Tables

TABLE 1
Stratigraphic Summary- Proposed Landfill Expansion
Mill Seat Landfill
Town of Riga, New York

Test Pit, Soil Boring or Well / Piezometer ID	Installation Date	Surface Elevation (fasl)	Statigraphic Unit Thickness (ft.)			Depth to Bedrock (ft.)	Bedrock Elevation (fasl)	Thickness of Weathered Bedrock Zone (ft.)
			Sand and Gravel	Coarser Grained Till	Dense Lodgment Till			
Soil Borings								
SB-1	Dec-06	678.26	0	8	7.2	15.2	663.1	2.8
SB-2	Dec-06	677.49	0	14.4	3.6	18.0	659.5	0.1
SB-3	Dec-06	667.93	0	4.6	9.4	14.0	653.9	2.1
SB-4	Dec-06	668.22	0	0	15.2	15.2	653.0	1.3
SB-5	Dec-06	671.03	0	0	16.7	16.7	654.3	0.2
SB-6	Dec-06	669.02	0	4	30	34.0	635.0	1.2
SB-7	Dec-06	669.28	0	6	18.7	24.7	644.6	0.1
SB-8	Dec-06	672.61	8.4	5.6	18.2	32.2	640.4	1.0
SB-9	Dec-06	670.65	0	4	14.2	18.2	652.5	2.3
SB-10	Dec-06	677.01	0	0	16	16.0	661.0	0.0
SB01 (2008)	Mar-08	671.04	12	0	12	24.0	647.0	0.0
SB02 (2008)	Mar-08	674.09	13	0	24	37.0	637.1	1.2
SB03 (2008)	Mar-08	669.70	0	21.7	0	21.7	648.0	2.5
SB04 (2008)	Mar-08	676.01	10	6	13	29.0	647.0	0.2
SB05 (2008)	Mar-08	669.47	0	14	0	14.0	655.5	0.0
SB06 (2008)	Mar-08	672.16	8	4	0	12.0	660.2	2.7
SB07 (2008)	Mar-08	664.82	0	11	0	11.0	653.8	2.7
SB08 (2008)	Mar-08	665.83	0	17.7	0	17.7	648.1	0.3
SB09 (2008)	Mar-08	674.33	12	0	15.7	27.7	646.6	2.3
SB10 (2008)	Mar-08	673.88	16	6.5	0	22.5	651.4	0.0
SB11 (2008)	Mar-08	695.63	0	45.2	0	45.2	650.4	2.8
SB12 (2008)	Mar-08	657.75	0	2	0	2.0	655.8	8.1
SB13 (2008)	Mar-08	655.62	0	1	0	1.0	654.6	5.0
SB14 (2008)	Apr-08	664.42	0	2	0	2.0	662.4	7.2
SB15 (2008)	Apr-08	661.71	0	1	0	1.0	660.7	5.9
SB16 (2008)	Apr-08	662.16	0	1.5	0	1.5	660.7	4.6
SB17 (2008)	Mar-08	652.44	0	2	0	2.0	650.4	1.1
SB-01-2010	Aug-10	672.48	19	0	11	30.0	642.5	3.0
SB-02-2010	Aug-10	666.11	0	5.2	28.8	34.0	632.1	3.0
SB-03-2010	Aug-10	671.70	1	0	27	28.0	643.7	0.8
B-SEA-1	Sep-13	677.66	0	7.5	8.5	16.0	661.7	4.9
B-SEA-2	Sep-13	674.67	0	0	37	37.0	637.7	0.5
Monitoring Wells								
MW-1S/1D (2006) [1]	Dec-06	676.08	16	0	17	33	643.1	2.5
MW-2 (2006)	Dec-06	668.10	0	6	0	6.0	662.1	10
PZ-SEA-1Z	Sep-13	671.64	0	0.75	0	0.75	670.89	0.75
MW-SEA-1A	Sep-13	671.82	0	0.75	0	0.75	671.07	0.75
MW-SEA-1B	Sep-13	671.83	0	0.75	0	0.75	671.08	0.75
MW-SEA-2A	Sep-13	667.29	2	0	6.2	8.2	659.09	0.3
MW-SEA-2B	Sep-13	667.29	2	0	6.2	8.2	659.09	0.3
MW-SEA-3A	Sep-13	666.48	0	12	4.3	16.3	650.18	0.1
MW-SEA-3B	Sep-13	666.13	0	12	4.3	16.3	649.83	0.1
MW-SEA-3Z	Sep-13	666.82	0	12	4.3	16.3	650.52	0.1
PZ-SEA-3Z	Sep-13	666.27	0	12	4.3	16.3	649.97	0.1
MW-SEA-4A	Sep-13	675.82	12.5	0	20.1	32.6	643.22	0.6
MW-SEA-5A	Sep-13	656.82	0	0	20.7	20.7	636.12	1
MW-SEA-5B	Sep-13	656.99	0	0	20.7	20.7	636.29	1
PZ-SEA-5Z	Sep-13	656.94	0	0	20.7	20.7	636.24	1
MW-SEA-6A	Sep-13	669.62	0	0	19	19	650.62	1.9
MW-SEA-6B	Sep-13	669.73	0	0	19	19	650.73	1.9
PZ-SEA-6Z	Sep-13	669.7	0	0	19	19	650.70	1.9
Piezometers								
PZ-1	Dec-06	680.13	0	14	4.2	18.2	661.9	3.3
PZ-2	Dec-06	673.68	0	11.5	6.5	18.0	655.7	5.1
PZ-3	Dec-06	676.59	0	8	22	30.0	646.6	0.5
PZ-4	Dec-06	673.63	0	6	23.5	29.5	644.1	0.5
PZ-01 (2008)	Mar-08	668.04	0	14	0	14.0	654.0	0.4
PZ-02 (2008)	Mar-08	667.18	0	5	0	5.0	662.2	8.0
PZ-03 (2008)	Mar-08	660.26	0	8.5	0	8.5	651.8	0.1
PZ-04 (2008)	Mar-08	654.20	0	4	0	4.0	650.2	4.2
PZ-05 (2008)	Mar-08	656.92	0	6	0	6.0	650.9	4.0
PZ-06 (2008)	Mar-08	673.88	16	6.5	0	22.5	651.4	0.0
PZ-01-2010	Aug-10	665.96	1.5	0	25.5	27.0	639.0	1.0
Test Pits								
TP-1	Dec-06	673.80	0	10	>9	>19.0	<654.7	NA
TP-2	Dec-06	676.20	11	0	>11	>21.0	<655.2	NA
TP-3	Dec-06	671.20	0	9	7	16.0	655.2	0.0
TP-4	Dec-06	675.40	0	11	7	18.0	657.4	4.0
TP-01 (2008)	Mar-08	674.71	14	0	>2	>16	<658.7	NA
TP-02 (2008)	Mar-08	663.91	0	11	>3	>14	<649.9	NA
TP-03 (2008)	Mar-08	660.90	14	0	0	>14	<646.9	NA
TP-04 (2008)	Mar-08	663.27	0	1	0	1.0	662.3	9.0
TP-05 (2008)	Mar-08	660.53	0	4	3	7.0	653.5	NA
TP-06 (2008)	Mar-08	662.18	0	8	1	9.0	653.2	1.0
TP-07 (2008)	Mar-08	661.96	0	5	2	7.0	655.0	1.0
TP-08 (2008)	Mar-08	669.54	0	17	0	17.0	652.5	0.0
TP-09 (2008)	Mar-08	663.66	0	0	0	0.0	663.6	14.0
TP-10 (2008)	Mar-08	671.61	0	8	>6	>14	<657.6	NA

Notes:
(1) Well MW-1D (2006) is often referred to as MW-SEA-4B since it monitors B-Zone groundwater and it is paired with MW-SEA-4A.
fasl- feet above sea level
NA- unit not encountered at specified location

TABLE 2
Summary of Soil Physical Testing

Mill Seat Landfill
Town of Riga, New York

SOIL CLASSIFICATION, GRAIN SIZE, ATTERBURG LIMITS AND DENSITY

Soil Boring or Piezometer ID	Sample Depth (fbgs)	USCS Classification/Description	% Gravel	% Sand	% Silt	% Clay	Plastic Limit	Liquid Limit	Plasticity Index	Density (N) Value & Sample Depth (fbgs)
Soil Borings 2006										
SB-1	8-12	SC-SM/ Silty, clayey SAND with Gravel	19.0	38.3	28.4	14.3	13.3	18.9	5.6	30 (10-12)
SB-2	2-6	SC/ Clayey SAND	10.7	42.6	25.1	21.6	14.0	22.4	8.4	7 (4-6)
SB-3	4-6	ML/ Sandy SILT	11.1	31.9	42.0	15.0	13.9	NP	NP	14 (4-6)
SB-4	2-6	CL-ML/ Sandy clayey SILT	9.3	33.6	31.9	25.2	13.7	21.5	7.8	18 (4-6)
SB-5	2-6	CL-ML/ Sandy clayey SILT	9.5	40.5	31.8	18.2	12.5	18.3	5.8	23 (4-6)
SB-6	4-8	CL-ML/ Sandy clayey SILT	7.5	36.9	31.5	24.1	12.2	18.5	6.3	32 (4-6)
SB-7	2-6	SC-SM/ Silty, Clayey SAND	13.6	37.2	32.7	16.5	12.9	17.9	5.0	13 (4-6)
SB-8	8-12	SC-SM/ Silty, Clayey SAND	16.5	38.9	28.4	16.2	11.9	17.5	5.6	13 (8-10)
SB-9	4-8	CL-SM/ Sandy Clayey SILT	8.8	38.4	35.1	17.7	11.8	18.0	6.2	35 (4-6)
Soil Borings 2008										
SB03 (2008)	14-16	SC-SM/ Gray silty, clayey sand with gravel	15.9	35.8	32.3	16.0	10.9	16.6	5.7	82 (14-16)
SB07 (2008)	4-8	CL/ Brown, sandy lean clay	12.7	33.6	29.5	24.2	12.3	21.3	9.0	51 (6-8)
SB09 (2008)	14-16	CL/ Brown, sandy lean clay	6.1	33.6	29.7	30.6	10.9	19.4	8.5	>100 (14-16)
Piezometers (2006)										
PZ-1	4-6	CL-ML/ Sandy clayey SILT	2.6	43.8	53.6(1)		NP	NP	NP	31 (4-6)
PZ-2	10-14	CL-ML/ Sandy clayey SILT	9.0	37.2	35.2	18.6	11.2	16.7	5.5	25 (12-14)
PZ-4	2-6	SC-SM/ Sandy Clayey SILT	14.6	35.7	31.8	17.9	13.4	19.9	6.5	26 (2-4)
Test Pits 2008										
TP-1 (2008)	8-10	GP-GC/ Poorly graded gravel with silty clay and sand	47.5	46.3	6.2(1)	0.0	20.9	27.9	7.0	NA
TP-2 (2008)	11-12	SM/ Brown silty sand	13.1	38.8	34.9	13.2	NP	NP	NP	NA
TP-3 (2008)	8-10	GW-GC/ Well graded gravel with clay and sand	52.5	39.7	7.8(1)	0.0	16.4	23.7	7.3	NA
TP-5 (2008)	5-6	SC-SM/ Brownish gray, silty, clayey sand	14.6	38.5	32.6	14.3	11.2	14.9	3.7	NA
TP-6 (2008)	6-8	CL-ML/ Brown, sandy, silty clay	10.4	35.2	30.4	24.0	12.6	19.3	6.7	NA
TP-7 (2008)	4-5	CL/ Brown lean clay with sand	8.1	20.9	37.7	33.3	22.4	34.4	12.0	NA
TP-8 (2008)	8-10	CL/ Brown lean clay with sand	2.8	23.5	34.5	39.2	14.2	26.9	12.7	NA
TP-10 (2008)	12-14	SM/ Brown, silty sand	11.9	48.2	31.9	8.0	15.5	19.0	3.5	NA
Borings/Wells (2013)										
B-SEA-1	4-16	SC-SM/Silty, clayey sand	14.4	37.9	21.5	26.2	13.0	18.0	5.0	83 (10-12) / 122 (12-14)
B-SEA 2	0-14	SC-SM/Silty, clayey sand with gravel	18.3	33.0	28.9	19.8	16.0	22.0	6.0	+75 (8-10) / +75 (10-12)
B-SEA-2	14-36	CL/ Sandy lean clay	8.7	26.2	39.2	25.9	12.0	20.0	8.0	59 (10-12) / 89 (12-14)
MW-SEA-3	12-15	CL-ML/ sandy silty clay	13.3	33.7	28.2	24.8	11.0	18.0	7.0	71 (12-14)
MW-SEA-5	0-20	CL-ML/ sandy silty clay	13.7	35.3	28.4	22.6	13.0	18.0	5.0	85 (18-20) / 98 (20-22)
MW-SEA-6	0-19	CL-ML/ sandy silty clay	14.7	34.1	29.5	21.7	14.0	20.0	6.0	41 (8-10) / 53 (12-14)

