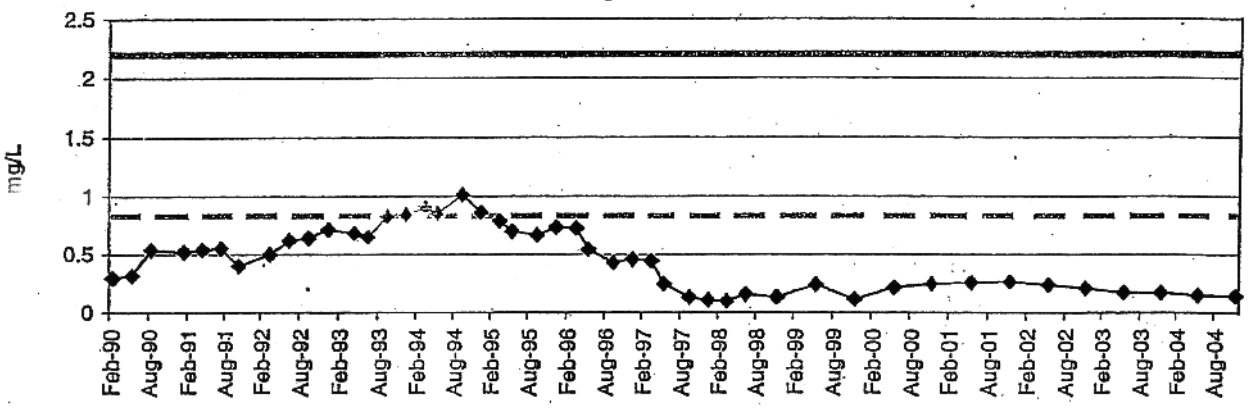
Appendix D

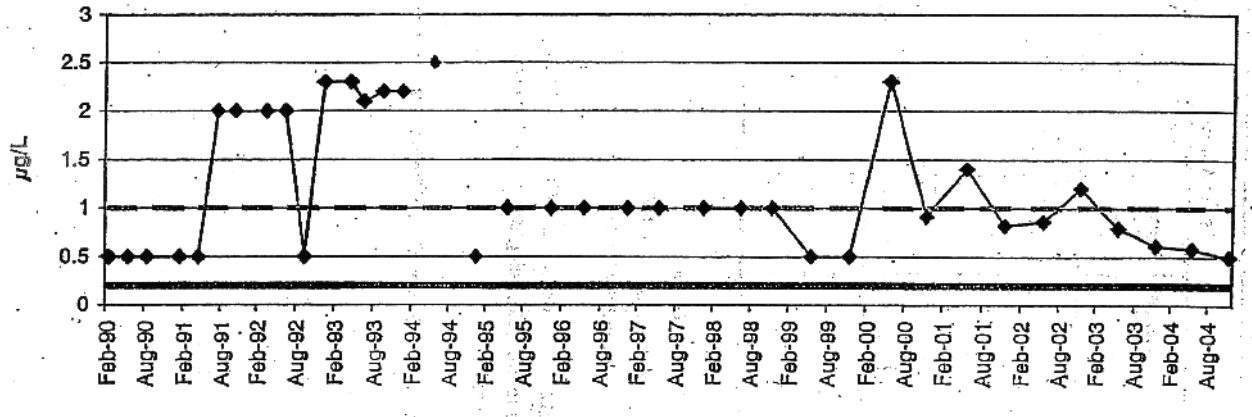
Concentration versus time plots for ground-water parameters.

Midway Landfill
ROD Contaminants of Concern
Sand Aquifer
MW-17B

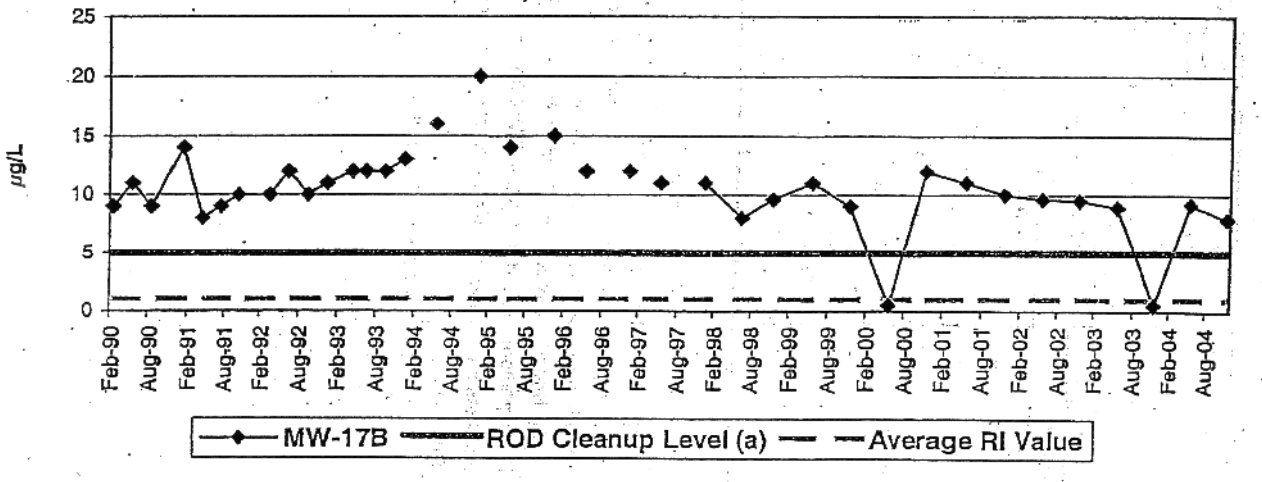
Manganese



Vinyl Chloride



1,2-Dichloroethane

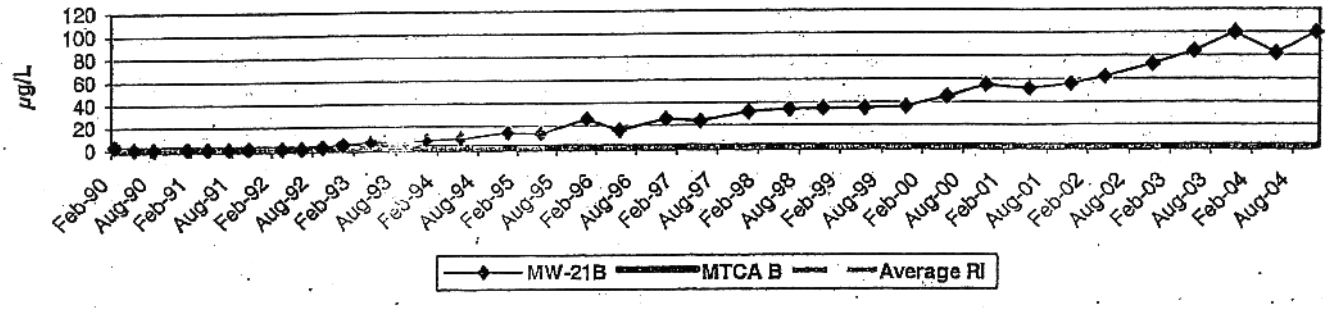


(a) Cleanup level established in the final EPA Record of Decision for the Midway Landfill, September 6, 2000.
Non-detected values are shown as 1/2 the detection limit.
RI = Remedial Investigation

