



AN INTERNATIONAL PROFESSIONAL SERVICES ORGANIZATION

May 20, 1996

URS CONSULTANTS, INC.
282 DELAWARE AVENUE
BUFFALO, NEW YORK 14202-1805
(716) 856-5636
FAX: (716) 856-2545

ATLANTA
BOSTON
BUFFALO
CLEVELAND
COLUMBUS
DENVER
NEW YORK
PARAMUS, NJ
NEW ORLEANS
SAN FRANCISCO
SAN MATEO
SEATTLE
VIRGINIA BEACH
WASHINGTON, D.C.

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 FIRST QUARTER MONITORING FOR 1996**

Dear Mr. Yavonditte:

Attached are the results of the first quarter monitoring event for 1996. This sampling event was the first for 1996 in support 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. Samples were collected the week of March 18, 1996, and were analyzed for the baseline parameters.

The second quarter monitoring event for 1996 is planned for the week of June 17, 1996. Please feel free to call if you have any questions or wish to discuss.

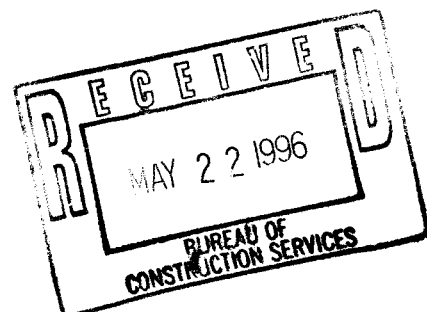
Sincerely,

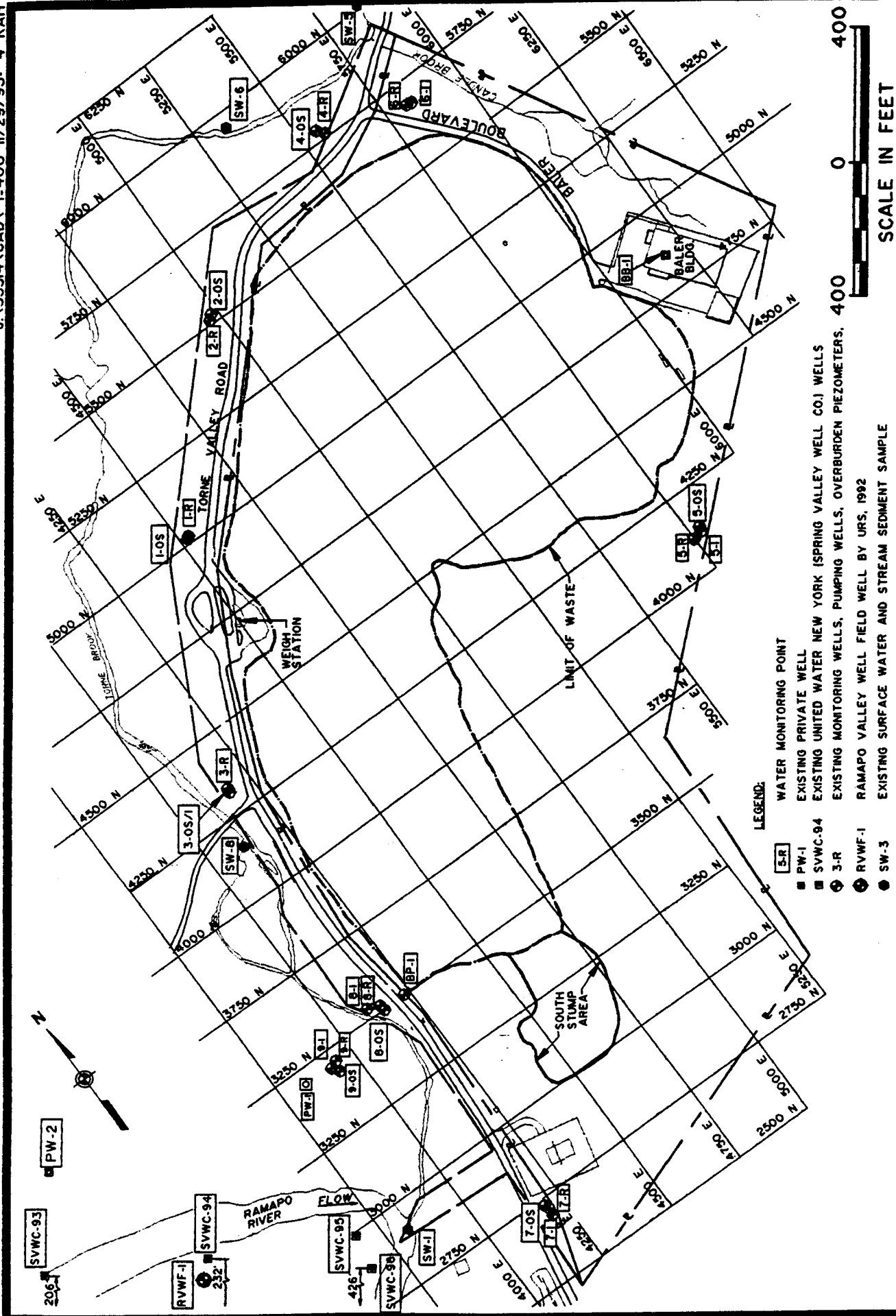
URS CONSULTANTS, INC.

