

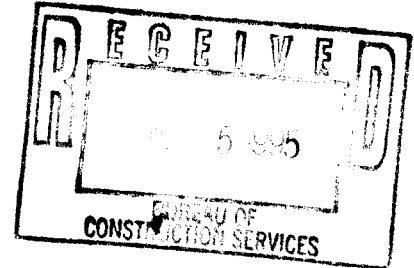
May 30, 1995

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

**RE: RAMAPO LANDFILL REMEDIATION
RESULTS OF FIRST QUARTER MONITORING FOR 1995**



Dear Mr. Yavondetti:

Attached are the results of the first quarter monitoring event for 1995. This sampling is the fifth of eight rounds of sampling included as part of the Remedial Action phase of the Ramapo Landfill Remediation Project. This document provides the validated analytical data for this sampling event as well as historical analytical data tables for the four target compounds, i.e., benzene, chromium, iron, and manganese. Locations sampled are shown in Figure 1. The water level in monitoring well 50S was again too low to sample, therefore, well 5I was sampled in its place. Samples were collected the week of March 20, 1995, and were analyzed for the baseline parameters.

The second quarter monitoring event for 1995 is planned for late June. Please feel free to call if you have any questions or if you wish to discuss.

Sincerely,

URS CONSULTANTS, INC.


James Lanzo
Project Manager

Enc.

cc: Supervisor Reisman - Town of Ramapo
Mr. Gene Ostertag - Town of Ramapo
Mr. Alan Simon - Town of Ramapo
Mr. Robert Nunes - USEPA
Mr. Thomas Micelli - Rockland County Department of Health
Ms. Judy Hunderfund - Rockland County Department of Health
Mr. John Olm - NYSDOH
Ms. Arlene Lapidos - Ramapo Land Company, Inc.
Mr. George Demas - Torne Brook Farm
Mr. Raymond Cywinski - Hackensack Water Company
Mr. Tanyo Parashkevov - Hackensack Water Company
Mr. Michael Barnes, Director of Operations - Spring Valley Water Company
Mr. Craig Flanagan
File: 35314.50

RAMAPO LANDFILL
SAMPLE LOCATIONS

TABLE 1
RAMAPO LANDFILL - MARCH 1995 SAMPLING
GROUNDWATER SAMPLES

Analyte	Concentration (µg/l)*										
	1-OS	1-R	2-OS	2-R	3-OS/l	3-R	4-OS	4-R	5-I	5-R	6-I
Chlorobenzene	—	—	—	—	—	—	—	—	—	—	—
p-Dichlorobenzene	—	—	—	—	—	—	—	—	—	—	—
o-Dichlorobenzene	—	—	—	—	—	—	—	—	—	—	—
Benzene	—	—	—	—	—	—	—	—	—	—	—
2,2'-Oxybis(1-Chloropropane)	—	—	—	—	—	—	—	—	—	—	—
Diethylphthalate	—	—	—	—	—	—	—	2	—	—	—
Carbazole	—	—	—	—	—	—	—	—	—	—	—
bis(2-Ethylhexyl)phthalate	—	1	3	1	—	—	1	3	—	1	—
Aluminum	2330	232	766	173	21600	569	2200	71	35100	6000	62.8
Antimony	9.2	—	—	2.5	3.7	—	—	—	—	—	—
Arsenic	2.4	—	—	—	3.3	—	—	1.8	6.5	1.6	—
Barium	34.3	12.5	17.9	8	181	34.9	33.5	11.2	182	51.8	6.6
Beryllium	0.3	—	—	0.47	1.4	—	0.9	0.33	1.9	0.43	—
Boron	79.7	113	90	15.7	218	111	39.1	67.9	14.9	8.9	12.4
Cadmium	—	1.1	—	0.7	—	1.1	—	—	—	—	—
Calcium	62700	86300	82300	58600	79600	74600	33900	54400	17800	16000	21300
Chromium	727	146	39.7	4.4	144	3.6	21.1	2.5	109	19.9	6.9
Cobalt	4.7	2.1	—	—	26.9	2.9	5.7	3.3	43.4	5.6	—
Copper	15.4	9.1	2.9	5.3	62.5	4.3	9.7	2.1	66.7	17.4	—
Iron	5970	1430	1310	259	54600	1260	6110	5650	56200	11300	172
Lead	1.4	—	1.1	—	8.4	1.7	2.4	—	12	3.4	0.83
Magnesium	14400	15600	14900	11300	26500	23900	13200	18400	17400	6780	5090
Manganese	2950	96.9	221	94.8	3590	11900	602	1430	1410	116	19.9
Nickel	131	218	15.8	3.7	85.5	5.9	13.8	2.6	78.3	21.3	—
Potassium	2220	1350	699	737	6660	1090	1520	1230	7630	1820	864
Selenium	—	—	—	—	—	—	—	—	2.8	—	—
Sodium	63700	16200	7220	6120	37000	45300	33400	12500	6510	4220	4990
Thallium	—	—	—	—	—	3.7	—	—	2.7	—	—
Vanadium	7.8	—	2	—	63.1	—	6.8	—	84	16	—
Zinc	19.9	17.6	11.3	14.6	90.4	8.7	22	9.9	95.5	59.6	8.1