SOIL PERMEABILITY (LABORATORY IN-SITU OR REMOLDED)

Permeability by ASTM D5084 Method C

Location	Depth (fbgs)	% Moisture	Wet/Dry Density (pcf)	Type	Average Permeability (cm/s)
ST-1/SB-7 (2006)	4-6	9.4	135.8/124.1	In-situ	$1.6x10^{-7}$
B-SEA-2	14-36	8.4	151.7/139.9	Remolded	$2.7x10^{-8}$
B-SEA-3	12-15	9.3	148.7/136.1	Remolded	$5.8x10^{-8}$
B-SEA-5	0-20	9.6	149.7/136.6	Remolded	$4.1x10^{-8}$

SOIL PERMEABILITY (SATURATED SOIL SLUG TEST)

Well I.D.	Material Screened	Screened Interval Elevation (famsl)	Depth (fbgs)	Analysis Method	Estimated Hydraulic Conductivity (cm/s)
MW-1S(2006)	Till	661.08-651.08	15-25	Bouwer-Rice	7.92×10^{-6}
PZ-3 (2006)	Till	649.30-659.30	17-27	Hvorslev	1.30×10^{-6}
PZ-01 (2010)	Till	638.96-648.96	17-27	Hvorslev	1.60×10^{-6}
MW-SEA-5B	Till	636.49-646.49	10-20	Hvorslev	5.20×10^{-6}

Notes:
(1) - Presented as a total fines value.
- Grainsize distribution by ASTM D422
- Atterberg Limits Analysis by ASTM D4318
fbgs - feet below ground surface
NP - Not Present NA - Not Available

TABLE 3
Monitoring Well Construction Summary

Mill Seat Landfill
Town of Riga, New York

Well I.D.	Installation Date	Surface Elevation (fasl)	Reference Elevation (fasl)	Screen Length (ft.)	Total Depth (fbgs)	Bottom Elevation (fasl)	Monitored Formation	Depth to Bedrock (fbgs)	Top of Bedrock Elevation (fasl)
Existing Landfill									
M1A	Apr-87	703.70	706.17	15.0	67.5	636.20	Vernon Formation	40.1	663.60
M1B	Apr-87	703.52	706.36	5.0	43.3	660.20	OB/Bedrock Interface	39.9	663.60
M1Z	Jun-89	702.03	704.53	21.0	119.0	583.03	Vernon Formation	37.0	665.03
M2A	May-87	673.20	675.56	15.0	54.0	619.20	Vernon Formation	26.0	647.20
M2B	May-87	673.30	675.86	5.0	29.0	644.30	OB/Bedrock Interface	26.1	647.20
M2Z	Jun-89	673.10	675.00	21.0	89.4	583.70	Vernon Formation	27.5	645.60
M4A	May-87	651.10	653.99	15.0	39.8	611.27	Vernon Formation	13.0	638.10
M4B	May-87	651.80	654.38	5.0	15.9	635.88	OB/Bedrock Interface	13.7	638.10
M6A	May-87	652.20	654.68	20.0	40.9	611.30	Vernon Formation	11.5	640.70
M6B	May-87	653.00	654.54	5.0	13.3	639.70	OB/Bedrock Interface	12.3	640.70
M7A	May-87	669.00	672.01	10.0	35.9	633.10	Vernon Formation	10.9	658.10
M7B	May-87	669.30	671.87	5.0	14.0	655.30	OB/Bedrock Interface	11.2	658.10
M8A	May-87	653.70	655.12	10.0	35.1	618.62	Vernon Formation	7.5	646.20
M8B	May-87	653.50	656.01	5.0	10.8	642.70	OB/Bedrock Interface	7.3	646.20
M8Z	Apr-91	653.08	657.55	10.0	56.2	596.88	Vernon Formation	5.7	647.38
M10A	Jun-89	647.14	648.74	15.0	39.0	608.14	Vernon Formation	2.0	645.14
M10B	Jun-89	646.76	649.86	10.5	18.0	628.76	OB/Bedrock Interface	2.0	644.76
M14A	Apr-91	666.34	668.59	15.0	52.0	614.34	Vernon Formation	21.4	644.94
M14B	May-91	666.03	668.24	15.0	32.0	634.03	OB/Bedrock Interface	21.0	645.03
M15A	May-91	648.93	651.78	15.0	36.0	612.93	Vernon Formation	10.0	638.93
M15B	May-91	648.63	651.04	10.0	17.0	631.63	OB/Bedrock Interface	10.0	638.63
M16A	May-91	651.17	653.94	15.0	33.0	618.17	Vernon Formation	10.5	640.67
M16B	May-91	650.40	653.31	7.0	14.0	636.40	OB/Bedrock Interface	9.9	640.50
M16Z	May-91	651.46	654.32	10.0	53.0	598.46	Vernon Formation	12.0	639.46
M17A	May-91	678.66	681.32	15.1	69.0	609.66	Vernon Formation	38.5	640.16
M17B	May-91	678.86	681.40	15.3	49.0	629.86	OB/Bedrock Interface	39.0	639.86
M18A*	May-91	650.94	653.69	15.1	36.0	614.94	Vernon Formation	13.5	637.44
M18B*	May-91	650.70	653.38	10.1	17.5	633.20	OB/Bedrock Interface	13.5	637.20
M18Z*	May-91	651.16	653.84	10.0	54.0	597.16	Vernon Formation	14.0	637.16
M19A	Apr-91	654.51	659.50	15.0	40.0	614.51	Vernon Formation	10.0	644.51
M19B	Apr-91	654.21	659.35	12.0	19.0	635.21	Vernon (CB) Formation	9.0	645.21
M19Z	Apr-91	654.35	659.17	10.0	54.5	599.85	Vernon Formation	9.5	644.85
M20A	Apr-91	655.99	660.97	15.0	37.2	618.79	Vernon Formation	8.0	647.99
M20B	Apr-91	656.21	661.29	12.2	18.0	638.21	OB/Bedrock Interface	8.0	648.21
M22A	May-91	655.30	660.25	15.1	39.0	616.30	Vernon Formation	4.8	650.50
M22B	May-91	655.38	660.51	12.3	19.0	636.38	OB/Bedrock Interface	4.7	650.68
M23A	Jun-91	664.74	667.28	15.1	43.5	621.24	Vernon Formation	13.4	651.34
M23B	Apr-91	665.09	667.69	15.1	22.5	642.59	OB/Bedrock Interface	12.0	653.09
M23Z	Apr-91	664.46	666.56	10.1	63.5	600.96	Vernon Formation	10.9	653.56
M24A	Apr-91	661.98	664.49	15.0	42.3	619.68	Vernon Formation	1.0	660.98
M24B	Apr-91	661.86	664.40	15.0	22.0	639.86	OB/Bedrock Interface	1.0	660.86
M25A	Jun-91	660.94	663.35	15.1	37.0	623.94	Vernon Formation	7.0	653.94
M25B	Jun-91	660.79	663.08	10.1	17.0	643.79	OB/Bedrock Interface	7.3	653.49
South Expansion Area (SEA)									
MW-1S (2006)	Dec-06	676.08	678.03	10	25.0	651.08	Overburden	33	643.08
MW-2 (2006)	Dec-06	668.1	670.5	10	16.0	652.10	OB/Bedrock Interface	6	662.10
PZ-SEA-1Z	Sep-13	671.64	672.81	10	66.0	605.64	Vernon Formation	0.75	670.89
MW-SEA-1A	Sep-13	671.82	673.06	15	51.0	620.82	Vernon Formation	0.75	671.07
MW-SEA-1B	Sep-13	671.83	673.22	10	21.0	650.83	Vernon Formation	0.75	671.08
MW-SEA-2A	Sep-13	667.29	668.62	20	51.8	615.54	Vernon Formation	8.2	659.09
MW-SEA-2B	Sep-13	667.29	669.09	10	19.5	647.79	Vernon Formation	8.2	659.09
MW-SEA-3A	Sep-13	666.48	669.01	15	45.0	621.48	Vernon Formation	16.3	650.18
MW-SEA-3B	Sep-13	666.13	668.64	10	16.5	649.63	Vernon Formation	16.3	649.83
MW-SEA-3Z	Sep-13	666.82	669.94	10	67.0	599.82	Vernon Formation	16.3	650.52
PZ-SEA-3Z	Sep-13	666.27	668.37	10	100.0	566.27	Vernon Formation	16.3	649.97
MW-SEA-4A	Sep-13	675.82	677.35	20	61.0	614.82	Vernon Formation	32.6	643.22
MW-SEA-4B[(1)]	Dec-06	676.08	677.82	10	38.0	638.08	OB/Bedrock Interface	33	643.08
MW-SEA-5A	Sep-13	656.82	659.29	15	38.5	618.32	Vernon Formation	20.7	636.12
MW-SEA-5B	Sep-13	656.99	659.44	10	20.5	636.49	Overburden	20.7	636.29
PZ-SEA-5Z	Sep-13	656.94	659.04	10	52.5	604.44	Vernon Formation	20.7	636.24
MW-SEA-6A	Sep-13	669.62	672.27	15	48.0	621.62	Vernon Formation	19	650.62
MW-SEA-6B	Sep-13	669.73	672.22	10	19.5	650.23	Vernon Formation	19	650.73
PZ-SEA-6Z	Sep-13	669.7	671.27	10	70.5	599.20	Vernon Formation	19	650.70

Notes:
(1) also referred to as MW-1D (2006)
*Approximately 12 feet of fill material has been added to the ground surface surrounding the M-18 well series.
Depths on this table reflect survey and depth data compiled directly following monitoring well installation.
fasl-feet above sea level
fbgs-feet below ground surface

TABLE 4
Hydraulic Conductivity Estimates
Mill Seat Landfill
Town of Riga, New York