James Lanzo, P.E.
Project Manager

Enclosure

cc: Supervisor Reisman - Town of Ramapo
Mr. Gene Kolman - 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. Geoff Laccetti - NYSDOH
Ms. Arlene Lapidos - Ramapo Land Company, Inc.
Mr. George Demas - Torne Brook Farm
Mr. Raymond Cywinski - United Water New Jersey
Mr. Tanyo Parashkevov - United Water New Jersey
Mr. James Schneider, Supervisor of Pumping - United Water New York
Mr. Craig Flanagan
Ms. Kathleen McCue - NYSDEC
File: 05-35314.50 (C-3 and AD-2)





RAMAPO LANDFILL SAMPLE LOCATIONS

URS
CONSULTANTS, INC.

FIGURE 1

TABLE 1
RAMAPO LANDFILL - MARCH 1996 SAMPLING
GROUNDWATER SAMPLES

Analyte	Concentration (µg/l)*										
	1-OS	1-R	2-OS	2-R	3-OS/I	3-R	4-OS	4-R	5-OS	5-R	6-I
Chlorobenzene	—	—	—	—	—	—	—	—	—	—	—
p-Dichlorobenzene	—	—	—	—	—	—	—	—	—	—	—
Benzene	—	—	—	—	—	—	—	—	—	—	—
1,4-Dichlorobenzene	—	—	—	—	—	—	—	—	—	—	—
bis(2-Ethylhexyl)phthalate	—	—	—	—	—	—	—	—	—	—	—
Aluminum	9120	1550	947	145	3720	258	2610	46.4	42300	255	361
Arsenic	4.5	—	—	—	—	—	2.8	—	5.1	—	—
Barium	89.6	23.5	20.4	8.7	83.9	33.5	39.1	10.8	215	8.5	16.3
Beryllium	1.3	0.47	—	—	0.43	—	—	—	2.3	—	—
Cadmium	1	0.93	0.73	—	—	—	0.53	0.97	—	0.50	—
Calcium	56900	84600	78000	57000	162000	73900	31100	50100	14100	12000	26400
Chromium	127	133	83.6	—	372	—	11.0	—	216	10.1	6.3
Cobalt	13.1	3.2	2.9	—	5.8	2.8	5.8	3.1	28.4	—	—
Copper	34.7	18.7	5.6	3.2	12.8	5	10.4	—	67.4	2.3	2.5
Iron	21700	3240	1770	189	7750	1060	7470	4910	60000	434	507
Lead	4.1	—	1.5	—	2.5	—	1.7	—	8.9	—	—
Magnesium	17600	17000	15100	12400	36000	25500	14200	19000	13300	4730	5750
Manganese	2020	120	280	93.8	11900	11100	636	1530	616	7.1	17.7
Nickel	69.4	285	37.6	—	72.7	9.5	12.1	—	108	4.6	3.4
Potassium	3200	1750	767	722	3360	1070	1180	951	7370	458	1850
Silver	—	—	—	—	1	1.3	—	—	—	—	—
Sodium	20500	15100	4620	4690	58600	40900	33500	10400	5720	2670	10700
Thallium	3.6	—	—	—	—	—	—	—	5.1	—	—
Vanadium	26.4	4.2	2.6	—	8.9	—	8.3	—	107	4.2	—
Zinc	70.4	32.2	31.8	13.8	55	22	36.7	19.3	106	17.1	26.4
Boron	152	135	103	22.2	108	113	37.8	75.9	24.2	7.7	40.3

Only detected results reported.

