



AN INTERNATIONAL PROFESSIONAL SERVICES ORGANIZATION

November 10, 1994

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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 THIRD QUARTER MONITORING FOR 1994**

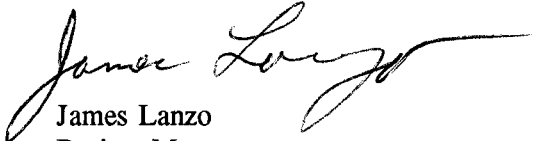
Dear Mr. Yavondetti:

Attached are two (2) copies of the results of the third quarter monitoring event for 1994. This sampling event was the third 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 the historical analytical data 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 September 19, 1994, and were analyzed for routine and site-related parameters.

The fourth quarter monitoring event for 1994 is planned for the week of December 12. 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 (VI-C and XII-C)



TABLE 1
RAMAPO LANDFILL - SEPTEMBER 1994 SAMPLING

ANALYTE	CONCENTRATION (µg/l)								
	1-OS	1-R	2-OS	2-R	3-OS/l	3-R	4-OS	4-R	5-I
1,1-Dichloroethane	--	--	--	--	--	--	--	1	--
Chlorobenzene	--	--	--	--	--	--	--	--	--
Benzene	--	--	--	--	--	--	--	--	--
Vinyl Chloride	--	--	--	--	--	--	--	--	--
Antimony	--	--	--	--	2.2 []J	--	--	--	--
Arsenic	3.6 []	--	2.4 []	--	2.4 []J	--	3.6 []J	1.4 []J	--
Cadmium	4.0 []	--	--	--	0.47 []	1.1 []	--	--	--
Calcium	91800	94800	90900	52400	72200	75200	44300	49300	9400
Chromium	284	39.3	45.9	8.3 []	561	4.8 []	23.1	13.3	40
Copper	74.9	9.9 []	22.4 []	2.8 []	20.6 []	7.8 []	19.4 []	2.8 []	17.7 []
Iron	49500	830	14700	248	14400 J	2440 J	16900	6850	8990
Lead	12.3 S	--	11.4	--	3.3	1.7 []	3.6	3.1	2.6 []
Magnesium	30600	18500	21400	10500	20300	25700	16100	18300	7070
Manganese	5150	67	2450	92.9	2240	10600	3050	1210	221
Mercury	--	--	--	--	--	--	--	--	--
Nickel	241	27 []	28.6 []	--	285	9.7 []	14.3 []	6.4 []	24.5 []
Potassium	8180	2170 []	3320 []	1090 []	6610 J	2290 []J	2510 []	1420 []	2180 []
Sodium	54300	18200	12200	6270	84800 J	50800 J	26300	12900	4990 []
Zinc	86.2	21.4	55.1	3.5 []	122	42.1	31.7	7.1 []	25

Only detected results reported.

JJ - The reported value is less than CRDL but greater than the IDL.

S - The reported value was determined by the Method of Standard Additions (MSA).

J - Indicates an estimated concentration because quality control criteria was not met.

TABLE 1
RAMAPO LANDFILL - SEPTEMBER 1994 SAMPLING

ANALYTE	CONCENTRATION (µg/l)								
	5-R	6-I	6-R	7-OS	7-R	8-I	8-OS	8-R	9-I
1,1-Dichloroethane	--	--	--	--	--	--	--	--	--
Chlorobenzene	--	--	--	--	--	2	4	--	--
Benzene	--	--	--	--	--	--	--	--	--
Vinyl Chloride	--	--	--	--	--	--	--	--	--
Antimony	--	--	--	--	14.4 []J	--	--	--	--
Arsenic	--	--	--	4.9 []	--	4.6 []	1.7 []	13.6	--
Cadmium	4.5 []	--	2.2 []	10.2	0.97 []	1.7 []	0.3 []	2.1 []	4.6 []
Calcium	19400	23000	24200	57400	54000	36900	50300	69600	8920
Chromium	52.3	188	37.7	571	8.6 []	12.8	13.2	10.4	2.4 []
Copper	56.9	4.3 []	3.8 []	243	7.2 []	6.9 []	3.4 []	16 []	0.83 []
Iron	21400	1590	501 J	145000	681	24200 J	7490 J	22000 J	84 []J
Lead	6.1	--	--	48.9	1.9 []	2.3 []	--	2.9 []	--
Magnesium	10000	6070	6290	33200	24600	12500	17000	28000	2300 []
Manganese	232	156	56	9820	126	692	3230	1740	21.7
Mercury	0.20	--	--	0.16 []	--	--	--	--	--
Nickel	41.2	12.5 []	10 []	243	10 []	17.1 []	8.8 []	28.9 []	2.6 []
Potassium	3780 []	1250 []	1190 []J	26800	2330 []J	30400 J	26800 J	66400 J	572 []J
Sodium	5870	5650	4980 []J	37800	32100 J	86700 J	69500 J	197000 J	2620 []J
Zinc	165	5.5 []	14.4 []	286	28.5	17.5 []	14.4 []	20.8	13.5 []