Only detected results reported. * - All concentrations given in µg/l unless otherwise noted.

MADE BY: TSM DATE: 5/21/95
CHKD BY: XXI DATE: 6/1/95

TABLE 1
RAMAPO LANDFILL - MARCH 1995 SAMPLING
GROUNDWATER SAMPLES

Analyte	Concentration (µg/l)*										
	6-R	7-OS	7-R	8-I	8-OS	8-R	9-I	9-OS	9-R	BB-1	RWWF-1
Chlorobenzene	—	—	—	2	—	8	—	—	—	—	—
p-Dichlorobenzene	—	—	—	—	—	2	—	—	—	—	—
o-Dichlorobenzene	—	—	—	—	—	1	—	—	—	—	—
Benzene	—	—	—	—	—	2	—	—	—	—	—
2,2'-Oxybis(1-Chloropropane)	—	—	—	—	—	2	—	—	—	—	—
Diethylphthalate	1	—	—	—	—	—	—	—	—	—	—
Carbazole	—	—	—	—	—	3	—	—	—	—	—
bis(2-Ethylhexyl)phthalate	—	—	—	—	—	—	—	—	—	—	—
Aluminum	86.1	7230	188	200	388	44.1	364	1130	228	43.7	30.8
Antimony	—	9.1	—	—	—	—	—	—	—	—	—
Arsenic	—	2.2	—	2.9	4.5	10	—	—	—	—	—
Barium	9.9	111	18.2	146	92.3	325	9.2	11.9	13.7	0.9	18.2
Beryllium	—	7	—	1.1	0.33	—	—	—	1.2	—	—
Boron	16.2	219	137	338	216	1310	30.6	22.6	67.8	11	149
Cadmium	—	6.1	—	1.5	0.47	—	7.6	—	3.8	—	—
Calcium	27100	46300	46900	52700	43500	114000	7370	7900	17400	19300	29000
Chromium	11.9	324	2.8	8	129	6.3	3.9	6.6	16.9	—	—
Cobalt	—	28.5	—	4.4	3.6	18.3	—	—	—	—	2.1
Copper	4.3	28.4	2	4.8	8.3	2.5	7.6	1.4	7	21.1	15.9
Iron	225	12200	485	24300	13500	24900	788	1340	1080	250	—
Lead	—	6.6	—	1.1	1.4	—	1.3	1.4	1	2.1	0.86
Magnesium	6060	14300	19100	17100	13600	50200	1800	1960	4250	3800	7470
Manganese	17.4	1180	69.1	1480	2050	3290	40.5	32.9	1590	10.7	2880
Nickel	2.5	34.1	5.6	15.3	14.4	54.8	3.4	3.6	14.8	—	4.9
Potassium	1120	11300	1150	26300	17600	113000	604	468	2630	608	2810
Selenium	—	—	—	—	—	—	—	—	—	—	—
Sodium	5700	32700	28300	88400	58400	376000	3850	2360	16500	5040	37900
Thallium	—	—	—	2.5	—	—	—	—	—	—	—
Vanadium	—	21	—	2.4	2.1	1.9	—	2.1	—	—	—
Zinc	9.1	42	18.5	14	14.5	18.1	26.4	13.2	14.7	280	57.4