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

TABLE 1
RAMAPO LANDFILL - MARCH 1996 SAMPLING
GROUNDWATER SAMPLES

Analyte	Concentration (µg/l)*										
	6-R	7-OS	7-R	8-OS	8-I	8-R	9-I	9-OS	9-R	BB-1	RVWF-1
Chlorobenzene	—	—	—	—	4	—	—	—	—	—	—
p-Dichlorobenzene	—	—	—	—	1	—	—	—	—	—	—
Benzene	—	—	—	—	1	—	—	—	—	—	—
1,4-Dichlorobenzene	—	—	—	—	2	—	—	—	—	—	—
bis(2-Ethylhexyl)phthalate	—	—	—	—	—	—	—	—	—	4	—
Aluminum	328	9420	142	1670	4760	94.6	138	1460	152	—	34.5
Arsenic	—	—	—	—	10.6	24.9	—	—	—	—	—
Barium	13.7	82.4	14.1	117	220	133	4.7	16.4	11.6	—	10.4
Beryllium	—	1	—	—	0.53	0.6	—	—	—	—	—
Cadmium	—	—	—	—	—	1.1	1.5	0.67	11.5	—	—
Calcium	25200	43100	41400	133000	87200	115000	7400	7130	5680	15400	15100
Chromium	145	125	—	62.2	12.3	6.7	8.1	9.8	43.8	—	—
Cobalt	—	8.9	10.1	4.5	21.1	25.4	—	—	—	—	—
Copper	4.4	21.7	1.2	18	15.1	5.7	—	2	4.3	36.3	—
Iron	849	11400	363	4870	27300	18400	232	2330	2060	262	—
Lead	—	7.2	—	2.1	—	—	—	—	—	—	—
Magnesium	6830	9130	19800	34500	44400	38000	2100	2540	1850	3910	4550
Manganese	35.3	390	46.4	2460	1860	4040	5.2	75.7	738	10.7	630
Nickel	24.9	57.5	—	33.4	46.6	31.1	—	—	15.9	—	—
Potassium	836	3390	1020	13700	105000	43300	270	702	2860	399	1490
Silver	—	—	—	—	—	—	—	—	—	—	—
Sodium	4270	9500	20100	92700	238000	118000	887	791	4440	3200	14800
Thallium	—	4.5	4	—	—	—	3.2	5.1	—	—	—
Vanadium	3.3	17.9	—	4.9	14.7	3.2	—	2.8	—	—	—
Zinc	15.1	45.8	13.1	35.8	29.2	31.6	26.8	10.8	27.3	277	14.7
Boron	39.2	67.5	121	325	1140	492	11.2	25.4	27.7	12.7	58.2

Only detected results reported.

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

TABLE 1
RAMAPO LANDFILL - MARCH 1996 SAMPLING
DRINKING WATER SAMPLES

Analyte	Concentration (µg/l)*						ARARs** (µg/l)
	PW-1	PW-2	SVWC-93	SVWC-94	SVWC-95	SVWC-96	
Chlorobenzene	—	—	—	—	—	—	5 (2)
p-Dichlorobenzene	—	—	—	—	—	—	4.7
Benzene	—	—	—	—	—	—	0.7
1,4-Dichlorobenzene	—	—	—	—	—	—	—
bis(2-Ethylhexyl)phthalate	—	—	—	—	—	3	—
Aluminum	—	36.2	48	—	—	39.9	—
Arsenic	—	—	—	—	—	—	25
Barium	6.3	2	7.7	10.6	7.8	5.6	—
Beryllium	—	—	—	—	—	—	—
Cadmium	—	—	—	—	—	—	10
Calcium	12700	41700	21900	24100	19800	16000	—
Chromium	—	—	—	—	—	—	50
Cobalt	—	—	—	—	—	—	—
Copper	93	3.5	—	—	—	—	200
Iron	53.9	—	—	—	—	—	300
Lead	—	—	—	—	—	—	15 (1)
Magnesium	4080	5370	6100	6950	6220	5510	35000
Manganese	83.7	2.6	—	3.1	47.4	—	300
Nickel	—	—	—	—	—	—	—
Potassium	617	718	872	798	784	563	—
Silver	—	—	—	—	—	—	—
Sodium	3700	7270	32400	37200	32100	26600	20000
Thallium	—	3	—	3.2	—	—	—
Vanadium	—	—	—	—	—	—	—
Zinc	75.4	48.4	5.8	9.1	12.5	9.3	300
Boron	53.5	24.6	31.4	33.6	50	70.5	—

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.