Well I.D.	Surface Elevation (fasl)	Screen Interval Elevation (fasl)	Formation Screened	Calculation Method	Estimated Hydraulic Conductivity (cm/sec)	Estimated Hydraulic Conductivity (ft/day)
Shallow Overburden Piezometers					**Range: 3.2E-09 to 2.5E-05 cm/sec : 9.07E-06 to 7.09E-02 ft/day**	
					Geometric Mean: 1.42E-06 cm/s (4.02E-03 ft/day)	
PC1-D	712.99	675.49 - 681.49	Overburden	Hvorslev	3.20E-09	0.00000907
PC2-D	687.88	672.88 - 676.88	Overburden	Hvorslev	2.50E-05	0.0709
PC3-D	692.96	677.96 - 682.46	Overburden	Hvorslev	2.80E-06	0.00794
PC7-D	687.88	709.14 - 716.39	Overburden	DM-7	1.80E-05	0.0510
Deep Overburden Piezometers					**Range: 8.1E-08 to 4.6E-04cm/sec : 2.3E-04 to 1.3E+0 ft/day**	
					Geometric Mean: 3.68E-06 cm/s (1.04E-02 ft/day)	
DH-2-80	~712	643.70 - 670.70	Overburden	Hvorslev	5.50E-07	0.002
DH-1-82	653.79	646.79 - 650.29	Overburden	Hvorslev	4.60E-04	1.30
DH-2-82	662.95	653.54 - 657.54	Overburden	Hvorslev	8.10E-06	0.023
DH-4-82	689.74	640.74 - 655.24	Overburden	Hvorslev	2.20E-05	0.062
DH-6-82	700.07	648.07 - 663.57	Overburden	Hvorslev	8.30E-08	0.000
PC1-C	714.02	662.02 - 668.02	Overburden	DM-7	3.20E-06	0.009
PC2-C	687.88	661.75 - 667.75	Overburden	Hvorslev	3.50E-07	0.001
PC3-C	692.85	664.85 - 670.85	Overburden	Hvorslev	8.10E-08	0.000
PC5-C	688.52	665.82 - 652.52	Overburden	Hvorslev	3.40E-06	0.010
PC7-C	687.88	684.34 - 692.64	Overburden	DM-7	2.10E-05	0.060
PC7-P	696.46	666.46 - 678.66	Overburden	Hvorslev	4.20E-06	0.012
B-201	680.24	655.04 - 666.74	Overburden	Hvorslev	2.00E-04	0.567
B-205	688.63	653.63 - 666.13	Overburden	Hvorslev	5.30E-06	0.015
B-206	696.26	666.51 - 678.46	Overburden	Hvorslev	2.20E-06	0.006
B-211	684.22	655.72 - 668.42	Overburden	Hvorslev	2.80E-06	0.008
MW-1S(2006)	676.08	661.08-651.08	Overburden	Bouwer-Rice	7.92E-06	0.022
PZ-3 (2006)	676.59	649.30-659.30	Overburden	Hvorslev	1.30E-06	0.004
PZ-01-2010	665.96	638.96-648.96	Overburden	Hvorslev	1.60E-06	0.005
MW-SEA-5B	656.99	636.49-646.49	Overburden	Hvorslev	5.20E-06	0.015
Overburden/ Bedrock Interface Monitoring Wells					**Range: 7.1E-05 to 6.6E-02 cm/sec : 2.0E-01 to 1.87E+2 ft/day**	
					Geometric Mean: 1.06E-03 cm/s (3.46E+0 ft/day)	
B-202	655.49	642.99 - 649.99	Overburden/ Vernon C Fm.	Hvorslev	2.20E-04	0.623
B-203	654.83	645.63 - 651.33	Overburden/ Vernon C Fm.	Hvorslev	7.10E-05	0.201
M-14B	666.03	634.03 - 649.03	Overburden/ Vernon C Fm.	Hvorslev	1.40E-04	0.397
M-15B	648.63	631.63 - 641.63	Overburden/ Vernon C Fm.	Hvorslev	2.30E-03	6.52
M-16B	650.40	636.40 - 643.40	Overburden/ Vernon C Fm.	Hvorslev	2.50E-04	0.709
M-17B	678.86	629.86 - 645.16	Overburden/ Vernon C Fm.	Hvorslev	4.00E-03	11.3
M-18B	650.70	633.20 - 643.30	Overburden/ Vernon C Fm.	Hvorslev	2.90E-04	0.822
M-19B	654.21	635.21 - 647.21	Overburden/ Vernon C/CB Fm.	Hvorslev	1.10E-02	31.2
M-20B	656.21	638.21 - 650.41	Overburden/ Vernon C Fm.	Hvorslev	6.60E-02	187
M-23B	665.09	642.59 - 657.69	Overburden/ Vernon C Fm.	Hvorslev	8.70E-05	0.247
M-25B	660.79	643.79 - 653.89	Overburden/ Vernon C Fm.	Hvorslev	1.10E-02	31.2
MW-2 (2006)	668.10	662.10-652.10	Overburden/ Vernon C Fm.	Bouwer-Rice	9.73E--03	27.6
MW-SEA-2B	667.29	647.79-657.79	Overburden/ Vernon C Fm.	Hvorslev	2.30E-03	6.52
MW-SEA-3B	666.13	649.63-659.63	Overburden/ Vernon C Fm.	Hvorslev	5.10E-04	1.45
MW-SEA-4B	676.08	639.82-649.82	Overburden/ Vernon C Fm.	Hvorslev	1.80E-03	5.10
MW-SEA-6B	669.73	649.93-659.93	Overburden/ Vernon C Fm.	Hvorslev	1.20E-03	3.40
Well I.D.	***Surface Elevation (fasl)***	***Screen Interval Elevation (fasl)***	***Formation Screened***	***Calculation Method***	***Estimated Hydraulic Conductivity (cm/sec)***	***Estimated Hydraulic Conductivity (ft/day)***
Intermediate Bedrock Monitoring Wells					**Range: 4.9E-08 to 3.4E-01 cm/sec : 1.39E-04 to 9.6E+02 ft/day**	
					Geometric Mean: 1.00E-03 cm/s (2.83 E+0 ft/day)	
B-204	663.43	653.23 - 659.23	Vernon C Fm.	Hvorslev	2.00E-05	0.057
B103	665.28	639.65 - 650.0	Vernon C Fm.	Method 2 GWM	3.53E-04	1.00
PC2-A	687.60	624.10 - 630.93	Vernon C Fm.	Hvorslev	2.40E-04	0.680
PC4-A	691.40	609.40 - 618.40	Vernon C Fm.	Hvorslev	4.90E-06	0.014
PC5-A	688.52	618.52 - 633.77	Vernon C Fm.	Hvorslev	4.90E-08	0.000
PC6-A	668.3	628.30 - 641.30	Vernon C Fm.	DM-7	4.90E-04	1.39
PC7-A	729.14	635.14 - 647.94	Vernon C Fm.	DM-7	1.70E-04	0.482
M-3A*	659.70	614.95 - 630.53	Vernon C Fm.	Hvorslev	5.65E-04	1.60
M-4A*	651.10	611.27 - 628.35	Vernon C Fm.	Hvorslev	1.77E-05	0.050
M-6A*	652.20	611.37 - 632.45	Vernon C Fm.	DM-7	1.67E-05	0.047
M-9A*	661.80	623.80 - 641.80	Vernon C Fm.	DM-7	5.30E-04	1.50
M-14A	666.34	614.34 - 629.34	Vernon C/CB Fm.	Hvorslev	5.60E-02	159
M-15A	648.93	612.93 - 627.93	Vernon C Fm.	Hvorslev	1.20E-04	0.34
M-16A	651.17	618.17 - 633.17	Vernon C Fm.	Hvorslev	5.40E-04	1.53
M-17A	678.66	609.66 - 624.76	Vernon C Fm.	Hvorslev	3.40E-05	0.096
M-18A	650.94	614.94 - 630.04	Vernon C Fm.	Hvorslev	2.20E-04	0.623
M-19A	654.51	614.51 - 629.51	Vernon C Fm.	Hvorslev	4.50E-02	128
M-20A	655.99	618.79 - 633.79	Vernon C Fm.	Hvorslev	4.40E-05	0.125
M-22A	655.30	616.30 - 631.40	Vernon C/CB Fm.	Hvorslev	8.20E-04	2.32
M-22B	655.38	636.38 - 648.68	Vernon C Fm.	Hvorslev	6.50E-02	184
M-23A	664.74	621.24 - 636.34	Vernon C Fm.	Hvorslev	5.90E-02	167
M-24A	661.98	619.68 - 634.68	Vernon C Fm.	Hvorslev	3.20E-02	90.7
M-24B	661.86	639.86 - 654.86	Vernon C Fm.	Hvorslev	3.80E-02	108
M-25A	660.94	623.94 - 639.04	Vernon C/CB Fm.	Hvorslev	1.70E-04	0.482
MW-SEA-1A	671.82	620.82-635.82	Vernon C Fm.	Hvorslev	2.60E-01	737
MW-SEA-1B	671.83	650.83-660.83	Vernon C Fm.	Hvorslev	1.70E-03	4.82
MW-SEA-2A	667.29	615.49-635.49	Vernon C Fm.	Hvorslev	9.70E-02	275
MW-SEA-3A	666.48	621.48-636.48	Vernon C Fm.	Hvorslev	7.80E-03	22.1
MW-SEA-4A	675.82	614.82-634.82	Vernon C Fm.	Hvorslev	2.80E-02	79.4
MW-SEA-5A	656.82	618.32-633.82	Vernon C Fm.	Hvorslev	2.90E-02	82.2
MW-SEA-6A	669.62	621.62-636.32	Vernon C Fm.	Hvorslev	4.30E-02	122
Deep Bedrock Monitoring Wells					**Range: 2.4E-06 to 2.1E-01 cm/sec : 6.8E-03 to 6.0E+2 ft/day**	
					Geometric Mean: 2.81E-04 cm/s (7.9E-01 ft/day)	
B101	660.76	632.9 - 643.3	Vernon C Fm.	Method 2 GWM	1.52E-03	4.30
B102	649.33	629.5 - 639.8	Vernon C Fm.	Method 2 GWM	1.77E-03	5.00
M-8Z	653.08	596.88 - 606.88	Vernon B Fm.	Hvorslev	2.40E-06	0.007
M-16Z	651.46	598.46 - 608.46	Vernon C Fm.	Hvorslev	8.90E-05	0.252
M-18Z	651.16	597.16 - 607.16	Vernon C Fm.	Hvorslev	3.30E-06	0.009
M-19Z	654.35	599.85 - 609.85	Vernon C Fm.	Hvorslev	6.00E-05	0.170
M-23Z	664.46	600.96 - 611.06	Vernon C Fm.	Hvorslev	9.50E-04	2.69
PZ-SEA-1Z	671.64	605.64-615.64	Vernon C Fm.	Hvorslev	2.00E-03	5.67
PZ-SEA-3Z	666.27	566.27-576.27	Vernon C Fm.	Hvorslev	5.20E-05	0.147
MW-SEA-3Z	666.82	599.82-609.82	Vernon C Fm.	Hvorslev	2.10E-01	595
PZ-SEA-5Z	656.94	604.44-614.44	Vernon C/CB Fm.	Hvorslev	9.40E-05	0.266
PZ-SEA-6Z	669.70	599.20-609.20	Vernon C/CB Fm.	Hvorslev	1.10E-03	3.12