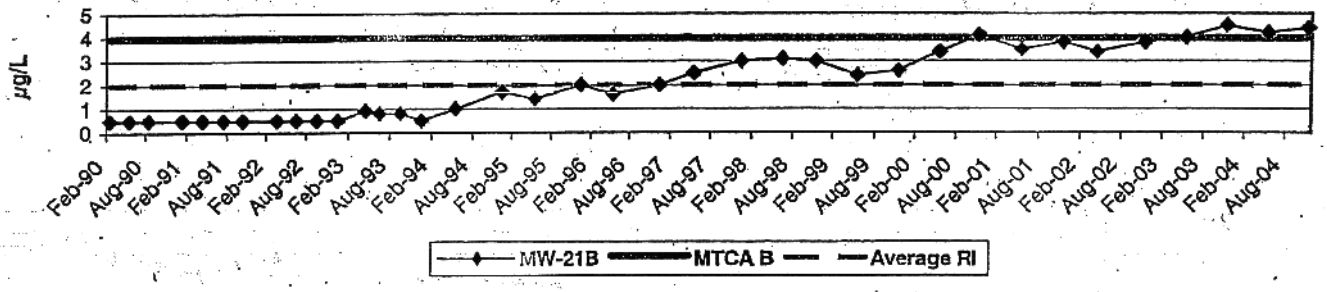
Midway Landfill
Groundwater Quality Parameters Not Included in the ROD

Sand Aquifer
MW-21B

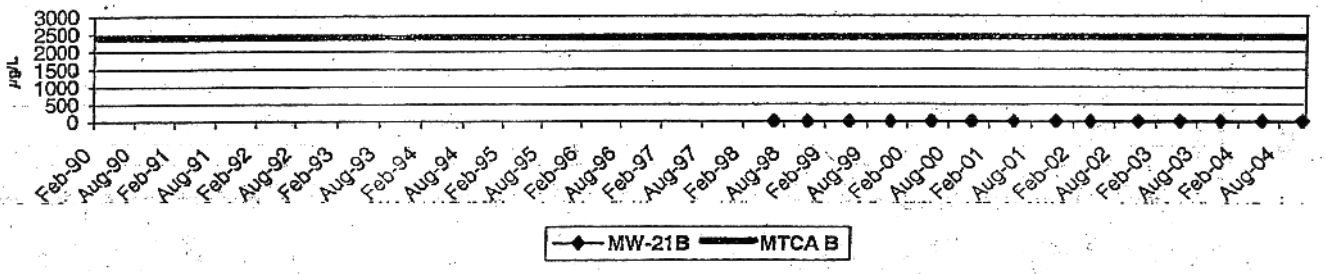
Tetrachloroethene



Trichloroethene



Trichlorofluoromethane

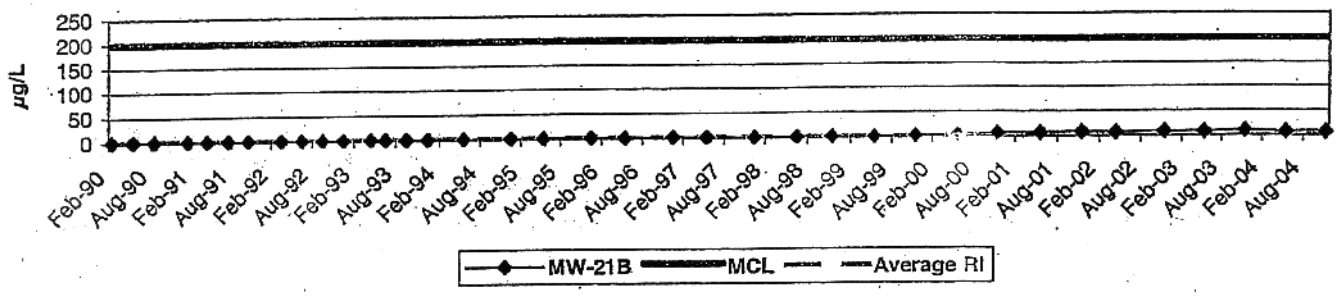


Non-detected values are shown as 1/2 the detection limit.
MCL = Primary of secondary maximum contaminat level standard.
MTCA B = MTCA B/Model Toxics Control Act (WAC 173-340) Method B cleanup level.
RI = Remedial Investigation

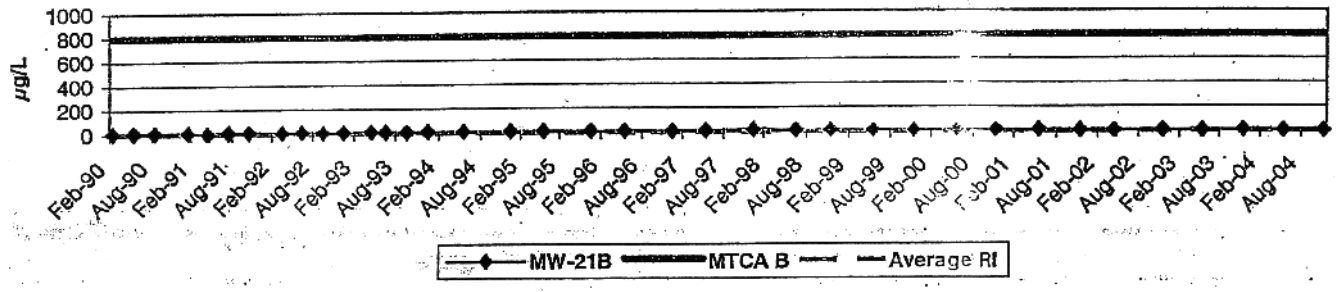
Midway Landfill
Groundwater Quality Parameters Not Included in the ROD