(2) - Value obtained from Chapter 1-New York State Sanitary Code, Subpart 5-1, Principal Organic Contaminants.

TABLE 1
RAMAPO LANDFILL - MARCH 1996 SAMPLING
SURFACE WATER SAMPLES

Analyte	Concentration (µg/l)*				ARARs** (µg/l)
	SW-1	SW-5	SW-6	SW-8	
Chlorobenzene	—	—	—	—	20
p-Dichlorobenzene	—	—	—	—	
Benzene	—	—	—	—	0.7
1,4-Dichlorobenzene	NA	NA	NA	NA	
bis(2-Ethylhexyl)phthalate	NA	NA	NA	NA	
Aluminum	207	146	138	130	
Arsenic	—	—	—	—	50
Barium	13.2	13.1	12.1	11.5	
Beryllium	—	0.4	—	—	
Cadmium	—	—	—	—	10
Calcium	12300	3060	3080	3350	
Chromium	—	—	—	—	50
Cobalt	—	—	—	—	
Copper	2.6	—	1.3	—	200
Iron	231	25.4	43.5	29.4	300
Lead	—	—	—	—	50
Magnesium	3270	856	899	967	35000
Manganese	41.8	18.4	14.7	10.8	300
Nickel	—	—	—	—	1.3E-07 ***
Potassium	480	176	167	186	—
Silver	—	—	—	—	—
Sodium	24200	1090	1150	1170	—
Thallium	—	—	—	—	
Vanadium	—	—	—	—	
Zinc	13.9	10.1	17.8	16.1	300
Boron	25.9	17.5	22.8	25.5	

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.

*** - Values obtained from the Clean Water Act.

TABLE 2
RAMAPO LANDFILL - MARCH 1996 SAMPLING
GROUNDWATER SAMPLES

Analyte	Concentration (mg/l)*										
	1-OS	1-R	2-OS	2-R	3-OS/l	3-R	4-OS	4-R	5-OS	5-R	6-I
Color (UNITS)	20	5	<5	<5	20	5	20	50	50	<5	10
COD	<15	<15	<15	<15	44	<15	<15	<15	<15	<15	<15
Total Hardness	196	310	232	180	<5	36	140	192	80	52	64
TKN	0.5	0.6	0.5	0.6	1.1	0.8	0.5	0.5	0.4	0.5	0.8
Total Alkalinity	180	225	235	170	305	295	72	165	33	44	66
Total Dissolved Solids	296	361	300	241	855	479	303	324	93	122	180
Total Organic Carbon	2.1	2.7	2.2	1.8	11.4	7.2	3.1	1.3	1.0	1.2	6.2
Turbidity (UNITS)	12	5.1	7.4	1.3	8.7	2.3	11	25	49	4.0	5.4

Only detected results reported.

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

TABLE 2
RAMAPO LANDFILL - MARCH 1996 SAMPLING
GROUNDWATER SAMPLES

Analyte	Concentration (mg/l)*										RVWF-1
	6-R	7-OS	7-R	8-I	8-OS	8-R	9-I	9-OS	9-R	BB-1	
Color (UNITS)	5	20.0	5	70	10	60	20	<5	40	10.0	5.0
COD	<15	<15.0	<15.0	243	<15	162	<15	<15	<15	<15	<15
Total Hardness	92	140	180	384	428	372	44	36	36	60	56
TKN	0.4	0.9	0.6	124	10.8	52	0.6	0.7	1	0.5	0.6
Total Alkalinity	56	60	113	780	355	440	29	18	20	51	43
Total Dissolved Solids	156	216	330	1330	879	928	50	44	88	99	142
Total Organic Carbon	1.9	4.7	3.5	51.5	17.3	19.9	1.2	1.1	4	<1.0	1.8
Turbidity (UNITS)	3.8	5.6	1.8	24	2.9	22	3.3	0.9	3.5	2.6	<1.0

Only detected results reported.

