILTERED	2	2	36.4	35.5	35.95	NR	NA
Iron, ICAP	(mg/L)		2	2	0.189	0.106	0.1475	0.3	0
Iron, ICAP	(mg/L)	FILTERED	2	1	0.0501	0.0501	0.0501	0.3	0
Magnesium, ICAP	(mg/L)		2	2	12.3	12.2	12.25	NR	NA
Magnesium, ICAP	(mg/L)	FILTERED	2	2	12	11.8	11.9	NR	NA
Manganese, ICAP	(mg/L)		2	2	0.0331	0.0265	0.0298	0.05	0
Manganese, ICAP	(mg/L)	FILTERED	2	2	0.0315	0.0256	0.02855	0.05	0
Potassium, ICAP	(mg/L)		2	2	2.43	2.43	2.43	NR	NA
Potassium, ICAP	(mg/L)	FILTERED	2	2	2.4	2.13	2.265	NR	NA
Sodium, ICAP	(mg/L)		2	2	2.76	2.73	2.745	NR	NA
Sodium, ICAP	(mg/L)	FILTERED	2	2	2.67	2.65	2.66	NR	NA
Strontium, ICAP	(mg/L)		2	2	0.139	0.139	0.139	NR	NA
Strontium, ICAP	(mg/L)	FILTERED	2	2	0.136	0.134	0.135	NR	NA
Zinc, ICAP	(mg/L)	FILTERED	2	1	0.611	0.611	0.611	5	0
Conductivity, field measurement	(umhos/cm)		2	NA	255	251	253	NR	NA
Dissolved Oxygen, field measurement	(ppm)		2	NA	4.94	4.59	4.765	NR	NA
pH, field measurement	(pH)		2	NA	7.79	7.79	7.79	6.5/8.5	0
REDOX, field measurement	(mV)		2	NA	165	162	163.5	NR	NA
Temperature, field measurement	(Deg C)2		NA	17.2	17.2	17.2	NR	NA	
Alkalinity as HCO3	(mg/L)		2	2	110	108	109	NR	NA
Conductivity	(umhos/cm)		2	2	301	295	298	NR	NA
Dissolved Solids	(mg/L)		2	2	120	95	107.5	500	0
pH	(pH)		2	2	7.98 L	7.93 L	7.955	6.5/8.5	0
Turbidity	(NTU)		2	2	1.72	1.48	1.6	1	2
Uranium-234	(pCi/L)2		2	0.47	0.42	0.445	20	0	
Uranium-235	(pCi/L)2		2	-0.022	-0.024	-0.023	24	0	
Uranium-238	(pCi/L)2		2	0.092	0.091	0.0915	24	0	
Gross Alpha	(pCi/L)2		2	1.6	0.084	0.842	15 f	0	
Gross Beta	(pCi/L)2		2	5.6	1.7	3.65	50 a	0	
Carbon tetrachloride	(ug/L)		2	1	2 J	2 J	2	5	0

Table 2.78. CONSTITUENTS DETECTED IN GROUNDWATER AT THE Y-12 PLANT SITE 1999

REGIME=SP AREA NAME=Scarboro Community

COMPOUND	UNITS	FILTERED STATUS	# SAMPLES	# DETECTED	MAXIMUM DETECTED MMT.	MINIMUM DETECTED MMT.	AVERAGE DETECTED MMTS.	REFERENCE VALUE	# MMTS. > REF
Chloride	(mg/L)		2	2	1.023	0.915	0.969	250	0
Nitrate Nitrogen	(mg/L)		2	2	0.05602	0.04789	0.051955	10	0
Sulfate	(mg/L)		2	2	9.798	8.783	9.2905	250	0
Barium, ICAP	(mg/L)		2	2	0.0927	0.0777	0.0852	2	0
Barium, ICAP	(mg/L)	FILTERED	2	2	0.0843	0.0702	0.07725	2	0
Calcium, ICAP	(mg/L)		2	2	20.9	16	18.45	NR	NA
Calcium, ICAP	(mg/L)	FILTERED	2	2	19.9	15.5	17.7	NR	NA
Iron, ICAP	(mg/L)		2	2	0.369	0.179	0.274	0.3	1
Iron, ICAP	(mg/L)	FILTERED	2	1	0.0593	0.0593	0.0593	0.3	0
Magnesium, ICAP	(mg/L)		2	2	12.2	8.32	10.26	NR	NA
Magnesium, ICAP	(mg/L)	FILTERED	2	2	11.7	8.11	9.905	NR	NA
Manganese, ICAP	(mg/L)		2	2	0.0744	0.0612	0.0678	0.05	2
Manganese, ICAP	(mg/L)	FILTERED	2	2	0.0296	0.0292	0.0294	0.05	0
Potassium, ICAP	(mg/L)		2	2	3.55	3.55	3.55	NR	NA
Potassium, ICAP	(mg/L)	FILTERED	2	2	3.31	3.28	3.295	NR	NA
Sodium, ICAP	(mg/L)		2	2	5.48	4.93	5.205	NR	NA
Sodium, ICAP	(mg/L)	FILTERED	2	2	5.19	4.76	4.975	NR	NA
Strontium, ICAP	(mg/L)		2	2	0.12	0.0763	0.09815	NR	NA
Strontium, ICAP	(mg/L)	FILTERED	2	2	0.114	0.0735	0.09375	NR	NA
Conductivity, field measurement	(umhos/cm)		2	NA	398	169	283.5	NR	NA
Dissolved Oxygen, field measurement	(ppm)		2	NA	4.62	4.6	4.61	NR	NA
pH, field measurement	(pH)		2	NA	7.67	7.64	7.655	6.5/8.5	0
REDOX, field measurement	(mV)		2	NA	204	172	188	NR	NA
Temperature, field measurement	(Deg C)2		NA	19.5	19.2	19.35	NR	NA	
Alkalinity as HCO3	(mg/L)		2	2	104	76	90	NR	NA
Conductivity	(umhos/cm)		2	2	247	163.4	205.2	NR	NA
Dissolved Solids	(mg/L)		2	2	100	57	78.5	500	0
pH	(pH)		2	2	7.99 L	7.89 L	7.94	6.5/8.5	0
Total Suspended Solids	(mg/L)		2	2	32	17	24.5	NR	NA
Turbidity	(NTU)		2	2	20.7	1.32	11.01	1	2
Uranium-234	(pCi/L)2		2	0.76	0.11	0.435	20	0	
Uranium-235	(pCi/L)2		2	0.031	0.027	0.029	24	0	
Uranium-238	(pCi/L)2		2	0.13	0.13	0.13	24	0	
Gross Alpha	(pCi/L)2		2	-0.41	-2.3	-1.355	15 f	0	
Gross Beta	(pCi/L)2		2	0.78	-0.4	0.19	50 a	0	

Table 2.79. CONSTITUENTS DETECTED IN GROUNDWATER AT THE Y-12 PLANT SITE 1999

REGIME=SP AREA NAME=Special Request

COMPOUND	UNITS	FILTERED STATUS	# SAMPLES	# DETECTED	MAXIMUM DETECTED MMT.	MINIMUM DETECTED MMT.	AVERAGE DETECTED MMTS.	REFERENCE VALUE	# MMTS. > REF
Chloride	(mg/L)		5	5	86.5	2.37	44.974	250	0
Fluoride	(mg/L)		5	4	5.56	0.19	1.67	4	1
Nitrate Nitrogen	(mg/L)		5	5	1520	0.5	305.334	10	1
Sulfate	(mg/L)		5	5	179	16.3	65.94	250	0
Antimony, PMS	(mg/L)		5	3	0.0202	0.0018	0.0109	0.006	2
Antimony, PMS	(mg/L)	FILTERED	5	3	0.0223	0.0019	0.011633	0.006	2
Arsenic, PMS	(mg/L)		5	1	0.03	0.03	0.03	0.05	0
Arsenic, PMS	(mg/L)	FILTERED	5	1	0.0288	0.0288	0.0288	0.05	0
Barium, ICAP	(mg/L)		5	5	6.28	0.0128	1.33516	2	1
Barium, ICAP	(mg/L)	FILTERED	5	5	6.07	0.0174	1.29578	2	1
Cadmium, PMS	(mg/L)		5	2	0.0064	0.00238	0.00439	0.005	1
Cadmium, PMS	(mg/L)	FILTERED	5	3	0.0034	0.00236	0.00272	0.005	0
Calcium, ICAP	(mg/L)		5	5	1560	5.49 k	359.678	NR	NA
Calcium, ICAP	(mg/L)	FILTERED	5	5	1500	8.93	348.866	NR	NA
Chromium, ICAP	(mg/L)		5	1	0.0584	0.0584	0.0584	0.1	0
Copper, ICAP	(mg/L)		5	3	1.71	0.044	0.620667	1.3	1
Copper, ICAP	(mg/L)	FILTERED	5	2	1.58	0.1	0.84	1.3	1
Iron, ICAP	(mg/L)		5	5	1.2	0.27	0.5694	0.3	3
Iron, ICAP	(mg/L)	FILTERED	5	2	0.248	0.207	0.2275	0.3	0
Lead, PMS	(mg/L)		5	4	0.0213	0.0015	0.0105	0.015 c	2
Lead, PMS	(mg/L)	FILTERED	5	3	0.00331	0.0022	0.00287	0.015 c	0
Lithium, ICAP	(mg/L)		5	4	0.917	0.0122	0.275525	NR	NA
Lithium, ICAP	(mg/L)	FILTERED	5	4	0.885	0.0112	0.2689	NR	NA
Magnesium, ICAP	(mg/L)		5	5	221	1.17	57.874	NR	NA
Magnesium, ICAP	(mg/L)	FILTERED	5	5	216	1.66	57.594	NR	NA
Manganese, ICAP	(mg/L)		5	4	7.72	0.00601	1.951353	0.05	1
Manganese, ICAP	(mg/L)	FILTERED	5	3	7.31	0.0332	2.465967	0.05	2
Mercury, CVAA	(mg/L)		5	1	0.00245	0.00245	0.00245	0.002	1
Mercury, CVAA	(mg/L)	FILTERED	5	1	0.000454	0.000454	0.000454	0.002	0
Molybdenum, ICAP	(mg/L)		5	1	0.0547	0.0547	0.0547	NR	NA
Molybdenum, ICAP	(mg/L)	FILTERED	5	1	0.0537	0.0537	0.0537	NR	NA
Nickel, ICAP	(mg/L)		5	1	0.072	0.072	0.072	0.1 d	0
Nickel, ICAP	(mg/L)	FILTERED	5	1	0.0608	0.0608	0.0608	0.1 d	0
Potassium, ICAP	(mg/L)		5	5	53 k	2.42	16.784	NR	NA
Potassium, ICAP	(mg/L)	FILTERED	5	5	50.5	2.55	16.666	NR	NA
Sodium, ICAP	(mg/L)		5	5	129	6.77	46.288	NR	NA
Sodium, ICAP	(mg/L)	FILTERED	5	5	125	6.95	45.988	NR	NA

Table 2.79. (continued)

COMPOUND	UNITS	FILTERED STATUS	# SAMPLES	# DETECTED	MAXIMUM DETECTED MMT.	MINIMUM DETECTED MMT.	AVERAGE DETECTED MMTS.	REFERENCE VALUE	# MMTS. > REF
Strontium, ICAP	(mg/L)		5	5	5.17	0.0083	1.16726	NR	NA
Strontium, ICAP	(mg/L)	FILTERED	5	5	5.02	0.0199	1.14198	NR	NA
Uranium, PMS	(mg/L)		5	5	0.14	0.0006	0.03134	NR	NA
Uranium, PMS	(mg/L)	FILTERED	5	5	0.135	0.0006	0.028366	NR	NA
Zinc, ICAP	(mg/L)		5	2	0.313	0.0846	0.1988	5	0
Zinc, ICAP	(mg/L)	FILTERED	5	2	0.278	0.0616	0.1698	5	0
Conductivity, field measurement	(umhos/cm)		5	NA	9020	311	2343.2	NR	NA
Dissolved Oxygen, field measurement	(ppm)		5	NA	2.75	1.5	2.182	NR	NA
pH, field measurement	(pH)		5	NA	7.77	4.7	6.722	6.5/8.5	2
REDOX, field measurement	(mV)		5	NA	307	208	250.4	NR	NA
Temperature, field measurement	(Deg C)5		NA	25.8	10.7	19.08	NR	NA	
Alkalinity as CO3	(mg/L)		5	1	56	56	56	NR	NA
Alkalinity as HCO3	(mg/L)		5	5	296	20	149.6	NR	NA
Conductivity	(umhos/cm)		5	5	9790	219	2401.2	NR	NA
Dissolved Solids	(mg/L)		5	5	7900	109	1876.6	500	2
pH	(pH)		5	5	8.82 L	6.58 L	7.764	6.5/8.5	1
Total Suspended Solids	(mg/L)		5	3	11	1	4.666667	NR	NA
Turbidity	(NTU)		5	5	5.42	0.875	2.2894	1	3
Uranium-234	(pCi/L)5		5	14	0.26	6.936	20	0	
Uranium-235	(pCi/L)5		5	0.83	0	0.3688	24	0	
Uranium-238	(pCi/L)5		5	41	0.13	9.418	24	1	
Strontium-89/90	(pCi/L)5		5	0.2	-2.7	-1.0182	NR h	NA	
Technetium-99	(pCi/L)5		5	6000	5.4	1211.52	4000	1	
Gross Alpha	(pCi/L)5		5	30	0.33	9.542	15 f	1	
Gross Beta	(pCi/L)5		5	3400	1.5	692.3	50 a	1	
Tritium	(pCi/L)5		5	840	17	407.4	20000	0	
1,1,1-Trichloroethane	(ug/L)		5	1	3 J	3 J	3	200	0
1,1-Dichloroethane	(ug/L)		5	2	21	7	14	NR	NA
1,1-Dichloroethene	(ug/L)		5	1	6	6	6	7	0
1,2-Dichloroethene (Total)	(ug/L)		5	3	36	4 J	15.33333	NR b	NA
Acetone	(ug/L)		5	1	4 J	4 J	4	NR	NA
Chloroform	(ug/L)		5	1	5	5	5	100 i	0
cis-1,2-Dichloroethene	(ug/L)		5	3	36	4 J	15.33333	70	0
Tetrachloroethene	(ug/L)		5	4	180	5	63.5	5	3
Trichloroethene	(ug/L)		5	2	16	3 J	9.5	5	1

Table 2.80. 1999 HYDROGEOLOGIC REGIME AND AREA SUMMARY

REGIME	SITE	WELL	SAMPLE NUMBER(S)
BC	Bear Creek Burial Grounds WMA	DCWELL	A990820039
		GW-053	A990810030 A992380041
		GW-082	A990620329 A990620331
		GW-126	A990600374 A990600375
		GW-242	A990620330 A990620332
		GW-287	A990810022 A992310068
		GW-627	A990810031 A990810032 A992380042
		GW-653	A990810023 A992310069
		GW-726-02	A991530035 A991530036
		GW-726-04	A991590265 A991590266
		GW-726-06	A991600042 A991650043
		GW-726-09	A991610014 A991610015 A991610016 A991610017
		GW-726-12	A991610018 A991610019
		GW-726-16	A991620110 A991650050
		GW-726-20	A991620116 A991650051
		GW-726-23	A991620108 A991650049
	Exit Pathway Monitoring Location A	GW-056	A990350274 A992070073
		GW-683	A990360031 A992070076
		GW-684	A990360030 A992070077
		GW-685	A990350275 A992070074
	Exit Pathway Monitoring Location B	GW-621	A990390387 A992140007
		GW-695	A990390388 A992140008
		GW-703	A990390393 A992150006
		GW-704	A990390394 A992160010 A992360124
		GW-706	A990480035 A990480036 A992160011 A992360125
	Exit Pathway Monitoring Location C	GW-724	A990480091 A992160022
		GW-725	A990480093 A992160023 A992160024
		GW-738	A990480090 A992160014 A992360127
		GW-740	A990480037 A992160013 A992360126
	Exit Pathway Spring/Surface Water	BCK-00.63	A990540052 A992180011
		BCK-04.55	A990540053 A992180012
		BCK-07.87	A990540054 A990540055 A992180014
		BCK-09.40	A990540230 A992180019
		BCK-10.60	A990540232
		BCK-11.97	A990540235 A992180016
		NT-01	A990540237 A992180023
		NT-02	A990600023
		NT-06	A990600022
		NT-07	A990600021
		NT-08	A990600020
		SS-1	A990540236 A992180022
		SS-4	A990540231 A992180020 A992180021
		SS-5	A990540224 A992180018
		SS-6	A990540223 A992180013
	Oil Landfarm WMA	GW-085	A990750115 A992420297
		GW-087	A990690067 A990690070
		GW-226	A990760115 A992420299 A992420300
		GW-228	A992520060