Sand Aquifer
MW-21B

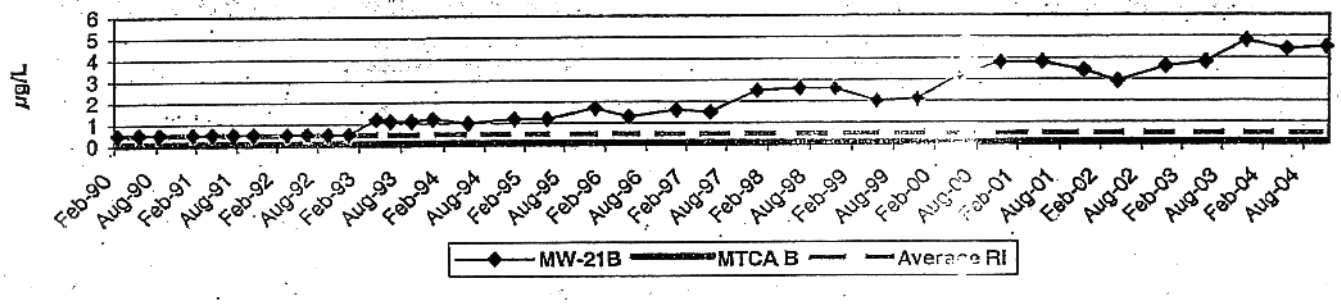
1,1,1-Trichloroethane



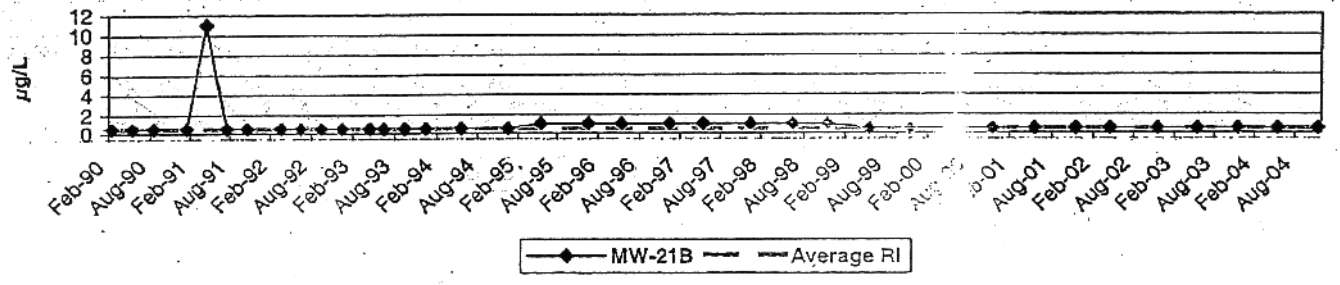
1,1-Dichloroethane



1,1-Dichloroethene



Chloroethane

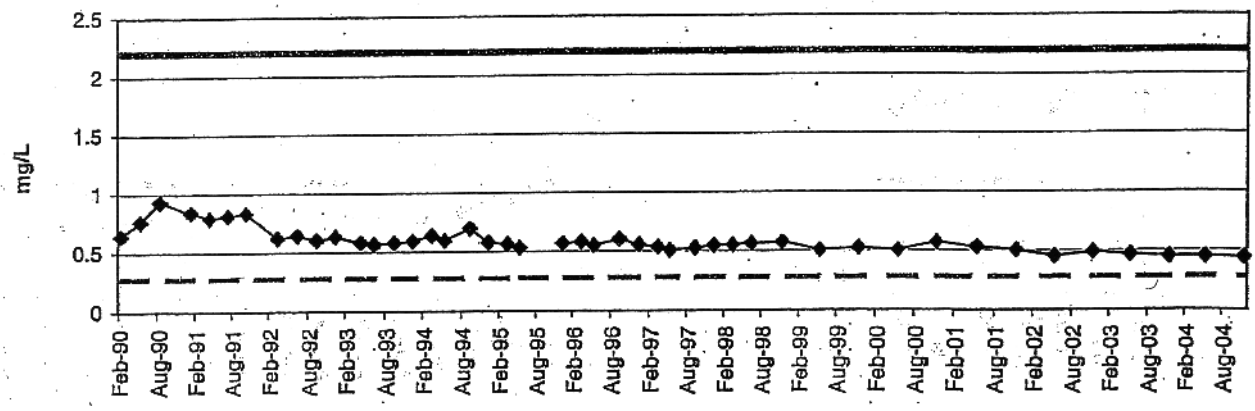


Non-detected values are shown as 1/2 the detection limit.
MCL = Primary of secondary maximum contaminat level standard.
MTCA B = MTCA B/Model Toxics Control Act (WAC 173-340) Method B cleanup level.
RI = Remedial Investigation

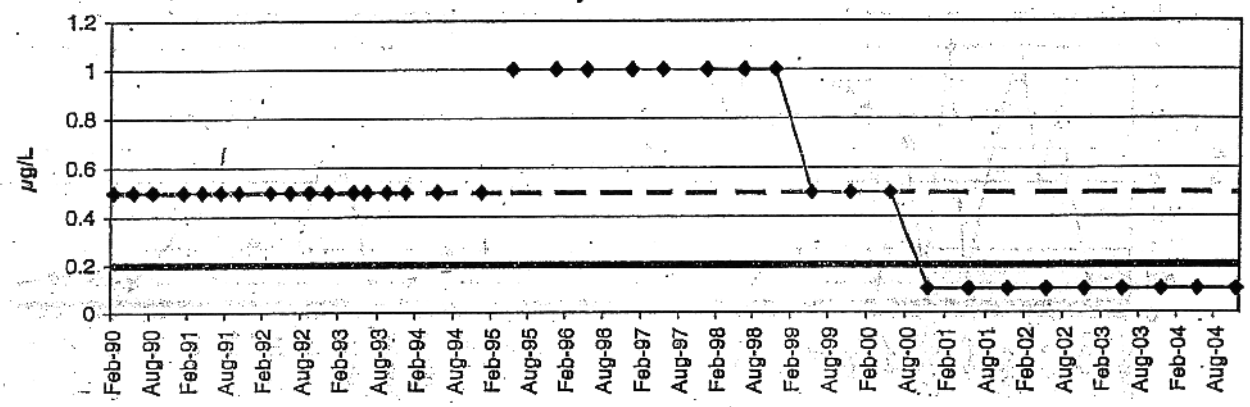
Midway Landfill
ROD Contaminants of Concern

