



**Revitalizing Auto Communities
Environmental Response Trust**

April 18, 2012

Mr. Stephen M. Johnson
Deputy Regional Director
Massachusetts Department of Environmental Protection
Northeast Regional Office
205B Lowell Street
Wilmington, Massachusetts 01887

RE: Operation, Maintenance, and Monitoring (OMM) Year Five
Semi-Annual Report Number Two
RTN: 3-3939 Former Landfill (Site), Former GM Assembly Plant
63 Western Avenue, Framingham, Massachusetts (Site)

Dear Mr. Johnson:

The Revitalizing Auto Communities Environmental Response (RACER) Trust is pleased to provide the enclosed second semi-annual event of Year Four (Year 5, Event 2) of the OMM for the above referenced Site.

If you have any questions, please contact me at (937) 751-8635.

Sincerely,

Pamela L. Barnett, PG
Assembly Region Cleanup Manager (DE, LA, MA, OH, PA, VA)
RACER Trust

cc: Fred Taylor



**CONESTOGA-ROVERS
& ASSOCIATES**

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April 18, 2012

Reference No. 012618-T01

Mr. Stephen M. Johnson
Deputy Regional Director
Massachusetts Department of Environmental Protection
Northeast Regional Office
One Winter Street
Boston, MA 02108

Dear Mr. Johnson:

Re: Operation, Maintenance, and Monitoring (OMM) Year Five
Semi-Annual Report Number Two
RTN: 3-3939 Former Landfill (Site), Former GM Assembly Plant
63 Western Avenue, Framingham, Massachusetts (Property)

This letter documents the inspections, maintenance, and monitoring conducted by Conestoga-Rovers & Associates (CRA), on behalf of the Revitalizing Auto Communities Environmental Response (RACER) Trust, for the second semi-annual event of Year Five (Year Five, Event Two) of the OMM for the above referenced Site. In accordance with CMR 40.0996(5), ongoing monitoring is required to ensure that a Condition of No Significant Risk is maintained where a Permanent Remedy has been achieved and the concentration of one or more oil and/or hazardous materials (OHM) is greater than the Upper Concentration Limits (UCLs). The results of the monitoring are required to be submitted to the Massachusetts Department of Environmental Protection (MassDEP) (Massachusetts Contingency Plan [MCP] 40.0996(9)). The OMM activities support the Class A-4 Response Action Outcome (RAO) and ensure that the Obligations and Conditions of the Site Activity and Use Limitation (AUL) are met. The OMM activities were completed in accordance with the final OMM Plan, submitted to MassDEP as Appendix D of the As-Built Construction and RAO Report (CRA, January 2007, amended June 2011). This report documents the Year Five Event Two of the OMM activities which covers the period from October 2011 to March 2012. The Site features are shown on Figure 1.

1.0 INSPECTIONS AND MAINTENANCE

1.1 ENGINEERED BARRIER

The engineered barrier was inspected on February 8, 2012 and the completed Former Landfill Inspection Log is provided in Attachment A. Asset Holdings III LP's affiliate Auto Dealers

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Exchange of Concord, LLC dba ADESA Boston LLC (ADESA), also completed routine inspections and maintenance during the OMM period. There were no significant integrity or erosion issues identified with the engineered barrier (asphalt or soil cover). Minor cracking and settling near MW-01-07 was noted. No maintenance issues associated with the gates/lock and access road was observed. The perimeter fence and berm fence along the west side of the asphalt parking lot and the north edge of the wetland were damaged in several places including a missing section near MW-07-07. The berm also has some grass missing and tire ruts near MW-06-07. The minor cracking noted will be repaired as part of ongoing maintenance as soon as weather permits. The fence and berm repairs will be scheduled to be completed in the summer of 2012.

1.2 STORM WATER FEATURES

The stormwater features were inspected on February 7 and 8, 2012 and the completed Stormwater Controls and Stormwater Catch Basin and Sewer Inspection Logs are provided in Attachment A. ADESA also completed routine inspections and maintenance during the OMM period. There were no significant issues identified with the stormwater features, however some minor erosion was noted on the slopes around the ponds. The minor erosion issues will continue to be monitored and will be repaired as necessary to prevent significant erosion and/or loss of vegetative cover from occurring.

1.3 MONITORING WELL NETWORK

The seven groundwater monitoring wells (MW-1-07, MW-2-07, MW-3-07, MW-4-04, MW-5-07, MW-6-07, and MW-7-07) were inspected on February 7, 2012 and the Monitoring Inspection Log is included in Attachment A. There were no significant issues identified with the monitoring well network. At monitoring well locations MW-1-07 through MW-3-07, the bolt threads of the road boxes were stripped and will likely require new road boxes. This is likely the result of snow removal activities during the winter of 2010/2011. MW-4-07 is also missing its well plug and will need to be replaced. These minor repairs will be completed prior to the next scheduled sampling in August 2012.

2.0 GROUNDWATER MONITORING

The second semi-annual groundwater monitoring round for Year Five was completed in February 2012, and included:



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- Hydraulic monitoring of seven wells (MW-1-07, MW-2-07, MW-3-07, MW-4-04, MW-5-07, MW-6-07 and MW-7-07)
- Sampling by low flow/low purging procedures of five wells (MW-1-07, MW-3-07, MW-5-07, MW-6-07 and MW-7-07)
- Sample analysis for semi-volatile organic compounds (SVOCs) and total metals

Groundwater Elevation and Flow Direction

On February 7, 2012, groundwater elevations were measured in the seven Site monitoring wells. Groundwater elevations are presented in Table 1 and groundwater elevation contours, which are shown on Figure 2, were developed from the elevations and used to evaluate groundwater flow direction, which is toward the center of the former landfill. Based on review of the current and historical groundwater elevations and flow directions, the engineered barrier (2006 construction) has not caused substantive changes to groundwater elevations nor significantly influenced the direction of groundwater flow. Although the barrier is relatively impermeable, there are significant influences to groundwater recharge from non-barrier areas and storm water management features such as the storm sewer bedding, which transects the Site, exerting some eastward and westward influence on flow direction.

Groundwater Quality

On February 7 and 8, 2012, groundwater samples were collected from five monitoring wells (MW-1-07, MW-3-07, MW-5-07, MW-6-07, and MW-7-07), including one duplicate sample from MW-6-07. The monitoring well low flow purging and groundwater sampling records are provided in Attachment B.

The samples were packaged, labeled, and submitted to TestAmerica Laboratories, in Westfield, Massachusetts under chain of custody protocols. The laboratory analyses for total metals and SVOCs were completed in accordance with the Compendium of Analytical Methods (CAM). A CRA chemist performed an independent data usability assessment and validation, which indicated that the data exhibited acceptable levels of accuracy and precision, based on the provided information and may be used with the qualifications noted in the Quality Assurance/Quality Control (QA/QC) Memorandum provided in Attachment C. It is noted that the results for 1,3-dichlorobenzene, 2,4-dichlorophenol, 2,4-dinitrophenol, 2-chlorophenol, 3&4-methylphenol, 3,3'-dichlorobenzidine, 4-nitrophenol, pentachlorophenol, and phenol were rejected in one groundwater sample (MW-5-07) due to matrix spike/matrix spike duplicate recoveries and/or relative percent difference. These constituents have not been detected in groundwater samples collected historically and are not deemed to be Site-specific OHM or of concern.



The samples, field and laboratory observations, and data were verified to be representative of Site conditions and provide usable data consistent with the MCP Representativeness Evaluations and Data Usability Assessments (MassDEP, WSC 0007-350, September 2002) (REDUA) requirements.

Year Five Event Two groundwater sample data and MCP Method 1 GW-3 standards are provided in Table 2. For comparison purposes only, (since a Phase II Comprehensive Site Assessment [CSA] Method 3 human health risk assessment [HHRA] and ecological risk assessment [ERA] were completed), the analytical data were compared to historical data and the GW-3 standards.

SVOCs

No SVOCs were detected above reporting limits in groundwater samples. It is noted that di-n-butylphthalate (DHB) was detected at an estimated concentration of 0.0011 milligrams per liter (mg/L), which is lower than the reporting limit of 0.0099 mg/L. This is consistent with previous OMM monitoring and historical data.

Metals

Fifteen of the 19 metals that were analyzed were detected in one or more groundwater samples above reporting limits or at estimated concentrations. The results and analytical reporting limits were below GW-3 standards for all samples except for nickel detected in the groundwater sample collected from MW-5-07 at a concentration of 0.28 mg/L, which is above the GW-3 standard of 0.2 mg/L. This is consistent with previous OMM monitoring and historical data.

3.0 SURFACE WATER/SEDIMENT MONITORING

The surface water/sediment sampling program includes sampling of up to two surface water and two sediment locations and analysis for SVOCs and metals. For the Year Five Event Two event, surface water samples were collected from manhole STM-05 and the Wetland 'A' Inlet to the storm sewer, including a duplicate sample collected from the wetland inlet for QA/QC purposes. Sediment samples could not be collected from the stormwater collection and discharge system due to insufficient sediment quantities. The stormwater sewer/manholes/catch basins will continue to be inspected for the presence of sediments as part of future OMM activities.



Surface Water Quality

The surface water samples were sent to TestAmerica Laboratories in Westfield, Massachusetts under chain of custody protocol. The laboratory analyses were completed in accordance with the CAM. A CRA chemist performed an independent data usability assessment and validation, which indicated that the data exhibited acceptable levels of accuracy and precision, based on the provided information and may be used with the qualifications noted in the QA/QC Memorandum provided in Attachment C. The samples, field and laboratory observations, and data were verified to be representative of Site conditions and provide usable data consistent with the MCP REDUA requirements.

The Year Five Event Two surface water data are provided in Table 3. For comparison purposes only (since a Phase II CSA Method 3 HHRA and ERA was completed), the surface water analytical data were compared to the United States Environmental Protection Agency (U.S. EPA) default freshwater ambient water quality criterion (AWQC) continuous concentrations (CCC) (for chronic exposure) and the criterion maximum concentrations (CMC) (for acute exposure), as adopted by MassDEP, and historical data.

SVOCs

No SVOCs were detected above laboratory reporting limits in surface water samples collected during this monitoring event.

Metals

Twelve total metals and 12 dissolved metals out of 19 metals analyzed were detected in one or more surface water samples, with most of the detections reported as estimated values. Total and dissolved aluminum and total lead slightly exceeded acute and/or chronic exposure criteria and total aluminum and total lead were slightly above the historical Phase II CSA concentrations used for the HHRA and ERA. No EPC concentrations were developed for dissolved aluminum.

The concentrations of total and dissolved aluminum detected in STM-05 and the wetland inlet A exceeded the regulatory criteria, however, total aluminum was significantly decreased from the previous round of sampling conducted in September 2011. Total aluminum was detected in manhole STM-05 and the wetland A inlet at concentrations of 0.1 mg/L and 0.26 mg/L (duplicate was 0.24 mg/L), respectively during this monitoring event. Total aluminum was detected at 19 mg/L in STM-05 and 6.4 mg/L in the wetland A inlet during the September 2011 monitoring event. Historically, detections of total aluminum were



approximately 0.2 mg/L or less and the exposure point concentration (EPC) was calculated at 0.248 mg/L. Since concentrations have returned to historical levels, the September 2011 monitoring event was an anomalous occurrence, and although concentrations of total aluminum exceeded criteria and EPCs during this event, they are only minor exceedances and do not pose a risk to human health and the environment.

Dissolved aluminum was detected in manhole STM-05 at an estimated concentration of 0.088J mg/L and in the wetland A inlet at 0.099J mg/L (duplicate was 0.096J mg/L). These concentrations are only slightly above the freshwater chronic regulatory criteria of 0.087 mg/L and do not pose a risk to human health. No EPCs were developed for dissolved aluminum.

Total lead was detected at a concentration of 0.0036 mg/L (duplicate was 0.0031 mg/L) in wetland A inlet. These concentrations are only slightly above the freshwater chronic regulatory criteria of 0.0025 mg/L and the EPC of 0.0031 mg/L and do not pose a risk to human health.

Additionally, total iron was detected at an elevated level during the previous sampling event.

4.0 CONCLUSIONS

The OMM inspections conducted for Year Five Event Two of the OMM Plan indicate that the engineered barrier, the storm water management features, and other Site remedial components are as designed and constructed, generally are in good condition, and are being maintained, as required. The minor asphalt cracks, fence and berm damage, monitoring well cap/road box maintenance, and ongoing minor erosion repairs will be addressed in the summer of 2012. ADESA has been providing inspections and routine and unscheduled maintenance activities for the engineered barrier, storm water features and monitoring well network.