Table 2.80. 1999 Hydrogeologic Regime and Area Summary (continued)

REGIME	SITE	WELL	SAMPLE NUMBER(S)
		GW-537	A990760114 A992420298
		GW-601	A990670052 A990670053
		GW-829	A990750114 A992420082
	Rust Spoil Area	GW-311	A990710042 A992420081
	S-3 Site	GW-132-01	A992670076 A992670077
		GW-132-05	A992710010 A992710013
		GW-132-09	A992710011 A992710012 A992710014 A992710015
		GW-132-13	A992720084 A992720090
		GW-132-17	A992720085 A992720091
		GW-132-21	A992720086 A992720092
		GW-132-25	A992720087 A992720093
		GW-133-01	A992290158 A992290159
		GW-133-05	A992300181 A992300183
		GW-133-08	A992300197 A992300198
		GW-133-10	A992310012 A992310013 A992310016 A992310017
		GW-133-14	A992310014 A992310018
		GW-133-17	A992310015 A992310019
		GW-133-21	A992310406 A992310409
		GW-133-24	A992310408 A992310410
		GW-134-05	A992160148 A992160149 A992380001
		GW-134-11	A992170144 A992170147 A992380004
		GW-134-15	A992170145 A992170148 A992380003
		GW-134-18	A992170146 A992170149 A992380002
		GW-134-21	A992180001 A992180002 A992380208
		GW-134-25	A992180128 A992180129 A992180130 A992180131
		GW-134-29	A992180134 A992180135
		GW-134-33	A992180136 A992180137
		GW-134-35	A992180138 A992180139
		GW-134-36	A992180140 A992180141
		GW-135-03	A992520066 A992520067
		GW-135-06	A992570065 A992570066
		GW-135-11	A992570067 A992570068
		GW-135-15	A992570290 A992570291
		GW-135-19	A992580169 A992580170
		GW-135-23	A992590098 A992590102
		GW-135-26	A992590099 A992590103
		GW-135-30	A992590100 A992590101 A992590104 A992590105
		GW-135-34	A992600056 A992600059
		GW-135-39	A992600057 A992600060
		GW-236	A992510023
		GW-345	A990680107 A990680109
		GW-346	A990680108 A990680110
		GW-526	A990690065 A990690066 A990690068 A990690069
	Spoil Area I	GW-315	A990710041 A992420080

Table 2.80. 1999 Hydrogeologic Regime and Area Summary (continued)

REGIME	SITE	WELL	SAMPLE NUMBER(S)
CR	Const./Debris Landfill VI	GW-542	A990900115 A990900118 A992910008 A992910009 A992910011 A992910012
		GW-543	A990900165 A990900167 A992920038 A992920040
		GW-544	A990900166 A990900168 A992920039 A992920041
		GW-827	A990900113 A990900114 A990900116 A990900117 A992910007 A992910010
	Exit Pathway Spring/Surface Water	SCR2.1SP	A990330068 A990330069 A990330071 A990330072 A992020001 A992020007
		SCR2.2SP	A990330070 A990330073 A992020002 A992020003 A992020008 A992020009
		SCR3.4SP	A990340216 A990340219 A992020004 A992020010
		SCR5.1SP	A990340217 A990340220 A992020005 A992020011
		SCR5.4SP	A990340218 A990340221 A992020006 A992020012
	Industrial Landfill II	GW-540	A990900103 A990900104 A990900106 A990900107 A992850160 A992850163
		GW-709	A990900105 A990900108 A992850161 A992850162 A992850164 A992850165
		GW-757	A990900110 A990900111 A992870028 A992870029
	Industrial Landfill IV	GW-141	A990120134 A990120164 A991960280 A991960282
		GW-217	A990120132 A990120133 A990120162 A990120163 A991950139 A991950140
		GW-305	A990150002 A990150004 A992000221 A992000222 A992000224 A992000225 A993070013 A993070014 A993070260 A993070261
		GW-521	A990190227 A990190228 A991960281 A991960283
		GW-522	A990150001 A990150003 A992000220 A992000223
	Industrial Landfill V	GW-557	A990200214 A990200234 A991930239 A991930241
		GW-796	A990210243 A990210245 A991940415 A991940417
		GW-797	A990200215 A990200216 A990200235 A990200236 A991940416 A991940418
		GW-799	A990200217 A990200237 A991930240 A991930242
		GW-801	A990210244 A990210246 A991950005 A991950006 A991950008 A991950009
		SCR4.3SP	A990190229 A990190230 A991950007 A991950010
EF	Beta-4 Security Pits	GW-192	A991450026 A991540206 A993050009
	Building 9201-2	GW-820	A992530110
	Exit Pathway Monitoring Location E	GW-618	A991450027 A993050010

Table 2.80. 1999 Hydrogeologic Regime and Area Summary (continued)

REGIME	SITE	WELL	SAMPLE NUMBER(S)
	Exit Pathway Monitoring Location J	GW-131-01	A990900098 A990900100
		GW-131-04	A990900099 A990900101
		GW-131-08	A991670281 A991670311
		GW-131-12	A991680033 A991680035
		GW-131-15	A991680267 A991680268
		GW-131-21	A991730064 A991730065 A991730066 A991730067
		GW-131-24	A991680269 A991680270
		GW-131-28	A991740076 A991740078
		GW-131-32	A991740077 A991740079
		GW-131-36	A991740199 A991740201
		GW-722-06	A990560072 A990560074 A990600284 A992010237 A992010238
		GW-722-10	A990560073 A990560075 A992010390 A992010391
		GW-722-14	A990560083 A990560085 A992030090 A992030091
		GW-722-17	A990560084 A990560086 A992030327 A992030329
		GW-722-20	A990670056 A990670057 A992080201 A992080202 A992080203 A992080204
		GW-722-22	A990670059 A990670060 A990670061 A990670062 A992030330 A992030332
		GW-722-26	A990770055 A990770059 A992090310 A992090311
		GW-722-30	A990780026 A990780027 A992090312 A992090313
		GW-722-32	A990780029 A990780030 A992100163 A992100164
		GW-722-33	A990780032 A990780033 A992100174 A992100177
		GW-735	A991660021 A991660022 A993330003 A993330005
		GW-750	A991660023 A991660024 A993350028 A993350029 A993350031 A993350032
	Exit Pathway Scarboro Road/Pine Rid	GW-207	A991580241 A991580243 A993410021 A993410022
		GW-208	A991580242 A991580244 A993200062 A993200064
		GW-816	A991540192 A991540193 A991540194 A991540195 A993200036 A993200037
	Exit Pathway Spring/Surface Water	LRSPW	A991540170 A991540171 A993190023
	Fire Training Facility	GW-620	A991450031 A993120029
	GW Monitoring Plan Grid Location D2	GW-791	A991440153 A993010055 A993010056
		GW-792	A991440154 A993010057
	GW Monitoring Plan Grid Location E3	GW-781	A991440152 A992990008
		GW-782	A991440187 A991440188 A992980061
		GW-783	A991440189 A992980062
	GW Monitoring Plan Grid Location F3	GW-788	A991050443 A992930008
		GW-789	A991050442 A992930009
	GW Monitoring Plan Grid Location G3	GW-769	A991050456 A992940060
		GW-770	A991050455 A992940061
	GW Monitoring Plan Grid Location H3	GW-775	A991050459 A993000007
		GW-776	A991050458 A993000008
	GW Monitoring Plan Grid Location K1	GW-744	A991600276 A991600279 A993200061 A993200063

Table 2.80. 1999 Hydrogeologic Regime and Area Summary (continued)

REGIME	SITE	WELL	SAMPLE NUMBER(S)
	GW Monitoring Plan Grid Location K2	GW-747	A991600277 A991600280 A993330002 A993330004
	Grid J Primary	GW-763	A991520157 A993120030
	New Hope Pond	GW-148	A991520158 A993130008
		GW-153	A991520164 A993130009 A993130010
		GW-220	A991520163 A993140004
		GW-223	A992500060
		GW-380	A991540191 A993140005
		GW-383	A991540172 A993150031
	S-2 Site	GW-251	A991450029 A991450030 A993060007
	Scarboro Road	GW-168	A992510024
	Special Radiological Sampling	GW-204	A992530109
	Uranium Oxide Vault	GW-218	A993360117 A993360118 A993360119 A993360120
		GW-219	A993350030 A993350033
	Waste Coolant Processing Area	GW-337	A992450062
	Y-12 Salvage Yard	GW-109	A992450061
SP	Country Club Estates	GHK2.51ESW	A992430026 A992430031
		GHK2.51WSW	A992430027 A992430032
	Scarboro Community	NPR12.0SW	A992430025 A992430030
		NPR7.0SW	A992430023 A992430028
	Special Request	9201-5N-J4	A990460129 A990460140
		9204-2-NE	A990460125 A990460136
		9204-2-NW	A990460126 A990460137
		9204-2E-NW	A990530070 A990530071
		9204-4ELSU	A990460128 A990460139

Table 2.81. Storm water data above screening levels

Parameter	Date taken	Results	Screening level	Rationale
		Location (Outfall) 010		
Fecal coliform bacteria	19990921	2000 col/100ml	1000 col/100mL	TN WQC recreation
Radium-228	19990921	10 pCi/L	5 pCi/L	5% DCG
Zinc	19990921	0.35 mg/L	0.117 mg/L	TN WQC/fish and aquatic life
Zinc	19990921	0.166 mg/L	0.117 mg/L	TN WQC/fish and aquatic life
		Location (Outfall) 015		
Alpha activity	19990929	20 pCi/L	15 pCi/L	SDWA MCL 40 CFR 141.15
Fecal coliform bacteria	19990929	17000 col/100ml	1000 col/100mL	TN WQC/recreation
Phosphorus	19990929	0.1 mg/L	0.1 mg/L	EPA ambient Water Quality Criteria guideline
		Location (Outfall) 017		
Nitrate as nitrogen	19991213	12.9 mg/L	10 mg/L	SDWA MCL 40 CFR 141.23
		Location (Outfall) 021		
Copper	19990331	0.00326 mg/L	0.0177 mg/L	TN WQC/fish and aquatic life
Phosphorus	19990331	0.19 mg/L	0.1 mg/L	EPA ambient Water Quality Criteria guideline
Phosphorus	19990331	0.642 mg/L	0.1 mg/L	EPA ambient Water Quality Criteria guideline
Radium-228	19990331	15 pCi/L	5 pCi/L	5% DCG
Zinc	19990331	0.183 mg/L	0.117 mg/L	TN WQC/fish and aquatic life
Zinc	19990331	0.371 mg/L	0.117 mg/L	TN WQC/fish and aquatic life
		Location (Outfall) 034		
Phosphorus	19990921	0.199 mg/L	0.1 mg/L	EPA ambient Water Quality Criteria guideline
		Location (Outfall) 045		
Copper	19990505	0.0284 mg/L	0.0177 mg/L	TN WQC/fish and aquatic life
Fecal coliform bacteria	19990505	43000 col/100ml	1000 col/100mL	TN WQC/recreation
Heptachlor	19990505	0.00001 mg/L	0.0000021 mg/L	TN WQC/recreation
Mercury	19990505	0.00025 mg/L	0.000051 mg/L	TN WQC/Recreation
Mercury	19990505	0.00029 mg/L	0.000051 mg/L	TN WQC/Recreation
Phosphorus	19990505	0.552 mg/L	0.1 mg/L	EPA ambient Water Quality Criteria guideline
TSS	19990505	355 mg/L	60 mg/L	Effluent Guideline 40 CFR 433
TSS	19990505	81 mg/L	60 mg/L	Effluent Guideline 40 CFR 433
Zinc	19990505	0.506 mg/L	0.117 mg/L	TN WQC/fish and aquatic life
Zinc	19990505	1.46 mg/L	0.117 mg/L	TN WQC/fish and aquatic life
		Location (Outfall) 046		
Fecal coliform bacteria	19990929	32000 col/100ml	1000 col/100mL	TN WQC/recreation
Radium-228	19990929	57 pCi/L	5 pCi/L	5% DCG
		Location (Outfall) 054		
Copper	19990331	0.0968 mg/L	0.0177 mg/L	TN WQC/fish and aquatic life
Copper	19990331	0.1 mg/L	0.0177 mg/L	TN WQC/fish and aquatic life
		Location (Outfall) 063		
Copper	19990624	0.0434 mg/L	0.0177 mg/L	TN WQC/fish and aquatic life
Copper	19990624	0.0532 mg/L	0.0177 mg/L	TN WQC/fish and aquatic life
Fecal coliform bacteria	19990624	118000 col/100ml	1000 col/100mL	TN WQC/recreation
Mercury	19990624	0.00489 mg/L	0.000051 mg/L	TN WQC/recreation
Mercury	19990624	0.00084 mg/L	0.000051 mg/L	TN WQC/recreation
TSS	19990624	126 mg/L	60 mg/L	Effluent Guideline 40 CFR 433
TSS	19990624	195 mg/L	60 mg/L	Effluent Guideline 40 CFR 433
Zinc	19990624	0.313 mg/L	0.117 mg/L	TN WQC/fish and aquatic life
Zinc	19990624	0.309 mg/L	0.117 mg/L	TN WQC/fish and aquatic life

Table 2.81 (continued)