Sand Aquifer
MW-21B

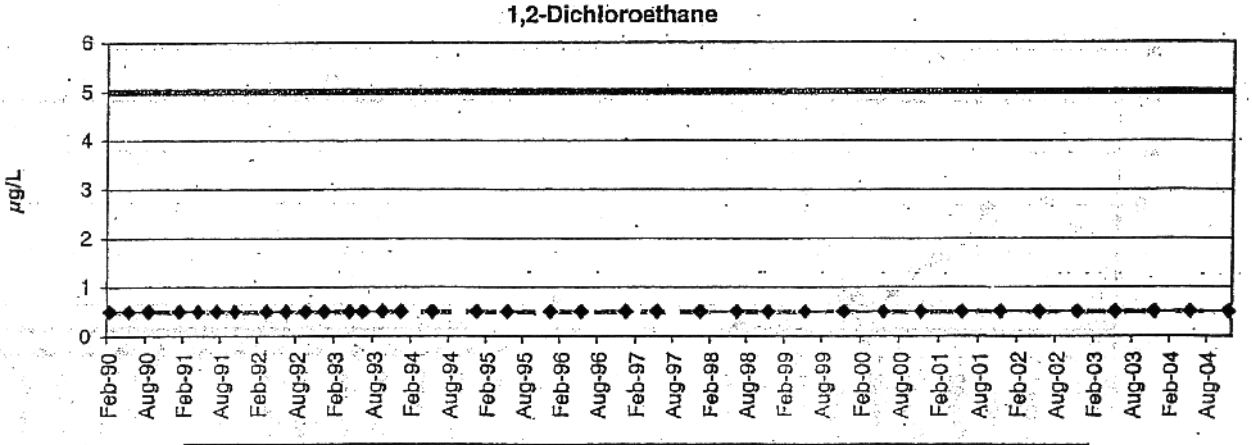
Manganese



Vinyl Chloride



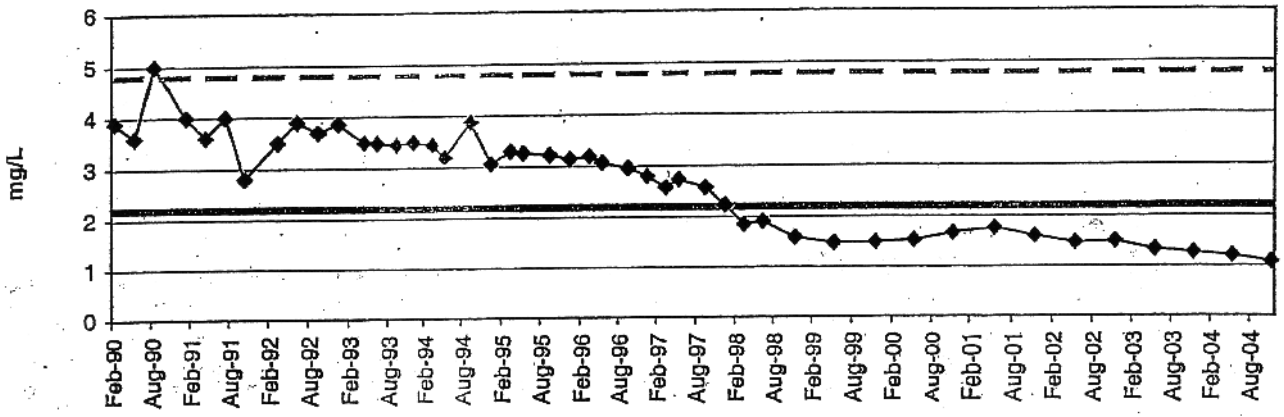
1,2-Dichloroethane



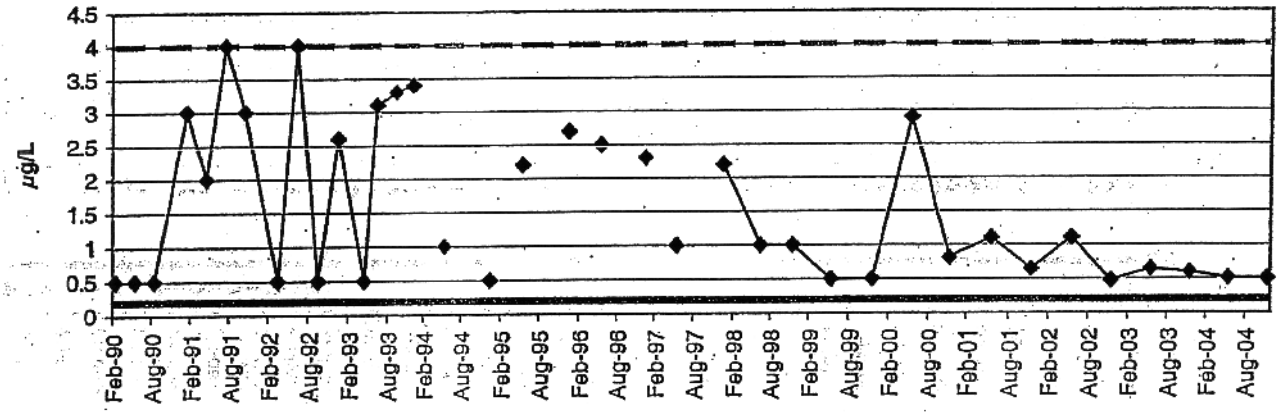
(a) Cleanup level established in the final EPA Record of Decision for the Midway Landfill, September 6, 2000.
Non-detected values are shown as 1/2 the detection limit.
RI = Remedial Investigation