The Year Five Event Two groundwater and surface water hydraulic and water quality data are similar to data obtained from previous OMM events and the Phase II CSA (CRA, August 2005). Based on the Phase II CSA HHRA/ERA, the metals detected in groundwater and surface water are at similar concentrations to previous OMM and historical results, and do not present an unacceptable risk of harm to human and ecological receptors at or in the vicinity of the Site.

The results of Year Five Event Two groundwater and surface water monitoring do not change the conclusions of the Method 3 HHRA and ERA completed as part of the Phase II CSA and supports the A-4 RAO conditions that No Significant Risk and No Substantial Hazards are still present for the Site.



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Please contact the undersigned at 519-884-0510 or 860-747-1800, if you have any questions.

Yours truly,

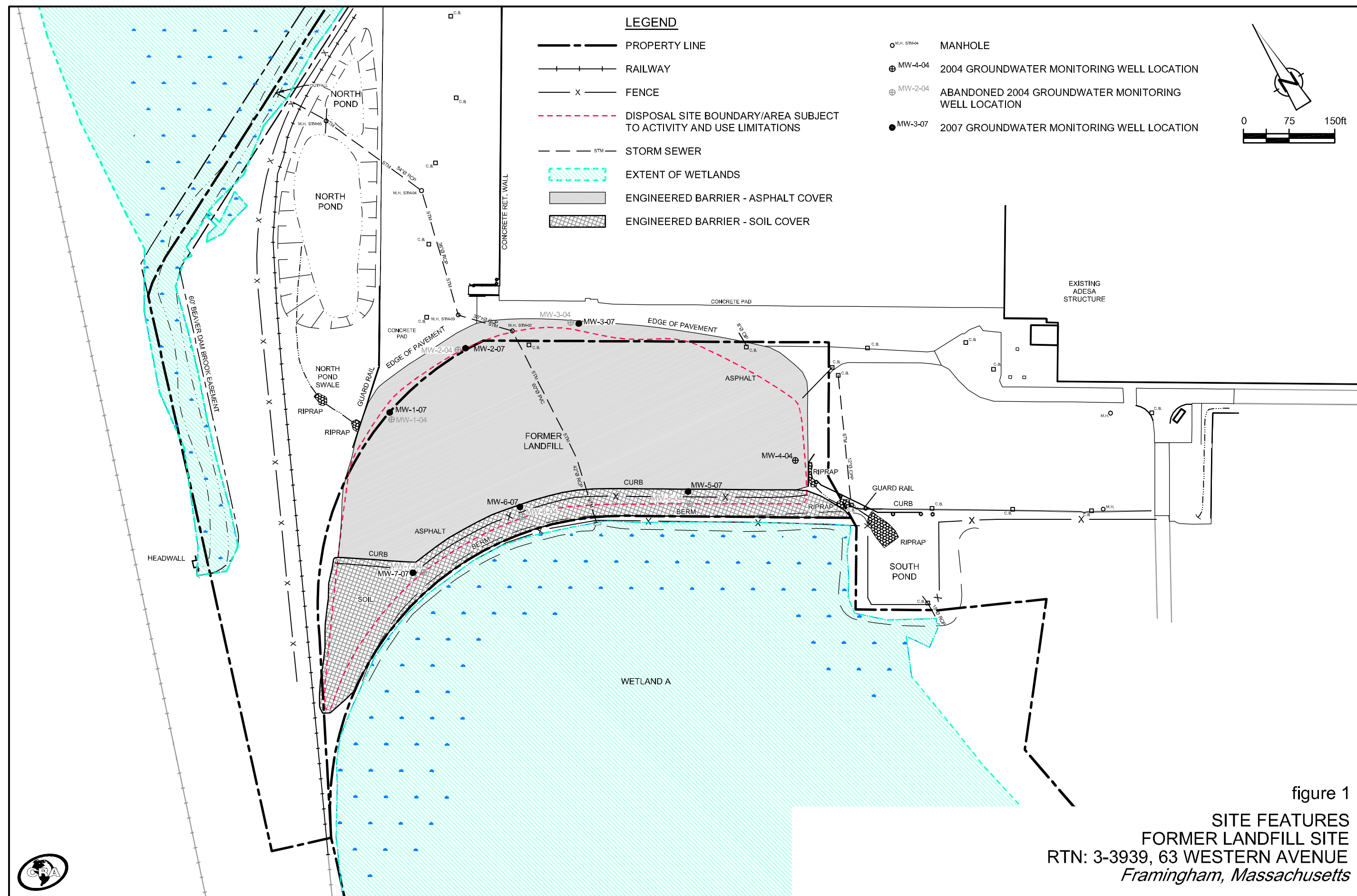
CONESTOGA-ROVERS & ASSOCIATES

Fred K. Taylor, LSP

LP/lo/4/CT

Encl.

c.c.: Pamela Barnett, RACER Trust
Jack Neshe, ADESA
Jeff Lambert, CRA



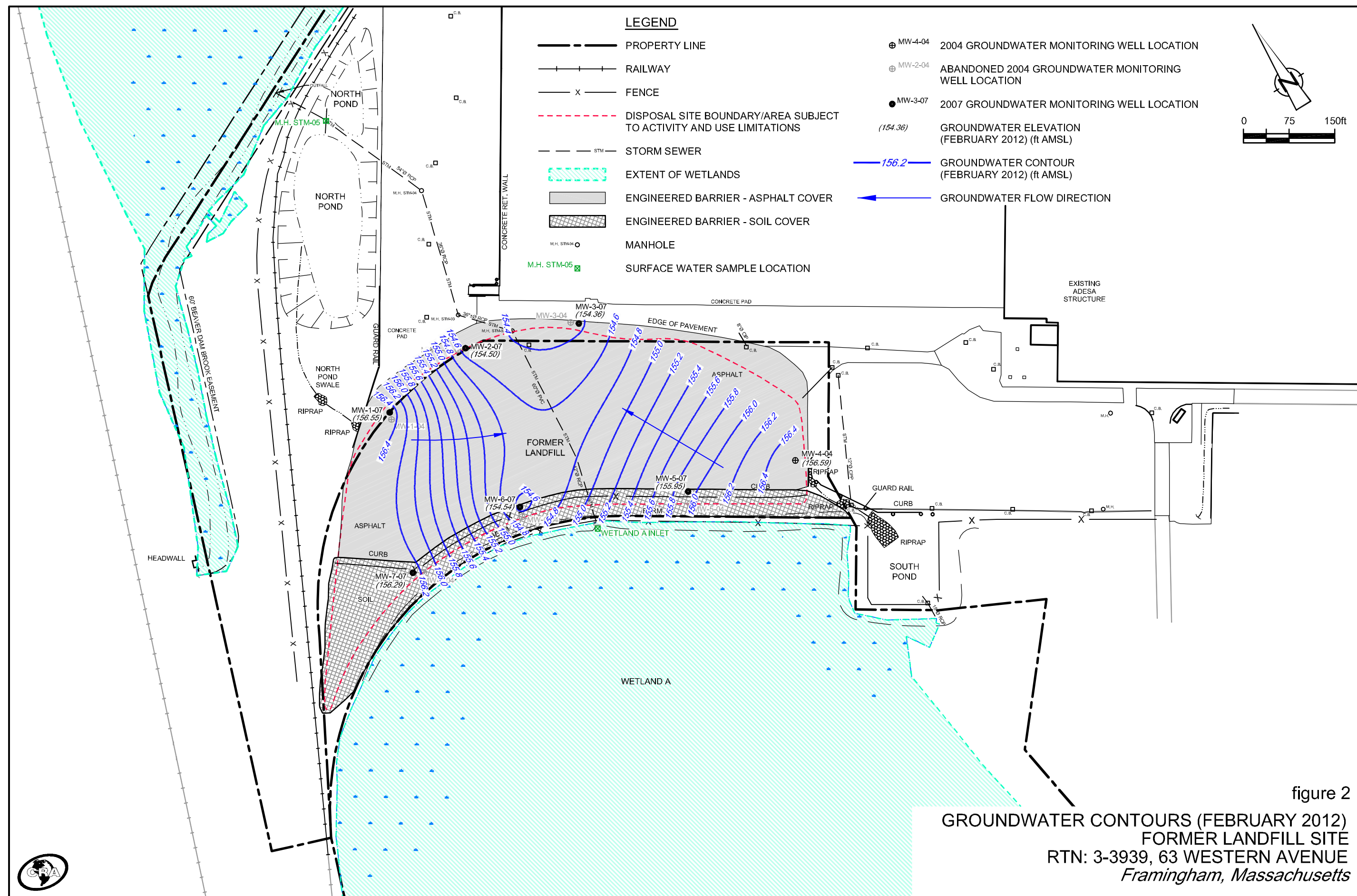


TABLE 1
GROUNDWATER LEVELS
FORMER LANDFILL SITE
FRAMINGHAM, MASSACHUSETTS

<i>Historical Groundwater Elevations</i>			<i>October 2004</i>		<i>November 2004</i>		<i>April 2005</i>		<i>July 2005</i>	
<i>Location</i>	<i>Ground Elevation (ft ASD)</i>	<i>Top of Riser Elevation (ft ASD)</i>	<i>Depth to Water (ft BGS)</i>	<i>Groundwater Elevation (ft ASD)</i>	<i>Depth to Water (ft BGS)</i>	<i>Groundwater Elevation (ft ASD)</i>	<i>Depth to Water (ft BGS)</i>	<i>Groundwater Elevation (ft ASD)</i>	<i>Depth to Water (ft BGS)</i>	<i>Groundwater Elevation (ft ASD)</i>
MW-1-04	164.10	164.10	7.27	156.83	7.41	156.69	7.20	156.90	7.90	156.20
MW-2-04	164.70	164.70	10.12	154.58	9.80	154.90	9.80	154.90	10.92	153.78
MW-3-04	167.30	167.30	--	--	12.55	154.75	13.86	153.44	14.22	153.08
MW-4-04	165.11	167.40	--	--	11.70	155.70	9.61	157.79	10.87	156.53
MW-5-04	164.24	165.70	--	--	12.20	153.50	10.60	155.10	10.67	155.03
MW-6-04	164.11	165.90	11.30	154.60	11.70	154.20	12.08	153.82	13.22	152.68
MW-7-04	163.18	166.60	9.22	157.38	9.83	156.77	9.01	157.59	11.11	155.49

<i>Year One OMM Groundwater Elevations</i>			<i>July 2007</i>		<i>September 2007</i>		<i>November 2007</i>		<i>February 2008</i>	
<i>Location</i>	<i>Ground Elevation (ft ASD)</i>	<i>Top of Riser Elevation (ft ASD)</i>	<i>Depth to Water (ft BTOR)</i>	<i>Groundwater Elevation (ft ASD)</i>	<i>Depth to Water (ft BTOR)</i>	<i>Groundwater Elevation (ft ASD)</i>	<i>Depth to Water (ft BTOR)</i>	<i>Groundwater Elevation (ft ASD)</i>	<i>Depth to Water (ft BTOR)</i>	<i>Groundwater Elevation (ft ASD)</i>
MW-1-07	166.30	165.90	9.99	155.91	11.4	154.50	10.21	155.69	8.71	157.19
MW-2-07	166.70	166.20	11.17	155.03	12.32	153.88	12.2	154.00	10.43	155.77
MW-3-07	167.40	166.90	12.22	154.68	12.94	153.96	12.31	154.59	9.67	157.23
MW-4-04	166.50	166.20	9.01	157.19	9.79	156.41	9.54	156.66	8.29	157.91
MW-5-07	169.00	171.90	16.27	155.63	18.52	153.38	17.99	153.91	14.77	157.13
MW-6-07	168.90	172.00	16.91	155.09	18.43	153.57	18.41	153.59	16.19	155.81
MW-7-07	170.70	174.00	18.68	155.32	19.94	154.06	20.03	153.97	17.44	156.56