Parameter	Date taken	Results	Screening level	Rationale
		Location (Outfall) 083		
Copper	19990624	0.0387 mg/L	0.0177 mg/L	TN WQC/fish and aquatic life
Copper	19990624	0.0512 mg/L	0.0177 mg/L	TN WQC/fish and aquatic life
Fecal coliform bacteria	19990624	2200 col/100ml	1000 col/100mL	TN WQC/recreation
Radium-228	19990624	9.9 pCi/L	5 pCi/L	5% DCG
Zinc	19990624	0.807 mg/L	0.117 mg/L	TN WQC/fish and aquatic life
Zinc	19990624	0.635 mg/L	0.117 mg/L	TN WQC/fish and aquatic life
		Location (Outfall) 102		
Copper	19990921	0.032 mg/L	0.0177 mg/L	TN WQC/fish and aquatic life
Copper	19990614	0.0209 mg/L	0.0177 mg/L	TN WQC/fish and aquatic life
Copper	19990321	0.0267 mg/L	0.0177 mg/L	TN WQC/fish and aquatic life
Copper	19990921	0.0397 mg/L	0.0177 mg/L	TN WQC/fish and aquatic life
Copper	19990614	0.0273 mg/L	0.0177 mg/L	TN WQC/fish and aquatic life
Copper	19990320	0.0436 mg/L	0.0177 mg/L	TN WQC/fish and aquatic life
Fecal coliform bacteria	19990614	104000 col/100ml	1000 col/100mL	TN WQC/recreation
Mercury	19990320	0.0003 mg/L	0.000051 mg/L	TN WQC/recreation
Phosphorus	19990321	0.22 mg/L	0.1 mg/L	EPA ambient Water Quality Criteria guideline
Radium-228	19990921	15 pCi/L	5 pCi/L	5% DCG
Radium-228	19991205	8.8 pCi/L	5 pCi/L	5% DCG
TSS	19990320	195 mg/L	60 mg/L	Effluent Guideline 40 CFR 433
TSS	19990321	153 mg/L	60 mg/L	Effluent Guideline 40 CFR 433
Zinc	19990320	0.404 mg/L	0.117 mg/L	TN WQC/fish and aquatic life
Zinc	19990921	0.166 mg/L	0.117 mg/L	TN WQC/fish and aquatic life
Zinc	19991205	0.19 mg/L	0.117 mg/L	TN WQC/fish and aquatic life
Zinc	19990921	0.258 mg/L	0.117 mg/L	TN WQC/fish and aquatic life
Zinc	19990614	0.126 mg/L	0.117 mg/L	TN WQC/fish and aquatic life
Zinc	19990321	0.245 mg/L	0.117 mg/L	TN WQC/fish and aquatic life
		Location (Outfall) 113		
Copper	19990505	0.021 mg/L	0.0177 mg/L	TN WQC/fish and aquatic life
Copper	19990505	0.0544 mg/L	0.0177 mg/L	TN WQC/fish and aquatic life
Fecal coliform bacteria	19990505	63000 col/100ml	1000 col/100mL	TN WQC/recreation
Mercury	19990505	0.00102 mg/L	0.000051 mg/L	TN WQC/recreation
PCB	19990505	0.0006 mg/L	0.00044 µg/L	TN WQC/recreation
PCB	19990505	0.0013 mg/L	0.00044 µg/L	TN WQC/recreation
Phosphorus	19990505	0.12 mg/L	0.1 mg/L	EPA ambient Water Quality Criteria guideline
TSS	19990505	65 mg/L	60 mg/L	Effluent Guideline 40 CFR 433
Zinc	19990505	0.348 mg/L	0.117 mg/L	TN WQC/fish and aquatic life
Zinc	19990505	0.146 mg/L	0.117 mg/L	TN WQC/fish and aquatic life
		Location (Outfall) 125		
Phosphorus	19990518	0.532 mg/L	0.1 mg/L	EPA ambient Water Quality Criteria guideline
Phosphorus	19990518	0.29 mg/L	0.1 mg/L	EPA ambient Water Quality Criteria guideline
Radium-228	19990518	13 pCi/L	5 pCi/L	5% DCG
		Location (Outfall) 135		
Copper	19990505	0.038 mg/L	0.0177 mg/L	TN WQC/fish and aquatic life
Copper	19990505	0.0212 mg/L	0.0177 mg/L	TN WQC/fish and aquatic life
Cyanide	19990505	0.0316 mg/L	0.022 mg/L	TN WQC/fish and aquatic life
Phosphorus	19990505	0.57 mg/L	0.1 mg/L	EPA ambient Water Quality Criteria guideline
Phosphorus	19990505	0.332 mg/L	0.1 mg/L	EPA ambient Water Quality Criteria guideline
Phosphorus	19990505	0.626 mg/L	0.1 mg/L	EPA ambient Water Quality Criteria guideline
Zinc	19990505	0.313 mg/L	0.117 mg/L	TN WQC/fish and aquatic life
Zinc	19990505	0.483 mg/L	0.117 mg/L	TN WQC/fish and aquatic life

Table 2.81 (continued)

Parameter	Date taken	Results	Screening level	Rationale
		Location (Outfall) 200		
Copper	19990505	0.0224 mg/L	0.0177 mg/L	TN WQC/fish and aquatic life
Mercury	19990505	0.00047 mg/L	0.000051 mg/L	TN WQC/recreation
Mercury	19990505	0.00061 mg/L	0.000051 mg/L	TN WQC/recreation
Phosphorus	19990505	0.799 mg/L	0.1 mg/L	EPA ambient Water Quality Criteria guideline
Phosphorus	19990505	0.28 mg/L	0.1 mg/L	EPA ambient Water Quality Criteria guideline
Phosphorus	19990505	0.561 mg/L	0.1 mg/L	EPA ambient Water Quality Criteria guideline
Zinc	19990505	0.204 mg/L	0.117 mg/L	TN WQC/fish and aquatic life
Zinc	19990505	0.285 mg/L	0.117 mg/L	TN WQC/fish and aquatic life
		Location (Outfall) S02		
Alpha activity	19990426	99 pCi/L	15 pCi/L	SDWA MCL 40 CFR 141.15
Alpha activity	19990426	140 pCi/L	15 pCi/L	SDWA MCL 40 CFR 141.15
Fecal coliform bacteria	19990426	2800 col/100ml	1000 col/100mL	TN WQC/recreation
Phosphorus	19990426	0.174 mg/L	0.1 mg/L	EPA ambient Water Quality Criteria guideline
Phosphorus	19990426	1.22 mg/L	0.1 mg/L	EPA ambient Water Quality Criteria guideline
Uranium-234	19990426	49 pCi/L	25 pCi/L	5% DCG
Uranium-234	19990426	74 pCi/L	25 pCi/L	5% DCG
Uranium-238	19990426	130 pCi/L	30 pCi/L	5% DCG
Uranium-238	19990426	99 pCi/L	30 pCi/L	5% DCG
		Location (Outfall) S03		
Fecal coliform bacteria	19990505	74000 col/100ml	1000 col/100mL	TN WQC/recreation
Fecal coliform bacteria	19990426	13800 col/100ml	1000 col/100mL	TN WQC/recreation
Phosphorus	19990505	0.112 mg/L	0.1 mg/L	EPA ambient Water Quality Criteria guideline
		Location (Outfall) S05		
Alpha activity	19990518	16 pCi/L	15 pCi/L	SDWA MCL 40 CFR 141.15
Manganese	19990518	0.779 mg/L	0.5 mg/L	NPDES Permit, Part III-A (toxic pollutants)
Nitrate as nitrogen	19990518	135.6 mg/L	10 mg/L	SDWA MCL 40 CFR 141.23
		Location (Outfall) S08		
Alpha activity	19990518	630 pCi/L	15 pCi/L	SDWA MCL 40 CFR 141.15
Fecal coliform bacteria	19990518	1450 col/100ml	1000 col/100mL	TN WQC/recreation
Mercury	19990518	0.00026 mg/L	0.000051 mg/L	TN WQC/recreation
Uranium-234	19990518	200 pCi/L	25 pCi/L	5% DCG
Uranium-238	19990518	430 pCi/L	30 pCi/L	5% DCG
		Location (Outfall) S14		
Alpha activity	19990331	120 pCi/L	15 pCi/L	SDWA MCL 40 CFR 141.15
Uranium-238	19990331	95 pCi/L	30 pCi/L	5% DCG
		Location (Outfall) S15		
Fecal coliform bacteria	19990429	4300 col/100ml	1000 col/100mL	TN WQC/recreation
Phosphorus	19990429	0.119 mg/L	0.1 mg/L	EPA ambient Water Quality Criteria guideline
Radium-228	19990429	22 pCi/L	5 pCi/L	5% DCG
		Location (Outfall) S17		
Fecal coliform bacteria	19990921	32000 col/100ml	1000 col/100mL	TN WQC/recreation
		Location (Outfall) S20		
Alpha activity	19990929	18 pCi/L	15 pCi/L	SDWA MCL 40 CFR 141.15
Fecal coliform bacteria	19990929	27000 col/100ml	1000 col/100mL	TN WQC/recreation
Radium-228	19990929	14 pCi/L	5 pCi/L	5% DCG
TSS	19990929	71.6 mg/L	60 mg/L	Effluent Guideline 40 CFR 433
Zinc	19990929	0.297 mg/L	0.117 mg/L	TN WQC/fish and aquatic life
Zinc	19990929	0.148 mg/L	0.117 mg/L	TN WQC/fish and aquatic life

Table 2.81 (continued)

Parameter	Date taken	Results	Screening level	Rationale
		Location (Outfall) S24		
Alpha activity	19990331	180 pCi/L	15 pCi/L	SDWA MCL 40 CFR 141.15
Nitrate as nitrogen	19990331	10.7 mg/L	10 mg/L	SDWA MCL 40 CFR 141.23
Uranium-234	19990331	34 pCi/L	2 5 pCi/L	5% DCG
Uranium-238	19990331	200 pCi/L	30 pCi/L	5% DCG
		Location (Outfall) S25		
Radium-228	19991102	23 pCi/L	5 pCi/L	5% DCG
		Location (Outfall) S26		
Fecal coliform bacteria	19991102	5700 col/100ml	1000 col/100mL	TN WQC/recreation
Phosphorus	19991102	0.814 mg/L	0.1 mg/L	EPA ambient Water Quality Criteria guideline
Radium-228	19991102	13 pCi/L	5 pCi/L	5% DCG
Titanium	19991102	0.582 mg/L	0.3 mg/L	10 times monitoring history maximum at OF 501
TSS	19991102	90.8 mg/L	60 mg/L	Effluent Guideline 40 CFR 433

DCG = derived concentration guide.
MCL = maximum containment level.
SDWA = Safe Drinking Water Act.
TSS = total suspended solids.
WQC = water quality criteria.

Footnote Definitions *(Bear Creek Regime)*

a Regulatory guide for assessing compliance without further analysis.
b See cis-Dichloroethene and trans-Dichloroethene.
c Action level, which is applicable to community water systems and non-transient, non-community water systems.
d EPA has deleted the MCL for nickel from the Code of Federal Regulations. The state of Tennessee retains a nickel MCL of 100 g/L in its currently effective drinking water regulations.
f Excludes radon and naturally occurring uranium.
h Minimum of uranium isotopes
u Limit for total trihalomethanes (bromodichloromethane + bromoform + chloroform + dibromochloromethane).

Footnote Definitions *(Chestnut Ridge Regime)*

a Regulatory guide for assessing compliance without further analysis.
c Action level, which is applicable to community water systems and non-transient, non-community water systems.
d EPA has deleted the MCL for nickel from the Code of Federal Regulations. The state of Tennessee retains a nickel MCL of 100 g/L in its currently effective drinking water regulations.
f Excludes radon and naturally occurring uranium.

Footnote Definitions *(East Fork Regime)*

a Regulatory guide for assessing compliance without further analysis.
b See cis-Dichloroethene and trans-Dichloroethene.
c Action level, which is applicable to community water systems and non-transient, non-community water systems.
d EPA has deleted the MCL for nickel from the Code of Federal Regulations. The state of Tennessee retains a nickel MCL of 100 g/L in its currently effective drinking water regulations.
f Excludes radon and naturally occurring uranium.
g Applies to combined 226Ra and 228Ra.
h Minimum of uranium isotopes
i Limit for total trihalomethanes (bromodichloromethane + bromoform + chloroform + dibromochloromethane).

Footnote Definitions *(Special Request Group)*

a Regulatory guide for assessing compliance without further analysis.
b See cis-Dichloroethene and trans-Dichloroethene.
c Action level, which is applicable to community water systems and non-transient, non-community water systems.
d EPA has deleted the MCL for nickel from the Code of Federal Regulations. The state of Tennessee retains a nickel MCL of 100 g/L in its currently effective drinking water regulations.
f Excludes radon and naturally occurring uranium.
h Minimum of uranium isotopes
i Limit for total trihalomethanes (bromodichloromethane + bromoform + chloroform + dibromochloromethane).

Qualifier Definitions *(Bear Creek Regime)*

k - Sample concentration is greater than 4 times the spike level for this sample batch
D - Compounds identified in an analysis at a secondary dilution factor
J - Indicates an estimated value
L - Sample received by ACD with expired holding time

Qualifier Definitions *(Chestnut Ridge Regime)*

k - Sample concentration is greater than 4 times the spike level for this sample batch
p - Sample known to be unpreserved
J - Indicates an estimated value (VOA)
L - Sample received by ACD with expired holding time
X - Sample received by ACD with expired holding time

Qualifier Definitions *(East Fork Regime)*

k - Sample concentration is greater than 4 times the spike level for this sample batch
D - Compounds identified in an analysis at a secondary dilution factor
J - Indicates an estimated value
L - Sample received by ACD with expired holding time
X - Sample received by ACD with expired holding time

Qualifier Definitions *(Special Request Group)*

k - Sample concentration is greater than 4 times the spike level for this sample batch
J - Indicates an estimated value (VOA)
L - Sample received by ACD with expired holding time

Table 3.1. Major sources of radiological airborne emissions at ORNL, 1999 (in curies)[a]

Isotope	Stack				
	2026	3020	3039	7512	7911
^{241}Am	1.5E-07	1.6E-07	4.4E-07	7.6E-09	1.5E-08
^{41}Ar					1.3E+04
^{3}H	1.8E-01				
^{139}Ba					2.7E-01
^{140}Ba					1.7E-04
^{7}Be	6.6E-07	2.9E-07	2.5E-05	7.6E-08	2.0E-06
^{244}Cm	1.8E-06	7.8E-09	2.8E-07		1.5E-07
^{244}Cm				4.9E-08	
^{60}Co			6.8E-05		
^{137}Cs	3.4E-06	1.3E-06	1.6E-04	3.4E-08	9.7E-06
^{138}Cs					2.4E+03
^{152}Eu			4.5E-06		
^{3}H	1.8E-01		1.1E+01	7.4E+00	8.2E+01
^{131}I					5.8E-02
^{132}I					5.0E-01
^{133}I					3.7E-01
^{135}I					1.0E+00
^{85}Kr					4.8E+02
^{85m}Kr					1.1E+01
^{87}Kr					3.7E+01
^{88}Kr					6.6E+01
^{89}Kr					1.4E+01
^{140}La					1.4E-04
^{191}Os	1.3E-05	2.3E-05	4.5E+00		
^{212}Pb	1.6E-01	5.6E-01	1.5E+00	2.5E-01	2.3E-01
^{238}Pu	5.7E-08	2.2E-08	1.2E-07	1.9E-09	1.3E-08
^{239}Pu	1.7E-07	1.2E-07	1.4E-06	5.3E-09	8.3E-09
^{75}Se			1.2E-02		
^{228}Th	3.3E-08	5.2E-09	1.0E-08	9.0E-10	7.3E-09
^{230}Th	3.5E-09	3.0E-09	3.9E-09	7.4E-10	7.6E-09
^{232}Th	2.2E-09	3.1E-09	5.8E-09	4.6E-10	8.2E-09
Total Sr	5.7E-07	9.1E-07	1.2E-04	1.4E-08	1.9E-05
^{234}U	2.1E-07	6.5E-08	2.5E-07	1.5E-08	3.8E-08
^{235}U	7.5E-09	4.8E-09	4.0E-08	1.2E-09	4.2E-09
^{238}U	6.7E-09	6.6E-09	5.5E-08	2.2E-09	1.5E-08
^{131m}Xe					8.8E+00
^{133}Xe					4.6E+00
^{133m}Xe					3.1E+00
^{135}Xe					1.2E+02
^{135m}Xe					3.3E+01
^{137}Xe					1.1E+02
^{138}Xe					3.5E+02

[a]1 Ci=3.7E+10 Bq.

