



**Revitalizing Auto Communities
Environmental Response Trust**

February 12, 2013

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

Dear Mr. Johnson:

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

Revitalizing Auto Communities Environmental Response (RACER) Trust is pleased to provide the enclosed annual event of Year Six (Year 6, Event 1) of the OMM for the above referenced Site.

Should there be any questions or comments regarding the above letter, please contact the undersigned at 937-751-8635.

Sincerely,

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



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

February 12, 2013

Reference No. 012618-T01

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

Dear Mr. Johnson:

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

This letter documents the inspection, maintenance, and monitoring conducted by Conestoga-Rovers & Associates (CRA), on behalf of the Revitalizing Auto Communities Environmental Response (RACER) Trust, for the annual event of Year Six (Year Six, Event One) 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 Six Event One of the OMM activities which covers the period from April to September 2012. The Site features are shown on Figure 1.

1.0 INSPECTIONS AND MAINTENANCE

1.1 ENGINEERED BARRIER

The engineered barrier was inspected on September 11, 2012 and the completed Former Landfill Inspection Log is provided in Attachment A. Asset Holdings III LP's affiliate Auto Dealers Exchange of Concord, LLC dba ADESA Boston LLC (ADESA), also completed routine

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ISO 9001
ENGINEERING DESIGN



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 is missing a section of approximately 30 feet in length on the South side of the landfill between MW-06-07 and MW-07-07. The Property owner reported that a vehicle had driven through the fence and that they were in the process of replacing the fence.

1.2 STORM WATER FEATURES

The stormwater features were inspected on September 12, 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.

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 September 10, 2012 and the Monitoring Inspection Log is included in Attachment A. New road boxes were installed at monitoring well locations MW-1-07 through MW-3-07 and MW-4-04 due to stripped bolt threads and a well plug was replaced at MW-4-04 on September 12, 2012.

2.0 GROUNDWATER MONITORING

The annual groundwater monitoring round for Year Six was completed in September 2012, and included:

- 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 three wells (MW-1-07, MW-5-07, and MW-6-07)
- Sample analysis for semi-volatile organic compounds (SVOCs) and total metals



Groundwater Elevation and Flow Direction

On September 10, 2012, groundwater elevations were measured in the seven Site monitoring wells. Groundwater elevations are presented in Table 1 and groundwater elevation contours, are shown on Figure 2 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 perimeter and non-barrier areas. Additionally, storm water management features such as the storm sewer bedding associated with a large storm sewer which transects the Site, exerts some eastward and westward influence on flow direction.

Groundwater Quality

On September 10 and 11, 2012, groundwater samples were collected from three monitoring wells (MW-1-07, MW-5-07, and 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 Test America 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 and summarized with the data in Table 2.

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.

The Year Six Event One 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 laboratory reporting limits in groundwater samples collected during this monitoring event.

Metals

Twelve of the 19 metals were detected in one or more groundwater samples, with most of the detections reported as estimated values. The results and analytical reporting limits were below GW-3 standards for all samples. 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 Six Event One event, a surface water sample was collected at the Wetland Inlet. 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 Test America 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 and are summarized with the data in Table 3. 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.

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

Eleven total metals and 11 dissolved metals out of 19 metals analyzed were detected in the surface water sample, with most of the detections reported as estimated values. The detections of metals are most likely largely related to the presence of solids/sediment particulate in the water. Total and dissolved aluminum, lead and iron exceeded the chronic exposure criteria.

Both the total and dissolved aluminum was detected at the Wetland Inlet at a concentration of 0.14 mg/L during this monitoring event. These concentrations are slightly above the freshwater chronic regulatory criteria of 0.087 mg/L. Historically, detections of total aluminum were approximately 0.2 mg/L or less and the exposure point concentration (EPC) for total aluminum was calculated at 0.248 mg/L.

Total and dissolved lead was detected at a concentration of 0.0058 mg/L and 0.0050 mg/L, respectively. These concentrations are slightly above the freshwater chronic regulatory criteria of 0.0025 mg/L and the EPC of 0.0031 mg/L.

Total and dissolved iron was detected at a concentration of 6.1 mg/L and 7.3 mg/L respectively. The concentrations of total and dissolved iron at the Wetland Inlet increased since the previous monitoring event. These concentrations are above the freshwater chronic regulatory criteria of 1.0 mg/L; however, do not pose a risk to human health.

Since the metal detections are most likely related to solids/sediment particulate and the wetland is not used for recreational purposes or a source of drinking water these detections are not believed to pose a human health risk.

4.0 CONCLUSIONS

The OMM inspections conducted for Year Six Event One 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. ADESA has been providing inspections and routine and unscheduled maintenance activities for the engineered barrier, storm water features and monitoring well network.



**CONESTOGA-ROVERS
& ASSOCIATES**

February 12, 2013

6

Reference No. 012618-T01

The Year Six Event One 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 (except for an increase in iron in surface water), 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 Six Event One 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. Continued monitoring is required to provide ongoing confirmation of this determination.

