

URS Greiner Woodward Clyde

A Division of URS Corporation

May 27, 1999

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Mr. Joseph Yavonditte, Project Manager
New York State Department of Environmental Conservation
Division of Hazardous Waste Remediation
50 Wolf Road
Albany, New York 12233-7010

**Re: Ramapo Landfill Remediation
Results of 1999 First Monitoring Event**

Dear Mr. Yavonditte:

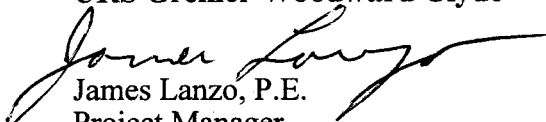
Attached are the results of the Ramapo Landfill Remediation project first monitoring event for 1999. This document provides the validated analytical results for this sampling event (Tables 1 and 2) as well as historical analytical data tables for the four target compounds, i.e., benzene, chromium, iron, and manganese (Tables 3 through 6). Samples were collected the week of March 22, 1999 and were analyzed for the baseline parameters. Locations sampled are shown in Figure 1. Samples were not collected from public supply wells SVWC-93 through SVWC-96 because well pumps were inoperable, and for private well 8-I because the well was obstructed which inhibited purging/sampling. These wells are scheduled for sampling and analyses for the baseline parameter during the June sampling event. All analytical results are within normal range. No organic compounds were detected in any of the samples.

Also included in this document are groundwater elevation data (Table 7) and air monitoring results for the perimeter and the north/south lobe gas vents (Tables 8 through 11). The air monitoring locations map is provided as Figure 2.

Please feel free to call if you have any questions or wish to discuss.

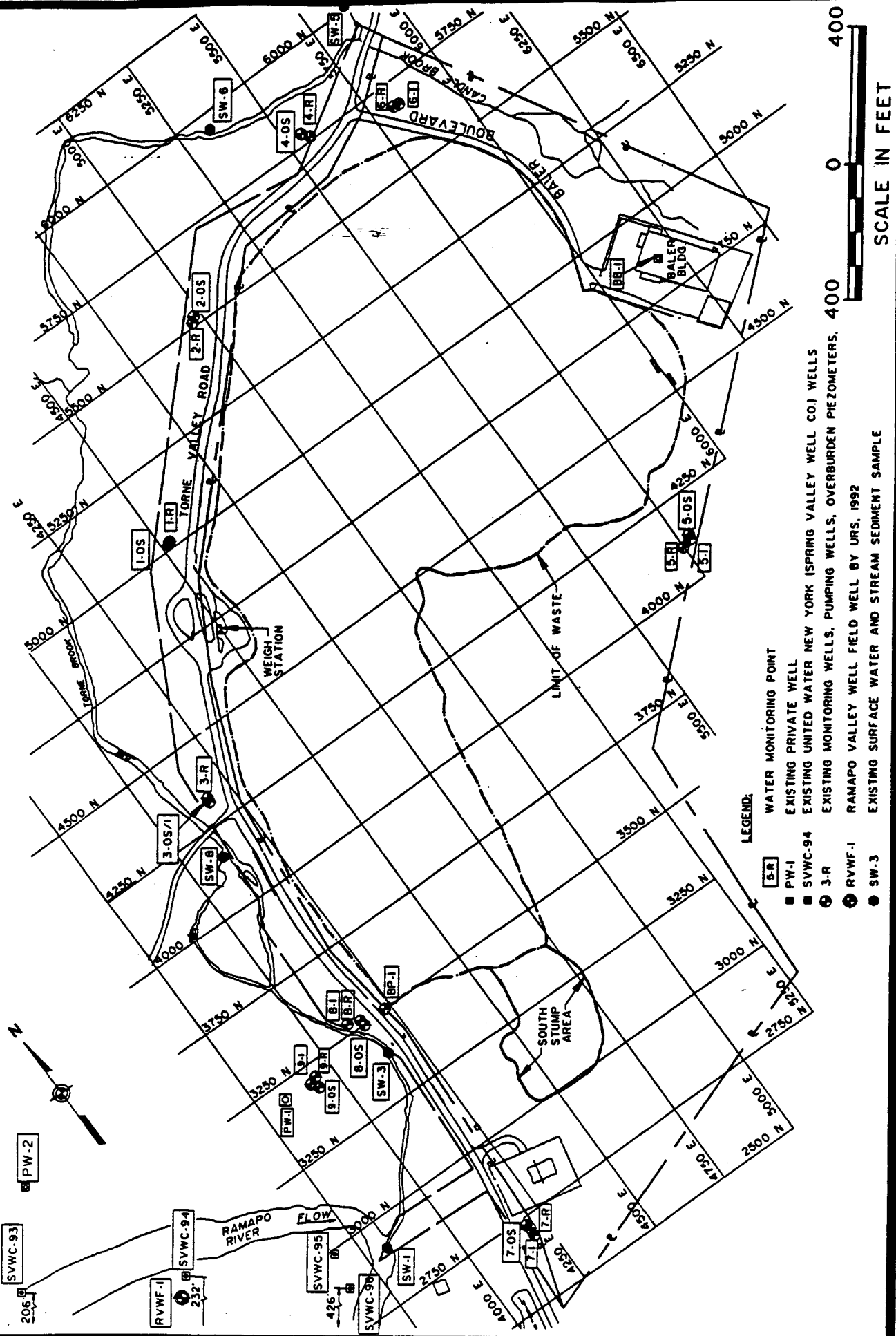
Sincerely,

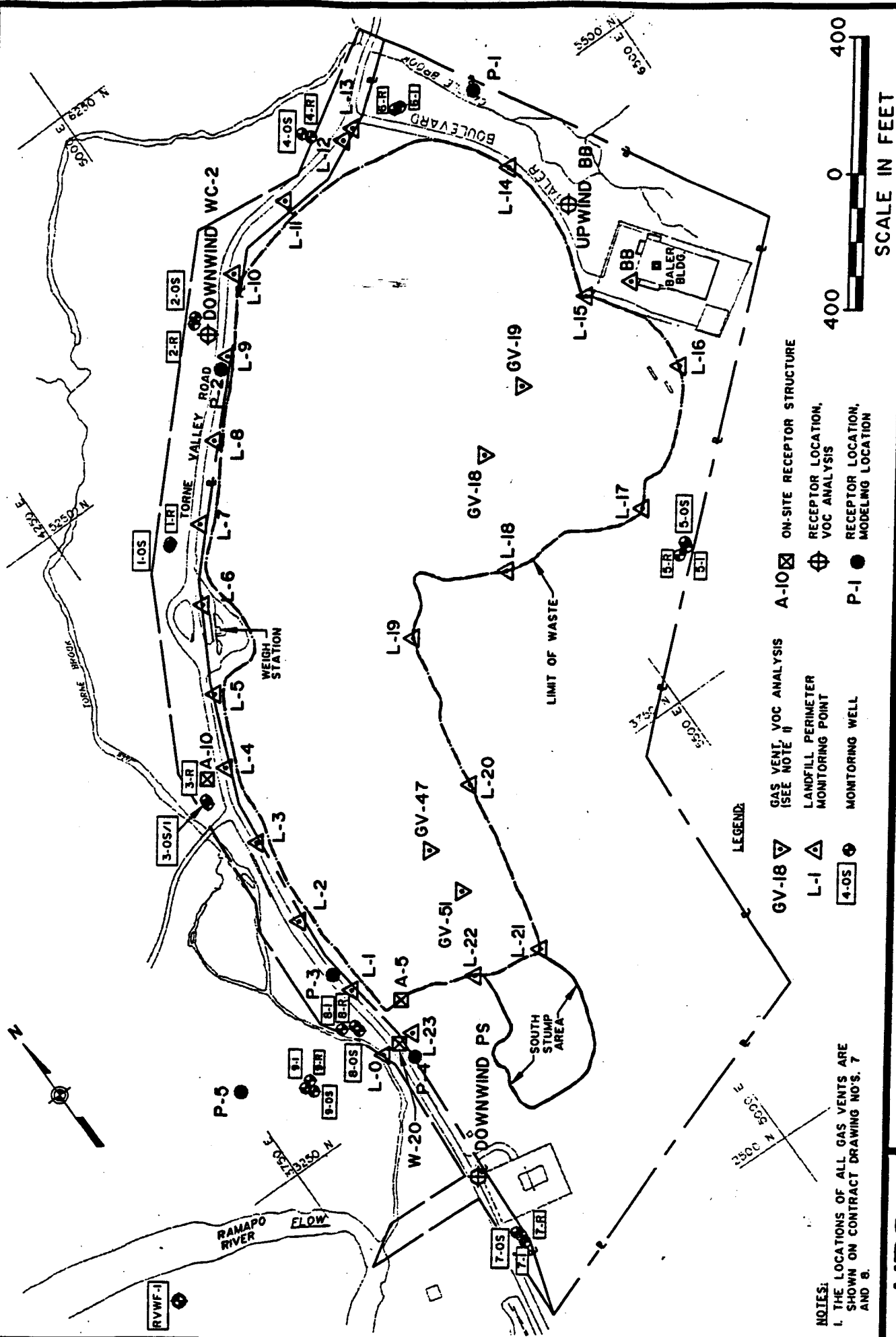
URS Greiner Woodward Clyde


James Lanzo, P.E.
Project Manager

Enclosure

cc:	Supervisor Reisman - Town of Ramapo	Mr. G. Demas - Torne Brook Farm
	Mr. T. Dzurinko - Town of Ramapo	Mr. R. Ofeldt - United Water New York
	Mr. A. Simon - Town of Ramapo	Mr. T. Parashkevov - United Water New Jersey
	Mr. R. Nunes - USEPA	Mr. T. Micelli - Rockland County DOH
	Mr. G. Laccetti - NYSDOH	Ms. J. Hunderfund - Rockland County DOH
	Mr. Terry Hughes - NYSDEC	Mr. C. Flanagan
	Ms. A. Lapidus - Ramapo Land Co., Inc.	File: 05-35559.00 (C-1)





