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AN INTERNATIONAL PROFESSIONAL SERVICES ORGANIZATION

February 19, 1996

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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 FOURTH QUARTER MONITORING FOR 1995

Dear Mr. Yavondetti:

Attached are the results of the fourth quarter monitoring event for 1995. This sampling is the eighth 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. Samples were collected the week of December 11, 1995, and were analyzed for the routine parameters.

The first quarter monitoring event for 1996 is planned for the week of March 18, 1996. Please feel free to call if you have any questions or if you wish to discuss.

Sincerely,
URS CONSULTANTS, INC.

James Lanzo, P.E.
Project Manager

Enclosure

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BUREAU OF CONSTRUCTION SERVICES

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. Michael Barnes, Director of Operations - United Water New York
Mr. Craig Flanagan
Ms. Kathleen McCue - NYSDEC
File: 35314.50 (C-3 and AD-2)

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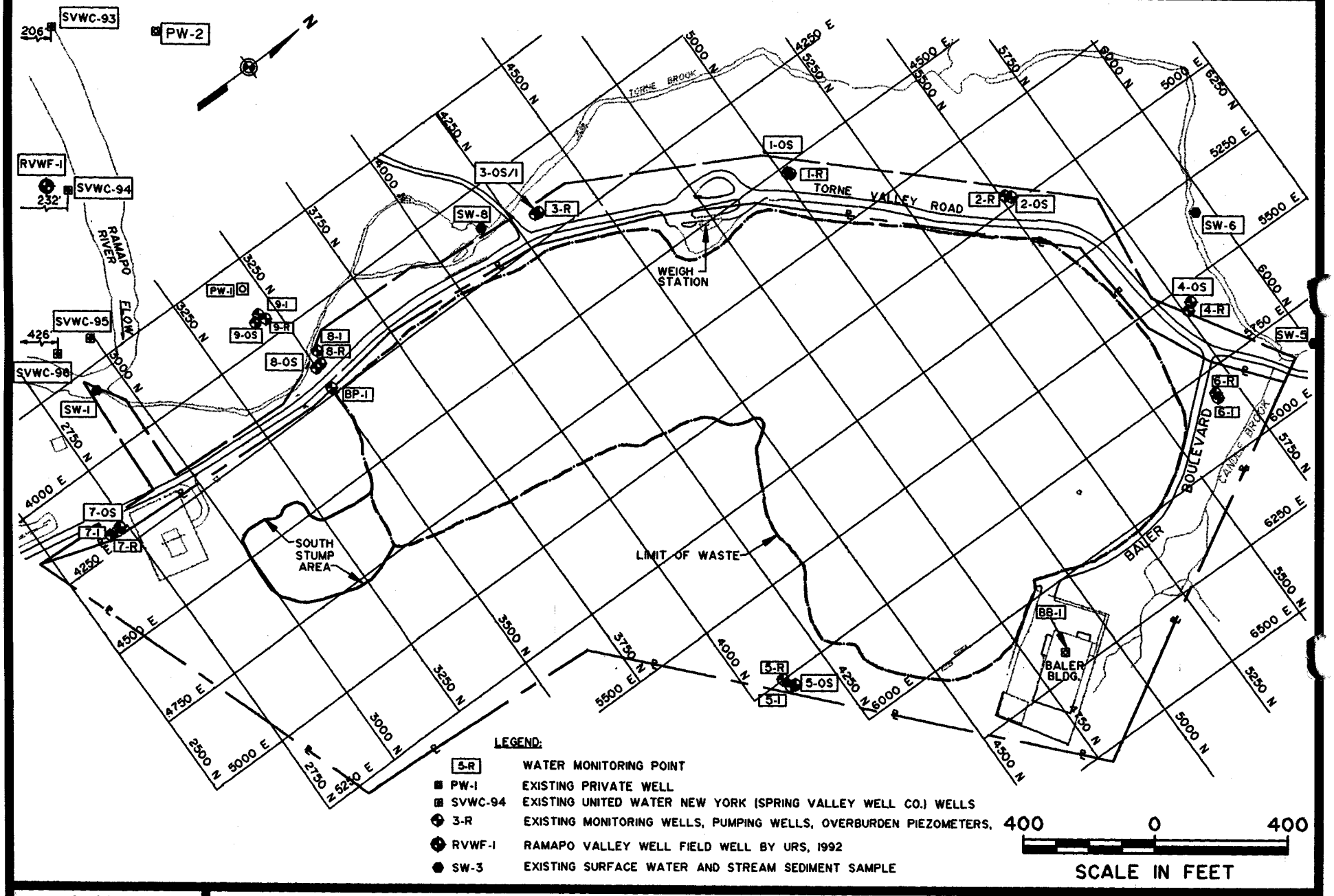