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

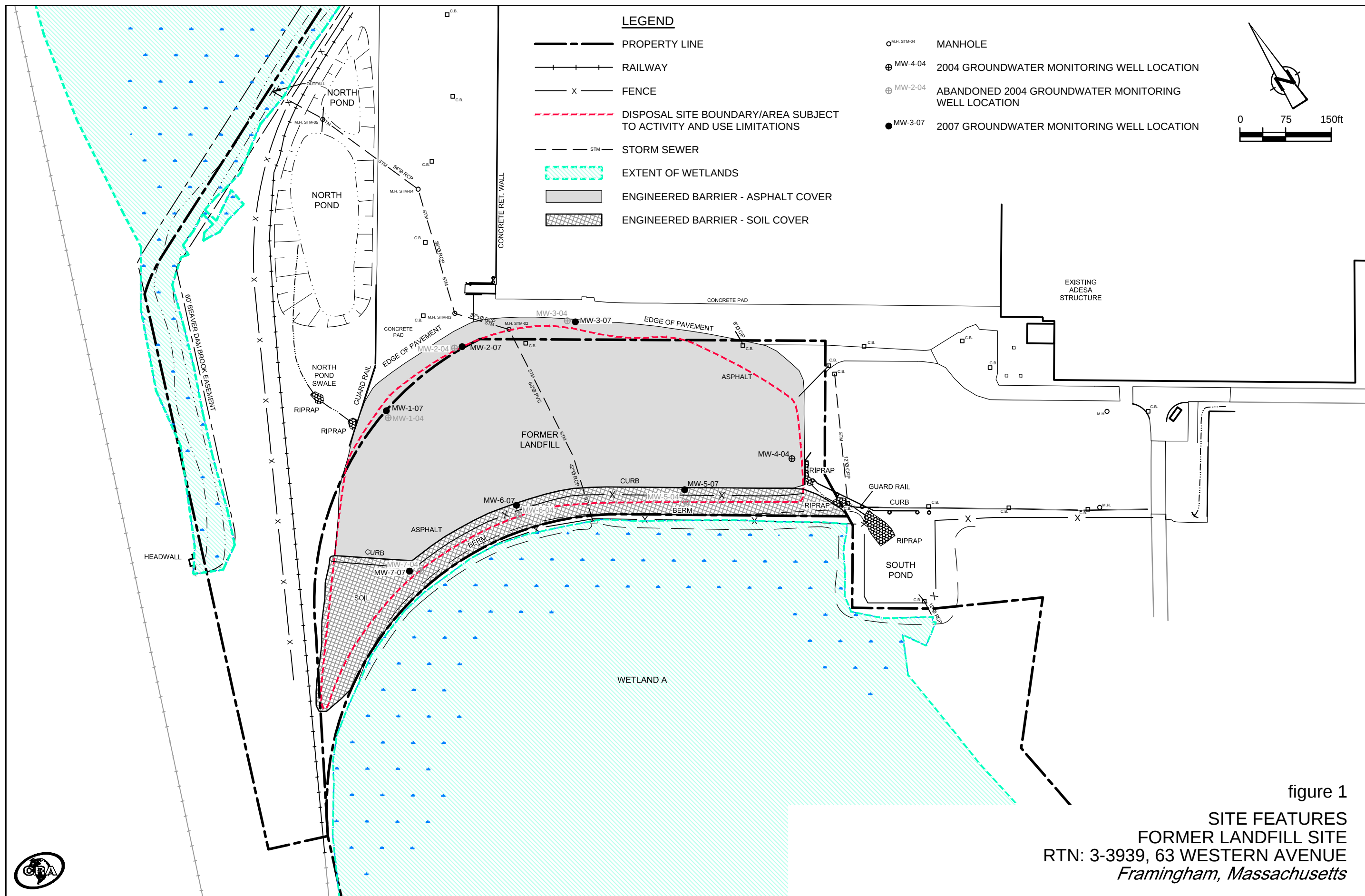
Yours truly,

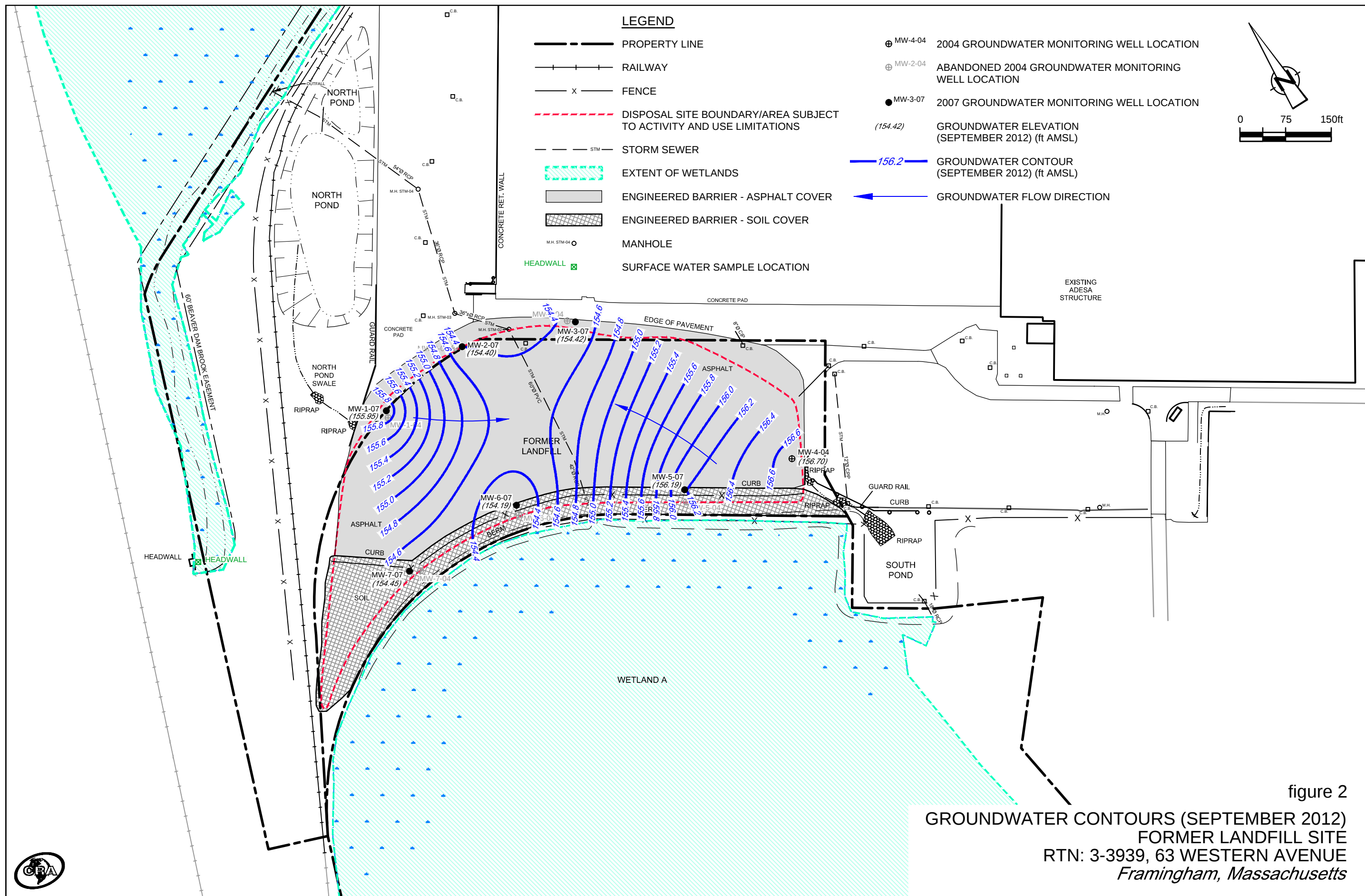
CONESTOGA-ROVERS & ASSOCIATES

Fred K. Taylor, LSP

KG/lo/5/CT
Encl.

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





ATTACHMENT A

FORMER LANDFILL INSPECTION LOG

TEMPERATURE: 75°FWEATHER: SunnyINSPECTED BY: Robert RodmanDATE OF INSPECTION: 9-11-12

ITEM	TYPES OF PROBLEMS	CHECKED		DETAILED ACTIONS REQUIRED	DATE AND NATURE OF ACTIONS COMPLETED
		NO PROBLEMS	CORRECTIVE ACTION REQUIRED		
<u>ENGINEERED BARRIER</u> (ASPHALT COVER) (SOIL COVER)	- ASPHALT COVER (SWEEPING/MAINTANENCE)	X			
	- PRESENCE OF CRACKS, POT HOLES, BROKEN ASPHALT	X		lt cracking NW corner wet area ~ 3 sq ft	
	- EROSION CONTROL	X			
	- LOCALIZED SETTLEMENT/SLUMPING	X			
	- PONDING OF WATER/DRAINAGE	X			
	- SEEPAGE	X			
	- BARE VEGETATION	X			
<u>PERIMETER FENCE/ BERM FENCE</u>	- CORROSION OR STRUCTURAL DAMAGE TO SUPPORT POSTS AND FENCE FABRIC			missing section section of fence on South side of landfill ~ 30' missing	
<u>GATES AND LOCK</u>	- CORRISION DAMAGE TO GATE HINGES AND FABRIC	X		spoke to Property Owner Rep & he said ^{on employee} he can drive through to fence on	
	- LOCKS STICKING OR CORRODING	X		Rep will replace the fencing (section between NW-6-07 & NW-7-07)	
	- CORROSION, VISIBILITY, DAMAGE	X		one gate missing on the access Road to the bays Thicker Drive Thru	
	- MISSING (MARK LOCATION ON AS-RECORDED DRAWING No.)			take & cor 17' fence removed on west side of landfill during stream festival	
<u>ACCESS ROAD</u>	- EROSION	X			
	- PONDING OF WATER	X			

Oil wells in Creek Shale now Rock Boxes & are concrete

figure D5.1

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



TEMPERATURE: 75°F
 WEATHER: Sunny 80°F

INSPECTED BY: Rob Redman