**RAMAPO LANDFILL
AIR MONITORING LOCATIONS**

FIGURE 2

TABLE 1
RAMAPO LANDFILL - MARCH 1999 SAMPLING
GROUNDWATER SAMPLES

Analyte	Concentration (µg/L)										ARARs* (µg/L)
	1-OS	1-R	2-OS	2-R	3-OS/I	3-R	4-OS	4-R			
Aluminum	25700	-	199	199	274	130	194	-	-	-	
Antimony	3.5	-	-	6.3	-	-	-	-	-	3	
Arsenic	13.6	-	-	-	-	-	-	-	-	25	
Barium	256	12.3	16.2	20.4	16	22.8	13.8	10.1	10.1	1000	
Cadmium	-	1.3	-	1.8	-	-	-	-	-	5	
Calcium	90100	79200	73200	54500	87200	72000	21000	44700	44700	-	
Chromium	496	39.8	13.6	75.6	270	73	2.2	0.78	0.78	50	
Cobalt	38.9	2.6	-	0.91	0.98	2.1	-	1.7	1.7	-	
Copper	121	8.5	5.1	37.2	9.7	3.4	8.1	7.3	7.3	200	
Iron	74400	897	536	2110	1620	680	1100	5250	5250	300**	
Lead	10.7	-	-	10	-	2.1	-	-	-	25	
Magnesium	32300	17500	13500	11800	15100	23300	8350	15700	15700	35000 (G)	
Manganese	5600	332	69.6	356	948	12500	220	1100	1100	300**	
Nickel	198	42.1	9	45.9	86.7	37.1	3.1	2.3	2.3	100	
Potassium	8660	2150	1130	1460	2520	1730	925	1400	1400	-	
Selenium	6.2	-	-	-	-	4.2	-	-	-	10	
Silver	-	-	-	-	-	0.98	-	-	-	50	
Sodium	30800	24800	6670	8020	39500	40700	26600	10900	10900	20000	
Thallium	4.9	-	-	-	-	-	-	-	-	0.5 (G)	
Vanadium	71.6	1.8	0.93	2	1.6	-	0.99	-	-	-	
Zinc	115	18.7	17.8	44.9	17.8	26.3	17.4	17	17	2000 (G)	

Only detected results reported.

* - NYSDCE Water Quality Standards and Guidance Values, TOGS 1.1.1, June 1998, Table 1. (G) - denotes guidance value only, not standard.

** - Iron and manganese combined have a standard of 500 µg/L.

TABLE 1
RAMAPO LANDFILL - MARCH 1999 SAMPLING
GROUNDWATER SAMPLES

Analyte	Concentration (µg/L)										ARARs* (µg/L)
	5-OS	5-R	7-OS	7-R	8-OS	8-R	9-I	9-OS	9-R		
Aluminum	4960	-	1020	46.7	29.5	-	-	-	539	-	-
Antimony	-	2.8	7.1	-	-	-	-	2.6	-	-	3
Arsenic	-	-	3.7	-	-	-	-	-	-	-	25
Barium	27.9	4.4	36.7	6.8	8.1	50.7	4.2	9.4	5.4	1000	5
Cadmium	-	-	-	-	-	-	-	-	-	-	5
Calcium	5470	11300	43600	72300	12800	128000	7560	5510	14000	-	-
Chromium	15.3	4.4	48.1	1.6	79.4	3.4	1.7	9.8	8.5	50	-
Cobalt	3.2	-	4.6	1.8	1.1	15.7	0.9	0.98	-	-	-
Copper	16	10.4	12.9	8.8	9.3	8.5	10.6	6.3	19.7	200	-
Iron	8180	105	1950	93.8	1000	2440	86.4	912	670	300**	-
Lead	-	-	-	-	-	-	-	-	-	-	25
Magnesium	3440	3910	10900	15600	3430	35300	1780	1500	3390	35000 (G)	-
Manganese	88.6	2.6	211	157	119	2120	2.8	28.6	771	300**	-
Nickel	9.6	2.5	6.7	3.4	4.9	24.4	2.1	5.8	12	100	-
Potassium	1380	747	6420	1830	2440	20300	597	808	2980	-	-
Selenium	-	-	-	-	-	-	-	-	-	-	10
Silver	-	0.81	0.7	-	-	-	0.86	-	-	-	50
Sodium	3750	3920	15500	10900	6620	71700	3540	2630	8630	20000	-
Thallium	-	-	-	-	-	-	-	-	-	-	0.5 (G)
Vanadium	12.7	3.7	3.5	0.72	0.78	-	-	1.8	-	-	-
Zinc	28.7	18.1	21.5	20.2	18.9	19.6	17.6	19.3	57.3	2000 (G)	-

Only detected results reported.

* - NYSDC Water Quality Standards and Guidance Values, TOGS 1.1.1, June 1998, Table 1. (G) - denotes guidance value only, not standard.

** - Iron and manganese combined have a standard of 500 µg/L.

TABLE 1
RAMAPO LANDFILL - MARCH 1999 SAMPLING
DRINKING WATER SAMPLES

Analyte	Concentration (µg/L)		ARARs*
	PW-1	PW-2	
Antimony	-	2.8	3
Barium	4.1	2.3	1000
Calcium	7380	36500	-
Chromium	-	0.69	50
Copper	128	13	200
Iron	42.2	35.3	300**
Lead	4.6	-	25
Magnesium	2060	4290	35000 (G)
Manganese	1.4	6.6	300**
Potassium	787	1120	-
Sodium	4470	10200	20000
Zinc	270	42.5	2000 (G)

Only detected results reported.

* - NYSDC Water Quality Standards and Guidance Values, TOGS 1.1.1, June 1998, Table 1.

(G) - denotes guidance value only, not standard.

** - Iron and manganese combined have a standard of 500 µg/L.

TABLE 2
RAMAPO LANDFILL - MARCH 1999 SAMPLING
GROUNDWATER SAMPLES

Analyte	Concentration (mg/L)							
	1-OS	1-R	2-OS	2-R	3-OS/I	3-R	4-OS	4-R
COD	29.2	16.0	6.0	10.0	17.2	12.0	8.0	9.2
TKN	-	-	-	-	-	-	-	-
Total Alkalinity	155	280	265	192	250	158	153	153
Total Hardness	382	322	295	231	332	297	117	220

Only detected results reported.

TABLE 2
RAMAPO LANDFILL - MARCH 1999 SAMPLING
GROUNDWATER SAMPLES

Analyte	Concentration (mg/L)							
	5-OS	5-R	7-OS	7-R	8-OS	8-R	9-I	9-OS
COD	10.0	8.0	17.2	9.2	9.2	39.2	8.0	7.2
TKN	-	-	-	-	-	20.0	-	-
Total Alkalinity	17.2	47.5	141	280	35.5	580	10.0	10.5
Total Hardness	39.5	49.5	199	280	48.8	632	36.4	33.1
								58.9

Only detected results reported.

TABLE 2
 RAMAPO LANDFILL - MARCH 1999 SAMPLING
 DRINKING WATER SAMPLES

Analyte	Concentration (mg/L)	
	PW-1	PW-2
COD	-	7.2
Total Alkalinity	14.8	78.5
Total Hardness	26.6	140

Only detected results reported.

TABLE 3
RAMAPO LANDFILL
GROUNDWATER, DRINKING WATER, AND SURFACE WATER
MONITORING DATA
COMPOUND: Benzene

Sample ID	Date of Sampling Event									
	1/90	9/90	1/93	4/93	9/93	12/93	3/94	6/94	9/94	12/94
1-OS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1-R	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-OS	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND
2-R	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND
3-OS/I	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
3-R	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-OS	ND	0.3	ND	ND	ND	ND	ND	ND	ND	ND
4-R	1.0	1.0	ND	0.7	ND	ND	ND	ND	ND	ND
5-OS	2.0	ND	ND	ND	NA	NA	NA	ND	NA	NA
5-I	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND
5-R	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
6-I	NA	0.2	ND	ND	ND	ND	ND	ND	ND	ND
6-R	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND
7-OS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
7-R	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
8-OS	2.0	0.3	ND	ND	ND	ND	ND	ND	ND	ND
8-I	2.0	2.9	NA	ND	ND	ND	ND	ND	ND	2.0
8-R	3.0	0.4	ND	0.9	ND	ND	ND	ND	ND	ND
9-OS	NA	ND	ND	ND	ND	NA	ND	ND	ND	ND
9-I	NA	0.2	NA	NA	NA	NA	ND	ND	ND	ND
9-R	NA	0.9	ND	ND	ND	NA	ND	ND	ND	1.0
PW-1	NA	ND	ND	ND	ND	NA	ND	ND	ND	ND
PW-2	NA	NA *	ND	ND	ND	NA	NA	NA	ND	ND
PW-3	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA
BP-1	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA
BB-1	NA	NA	ND	ND	ND	NA	ND	ND	ND	ND
RVWF-1	NA	NA	ND	ND	ND	NA	ND	ND	ND	ND
SVWC-93	NA	NA	ND	ND	NA	NA	ND	ND	ND	ND
SVWC-94	NA	NA	ND	ND	NA	NA	ND	ND	ND	1.0
SVWC-95	NA	NA	ND	ND	ND	NA	ND	ND	ND	ND
SVWC-96	NA	NA	ND	ND	NA	NA	ND	ND	ND	ND
Surface Water	Date of Sampling Event									
Sample ID	10/89	7/90	1/93	4/93	9/93	12/93	3/94	6/94	9/94	12/94
SW-1	ND	NA	ND	ND	ND	ND	ND	ND	ND	ND
SW-5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SW-6	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND
SW-8	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND

Notes: Concentration reported in µg/L (ppb).

