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Our Company Commitment

Second Quarter 2015

Environmental Monitoring Report
Former Jamestown Landfill
Jamestown, Rhode Island

File No. 32220.27

Submitted to:

Rhode Island Deparment of Environmental Management
Providence, Rhode Island

September 10, 2015

GZA GeoEnvironmental, Inc.

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September 10, 2015
File No. 32220.27

Mr. Mark Dennen
Rhode Island Department of Environmental Management
Office of Waste Management
235 Promenade Street, 3rd Floor
Providence, Rhode Island 02908

Re: Second Quarter 2015 *Environmental Monitoring Report*
Former Jamestown Landfill
Jamestown, Rhode Island

Dear Mr. Dennen:

On behalf of our client, the Town of Jamestown, GZA GeoEnvironmental, Inc. (GZA) is pleased to submit this *Environmental Monitoring Report*. The report presents the results of the Second Quarter 2015 post-closure environmental monitoring round conducted at the former Jamestown Landfill (the Site) located on North Main Road in Jamestown, Rhode Island. A summary of our findings and conclusions from this monitoring round are presented on pages 8 and 9 of the report.

Groundwater and methane monitoring were conducted in accordance with the applicable requirements of RIDEM's January 1997 *Solid Waste Regulation No. 2* (Solid Waste Landfills) and the Site's *Revised Environmental Monitoring Plan* (EMP) dated October 4, 2004, as amended through November 2005. Additionally, as requested by the Town, GZA included monitoring locations GZ-1, GZ-8 and GZ-9 in the quarterly sampling and analytical program.

We trust that this report fulfills your present needs. Please feel free to call Erik Beloff or Ed Summerly at (401) 421-4140 if you have any questions or comments.

Very truly yours,

GZA GEOENVIRONMENTAL, INC.

Erik M. Beloff
Assistant Project Manager

John P. Hartley
Consultant/Reviewer

Edward A. Summerly, P.G.
Principal

EAS:lal

cc: Mr. Michael Gray, Town of Jamestown (1 copy and PDF)

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TABLE OF CONTENTS

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1.00 INTRODUCTION

This report describes the second quarterly round of post-closure groundwater and perimeter landfill gas monitoring for 2015 performed at the former Jamestown Landfill (Site) located off North Main Road in Jamestown, Rhode Island (see Figure 1 - *Locus Plan*). GZA GeoEnvironmental, Inc. (GZA) performed this monitoring on behalf of the Town of Jamestown for their submission to the Rhode Island Department of Environmental Management (RIDEM) to address applicable requirements of RIDEM's *Solid Waste Regulation No. 2* (Solid Waste Landfills) dated January 1997 and the Site's *Revised Environmental Monitoring Plan* dated October 4, 2004, as amended on November 29, 2005.

This round included the sampling of monitoring well GZ-1 as requested by the Town at a public workshop held on October 27, 2008. It also contains the laboratory results from samples collected from the two more recently installed monitoring wells; GZ-8 and GZ-9.

A summary of our findings and conclusions from this monitoring round are presented on pages 7 and 8 of this report. This report is subject to the limitations contained in Appendix A.

The purpose of this monitoring was to:

- Continue the assessment of groundwater quality at and in the vicinity of the Site including the detection and evaluation of contaminants (if any) derived from former waste disposal operations; and
- Evaluate the potential for off-Site migration of methane due to waste decomposition.

This report includes: well-specific field measurements; a summary of sampling and analytical results; methane monitoring results; a statistical evaluation of the data; and conclusions and recommendations.

2.00 GROUNDWATER SAMPLING AND LANDFILL GAS SURVEY

GZA personnel were onsite to collect groundwater samples from the 11 program wells and perform the perimeter landfill gas survey (LGS) on June 23 and 30, 2015. The following paragraphs briefly describe our field procedures.

2.10 GROUNDWATER SAMPLING

On June 23, 2015, groundwater samples were collected from all 11 groundwater monitoring wells. The wells included GZ-1, GZ-2, GZ-3, GZ-4, GZ-5, GZ-6, GZ-7S, GZ-7D, GZ-8, GZ-9 and POT-1/PWSW. Groundwater well locations are shown on Figure 2, *Groundwater Contour Plan – June 2015*. Depth to groundwater was measured and recorded at all 11 program wells prior to purging and sampling; including those that were retained in the EMP for groundwater elevation contouring purposes. Table 1 summarizes the depth to groundwater, elevation data and field-screening results.

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Groundwater sampling was conducted in general accordance with the United States Environmental Protection Agency's (USEPA) July 30, 1996 *Low Stress (low flow) Purging and Sampling Procedure* (Low Flow SOP), revised January 19, 2010. In previous rounds, the sample from GZ-9 was turbid, which resulted, in our opinion, in elevated inorganic concentrations in the sample. To address this, monitoring well GZ-9 was purged for an extended period of time in an effort to remove suspended solids.

The samples were screened and/or analyzed for five field-screening parameters (pH, specific conductance, temperature, dissolved oxygen and turbidity), 15 metals employing EPA Method 6020A and 47 volatile organic compounds (VOCs) by EPA Method 8260C specified for detection monitoring in Appendix A of RIDEM's *Solid Waste Regulation No. 2*. The groundwater sample from the well on Lot 47, designated POT-1/PWSW was analyzed for VOCs by EPA Method 524.2, for nitrate by Method 353.2 and total coliform bacteria by Method 9221B as required by the Site-wide EMP referenced above.

Samples were collected in preserved containers supplied by the laboratory and placed on ice for transport under chain-of-custody (attached in Appendix B) to Spectrum Analytical Inc. (formerly Mitkem) in North Kingstown, Rhode Island; a RI Department of Health certified laboratory, for testing (Certification # LAI00301).

2.20 PERIMETER LANDFILL GAS SURVEY

As previously noted in the March 2015 *Monitoring Report*, seven LFG monitoring probes (SG-2, SG-3, SG-6, SG-8, SG-10, SG-12 and SG-13) were removed/destroyed during landfill closure activities and installation of the engineered cap. On June 23, 2015, GZA personnel installed 15 new permanent landfill gas monitoring locations to replace each of these seven destroyed locations and the seven remaining existing probes as part of routine maintenance activities.

The new permanent probes were roughly evenly spaced around the perimeter of the property boundary. The new probes were constructed of ½" I.D. black carbon steel and driven to a depth of approximately 4-feet below ground surface. The bottom 12" of the probes were screened with 1/8" holes. Upon completion of the installation, GZA conducted a perimeter landfill gas survey. The monitoring was conducted to evaluate the potential for migration of landfill gas (specifically methane) to off-Site receptors. The methane monitoring was conducted in general accordance with GZA's standard operating procedure (SOP) *4.5 Landfill Gas Monitoring* and the EPA's guidance document number EPA 600/R-05/123A dated September 2005 titled *Guidance for Evaluating Landfill Gas Emissions From Closed or Abandoned facilities*."

On June 30, 2015, the monitoring was performed at all 15 new permanent landfill gas monitoring locations (see Figure 1). Soil gas was extracted and screened using a LANDTEC GEM 5000® infra-red gas analyzer. The instrument was field-calibrated prior to its use with a mixture of methane (100 parts per million [ppm]) in air. GZA returned to the Site on July 20, 2015 to collect a second round of soil gas readings to confirm the initial results due to the transitory nature of subsurface gas migration. The following tables present the results of the landfill gas screening for this quarter.

PERIMETER LANDFILL GAS SCREENING – JUNE 30, 2015

Location	% Methane (CH_4)	% LEL	% Oxygen (O_2)	% Carbon Dioxide (CO_2)
SG-1	<0.1	<0.1	17.1	2.9
SG-2	<0.1	<0.1	17.6	1.7
SG-3	<0.1	<0.1	18.7	1.2
SG-4	<0.1	<0.1	19.4	0.9
SG-5	<0.1	<0.1	19.6	0.2
SG-6	<0.1	<0.1	17.9	1.7
SG-7	<0.1	<0.1	18.0	1.8
SG-8	<0.1	<0.1	19.5	0.4
SG-9	<0.1	<0.1	19.9	0.2
SG-10	<0.1	<0.1	19.8	0.3
SG-11	<0.1	<0.1	20.0	0.3
SG-12	<0.1	<0.1	20.1	0.2
SG-13	<0.1	<0.1	20.1	0.2
SG-14	<0.1	<0.1	20.0	0.4
SG-15	<0.1	<0.1	19.9	0.2

PERIMETER LANDFILL GAS SCREENING – JULY 20, 2015

Location	% Methane (CH_4)	% LEL	% Oxygen (O_2)	% Carbon Dioxide (CO_2)
SG-1	<0.1	<0.1	18.5	2.5
SG-2	<0.1	<0.1	17.0	3.9
SG-3	<0.1	<0.1	17.2	3.8
SG-4	<0.1	<0.1	20.1	0.6
SG-5	<0.1	<0.1	16.2	3.3
SG-6	<0.1	<0.1	17.6	2.0
SG-7	<0.1	<0.1	18.6	1.4
SG-8	<0.1	<0.1	19.8	0.4
SG-9	<0.1	<0.1	20.1	0.1
SG-10	<0.1	<0.1	19.9	0.2
SG-11	<0.1	<0.1	19.9	0.2
SG-12	<0.1	<0.1	20.2	0.1
SG-13	<0.1	<0.1	20.3	0.2
SG-14	<0.1	<0.1	20.0	0.4
SG-15	<0.1	<0.1	20.3	0.2

Methane was not detected in any of the soil gas samples screened. RIDEM regulations require that all solid waste management facilities demonstrate that methane levels do not exceed 25% of the Lower Explosive Limits (LEL) at the facility's property boundaries. These monitoring results were compliant with this requirement.

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3.00 GROUNDWATER SCREENING AND ANALYTICAL RESULTS

The results of field-screening and groundwater monitoring for the last four quarterly rounds are summarized in Tables 1 and 2. The laboratory Certificates of Analysis are provided in Appendix B. A discussion of these testing results follows.

3.10 FIELD SCREENING PARAMETERS

During this sampling round, dissolved oxygen (DO), specific conductance, turbidity and temperature were screened in the field prior to sample collection at each monitoring location (see Table 1). These field parameters serve as indirect measurements of water quality and are used to assess well stabilization under the low-flow purging and sampling protocol. The screening levels observed during this monitoring round are fairly typical for New England groundwaters, but suggest that the landfill has had some impact on groundwater quality.

3.20 INORGANIC ANALYTES

As shown in Table 2, six of the 15 target inorganic analytes were detected in the groundwater samples collected during this sampling round. There were no exceedances of the *National Primary Drinking Water Regulation* Maximum Contaminant Levels (MCLs) for inorganics in samples collected during this round.

The USEPA has not established *National Primary Drinking Water Regulations* for all of the detected metals. Because of this, we have also listed USEPA's Regional Screening Levels (RSLs) for the detected parameters, from the four most recent monitoring rounds, as a point of comparison. As shown on Table 2[3], the concentrations of cobalt in samples from monitoring wells GZ-2 (240 µg/L), GZ-5 (25 µg/L) and GZ-7S (27 µg/L) exceeded the RSL (6.0 µg/L).

Inorganic elements are naturally occurring; therefore, variability in concentrations across the Site are to some degree the result of natural variations in soil and bedrock characteristics, and the amount of suspended particles within individual samples. As noted above, low-flow/low-stress sampling methods were employed during this and all prior GZA sampling rounds to reduce the potential impact of suspended particles on sample results. Care was taken during the purging and sampling of each location to minimize turbidity levels and achieve stabilized readings below 5 nephelometric turbidity units (NTUs) prior to sample collection. Turbidity in all groundwater samples collected during this round, other than the sample from GZ-9 (19 NTUs), stabilized below the recommended 5 NTU level before sampling. Additional purging of GZ-9 had a noticeable beneficial effect on reducing turbidity levels and consequently inorganic analytes.

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3.30 VOLATILE ORGANIC COMPOUNDS

As stated above, VOCs were analyzed by EPA Method 8260C for samples collected from monitoring wells, and by EPA Method 524.2 for the sample collected from POT-1/PWSW. The VOC sample results for the second round of 2015 show six individual VOCs detected in samples collected from wells GZ-2, GZ-7S, GZ-8 and POT-1/PWSW. Sample concentrations were as follows:

Detected VOCs	RIDEM GA Groundwater Objective[A]/Federal MCLs[B] (µg/l)	Location	Result (µg/l)
1,1-Dichloroethane	None/None	GZ-2	0.74 J
1,4-Dichlorobenzene	75/75	GZ-8	2.0 J
Cis-1,2-Dichloroethene	70/70	GZ-7S	1.1 J
Chlorobenzene	100/100	GZ-2 GZ-7S GZ-8	6.7 2.8 J 10.0
Dichlorodifluromethane	None/None	POT-1	1.49
Tetrahrydrofuran	None/None	POT-1	0.73 J

Notes:

A. Groundwater classified GA are those groundwater resources which the Director (RIDEM) has designated to be suitable for public or private drinking water use without treatment.
B. MCL indicates the May 2009 National Primary Water Regulations maximum contaminant level.
C. "J" indicates that the reported concentration was below the method quantitation limits (reporting limits) and is therefore an estimated value.

The data demonstrate that there were no exceedances of state or federal groundwater quality standards for VOCs during the second quarter sampling round of 2015.

For more detailed information on specific detections and their monitoring history, refer to Table 2, the laboratory certificates of analysis in Appendix B, and/or the time series plots in Appendix C.

3.40 WATER QUALITY PARAMETERS

The samples collected from POT-1/PWSW, were analyzed by EPA Method 353.2 and Standard Method SM9221B for nitrate/nitrite as (N) and total coliform bacteria, respectively.

Neither nitrate/nitrite nor total coliform bacteria were detected above their reporting limit (RL).

3.50 QUALITY ASSURANCE/QUALITY CONTROL (QA/QC)

To assess the potential for non-Site related or laboratory induced contaminants, GZA prepared and analyzed a trip blank concurrent with this round of samples. No organic analytes were detected in this blank.

Method blanks were prepared by the laboratory to provide quality assurance/quality control for the target compounds during analysis. All method blanks during this monitoring round were within the acceptable criteria. The laboratory also prepared laboratory control samples (LCS), laboratory control sample duplicates (LCSD), and evaluated surrogate recoveries during this sampling round for both organic and inorganic parameters. All LCS and LCSD recoveries were within the QC limits for all samples with the exception of chlorobenzene and iodomethane. Chlorobenzene recovery was below the criteria of 80-120% and iodomethane recovery was below the criteria of 72-121%. The test procedure allows for several compounds to be outside the QC limits for the LCS. As such, the data were all of suitable quality for the intended use; however, there may be a low bias in the chlorobenzene results.

4.00 COMPARISON OF CURRENT RESULTS WITH PREVIOUS RESULTS

Table 2 presents data for detected analytes from the four most recent monitoring rounds (September 2014 through June 2015). This table also presents the applicable regulatory groundwater quality standards and EPA's RSLs for parameters where applicable water quality standards have not been established.

As shown in Table 2, six of the 15 target inorganic parameters were detected in groundwater samples collected during this round. All six of the detected analytes were also found in groundwater samples collected during the three prior sampling rounds. The six parameters detected in samples collected during this round (barium, cobalt, copper, lead, nickel and zinc) are naturally-occurring and most are likely being detected frequently due to the very low detection and reporting limits provided by the analytical method now being employed; EPA Method 6020A.

All six organic parameters detected in samples collected during this round (1,1-dichloroethane, 1,4-dichlorobenzene, cis-1,2-dichlorobenzene, chlorobenzene, dichlorodifluoromethane and tetrahydrofuran) were observed in one or more of the prior three rounds. Tetrahydrofuran was detected in the sample from POT-1/PWSW for the fourth consecutive time since monitoring began. Benzene, which was detected for the first time since monitoring began in the sample from GZ-7D during the December 2014 round, has not been detected since.

Time series plots were developed for each parameter detected during any of the four most recent monitoring rounds. These plots are provided in Appendix C.

4.10 INORGANIC ANALYTES

The following key observations were noted from our review of inorganic analytes detected during the second round of 2015 as compared to historical results.

- There were no exceedances of any MCLs during this sampling round.
- Lead was detected in the samples collected from well GZ-9 for the tenth consecutive round.

- Cobalt, as described above, was detected in samples from nine of the 11 groundwater monitoring wells; all within historic concentration ranges. There were exceedances of the cobalt RSL in samples from four of the 11 monitoring wells. Note, the RSLs are not regulatory limits, but rather are provided as a point of reference for evaluation of detected parameters for which MCLs have not been established.

Although there have been fluctuations, refer to the trend analysis provided in Appendix C, inorganic constituent concentrations have remained relatively constant during the quarterly environmental monitoring program. We believe that much of the variation in metals concentrations are related to seasonal fluctuations in groundwater levels that impact the turbidity and suspended solids levels of samples as shown on Table 1.

4.20 VOLATILE ORGANIC COMPOUNDS

The following observations were noted from our review of VOCs detected in samples collected during the second round of 2015 as compared to historical results.

- There were no MCL exceedances during this round.
- Chlorobenzene has been consistently detected at low concentrations in groundwater samples collected from wells GZ-2, GZ-7S and G-8. The current observed chlorobenzene concentrations in the samples from these locations are within historic ranges.
- Dichlorodifluoromethane was detected at a low concentration in the sample from POT-1/PWSW during this round which is typical of most prior rounds.
- Tetrahydrofuran was detected for the fourth consecutive round from POT-1/PWSW. Tetrahydrofuran is a common constituent of PVC plastic glue, and since well POT-1/PWSW is located upgradient of the landfill, its detection is likely related to a nearby off-Site release.

As was the case with inorganics, VOC concentrations have remained relatively constant during the quarterly environmental monitoring program.

5.00 STATISTICAL DATA EVALUATION

As stated in Section 5.10 of the EMP, a statistical analysis is required for all detected constituents (in groundwater) that are observed at concentrations above the EPA's MCLs. A review of the second quarter 2015 results indicates that no parameters exceeded their action level (*i.e.*, TT or MCL) during the June 2015 monitoring round; therefore no statistical analysis was required.

Time series plots were generated for detected parameters from this and the three previous sampling rounds. These plots were evaluated for trends and outliers. Sen's Test for trends was performed to evaluate statistically significant trends in the data with respect to time. Seven VOCs and 11 inorganic analytes were evaluated resulting in 64 time series plots that are presented in Appendix C.

Sixteen statistically significant trends in contaminant concentrations were identified by the Sen's Tests; one increasing trend and fifteen decreasing trends. These trends were identified for:

- barium increasing in the sample from GZ-4 and decreasing in GZ-7D, GZ-8 and GZ-9;
- cobalt decreasing in the samples from GZ-1, GZ-6, GZ-7D and POT-1;
- nickel decreasing in the samples from GZ-2, GZ-5 and GZ-8;
- lead decreasing in the samples from GZ-9;
- zinc decreasing in the samples from GZ-6, GZ-7S and GZ-9; and
- 1, 1-dichloroethane decreasing (in the sample from GZ-2.

Time series plots were also visually evaluated for seasonality and outliers. There do not appear to be significant seasonal fluctuations in concentrations for any of the detected analytes. No outliers were observed in the samples collected during the June 2015 monitoring round.

6.00 CONCLUSIONS AND RECOMMENDATIONS

Ten groundwater monitoring wells and the Lot-47 well (POT-1/PWSW) were field-screened and sampled. The samples were analyzed for 15 inorganics and 47 VOCs listed in RIDEM's *Solid Waste Regulations*. Additionally, nitrate/nitrite (as N) and total coliform bacteria analysis was performed on the samples collected from POT-1/PWSW.

The following conclusions were developed based on the results obtained from this and previous sampling rounds.

- Six organic and six inorganic parameters were detected in the groundwater samples collected during this round of groundwater monitoring. There were no exceedances of *National Primary Drinking Water Regulations Maximum Containment Limits* (*i.e.*, MCLs or TTs) for any parameters during this sampling round.

- Lead was detected in the sample from monitoring well GZ-9 for the tenth consecutive round. The detections were all well below the Action Level of 15 µg/L and concentrations appear to be decreasing.

- Time series plots and trend tests identified 15 statistically significant decreasing trends and one statistically significant increasing trends in groundwater contaminant concentrations.

- Five target parameters were detected in the sample collected from POT-1/PWSW during this sampling round. All detected parameters were below their respective MCLs/TTs and/or health-based screening criteria (*i.e.*,

RSLs), where available. Note that the drinking water analytical method was used for the analysis of VOCs for the samples collected from this well.

- Fifteen new permanent landfill soil gas monitoring locations were installed and screened for methane during this round. As stated in the prior report, seven monitoring locations had been removed/destroyed during on-going construction activities and the remaining seven were also replaced as part of routine maintenance. Methane was not detected above the instrument detection limit of 0.1% in any of the 15 screened perimeter soil gas monitoring locations. Methane concentrations were all below RIDEM's regulatory limit *(i.e.*, <25% of the LEL at the property boundaries). Methane has never been detected above the instrument detection limit at the majority of screening locations around the perimeter of the Site.

- Based on groundwater analytical results for samples collected during this round of monitoring, it does not appear that recent construction activities performed at the Site have had any adverse effects on groundwater quality.

- Based on the findings presented herein, assessment monitoring is not required at this time.

The next round of groundwater and soil vapor monitoring will be conducted in September of 2015.

TABLES

TABLE 1

SUMMARY OF STABILIZED GROUNDWATER SCREENING RESULTS
SEPTEMBER 2014 TO JUNE 2015

Former Jamestown Landfill - Jamestown, Rhode Island

Location ID:		GZ-1 (Up-gradient)				GZ-2 (Down-gradient)			
Sampling Date:	**UNIT**	**9/16/2014**	**12/22/2014**	**3/20/2015**	**6/23/2015**	**9/16/2014**	**12/22/2014**	**3/19/2015**	**6/23/2015**
Temperature	°C	12.8	10.7	7.8	12.5	13.9	10.8	10.4	12.1
pH	SU	5.5	5.7	5.5	5.7	6.1	5.7	6.3	6.9
Conductance	mS/cm	0.075	0.081	0.084	0.115	0.378	0.091	0.517	0.670
Dissolved Oxygen	mg/l	6.1	7.6	7.1	7.2	0.3	5.4	0.3	0.5
Turbidity	NTU	5	4	4	4	3	4	5	4
Depth to Water	FT	24.1	16.1	6.5	15.1	13.3	8.7	5.7	9.1
Location ID:		**GZ-3 (Down-gradient)**				**GZ-4 (Cross-gradient)**			
Sampling Date:	**UNIT**	**9/16/2014**	**12/22/2014**	**3/19/2015**	**6/23/2015**	**9/16/2014**	**12/22/2014**	**3/19/2015**	**6/23/2015**
Temperature	°C	12.9	12.6	9.2	11.1	13.6	11	8.8	12
pH	SU	5.3	5.5	5.3	6.4	5.1	5.5	5.4	6.2
Conductance	mS/cm	0.083	0.129	0.170	0.155	0.06	0.094	0.104	0.105
Dissolved Oxygen	mg/l	5.8	5.2	6.3	7.5	5.9	6.3	6.0	6.6
Turbidity	NTU	3	2	2	1	5	4	2	1
Depth to Water	FT	14.2	9.6	5.9	9.9	15.6	10.3	4.2	10.0
Location ID:		**GZ-5 (Cross-gradient)**				**GZ-6 (Up-gradient)**			
Sampling Date:	**UNIT**	**9/16/2014**	**12/22/2014**	**3/20/2015**	**6/23/2015**	**9/16/2014**	**12/22/2014**	**3/20/2015**	**6/23/2015**
Temperature	°C	15.3	13	10.7	17.6	12.5	10.6	9.7	13.6
pH	SU	5.9	5.8	6.2	6.9	5.3	5.6	5.5	7.1
Conductance	mS/cm	0.099	0.089	0.190	0.170	0.080	0.072	0.075	0.089
Dissolved Oxygen	mg/l	5.9	2.5	0.3	0.9	7.5	8.2	6.6	7.0
Turbidity	NTU	4	5	2.0	5.0	5	4	2	5
Depth to Water	FT	32.7	30.7	15.1	25.1	27.5	23.4	12.4	19.3

Notes:

1. Temperature, pH, Conductance and Dissolved Oxygen were measured in the field using a YSI Pro multimeter. Turbidity was measured in the field using a Lamotte 2000 Turbidity Meter.
2. Turbidity below 5 NTUs could not be achieved after 2 hours of well purging at a low flow rate (<0.4 L/min).
3. Depht to water not recorded due to damaged well.