TABLE 1
GROUNDWATER LEVELS
FORMER LANDFILL SITE
FRAMINGHAM, MASSACHUSETTS

<i>Year Two/Three OMM Groundwater Elevations</i>			<i>September 2008</i>		<i>February 2009</i>		<i>August 2009</i>		<i>February 2010</i>	
<i>Location</i>	<i>Ground Elevation</i>	<i>Top of Riser Elevation</i>	<i>Depth to Water</i>	<i>Groundwater Elevation</i>	<i>Depth to Water</i>	<i>Groundwater Elevation</i>	<i>Depth to Water</i>	<i>Groundwater Elevation</i>	<i>Depth to Water</i>	<i>Groundwater Elevation</i>
	<i>(ft ASD)</i>	<i>(ft ASD)</i>	<i>(ft BTOR)</i>	<i>(ft ASD)</i>	<i>(ft BTOR)</i>	<i>(ft ASD)</i>	<i>(ft BTOR)</i>	<i>(ft ASD)</i>	<i>(ft BTOR)</i>	<i>(ft ASD)</i>
MW-1-07	166.30	165.90	9.15	156.75	9.15	156.75	9.15	156.75	8.89	157.01
MW-2-07	166.70	166.20	10.87	155.33	11.50	154.70	10.71	155.49	11.36	154.84
MW-3-07	167.40	166.90	11.60	155.30	12.12	154.78	12.25	154.65	12.78	154.12
MW-4-04	166.50	166.20	9.07	157.13	9.60	156.60	9.01	157.19	9.37	156.83
MW-5-07	169.00	171.90	15.46	156.44	15.70	156.20	15.45	156.45	15.29	156.61
MW-6-07	168.90	172.00	16.56	155.44	17.55	154.45	16.08	155.92	17.17	154.83
MW-7-07	170.70	174.00	17.85	156.15	17.70	156.30	17.77	156.23	17.49	156.51

<i>Year Four/Five OMM Groundwater Elevations</i>			<i>September 2010</i>		<i>March 2011</i>		<i>September 2011</i>		<i>February 2011</i>	
<i>Location</i>	<i>Ground Elevation</i>	<i>Top of Riser Elevation</i>	<i>Depth to Water</i>	<i>Groundwater Elevation</i>	<i>Depth to Water</i>	<i>Groundwater Elevation</i>	<i>Depth to Water</i>	<i>Groundwater Elevation</i>	<i>Depth to Water</i>	<i>Groundwater Elevation</i>
	<i>(ft ASD)</i>	<i>(ft ASD)</i>	<i>(ft BTOR)</i>	<i>(ft ASD)</i>	<i>(ft BTOR)</i>	<i>(ft ASD)</i>	<i>(ft BTOR)</i>	<i>(ft ASD)</i>	<i>(ft BTOR)</i>	<i>(ft ASD)</i>
MW-1-07	166.30	165.90	9.55	156.35	8.93	156.97	9.22	156.68	9.35	156.55
MW-2-07	166.70	166.20	11.71	154.49	11.50	154.70	--	--	11.70	154.50
MW-3-07	167.40	166.90	11.20	155.70	11.92	154.98	11.54	155.36	12.54	154.36
MW-4-04	166.50	166.20	9.56	156.64	9.30	156.90	9.10	157.10	9.61	156.59
MW-5-07	169.00	171.90	15.70	156.20	15.32	156.58	15.40	156.50	15.95	155.95
MW-6-07	168.90	172.00	18.07	153.93	-	-	16.32	155.68	17.46	154.54
MW-7-07	170.70	174.00	19.68	154.32	17.62	156.38	17.60	156.40	17.71	156.29

Notes:

ft BTOR - Feet below Top of Riser

ft ASD - Feet above Site Datum, as calculated by Schofield Brothers Surveying

TABLE 2
GROUNDWATER ANALYTICAL DATA
OMM YEAR 5 EVENT 1
FORMER LANDFILL SITE
FRAMINGHAM, MASSACHUSETTS

Sample Location	MCP Groundwater		MW-1-07	MW-3-07	MW-5-07	MW-6-07	MW-6-07	MW-7-07
Sample Identification	GW-3		GW-12618-020812-RR-002	GW-12618-020812-RR-003	GW-12618-020812-RR-006 ms/msd	GW-12618-020812-RR-004	GW-12618-020812-RR-005	GW-12618-020712-RR-001
Sample Date			2/8/2012	2/8/2012	2/8/2012	2/8/2012	2/8/2012	2/7/2012
Sample Type							Duplicate	
<i>Metals</i>	<i>Units</i>	a						
Aluminum	mg/L		0.96	1.2	0.1 U	0.1 U	0.1 U	0.1 U
Antimony	mg/L	8	0.002 U	0.00028 J	0.0018 J	0.0018 J	0.002	0.002 U
Arsenic	mg/L	0.9	0.0013	0.0027	0.003	0.0079	0.0078	0.0062
Barium	mg/L	50	0.068 J	0.056 J	0.2 J	0.038 J	0.04 J	0.049 J
Beryllium	mg/L	0.05	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Cadmium	mg/L	0.004	0.001 U	0.001 U	0.002 U	0.001 U	0.00016 J	0.001 U
Chromium	mg/L	0.3	0.0048	0.0014	0.0022	0.001 U	0.001 U	0.00092 J
Cobalt	mg/L		0.0022 J	0.005 J	0.01 U	0.0081 J	0.008 J	0.01 U
Copper	mg/L		0.01 U	0.01 U	0.01 U	0.0044 J	0.0051 J	0.01 U
Iron	mg/L		3.6	13	170	1.2	1.2	68
Lead	mg/L	0.01	0.00075 J	0.0021	0.001 U	0.001 U	0.001 U	0.001 U
Manganese	mg/L		0.41	7	1.1	0.42	0.44	2.1
Mercury	mg/L	0.02	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Nickel	mg/L	0.2	0.0025 J	0.0032 J	0.28*	0.017	0.018	0.01 U
Selenium	mg/L	0.1	0.0017	0.0011	0.0048	0.0029	0.0026	0.001 U
Silver	mg/L	0.007	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Thallium	mg/L	3	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Vanadium	mg/L	4	0.0078 J	0.0015 J	0.01 U	0.01 U	0.01 U	0.01 U
Zinc	mg/L	0.9	0.005	0.0062	0.012	0.19	0.21	0.0037
<i>Semi-Volatile Organic Compounds</i>								
1,2,4-Trichlorobenzene	mg/L	50	0.0098 U	0.0097 U	0.0099 U	0.0098 U	0.01 U	0.0099 U
1,2-Dichlorobenzene	mg/L	2	0.0098 U	0.0097 U	0.0099 U	0.0098 U	0.01 U	0.0099 U
1,3-Dichlorobenzene	mg/L	50	0.0098 U	0.0097 U	R	0.0098 U	0.01 U	0.0099 U
1,4-Dichlorobenzene	mg/L	8	0.0098 U	0.0097 U	0.0099 U	0.0098 U	0.01 U	0.0099 U
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	mg/L	50	0.0098 U	0.0097 U	0.0099 U	0.0098 U	0.01 U	0.0099 U
2,4,5-Trichlorophenol	mg/L	3	0.0098 U	0.0097 U	0.0099 U	0.0098 U	0.01 U	0.0099 U
2,4,6-Trichlorophenol	mg/L	0.5	0.0098 U	0.0097 U	0.0099 U	0.0098 U	0.01 U	0.0099 U
2,4-Dichlorophenol	mg/L	2	0.0098 U	0.0097 U	R	0.0098 U	0.01 U	0.0099 U
2,4-Dimethylphenol	mg/L	50	0.0098 U	0.0097 U	0.0099 U	0.0098 U	0.01 U	0.0099 U
2,4-Dinitrophenol	mg/L	20	0.0098 U	0.0097 U	R	0.0098 U	0.01 U	0.0099 U
2,4-Dinitrotoluene	mg/L	50	0.0098 U	0.0097 U	0.0099 U	0.0098 U	0.01 U	0.0099 U
2,6-Dinitrotoluene	mg/L		0.0098 U	0.0097 U	0.0099 U	0.0098 U	0.01 U	0.0099 U
2-Chloronaphthalene	mg/L		0.0098 U	0.0097 U	0.0099 U	0.0098 U	0.01 U	0.0099 U
2-Chlorophenol	mg/L	40	0.0098 U	0.0097 U	R	0.0098 U	0.01 U	0.0099 U
2-Methylnaphthalene	mg/L	3	0.0049 U	0.0048 U	0.005 U	0.0049 U	0.005 U	0.0049 U
2-Methylphenol	mg/L		0.0098 U	0.0097 U	0.0099 U	0.0098 U	0.01 U	0.0099 U
2-Nitrophenol	mg/L		0.0098 U	0.0097 U	0.0099 U	0.0098 U	0.01 U	0.0099 U
3&4-Methylphenol	mg/L		0.0098 U	0.0097 U	R	0.0098 U	0.01 U	0.0099 U
3,3'-Dichlorobenzidine	mg/L	2	0.02 U	0.019 U	R	0.02 U	0.02 U	0.02 U
4-Bromophenyl phenyl ether	mg/L		0.0098 U	0.0097 U	0.0099 U	0.0098 U	0.01 U	0.0099 U
4-Chloroaniline	mg/L	0.3	0.02 U	0.019 U	0.02 U	0.02 U	0.02 U	0.02 U

TABLE 2
GROUNDWATER ANALYTICAL DATA
OMM YEAR 5 EVENT 1
FORMER LANDFILL SITE
FRAMINGHAM, MASSACHUSETTS

Sample Location	MCP Groundwater	MW-1-07	MW-3-07	MW-5-07	MW-6-07	MW-6-07	MW-7-07
Sample Identification	GW-3	GW-12618-020812-RR-002	GW-12618-020812-RR-003	GW-12618-020812-RR-006 ms/msd	GW-12618-020812-RR-004	GW-12618-020812-RR-005	GW-12618-020712-RR-001
Sample Date		2/8/2012	2/8/2012	2/8/2012	2/8/2012	2/8/2012	2/7/2012
Sample Type						Duplicate	
	Units						
4-Nitrophenol	mg/L	a	0.049 U	0.048 U	R	0.049 U	0.049 U
Acenaphthene	mg/L	5	0.0049 U	0.0048 U	0.005 U	0.0049 U	0.0049 U
Acenaphthylene	mg/L	3	0.0049 U	0.0048 U	0.005 U	0.0049 U	0.0049 U
Acetophenone	mg/L		0.0098 U	0.0097 U	0.0099 U	0.0098 U	0.0099 U
Aniline	mg/L		0.049 UJ	0.048 UJ	0.05 UJ	0.049 UJ	0.049 UJ
Anthracene	mg/L	3	0.0049 U	0.0048 U	0.005 U	0.0049 U	0.0049 U
Atrazine	mg/L		0.0098 U	0.0097 U	0.0099 U	0.0098 U	0.0099 U
Azobenzene	mg/L		0.0098 U	0.0097 U	0.0099 U	0.0098 U	0.0099 U
Benzo(a)anthracene	mg/L	1	0.0049 U	0.0048 U	0.005 U	0.0049 U	0.0049 U
Benzo(a)pyrene	mg/L	0.5	0.0049 U	0.0048 U	0.005 U	0.0049 U	0.0049 U
Benzo(b)fluoranthene	mg/L	0.4	0.0049 U	0.0048 U	0.005 U	0.0049 U	0.0049 U
Benzo(g,h,i)perylene	mg/L	3	0.0049 UJ	0.0048 UJ	0.005 UJ	0.0049 UJ	0.0049 UJ
Benzo(k)fluoranthene	mg/L	0.1	0.0049 U	0.0048 U	0.005 U	0.0049 U	0.0049 U
bis(2-Chloroethoxy)methane	mg/L		0.0098 U	0.0097 U	0.0099 U	0.0098 U	0.0099 U
bis(2-Chloroethyl)ether	mg/L	50	0.0098 U	0.0097 U	0.0099 U	0.0098 U	0.0099 U
bis(2-Ethylhexyl)phthalate (DEHP)	mg/L	0.03	0.0098 U	0.0097 U	0.0099 U	0.0098 U	0.0099 U
Butyl benzylphthalate (BBP)	mg/L		0.0098 U	0.0097 U	0.0099 U	0.0098 U	0.0099 U
Chrysene	mg/L	3	0.0049 U	0.0048 U	0.005 U	0.0049 U	0.0049 U
Dibenz(a,h)anthracene	mg/L	0.04	0.0049 UJ	0.0048 UJ	0.005 UJ	0.0049 UJ	0.0049 UJ
Dibenzofuran	mg/L		0.0098 U	0.0097 U	0.0099 U	0.0098 U	0.0099 U
Diethyl phthalate	mg/L	9	0.0098 U	0.0097 U	0.0099 U	0.0098 U	0.0099 U
Dimethyl phthalate	mg/L	50	0.0098 U	0.0097 U	0.0099 U	0.0098 U	0.0099 U
Di-n-butylphthalate (DBP)	mg/L		0.0098 U	0.0097 U	0.0011 J	0.0098 U	0.0099 U
Di-n-octyl phthalate (DnOP)	mg/L		0.0098 U	0.0097 U	0.0099 U	0.0098 U	0.0099 U
Fluoranthene	mg/L	0.2	0.0049 U	0.0048 U	0.005 U	0.0049 U	0.0049 U
Fluorene	mg/L	3	0.0049 U	0.0048 U	0.005 U	0.0049 U	0.0049 U
Hexachlorobenzene	mg/L	6	0.0098 U	0.0097 U	0.0099 U	0.0098 U	0.0099 U
Hexachlorobutadiene	mg/L	3	0.0098 U	0.0097 U	0.0099 U	0.0098 U	0.0099 U
Hexachloroethane	mg/L	50	0.0098 U	0.0097 U	0.0099 U	0.0098 U	0.0099 U
Indeno(1,2,3-cd)pyrene	mg/L	0.1	0.0049 U	0.0048 U	0.005 U	0.0049 U	0.0049 U
Isophorone	mg/L		0.0098 U	0.0097 U	0.0099 U	0.0098 U	0.0099 U
Naphthalene	mg/L	20	0.0049 U	0.0048 U	0.005 U	0.0049 U	0.0049 U
Nitrobenzene	mg/L		0.0098 U	0.0097 U	0.0099 U	0.0098 U	0.0099 U
Pentachlorophenol	mg/L	0.2	0.049 U	0.048 U	R	0.049 U	0.049 U
Phenanthrene	mg/L	0.05	0.0049 U	0.0048 U	0.005 U	0.0049 U	0.0049 U
Phenol	mg/L	2	0.0098 UJ	0.0097 UJ	R	0.0098 UJ	0.0099 UJ
Pyrene	mg/L	0.02	0.0049 U	0.0048 U	0.005 U	0.0049 U	0.0049 U