Midway Landfill
ROD Contaminants of Concern
Southern Gravel Aquifer
MW-14B

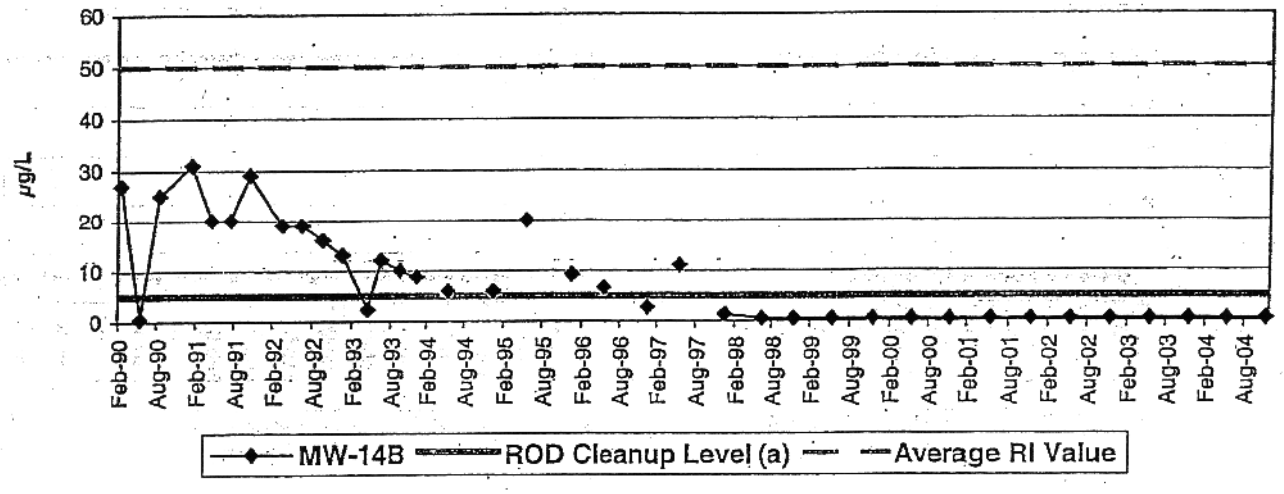
Manganese



Vinyl Chloride



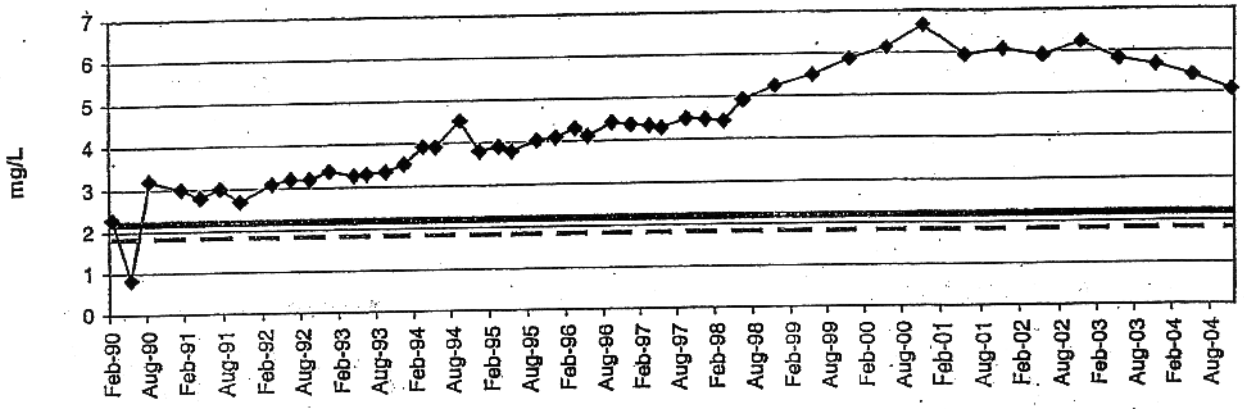
1,2-Dichloroethane



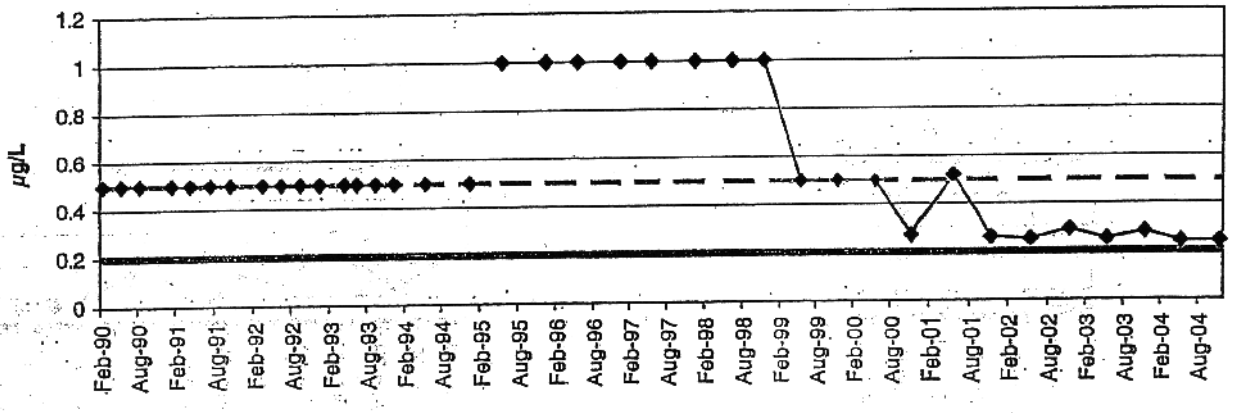
(a) Cleanup level established in the final EPA Record of Decision for the Midway Landfill, September 6, 2000.
Non-detected values are shown as 1/2 the detection limit.
RI = Remedial Investigation

Midway Landfill
ROD Contaminants of Concern
Southern Gravel Aquifer
MW-20B

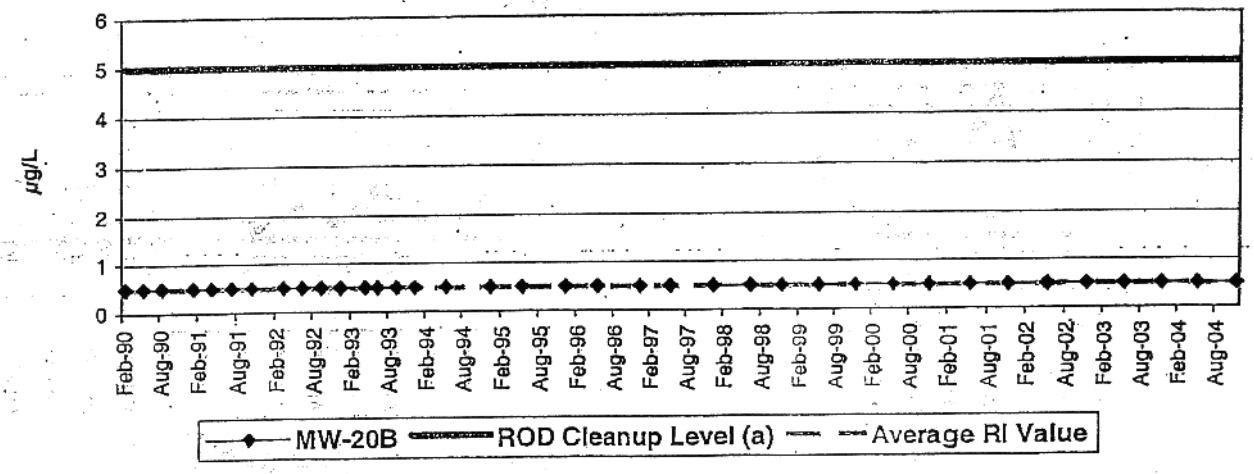
Manganese



Vinyl Chloride



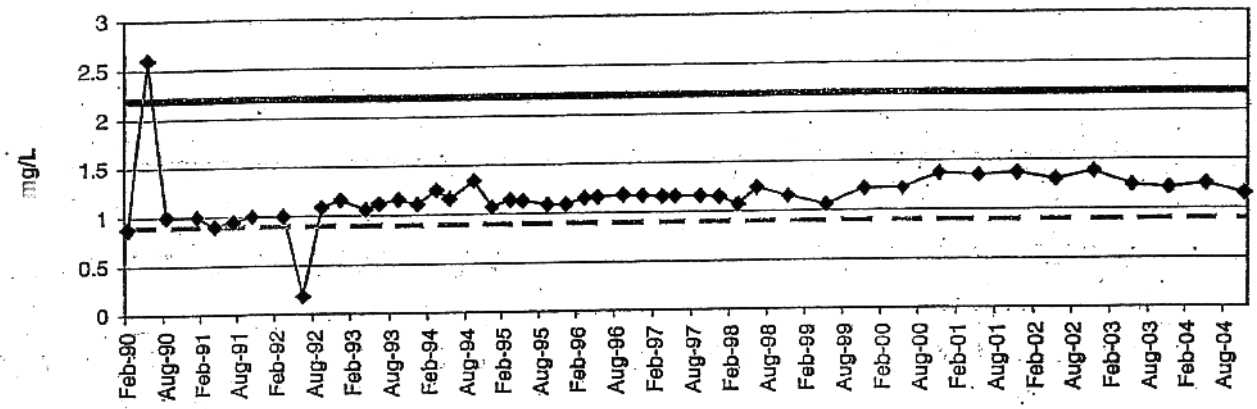
1,2-Dichloroethane



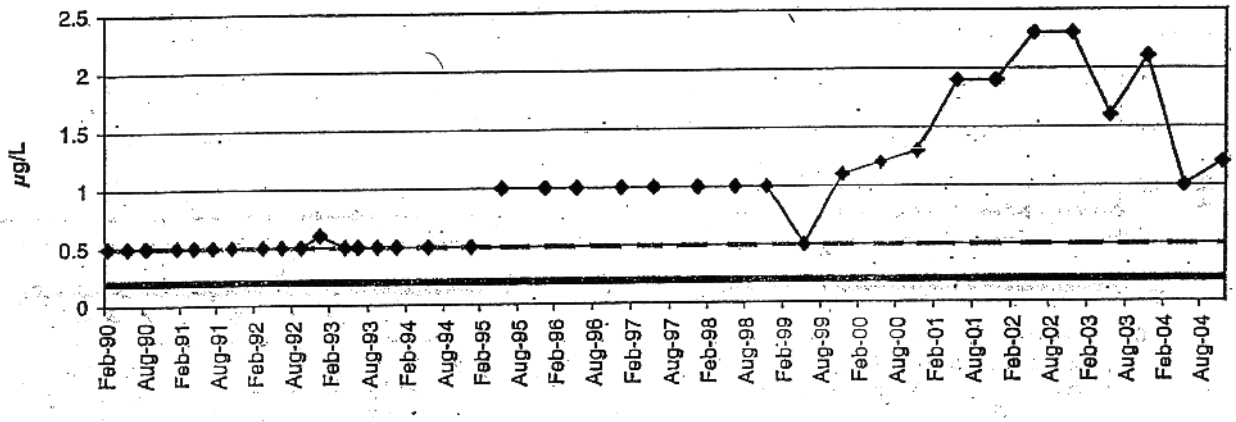
(a) Cleanup level established in the final EPA Record of Decision for the Midway Landfill, September 6, 2000.
Non-detected values are shown as 1/2 the detection limit.
RI = Remedial Investigation