Only detected results reported.

JJ - The reported value is less than CRDL but greater than the IDL.

J - Indicates an estimated concentration because quality control criteria was not met.

TABLE 1
RAMAPO LANDFILL - SEPTEMBER 1994 SAMPLING

ANALYTE	CONCENTRATION (µg/l)					
	9-OS	9-R	BB-1	PW-1	PW-2	RVWF-1
1,1-Dichloroethane	--	--	--	--	--	--
Chlorobenzene	--	1	--	--	--	--
Benzene	--	--	--	--	--	--
Vinyl Chloride	--	--	--	--	--	--
Antimony	--	--	--	2.7 $\square$ J	2.2 $\square$ J	--
Arsenic	--	3.5 $\square$ J	--	--	--	--
Cadmium	2.1 $\square$	8.3	--	--	--	--
Calcium	8650	29600	18400	10200	45500	29200
Chromium	14.8	29.9	1.2 $\square$	0.6 $\square$	--	--
Copper	3.9 $\square$	4.7 $\square$	54	689	18.6 $\square$	7.9 $\square$
Iron	1020 J	9110 J	367 J	561 J	53.5 $\square$ J	47.7 $\square$
Lead	--	--	1.7 $\square$	79.3	1.5 $\square$	--
Magnesium	2280 $\square$	10300	4210 $\square$	3110 $\square$	5340	8150
Manganese	26.2	1650	20.9	5.1 $\square$	8.7 $\square$	2170
Mercury	--	--	--	--	--	--
Nickel	14.1 $\square$	23.2 $\square$	1.3 $\square$	0.8 $\square$	--	4.2 $\square$
Potassium	646 $\square$ J	15400 J	679 $\square$ J	692 $\square$ J	1170 $\square$	3010 $\square$
Sodium	2560 $\square$ J	56300 J	4570 $\square$ J	3730 $\square$ J	8690 J	38300
Zinc	29.6	22.7	336	122	128	1.9 $\square$

Only detected results reported.

[] - The reported value is less than CRDL but greater than the IDL.

J - Indicates an estimated concentration because quality control criteria was not met.

TABLE 1
RAMAPO LANDFILL - SEPTEMBER 1994 SAMPLING

ANALYTE	CONCENTRATION (µg/l)				ARARs @
	SVWC-93	SVWC-94	SVWC-95	SVWC-96	
1,1-Dichloroethane	--	--	--	--	5
Chlorobenzene	--	--	--	--	5 §
Benzene	--	--	--	--	0.7 @
Vinyl Chloride	--	--	--	--	2
Antimony	--	--	--	--	3
Arsenic	--	--	--	--	25
Cadmium	--	--	--	--	10
Calcium	27600	31100	32300	22100	--
Chromium	--	--	--	--	50
Copper	2.8 □	5.2 □	10.2 □	5.2 □	200
Iron	17.2 □	6.1 □	274	61.5 □	300
Lead	1.8 □	--	1.5 □	--	15 ¥
Magnesium	6700	8180	8480	6340	35,000
Manganese	2 □	10.4 □	273	2.1 □	300
Mercury	--	--	--	--	2
Nickel	--	--	--	--	--
Potassium	1870 □	1480 □	2020 □	1340 □	--
Sodium	50000	46900	53400	33700	20,000
Zinc	1.3 □	--	5.1 □	4.4 □	300

@ - 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 Chapter I - New York State Sanitary Code, Subpart 5-1, Principle Organic Contaminants.