Notes:
U - Not present at or above the associated value.
J - Estimated concentration.
UJ - Estimated reporting limit.
R - Rejected

TABLE 3
SURFACE WATER ANALYTICAL DATA
OMM YEAR 5 EVENT 1
FORMER LANDFILL SITE
FRAMINGHAM, MASSACHUSETTS

Sample Location		Freshwater CMC	Freshwater CCC	<i>MH-STM-05</i>	<i>WETLAND INLET</i>	<i>WETLAND INLET</i>
Sample Identification		(acute)	(chronic)	<i>SW-12618-020712-RR-003 ms/msd</i>	<i>SW-12618-020712-RR-001</i>	<i>SW-12618-020712-RR-002</i>
Sample Date				<i>2/7/2012</i>	<i>2/7/2012</i>	<i>2/7/2012</i>
Sample Type						<i>Duplicate</i>
<i>Units</i>	<i>a</i>	<i>b</i>				
<i>Metals</i>						
Aluminum	mg/L	0.75	0.087	0.1^a	0.26^a	0.24^a
Antimony	mg/L			0.00068 J	0.00093 J	0.00047 J
Arsenic	mg/L	0.34	0.15	0.00043 J	0.00049 J	0.00062 J
Barium	mg/L			0.025	0.014	0.015
Beryllium	mg/L			0.001 U	0.001 U	0.001 U
Cadmium	mg/L	0.002	0.00025	0.001 U	0.001 U	0.001 U
Chromium	mg/L	0.016	0.011	0.001 U	0.0013 U	0.0014 U
Cobalt	mg/L			0.01 U	0.01 U	0.01 U
Copper	mg/L	0.013	0.009	0.01 U	0.01 U	0.0025 J
Iron	mg/L		1	0.91 J	0.93 J	0.89 J
Lead	mg/L	0.065	0.0025	0.00087 J	0.0036^a	0.0031^a
Manganese	mg/L			0.066	0.029	0.031
Mercury	mg/L	0.0014	0.00077	0.0002 U	0.0002 U	0.0002 U
Nickel	mg/L	0.47	0.052	0.01 U	0.01 U	0.0013 J
Selenium	mg/L		0.005	0.001 U	0.0012	0.001 U
Silver	mg/L	0.0032		0.001 U	0.001 U	0.001 U
Thallium	mg/L			0.001 U	0.001 U	0.001 U
Vanadium	mg/L			0.01 U	0.0026 J	0.0025 J
Zinc	mg/L	0.12	0.12	0.0072	0.0095	0.01
Aluminum (dissolved)	mg/L	0.75	0.087	0.088 J^a	0.099 J^a	0.096 J^a
Antimony (dissolved)	mg/L			0.001 U	0.001 U	0.001 U
Arsenic (dissolved)	mg/L	0.34	0.15	0.00055 J	0.001 U	0.001 U
Barium (dissolved)	mg/L			0.025	0.014	0.013
Beryllium (dissolved)	mg/L			0.001 U	0.001 U	0.001 U
Cadmium (dissolved)	mg/L	0.002	0.00025	0.001 U	0.001 U	0.001 U
Chromium (dissolved)	mg/L	0.016	0.011	0.001 U	0.0005 J	0.001 U
Cobalt (dissolved)	mg/L			0.01 U	0.01 U	0.01 U
Copper (dissolved)	mg/L	0.013	0.009	0.01 U	0.0046 J	0.01 U
Iron (dissolved)	mg/L		1	0.57	0.4	0.39
Lead (dissolved)	mg/L	0.065	0.0025	0.00063 J	0.0023 J	0.00077 J
Manganese (dissolved)	mg/L			0.062	0.029	0.027
Mercury (dissolved)	mg/L	0.0014	0.00077	0.0002 U	0.0002 U	0.0002 U
Nickel (dissolved)	mg/L	0.47	0.052	0.0016 J	0.0021 J	0.01 U
Selenium (dissolved)	mg/L		0.005	0.00083 J	0.001 U	0.001 U
Silver (dissolved)	mg/L	0.0032		0.001 U	0.001 U	0.001 U
Thallium (dissolved)	mg/L			0.001 U	0.001 U	0.001 U
Vanadium (dissolved)	mg/L			0.01 U	0.01 U	0.01 U
Zinc (dissolved)	mg/L	0.12	0.12	0.011	0.012 J	0.0065 J

TABLE 3
SURFACE WATER ANALYTICAL DATA
OMM YEAR 5 EVENT 1
FORMER LANDFILL SITE
FRAMINGHAM, MASSACHUSETTS

Sample Location	Freshwater CMC	Freshwater CCC	MH-STM-05	WETLAND INLET	WETLAND INLET
Sample Identification	(acute)	(chronic)	SW-12618-020712-RR-003 ms/msd	SW-12618-020712-RR-001	SW-12618-020712-RR-002
Sample Date			2/7/2012	2/7/2012	2/7/2012
Sample Type					Duplicate
<i>Semi-Volatile Organic Compounds</i>					
1,2,4-Trichlorobenzene	mg/L		0.0096 U	0.0096 U	0.0097 U
1,2-Dichlorobenzene	mg/L		0.0096 U	0.0096 U	0.0097 U
1,3-Dichlorobenzene	mg/L		0.0096 U	0.0096 U	0.0097 U
1,4-Dichlorobenzene	mg/L		0.0096 U	0.0096 U	0.0097 U
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) eth	mg/L		0.0096 U	0.0096 U	0.0097 U
2,4,5-Trichlorophenol	mg/L		0.0096 U	0.0096 U	0.0097 U
2,4,6-Trichlorophenol	mg/L		0.0096 U	0.0096 U	0.0097 U
2,4-Dichlorophenol	mg/L		0.0096 U	0.0096 U	0.0097 U
2,4-Dimethylphenol	mg/L		0.0096 U	0.0096 U	0.0097 U
2,4-Dinitrophenol	mg/L		0.0096 U	0.0096 U	0.0097 U
2,4-Dinitrotoluene	mg/L		0.0096 U	0.0096 U	0.0097 U
2,6-Dinitrotoluene	mg/L		0.0096 U	0.0096 U	0.0097 U
2-Chloronaphthalene	mg/L		0.0096 U	0.0096 U	0.0097 U
2-Chlorophenol	mg/L		0.0096 U	0.0096 U	0.0097 U
2-Methylnaphthalene	mg/L		0.0048 U	0.0048 U	0.0048 U
2-Methylphenol	mg/L		0.0096 U	0.0096 U	0.0097 U
2-Nitrophenol	mg/L		0.0096 U	0.0096 U	0.0097 U
3&4-Methylphenol	mg/L		0.0096 U	0.0096 U	0.0097 U
3,3'-Dichlorobenzidine	mg/L		0.019 U	0.019 U	0.019 U
4-Bromophenyl phenyl ether	mg/L		0.0096 U	0.0096 U	0.0097 U
4-Chloroaniline	mg/L		0.019 U	0.019 U	0.019 U
4-Nitrophenol	mg/L		0.048 U	0.048 U	0.048 U
Acenaphthene	mg/L		0.0048 U	0.0048 U	0.0048 U
Acenaphthylene	mg/L		0.0048 U	0.0048 U	0.0048 U
Acetophenone	mg/L		0.0096 U	0.0096 U	0.0097 U
Aniline	mg/L		0.048 U	0.048 U	0.048 U
Anthracene	mg/L		0.0048 U	0.0048 U	0.0048 U
Atrazine	mg/L		0.0096 U	0.0096 U	0.0097 U
Azobenzene	mg/L		0.0096 U	0.0096 U	0.0097 U
Benzo(a)anthracene	mg/L		0.0048 U	0.0048 U	0.0048 U
Benzo(a)pyrene	mg/L		0.0048 U	0.0048 U	0.0048 U
Benzo(b)fluoranthene	mg/L		0.0048 U	0.0048 U	0.0048 U
Benzo(g,h,i)perylene	mg/L		0.0048 U	0.0048 U	0.0048 U
Benzo(k)fluoranthene	mg/L		0.0048 U	0.0048 U	0.0048 U
bis(2-Chloroethoxy)methane	mg/L		0.0096 U	0.0096 U	0.0097 U
bis(2-Chloroethyl)ether	mg/L		0.0096 U	0.0096 U	0.0097 U
bis(2-Ethylhexyl)phthalate (DEHP)	mg/L		0.0096 U	0.0096 U	0.0097 U
Butyl benzylphthalate (BBP)	mg/L		0.0096 U	0.0096 U	0.0097 U

TABLE 3
SURFACE WATER ANALYTICAL DATA
OMM YEAR 5 EVENT 1
FORMER LANDFILL SITE
FRAMINGHAM, MASSACHUSETTS

Sample Location	Freshwater CMC	Freshwater CCC	<i>MH-STM-05</i>	<i>WETLAND INLET</i>	<i>WETLAND INLET</i>
Sample Identification	(acute)	(chronic)	<i>SW-12618-020712-RR-003 ms/msd</i>	<i>SW-12618-020712-RR-001</i>	<i>SW-12618-020712-RR-002</i>
Sample Date			<i>2/7/2012</i>	<i>2/7/2012</i>	<i>2/7/2012</i>
Sample Type					<i>Duplicate</i>
Chrysene	mg/L		0.0048 U	0.0048 U	0.0048 U
Dibenz(a,h)anthracene	mg/L		0.0048 U	0.0048 U	0.0048 U
Dibenzofuran	mg/L		0.0096 U	0.0096 U	0.0097 U
Diethyl phthalate	mg/L		0.0096 U	0.0096 U	0.0097 U
Dimethyl phthalate	mg/L		0.0096 U	0.0096 U	0.0097 U
Di-n-butylphthalate (DBP)	mg/L		0.0096 U	0.0096 U	0.0097 U
Di-n-octyl phthalate (DnOP)	mg/L		0.0096 U	0.0096 U	0.0097 U
Fluoranthene	mg/L		0.0048 U	0.0048 U	0.0048 U
Fluorene	mg/L		0.0048 U	0.0048 U	0.0048 U
Hexachlorobenzene	mg/L		0.0096 U	0.0096 U	0.0097 U
Hexachlorobutadiene	mg/L		0.0096 U	0.0096 U	0.0097 U
Hexachloroethane	mg/L		0.0096 U	0.0096 U	0.0097 U
Indeno(1,2,3-cd)pyrene	mg/L		0.0048 U	0.0048 U	0.0048 U
Isophorone	mg/L		0.0096 U	0.0096 U	0.0097 U
Naphthalene	mg/L		0.0048 U	0.0048 U	0.0048 U
Nitrobenzene	mg/L		0.0096 U	0.0096 U	0.0097 U
Pentachlorophenol	mg/L	0.019	0.048 U	0.048 U	0.048 U
Phenanthrene	mg/L	0.015	0.0048 U	0.0048 U	0.0048 U
Phenol	mg/L		0.0096 UJ	0.0096 UJ	0.0097 UJ
Pyrene	mg/L		0.0048 U	0.0048 U	0.0048 U
<i>WetChemistry</i>					
Hardness, carbonate	mg/L		33	25	28
Notes:					
U - Not present at or above the associated value.					
J - Estimated concentration.					
UJ - Estimated reporting limit.					