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RAMAPO LANDFILL SAMPLE LOCATIONS

FIGURE 1

TABLE 1
RAMAPO LANDFILL - DECEMBER 1995 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-I	5-R	6-I
Vinyl Chloride	—	—	—	—	—	—	—	—	—	—	—
1,1-Dichloroethane	—	1.1	—	—	—	—	—	0.76	—	—	—
Chlorobenzene	—	—	—	—	—	—	—	—	—	—	—
Benzene	—	—	—	—	—	—	—	—	—	—	—
Antimony	—	—	—	—	—	—	—	—	—	—	—
Arsenic	—	—	—	—	—	—	—	—	6.6	—	—
Cadmium	1.8	1.8	1.5	1.8	—	1.1	—	—	—	—	—
Calcium	81900	86800	82600	48700	181000	70400	27900	45300	7760	11100	25900
Chromium	70.5	42.8	50.3	5.7	253	7	12.2	5.8	22.4	27.9	13.3
Copper	37.2	11.3	10	4.2	13.3	6.9	7.7	—	7	—	4.7
Iron	23400	1050	5660	822	3710	1330	7460	4880	1870	1120	37.3
Lead	4.5	—	3.0	—	—	—	6.2	—	3.5	—	—
Magnesium	18400	14100	13000	8340	30700	19400	12000	17200	4920	4490	7500
Manganese	3130	137	883	85.5	6090	9710	682	1140	53.6	11.9	51.9
Mercury	—	—	—	—	—	—	—	—	—	—	—
Nickel	112	69.3	32.5	13.2	198	9	11.6	—	12.6	15.4	11.6
Potassium	4830	2270	1410	838	5080	1730	1600	1150	732	606	1030
Sodium	48700	18700	7390	4660	118000	41800	23900	10600	2920	2530	5640
Zinc	29.4	—	13.6	8.7	9.3	—	14.9	8.2	28.4	—	7.6

Only detected results reported.

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

MADE BY SW DATE 2/15/96
CHKD BY JGH DATE 2/16/96

J:\35314\QPRO\FINAL\MON0495.WB1/sk
(RES.DBF)02/15/96 13:36 (1 of 2)

TABLE 1
RAMAPO LANDFILL - DECEMBER 1995 SAMPLING
GROUNDWATER SAMPLES

Analyte	Concentration (µg/l)*									
	6-R	7-OS	7-R	8-OS	8-I	8-R	9-I	9-R	BB-1	RVWF-1
Vinyl Chloride	—	—	—	—	—	0.87	—	—	—	—
1,1-Dichloroethane	—	—	—	—	—	—	—	—	—	—
Chlorobenzene	—	—	—	—	3.8	3.4	—	—	—	—
Benzene	—	—	—	—	1.2	0.65	—	—	—	—
Antimony	—	—	—	—	—	—	—	—	17.7	—
Arsenic	—	—	—	—	—	7.7	—	—	—	—
Cadmium	—	0.93	—	—	1	2.2	6.4	4	—	1.5
Calcium	22000	15400	43500	12500	55300	122000	6100	13900	15200	16200
Chromium	44.6	37	9.2	7.2	29.2	8.5	25.3	45.4	—	—
Copper	4.9	8.8	4.3	7.3	30.9	13.7	10.8	8.2	45.8	6.1
Iron	758	1870	794	1160	28500	12400	762.0	1370	577	134
Lead	—	—	—	2.8	—	—	2.9	—	—	—
Magnesium	5850	2070	16200	2850	24800	32800	1510	3680	3170	3350
Manganese	50.9	56.8	34.8	903	945	2610	15.9	1070	11.2	3.7
Mercury	—	—	—	—	—	—	—	—	—	0.25
Nickel	21	13.6	11.5	—	41.7	56.2	13.8	20.7	6.9	15
Potassium	1140	1630	1850	3530	97900	71500	538	2610	571	1080
Sodium	5120	2760	29400	3520	202000	183000	1630	12400	3750	24200
Zinc	8.2	7.5	11.3	—	22.5	11.6	19.7	11	239	11.9