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

TABLE 2
RAMAPO LANDFILL - MARCH 1996 SAMPLING
DRINKING WATER SAMPLES

Analyte	Concentration (mg/l)*						ARARs** (mg/l)
	PW-1	PW-2	SWWC-93	SWWC-94	SWWC-95	SVWC-96	
Color (UNITS)	<5	<5	<5	<5	5	<5	—
COD	<15	<15	77	<15	<15	<15	—
Total Hardness	52	120	72	88	76	64	—
TKN	0.5	0.3	0.2	0.4	0.6	0.5	—
Total Alkalinity	28	69	27	43	44	27	—
Total Dissolved Solids	106	235	236	249	210	193	500
Total Organic Carbon	1.7	<1.0	1.0	1.1	1.5	1.5	—
Turbidity (UNITS)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	—

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.

TABLE 2
RAMAPO LANDFILL - MARCH 1996 SAMPLING
SURFACE WATER SAMPLES

Analyte	Concentration (mg/l)*				ARARs** (mg/l)
	SW-1	SW-5	SW-6	SW-8	
Color (UNITS)	10	<5	5	5	—
COD	<15	<15	<15	<15	—
Total Hardness	56	24	16	20	—
TKN	0.6	0.2	0.2	0.2	—
Total Alkalinity	22	6	6	8	—
Total Dissolved Solids	168	43	42	41	500
Total Organic Carbon	3.4	3.0	3.9	2.4	—
Turbidity (UNITS)	2.7	<1.0	<1.0	<1.0	—

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.

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-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
RWWF-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	6/95	9/95	12/95	03/96
1-OS	Groundwater	ND	ND	NA	ND	ND
1-R	Groundwater	ND	ND	ND	ND	ND
2-OS	Groundwater	ND	ND	NA	ND	ND
2-R	Groundwater	ND	ND	NA	ND	ND
3-OS/I	Groundwater	ND	ND	NA	ND	ND
3-R	Groundwater	ND	ND	NA	ND	ND
4-OS	Groundwater	ND	ND	NA	ND	ND
4-R	Groundwater	ND	ND	ND	ND	ND
5-OS	Groundwater	NA	ND	NA	NA	ND
5-I	Groundwater	ND	NA	NA	ND	NA
5-R	Groundwater	ND	ND	NA	ND	ND
6-I	Groundwater	ND	ND	NA	ND	ND
6-R	Groundwater	ND	0.5	ND	ND	ND
7-OS	Groundwater	ND	NA	NA	ND	ND
7-I	Groundwater	NA	ND	NA	NA	NA
7-R	Groundwater	ND	ND	NA	ND	ND
8-OS	Groundwater	ND	ND	ND	ND	ND
8-I	Groundwater	ND	ND	ND	1.2	1
8-R	Groundwater	2	0.9	ND	0.65	ND
9-OS	Groundwater	ND	ND	ND	NA	ND
9-I	Groundwater	ND	ND	ND	ND	ND
9-R	Groundwater	ND	ND	ND	ND	ND
BP-1	Groundwater	NA	NA	NA	NA	NA
BB-1	Groundwater	ND	ND	NA	ND	ND
RWWF-1	Groundwater	ND	ND	ND	ND	ND
PW-1	Drinking Water	ND	ND	ND	ND	ND
PW-2	Drinking Water	NA	0.5	ND	ND	ND
PW-3	Drinking Water	NA	NA	NA	NA	NA
SVWC-93	Drinking Water	ND	ND	ND	ND	ND
SVWC-94	Drinking Water	ND	ND	ND	ND	ND
SVWC-95	Drinking Water	ND	ND	ND	ND	ND
SVWC-96	Drinking Water	ND	ND	ND	ND	ND
SW-1	Surface Water	ND	ND	NA	ND	ND
SW-5	Surface Water	ND	ND	NA	ND	ND
SW-6	Surface Water	ND	ND	NA	ND	ND
SW-8	Surface Water	ND	ND	NA	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)

 - Exceeded ARAR value of 0.7 ppb for groundwater.