ATTACHMENT A

FORMER LANDFILL INSPECTION LOG

DATE OF INSPECTION:

Feb 8 2012

TIME OF INSPECTION:

1950

NAME OF INSPECTOR:

Rob Redman

WEATHER CONDITIONS:

Pickup, Windy

MONITORING WELL	CASING CONDITION	LOCK CONDITION	CONDITION OF SURROUNDINGS	VEGETATION	DETAILED ACTIONS REQUIRED	DATE & NATURE OF ACTION COMPLETED
MW 1-04	Re-bar Belt lines through Re-bar	OK	Good	NO	Replace Re-bar	
MW 2-04	↓	OK	Good	NO	↓	
MW 3-04	↓	OK	Good	NO	↓	
MW 4-04	Re-bar to cross to River Re-bar	OK	Good	NO	NA	
MW 5-04	OK	OK	Good	NO	NA	
MW 6-04	OK	OK	Good	NO	NA	
MW 7-04	OK	OK	Good	NO	NA	

figure D5.3

MONITORING WELL NETWORK INSPECTION LOG

FORMER LANDFILL SITE

RTN: 3-3939, 63 WESTERN AVENUE

Framingham, Massachusetts



DATE OF INSPECTION: 1900INSPECTED BY: StedmanTIME OF INSPECTIONS: Feb 7, 2012WEATHER CONDITIONS: P. cloudy windy

MONITORING WELL	CASING CONDITION	LOCK CONDITION	CONDITION OF SURROUNDINGS	VEGETATION	DETAILED ACTIONS REQUIRED	DATE & NATURE OF ACTION COMPLETED
MW-1-07	<input type="checkbox"/> Good Condition <input checked="" type="checkbox"/> Poor Condition	<input checked="" type="checkbox"/> Good Condition <input type="checkbox"/> Poor Condition	<input checked="" type="checkbox"/> Good Condition <input type="checkbox"/> Poor Condition	<input checked="" type="checkbox"/> Good Condition <input type="checkbox"/> Poor Condition	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
MW-2-07	<input type="checkbox"/> Good Condition <input checked="" type="checkbox"/> Poor Condition	<input checked="" type="checkbox"/> Good Condition <input type="checkbox"/> Poor Condition	<input checked="" type="checkbox"/> Good Condition <input type="checkbox"/> Poor Condition	<input checked="" type="checkbox"/> Good Condition <input type="checkbox"/> Poor Condition	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
MW-3-07	<input type="checkbox"/> Good Condition <input checked="" type="checkbox"/> Poor Condition	<input checked="" type="checkbox"/> Good Condition <input type="checkbox"/> Poor Condition	<input checked="" type="checkbox"/> Good Condition <input type="checkbox"/> Poor Condition	<input checked="" type="checkbox"/> Good Condition <input type="checkbox"/> Poor Condition	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
MW-4-04	<input checked="" type="checkbox"/> Good Condition <input type="checkbox"/> Poor Condition	<input type="checkbox"/> Good Condition <input type="checkbox"/> Poor Condition	<input checked="" type="checkbox"/> Good Condition <input type="checkbox"/> Poor Condition	<input checked="" type="checkbox"/> Good Condition <input type="checkbox"/> Poor Condition	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
MW-5-07	<input checked="" type="checkbox"/> Good Condition <input type="checkbox"/> Poor Condition	<input checked="" type="checkbox"/> Good Condition <input type="checkbox"/> Poor Condition	<input checked="" type="checkbox"/> Good Condition <input type="checkbox"/> Poor Condition	<input checked="" type="checkbox"/> Good Condition <input type="checkbox"/> Poor Condition	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
MW-6-07	<input checked="" type="checkbox"/> Good Condition <input type="checkbox"/> Poor Condition	<input checked="" type="checkbox"/> Good Condition <input type="checkbox"/> Poor Condition	<input checked="" type="checkbox"/> Good Condition <input type="checkbox"/> Poor Condition	<input checked="" type="checkbox"/> Good Condition <input type="checkbox"/> Poor Condition	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
MW-7-07	<input checked="" type="checkbox"/> Good Condition <input type="checkbox"/> Poor Condition	<input checked="" type="checkbox"/> Good Condition <input type="checkbox"/> Poor Condition	<input checked="" type="checkbox"/> Good Condition <input type="checkbox"/> Poor Condition	<input checked="" type="checkbox"/> Good Condition <input type="checkbox"/> Poor Condition	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

↳ note mw 1 → mw 3 The Road Box Bolt hole Threads are ~~stuck~~ Rusted away Road Box needs to be replaced
 mw-4 → There is not enough ~~space~~ ^{space} under the Road Box and to place a "J" cap on the riser pipe

DATE OF INSPECTION:

Feb 8 2012

TIME OF INSPECTIONS:

9:15

INSPECTED BY:

R. Redman

WEATHER CONDITIONS:

Sunny 30°F

ITEM	TYPE OF PROBLEMS	CHECKED		DETAILED ACTIONS REQUIRED	DATE AND NATURE OF ACTIONS COMPLETED
		PROBLEMS	CORRECTIVE ACTION REQUIRED		
<u>ENGINEERED BARRIER</u> (ASPHALT/SOIL COVER)	- ASPHALT/SOIL COVER (SWEEPING/MAINTENANCE)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	- East-west crack along North edge of wetland; some cracking settled 2-3 ft in new section of asphalt cover North west of mw-01	
	- PRESENCE OF CRACKS, DIRT, POT HOLES	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No		
	- EROSION CONTROL	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No		
	- LOCALIZED SETTLEMENT/SLUMPING	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No		
	- PONDING OF WATER/DRAINAGE	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No		
	- SEEPAGE	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No		
	- BARE VEGETATION	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No		
<u>PERIMETER FENCE/BERM FENCE</u>	- CORROSION OR STRUCTURAL DAMAGE TO SUPPORT POSTS AND FENCE FABRIC	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	- See note below Along Wetland side parking lot side of BERM on north side of wetland there is missing fencing of BERM even in Time marks & showing soil exposed	
<u>GATES AND LOCKS</u>	- CORROSION DAMAGE TO GATE HINGES AND FABRIC	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No		
	- LOCKS STICKING OR CORRODING	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No		
	- CORROSION, VISIBILITY, DAMAGE	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No		
	- MISSING (MARK LOCATION ON AS-RECORDED DRAWING No.)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No		
<u>ACCESS ROAD</u>	- EROSION	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No		
	- PONDING OF WATER	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No		
<u>GENERAL</u>	Fence along west side of asphalt parking lots has missing/damaged sections along entire length Fence along North Edge of wetland has missing section east of mw-07 with scar along BERM, some vegetation (grass) missing & cracked east of the missing fence but still west of mw-06 there are also Time cuts in BERM				

Figure 5.1
INSPECTION LOG
FORMER LANDFILL SITE
RTN: 3-3939, 63 WESTERN AVENUE
Framingham, Massachusetts



CONESTOGA-ROVERS
& ASSOCIATES

DATE OF INSPECTION: Feb 8 2012INSPECTED BY: RRTIME OF INSPECTIONS: 930WEATHER CONDITIONS: 30° Sunny

	PROBLEMS	ACTION REQUIRED	DETAIL ACTIONS REQUIRED	DATE AND NATURE OF ACTIONS COMPLETED
<u>NORTH DRAINAGE POND</u>				
VEGETATION	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<u>- Some wetland vegetation around edges</u>	
SEDIMENT BUILDUP/DEPTH	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<u>- cannot Tell Due to Ice Build up</u>	
RIPRAP	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No		
EROSION	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<u>However saw fabric exposed where grass has died - definite problem</u>	
DRAINAGE	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No		
BLOCKAGE	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No		
<u>SOUTH DRAINAGE POND</u>				
VEGETATION	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<u>Some Wetland Vegetation, But (2) Small tree clumps need to</u>	
SEDIMENT BUILDUP/DEPTH	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<u>- cannot Tell b/c Ice cover Beach</u>	
RIPRAP	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No		
EROSION	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No		
DRAINAGE	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No		
BLOCKAGE	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No		
<u>NORTH DRAINAGE SWALE</u>				
VEGETATION	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No		
SEDIMENT BUILDUP/DEPTH	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No		
ROCK CHECK DAM	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No		
EROSION	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No		
DRAINAGE	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No		
BLOCKAGE	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No		
<u>SOUTH DRAINAGE SWALE</u>				
VEGETATION	<input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<u>For 2 clumps of small trees in Drainage Swale</u>	
SEDIMENT BUILD/DEPTH	<input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<u>- Some sediment due to Cret land vegetation - does not appear to be problem</u>	
ROCK CHECK DAM	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No		
EROSION	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No		
DRAINAGE	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No		
BLOCKAGE	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No		
<u>GENERAL COMMENTS</u>				
<u>Overall condition good some fabric exposed in places</u>				
<u>where grass has died; along with some wetland vegetation such as cat tails growing</u>				
<u>along edges of pond and Drainage Swales</u>				

Figure 5.2
STORMWATER CONTROLS INSPECTION REPORT
FORMER LANDFILL SITE
RTN: 3-3939, 63 WESTERN AVENUE
Framingham, Massachusetts



CONESTOGA-ROVERS
& ASSOCIATES

ATTACHMENT B

LOW FLOW PURGING AND GROUNDWATER SAMPLING RECORDS

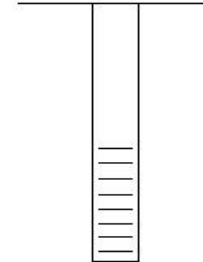
MONITORING WELL RECORD FOR LOW-FLOW PURGING

Project Data:

Project Name: Former Landfill Site Date: 8-Feb-12
 Ref. No.: 12618 Personnel: Rob Redman

Monitoring Well Data:

Well No.: MW-1-07
 Vapor PID (ppm): -- Saturated Screen Length (ft): 6.5
 Measurement Point: Top of PVC Depth to Pump Intake (ft)⁽¹⁾: 13.9
 Constructed Well Depth (ft): 22 Well Diameter, D (in): 2
 Measured Well Depth (ft): 15.9 Well Screen Volume, V_s (gallons)⁽²⁾: 1.04
 Depth of Sediment (ft): 6.1 Initial Depth to Water (ft): 9.40



Time	Pumping Rate (mL/min)	Depth to Water (m/ft)	Drawdown from Initial Water Level ⁽³⁾ (m/ft)	Temperature °C	Conductivity (mS/cm)	Turbidity NTU	DO (mg/L)	pH	ORP (mV)	Volume Purged, V _p (L)	No. of Well Screen Volumes Purged ⁽⁴⁾
Precision Required ⁽⁵⁾ :				±3 %	±0.005 or 0.01 ⁽⁶⁾	±10 %	±10 %	±0.1 Units	±10 mV		
750	100	9.4	0	NA	NA	NA	NA	NA	NA		
810	100	9.65	0.25	7.18	1.98	808	14.56	5.88	37		
820	100	9.60	-0.1	7.06	1.69	580	16.09	5.91	20		
830	100	9.60	-0.1	9.06	1.61	477	15.85	5.94	-27		
840	100	9.60	-0.1	9.04	1.59	217	16.77	5.92	-32		
850	100	9.60	-0.1	9.36	1.50	137	13.09	5.93	-37		
920	100	9.60	-0.1	9.56	1.28	69.0	15.34	5.94	-56		
950	100	9.60	-0.1	9.87	1.17	26.2	15.19	5.98	-65		
955	100	9.60	-0.1	9.86	1.18	25.5	15.18	5.98	-65		
1000	100	9.60	-0.1	9.90	1.14	24.9	15.26	5.99	-66		

Notes:

- (1) The pump intake will be placed at the well screen mid-point or at a minimum of 0.6 m (2 ft) above any sediment accumulated at the well bottom.
- (2) The well screen volume will be based on a 3.04 metres (10-foot) screen length (L). For metric units, $V_s = \pi * (r^2) * L$ in mL, where r (r=D/2) and L are in cm. For Imperial units, $V_s = \pi * (r^2) * L * (2.54)^3$, where r and L are in inches
- (3) The drawdown from the initial water level should not exceed 0.1 m (0.3 ft). The pumping rate should not exceed 600 mL/min.
- (4) Purging will continue until stabilization is achieved or until 20 well screen volumes have been purged (unless purge water remains visually turbid and appears to be clearing, or unless stabilization parameters are varying slightly outside of the stabilization criteria and appear to be stabilizing). No. of Well Screen Volumes Purged= V_p/V_s.
- (5) For conductivity, the average value of three readings <1 mS/cm ±0.005 mS/cm or where conductivity >1 mS/cm ±0.01 mS/cm.