 DATE OF INSPECTION: 9-12-12

MANHOLE	STORMWATER FLOW (YES/NO)	COLOR OF STORMWATER	PRESENCE OF SEDIMENT (YES/NO)	CONDITION OF MANHOLE AND LID	DETAILED ACTIONS REQUIRED	DATE AND NATURE OF ACTIONS COMPLETED
STM-01A	power over	Remains in water give the color	no	OK	NA	
STM-03	yes		no	OK	NA	
STM-04	yes		no	OK	NA	
STM-05	yes		no	Crack OK	NA	

figure D5.2b

STORMWATER MANAGEMENT FEATURES INSPECTION LOG
 FORMER LANDFILL SITE

RTN: 3-3939, 63 WESTERN AVENUE
 Framingham, Massachusetts



ATTACHMENT B

LOW FLOW PURGING AND GROUNDWATER SAMPLING RECORDS

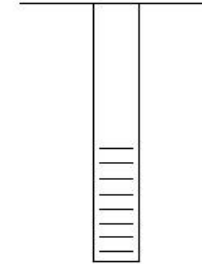
MONITORING WELL RECORD FOR LOW-FLOW PURGING

Project Data:

Project Name: Former Landfill Site Date: 10-Sep-12
 Ref. No.: 12618 Personnel: Rob Redman

Monitoring Well Data:

Well No.: MW-1-07
 Vapor PID (ppm): -- Saturated Screen Length (ft): 8.91
 Measurement Point: Top of PVC Depth to Pump Intake (ft)⁽¹⁾: 14.0
 Constructed Well Depth (ft): 22 Well Diameter, D (in): 2
 Measured Well Depth (ft): 18.86 Well Screen Volume, V_s (gallons)⁽²⁾: 1.43
 Depth of Sediment (ft): 3.14 Initial Depth to Water (ft): 9.95



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, 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		
1245	100	9.95	0.00	NA	NA	NA	NA	NA	NA		
1300	100	10.13	0.18	19.85	1.01	396	4.87	5.76	-41		
1310	100	10.15	0.20	19.82	0.988	226	3.95	5.8	-57		
1320	100	10.15	0.20	19.37	0.987	154	2.88	5.71	-45		
1330	100	10.15	0.20	19.31	0.947	127	2.77	5.75	-42		
1340	100	10.15	0.20	19.28	0.89	84.7	1.88	5.72	-45		
1350	100	10.15	0.20	19.25	0.853	50.0	1.81	5.7	-48		
1400	100	10.15	0.20	19.48	0.837	37	1.73	5.67	-50		
1410	100	10.15	0.20	19.83	0.813	27.4	1.52	5.68	-55		
1420	100	10.15	0.20	19.75	0.804	14.8	1.42	5.67	-57		
1430	100	10.15	0.20	19.61	0.799	14	1.40	5.67	-58		
1435	100	10.15	0.20	19.56	0.794	12.8	1.38	5.66	-59		