TABLE 1

SUMMARY OF STABILIZED GROUNDWATER SCREENING RESULTS
SEPTEMBER 2014 TO JUNE 2015

Former Jamestown Landfill - Jamestown, Rhode Island

Location ID:	GZ-7D (Down-gradient)					GZ-7S (Down-gradient)			
Sampling Date:	**UNIT**	**9/16/2014**	**12/22/2014**	**3/19/2015**	**6/23/2015**	**9/16/2014**	**12/22/2014**	**3/19/2015**	**6/23/2015**
Temperature	°C	12.2	12.4	9.9	12.5	12.4	11.8	10.6	12.7
pH	SU	6.2	6.2	6.4	6.5	6.1	6.2	6.3	6.4
Conductance	mS/cm	0.438	0.278	0.325	0.449	0.555	0.624	0.634	0.880
Dissolved oxygen	mg/l	1.6	0.8	2.2	0.2	2.5	0.9	1.8	1.0
Turbidity	NTU	4	3	3	4	4	3	3	4
Depth to water	FT	28.3	24.0	21.0	24.4	27.7	23.0	18.7	23.6
Location ID:	**POT-1 (Lot 47)**					**GZ-8 (Down-gradient)**			
Sampling Date:	**UNIT**	**9/16/2014**	**12/22/2014**	**3/20/2015**	**6/23/2015**	**9/16/2014**	**12/22/2014**	**3/20/2015**	**6/23/2015**
Temperature	°C	12.4	11.4	10.1	11.2	12.5	12.3	11.6	12.4
pH	SU	6.3	6.9	7.3	8.7	5.9	6.1	6.2	6.4
Conductance	mS/cm	0.189	0.225	0.233	0.277	0.502	0.598	0.576	0.730
Dissolved oxygen	mg/l	3.8	0.2	0.1	0.1	0.4	0.4	1.0	0.2
Turbidity	NTU	5	2	5	5	5	3	3	1
Depth to water	FT	25.4	20.6	11.5	17.1	37.8	31.4	25.6	32.9
Location ID:	**GZ-9 (Down-gradient)**								
Sampling Date:	**UNIT**	**9/16/2014**	**12/22/2014**	**3/20/2015**	**6/23/2015**				
Temperature	°C	13.5	11.1	8.7	13.8				
pH	SU	6.4	6.4	6.6	6.7				
Conductance	mS/cm	0.097	0.116	0.117	0.162				
Dissolved oxygen	mg/l	1.1	1.6	1.6	1.2				
Turbidity	NTU	240 [2]	10 [2]	12 [2]	19 [2]				
Depth to water	FT	24.6	20.2	NR	19.7				

Notes:

1. Temperature, pH, Conductance and Dissolved Oxygen were measured in the field using a YSI Pro multimeter. Turbidity was measured in the field using a Lamotte 2000 Turbidity meter
2. Turbidity below 5 NTUs could not be achieved after 2 hours of well purging at a low flow rate (<0.4 L/min).
3. EA-3 was retianed to aid in groundwater contouring. Depth to water during each of the last four quarters was 27.9, 7.5, 16.1 and 16.6 feet.

TABLE 2
SUMMARY OF DETECTED APPENDIX A
GROUNDWATER ANALYTICAL RESULTS
SEPTEMBER 2014 THROUGH JUNE 2015

Former Jamestown Landfill - Jamestown, Rhode Island

Parameters	Method Detection Limit	MCL*	USEPA [3] Regional Screening Level	GZ-1 (Up-gradient)				GZ-2 (Down-gradient)				GZ-3 (Down-gradient)				GZ-4 (Cross-gradient)			
				9/16/2014	12/22/2014	3/20/2015	6/23/2015	9/16/2014	12/22/2014	3/19/2015	6/23/2015	9/16/2014	12/22/2014	3/19/2015	6/23/2015	9/16/2014	12/22/2014	3/19/2015	6/23/2015
Volatile Organics: (µg/l)																			
Benzene	5	5	0.45	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	5	100	78	ND	ND	ND	ND	**7.5**	**5.7**	**5.4**	**6.7**	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	5	NONE	200	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	5	NONE	2.7	ND	ND	ND	ND	ND	ND	ND	**0.74 J**	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	5	75	0.48	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cis-1,2-Dichloroethene	5	70	36	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene	0.5	None	0.17	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	5	5	0.44	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrahyrdrofuran	0.64	None	3,400	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Water Quality Parameters:																			
Total Coliform (cfu/100ml)	20	<5% [4]	NONE	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Nitrate/Nitrite as N (mg/l)	0.25	10/1 [6]	32,000	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Total Metals: (µg/l)																			
Antimony	2	6	7.8	**5.0**	**9.5**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic	1	10	0.052	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Barium	10	2,000	3,800	ND	ND	ND	ND	**51**	**48**	**43**	**45**	**16**	**10**	**36**	**12**	ND	ND	**13**	ND
Beryllium	1	4	25	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium	1	5	9	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**1.1**	ND	ND	ND
Chromium	2	100	NONE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**2.5**	ND
Cobalt	1	NONE	6	**13**	**8.5**	**2.6**	**8.2**	**260**	**230**	**220**	**240**	ND	ND	ND	ND	ND	ND	ND	ND
Copper	2	1,300 [7]	800	**7.5**	**6.5**	ND	**6.4 B**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Lead	1	15 [7]	NONE	ND	**2.0 B**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**5.3 B**	ND	ND	ND
Selenium	5	50	100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Silver	1	NONE	94	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**1.1**	ND
Nickel	1	NONE	390	**34 B**	**26**	**17**	**25 B**	**45 B**	**39**	**39**	**42 B**	**3.2 B**	**3.1**	**5**	**3.5 B**	**9.2 B**	**9.2**	**13**	**8.9 B**
Thallium	1	2	0.2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vanadium	5	NONE	86	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zinc	5	NONE	6,000	**34**	**24**	**12**	**20**	**7.6**	**6.6**	**9**	**7.9**	**9.4**	**5.1**	**15**	**7.7**	**11**	**15**	**15**	**12**

Notes:

(1) * Results are compared to USEPA's National Primary Drinking Water Regulation maximum contaminant levels (MCLs) updated May 2009 as required by RIDEM's Solid Waste Regulations.

(2) ND indicates the parameter was non-detected.

(3) USEPA Regional Screening Levels (RSL) promulgated November 2010 and revised in April 2012, May 2014 and January 2015. Note, the RBC for cobalt was previously 11 µg/l.

(4) If detected in two consecutive rounds, must sample for fecal coliform and E Coli bacteria.

(5) NS indicates parameter not sampled.

(6) Groundwater sample from POT-1/PWSW was analyzed employing drinking water methods (524.2).

(7) Value is a Treatment Technique Action Level (TT).

(8) "J" indicates that the reported concentration is below the method quantitation limits (reporting limits) and is therefore an estimated value.

(9) Yellow highlighted values exceed either MCL, TT Action Level or RSL.

(10) "B" indicates that the parameter was detected in a blank sample.

(11) Turbidity was above 5 NTU at this location at the time of sample collection.

(12) Appendix A refers to RIDEM's Appendix A list of hazardous inorganic and organic constituents from solid waste regulation No. 2 Solid Waste Landfills.

TABLE 2
SUMMARY OF DETECTED APPENDIX A
GROUNDWATER ANALYTICAL RESULTS
SEPTEMBER 2014 THROUGH JUNE 2015

Former Jamestown Landfill - Jamestown, Rhode Island

Parameters	Method Detection Limit	MCL*	USEPA [3] Regional Screening Level	GZ-5 (Cross-gradient)				GZ-6 (Up-gradient)				GZ-7S (Down-gradient)				GZ-7D (Down-gradient)			
				9/16/2014	12/22/2014	3/20/2015	6/23/2015	9/16/2014	12/22/2014	3/20/2015	6/23/2015	9/16/2014	12/22/2014	3/19/2015	6/23/2015	9/16/2014	12/22/2014	3/19/2015	6/23/2015
Volatile Organics: (µg/l)																			
Benzene	5	5	0.45	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.94 J**	ND	ND
Chlorobenzene	5	100	78	ND	ND	ND	ND	ND	ND	ND	ND	**1.8 J**	**2.1 J**	**1.4 J**	**2.8 J**	ND	ND	ND	ND
Dichlorodifluoromethane	5	NONE	200	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	5	NONE	2.7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	5	75	0.48	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cis-1,2-Dichloroethene	5	70	36	ND	ND	ND	ND	ND	ND	ND	ND	**0.81 J**	**0.98 J**	ND	**1.1 J**	ND	ND	ND	ND
Naphthalene	0.5	None	0.17	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	5	5	0.44	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrahyrdrofuran	0.64	None	3,400	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Water Quality Parameters:																			
Total Coliform (cfu/100ml)	20	<5% [4]	NONE	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Nitrate/Nitrite as N (mg/l)	0.25	10/1 [6]	32,000	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Total Metals: (µg/l)																			
Antimony	2	6	7.8	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**4.5**	ND	ND	ND
Arsenic	1	10	0.052	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Barium	10	2,000	3,800	ND	ND	ND	ND	ND	ND	ND	ND	**19**	**24**	**23**	**20**	**16**	**10**	ND	ND
Beryllium	1	4	25	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium	1	5	9	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chromium	2	100	NONE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cobalt	1	NONE	6	**22**	**34**	**59**	**25**	**4.1**	**3.7**	**3.2**	**5.9**	**27**	**27**	**35**	**27**	**4.4**	**2.8**	**2.5**	**2.9**
Copper	2	1,300 [7]	800	ND	ND	ND	ND	**12**	**9.9**	**15**	**18 B**	ND	ND	ND	ND	ND	ND	ND	ND
Lead	1	15 [7]	NONE	**1.6 B**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**4.6 B**	ND	ND	ND
Selenium	5	50	100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Silver	1	NONE	94	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel	1	NONE	390	**3.8 B**	**6.5**	**4.9**	**2.9 B**	**17 B**	**17**	**16**	**21 B**	**61 B**	**61**	**76**	**56 B**	**26 B**	**10**	**7.7**	**18 B**
Thallium	1	2	0.2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vanadium	5	NONE	86	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zinc	5	NONE	6,000	ND	**6.2**	ND	ND	**18**	**15**	**13**	**21**	**14**	**24**	**15**	**13**	**14**	ND	ND	ND

Notes:
(1) * Results are compared to USEPA's National Drinking Water Regulations maximum contaminant levels (MCLs) updated May 2009 as required by RIDEM's Solid Waste Regulations.
(2) ND indicates the parameter was non-detected.
(3) USEPA Regional Screening Levels (RSL) promulgated November 2010 and revised in April 2012. Note, the RBC for cobalt was previously 11 µg/l.
(4) If detected in two consecutive rounds, must sample for fecal coliform and E Coli bacteria.
(5) NS indicates parameter not sampled.
(6) Groundwater sample from POT-1/PWSW was analyzed employing drinking water methods (524.2).
(7) Value is a Treatment Technique Action Level (TT).
(8) "J" indicates that the reported concentration is below the method quantitation limits (reporting limits) and is therefore an estimated value.
(9) Yellow highlighted values exceed either MCL, TT Action Level or RSL.
(10) "B" indicates that the parameter was detected in a blank sample.
(11) Turbidity was above 5 NTU at this location at the time of sample collection.
(12) Appendix A refers to RIDEM's Appendix A list of hazardous inorganic and organic constituents from solid waste regulation No. 2 Solid Waste Landfills.

TABLE 2
SUMMARY OF DETECTED APPENDIX A
GROUNDWATER ANALYTICAL RESULTS
SEPTEMBER 2014 THROUGH JUNE 2015

Former Jamestown Landfill - Jamestown, Rhode Island

Parameters	Method Detection Limit	MCL*	USEPA [3] Regional Screening Level	GZ-8 (Down-gradient)				GZ-9 (Down-gradient)				POT-1 (Lot-47) [6]			
				9/16/2014	12/22/2014	3/20/2015	6/23/2015	9/16/2014	12/22/2014	3/20/2015	6/23/2015	9/16/2014	12/22/2014	3/20/2015	6/23/2015
Volatile Organics: (µg/l)															
Benzene	5	5	0.45	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	5	100	78	**12**	**11**	**4.2 J**	**10**	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	5	NONE	200	ND	ND	ND	ND	ND	ND	ND	ND	ND	**1.32**	**1.09**	**1.49**
1,1-Dichloroethane	5	NONE	2.7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.22**	ND
1,4-Dichlorobenzene	5	75	0.48	**3.6 J**	**2.2 J**	**1.2 J**	**2.0 J**	ND	ND	ND	ND	ND	ND	ND	ND
Cis-1,2-Dichloroethene	5	70	36	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene	0.5	None	0.17	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	5	5	0.44	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrahyrdrofuran	0.64	None	3,400	ND	ND	ND	ND	ND	ND	ND	ND	**0.85**	**1.36**	**0.87**	**0.73 J**
Water Quality Parameters:															
Total Coliform (cfu/100ml)	20	<5% [4]	NONE	NS	NS	NS	NS	NS	NS	NS	NS	ND	ND	ND	ND
Nitrate/Nitrite as N (mg/l)	0.25	10/1 [6]	32,000	NS	NS	NS	NS	NS	NS	NS	NS	ND	ND	ND	ND
Total Metals: (µg/l)															
Antimony	2	6	7.8	ND	ND	ND	ND	ND	**2.1**	ND	ND	ND	ND	ND	ND
Arsenic	1	10	0.052	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Barium	10	2,000	3,800	**69**	**68**	**63**	**59**	**41**	**14**	**16**	**14**	ND	ND	ND	ND
Beryllium	1	4	25	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium	1	5	9	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chromium	2	100	NONE	ND	ND	ND	ND	**5.8**	ND	ND	ND	ND	ND	ND	ND
Cobalt	1	NONE	6	**3.0**	**2.7**	**2.6**	**2.2**	**8.8**	**5.1**	**5.8**	**4.8**	**2.0**	**2.3**	**1.4**	**1.3**
Copper	2	1,300 [7]	800	ND	ND	ND	ND	ND	ND	ND	ND	ND	**39**	**43**	**5.7 B**
Lead	1	15 [7]	NONE	ND	ND	ND	ND	**6.5 B**	**1.7 B**	**1.4**	**1.1**	ND	**2.5 B**	**2**	ND
Selenium	5	50	100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Silver	1	NONE	94	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel	1	NONE	390	**33 B**	**31**	**29**	**28 B**	**16 B**	**7.7**	**9.8**	**8.8 B**	**8.1 B**	**5.5**	**3.4**	**3.3 B**
Thallium	1	2	0.2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vanadium	5	NONE	86	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zinc	5	NONE	6,000	**5.6**	ND	ND	ND	**30**	**9.5**	**10**	**8**	**6.1**	**28**	**27**	ND

Notes:
(1) * Results are compared to USEPA's National Primary Drinking Water Regulations maximum contaminant levels (MCLs) updated May 2009 as required by RIDEM's Solid Waste Regulations.
(2) ND indicates the parameter was non-detected.
(3) USEPA Regional Screening Levels (RSL) promulgated November 2010 and revised in April 2012. Note, the RBC for cobalt was previously 11 µg/l.
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(6) Groundwater sample from POT-1/PWSW was analyzed employing drinking water methods (524.2).
(7) Value is a Treatment Technique Action Level (TT).
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(10) "B" indicates that the parameter was detected in a blank sample.
(11) Turbidity was above 5 NTU at this location at the time of sample collection.
(12) Appendix A refers to RIDEM's Appendix A list of hazardous inorganic and organic constituents from solid waste regulation No. 2 Solid Waste Landfills.

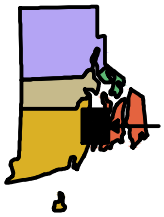
FIGURES

0 1000' 2000' 4000'

APPROXIMATE SCALE IN FEET: 1" = 2000'

N
W E
S

RHODE ISLAND



QUADRANGLE LOCATION

SOURCE:

BASE MAP FROM THE FOLLOWING USGS QUADRANGLE MAP:
PRUDENCE ISLAND, RHODE ISLAND (1955) / PHOTO REVISED 1970 & 1975
WICKFORD, RHODE ISLAND (1995)

DIGITAL TOPOGRAPHIC MAPS PROVIDED BY MAPTECH.INC.

CONTOUR ELEVATIONS REFERENCE NGVD 29,

CONTOURS ARE SHOWN IN FEET AT 10 FEET INTERVALS

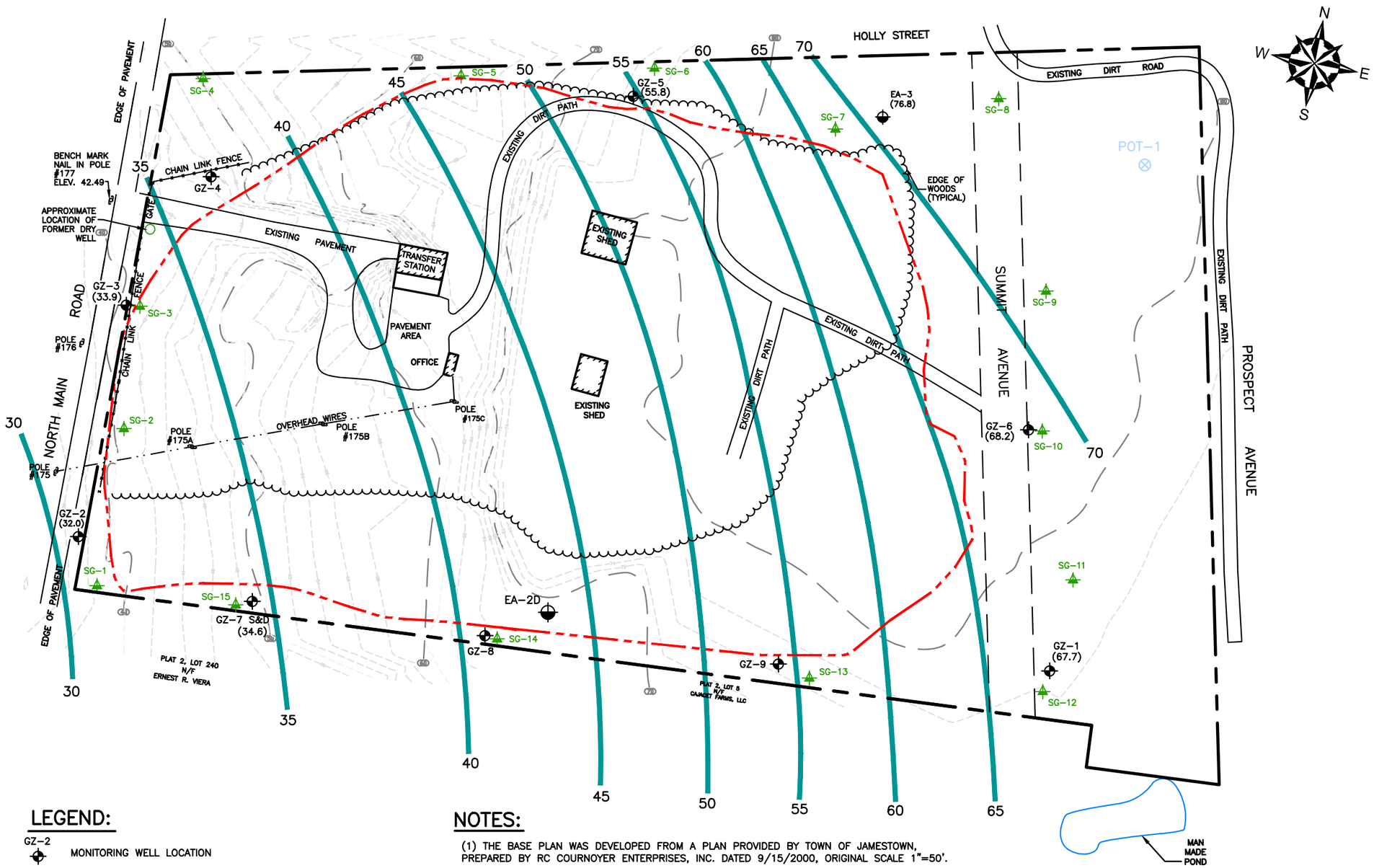
FORMER JAMESTOWN LANDFILL
JUNE 2015 ENVIRONMENTAL MONITORING REPORT
JAMESTOWN, RHODE ISLAND

2ND QUARTER 2015
LOCUS PLAN

PREPARED BY:
GZA GeoEnvironmental, Inc.
Engineers and Scientists
www.gza.com

PREPARED FOR:
TOWN OF JAMESTOWN

PROJ MGR: EMB	REVIEWED BY: EAS	CHECKED BY: MEA	FIGURE 1
DESIGNED BY: DES	DRAWN BY: GRB	SCALE: AS NOTED	
DATE: AUGUST 2015	PROJECT NO. 32220.27	REVISION NO. 0	SHEET NO. 1 OF 1



LEGEND:

GZ-2 — MONITORING WELL LOCATION

(30.3) — INDICATES GROUND WATER ELEVATION (NR= INDICATES NO WATER LEVEL WAS TAKEN AT THIS LOCATION)

40 — INFERRED GROUNDWATER ELEVATION CONTOUR ON JUNE 23, 2015

SG-1 — SOIL GAS PROBES INSTALLED BY GZA PERSONNEL ON JULY 20, 2015.

ESTIMATED EXTENT OF EXISTING LANDFILL

NOTES:

(1) THE BASE PLAN WAS DEVELOPED FROM A PLAN PROVIDED BY TOWN OF JAMESTOWN, PREPARED BY RC COURNOYER ENTERPRISES, INC. DATED 9/15/2000, ORIGINAL SCALE 1"=50'.

(2) THE LOCATIONS OF THE EXISTING BORINGS AND MONITORING WELLS WERE TAKEN FROM THE AFOREMENTIONED PLAN. THE LOCATION OF THE WELL COUPLET (GZ-7) WAS SURVEYED BY GZA PERSONNEL IN SEPTEMBER OF 2005. THIS DATA SHOULD BE CONSIDERED ACCURATE ONLY TO THE DEGREE IMPLIED BY THE METHODS USED.

(3) GROUNDWATER CONTOURS ARE BASED ON DATA FROM WIDELY SPACED EXPLORATIONS AND MAY NOT REFLECT ACTUAL SUBSURFACE CONDITIONS.

(4) WATER LEVEL READINGS HAVE BEEN MADE IN THE MONITORING WELLS AT THE TIMES AND UNDER THE CONDITIONS STATED ON THE SAMPLING LOGS. THESE DATA HAVE BEEN REVIEWED AND INTERPRETATIONS MADE IN THE TEXT OF THIS REPORT. HOWEVER, IT MUST BE STATED THAT FLUCTUATIONS IN THE LEVEL OF THE GROUNDWATER MAY OCCUR DUE TO VARIATIONS IN RAINFALL, TEMPERATURE AND OTHER FACTORS.

(5) MONITORING WELLS GZ-8 AND GZ-9 WERE NOT USED TO DEVELOP GROUNDWATER CONTOURS.

REV. NO.	DESCRIPTION	BY	DATE

PROJ MGR: EMB
DESIGNED BY: EMB
REVIEWED BY: EAS

OPERATOR: LDT
CHECKER: EAS
DATE: JULY 2016

1" = 20' (APPROX)
0 60' 120' 240'

GZA
GeoEnvironmental, Inc.
Engineers and Scientists
530 BROADWAY
PROVIDENCE, RI 02909
(401) 421-4140
(401) 751-8613

FORMER JAMESTOWN LANDFILL
JAMESTOWN, RHODE ISLAND

GROUNDWATER CONTOUR PLAN
SECOND QUARTER 2015

PROJECT NO. 32220.28

FIGURE NO. 2

APPENDIX A

LIMITATIONS

GEOHYDROLOGICAL LIMITATIONS

Use of Report

1. GZA GeoEnvironmental, Inc. (GZA) prepared this report on behalf of, and for the exclusive use of our Client for the stated purpose(s) and location(s) identified in the Proposal for Services and/or Report. Use of this report, in whole or in part, at other locations, or for other purposes, may lead to inappropriate conclusions; and we do not accept any responsibility for the consequences of such use(s). Further, reliance by any party not expressly identified in the agreement, for any use, without our prior written permission, shall be at that party's sole risk, and without any liability to GZA.

Standard of Care

2. GZA's findings and conclusions are based on the work conducted as part of the Scope of Services set forth in the Proposal for Services and/or Report and reflect our professional judgment. These findings and conclusions must be considered not as scientific or engineering certainties, but rather as our professional opinions concerning the limited data gathered during the course of our work. Conditions other than described in this report may be found at the subject location(s).

3. GZA's services were performed using the degree of skill and care ordinarily exercised by qualified professionals performing the same type of services, at the same time, under similar conditions, at the same or a similar property. No warranty, expressed or implied, is made. Specifically, GZA does not and cannot represent that the Site contains no hazardous material, oil, or other latent condition beyond that observed by GZA during its study. Additionally, GZA makes no warranty that any response action or recommended action will achieve all of its objectives or that the findings of this study will be upheld by a local, state or federal agency.

4. In conducting our work, GZA relied upon certain information made available by public agencies, Client and/or others. GZA did not attempt to independently verify the accuracy or completeness of that information. Inconsistencies in this information which we have noted, if any, are discussed in the Report.