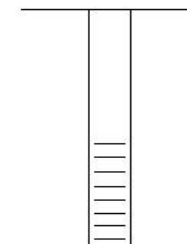
MONITORING WELL RECORD FOR LOW-FLOW PURGING

Project Data:

Project Name: Former Landfill Site Date: 8-Feb-12
 Ref. No.: 12618 Personnel: Rob Redman

Monitoring Well Data:

Well No.: MW-3-07
 Vapor PID (ppm): -- Saturated Screen Length (ft): 6.06
 Measurement Point: Top of PVC Depth to Pump Intake (ft)⁽¹⁾: 14.0
 Constructed Well Depth (ft): 19 Well Diameter, D (in): 2
 Measured Well Depth (ft): 18.60 Well Screen Volume, V_s (gallons)⁽²⁾: 0.97
 Depth of Sediment (ft): 0.4 Initial Depth to Water (ft): 12.54



Time	Pumping Rate (mL/min)	Depth to Water (m/ft)	Drawdown from Initial Water Level ⁽³⁾ (m/ft)	Temperature °C	Conductivity (mS/cm)	Turbidity NTU	DO (mg/L)	pH	ORP (mV)	Volume Purged, Vp (L)	No. of Well Screen Volumes Purged ⁽⁴⁾
Precision Required ⁽⁵⁾ :				±3 %	±0.005 or 0.01 ⁽⁶⁾	±10 %	±10 %	±0.1 Units	±10 mV		
1050	100	12.54	0	NA	NA	NA	NA	NA	NA		
1100	100	13.00	0.46	10.21	0.941	287	13.90	5.99	-71		
1110	100	13.30	0.8	10.09	0.962	284	14.98	6.00	-75		
1120	100	13.50	0.96	10.22	0.931	101.7	14.84	6.02	-75		
1130	100	13.50	0.96	10.32	0.930	71.2	13.27	6.01	-73		
1140	100	13.72	1.18	10.26	0.972	64.1	14.80	6.01	-72		
1150	100	13.72	1.18	10.35	0.973	47.6	10.13	6.01	-73		
1155	100	13.72	1.18	10.47	0.978	53.65	8.45	6.01	-74		
1200	100	13.72	1.18	10.18	0.979	42.49	9.26	6.03	-78		
1210	100	13.72	1.18	10.62	0.983	39.74	9.15	6.04	-80		
1215	100	13.72	1.18	10.66	0.974	38.92	9.15	6.02	-81		

Notes:

- The pump intake will be placed at the well screen mid-point or at a minimum of 0.6 m (2 ft) above any sediment accumulated at the well bottom.
- The well screen volume will be based on a 3.04 metres (10-foot) screen length (L). For metric units, $V_s = \pi(r^2) * L$ in mL, where r (r=D/2) and L are in cm. For Imperial units, $V_s = \pi(r^2) * L * (2.54)^3$, where r and L are in inches
- The drawdown from the initial water level should not exceed 0.1 m (0.3 ft). The pumping rate should not exceed 600 mL/min.
- Purging will continue until stabilization is achieved or until 20 well screen volumes have been purged (unless purge water remains visually turbid and appears to be clearing, or unless stabilization parameters are varying slightly outside of the stabilization criteria and appear to be stabilizing), No. of Well Screen Volumes Purged= Vp/Vs.
- For conductivity, the average value of three readings <1 mS/cm ±0.005 mS/cm or where conductivity >1 mS/cm ±0.01 mS/cm.

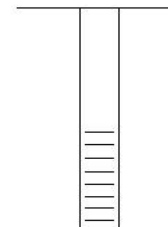
MONITORING WELL RECORD FOR LOW-FLOW PURGING

Project Data:

Project Name: Former Landfill Site Date: 9-Feb-12
 Ref. No.: 12618 Personnel: Rob Redman

Monitoring Well Data:

Well No.: MW-5-07
 Vapor PID (ppm): - Saturated Screen Length (ft): 8.5
 Measurement Point: Top of PVC Depth to Pump Intake (ft)⁽¹⁾: 20
 Constructed Well Depth (ft): 24.50 Well Diameter, D (in): 2
 Measured Well Depth (ft): 24.45 Well Screen Volume, V_s (gallons)⁽²⁾: 1.36
 Depth of Sediment (ft): 0.05 Initial Depth to Water (ft): 15.95



Time	Pumping Rate (mL/min)	Depth to Water (m/ft)	Drawdown from Initial Water Level ⁽³⁾ (m/ft)	Temperature °C	Conductivity (mS/cm)	Turbidity NTU	DO (mg/L)	pH	ORP (mV)	Volume Purged, Vp (L)	No. of Well Screen Volumes Purged ⁽⁴⁾
Precision Required ⁽⁵⁾ :				±3 %	±0.005 or 0.01 ⁽⁶⁾	±10 %	±10 %	±0.1 Units	±10 mV		
745	150	15.95	0	NA	NA	NA	NA	NA	NA		
825	150	16.61	0.66	9.96	2.21	14.14	8.20	6.48	-169		
830	75	16.54	0.59	9.32	2.28	NM	NM	6.49	-170		
900	65-75	16.25	0.30	10.07	2.20	28.48	8.22	6.57	-178		
905	65-75	16.25	0.30	10.02	2.20	27.43	8.53	6.58	-180		
910	65-75	16.25	0.30	10.06	2.18	30.41	4.58	6.59	-181		
915	65-75	16.25	0.30	9.96	2.16	29.22	4.77	6.60	-182		
920	65-75	16.25	0.30	9.94	2.12	28.65	4.81	6.61	-183		

Notes:

- (1) The pump intake will be placed at the well screen mid-point or at a minimum of 0.6 m (2 ft) above any sediment accumulated at the well bottom.
- (2) The well screen volume will be based on a 3.04 metres (10-foot) screen length (L). For metric units, $V_s = \pi(r^2)L$ in mL, where r (r=D/2) and L are in cm.
For Imperial units, $V_s = \pi(r^2)L \cdot (2.54)^3$, where r and L are in inches
- (3) The drawdown from the initial water level should not exceed 0.1 m (0.3 ft). The pumping rate should not exceed 600 mL/min.
- (4) Purging will continue until stabilization is achieved or until 20 well screen volumes have been purged (unless purge water remains visually turbid and appears to be clearing, or unless stabilization parameters are varying slightly outside of the stabilization criteria and appear to be stabilizing), No. of Well Screen Volumes Purged= Vp/Vs.
- (5) For conductivity, the average value of three readings <1 mS/cm ±0.005 mS/cm or where conductivity >1 mS/cm ±0.01 mS/cm.

MONITORING WELL RECORD FOR LOW-FLOW PURGING

Project Data:

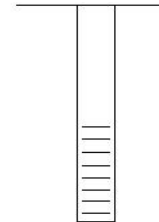
Project Name: Former Landfill Site
 Ref. No.: 12618

Date: 8-Feb-12
 Personnel: Rob Redman

Monitoring Well Data:

Well No.: MW-6-07
 Vapor PID (ppm): ---
 Measurement Point: Top of PVC
 Constructed Well Depth (ft): 22.50
 Measured Well Depth (ft): 22.28
 Depth of Sediment (ft): 0.22

Saturated Screen Length (ft): 4.68
 Depth to Pump Intake (ft)⁽¹⁾: 18
 Well Diameter, D (in): 2
 Well Screen Volume, V_s (gallons)⁽²⁾: 0.75
 Initial Depth to Water (ft): 17.60



Time	Pumping Rate (mL/min)	Depth to Water (m/ft)	Drawdown from Initial Water Level ⁽³⁾ (m/ft)	Temperature °C	Conductivity (mS/cm)	Turbidity NTU	DO (mg/L)	pH	ORP (mV)	Volume Purged, V _p (L)	No. of Well Screen Volumes Purged ⁽⁴⁾
Precision Required ⁽⁵⁾ :				±3 %	±0.005 or 0.01 ⁽⁶⁾	±10 %	±10 %	±0.1 Units	±10 mV		
1325	75	17.60	0	NA	NA	NA	NA	NA	NA		
1340	75	18.30	0.70	9.7	1.48	17.3	18.10	9.22	-31		
1350	75	18.60	1.00	9.4	1.49	17.8	17.12	6.52	-43		
1355	75	18.60	1.00	9.31	1.47	17.2	16.66	6.53	-42		
1400	75	18.95	1.35	9.31	1.43	23.7	12.93	6.53	-38		
1405	75	18.28	0.68	9.28	1.47	21.3	15.67	6.53	-27		
1410	75	19.10	1.50	9.48	1.49	17.8	14.80	6.53	-16		
1415	75	19.25	1.65	9.54	1.49	17.1	14.76	6.53	-11		
1420	65	19.30	1.70	9.52	1.48	16.6	13.76	6.55	-15		
1425	65	19.30	1.70	9.11	1.48	10.7	9.81	6.57	-18		
1430	50	19.40	1.80	9.27	1.49	9.2	10.37	6.57	-20		
1435	50	19.45	1.85	9.35	1.45	5.7	10.46	6.57	-22		
		well dewatering - recharge for 30 minutes									
1500	50	17.60	0.00	NA	NA	NA	NA	NA	NA		

Notes:

- (1) The pump intake will be placed at the well screen mid-point or at a minimum of 0.6 m (2 ft) above any sediment accumulated at the well bottom.
- (2) The well screen volume will be based on a 3.04 metres (10-foot) screen length (L). For metric units, $V_s = \pi \cdot (r^2) \cdot L$ in mL, where r ($r=D/2$) and L are in cm. For Imperial units, $V_s = \pi \cdot (r^2) \cdot L \cdot (2.54)^3$, where r and L are in inches
- (3) The drawdown from the initial water level should not exceed 0.1 m (0.3 ft). The pumping rate should not exceed 600 mL/min.
- (4) Purging will continue until stabilization is achieved or until 20 well screen volumes have been purged (unless purge water remains visually turbid and appears to be clearing, or unless stabilization parameters are varying slightly outside of the stabilization criteria and appear to be stabilizing). No. of Well Screen Volumes Purged= V_p/V_s .
- (5) For conductivity, the average value of three readings <1 mS/cm ±0.005 mS/cm or where conductivity >1 mS/cm ±0.01 mS/cm.

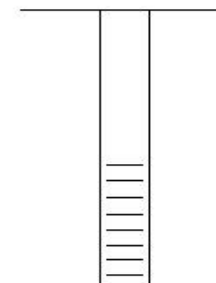
MONITORING WELL RECORD FOR LOW-FLOW PURGING

Project Data:

Project Name: Former Landfill Site Date: 7-Feb-12
 Ref. No.: 12618 Personnel: Rob Redman

Monitoring Well Data:

Well No.: MW-7-07
 Vapor PID (ppm): -- Saturated Screen Length (ft): 3.02
 Measurement Point: Top of PVC Depth to Pump Intake (ft)⁽¹⁾: 19
 Constructed Well Depth (ft): 21.50 Well Diameter, D (in): 2
 Measured Well Depth (ft): 20.73 Well Screen Volume, V_s (gallons)⁽²⁾: 0.48
 Depth of Sediment (ft): 0.77 Initial Depth to Water (ft): 17.71



Time	Pumping Rate (mL/min)	Depth to Water (m/ft)	Drawdown from Initial Water Level ⁽³⁾ (m/ft)	Temperature °C	Conductivity (mS/cm)	Turbidity NTU	DO (mg/L)	pH	ORP (mV)	Volume Purged, V _p (L)	No. of Well Screen Volumes Purged ⁽⁵⁾
Precision Required ⁽⁵⁾ :				±3 %	±0.005 or 0.01 ⁽⁶⁾	±10 %	±10 %	±0.1 Units	±10 mV		
1340	100	17.71	0	NA	NA	NA	NA	NA	NA		
1505	100	17.71	0	8.63	0.635	6.7	7.65	6.22	-110		
1510	100	17.71	0	9.03	0.640	5.7	7.42	6.33	-112		
1515	100	17.71	0	9.24	0.642	3.6	7.40	6.23	-113		
1520	100	17.71	0	9.4	0.636	3.1	5.12	6.23	-114		
1525	100	17.71	0	9.5	0.637	1.7	5.01	6.24	-115		
1530	100	17.71	0	9.47	0.641	1.5	4.94	6.25	-116		

Notes:

- (1) The pump intake will be placed at the well screen mid-point or at a minimum of 0.6 m (2 ft) above any sediment accumulated at the well bottom
- (2) The well screen volume will be based on a 3.04 metres (10-foot) screen length (L). For metric units, $V_s = \pi \cdot (r^2) \cdot L$ in mL, where r (r=D/2) and L are in cm.
For Imperial units, $V_s = \pi \cdot (r^2) \cdot L \cdot (2.54)^3$, where r and L are in inches
- (3) The drawdown from the initial water level should not exceed 0.1 m (0.3 ft). The pumping rate should not exceed 600 mL/min
- (4) Purging will continue until stabilization is achieved or until 20 well screen volumes have been purged (unless purge water remains visually turbid and appears to be clearing, or unless stabilization parameters are varying slightly outside of the stabilization criteria and appear to be stabilizing), No. of Well Screen Volumes Purged= V_p/V_s.
- (5) For conductivity, the average value of three readings <1 mS/cm ±0.005 mS/cm or where conductivity >1 mS/cm ±0.01 mS/cm.