Midway Landfill
ROD Contaminants of Concern
Southern Gravel Aquifer
MW-29B

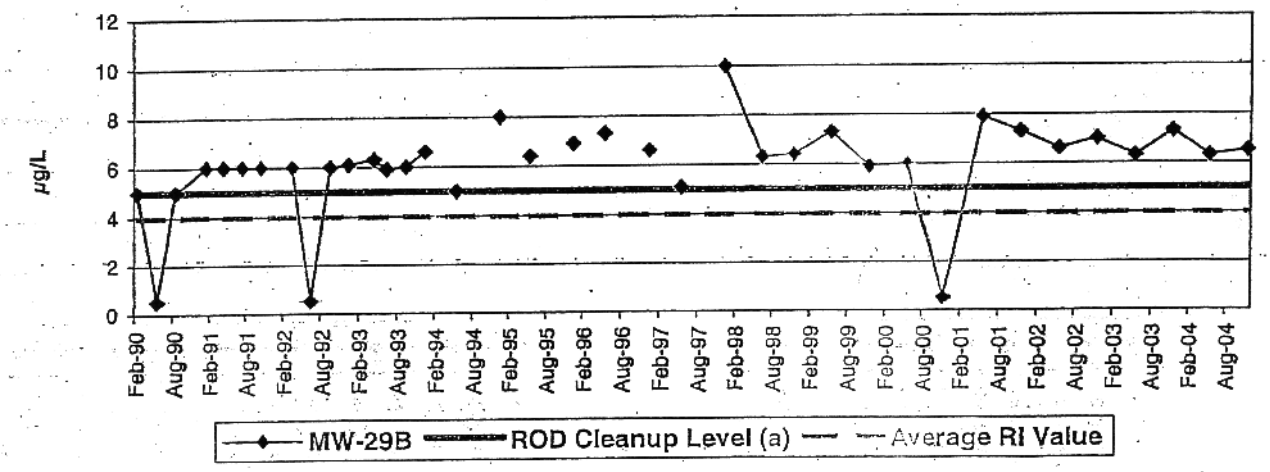
Manganese



Vinyl Chloride



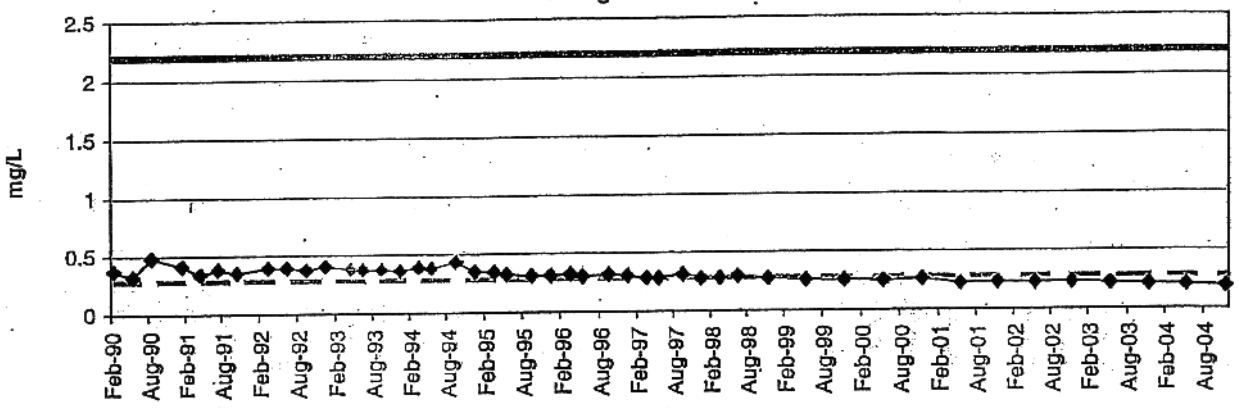
1,2-Dichloroethane



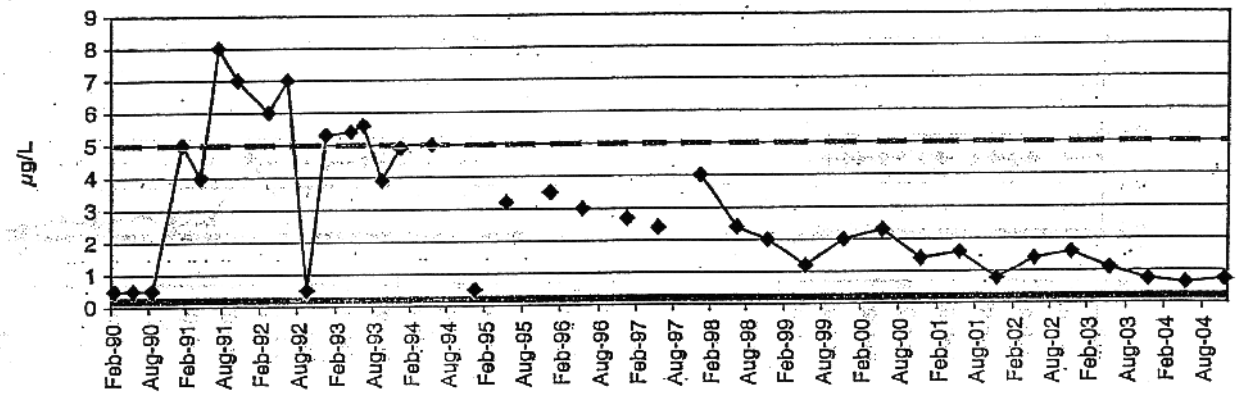
(a) Cleanup level established in the final EPA Record of Decision for the Midway Landfill, September 6, 2000.
Non-detected values are shown as 1/2 the detection limit.
RI = Remedial Investigation