Subsurface Conditions

5. The generalized soil profile(s) provided in our Report are based on widely-spaced subsurface explorations and are intended only to convey trends in subsurface conditions. The boundaries between strata are approximate and idealized, and were based on our assessment of subsurface conditions. The composition of strata, and the transitions between strata, may be more variable and more complex than indicated. For more specific information on soil conditions at a specific location refer to the exploration logs.

6. Water level readings have been made in test holes (as described in the Report) and monitoring wells at the specified times and under the stated conditions. These data have been reviewed and interpretations have been made in this report. Fluctuations in the level of the groundwater however occur due to temporal or spatial variations in areal recharge rates, soil heterogeneities, the presence of subsurface utilities, and/or natural or artificially induced perturbations. The observed water table may be other than indicated in the Report.

Compliance with Codes and Regulations

7. We used reasonable care in identifying and interpreting applicable codes and regulations necessary to execute our scope of work. These codes and regulations are subject to various, and possibly contradictory, interpretations. Interpretations and compliance with codes and regulations by other parties is beyond our control.

Screening and Analytical Testing

8. GZA collected environmental samples at the locations identified in the Report. These samples were analyzed for the specific parameters identified in the report. Additional constituents, for which analyses were not conducted, may be present in soil, groundwater, surface water, sediment and/or air. Future Site activities and uses may result in a requirement for additional testing.

9. Our interpretation of field screening and laboratory data is presented in the Report. Unless otherwise noted, we relied upon the laboratory's QA/QC program to validate these data.

10. Variations in the types and concentrations of contaminants observed at a given location or time may occur due to release mechanisms, disposal practices, changes in flow paths, and/or the influence of various physical, chemical, biological or radiological processes. Subsequently observed concentrations may be other than indicated in the Report.

Interpretation of Data

11. Our opinions are based on available information as described in the Report, and on our professional judgment. Additional observations made over time, and/or space, may not support the opinions provided in the Report.

Additional Information

12. In the event that the Client or others authorized to use this report obtain information on environmental or hazardous waste issues at the Site not contained in this report, such information shall be brought to GZA's attention forthwith. GZA will evaluate such information and, on the basis of this evaluation, may modify the conclusions stated in this report.

Additional Services

13. GZA recommends that we be retained to provide services during any future investigations, design, implementation activities, construction, and/or property development/ redevelopment at the Site. This will allow us the opportunity to: i) observe conditions and compliance with our design concepts and opinions; ii) allow for changes in the event that conditions are other than anticipated; iii) provide modifications to our design; and iv) assess the consequences of changes in technologies and/or regulations.

APPENDIX B

LABORATORY DATA SHEETS

Report Date:
07-Jul-15 08:34

☑ Final Report
☐ Re-Issued Report
☐ Revised Report

SPECTRUM ANALYTICAL, INC.

Laboratory Report

GZA GeoEnvironmental Inc.
530 Broadway
Providence, RI 02909

Work Order: P1097
Project : Jamestown Landfill, 6/2015
Project #:

Attn: Erik Beloff

Laboratory ID	Client Sample ID	Matrix	Date Sampled	Date Received
P1097-01	GZ-1	Aqueous	23-Jun-15 13:00	23-Jun-15 13:45
P1097-02	GZ-2	Aqueous	23-Jun-15 06:50	23-Jun-15 13:45
P1097-03	GZ-3	Aqueous	23-Jun-15 07:30	23-Jun-15 13:45
P1097-04	GZ-4	Aqueous	23-Jun-15 08:20	23-Jun-15 13:45
P1097-05	GZ-5	Aqueous	23-Jun-15 12:30	23-Jun-15 13:45
P1097-06	GZ-6	Aqueous	23-Jun-15 12:00	23-Jun-15 13:45
P1097-07	GZ-7S	Aqueous	23-Jun-15 09:15	23-Jun-15 13:45
P1097-08	GZ-7D	Aqueous	23-Jun-15 09:45	23-Jun-15 13:45
P1097-09	GZ-8	Aqueous	23-Jun-15 11:00	23-Jun-15 13:45
P1097-10	GZ-9	Aqueous	23-Jun-15 11:30	23-Jun-15 13:45
P1097-11	POT-1	Aqueous	23-Jun-15 13:20	23-Jun-15 13:45
P1097-12	TRIP BLANK	Aqueous	23-Jun-15 06:00	23-Jun-15 13:45

I attest that the information contained within the report has been reviewed for accuracy and checked against the quality control requirements for each method. The results relate only to the samples(s) as received. This report may not be reproduced, except in full, without written approval from Spectrum Analytical.

All applicable NELAC or USEPA CLP requirments have been meet.

Spectrum Analytical (Rhode Island) is accredited under the National Environmental Laboratory Approval Program (NELAP) and DoD Environmental Laboratory Accreditation Program (ELAP), holds Organic and Inorganic contracts under the USEPA CLP Program and is certified under several states. The current list of our laboratory approvals and certifications is available on the Certifications page on our web site at www.spectrum-analytical.com.

Please contact the Laboratory or Technical Director at 401-732-3400 with any questions regarding the data contained in the laboratory report.

Department of Defense	N/A
Connecticut	PH-0153
Delaware	N/A
Florida	E87664
Maine	2007037
Massachusetts	M-RI907
New Hampshire	2631
New Jersey	RI001
New York	11522
Rhode Island	LAI00301
USDA	P330-08-00023
USEPA - ISM	EP-W-09-039
USEPA - SOM	EP-W-11-033

NELAP ACCREDITED TNI LABORATORY

LABORATORY ACCREDITATION BUREAU ACCREDITED
Certificate # L2247 Testing

Authorized by:

Yihai Ding
Laboratory Director

REPORT NARRATIVE

Spectrum Analytical, Inc. RI Division.

Client : GZA GeoEnvironmental Inc.

Project: Jamestown Landfill, 6/2015

Laboratory Workorder / SDG #: P1097

SW846 8260C, VOC by GC-MS

I. SAMPLE RECEIPT

No exceptions or unusual conditions were encountered unless a Sample Condition Notification Form, or other record of communication is included with the Sample Receipt Documentation.

II. HOLDING TIMES

A. Sample Preparation:

All samples were prepared within the method-specified holding times.

B. Sample Analysis:

All samples were analyzed within the method-specified holding times.

III. METHODS

Samples were analyzed following procedures in laboratory test code: SW846 8260C

IV. PREPARATION

Aqueous Samples were prepared following procedures in laboratory test code: SW5030B

V. INSTRUMENTATION

The following instrumentation was used

Instrument Code: V10
Instrument Type: GCMS-VOA

Description: HP7890A
Manufacturer: Agilent
Model: 7890A / 5975C
GC Column used: 30 m X 0.25 mm ID [1.40 um thickness] DB-624 capillary column.

VI. ANALYSIS

A. Calibration:

Calibrations met the method/SOP acceptance criteria.

B. Blanks:

All method blanks were within the acceptance criteria.

C. Surrogates:

Surrogate standard percent recoveries were within the QC limits.

D. Spikes:

1. Laboratory Control Spikes (LCS):

Percent recoveries for lab control samples were within the QC limits with the following exceptions. Please note that most test procedures allow for several compounds outside of the QC limits for the LCS, although this may indicate a bias for this specific compound.

LCSD-82602 in batch 82602, recovery is below criteria for Chlorobenzene at 80% with criteria of (80-120) and Iodomethane at 72% with criteria of (72-121).

2. Matrix Spike / Matrix Spike Duplicate (MS/MSD):

No client-requested MS/MSD analyses were included in this SDG.

E. Internal Standards:

Internal standard peak areas were within the QC limits.

F. Dilutions:

No sample in this SDG required analysis at dilution.

G. Samples:

No other unusual occurrences were noted during sample analysis.

H. Manual Integration

No manual integrations were performed on any sample or standard.

I certify that this data package is in compliance with the terms and conditions agreed to by the client and Spectrum, both technically and for completeness, except for the conditions noted above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or designated person, as verified by the following signature.

Signed: 

Date: 07/06/2015

REPORT NARRATIVE

Spectrum Analytical, Inc. RI Division.

Client : GZA GeoEnvironmental Inc.

Project: Jamestown Landfill, 6/2015

Laboratory Workorder / SDG #: P1097

SW846 6020A

I. SAMPLE RECEIPT

No exceptions or unusual conditions were encountered unless a Sample Condition Notification Form, or other record of communication is included with the Sample Receipt Documentation.

II. HOLDING TIMES

A. Sample Preparation:

All samples were prepared within the method-specified holding times.

B. Sample Analysis:

All samples were analyzed within the method-specified holding times.

III. METHODS

Samples were analyzed following procedures in laboratory test code: SW846 6020A

IV. PREPARATION

Aqueous Samples were prepared following procedures in laboratory test code: SW3005A

V. INSTRUMENTATION

The following instrumentation was used:

Instrument Code: X1
Instrument Type: ICPMS

Description: X1
Manufacturer: ThermoFisher
Model: X-Series 2

VI. ANALYSIS

A. Calibration:

Calibrations met the method/SOP acceptance criteria.

B. Blanks:

All method blanks were within the acceptance criteria.

C. Spikes:

1. Laboratory Control Spikes (LCS):

Percent recoveries for laboratory control samples were within the QC limits.

2. Matrix spike (MS):

A matrix spike was not performed on any sample in this SDG.

D. Post Digestion Spike (PDS):

A post-digestion spike was not performed on any sample in this SDG.

E. Duplicate sample:

A duplicate analysis was not performed on any sample in this SDG.

F. Serial Dilution (SD):

Serial Dilution analysis was performed on sample: POT-1 (P1097-11ASD).

Percent differences were within the QC limits.

G. Samples:

No other unusual occurrences were noted during sample analysis.

I certify that this data package is in compliance with the terms and conditions agreed to by the client and Spectrum, both technically and for completeness, except for the conditions noted above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or designated person, as verified by the following signature.

Signed: 

Date: 07/06/15

Client: GZA GeoEnvironmental Inc.
Client Sample ID: GZ-1
Lab ID: P1097-01
Project: Jamestown Landfill, 6/2015
Collection Date: 06/23/15 13:00

Analyses	Result	Qual	RL	Units	DF	Date Analyzed	Batch ID
SW846 8260C -- VOC by GC-MS							**SW8260_W**
Chloromethane	ND		5.0	ug/L	1	06/26/2015 3:53	82598
Vinyl chloride	ND		5.0	ug/L	1	06/26/2015 3:53	82598
Bromomethane	ND		5.0	ug/L	1	06/26/2015 3:53	82598
Chloroethane	ND		5.0	ug/L	1	06/26/2015 3:53	82598
Trichlorofluoromethane	ND		5.0	ug/L	1	06/26/2015 3:53	82598
1,1-Dichloroethene	ND		5.0	ug/L	1	06/26/2015 3:53	82598
Acetone	ND		5.0	ug/L	1	06/26/2015 3:53	82598
Iodomethane	ND		5.0	ug/L	1	06/26/2015 3:53	82598
Carbon disulfide	ND		5.0	ug/L	1	06/26/2015 3:53	82598
Methylene chloride	ND		5.0	ug/L	1	06/26/2015 3:53	82598
trans-1,2-Dichloroethene	ND		5.0	ug/L	1	06/26/2015 3:53	82598
1,1-Dichloroethane	ND		5.0	ug/L	1	06/26/2015 3:53	82598
Vinyl acetate	ND		5.0	ug/L	1	06/26/2015 3:53	82598
2-Butanone	ND		5.0	ug/L	1	06/26/2015 3:53	82598
cis-1,2-Dichloroethene	ND		5.0	ug/L	1	06/26/2015 3:53	82598
Bromochloromethane	ND		5.0	ug/L	1	06/26/2015 3:53	82598
Chloroform	ND		5.0	ug/L	1	06/26/2015 3:53	82598
1,1,1-Trichloroethane	ND		5.0	ug/L	1	06/26/2015 3:53	82598
Carbon tetrachloride	ND		5.0	ug/L	1	06/26/2015 3:53	82598
1,2-Dichloroethane	ND		5.0	ug/L	1	06/26/2015 3:53	82598
Benzene	ND		5.0	ug/L	1	06/26/2015 3:53	82598
Trichloroethene	ND		5.0	ug/L	1	06/26/2015 3:53	82598
1,2-Dichloropropane	ND		5.0	ug/L	1	06/26/2015 3:53	82598
Dibromomethane	ND		5.0	ug/L	1	06/26/2015 3:53	82598
Bromodichloromethane	ND		5.0	ug/L	1	06/26/2015 3:53	82598
cis-1,3-Dichloropropene	ND		5.0	ug/L	1	06/26/2015 3:53	82598
4-Methyl-2-pentanone	ND		5.0	ug/L	1	06/26/2015 3:53	82598
Toluene	ND		5.0	ug/L	1	06/26/2015 3:53	82598
trans-1,3-Dichloropropene	ND		5.0	ug/L	1	06/26/2015 3:53	82598
1,1,2-Trichloroethane	ND		5.0	ug/L	1	06/26/2015 3:53	82598
Tetrachloroethene	ND		5.0	ug/L	1	06/26/2015 3:53	82598
2-Hexanone	ND		5.0	ug/L	1	06/26/2015 3:53	82598
Dibromochloromethane	ND		5.0	ug/L	1	06/26/2015 3:53	82598
1,2-Dibromoethane	ND		5.0	ug/L	1	06/26/2015 3:53	82598
Chlorobenzene	ND		5.0	ug/L	1	06/26/2015 3:53	82598
1,1,1,2-Tetrachloroethane	ND		5.0	ug/L	1	06/26/2015 3:53	82598
Ethylbenzene	ND		5.0	ug/L	1	06/26/2015 3:53	82598
m,p-Xylene	ND		5.0	ug/L	1	06/26/2015 3:53	82598

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
DF - Dilution Factor
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
RL - Reporting Limit

Client: GZA GeoEnvironmental Inc.
Client Sample ID: GZ-1
Lab ID: P1097-01
Project: Jamestown Landfill, 6/2015
Collection Date: 06/23/15 13:00

Analyses	Result	Qual	RL	Units	DF	Date Analyzed	Batch ID
SW846 8260C -- VOC by GC-MS							**SW8260_W**
o-Xylene	ND		5.0	ug/L	1	06/26/2015 3:53	82598
Xylene (Total)	ND		5.0	ug/L	1	06/26/2015 3:53	82598
Styrene	ND		5.0	ug/L	1	06/26/2015 3:53	82598
Bromoform	ND		5.0	ug/L	1	06/26/2015 3:53	82598
1,1,2,2-Tetrachloroethane	ND		5.0	ug/L	1	06/26/2015 3:53	82598
1,2,3-Trichloropropane	ND		5.0	ug/L	1	06/26/2015 3:53	82598
1,3-Dichlorobenzene	ND		5.0	ug/L	1	06/26/2015 3:53	82598
1,4-Dichlorobenzene	ND		5.0	ug/L	1	06/26/2015 3:53	82598
1,2-Dichlorobenzene	ND		5.0	ug/L	1	06/26/2015 3:53	82598
1,2-Dibromo-3-chloropropane	ND		5.0	ug/L	1	06/26/2015 3:53	82598
Acrylonitrile	ND		25	ug/L	1	06/26/2015 3:53	82598
trans-1,4-Dichloro-2-butene	ND		5.0	ug/L	1	06/26/2015 3:53	82598
Surrogate: Dibromofluoromethane	109		85-115	%REC	1	06/26/2015 3:53	82598
Surrogate: 1,2-Dichloroethane-d4	114		70-120	%REC	1	06/26/2015 3:53	82598
Surrogate: Toluene-d8	94.9		85-120	%REC	1	06/26/2015 3:53	82598
Surrogate: Bromofluorobenzene	93.9		75-120	%REC	1	06/26/2015 3:53	82598

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
DF - Dilution Factor
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
RL - Reporting Limit

Client: GZA GeoEnvironmental Inc.
Client Sample ID: GZ-2
Lab ID: P1097-02
Project: Jamestown Landfill, 6/2015
Collection Date: 06/23/15 6:50

Analyses	Result	Qual	RL	Units	DF	Date Analyzed	Batch ID
SW846 8260C -- VOC by GC-MS							**SW8260_W**
Chloromethane	ND		5.0	ug/L	1	06/26/2015 4:22	82598
Vinyl chloride	ND		5.0	ug/L	1	06/26/2015 4:22	82598
Bromomethane	ND		5.0	ug/L	1	06/26/2015 4:22	82598
Chloroethane	ND		5.0	ug/L	1	06/26/2015 4:22	82598
Trichlorofluoromethane	ND		5.0	ug/L	1	06/26/2015 4:22	82598
1,1-Dichloroethene	ND		5.0	ug/L	1	06/26/2015 4:22	82598
Acetone	ND		5.0	ug/L	1	06/26/2015 4:22	82598
Iodomethane	ND		5.0	ug/L	1	06/26/2015 4:22	82598
Carbon disulfide	ND		5.0	ug/L	1	06/26/2015 4:22	82598
Methylene chloride	ND		5.0	ug/L	1	06/26/2015 4:22	82598
trans-1,2-Dichloroethene	ND		5.0	ug/L	1	06/26/2015 4:22	82598
1,1-Dichloroethane	0.74	J	5.0	ug/L	1	06/26/2015 4:22	82598
Vinyl acetate	ND		5.0	ug/L	1	06/26/2015 4:22	82598
2-Butanone	ND		5.0	ug/L	1	06/26/2015 4:22	82598
cis-1,2-Dichloroethene	ND		5.0	ug/L	1	06/26/2015 4:22	82598
Bromochloromethane	ND		5.0	ug/L	1	06/26/2015 4:22	82598
Chloroform	ND		5.0	ug/L	1	06/26/2015 4:22	82598
1,1,1-Trichloroethane	ND		5.0	ug/L	1	06/26/2015 4:22	82598
Carbon tetrachloride	ND		5.0	ug/L	1	06/26/2015 4:22	82598
1,2-Dichloroethane	ND		5.0	ug/L	1	06/26/2015 4:22	82598
Benzene	ND		5.0	ug/L	1	06/26/2015 4:22	82598
Trichloroethene	ND		5.0	ug/L	1	06/26/2015 4:22	82598
1,2-Dichloropropane	ND		5.0	ug/L	1	06/26/2015 4:22	82598
Dibromomethane	ND		5.0	ug/L	1	06/26/2015 4:22	82598
Bromodichloromethane	ND		5.0	ug/L	1	06/26/2015 4:22	82598
cis-1,3-Dichloropropene	ND		5.0	ug/L	1	06/26/2015 4:22	82598
4-Methyl-2-pentanone	ND		5.0	ug/L	1	06/26/2015 4:22	82598
Toluene	ND		5.0	ug/L	1	06/26/2015 4:22	82598
trans-1,3-Dichloropropene	ND		5.0	ug/L	1	06/26/2015 4:22	82598
1,1,2-Trichloroethane	ND		5.0	ug/L	1	06/26/2015 4:22	82598
Tetrachloroethene	ND		5.0	ug/L	1	06/26/2015 4:22	82598
2-Hexanone	ND		5.0	ug/L	1	06/26/2015 4:22	82598
Dibromochloromethane	ND		5.0	ug/L	1	06/26/2015 4:22	82598
1,2-Dibromoethane	ND		5.0	ug/L	1	06/26/2015 4:22	82598
Chlorobenzene	6.7		5.0	ug/L	1	06/26/2015 4:22	82598
1,1,1,2-Tetrachloroethane	ND		5.0	ug/L	1	06/26/2015 4:22	82598
Ethylbenzene	ND		5.0	ug/L	1	06/26/2015 4:22	82598
m,p-Xylene	ND		5.0	ug/L	1	06/26/2015 4:22	82598

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
DF - Dilution Factor
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
RL - Reporting Limit

Client: GZA GeoEnvironmental Inc.
Client Sample ID: GZ-2
Lab ID: P1097-02
Project: Jamestown Landfill, 6/2015
Collection Date: 06/23/15 6:50

Analyses	Result	Qual	RL	Units	DF	Date Analyzed	Batch ID
SW846 8260C -- VOC by GC-MS							**SW8260_W**
o-Xylene	ND		5.0	ug/L	1	06/26/2015 4:22	82598
Xylene (Total)	ND		5.0	ug/L	1	06/26/2015 4:22	82598
Styrene	ND		5.0	ug/L	1	06/26/2015 4:22	82598
Bromoform	ND		5.0	ug/L	1	06/26/2015 4:22	82598
1,1,2,2-Tetrachloroethane	ND		5.0	ug/L	1	06/26/2015 4:22	82598
1,2,3-Trichloropropane	ND		5.0	ug/L	1	06/26/2015 4:22	82598
1,3-Dichlorobenzene	ND		5.0	ug/L	1	06/26/2015 4:22	82598
1,4-Dichlorobenzene	ND		5.0	ug/L	1	06/26/2015 4:22	82598
1,2-Dichlorobenzene	ND		5.0	ug/L	1	06/26/2015 4:22	82598
1,2-Dibromo-3-chloropropane	ND		5.0	ug/L	1	06/26/2015 4:22	82598
Acrylonitrile	ND		25	ug/L	1	06/26/2015 4:22	82598
trans-1,4-Dichloro-2-butene	ND		5.0	ug/L	1	06/26/2015 4:22	82598
Surrogate: Dibromofluoromethane	101		85-115	%REC	1	06/26/2015 4:22	82598
Surrogate: 1,2-Dichloroethane-d4	115		70-120	%REC	1	06/26/2015 4:22	82598
Surrogate: Toluene-d8	94.1		85-120	%REC	1	06/26/2015 4:22	82598
Surrogate: Bromofluorobenzene	94.5		75-120	%REC	1	06/26/2015 4:22	82598

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
DF - Dilution Factor
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
RL - Reporting Limit

Client: GZA GeoEnvironmental Inc.
Client Sample ID: GZ-3
Lab ID: P1097-03
Project: Jamestown Landfill, 6/2015
Collection Date: 06/23/15 7:30

Analyses	Result	Qual	RL	Units	DF	Date Analyzed	Batch ID
SW846 8260C -- VOC by GC-MS							**SW8260_W**
Chloromethane	ND		5.0	ug/L	1	06/26/2015 4:50	82598
Vinyl chloride	ND		5.0	ug/L	1	06/26/2015 4:50	82598
Bromomethane	ND		5.0	ug/L	1	06/26/2015 4:50	82598
Chloroethane	ND		5.0	ug/L	1	06/26/2015 4:50	82598
Trichlorofluoromethane	ND		5.0	ug/L	1	06/26/2015 4:50	82598
1,1-Dichloroethene	ND		5.0	ug/L	1	06/26/2015 4:50	82598
Acetone	ND		5.0	ug/L	1	06/26/2015 4:50	82598
Iodomethane	ND		5.0	ug/L	1	06/26/2015 4:50	82598
Carbon disulfide	ND		5.0	ug/L	1	06/26/2015 4:50	82598
Methylene chloride	ND		5.0	ug/L	1	06/26/2015 4:50	82598
trans-1,2-Dichloroethene	ND		5.0	ug/L	1	06/26/2015 4:50	82598
1,1-Dichloroethane	ND		5.0	ug/L	1	06/26/2015 4:50	82598
Vinyl acetate	ND		5.0	ug/L	1	06/26/2015 4:50	82598
2-Butanone	ND		5.0	ug/L	1	06/26/2015 4:50	82598
cis-1,2-Dichloroethene	ND		5.0	ug/L	1	06/26/2015 4:50	82598
Bromochloromethane	ND		5.0	ug/L	1	06/26/2015 4:50	82598
Chloroform	ND		5.0	ug/L	1	06/26/2015 4:50	82598
1,1,1-Trichloroethane	ND		5.0	ug/L	1	06/26/2015 4:50	82598
Carbon tetrachloride	ND		5.0	ug/L	1	06/26/2015 4:50	82598
1,2-Dichloroethane	ND		5.0	ug/L	1	06/26/2015 4:50	82598
Benzene	ND		5.0	ug/L	1	06/26/2015 4:50	82598
Trichloroethene	ND		5.0	ug/L	1	06/26/2015 4:50	82598
1,2-Dichloropropane	ND		5.0	ug/L	1	06/26/2015 4:50	82598
Dibromomethane	ND		5.0	ug/L	1	06/26/2015 4:50	82598
Bromodichloromethane	ND		5.0	ug/L	1	06/26/2015 4:50	82598
cis-1,3-Dichloropropene	ND		5.0	ug/L	1	06/26/2015 4:50	82598
4-Methyl-2-pentanone	ND		5.0	ug/L	1	06/26/2015 4:50	82598
Toluene	ND		5.0	ug/L	1	06/26/2015 4:50	82598
trans-1,3-Dichloropropene	ND		5.0	ug/L	1	06/26/2015 4:50	82598
1,1,2-Trichloroethane	ND		5.0	ug/L	1	06/26/2015 4:50	82598
Tetrachloroethene	ND		5.0	ug/L	1	06/26/2015 4:50	82598
2-Hexanone	ND		5.0	ug/L	1	06/26/2015 4:50	82598
Dibromochloromethane	ND		5.0	ug/L	1	06/26/2015 4:50	82598
1,2-Dibromoethane	ND		5.0	ug/L	1	06/26/2015 4:50	82598
Chlorobenzene	ND		5.0	ug/L	1	06/26/2015 4:50	82598
1,1,1,2-Tetrachloroethane	ND		5.0	ug/L	1	06/26/2015 4:50	82598
Ethylbenzene	ND		5.0	ug/L	1	06/26/2015 4:50	82598
m,p-Xylene	ND		5.0	ug/L	1	06/26/2015 4:50	82598