Table 3.2. Permit Number TN 0002941, 1999 ORNL ambient and facility discharge points

Parameter	N det/ N total	Concentration Max[a]	Min[a]	Av[b]	Standard error[c]
Sewage Treatment Plant (X01)					
Anions (mg/L)					
Ammonia, as N	10/157	1.0	0.14	~0.21	0.0056
Field Measurements					
Chlorine, total residual (mg/L)	0/156	<0.050	<0.050	~0.050	0
Dissolved oxygen (mg/L)	156/156	9.9	6.8	8.5	0.051
Flow (mgd)	251/251	0.51	0.10	0.20	0.0032
pH (Std Unit)	156/156	8.2	6.8	7.4	0.025
Metals (mg/L)					
Cadmium, total	3/12	<0.00050	<0.00010	~0.00021	0.000051
Cyanide, total	0/12	<0.0050	<0.0050	~0.0050	0
Mercury, total	0/24	<0.00020	<0.00020	~0.00020	0
Silver, total	5/12	0.00019	<0.00010	~0.00012	0.0000098
Others (mg/L)					
Carbonaceous biological oxygen demand	0/157	<5.0	<5.0	~5.0	0
Oil and grease	2/157	340	<5.3	~7.7	2.1
Physical					
Fecal coliform (col/100ml)[d]	126/156	19,000	<1.0	~9.0	1.1
Total suspended solids (mg/L)	75/157	14	<1.0	~1.9	0.16
Radionuclides (pCi/L)					
Gross alpha	5/12	4.0*	-0.83	1.4*	0.40
Gross beta	12/12	4,300*	190*	730*	330
Toxicity (%)[e]					
96 hour LC50 for Ceriodaphnia	NA/4	>41	>41	~41	0
96 hour LC50 for Fathead Minnow	NA/4	>41	>41	~41	0
No-observed effect concentration, Ceriodaphnia	NA/4	41	<9.8	~26	8.7
No-observed effect concentration, Fathead Minnow	NA/4	41	41	41	0
Coal Yard Runoff Treatment Facility (X02)					
Anions (mg/L)					
Sulfate, as SO_4	12/12	2,400	450	1,400	150
Field Measurements					
Flow (mgd)	251/251	0.28	0	0.047	0.0030
pH (Std Unit)	52/52	8.6	6.8	7.6	0.059
Metals (mg/L)					
Antimony, total	9/24	0.00083	<0.00050	~0.00055	0.000018
Arsenic, total	23/24	0.0059	<0.0010	~0.0026	0.00021
Cadmium, total	14/24	<0.00050	<0.00010	~0.00026	0.000032
Chromium, total	19/24	0.0036	<0.0010	~0.0018	0.00016
Copper, total	24/24	0.025	0.0025	0.0076	0.00095
Iron, total	17/24	1.9	<0.25	~0.44	0.072
Lead, total	19/24	0.0021	<0.00010	~0.00027	0.000081
Mercury, total	0/12	<0.00020	<0.00020	~0.00020	0
Selenium, total	19/24	0.0085	<0.0020	~0.0041	0.00040
Silver, total	2/24	0.00014	<0.00010	~0.00010	0.0000018
Zinc, total	24/24	0.054	0.010	0.023	0.0019
Others (mg/L)					
Oil and grease	1/52	<7.8	<5.3	~5.7	0.053

Table 3.2. (continued)

Parameter	N det/ N total	Concentration Max[a]	Min[a]	Av[b]	Standard error[c]
Physical					
Total suspended solids (mg/L)	48/52	28	<1.0	~3.9	0.58
Radionuclides (pCi/L)					
Gross alpha	1/12	23*	-13	5.0	3.1
Gross beta	8/12	110*	0.044	61*	10
Toxicity (%)[e]					
96 hour LC50 for Ceriodaphnia	NA/4	>4.2	>4.2	~4.2	0
96 hour LC50 for Fathead Minnow	NA/4	>4.2	>4.2	~4.2	0
No-observed effect concentration, Ceriodaphnia[f]	NA/3	4.2	4.2	4.2	0
No-observed effect concentration, Fathead Minnow[f]	NA/3	4.2	4.2	4.2	0
Nonradiological Wastewater Treatment Facility (X12)					
Anions (mg/L)					
Sulfate, as SO_4	4/4	240	110	160	30
Field Measurements					
Flow (mgd)	251/251	1.0	0.34	0.55	0.0066
Temperature (EC)	156/156	27	13	20	0.28
pH (Std Unit)	156/156	8.4	6.9	7.6	0.024
Metals (mg/L)					
Arsenic, total	11/52	0.0043	<0.0010	~0.0012	0.000076
Cadmium, total	30/52	0.0018	<0.00010	~0.00033	0.000051
Chromium, total	37/52	0.0031	<0.00050	~0.0015	0.000076
Copper, total	52/52	0.023	0.0031	0.0087	0.00053
Cyanide, total	0/4	<0.0050	<0.0050	~0.0050	0
Iron, total	8/52	0.65	<0.25	~0.28	0.010
Lead, total	52/52	0.0046	0.00023	0.0020	0.00015
Mercury, total	1/52	0.00023	<0.00020	~0.00020	0.00000058
Nickel, total	24/52	0.0052	<0.0010	~0.0013	0.00011
Selenium, total	2/52	0.0042	<0.0020	~0.0020	0.000043
Silver, total	38/52	0.00060	<0.00010	~0.00021	0.000016
Zinc, total	52/52	0.086	0.015	0.033	0.0017
Others (mg/L)					
Oil and grease	2/52	18	<5.3	~5.8	0.25
Total toxic organics	0/12	<0.010	<0.010	~0.010	0
Physical					
Total suspended solids (mg/L)	0/4	<1.0	<1.0	~1.0	0
Radionuclides (pCi/L)					
Gross alpha	12/12	46*	9.0*	23*	3.6
Gross beta	12/12	2,900*	360*	1,000*	220
Toxicity (%)[e]					
96 hour LC50 for Ceriodaphnia	NA/4	>100	>100	~100	0
96 hour LC50 for Fathead Minnow	NA/4	>100	>100	~100	0
No-observed effect concentration, Ceriodaphnia	NA/4	100	80	95	5.0
No-observed effect concentration, Fathead Minnow	NA/4	100	100	100	0

Table 3.2. (continued)

Parameter	N det/ N total	Concentration Max[a]	Min[a]	Av[b]	Standard error[c]	
Melton Branch 1 (X13)						
Field Measurements						
Flow (mgd)	156/156	23	0.089	1.6	0.26	
White Oak Creek (X14)						
Field Measurements						
Flow (mgd)	156/156	53	2.0	6.0	0.59	
White Oak Dam (X15)						
Field Measurements						
Flow (mgd)	156/156	100	2.9	9.9	1.0	

[a]Prefix "<" indicates the value for a parameter was not quantifiable at the analytical detection limit, and ">" indicates that the actual value was above the given value.

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

[c]Standard error of the mean.

[d]The geometric mean is computed rather than the average.

[e]Number of detected is not applicable for toxicity results.

[f]Because of the batch mode discharge process at the Coal Yard Runoff Treatment Facility (X02), if the discharge is not long enough for the 96 hour LC-50 test, a 48 hour LC50 test is calculated from the data and reported. The No-observed effect concentration is not reported when a 48 hour calculation is done.

Table 3.3. NPDES Permit Number TN 0002941, 1999 ORNL outfall monitoring

Parameter	N det/ N total	Concentration Max[a]	Min[a]	Av[b]	Standard error[c]
Category 1 outfalls					
Field Measurements					
Flow (mgd)	19/19	0.029	0.00014	0.011	0.0022
pH (Std Unit)	19/19	8.1	7.2	7.8	0.051
Category 2 outfalls					
Field Measurements					
Flow (mgd)	18/18	0.43	0.00014	0.032	0.024
pH (Std Unit)	19/19	8.1	7.1	7.5	0.055
Category 3 outfalls					
Field Measurements					
Flow (mgd)	57/57	0.043	0.00070	0.013	0.0015
pH (Std Unit)	57/57	8.3	7.5	7.9	0.022
Category 4 outfalls					
Field Measurements					
Flow (mgd)	314/314	0.58	0.00014	0.077	0.0056
Temperature (EC)	314/314	36	4.2	19	0.31
pH (Std Unit)	314/314	8.4	6.9	7.7	0.017
Cooling Tower Blowdown outfalls					
Field Measurements					
Flow (mgd)	4/4	0.086	0.017	0.056	0.018
Temperature (EC)	4/4	26	11	20	3.1
Total residual oxidant (mg/L)	0/4	<0.050	<0.050	~0.050	0
pH (Std Unit)	4/4	8.4	7.9	8.2	0.12
Physical					
Total suspended solids (mg/L)	4/4	32	6.4	22	5.4
Cooling Tower Blowdown/Cooling Water outfalls					
Field Measurements					
Flow (mgd)	48/48	0.17	0.012	0.088	0.0072
Total residual oxidant (mg/L)	0/48	<0.050	<0.050	~0.050	0
pH (Std Unit)	48/48	8.1	6.8	7.5	0.048
Groundwater/Pumpwater outfalls					
Field Measurements					
Flow (mgd)	6/6	0.0060	0.00036	0.0022	0.00085
pH (Std Unit)	6/6	8.1	7.0	7.7	0.18
Steam Condensate outfalls					
Field Measurements					
Flow (mgd)	16/16	0.017	0.00014	0.0027	0.0013
Temperature (°C)	16/16	60	11	40	4.7
pH (Std Unit)	16/16	8.3	7.0	7.7	0.11

[a]Prefix "<" indicates the value for a parameter was not quantifiable at the analytical detection limit.

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

[c]Standard error of the mean.

Table 3.4. NPDES Permit Number TN 0002941, 1999 ORNL Instream Chlorine monitoring

Parameter	N det/ N total	Concentration Max[a]	Min[a]	Av[b]	Standard error[c]
Fifth Creek					
Field Measurements					
Temperature (EC)	72/72	20	9.8	16	0.32
Total residual oxidant (mg/L)	0/72	<0.050	<0.050	~0.050	0
pH (Std Unit)	72/72	8.4	7.1	7.8	0.036
First Creek					
Field Measurements					
Temperature (EC)	48/48	21	8.0	15	0.50
Total residual oxidant (mg/L)	0/48	<0.050	<0.050	~0.050	0
pH (Std Unit)	48/48	8.1	7.0	7.7	0.037
White Oak Creek					
Field Measurements					
Temperature (EC)	144/144	25	7.1	17	0.37
Total residual oxidant (mg/L)	0/144	<0.050	<0.050	~0.050	0
pH (Std Unit)	144/144	8.4	7.0	7.8	0.029

[a]Prefix "<" indicates the value for a parameter was not quantifiable at the analytical detection limit.

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

[c]Standard error of the mean.

Table 3.5. 1999 ORNL Chlorine Control Strategy monitoring

Parameter	N det/ N total	Concentration Max[a]	Min[a]	Av[b]	Standard error[c]
Category 1 outfalls					
Field Measurements					
Flow (gpm)	26/26	25	0.10	5.4	1.2
Total residual oxidant (mg/L)	0/26	<0.050	<0.050	~0.050	0
Category 2 outfalls					
Field Measurements					
Flow (gpm)	20/20	100	0.10	14	5.4
Total residual oxidant (mg/L)	0/20	<0.050	<0.050	~0.050	0
Category 3 outfalls					
Field Measurements					
Flow (gpm)	61/61	45	0.75	8.9	1.1
Total residual oxidant (mg/L)	6/61	1.4	<0.050	~0.12	0.031
Category 4 outfalls					
Field Measurements					
Flow (gpm)	142/142	300	0.10	77	4.7
Total residual oxidant (mg/L)	6/142	0.30	<0.050	~0.056	0.0028
Groundwater/Pumpwater outfalls					
Field Measurements					
Flow (gpm)	4/4	2.0	0.25	0.88	0.39
Total residual oxidant (mg/L)	0/4	<0.050	<0.050	~0.050	0
Steam Condensate outfalls					
Field Measurements					
Flow (gpm)	14/14	12	0.10	2.1	1.1
Total residual oxidant (mg/L)	4/14	1.1	<0.050	~0.29	0.11

[a]Prefix "<" indicates the value for a parameter was not quantifiable at the analytical detection limit.

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

[c]Standard error of the mean.

Table 3.6. 1999 ORNL Storm Water Pollution Prevention Plan monitoring

Parameter	Sample Type	Value[a]	Uncertainty	MDA
Category 2 Outfall 086				
Anions (mg/L)				
Kjeldahl Nitrogen	Grab	0.54	b	b
Nitrate/Nitrite as Nitrogen	Grab	<0.050	b	b
Field Measurements				
Flow (gpm)	Estimated	300	b	b
pH (Std Unit)	Grab	7.7	b	b
Temperature (EC)	Grab	8.7	b	b
Metals (mg/L)				
Aluminum, total	Grab	<0.20	b	b
Antimony, total	Grab	<0.00050	b	b
Arsenic, total	Grab	<0.0010	b	b
Beryllium, total	Grab	<0.00010	b	b
Cadmium, total	Grab	<0.00010	b	b
Chromium, total	Grab	<0.0010	b	b
Copper, total	Grab	<0.0010	b	b
Iron, total	Grab	0.25	b	b
Lead, total	Grab	<0.00010	b	b
Manganese, total	Grab	0.083	b	b
Nickel, total	Grab	<0.0010	b	b
Phosphorus, total	Grab	<0.10	b	b
Selenium, total	Grab	<0.0020	b	b
Silver, total	Grab	<0.00010	b	b
Zinc, total	Grab	0.0080	b	b
Others (mg/L)				
Biochemical oxygen demand	Grab	<5.0	b	b
Chemical oxygen demand	Grab	12	b	b
Oil&grease	Grab	<5.6	b	b
Physical (mg/L)				
Total suspended solids	Grab	1.2	b	b
Radionuclides (pCi/L)				
Co-60	Grab	1.6	2.1	4.0
Cs-137	Grab	-1.1	2.2	3.6
Gross alpha	Grab	0.70	1.6	3.0
Gross beta	Grab	20*	6.4	8.7
H-3	Grab	280,000*	3,100	850
Category 3 Outfall 165				
Anions (mg/L)				
Kjeldahl Nitrogen	Composite	0.78	b	b
Kjeldahl Nitrogen	Grab	0.86	b	b
Nitrate/Nitrite as Nitrogen	Composite	0.16	b	b
Nitrate/Nitrite as Nitrogen	Grab	0.21	b	b
Base Neutral/Acid Extractable Organic (Fg/L)				
Acenaphthene	Grab	U10	b	b
Acenaphthylene	Grab	U10	b	b
Anthracene	Grab	U10	b	b
Benzo(a)anthracene	Grab	U10	b	b
Benzo(a)pyrene	Grab	U10	b	b
Benzo(b)fluoranthene	Grab	U10	b	b
Benzo(ghi)perylene	Grab	U10	b	b
Benzo(k)fluoranthene	Grab	U10	b	b
Chrysene	Grab	U10	b	b
Dibenz(a,h)anthracene	Grab	U10	b	b

Table 3.6. (continued)

Parameter	Sample Type	Value[a]	Uncertainty	MDA
Fluoranthene	Grab	U10	b	b
Fluorene	Grab	U10	b	b
Indeno(1,2,3-cd)pyrene	Grab	U10	b	b
Naphthalene	Grab	U10	b	b
Phenanthrene	Grab	U10	b	b
Pyrene	Grab	U10	b	b
Field Measurements				
Flow (gpm)	Estimated	6.0	b	b
pH (Std Unit)	Grab	8.1	b	b
Temperature (EC)	Grab	18	b	b
Metals (mg/L)				
Aluminum, total	Composite	0.37	b	b
Aluminum, total	Grab	0.27	b	b
Antimony, total	Composite	<0.00050	b	b
Antimony, total	Grab	<0.00050	b	b
Arsenic, total	Composite	<0.0010	b	b
Arsenic, total	Grab	<0.0010	b	b
Beryllium, total	Composite	<0.00010	b	b
Beryllium, total	Grab	<0.00010	b	b
Cadmium, total	Composite	0.00012	b	b
Cadmium, total	Grab	0.00019	b	b
Chromium, total	Composite	0.0019	b	b
Chromium, total	Grab	0.0015	b	b
Copper, total	Composite	0.043	b	b
Copper, total	Grab	0.043	b	b
Iron, total	Composite	0.51	b	b
Iron, total	Grab	0.39	b	b
Lead, total	Composite	0.0038	b	b
Lead, total	Grab	0.0034	b	b
Manganese, total	Composite	0.028	b	b
Manganese, total	Grab	0.020	b	b
Nickel, total	Composite	<0.0010	b	b
Nickel, total	Grab	<0.0010	b	b
Phosphorus, total	Composite	0.16	b	b
Phosphorus, total	Grab	0.11	b	b
Selenium, total	Composite	<0.0020	b	b
Selenium, total	Grab	<0.0020	b	b
Silver, total	Composite	<0.00010	b	b
Silver, total	Grab	<0.00010	b	b
Zinc, total	Composite	0.048	b	b
Zinc, total	Grab	0.046	b	b
Others (mg/L)				
Biochemical oxygen demand	Composite	<5.0	b	b
Biochemical oxygen demand	Grab	<5.0	b	b
Chemical oxygen demand	Composite	29	b	b
Chemical oxygen demand	Grab	<5.0	b	b
Oil&grease	Grab	<5.6	b	b
Physical (mg/L)				
Total suspended solids	Composite	34	b	b
Total suspended solids	Grab	8.8	b	b
Radionuclides (pCi/L)				
Co-60	Composite	-1.3	2.4	4.2
Cs-137	Composite	-0.49	2.2	3.7
Gross alpha	Composite	1.4	2.3	3.8
Gross beta	Composite	98*	9.7	6.9
H-3	Composite	52	180	250