Only detected results reported.

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

MADE BY SW DATE 2/15/96
CHKD BY JAH DATE 2/15/96

TABLE 1
RAMAPO LANDFILL - DECEMBER 1995 SAMPLING
DRINKING WATER SAMPLES

Analyte	Concentration (µg/l)*						ARARs** (µg/l)
	PW-1	PW-2	SVWC-93	SVWC-94	SVWC-95	SVWC-96	
Vinyl Chloride	—	—	—	—	—	—	2
1,1-Dichloroethane	—	—	—	—	—	—	5
Chlorobenzene	—	—	—	—	—	—	5 (2)
Benzene	—	—	—	—	—	—	0.7
Antimony	—	—	17.1	—	—	—	3
Arsenic	—	—	—	7.1	—	—	25
Cadmium	1	—	—	1.1	1.3	—	10
Calcium	9680	42100	15000	17500	24700	18500	—
Chromium	—	—	—	—	—	—	50
Copper	77.1	14.9	43.5	9	8.7	7.8	200
Iron	252	225	585	124	148	136	300
Lead	—	—	—	—	—	—	15 (1)
Magnesium	2700	4540	3120	3690	4800	3880	35000
Manganese	57.7	7.7	11.9	—	22.1	48	300
Mercury	—	—	—	—	—	—	2
Nickel	6.2	5.1	7	5.4	14.2	7	—
Potassium	668	1020	544	1480	1500	1320	—
Sodium	3420	8100	3710	31800	39700	26200	20000
Zinc	109	57.4	253	—	—	—	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.

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

MADE BY SW DATE 2-16-96
CHKD BY RHT DATE 2-16-96

TABLE 1
RAMAPO LANDFILL - DECEMBER 1995 SAMPLING
SURFACE WATER SAMPLES

Analyte	Concentration (µg/l)*				ARARs** (µg/l)
	SW-1	SW-5	SW-6	SW-8	
Vinyl Chloride	—	—	—	—	0.3
1,1-Dichloroethane	—	—	—	—	0.07
Chlorobenzene	—	—	—	—	20
Benzene	—	—	—	—	0.7
Antimony	—	—	—	—	3
Arsenic	—	—	—	—	50
Cadmium	—	—	—	—	10
Calcium	20100	4110	3830	4490	—
Chromium	—	3.3	3.7	—	50
Copper	3.8	—	—	—	200
Iron	213	236	204	182	300
Lead	—	—	—	—	50
Magnesium	5900	1250	1210	1340	35000
Manganese	36.3	21.8	14.8	4.2	300
Mercury	—	—	—	—	0.012 ***
Nickel	—	—	—	—	1.3E-07 ***
Potassium	1380	279	273	245	—
Sodium	39600	2110	1540	1570	—
Zinc	12.5	8.3	8.1	—	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.