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
DF - Dilution Factor
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
RL - Reporting Limit

Client: GZA GeoEnvironmental Inc.
Client Sample ID: GZ-3
Lab ID: P1097-03
Project: Jamestown Landfill, 6/2015
Collection Date: 06/23/15 7:30

Analyses	Result	Qual	RL	Units	DF	Date Analyzed	Batch ID
SW846 8260C -- VOC by GC-MS							**SW8260_W**
o-Xylene	ND		5.0	ug/L	1	06/26/2015 4:50	82598
Xylene (Total)	ND		5.0	ug/L	1	06/26/2015 4:50	82598
Styrene	ND		5.0	ug/L	1	06/26/2015 4:50	82598
Bromoform	ND		5.0	ug/L	1	06/26/2015 4:50	82598
1,1,2,2-Tetrachloroethane	ND		5.0	ug/L	1	06/26/2015 4:50	82598
1,2,3-Trichloropropane	ND		5.0	ug/L	1	06/26/2015 4:50	82598
1,3-Dichlorobenzene	ND		5.0	ug/L	1	06/26/2015 4:50	82598
1,4-Dichlorobenzene	ND		5.0	ug/L	1	06/26/2015 4:50	82598
1,2-Dichlorobenzene	ND		5.0	ug/L	1	06/26/2015 4:50	82598
1,2-Dibromo-3-chloropropane	ND		5.0	ug/L	1	06/26/2015 4:50	82598
Acrylonitrile	ND		25	ug/L	1	06/26/2015 4:50	82598
trans-1,4-Dichloro-2-butene	ND		5.0	ug/L	1	06/26/2015 4:50	82598
Surrogate: Dibromofluoromethane	112		85-115	%REC	1	06/26/2015 4:50	82598
Surrogate: 1,2-Dichloroethane-d4	111		70-120	%REC	1	06/26/2015 4:50	82598
Surrogate: Toluene-d8	94.9		85-120	%REC	1	06/26/2015 4:50	82598
Surrogate: Bromofluorobenzene	95.3		75-120	%REC	1	06/26/2015 4:50	82598

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
DF - Dilution Factor
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
RL - Reporting Limit

Client: GZA GeoEnvironmental Inc.
Client Sample ID: GZ-4
Lab ID: P1097-04
Project: Jamestown Landfill, 6/2015
Collection Date: 06/23/15 8:20

Analyses	Result	Qual	RL	Units	DF	Date Analyzed	Batch ID
SW846 8260C -- VOC by GC-MS							**SW8260_W**
Chloromethane	ND		5.0	ug/L	1	06/26/2015 5:19	82598
Vinyl chloride	ND		5.0	ug/L	1	06/26/2015 5:19	82598
Bromomethane	ND		5.0	ug/L	1	06/26/2015 5:19	82598
Chloroethane	ND		5.0	ug/L	1	06/26/2015 5:19	82598
Trichlorofluoromethane	ND		5.0	ug/L	1	06/26/2015 5:19	82598
1,1-Dichloroethene	ND		5.0	ug/L	1	06/26/2015 5:19	82598
Acetone	ND		5.0	ug/L	1	06/26/2015 5:19	82598
Iodomethane	ND		5.0	ug/L	1	06/26/2015 5:19	82598
Carbon disulfide	ND		5.0	ug/L	1	06/26/2015 5:19	82598
Methylene chloride	ND		5.0	ug/L	1	06/26/2015 5:19	82598
trans-1,2-Dichloroethene	ND		5.0	ug/L	1	06/26/2015 5:19	82598
1,1-Dichloroethane	ND		5.0	ug/L	1	06/26/2015 5:19	82598
Vinyl acetate	ND		5.0	ug/L	1	06/26/2015 5:19	82598
2-Butanone	ND		5.0	ug/L	1	06/26/2015 5:19	82598
cis-1,2-Dichloroethene	ND		5.0	ug/L	1	06/26/2015 5:19	82598
Bromochloromethane	ND		5.0	ug/L	1	06/26/2015 5:19	82598
Chloroform	ND		5.0	ug/L	1	06/26/2015 5:19	82598
1,1,1-Trichloroethane	ND		5.0	ug/L	1	06/26/2015 5:19	82598
Carbon tetrachloride	ND		5.0	ug/L	1	06/26/2015 5:19	82598
1,2-Dichloroethane	ND		5.0	ug/L	1	06/26/2015 5:19	82598
Benzene	ND		5.0	ug/L	1	06/26/2015 5:19	82598
Trichloroethene	ND		5.0	ug/L	1	06/26/2015 5:19	82598
1,2-Dichloropropane	ND		5.0	ug/L	1	06/26/2015 5:19	82598
Dibromomethane	ND		5.0	ug/L	1	06/26/2015 5:19	82598
Bromodichloromethane	ND		5.0	ug/L	1	06/26/2015 5:19	82598
cis-1,3-Dichloropropene	ND		5.0	ug/L	1	06/26/2015 5:19	82598
4-Methyl-2-pentanone	ND		5.0	ug/L	1	06/26/2015 5:19	82598
Toluene	ND		5.0	ug/L	1	06/26/2015 5:19	82598
trans-1,3-Dichloropropene	ND		5.0	ug/L	1	06/26/2015 5:19	82598
1,1,2-Trichloroethane	ND		5.0	ug/L	1	06/26/2015 5:19	82598
Tetrachloroethene	ND		5.0	ug/L	1	06/26/2015 5:19	82598
2-Hexanone	ND		5.0	ug/L	1	06/26/2015 5:19	82598
Dibromochloromethane	ND		5.0	ug/L	1	06/26/2015 5:19	82598
1,2-Dibromoethane	ND		5.0	ug/L	1	06/26/2015 5:19	82598
Chlorobenzene	ND		5.0	ug/L	1	06/26/2015 5:19	82598
1,1,1,2-Tetrachloroethane	ND		5.0	ug/L	1	06/26/2015 5:19	82598
Ethylbenzene	ND		5.0	ug/L	1	06/26/2015 5:19	82598
m,p-Xylene	ND		5.0	ug/L	1	06/26/2015 5:19	82598

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
DF - Dilution Factor
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
RL - Reporting Limit

Client: GZA GeoEnvironmental Inc.
Client Sample ID: GZ-4
Lab ID: P1097-04
Project: Jamestown Landfill, 6/2015
Collection Date: 06/23/15 8:20

Analyses	Result	Qual	RL	Units	DF	Date Analyzed	Batch ID
SW846 8260C -- VOC by GC-MS							**SW8260_W**
o-Xylene	ND		5.0	ug/L	1	06/26/2015 5:19	82598
Xylene (Total)	ND		5.0	ug/L	1	06/26/2015 5:19	82598
Styrene	ND		5.0	ug/L	1	06/26/2015 5:19	82598
Bromoform	ND		5.0	ug/L	1	06/26/2015 5:19	82598
1,1,2,2-Tetrachloroethane	ND		5.0	ug/L	1	06/26/2015 5:19	82598
1,2,3-Trichloropropane	ND		5.0	ug/L	1	06/26/2015 5:19	82598
1,3-Dichlorobenzene	ND		5.0	ug/L	1	06/26/2015 5:19	82598
1,4-Dichlorobenzene	ND		5.0	ug/L	1	06/26/2015 5:19	82598
1,2-Dichlorobenzene	ND		5.0	ug/L	1	06/26/2015 5:19	82598
1,2-Dibromo-3-chloropropane	ND		5.0	ug/L	1	06/26/2015 5:19	82598
Acrylonitrile	ND		25	ug/L	1	06/26/2015 5:19	82598
trans-1,4-Dichloro-2-butene	ND		5.0	ug/L	1	06/26/2015 5:19	82598
Surrogate: Dibromofluoromethane	111		85-115	%REC	1	06/26/2015 5:19	82598
Surrogate: 1,2-Dichloroethane-d4	113		70-120	%REC	1	06/26/2015 5:19	82598
Surrogate: Toluene-d8	94.8		85-120	%REC	1	06/26/2015 5:19	82598
Surrogate: Bromofluorobenzene	95.9		75-120	%REC	1	06/26/2015 5:19	82598

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
DF - Dilution Factor
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
RL - Reporting Limit

Spectrum Analytical Inc. - North Kingstown RI -- Rhode Island Division

07/02/2015

Client: GZA GeoEnvironmental Inc.
Client Sample ID: GZ-5
Lab ID: P1097-05
Project: Jamestown Landfill, 6/2015
Collection Date: 06/23/15 12:30

Analyses	Result	Qual	RL	Units	DF	Date Analyzed	Batch ID
SW846 8260C -- VOC by GC-MS							**SW8260_W**
Chloromethane	ND		5.0	ug/L	1	06/26/2015 5:48	82598
Vinyl chloride	ND		5.0	ug/L	1	06/26/2015 5:48	82598
Bromomethane	ND		5.0	ug/L	1	06/26/2015 5:48	82598
Chloroethane	ND		5.0	ug/L	1	06/26/2015 5:48	82598
Trichlorofluoromethane	ND		5.0	ug/L	1	06/26/2015 5:48	82598
1,1-Dichloroethene	ND		5.0	ug/L	1	06/26/2015 5:48	82598
Acetone	ND		5.0	ug/L	1	06/26/2015 5:48	82598
Iodomethane	ND		5.0	ug/L	1	06/26/2015 5:48	82598
Carbon disulfide	ND		5.0	ug/L	1	06/26/2015 5:48	82598
Methylene chloride	ND		5.0	ug/L	1	06/26/2015 5:48	82598
trans-1,2-Dichloroethene	ND		5.0	ug/L	1	06/26/2015 5:48	82598
1,1-Dichloroethane	ND		5.0	ug/L	1	06/26/2015 5:48	82598
Vinyl acetate	ND		5.0	ug/L	1	06/26/2015 5:48	82598
2-Butanone	ND		5.0	ug/L	1	06/26/2015 5:48	82598
cis-1,2-Dichloroethene	ND		5.0	ug/L	1	06/26/2015 5:48	82598
Bromochloromethane	ND		5.0	ug/L	1	06/26/2015 5:48	82598
Chloroform	ND		5.0	ug/L	1	06/26/2015 5:48	82598
1,1,1-Trichloroethane	ND		5.0	ug/L	1	06/26/2015 5:48	82598
Carbon tetrachloride	ND		5.0	ug/L	1	06/26/2015 5:48	82598
1,2-Dichloroethane	ND		5.0	ug/L	1	06/26/2015 5:48	82598
Benzene	ND		5.0	ug/L	1	06/26/2015 5:48	82598
Trichloroethene	ND		5.0	ug/L	1	06/26/2015 5:48	82598
1,2-Dichloropropane	ND		5.0	ug/L	1	06/26/2015 5:48	82598
Dibromomethane	ND		5.0	ug/L	1	06/26/2015 5:48	82598
Bromodichloromethane	ND		5.0	ug/L	1	06/26/2015 5:48	82598
cis-1,3-Dichloropropene	ND		5.0	ug/L	1	06/26/2015 5:48	82598
4-Methyl-2-pentanone	ND		5.0	ug/L	1	06/26/2015 5:48	82598
Toluene	ND		5.0	ug/L	1	06/26/2015 5:48	82598
trans-1,3-Dichloropropene	ND		5.0	ug/L	1	06/26/2015 5:48	82598
1,1,2-Trichloroethane	ND		5.0	ug/L	1	06/26/2015 5:48	82598
Tetrachloroethene	ND		5.0	ug/L	1	06/26/2015 5:48	82598
2-Hexanone	ND		5.0	ug/L	1	06/26/2015 5:48	82598
Dibromochloromethane	ND		5.0	ug/L	1	06/26/2015 5:48	82598
1,2-Dibromoethane	ND		5.0	ug/L	1	06/26/2015 5:48	82598
Chlorobenzene	ND		5.0	ug/L	1	06/26/2015 5:48	82598
1,1,1,2-Tetrachloroethane	ND		5.0	ug/L	1	06/26/2015 5:48	82598
Ethylbenzene	ND		5.0	ug/L	1	06/26/2015 5:48	82598
m,p-Xylene	ND		5.0	ug/L	1	06/26/2015 5:48	82598

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
DF - Dilution Factor
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
RL - Reporting Limit

Client: GZA GeoEnvironmental Inc.
Client Sample ID: GZ-5
Lab ID: P1097-05
Project: Jamestown Landfill, 6/2015
Collection Date: 06/23/15 12:30

Analyses	Result	Qual	RL	Units	DF	Date Analyzed	Batch ID
SW846 8260C -- VOC by GC-MS							**SW8260_W**
o-Xylene	ND		5.0	ug/L	1	06/26/2015 5:48	82598
Xylene (Total)	ND		5.0	ug/L	1	06/26/2015 5:48	82598
Styrene	ND		5.0	ug/L	1	06/26/2015 5:48	82598
Bromoform	ND		5.0	ug/L	1	06/26/2015 5:48	82598
1,1,2,2-Tetrachloroethane	ND		5.0	ug/L	1	06/26/2015 5:48	82598
1,2,3-Trichloropropane	ND		5.0	ug/L	1	06/26/2015 5:48	82598
1,3-Dichlorobenzene	ND		5.0	ug/L	1	06/26/2015 5:48	82598
1,4-Dichlorobenzene	ND		5.0	ug/L	1	06/26/2015 5:48	82598
1,2-Dichlorobenzene	ND		5.0	ug/L	1	06/26/2015 5:48	82598
1,2-Dibromo-3-chloropropane	ND		5.0	ug/L	1	06/26/2015 5:48	82598
Acrylonitrile	ND		25	ug/L	1	06/26/2015 5:48	82598
trans-1,4-Dichloro-2-butene	ND		5.0	ug/L	1	06/26/2015 5:48	82598
Surrogate: Dibromofluoromethane	111		85-115	%REC	1	06/26/2015 5:48	82598
Surrogate: 1,2-Dichloroethane-d4	109		70-120	%REC	1	06/26/2015 5:48	82598
Surrogate: Toluene-d8	94.8		85-120	%REC	1	06/26/2015 5:48	82598
Surrogate: Bromofluorobenzene	93.8		75-120	%REC	1	06/26/2015 5:48	82598

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
DF - Dilution Factor
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
RL - Reporting Limit

Client: GZA GeoEnvironmental Inc.
Client Sample ID: GZ-6
Lab ID: P1097-06
Project: Jamestown Landfill, 6/2015
Collection Date: 06/23/15 12:00

Analyses	Result	Qual	RL	Units	DF	Date Analyzed	Batch ID
SW846 8260C -- VOC by GC-MS							**SW8260_W**
Chloromethane	ND		5.0	ug/L	1	06/26/2015 11:02	82602
Vinyl chloride	ND		5.0	ug/L	1	06/26/2015 11:02	82602
Bromomethane	ND		5.0	ug/L	1	06/26/2015 11:02	82602
Chloroethane	ND		5.0	ug/L	1	06/26/2015 11:02	82602
Trichlorofluoromethane	ND		5.0	ug/L	1	06/26/2015 11:02	82602
1,1-Dichloroethene	ND		5.0	ug/L	1	06/26/2015 11:02	82602
Acetone	ND		5.0	ug/L	1	06/26/2015 11:02	82602
Iodomethane	ND		5.0	ug/L	1	06/26/2015 11:02	82602
Carbon disulfide	ND		5.0	ug/L	1	06/26/2015 11:02	82602
Methylene chloride	ND		5.0	ug/L	1	06/26/2015 11:02	82602
trans-1,2-Dichloroethene	ND		5.0	ug/L	1	06/26/2015 11:02	82602
1,1-Dichloroethane	ND		5.0	ug/L	1	06/26/2015 11:02	82602
Vinyl acetate	ND		5.0	ug/L	1	06/26/2015 11:02	82602
2-Butanone	ND		5.0	ug/L	1	06/26/2015 11:02	82602
cis-1,2-Dichloroethene	ND		5.0	ug/L	1	06/26/2015 11:02	82602
Bromochloromethane	ND		5.0	ug/L	1	06/26/2015 11:02	82602
Chloroform	ND		5.0	ug/L	1	06/26/2015 11:02	82602
1,1,1-Trichloroethane	ND		5.0	ug/L	1	06/26/2015 11:02	82602
Carbon tetrachloride	ND		5.0	ug/L	1	06/26/2015 11:02	82602
1,2-Dichloroethane	ND		5.0	ug/L	1	06/26/2015 11:02	82602
Benzene	ND		5.0	ug/L	1	06/26/2015 11:02	82602
Trichloroethene	ND		5.0	ug/L	1	06/26/2015 11:02	82602
1,2-Dichloropropane	ND		5.0	ug/L	1	06/26/2015 11:02	82602
Dibromomethane	ND		5.0	ug/L	1	06/26/2015 11:02	82602
Bromodichloromethane	ND		5.0	ug/L	1	06/26/2015 11:02	82602
cis-1,3-Dichloropropene	ND		5.0	ug/L	1	06/26/2015 11:02	82602
4-Methyl-2-pentanone	ND		5.0	ug/L	1	06/26/2015 11:02	82602
Toluene	ND		5.0	ug/L	1	06/26/2015 11:02	82602
trans-1,3-Dichloropropene	ND		5.0	ug/L	1	06/26/2015 11:02	82602
1,1,2-Trichloroethane	ND		5.0	ug/L	1	06/26/2015 11:02	82602
Tetrachloroethene	ND		5.0	ug/L	1	06/26/2015 11:02	82602
2-Hexanone	ND		5.0	ug/L	1	06/26/2015 11:02	82602
Dibromochloromethane	ND		5.0	ug/L	1	06/26/2015 11:02	82602
1,2-Dibromoethane	ND		5.0	ug/L	1	06/26/2015 11:02	82602
Chlorobenzene	ND		5.0	ug/L	1	06/26/2015 11:02	82602
1,1,1,2-Tetrachloroethane	ND		5.0	ug/L	1	06/26/2015 11:02	82602
Ethylbenzene	ND		5.0	ug/L	1	06/26/2015 11:02	82602
m,p-Xylene	ND		5.0	ug/L	1	06/26/2015 11:02	82602

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
DF - Dilution Factor
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
RL - Reporting Limit

Client: GZA GeoEnvironmental Inc.
Client Sample ID: GZ-6
Lab ID: P1097-06
Project: Jamestown Landfill, 6/2015
Collection Date: 06/23/15 12:00

Analyses	Result	Qual	RL	Units	DF	Date Analyzed	Batch ID
SW846 8260C -- VOC by GC-MS							**SW8260_W**
o-Xylene	ND		5.0	ug/L	1	06/26/2015 11:02	82602
Xylene (Total)	ND		5.0	ug/L	1	06/26/2015 11:02	82602
Styrene	ND		5.0	ug/L	1	06/26/2015 11:02	82602
Bromoform	ND		5.0	ug/L	1	06/26/2015 11:02	82602
1,1,2,2-Tetrachloroethane	ND		5.0	ug/L	1	06/26/2015 11:02	82602
1,2,3-Trichloropropane	ND		5.0	ug/L	1	06/26/2015 11:02	82602
1,3-Dichlorobenzene	ND		5.0	ug/L	1	06/26/2015 11:02	82602
1,4-Dichlorobenzene	ND		5.0	ug/L	1	06/26/2015 11:02	82602
1,2-Dichlorobenzene	ND		5.0	ug/L	1	06/26/2015 11:02	82602
1,2-Dibromo-3-chloropropane	ND		5.0	ug/L	1	06/26/2015 11:02	82602
Acrylonitrile	ND		25	ug/L	1	06/26/2015 11:02	82602
trans-1,4-Dichloro-2-butene	ND		5.0	ug/L	1	06/26/2015 11:02	82602
Surrogate: Dibromofluoromethane	109		85-115	%REC	1	06/26/2015 11:02	82602
Surrogate: 1,2-Dichloroethane-d4	108		70-120	%REC	1	06/26/2015 11:02	82602
Surrogate: Toluene-d8	91.6		85-120	%REC	1	06/26/2015 11:02	82602
Surrogate: Bromofluorobenzene	94.4		75-120	%REC	1	06/26/2015 11:02	82602

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
DF - Dilution Factor
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
RL - Reporting Limit

Client: GZA GeoEnvironmental Inc.
Client Sample ID: GZ-7S
Lab ID: P1097-07
Project: Jamestown Landfill, 6/2015
Collection Date: 06/23/15 9:15

Analyses	Result	Qual	RL	Units	DF	Date Analyzed	Batch ID
SW846 8260C -- VOC by GC-MS							**SW8260_W**
Chloromethane	ND		5.0	ug/L	1	06/26/2015 11:30	82602
Vinyl chloride	ND		5.0	ug/L	1	06/26/2015 11:30	82602
Bromomethane	ND		5.0	ug/L	1	06/26/2015 11:30	82602
Chloroethane	ND		5.0	ug/L	1	06/26/2015 11:30	82602
Trichlorofluoromethane	ND		5.0	ug/L	1	06/26/2015 11:30	82602
1,1-Dichloroethene	ND		5.0	ug/L	1	06/26/2015 11:30	82602
Acetone	ND		5.0	ug/L	1	06/26/2015 11:30	82602
Iodomethane	ND		5.0	ug/L	1	06/26/2015 11:30	82602
Carbon disulfide	ND		5.0	ug/L	1	06/26/2015 11:30	82602
Methylene chloride	ND		5.0	ug/L	1	06/26/2015 11:30	82602
trans-1,2-Dichloroethene	ND		5.0	ug/L	1	06/26/2015 11:30	82602
1,1-Dichloroethane	ND		5.0	ug/L	1	06/26/2015 11:30	82602
Vinyl acetate	ND		5.0	ug/L	1	06/26/2015 11:30	82602
2-Butanone	ND		5.0	ug/L	1	06/26/2015 11:30	82602
cis-1,2-Dichloroethene	1.1	J	5.0	ug/L	1	06/26/2015 11:30	82602
Bromochloromethane	ND		5.0	ug/L	1	06/26/2015 11:30	82602
Chloroform	ND		5.0	ug/L	1	06/26/2015 11:30	82602
1,1,1-Trichloroethane	ND		5.0	ug/L	1	06/26/2015 11:30	82602
Carbon tetrachloride	ND		5.0	ug/L	1	06/26/2015 11:30	82602
1,2-Dichloroethane	ND		5.0	ug/L	1	06/26/2015 11:30	82602
Benzene	ND		5.0	ug/L	1	06/26/2015 11:30	82602
Trichloroethene	ND		5.0	ug/L	1	06/26/2015 11:30	82602
1,2-Dichloropropane	ND		5.0	ug/L	1	06/26/2015 11:30	82602
Dibromomethane	ND		5.0	ug/L	1	06/26/2015 11:30	82602
Bromodichloromethane	ND		5.0	ug/L	1	06/26/2015 11:30	82602
cis-1,3-Dichloropropene	ND		5.0	ug/L	1	06/26/2015 11:30	82602
4-Methyl-2-pentanone	ND		5.0	ug/L	1	06/26/2015 11:30	82602
Toluene	ND		5.0	ug/L	1	06/26/2015 11:30	82602
trans-1,3-Dichloropropene	ND		5.0	ug/L	1	06/26/2015 11:30	82602
1,1,2-Trichloroethane	ND		5.0	ug/L	1	06/26/2015 11:30	82602
Tetrachloroethene	ND		5.0	ug/L	1	06/26/2015 11:30	82602
2-Hexanone	ND		5.0	ug/L	1	06/26/2015 11:30	82602
Dibromochloromethane	ND		5.0	ug/L	1	06/26/2015 11:30	82602
1,2-Dibromoethane	ND		5.0	ug/L	1	06/26/2015 11:30	82602
Chlorobenzene	2.8	J	5.0	ug/L	1	06/26/2015 11:30	82602
1,1,1,2-Tetrachloroethane	ND		5.0	ug/L	1	06/26/2015 11:30	82602
Ethylbenzene	ND		5.0	ug/L	1	06/26/2015 11:30	82602
m,p-Xylene	ND		5.0	ug/L	1	06/26/2015 11:30	82602

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
DF - Dilution Factor
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
RL - Reporting Limit

Client: GZA GeoEnvironmental Inc.
Client Sample ID: GZ-7S
Lab ID: P1097-07
Project: Jamestown Landfill, 6/2015
Collection Date: 06/23/15 9:15