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

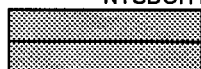
Sample ID	Date of Sampling Event									
	1/90	9/90	1/93	4/93	9/93	12/93	3/94	6/94	9/94	12/94
1-OS	153	57.3	8	ND	60.0	257.0	65.5	7.2	284	134
1-R	39.7	17.5	ND	ND	84.9	46.8	10.3	ND	39.3	58.3
2-OS	180	141	NA	ND	50.2	95.9	11.8	89.3	45.9	25.1
2-R	16.1	5.5	NA	ND	14.8	6.1	ND	5.1	8.3	4.9
3-OS/I	587	1290	807	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	66.6	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
MONITORING DATA
COMPOUND: Chromium

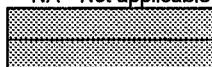
Sample ID	Sample Type	Date of Sampling Event				
		3/95	6/95	9/95	12/95	03/96
1-OS	Groundwater	727	17	102	70.5	127
1-R	Groundwater	140	49.5	136	42.8	133
2-OS	Groundwater	39.7	34.1	137	50.3	63.6
2-R	Groundwater	4.4	ND	5.0	5.7	ND
3-OS/I	Groundwater	144	406	589.0	253	372
3-R	Groundwater	3.6	2.0	10.3	7.0	ND
4-OS	Groundwater	21.1	ND	38.8	12.2	11
4-R	Groundwater	2.5	ND	9.0	5.8	ND
5-OS	Groundwater	NA	39.0	NA	NA	216
5-I	Groundwater	109	NA	17.4	22.4	NA
5-R	Groundwater	19.9	7.9	22.9	27.9	10.1
6-I	Groundwater	6.9	9.1	22.6	13.3	6.3
6-R	Groundwater	11.9	8.4	13.4	44.6	145
7-OS	Groundwater	324	NA	NA	37	125
7-I	Groundwater	NA	34.8	49.2	NA	NA
7-R	Groundwater	2.8	12.4	13.4	9.2	ND
8-OS	Groundwater	129	40.4	13.9	7.2	62.2
8-I	Groundwater	8.0	3.4	24.1	29.2	12.3
8-R	Groundwater	6.3	10.1	13.4	8.5	6.7
9-OS	Groundwater	6.6	7.6	NA	NA	9.8
9-I	Groundwater	3.9	8.0	34.6	25.3	8.1
9-R	Groundwater	16.9	26.5	66.7	45.4	43.8
BP-1	Groundwater	NA	NA	NA	NA	NA
BB-1	Groundwater	ND	ND	ND	ND	ND
RVWF-1	Groundwater	ND	ND	ND	ND	ND
PW-1	Drinking Water	0.8	ND	ND	ND	ND
PW-2	Drinking Water	NA	ND	ND	ND	ND
PW-3	Drinking Water	NA	NA	NA	NA	NA
SVWC-93	Drinking Water	ND	ND	NA	ND	ND
SVWC-94	Drinking Water	ND	ND	NA	ND	ND
SVWC-95	Drinking Water	ND	ND	NA	ND	ND
SVWC-96	Drinking Water	ND	1.7	NA	ND	ND
SW-1	Surface Water	ND	ND	ND	ND	ND
SW-5	Surface Water	ND	ND	ND	3.3	ND
SW-6	Surface Water	ND	ND	ND	3.7	ND
SW-8	Surface Water	0.67	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)



- 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

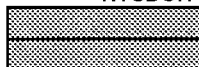
Sample ID	Date of Sampling Event									
	1/90	9/90	1/93	4/93	9/93	12/93	3/94	6/94	9/94	12/94
1-OS	45000	17500	1870	884	32300	162000	12200	69.6	4950	47700
1-R	1180	2650	395	197	1940	1210	186	70600	830	1710
2-OS	912	41800	NA	186	11800	9800	946	5080	14700	4120
2-R	409	602	NA	674	1120	1450	187	83.1	248	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
MONITORING DATA
COMPOUND: Iron