ND - Not detected

NA - Not applicable (e.g. well not installed by this date or if installed, not sampled)

* NYSDOH results from 3/92 sampling.

- Exceeded ARAR value of 1.0 ppb for groundwater (June 1998). (Previous value of 0.7 ppb October, 1993)

TABLE 3 (Cont.)
RAMAPO LANDFILL
GROUNDWATER, DRINKING WATER, AND SURFACE WATER
MONITORING DATA
COMPOUND: Benzene

Sample ID	Sample Type	Date of Sampling Event									
		3/95	6/95	9/95	12/95	03/96	06/96	09/96	12/96	3/97	6/97
1-OS	Groundwater	ND	ND	NA	ND	ND	NA	ND	NA	ND	NA
1-R	Groundwater	ND	ND	ND	ND	ND	NA	ND	NA	ND	NA
2-OS	Groundwater	ND	ND	NA	ND	ND	NA	NA	NA	ND	NA
2-R	Groundwater	ND	ND	NA	ND	ND	NA	ND	NA	ND	NA
3-OS/I	Groundwater	ND	ND	NA	ND	ND	NA	ND	NA	ND	NA
3-R	Groundwater	ND	ND	NA	ND	ND	NA	ND	NA	ND	NA
4-OS	Groundwater	ND	ND	NA	ND	ND	NA	ND	NA	ND	NA
4-R	Groundwater	ND	ND	ND	ND	ND	NA	ND	NA	ND	NA
5-OS	Groundwater	NA	ND	NA	NA	ND	NA	NA	NA	ND	NA
5-I	Groundwater	ND	NA	NA	ND	NA	NA	ND	NA	NA	NA
5-R	Groundwater	ND	ND	NA	ND	ND	NA	ND	NA	ND	NA
6-I	Groundwater	ND	ND	NA	ND	ND	NA	ND	NA	ND	NA
6-R	Groundwater	ND	0.5	ND	ND	ND	NA	NA	NA	ND	NA
7-OS	Groundwater	ND	NA	NA	ND	ND	NA	ND	NA	ND	NA
7-I	Groundwater	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA
7-R	Groundwater	ND	ND	NA	ND	ND	NA	ND	NA	ND	NA
8-OS	Groundwater	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
8-I	Groundwater	ND	ND	ND	1.2	1	2	2	3	ND	ND
8-R	Groundwater	2	0.9	ND	0.65	ND	ND	ND	ND	ND	ND
9-OS	Groundwater	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND
9-I	Groundwater	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
9-R	Groundwater	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BP-1	Groundwater	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BB-1	Groundwater	ND	ND	NA	ND	ND	NA	ND	NA	NA	NA
RVWF-1	Groundwater	ND	ND	ND	ND	ND	NA	ND	NA	ND	ND
PW-1	Drinking Water	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PW-2	Drinking Water	NA	0.5	ND	ND	ND	ND	ND	ND	ND	ND
PW-3	Drinking Water	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SVWC-93	Drinking Water	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SVWC-94	Drinking Water	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SVWC-95	Drinking Water	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SVWC-96	Drinking Water	ND	ND	ND	ND	ND	ND	ND	NA	NA	ND
SW-1	Surface Water	ND	ND	NA	ND	ND	NA	ND	NA	ND	NA
SW-5	Surface Water	ND	ND	NA	ND	ND	NA	ND	NA	ND	NA
SW-6	Surface Water	ND	ND	NA	ND	ND	NA	ND	NA	ND	NA
SW-8	Surface Water	ND	ND	NA	ND	ND	NA	ND	NA	ND	NA

Notes:

Concentration reported in µg/L (ppb).

ND - Not detected

NA - Not applicable (e.g. well not installed by this date or if installed, not sampled)

- Exceeded ARAR value of 1.0 ppb for groundwater (June 1998). (Previous value of 0.7 ppb October, 1993)

TABLE 3 (Cont.)
RAMAPO LANDFILL
GROUNDWATER, DRINKING WATER, AND SURFACE WATER
MONITORING DATA
COMPOUND: Benzene

Sample ID	Sample Type	Date of Sampling Event					
		9/97	12/97	3/98	6/98	9/98	3/99
1-OS	Groundwater	ND	NA	ND	NA	ND	ND
1-R	Groundwater	ND	NA	ND	NA	ND	ND
2-OS	Groundwater	ND	NA	ND	NA	ND	ND
2-R	Groundwater	ND	NA	ND	NA	ND	ND
3-OS/I	Groundwater	ND	NA	ND	NA	ND	ND
3-R	Groundwater	ND	NA	ND	NA	ND	ND
4-OS	Groundwater	ND	NA	ND	NA	ND	ND
4-R	Groundwater	ND	NA	ND	NA	ND	ND
5-OS	Groundwater	NA	NA	NA	NA	NA	ND
5-I	Groundwater	ND	NA	ND	NA	ND	NA
5-R	Groundwater	ND	NA	ND	NA	ND	ND
6-I	Groundwater	ND	NA	NA	NA	NA	NA
6-R	Groundwater	ND	NA	NA	NA	NA	NA
7-OS	Groundwater	ND	NA	ND	NA	ND	ND
7-I	Groundwater	NA	NA	NA	NA	NA	NA
7-R	Groundwater	ND	NA	ND	NA	ND	ND
8-OS	Groundwater	ND	ND	ND	ND	ND	ND
8-I	Groundwater	2	ND	ND	ND	ND	NA
8-R	Groundwater	ND	2	ND	ND	ND	ND
9-OS	Groundwater	ND	ND	ND	ND	ND	ND
9-I	Groundwater	ND	ND	ND	ND	ND	ND
9-R	Groundwater	ND	ND	ND	ND	ND	ND
BP-1	Groundwater	NA	NA	NA	NA	NA	NA
BB-1	Groundwater	ND	NA	NA	NA	NA	NA
RVWF-1	Groundwater	ND	ND	NA	NA	ND	NA
PW-1	Drinking Water	ND	ND	ND	ND	ND	ND
PW-2	Drinking Water	NA	ND	ND	ND	ND	ND
PW-3	Drinking Water	NA	NA	NA	NA	NA	NA
SVWC-93	Drinking Water	ND	ND	ND	ND	ND	NA
SVWC-94	Drinking Water	ND	NA	ND	ND	ND	NA
SVWC-95	Drinking Water	ND	NA	ND	ND	ND	NA
SVWC-96	Drinking Water	ND	ND	ND	NA	ND	NA
SW-1	Surface Water	ND	NA	NA	NA	NA	NA
SW-5	Surface Water	ND	NA	NA	NA	NA	NA
SW-6	Surface Water	ND	NA	NA	NA	NA	NA
SW-8	Surface Water	ND	NA	NA	NA	NA	NA

Notes:

Concentration reported in µg/L (ppb).