□ - Value obtained from Chapter I - New York State Sanitary Code, Subpart 5-1, Unspecified Organic Contaminants.

¥ - USEPA action level

Only detected results reported.

□ - The reported value is less than CRDL but greater than the IDL.

J - Indicates an estimated concentration because quality control criteria was not met.

TABLE 1
RAMAPO LANDFILL - SEPTEMBER 1994 SAMPLING

ANALYTE	CONCENTRATION (µg/l)					ARARs @
	SW-1	SW-5	SW-6	SW-8		
1,1-Dichloroethane	-	-	-	-	-	0.07
Chlorobenzene	-	-	-	-	-	20
Benzene	-	-	-	-	-	0.7
Vinyl Chloride	-	-	-	-	-	0.3
Antimony	-	-	-	-	-	3
Arsenic	-	-	-	-	-	50
Cadmium	-	-	-	-	-	10 ♀
Calcium	33600	6550	6900	8040	-	-
Chromium	-	-	-	-	-	50 ♀
Copper	3.5 □	2.1 □	3.5 □	2.4 □	-	200 ♀
Iron	66.2 □	124	92.4 □	92.6 □	-	300
Lead	1.5 □	-	-	2.8 □	-	50 ♀
Magnesium	9030	1650 □	1760 □	2020 □	-	35,000
Manganese	27.4	65.1	20.7	19.4	-	300
Mercury	-	-	-	-	-	0.012 £
Nickel	-	-	-	-	-	1.30E-07 £
Potassium	3280 □	453 □	472 □	577 □	-	-
Sodium	63400	3390	3580 □	3860 □	-	-
Zinc	4.3 □	1.5 □	0.97 □	5 □	-	30

Only detected results reported.

□ - The reported value is less than CRDL but greater than the IDL.
E - The reported value is estimated because of the presence of interference.

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

£ - Clean Water Act

♀ - ARAR value must be calculated; see next page.

TABLE 2
RAMAPO LANDFILL - SEPTEMBER 1994 SAMPLING

INDICATOR	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	6-R
Biochemical Oxygen Demand	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloride	50	42	16	26	140	60	67	29	2	3	28	26
COD	<15	<15	56	<15	43	33	<15	<15	99	<15	<15	<15
Color (units)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexavalent Chromium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Hardness	355	313	315	174	264	293	177	198	52.5	89.6	82.3	86.2
Ammonia	0.10	0.10	0.05	<0.02	0.03	0.05	0.14	0.10	0.04	0.04	<0.02	<0.02
Nitrate	<0.1	0.3	<0.1	<0.1	1	<0.1	0.1	0.1	0.3	0.2	3	0.1
Total Phenols (ug/l)	<1	<1	<1	<1	<1	2.8	<1	<1	<1	3	3	1.0
Sulfate	29.2	23.8	11.9	14.2	11.1	20	21.1	17	<5	8.4	9.7	11.2
Total Alkalinity	316	253	251	134	225	327	217	173	33.6	46.7	42.5	53.8
Total Dissolved Solids	460	401	308	258	476	433	305	299	61	61	163	137
Total Kjeldahl Nitrogen	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon	2.1	2.5	1.9	1.1	6.4	9.3	2	1.6	2.2	2.3	4.6	2.5
Turbidity (units)	53	3.5	10	1.2	52	10	45	24	42	62	2.2	1.5