Hydraulic Conductivity Estimastes from Packer Tests

Well I.D.	Ground Surface Elevation(fasl)	Packer Test Interval (fasl)	Formation Tested	Calculation Method	Estimated Hydraulic Conductivity (cm/sec)	Estimated Hydraulic Conductivity (ft/day)
PZ-SEA-1Z	671.64	636.82-626.82 (45-55')	Vernon C Fm.	Lambe & Whitman	1.30E-03	3.68
		626.82-616.82 (55-65')	Vernon C/CB Fm.	Lambe & Whitman	1.10E-03	3.12
MW-SEA-2A	667.29	645.29-635.29	Vernon C Fm.	Lambe & Whitman	1.10E-03	3.12
		635.29-625.29	Vernon C Fm.	Lambe & Whitman	1.40E-03	3.97
		625.29-615.29	Vernon C Fm.	Lambe & Whitman	9.50E-04	2.69
MW-SEA-3Z	666.82	646.82-640.82	Vernon C Fm.	Lambe & Whitman	1.50E-03	4.25
		640.82-630.82	Vernon C Fm.	Lambe & Whitman	8.90E-04	2.52
		630.82-620.82	Vernon C Fm.	Lambe & Whitman	9.90E-04	2.81
		620.82-608.82	Vernon C Fm.	Lambe & Whitman	9.20E-04	2.61
MW-SEA-4A	675.82	619.82-607.82	Vernon C Fm.	Lambe & Whitman	1.10E-03	3.12
MW-SEA-5Z	656.94	634.94-624.94	Vernon C Fm.	Lambe & Whitman	7.20E-04	2.04
		624.94-614.94	Vernon C Fm.	Lambe & Whitman	1.10E-03	3.12
		614.94-604.94	Vernon C/CB Fm.	Lambe & Whitman	7.69E-06	0.022
MW-SEA-6Z	669.70	639.70-629.70	Vernon C Fm.	Lambe & Whitman	1.10E-03	3.12
		629.70-619.70	Vernon C Fm.	Lambe & Whitman	1.20E-03	3.40
		619.70-609.70	Vernon C Fm.	Lambe & Whitman	8.10E-04	2.30
		609.70-599.70	Vernon C/CB Fm.	Lambe & Whitman	3.60E-04	1.02

Notes:
-Hydraulic conductivities were measured by Dunn Geoscience, Inc. during the period of November, 1986 to January, 1987 for the monitoring wells and piezometers on Site. H&A measured hydraulic conductivities during July 1989 in selected previous wells and piezometers as well as new explorations
-Hydraulic conductivities in the Southern Expansion Area (SEA) were measured by GEI Consultants, Inc. in 2013
- DM-7 method developed by Dunn Geoscience, Inc.
fasl = feet above sea level
fbgs = feet below ground surface
cm/sec = centimeters per second
ft/day = feet per day

TABLE 5
Groundwater Elevation Summary

Mill Seat Landfill
Town of Riga, New York

Well I.D.	Installation Date	Surface Elevation (fasl)	Reference Elevation (fasl)	Monitored Formation	Date: September 24/October 2, 2013		Date: November 14, 2013		Date: February 20, 2014		Date: April 3, 2014	
					Depth To Groundwater below Reference El.	Groundwater Elevation (fasl)	Depth To Groundwater below Reference El.	Groundwater Elevation (fasl)	Depth To Groundwater below Reference El.	Groundwater Elevation (fasl)	Depth To Groundwater below Reference El.	Groundwater Elevation (fasl)
Existing Landfill												
M1A	Apr-87	703.70	706.17	Vernon Formation	49.5	656.63	47.7	658.43	47.7	658.43	46.9	659.28
M1B	Apr-87	703.52	706.36	OB/Bedrock Interface	dry	<660.20	dry	<660.20	dry	<660.20	DRY	<660.20
M1Z	Jun-89	702.03	704.53	Vernon Formation	47.76	656.77	46.05	658.48	45.90	658.63	44.59	659.94
M2A	May-87	673.20	675.56	Vernon Formation	27.08	648.48	26.02	649.54	26.38	649.18	25.33	650.23
M2B	May-87	673.30	675.86	OB/Bedrock Interface	25.98	649.88	24.98	650.88	25.12	650.74	24.01	651.85
M2Z	Jun-89	673.10	675.00	Vernon Formation	27.26	647.74	26.02	648.98	25.96	649.04	24.89	650.11
M4A	May-87	651.10	653.99	Vernon Formation	5.55	648.44	4.43	649.56	Frozen	NA	2.41	651.58
M4B	May-87	651.80	654.38	OB/Bedrock Interface	5.33	649.05	4.25	650.13	3.87	650.51	2.38	652.00
M6A	May-87	652.20	654.68	Vernon Formation	6.05	648.63	4.22	650.46	Frozen	NA	2.25	652.43
M6B	May-87	653.00	654.54	OB/Bedrock Interface	4.02	650.52	2.81	651.73	Frozen	NA	1.81	652.73
M7A	May-87	669.00	672.01	Vernon Formation	15.62	656.39	13.68	658.33	13.49	658.52	12.52	659.49
M7B	May-87	669.30	671.87	OB/Bedrock Interface	9.81	662.06	5.13	666.74	5.16	666.71	3.94	667.93
M8A	May-87	653.70	655.12	Vernon Formation	4.83	650.29	3.90	651.22	Frozen	NA	1.89	653.23
M8B	May-87	653.50	656.01	OB/Bedrock Interface	3.92	652.09	3.67	652.34	3.56	652.45	3.33	652.68
M8Z	Apr-91	653.08	657.55	Vernon Formation	4.64	652.91	3.77	653.78	2.96	654.59	2.21	655.34
M10A	Jun-89	647.14	648.74	Vernon Formation	10.16	638.58	9.57	639.17	8.15	640.59	2.00	646.74
M10B	Jun-89	646.76	649.86	OB/Bedrock Interface	10.95	638.91	10.50	639.36	9.17	640.69	2.95	646.91
M14A	Apr-91	666.34	668.59	Vernon Formation	22.89	645.70	22.19	646.40	22.41	646.18	21.69	646.90
M14B	May-91	666.03	668.24	OB/Bedrock Interface	22.73	645.51	31.94	636.30	22.21	646.03	21.38	646.86
M15A	May-91	648.93	651.78	Vernon Formation	0.60	651.18	-0.89	652.67	-0.10	651.88	NA	>651.78
M15B	May-91	648.63	651.04	OB/Bedrock Interface	8.23	642.81	6.82	644.22	6.90	644.14	5.26	645.78
M16A	May-91	651.17	653.94	Vernon Formation	2.40	651.54	0.34	653.60	Frozen	NA	NA	>653.94
M16B	May-91	650.40	653.31	OB/Bedrock Interface	8.84	644.47	6.11	647.20	7.03	646.28	3.89	649.42
M16Z	May-91	651.46	654.32	Vernon Formation	4.23	650.09	0.73	653.59	Frozen	NA	NA	>654.32
M17A	May-91	678.66	681.32	Vernon Formation	29.30	652.02	27.69	653.63	27.21	654.11	26.00	655.32
M17B	May-91	678.86	681.40	OB/Bedrock Interface	31.45	649.95	28.24	653.16	27.80	653.60	26.61	654.79
M18A	May-91	650.94	653.69	Vernon Formation	9.18	644.51	8.28	645.41	7.79	645.90	6.50	647.19
M18B	May-91	650.70	653.38	OB/Bedrock Interface	8.63	644.75	7.63	645.75	7.18	646.20	5.90	647.48
M18Z	May-91	651.16	653.84	Vernon Formation	9.25	644.59	8.16	645.68	7.75	646.09	6.48	647.36
M19A	Apr-91	654.51	659.50	Vernon Formation	7.74	651.76	6.74	652.76	6.48	653.02	4.72	654.78
M19B	Apr-91	654.21	659.35	Vernon (CB) Formation	7.15	652.20	6.58	652.77	6.09	653.26	5.67	653.68
M19Z	Apr-91	654.35	659.17	Vernon Formation	8.03	651.14	7.01	652.16	6.32	652.85	4.98	654.19
M20A	Apr-91	655.99	660.97	Vernon Formation	8.65	652.32	7.19	653.78	6.45	654.52	5.09	655.88
M20B	Apr-91	656.21	661.29	OB/Bedrock Interface	8.90	652.39	7.46	653.83	6.79	654.50	5.43	655.86
M22A	May-91	655.30	660.25	Vernon Formation	6.78	653.47	5.82	654.43	5.05	655.20	3.71	656.54
M22B	May-91	655.38	660.51	OB/Bedrock Interface	7.02	653.49	6.06	654.45	5.34	655.17	5.09	655.42
M23A	Jun-91	664.74	667.28	Vernon Formation	13.72	653.56	12.29	654.99	11.46	655.82	10.02	657.26
M23B	Apr-91	665.09	667.69	OB/Bedrock Interface	12.04	655.65	10.67	657.02	9.90	657.79	7.93	659.76
M23Z	Apr-91	664.46	666.56	Vernon Formation	13.12	653.44	11.85	654.71	Frozen	NA	9.85	656.71
M24A	Apr-91	661.98	664.49	Vernon Formation	9.97	654.52	8.94	655.55	8.28	656.21	6.71	657.78
M24B	Apr-91	661.86	664.40	OB/Bedrock Interface	8.02	656.38	6.75	657.65	6.28	658.12	4.54	659.86
M25A	Jun-91	660.94	663.35	Vernon Formation	6.31	657.04	5.21	658.14	5.62	657.73	3.64	659.71
M25B	Jun-91	660.79	663.08	OB/Bedrock Interface	6.25	656.83	5.14	657.94	5.55	657.53	3.60	659.48
Southern Expansion Area (SEA)												
MW-1S (2006)	Dec-06	676.08	678.03	Overburden	18.22	659.81	24.68	653.35	19.75	658.28	17.73	660.30
MW-2 (2006)	Dec-06	668.1	670.5	OB/Bedrock Interface	10.34	660.16	8.8	661.70	10.46	660.04	5.13	665.37
PZ-SEA-1Z	Sep-13	671.64	672.81	Vernon Formation	15.75	657.06	14.25	658.56	15.79	657.02	13.24	659.57
MW-SEA-1A	Sep-13	671.82	673.06	Vernon Formation	16	657.06	14.55	658.51	16.15	656.91	13.5	659.56
MW-SEA-1B	Sep-13	671.83	673.22	Vernon Formation	15.9	657.32	14.53	658.69	16.14	657.08	13.33	659.89
MW-SEA-2A	Sep-13	667.29	668.62	Vernon Formation	12.61	656.01	11.25	657.37	12.93	655.69	10.08	658.54
MW-SEA-2B	Sep-13	667.29	669.09	Vernon Formation	12.95	656.14	11.39	657.70	12.94	656.15	9.6	659.49
MW-SEA-3A	Sep-13	666.48	669.01	Vernon Formation	14.11	654.90	12.88	656.13	14.57	654.44	11.78	657.23
MW-SEA-3B	Sep-13	666.13	668.64	Vernon Formation	10.53	658.11	9.59	659.05	11.66	656.98	8.06	660.58
MW-SEA-3Z	Sep-13	666.82	669.94	Vernon Formation	13.77	656.17	12.27	657.67	13.99	655.95	11.22	658.72
PZ-SEA-3Z	Sep-13	666.27	668.37	Vernon Formation	15.07	653.30	not recovered 75.85	653.20	14.87	653.50	12.17	656.20
MW-SEA-4A	Sep-13	675.82	677.35	Vernon Formation	24.31	653.04	23	654.35	24.75	652.60	22.22	655.13
MW-SEA-4B[1]	Dec-06	676.08	677.82	OB/Bedrock Interface	24.99	652.83	23.22	654.60	24.95	652.87	22.46	655.36
MW-SEA-5A	Sep-13	656.82	659.29	Vernon Formation	10.43	648.86	9.76	649.53	11.8	647.49	9.44	649.85
MW-SEA-5B	Sep-13	656.99	659.44	Overburden	8.8	650.64	6.13	653.31	8.73	650.71	6.04	653.40
PZ-SEA-5Z	Sep-13	656.94	659.04	Vernon Formation	11.11	647.93	9.67	649.37	11.86	647.18	11.96	647.08
MW-SEA-6A	Sep-13	669.62	672.27	Vernon Formation	18.21	654.06	16.72	655.55	18.45	653.82	15.76	656.51
MW-SEA-6B	Sep-13	669.73	672.22	Vernon Formation	17.34	654.88	15.92	656.30	17.37	654.85	14.52	657.70
PZ-SEA-6Z	Sep-13	669.7	671.27	Vernon Formation	17.36	653.91	15.79	655.48	17.51	653.76	14.85	656.42
Piezometers												
PZ-1 (2006)	Dec-06	680.13	683.25	Overburden	Not Located	NA	Not Located	NA	Not Located	NA	Not Located	NA
PZ-2 (2006)	Dec-06	673.68	675.44	OB/Bedrock Interface	10.82	664.62	11.08	664.36	11.38	664.06	6.95	668.49
PZ-3 (2006)	Dec-06	676.59	679.3	Overburden	12.58	666.72	11.45	667.85	12.77	666.53	9.89	669.41
PZ-4 (2006)	Dec-06	673.63	677.17	Overburden	16.42	660.75	12.69	664.48	16.02	661.15	11.91	665.26
PZ-01 (2008)	Mar-08	668.04	671.14	Overburden	6.1	661.94	5.9	662.14	Frozen	NA	Frozen	NA
PZ-02 (2008)	Mar-08	667.18	669.23	OB/Bedrock Interface	9.7	659.53	6.2	663.03	7.4	661.83	3.45	665.78
PZ-03 (2008)	Mar-08	660.26	663.91	Overburden	7.57	656.34	6.08	657.83	7.39	656.52	5.35	658.56
PZ-04 (2008)	Mar-08	654.2	657.1	OB/Bedrock Interface	5.62	651.48	4.45	652.65	6.49	650.61	2.71	654.39
PZ-05 (2008)	Mar-08	656.92	659.17	OB/Bedrock Interface	6.43	652.74	5.09	654.08	6.7	652.47	3.38	655.79
PZ-06 (2008)	Mar-08	673.88	676.28	Overburden	19.93	656.35	19.45	656.83	21.29	654.99	18.56	657.72
PZ-01-2010	Aug-10	665.96	668.44	Overburden	7.07	661.37	6.24	662.2	8.03	660.41	5.4	663.04
Staff Gauges												
SG-1	Dec-06	na	649.45	surface water	NA	NA	1.6	651.05	1.51	650.96	2.4	651.85
SG-2	Dec-06	na	666.57	surface water	NA	NA	0.4	666.97	1	667.57	0.72	667.29
SG-3	Dec-06	na	658.51	surface water	NA	NA	0.58	659.09	0.62	659.13	0.9	659.41
SG-4	Mar-08	na	655.56	surface water	NA	NA	0.36	655.92	Frozen	NA	1.15	656.71