ND - Not detected

NA - Not applicable (e.g. well not installed by this date or if installed, not sampled)

Exceeded ARAR value - Exceeded ARAR value of 1.0 ppb for groundwater (June 1998). (Previous value of 0.7 ppb October, 1993)

TABLE 4
RAMAPO LANDFILL
GROUNDWATER, DRINKING WATER, AND SURFACE WATER
MONITORING DATA
ANALYTE: Chromium

Sample ID	Date of Sampling Event									
	1/90	9/90	1/93	4/93	9/93	12/93	3/94	6/94	9/94	12/94
1-OS	153	57.3	8	ND	60.0	257.0	65.5	7.2	284	134
1-R	39.7	17.5	ND	ND	84.9	46.8	10.3	ND	39.3	58.3
2-OS	180	141	NA	ND	50.2	95.9	11.8	89.3	45.9	25.1
2-R	16.1	5.5	NA	ND	14.8	6.1	ND	5.1	8.3	4.9
3-OS/I	587	1290	807	40.4	1350	1100	784	304	561	1020
3-R	28	11.4	ND	ND	ND	14.7	10.5	17.8	4.8	4.9
4-OS	139	40.1	5.8	ND	10.8	11.2	15.1	25.4	23.1	53.1
4-R	35.5	13.1	ND	8.8	ND	5.9	4.4	ND	13.3	2
5-OS	90	35.6	48.8	ND	NA	NA	NA	NA	NA	NA
5-I	NA	NA	NA	NA	NA	80	30.2	7.2	40	63.1
5-R	27.4	29.3	6.8	ND	ND	8.6	13.8	6.3	52.3	105
6-I	NA	28.7	ND	ND	13.4	17.0	32.7	9.5	488	9.9
6-R	NA	31.1	24	34.8	27.7	67.4	71.3	27.1	37.7	13.6
7-OS	33.5	40.1	24.2	13.0	1890	218	31	210	571	258
7-R	16.2	16.8	ND	ND	ND	ND	ND	5.3	8.6	3.4
8-OS	34.8	16.7	ND	ND	ND	7.6	86.6	28.7	13.2	4.2
8-I	215	32.5	NA	ND	ND	ND	29	17	12.8	8.4
8-R	20	23.1	9.9	ND	17.7	18.2	7.5	17.0	10.4	6.8
9-OS	NA	6.8	ND	ND	ND	ND	22.9	27.1	14.8	2.9
9-I	NA	8.1	NA	NA	NA	NA	28	ND	2.4	5.8
9-R	NA	8.8	3.9	16.4	16.7	11.6	35.4	48.2	29.9	10.5
PW-1	NA	ND	ND	ND	ND	ND	ND	ND	0.6	ND
PW-2	NA	ND *	ND	ND	ND	4.9	NA	ND	ND	ND
PW-3	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA
BP-1	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA
BB-1	NA	NA	ND	ND	ND	ND	ND	ND	1.2	ND
RVWF-1	NA	NA	25.2	14.7	13.2	20.5	8.4	ND	ND	ND
SVWC-93	NA	NA	ND	ND	NA	ND	ND	ND	ND	ND
SVWC-94	NA	NA	ND	ND	NA	NA	ND	ND	ND	0.97
SVWC-95	NA	NA	ND	ND	ND	NA	ND	ND	ND	ND
SVWC-96	NA	NA	ND	ND	NA	ND	ND	ND	ND	0.87
Surface Water										
Sample ID	Date of Sampling Event									
	10/89	7/90	1/93	4/93	9/93	12/93	3/94	6/94	9/94	12/94
SW-1	ND	NA	ND	ND	ND	ND	ND	ND	ND	ND
SW-5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SW-6	NA	ND	ND	ND	ND	5.1	ND	ND	ND	ND
SW-8	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND

Notes: Concentration reported in µg/L (ppb).

ND - Not detected

NA - Not applicable (e.g. well not installed by this date or if installed, not sampled)

* NYSDOH results from 3/92 sampling.

☐ - Exceeded ARAR value of 50 ppb for groundwater.

☐ - Exceeded ARAR value of 50 ppb for surface water.

The ARAR for SW-1 (Class A water body) is 50 ppb.

TABLE 4 (Cont.)
RAMAPO LANDFILL
GROUNDWATER, DRINKING WATER, AND SURFACE WATER
MONITORING DATA
ANALYTE: Chromium

Sample ID	Sample Type	Date of Sampling Event									
		3/95	6/95	9/95	12/95	03/96	06/96	09/96	12/96	3/97	6/97
1-OS	Groundwater	727	17	102	70.5	127	NA	102	NA	88	NA
1-R	Groundwater	146	49.5	136	42.8	133	NA	176	NA	200	NA
2-OS	Groundwater	39.7	34.1	137	50.3	83.6	NA	NA	NA	ND	NA
2-R	Groundwater	4.4	ND	5.0	5.7	ND	NA	20.7	NA	160	NA
3-OS/I	Groundwater	144	406	589	253	372	NA	29.7	NA	25	NA
3-R	Groundwater	3.6	2.0	10.3	7.0	ND	NA	24.2	NA	27	NA
4-OS	Groundwater	21.1	ND	38.8	12.2	11	NA	6.2	NA	ND	NA
4-R	Groundwater	2.5	ND	9.0	5.8	ND	NA	1.8	NA	ND	NA
5-OS	Groundwater	NA	39.0	NA	NA	216	NA	NA	NA	19	NA
5-I	Groundwater	109	NA	17.4	22.4	NA	NA	8	NA	NA	NA
5-R	Groundwater	19.9	7.9	22.9	27.9	10.1	NA	7.2	NA	10	NA
6-I	Groundwater	6.9	9.1	22.6	13.3	6.3	NA	7.6	NA	ND	NA
6-R	Groundwater	11.9	8.4	13.4	44.6	145	NA	NA	NA	120	NA
7-OS	Groundwater	324	NA	NA	37	125	NA	4.4	NA	41	NA
7-I	Groundwater	NA	34.8	49.2	NA	NA	NA	NA	NA	NA	NA
7-R	Groundwater	2.8	12.4	13.4	9.2	ND	NA	3.4	NA	ND	NA
8-OS	Groundwater	129	40.4	13.9	7.2	62.2	35.8	15.9	20	ND	ND
8-I	Groundwater	8.0	3.4	24.1	29.2	12.3	26.2	17.4	110	17	10
8-R	Groundwater	6.3	10.1	13.4	8.5	6.7	23.8	20.4	ND	ND	20
9-OS	Groundwater	6.6	7.6	NA	NA	9.8	11.2	5.2	ND	ND	10
9-I	Groundwater	3.9	8.0	34.6	25.3	8.1	11.4	4.8	ND	ND	ND
9-R	Groundwater	16.9	26.5	66.7	45.4	43.8	12.8	23.8	90	ND	20
BP-1	Groundwater	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BB-1	Groundwater	ND	ND	ND	ND	ND	NA	ND	NA	NA	NA
RVWF-1	Groundwater	ND	ND	ND	ND	ND	NA	0.58	NA	ND	ND
PW-1	Drinking Water	0.8	ND	ND	ND	ND	ND	0.43	20	ND	ND
PW-2	Drinking Water	NA	ND	ND	ND	ND	0.94	ND	ND	ND	ND
PW-3	Drinking Water	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SVWC-93	Drinking Water	ND	ND	NA	ND	ND	ND	0.89	ND	ND	ND
SVWC-94	Drinking Water	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND
SVWC-95	Drinking Water	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND
SVWC-96	Drinking Water	ND	1.7	NA	ND	ND	ND	1.3	NA	NA	ND
SW-1	Surface Water	ND	ND	ND	ND	ND	NA	1.2	NA	ND	NA
SW-5	Surface Water	ND	ND	ND	3.3	ND	NA	0.9	NA	ND	NA
SW-6	Surface Water	ND	ND	ND	3.7	ND	NA	1	NA	ND	NA
SW-8	Surface Water	0.67	ND	ND	ND	ND	NA	1.1	NA	ND	NA

Notes:

Concentration reported in µg/L (ppb).

ND - Not detected

NA - Not applicable (e.g. well not installed by this date or if installed, not sampled)

	- Exceeded ARAR value of 50 ppb for groundwater.
	- Exceeded ARAR value of 50 ppb for surface water.

The ARAR for SW-1 (Class A water body) is 50 ppb.

TABLE 4 (Cont.)
RAMAPO LANDFILL
GROUNDWATER, DRINKING WATER, AND SURFACE WATER
MONITORING DATA
ANALYTE: Chromium

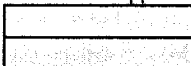
Sample ID	Sample Type	Date of Sampling Event					
		9/97	12/97	3/98	6/98	9/98	3/99
1-OS	Groundwater	220	NA	1180	NA	52.1	496
1-R	Groundwater	ND	NA	37.1	NA	41.7	39.8
2-OS	Groundwater	ND	NA	241	NA	121	13.6
2-R	Groundwater	50	NA	53.5	NA	59.6	75.6
3-OS/I	Groundwater	190	NA	433	NA	804	270
3-R	Groundwater	ND	NA	20.7	NA	12.8	73.0
4-OS	Groundwater	ND	NA	34.7	NA	8.6	2.2
4-R	Groundwater	ND	NA	2.7	NA	7.7	0.78
5-OS	Groundwater	NA	NA	NA	NA	NA	15.3
5-I	Groundwater	ND	NA	2.3	NA	9.6	NA
5-R	Groundwater	ND	NA	ND	NA	2.5	4.4
6-I	Groundwater	50	NA	NA	NA	NA	NA
6-R	Groundwater	30	NA	NA	NA	NA	NA
7-OS	Groundwater	60	NA	188	NA	96.2	48.1
7-I	Groundwater	NA	NA	NA	NA	ND	NA
7-R	Groundwater	ND	NA	ND	NA	3.4	1.6
8-OS	Groundwater	ND	ND	4.0	9.6	4.5	79.4
8-I	Groundwater	ND	20	4.6	4.8	55.6	NA
8-R	Groundwater	20	ND	ND	5.2	6.3	3.4
9-OS	Groundwater	ND	ND	ND	2.3	0.64	9.8
9-I	Groundwater	ND	ND	1.7	8	2.8	1.7
9-R	Groundwater	ND	ND	15.2	1.9	23.4	8.5
BP-1	Groundwater	NA	NA	NA	NA	NA	NA
BB-1	Groundwater	NA	NA	NA	NA	NA	NA
RVWF-1	Groundwater	ND	ND	NA	NA	NA	NA
PW-1	Drinking Water	ND	ND	ND	ND	ND	ND
PW-2	Drinking Water	ND	ND	ND	ND	ND	0.69
PW-3	Drinking Water	NA	NA	NA	NA	NA	NA
SVWC-93	Drinking Water	ND	ND	ND	ND	0.78	NA
SVWC-94	Drinking Water	ND	NA	ND	ND	ND	NA
SVWC-95	Drinking Water	ND	NA	ND	ND	0.96	NA
SVWC-96	Drinking Water	ND	ND	ND	NA	ND	NA
SW-1	Surface Water	ND	NA	NA	NA	NA	NA
SW-5	Surface Water	ND	NA	NA	NA	NA	NA
SW-6	Surface Water	ND	NA	NA	NA	NA	NA
SW-8	Surface Water	ND	NA	NA	NA	NA	NA

Notes:

Concentration reported in µg/L (ppb).