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

NA - Not analyzed

TABLE 2
RAMAPO LANDFILL - SEPTEMBER 1994 SAMPLING

INDICATOR	CONCENTRATION (mg/l)*											
	7-OS	7-R	8-I	8-OS	8-R	9-I	9-OS	9-R	BB-1	PW-1	PW-2	RVWF-1
Biochemical Oxygen Demand	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloride	35	64	97	122	250	7	5	63	49	12	44	59
COD	20	30	20	<15	84	<15	<15	35	<15	<15	<15	<15
Color (units)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexavalent Chromium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Hardness	280	236	144	196	289	<31.7	<21.6	116	63.3	38.3	136	106
Ammonia	0.05	0.03	20.00	12.00	41.00	<0.02	<0.02	11.50	<0.02	<0.02	<0.02	1.50
Nitrate	8.1	3.7	0.3	1.7	0.4	0.2	1.5	0.5	<0.1	<0.4	1.1	0.4
Total Phenols (ug/l)	2.2	<1	<1	<1	<1	1.2	1.5	5	1.2	<1	1.5	3
Sulfate	21.5	31.1	19.8	31.3	26.8	5	6.0	11.4	9.9	5.4	12.9	7.6
Total Alkalinity	147	155	280	219	580	21.8	19.1	184	52.5	21.5	75.1	103
Total Dissolved Solids	187	309	424	438	886	54	52	269	97	60	207	212
Total Kjeldahl Nitrogen	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon	2.6	5.6	10.4	7.5	30.6	1.5	1.5	8.8	1.2	2.9	<1	2.7
Turbidity (units)	53	6.5	22	5	47	<1	3.5	30	2.5	1.5	<1	<1

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

NA - Not analyzed

TABLE 2
RAMAPO LANDFILL - SEPTEMBER 1994 SAMPLING

INDICATOR	CONCENTRATION (mg/l)*					ARARs @ (ug/l)
	SVWC-93	SVWC-94	SVWC-95	SVWC-96		
Biochemical Oxygen Demand	NA	NA	NA	NA	NA	--
Chloride	115	107	109	68	250,000	
COD	<15	<15	<15	<15	--	
Color (units)	NA	NA	NA	NA	NA	--
Hexavalent Chromium	NA	NA	NA	NA	NA	--
Total Hardness	94.6	111	116	81.3	--	
Ammonia	<0.02	<0.02	<0.02	<0.02	2,000	
Nitrate	1.1	1.2	2.3	1.0	10,000	
Total Phenols (ug/l)	<1	<1	<1	<1	--	
Sulfate	13.2	13.6	15.8	11.6	250,000	
Total Alkalinity	41.5	55.1	60	43.3	--	
Total Dissolved Solids	266	272	300	191	500,000	
Total Kjeldahl Nitrogen	NA	NA	NA	NA	--	
Total Organic Carbon	2.5	2.4	1.5	<1	--	
Turbidity (units)	<1	<1	<1	<1	--	

* - All concentrations given in mg/l unless otherwise noted.
NA - Not analyzed

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

TABLE 2
RAMAPO LANDFILL - SEPTEMBER 1994 SAMPLING

INDICATOR	CONCENTRATION (mg/l)*					ARARs @ (ug/l)
	SW-1	SW-5	SW-6	SW-8	SW-8	
Biochemical Oxygen Demand	NA	NA	NA	NA	NA	-
Chloride	125	9	5	6	6	250,000
COD	<15	<15	<15	33	33	-
Color (units)	NA	NA	NA	NA	NA	-
Hexavalent Chromium	NA	NA	NA	NA	NA	-
Total Hardness	121	39.5	24.5	28.4	28.4	-
Ammonia	<0.02	0.02	<0.02	<0.02	<0.02	2,000
Nitrate	2.6	<0.1	<0.1	0.1	0.1	10,000
Total Phenols (ug/l)	1.0	3.5	<1	<1	<1	-
Sulfate	21.3	5.3	6.2	7.5	7.5	250,000
Total Alkalinity	70.8	16.4	16.2	20.2	20.2	-
Total Dissolved Solids	333	54	41	50	50	500,000
Total Kjeldahl Nitrogen	NA	NA	NA	NA	NA	-
Total Organic Carbon	3.0	2.2	2.2	1.3	1.3	-
Turbidity (units)	<1	<1	<1	<1	<1	-