Analyses	Result	Qual	RL	Units	DF	Date Analyzed	Batch ID
SW846 8260C -- VOC by GC-MS							**SW8260_W**
o-Xylene	ND		5.0	ug/L	1	06/26/2015 11:30	82602
Xylene (Total)	ND		5.0	ug/L	1	06/26/2015 11:30	82602
Styrene	ND		5.0	ug/L	1	06/26/2015 11:30	82602
Bromoform	ND		5.0	ug/L	1	06/26/2015 11:30	82602
1,1,2,2-Tetrachloroethane	ND		5.0	ug/L	1	06/26/2015 11:30	82602
1,2,3-Trichloropropane	ND		5.0	ug/L	1	06/26/2015 11:30	82602
1,3-Dichlorobenzene	ND		5.0	ug/L	1	06/26/2015 11:30	82602
1,4-Dichlorobenzene	ND		5.0	ug/L	1	06/26/2015 11:30	82602
1,2-Dichlorobenzene	ND		5.0	ug/L	1	06/26/2015 11:30	82602
1,2-Dibromo-3-chloropropane	ND		5.0	ug/L	1	06/26/2015 11:30	82602
Acrylonitrile	ND		25	ug/L	1	06/26/2015 11:30	82602
trans-1,4-Dichloro-2-butene	ND		5.0	ug/L	1	06/26/2015 11:30	82602
Surrogate: Dibromofluoromethane	108		85-115	%REC	1	06/26/2015 11:30	82602
Surrogate: 1,2-Dichloroethane-d4	113		70-120	%REC	1	06/26/2015 11:30	82602
Surrogate: Toluene-d8	92.3		85-120	%REC	1	06/26/2015 11:30	82602
Surrogate: Bromofluorobenzene	93.9		75-120	%REC	1	06/26/2015 11:30	82602

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
DF - Dilution Factor
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
RL - Reporting Limit

Client: GZA GeoEnvironmental Inc.
Client Sample ID: GZ-7D
Lab ID: P1097-08
Project: Jamestown Landfill, 6/2015
Collection Date: 06/23/15 9:45

Analyses	Result	Qual	RL	Units	DF	Date Analyzed	Batch ID
SW846 8260C -- VOC by GC-MS							**SW8260_W**
Chloromethane	ND		5.0	ug/L	1	06/26/2015 11:59	82602
Vinyl chloride	ND		5.0	ug/L	1	06/26/2015 11:59	82602
Bromomethane	ND		5.0	ug/L	1	06/26/2015 11:59	82602
Chloroethane	ND		5.0	ug/L	1	06/26/2015 11:59	82602
Trichlorofluoromethane	ND		5.0	ug/L	1	06/26/2015 11:59	82602
1,1-Dichloroethene	ND		5.0	ug/L	1	06/26/2015 11:59	82602
Acetone	ND		5.0	ug/L	1	06/26/2015 11:59	82602
Iodomethane	ND		5.0	ug/L	1	06/26/2015 11:59	82602
Carbon disulfide	ND		5.0	ug/L	1	06/26/2015 11:59	82602
Methylene chloride	ND		5.0	ug/L	1	06/26/2015 11:59	82602
trans-1,2-Dichloroethene	ND		5.0	ug/L	1	06/26/2015 11:59	82602
1,1-Dichloroethane	ND		5.0	ug/L	1	06/26/2015 11:59	82602
Vinyl acetate	ND		5.0	ug/L	1	06/26/2015 11:59	82602
2-Butanone	ND		5.0	ug/L	1	06/26/2015 11:59	82602
cis-1,2-Dichloroethene	ND		5.0	ug/L	1	06/26/2015 11:59	82602
Bromochloromethane	ND		5.0	ug/L	1	06/26/2015 11:59	82602
Chloroform	ND		5.0	ug/L	1	06/26/2015 11:59	82602
1,1,1-Trichloroethane	ND		5.0	ug/L	1	06/26/2015 11:59	82602
Carbon tetrachloride	ND		5.0	ug/L	1	06/26/2015 11:59	82602
1,2-Dichloroethane	ND		5.0	ug/L	1	06/26/2015 11:59	82602
Benzene	ND		5.0	ug/L	1	06/26/2015 11:59	82602
Trichloroethene	ND		5.0	ug/L	1	06/26/2015 11:59	82602
1,2-Dichloropropane	ND		5.0	ug/L	1	06/26/2015 11:59	82602
Dibromomethane	ND		5.0	ug/L	1	06/26/2015 11:59	82602
Bromodichloromethane	ND		5.0	ug/L	1	06/26/2015 11:59	82602
cis-1,3-Dichloropropene	ND		5.0	ug/L	1	06/26/2015 11:59	82602
4-Methyl-2-pentanone	ND		5.0	ug/L	1	06/26/2015 11:59	82602
Toluene	ND		5.0	ug/L	1	06/26/2015 11:59	82602
trans-1,3-Dichloropropene	ND		5.0	ug/L	1	06/26/2015 11:59	82602
1,1,2-Trichloroethane	ND		5.0	ug/L	1	06/26/2015 11:59	82602
Tetrachloroethene	ND		5.0	ug/L	1	06/26/2015 11:59	82602
2-Hexanone	ND		5.0	ug/L	1	06/26/2015 11:59	82602
Dibromochloromethane	ND		5.0	ug/L	1	06/26/2015 11:59	82602
1,2-Dibromoethane	ND		5.0	ug/L	1	06/26/2015 11:59	82602
Chlorobenzene	ND		5.0	ug/L	1	06/26/2015 11:59	82602
1,1,1,2-Tetrachloroethane	ND		5.0	ug/L	1	06/26/2015 11:59	82602
Ethylbenzene	ND		5.0	ug/L	1	06/26/2015 11:59	82602
m,p-Xylene	ND		5.0	ug/L	1	06/26/2015 11:59	82602

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
DF - Dilution Factor
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
RL - Reporting Limit

Client: GZA GeoEnvironmental Inc.
Client Sample ID: GZ-7D
Lab ID: P1097-08
Project: Jamestown Landfill, 6/2015
Collection Date: 06/23/15 9:45

Analyses	Result	Qual	RL	Units	DF	Date Analyzed	Batch ID
SW846 8260C -- VOC by GC-MS							**SW8260_W**
o-Xylene	ND		5.0	ug/L	1	06/26/2015 11:59	82602
Xylene (Total)	ND		5.0	ug/L	1	06/26/2015 11:59	82602
Styrene	ND		5.0	ug/L	1	06/26/2015 11:59	82602
Bromoform	ND		5.0	ug/L	1	06/26/2015 11:59	82602
1,1,2,2-Tetrachloroethane	ND		5.0	ug/L	1	06/26/2015 11:59	82602
1,2,3-Trichloropropane	ND		5.0	ug/L	1	06/26/2015 11:59	82602
1,3-Dichlorobenzene	ND		5.0	ug/L	1	06/26/2015 11:59	82602
1,4-Dichlorobenzene	ND		5.0	ug/L	1	06/26/2015 11:59	82602
1,2-Dichlorobenzene	ND		5.0	ug/L	1	06/26/2015 11:59	82602
1,2-Dibromo-3-chloropropane	ND		5.0	ug/L	1	06/26/2015 11:59	82602
Acrylonitrile	ND		25	ug/L	1	06/26/2015 11:59	82602
trans-1,4-Dichloro-2-butene	ND		5.0	ug/L	1	06/26/2015 11:59	82602
Surrogate: Dibromofluoromethane	108		85-115	%REC	1	06/26/2015 11:59	82602
Surrogate: 1,2-Dichloroethane-d4	112		70-120	%REC	1	06/26/2015 11:59	82602
Surrogate: Toluene-d8	93.5		85-120	%REC	1	06/26/2015 11:59	82602
Surrogate: Bromofluorobenzene	96.3		75-120	%REC	1	06/26/2015 11:59	82602

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
DF - Dilution Factor
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
RL - Reporting Limit

Client: GZA GeoEnvironmental Inc.
Client Sample ID: GZ-8
Lab ID: P1097-09
Project: Jamestown Landfill, 6/2015
Collection Date: 06/23/15 11:00

Analyses	Result	Qual	RL	Units	DF	Date Analyzed	Batch ID
SW846 8260C -- VOC by GC-MS							**SW8260_W**
Chloromethane	ND		5.0	ug/L	1	06/26/2015 12:27	82602
Vinyl chloride	ND		5.0	ug/L	1	06/26/2015 12:27	82602
Bromomethane	ND		5.0	ug/L	1	06/26/2015 12:27	82602
Chloroethane	ND		5.0	ug/L	1	06/26/2015 12:27	82602
Trichlorofluoromethane	ND		5.0	ug/L	1	06/26/2015 12:27	82602
1,1-Dichloroethene	ND		5.0	ug/L	1	06/26/2015 12:27	82602
Acetone	ND		5.0	ug/L	1	06/26/2015 12:27	82602
Iodomethane	ND		5.0	ug/L	1	06/26/2015 12:27	82602
Carbon disulfide	ND		5.0	ug/L	1	06/26/2015 12:27	82602
Methylene chloride	ND		5.0	ug/L	1	06/26/2015 12:27	82602
trans-1,2-Dichloroethene	ND		5.0	ug/L	1	06/26/2015 12:27	82602
1,1-Dichloroethane	ND		5.0	ug/L	1	06/26/2015 12:27	82602
Vinyl acetate	ND		5.0	ug/L	1	06/26/2015 12:27	82602
2-Butanone	ND		5.0	ug/L	1	06/26/2015 12:27	82602
cis-1,2-Dichloroethene	ND		5.0	ug/L	1	06/26/2015 12:27	82602
Bromochloromethane	ND		5.0	ug/L	1	06/26/2015 12:27	82602
Chloroform	ND		5.0	ug/L	1	06/26/2015 12:27	82602
1,1,1-Trichloroethane	ND		5.0	ug/L	1	06/26/2015 12:27	82602
Carbon tetrachloride	ND		5.0	ug/L	1	06/26/2015 12:27	82602
1,2-Dichloroethane	ND		5.0	ug/L	1	06/26/2015 12:27	82602
Benzene	ND		5.0	ug/L	1	06/26/2015 12:27	82602
Trichloroethene	ND		5.0	ug/L	1	06/26/2015 12:27	82602
1,2-Dichloropropane	ND		5.0	ug/L	1	06/26/2015 12:27	82602
Dibromomethane	ND		5.0	ug/L	1	06/26/2015 12:27	82602
Bromodichloromethane	ND		5.0	ug/L	1	06/26/2015 12:27	82602
cis-1,3-Dichloropropene	ND		5.0	ug/L	1	06/26/2015 12:27	82602
4-Methyl-2-pentanone	ND		5.0	ug/L	1	06/26/2015 12:27	82602
Toluene	ND		5.0	ug/L	1	06/26/2015 12:27	82602
trans-1,3-Dichloropropene	ND		5.0	ug/L	1	06/26/2015 12:27	82602
1,1,2-Trichloroethane	ND		5.0	ug/L	1	06/26/2015 12:27	82602
Tetrachloroethene	ND		5.0	ug/L	1	06/26/2015 12:27	82602
2-Hexanone	ND		5.0	ug/L	1	06/26/2015 12:27	82602
Dibromochloromethane	ND		5.0	ug/L	1	06/26/2015 12:27	82602
1,2-Dibromoethane	ND		5.0	ug/L	1	06/26/2015 12:27	82602
Chlorobenzene	10		5.0	ug/L	1	06/26/2015 12:27	82602
1,1,1,2-Tetrachloroethane	ND		5.0	ug/L	1	06/26/2015 12:27	82602
Ethylbenzene	ND		5.0	ug/L	1	06/26/2015 12:27	82602
m,p-Xylene	ND		5.0	ug/L	1	06/26/2015 12:27	82602

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
DF - Dilution Factor
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
RL - Reporting Limit

Client: GZA GeoEnvironmental Inc.
Client Sample ID: GZ-8
Lab ID: P1097-09
Project: Jamestown Landfill, 6/2015
Collection Date: 06/23/15 11:00

Analyses	Result	Qual	RL	Units	DF	Date Analyzed	Batch ID
SW846 8260C -- VOC by GC-MS							**SW8260_W**
o-Xylene	ND		5.0	ug/L	1	06/26/2015 12:27	82602
Xylene (Total)	ND		5.0	ug/L	1	06/26/2015 12:27	82602
Styrene	ND		5.0	ug/L	1	06/26/2015 12:27	82602
Bromoform	ND		5.0	ug/L	1	06/26/2015 12:27	82602
1,1,2,2-Tetrachloroethane	ND		5.0	ug/L	1	06/26/2015 12:27	82602
1,2,3-Trichloropropane	ND		5.0	ug/L	1	06/26/2015 12:27	82602
1,3-Dichlorobenzene	ND		5.0	ug/L	1	06/26/2015 12:27	82602
1,4-Dichlorobenzene	2.0	J	5.0	ug/L	1	06/26/2015 12:27	82602
1,2-Dichlorobenzene	ND		5.0	ug/L	1	06/26/2015 12:27	82602
1,2-Dibromo-3-chloropropane	ND		5.0	ug/L	1	06/26/2015 12:27	82602
Acrylonitrile	ND		25	ug/L	1	06/26/2015 12:27	82602
trans-1,4-Dichloro-2-butene	ND		5.0	ug/L	1	06/26/2015 12:27	82602
Surrogate: Dibromofluoromethane	106		85-115	%REC	1	06/26/2015 12:27	82602
Surrogate: 1,2-Dichloroethane-d4	110		70-120	%REC	1	06/26/2015 12:27	82602
Surrogate: Toluene-d8	92.2		85-120	%REC	1	06/26/2015 12:27	82602
Surrogate: Bromofluorobenzene	92.8		75-120	%REC	1	06/26/2015 12:27	82602

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
DF - Dilution Factor
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
RL - Reporting Limit

Client: GZA GeoEnvironmental Inc.
Client Sample ID: GZ-9
Lab ID: P1097-10
Project: Jamestown Landfill, 6/2015
Collection Date: 06/23/15 11:30

Analyses	Result	Qual	RL	Units	DF	Date Analyzed	Batch ID
SW846 8260C -- VOC by GC-MS							**SW8260_W**
Chloromethane	ND		5.0	ug/L	1	06/26/2015 12:56	82602
Vinyl chloride	ND		5.0	ug/L	1	06/26/2015 12:56	82602
Bromomethane	ND		5.0	ug/L	1	06/26/2015 12:56	82602
Chloroethane	ND		5.0	ug/L	1	06/26/2015 12:56	82602
Trichlorofluoromethane	ND		5.0	ug/L	1	06/26/2015 12:56	82602
1,1-Dichloroethene	ND		5.0	ug/L	1	06/26/2015 12:56	82602
Acetone	ND		5.0	ug/L	1	06/26/2015 12:56	82602
Iodomethane	ND		5.0	ug/L	1	06/26/2015 12:56	82602
Carbon disulfide	ND		5.0	ug/L	1	06/26/2015 12:56	82602
Methylene chloride	ND		5.0	ug/L	1	06/26/2015 12:56	82602
trans-1,2-Dichloroethene	ND		5.0	ug/L	1	06/26/2015 12:56	82602
1,1-Dichloroethane	ND		5.0	ug/L	1	06/26/2015 12:56	82602
Vinyl acetate	ND		5.0	ug/L	1	06/26/2015 12:56	82602
2-Butanone	ND		5.0	ug/L	1	06/26/2015 12:56	82602
cis-1,2-Dichloroethene	ND		5.0	ug/L	1	06/26/2015 12:56	82602
Bromochloromethane	ND		5.0	ug/L	1	06/26/2015 12:56	82602
Chloroform	ND		5.0	ug/L	1	06/26/2015 12:56	82602
1,1,1-Trichloroethane	ND		5.0	ug/L	1	06/26/2015 12:56	82602
Carbon tetrachloride	ND		5.0	ug/L	1	06/26/2015 12:56	82602
1,2-Dichloroethane	ND		5.0	ug/L	1	06/26/2015 12:56	82602
Benzene	ND		5.0	ug/L	1	06/26/2015 12:56	82602
Trichloroethene	ND		5.0	ug/L	1	06/26/2015 12:56	82602
1,2-Dichloropropane	ND		5.0	ug/L	1	06/26/2015 12:56	82602
Dibromomethane	ND		5.0	ug/L	1	06/26/2015 12:56	82602
Bromodichloromethane	ND		5.0	ug/L	1	06/26/2015 12:56	82602
cis-1,3-Dichloropropene	ND		5.0	ug/L	1	06/26/2015 12:56	82602
4-Methyl-2-pentanone	ND		5.0	ug/L	1	06/26/2015 12:56	82602
Toluene	ND		5.0	ug/L	1	06/26/2015 12:56	82602
trans-1,3-Dichloropropene	ND		5.0	ug/L	1	06/26/2015 12:56	82602
1,1,2-Trichloroethane	ND		5.0	ug/L	1	06/26/2015 12:56	82602
Tetrachloroethene	ND		5.0	ug/L	1	06/26/2015 12:56	82602
2-Hexanone	ND		5.0	ug/L	1	06/26/2015 12:56	82602
Dibromochloromethane	ND		5.0	ug/L	1	06/26/2015 12:56	82602
1,2-Dibromoethane	ND		5.0	ug/L	1	06/26/2015 12:56	82602
Chlorobenzene	ND		5.0	ug/L	1	06/26/2015 12:56	82602
1,1,1,2-Tetrachloroethane	ND		5.0	ug/L	1	06/26/2015 12:56	82602
Ethylbenzene	ND		5.0	ug/L	1	06/26/2015 12:56	82602
m,p-Xylene	ND		5.0	ug/L	1	06/26/2015 12:56	82602

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
DF - Dilution Factor
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
RL - Reporting Limit

Client: GZA GeoEnvironmental Inc.
Client Sample ID: GZ-9
Lab ID: P1097-10
Project: Jamestown Landfill, 6/2015
Collection Date: 06/23/15 11:30

Analyses	Result	Qual	RL	Units	DF	Date Analyzed	Batch ID
SW846 8260C -- VOC by GC-MS							**SW8260_W**
o-Xylene	ND		5.0	ug/L	1	06/26/2015 12:56	82602
Xylene (Total)	ND		5.0	ug/L	1	06/26/2015 12:56	82602
Styrene	ND		5.0	ug/L	1	06/26/2015 12:56	82602
Bromoform	ND		5.0	ug/L	1	06/26/2015 12:56	82602
1,1,2,2-Tetrachloroethane	ND		5.0	ug/L	1	06/26/2015 12:56	82602
1,2,3-Trichloropropane	ND		5.0	ug/L	1	06/26/2015 12:56	82602
1,3-Dichlorobenzene	ND		5.0	ug/L	1	06/26/2015 12:56	82602
1,4-Dichlorobenzene	ND		5.0	ug/L	1	06/26/2015 12:56	82602
1,2-Dichlorobenzene	ND		5.0	ug/L	1	06/26/2015 12:56	82602
1,2-Dibromo-3-chloropropane	ND		5.0	ug/L	1	06/26/2015 12:56	82602
Acrylonitrile	ND		25	ug/L	1	06/26/2015 12:56	82602
trans-1,4-Dichloro-2-butene	ND		5.0	ug/L	1	06/26/2015 12:56	82602
Surrogate: Dibromofluoromethane	110		85-115	%REC	1	06/26/2015 12:56	82602
Surrogate: 1,2-Dichloroethane-d4	114		70-120	%REC	1	06/26/2015 12:56	82602
Surrogate: Toluene-d8	91.2		85-120	%REC	1	06/26/2015 12:56	82602
Surrogate: Bromofluorobenzene	92.9		75-120	%REC	1	06/26/2015 12:56	82602

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
DF - Dilution Factor
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
RL - Reporting Limit

Client: GZA GeoEnvironmental Inc.
Client Sample ID: TRIP BLANK
Lab ID: P1097-12
Project: Jamestown Landfill, 6/2015
Collection Date: 06/23/15 6:00

Analyses	Result	Qual	RL	Units	DF	Date Analyzed	Batch ID
SW846 8260C -- VOC by GC-MS							**SW8260_W**
Chloromethane	ND		5.0	ug/L	1	06/25/2015 22:35	82598
Vinyl chloride	ND		5.0	ug/L	1	06/25/2015 22:35	82598
Bromomethane	ND		5.0	ug/L	1	06/25/2015 22:35	82598
Chloroethane	ND		5.0	ug/L	1	06/25/2015 22:35	82598
Trichlorofluoromethane	ND		5.0	ug/L	1	06/25/2015 22:35	82598
1,1-Dichloroethene	ND		5.0	ug/L	1	06/25/2015 22:35	82598
Acetone	ND		5.0	ug/L	1	06/25/2015 22:35	82598
Iodomethane	ND		5.0	ug/L	1	06/25/2015 22:35	82598
Carbon disulfide	ND		5.0	ug/L	1	06/25/2015 22:35	82598
Methylene chloride	ND		5.0	ug/L	1	06/25/2015 22:35	82598
trans-1,2-Dichloroethene	ND		5.0	ug/L	1	06/25/2015 22:35	82598
1,1-Dichloroethane	ND		5.0	ug/L	1	06/25/2015 22:35	82598
Vinyl acetate	ND		5.0	ug/L	1	06/25/2015 22:35	82598
2-Butanone	ND		5.0	ug/L	1	06/25/2015 22:35	82598
cis-1,2-Dichloroethene	ND		5.0	ug/L	1	06/25/2015 22:35	82598
Bromochloromethane	ND		5.0	ug/L	1	06/25/2015 22:35	82598
Chloroform	ND		5.0	ug/L	1	06/25/2015 22:35	82598
1,1,1-Trichloroethane	ND		5.0	ug/L	1	06/25/2015 22:35	82598
Carbon tetrachloride	ND		5.0	ug/L	1	06/25/2015 22:35	82598
1,2-Dichloroethane	ND		5.0	ug/L	1	06/25/2015 22:35	82598
Benzene	ND		5.0	ug/L	1	06/25/2015 22:35	82598
Trichloroethene	ND		5.0	ug/L	1	06/25/2015 22:35	82598
1,2-Dichloropropane	ND		5.0	ug/L	1	06/25/2015 22:35	82598
Dibromomethane	ND		5.0	ug/L	1	06/25/2015 22:35	82598
Bromodichloromethane	ND		5.0	ug/L	1	06/25/2015 22:35	82598
cis-1,3-Dichloropropene	ND		5.0	ug/L	1	06/25/2015 22:35	82598
4-Methyl-2-pentanone	ND		5.0	ug/L	1	06/25/2015 22:35	82598
Toluene	ND		5.0	ug/L	1	06/25/2015 22:35	82598
trans-1,3-Dichloropropene	ND		5.0	ug/L	1	06/25/2015 22:35	82598
1,1,2-Trichloroethane	ND		5.0	ug/L	1	06/25/2015 22:35	82598
Tetrachloroethene	ND		5.0	ug/L	1	06/25/2015 22:35	82598
2-Hexanone	ND		5.0	ug/L	1	06/25/2015 22:35	82598
Dibromochloromethane	ND		5.0	ug/L	1	06/25/2015 22:35	82598
1,2-Dibromoethane	ND		5.0	ug/L	1	06/25/2015 22:35	82598
Chlorobenzene	ND		5.0	ug/L	1	06/25/2015 22:35	82598
1,1,1,2-Tetrachloroethane	ND		5.0	ug/L	1	06/25/2015 22:35	82598
Ethylbenzene	ND		5.0	ug/L	1	06/25/2015 22:35	82598
m,p-Xylene	ND		5.0	ug/L	1	06/25/2015 22:35	82598

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
DF - Dilution Factor
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
RL - Reporting Limit

Client: GZA GeoEnvironmental Inc.
Client Sample ID: TRIP BLANK
Lab ID: P1097-12
Project: Jamestown Landfill, 6/2015
Collection Date: 06/23/15 6:00

Analyses	Result	Qual	RL	Units	DF	Date Analyzed	Batch ID
SW846 8260C -- VOC by GC-MS							**SW8260_W**
o-Xylene	ND		5.0	ug/L	1	06/25/2015 22:35	82598
Xylene (Total)	ND		5.0	ug/L	1	06/25/2015 22:35	82598
Styrene	ND		5.0	ug/L	1	06/25/2015 22:35	82598
Bromoform	ND		5.0	ug/L	1	06/25/2015 22:35	82598
1,1,2,2-Tetrachloroethane	ND		5.0	ug/L	1	06/25/2015 22:35	82598
1,2,3-Trichloropropane	ND		5.0	ug/L	1	06/25/2015 22:35	82598
1,3-Dichlorobenzene	ND		5.0	ug/L	1	06/25/2015 22:35	82598
1,4-Dichlorobenzene	ND		5.0	ug/L	1	06/25/2015 22:35	82598
1,2-Dichlorobenzene	ND		5.0	ug/L	1	06/25/2015 22:35	82598
1,2-Dibromo-3-chloropropane	ND		5.0	ug/L	1	06/25/2015 22:35	82598
Acrylonitrile	ND		25	ug/L	1	06/25/2015 22:35	82598
trans-1,4-Dichloro-2-butene	ND		5.0	ug/L	1	06/25/2015 22:35	82598
Surrogate: Dibromofluoromethane	104		85-115	%REC	1	06/25/2015 22:35	82598
Surrogate: 1,2-Dichloroethane-d4	113		70-120	%REC	1	06/25/2015 22:35	82598
Surrogate: Toluene-d8	94.7		85-120	%REC	1	06/25/2015 22:35	82598
Surrogate: Bromofluorobenzene	93.3		75-120	%REC	1	06/25/2015 22:35	82598