ND - Not detected

NA - Not applicable (e.g. well not installed by this date or if installed, not sampled)



- Exceeded ARAR value of 50 ppb for groundwater.

- Exceeded ARAR value of 50 ppb for surface water.

The ARAR for SW-1 (Class A water body) is 50 ppb.

TABLE 5
RAMAPO LANDFILL
GROUNDWATER, DRINKING WATER, AND SURFACE WATER
MONITORING DATA
ANALYTE: Iron

Sample ID	Date of Sampling Event									
	1/90	9/90	1/93	4/93	9/93	12/93	3/94	6/94	9/94	12/94
1-OS	45000	17500	1870	884	32300	162000	12200	69.6	4950	47700
1-R	1180	2650	395	197	1940	1210	186	70600	830	1710
2-OS	912	41800	NA	186	11800	9800	946	5080	14700	4120
2-R	409	602	NA	674	1120	1450	187	83.1	248	363
3-OS/I	6830	9750	5110	333	21300	37900	19400	29900	14400	37500
3-R	1930	1370	11500	2940	3280	4800	1970	2090	2440	1730
4-OS	15600	12400	529	520	5560	10600	5720	17600	16900	15200
4-R	8230	5290	3520	4920	3100	5290	4790	4020	6850	5100
5-OS	27000	11200	11100	4700	NA	NA	NA	NA	NA	NA
5-I	NA	NA	NA	NA	NA	2030	2080	2380	8990	30700
5-R	658	368	620	2310	751	243	742	71.2	21400	64000
6-I	NA	486	953	17.3	332	2860	4020	1360	1590	153
6-R	NA	683	1220	715	662	1710	698	379	501	332
7-OS	981	24500	1250	521	619000	2200	2340	15600	14500	14400
7-R	ND	1940	31.5	56.6	989	600	762	226	681	270
8-OS	229000	43800	3230	2080	6180	12000	20300	6240	7490	6740
8-I	15700	30500	NA	ND	ND	ND	22300	41200	24200	18200
8-R	1360	2940	11600	2590	9160	4710	2510	11100	22000	10200
9-OS	NA	249	50.7	1200	383	393	2210	1040	1020	1490
9-I	NA	145	NA	NA	NA	NA	2040	62.3	84	260
9-R	NA	20200	2680	8250	11500	10800	8850	19400	9110	2700
PW-1	NA	64	186	130	1260	916	85.3	11.2	561	39.7
PW-2	NA	11 *	41.8	49.5	ND	22.7	NA	ND	53.5	13.6
PW-3	NA	NA	NA	NA	NA	NA	NA	6.4	NA	NA
BP-1	NA	NA	274	NA	NA	NA	NA	NA	NA	NA
BB-1	NA	NA	NA	297	247	225	263	282	367	332
RVWF-1	NA	NA	362	207	202	294	221	ND	47.7	58.2
SVWC-93	NA	NA	32.6	10.6	NA	553	179	ND	17.2	20.7
SVWC-94	NA	NA	40.3	19.1	NA	NA	49.4	ND	6.1	13.8
SVWC-95	NA	NA	51.7	74.4	ND	NA	45.5	ND	274	40.3
SVWC-96	NA	NA	22.3	17.3	NA	22.6	14.9	ND	61.5	66.8
Surface Water										
Sample ID	Date of Sampling Event									
	10/89	7/90	1/93	4/93	9/93	12/93	3/94	6/94	9/94	12/94
SW-1	2630	NA	141	1670	170	119	367	287	66.2	242
SW-5	93	163	194	204	168	71.7	41.9	291	124	63.1
SW-6	NA	177	82.5	245	76.7	55.2	55	159	92.4	42.6
SW-8	NA	1290	109	341	ND	26.7	66.2	187	92.6	186

Notes: Concentration reported in µg/L (ppb).

ND - Not detected

NA - Not applicable (e.g. well not installed by this date or if installed, not sampled)

* NYSDOH results from 3/92 sampling.

	- Exceeded ARAR value of 300 ppb for groundwater.
	- Exceeded ARAR value of 300 ppb for surface water.

TABLE 5 (Cont.)
RAMAPO LANDFILL
GROUNDWATER, DRINKING WATER, AND SURFACE WATER
MONITORING DATA
ANALYTE: Iron

Sample ID	Sample Type	Date of Sampling Event									
		3/95	6/95	9/95	12/95	03/96	06/96	09/96	12/96	3/97	6/97
1-OS	Groundwater	5970	2820	27900	23400	21700	NA	48000	NA	19000	NA
1-R	Groundwater	1430	1080	2750	1050	3240	NA	1910	NA	1800	NA
2-OS	Groundwater	1310	1730	24300	5660	1770	NA	NA	NA	140	NA
2-R	Groundwater	259	369	541	822	189	NA	6920	NA	1600	NA
3-OS/I	Groundwater	54600	16600	31400	3710	7750	NA	303	NA	1500	NA
3-R	Groundwater	1260	1450	3100	1330	1060	NA	4200	NA	1500	NA
4-OS	Groundwater	6110	3010	28600	7460	7470	NA	1300	NA	2700	NA
4-R	Groundwater	5650	5590	6320	4880	4910	NA	3970	NA	6800	NA
5-OS	Groundwater	NA	17100	NA	NA	60000	NA	NA	NA	8100	NA
5-I	Groundwater	56200	NA	2200	1870	NA	NA	2170	NA	NA	NA
5-R	Groundwater	11300	2260	1620	1120	434	NA	197	NA	ND	NA
6-I	Groundwater	172	565	1080	37.3	507	NA	110	NA	370	NA
6-R	Groundwater	225	625	728	758	849	NA	NA	NA	1400	NA
7-OS	Groundwater	12200	NA	NA	1870	11400	NA	305	NA	9700	NA
7-I	Groundwater	NA	4280	2770	NA	NA	NA	NA	NA	NA	NA
7-R	Groundwater	485	886	717	794	363	NA	54.2	NA	ND	NA
8-OS	Groundwater	13500	5760	46900	1160	4870	4370	997	2100	ND	1500
8-I	Groundwater	24300	21100	32300	28500	27300	38700	26400	80000	18000	26000
8-R	Groundwater	24900	25700	26600	12400	18400	14300	11700	2700	1400	5400
9-OS	Groundwater	1340	294	NA	NA	2330	1350	1030	460	1400	6500
9-I	Groundwater	788	468	4530	762	232	443	80.5	100	ND	ND
9-R	Groundwater	1080	2230	4080	1370	2060	2270	1640	3200	13000	4700
BP-1	Groundwater	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BB-1	Groundwater	250	608	744	577	262	NA	399	NA	NA	NA
RVWF-1	Groundwater	ND	816	1260	134	ND	NA	ND	NA	ND	ND
PW-1	Drinking Water	283	400	238	252	53.9	38.1	40.2	30000	ND	ND
PW-2	Drinking Water	NA	253	276	225	ND	ND	ND	ND	ND	ND
PW-3	Drinking Water	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SVWC-93	Drinking Water	19	154	NA	585	ND	ND	ND	ND	ND	ND
SVWC-94	Drinking Water	ND	143	NA	124	ND	ND	ND	ND	ND	ND
SVWC-95	Drinking Water	279	161	NA	148	ND	ND	98.8	ND	ND	ND
SVWC-96	Drinking Water	ND	173	NA	136	ND	ND	14.7	NA	NA	ND
SW-1	Surface Water	183	396	168	213	231	NA	674	NA	110	NA
SW-5	Surface Water	74.4	324	379	236	25.4	NA	434	NA	110	NA
SW-6	Surface Water	54	551	385	204	43.5	NA	263	NA	ND	NA
SW-8	Surface Water	339	315	276	182	29.4	NA	327	NA	780	NA

Notes:

Concentration reported in µg/L (ppb).

ND - Not detected

NA - Not applicable (e.g. well not installed by this date or if installed, not sampled)

	- Exceeded ARAR value of 300 ppb for groundwater.
	- Exceeded ARAR value of 300 ppb for surface water.