* - All concentrations given in mg/l unless otherwise noted.
NA - Not analyzed

@ - 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
1 O/S	ND	ND	ND	ND	ND	ND	ND	ND	ND
1 R	ND	ND	ND	ND	ND	ND	ND	ND	ND
2 O/S	ND	ND	NA	ND	ND	ND	ND	ND	ND
2R	ND	ND	NA	ND	ND	ND	ND	ND	ND
3 O/S/I	ND	ND	ND	ND	ND	ND	ND	ND	ND
3 R	ND	ND	ND	ND	ND	ND	ND	ND	ND
4 O/S	ND	0.3	ND	ND	ND	ND	ND	ND	ND
4 R	1.0	1.0	ND	0.7	ND	ND	ND	ND	ND
5I	NA	NA	NA	NA	NA	ND	ND	ND	ND
5 O/S	2.0	ND	ND	ND	NA	NA	NA	ND	NA
5 R	ND	ND	ND	ND	ND	ND	ND	ND	ND
6 I	NA	0.2	ND	ND	ND	ND	ND	ND	ND
6 R	NA	ND	ND	ND	ND	ND	ND	ND	ND
7 O/S	ND	ND	ND	ND	ND	ND	ND	ND	ND
7 R	ND	ND	ND	ND	ND	ND	ND	ND	ND
8 I	2.0	2.9	NA	ND	ND	ND	ND	ND	ND
8 O/S	2.0	0.3	ND	ND	ND	ND	ND	ND	ND
8 R	3.0	0.4	ND	0.9	ND	ND	ND	ND	ND
9I	NA	0.2	NA	NA	NA	NA	ND	ND	ND
9 O/S	NA	ND	ND	ND	ND	NA	ND	ND	ND
9 R	NA	0.9	ND	ND	ND	NA	ND	ND	ND
PW-1	NA	ND	ND	ND	ND	NA	ND	ND	ND
PW-2	NA	NA *	ND	ND	ND	NA	NA	NA	ND
PW-3	NA	NA	NA	NA	NA	NA	NA	ND	NA
BP-1	NA	NA	ND	NA	NA	NA	NA	NA	NA
BB-1	NA	NA	ND	ND	ND	NA	ND	ND	ND
RVWF-1	NA	NA	ND	ND	ND	NA	ND	ND	ND
SVWC-93	NA	NA	ND	ND	NA	NA	ND	ND	ND
SVWC-94	NA	NA	ND	ND	NA	NA	ND	ND	ND
SVWC-95	NA	NA	ND	ND	ND	NA	ND	ND	ND
SVWC-96	NA	NA	ND	ND	NA	NA	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
SW-1	ND	NA	ND	ND	ND	ND	ND	ND	ND
SW-5	ND	ND	ND	ND	ND	ND	ND	ND	ND
SW-6	NA	ND	ND	ND	ND	ND	ND	ND	ND
SW-8	NA	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 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
1 O/S	153	57.3	8	ND	60.0	257.0	65.5	7.2	284
1 R	39.7	17.5	ND	ND	84.9	46.8	10.3	ND	39.3
2 O/S	180	141	NA	ND	50.2	95.9	11.8	89.3	45.9
2R	16.1	5.5	NA	ND	14.8	6.1	ND	5.1	8.3
3 O/S/I	587	1290	807	40.4	1350	1100	784	304	561
3 R	28	11.4	ND	ND	ND	14.7	10.5	17.8	4.8
4 O/S	139	40.1	5.8	ND	10.8	11.2	15.1	25.4	23.1
4 R	35.5	13.1	ND	8.8	ND	5.9	4.4	ND	13.3
5I	NA	NA	NA	NA	NA	80	30.2	7.2	40
5 O/S	90	35.6	48.8	ND	NA	NA	NA	NA	NA
5 R	27.4	29.3	6.8	ND	ND	8.6	13.8	6.3	52.3
6 I	NA	28.7	ND	ND	13.4	17.0	32.7	9.5	488
6 R	NA	31.1	24	34.8	27.7	67.4	71.3	27.1	37.7
7 O/S	33.5	40.1	24.2	13.0	1890	218	31	210	571
7 R	16.2	16.8	ND	ND	ND	ND	ND	5.3	8.6
8 I	215	32.5	NA	ND	ND	ND	29	17	12.8
8 O/S	34.8	16.7	ND	ND	ND	7.6	86.6	28.7	13.2
8 R	20	23.1	9.9	ND	17.7	18.2	7.5	17.0	10.4
9 I	NA	8.1	NA	NA	NA	NA	28	ND	2.4
9 O/S	NA	6.8	ND	ND	ND	ND	22.9	27.1	14.8
9 R	NA	8.8	3.9	16.4	16.7	11.6	35.4	48.2	29.9
PW-1	NA	ND	ND	ND	ND	ND	ND	ND	0.6