Table 3.6. (continued)

Parameter	Sample Type	Value[a]	Uncertainty	MDA
		Category 3 Outfall 191		
Anions (mg/L)				
Kjeldahl Nitrogen	Composite	0.42	b	b
Kjeldahl Nitrogen	Grab	0.38	b	b
Nitrate/Nitrite as Nitrogen	Composite	0.61	b	b
Nitrate/Nitrite as Nitrogen	Grab	0.51	b	b
Base Neutral/Acid Extractable Organic (Fg/L)				
Acenaphthene	Grab	U10	b	b
Acenaphthylene	Grab	U10	b	b
Anthracene	Grab	U10	b	b
Benzo(a)anthracene	Grab	U10	b	b
Benzo(a)pyrene	Grab	U10	b	b
Benzo(b)fluoranthene	Grab	U10	b	b
Benzo(ghi)perylene	Grab	U10	b	b
Benzo(k)fluoranthene	Grab	U10	b	b
Chrysene	Grab	U10	b	b
Dibenz(a,h)anthracene	Grab	U10	b	b
Fluoranthene	Grab	U10	b	b
Fluorene	Grab	U10	b	b
Indeno(1,2,3-cd)pyrene	Grab	U10	b	b
Naphthalene	Grab	U10	b	b
Phenanthrene	Grab	U10	b	b
Pyrene	Grab	U10	b	b
Field Measurements				
Flow (gpm)	Estimated	50	b	b
pH (Std Unit)	Grab	7.8	b	b
Temperature (oC)	Grab	7.9	b	b
PCBs (Fg/L)				
PCB-1016	Grab	U0.50	b	b
PCB-1221	Grab	U0.50	b	b
PCB-1232	Grab	U0.50	b	b
PCB-1242	Grab	U0.50	b	b
PCB-1248	Grab	U0.50	b	b
PCB-1254	Grab	U0.50	b	b
PCB-1260	Grab	U0.50	b	b
Metals (mg/L)				
Aluminum, total	Composite	<0.20	b	b
Aluminum, total	Grab	<0.20	b	b
Antimony, total	Composite	<0.00050	b	b
Antimony, total	Grab	<0.00050	b	b
Arsenic, total	Composite	<0.0010	b	b
Arsenic, total	Grab	<0.0010	b	b
Beryllium, total	Composite	<0.00010	b	b
Beryllium, total	Grab	<0.00010	b	b
Cadmium, total	Composite	<0.00010	b	b
Cadmium, total	Grab	<0.00010	b	b
Chromium, total	Composite	<0.0010	b	b
Chromium, total	Grab	<0.0010	b	b
Copper, total	Composite	0.0019	b	b
Copper, total	Grab	0.0018	b	b
Iron, total	Composite	0.065	b	b
Iron, total	Grab	0.071	b	b
Lead, total	Composite	0.00049	b	b
Lead, total	Grab	0.00030	b	b
Manganese, total	Composite	0.0019	b	b
Manganese, total	Grab	0.0019	b	b
Nickel, total	Composite	0.0013	b	b
Nickel, total	Grab	0.0014	b	b

Table 3.6. (continued)

Parameter	Sample Type	Value[a]	Uncertainty	MDA
Phosphorus, total	Composite	<0.10	b	b
Phosphorus, total	Grab	<0.10	b	b
Selenium, total	Composite	<0.0020	b	b
Selenium, total	Grab	<0.0020	b	b
Silver, total	Composite	<0.00010	b	b
Silver, total	Grab	<0.00010	b	b
Zinc, total	Composite	0.026	b	b
Zinc, total	Grab	0.027	b	b
Others (mg/L)				
Biochemical oxygen demand	Composite	<5.0	b	b
Biochemical oxygen demand	Grab	<5.0	b	b
Chemical oxygen demand	Composite	<5.0	b	b
Chemical oxygen demand	Grab	<5.0	b	b
Oil&grease	Grab	<5.5	b	b
Physical (mg/L)				
Total suspended solids	Composite	<1.0	b	b
Total suspended solids	Grab	<1.0	b	b
PCBs (Fg/L)				
PCB, total	Grab	U0.50	b	b
Radionuclides (pCi/L)				
Co-60	Composite	-0.53	2.0	3.6
Cs-137	Composite	-0.27	2.2	3.8
Gross alpha	Composite	0.76	1.7	3.3
Gross beta	Composite	7.2*	5.6	8.9
H-3	Composite	-10	520	860
Category 4 Outfall 235				
Anions (mg/L)				
Kjeldahl Nitrogen	Composite	1.7	b	b
Kjeldahl Nitrogen	Grab	1.6	b	b
Nitrate/Nitrite as Nitrogen	Composite	0.36	b	b
Nitrate/Nitrite as Nitrogen	Grab	0.37	b	b
Sulfate, as SO_4	Composite	26	b	b
Sulfate, as SO_4	Grab	14	b	b
Base Neutral/Acid Extractable Organic (Fg/L)				
Acenaphthene	Grab	U10	b	b
Acenaphthylene	Grab	U10	b	b
Anthracene	Grab	U10	b	b
Benzo(a)anthracene	Grab	U10	b	b
Benzo(a)pyrene	Grab	U10	b	b
Benzo(b)fluoranthene	Grab	U10	b	b
Benzo(ghi)perylene	Grab	U10	b	b
Benzo(k)fluoranthene	Grab	U10	b	b
Chrysene	Grab	U10	b	b
Dibenz(a,h)anthracene	Grab	U10	b	b
Fluoranthene	Grab	U10	b	b
Fluorene	Grab	U10	b	b
Indeno(1,2,3-cd)pyrene	Grab	U10	b	b
Naphthalene	Grab	U10	b	b
Phenanthrene	Grab	U10	b	b
Pyrene	Grab	U10	b	b
Field Measurements				
Flow (gpm)	Estimated	100	b	b
pH (Std Unit)	Grab	7.6	b	b
Temperature (EC)	Grab	22	b	b

Table 3.6. (continued)

Parameter	Sample Type	Value[a]	Uncertainty	MDA
PCBs (Fg/L)				
PCB-1016	Grab	U0.50	b	b
PCB-1221	Grab	U0.50	b	b
PCB-1232	Grab	U0.50	b	b
PCB-1242	Grab	U0.50	b	b
PCB-1248	Grab	U0.50	b	b
PCB-1254	Grab	U0.50	b	b
PCB-1260	Grab	U0.50	b	b
Metals (mg/L)				
Aluminum, total	Composite	1.5	b	b
Aluminum, total	Grab	7.4	b	b
Antimony, total	Composite	<0.00050	b	b
Antimony, total	Grab	0.00066	b	b
Arsenic, total	Composite	0.0068	b	b
Arsenic, total	Grab	0.022	b	b
Beryllium, total	Composite	<0.00010	b	b
Beryllium, total	Grab	0.00039	b	b
Cadmium, total	Composite	0.00018	b	b
Cadmium, total	Grab	0.00053	b	b
Chromium, total	Composite	0.0020	b	b
Chromium, total	Grab	0.0066	b	b
Copper, total	Composite	0.063	b	b
Copper, total	Grab	0.078	b	b
Iron, total	Composite	2.4	b	b
Iron, total	Grab	13	b	b
Lead, total	Composite	0.0054	b	b
Lead, total	Grab	0.035	b	b
Manganese, total	Composite	0.061	b	b
Manganese, total	Grab	0.21	b	b
Mercury, total	Composite	<0.00020	b	b
Mercury, total	Grab	<0.00020	b	b
Nickel, total	Composite	0.0044	b	b
Nickel, total	Grab	0.0078	b	b
Phosphorus, total	Composite	0.16	b	b
Phosphorus, total	Grab	0.68	b	b
Selenium, total	Composite	<0.0020	b	b
Selenium, total	Grab	<0.0020	b	b
Silver, total	Composite	<0.00010	b	b
Silver, total	Grab	0.00013	b	b
Zinc, total	Composite	0.14	b	b
Zinc, total	Grab	0.31	b	b
Others (mg/L)				
Biochemical oxygen demand	Composite	<8.0	b	b
Biochemical oxygen demand	Grab	<8.0	b	b
Chemical oxygen demand	Composite	27	b	b
Chemical oxygen demand	Grab	220	b	b
Oil&grease	Grab	<5.6	b	b
Physical (mg/L)				
Total suspended solids	Composite	51	b	b
Total suspended solids	Grab	540	b	b
PCBs (Fg/L)				
PCB	Grab	U0.50	b	b
Radionuclides (pCi/L)				
Co-60	Composite	0.97	2.1	3.7
Cs-137	Composite	-0.96	2.2	3.7
Gross alpha	Composite	0.79	1.3	2.1
Gross beta	Composite	3.7*	2.4	3.6
H-3	Composite	24,000*	530	260

Table 3.6. (continued)

Parameter	Sample Type	Value[a]	Uncertainty	MDA
		Category 4 Outfall 313		
Anions (mg/L)				
Kjeldahl Nitrogen	Composite	0.59	b	b
Kjeldahl Nitrogen	Grab	0.86	b	b
Nitrate/Nitrite as Nitrogen	Composite	0.070	b	b
Nitrate/Nitrite as Nitrogen	Grab	0.060	b	b
Base Neutral/Acid Extractable Organic (Fg/L)				
Acenaphthene	Grab	U10	b	b
Acenaphthylene	Grab	U10	b	b
Anthracene	Grab	U10	b	b
Benzo(a)anthracene	Grab	U10	b	b
Benzo(a)pyrene	Grab	U10	b	b
Benzo(b)fluoranthene	Grab	U10	b	b
Benzo(ghi)perylene	Grab	U10	b	b
Benzo(k)fluoranthene	Grab	U10	b	b
Chrysene	Grab	U10	b	b
Dibenz(a,h)anthracene	Grab	U10	b	b
Fluoranthene	Grab	U10	b	b
Fluorene	Grab	U10	b	b
Indeno(1,2,3-cd)pyrene	Grab	U10	b	b
Naphthalene	Grab	U10	b	b
Phenanthrene	Grab	U10	b	b
Pyrene	Grab	U10	b	b
Field Measurements				
Flow (gpm)	Estimated	85	b	b
pH (Std Unit)	Grab	7.8	b	b
Temperature (EC)	Grab	26	b	b
Metals (mg/L)				
Aluminum, total	Composite	0.54	b	b
Aluminum, total	Grab	1.0	b	b
Antimony, total	Composite	<0.00050	b	b
Antimony, total	Grab	<0.00050	b	b
Arsenic, total	Composite	0.0011	b	b
Arsenic, total	Grab	<0.0010	b	b
Beryllium, total	Composite	<0.00010	b	b
Beryllium, total	Grab	<0.00010	b	b
Cadmium, total	Composite	<0.00010	b	b
Cadmium, total	Grab	0.00011	b	b
Chromium, total	Composite	0.0016	b	b
Chromium, total	Grab	0.0026	b	b
Copper, total	Composite	0.0067	b	b
Copper, total	Grab	0.0090	b	b
Iron, total	Composite	1.2	b	b
Iron, total	Grab	2.3	b	b
Lead, total	Composite	0.0020	b	b
Lead, total	Grab	0.0031	b	b
Manganese, total	Composite	0.16	b	b
Manganese, total	Grab	0.30	b	b
Nickel, total	Composite	0.0019	b	b
Nickel, total	Grab	0.0025	b	b
Phosphorus, total	Composite	<0.10	b	b
Phosphorus, total	Grab	<0.10	b	b
Selenium, total	Composite	<0.0020	b	b
Selenium, total	Grab	<0.0020	b	b
Silver, total	Composite	<0.00010	b	b
Silver, total	Grab	<0.00010	b	b
Zinc, total	Composite	0.030	b	b
Zinc, total	Grab	0.048	b	b

Table 3.6. (continued)

Parameter	Sample Type	Value[a]	Uncertainty	MDA
Others (mg/L)				
Biochemical oxygen demand	Composite	<5.0	b	b
Biochemical oxygen demand	Grab	<5.0	b	b
Chemical oxygen demand	Composite	28	b	b
Chemical oxygen demand	Grab	29	b	b
Oil&grease	Grab	<5.6	b	b
Physical (mg/L)				
Total suspended solids	Composite	32	b	b
Total suspended solids	Grab	69	b	b
Radionuclides (pCi/L)				
Co-60	Composite	2.1*	2.1	3.9
Cs-137	Composite	-0.26	2.0	3.5
Gross alpha	Composite	3.4*	2.3	1.0
Gross beta	Composite	4.0*	4.8	7.8
H-3	Composite	520	740	820

[a]Prefix "<" indicates the value for a parameter was not quantifiable at the analytical detection limit. Radionuclide values significantly greater than zero are identified by an *.

[b]Not applicable.

Table 3.7. 1999 radionuclide concentrations at ORNL NPDES permitted locations

Radionuclide	N det/ N total	Concentration (pCi/L) Max[a]	Min[a]	Av[b]	Standard error[c]	DCG[d]	Percent of DCG[e]
Sewage Treatment Plant (X01)							
Co-60	5/10	23*	-8.6	5.7*	3.0	5,000	0.11
Cs-137	7/10	53*	-4.6	16*	5.5	3,000	0.55
Gross alpha	5/12	4.0*	-0.83	1.4*	0.40	f	f
Gross beta	12/12	4,300*	190*	730*	330	f	f
Total rad Sr	12/12	2,000*	71*	320*	150	1,000	32
Coal Yard Runoff Treatment Facility (X02)							
Gross alpha	1/12	23*	-13	5.0	3.1	f	f
Gross beta	8/12	110*	0.044	61*	10	f	f
Nonradiological Wastewater Treatment Facility (X12)							
Co-60	9/12	27*	2.1	13*	2.0	5,000	0.26
Cs-134	4/4	110*	8.8*	41	24	2,000	f
Cs-137	12/12	3,500*	540*	1,200*	260	3,000	38
Gross alpha	12/12	46*	9.0*	23*	3.6	f	f
Gross beta	12/12	2,900*	360*	1,000*	220	f	f
H-3	12/12	110,000*	32,000*	64,000*	8,000	2,000,000	3.2
Total rad Sr	12/12	110*	14*	56*	10	1,000	5.6
Total uranium	3/3	39*	32*	35*	2.2	500	6.9
U-234	5/5	38*	16*	30*	3.7	500	6.0
U-235	1/5	0.13*	0	0.028	0.026	600	f
U-236	0/5	0.060	-0.042	0.016	0.017	500	f
U-238	5/5	1.3*	0.30*	1.0*	0.20	600	0.17
Melton Branch 1 (X13)							
Co-60	3/12	7.2	-0.019	3.1*	0.69	5,000	0.062
Cs-137	1/12	10	-2.9	2.3*	0.93	3,000	0.077
Gross alpha	0/2	4.7	-0.068	2.3	2.4	f	f
Gross beta	2/2	680*	560*	620*	60	f	f
H-3	12/12	540,000*	110,000*	390,000*	40,000	2,000,000	20
Total rad Sr	12/12	320*	93*	200*	19	1,000	20
U-234	1/1	0.20*	0.20*	0.20	f	500	f
U-235	0/1	0.031	0.031	0.031	f	600	f
U-236	0/1	-0.017	-0.017	-0.017	f	500	f
U-238	1/1	0.18*	0.18*	0.18	f	600	f
White Oak Creek (X14)							
Co-60	2/12	7.9	-6.0	2.6*	1.0	5,000	0.053
Cs-137	11/12	81*	-0.13	44*	6.0	3,000	1.5
Gross alpha	2/2	3.8*	2.7*	3.3	0.55	f	f
Gross beta	2/2	160*	48*	100	56	f	f
H-3	12/12	27,000*	6,600*	17,000*	1,700	2,000,000	0.84
Total rad Sr	12/12	130*	22*	58*	9.1	1,000	5.8

Table 3.7. (continued)

Radionuclide	N det/ N total	Concentration (pCi/L) Max[a]	Min[a]	Av[b]	Standard error[c]	DCG[d]	Percent of DCG[e]
			White Oak Dam (X15)				
Co-60	13/28	6.4*	-2.1	2.1*	0.32	5,000	0.042
Cs-137	28/28	99*	5.8*	23*	3.8	3,000	0.77
Gross alpha	28/28	17*	2.1*	7.6*	0.66	f	f
Gross beta	28/28	690*	170*	270*	18	f	f
H-3	12/12	120,000*	46,000*	77,000*	7,200	2,000,000	3.8
Total rad Sr	12/12	140*	64*	98*	6.8	1,000	9.8

[a]Individual radionuclide concentrations significantly greater than zero are identified by an *.
[b]Average radionuclide concentrations significantly greater than zero are identified by an *.
[c]Standard error of the mean.
[d]Derived concentration guide for ingestion of water. From DOE Order 5400.5.
[e]Average 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.
[f]Not applicable.