TABLE 5 (Cont.)
RAMAPO LANDFILL
GROUNDWATER, DRINKING WATER, AND SURFACE WATER
MONITORING DATA
ANALYTE: Iron

Sample ID	Sample Type	Date of Sampling Event					
		9/97	12/97	3/98	6/98	9/98	3/99
1-OS	Groundwater	49000	NA	62100	NA	3150	74400
1-R	Groundwater	ND	NA	1020	NA	561	897
2-OS	Groundwater	900	NA	15100	NA	24900	536
2-R	Groundwater	800	NA	1700	NA	718	2110
3-OS/I	Groundwater	5400	NA	29800	NA	23600	1620
3-R	Groundwater	700	NA	1420	NA	1260	680
4-OS	Groundwater	600	NA	8490	NA	6840	1100
4-R	Groundwater	3300	NA	5310	NA	1850	5250
5-OS	Groundwater	NA	NA	NA	NA	NA	8180
5-I	Groundwater	600	NA	3150	NA	851	NA
5-R	Groundwater	100	NA	210	NA	94.5	105
6-I	Groundwater	1500	NA	NA	NA	NA	NA
6-R	Groundwater	1100	NA	NA	NA	NA	NA
7-OS	Groundwater	9700	NA	36300	NA	21900	1950
7-I	Groundwater	NA	NA	NA	NA	NA	NA
7-R	Groundwater	ND	NA	112	NA	145	93.8
8-OS	Groundwater	1800	2800	795	1820	153	1000
8-I	Groundwater	14000	15000	15700	6000	37200	NA
8-R	Groundwater	9200	12000	4880	4150	1940	2440
9-OS	Groundwater	200	300	1050	392	126	912
9-I	Groundwater	ND	ND	113	400	91.3	86.4
9-R	Groundwater	7800	4600	5040	3660	3900	670
BP-1	Groundwater	NA	NA	NA	NA	NA	NA
BB-1	Groundwater	NA	NA	NA	NA	NA	NA
RVWF-1	Groundwater	ND	ND	NA	NA	NA	NA
PW-1	Drinking Water	ND	ND	ND	94.4	38.8	42.2
PW-2	Drinking Water	ND	ND	27.7	36.9	22.2	35.3
PW-3	Drinking Water	NA	NA	NA	NA	NA	NA
SVWC-93	Drinking Water	ND	ND	26.4	253	50.2	NA
SVWC-94	Drinking Water	ND	NA	ND	90.9	ND	NA
SVWC-95	Drinking Water	ND	NA	ND	61	27	NA
SVWC-96	Drinking Water	ND	ND	ND	NA	289	NA
SW-1	Surface Water	100	NA	NA	NA	NA	NA
SW-5	Surface Water	200	NA	NA	NA	NA	NA
SW-6	Surface Water	ND	NA	NA	NA	NA	NA
SW-8	Surface Water	ND	NA	NA	NA	NA	NA

Notes:

Concentration reported in µg/L (ppb).

ND - Not detected

NA - Not applicable (e.g. well not installed by this date or if installed, not sampled)

	- Exceeded ARAR value of 300 ppb for groundwater.
	- Exceeded ARAR value of 300 ppb for surface water.

TABLE 6
RAMAPO LANDFILL
GROUNDWATER, DRINKING WATER, AND SURFACE WATER
MONITORING DATA
ANALYTE: Manganese

Sample ID	Date of Sampling Event									
	1/90	9/90	1/93	4/93	9/93	12/93	3/94	6/94	9/94	12/94
1-OS	3790	3700	809	1410	4010	5590	3510	26.8	5150	4770
1-R	144	98.5	61.4	38.7	143	62	29.3	6020	67	97.6
2-OS	298	4770	NA	27.0	4850	1580	92.5	985	2450	827
2-R	197	135	NA	118	126	116	99.5	91.1	92.9	88.8
3-OS/I	8700	18100	3450	1690	9590	8780	5640	10300	2240	5540
3-R	7230	12400	10700	12900	11000	12000	11800	112800	10600	11300
4-OS	4210	5020	547	506	2080	995	598	2850	3050	1130
4-R	1730	1520	1660	1890	1160	1230	1460	1350	1210	1190
5-OS	981	530	192	43.2	NA	NA	NA	NA	NA	NA
5-I	NA	NA	NA	NA	NA	52.8	40.6	215	221	474
5-R	22.3	9.3	9.6	21.9	11.4	8.2	9.6	2.5	232	624
6-I	NA	33.1	151	1.3	34.4	84.7	1060	275	156	13.2
6-R	NA	14.3	100	57.5	60.7	195	59.8	72.6	56	45.8
7-OS	1240	3260	48.3	46.1	45100	122	67.4	1580	9820	992
7-R	51.9	102	46.1	51.8	114	81.6	99.8	186	126	80.9
8-OS	2830	2750	1680	1640	3330	1910	4090	1790	3230	1840
8-I	4230	1110	NA	ND	ND	ND	877	1180	692	862
8-R	872	181	1660	2600	2440	2650	2220	1890	1740	1980
9-OS	NA	14.6	ND	21.1	9.6	8.7	74.8	34.7	26.2	40.8
9-I	NA	377	NA	NA	NA	NA	40.6	3.2	21.7	9.8
9-R	NA	3270	2320	2280	2540	1890	1660	1830	1650	1460
PW-1	NA	ND	1.2	1.8	ND	3.6	5.4	ND	5.1	15.3
PW-2	NA	ND *	4.7	7.5	6.3	6.6	NA	2.4	8.7	6.1
PW-3	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA
BP-1	NA	NA	4630	NA	NA	NA	NA	NA	NA	NA
BB-1	NA	NA	7.9	11.7	11.1	10.3	8.9	12.5	20.1	12.5
RVWF-1	NA	NA	839	40.2	1710	111	46.5	767	2170	3810
SVWC-93	NA	NA	ND	1.7	NA	72.2	ND	ND	2	0.37
SVWC-94	NA	NA	7.3	ND	NA	NA	6.3	ND	10.4	11.9
SVWC-95	NA	NA	56.4	1.8	ND	NA	91.6	108	273	85.9
SVWC-96	NA	NA	ND	ND	NA	ND	ND	ND	2.1	11.9
Surface Water	Date of Sampling Event									
Sample ID	1/90	9/90	1/93	4/93	9/93	12/93	3/94	6/94	9/94	12/94
SW-1	1120	NA	16.6	107	50.4	29.6	63	83.8	27.4	27
SW-5	19.5	44.5	19.3	27.9	70.8	20.5	23	50.3	65.1	16.4
SW-6	NA	31.9	14.5	23.9	14.4	16.9	19.6	23.5	20.7	12.9
SW-8	NA	153	10.9	28.5	8.6	9.9	17.6	64.3	19.4	25.4

Notes: Concentration reported in µg/L (ppb).

ND - Not detected

NA - Not applicable (e.g. well not installed by this date or if installed, not sampled)

* NYSDOH results from 3/92 sampling.

Exceeded ARAR value of 300 ppb for groundwater.

Exceeded ARAR value of 300 ppb for surface water.

TABLE 6 (Cont.)
RAMAPO LANDFILL
GROUNDWATER, DRINKING WATER, AND SURFACE WATER
MONITORING DATA
ANALYTE: Manganese

Sample ID	Sample Type	Date of Sampling Event									
		3/95	6/95	9/95	12/95	03/96	06/96	09/96	12/96	3/97	6/97
1-OS	Groundwater	2950	2010	4930	3130	2020	NA	4710	NA	2200	NA
1-R	Groundwater	96.9	153	219	137	120	NA	188	NA	200	NA
2-OS	Groundwater	221	982	5570	883	280	NA	NA	NA	18	NA
2-R	Groundwater	94.8	70.2	143	85.5	93.8	NA	653	NA	150	NA
3-OS/I	Groundwater	3590	3270	3860	6090	11900	NA	4880	NA	3000	NA
3-R	Groundwater	11900	10900	12400	9710	11100	NA	13900	NA	12000	NA
4-OS	Groundwater	602	2860	2080	682	636	NA	59.6	NA	140	NA
4-R	Groundwater	1430	1120	1120	1140	1530	NA	1300	NA	1500	NA
5-I	Groundwater	1410	NA	49.5	NA	616	NA	NA	NA	NA	NA
5-OS	Groundwater	NA	248	NA	53.6	NA	NA	77.7	NA	160	NA
5-R	Groundwater	116	21.6	28.6	11.9	7.1	NA	7.8	NA	ND	NA
6-I	Groundwater	19.9	31.3	89.5	51.9	17.7	NA	11.8	NA	25	NA
6-R	Groundwater	17.4	33.4	42.6	50.9	35.3	NA	NA	NA	210	NA
7-OS	Groundwater	1180	NA	NA	56.8	390	NA	43.1	NA	1400	NA
7-I	Groundwater	NA	3500	4910	NA	NA	NA	NA	NA	NA	NA
7-R	Groundwater	69.1	48.8	62.2	34.8	46.4	NA	66.7	NA	35	NA
8-OS	Groundwater	2050	2690	1420	903	2460	3120	679	2200	570	670
8-I	Groundwater	1480	1110	2430	945	1860	3200	2100	3100	1200	1800
8-R	Groundwater	3290	1300	2500	2610	4040	3230	4310	3400	3500	3100
9-OS	Groundwater	32.9	3.9	NA	NA	75.7	70.9	43.3	20	49	170
9-I	Groundwater	40.5	10.9	129	15.9	5.2	13.1	5.6	6	ND	ND
9-R	Groundwater	1590	1790	1810	1070	738	1840	1930	2200	2600	2400
BP-1	Groundwater	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BB-1	Groundwater	10.7	11.2	15.1	11.2	10.7	NA	15.6	NA	NA	NA
RVWF-1	Groundwater	2880	3070	2470	3.7	630	NA	1660	NA	1900	1900
PW-1	Drinking Water	18.1	5.2	83.1	57.7	83.7	25.7	4.4	80	ND	ND
PW-2	Drinking Water	NA	6.1	11.6	7.7	2.6	5	3.8	ND	ND	ND
PW-3	Drinking Water	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SVWC-93	Drinking Water	9.6	0.95	NA	11.9	ND	3.4	2	ND	ND	ND
SVWC-94	Drinking Water	6.7	11.4	NA	ND	3.1	ND	5.3	6	ND	ND
SVWC-95	Drinking Water	29	49.7	NA	22.1	47.4	67.4	26.4	70	82	80
SVWC-96	Drinking Water	1.3	ND	NA	48	ND	ND	10.1	NA	NA	ND
SW-1	Surface Water	39.8	71.6	17.9	36.3	41.8	NA	76.7	NA	36	NA
SW-5	Surface Water	15.4	18.3	75.3	21.8	18.4	NA	117	NA	19	NA
SW-6	Surface Water	12.8	51.9	36.1	14.8	14.7	NA	137	NA	16	NA
SW-8	Surface Water	25.8	80.1	25.5	4.2	10.8	NA	80.6	NA	30	NA

Notes:

Concentration reported in µg/L (ppb).