Midway Landfill
ROD Contaminants of Concern
Southern Gravel Aquifer
MW-23B

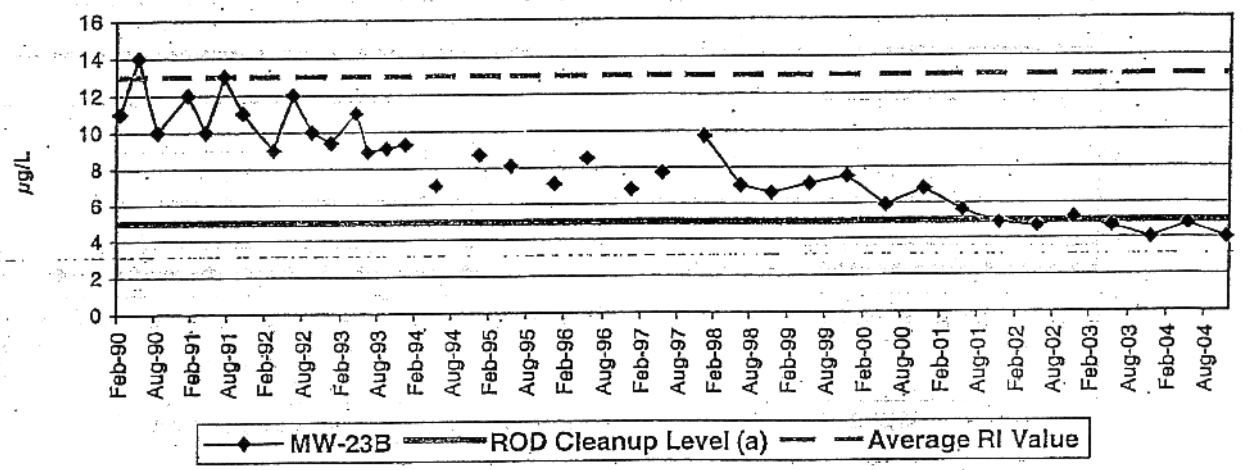
Manganese



Vinyl Chloride



1,2-Dichloroethane

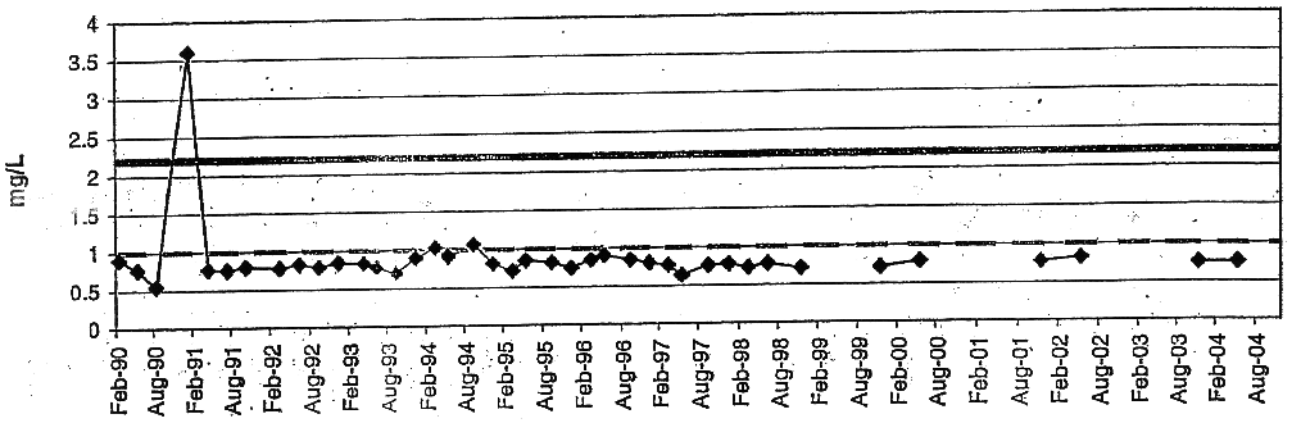


(a) Cleanup level established in the final EPA Record of Decision for the Midway Landfill, September 6, 2000.
Non-detected values are shown as 1/2 the detection limit.
RI = Remedial Investigation

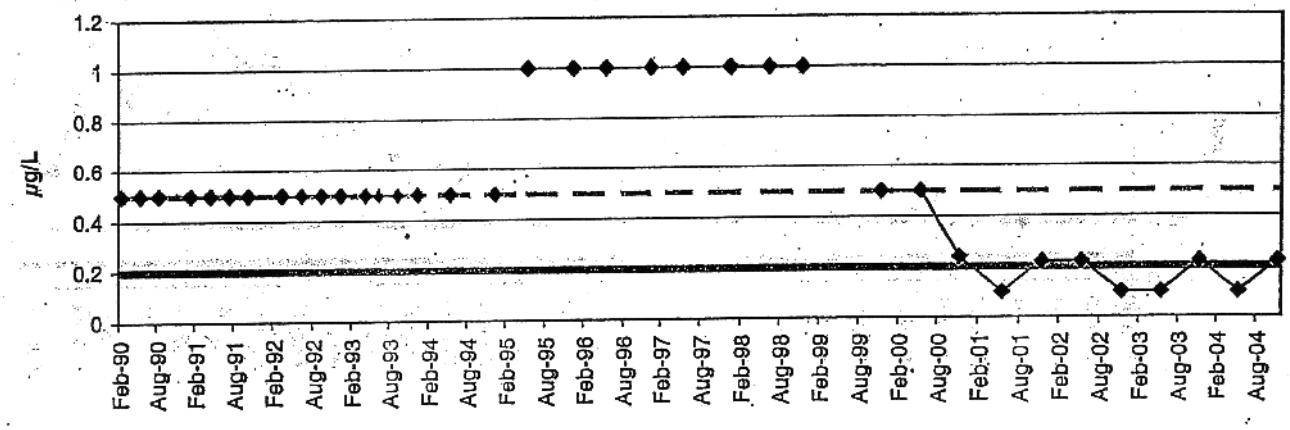
Midway Landfill
ROD Contaminants of Concern

Southern Gravel Aquifer
MW-30C

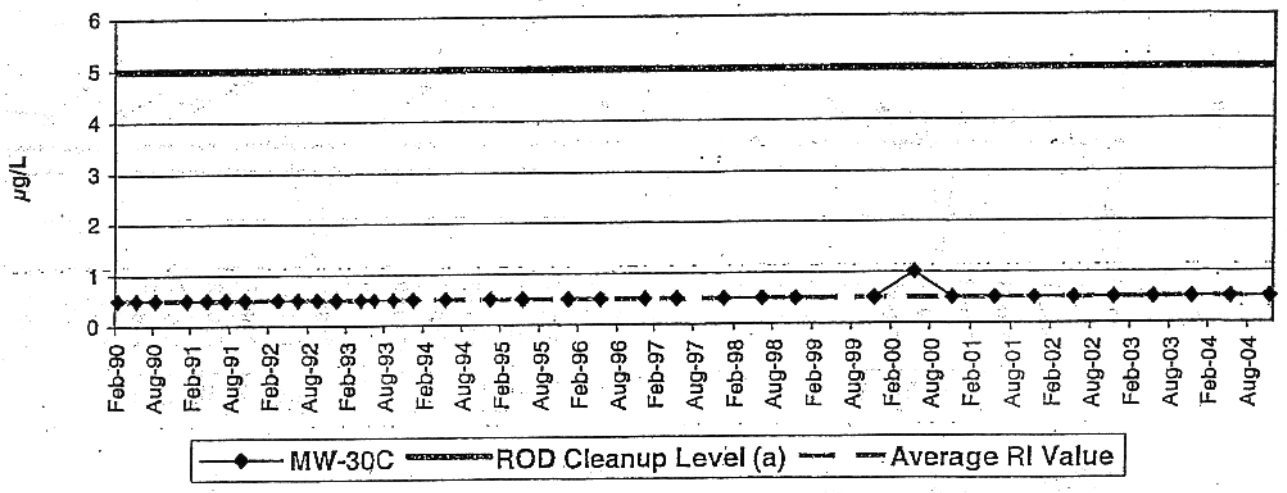
Manganese



Vinyl Chloride



1,2-Dichloroethane



(a) Cleanup level established in the final EPA Record of Decision for the Midway Landfill, September 6, 2000.
Non-detected values are shown as 1/2 the detection limit.
RI = Remedial Investigation

Table 3-2. Summary of Detected Groundwater Quality Parameters Not Included in the ROD and Comparison to Regulatory Standards