Only detected results reported. * - All concentrations given in µg/l unless otherwise noted.

MADE BY ISM DATE 5/31/95
CHKD BY KHT DATE 5/1/95

TABLE 1
RAMAPO LANDFILL - MARCH 1995 SAMPLING
DRINKING WATER SAMPLES

Analyte	PW-1	Concentration (µg/l)*				SVWC-96	ARARs** (µg/l)
		SVWC-93	SVWC-94	SVWC-95	SVWC-96		
bis(2-Ethylhexyl)phthalate	—	—	—	—	—	—	50
Aluminum	30.7	20.6	20	48.4	20.7	—	—
Barium	4.9	7.3	11.5	6.5	4.7	—	1000
Beryllium	0.57	—	0.43	—	—	—	3
Boron	28.4	29.4	46.5	26.8	35.6	—	1000
Calcium	10500	20900	26600	14200	15800	—	—
Chromium	0.8	—	—	—	—	—	50
Copper	245	2.4	3.4	10.3	—	—	200
Iron	283	19	—	279	—	—	300
Lead	8.9	—	1	—	0.73	—	15 (1)
Magnesium	2920	4710	6380	3690	4570	—	35000
Manganese	18.1	9.6	6.7	29	1.3	—	300
Nickel	—	5	1.8	—	—	—	—
Potassium	457	870	836	650	463	—	—
Sodium	4040	36000	41500	26800	23000	—	20000
Zinc	363	12	9.9	16.1	11.7	—	300

Only detected results reported.

* - All concentrations given in µg/l unless otherwise noted.

** - Values obtained from Water Quality Regulations for Surface Waters and Groundwaters 6 NYCRR Parts 700-705, September 1, 1991, unless otherwise indicated.

(1) - USEPA action level.

TABLE 1
RAMAPO LANDFILL - MARCH 1995 SAMPLING
SURFACE WATER SAMPLES

Analyte	Concentration (µg/l)*				ARARs** (µg/l)
	SW-1	SW-5	SW-6	SW-8	
Aluminum	103	102	97.1	335	—
Barium	10.9	10.5	9.5	11	1000
Beryllium	—	0.53	0.43	0.4	3
Boron	25.4	13.7	14.5	13.4	1000
Calcium	18200	4100	4150	4720	—
Chromium	—	—	—	0.67	50
Copper	1.4	—	—	—	200
Iron	183	74.4	54	339	300
Lead	—	—	—	1.4	50
Magnesium	4390	943	985	1130	35000
Manganese	39.8	15.4	12.8	25.8	300
Potassium	928	230	228	267	—
Sodium	28300	2120	2150	2300	—
Zinc	7.8	13.1	14.5	15	300

Only detected results reported.

* - All concentrations given in µg/l unless otherwise noted.

** - Values obtained from Water Quality Regulations for Surface Waters and Groundwaters 6 NYCRR Parts 700-705, September 1, 1991, unless otherwise indicated.