ND - Not detected

NA - Not applicable (e.g. well not installed by this date or if installed, not sampled)

- Exceeded ARAR value of 300 ppb for groundwater.

- Exceeded ARAR value of 300 ppb for surface water.

TABLE 6 (Cont.)
RAMAPO LANDFILL
GROUNDWATER, DRINKING WATER, AND SURFACE WATER
MONITORING DATA
ANALYTE: Manganese

Sample ID	Sample Type	Date of Sampling Event					
		9/97	12/97	3/98	6/98	9/98	3/99
1-OS	Groundwater	5500	NA	4530	NA	1600	5600
1-R	Groundwater	200	NA	405	NA	289	332
2-OS	Groundwater	650	NA	1060	NA	3320	69.6
2-R	Groundwater	180	NA	248	NA	214	356
3-OS/I	Groundwater	4500	NA	12100	NA	8880	948
3-R	Groundwater	11000	NA	10400	NA	10900	12500
4-OS	Groundwater	940	NA	430	NA	1600	220
4-R	Groundwater	810	NA	1410	NA	319	1100
5-I	Groundwater	20	NA	57.8	NA	18.7	NA
5-OS	Groundwater	NA	NA	NA	NA	NA	88.6
5-R	Groundwater	ND	NA	5.0	NA	2.6	2.6
6-I	Groundwater	250	NA	NA	NA	NA	NA
6-R	Groundwater	60	NA	NA	NA	NA	NA
7-OS	Groundwater	550	NA	2480	NA	2190	211
7-I	Groundwater	NA	NA	NA	NA	NA	NA
7-R	Groundwater	110	NA	90.1	NA	168	157
8-OS	Groundwater	830	570	124	466	2640	119
8-I	Groundwater	910	840	937	692	1500	NA
8-R	Groundwater	2000	1500	2130	2340	952	NA
9-OS	Groundwater	ND	20	28.0	14.7	3.5	28.6
9-I	Groundwater	ND	ND	4.8	11.8	3.6	2.8
9-R	Groundwater	2000	1500	1650	1150	1810	771
BP-1	Groundwater	NA	NA	NA	NA	NA	NA
BB-1	Groundwater	NA	NA	NA	NA	NA	NA
RVWF-1	Groundwater	2100	1800	NA	NA	NA	NA
PW-1	Drinking Water	ND	ND	9.4	0.99	7	1.4
PW-2	Drinking Water	ND	ND	9.1	5.1	0.61	6.6
PW-3	Drinking Water	NA	NA	NA	NA	NA	NA
SVWC-93	Drinking Water	ND	ND	12.8	0.79	3.6	NA
SVWC-94	Drinking Water	10	NA	8.1	5.8	7.6	NA
SVWC-95	Drinking Water	130	NA	58.6	64.4	21	NA
SVWC-96	Drinking Water	ND	ND	ND	NA	22	NA
SW-1	Surface Water	30	NA	NA	NA	NA	NA
SW-5	Surface Water	100	NA	NA	NA	NA	NA
SW-6	Surface Water	20	NA	NA	NA	NA	NA
SW-8	Surface Water	30	NA	NA	NA	NA	NA

Notes:

Concentration reported in µg/L (ppb).

ND - Not detected

NA - Not applicable (e.g. well not installed by this date or if installed, not sampled)

Exceeded ARAR value of 300 ppb for groundwater.
Exceeded ARAR value of 300 ppb for surface water.

TABLE 7
RAMAPO LANDFILL
GROUNDWATER ELEVATIONS

Well ID	Top of Riser Elevation (ft)	Groundwater Elevation (ft)			
		March 99	Sept 98	June 98	Mar 98
1R	379.59	364.27	361.36	362.90	364.08
1OS	379.21	364.11	362.23	---	363.60
2R	422.01	407.69	400.77	404.91	407.11
2I	422.29	408.73	---	406.66	408.71
2OS	422.74	412.92	404.62	409.76	412.68
3R	345.51	333.36	331.51	332.90	332.22
3OS/I	345.77	334.17	332.33	332.96	333.23
4I	453.26	445.66	---	443.81	---
4R	452.84	440.83	436.99	439.18	440.46
4OS	452.42	446.70	444.03	444.96	446.21
5R	584.75	560.26	555.30	559.36	560.54
5OS	584.87	578.72	---	576.65	578.11
5I	584.62	---	565.66	---	574.97
6R	462.75	435.04	---	433.63	436.02
6I	464.00	445.68	---	444.70	445.38
7R	309.35	299.63	291.11	294.24	292.38
7OS	309.43	297.80	292.76	296.48	296.24
8R	320.63	307.39	304.67	306.09	304.28
8I	320.52	306.15	304.39	305.56	305.24
8OS	320.21	306.47	305.96	306.10	306.18
9I	309.42	300.90	293.49	297.31	293.99
9OS	309.55	305.00	297.94	301.39	302.24
9R	309.57	300.06	292.11	296.33	294.51

Elevations are referenced to the National Geodetic Vertical Datum of 1929

TABLE 8

**AIR MONITORING PLAN FOR 1999
RAMAPO LANDFILL**

Well	Bi-Annual Monitoring			Sampling Location	Notes
	LEL	Hydrogen Sulfide	PID		
1-R	❖	❖	❖	In vent riser	
1-OS	❖	❖	❖	In vent riser	
2-R	❖	❖	❖	In vent riser	
2-OS	❖	❖	❖	In vent riser	
3-R	❖	❖	❖	In vent riser	
3-OS/I	❖	❖	❖	In vent riser	
4-R	❖	❖	❖	In vent riser	
4-OS	❖	❖	❖	In vent riser	
5-R	❖	❖	❖	In vent riser	
5-I	❖	❖	❖	In vent riser	
6-R	❖	❖	❖	In vent riser	
6-I	❖	❖	❖	In vent riser	
7-R	❖	❖	❖	In vent riser	
7-OS	❖	❖	❖	In vent riser	
8-I	❖	❖	❖	In vent riser	
8-OS	❖	❖	❖	In vent riser	
9-I	❖	❖	❖	In vent riser	
9-OS	❖	❖	❖	In vent riser	
9-R	❖	❖	❖	In vent riser	
RVWF-1	❖	❖	❖	In vent riser	
Baler Bldg.	❖	❖	❖	Waist high	
Manhole A-5	❖	❖	❖	Inside manhole	
Lift Station A-10	❖	❖	❖	Inside lift station	
Lift Station W-20	❖	❖	❖	Inside lift station	
Landfill Gas Vents	❖	❖	❖	At gooseneck	
Landfill Perimeter	❖	❖	❖	Waist high	1

SYMBOLS:

❖ - Monitoring or sampling point

NOTES:

1 - Sampling points will be spaced approximately 500 feet apart as shown in Figure 2