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
DF - Dilution Factor
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
RL - Reporting Limit

CLIENT: GZA GeoEnvironmental Inc.
Work Order: P1097
Project: Jamestown Landfill, 6/2015

ANALYTICAL QC SUMMARY REPORT

SW8260_W

SW846 8260C -- VOC by GC-MS

Sample ID: **MB-82598** SampType: **MBLK** TestCode: **SW8260_W** Prep Date: **06/25/15 13:42** Run ID: **V10_150625B**
Client ID: **MB-82598** Batch ID: **82598** Units: **ug/L** Analysis Date: **06/25/15 21:37** SeqNo: **2291228**

Analyte	Result	MDL	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloromethane	ND	0.26	1.0									
Vinyl chloride	ND	0.50	1.0									
Bromomethane	ND	0.80	1.0									
Chloroethane	ND	0.48	1.0									
Trichlorofluoromethane	ND	0.54	1.0									
1,1-Dichloroethene	ND	0.39	1.0									
Acetone	ND	2.2	5.0									
Iodomethane	ND	0.63	1.0									
Carbon disulfide	ND	0.34	1.0									
Methylene chloride	ND	0.41	1.0									
trans-1,2-Dichloroethene	ND	0.65	1.0									
1,1-Dichloroethane	ND	0.25	1.0									
Vinyl acetate	ND	0.35	1.0									
2-Butanone	ND	2.1	5.0									
cis-1,2-Dichloroethene	ND	0.48	1.0									
Bromochloromethane	ND	0.43	1.0									
Chloroform	ND	0.33	1.0									
1,1,1-Trichloroethane	ND	0.50	1.0									
Carbon tetrachloride	ND	0.54	1.0									
1,2-Dichloroethane	ND	0.41	1.0									
Benzene	ND	0.33	1.0									
Trichloroethene	ND	0.36	1.0									
1,2-Dichloropropane	ND	0.61	1.0									
Dibromomethane	ND	0.49	1.0									
Bromodichloromethane	ND	0.26	1.0									
cis-1,3-Dichloropropene	ND	0.45	1.0									
4-Methyl-2-pentanone	ND	0.82	5.0									
Toluene	ND	0.32	1.0									
trans-1,3-Dichloropropene	ND	0.48	1.0									
1,1,2-Trichloroethane	ND	0.38	1.0									
Tetrachloroethene	ND	0.65	1.0									
2-Hexanone	ND	1.7	5.0									
Dibromochloromethane	ND	0.57	1.0									
1,2-Dibromoethane	ND	0.50	1.0									
Chlorobenzene	ND	0.26	1.0									
1,1,1,2-Tetrachloroethane	ND	0.41	1.0									

Qualifiers:
ND - Not Detected at the MDL
J - Analyte detected below quanititation limits
S - Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
MDL - Method Detection Limit
RL - Reporting Limit
B - Analyte detected in the associated Method Blank

CLIENT: GZA GeoEnvironmental Inc.
Work Order: P1097
Project: Jamestown Landfill, 6/2015

ANALYTICAL QC SUMMARY REPORT

SW8260_W
SW846 8260C -- VOC by GC-MS

Sample ID: **MB-82598** SampType: **MBLK** TestCode: **SW8260_W** Prep Date: **06/25/15 13:42** Run ID: **V10_150625B**
Client ID: **MB-82598** Batch ID: **82598** Units: **ug/L** Analysis Date: **06/25/15 21:37** SeqNo: **2291228**

Analyte	Result	MDL	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Ethylbenzene	ND	0.35	1.0									
m,p-Xylene	ND	0.77	1.0									
o-Xylene	ND	0.36	1.0									
Xylene (Total)	ND	0.36	1.0									
Styrene	ND	0.50	1.0									
Bromoform	ND	0.77	1.0									
1,1,2,2-Tetrachloroethane	ND	0.42	1.0									
1,2,3-Trichloropropane	ND	0.82	1.0									
1,3-Dichlorobenzene	ND	0.29	1.0									
1,4-Dichlorobenzene	ND	0.40	1.0									
1,2-Dichlorobenzene	ND	0.33	1.0									
1,2-Dibromo-3-chloropropane	ND	0.75	1.0									
Acrylonitrile	ND	2.1	1.0									
trans-1,4-Dichloro-2-butene	ND	1.5	5.0									
Surrogate: Dibromofluoromethane	50.16		5.0	50.00	0	100	85	115	0			
Surrogate: 1,2-Dichloroethane-d4	56.40		5.0	50.00	0	113	70	120	0			
Surrogate: Toluene-d8	47.30		5.0	50.00	0	94.6	85	120	0			
Surrogate: Bromofluorobenzene	46.69		5.0	50.00	0	93.4	75	120	0			

Qualifiers: ND - Not Detected at the MDL; S - Recovery outside accepted recovery limits; MDL - Method Detection Limit; B - Analyte detected in the associated Method Blank
J - Analyte detected below quanititation limits; R - RPD outside accepted recovery limits; RL - Reporting Limit

CLIENT: GZA GeoEnvironmental Inc.
Work Order: P1097
Project: Jamestown Landfill, 6/2015

ANALYTICAL QC SUMMARY REPORT

SW8260_W
SW846 8260C -- VOC by GC-MS

Sample ID: **MB-82602** SampType: **MBLK** TestCode: **SW8260_W** Prep Date: **06/26/15 8:49** Run ID: **V10_150626A**
Client ID: **MB-82602** Batch ID: **82602** Units: **ug/L** Analysis Date: **06/26/15 10:33** SeqNo: **2291366**

Analyte	Result	MDL	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloromethane	ND	0.26	1.0									
Vinyl chloride	ND	0.50	1.0									
Bromomethane	ND	0.80	1.0									
Chloroethane	ND	0.48	1.0									
Trichlorofluoromethane	ND	0.54	1.0									
1,1-Dichloroethene	ND	0.39	1.0									
Acetone	ND	2.2	5.0									
Iodomethane	ND	0.63	1.0									
Carbon disulfide	ND	0.34	1.0									
Methylene chloride	ND	0.41	1.0									
trans-1,2-Dichloroethene	ND	0.65	1.0									
1,1-Dichloroethane	ND	0.25	1.0									
Vinyl acetate	ND	0.35	1.0									
2-Butanone	ND	2.1	5.0									
cis-1,2-Dichloroethene	ND	0.48	1.0									
Bromochloromethane	ND	0.43	1.0									
Chloroform	ND	0.33	1.0									
1,1,1-Trichloroethane	ND	0.50	1.0									
Carbon tetrachloride	ND	0.54	1.0									
1,2-Dichloroethane	ND	0.41	1.0									
Benzene	ND	0.33	1.0									
Trichloroethene	ND	0.36	1.0									
1,2-Dichloropropane	ND	0.61	1.0									
Dibromomethane	ND	0.49	1.0									
Bromodichloromethane	ND	0.26	1.0									
cis-1,3-Dichloropropene	ND	0.45	1.0									
4-Methyl-2-pentanone	ND	0.82	5.0									
Toluene	ND	0.32	1.0									
trans-1,3-Dichloropropene	ND	0.48	1.0									
1,1,2-Trichloroethane	ND	0.38	1.0									
Tetrachloroethene	ND	0.65	1.0									
2-Hexanone	ND	1.7	5.0									
Dibromochloromethane	ND	0.57	1.0									
1,2-Dibromoethane	ND	0.50	1.0									
Chlorobenzene	ND	0.26	1.0									
1,1,1,2-Tetrachloroethane	ND	0.41	1.0									
Ethylbenzene	ND	0.35	1.0									
m,p-Xylene	ND	0.77	1.0									

Qualifiers: ND - Not Detected at the MDL; S - Recovery outside accepted recovery limits; MDL - Method Detection Limit; B - Analyte detected in the associated Method Blank; J - Analyte detected below quanititation limits; R - RPD outside accepted recovery limits; RL - Reporting Limit

m15.06.29.1051

CLIENT: GZA GeoEnvironmental Inc.
Work Order: P1097
Project: Jamestown Landfill, 6/2015

ANALYTICAL QC SUMMARY REPORT

SW8260_W
SW846 8260C -- VOC by GC-MS

Sample ID: **MB-82602** SampType: **MBLK** TestCode: **SW8260_W** Prep Date: **06/26/15 8:49** Run ID: **V10_150626A**
Client ID: **MB-82602** Batch ID: **82602** Units: **ug/L** Analysis Date: **06/26/15 10:33** SeqNo: **2291366**

Analyte	Result	MDL	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
o-Xylene	ND	0.36	1.0									
Xylene (Total)	ND	0.36	1.0									
Styrene	ND	0.50	1.0									
Bromoform	ND	0.77	1.0									
1,1,2,2-Tetrachloroethane	ND	0.42	1.0									
1,2,3-Trichloropropane	ND	0.82	1.0									
1,3-Dichlorobenzene	ND	0.29	1.0									
1,4-Dichlorobenzene	ND	0.40	1.0									
1,2-Dichlorobenzene	ND	0.33	1.0									
1,2-Dibromo-3-chloropropane	ND	0.75	1.0									
Acrylonitrile	ND	2.1	5.0									
trans-1,4-Dichloro-2-butene	ND	1.5	5.0									
Surrogate: Dibromofluoromethane	51.91		5.0	50.00	0	104	85	115	0			
Surrogate: 1,2-Dichloroethane-d4	52.66		1.0	50.00	0	105	70	120	0			
Surrogate: Toluene-d8	46.76		1.0	50.00	0	93.5	85	120	0			
Surrogate: Bromofluorobenzene	47.55		5.0	50.00	0	95.1	75	120	0			

Qualifiers: ND - Not Detected at the MDL; S - Recovery outside accepted recovery limits; MDL - Method Detection Limit; B - Analyte detected in the associated Method Blank
J - Analyte detected below quanititation limits; R - RPD outside accepted recovery limits; RL - Reporting Limit

ANALYTICAL QC SUMMARY REPORT

CLIENT: GZA GeoEnvironmental Inc.
Work Order: P1097
Project: Jamestown Landfill, 6/2015

SW8260_W
SW846 8260C -- VOC by GC-MS

Sample ID: **LCS-82598** SampType: **LCS** TestCode: **SW8260_W** Prep Date: **06/25/15 13:42** Run ID: **V10_150625B**
Client ID: **LCS-82598** Batch ID: **82598** Units: **ug/L** Analysis Date: **06/25/15 20:10** SeqNo: **2291224**

Analyte	Result	MDL	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloromethane	46.18	0.26	5.0	50.00	0	92.4	40	125	0			
Vinyl chloride	48.85	0.50	5.0	50.00	0	97.7	50	145	0			
Bromomethane	47.79	0.80	5.0	50.00	0	95.6	30	145	0			
Chloroethane	50.89	0.48	5.0	50.00	0	102	60	135	0			
Trichlorofluoromethane	47.15	0.54	5.0	50.00	0	94.3	60	145	0			
1,1-Dichloroethene	47.31	0.39	5.0	50.00	0	94.6	70	130	0			
Acetone	40.11	2.2	5.0	50.00	0	80.2	40	140	0			
Iodomethane	39.54	0.63	5.0	50.00	0	79.1	72	121	0			
Carbon disulfide	50.01	0.34	5.0	50.00	0	100	35	160	0			
Methylene chloride	49.02	0.41	5.0	50.00	0	98.0	55	140	0			
trans-1,2-Dichloroethene	49.41	0.65	5.0	50.00	0	98.8	60	140	0			
1,1-Dichloroethane	48.99	0.25	5.0	50.00	0	98.0	70	135	0			
Vinyl acetate	51.77	0.35	5.0	50.00	0	104	38	163	0			
2-Butanone	53.71	2.1	5.0	50.00	0	107	30	150	0			
cis-1,2-Dichloroethene	49.01	0.48	5.0	50.00	0	98.0	70	125	0			
Bromochloromethane	49.30	0.43	5.0	50.00	0	98.6	65	130	0			
Chloroform	50.21	0.33	5.0	50.00	0	100	65	135	0			
1,1,1-Trichloroethane	49.90	0.50	5.0	50.00	0	99.8	65	130	0			
Carbon tetrachloride	50.25	0.54	5.0	50.00	0	100	65	140	0			
1,2-Dichloroethane	49.87	0.41	5.0	50.00	0	99.7	70	130	0			
Benzene	49.21	0.33	5.0	50.00	0	98.4	80	120	0			
Trichloroethene	48.72	0.36	5.0	50.00	0	97.4	70	125	0			
1,2-Dichloropropane	51.10	0.61	5.0	50.00	0	102	75	125	0			
Dibromomethane	49.04	0.49	5.0	50.00	0	98.1	75	125	0			
Bromodichloromethane	51.00	0.26	5.0	50.00	0	102	75	120	0			
cis-1,3-Dichloropropene	51.15	0.45	5.0	50.00	0	102	70	130	0			
4-Methyl-2-pentanone	53.85	0.82	5.0	50.00	0	108	60	135	0			
Toluene	50.33	0.32	5.0	50.00	0	101	75	120	0			
trans-1,3-Dichloropropene	46.80	0.48	5.0	50.00	0	93.6	55	140	0			
1,1,2-Trichloroethane	49.63	0.38	5.0	50.00	0	99.3	75	125	0			
Tetrachloroethene	47.07	0.65	5.0	50.00	0	94.1	45	150	0			
2-Hexanone	46.45	1.7	5.0	50.00	0	92.9	55	130	0			
Dibromochloromethane	49.50	0.57	5.0	50.00	0	99.0	60	135	0			
1,2-Dibromoethane	48.96	0.50	5.0	50.00	0	97.9	80	120	0			
Chlorobenzene	46.83	0.26	5.0	50.00	0	93.7	80	120	0			
1,1,1,2-Tetrachloroethane	48.45	0.41	5.0	50.00	0	96.9	80	130	0			
Ethylbenzene	48.43	0.35	5.0	50.00	0	96.9	75	125	0			
m,p-Xylene	97.18	0.77	5.0	100.0	0	97.2	75	130	0			

Qualifiers: ND - Not Detected at the MDL; S - Recovery outside accepted recovery limits; MDL - Method Detection Limit; B - Analyte detected in the associated Method Blank
J - Analyte detected below quanititation limits; R - RPD outside accepted recovery limits; RL - Reporting Limit

m15.06.29.1051

CLIENT: GZA GeoEnvironmental Inc.
Work Order: P1097
Project: Jamestown Landfill, 6/2015

ANALYTICAL QC SUMMARY REPORT

SW8260_W
SW846 8260C -- VOC by GC-MS

Sample ID: **LCS-82598** SampType: **LCS** TestCode: **SW8260_W** Prep Date: **06/25/15 13:42** Run ID: **V10_150625B**
Client ID: **LCS-82598** Batch ID: **82598** Units: **ug/L** Analysis Date: **06/25/15 20:10** SeqNo: **2291224**

Analyte	Result	MDL	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
o-Xylene	49.99	0.36	5.0	50.00	0	100	80	120	0			
Xylene (Total)	147.2	0.36	5.0	150.0	0	98.1	81	121	0			
Styrene	48.83	0.50	5.0	50.00	0	97.7	65	135	0			
Bromoform	50.72	0.77	5.0	50.00	0	101	70	130	0			
1,1,2,2-Tetrachloroethane	47.21	0.42	5.0	50.00	0	94.4	65	130	0			
1,2,3-Trichloropropane	47.77	0.82	5.0	50.00	0	95.5	75	125	0			
1,3-Dichlorobenzene	45.83	0.29	5.0	50.00	0	91.7	75	125	0			
1,4-Dichlorobenzene	43.81	0.40	5.0	50.00	0	87.6	75	125	0			
1,2-Dichlorobenzene	46.80	0.33	5.0	50.00	0	93.6	70	120	0			
1,2-Dibromo-3-chloropropane	47.35	0.75	5.0	50.00	0	94.7	50	130	0			
Acrylonitrile	55.51	2.1	5.0	50.00	0	111	45	172	0			
trans-1,4-Dichloro-2-butene	50.48	1.5	5.0	50.00	0	101	0	226	0			
Surrogate: Dibromofluoromethane	51.40		5.0	50.00	0	103	85	115	0			
Surrogate: 1,2-Dichloroethane-d4	55.37		5.0	50.00	0	111	70	120	0			
Surrogate: Toluene-d8	48.45		5.0	50.00	0	96.9	85	120	0			
Surrogate: Bromofluorobenzene	51.55		5.0	50.00	0	103	75	120	0			

Qualifiers: ND - Not Detected at the MDL; S - Recovery outside accepted recovery limits; MDL - Method Detection Limit; B - Analyte detected in the associated Method Blank
J - Analyte detected below quanititation limits; R - RPD outside accepted recovery limits; RL - Reporting Limit

CLIENT: GZA GeoEnvironmental Inc.
Work Order: P1097
Project: Jamestown Landfill, 6/2015

ANALYTICAL QC SUMMARY REPORT

SW8260_W

SW846 8260C -- VOC by GC-MS

Sample ID: **LCS-82602** SampType: **LCS** TestCode: **SW8260_W** Prep Date: **06/26/15 8:49** Run ID: **V10_150626A**

Client ID: **LCS-82602** Batch ID: **82602** Units: **ug/L** Analysis Date: **06/26/15 9:07** SeqNo: **2291364**

Analyte	Result	MDL	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloromethane	44.68	0.26	5.0	50.00	0	89.4	40	125	0			
Vinyl chloride	47.24	0.50	5.0	50.00	0	94.5	50	145	0			
Bromomethane	57.30	0.80	5.0	50.00	0	115	30	145	0			
Chloroethane	48.61	0.48	5.0	50.00	0	97.2	60	135	0			
Trichlorofluoromethane	48.85	0.54	5.0	50.00	0	97.7	60	145	0			
1,1-Dichloroethene	44.94	0.39	5.0	50.00	0	89.9	70	130	0			
Acetone	67.48	2.2	5.0	50.00	0	135	40	140	0			
Iodomethane	38.90	0.63	5.0	50.00	0	77.8	72	121	0			
Carbon disulfide	49.21	0.34	5.0	50.00	0	98.4	35	160	0			
Methylene chloride	46.20	0.41	5.0	50.00	0	92.4	55	140	0			
trans-1,2-Dichloroethene	47.03	0.65	5.0	50.00	0	94.1	60	140	0			
1,1-Dichloroethane	48.48	0.25	5.0	50.00	0	97.0	70	135	0			
Vinyl acetate	50.85	0.35	5.0	50.00	0	102	38	163	0			
2-Butanone	49.49	2.1	5.0	50.00	0	99.0	30	150	0			
cis-1,2-Dichloroethene	46.67	0.48	5.0	50.00	0	93.3	70	125	0			
Bromochloromethane	48.70	0.43	5.0	50.00	0	97.4	65	130	0			
Chloroform	48.04	0.33	5.0	50.00	0	96.1	65	135	0			
1,1,1-Trichloroethane	49.11	0.50	5.0	50.00	0	98.2	65	130	0			
Carbon tetrachloride	48.51	0.54	5.0	50.00	0	97.0	65	140	0			
1,2-Dichloroethane	49.31	0.41	5.0	50.00	0	98.6	70	130	0			
Benzene	47.07	0.33	5.0	50.00	0	94.1	80	120	0			
Trichloroethene	46.97	0.36	5.0	50.00	0	93.9	70	125	0			
1,2-Dichloropropane	48.77	0.61	5.0	50.00	0	97.5	75	125	0			
Dibromomethane	48.86	0.49	5.0	50.00	0	97.7	75	125	0			
Bromodichloromethane	49.72	0.26	5.0	50.00	0	99.4	75	120	0			
cis-1,3-Dichloropropene	49.37	0.45	5.0	50.00	0	98.7	70	130	0			
4-Methyl-2-pentanone	49.48	0.82	5.0	50.00	0	99.0	60	135	0			
Toluene	47.98	0.32	5.0	50.00	0	96.0	75	120	0			
trans-1,3-Dichloropropene	46.49	0.48	5.0	50.00	0	93.0	55	140	0			
1,1,2-Trichloroethane	47.92	0.38	5.0	50.00	0	95.8	75	125	0			
Tetrachloroethene	42.23	0.65	5.0	50.00	0	84.5	45	150	0			
2-Hexanone	45.02	1.7	5.0	50.00	0	90.0	55	130	0			
Dibromochloromethane	44.25	0.57	5.0	50.00	0	88.5	60	135	0			
1,2-Dibromoethane	43.59	0.50	5.0	50.00	0	87.2	80	120	0			
Chlorobenzene	43.08	0.26	5.0	50.00	0	86.2	80	120	0			
1,1,1,2-Tetrachloroethane	43.40	0.41	5.0	50.00	0	86.8	80	130	0			
Ethylbenzene	43.73	0.35	5.0	50.00	0	87.5	75	125	0			
m,p-Xylene	89.92	0.77	5.0	100.0	0	89.9	75	130	0			

Qualifiers: ND - Not Detected at the MDL; S - Recovery outside accepted recovery limits; MDL - Method Detection Limit; B - Analyte detected in the associated Method Blank

J - Analyte detected below quanititation limits; R - RPD outside accepted recovery limits; RL - Reporting Limit

CLIENT: GZA GeoEnvironmental Inc.
Work Order: P1097
Project: Jamestown Landfill, 6/2015

ANALYTICAL QC SUMMARY REPORT

SW8260_W

SW846 8260C -- VOC by GC-MS

Sample ID: **LCS-82602** SampType: **LCS** TestCode: **SW8260_W** Prep Date: **06/26/15 8:49** Run ID: **V10_150626A**
Client ID: **LCS-82602** Batch ID: **82602** Units: **ug/L** Analysis Date: **06/26/15 9:07** SeqNo: **2291364**

Analyte	Result	MDL	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
o-Xylene	44.85	0.36	5.0	50.00	0	89.7	80	120	0			
Xylene (Total)	134.8	0.36	5.0	150.0	0	89.9	81	121	0			
Styrene	44.37	0.50	5.0	50.00	0	88.7	65	135	0			
Bromoform	45.25	0.77	5.0	50.00	0	90.5	70	130	0			
1,1,2,2-Tetrachloroethane	38.77	0.42	5.0	50.00	0	77.5	65	130	0			
1,2,3-Trichloropropane	41.73	0.82	5.0	50.00	0	83.5	75	125	0			
1,3-Dichlorobenzene	42.27	0.29	5.0	50.00	0	84.5	75	125	0			
1,4-Dichlorobenzene	40.97	0.40	5.0	50.00	0	81.9	75	125	0			
1,2-Dichlorobenzene	43.50	0.33	5.0	50.00	0	87.0	70	120	0			
1,2-Dibromo-3-chloropropane	42.31	0.75	5.0	50.00	0	84.6	50	130	0			
Acrylonitrile	54.64	2.1	5.0	50.00	0	109	45	172	0			
trans-1,4-Dichloro-2-butene	45.80	1.5	5.0	50.00	0	91.6	0	226	0			
Surrogate: Dibromofluoromethane	51.18		5.0	50.00	0	102	85	115	0			
Surrogate: 1,2-Dichloroethane-d4	59.43		5.0	50.00	0	119	70	120	0			
Surrogate: Toluene-d8	48.44		5.0	50.00	0	96.9	85	120	0			
Surrogate: Bromofluorobenzene	51.59		5.0	50.00	0	103	75	120	0			

Qualifiers: ND - Not Detected at the MDL; S - Recovery outside accepted recovery limits; MDL - Method Detection Limit; B - Analyte detected in the associated Method Blank
J - Analyte detected below quanititation limits; R - RPD outside accepted recovery limits; RL - Reporting Limit

CLIENT: GZA GeoEnvironmental Inc.
Work Order: P1097
Project: Jamestown Landfill, 6/2015

ANALYTICAL QC SUMMARY REPORT

SW8260_W

SW846 8260C -- VOC by GC-MS

Sample ID: **LCSD-82598** SampType: **LCSD** TestCode: **SW8260_W** Prep Date: **06/25/15 13:42** Run ID: **V10_150625B**

Client ID: **LCSD-82598** Batch ID: **82598** Units: **ug/L** Analysis Date: **06/25/15 20:39** SeqNo: **2291226**