TABLE 2
RAMAPO LANDFILL - MARCH 1995 SAMPLING
GROUNDWATER SAMPLES

Analyte	Concentration (mg/l)*										
	1-OS	1-R	2-OS	2-R	3-OS/I	3-R	4-OS	4-R	5-I	5-R	6-I
BOD5	< 4	< 2	< 2	< 2	< 2	< 2	< 2	2	< 2	< 2	< 2
Chloride	62	42	14	15	17	44	60	32	8	3	15
COD	72	103	21	24	< 15	41	< 15	< 15	< 15	21	16
Color (units)	70	5	10	5	100	20	50	40	50	40	< 5
Hexavalent Chromium	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Total Hardness	216	280	267	193	308	285	139	211	116	67.8	74.1
Ammonia	0.10	< 0.02	< 0.02	0.02	0.02	0.04	0.02	0.09	0.02	< 0.02	< 0.02
Nitrate	0.5	0.6	0.4	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.3	0.3	0.1
Total Phenols (µg/l)	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Sulfate	14.8	25.2	14.6	15.5	12.2	17	54.8	17.7	< 5	7.1	9.5
Total Alkalinity	262	253	244	155	261	307	66.1	169	36.1	44.9	42.5
Total Dissolved Solids	425	406	329	224	391	437	291	283	74	92	112
Total Kjeldahl Nitrogen	< 0.2	< 0.2	0.3	0.2	0.3	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	0.4
Total Organic Carbon	7.7	6.7	8	2.6	5.7	8.1	3.1	5.3	1	1.2	2.1
Turbidity (units)	53	6	11	4.5	52	6	38	25	77	50	1.5

Only detected results reported. * - All concentrations given in mg/l unless otherwise noted.

MADE BY JSM DATE 5/17/95
CHKD BY KHT DATE 5/17/95

TABLE 2
RAMAPO LANDFILL - MARCH 1995 SAMPLING
GROUNDWATER SAMPLES

Analyte	Concentration (mg/l)*										RWVF-1
	6-R	7-OS	7-R	8-I	8-OS	8-R	9-I	9-OS	9-R	BB-1	
BOD5	< 2	< 2	8	10	31	18	< 2	< 2	5	< 2	< 2
Chloride	14	46	36	129	89	580	2	< 2	10	2	45
COD	< 15	35	19	35	38	170	24	< 15	< 15	< 15	< 15
Color (units)	< 5	70	5	100	60	150	5	10	5	< 5	< 1
Hexavalent Chromium	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Total Hardness	92.6	174	195	202	164	490	18.4	19.7	43.5	63.9	103
Ammonia	0.02	0.04	0.03	19.5	9.8	95	0.05	< 0.02	0.21	< 0.02	3
Nitrate	0.1	5.6	3.4	0.2	1.8	0.3	0.5	0.9	2.1	< 0.1	0.3
Total Phenols (ug/l)	< 1	< 1	< 1	17.2	4.5	17	< 1	< 1	< 1	< 1	1.5
Sulfate	12.9	26.9	31.1	33.8	19.9	31	6.5	6.2	8.2	9.8	9.4
Total Alkalinity	58.1	138	145	277	35.4	34.9	36.1	34.3	70.3	52.6	36.4
Total Dissolved Solids	130	315	308	516	381	1690	54	53	134	94	235
Total Kjeldahl Nitrogen	0.2	< 0.2	< 0.2	22	11.4	140	< 0.2	< 0.2	2.3	0.2	3.2
Total Organic Carbon	4.7	4.2	3.9	7.8	7.9	41.3	5.2	1.8	4.1	< 1	6.3
Turbidity (units)	2	45	5.8	54	10	60	13	6	5.2	2	< 1

Only detected results reported. * - All concentrations given in mg/l unless otherwise noted.