ATTACHMENT C


QUALITY ASSURANCE/QUALITY CONTROL (QA/QC) MEMORANDUM



**CONESTOGA-ROVERS
& ASSOCIATES**

45 Farmington Valley Drive
Plainville, Connecticut 06062
Telephone: (860) 747-1800 Fax: (860) 747-1900
www.CRAworld.com

MEMORANDUM

TO:	Jeff Lambert	REF. NO.:	012618
FROM:	Kathy Shaw/lo/10/CT 	DATE:	March 6, 2012
RE:	Data Quality Assessment and Validation Annual Sampling Framingham Landfill OMM Site – Framingham, Massachusetts	SSOW:	12618-002-R5

The following details a quality assessment and validation of the analytical data resulting from the February 2012 collection of two (2) surface water, five (5) groundwater and two (2) quality control samples from the Framingham Landfill OMM Site in Framingham, Massachusetts. The sample summary detailing sample identification, sample location, quality control samples, and analytical parameters is presented in Table 1. Sample analysis was completed at TestAmerica Laboratory Inc. in Westfield, Massachusetts (TA) in accordance with the methodologies presented in Table 2.

The quality control criteria used to assess the data were established by the methods and the quality assurance project plan (QAPP). Application of quality assurance criteria was consistent with following guidance documents:

- i. "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review", USEPA-540-R-08-01, June 2008
- ii. "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Review", EPA-540/R-94/013, February 1994
- iii. "Commonwealth of Massachusetts Executive Office of Energy & Environmental Affairs", Department of Environmental Protection. Massachusetts Contingency Plan (MCP) Representative Evaluations and Data Usability Assessments #WSC-07-350, September 19, 2002
- iv. "Massachusetts Department of Environmental Protection Bureau of Waste Site Cleanup", Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data in Support of Response Actions Conducted Under the Massachusetts Contingency Plan (MCP), July 1, 2010

The following elements are addressed in this memorandum with qualification if necessary in the identified tables:

	Data Review Element	Qualification Table
1	Sample Quantitation	NA
2	Sample Preservation and Holding Times	NA
3	Continuing Calibration – Organic Analyses	Table 3
4	Method Blank Samples	Table 4
5	Surrogate Compounds – Organic Analyses	NA
6	Matrix Spike/Matrix Spike Duplicate Analyses	Table 5
7	Laboratory Control Sample Analysis/Laboratory Control Duplicate	Table 6
8	Inductively Coupled Plasma (ICP) Interference Check Sample Analysis – Inorganic Analyses	Table 7
9	Serial Dilution – Inorganic Analyses	Table 8
10	Field Quality Assurance/Quality Control	Table 9

Sample Quantitation

The laboratory reported detected concentrations of semi-volatile organic compounds (SVOC), and inorganics below the laboratory's practical quantitation limit (PQL)/report limit (RL) but above the laboratory's method detection limit (MDL). These concentrations should be qualified as estimated (J) values unless qualified otherwise in this memorandum.

The Massachusetts Department of Environmental Protection (MADEP) MCP response action analytical report certification (ARC) form accompanying the analytical report, required for Presumptive Certainty has been reviewed. Any data that did not meet the appropriate performance standards has been addressed within this Data Quality Assessment and Validation memorandum.

Sample Preservation and Holding Times

Sample holding time periods and preservation requirements are presented in Table 2. The samples were prepared and/or analyzed within the specified holding time periods. The samples were shipped and maintained in accordance with the sample preservation requirements.

Continuing Calibration – Organic Analyses

To ensure that each instrument was capable of producing acceptable quantitative data over the analysis period, continuing calibration standards must be analyzed every 12 hours for GC/MS analyses and every 10 samples by GC. The following criteria are employed to evaluate the continuing calibration data:

- i. GC/MS (all compounds) – must meet a minimum mean RRF of 0.05
- ii. GC/MS (all compounds) – the percent difference between the mean initial calibration RRF and the continuing calibration RRF must not exceed 25 percent
- iii. GC/MS (compounds determined by quadratic curve) – the percent drift between the true value and the continuing calibration value must not exceed 25 percent

Calibration standards were analyzed at the required frequency and the results met the above criteria for instrument sensitivity and linearity of response and sensitivity with the exception of sample outliers identified in the MassDEP ARC form, outlined in the case narrative and presented with qualifiers in Table 3.

Method Blank Samples

Method blank samples are prepared from a purified sample matrix and are processed concurrently with investigative samples to assess the presence and the magnitude of sample contamination introduced during sample analysis. Method blank samples are analyzed at a minimum frequency of one per analytical batch and target analytes should be non-detect.

The samples presented in Table 4 should be qualified due to laboratory contamination. The remaining method blank samples were reported to be free from detectable levels of target analytes, indicating no additional laboratory-attributable contamination occurred.

Surrogate Compounds – Organic Analyses

Individual sample performance for organic analyses was monitored by assessing the results of surrogate compound percent recoveries. Surrogate percent recoveries are reviewed against the laboratory developed control limits provided in the analytical report.

The surrogate recovery acceptance criteria were met for all samples that could be evaluated.

Matrix Spike/Matrix Spike Duplicate Analyses

To assess the long term accuracy and precision of the analytical methods on various matrices, matrix spike/matrix spike duplicate (MS/MSD) percent recoveries and the relative percent difference (RPD) of the concentrations were determined. The organic MS/MSD percent recovery and RPD control limits are established by the laboratory. The inorganic control limits are defined by the methods and the NFG, which require recoveries between 75 to 125 percent with RPDs less than 20 percent for water samples. The samples selected for MS/MSD analysis are identified in Table 1.

Matrix Spike/Matrix Spike Duplicate Analyses (Cont'd)

The samples that should be qualified due to violation of MS/MSD percent recovery criteria are outlined in Table 5. The MS/MSD percent recoveries and associated RPD acceptance criteria were met in the remaining sample analyses.

Laboratory Control Sample/Laboratory Control Duplicate Analysis

The laboratory control sample and laboratory control duplicate (LCS/LCD) analyses serve as a monitor of the overall performance in all steps of the sample analysis and are analyzed with each sample batch. The LCS/LCD percent recoveries were evaluated against method and laboratory established control limits. The LCS/LCD percent recoveries were within the laboratory control limits or did not warrant qualification, indicating that an acceptable level of overall performance was achieved with the exception of samples presented with qualifiers in Table 6.

Laboratory precision was verified by the RPD of the LCS/LCD when a MS/MSD was not analyzed. The RPDs were within the laboratory control limits, indicating that an acceptable level of overall laboratory precision was achieved.

Inductively Coupled Plasma (ICP) Interference Check Sample Analysis – Inorganic Analyses

To verify that proper inter-element and background correction factors had been established by the laboratory for metals analyses, the ICP interference check samples (ICS) are analyzed. The ICSs are evaluated against recovery control limits of 80 to 120 percent.

The ICS analysis results were evaluated for all samples and were within the control limits, with the exception of the samples qualified in Table 7.

Serial Dilution – Inorganic Analyses

The percent difference (D) between a serial dilution of a sample for each matrix was monitored to determine physical or chemical interference. A minimum of one sample per 20 investigative samples is analyzed at a five-fold dilution. The serial dilution results must agree within 10 percent D of the original results for samples with detected concentrations greater than 50 times the instrument detection limit.

The percent D acceptance criteria were met with the exception of the qualified samples presented Table 8.

Field Quality Assurance/Quality Control

The field quality assurance/quality control consisted of two (2) field duplicate sample sets. Overall precision for the sampling event and laboratory procedures were monitored using the results of the field duplicate sample sets. The RPDs associated with these duplicate samples must be less than 50 percent for water samples. If the reported concentration in either the investigative sample or its duplicate is less than five times the RL, the evaluation criteria is one or two times the RL value for water samples. Table 9 presents the RPDs of detected analytes in duplicate sample sets with qualifiers. The data indicate that an adequate level of precision was achieved for the remainder of the sampling event.

Overall Assessment

The data were found to exhibit acceptable levels of accuracy and precision based on the provided information and may be used with the qualifications noted.

The data were found to exhibit acceptable levels of accuracy and precision, based on the provided information, and may be used with the qualifications noted with the exception of the following:

- SVOC data were rejected in a sample due to MS/MSD violations

TABLE 1

**SAMPLE COLLECTION AND ANALYSIS SUMMARY
ANNUAL SAMPLING
FRAMINGHAM LANDFILL OMM SITE
FRAMINGHAM, MASSACHUSETTS**

<i>Sample Identification</i>	<i>Location</i>	<i>Matrix</i>	<i>QC Samples</i>	<i>Collection Date (mm/dd/yyyy)</i>	<i>Collection Time (hr:min)</i>	<i>Parameters</i>			
						<i>Hardness</i>	<i>SS Metals Total</i>	<i>SS Metals Dissolved</i>	<i>SS SVOC</i>
TestAmerica SDG: 360-39027-1									
SW-12618-020712-RR-001	WETLAND INLET	Water	Duplicate (001) MS/MSD	2/7/2012	2:00 PM	X	X	X	X
SW-12618-020712-RR-002	WETLAND INLET	Water		2/7/2012	2:10 PM	X	X	X	X
SW-12618-020712-RR-003	MH-STM-05	Water		2/7/2012	2:45 PM	X	X	X	X
TestAmerica SDG: 360-39092-1									
GW-12618-020712-RR-001	MW07-04	Water	Duplicate (004) MS/MSD	2/7/2012	3:35 PM		X		X
GW-12618-020812-RR-002	MW01-04	Water		2/8/2012	10:10 AM		X		X
GW-12618-020812-RR-003	MW03-04	Water		2/8/2012	12:20 PM		X		X
GW-12618-020812-RR-004	MW06-04	Water		2/8/2012	3:00 PM		X		X
GW-12618-020812-RR-005	MW06-04	Water		2/8/2012	3:40 PM		X		X
GW-12618-020812-RR-006	MW05-04	Water		2/8/2012	9:25 AM		X		X

Notes:

MS/MSD - Matrix Spike/Matrix Spike Duplicate
 QC - Quality Control
 SDG - Sample Delivery Group
 SS - Site Specific
 SVOC - Semivolatile Organic Compounds

TABLE 2

**SUMMARY OF ANALYTICAL METHODS, HOLDING TIME PERIODS, AND PRESERVATIVES
ANNUAL SAMPLING
FRAMINGHAM LANDFILL OMM SITE
FRAMINGHAM, MASSACHUSETTS**

<i>Parameter</i>	<i>Method</i>	<i>Matrix</i>	<i>Holding Time</i>	<i>Preservation</i>
Site Specific SVOC	SW-846 8270C	Water	- 7 days from sample collection to extraction - 40 days from extraction to completion of analysis	Iced, 4 ± 2° C
Site Specific Metals - Total & Dissolved		Water	- 180 days from sample collection to completion of analysis	pH < 2 and Iced, 4 ± 2° C
Aluminum	SW-846 6010			
Antimony	SW-846 6020			
Arsenic	SW-846 6020			
Barium	SW-846 6010			
Beryllium	SW-846 6010			
Cadmium	SW-846 6010			
Chromium	SW-846 6020			
Cobalt	SW-846 6010			
Copper	SW-846 6010			
Iron	SW-846 6010			
Lead	SW-846 6020			
Manganese	SW-846 6010			
Nickel	SW-846 6010			
Selenium	SW-846 6020			
Silver	SW-846 6020			
Thallium	SW-846 6020			
Vanadium	SW-846 6010			
Zinc	SW-846 6020			
Mercury	SW-846 7470	Water	- 28 days from sample collection to completion of analysis	pH < 2 and Iced, 4 ± 2° C
Hardness	SM21 2340C	Water	- 180 days from sample collection to completion of analysis	pH < 2 and Iced, 4 ± 2° C