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, $V_s = \pi r^2 (r^2) * L$ in mL, where r (r=D/2) and L are in cm. For Imperial units, $V_s = \pi r^2 (r^2) * L * (2.54)^3$, 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= V_p/V_s.
- 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: 10-Sep-12
 Ref. No.: 12618 Personnel: Rob Redman

Monitoring Well Data:

Well No.: MW-5-07
 Vapor PID (ppm): -- Saturated Screen Length (ft): 8.79
 Measurement Point: Top of PVC Depth to Pump Intake (ft)⁽¹⁾: 20.0
 Constructed Well Depth (ft): 24.50 Well Diameter, D (in): 2
 Measured Well Depth (ft): 24.50 Well Screen Volume, V_s (gallons)⁽²⁾: 1.41
 Depth of Sediment (ft): 0 Initial Depth to Water (ft): 15.71

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, 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		
1640	100	15.71	0	NA	NA	NA	NA	NA	NA		
1650	100	15.85	0.14	18.03	2.08	166	2.03	6.45	-197		
1700	100	15.87	0.16	18.28	2.05	88.1	1.65	6.47	-201		
1710	100	15.87	0.16	18.03	2.02	45.3	1.82	6.49	-202		
1720	100	15.87	0.16	17.83	2.01	32.8	1.51	6.50	-201		
1725	100	15.87	0.16	18.32	2.01	30.6	1.48	6.51	-201		
1730	100	15.87	0.16	18.03	2.01	29.9	NM	6.52	-207		

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, $V_s = \pi r^2 (r^2)^* L$ in mL, where r (r=D/2) and L are in cm. For Imperial units, $V_s = \pi r^2 (r^2)^* L * (2.54)^3$, 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.

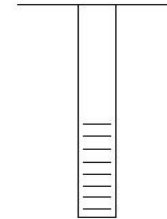
MONITORING WELL RECORD FOR LOW-FLOW PURGING

Project Data:

Project Name: Former Landfill Site Date: 11-Sep-12
 Ref. No.: 12618 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): 22.55
 Depth of Sediment (ft): -0.05
 Saturated Screen Length (ft): 5.37
 Depth to Pump Intake (ft)⁽¹⁾: 19.0
 Well Diameter, D (in): 2
 Well Screen Volume, V_s (gallons)⁽²⁾: 0.86
 Initial Depth to Water (ft): 17.18



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		
815	NA	17.18	0	NA	NA	NA	NA	NA	NA		
845	50	19.11	1.93	16.40	1.33	46.0	6.27	5.67	-27		
900	80	19.15	1.97	16.61	1.28	83.4	9.33	5.72	-35		
910	50	19.55	2.37	16.57	1.29	75.3	9.24	5.73	-35		
920	50	19.75	2.57	16.75	1.30	50.5	8.25	5.65	-33		
	well dewatering - waited for recharge then sample										

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/11/CT  DATE: October 31, 2012

RE: Data Quality Assessment and Validation SSOW: 12618-002-R7
Annual Sampling
Framingham Landfill OMM Site - Framingham, Massachusetts

The following details a quality assessment and validation of the analytical data resulting from the September 2012 collection of one (1) surface water and three (3) groundwater samples from the Framingham Landfill OMM Site in Framingham, Massachusetts. The sample summary detailing sample identification, sample location, 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). Summaries of the analytical data are present in Tables 3a and 3b. 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 4
4	Method Blank Samples	NA
5	Surrogate Compounds – Organic Analyses	NA
6	Matrix Spike/Matrix Spike Duplicate Analyses	NA
7	Laboratory Control Sample Analysis/Laboratory Control Duplicate	Table 5
8	Internal Standard Summaries - Organic Analyses	Table 6
9	Serial Dilution – Inorganic Analyses	NA
10	Field Quality Assurance/Quality Control	NA

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 with the exception of sample outliers identified in the MassDEP ARC form, outlined in the case narrative and presented with qualifiers in Table 4.

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 method blank samples were reported to be free from detectable levels of target analytes, indicating no 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.

The MS/MSD percent recoveries and associated RPD acceptance criteria were met.

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 5.

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.

Internal Standard (IS) Summaries – Organic Analyses

To correct for variability in the GC/MS response and sensitivity, IS compounds are added to all samples. All results are calculated as a ratio of the compound and associated IS response. Overall instrument stability and performance for SVOC analysis was monitored using IS peak area and retention time (RT) data. The IS peak areas and RTs of the samples are required to meet the following criteria:

- i. IS area counts must not vary by more than a factor of two (-50 percent to +100 percent) from the associated continuing calibration standard IS area counts
- ii. The RT of the IS must not vary by more than plus or minus 30 seconds from the associated continuing calibration standard

A review of the SVOC internal standard data showed that the IS area counts and retention time data were within the acceptance criteria with the exception of sample outliers identified in the MassDEP ARC form, outlined in the case narrative and presented with qualifiers in Table 6.

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.

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.