Analyte	Units	MCL[a]	MTCA B[b]	Round ID	Upper Gravel Aquifer		Sand Aquifer						Southern Gravel Aquifer					
					MW-16	MW-21A	MW-8B	MW-8B (DUP)	MW-17B	MW-17B (DUP)	MW-21B	MW-21B (DUP)	MW-14B	MW-14B (DUP)	MW-20B	MW-23B	MW-29B	MW-30C
					UP	UP	UP	UP	UP	UP	UP	UP	DOWN	DOWN	DOWN	DOWN	DOWN	DOWN
Field Parameters																		
pH		6.5-8.5[a]		R-45	7.97	7.07	7.73		6.85		7.14		6.7		6.92	6.59	6.67	7.29
				R-46					6.52		6.97		6.51		6.77	6.41	6.5	7.08
Specific Conductivity	µmhos/cm			R-45	220	377	170		656		749		861		1984	712	639	347
				R-46					613		755		828		1920	704	619	337
Temperature	C			R-45	11.1	11.3	10.8		11.3		10.9		13.6		11	11.6	10.1	10.9
				R-46					11.3		10.7		12.9		10.3	11.4	9.7	9.2
Conventional Parameters																		
Chloride	mg/L	250[c]		R-45	8.2	8.6	5.8	5.7	19	18.3	21.8		30.2		111	17.4	56.4	14.9
				R-46					18		19.7	19.4	24.1	24	107	15.6	52.3	
COD	mg/L			R-45	5 U	5 U	5 U	5 U	5 U	5 U	7.68		11.3		37.6	5 U	10	6.18
				R-46					5 U		5 U	5 U	11.6	9.3	32.3	6.96	6.97	
Sulfate	mg/L	250[c]		R-45	18.7	43.6	15.8	15.6	31.3	31.5	160		22.2		8.4	24.6	14.7	9.1
				R-46					29		153	154	23.8	24.1	6.5	25.3	15.1	
TOC	mg/L			R-45	1.5 U	1.5 U	1.5 U	1.5 U	2.19	2.21	1.68		3.87		11.8	2.58	3.52	1.5
				R-46					1.88		1.5 U	1.5 U	2.69	2.5	9.45	1.79	3.22	
Dissolved Metals																		
Iron	mg/L	0.3[c]		R-45	0.22	0.05 U	0.05 U	0.05 U	0.1	0.11	0.05 U		14.4		15.3	12.7	18.6	2.87
				R-46					0.08		0.05 U	0.05 U	12.9	13	14	11.6	17.2	
Volatile Organics																		
1,1,1-TCA	µg/L	200[a]	7200	R-45	1 U	1 U	1 U	1 U	1 U	1 U	7.2		1 U		1 U	1 U	1 U	1 U
				R-46					1 U		6.2	6.1	1 U	1 U	1 U	1 U	1 U	1 U
1,1-DCA	µg/L		800	R-45	1 U	1 U	1 U	1 U	76	83	6.3		1.7		1 U	1.2	1	1 U
				R-46					68		6.1	5.9	1.6	1.5	1 U	1.1	1.1	1 U
1,1-DCE	µg/L	7[a]	0.0729	R-45	1 U	1 U	1 U	1 U	4.8	5.1	4.4		1 U		1 U	1 U	1 U	1 U
				R-46					4.5		4.5	4.7	1 U	1 U	1 U	1 U	1 U	1 U
cis-1,2 DCE	µg/L	70[a]	80	R-45	1 U	1 U	1 U	1 U	4.3	4.4	1 U		4.8		1 U	5.6	1 U	1 U
				R-46					4.3		1 U	1 U	5	5	1 U	6	1	1 U

Table 3-2. Summary of Detected Groundwater Quality Parameters Not Included in the ROD and Comparison to Regulatory Standards (continued)

Analyte	Units	MCL[a]	MTCA B[b]	Round ID	Upper Gravel Aquifer		Sand Aquifer[c]						Southern Gravel Aquifer					
					MW-16	MW-21A	MW-8B	MW-8B (DUP)	MW-17B	MW-17B (DUP)	MW-21B	MW-21B (DUP)	MW-14B	MW-14B (DUP)	MW-20B	MW-23B	MW-29B	MW-30C
					UP	UP	UP	UP	UP	UP	UP	UP	DOWN	DOWN	DOWN	DOWN	DOWN	DOWN
Volatile Organics (continued)																		
Chloroethane	µg/L			R-45	1 U	1 U	1 U	1 U	6.7		8.1		1 U		1 U	1 U	1 U	1 U
				R-46					5				1 U	1 U	1 U	1 U	1 U	1 U
PCE	µg/L	5*	0.858	R-45	1 U	1 U	1 U	1 U	1 U	1 U	1 U	82	1 U		1 U	1 U	1 U	1 U
				R-46					1 U			100	1 U	100	1 U	1 U	1 U	1 U
TCE	µg/L	5*	3.98	R-45	1 U	1 U	1 U	1 U	1 U	1 U	1 U	4.2	1 U		1 U	1 U	1 U	1 U
				R-46					1 U			4.4	1 U	4.3	1 U	1 U	1 U	1 U
Trichlorofluoro-methane	µg/L		2400	R-45	1 U	3.8	1 U	1 U	1 U	1 U	1 U	6.7	1 U		1 U	1 U	1 U	1 U
				R-46					1 U			7.2	1 U	7.5	1 U	1 U	1 U	1 U

= Exceeds Federal MCLs or MTCA Method B Groundwater Cleanup Level.

* = Primary MCL Standards; EPA National Primary Drinking Water Regulations (40 CFR 141 59 FR 34322).

** = Secondary MCL Standards; EPA National Primary Drinking Water Regulations (40 CFR 141 59 FR 34322).

[a] = MCL/Federal maximum contaminant level.

[b] = MTCA B/Model Toxics Control Act (WAC 173-340) Method B Cleanup Level. CLARC II Database, Ecology, February 1996.

[c] = Downgradient wells MW-20A and MW-23A not sampled due to the wells being dry or insufficient water for sample collection.

U = Indicates the compound was undetected at the reported concentration.

DUP= Duplicate.

Note: Up or Down in column title denotes whether the well is located upgradient or downgradient of the landfill's influence.

Table 3-1. Comparison of Contaminants of Concern in Groundwater to ROD Cleanup Levels

				Upper Gravel Aquifer		Sand Aquifer						Southern Gravel Aquifer					
		Clean up	Round	MW-16	MW-21A	MW-8B	MW-8B (DUP)	MW-17B	MW-17B (DUP)	MW-21B	MW-21B (DUP)	MW-14B	MW-14B (DUP)	MW-20B	MW-23B	MW-29B	MW-30C
Analyte	Units	Level[a]	ID	UP	UP	UP	UP	UP	UP	UP	UP	DOWN	DOWN	DOWN	DOWN	DOWN	DOWN
Manganese	mg/L	2.2	R-45	0.082	0.082	0.176	0.175	0.149	0.151	0.445		1.20		5.42	0.203	1.25	0.753
			R-46					0.144		0.437	0.432	1.08	1.09	5.07	0.192	1.15	
1,2-Dichloroethane	µg/L	5	R-45	1 U	1 U	1 U	1 U	9.2	9.3	1 U		1 U		1 U	4.8	6.3	1 U
			R-46					7.9		1 U	1 U	1 U	1 U	1 U	4	6.5	1 U
Vinyl Chloride	µg/L	0.2*	R-45	0.2 U	0.2 U	0.2 U	0.2 U	0.58	0.59	0.2 U		0.51		0.24	0.62	1.0	0.2 U
			R-46					0.5		0.2 U	0.2 U	0.5	0.54	0.24	0.73	1.2	0.22

ROD= Record of decision

R-45= Round 45, May 2004

R-46= Round 46, November 2004

a = Clean up levels established in the Final EPA Record of Decision for the Midway Landfill Site, September 6, 2000.

[ ] = Exceeds cleanup level established in the Final EPA Record of Decision for the Midway Landfill, September 6, 2000.

U = Indicates the compound was undetected at the reported concentration

DUP= Duplicate.

* The actual cleanup level in the ROD (USEPA 2000) is 0.02 µg/L. However, pursuant to WAC 173-340-707(2), Ecology utilizes the practical quantitation limit (PQL) of 0.2 µg/L to determine compliance with this cleanup standard because the cleanup standard is lower than the PQL.

Notes: Up or Down in column title denotes whether the well is located upgradient or downgradient of the landfill's influence.