Table 9
Ramapo Landfill Air Monitoring
Perimeter Monitoring

Monitoring point	Distance from previous point (ft) (See note 1)	Total distance (ft) (clockwise direction)	LEL (%)			H2S (%)			PID (ppm)			Comments
			12/97	3/98	6/98	12/97	3/98	6/98	12/97	3/98	6/98	
L-0	0	0	0	-2	1	0	-1	1	0	0.2	0.66	West corner of fence
L-1	250	250	0	-2	1	0	-1	1	0	0.2	0.49	
L-2	250	500	0	-1	1	0	-1	2	0	0.3	0.31	
L-3	250	750	0	-4	1	0	-1	2	0	0.2	0.64	
L-4	250	1000	1	-5	0	0	-1	2	0	0.3	0.37	
L-5	250	1250	1	-5	0	0	-1	2	0	0.2	0.27	
L-6	250	1500	1	-5	0	0	-1	2	0	0.3	0.17	3 links in from edge before weigh sta.
L-7	250	1750	2	-5	0	0	-1	2	0	0.4	0.15	Near weigh station
L-8	250	2000	2	-5	0	0	-1	2	0	0.2	0.12	
L-9	250	2250	4	-5	0	0	-1	2	0	0.4	0.12	
L-10	250	2500	3	-5	0	0	-1	2	0	0.2	0.02	
L-11	250	2750	3	-5	0	0	-1	3	0	0.4	0.05	
L-12	250	3000	4	-6	0	0	-1	3	0	0.4	0.06	15' south of gate near well cluster 4
L-13	90	3090	0	-6	0	0	-1	3	0	0.3	0.01	North corner of fence
L-14	500	3590	0	-6	0	0	-1	2	0	0.3	0	
L-15	500	4090	0	-6	0	0	-1	3	0	0.01	0.2	At gate (near Baler Building)
L-16	440	4530	0	-6	1	0	-1	3	0	0.2	0.07	East corner of fence
L-17	480	5010	1	-6	1	0	-1	3	0	0.1	0.06	By well cluster 5
L-18	440	5450	0	-6	0	0	-2	3	0	0.01	0.05	By plunge pool
L-19	500	5950	0	-6	0	0	-2	3	0	0.01	0.04	Corner near lower collection pool
L-20	500	6450	0	-6	0	0	-2	3	0	0.01	0.14	
L-21	540	6990	0	-6	0	0	-2	4	0	0.01	0.1	South corner of fence
L-22	250	7240	1	NA	NA	NA	NA	NA	0	NA	NA	
L-23	170	7410	0	NA	NA	NA	NA	NA	0.01	NA	NA	At collection pool

LEGEND:

NA = Not analyzed

L = Landfill perimeter monitoring point

NOTES:

- Landfill perimeter monitoring points are required to be spaced approximately 500' apart (Post-Construction Air Monitoring Plan, December 1997). However, during 1997 and 1998, downwind monitoring points (L-1 through L-13) were spaced 250' apart. This is not a requirement of the Plan. In the future, downwind locations may be spaced 500' apart as stated in the Plan
- Negative values reported during the March 1998 monitoring event are the result of instrument drift.

Table 10
Ramapo Landfill
North Lobe Gas Vents

Gas Vent	LEL (%)					H2S (ppm)					PID (ppm)				
	11/12/97	12/16/97	6/9/98	9/17/98	3/25/99	11/12/97	12/16/97	6/9/98	9/17/98	3/25/99	11/12/97	12/16/97	6/9/98	9/17/98	3/25/99
GV - 1	133	NA	>139	>138	>146	12	NA	13	1	0	NA	NA	2.83	0	0
GV - 2	135	NA	>139	>138	52	14	NA	22	6	0	NA	NA	0.61	0	0
GV - 3	137	NA	0	12	0	15	NA	3	0	0	NA	NA	3.81	0	0
GV - 4	133	NA	>139	>138	>146	12	NA	28	6	0	NA	NA	2.08	0	0
GV - 5	135	NA	>139	63	86	13	NA	15	24	0	NA	NA	13	0	0
GV - 6	140	NA	>139	>138	>146	18	NA	18	0	0	NA	NA	0.83	0	0
GV - 7	137	NA	>139	NA	144	16	NA	13	NA	0	NA	NA	1.22	NA	0
GV - 8	139	117	78	>138	2	16	0	2	0	0	NA	NA	0	0	0
GV - 9	133	NA	>139	>138	>146	12	NA	55	30	0	NA	NA	5	0	0
GV - 10	135	NA	>139	>138	>146	14	NA	71	62	0	NA	NA	NA	0	0
GV - 11	140	NA	>139	23	110	16	NA	>245	0	0	NA	NA	4.48	0	0
GV - 12	142	114	>139	>138	>146	19	70	72	231	0	NA	0	3.98	0	0
GV - 13	142	129	49	>138	3	18	0	3	18	0	NA	0	0.13	0	0
GV - 14	140	NA	>139	>138	0	17	NA	0	4	0	NA	NA	1.04	0	0
GV - 14a	140	NA	25	NA	4	17	NA	1	NA	0	NA	NA	0	NA	0
GV - 15	131	NA	>139	>138	14	11	NA	52	60	0	NA	NA	8.66	0	0
GV - 16	134	NA	>139	>138	>146	13	NA	>245	0	0	NA	NA	6.9	0	0
GV - 17	138	NA	>139	>138	13	17	NA	>245	135	0	NA	NA	1.91	0	0
GV - 18	146	225	>139	>138	133	16	136	>245	62	0	NA	0	6.9	0	0
GV - 19	143	138	>139	>138	>146	18	2	9	0	0	NA	0	2.32	0	0
GV - 20	142	112	1	>138	5	20	12	2	1	0	NA	0	0.16	0	0
GV - 21	141	NA	30	90	3	17	NA	2	23	0	NA	NA	0.05	0	0
GV - 22	130	NA	>139	>138	>146	10	NA	189	45	0	NA	NA	5.86	0	0
GV - 23	134	NA	>139	>138	65	13	NA	>245	39	0	NA	NA	11	0	0
GV - 24	134	NA	>139	>138	>146	14	NA	>245	244	0	NA	NA	5.07	0	0
GV - 25	136	NA	>139	>138	>146	15	NA	32	63	0	NA	NA	6.66	0	0
GV - 26	136	NA	>139	61	>146	16	NA	18	2	0	NA	NA	1.51	0	0
GV - 27	139	3	0	0	0	17	0	2	0	0	NA	0	0.22	0	0
GV - 28	139	NA	NA	21	NA	18	NA	NA	0	NA	NA	NA	0	NA	NA
GV - 29	133	NA	>139	45	>146	12	NA	148	33	0	NA	NA	3.78	0	0
GV - 30	NA	NA	>139	NA	46	NA	NA	>245	NA	0	NA	NA	5.75	NA	0
GV - 31	133	NA	>139	93	43	12	NA	9	9	0	NA	NA	0.37	0	0
GV - 32	NA	NA	>139	NA	10	NA	NA	7	NA	0	NA	NA	2.84	NA	0
GV - 33	137	NA	107	63	0	16	NA	4	0	0	NA	NA	0.33	0	0
GV - 34	139	NA	>139	NA	3	17	NA	4	NA	0	NA	NA	0.53	NA	0
GV - 35	136	NA	17	>138	0	10	NA	4	0	0	NA	NA	0.13	0	0
GV - 36	131	NA	>139	>138	77	11	NA	92	41	0	NA	NA	0.77	0	0
GV - 37	133	NA	0	0	>146	13	NA	5	2	0	NA	NA	0.2	0	0
GV - 38	132	NA	NA	11	0	14	NA	NA	0	0	NA	NA	NA	0	0
GV - 40a	NA	NA	>139	NA	>146	NA	NA	7	NA	0	NA	NA	0.83	NA	0

NOTES:
NA = not analyzed

Table 11
Ramapo Landfill
South Lobe Gas Vents

Gas Vent	LEL (%)					H2S (ppm)					PID (ppm)				
	11/12/97	12/16/97	6/9/98	9/17/98	3/25/99	11/12/97	12/16/97	6/9/98	9/17/98	3/25/99	11/12/97	12/16/97	6/9/98	9/17/98	3/25/99
GV - 39	136	NA	120	>138	1	13	NA	5	7	0	NA	NA	0.41	0	NA
GV - 41	134	NA	>139	>138	34	16	NA	20	70	0	NA	NA	21.93	0	NA
GV - 42	139	NA	>139	>138	20	17	NA	17	3	0	NA	NA	1.27	0	NA
GV - 43	143	112	>139	>138	17	18	4	11	2	0	NA	0.2	3.89	0	NA
GV - 44	136	NA	>139	>138	1	16	NA	6	10	0	NA	NA	0.71	0	NA
GV - 45	137	NA	>139	>138	>146	15	NA	18	234	0	NA	NA	9.87	0	NA
GV - 46	143	143	>139	>138	>146	19	7	14	3	0	NA	0.2	3.18	0	NA
GV - 47	143	136	>139	>138	100	18	29	65	7	1	NA	0	0.83	0	NA
GV - 48	136	NA	39	>138	32	17	NA	5	2	0	NA	NA	0.62	0	NA
GV - 49	137	NA	10	>138	2	16	NA	7	7	0	NA	NA	0.68	0	NA
GV - 50	143	NA	>139	>138	1	18	NA	10	2	0	NA	NA	30.8	0	NA
GV - 51	142	126	>139	>138	>146	18	103	243	2	0	NA	0.3	27.41	0	NA
GV - 52	140	NA	>139	>138	>146	17	NA	7	5	0	NA	NA	9.85	0	NA
GV - 53	138	NA	>139	143	>145	15	NA	7	11	2	NA	NA	2.23	0	NA
GV - 54	140	NA	>139	>138	4	16	NA	10	0	0	NA	NA	3.75	0	NA
GV - 55	142	NA	>139	>138	4	17	NA	6	2	0	NA	NA	7.11	0	NA
GV - 56	142	NA	9	>138	>146	17	NA	6	18	0	NA	NA	0.29	0	NA
GV - 57	134	NA	9	>138	0	14	NA	6	0	0	NA	NA	0.28	0	NA
GV - 58	135	NA	11	0	0	15	NA	6	0	0	NA	NA	0.34	0	NA
GV - 40	135	NA	16	13	1	16	NA	6	11	0	NA	NA	0.16	0	NA

NOTES:

NA = not analyzed