Table 3.8. 1999 radionuclide concentrations in surface waters around ORNL

Radionuclide	N det/ N total	Concentration (pCi/L) Max[a]	Min[a]	Av[b]	Standard error[c]	DCG[d]	Percent of DCG[e]
			Melton Hill Dam				
Co-60	4/5	15*	7.2*	11*	1.5	5,000	0.22
Cs-137	0/5	8.2	0.17	4.4*	1.3	3,000	0.15
Gross alpha	1/5	3.7*	-0.39	1.1	0.73	f	f
Gross beta	2/5	5.9*	-0.81	2.6*	1.1	f	f
			White Oak Creek Headwaters				
Co-60	3/10	22*	-6.4	5.3*	2.5	5,000	0.11
Cs-137	4/10	42*	-7.9	5.7	4.4	3,000	f
Gross alpha	4/10	4.9*	-1.3	1.2*	0.56	f	f
Gross beta	2/10	6.0*	-3.4	0.77	1.0	f	f

[a]Individual radionuclide concentrations significantly greater than zero are identified by an *.

[b]Average radionuclide concentrations significantly greater than zero are identified by an *.

[c]Standard error of the mean.

[d]Derived concentration guide for ingestion of water. From DOE Order 5400.5.

[e]Average 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.

[f]Not applicable.

Table 3.9. 1999 analyses for ORNL reference surface waters

Parameter	N det/ N total	Concentration Max[a]	Min[a]	Av[b]	Standard error[c]	Ref. Value[d]	Percent of Ref. Value[e]
Melton Hill Dam							
Anions (mg/L)							
Sulfate, as SO_4	6/6	26	16	22	1.6	f	f
Field Measurements							
Conductivity (mS/cm)	6/6	0.25	0.15	0.23	0.015	f	f
Dissolved oxygen (mg/L)	6/6	10	6.2	8.8	0.57	f	f
pH (SU)	6/6	8.0	7.6	7.9	0.067	f	f
Temperature (EC)	6/6	20	8.5	13	1.9	f	f
Turbidity (NTU)	6/6	16	8.0	11	1.3	f	f
Metals (mg/L)							
Antimony, total	0/6	<0.0050	<0.00050	~0.0013	0.00075	0.006	f
Arsenic, total	1/6	0.0015	<0.0010	~0.0011	0.000083	0.05	2.2
Cadmium, total	0/6	<0.00010	<0.00010	~0.00010	0	0.005	f
Chromium, total	3/6	0.0010	0.00090	~0.00099	0.000018	0.1	0.99
Copper, total	6/6	0.0016	0.0011	0.0014	0.000066	f	f
Iron, total	0/6	<0.25	<0.25	~0.25	0	f	f
Lead, total	4/6	0.00032	<0.00010	~0.00015	0.000037	0.005	3.1
Nickel, total	1/6	0.0013	<0.0010	~0.0011	0.000050	0.1	1.1
Selenium, total	0/6	<0.0020	<0.0020	~0.0020	0	0.05	f
Silver, total	0/6	<0.00010	<0.00010	~0.00010	0	f	f
Zinc, total	6/6	0.0089	0.0040	0.0062	0.00064	f	f
Others (mg/L)							
Oil and grease	0/6	<5.6	<5.4	~5.5	0.037	f	f
Physical (mg/L)							
Total suspended solids	2/6	5.2	<1.0	~1.7	0.69	f	f
White Oak Creek Headwaters							
Anions (mg/L)							
Sulfate, as SO_4	12/12	4.4	1.8	2.9	0.28	f	f
Field Measurements							
Conductivity (mS/cm)	29/29	0.27	0.066	0.17	0.0092	f	f
Dissolved oxygen (mg/L)	29/29	11	7.0	8.6	0.16	f	f
pH (SU)	29/29	8.2	7.0	7.7	0.055	f	f
Temperature (EC)	29/29	18	5.6	12	0.74	f	f
Turbidity (NTU)	29/29	63	1.0	7.8	2.3	f	f
Metals (mg/L)							
Antimony, total	0/12	<0.00050	<0.00050	~0.00050	0	f	f
Arsenic, total	0/12	<0.0010	<0.0010	~0.0010	0	f	f
Cadmium, total	1/12	<0.00050	<0.00010	~0.00020	0.000052	0.0039	5.1
Chromium, total	6/12	0.0023	<0.0010	~0.0013	0.00012	f	f
Copper, total	5/12	0.014	<0.0010	~0.0023	0.0011	0.0177	13
Iron, total	4/12	1.2	<0.25	~0.39	0.088	f	f
Lead, total	10/12	0.0025	<0.00010	~0.00062	0.00021	0.0817	0.76
Nickel, total	3/12	0.0022	<0.0010	~0.0011	0.00010	1.418	0.081
Selenium, total	0/12	<0.0020	<0.0020	~0.0020	0	0.02	f
Silver, total	1/12	0.00075	<0.00010	~0.00015	0.000054	0.0041	3.8
Zinc, total	12/12	0.049	0.0034	0.016	0.0035	0.117	13

Table 3.9. (continued)

Parameter	N det/ N total	Concentration Max[a]	Min[a]	Av[b]	Standard error[c]	Ref. Value[d]	Percent of Ref. Value[e]
Others (mg/L)							
Oil and grease	0/12	<8.3	<5.3	~5.8	0.23	f	f
Physical (mg/L)							
Total suspended solids	8/12	150	<1.0	~27	13	f	f

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

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

[c]Standard error of the mean.

[d]Tennessee 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.

[e]Average concentration as a percentage of the reference value, calculated when a reference exists, the parameter is a contaminant, and the parameter is detected.

[f]Not applicable.

Table 3.10. 1999 analyses for ORNL Off-site monitoring at the Gallaher and Kingston Water Treatment Plants

Radionuclide	Concentration (pCi/L)[a]	DWD[b]	Percent of DWS[c]
	Gallaher		
Co-60	27*	200	14
Cs-137	20*	120	17
Gross alpha	0.89	d	d
Gross beta	3.8	d	d
H-3	280	80,000	d
Pu-238	0.048	1.6	d
Pu-239/240	-0.035	1.2	d
Total rad Sr	0.84	40	d
Total uranium	0.17	20	d
	Kingston		
Co-60	1.6	200	d
Cs-137	-3.2	120	d
Gross alpha	0	d	d
Gross beta	-2.7	d	d
H-3	-180	80,000	d
Pu-238	-0.031	1.6	d
Pu-239/240	0.016	1.2	d
Total rad Sr	-1.9	40	d
Total uranium	0.75*	20	3.8

[a]Individual radionuclide concentrations significantly greater than zero are identified by an *.

[b]Drinking 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 ingeston of water (from DOE Order 5400.5) is used.

[c]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 concentration is significantly greater than zero.

[d]Not applicable.

Table 3.11. Constituents in Waste Area Grouping (WAG) 1 groundwater at ORNL, June 7-14, 1999

Parameter	N det/ N total	Max	Min	Av	Reference value	Number of values exceeding reference [ref][a]
			Downgradient Wells			
Field measurements, unfiltered						
Conductivity (mS/cm)	4/4	1.2	0.69	0.92	b	[b]
Dissolved oxygen (mg/L)	4/4	2.4	0.45	1.3	b	[b]
Redox (mV)	4/4	250	120	200	b	[b]
Temperature (ɛC}	4/4	19	18	18	30.5	0[1]
Turbidity (JTU)	4/4	210	5.0	59	1	4[2]
pH (SU)	4/4	8.9	6.9	7.5	(6.0, 9.0)	0[1]
Radionuclides, unfiltered (pCi/L)[c]						
Gross beta	1/4	36*	-0.42	12	50	0[2]
H-3	1/4	7,300*	300	2,100	20,000	0[2]
Total rad Sr	1/4	18*	0.60	6.2	8	1[2]
Total uranium	1/1	1.5*	1.5*	1.5	20	0[3]
U-234	1/1	0.89*	0.89*	0.89	20	0[3]
U-238	1/1	0.59*	0.59*	0.59	24	0[3]

[a]If 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 DOE Order 5400.5, Chapter III, Derived Concentration Guides for Air and Water.

[b]Not applicable.

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

Table 3.12. Constituents in Waste Area Grouping (WAG) 2 groundwater at ORNL, March 9 - April 9, 1999

Parameter	N det/ N total	Max[a]	Min[a]	Av[b]	Reference value	Number of values exceeding reference [ref][c]
Downgradient Wells						
Field measurements, unfiltered						
Conductivity (mS/cm)	8/8	0.96	0.25	0.58	d	[d]
Dissolved oxygen (mg/L)	8/8	5.0	1.2	2.2	d	[d]
Redox (mV)	8/8	300	60	190	d	[d]
Temperature (EC}	8/8	19	14	17	30.5	0[1]
Turbidity (JTU)	8/8	190	5.0	32	1	8[2]
pH (SU)	8/8	9.5	6.3	7.4	(6.0, 9.0)	2[1]
Metals, unfiltered (mg/L)						
Arsenic, total	2/4	0.0072	<0.0010	~0.0039	0.05	0[1]
Barium, total	4/4	1.2	0.15	0.43	2	0[1]
Calcium, total	4/4	140	49	93	d	[d]
Chromium, total	2/4	0.51	<0.020	~0.15	0.1	1[1]
Iron, total	4/4	13	1.3	5.2	0.3	4[3]
Lead, total	4/4	0.0045	0.0029	0.0036	0.005	0[1]
Magnesium, total	4/4	24	4.5	14	d	[d]
Manganese, total	4/4	0.33	0.018	0.14	0.05	2[3]
Potassium, total	2/4	3.5	<2.0	~2.6	d	[d]
Sodium, total	4/4	16	10	13	d	[d]
Radionuclides, unfiltered (pCi/L)[e]						
Gross alpha	1/8	4.9*	0.34	1.7*	15	0[2]
Gross beta	2/8	610*	-0.95	80	50	1[2]
H-3	4/8	100,000*	-420	31,000*	20,000	3[2]
Total rad Sr	1/8	290*	-2.0	36	8	1[2]
Volatile organics, unfiltered (Fg/L)						
Acetone	1/4	10	U10	~10	d	[d]
Upgradient Wells						
Field measurements, unfiltered						
Conductivity (mS/cm)	12/12	0.75	0.27	0.53	d	[d]
Dissolved oxygen (mg/L)	12/12	16	0.90	3.8	d	[d]
Redox (mV)	12/12	350	160	280	d	[d]
Temperature (EC}	12/12	16	13	14	30.5	0[1]
Turbidity (JTU)	12/12	11	0	6.6	1	8[2]
pH (SU)	12/12	9.0	6.3	7.4	(6.0, 9.0)	0[1]
Radionuclides, unfiltered (pCi/L)[e]						
Gross beta	2/12	54*	-2.1	7.5	50	1[2]
H-3	4/12	400,000*	-66	36,000	20,000	2[2]

[a]Prefix "<" indicates the value for a parameter (excluding organics) was not quantifiable at the analytical detection limit; and "U" indicates the value for an organic parameter was undetected at the analytical detection limit.

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

[c]If 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.

[d]Not applicable.

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

Table 3.13. Constituents in Waste Area Groupings (WAGs) 8&9 groundwater at ORNL, February 10 - March 2, 1999

Parameter	N det/ N total	Max	Min	Av	Reference value	Number of values exceeding reference [ref][a]
Downgradient Wells						
Field measurements, unfiltered						
Conductivity (mS/cm)	9/9	0.83	0.27	0.47	b	[b]
Dissolved oxygen (mg/L)	9/9	10	0.60	3.0	b	[b]
Redox (mV)	9/9	410	260	310	b	[b]
Temperature (EC}	9/9	17	14	15	30.5	0[1]
Turbidity (JTU)	9/9	13	2.0	9.0	1	9[2]
pH (SU)	9/9	9.6	6.0	7.2	(6.0, 9.0)	1[1]
Radionuclides, unfiltered (pCi/L)[c]						
Gross alpha	3/9	5.7*	-0.34	2.2*	15	0[2]
Gross beta	3/9	2,600*	-3.5	600*	50	3[2]
H-3	1/9	49,000*	-150	5,700	20,000	1[2]
Total rad Sr	3/9	1,100*	-0.97	280*	8	3[2]
Upgradient Wells						
Field measurements, unfiltered						
Conductivity (mS/cm)	2/2	0.36	0.25	0.31	b	[b]
Dissolved oxygen (mg/L)	2/2	2.0	0.30	1.2	b	[b]
Redox (mV)	2/2	350	310	330	b	[b]
Temperature (EC}	2/2	17	15	16	30.5	0[1]
Turbidity (JTU)	2/2	17	10	14	1	2[2]
pH (SU)	2/2	8.2	5.3	6.8	(6.0, 9.0)	1[1]
Radionuclides, unfiltered (pCi/L)[c]						
Gross beta	1/2	13*	4.8	8.9	50	0[2]

[a]If 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.
[b]Not applicable.
[c]Individual and average radionuclide concentrations significantly greater than zero are identified by an *.

Table 3.14. Constituents in Waste Area Grouping (WAG) 17 groundwater at ORNL, April 16 - May 18, and October 21, 1999

Parameter	N det/ N total	Max[a]	Min[a]	Av[b]	Reference value	Number of values exceeding reference [ref][c]
Downgradient Wells						
Field measurements, unfiltered						
Conductivity (mS/cm)	4/4	0.76	0.45	0.64	d	[d]
Dissolved oxygen (mg/L)	4/4	2.4	1.4	1.8	d	[d]
Redox (mV)	4/4	300	190	260	d	[d]
Temperature (EC}	4/4	20	15	18	30.5	0[1]
Turbidity (JTU)	4/4	7.0	1.0	3.8	1	2[2]
pH (SU)	4/4	7.3	6.8	7.0	(6.0, 9.0)	0[1]
Radionuclides, unfiltered (pCi/L)[e]						
Gross beta	1/4	9.2*	-3.8	2.0	50	0[2]
H-3	3/4	4,500*	720	2,300*	20,000	0[2]
Volatile organics, unfiltered (Fg/L)						
1,1,1-Trichloroethane	1/4	U5.0	J2.0	~4.3	200	0[1]
1,1-Dichloroethene	1/4	20	U5.0	~8.8	7	1[1]
1,2-Dichloroethene	1/3	55	U5.0	~22	d	[d]
Benzene	1/4	12	U5.0	~6.8	5	1[1]
Chloroform	1/4	U5.0	J3.0	~4.5	100	0[2]
Tetrachloroethene	1/4	17	U5.0	~8.0	5	1[1]
Trichloroethene	3/4	D10,000	J3.0	~2,500	5	2[1]
Vinyl chloride	1/4	120	U10	~38	2	4[1]
cis-1,2-Dichloroethene	2/4	D3,400	U5.0	~870	d	[d]
trans-1,2-Dichloroethene	1/4	20	U5.0	~8.8	d	[d]
Upgradient Wells						
Field measurements, unfiltered						
Conductivity (mS/cm)	4/4	0.68	0.46	0.60	d	[d]
Dissolved oxygen (mg/L)	4/4	3.5	1.7	2.9	d	[d]
Redox (mV)	4/4	320	230	280	d	[d]
Temperature (EC}	4/4	17	15	16	30.5	0[1]
Turbidity (JTU)	4/4	32	7.0	14	1	4[2]
pH (SU)	4/4	7.5	6.8	7.1	(6.0, 9.0)	0[1]
Radionuclides, unfiltered (pCi/L)[e]						
Gross alpha	2/4	2.7*	0.85	1.6*	15	0[2]
H-3	4/4	5,200*	1,700*	3,400*	20,000	0[2]

[a]Prefix "J" indicates the value was estimated at or below the analytical detection limit by the laboratory; "U" indicates the value for an organic parameter was undetected at the analytical detection limit; and “D” indicates that the sample was diluted due to sample matrix.