Notes:
(1) Well was formerly MW-1D (2006)
fasl-feet above sea level
fbgs-feet below ground surface

TABLE 6
Hydraulic Gradient Summary

Mill Seat Landfill
Town of Riga, New York

Horizontal Hydraulic Gradient Calculations

Monitoring Wells Used In Calculation	Groundwater Flow Zone	November 14, 2013	April 3, 2014
		Hydraulic Gradient Value (dH/dL)	Hydraulic Gradient Value (dH/dL)
PZ-2 (2006) & PZ-05 (2008)	Water Table	0.006	0.007
MW-SEA-1B & MW-SEA-5B	B-Zone	0.002	0.002
MW-SEA-1A & MW-SEA-5A	A-Zone	0.003	0.003
PZ-SEA-1Z & PZ-SEA-5Z	Z-Zone	0.003	0.004

Notes: Linear distance of 3180 feet used in calculation of horizontal hydraulic gradients for A,B and Z-Zone. Distance of 1750 feet used for Water Table flow zone calculations.

Vertical Hydraulic Gradient Calculations

Monitoring Well Cluster	Groundwater Flow Zones Compared	November 14, 2013		April 3, 2014	
		Hydraulic Gradient Value (dH/dL)	Hydraulic Gradient Direction	Hydraulic Gradient Value (dH/dL)	Hydraulic Gradient Direction
Existing Landfill					
M1	A and B	**-- (1)**	--	**-- (1)**	**-- (1)**
	A and Z	**-0.001**	upward	**-0.013**	upward
	B and Z	**-- (1)**	--	**-- (1)**	**-- (1)**
M2	A and B	**0.07**	downward	**0.08**	downward
	A and Z	**0.02**	downward	**0.004**	downward
	B and Z	**0.04**	downward	**0.03**	downward
M4	A and B	**0.03**	downward	**0.02**	downward
M6	A and B	**0.06**	downward	**0.01**	downward
M7	A and B	**0.43**	downward	**0.43**	downward
M8	A and B	**0.05**	downward	**-0.03**	upward
	A and Z	**-0.12**	upward	**-0.1**	upward
	B and Z	**-0.03**	upward	**-0.06**	upward
M10	A and B	**0.01**	downward	**0.01**	downward
M14	A and B	**-0.51**	upward	**-0.002**	upward
M15	A and B	**-0.52**	upward	**>-0.37(2)**	upward
M16	A and B	**-0.45**	upward	**>-0.32(2)**	upward
	A and Z	**0.0005**	downward	**>-0.017(2)**	upward
	B and Z	**-0.18**	upward	**-0.13**	upward
M17	A and B	**-0.02**	upward	**-0.03**	upward
M18	A and B	**0.02**	downward	**0.02**	downward
	A and Z	**-0.56**	upward	**-0.35**	upward
	B and Z	**0.002**	downward	**0.003**	downward
M19	A and B	**0.001**	downward	**-0.057**	upward
	A and Z	**0.03**	downward	**0.03**	downward
	B and Z	**0.02**	downward	**-0.01**	upward
M20	A and B	**0.003**	downward	**-0.001**	upward
M22	A and B	**0.001**	downward	**-0.06**	upward
M23	A and B	**0.10**	downward	**0.12**	downward
	A and Z	**0.01**	downward	**0.02**	downward
	B and Z	**0.05**	downward	**0.07**	downward
M24	A and B	**0.10**	downward	**0.1**	downward
M25	A and B	**-0.01**	upward	**-0.01**	upward
Southern Expansion Area (SEA)					
MW-SEA-1	A and B	**0.01**	downward	**0.01**	downward
	A and Z	**-0.003**	upward	**-0.001**	upward
	B and Z	**0.003**	downward	**0.007**	downward
MW-SEA-2	A and B	**0.01**	downward	**0.003**	downward
MW-SEA-3	A and B	**0.11**	downward	**0.13**	downward
	A and Z	**-0.06**	upward	**-0.06**	upward
	B and Z	**0.03**	downward	**0.04**	downward
MW-SEA-4	A and B	**0.01**	downward	**0.01**	downward
MW-SEA-5	A and B	**0.24**	downward	**0.23**	downward
	A and Z	**0.01**	downward	**0.17**	downward
	B and Z	**0.12**	downward	**0.2**	downward
MW-SEA-6	A and B	**0.03**	downward	**0.05**	downward
	A and Z	**0.003**	downward	**0.004**	downward
	B and Z	**0.02**	downward	**0.03**	downward

Notes:
1: B-Zone well dry during monitoring event.
2: Monitoring wells M15A, M16A and M16Z were artesian (flowing) during the April 2014 groundwater elevation monitoring event. The reference elevation (top of casing) for each well has been used as the groundwater elevation in the calculation of hydraulic gradients for these wells for the April 2014 event.

TABLE 7
Average Linear Velocity Calculations

Mill Seat Landfill
Town of Riga, New York

Average Linear Velocity (Vx)=(K/Ne)*(dh/dl)

Flow Regime	Hydraulic Conductivity (cm/s) [1]	Effective Porosity (n_e) [2]	Hydraulic Gradient (dh/dl) [3]	Average Linear Velocity (cm/s)	Average Linear Velocity (ft/day)
Water Table (overburden)	3.68E-06	0.15	0.007	1.72E-07	0.0005
B- Zone	1.60E-03	0.01	0.002	3.20E-04	0.91
A- Zone	1.09E-03	0.01	0.003	3.27E-04	0.93
Z- Zone	2.09E-04	0.01	0.004	8.36E-05	0.24

Notes:
[1] Geometric mean hydraulic conductivity values for each flow regime are presented on Table 4.
[2] Effective porosity values for fractured bedrock and unconsolidated materials appear in Fetter, 1994.
[3] Horizontal hydraulic gradient values are presented on Table 6.

TABLE 8
November 2013 Groundwater Analytical Summary
6NYCRR Part 360 Expanded Parameter List