Notes

SW-846 - "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW-846, 3rd Edition, and Promulgated updates, November 1986
A2340C - Standard Method 2340 C: Hardness by Calc.-EDTA Titrimetric Method

TABLE 3

**QUALIFIED SAMPLE RESULTS DUE TO VIOLATION OF CONTINUING CALIBRATION REQUIREMENTS
ANNUAL SAMPLING
FRAMINGHAM LANDFILL OMM SITE
FRAMINGHAM, MASSACHUSETTS**

<i>Parameter</i>	<i>Analyte</i>	<i>Calibration Date</i>	<i>RRF</i>	<i>% Recovery or %D</i>	<i>Associated Sample ID</i>	<i>Qualified Result</i>	<i>Units</i>
SS SVOC	Benzo(g,h,i)perylene	2/15/2012	--	29.8	GW-12618-020712-RR-001	4.9 UJ	µg/L
					GW-12618-020812-RR-002	4.9 UJ	µg/L
					GW-12618-020812-RR-003	4.8 UJ	µg/L
					GW-12618-020812-RR-004	4.9 UJ	µg/L
					GW-12618-020812-RR-005	5.0 UJ	µg/L
					GW-12618-020812-RR-006	5.0 UJ	µg/L
SS SVOC	Dibenz(a,h)anthracene	2/15/2012	--	25.9	GW-12618-020712-RR-001	4.9 UJ	µg/L
					GW-12618-020812-RR-002	4.9 UJ	µg/L
					GW-12618-020812-RR-003	4.8 UJ	µg/L
					GW-12618-020812-RR-004	4.9 UJ	µg/L
					GW-12618-020812-RR-005	5.0 UJ	µg/L
					GW-12618-020812-RR-006	5.0 UJ	µg/L

Notes:

%D - Percent Difference

RRF - Relative Response Factor

UJ - Non-detect with an Estimated Report Limit

TABLE 4

SUMMARY OF QUALIFIED SAMPLE DATA DUE TO METHOD BLANK CONTAMINATION
ANNUAL SAMPLING
FRAMINGHAM LANDFILL OMM SITE
FRAMINGHAM, MASSACHUSETTS

<i>Parameter</i>	<i>Analyte</i>	<i>Analysis Date</i>	<i>Blank Result</i>	<i>Sample ID</i>	<i>Qualified Result</i>	<i>Units</i>
SS Metals	Chromium	2/15/2012	0.487	SW-12618-020712-RR-001	1.3 U	µg/L
				SW-12618-020712-RR-002	1.4 U	µg/L
				SW-12618-020712-RR-003	1.0 U	µg/L
SS SVOC	Di-n-butylphthalate (DBP)	2/10/2012	1.38	SW-12618-020712-RR-001	9.6 U	µg/L
				SW-12618-020712-RR-002	9.7 U	µg/L
				SW-12618-020712-RR-003	9.6 U	µg/L
SS Metals - Total	Aluminum	2/20/2012	33.7	GW-12618-020712-RR-001	100 U	µg/L
				GW-12618-020812-RR-004	100 U	µg/L
				GW-12618-020812-RR-005	100 U	µg/L
				GW-12618-020812-RR-006	100 U	µg/L

Notes:

U - Qualified as Not Detected at the report limit

TABLE 5

SUMMARY OF QUALIFIED SAMPLE DATA DUE TO OUTLYING
MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERIES AND/OR RELATIVE PERCENT DIFFERENCE
ANNUAL SAMPLING
FRAMINGHAM LANDFILL OMM SITE
FRAMINGHAM, MASSACHUSETTS

<i>Parameter</i>	<i>Analyte</i>	<i>MS Recovery (percent)</i>	<i>MSD Recovery (percent)</i>	<i>RPD</i>	<i>Control Limits</i>		<i>Associated Sample ID</i>	<i>Qualified Result</i>	<i>Units</i>
					<i>Recovery (percent)</i>	<i>RPD (percent)</i>			
SS SVOC	Aniline	34	29	17	40 - 140	20	SW-12618-020712-RR-003	48 UJ	µg/L
SS SVOC	1,3-Dichlorobenzene	0	67	NC	40 - 140	20	GW-12618-020812-RR-006	R	
	2,4-Dichlorophenol	0	96	NC	30 - 130	20		R	
	2,4-Dinitrophenol	0	117	NC	30 - 130	20		R	
	2-Chlorophenol	0	71	NC	30 - 130	20		R	
	3&4-Methylphenol	0	58	NC	30 - 130	20		R	
	3,3'-Dichlorobenzidine	145	9	176	40 - 140	20		R	
	4-Nitrophenol	0	36	NC	30 - 130	20		R	
	Aniline	37	32	12	40 - 140	20		50 UJ	µg/L
	Pentachlorophenol	0	115	NC	30 - 130	20		R	
	Phenol	0	23	NC	30 - 130	20		R	

Notes:

MS - Matrix Spike
MSD - Matrix Spike Duplicate
R - Rejected
RPD - Relative Percent Difference
UJ - Non-detect with an Estimated Report Limit

TABLE 6

SUMMARY OF QUALIFIED SAMPLE RESULTS DUE TO OUTLYING
LABORATORY CONTROL SAMPLE / LABORATORY CONTROL SAMPLE DUPLICATE RESULTS
ANNUAL SAMPLING
FRAMINGHAM LANDFILL OMM SITE
FRAMINGHAM, MASSACHUSETTS

<i>Parameter</i>	<i>Analyte</i>	<i>LCS Date</i>	<i>LCS %Rec</i>	<i>LCD %Rec</i>	<i>RPD (percent)</i>	<i>Control Limits</i>		<i>Associated Sample ID</i>	<i>Qualified Result</i>	<i>Units</i>
SS SVOC	Aniline	2/10/2012	37	39	5	40 - 140	20	SW-12618-020712-RR-001	48 UJ	µg/L
								SW-12618-020712-RR-002	48 UJ	µg/L
								SW-12618-020712-RR-003	48 UJ	µg/L
SS SVOC	Phenol	2/10/2012	29	31	7	30 - 130	20	SW-12618-020712-RR-001	9.6 UJ	µg/L
								SW-12618-020712-RR-002	9.7 UJ	µg/L
								SW-12618-020712-RR-003	9.6 UJ	µg/L
SS SVOC	Aniline	2/15/2012	33	30	12	40 - 140	20	GW-12618-020712-RR-001	49 UJ	µg/L
								GW-12618-020812-RR-002	49 UJ	µg/L
								GW-12618-020812-RR-003	48 UJ	µg/L
								GW-12618-020812-RR-004	49 UJ	µg/L
								GW-12618-020812-RR-005	50 UJ	µg/L
								GW-12618-020812-RR-006	50 UJ	µg/L
SS SVOC	Phenol	2/15/2012	23	23	1	30 - 130	20	GW-12618-020712-RR-001	9.9 UJ	µg/L
								GW-12618-020812-RR-002	9.8 UJ	µg/L
								GW-12618-020812-RR-003	9.7 UJ	µg/L
								GW-12618-020812-RR-004	9.8 UJ	µg/L
								GW-12618-020812-RR-005	10 UJ	µg/L
								GW-12618-020812-RR-006	9.9 UJ	µg/L

Notes:

- %Rec - Percent Recovery
- LCD - Laboratory Control Spike Duplicate
- LCS - Laboratory Control Spike
- RPD - Relative Percent Difference
- UJ - Non-detect with an Estimated Report Limit

TABLE 7

QUALIFIED SAMPLE RESULTS DUE TO OUTLYING INTERFERENCE CHECK SAMPLE RECOVERIES
ANNUAL SAMPLING
FRAMINGHAM LANDFILL OMM SITE
FRAMINGHAM, MASSACHUSETTS

<i>Parameter</i>	<i>Analyte</i>	<i>ICS Recovery (percent)</i>	<i>Control Limits</i>	<i>Sample ID</i>	<i>Qualified Sample Result</i>	<i>Units</i>
SS Metals - Total	Iron	122	120	SW-12618-020712-RR-001	930 J	µg/L
				SW-12618-020712-RR-002	890 J	µg/L
				SW-12618-020712-RR-003	910 J	µg/L

Notes:

ICS - Interference Check Sample

J - Estimated Concentration

TABLE 8

SUMMARY OF QUALIFIED SAMPLE DATA DUE TO VIOLATION OF ICP SERIAL DILUTION CONTROL LIMITS
ANNUAL SAMPLING
FRAMINGHAM LANDFILL OMM SITE
FRAMINGHAM, MASSACHUSETTS

<i>Parameter</i>	<i>Analyte</i>	<i>Serial Dilution Sample ID</i>	<i>%D</i>	<i>Associated Sample I.D.</i>	<i>Qualified Result</i>	<i>Units</i>
SS Metals - Total	Barium	GW-12618-020812-RR-006	14	GW-12618-020712-RR-001	49 J	µg/L
				GW-12618-020812-RR-002	68 J	µg/L
				GW-12618-020812-RR-003	56 J	µg/L
				GW-12618-020812-RR-004	38 J	µg/L
				GW-12618-020812-RR-005	40 J	µg/L
				GW-12618-020812-RR-006	200 J	µg/L

Notes:

J - Estimated Concentration
%D - Percent Difference

TABLE 9

**SUMMARY OF DETECTED ANALYTES IN FIELD DUPLICATE SAMPLE SETS
ANNUAL SAMPLING
FRAMINGHAM LANDFILL OMM SITE
FRAMINGHAM, MASSACHUSETTS**

<i>Analysis</i>	<i>Parameters</i>	<i>Original Sample ID</i>	<i>Original Result</i>	<i>Duplicate Sample ID</i>	<i>Duplicate Result</i>	<i>RPD</i>	<i>Units</i>	<i>Qualifiers</i>
		SW-12618-020712-RR-001		SW-12618-020712-RR-002				
SS Metals - Total	Aluminum		260		240	8.0	µg/L	
	Antimony		0.93 J		0.47 J	66	µg/L	J
	Arsenic		0.49 J		0.62 J	23	µg/L	
	Barium		14		15	6.9	µg/L	
	Copper		10 U		2.5 J	NC	µg/L	
	Iron		930 J		890 J	4.4	µg/L	
	Lead		3.6		3.1	15	µg/L	
	Manganese		29		31	6.7	µg/L	
	Nickel		10 U		1.3 J	NC	µg/L	
	Selenium		1.2		1.0 U	NC	µg/L	
	Vanadium		2.6 J		2.5 J	3.9	µg/L	
	Zinc		9.5		10	5.1	µg/L	
SS Metals - Dissolved	Aluminum		99 J		96 J	3.1	µg/L	
	Barium		14		13	7.4	µg/L	
	Chromium		0.50 J		1.0 U	NC	µg/L	
	Copper		4.6 J		10 U	NC	µg/L	
	Iron		400		390	2.5	µg/L	
	Lead		2.3		0.77 J	100	µg/L	J
	Manganese		29		27	7.1	µg/L	
	Nickel		2.1 J		10 U	NC	µg/L	
	Zinc		12		6.5	59	µg/L	J
General Chemistry	Hardness, carbonate		25		28	11	mg/L	

TABLE 9

**SUMMARY OF DETECTED ANALYTES IN FIELD DUPLICATE SAMPLE SETS
ANNUAL SAMPLING
FRAMINGHAM LANDFILL OMM SITE
FRAMINGHAM, MASSACHUSETTS**

<i>Analysis</i>	<i>Parameters</i>	<i>Original Sample ID</i>	<i>Original Result</i>	<i>Duplicate Sample ID</i>	<i>Duplicate Result</i>	<i>RPD</i>	<i>Units</i>	<i>Qualifiers</i>
SS Metals - Total	Antimony	GW-12618-020812-RR-004	1.8 J	GW-12618-020812-RR-005	2.0	11	µg/L	
	Arsenic		7.9		7.8	1.3	µg/L	
	Barium		38 J		40 J	5.1	µg/L	
	Cadmium		1.0 U		0.16 J	NC	µg/L	
	Cobalt		8.1 J		8.0 J	1.2	µg/L	
	Copper		4.4 J		5.1 J	15	µg/L	
	Iron		1200		1200	0	µg/L	
	Manganese		420		440	4.7	µg/L	
	Nickel		17		18	5.7	µg/L	
	Selenium		2.9		2.6	11	µg/L	
	Zinc		190		210	10	µg/L	

Notes:

- J - Estimated Concentration
NC - Not calculable
RPD - Relative Percent Difference
U - Not Detected