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

[c]If 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.

[d]Not applicable.

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

Table 4.1. ORNL Plant Perimeter Monitoring summary statistics from 1999 sampling events

Parameter	N det/ N total	Max[a]	Min[a]	Av[b]	Reference value	Number of values exceeding reference [ref][c]
			Melton Valley Exit Pathway			
Field Measurements -- Unfiltered						
Conductivity (mS/cm)	11/11	0.81	0.030	0.37	d	[d]
Dissolved oxygen (ppm)	11/11	10	1.2	4.3	d	[d]
Temperature (EC}	11/11	25	15	17	30.5	0[2]
pH (SU)	11/11	9.2	5.0	7.2	(6.0, 9.0)	3[2]
Metals (mg/L) -- Unfiltered						
Aluminum	2/10	3.8	< 0.20	~ 0.64	(0.05, 0.20)	2[4]
Arsenic	3/10	0.0072	< 0.0010	~ 0.0023	0.05	0[2]
Barium	10/10	1.2	0.021	0.24	2	0[2]
Boron	2/10	0.65	< 0.10	~ 0.17	d	[d]
Calcium	10/10	140	0.74	44	d	[d]
Chromium	2/10	0.51	< 0.020	~ 0.070	0.1	1[2]
Copper	1/10	0.023	< 0.020	~ 0.020	1.3	0[3]
Iron	7/10	13	< 0.050	~ 2.4	0.3	6[4]
Lead	10/10	0.11	0.0016	0.023	0.005	4[2]
Magnesium	10/10	24	0.76	7.1	d	[d]
Manganese	8/10	0.33	< 0.0050	~ 0.068	0.05	3[4]
Potassium	3/10	3.5	< 2.0	~ 2.2	d	[d]
Sodium	10/10	210	1.4	34	d	[d]
Radionuclides (pCi/L) -- Filtered[e]						
Cs-137	1/1	19*	19*	19	120	0[1]
Gross alpha	1/1	6.7*	6.7*	6.7	15	0[3]
Gross beta	1/1	210*	210*	210	50	1[3]
H-3	1/1	42,000*	42,000*	42,000	80,000	0[1]
Total rad Sr	1/1	75*	75*	75	40	1[1]
U-234	1/1	6.6*	6.6*	6.6	20	0[1]
U-238	1/1	0.36*	0.36*	0.36	24	0[1]
Radionuclides (pCi/L) -- Unfiltered[e]						
Co-60	1/11	17*	-0.91	2.0	200	0[1]
Cs-137	1/11	24*	-2.3	1.9	120	0[1]
Gross alpha	5/11	14*	-0.31	3.3*	15	0[3]
Gross beta	5/11	610*	-5.5	79	50	2[3]
H-3	7/11	100,000*	-390	18,000*	80,000	1[1]
Total rad Sr	2/11	290*	-2.0	33	40	2[1]
Total uranium	1/2	2.1*	0.20	1.2	20	0[1]
U-234	3/3	5.4*	0.29*	2.4	20	0[1]
U-235	1/3	0.082*	-0.12	-0.033	24	0[1]
U-236	1/2	0*	-0.010	-0.0050	20	0[1]
U-238	2/3	0.59*	-0.024	0.36	24	0[1]
Volatile Organics (Fg/L) -- Unfiltered						
Acetone	1/11	10	U 10	~ 10	d	[d]
Toluene	1/11	U 5.0	J 2.0	~ 4.7	1,000	0[2]
Xylene, m&p	1/11	U 5.0	J 1.0	~ 4.6	d	[d]

[a]Prefix "<" 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; and "U" indicates the value for an organic parameter was undetected at the analytical detection limit.

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

[c]If a reference limit exists, the source is coded as:
1 DOE Order 5400.5, Chapter III, Derived Concentration Guides for Air and Water.
2 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.
3 40 CFR Part 141--National Primary Drinking Water Regulations, Subparts B and G, as amended.
4 40 CFR Part 143--National Secondary Drinking Water Regulations, as amended.

[d]Not applicable.

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

Table 4.2. 1999 surface water analyses at EMP surface water locations[a]

Parameter	N det/ N total	Concentration Max[b]	Min[b]	Av[c]	Standard error[d]	TWQC[e]
First Creek prior to confluence with Northwest Tributary (1STCK)						
Field Measurements						
Dissolved oxygen (ppm)	2/2	9.7	6.7	8.2	1.5	f
pH (SU)	2/2	9.3	8.2	8.8	0.55	f
Temperature (EC)	2/2	20	16	18	2.1	f
Radionuclides (pCi/L)[g]						
Gross alpha	2/2	38*	11*	25	14	f
Gross beta	2/2	620*	130*	380	250	f
H-3	1/2	360*	110	240	130	80,000
K-40	1/2	120*	-29	46	75	280
Total rad Sr	2/2	290*	59*	170	120	40
Total uranium	1/1	36*	36*	36	f	20
U-234	2/2	36*	7.7*	22	14	20
U-235	1/2	0.048	0*	0.024	0.024	24
U-238	2/2	0.52*	0.28*	0.40	0.12	24
Bear Creek downstream from all possible DOE inputs (BCK 0.6)						
Field Measurements						
Dissolved oxygen (ppm)	2/2	8.7	5.0	6.9	1.9	f
pH (SU)	2/2	8.4	7.8	8.1	0.30	f
Temperature (EC)	2/2	17	14	15	1.6	f
Radionuclides (pCi/L)[g]						
Co-60	1/2	1.8*	0.0020	0.90	0.90	200
Gross alpha	2/2	8.6*	6.7*	7.7*	0.95	f
Gross beta	2/2	14*	6.6*	10	3.7	f
Total uranium	1/1	6.6*	6.6*	6.6	f	20
U-234	2/2	3.6*	2.1*	2.9	0.75	20
U-235	1/2	0.35*	0.059	0.20	0.15	24
U-238	2/2	8.0*	4.5*	6.3	1.8	24
Clinch River downstream from all DOE inputs (CRK 16)						
Field Measurements						
Dissolved oxygen (ppm)	12/12	9.6	4.9	7.1	0.48	f
pH (SU)	12/12	8.5	7.0	7.8	0.12	f
Temperature (EC)	12/12	23	7.0	16	1.6	f
Metals (mg/L)						
Aluminum, total	8/12	2.3	<0.20	~0.64	0.19	f
Barium, total	12/12	0.048	0.031	0.038	0.0014	f
Calcium, total	12/12	38	14	31	2.4	f
Iron, total	12/12	1.7	0.11	0.59	0.16	f
Magnesium, total	12/12	11	2.8	8.7	0.76	f
Manganese, total	12/12	0.21	0.028	0.073	0.014	f
Potassium, total	4/12	3.4	<2.0	~2.2	0.14	f
Sodium, total	12/12	6.2	1.1	4.8	0.49	f
Radionuclides (pCi/L)[g]						
Cs-137	1/12	3.7*	-1.4	0.55	0.40	120
Gross alpha	4/12	5.0*	-0.35	0.85*	0.41	f
Gross beta	9/12	7.9*	0.23	3.4*	0.61	f
K-40	4/12	170*	-53	18	18	280
U-234	1/1	0.16*	0.16*	0.16	f	20
U-236	1/1	0*	0*	0	f	20

Table 4.2. (continued)

Parameter	N det/ N total	Concentration Max[b]	Min[b]	Av[c]	Standard error[d]	TWQC[e]
Water supply intake for the K-25 Site (CRK 23)						
Field Measurements						
Dissolved oxygen (ppm)	12/12	10	3.7	7.9	0.64	f
pH (SU)	12/12	9.7	7.3	8.1	0.20	f
Temperature (EC)	12/12	22	7.6	16	1.5	f
Metals (mg/L)						
Aluminum, total	5/12	0.61	<0.20	~0.27	0.043	f
Barium, total	12/12	0.041	0.031	0.035	0.00099	f
Calcium, total	12/12	39	23	34	1.2	f
Iron, total	12/12	0.74	0.084	0.26	0.053	f
Magnesium, total	12/12	11	4.7	9.7	0.47	f
Manganese, total	12/12	0.12	0.027	0.062	0.0092	f
Potassium, total	2/12	2.3	<2.0	~2.0	0.022	f
Sodium, total	12/12	6.8	1.7	5.5	0.38	f
Radionuclides (pCi/L)[g]						
Be-7	1/12	28*	-13	4.1	3.2	40,000
Co-60	4/12	3.1*	-0.60	1.0*	0.32	200
Cs-137	1/12	1.9	-1.4	0.47	0.32	120
Gross alpha	4/12	2.3*	-0.19	0.55*	0.19	f
Gross beta	11/12	7.1*	0.32	3.7*	0.60	f
H-3	8/12	2,900*	-58	690*	260	80,000
K-40	1/12	190*	-66	-6.7	20	280
Total rad Sr	4/12	8.0	-0.56	2.4*	0.79	40
Volatile Organics (Fg/L)						
1,1,1-Trichloroethane	1/12	U10	J2.0	~8.5	0.81	f
Toluene	1/12	U10	J1.0	~8.4	0.87	6,800
Clinch River downstream from ORNL (CRK 32)						
Field Measurements						
Dissolved oxygen (ppm)	12/12	11	2.3	7.6	0.74	f
pH (SU)	12/12	9.3	7.3	8.1	0.19	f
Temperature (EC)	12/12	21	7.9	15	1.4	f
Radionuclides (pCi/L)[g]						
Be-7	1/12	15*	-7.9	5.3*	2.5	40,000
Co-60	4/12	2.2*	-0.32	0.94*	0.25	200
Cs-137	1/12	3.2*	-0.67	0.52	0.31	120
Gross alpha	2/12	1.7	0.0090	0.60*	0.13	f
Gross beta	11/12	8.0*	1.7*	3.6*	0.58	f
H-3	9/12	1,500*	21	500*	140	80,000
K-40	1/12	100*	-52	3.4	11	280
Total rad Sr	3/12	6.2*	-13	0.14	1.3	40
Water supply intake for Knox County (CRK 58)						
Field Measurements						
Dissolved oxygen (ppm)	12/12	13	5.8	8.4	0.58	f
pH (SU)	12/12	10	6.7	8.3	0.28	f
Temperature (EC)	12/12	26	8.3	17	1.9	f
Radionuclides (pCi/L)[g]						
Co-60	3/12	2.7*	-0.55	0.84*	0.29	200
Cs-137	1/12	2.6*	-1.1	0.62*	0.30	120
Gross alpha	6/12	2.3*	-0.24	0.71*	0.19	f
Gross beta	11/12	8.4*	1.6*	3.8*	0.80	f

Table 4.2. (continued)

Parameter	N det/ N total	Concentration Max[b]	Min[b]	Av[c]	Standard error[d]	TWQC[e]
Melton Hill Reservoir above City of Oak Ridge water intake (CRK 66)						
Field Measurements						
Dissolved oxygen (ppm)	12/12	12	6.2	8.7	0.55	f
pH (SU)	12/12	9.9	7.2	8.3	0.24	f
Temperature (EC)	12/12	26	7.7	17	1.8	f
Radionuclides (pCi/L)[g]						
Co-60	1/12	3.0*	-0.93	0.62*	0.33	200
Cs-137	1/12	2.1*	-2.2	-0.26	0.36	120
Gross alpha	4/12	1.0*	0	0.43*	0.095	f
Gross beta	5/12	3.9*	-0.015	1.8*	0.36	f
K-40	2/12	71*	-45	-5.3	9.5	280
Clinch River (Solway Bridge) upstream from all DOE inputs (CRK 70)						
Field Measurements						
Dissolved oxygen (ppm)	12/12	11	5.7	8.0	0.46	f
pH (SU)	12/12	9.3	7.1	8.0	0.21	f
Temperature (EC)	12/12	25	8.6	17	1.6	f
Metals (mg/L)						
Aluminum, total	1/12	0.59	<0.20	~0.23	0.033	f
Barium, total	12/12	0.039	0.031	0.035	0.00065	f
Calcium, total	12/12	39	28	35	0.89	f
Iron, total	12/12	0.52	0.072	0.20	0.032	f
Magnesium, total	12/12	11	8.0	10	0.24	f
Manganese, total	12/12	0.087	0.025	0.053	0.0047	f
Sodium, total	12/12	7.2	4.4	5.8	0.20	f
Zinc, total	1/12	0.053	<0.050	~0.050	0.00028	f
Radionuclides (pCi/L)[g]						
Be-7	2/12	15*	-10	2.6	2.2	40,000
Co-60	2/12	1.8*	-3.5	0.39	0.42	200
Gross alpha	2/12	1.9*	-0.53	0.34	0.22	f
Gross beta	6/12	6.4*	-0.69	1.9*	0.49	f
H-3	2/12	320*	-130	48	34	80,000
Total rad Sr	2/12	4.3*	-5.8	-0.052	0.79	40
East Fork Poplar Creek prior to entering Poplar Creek (EFK 0.1)						
Field Measurements						
Dissolved oxygen (ppm)	2/2	7.0	5.4	6.2	0.80	f
pH (SU)	2/2	8.1	7.8	8.0	0.15	f
Temperature (EC)	2/2	17	16	17	0.25	f
Radionuclides (pCi/L)[g]						
Co-60	1/2	1.4*	0.18	0.79	0.61	200
Cs-137	1/2	1.4*	-0.74	0.33	1.1	120
Gross alpha	2/2	3.6*	1.2*	2.4	1.2	f
Gross beta	2/2	5.2*	5.0*	5.1*	0.10	f
U-234	1/1	0.97*	0.97*	0.97	f	20
U-238	1/1	2.6*	2.6*	2.6	f	24
East Fork Poplar Creek downstream from floodplain (EFK 5.4)						
Field Measurements						
Dissolved oxygen (ppm)	2/2	7.3	6.0	6.7	0.65	f
pH (SU)	2/2	8.4	7.8	8.1	0.30	f
Temperature (EC)	2/2	17	16	16	0.50	f
Radionuclides (pCi/L)[g]						
Cs-137	1/2	1.6*	0.30	0.95	0.65	120
Gross alpha	1/2	2.2*	0.64	1.4	0.78	f

Table 4.2. (continued)