Mill Seat Landfill
Town of Riga, New York

Parameter	Units	NYSDEC Standard[(1)]	MW-1S 11/01/2013		MW-2 10/31/2013		MW-SEA-1A 11/01/2013		MW-SEA-1B 11/01/2013		MW-SEA-2A 10/31/2013		MW-SEA-2B 10/31/2013		MW-SEA-3A 10/31/2013		MW-SEA-3B 11/01/2013		MW-SEA-3Z 10/31/2014		MW-SEA-4A 10/31/2013	
Volatile Organic Compounds																						
Acetone	ug/L	50	3.5	J	3	U	3	U	3	U	3	U	3	U	3	U	3	U	3	U	3	U
Carbon disulfide	ug/L	60	0.65	J	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U
Chloroform	ug/L	7	0.34	U	0.34	U	0.34	U	0.34	U	0.34	U	0.34	U	0.34	U	0.34	U	0.34	U	0.34	U
Semi-Volatile Organic Compounds/ Pesticides/Herbicide/PCBs																						
4,4'-DDD	ug/L	0.3	0.011	J	0.0091	U	0.0088	U	0.0087	U	0.0087	U	0.0088	U	0.0087	U	0.0087	U	0.0088	U	0.009	U
4,4'-DDT	ug/L	0.2	0.012	J	0.011	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.011	U
alpha-BHC	ug/L	0.01	0.011	J	0.0096	J	0.0063	U	0.0091	J	0.0089	J	0.01	J	0.01	J	0.0063	U	0.011	J	0.0064	U
beta-BHC	ug/L	0.04	0.033	J	0.025	U	0.024	U	0.023	U	0.024	U	0.024	U	0.024	U	0.024	U	0.024	U	0.024	U
delta-BHC	ug/L	0.04	0.018	J B	0.0099	U	0.012	J B	0.011	J B	0.0095	U	0.0095	U	0.0095	U	0.012	J B	0.011	J B	0.012	J B
gamma-BHC (Lindane)	ug/L	0.05	0.0086	J B	0.0059	U	0.0057	U	0.0078	J B	0.0078	J B	0.0078	J B	0.0057	U	0.0081	J B	0.0078	J B	0.0058	U
Heptachlor Epoxide	ug/L	0.03	0.0056	U	0.0052	U	0.0051	U	0.0050	U	0.0050	U	0.0051	U	0.0050	U	0.0050	U	0.0050	U	0.0052	U
Metals																						
Aluminum, Total Recoverable	ug/L	NS	4430		1250		60	U	625		154		2380		931		842		145		60	U
Antimony, Total Recoverable	ug/L	3	6.8	U	6.8	U	6.8	U	6.8	U	6.8	U	6.8	U	6.8	U	6.8	U	6.8	U	6.8	U
Arsenic, Total Recoverable	ug/L	25	5.6	U	5.6	U	5.6	U	5.6	U	5.6	U	**27.8**	U	5.6	U	5.6	U	5.6	U	5.6	U
Barium, Total Recoverable	ug/L	1000	111	J	50.4	J	47.5	J	98.7	J	99.7	J	107	J	120	J	119	J	24.5	J	27.5	J
Beryllium, Total Recoverable	ug/L	NS	0.3	U	0.3	U	0.3	U	0.3	U	0.3	U	0.3	U	0.3	U	0.3	U	0.3	U	0.3	U
Boron, Total Recoverable	ug/L	1000	131	J	27.2	J B	222	J	42.8	J	71.2	J B	32.3	J B	86.6	J B	89.6	J	283	J B	316	J B
Cadmium, Total Recoverable	ug/L	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	3.3		0.5	U	0.5	U	0.5	U	0.5	U
Calcium, Total Recoverable	ug/L	NS	77100		79000		328000		109000		113000		94200		109000		77100		396000		381000	
Chromium, Total Recoverable	ug/L	50	10.5	J	2.1	J	1	U	1.3	J	1	U	3.6	J	1.2	J	1.4	J	1	U	1	U
Cobalt, Total Recoverable	ug/L	NS	2.9	J	0.63	U	0.63	U	1.1	J	0.63	U	3.7	J	0.74	J	0.81	J	0.63	U	0.63	U
Copper, Total Recoverable	ug/L	200	5.2	J	2.5	J	1.6	U	2	J	1.6	U	3.6	J	1.6	U	1.6	U	2	J	1.7	J
Iron, Total Recoverable	ug/L	300	**5520**		**1040**		**757**		**568**		253		**1890**		**902**		**1040**		**996**		**665**	
Lead, Total Recoverable	ug/L	25	5.6		3	U	3	U	3	U	3	U	29.8	B	3	U	3	U	3	U	3	U
Magnesium, Total Recoverable	ug/L	35000	**62100**		**37100**		**45500**		**61700**		**38100**		**42400**		**37200**		**67400**		**43700**		30700	
Manganese, Total Recoverable	ug/L	300	111		10.7	J	10	J	22.6	J	5.1	J	46.7		24	J	81.7		10.6	J	8.7	J
Mercury, Total Recoverable	ug/L	0.7	0.12	U	0.12	U	0.12	U	0.12	U	0.12	U	0.12	U	0.12	U	0.12	U	0.12	U	0.12	U
Nickel, Total Recoverable	ug/L	100	6.8	J	1.3	J	1.3	U	1.6	J	1.3	U	8.2	J	2.2	J	1.7	J	1.3	U	1.3	U
Potassium, Total Recoverable	ug/L	NS	8470		1500	J	3060		2670	J	1710	J	2410	J	2280	J	7830		3860		4020	
Selenium, Total Recoverable	ug/L	10	8.7	U	8.7	U	8.7	U	8.7	U	8.7	U	**68**		8.7	U	8.7	U	8.7	U	8.7	U
Silver, Total Recoverable	ug/L	50	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U
Sodium, Total Recoverable	ug/L	20000	**20400**		2790		16600		6390		4600		3370		4280		10500		15700		6030	
Thallium, Total Recoverable	ug/L	NS	10.2	U	10.2	U	10.2	U	10.2	U	10.2	U	10.2	U	10.2	U	10.2	U	10.2	U	10.2	U
Tin, Total Recoverable	ug/L	NS	5.1	U	5.1	U	5.1	U	5.1	U	5.1	U	5.1	U	5.1	U	5.1	U	5.1	U	5.1	U
Vanadium, Total Recoverable	ug/L	NS	7.2	J	1.8	J	1.5	U	1.5	U	1.5	U	3.6	J	1.7	J	1.7	J	1.5	U	1.5	U
Zinc, Total Recoverable	ug/L	5000	20.6		2.2	J B	12.1		5	J	1.5	U	4.8	J B	2.9	J B	4.3	J	17.1	B	1.5	U
General Chemistry																						
Bromide	mg/L	2	0.073	U	0.073	U	0.073	U	0.08	J	0.073	U	0.073	U	0.073	U	0.073	U	0.073	U	0.073	U
Chloride	mg/L	250	9.4		4.6		55.3		6		8.9		6		10.1		16.1		58.8		15.3	
Sulfate	mg/L	250	127		13.5		**635**		165		103		21.6		59.2		78.5		**770**		**741**	
Ammonia, distilled	mg/L as N	2	0.12	J	0.12	J	0.5	B	0.1	U	0.1	U	0.1	U	0.11	J B	0.14	J	0.18	J	0.2	B
Total Kjeldahl Nitrogen	mg/L as N	NS	0.98		0.15	U	0.31		0.55		0.15	U	0.15	U	0.15	U	0.77		0.45		0.27	
Chemical Oxygen Demand	mg/L	NS	5	U	5.2	J	5	U	5	U	5	U	5	U	7.1	J	5	U	5.2	J	9.3	J
Phenolics, Total Recoverable	mg/L	0.005	0.0062	J	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	**0.0052**	J	0.005	U	0.005	U
Chromium, hexavalent	mg/L	0.05	0.005	U	0.026		0.005	U	0.005	U	0.0066		0.005	U	0.0084		0.005	U	0.005	U	0.005	U
Cyanide, Total	mg/L	0.2	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.019	
Nitrate	mg/L as N	10	2.9		2.6		0.02	U	0.038	J	0.02	U	9.1		2		5.9		0.02	U	0.02	U
Color	Color Units	15	**20**		10		**25**		**20**		0.01	U	0.01	U	0.01	U	10		**25**		**30**	
Alkalinity, Total	mg/L	NS	340		316		321		370		319		331		342		350		305		287	
Hardness	mg/L	NS	560		350		1060		620		390		390		420		520		1090		1060	
Total Dissolved Solids	mg/L	500	**536**		327		**1290**		**586**		449		387		427		493		**1510**		**1400**	
Sulfide	ug/L	NS	670	U	670	U	670	U	670	U	670	U	670	U	670	U	670	U	670	U	670	U
Biochemical Oxygen Demand	mg/L	NS	7.5		2	U	8.3		10.6		2	U	2	U	2	U	10.5		2	U	2	U
Total Organic Carbon	mg/L	1000	2.8		1.2		2.2		0.87	J	0.82	J	0.89	J	1.1		1.2		1.3		2.3	
Field Parameters																						
Temperature	Degrees C	NS	10.7		13		10.4		14.2		10.7		13.4		11		14		10.5		10.3	
Oxidation Reduction Potential	millivolts	NS	171		231		89		176		188		163		122		183		123		89	
Turbidity	NTU	5	**50.3**		**6.61**		0.8		**37.8**		4.7		**32**		4.9		**24.4**		**3.7**		**10.1**	
Field pH	SU	NS	7.25		7.29		7.19		7.37		6.94		7.4		7.26		6.7		7.07		7.24	
Specific Conductance	umhos/cm	NS	805		580		1490		820		637		627		656		747		1656		1610	

See last page for notes.

TABLE 8
November 2013 Groundwater Analytical Summary
6NYCRR Part 360 Expanded Parameter List