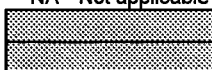
Sample ID	Sample Type	Date of Sampling Event				
		3/95	6/95	9/95	12/95	03/96
1-OS	Groundwater	5970	2820	27900	23400	21700
1-R	Groundwater	1430	1060	2750	1050	3240
2-OS	Groundwater	1310	1730	24300	5660	1770
2-R	Groundwater	259	369	541	822	189
3-OS/I	Groundwater	54600	16600	31400	3710	7750
3-R	Groundwater	1260	1450	3100	1330	1060
4-OS	Groundwater	6110	3010	28600	7460	7470
4-R	Groundwater	5650	5590	6320	4860	4910
5-OS	Groundwater	NA	17100	NA	NA	60000
5-I	Groundwater	56200	NA	2200	1870	NA
5-R	Groundwater	11300	2260	1620	1120	434
6-I	Groundwater	172	565	1060	37.3	597
6-R	Groundwater	225	625	725	758	849
7-OS	Groundwater	12200	NA	NA	1870	11400
7-I	Groundwater	NA	4280	2770	NA	NA
7-R	Groundwater	485	686	717	794	363
8-OS	Groundwater	13500	5760	46900	1160	4870
8-I	Groundwater	24300	21100	32300	26500	27300
8-R	Groundwater	24900	25700	26600	12400	18400
9-OS	Groundwater	1340	294	NA	NA	2330
9-I	Groundwater	788	468	4530	762	232
9-R	Groundwater	1060	2230	4080	1370	2060
BP-1	Groundwater	NA	NA	NA	NA	NA
BB-1	Groundwater	250	608	744	577	262
RVWF-1	Groundwater	ND	816	1260	134	ND
PW-1	Drinking Water	283	400	238	252	53.9
PW-2	Drinking Water	NA	253	276	225	ND
PW-3	Drinking Water	NA	NA	NA	NA	NA
SWWC-93	Drinking Water	19	154	NA	585	ND
SWWC-94	Drinking Water	ND	143	NA	124	ND
SWWC-95	Drinking Water	279	161	NA	148	ND
SWWC-96	Drinking Water	ND	173	NA	136	ND
SW-1	Surface Water	183	396	168	213	231
SW-5	Surface Water	74.4	324	379	236	25.4
SW-6	Surface Water	54	551	385	204	43.5
SW-8	Surface Water	339	315	276	182	29.4

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)



- 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	965	2450	827
2-R	197	135	NA	118	126	116	99.5	91.1	92.9	88.8
3-OS/I	8700	18100	3450	1890	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	9620	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										
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	6/95	9/95	12/95	03/96
1-OS	Groundwater	2950	2010	4930	3130	2020
1-R	Groundwater	96.9	153	219	137	120
2-OS	Groundwater	221	982	5570	883	280
2-R	Groundwater	94.8	70.2	143	85.5	93.8
3-OS/I	Groundwater	3590	3270	3860	6090	11900
3-R	Groundwater	11900	10900	12400	9710	11100
4-OS	Groundwater	602	2860	2080	682	636
4-R	Groundwater	1430	1120	1120	1140	1530
5-I	Groundwater	1410	NA	49.5	NA	616
5-OS	Groundwater	NA	248	NA	53.6	NA
5-R	Groundwater	116	21.6	28.6	11.9	7.1
6-I	Groundwater	19.9	31.3	89.5	51.9	17.7
6-R	Groundwater	17.4	33.4	42.6	50.9	35.3
7-OS	Groundwater	1180	NA	NA	56.8	390
7-I	Groundwater	NA	3500	4910	NA	NA
7-R	Groundwater	69.1	48.8	62.2	34.8	46.4
8-OS	Groundwater	2050	2690	1420	903	2460
8-I	Groundwater	1480	1110	2430	945	1860
8-R	Groundwater	3290	1300	2500	2610	4040
9-OS	Groundwater	32.9	3.9	NA	NA	75.7
9-I	Groundwater	40.5	10.9	129	15.9	5.2
9-R	Groundwater	1590	1790	1810	1070	738
BP-1	Groundwater	NA	NA	NA	NA	NA
BB-1	Groundwater	10.7	11.2	15.1	11.2	10.7
RWVF-1	Groundwater	2880	3070	2470	3.7	630
PW-1	Drinking Water	18.1	5.2	83.1	57.7	83.7
PW-2	Drinking Water	NA	6.1	11.6	7.7	2.6
PW-3	Drinking Water	NA	NA	NA	NA	NA
SVWC-93	Drinking Water	9.6	0.95	NA	11.9	ND
SVWC-94	Drinking Water	6.7	11.4	NA	ND	3.1
SVWC-95	Drinking Water	29	49.7	NA	22.1	47.4
SVWC-96	Drinking Water	1.3	ND	NA	48	ND
SW-1	Surface Water	39.8	71.6	17.9	36.3	41.8
SW-5	Surface Water	15.4	18.3	75.3	21.8	18.4
SW-6	Surface Water	12.8	51.9	36.1	14.8	14.7
SW-8	Surface Water	25.8	80.1	25.5	4.2	10.8

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.