Analyte	Result	MDL	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloromethane	46.72	0.26	5.0	50.00	0	93.4	40	125	46.18	1.17	40	
Vinyl chloride	51.39	0.50	5.0	50.00	0	103	50	145	48.85	5.06	40	
Bromomethane	53.40	0.80	5.0	50.00	0	107	30	145	47.79	11.1	40	
Chloroethane	51.18	0.48	5.0	50.00	0	102	60	135	50.89	0.583	40	
Trichlorofluoromethane	50.23	0.54	5.0	50.00	0	100	60	145	47.15	6.32	40	
1,1-Dichloroethene	49.07	0.39	5.0	50.00	0	98.1	70	130	47.31	3.65	40	
Acetone	41.12	2.2	5.0	50.00	0	82.2	40	140	40.11	2.48	40	
Iodomethane	39.13	0.63	5.0	50.00	0	78.3	72	121	39.54	1.04	40	
Carbon disulfide	51.42	0.34	5.0	50.00	0	103	35	160	50.01	2.78	40	
Methylene chloride	48.71	0.41	5.0	50.00	0	97.4	55	140	49.02	0.636	40	
trans-1,2-Dichloroethene	49.90	0.65	5.0	50.00	0	99.8	60	140	49.41	0.979	40	
1,1-Dichloroethane	50.08	0.25	5.0	50.00	0	100	70	135	48.99	2.21	40	
Vinyl acetate	52.39	0.35	5.0	50.00	0	105	38	163	51.77	1.2	40	
2-Butanone	52.45	2.1	5.0	50.00	0	105	30	150	53.71	2.36	40	
cis-1,2-Dichloroethene	48.97	0.48	5.0	50.00	0	97.9	70	125	49.01	0.0721	40	
Bromochloromethane	49.64	0.43	5.0	50.00	0	99.3	65	130	49.30	0.667	40	
Chloroform	49.27	0.33	5.0	50.00	0	98.5	65	135	50.21	1.91	40	
1,1,1-Trichloroethane	50.93	0.50	5.0	50.00	0	102	65	130	49.90	2.03	40	
Carbon tetrachloride	51.21	0.54	5.0	50.00	0	102	65	140	50.25	1.89	40	
1,2-Dichloroethane	49.61	0.41	5.0	50.00	0	99.2	70	130	49.87	0.537	40	
Benzene	49.60	0.33	5.0	50.00	0	99.2	80	120	49.21	0.795	40	
Trichloroethene	50.41	0.36	5.0	50.00	0	101	70	125	48.72	3.42	40	
1,2-Dichloropropane	51.89	0.61	5.0	50.00	0	104	75	125	51.10	1.53	40	
Dibromomethane	48.96	0.49	5.0	50.00	0	97.9	75	125	49.04	0.166	40	
Bromodichloromethane	51.79	0.26	5.0	50.00	0	104	75	120	51.00	1.54	40	
cis-1,3-Dichloropropene	50.96	0.45	5.0	50.00	0	102	70	130	51.15	0.369	40	
4-Methyl-2-pentanone	53.46	0.82	5.0	50.00	0	107	60	135	53.85	0.714	40	
Toluene	50.32	0.32	5.0	50.00	0	101	75	120	50.33	0.0303	40	
trans-1,3-Dichloropropene	46.71	0.48	5.0	50.00	0	93.4	55	140	46.80	0.199	40	
1,1,2-Trichloroethane	51.15	0.38	5.0	50.00	0	102	75	125	49.63	3.01	40	
Tetrachloroethene	47.70	0.65	5.0	50.00	0	95.4	45	150	47.07	1.34	40	
2-Hexanone	44.41	1.7	5.0	50.00	0	88.8	55	130	46.45	4.48	40	
Dibromochloromethane	49.26	0.57	5.0	50.00	0	98.5	60	135	49.50	0.487	40	
1,2-Dibromoethane	48.22	0.50	5.0	50.00	0	96.4	80	120	48.96	1.52	40	
Chlorobenzene	47.53	0.26	5.0	50.00	0	95.1	80	120	46.83	1.48	40	
1,1,1,2-Tetrachloroethane	48.22	0.41	5.0	50.00	0	96.4	80	130	48.45	0.467	40	
Ethylbenzene	49.58	0.35	5.0	50.00	0	99.2	75	125	48.43	2.35	40	
m,p-Xylene	99.34	0.77	5.0	100.0	0	99.3	75	130	97.18	2.2	40	

Qualifiers: ND - Not Detected at the MDL; S - Recovery outside accepted recovery limits; MDL - Method Detection Limit; B - Analyte detected in the associated Method Blank

m15.06.29.1051 J - Analyte detected below quanititation limits; R - RPD outside accepted recovery limits; RL - Reporting Limit

CLIENT: GZA GeoEnvironmental Inc.
Work Order: P1097
Project: Jamestown Landfill, 6/2015

ANALYTICAL QC SUMMARY REPORT

SW8260_W

SW846 8260C -- VOC by GC-MS

Sample ID: **LCSD-82598** SampType: **LCSD** TestCode: **SW8260_W** Prep Date: **06/25/15 13:42** Run ID: **V10_150625B**
Client ID: **LCSD-82598** Batch ID: **82598** Units: **ug/L** Analysis Date: **06/25/15 20:39** SeqNo: **2291226**

Analyte	Result	MDL	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
o-Xylene	49.90	0.36	5.0	50.00	0	99.8	80	120	49.99	0.187	40	
Xylene (Total)	149.2	0.36	5.0	150.0	0	99.5	81	121	147.2	1.39	40	
Styrene	48.79	0.50	5.0	50.00	0	97.6	65	135	48.83	0.0949	40	
Bromoform	50.45	0.77	5.0	50.00	0	101	70	130	50.72	0.544	40	
1,1,2,2-Tetrachloroethane	46.29	0.42	5.0	50.00	0	92.6	65	130	47.21	1.97	40	
1,2,3-Trichloropropane	46.82	0.82	5.0	50.00	0	93.6	75	125	47.77	2.01	40	
1,3-Dichlorobenzene	45.10	0.29	5.0	50.00	0	90.2	75	125	45.83	1.61	40	
1,4-Dichlorobenzene	43.04	0.40	5.0	50.00	0	86.1	75	125	43.81	1.76	40	
1,2-Dichlorobenzene	45.56	0.33	5.0	50.00	0	91.1	70	120	46.80	2.69	40	
1,2-Dibromo-3-chloropropane	46.65	0.75	5.0	50.00	0	93.3	50	130	47.35	1.48	40	
Acrylonitrile	57.79	2.1	5.0	50.00	0	116	45	172	55.51	4.01	40	
trans-1,4-Dichloro-2-butene	49.21	1.5	5.0	50.00	0	98.4	0	226	50.48	2.55	40	
Surrogate: Dibromofluoromethane	49.91		5.0	50.00	0	99.8	85	115	0	0	40	
Surrogate: 1,2-Dichloroethane-d4	47.80		5.0	50.00	0	95.6	70	120	0	0	40	
Surrogate: Toluene-d8	49.72		5.0	50.00	0	99.4	85	120	0	0	40	
Surrogate: Bromofluorobenzene	50.77		5.0	50.00	0	102	75	120	0	0	40	

Qualifiers: ND - Not Detected at the MDL; S - Recovery outside accepted recovery limits; MDL - Method Detection Limit; B - Analyte detected in the associated Method Blank
J - Analyte detected below quanititation limits; R - RPD outside accepted recovery limits; RL - Reporting Limit

CLIENT: GZA GeoEnvironmental Inc.
Work Order: P1097
Project: Jamestown Landfill, 6/2015

ANALYTICAL QC SUMMARY REPORT

SW8260_W

SW846 8260C -- VOC by GC-MS

Sample ID: **LCSD-82602** SampType: **LCSD** TestCode: **SW8260_W** Prep Date: **06/26/15 8:49** Run ID: **V10_150626A**

Client ID: **LCSD-82602** Batch ID: **82602** Units: **ug/L** Analysis Date: **06/26/15 9:36** SeqNo: **2291365**

Analyte	Result	MDL	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloromethane	41.83	0.26	5.0	50.00	0	83.7	40	125	44.68	6.59	40	
Vinyl chloride	41.82	0.50	5.0	50.00	0	83.6	50	145	47.24	12.2	40	
Bromomethane	49.94	0.80	5.0	50.00	0	99.9	30	145	57.30	13.7	40	
Chloroethane	45.48	0.48	5.0	50.00	0	91.0	60	135	48.61	6.65	40	
Trichlorofluoromethane	43.15	0.54	5.0	50.00	0	86.3	60	145	48.85	12.4	40	
1,1-Dichloroethene	40.91	0.39	5.0	50.00	0	81.8	70	130	44.94	9.38	40	
Acetone	49.20	2.2	5.0	50.00	0	98.4	40	140	67.48	31.3	40	
Iodomethane	35.76	0.63	5.0	50.00	0	71.5	72	121	38.90	8.4	40	S
Carbon disulfide	42.27	0.34	5.0	50.00	0	84.5	35	160	49.21	15.2	40	
Methylene chloride	43.98	0.41	5.0	50.00	0	88.0	55	140	46.20	4.92	40	
trans-1,2-Dichloroethene	43.44	0.65	5.0	50.00	0	86.9	60	140	47.03	7.95	40	
1,1-Dichloroethane	43.23	0.25	5.0	50.00	0	86.5	70	135	48.48	11.4	40	
Vinyl acetate	49.45	0.35	5.0	50.00	0	98.9	38	163	50.85	2.79	40	
2-Butanone	53.56	2.1	5.0	50.00	0	107	30	150	49.49	7.9	40	
cis-1,2-Dichloroethene	44.51	0.48	5.0	50.00	0	89.0	70	125	46.67	4.73	40	
Bromochloromethane	46.65	0.43	5.0	50.00	0	93.3	65	130	48.70	4.28	40	
Chloroform	45.37	0.33	5.0	50.00	0	90.7	65	135	48.04	5.72	40	
1,1,1-Trichloroethane	44.12	0.50	5.0	50.00	0	88.2	65	130	49.11	10.7	40	
Carbon tetrachloride	43.52	0.54	5.0	50.00	0	87.0	65	140	48.51	10.8	40	
1,2-Dichloroethane	48.10	0.41	5.0	50.00	0	96.2	70	130	49.31	2.47	40	
Benzene	44.26	0.33	5.0	50.00	0	88.5	80	120	47.07	6.16	40	
Trichloroethene	42.45	0.36	5.0	50.00	0	84.9	70	125	46.97	10.1	40	
1,2-Dichloropropane	47.71	0.61	5.0	50.00	0	95.4	75	125	48.77	2.2	40	
Dibromomethane	48.66	0.49	5.0	50.00	0	97.3	75	125	48.86	0.422	40	
Bromodichloromethane	47.62	0.26	5.0	50.00	0	95.2	75	120	49.72	4.31	40	
cis-1,3-Dichloropropene	47.50	0.45	5.0	50.00	0	95.0	70	130	49.37	3.86	40	
4-Methyl-2-pentanone	55.62	0.82	5.0	50.00	0	111	60	135	49.48	11.7	40	
Toluene	44.13	0.32	5.0	50.00	0	88.3	75	120	47.98	8.36	40	
trans-1,3-Dichloropropene	46.02	0.48	5.0	50.00	0	92.0	55	140	46.49	1.02	40	
1,1,2-Trichloroethane	48.74	0.38	5.0	50.00	0	97.5	75	125	47.92	1.69	40	
Tetrachloroethene	39.03	0.65	5.0	50.00	0	78.1	45	150	42.23	7.87	40	
2-Hexanone	44.13	1.7	5.0	50.00	0	88.3	55	130	45.02	2.0	40	
Dibromochloromethane	43.96	0.57	5.0	50.00	0	87.9	60	135	44.25	0.674	40	
1,2-Dibromoethane	43.82	0.50	5.0	50.00	0	87.6	80	120	43.59	0.533	40	
Chlorobenzene	39.87	0.26	5.0	50.00	0	79.7	80	120	43.08	7.75	40	S
1,1,1,2-Tetrachloroethane	41.35	0.41	5.0	50.00	0	82.7	80	130	43.40	4.86	40	
Ethylbenzene	40.95	0.35	5.0	50.00	0	81.9	75	125	43.73	6.57	40	
m,p-Xylene	83.12	0.77	5.0	100.0	0	83.1	75	130	89.92	7.86	40	

Qualifiers: ND - Not Detected at the MDL; S - Recovery outside accepted recovery limits; MDL - Method Detection Limit; B - Analyte detected in the associated Method Blank

m15.06.29.1051 J - Analyte detected below quanititation limits; R - RPD outside accepted recovery limits; RL - Reporting Limit

CLIENT: GZA GeoEnvironmental Inc.
Work Order: P1097
Project: Jamestown Landfill, 6/2015

ANALYTICAL QC SUMMARY REPORT

SW8260_W

SW846 8260C -- VOC by GC-MS

Sample ID: **LCSD-82602** SampType: **LCSD** TestCode: **SW8260_W** Prep Date: **06/26/15 8:49** Run ID: **V10_150626A**
Client ID: **LCSD-82602** Batch ID: **82602** Units: **ug/L** Analysis Date: **06/26/15 9:36** SeqNo: **2291365**

Analyte	Result	MDL	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
o-Xylene	41.71	0.36	5.0	50.00	0	83.4	80	120	44.85	7.26	40	
Xylene (Total)	124.8	0.36	5.0	150.0	0	83.2	81	121	134.8	7.66	40	
Styrene	41.79	0.50	5.0	50.00	0	83.6	65	135	44.37	5.98	40	
Bromoform	45.71	0.77	5.0	50.00	0	91.4	70	130	45.25	1.01	40	
1,1,2,2-Tetrachloroethane	43.27	0.42	5.0	50.00	0	86.5	65	130	38.77	11	40	
1,2,3-Trichloropropane	45.38	0.82	5.0	50.00	0	90.8	75	125	41.73	8.38	40	
1,3-Dichlorobenzene	39.40	0.29	5.0	50.00	0	78.8	75	125	42.27	7.03	40	
1,4-Dichlorobenzene	37.85	0.40	5.0	50.00	0	75.7	75	125	40.97	7.89	40	
1,2-Dichlorobenzene	40.94	0.33	5.0	50.00	0	81.9	70	120	43.50	6.08	40	
1,2-Dibromo-3-chloropropane	44.24	0.75	5.0	50.00	0	88.5	50	130	42.31	4.46	40	
Acrylonitrile	58.01	2.1	5.0	50.00	0	116	45	172	54.64	5.97	40	
trans-1,4-Dichloro-2-butene	49.22	1.5	5.0	50.00	0	98.4	0	226	45.80	7.18	40	
Surrogate: Dibromofluoromethane	51.22		5.0	50.00	0	102	85	115	0	0	40	
Surrogate: 1,2-Dichloroethane-d4	51.40		5.0	50.00	0	103	70	120	0	0	40	
Surrogate: Toluene-d8	47.66		5.0	50.00	0	95.3	85	120	0	0	40	
Surrogate: Bromofluorobenzene	51.63		5.0	50.00	0	103	75	120	0	0	40	

Qualifiers: ND - Not Detected at the MDL; S - Recovery outside accepted recovery limits; MDL - Method Detection Limit; B - Analyte detected in the associated Method Blank
J - Analyte detected below quanititation limits; R - RPD outside accepted recovery limits; RL - Reporting Limit

Client: GZA GeoEnvironmental Inc.
Client Sample ID: GZ-1
Lab ID: P1097-01
Project: Jamestown Landfill, 6/2015
Collection Date: 06/23/15 13:00

Analyses	Result	Qual	RL	Units	DF	Date Analyzed	Batch ID
SW846 6020A -- Metals by ICP-MS							**SW6020_W**
Antimony	ND		2.0	ug/L	1	06/30/2015 17:03	82612
Arsenic	ND		2.0	ug/L	1	06/30/2015 17:03	82612
Barium	ND		10	ug/L	1	06/30/2015 17:03	82612
Beryllium	ND		1.0	ug/L	1	06/30/2015 17:03	82612
Cadmium	ND		1.0	ug/L	1	06/30/2015 17:03	82612
Chromium	ND		2.0	ug/L	1	06/30/2015 17:03	82612
Cobalt	8.2		1.0	ug/L	1	06/30/2015 17:03	82612
Copper	6.4	B	5.0	ug/L	1	06/30/2015 17:03	82612
Lead	ND		1.0	ug/L	1	06/30/2015 17:03	82612
Nickel	25	B	1.0	ug/L	1	06/30/2015 17:03	82612
Selenium	ND		5.0	ug/L	1	06/30/2015 17:03	82612
Silver	ND		1.0	ug/L	1	06/30/2015 17:03	82612
Thallium	ND		1.0	ug/L	1	06/30/2015 17:03	82612
Vanadium	ND		5.0	ug/L	1	06/30/2015 17:03	82612
Zinc	20		5.0	ug/L	1	06/30/2015 17:03	82612

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
DF - Dilution Factor
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
RL - Reporting Limit

Client: GZA GeoEnvironmental Inc.
Client Sample ID: GZ-2
Lab ID: P1097-02
Project: Jamestown Landfill, 6/2015
Collection Date: 06/23/15 6:50

Analyses	Result	Qual	RL	Units	DF	Date Analyzed	Batch ID
SW846 6020A -- Metals by ICP-MS							**SW6020_W**
Antimony	ND		2.0	ug/L	1	06/30/2015 17:08	82612
Arsenic	ND		2.0	ug/L	1	06/30/2015 17:08	82612
Barium	45		10	ug/L	1	06/30/2015 17:08	82612
Beryllium	ND		1.0	ug/L	1	06/30/2015 17:08	82612
Cadmium	ND		1.0	ug/L	1	06/30/2015 17:08	82612
Chromium	ND		2.0	ug/L	1	06/30/2015 17:08	82612
Cobalt	240		1.0	ug/L	1	06/30/2015 17:08	82612
Copper	ND		5.0	ug/L	1	06/30/2015 17:08	82612
Lead	ND		1.0	ug/L	1	06/30/2015 17:08	82612
Nickel	42	B	1.0	ug/L	1	06/30/2015 17:08	82612
Selenium	ND		5.0	ug/L	1	06/30/2015 17:08	82612
Silver	ND		1.0	ug/L	1	06/30/2015 17:08	82612
Thallium	ND		1.0	ug/L	1	06/30/2015 17:08	82612
Vanadium	ND		5.0	ug/L	1	06/30/2015 17:08	82612
Zinc	7.9		5.0	ug/L	1	06/30/2015 17:08	82612

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
DF - Dilution Factor
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
RL - Reporting Limit

Client: GZA GeoEnvironmental Inc.

Client Sample ID: GZ-3 **Project:** Jamestown Landfill, 6/2015

Lab ID: P1097-03 **Collection Date:** 06/23/15 7:30

Analyses	Result	Qual	RL	Units	DF	Date Analyzed	Batch ID
SW846 6020A -- Metals by ICP-MS							**SW6020_W**
Antimony	ND		2.0	ug/L	1	06/30/2015 17:14	82612
Arsenic	ND		2.0	ug/L	1	06/30/2015 17:14	82612
Barium	12		10	ug/L	1	06/30/2015 17:14	82612
Beryllium	ND		1.0	ug/L	1	06/30/2015 17:14	82612
Cadmium	ND		1.0	ug/L	1	06/30/2015 17:14	82612
Chromium	ND		2.0	ug/L	1	06/30/2015 17:14	82612
Cobalt	ND		1.0	ug/L	1	06/30/2015 17:14	82612
Copper	ND		5.0	ug/L	1	06/30/2015 17:14	82612
Lead	ND		1.0	ug/L	1	06/30/2015 17:14	82612
Nickel	3.5	B	1.0	ug/L	1	06/30/2015 17:14	82612
Selenium	ND		5.0	ug/L	1	06/30/2015 17:14	82612
Silver	ND		1.0	ug/L	1	06/30/2015 17:14	82612
Thallium	ND		1.0	ug/L	1	06/30/2015 17:14	82612
Vanadium	ND		5.0	ug/L	1	06/30/2015 17:14	82612
Zinc	7.7		5.0	ug/L	1	06/30/2015 17:14	82612

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quanititation limits

B - Analyte detected in the associated Method Blank

DF - Dilution Factor

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

RL - Reporting Limit

Client: GZA GeoEnvironmental Inc.
Client Sample ID: GZ-4
Lab ID: P1097-04
Project: Jamestown Landfill, 6/2015
Collection Date: 06/23/15 8:20

Analyses	Result	Qual	RL	Units	DF	Date Analyzed	Batch ID
SW846 6020A -- Metals by ICP-MS							**SW6020_W**
Antimony	ND		2.0	ug/L	1	06/30/2015 17:19	82612
Arsenic	ND		2.0	ug/L	1	06/30/2015 17:19	82612
Barium	ND		10	ug/L	1	06/30/2015 17:19	82612
Beryllium	ND		1.0	ug/L	1	06/30/2015 17:19	82612
Cadmium	ND		1.0	ug/L	1	06/30/2015 17:19	82612
Chromium	ND		2.0	ug/L	1	06/30/2015 17:19	82612
Cobalt	ND		1.0	ug/L	1	06/30/2015 17:19	82612
Copper	ND		5.0	ug/L	1	06/30/2015 17:19	82612
Lead	ND		1.0	ug/L	1	06/30/2015 17:19	82612
Nickel	8.9	B	1.0	ug/L	1	06/30/2015 17:19	82612
Selenium	ND		5.0	ug/L	1	06/30/2015 17:19	82612
Silver	ND		1.0	ug/L	1	06/30/2015 17:19	82612
Thallium	ND		1.0	ug/L	1	06/30/2015 17:19	82612
Vanadium	ND		5.0	ug/L	1	06/30/2015 17:19	82612
Zinc	12		5.0	ug/L	1	06/30/2015 17:19	82612

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
DF - Dilution Factor
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
RL - Reporting Limit

Client: GZA GeoEnvironmental Inc.
Client Sample ID: GZ-5
Lab ID: P1097-05
Project: Jamestown Landfill, 6/2015
Collection Date: 06/23/15 12:30

Analyses	Result	Qual	RL	Units	DF	Date Analyzed	Batch ID
SW846 6020A -- Metals by ICP-MS							**SW6020_W**
Antimony	ND		2.0	ug/L	1	06/30/2015 17:34	82612
Arsenic	ND		2.0	ug/L	1	06/30/2015 17:34	82612
Barium	ND		10	ug/L	1	06/30/2015 17:34	82612
Beryllium	ND		1.0	ug/L	1	06/30/2015 17:34	82612
Cadmium	ND		1.0	ug/L	1	06/30/2015 17:34	82612
Chromium	ND		2.0	ug/L	1	06/30/2015 17:34	82612
Cobalt	25		1.0	ug/L	1	06/30/2015 17:34	82612
Copper	ND		5.0	ug/L	1	06/30/2015 17:34	82612
Lead	ND		1.0	ug/L	1	06/30/2015 17:34	82612
Nickel	2.9	B	1.0	ug/L	1	06/30/2015 17:34	82612
Selenium	ND		5.0	ug/L	1	06/30/2015 17:34	82612
Silver	ND		1.0	ug/L	1	06/30/2015 17:34	82612
Thallium	ND		1.0	ug/L	1	06/30/2015 17:34	82612
Vanadium	ND		5.0	ug/L	1	06/30/2015 17:34	82612
Zinc	ND		5.0	ug/L	1	06/30/2015 17:34	82612

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
DF - Dilution Factor
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
RL - Reporting Limit

Client: GZA GeoEnvironmental Inc.
Client Sample ID: GZ-6
Lab ID: P1097-06
Project: Jamestown Landfill, 6/2015
Collection Date: 06/23/15 12:00

Analyses	Result	Qual	RL	Units	DF	Date Analyzed	Batch ID
SW846 6020A -- Metals by ICP-MS							**SW6020_W**
Antimony	ND		2.0	ug/L	1	06/30/2015 17:39	82612
Arsenic	ND		2.0	ug/L	1	06/30/2015 17:39	82612
Barium	ND		10	ug/L	1	06/30/2015 17:39	82612
Beryllium	ND		1.0	ug/L	1	06/30/2015 17:39	82612
Cadmium	ND		1.0	ug/L	1	06/30/2015 17:39	82612
Chromium	ND		2.0	ug/L	1	06/30/2015 17:39	82612
Cobalt	5.9		1.0	ug/L	1	06/30/2015 17:39	82612
Copper	18	B	5.0	ug/L	1	06/30/2015 17:39	82612
Lead	ND		1.0	ug/L	1	06/30/2015 17:39	82612
Nickel	21	B	1.0	ug/L	1	06/30/2015 17:39	82612
Selenium	ND		5.0	ug/L	1	06/30/2015 17:39	82612
Silver	ND		1.0	ug/L	1	06/30/2015 17:39	82612
Thallium	ND		1.0	ug/L	1	06/30/2015 17:39	82612
Vanadium	ND		5.0	ug/L	1	06/30/2015 17:39	82612
Zinc	21		5.0	ug/L	1	06/30/2015 17:39	82612

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
DF - Dilution Factor
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
RL - Reporting Limit

Client: GZA GeoEnvironmental Inc.
Client Sample ID: GZ-7S
Lab ID: P1097-07
Project: Jamestown Landfill, 6/2015
Collection Date: 06/23/15 9:15