TABLE 1

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

						Parameters		
Sample Identification	Location	Matrix	Collection Date (mm/dd/yyyy)	Collection Time (hr:min)	SS SVOC	SS Metals - Total		SS Metals - Dissolved
TestAmerica SDG: 360-42703-1								
GW-12618-091012-RR-001	MW01-07	Water	9/10/2012	2:10 PM	X	X		
GW-12618-091012-RR-002	MW05-07	Water	9/10/2012	5:35 PM	X	X		
GW-12618-091112-RR-003	MW06-07	Water	9/11/2012	10:20 AM	X	X		
SW-12618-091112-RR-001	WETLAND INLET	Water	9/11/2012	10:55 AM	X	X	X	

Notes:

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 6010B			
Antimony	SW-846 6010B			
Arsenic	SW-846 6010B			
Barium	SW-846 6010B			
Beryllium	SW-846 6010B			
Cadmium	SW-846 6010B			
Chromium	SW-846 6010B			
Cobalt	SW-846 6010B			
Copper	SW-846 6010B			
Iron	SW-846 6010B			
Lead	SW-846 6010B			
Manganese	SW-846 6010B			
Nickel	SW-846 6010B			
Selenium	SW-846 6010B			
Silver	SW-846 6010B			
Thallium	SW-846 6010B			
Vanadium	SW-846 6010B			
Zinc	SW-846 6010B			
Mercury	SW-846 7470A	Water	- 28 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

TABLE 3A

**GROUNDWATER ANALYTICAL DATA
ANNUAL SAMPLING
FRAMINGHAM LANDFILL OMM SITE
FRAMINGHAM, MASSACHUSETTS**

Sample Location		MCP Groundwater	MW01-07	MW05-07	MW06-07
Sample Identification		GW-3	GW-12618-091012-RR-001	GW-12618-091012-RR-002	GW-12618-091112-RR-003
Sample Date			9/10/2012	9/10/2012	9/11/2012
Sample Type					
	Units	a			
Metals					
Aluminum	mg/L	--	0.29	0.018 J	0.038 J
Antimony	mg/L	8	0.0060 U	0.0060 U	0.0060 U
Arsenic	mg/L	0.9	0.0016	0.0029	0.0044
Barium	mg/L	50	0.048	0.26	0.040
Beryllium	mg/L	0.05	0.0010 U	0.0010 U	0.0010 U
Cadmium	mg/L	0.004	0.0010 U	0.0010 U	0.0010 U
Chromium	mg/L	0.3	0.0027 J	0.0050 U	0.00063 J
Cobalt	mg/L	--	0.010 U	0.010 U	0.0018 J
Copper	mg/L	--	0.010 U	0.023	0.0061 J
Iron	mg/L	--	3.6	150	16
Lead	mg/L	0.01	0.0050 U	0.0013 J	0.0050 U
Manganese	mg/L	--	0.36	0.68	1.2
Mercury	mg/L	0.02	0.00020 U	0.00020 U	0.00020 U
Nickel	mg/L	0.2	0.010 U	0.019	0.0044 J
Selenium	mg/L	0.1	0.010 U	0.010 U	0.010 U
Silver	mg/L	0.007	0.0050 U	0.0050 U	0.0050 U
Thallium	mg/L	3	0.0010 U	0.0010 U	0.0010 U
Vanadium	mg/L	4	0.0045 J	0.010 U	0.010 U
Zinc	mg/L	0.9	0.0057	0.017	0.026
Semi-Volatile Organic Compounds					
1,2,4-Trichlorobenzene	mg/L	50	0.0049 U	0.01 U	0.0049 U
1,2-Dichlorobenzene	mg/L	2	0.0049 U	0.01 U	0.0049 U
1,3-Dichlorobenzene	mg/L	50	0.0049 U	0.01 U	0.0049 U
1,4-Dichlorobenzene	mg/L	8	0.0049 U	0.01 U	0.0049 U
1,2-Diphenylhydrazine	mg/L	--	0.0049 U	0.01 U	0.0049 U
2,2'-Oxybis(1-chloropropane) (b	mg/L	50	0.0049 U	0.01 U	0.0049 U
2,4,5-Trichlorophenol	mg/L	3	0.0049 U	0.01 U	0.0049 U
2,4,6-Trichlorophenol	mg/L	0.5	0.0049 U	0.01 U	0.0049 U
2,4-Dichlorophenol	mg/L	2	0.0049 U	0.01 U	0.0049 U
2,4-Dimethylphenol	mg/L	50	0.0049 U	0.01 U	0.0049 U
2,4-Dinitrophenol	mg/L	20	0.0049 U	0.01 U	0.0049 U
2,4-Dinitrotoluene	mg/L	50	0.0049 U	0.01 U	0.0049 U
2,6-Dinitrotoluene	mg/L	--	0.0049 U	0.01 U	0.0049 U
2-Chloronaphthalene	mg/L	--	0.0049 U	0.01 U	0.0049 U
2-Chlorophenol	mg/L	40	0.0049 U	0.01 U	0.0049 U
2-Methylnaphthalene	mg/L	3	0.00097 U	0.002 U	0.00097 U
2-Methylphenol	mg/L	--	0.0049 U	0.01 U	0.0049 U
2-Nitroaniline	mg/L	--	0.0049 U	0.01 U	0.0049 U
2-Nitrophenol	mg/L	--	0.0049 U	0.01 U	0.0049 U
3&4-Methylphenol	mg/L	--	0.0049 U	0.01 U	0.0049 U
3,3'-Dichlorobenzidine	mg/L	2	0.0049 U	0.01 U	0.0049 U
3-Nitroaniline	mg/L	--	0.0049 U	0.01 U	0.0049 U
4,6-Dinitro-2-methylphenol	mg/L	--	0.0049 U	0.01 U	0.0049 U
4-Bromophenyl phenyl ether	mg/L	--	0.0049 U	0.01 U	0.0049 U
4-Chloro-3-methylphenol	mg/L	--	0.0049 U	0.01 U	0.0049 U
4-Chloroaniline	mg/L	0.3	0.0049 U	0.01 U	0.0049 U
4-Chlorophenyl phenyl ether	mg/L	--	0.0049 U	0.01 U	0.0049 U
4-Nitroaniline	mg/L	--	0.0049 U	0.01 U	0.0049 U
4-Nitrophenol	mg/L	--	0.0049 UJ	0.01 UJ	0.0049 UJ
Acenaphthene	mg/L	5	0.00097 U	0.002 U	0.00097 U
Acenaphthylene	mg/L	3	0.00029 U	0.0006 U	0.00029 U
Acetophenone	mg/L	--	0.0049 U	0.01 U	0.0049 U