Mill Seat Landfill
Town of Riga, New York

Parameter	Units	NYSDEC Standard[(1)]	MW-SEA-4B 10/31/2013		MW-SEA-5A 10/31/2013		MW-SEA-5B 11/01/2013		MW-SEA-6A 10/31/2013		MW-SEA-6B 10/31/2013		PZ-SEA-1Z 11/01/2013		PZ-SEA-3Z 11/1/2013		PZ-SEA-5Z 11/01/2013		PZ-SEA-6Z 10/31/2013	
Volatile Organic Compounds																				
Acetone	ug/L	50	3	U	3	U	3	U	3	U	3	U	3	U	3	U	3	U	3	U
Carbon disulfide	ug/L	60	0.19	U	0.19	U	0.19	U	0.19	U	0.35	J	0.19	U	0.19	U	0.19	U	0.19	U
Chloroform	ug/L	7	0.34	U	0.34	U	0.34	U	0.34	U	0.34	U	0.34	U	0.34	U	0.34	U	0.63	
Semi-Volatile Organic Compounds/ Pesticides/Herbicide/PCBs																				
4,4'-DDD	ug/L	0.3	0.0089	U	0.0087	U	0.0088	U	0.0089	U	0.012	J	0.0088	U	0.014	J	0.0087	U	0.0087	U
4,4'-DDT	ug/L	0.2	0.011	U	0.01	U	0.011	U	0.011	U	0.011	U	0.011	U	0.014	J	0.01	U	0.01	U
alpha-BHC	ug/L	0.01	**0.011**	J	0.0063	U	0.0063	U	0.0064	U	0.01	J	0.0063	U	0.0098	J	0.0063	U	0.0063	U
beta-BHC	ug/L	0.04	0.024	U	0.024	U	0.024	U	0.024	U	0.024	U	0.024	U	0.024	U	0.024	U	0.024	U
delta-BHC	ug/L	0.04	0.0097	U	0.011	J B	0.012	J B	0.0097	U	0.0095	U	0.0096	U	0.0095	U	0.012	J B	0.0095	U
gamma-BHC (Lindane)	ug/L	0.05	0.0058	U	0.0057	U	0.0082	J B	0.0058	U	0.008	J B	0.0057	U	0.0091	JB	0.008	J B	0.0057	U
Heptachlor Epoxide	ug/L	0.03	0.0051	U	0.0050	U	0.0051	U	0.0051	U	0.0051	U	0.0051	U	0.02	J	0.0050	U	0.005	U
Metals																				
Aluminum, Total Recoverable	ug/L	NS	6110		181		201		203		7530		73		4300		96.9		60	U
Antimony, Total Recoverable	ug/L	3	6.8	U	6.8	U	6.8	U	6.8	U	6.8	U	6.8	U	6.8	U	6.8	U	6.8	U
Arsenic, Total Recoverable	ug/L	25	15.1		5.6	U	5.6	U	5.6	U	5.6	U	5.6	U	5.6	U	5.6	U	5.6	U
Barium, Total Recoverable	ug/L	1000	60.2	J	39.1	J	63.3	J	378	J	182	J	33.8	J	50.5	J	9.5	J	16.7	J
Beryllium, Total Recoverable	ug/L	NS	0.39	J	0.3	U	0.3	U	0.3	U	0.33	J	0.3	U	0.3	U	0.3	U	0.3	U
Boron, Total Recoverable	ug/L	1000	252	J B	232	J B	82.7	J	246	J B	38.4	J B	439	J	**4070**		**1500**		2090	B
Cadmium, Total Recoverable	ug/L	5	0.5	U	0.5	U	0.5	U	0.5	U	0.89	J	0.5	U	0.5	U	0.5	U	0.5	U
Calcium, Total Recoverable	ug/L	NS	177000		210000		94000		372000		137000		584000		375000		582000		588000	
Chromium, Total Recoverable	ug/L	50	9	J	1.2	J	1	U	1	U	12.4	J	1	U	7.7	J	1	U	1	U
Cobalt, Total Recoverable	ug/L	NS	2.7	J	0.63	U	0.63	U	0.63	U	6.1		0.63	U	2.6	J	0.63	U	0.63	U
Copper, Total Recoverable	ug/L	200	5.4	J	2.4	J	1.6	U	1.7	J	8.4	J	1.6	U	5.9	J	2.1	J	1.7	J
Iron, Total Recoverable	ug/L	300	**6620**		**358**		125		291		**8220**		**693**		**4450**		**500**		**673**	
Lead, Total Recoverable	ug/L	25	5.4	B	3	U	3	U	3.3	J B	7.8	B	3	U	3.9	J	3	U	3	U
Magnesium, Total Recoverable	ug/L	35000	**42000**		**54000**		**86100**		**39900**		**74000**		**47200**		**63600**		**45600**		**57000**	
Manganese, Total Recoverable	ug/L	300	115		19.7	J	59.5		16.8	J	245		12.8	J	78.3		41.4		59	
Mercury, Total Recoverable	ug/L	0.7	0.12	U	0.12	U	0.12	U	0.12	U	0.12	U	0.12	U	0.12	U	0.12	U	0.12	U
Nickel, Total Recoverable	ug/L	100	7.2	J	1.3	U	1.5	J	1.3	U	13.9	J	1.3	U	7.8	J	1.3	U	1.3	U
Potassium, Total Recoverable	ug/L	NS	5570		3210		10900		3590		5440		4120		28300		12000		16200	
Selenium, Total Recoverable	ug/L	10	8.7	U	8.7	U	8.7	U	8.7	U	8.7	U	8.7	U	8.7	U	8.7	U	8.7	U
Silver, Total Recoverable	ug/L	50	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U
Sodium, Total Recoverable	ug/L	20000	18200		14700		9550		7110		7530		**23600**		16700		**40500**		**56200**	
Thallium, Total Recoverable	ug/L	NS	10.2	U	10.2	U	10.2	U	10.2	U	10.2	U	10.2	U	10.2	U	10.2	U	10.2	U
Tin, Total Recoverable	ug/L	NS	5.1	U	5.1	U	5.1	U	7	J	5.1	U	5.1	U	5.1	U	5.1	U	5.1	U
Vanadium, Total Recoverable	ug/L	NS	9.7	J	1.5	U	1.5	U	1.5	U	12.5	J	1.5	U	6.7	J	1.5	U	1.5	U
Zinc, Total Recoverable	ug/L	5000	11.6	B	1.5	U	7.3	J	2.4	J B	19.5	B	2.5	J	11.4		2.9	J	1.6	J B
General Chemistry																				
Bromide	mg/L	2	0.073	U	0.073	U	0.073	U	0.073	U	0.073	U	0.073	U	0.073	U	0.073	U	0.073	U
Chloride	mg/L	250	2.7		14.9		37.2		19.8		9.6		56.1		69.6		19.4		27.4	
Sulfate	mg/L	250	**378**		**515**		213		**698**		64.2		**1300**		**1170**		**1490**		**1510**	
Ammonia, distilled	mg/L as N	2	0.14	J B	0.15	J	0.15	J	0.36		0.11	J	0.26		1.1		0.68		0.92	
Total Kjeldahl Nitrogen	mg/L as N	NS	0.22		0.22		0.15	U	0.66		0.65		0.39		2.6		1.1		1	
Chemical Oxygen Demand	mg/L	NS	5	U	11.8		5	U	20.6		5	U	6.1	J	5	U	7.7	J	5	U
Phenolics, Total Recoverable	mg/L	0.005	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U
Chromium, hexavalent	mg/L	0.05	**0.11**		0.005	U	0.0084		0.005	U	0.097		0.005	U	0.005	U	0.005	U	0.005	U
Cyanide, Total	mg/L	0.2	0.005	U	0.0064		0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.01	
Nitrate	mg/L as N	10	0.02	U	0.02	U	0.02	U	0.02	U	0.91		0.02	U	3.7		0.02	U	0.02	U
Color	Color Units	15	0.01	U	10		5		**25**		0.01	U	10		**20**		10		15	
Alkalinity, Total	mg/L	NS	202		270		400		334		460		310		279		258		227	
Hardness	mg/L	NS	596		770		620		1160		570		1640		1760		1700		1700	
Total Dissolved Solids	mg/L	500	**790**		**1050**		**755**		**1410**		**561**		**2240**		**2140**		**2410**		**2410**	
Sulfide	ug/L	NS	670	U	670	U	670	U	670	U	670	U	670	U	670	U	670	U	670	U
Biochemical Oxygen Demand	mg/L	NS	2	U	2	U	7.2		2	U	2	U	5.8		7.2	B	6.8		2	U
Total Organic Carbon	mg/L	1000	0.8	J	2		1.3		6.9		2		2		2.1		3.6		1	
Field Parameters																				
Temperature	Degrees C	NS	10.6		12		11.6		10.9		10.7		10.1		11.5		10.6		10.9	
Oxidation Reduction Potential	millivolts	NS	77		210		153		201		193		101		196		180		200	
Turbidity	NTU	5	**47.5**		2.5		**8.62**		2.16		**113**		2.2		**479**		3.19		0.7	
Field pH	SU	NS	7.42		7.01		7.11		7		7.34		7.18		7.37		6.97		7.03	
Specific Conductance	umhos/cm	NS	1037		1160		1020		1447		848		2224		2475		2312		2357	

See last page for notes.

TABLE 8
November 2013 Groundwater Analytical Summary
6NYCRR Part 360 Expanded Parameter List

Mill Seat Landfill
Town of Riga, New York

Notes:
(1) Groundwater standards from: New York State Department of Environmental Conservation (NYSDEC) Division of Water Technical and Operation Guidance Series (TOGS 1.1.1), August 1999.
*shaded cells indicate exceedance of of TOGS 1.1.1 Class GA Guidance Criteria
µg/L: micrograms per liter (parts per billion)
µmho/cm: micromhos per centimeter (equivalent to microSiemens per centimeter)
mg/L: milligrams per liter (parts per million)
ntu: Nephelometric Turbidity Units
s.u.: Standard Unit for pH
U : Indicates that the analyte was analyzed for, but was not detected. The sample quantitation limit is presented. This qualifier is also used in the validation process to signify that the reporting limit of an analyte was raised due to blank contamination.
J : Indicates that the concentration of the result should be considered approximate. This qualifier is used when the data validation process identifies a deficiency in the data generation process. This qualifier is also applied by the laboratory when the analyte concentration was greater than the method detection limit (MDL) but less than the reporting limit. For inorganic results, the qualifier “J” was applied by the laboratory when the analyte concentration was greater than the instrument detection limit (IDL) or MDL but less than the QL.
UJ : Indicates that the analyte was analyzed for, but was not detected. The sample quantitation limit is presented, and should be considered approximate. This qualifier is used when the data validation process identifies a deficiency in the data generation process.

TABLE 9
April 2014 Groundwater Analytical Summary
6NYCRR Part 360 Baseline Parameter List

Mill Seat Landfill
Town of Riga, New York

Parameter	Units	NYSDEC Standard[1]	MW-1S 04/02/2014		MW-2 04/04/2014		MW-SEA-1A 04/07/2014		MW-SEA-1B 04/07/2014		MW-SEA-2A 04/03/2014		MW-SEA-2B 04/03/2014		MW-SEA-3A 04/07/2014		MW-SEA-3B 04/08/2014		MW-SEA-3Z 04/07/2014		MW-SEA-4A 04/01/2014		MW-SEA-4B 04/02/2014	
Volatile Organic Compounds																								
Acetone	ug/L	50	3	U	3	U	3	U	3	U	3	U	3	U	3	U	3	U	8.9		3	U	3	U
Semi-Volatile Organic Compounds																								
None Detected																								
Metals																								
Aluminum, Total Recoverable	ug/L	NS	69.4		84.8		60	U	95.6		79.8		893		60	U	219		60	U	314		210	
Antimony, Total Recoverable	ug/L	3	6.8	U	6.8	U	6.8	U	6.8	U	6.8	U	6.8	U	6.8	U	6.8	U	6.8	U	6.8	U	6.8	U
Arsenic, Total Recoverable	ug/L	25	5.6	U	5.6	U	5.6	U	5.6	U	5.6	U	5.6	U	5.6	U	5.6	U	5.6	U	5.6	U	8.8	J
Barium, Total Recoverable	ug/L	1000	62.8	J	14	J	46.5	J	87.1	J	148	J	55	J	103	J	128	J	26.4	J	29.1	J	37.8	J
Beryllium, Total Recoverable	ug/L	NS	0.3	U	0.3	U	0.3	U	0.3	U	0.3	U	0.3	U	0.3	U	0.3	U	0.3	U	0.3	U	0.3	U
Boron, Total Recoverable	ug/L	1000	71.9	J	21.3	J	200	J	28	J	105	J	15.5	J	68.7	J	34.6	J	240	J	265	J	205	J
Cadmium, Total Recoverable	ug/L	5	0.5	U	0.68	J	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Calcium, Total Recoverable	ug/L	NS	90400		49800		300000		103000		166000		87500		93000		78100		334000		353000		102000	
Chromium, Total Recoverable	ug/L	50	1.3	J	1	U	1.6	J	1.2	J	1	U	1.7	J	1	U	2	J	1.4	J	1.3	J	1.7	J
Cobalt, Total Recoverable	ug/L	NS	0.63	U	0.63	U	0.63	U	0.63	U	0.63	U	0.63	U	0.63	U	0.63	U	0.63	U	0.63	U	0.63	U
Copper, Total Recoverable	ug/L	200	2.8	J	1.6	U	1.6	U	1.6	U	1.6	U	1.6	U	1.6	U	1.6	U	1.6	U	1.6	U	1.6	U
Iron, Total Recoverable	ug/L	300	120		60.7		**910**		88.1		**885**		**1030**		86.6		218		**847**		**798**		**445**	
Lead, Total Recoverable	ug/L	25	3	U	3	U	3	U	3	U	3	U	3	U	3	U	3	U	3	U	3	U	3	U
Magnesium, Total Recoverable	ug/L	35000	**59300**		26100		**42200**		**59100**		**40900**		**42600**		33300		**57000**		**40600**		29800		34300	
Manganese, Total Recoverable	ug/L	300	23.4	J	2.7	J	10.9	J	4.4	J	7.6	J B	49.5	B	9.5	J	45.4		9.2	J	8.6	J	37.2	
Mercury, Total Recoverable	ug/L	0.7	0.12	U	0.12	U	0.12	U	0.12	U	0.12	U	0.12	U	0.12	U	0.12	U	0.12	U	0.12	U	0.13	J
Nickel, Total Recoverable	ug/L	100	3.5	J	1.3	U	1.3	U	1.4	J	1.3	U	1.3	U	1.3	U	1.4	J	1.3	U	1.3	U	1.3	U
Potassium, Total Recoverable	ug/L	NS	6470		326	J	3120		2040	J	2100	J	1260	J	1790	J	3730		3730		5800		2610	J
Selenium, Total Recoverable	ug/L	10	8.7	U	8.7	U	8.7	U	8.7	U	8.7	U	8.7	U	8.7	U	8.7	U	8.7	U	8.7	U	8.7	U
Silver, Total Recoverable	ug/L	50	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U
Sodium, Total Recoverable	ug/L	20000	**28700**		2460		16300		6330		7480		3410		3550		8030		15400		7020		19200	
Thallium, Total Recoverable	ug/L	NS	10.2	U	10.2	U	10.2	U	10.2	U	10.2	U	10.2	U	10.2	U	10.2	U	10.2	U	10.2	U	10.2	U
Vanadium, Total Recoverable	ug/L	NS	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U
Zinc, Total Recoverable	ug/L	5000	5.3	J	6	J	1.5	U	1.5	U	3.6	J B	4.5	J B	1.9	J	2.6	J	1.5	U	1.5	U	2.1	J
General Chemistry																								
Bromide	mg/L	2	0.073	U	0.073	U	0.073	U	0.073	U	0.073	U	0.073	U	0.073	U	0.073	U	0.073	U	**3.3**		0.073	U
Chloride	mg/L	250	6.2		1.7		50.8		5.9		23.7		8.5		9.5		11.6		55.6		20.4		2.4	
Sulfate	mg/L	250	201		8.3		**629**		150		**293**		16.4		50.3		70		**704**		**676**		**277**	
Ammonia (as N)	mg/L as N	2	0.009	U	0.009	U	0.048		0.03		0.009	U	0.026		0.022		0.009	U	0.041		0.12		0.009	U
Total Kjeldahl Nitrogen	mg/L as N	NS	0.15	U	0.24		0.43	B	0.15	U	0.26		0.15	U	0.15	U	0.15	U	0.17	J	0.27		0.15	U
Chemical Oxygen Demand	mg/L	NS	5	U	6.2	J	5	U	5	U	10.3		10.3		5	U	14.1		5	U	5	U	5	U
Phenolics, Total Recoverable	mg/L	0.005	0.005	U	0.0054	J B	0.005	U	0.005	U	0.005	U	**0.0052**	J	0.005	U	0.0059	J B	0.005	U	0.005	U	0.005	U
Chromium, hexavalent	mg/L	0.05	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.0056	J	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U
Cyanide, Total	mg/L	0.2	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U
Nitrate	mg/L as N	10	**10.8**		1.5		0.02	U	0.087		0.02	U	**15.6**		1.9		8.6		0.02	U	0.02	U	0.11	
Color	Color Units	15	15		5		**20**		0.01	U	**25**		0.01	U	0.01	U	10		**20**		**20**		0.01	U
Alkalinity, Total	mg/L	NS	373		236		317		364		310		295		328		351		301		289		193	
Total Hardness	mg/L	NS	470		228		1100		530		560		364		390		460		1100		1250		400	
Total Dissolved Solids	mg/L	500	**713**		218		**1330**		**561**		**731**		355		420		**511**		**1400**		**1370**		**660**	
Biochemical Oxygen Demand	ug/L	NS	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U
Total Organic Carbon	mg/L	NS	2.5		1.2		3		1.2		1.9		2.1		1.6		1.5		3.5		4.1		2.2	
Sulfide	mg/L	1000	670	U	670	U	670	U	670	U	670	U	670	U	670	U	670	U	670	U	670	U	670	U
Field Parameters																								
Temperature	Degrees C	NS	9.3		3.8		10.2		9		9.5		5.6		10.3		5.4		10.1		10.1		9.5	
Oxidation Reduction Potential	millivolts	NS	110		183		0		113		57		118		64		102		7		31		96	
Turbidity	NTU	5	**5.8**		4.3		3		**10.9**		**5.5**		**21.1**		3.8		**13.4**		4.4		3.5		**6.3**	
Field pH	SU	NS	7.4		6.3		7.26		6.93		7.31		7.35		7.41		7.83		7.27		6.9		7.23	
Specific Conductance	umhos/cm	NS	862		372		1539		789		956		609		652		743		1608		1487		752	