MADE BY DM DATE 5/11/95
CHKD BY RH-7 DATE 5/13/95

TABLE 2
RAMAPO LANDFILL - MARCH 1995 SAMPLING
DRINKING WATER SAMPLES

Analyte	Concentration (mg/l)*					ARARs** (mg/l)
	PW-1	SVWC-93	SVWC-94	SVWC-95	SVWC-96	
BOD5	< 2	< 2	< 2	< 2	< 2	—
Chloride	5	64	75	33	40	250000
COD	38	< 15	< 15	19	< 15	—
Color (units)	< 1	< 1	< 1	< 1	< 1	—
Hexavalent Chromium	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	—
Total Hardness	26.4	52.3	92.6	0	39.4	—
Ammonia	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	2000
Nitrate	0.7	1	1	0.8	0.6	10000
Total Phenols (ug/l)	< 1	< 1	< 1	< 1	< 1	—
Sulfate	6.9	12.3	12.2	8.3	11.1	250000
Total Alkalinity	35.3	33.9	42.3	44.1	41	—
Total Dissolved Solids	81	199	242	151	146	500000
Total Kjeldahl Nitrogen	< 0.2	0.2	< 0.2	< 0.2	< 0.2	—
Total Organic Carbon	1.2	1.3	2.4	2	2	—
Turbidity (units)	< 1	< 1	< 1	2	< 1	—

Only detected results reported.

* - All concentrations given in mg/l unless otherwise noted.

** - NYSDEC Water Quality Standards and Guidance Values, TOGS 1.1.1, October 1993, Table 1.

MADE BY 5/10/95 DATE 5/10/95
CHKD BY 5/10/95 DATE 5/10/95

TABLE 2
RAMAPO LANDFILL - MARCH 1995 SAMPLING
SURFACE WATER SAMPLES

Analyte	Concentration (mg/l)*				ARARs** (mg/l)
	SW-1	SW-5	SW-6	SW-8	
BOD5	< 2	< 2	< 2	< 2	—
Chloride	50	4	4	8	250000
COD	< 15	< 15	< 15	< 15	—
Color (units)	5	< 5	< 5	< 5	—
Hexavalent Chromium	< 0.02	< 0.02	< 0.02	< 0.02	—
Total Hardness	63.6	14.1	24.8	16.4	—
Ammonia	0.03	< 0.02	0.02	< 0.02	2000
Nitrate	0.5	< 0.1	< 0.1	< 0.1	10000
Total Phenols (µg/l)	2	< 1	< 1	1.7	—
Sulfate	11.7	8.2	7.7	7.6	250000
Total Alkalinity	34.5	5.4	5.6	6.5	—
Total Dissolved Solids	139	36	34	35	500000
Total Kjeldahl Nitrogen	0.3	0.4	< 0.2	< 0.2	—
Total Organic Carbon	4.5	1.3	1.6	1.8	—
Turbidity (units)	1.2	< 1	< 1	< 1	—

Only detected results reported.

* - All concentrations given in mg/l unless otherwise noted.

** - NYSDEC Water Quality Standards and Guidance Values, TOGS 1.1.1, October 1993, Table 1.

MADE BY JSM DATE 5/31/95
CHKD BY ZAT DATE 5/31/95

TABLE 3
RAMAPO LANDFILL
GROUNDWATER 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-I	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND
5-OS	2.0	ND	ND	ND	NA	NA	NA	ND	NA	NA
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-I	2.0	2.9	NA	ND	ND	ND	ND	ND	ND	2.0
8-OS	2.0	0.3	ND	ND	ND	ND	ND	ND	ND	ND
8-R	3.0	0.4	ND	0.9	ND	ND	ND	ND	ND	ND
9-I	NA	0.2	NA	NA	NA	NA	ND	ND	ND	ND
9-OS	NA	ND	ND	ND	ND	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										
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	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 0.7 ppb for groundwater.

TABLE 3 (Cont.)

**RAMAPO LANDFILL
MONITORING DATA
COMPOUND: Benzene**

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

- Exceeded ARAR value of 0.7 ppb for groundwater.