TABLE 3A

**GROUNDWATER ANALYTICAL DATA
ANNUAL SAMPLING
FRAMINGHAM LANDFILL OMM SITE
FRAMINGHAM, MASSACHUSETTS**

Sample Location		MCP Groundwater	MW01-07	MW05-07	MW06-07
Sample Identification		GW-3	GW-12618-091012-RR-001	GW-12618-091012-RR-002	GW-12618-091112-RR-003
Sample Date			9/10/2012	9/10/2012	9/11/2012
Sample Type					
	Units	a			
Aniline	mg/L	--	0.0049 UJ	0.01 UJ	0.0049 UJ
Anthracene	mg/L	3	0.00097 U	0.002 U	0.00097 U
Atrazine	mg/L	--	0.0049 U	0.01 U	0.0049 U
Azobenzene	mg/L	--	0.0049 U	0.01 U	0.0049 U
Benzaldehyde	mg/L	--	0.0049 U	0.01 U	0.0049 U
Benzo(a)anthracene	mg/L	1	0.00029 U	0.0006 U	0.00029 U
Benzo(a)pyrene	mg/L	0.5	0.00019 U	0.0004 U	0.00019 UJ
Benzo(b)fluoranthene	mg/L	0.4	0.00029 U	0.0006 U	0.00029 UJ
Benzo(g,h,i)perylene	mg/L	3	0.00049 U	0.001 U	0.00049 UJ
Benzo(k)fluoranthene	mg/L	0.1	0.00029 U	0.0006 U	0.00029 UJ
Benzoic acid	mg/L	--	0.0049 UJ	0.01 UJ	0.0049 UJ
Biphenyl (1,1-Biphenyl)	mg/L	50	0.0049 U	0.01 U	0.0049 U
bis(2-Chloroethoxy)methane	mg/L	--	0.0049 U	0.01 U	0.0049 U
bis(2-Chloroethyl)ether	mg/L	50	0.0049 U	0.01 U	0.0049 U
bis(2-Ethylhexyl)phthalate (DEH)	mg/L	0.03	0.0019 U	0.004 U	0.0019 U
Butyl benzylphthalate (BBP)	mg/L	--	0.0049 U	0.01 U	0.0049 U
Caprolactam	mg/L	--	0.0049 U	0.01 U	0.0049 U
Carbazole	mg/L	--	0.0049 U	0.01 U	0.0049 U
Chrysene	mg/L	3	0.00097 U	0.002 U	0.00097 U
Dibenz(a,h)anthracene	mg/L	0.04	0.00049 U	0.001 U	0.00049 UJ
Dibenzofuran	mg/L	--	0.0049 U	0.01 U	0.0049 U
Diethyl phthalate	mg/L	9	0.0049 U	0.01 U	0.0049 U
Dimethyl phthalate	mg/L	50	0.0049 U	0.01 U	0.0049 U
Di-n-butylphthalate (DBP)	mg/L	--	0.0049 U	0.01 U	0.0049 U
Di-n-octyl phthalate (DnOP)	mg/L	--	0.0049 U	0.01 U	0.0049 UJ
Fluoranthene	mg/L	0.2	0.00097 U	0.002 U	0.00097 U
Fluorene	mg/L	3	0.00097 U	0.002 U	0.00097 U
Hexachlorobenzene	mg/L	6	0.00097 U	0.002 U	0.00097 U
Hexachlorobutadiene	mg/L	3	0.00039 U	0.0008 U	0.00039 U
Hexachlorocyclopentadiene	mg/L	--	0.0049 U	0.01 U	0.0049 U
Hexachloroethane	mg/L	50	0.0029 U	0.006 U	0.0029 U
Indeno(1,2,3-cd)pyrene	mg/L	0.1	0.00049 U	0.001 U	0.00049 UJ
Isophorone	mg/L	--	0.0049 U	0.01 U	0.0049 U
Naphthalene	mg/L	20	0.00097 U	0.002 U	0.00097 U
Nitrobenzene	mg/L	--	0.0049 U	0.01 U	0.0049 U
N-Nitrosodi-n-propylamine	mg/L	--	0.0049 U	0.01 U	0.0049 U
N-Nitrosodiphenylamine	mg/L	--	0.0049 U	0.01 U	0.0049 U
Pentachlorophenol	mg/L	0.2	0.00097 U	0.002 U	0.00097 U
Phenanthrene	mg/L	0.05	0.00019 U	0.0004 U	0.00019 U
Phenol	mg/L	2	0.0049 UJ	0.01 UJ	0.0049 UJ
Pyrene	mg/L	0.02	0.0049 U	0.01 U	0.0049 U

Notes:

U - Not present at or above the associated value.

J - Estimated concentration.

UJ - Estimated reporting limit.