Parameter	N det/ N total	Concentration Max[b]	Min[b]	Av[c]	Standard error[d]	TWQC[e]
Gross beta	2/2	42*	5.3*	24	18	f
K-40	1/2	37*	-4.7	16	21	280
Fifth Creek just upstream of White Oak Creek at ORNL (FIFTHCK 0.1)						
Field Measurements						
Dissolved oxygen (ppm)	2/2	9.7	6.7	8.2	1.5	f
pH (SU)	2/2	9.2	8.1	8.7	0.55	f
Temperature (EC)	2/2	19	15	17	1.8	f
Radionuclides (pCi/L)[g]						
Gross alpha	2/2	2.0*	1.3*	1.7	0.35	f
Gross beta	2/2	34*	30*	32*	2.0	f
H-3	2/2	530*	430*	480*	50	80,000
Total rad Sr	2/2	15*	15*	15	0	40
Ish Creek prior to entering CRK 30.8 (ICK 0.7)						
Field Measurements						
Dissolved oxygen (ppm)	2/2	8.9	6.2	7.6	1.4	f
pH (SU)	2/2	8.5	7.9	8.2	0.30	f
Temperature (EC)	2/2	14	13	13	0.80	f
Radionuclides (pCi/L)[g]						
Co-60	1/2	3.2*	0.64	1.9	1.3	200
Gross alpha	1/2	1.6*	0.53	1.1	0.54	f
Gross beta	1/2	4.4*	0.36	2.4	2.0	f
McCoy Branch prior to entering CRK 60.3 (MCCBK 1.8)						
Field Measurements						
Dissolved oxygen (ppm)	2/2	9.6	4.8	7.2	2.4	f
pH (SU)	2/2	8.1	7.3	7.7	0.40	f
Temperature (EC)	2/2	18	11	15	3.5	f
Radionuclides (pCi/L)[g]						
Gross alpha	2/2	1.1*	0*	0.55	0.55	f
Gross beta	1/2	2.8*	1.5	2.2	0.65	f
K-40	1/2	49	40*	45*	4.5	280
Melton Branch downstream from ORNL (MEK 0.2)						
Field Measurements						
Dissolved oxygen (ppm)	6/6	13	6.8	8.9	0.93	f
pH (SU)	6/6	8.2	7.0	7.5	0.21	f
Temperature (EC)	6/6	20	2.4	13	3.0	f
Radionuclides (pCi/L)[g]						
Co-60	4/6	4.6*	-2.8	2.0	1.2	200
Cs-137	2/6	3.0*	0.0050	1.5*	0.47	120
Gross alpha	3/6	3.9*	0.44	1.6*	0.52	f
Gross beta[h]	6/6	14,000*	220*	2,900	2,200	f
Gross beta[i]	5/5	1,100*	220*	630*	160	f
H-3[h]	6/6	1,400,000*	39,000*	610,000*	190,000	80,000
H-3[i]	5/5	760,000*	39,000*	460,000*	130,000	80,000
K-40	1/6	89	-27	26	17	280
Total rad Sr[h]	6/6	5,700*	84*	1,200	910	40
Total rad Sr[i]	5/5	460*	84*	250*	65	40
Total uranium	2/2	0.97*	0.44*	0.71	0.27	20
U-234	3/3	0.52*	0.15*	0.33*	0.11	20
U-236	1/1	0*	0*	0	f	20
U-238	3/3	0.50*	0.15*	0.37*	0.11	24

Table 4.2. (continued)

Parameter	N det/ N total	Concentration Max[b]	Min[b]	Av[c]	Standard error[d]	TWQC[e]
Mitchell Branch upstream from the K-25 Site (MIK 1.4)						
Field Measurements						
Dissolved oxygen (ppm)	4/4	10	5.6	7.6	0.94	f
pH (SU)	4/4	8.4	7.7	7.9	0.16	f
Temperature (EC)	4/4	20	8.4	13	2.6	f
Radionuclides (pCi/L)[g]						
Gross alpha	1/4	0.92*	0.14	0.45*	0.18	f
Gross beta	2/4	2.8*	0.83	1.9*	0.42	f
Northwest Tributary prior confluence with First Creek ORNL (NWTK 0.1)						
Field Measurements						
Dissolved oxygen (ppm)	2/2	9.3	5.3	7.3	2.0	f
pH (SU)	2/2	9.3	8.1	8.7	0.60	f
Temperature (EC)	2/2	17	16	17	0.20	f
Radionuclides (pCi/L)[g]						
Gross beta	2/2	160*	9.2*	85	75	f
H-3	1/2	160*	110	140	25	80,000
K-40	1/2	170*	19	95	76	280
Total rad Sr	1/2	71*	1.8	36	35	40
Raccoon Creek sampling station prior to entering CRK 31 (RCK 2.0)						
Field Measurements						
Dissolved oxygen (ppm)	2/2	7.0	4.0	5.5	1.5	f
pH (SU)	2/2	8.7	7.2	8.0	0.75	f
Temperature (EC)	2/2	13	12	13	0.80	f
Radionuclides (pCi/L)[g]						
Co-60	1/2	1.8*	1.6	1.7*	0.10	200
Gross beta	2/2	90*	14*	52	38	f
H-3	2/2	330*	180*	260	75	80,000
Total rad Sr	2/2	43*	4.8*	24	19	40
Walker Branch prior to entering CRK 53.4 (WBK 0.1)						
Field Measurements						
Dissolved oxygen (ppm)	1/1	7.1	7.1	7.1	f	f
pH (SU)	1/1	7.5	7.5	7.5	f	f
Temperature (EC)	1/1	16	16	16	f	f
White Oak Lake at White Oak Dam (WCK 1.0)						
Field Measurements						
Dissolved oxygen (ppm)	12/12	14	4.8	7.0	0.72	f
pH (SU)	12/12	9.6	7.2	8.0	0.22	f
Temperature (EC)	12/12	27	3.8	17	2.1	f
Metals (mg/L)						
Aluminum, total	5/6	<2.0	0.34	~1.1	0.22	f
Barium, total	6/6	0.052	0.042	0.048	0.0014	f
Calcium, total	6/6	54	29	44	3.6	f
Iron, total	6/6	1.3	0.51	0.91	0.13	f
Magnesium, total	6/6	13	4.7	10	1.2	f
Manganese, total	6/6	0.23	0.073	0.13	0.023	f
Potassium, total	5/6	<20	2.3	~5.7	2.9	f
Sodium, total	6/6	26	4.0	19	3.2	f

Table 4.2. (continued)

Parameter	N det/ N total	Concentration Max[b]	Min[b]	Av[c]	Standard error[d]	TWQC[e]
PCBs						
Aroclor-1254	1/12	U0.50	JB0.23	~0.48	0.022	f
Radionuclides (pCi/L)[g]						
Co-60	8/12	3.9*	0.58	2.5*	0.32	200
Cs-137	12/12	40*	8.5*	22*	2.8	120
Gross alpha	12/12	21*	2.4*	6.7*	1.4	f
Gross beta	12/12	390*	140*	250*	22	f
H-3	12/12	140,000*	32,000*	71,000*	8,700	80,000
K-40	2/12	170*	-43	15	17	280
Total rad Sr	12/12	140*	54*	100*	7.6	40
Total uranium	5/5	9.3*	3.3*	5.6*	1.1	20
U-233/234	1/1	2.9*	2.9*	2.9	f	f
U-234	9/9	8.2*	1.6*	5.0*	0.66	20
U-235	1/10	0.065	0*	0.029*	0.0065	24
U-236	1/3	0.024	0*	0.015	0.0075	20
U-238	10/10	1.6*	0.41*	0.95*	0.12	24
White Oak Creek downstream from ORNL (WCK 2.6)						
Field Measurements						
Dissolved oxygen (ppm)	6/6	10	6.1	8.6	0.70	f
pH (SU)	6/6	8.1	6.8	7.4	0.20	f
Temperature (EC)	6/6	20	8.4	15	2.0	f
Radionuclides (pCi/L)[g]						
Be-7	2/6	30*	-4.7	9.9	5.0	40,000
Co-60	1/6	1.5*	0.034	0.79*	0.31	200
Cs-137	6/6	67*	12*	37*	9.0	120
Gross alpha	5/6	7.4*	1.1	4.6*	1.1	f
Gross beta	6/6	870*	110*	270*	120	f
H-3	6/6	36,000*	3,300*	17,000*	4,900	80,000
Total rad Sr	6/6	330*	28*	100*	47	40
Total uranium	1/1	3.9*	3.9*	3.9	f	20
U-234	4/4	4.8*	1.2*	3.5*	0.82	20
U-235	2/4	0.075*	0*	0.024	0.017	24
U-236	1/1	0*	0*	0	f	20
U-238	4/4	2.1*	0.24*	0.98	0.42	24
White Oak Creek upstream from ORNL (WCK 6.8)						
Field Measurements						
Dissolved oxygen (ppm)	4/4	10	7.5	9.1	0.61	f
pH (SU)	4/4	8.5	6.7	7.5	0.37	f
Temperature (EC)	4/4	16	9.2	12	1.6	f

Table 4.2. (continued)

Parameter	N det/ N total	Concentration Max[b]	Min[b]	Av[c]	Standard error[d]	TWQC[e]
Radionuclides (pCi/L)[g]						
Co-60	1/4	2.4*	0.45	1.0	0.46	200
Cs-137	1/4	1.8*	-0.45	0.88	0.48	120
Gross alpha	2/4	1.9*	-0.035	0.68	0.42	f
Gross beta	2/4	7.8*	-0.74	2.3	1.9	f
H-3	2/4	220*	39	130*	44	80,000
K-40	1/4	46*	-36	-5.3	18	280

[a]All 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.

[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]Tennessee General Water Quality Criteria for Recreation and Domestic Use, as amended (CRK 16, CRK 23, CRK 32, CRK 58, CRK 66, CRK 70) or Tennessee General Water Quality Criteria for Freshwater Fish and Aquatic Life, as amended (BCK 0.6, EFK 0.1, EFK 5.4, MEK 0.2, WCK 1.0, WCK 2.6, WCK 6.8). 4% of DOE DCG used for radionuclides, where applicable.

[f]Not applicable.

[g]Individual and average radionuclide concentrations significantly greater than zero are identified by an *.

[h]The concentration of gross beta, total radioactive strontium, and tritium observed in May were significantly greater than corresponding values for 1998 and 1997 even when seasonal peaks are considered. Investigation into the event is inconclusive. A field duplicate taken during the event provided similar results; however, an environmental or natural cause for the high concentrations has not been identified. Results for samples collected about two weeks later at nearby Melton Branch locations for an EM activity did not reflect similar concentration elevations.

[i]Recalculated omitting the May results. See footnote h.

Table 4.3. 1999 tissue concentrations in Catfish[a]

Parameter	Concentration
Clinch River downstream from all DOE inputs (CRK 16)	
Metals (mg/kg wet wt)	
Mercury, total	0.35
Zinc, total	7.3
Pesticides (Fg/kg wet wt)	
4,4'-DDE	P28[b]
PCBs (Fg/kg wet wt)	
Aroclor-1254	180
Aroclor-1260	890
Radionuclides (pCi/g ash wt)[c]	
Cs-137	2.5*
Gross beta	270*
K-40	220*
Total rad Sr	14*
Radionuclides (pCi/g wet wt)[c]	
Cs-137	0.032*
Gross beta	3.4*
K-40	2.8*
Total rad Sr	0.18*
Clinch River downstream from ORNL (CRK 32)	
Metals (mg/kg wet wt)	
Mercury, total	0.24
Zinc, total	6.7
Pesticides (Fg/kg wet wt)	
4,4'-DDE	62
PCBs (Fg/kg wet wt)	
Aroclor-1254	310
Aroclor-1260	1,000
Radionuclides (pCi/g ash wt)[c]	
Cs-137	4.1*
Gross beta	290*
K-40	310*
Total rad Sr	8.2*
Radionuclides (pCi/g wet wt)[c]	
Cs-137	0.055*
Gross beta	3.9*
K-40	4.1*
Total rad Sr	0.11*
Clinch River (Solway Bridge) upstream from all DOE inputs (CRK 70)	
Metals (mg/kg wet wt)	
Mercury, total	0.14
Zinc, total	14
Radionuclides (pCi/g ash wt)[c]	
Cs-137	2.4*
Gross beta	290*
K-40	300*

Table 4.3. (continued)

Parameter	Concentration
Radionuclides (pCi/g wet wt)[c]	
Cs-137	0.025*
Gross beta	3.0*
K-40	3.1*

[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 "P" indicates that the results obtained on the two analytical columns differed by greater than 50%. Probably due to interference, and the compound is probably not present in the fish.

[c]Individual radionuclide concentrations significantly greater than zero are identified by an *.

Table 4.4. 1999 tissue concentrations in Sunfish[a]

Parameter	N det/ N total	Concentration Max[b]	Min[b]	Av[c]	Standard error[d]
Clinch River downstream from all DOE inputs (CRK 16)					
Metals (mg/kg wet wt)					
Mercury, total	6/6	0.21	0.031	0.099	0.027
Zinc, total	6/6	19	8.3	13	1.8
PCBs (Fg/kg wet wt)					
Aroclor-1016	1/6	U80	U58	~68	3.3
Aroclor-1221	1/6	U80	U58	~68	3.3
Aroclor-1232	1/6	U80	U58	~68	3.3
Aroclor-1242	1/6	U80	U58	~68	3.3
Aroclor-1248	1/6	U80	U58	~68	3.3
Aroclor-1254	1/6	U80	U58	~68	3.3
Aroclor-1260	1/6	U80	U58	~68	3.3
Radionuclides (pCi/g)[e]					
Co-60	2/4	4.7*	-0.037	2.3	1.0
Cs-137	2/4	3.5*	0.61	2.0*	0.69
Gross alpha	1/4	3.9*	-4.0	0.28	1.6
Gross beta	4/4	200*	170*	190*	7.1
K-40	4/4	260*	130*	210*	29
Clinch River downstream from ORNL (CRK 32)					
Metals (mg/kg wet wt)					
Mercury, total	6/6	0.076	0.019	0.045	0.0088
Zinc, total	6/6	16	9.4	13	1.1
Radionuclides (pCi/g)[e]					
Co-60	1/4	2.0*	0.42	1.3*	0.40
Cs-137	2/4	5.1*	0.85	2.6*	0.91
Gross alpha	1/4	13*	-6.5	1.9	4.2
Gross beta	4/4	220*	200*	210*	5.8
K-40	4/4	250*	190*	230*	13
Total rad Sr	3/4	12*	1.5	6.1*	2.2
Clinch River (Solway Bridge) upstream from all DOE inputs (CRK 70)					
Metals (mg/kg wet wt)					
Mercury, total	6/6	0.046	0.023	0.034	0.0032
Zinc, total	6/6	17	9.0	13	1.1
Pesticides (Fg/kg wet wt)					
Beta-BHC	3/6	EP42	U4.3	~21	7.3
PCBs (Fg/kg wet wt)					
Aroclor-1016	1/6	U74	U54	~63	2.9
Aroclor-1232	1/6	U74	U54	~63	2.9
Aroclor-1242	1/6	U74	U54	~63	2.9
Aroclor-1248	1/6	U74	U54	~63	2.9
Aroclor-1254	1/6	U74	U54	~63	2.9
Aroclor-1260	1/6	U74	U54	~63	2.9

Table 4.4. (continued)

Parameter	N det/ N total	Concentration Max[b]	Min[b]	Av[c]	Standard error[d]
Radionuclides (pCi/g)[e]					
Cs-137	2/4	2.9*	1.1	1.6*	0.44
Gross alpha	1/4	11*	-5.2	2.6	3.4
Gross beta	4/4	210*	180*	200*	6.5
K-40	4/4	220*	160*	190*	13

[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 "U" indicates that the value for an organic parameter was undetected at the analytical detection limit; and "EP" indicates that the reported level was above the upper calibration level and that the results obtained on the two analytical columns differed by greater than 50%. Probably due to interference.

[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]Three of the six samples were qualified with EP. The opinion of the lab is that the compounds were not present in the fish but, by the method, the results had to be reported.

Table 4.5. 1999 concentrations at EMP sediment locations[a]

Parameter	Concentration
Clinch River downstream from all DOE inputs (CRK 16)	
Radionuclides (pCi/kg)[b]	
Cs-137	110*
K-40	8,000*
Clinch River downstream from ORNL (CRK 32)	
Radionuclides (pCi/kg)[b]	
Be-7	1,100*
Co-60	56*
Cs-137	2,900*
K-40	8,400*
Clinch River (Solway Bridge) upstream from all DOE inputs (CRK 70)	
Radionuclides (pCi/kg)[b]	
Be-7	360*
Cs-137	21*
K-40	5,000*

[a]All 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.

[b]Individual radionuclide concentrations significantly greater than zero are identified by an *.

Table 4.6. Radiological constituents in settleable solids sites near the ORR, 1999[a]

Event	Co-60	Cs-137	Gross alpha	Gross beta
Melton Branch upstream from ORNL (MEK 2.1)				
March	b	23,000	19,000	b
May	12,000	b	12,000	33,000
White Oak Lake at White Oak Dam (WCK 1.0)				
March	120,000	1,800,000	170,000	2,100,000
May	b	350,000	33,000	430,000
White Oak Creek downstream from ORNL (WCK 2.6)				
March	b	870,000	26,000	980,000
May	21,000	600,000	22,000	770,000

[a]All data are given in picocuries per kilogram (1 pCi = 3.7E-02 Bq).
[b]No significant result.