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

MADE BY SW DATE 2-16-96
CHKD BY KHT DATE 2-16-96

TABLE 2
RAMAPO LANDFILL - DECEMBER 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
Chloride	47	49	16	17	54	34	49	28	<2.0	<2.0	29
COD	<5.0	11	6	5	45	21	<5.0	11	<5.0	10	7
Total Hardness	287.6	303.7	313.2	188	656	249.2	83.2	196	42	56	92
Ammonia	0.06	0.05	<0.05	<0.05	0.11	3.48	0.05	0.07	<0.05	<0.05	0.06
Nitrate	0.04	0.44	0.14	0.02	0.91	0.02	0.03	0.04	0.13	0.27	0.03
Total Phenols	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Sulfate	32.5	27.1	18.5	16.7	554.4	50.1	44.8	20.4	8.3	9.7	13.7
Total Alkalinity	302.6	258.4	245.6	152	228	294	74.4	157.1	35	43	53.2
Total Dissolved Solids	435	390	356	210	1273	477	243	267	80	86	165
Total Organic Carbon	3	3	3	1	16	5	2	1	<1	<1	1
Turbidity (Units)	6.9	5.4	9.3	9.1	15.1	6.5	107	27	23	9.6	2.9

Only detected results reported.

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

MADE BY SK DATE 2/15/96
CHKD BY JAM DATE 2/15/96

TABLE 2
RAMAPO LANDFILL - DECEMBER 1995 SAMPLING
GROUNDWATER SAMPLES

Analyte	Concentration (mg/l)*									
	6-R	7-OS	7-R	8-I	8-OS	8-R	9-I	9-R	BB-1	RVWF-1
Chloride	22	5.0	27	257	5	157	4.4	11.7	3	61.3
COD	<5.0	35	12	104	<5.0	51	6	17	<5.0	6
Total Hardness	114	46	206	232	54.8	492	28	65.6	61.6	82
Ammonia	<0.05	<0.05	0.05	75.7	<0.05	23.99	0.06	0.37	<0.05	<0.05
Nitrate	0.11	0.49	2.13	0.07	0.36	0.5	0.14	1.57	0.03	0.82
Total Phenols	<0.02	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Sulfate	13.9	32.4	85.6	90.2	14.6	33	11.2	17.8	16.1	17.7
Total Alkalinity	53.8	22.2	128.2	707.2	47	366.6	10	64.6	51.6	88.4
Total Dissolved Solids	158	85	318	1012	53	614	60	127	99	228
Total Organic Carbon	<1	3	3	64	2	31	1	5	3	3
Turbidity (Units)	0.85	115	2.7	250	1.9	71	2.8	7.5	1.6	0.09

Only detected results reported.

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

MADE BY _____ DATE 2/15/96
CHKD BY _____ DATE 2/15/96

TABLE 2
RAMAPO LANDFILL - DECEMBER 1995 SAMPLING
DRINKING WATER SAMPLES

Analyte	Concentration (mg/l)*						ARARs** (mg/l)
	PW-1	PW-2	SVWC-93	SVWC-94	SVWC-95	SVWC-96	
Chloride	5.9	50.9	63.8	75.5	55.1	51.4	250
COD	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	—
Total Hardness	39.2	146.8	70	88.4	72	68.8	—
Ammonia	0.06	0.05	<0.05	<0.05	<0.05	<0.05	2
Nitrate	0.29	1.53	1	1.22	0.99	1.02	10
Total Phenols	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	—
Sulfate	11.7	20.2	21.6	21.3	18	19.8	250
Total Alkalinity	28.2	70.2	43.8	54.2	45.6	39.4	—
Total Dissolved Solids	57	222	202	230	182	176	500
Total Organic Carbon	1	1	2	2	3	1	—
Turbidity (Units)	0.06	0.01	<0.01	<0.01	<0.01	<0.01	—

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 SK DATE 2/15/96
CHKD BY JWM DATE 2/15/96