See last page for notes.

TABLE 9
April 2014 Groundwater Analytical Summary
6NYCRR Part 360 Baseline Parameter List

Mill Seat Landfill
Town of Riga, New York

Parameter	Units	NYSDEC Standard[(1)]	MW-SEA-5A 04/01/2014		MW-SEA-5B 04/02/2014		MW-SEA-6A 04/02/2014		MW-SEA-6B 04/03/2014		PZ-SEA-1Z 04/07/2014		PZ-SEA-5Z 04/02/2014		PZ-SEA-6Z 04/02/2014		PZ-SEA-3Z 04/08/2014	
Volatile Organic Compounds																		
Acetone	ug/L	50	3	U	3	U	3	U	3	U	3	U	3	U	3	J	4.9	J
Semi-Volatile Organic Compounds																		
None Detected																		
Metals																		
Aluminum, Total Recoverable	ug/L	NS	75.9		129		60	U	313		60	U	60	U	60	U	60	U
Antimony, Total Recoverable	ug/L	3	6.8	U	6.8	U	6.8	U	6.8	U	6.8	U	6.8	U	6.8	U	6.8	U
Arsenic, Total Recoverable	ug/L	25	5.6	U	5.6	U	5.6	U	5.6	U	5.6	U	5.6	U	7.5	J	5.6	U
Barium, Total Recoverable	ug/L	1000	33.6	J	50.8	J	426	J	113	J	28.6	J	6.5	J	9.9	J	47.7	J
Beryllium, Total Recoverable	ug/L	NS	0.3	U	0.3	U	0.3	U	0.3	U	0.3	U	0.3	U	0.3	U	0.3	U
Boron, Total Recoverable	ug/L	1000	255	J	37	J	207	J	14	J	413	J	**1370**		**1840**		45.9	J
Cadmium, Total Recoverable	ug/L	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Calcium, Total Recoverable	ug/L	NS	342000		89400		303000		121000		513000		550000		517000		29600	
Chromium, Total Recoverable	ug/L	50	1.7	J	1.3	J	1.7	J	1	J	1.3	J	1.4	J	1	U	1.4	J
Cobalt, Total Recoverable	ug/L	NS	0.63	U	0.64	J	0.63	U	0.63	U	0.63	U	0.63	U	0.63	U	1.1	J
Copper, Total Recoverable	ug/L	200	1.6	U	1.6	U	1.6	U	1.6	U	1.6	U	1.6	U	1.6	U	1.6	U
Iron, Total Recoverable	ug/L	300	**494**		273		**401**		270		**759**		**569**		**823**		19.3	U
Lead, Total Recoverable	ug/L	25	3	U	3	U	3.2	J	3	U	3	U	3	U	3	J	3	U
Magnesium, Total Recoverable	ug/L	35000	**57300**		**84900**		**41500**		**67500**		**41800**		**46400**		**54200**		**54700**	
Manganese, Total Recoverable	ug/L	300	22.7	J	46.9		13.9	J	17.8	J B	11	J	36.6		53		1	J
Mercury, Total Recoverable	ug/L	0.7	0.12	U	0.12	U	0.12	U	0.12	U	0.12	U	0.12	U	0.12	U	0.12	U
Nickel, Total Recoverable	ug/L	100	1.3	U	1.4	J	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U
Potassium, Total Recoverable	ug/L	NS	3670		4940		3550		740	J	4180		12400		15600		20100	
Selenium, Total Recoverable	ug/L	10	8.7	U	8.7	U	8.7	U	8.7	U	8.7	U	8.7	U	8.7	U	8.7	U
Silver, Total Recoverable	ug/L	50	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U
Sodium, Total Recoverable	ug/L	20000	13200		10500		6840		6890		**20800**		**38300**		**53700**		18900	
Thallium, Total Recoverable	ug/L	NS	10.2	U	10.2	U	10.2	U	10.2	U	10.2	U	10.2	U	10.2	U	10.2	U
Vanadium, Total Recoverable	ug/L	NS	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U
Zinc, Total Recoverable	ug/L	5000	1.5	U	1.5	U	1.5	U	3.3	J B	1.5	U	1.5	J	1.5	U	1.5	U
General Chemistry																		
Bromide	mg/L	2	0.16	J	0.073	U	0.15	U	0.073	U	0.37	U	0.37	U	0.37	U	0.073	U
Chloride	mg/L	250	15.4		32.3		17.9		12.1		52.5		13.5		25.8		13.1	
Sulfate	mg/L	250	**741**		176		**619**		99		**1160**		**1550**		**1430**		90.9	
Ammonia (as N)	mg/L as N	2	0.07		0.009	U	0.23		0.009	U	0.12		0.58		0.79		0.009	U
Total Kjeldahl Nitrogen	mg/L as N	NS	0.39		0.15	U	0.65	B	0.54		0.31	B	0.82		0.85		0.15	U
Chemical Oxygen Demand	mg/L	NS	18.2		5	U	5	U	5	U	6.6	J	5.6	J	12.6		12.6	
Phenolics, Total Recoverable	mg/L	0.005	**0.012**		0.007	J B	0.005	U	0.005	U	0.005	U	0.005	U	0.0077	J B	0.0082	B
Chromium, hexavalent	mg/L	0.05	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U
Cyanide, Total	mg/L	0.2	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U
Nitrate	mg/L as N	10	0.02	U	0.16		0.02	U	0.95		0.02	U	0.02	U	0.02	U	**12.4**	
Color	Color Units	15	15		10		**25**		0.01	U	10		10		5		15	
Alkalinity, Total	mg/L	NS	275		401		339		470		307		253		221		211	
Total Hardness	mg/L	NS	1140		520		1150		580		1650		1650		1750		310	
Total Dissolved Solids	mg/L	500	**1450**		**849**		**1370**		**631**		**2210**		**2490**		**2510**		**870**	
Biochemical Oxygen Demand	ug/L	NS	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U
Total Organic Carbon	mg/L	NS	2.9		1.2		7.8		2.6		2.6		3.6		2		2.2	
Sulfide	mg/L	1000	670	U	670	U	670	U	670	U	670	U	670	U	670	U	670	U
Field Parameters																		
Temperature	Degrees C	NS	9.4		5.2		10.9		7.3		10.1		6.5		10.7		9.5	
Oxidation Reduction Potential	millivolts	NS	47		111		9		209		25		55		22		74	
Turbidity	NTU	5	**9.4**		**6.1**		2.7		**5.5**		3		4		3		**10.7**	
Field pH	SU	NS	7.26		6.54		7.09		6.54		7.08		6.77		7.19		7.45	
Specific Conductance	umhos/cm	NS	1468		1140		1399		905		2206		2257		2313		607	

See last page for notes.

TABLE 9
April 2014 Groundwater Analytical Summary
6NYCRR Part 360 Baseline Parameter List

Mill Seat Landfill
Town of Riga, New York

Notes:
(1) Groundwater standards from: New York State Department of Environmental Conservation (NYSDEC) Division of Water Technical and Operation Guidance Series (TOGS 1.1.1), August 1999.
*shaded cells indicate exceedance of of TOGS 1.1.1 Class GA Guidance Criteria
µg/L: micrograms per liter (parts per billion)
µmho/cm: micromhos per centimeter (equivalent to microSiemens per centimeter)
mg/L: milligrams per liter (parts per million)
ntu: Nephelometric Turbidity Units
s.u.: Standard Unit for pH
U : Indicates that the analyte was analyzed for, but was not detected. The sample quantitation limit is presented. This qualifier is also used in the validation process to signify that the reporting limit of an analyte was raised due to blank contamination.
J : Indicates that the concentration of the result should be considered approximate. This qualifier is used when the data validation process identifies a deficiency in the data generation process. This qualifier is also applied by the laboratory when the analyte concentration was greater than the method detection limit (MDL) but less than the reporting limit. For inorganic results, the qualifier “J” was applied by the laboratory when the analyte concentration was greater than the instrument detection limit (IDL) or MDL but less than the QL.
UJ : Indicates that the analyte was analyzed for, but was not detected. The sample quantitation limit is presented, and should be considered approximate. This qualifier is used when the data validation process identifies a deficiency in the data generation process.