PW-2	NA	ND *	ND	ND	ND	4.9	NA	ND	ND
PW-3	NA	NA	NA	NA	NA	NA	NA	ND	NA
BP-1	NA	NA	ND	NA	NA	NA	NA	NA	NA
BB-1	NA	NA	ND	ND	ND	ND	ND	ND	1.2
RVWF-1	NA	NA	25.2	14.7	13.2	20.5	8.4	ND	ND
SVWC-93	NA	NA	ND	ND	NA	ND	ND	ND	ND
SVWC-94	NA	NA	ND	ND	NA	NA	ND	ND	ND
SVWC-95	NA	NA	ND	ND	ND	NA	ND	ND	ND
SVWC-96	NA	NA	ND	ND	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
SW-1	ND	NA	ND	ND	ND	ND	ND	ND	ND
SW-5	ND	ND	ND	ND	ND	ND	ND	ND	ND
SW-6	NA	ND	ND	ND	ND	5.1	ND	ND	ND
SW-8	NA	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 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
1 O/S	45000	17500	1870	884	32300	162000	12200	69.6	4950
1 R	1180	2650	395	197	1940	1210	186	70600	830
2 O/S	912	41800	NA	186	11800	9800	946	5080	14700
2R	409	602	NA	674	1120	1450	187	83.1	248
3 O/S	6830	9750	5110	333	21300	37900	19400	29900	14400
3 R	1930	1370	11500	2940	3280	4800	1970	2090	2440
4 O/S	15600	12400	529	520	5560	10600	5720	17600	16900
4 R	8230	5290	3520	4920	3100	5290	4790	4020	6850
5I	NA	NA	NA	NA	NA	2030	2080	2380	8990
5 O/S	27000	11200	11100	4700	NA	NA	NA	NA	NA
5 R	658	368	620	2310	751	243	742	71.2	21400
6 I	NA	486	953	17.3	332	2860	4020	1360	1590
6 R	NA	683	1220	715	662	1710	698	379	501
7 O/S	981	24500	1250	521	619000	2200	2340	15600	14500
7 R	ND	1940	31.5	56.6	989	600	762	226	681
8 I	15700	30500	NA	ND	ND	ND	22300	41200	24200
8 O/S	229000	43800	3230	2080	6180	12000	20300	6240	7490
8 R	1360	2940	11600	2590	9160	4710	2510	11100	22000
9 I	NA	145	NA	NA	NA	NA	2040	62.3	84
9 O/S	NA	249	50.7	1200	383	393	2210	1040	1020
9 R	NA	20200	2680	8250	11500	10800	8850	19400	9110
PW-1	NA	64	186	130	1260	916	85.3	11.2	561
PW-2	NA	11 *	41.8	49.5	ND	22.7	NA	ND	53.5
PW-3	NA	NA	NA	NA	NA	NA	NA	6.4	NA
BP-1	NA	NA	274	NA	NA	NA	NA	NA	NA
BB-1	NA	NA	NA	297	247	225	263	282	367
RVWF-1	NA	NA	362	207	202	294	221	ND	47.7
SVWC-93	NA	NA	32.6	10.6	NA	553	179	ND	17.2
SVWC-94	NA	NA	40.3	19.1	NA	NA	49.4	ND	6.1
SVWC-95	NA	NA	51.7	74.4	ND	NA	45.5	ND	274
SVWC-96	NA	NA	22.3	17.3	NA	22.6	14.9	ND	61.5
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
SW-1	2630	NA	141	1670	170	119	367	287	66.2
SW-5	93	163	194	204	168	71.7	41.9	291	124
SW-6	NA	177	82.5	245	76.7	55.2	55	159	92.4
SW-8	NA	1290	109	341	ND	26.7	66.2	187	92.6

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

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.