TABLE 2
RAMAPO LANDFILL - DECEMBER 1995 SAMPLING
SURFACE WATER SAMPLES

Analyte	Concentration (mg/l)*				ARARs** (mg/l)
	SW-1	SW-5	SW-6	SW-8	
Chloride	85	5	4	3	250
COD	7	<5.0	<5.0	<5.0	—
Total Hardness	79.6	16	16	16	—
Ammonia	0.06	<0.05	<0.05	<0.05	2
Nitrate	1.16	0.03	0.03	0.1	10
Total Phenols	<0.02	<0.02	<0.02	<0.02	—
Sulfate	16.1	9.4	10.5	8.9	250
Total Alkalinity	44.4	7.2	7	9	—
Total Dissolved Solids	235	36	28	5	500
Total Organic Carbon	2	1	1	2	—
Turbidity (Units)	0.54	0.15	0.14	0.09	—

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 [illegible] DATE 2/15/96
CHKD BY [illegible] DATE 2/15/96

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
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 0.7 ppb for groundwater.

MADE BY SW DATE 2/15/96
CHKD BY JGM DATE 2/14/96

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

MADE BY MV DATE 2/14/96
CHKD BY [illegible] DATE 2/15/96

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	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	1690	216	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	**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	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.

MADE BY [illegible] DATE 2/14/96
CHKD BY [illegible] DATE 2/15/96

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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
1-OS	Groundwater	727	17	102	70.5
1-R	Groundwater	146	49.5	136	42.8
2-OS	Groundwater	39.7	34.1	137	50.3
2-R	Groundwater	4.4	ND	5.0	5.7
3-OS/I	Groundwater	144	406	589.0	253
3-R	Groundwater	3.6	2.0	10.3	7.0
4-OS	Groundwater	21.1	ND	38.8	12.2
4-R	Groundwater	2.5	ND	9.0	5.8
5-OS	Groundwater	NA	39.0	NA	NA
5-I	Groundwater	109	NA	17.4	22.4
5-R	Groundwater	19.9	7.9	22.9	27.9
6-I	Groundwater	6.9	9.1	22.6	13.3
6-R	Groundwater	11.9	8.4	13.4	44.6
7-OS	Groundwater	324	NA	NA	37
7-I	Groundwater	NA	34.8	49.2	NA
7-R	Groundwater	2.8	12.4	13.4	9.2
8-OS	Groundwater	129	40.4	13.9	7.2
8-I	Groundwater	8.0	3.4	24.1	29.2
8-R	Groundwater	6.3	10.1	13.4	8.5
9-OS	Groundwater	6.6	7.6	NA	NA
9-I	Groundwater	3.9	8.0	34.6	25.3
9-R	Groundwater	16.9	26.5	66.7	45.4
BP-1	Groundwater	NA	NA	NA	NA
BB-1	Groundwater	ND	ND	ND	ND
RVWF-1	Groundwater	ND	ND	ND	ND
PW-1	Drinking Water	0.8	ND	ND	ND
PW-2	Drinking Water	NA	ND	ND	ND
PW-3	Drinking Water	NA	NA	NA	NA
SVWC-93	Drinking Water	ND	ND	NA	ND
SVWC-94	Drinking Water	ND	ND	NA	ND
SVWC-95	Drinking Water	ND	ND	NA	ND
SVWC-96	Drinking Water	ND	1.7	NA	ND
SW-1	Surface Water	ND	ND	ND	ND
SW-5	Surface Water	ND	ND	ND	3.3
SW-6	Surface Water	ND	ND	ND	3.7
SW-8	Surface Water	0.67	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.

MADE BY _____ DATE 2/14/96
CHKD BY _____ DATE 2/15/96

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	366	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	**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	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.