TABLE 3B
SURFACE WATER ANALYTICAL DATA
ANNUAL SAMPLING
FRAMINGHAM LANDFILL OOM SITE
FRAMINGHAM, MASSACHUSETTS

Sample Location Sample Identification Sample Date Sample Type		Freshwater CMC (acute)	Freshwater CCC (chronic)	WETLAND INLET SW-12618-091112-RR-001 9/11/2012
	Units	a	b	
Metals				
Aluminum	mg/L	0.75	0.087	0.14 ^a
Antimony	mg/L	--	--	0.0060 U
Arsenic	mg/L	0.34	0.15	0.0040
Barium	mg/L	--	--	0.040
Beryllium	mg/L	--	--	0.0010 U
Cadmium	mg/L	0.002	0.00025	0.0010 U
Chromium	mg/L	0.016	0.011	0.0050 U
Cobalt	mg/L	--	--	0.0017 J
Copper	mg/L	0.013	0.009	0.0030 J
Iron	mg/L	--	1	6.1 ^a
Lead	mg/L	0.065	0.0025	0.0058 ^a
Manganese	mg/L	--	--	0.29
Mercury	mg/L	0.0014	0.00077	0.00020 U
Nickel	mg/L	0.47	0.052	0.0020 J
Selenium	mg/L	--	0.005	0.010 U
Silver	mg/L	0.0032	--	0.0050 U
Thallium	mg/L	--	--	0.0010 U
Vanadium	mg/L	--	--	0.0029 J
Zinc	mg/L	0.12	0.12	0.0089
Aluminum (dissolved)	mg/L	0.75	0.087	0.14 ^a
Antimony (dissolved)	mg/L	--	--	0.0060 U
Arsenic (dissolved)	mg/L	0.34	0.15	0.0056
Barium (dissolved)	mg/L	--	--	0.046
Beryllium (dissolved)	mg/L	--	--	0.0010 U
Cadmium (dissolved)	mg/L	0.002	0.00025	0.0010 U
Chromium (dissolved)	mg/L	0.016	0.011	0.00071 J
Cobalt (dissolved)	mg/L	--	--	0.0026 J
Copper (dissolved)	mg/L	0.013	0.009	0.010 U
Iron (dissolved)	mg/L	--	1	7.3 ^a
Lead (dissolved)	mg/L	0.065	0.0025	0.0050 ^a
Manganese (dissolved)	mg/L	--	--	0.37
Mercury (dissolved)	mg/L	0.0014	0.00077	0.00020 U
Nickel (dissolved)	mg/L	0.47	0.052	0.0068 J
Selenium (dissolved)	mg/L	--	0.005	0.010 U
Silver (dissolved)	mg/L	0.0032	--	0.0050 U
Thallium (dissolved)	mg/L	--	--	0.0010 U
Vanadium (dissolved)	mg/L	--	--	0.0037 J
Zinc (dissolved)	mg/L	0.12	0.12	0.019
Semi-Volatile Organic Compounds				
1,2,4-Trichlorobenzene	mg/L	--	--	0.0048 U
1,2-Dichlorobenzene	mg/L	--	--	0.0048 U
1,2-Diphenylhydrazine	mg/L	--	--	0.0048 U
1,3-Dichlorobenzene	mg/L	--	--	0.0048 U
1,4-Dichlorobenzene	mg/L	--	--	0.0048 U
2,2'-Oxybis(1-chloropropane) (b)	mg/L	--	--	0.0048 U
2,4,5-Trichlorophenol	mg/L	--	--	0.0048 U
2,4,6-Trichlorophenol	mg/L	--	--	0.0048 U
2,4-Dichlorophenol	mg/L	--	--	0.0048 U
2,4-Dimethylphenol	mg/L	--	--	0.0048 U
2,4-Dinitrophenol	mg/L	--	--	0.0048 U
2,4-Dinitrotoluene	mg/L	--	--	0.0048 U
2,6-Dinitrotoluene	mg/L	--	--	0.0048 U
2-Chloronaphthalene	mg/L	--	--	0.0048 U
2-Chlorophenol	mg/L	--	--	0.0048 U

TABLE 3B
SURFACE WATER ANALYTICAL DATA
ANNUAL SAMPLING
FRAMINGHAM LANDFILL OOM SITE
FRAMINGHAM, MASSACHUSETTS

<i>Sample Location</i>		<i>Freshwater CMC</i>	<i>Freshwater CCC</i>	WETLAND INLET
<i>Sample Identification</i>		<i>(acute)</i>	<i>(chronic)</i>	SW-12618-091112-RR-001
<i>Sample Date</i>				9/11/2012
<i>Sample Type</i>				
	Units	a	b	
2-Methylnaphthalene	mg/L	--	--	0.00097 U
2-Methylphenol	mg/L	--	--	0.0048 U
2-Nitroaniline	mg/L	--	--	0.0048 U
2-Nitrophenol	mg/L	--	--	0.0048 U
3&4-Methylphenol	mg/L	--	--	0.0048 U
3,3'-Dichlorobenzidine	mg/L	--	--	0.0048 U
3-Nitroaniline	mg/L	--	--	0.0048 U
4,6-Dinitro-2-methylphenol	mg/L	--	--	0.0048 U
4-Bromophenyl phenyl ether	mg/L	--	--	0.0048 U
4-Chloro-3-methylphenol	mg/L	--	--	0.0048 U
4-Chloroaniline	mg/L	--	--	0.0048 U
4-Chlorophenyl phenyl ether	mg/L	--	--	0.0048 U
4-Nitroaniline	mg/L	--	--	0.0048 U
4-Nitrophenol	mg/L	--	--	0.0048 UJ
Acenaphthene	mg/L	--	--	0.00097 U
Acenaphthylene	mg/L	--	--	0.00029 U
Acetophenone	mg/L	--	--	0.0048 U
Aniline	mg/L	--	--	0.0048 UJ
Anthracene	mg/L	--	--	0.00097 U
Atrazine	mg/L	--	--	0.0048 U
Azobenzene	mg/L	--	--	0.0048 U
Benzaldehyde	mg/L	--	--	0.0048 U
Benzo(a)anthracene	mg/L	--	--	0.00029 U
Benzo(a)pyrene	mg/L	--	--	0.00019 U
Benzo(b)fluoranthene	mg/L	--	--	0.00029 U
Benzo(g,h,i)perylene	mg/L	--	--	0.00048 U
Benzo(k)fluoranthene	mg/L	--	--	0.00029 U
Benzoic acid	mg/L	--	--	0.0048 UJ
Biphenyl (1,1-Biphenyl)	mg/L	--	--	0.0048 U
bis(2-Chloroethoxy)methane	mg/L	--	--	0.0048 U
bis(2-Chloroethyl)ether	mg/L	--	--	0.0048 U
bis(2-Ethylhexyl)phthalate (DEH)	mg/L	--	--	0.0019 U
Butyl benzylphthalate (BBP)	mg/L	--	--	0.0048 U
Caprolactam	mg/L	--	--	0.0048 U
Carbazole	mg/L	--	--	0.0048 U
Chrysene	mg/L	--	--	0.00097 U
Dibenz(a,h)anthracene	mg/L	--	--	0.00048 U
Dibenzofuran	mg/L	--	--	0.0048 U
Diethyl phthalate	mg/L	--	--	0.0048 U
Dimethyl phthalate	mg/L	--	--	0.0048 U
Di-n-butylphthalate (DBP)	mg/L	--	--	0.0048 U
Di-n-octyl phthalate (DnOP)	mg/L	--	--	0.0048 U
Fluoranthene	mg/L	--	--	0.00097 U
Fluorene	mg/L	--	--	0.00097 U
Hexachlorobenzene	mg/L	--	--	0.00097 U
Hexachlorobutadiene	mg/L	--	--	0.00039 U
Hexachlorocyclopentadiene	mg/L	--	--	0.0048 U
Hexachloroethane	mg/L	--	--	0.0029 U
Indeno(1,2,3-cd)pyrene	mg/L	--	--	0.00048 U
Isophorone	mg/L	--	--	0.0048 U
Naphthalene	mg/L	--	--	0.00097 U
Nitrobenzene	mg/L	--	--	0.0048 U
N-Nitrosodi-n-propylamine	mg/L	--	--	0.0048 U