TABLE 4
RAMAPO LANDFILL
GROUNDWATER AND SURFACE WATER
MONITORING DATA
COMPOUND: Chromium

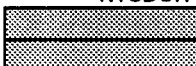
Sample ID	Date of Sampling Event									
	1/90	9/90	1/93	4/93	9/93	12/93	3/94	6/94	9/94	12/94
1-OS	153	57.3	8	ND	60.0	257.0	65.5	7.2	284	134
1-R	39.7	17.5	ND	ND	64.9	46.8	10.3	ND	39.3	58.3
2-OS	180	141	NA	ND	50.2	95.9	11.8	89.3	45.9	25.1
2-R	16.1	5.5	NA	ND	14.8	6.1	ND	5.1	8.3	4.9
3-OS/I	587	1290	807	40.4	1350	1100	784	304	581	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-I	NA	NA	NA	NA	NA	80	30.2	7.2	40	63.1
5-OS	90	35.6	48.8	ND	NA	NA	NA	NA	NA	NA
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-I	215	32.5	NA	ND	ND	ND	29	17	12.8	8.4
8-OS	34.8	16.7	ND	ND	ND	7.6	86.6	28.7	13.2	4.2
8-R	20	23.1	9.9	ND	17.7	18.2	7.5	17.0	10.4	6.8
9-I	NA	8.1	NA	NA	NA	NA	28	ND	2.4	5.8
9-OS	NA	6.8	ND	ND	ND	ND	22.9	27.1	14.8	2.9
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
MONITORING DATA
COMPOUND: Chromium**

Sample ID	Sample Type	Date of Sampling Event
		3/95
1-OS	Groundwater	727
1-R	Groundwater	146
2-OS	Groundwater	39.7
2-R	Groundwater	4.4
3-OS/I	Groundwater	144
3-R	Groundwater	3.6
4-OS	Groundwater	21.1
4-R	Groundwater	2.5
5-I	Groundwater	109
5-OS	Groundwater	NA
5-R	Groundwater	19.9
6-I	Groundwater	6.9
6-R	Groundwater	11.9
7-OS	Groundwater	324
7-R	Groundwater	2.8
8-I	Groundwater	8
8-OS	Groundwater	129
8-R	Groundwater	6.3
9-I	Groundwater	3.9
9-OS	Groundwater	6.6
9-R	Groundwater	16.9
BP-1	Groundwater	NA
BB-1	Groundwater	ND
RVWF-1	Groundwater	ND
PW-1	Drinking Water	0.8
PW-2	Drinking Water	NA
PW-3	Drinking Water	NA
SVWC-93	Drinking Water	ND
SVWC-94	Drinking Water	ND
SVWC-95	Drinking Water	ND
SVWC-96	Drinking Water	ND
SW-1	Surface Water	ND
SW-5	Surface Water	ND
SW-6	Surface Water	ND
SW-8	Surface Water	0.67

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.

TABLE 5
RAMAPO LANDFILL
GROUNDWATER AND SURFACE WATER
MONITORING DATA
COMPOUND: 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	684	32300	162000	12200	69.6	4950	47700
1-R	1180	2650	395	197	1940	1210	186	70600	830	1710
2-OS	912	41600	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-I	NA	NA	NA	NA	NA	2030	2080	2380	6990	30700
5-OS	27000	11200	11100	4700	NA	NA	NA	NA	NA	NA
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-I	15700	30500	NA	ND	ND	ND	22300	41200	24200	18200
8-OS	229000	43800	3230	2080	6180	12000	20300	6240	7490	6740
8-R	1360	2940	11600	2590	9160	4710	2510	11100	22000	10200
9-I	NA	145	NA	NA	NA	NA	2040	62.3	84	260
9-OS	NA	249	50.7	1200	383	393	2210	1040	1020	1490
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	387	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
MONITORING DATA
COMPOUND: Iron**