MADE BY SW DATE 2/14/96
CHKD BY [illegible] DATE 2/16/96

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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
1-OS	Groundwater	5970	2820	27900	23400
1-R	Groundwater	1430	1080	2750	1050
2-OS	Groundwater	1310	1730	24300	5660
2-R	Groundwater	259	369	541	622
3-OS/I	Groundwater	54600	16600	31400	3710
3-R	Groundwater	1260	1450	3100	1330
4-OS	Groundwater	6110	3010	28600	7460
4-R	Groundwater	5650	5590	6320	4880
5-OS	Groundwater	NA	17100	NA	NA
5-I	Groundwater	56200	NA	2200	1870
5-R	Groundwater	11300	2260	1620	1120
6-I	Groundwater	172	565	1080	37.3
6-R	Groundwater	225	625	728	758
7-OS	Groundwater	12200	NA	NA	1870
7-I	Groundwater	NA	4260	2770	NA
7-R	Groundwater	485	866	717	794
8-OS	Groundwater	13500	5760	46900	1160
8-I	Groundwater	24300	21100	32300	28500
8-R	Groundwater	24900	25700	26600	12400
9-OS	Groundwater	1340	294	NA	NA
9-I	Groundwater	788	468	4530	762
9-R	Groundwater	1080	2230	4080	1370
BP-1	Groundwater	NA	NA	NA	NA
BB-1	Groundwater	250	608	744	577
RVWF-1	Groundwater	ND	616	1260	134
PW-1	Drinking Water	283	400	238	252
PW-2	Drinking Water	NA	253	276	225
PW-3	Drinking Water	NA	NA	NA	NA
SVWC-93	Drinking Water	19	154	NA	585
SVWC-94	Drinking Water	ND	143	NA	124
SVWC-95	Drinking Water	279	161	NA	148
SVWC-96	Drinking Water	ND	173	NA	136
SW-1	Surface Water	183	396	168	213
SW-5	Surface Water	74.4	324	379	236
SW-6	Surface Water	54	551	385	204
SW-8	Surface Water	339	315	276	182

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.

MADE BY SK DATE 2/18/96
CHKD BY [illegible] DATE 2/15/96

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	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.

MADE BY _____ DATE 2/14/96
CHKD BY _____ DATE 2/19/96

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
1-OS	Groundwater	2950	2010	4930	3130
1-R	Groundwater	96.9	153	219	137
2-OS	Groundwater	221	982	5570	883
2-R	Groundwater	94.8	70.2	143	85.5
3-OS/I	Groundwater	3590	3270	3860	6090
3-R	Groundwater	11900	10900	12400	9710
4-OS	Groundwater	602	2860	2960	682
4-R	Groundwater	1430	1120	1120	1140
5-I	Groundwater	1410	NA	49.5	NA
5-OS	Groundwater	NA	248	NA	53.6
5-R	Groundwater	116	21.6	28.6	11.9
6-I	Groundwater	19.9	31.3	89.5	51.9
6-R	Groundwater	17.4	33.4	42.6	50.9
7-OS	Groundwater	1180	NA	NA	56.8
7-I	Groundwater	NA	3500	4910	NA
7-R	Groundwater	69.1	48.8	62.2	34.8
8-OS	Groundwater	2050	2690	1420	903
8-I	Groundwater	1480	1110	2430	945
8-R	Groundwater	3290	1300	2500	2610
9-OS	Groundwater	32.9	3.9	NA	NA
9-I	Groundwater	40.5	10.9	129	15.9
9-R	Groundwater	1590	1790	1810	1070
BP-1	Groundwater	NA	NA	NA	NA
BB-1	Groundwater	10.7	11.2	15.1	11.2
RVWF-1	Groundwater	2880	3070	2470	3.7
PW-1	Drinking Water	18.1	5.2	83.1	57.7
PW-2	Drinking Water	NA	6.1	11.6	7.7
PW-3	Drinking Water	NA	NA	NA	NA
SVWC-93	Drinking Water	9.6	0.95	NA	11.9
SVWC-94	Drinking Water	6.7	11.4	NA	ND
SVWC-95	Drinking Water	29	49.7	NA	22.1
SVWC-96	Drinking Water	1.3	ND	NA	48
SW-1	Surface Water	39.8	71.6	17.9	36.3
SW-5	Surface Water	15.4	18.3	75.3	21.8
SW-6	Surface Water	12.8	51.9	36.1	14.8
SW-8	Surface Water	25.8	80.1	25.5	4.2

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.

MADE BY _____ DATE 2/15/96
CHKD BY _____ DATE 2/15/96