TABLE 3B
SURFACE WATER ANALYTICAL DATA
ANNUAL SAMPLING
FRAMINGHAM LANDFILL OOM SITE
FRAMINGHAM, MASSACHUSETTS

<i>Sample Location</i>		<i>Freshwater CMC</i>	<i>Freshwater CCC</i>	WETLAND INLET
<i>Sample Identification</i>		<i>(acute)</i>	<i>(chronic)</i>	SW-12618-091112-RR-001
<i>Sample Date</i>				9/11/2012
<i>Sample Type</i>				
	Units	a	b	
N-Nitrosodiphenylamine	mg/L	--	--	0.0048 U
Pentachlorophenol	mg/L	0.019	0.015	0.00097 U
Phenanthrene	mg/L	--	--	0.00019 U
Phenol	mg/L	--	--	0.0048 UJ
Pyrene	mg/L	--	--	0.0048 U

Notes:

U - Not present at or above the associated value.

J - Estimated concentration.

UJ - Estimated reporting limit.

TABLE 4

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>
SVOC	4-Nitrophenol	9/21/2012	--	-27.4	GW-12618-091012-RR-001	4.9 UJ	µg/L
					GW-12618-091012-RR-002	10 UJ	µg/L
					GW-12618-091112-RR-003	4.9 UJ	µg/L
					SW-12618-091112-RR-001	4.8 UJ	µg/L

Notes:

- UJ - Non-detect with an Estimated Report Limit
- RRF - Relative Response Factor
- %D - Percent Difference

TABLE 5

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</i>	<i>Control Limits</i>		<i>Associated Sample ID</i>	<i>Qualified Result</i>	<i>Units</i>
						<i>%Rec</i>	<i>RPD</i>			
SVOC	4-Nitrophenol	9/21/2012	22	22	2	30 - 130	20	GW-12618-091012-RR-001	4.9 UJ	µg/L
								GW-12618-091012-RR-002	10 UJ	µg/L
								GW-12618-091112-RR-003	4.9 UJ	µg/L
								SW-12618-091112-RR-001	4.8 UJ	µg/L
SVOC	Aniline	9/21/2012	39	37	6	40 - 140	20	GW-12618-091012-RR-001	4.9 UJ	µg/L
								GW-12618-091012-RR-002	10 UJ	µg/L
								GW-12618-091112-RR-003	4.9 UJ	µg/L
								SW-12618-091112-RR-001	4.8 UJ	µg/L
SVOC	Benzoic acid	9/21/2012	18	14	23	40 - 140	20	GW-12618-091012-RR-001	4.9 UJ	µg/L
								GW-12618-091012-RR-002	10 UJ	µg/L
								GW-12618-091112-RR-003	4.9 UJ	µg/L
								SW-12618-091112-RR-001	4.8 UJ	µg/L
SVOC	Phenol	9/21/2012	25	24	8	30 - 130	20	GW-12618-091012-RR-001	4.9 UJ	µg/L
								GW-12618-091012-RR-002	10 UJ	µg/L
								GW-12618-091112-RR-003	4.9 UJ	µg/L
								SW-12618-091112-RR-001	4.8 UJ	µg/L

Notes:

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

TABLE 6

SUMMARY OF QUALIFIED SAMPLE DATA DUE TO VIOLATION OF INTERNAL STANDARD RECOVERY ACCEPTANCE CRITERIA
ANNUAL SAMPLING
FRAMINGHAM LANDFILL OMM SITE
FRAMINGHAM, MASSACHUSETTS

<i>Parameter</i>	<i>Analyte</i>	<i>Internal Standard (IS)</i>	<i>IS Area Count (percent)</i>	<i>Control Limits (percent)</i>	<i>Sample ID</i>	<i>Qualified Result</i>	<i>Units</i>
SVOC	Benzo(a)pyrene	Perylene-d12	47.79	50 - 200	GW-12618-091112-RR-003	0.19 UJ	µg/L
	Benzo(b)fluoranthene					0.29 UJ	µg/L
	Benzo(g,h,i)perylene					0.49 UJ	µg/L
	Benzo(k)fluoranthene					0.29 UJ	µg/L
	Dibenz(a,h)anthracene					0.49 UJ	µg/L
	Di-n-octyl phthalate (DnOP)					4.9 UJ	µg/L
	Indeno(1,2,3-cd)pyrene					0.49 UJ	µg/L

Notes:

- UJ - Non-detect with an Estimated Report Limit
- IS - Internal Standard