Sample ID	Sample Type	Date of Sampling Event
		3/95
1-OS	Groundwater	5970
1-R	Groundwater	1430
2-OS	Groundwater	1310
2-R	Groundwater	259
3-OS/I	Groundwater	54600
3-R	Groundwater	1260
4-OS	Groundwater	6110
4-R	Groundwater	5650
5-I	Groundwater	56200
5-OS	Groundwater	NA
5-R	Groundwater	11300
6-I	Groundwater	172
6-R	Groundwater	225
7-OS	Groundwater	12200
7-R	Groundwater	485
8-I	Groundwater	24300
8-OS	Groundwater	13500
8-R	Groundwater	24900
9-I	Groundwater	786
9-OS	Groundwater	1340
9-R	Groundwater	1080
BP-1	Groundwater	NA
BB-1	Groundwater	250
RWWF-1	Groundwater	ND
PW-1	Drinking Water	283
PW-2	Drinking Water	NA
PW-3	Drinking Water	NA
SVWC-93	Drinking Water	19
SVWC-94	Drinking Water	ND
SVWC-95	Drinking Water	279
SVWC-96	Drinking Water	ND
SW-1	Surface Water	183
SW-5	Surface Water	74.4
SW-6	Surface Water	54
SW-8	Surface Water	339

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 AND SURFACE WATER
MONITORING DATA
COMPOUND: 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	6700	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	2060	895	598	2850	3050	1130
4-R	1730	1520	1660	1890	1160	1230	1460	1350	1210	1180
5-I	NA	NA	NA	NA	NA	52.8	40.6	215	221	474
5-OS	981	530	192	43.2	NA	NA	NA	NA	NA	NA
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-I	4230	1110	NA	ND	ND	ND	877	1180	692	862
8-OS	2830	2750	1680	1640	3330	1910	4090	1790	3230	1840
8-R	872	181	1660	2600	2440	2650	2220	1890	1740	1980
9-I	NA	377	NA	NA	NA	NA	40.6	3.2	21.7	9.8
9-OS	NA	14.6	ND	21.1	9.6	8.7	74.8	34.7	26.2	40.8
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
SWWC-93	NA	NA	ND	1.7	NA	72.2	ND	ND	2	0.37
SWWC-94	NA	NA	7.3	ND	NA	NA	6.3	ND	10.4	11.9
SWWC-95	NA	NA	56.4	1.8	ND	NA	91.6	108	273	85.9
SWWC-96	NA	NA	ND	ND	NA	ND	ND	ND	2.1	11.9
Surface Water										
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
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.

TABLE 6 (Cont.)
RAMAPO LANDFILL
MONITORING DATA
COMPOUND: Manganese

Sample ID	Sample Type	Date of Sampling Event
		3/95
1-OS	Groundwater	2950
1-R	Groundwater	96.9
2-OS	Groundwater	221
2-R	Groundwater	94.8
3-OS/I	Groundwater	3590
3-R	Groundwater	11900
4-OS	Groundwater	602
4-R	Groundwater	1430
5-I	Groundwater	1410
5-OS	Groundwater	NA
5-R	Groundwater	116
6-I	Groundwater	19.9
6-R	Groundwater	17.4
7-OS	Groundwater	1160
7-R	Groundwater	69.1
8-I	Groundwater	1480
8-OS	Groundwater	2050
8-R	Groundwater	3290
9-I	Groundwater	40.5
9-OS	Groundwater	32.9
9-R	Groundwater	1590
BP-1	Groundwater	NA
BB-1	Groundwater	10.7
RVWF-1	Groundwater	2680
PW-1	Drinking Water	18.1
PW-2	Drinking Water	NA
PW-3	Drinking Water	NA
SVWC-93	Drinking Water	9.6
SVWC-94	Drinking Water	6.7
SVWC-95	Drinking Water	29
SVWC-96	Drinking Water	1.3
SW-1	Surface Water	39.8
SW-5	Surface Water	15.4
SW-6	Surface Water	12.8
SW-8	Surface Water	25.8

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.