Analyses	Result	Qual	RL	Units	DF	Date Analyzed	Batch ID
SW846 6020A -- Metals by ICP-MS							**SW6020_W**
Antimony	ND		2.0	ug/L	1	06/30/2015 17:44	82612
Arsenic	ND		2.0	ug/L	1	06/30/2015 17:44	82612
Barium	20		10	ug/L	1	06/30/2015 17:44	82612
Beryllium	ND		1.0	ug/L	1	06/30/2015 17:44	82612
Cadmium	ND		1.0	ug/L	1	06/30/2015 17:44	82612
Chromium	ND		2.0	ug/L	1	06/30/2015 17:44	82612
Cobalt	27		1.0	ug/L	1	06/30/2015 17:44	82612
Copper	ND		5.0	ug/L	1	06/30/2015 17:44	82612
Lead	ND		1.0	ug/L	1	06/30/2015 17:44	82612
Nickel	56	B	1.0	ug/L	1	06/30/2015 17:44	82612
Selenium	ND		5.0	ug/L	1	06/30/2015 17:44	82612
Silver	ND		1.0	ug/L	1	06/30/2015 17:44	82612
Thallium	ND		1.0	ug/L	1	06/30/2015 17:44	82612
Vanadium	ND		5.0	ug/L	1	06/30/2015 17:44	82612
Zinc	13		5.0	ug/L	1	06/30/2015 17:44	82612

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
DF - Dilution Factor
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
RL - Reporting Limit

Client: GZA GeoEnvironmental Inc.
Client Sample ID: GZ-7D
Lab ID: P1097-08
Project: Jamestown Landfill, 6/2015
Collection Date: 06/23/15 9:45

Analyses	Result	Qual	RL	Units	DF	Date Analyzed	Batch ID
SW846 6020A -- Metals by ICP-MS							**SW6020_W**
Antimony	ND		2.0	ug/L	1	06/30/2015 17:49	82612
Arsenic	ND		2.0	ug/L	1	06/30/2015 17:49	82612
Barium	ND		10	ug/L	1	06/30/2015 17:49	82612
Beryllium	ND		1.0	ug/L	1	06/30/2015 17:49	82612
Cadmium	ND		1.0	ug/L	1	06/30/2015 17:49	82612
Chromium	ND		2.0	ug/L	1	06/30/2015 17:49	82612
Cobalt	2.9		1.0	ug/L	1	06/30/2015 17:49	82612
Copper	ND		5.0	ug/L	1	06/30/2015 17:49	82612
Lead	ND		1.0	ug/L	1	06/30/2015 17:49	82612
Nickel	18	B	1.0	ug/L	1	06/30/2015 17:49	82612
Selenium	ND		5.0	ug/L	1	06/30/2015 17:49	82612
Silver	ND		1.0	ug/L	1	06/30/2015 17:49	82612
Thallium	ND		1.0	ug/L	1	06/30/2015 17:49	82612
Vanadium	ND		5.0	ug/L	1	06/30/2015 17:49	82612
Zinc	ND		5.0	ug/L	1	06/30/2015 17:49	82612

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
DF - Dilution Factor
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
RL - Reporting Limit

Client: GZA GeoEnvironmental Inc.
Client Sample ID: GZ-8
Lab ID: P1097-09
Project: Jamestown Landfill, 6/2015
Collection Date: 06/23/15 11:00

Analyses	Result	Qual	RL	Units	DF	Date Analyzed	Batch ID
SW846 6020A -- Metals by ICP-MS							**SW6020_W**
Antimony	ND		2.0	ug/L	1	06/30/2015 17:54	82612
Arsenic	ND		2.0	ug/L	1	06/30/2015 17:54	82612
Barium	59		10	ug/L	1	06/30/2015 17:54	82612
Beryllium	ND		1.0	ug/L	1	06/30/2015 17:54	82612
Cadmium	ND		1.0	ug/L	1	06/30/2015 17:54	82612
Chromium	ND		2.0	ug/L	1	06/30/2015 17:54	82612
Cobalt	2.2		1.0	ug/L	1	06/30/2015 17:54	82612
Copper	ND		5.0	ug/L	1	06/30/2015 17:54	82612
Lead	ND		1.0	ug/L	1	06/30/2015 17:54	82612
Nickel	28	B	1.0	ug/L	1	06/30/2015 17:54	82612
Selenium	ND		5.0	ug/L	1	06/30/2015 17:54	82612
Silver	ND		1.0	ug/L	1	06/30/2015 17:54	82612
Thallium	ND		1.0	ug/L	1	06/30/2015 17:54	82612
Vanadium	ND		5.0	ug/L	1	06/30/2015 17:54	82612
Zinc	ND		5.0	ug/L	1	06/30/2015 17:54	82612

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
DF - Dilution Factor
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
RL - Reporting Limit

Client: GZA GeoEnvironmental Inc.
Client Sample ID: GZ-9
Lab ID: P1097-10
Project: Jamestown Landfill, 6/2015
Collection Date: 06/23/15 11:30

Analyses	Result	Qual	RL	Units	DF	Date Analyzed	Batch ID
SW846 6020A -- Metals by ICP-MS							**SW6020_W**
Antimony	ND		2.0	ug/L	1	06/30/2015 17:59	82612
Arsenic	ND		2.0	ug/L	1	06/30/2015 17:59	82612
Barium	14		10	ug/L	1	06/30/2015 17:59	82612
Beryllium	ND		1.0	ug/L	1	06/30/2015 17:59	82612
Cadmium	ND		1.0	ug/L	1	06/30/2015 17:59	82612
Chromium	ND		2.0	ug/L	1	06/30/2015 17:59	82612
Cobalt	4.8		1.0	ug/L	1	06/30/2015 17:59	82612
Copper	ND		5.0	ug/L	1	06/30/2015 17:59	82612
Lead	1.1		1.0	ug/L	1	06/30/2015 17:59	82612
Nickel	8.8	B	1.0	ug/L	1	06/30/2015 17:59	82612
Selenium	ND		5.0	ug/L	1	06/30/2015 17:59	82612
Silver	ND		1.0	ug/L	1	06/30/2015 17:59	82612
Thallium	ND		1.0	ug/L	1	06/30/2015 17:59	82612
Vanadium	ND		5.0	ug/L	1	06/30/2015 17:59	82612
Zinc	8.0		5.0	ug/L	1	06/30/2015 17:59	82612

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
DF - Dilution Factor
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
RL - Reporting Limit

Client: GZA GeoEnvironmental Inc.
Client Sample ID: POT-1
Lab ID: P1097-11
Project: Jamestown Landfill, 6/2015
Collection Date: 06/23/15 13:20

Analyses	Result	Qual	RL	Units	DF	Date Analyzed	Batch ID
SW846 6020A -- Metals by ICP-MS							**SW6020_W**
Antimony	ND		2.0	ug/L	1	06/30/2015 18:04	82612
Arsenic	ND		2.0	ug/L	1	06/30/2015 18:04	82612
Barium	ND		10	ug/L	1	06/30/2015 18:04	82612
Beryllium	ND		1.0	ug/L	1	06/30/2015 18:04	82612
Cadmium	ND		1.0	ug/L	1	06/30/2015 18:04	82612
Chromium	ND		2.0	ug/L	1	06/30/2015 18:04	82612
Cobalt	1.3		1.0	ug/L	1	06/30/2015 18:04	82612
Copper	5.7	B	5.0	ug/L	1	06/30/2015 18:04	82612
Lead	ND		1.0	ug/L	1	06/30/2015 18:04	82612
Nickel	3.3	B	1.0	ug/L	1	06/30/2015 18:04	82612
Selenium	ND		5.0	ug/L	1	06/30/2015 18:04	82612
Silver	ND		1.0	ug/L	1	06/30/2015 18:04	82612
Thallium	ND		1.0	ug/L	1	06/30/2015 18:04	82612
Vanadium	ND		5.0	ug/L	1	06/30/2015 18:04	82612
Zinc	ND		5.0	ug/L	1	06/30/2015 18:04	82612

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
DF - Dilution Factor
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
RL - Reporting Limit

CLIENT: GZA GeoEnvironmental Inc.
Work Order: P1097
Project: Jamestown Landfill, 6/2015

ANALYTICAL QC SUMMARY REPORT

SW6020_W

SW846 6020A -- Metals by ICP-MS

Sample ID: **MB-82612** SampType: **MBLK** TestCode: **SW6020_W** Prep Date: **06/29/15 10:00** Run ID: **X1_150630A**
Client ID: **MB-82612** Batch ID: **82612** Units: **ug/L** Analysis Date: **06/30/15 16:43** SeqNo: **2292227**

Analyte	Result	MDL	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	ND	0.20	2.0									
Arsenic	ND	0.19	2.0									
Barium	ND	1.3	10									
Beryllium	ND	0.072	1.0									
Cadmium	ND	0.084	1.0									
Chromium	ND	0.16	2.0									
Cobalt	ND	0.024	1.0									
Copper	0.7216	0.23	2.0									J
Lead	ND	0.068	1.0									
Nickel	0.3241	0.17	1.0									J
Selenium	ND	0.15	5.0									
Silver	ND	0.022	1.0									
Thallium	ND	0.048	1.0									
Vanadium	ND	0.61	5.0									
Zinc	ND	0.73	2.0									

Sample ID: **LCS-82612** SampType: **LCS** TestCode: **SW6020_W** Prep Date: **06/29/15 10:00** Run ID: **X1_150630A**
Client ID: **LCS-82612** Batch ID: **82612** Units: **ug/L** Analysis Date: **06/30/15 16:48** SeqNo: **2292228**

Analyte	Result	MDL	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	113.4	0.20	2.0	100.0	0	113	80	120	0			
Arsenic	45.11	0.19	2.0	40.00	0	113	80	120	0			
Barium	1999	1.3	10	2000	0	99.9	80	120	0			
Beryllium	50.67	0.072	1.0	50.00	0	101	80	120	0			
Cadmium	55.87	0.084	1.0	50.00	0	112	80	120	0			
Chromium	208.7	0.16	2.0	200.0	0	104	80	120	0			
Cobalt	500.1	0.024	1.0	500.0	0	100	80	120	0			
Copper	252.8	0.23	2.0	250.0	0	101	80	120	0			B
Lead	21.83	0.068	1.0	20.00	0	109	80	120	0			
Nickel	509.3	0.17	1.0	500.0	0	102	80	120	0			B
Selenium	59.09	0.15	5.0	50.00	0	118	80	120	0			
Silver	53.26	0.022	1.0	50.00	0	107	80	120	0			
Thallium	56.72	0.048	1.0	50.00	0	113	80	120	0			
Vanadium	531.5	0.61	5.0	500.0	0	106	80	120	0			
Zinc	547.5	0.73	2.0	500.0	0	109	80	120	0			

Qualifiers: ND - Not Detected at the MDL; S - Recovery outside accepted recovery limits; MDL - Method Detection Limit; B - Analyte detected in the associated Method Blank
J - Analyte detected below quanititation limits; R - RPD outside accepted recovery limits; RL - Reporting Limit

CLIENT: GZA GeoEnvironmental Inc.
Work Order: P1097
Project: Jamestown Landfill, 6/2015

ANALYTICAL QC SUMMARY REPORT

SW6020_W

SW846 6020A -- Metals by ICP-MS

Sample ID: **LCSD-82612** SampType: **LCSD** TestCode: **SW6020_W** Prep Date: **06/29/15 10:00** Run ID: **X1_150630A**
Client ID: **LCSD-82612** Batch ID: **82612** Units: **ug/L** Analysis Date: **06/30/15 16:53** SeqNo: **2292229**

Analyte	Result	MDL	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	112.0	0.20	2.0	100.0	0	112	80	120	113.4	1.19	20	
Arsenic	44.28	0.19	2.0	40.00	0	111	80	120	45.11	1.86	20	
Barium	1999	1.3	10	2000	0	100	80	120	1999	0.0313	20	
Beryllium	50.68	0.072	1.0	50.00	0	101	80	120	50.67	0.0322	20	
Cadmium	55.69	0.084	1.0	50.00	0	111	80	120	55.87	0.325	20	
Chromium	205.9	0.16	2.0	200.0	0	103	80	120	208.7	1.34	20	
Cobalt	497.7	0.024	1.0	500.0	0	99.5	80	120	500.1	0.49	20	
Copper	249.8	0.23	2.0	250.0	0	99.9	80	120	252.8	1.22	20	B
Lead	21.39	0.068	1.0	20.00	0	107	80	120	21.83	2.03	20	
Nickel	505.2	0.17	1.0	500.0	0	101	80	120	509.3	0.818	20	B
Selenium	57.86	0.15	5.0	50.00	0	116	80	120	59.09	2.11	20	
Silver	52.48	0.022	1.0	50.00	0	105	80	120	53.26	1.49	20	
Thallium	55.56	0.048	1.0	50.00	0	111	80	120	56.72	2.07	20	
Vanadium	528.0	0.61	5.0	500.0	0	106	80	120	531.5	0.678	20	
Zinc	542.6	0.73	2.0	500.0	0	109	80	120	547.5	0.892	20	

Sample ID: **P1097-11ASD** SampType: **SD** TestCode: **SW6020_W** Prep Date: **06/29/15 10:00** Run ID: **X1_150630A**
Client ID: **POT-1** Batch ID: **82612** Units: **ug/L** Analysis Date: **06/30/15 18:09** SeqNo: **2292244**

Analyte	Result	MDL	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	ND	10	10	0	0	0	0	0	0	0	10	
Arsenic	ND	10	10	0	0	0	0	0	0	0	10	
Barium	ND	50	50	0	0	0	0	0	0	0	10	
Beryllium	ND	5.0	5.0	0	0	0	0	0	0	0	10	
Cadmium	ND	5.0	5.0	0	0	0	0	0	0	0	10	
Chromium	ND	10	10	0	0	0	0	0	0	0	10	
Cobalt	ND	5.0	5.0	0	0	0	0	0	1.277	0	10	
Copper	ND	25	25	0	0	0	0	0	5.665	0	10	
Lead	ND	5.0	5.0	0	0	0	0	0	0	0	10	
Nickel	ND	5.0	5.0	0	0	0	0	0	3.280	0	10	
Selenium	ND	25	25	0	0	0	0	0	0	0	10	
Silver	ND	5.0	5.0	0	0	0	0	0	0	0	10	
Thallium	ND	5.0	5.0	0	0	0	0	0	0	0	10	
Vanadium	ND	25	25	0	0	0	0	0	0	0	10	
Zinc	ND	25	25	0	0	0	0	0	0	0	10	

Qualifiers: ND - Not Detected at the MDL; S - Recovery outside accepted recovery limits; MDL - Method Detection Limit; B - Analyte detected in the associated Method Blank
J - Analyte detected below quanititation limits; R - RPD outside accepted recovery limits; RL - Reporting Limit

Report Date:
30-Jun-15 14:47

☑ Final Report
☐ Re-Issued Report
☐ Revised Report

SPECTRUM ANALYTICAL, INC.

Laboratory Report

Spectrum Analytical, Inc.
646 Camp Ave.
North Kingstown, RI 02852
Attn: Edward Lawler

Project: Jamestown Landfill
Project #: P1097

Laboratory ID	Client Sample ID	Matrix	Date Sampled	Date Received
SC09226-01	POT-1	Aqueous	23-Jun-15 13:20	24-Jun-15 14:32

I attest that the information contained within the report has been reviewed for accuracy and checked against the quality control requirements for each method. These results relate only to the sample(s) as received.
All applicable NELAC requirements have been met.

Massachusetts # M-MA138/MA1110
Connecticut # PH-0777
Florida # E87936
Maine # MA138
New Hampshire # 2538
New Jersey # MA011
New York # 11393
Pennsylvania # 68-04426/68-02924
Rhode Island # LAO00098
USDA # S-51435

Authorized by:

Nicole Leja
Laboratory Director

Spectrum Analytical holds certification in the State of New York for the analytes as indicated with an X in the "Cert." column within this report. Please note that the State of New York does not offer certification for all analytes. Please refer to our website for specific certification holdings in each state.
Please note that this report contains 14 pages of analytical data plus Chain of Custody document(s). When the Laboratory Report is indicated as revised, this report supersedes any previously dated reports for the laboratory ID(s) referenced above. Where this report identifies subcontracted analyses, copies of the subcontractor's test report are available upon request. This report may not be reproduced, except in full, without written approval from Spectrum Analytical, Inc.

Spectrum Analytical, Inc. is a NELAC accredited laboratory organization and meets NELAC testing standards. Use of the NELAC logo however does not insure that Spectrum is currently accredited for the specific method or analyte indicated. Please refer to our 'Quality' web page at www.spectrum-analytical.com for a full listing of our current certifications and fields of accreditation. States in which Spectrum Analytical, Inc. holds NELAC certification are New York, New Hampshire, New Jersey, Pennsylvania and Florida. All analytical work for Volatile Organic and Air analysis are transferred to and conducted at our 830 Silver Street location (PA-68-04426).

Please contact the Laboratory or Technical Director at 800-789-9115 with any questions regarding the data contained in this laboratory report.

CASE NARRATIVE:

Data has been reported to the RDL. This report includes estimated concentrations detected below the RDL and above the MDL (J-Flag).

All non-detects and all results below the detection limit are reported as "<" (less than) the detection limit in this report.

The samples were received -0.3 degrees Celsius, please refer to the Chain of Custody for details specific to temperature upon receipt. An infrared thermometer with a tolerance of +/- 1.0 degrees Celsius was used immediately upon receipt of the samples.

If a Matrix Spike (MS), Matrix Spike Duplicate (MSD) or Duplicate (DUP) was not requested on the Chain of Custody, method criteria may have been fulfilled with a source sample not of this Sample Delivery Group.

See below for any non-conformances and issues relating to quality control samples and/or sample analysis/matrix.

EPA 353.2

Samples:

SC09226-01 *POT-1*

The Reporting Limit has been raised to account for matrix interference.

Nitrate/Nitrite as N

EPA 524.2

Calibration:

1505103

Analyte quantified by quadratic equation type calibration.

1,2,3-Trichlorobenzene
1,2-Dibromo-3-chloropropane
Bromoform
Naphthalene
trans-1,3-Dichloropropene

This affected the following samples:

1512507-BLK1
1512507-BS1
1512507-BSD1
POT-1
S505009-ICV1
S506161-CCV1

S505009-ICV1

Analyte percent recovery is outside individual acceptance criteria (80-120).

Dichlorodifluoromethane (Freon12) (68%)

This affected the following samples:

1512507-BLK1
1512507-BS1
1512507-BSD1
POT-1
S506161-CCV1

Laboratory Control Samples:

1512507 BS

EPA 524.2

Laboratory Control Samples:

1512507 BS

Bromomethane percent recovery 141 (80-120) is outside individual acceptance criteria, but within overall method allowances. All reported results of the following samples are considered to have a potentially high bias:

POT-1

Sample Acceptance Check Form

Client:	Spectrum Analytical, Inc. - North Kingstown, RI
Project:	Jamestown Landfill / P1097
Work Order:	SC09226
Sample(s) received on:	6/24/2015

The following outlines the condition of samples for the attached Chain of Custody upon receipt.

	Yes	No	N/A
Were custody seals present?	☐	☑	☐
Were custody seals intact?	☐	☐	☑
Were samples received at a temperature of ≤ 6°C?	☑	☐	☐
Were samples refrigerated upon transfer to laboratory representative?	☑	☐	☐
Were sample containers received intact?	☑	☐	☐
Were samples properly labeled (labels affixed to sample containers and include sample ID, site location, and/or project number and the collection date)?	☑	☐	☐
Were samples accompanied by a Chain of Custody document?	☑	☐	☐
Does Chain of Custody document include proper, full, and complete documentation, which shall include sample ID, site location, and/or project number, date and time of collection, collector's name, preservation type, sample matrix and any special remarks concerning the sample?	☐	☑	☐
Did sample container labels agree with Chain of Custody document?	☑	☐	☐
Were samples received within method-specific holding times?	☑	☐	☐

Summary of Hits

Lab ID: SC09226-01 **Client ID:** POT-1

Parameter	Result	Flag	Reporting Limit	Units	Analytical Method
Dichlorodifluoromethane (Freon12)	1.49		0.50	µg/l	EPA 524.2
Tetrahydrofuran	0.73	J	2.00	µg/l	EPA 524.2

Please note that because there are no reporting limits associated with hazardous waste characterizations or micro analyses, this summary does not include hits from these analyses if included in this work order.

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	MDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Volatile Organic Compounds													
Purgeable Organic Compounds													
76-13-1	1,1,2-Trichlorotrifluoroethane (Freon 113)	< 0.50	U	µg/l	0.50	0.35	1	EPA 524.2	26-Jun-15	26-Jun-15	NAA	1512507	
67-64-1	Acetone	< 10.0	U	µg/l	10.0	0.98	1	"	"	"	"	"	
107-13-1	Acrylonitrile	< 0.50	U	µg/l	0.50	0.25	1	"	"	"	"	"	
71-43-2	Benzene	< 0.50	U	µg/l	0.50	0.17	1	"	"	"	"	"	
108-86-1	Bromobenzene	< 0.50	U	µg/l	0.50	0.11	1	"	"	"	"	"	
74-97-5	Bromochloromethane	< 0.50	U	µg/l	0.50	0.13	1	"	"	"	"	"	
75-27-4	Bromodichloromethane	< 0.50	U	µg/l	0.50	0.18	1	"	"	"	"	"	
75-25-2	Bromoform	< 0.50	U	µg/l	0.50	0.29	1	"	"	"	"	"	
74-83-9	Bromomethane	< 0.50	U	µg/l	0.50	0.36	1	"	"	"	"	"	
78-93-3	2-Butanone (MEK)	< 10.0	U	µg/l	10.0	0.58	1	"	"	"	"	"	
104-51-8	n-Butylbenzene	< 0.50	U	µg/l	0.50	0.26	1	"	"	"	"	"	
135-98-8	sec-Butylbenzene	< 0.50	U	µg/l	0.50	0.16	1	"	"	"	"	"	
98-06-6	tert-Butylbenzene	< 0.50	U	µg/l	0.50	0.21	1	"	"	"	"	"	
75-15-0	Carbon disulfide	< 0.50	U	µg/l	0.50	0.25	1	"	"	"	"	"	
56-23-5	Carbon tetrachloride	< 0.50	U	µg/l	0.50	0.23	1	"	"	"	"	"	
108-90-7	Chlorobenzene	< 0.50	U	µg/l	0.50	0.20	1	"	"	"	"	"	
75-00-3	Chloroethane	< 0.50	U	µg/l	0.50	0.31	1	"	"	"	"	"	
67-66-3	Chloroform	< 0.50	U	µg/l	0.50	0.19	1	"	"	"	"	"	
74-87-3	Chloromethane	< 0.50	U	µg/l	0.50	0.34	1	"	"	"	"	"	
95-49-8	2-Chlorotoluene	< 0.50	U	µg/l	0.50	0.17	1	"	"	"	"	"	
106-43-4	4-Chlorotoluene	< 0.50	U	µg/l	0.50	0.20	1	"	"	"	"	"	
96-12-8	1,2-Dibromo-3-chloropropane	< 0.50	U	µg/l	0.50	0.48	1	"	"	"	"	"	
124-48-1	Dibromochloromethane	< 0.50	U	µg/l	0.50	0.24	1	"	"	"	"	"	
106-93-4	1,2-Dibromoethane (EDB)	< 0.50	U	µg/l	0.50	0.16	1	"	"	"	"	"	
74-95-3	Dibromomethane	< 0.50	U	µg/l	0.50	0.19	1	"	"	"	"	"	
95-50-1	1,2-Dichlorobenzene	< 0.50	U	µg/l	0.50	0.15	1	"	"	"	"	"	
541-73-1	1,3-Dichlorobenzene	< 0.50	U	µg/l	0.50	0.22	1	"	"	"	"	"	
106-46-7	1,4-Dichlorobenzene	< 0.50	U	µg/l	0.50	0.25	1	"	"	"	"	"	
75-71-8	Dichlorodifluoromethane (Freon12)	1.49		µg/l	0.50	0.49	1	"	"	"	"	"	
75-34-3	1,1-Dichloroethane	< 0.50	U	µg/l	0.50	0.17	1	"	"	"	"	"	
107-06-2	1,2-Dichloroethane	< 0.50	U	µg/l	0.50	0.15	1	"	"	"	"	"	
75-35-4	1,1-Dichloroethene	< 0.50	U	µg/l	0.50	0.28	1	"	"	"	"	"	
156-59-2	cis-1,2-Dichloroethene	< 0.50	U	µg/l	0.50	0.20	1	"	"	"	"	"	
156-60-5	trans-1,2-Dichloroethene	< 0.50	U	µg/l	0.50	0.21	1	"	"	"	"	"	
78-87-5	1,2-Dichloropropane	< 0.50	U	µg/l	0.50	0.15	1	"	"	"	"	"	
142-28-9	1,3-Dichloropropane	< 0.50	U	µg/l	0.50	0.22	1	"	"	"	"	"	
594-20-7	2,2-Dichloropropane	< 0.50	U	µg/l	0.50	0.36	1	"	"	"	"	"	
563-58-6	1,1-Dichloropropene	< 0.50	U	µg/l	0.50	0.28	1	"	"	"	"	"	
10061-01-5	cis-1,3-Dichloropropene	< 0.50	U	µg/l	0.50	0.18	1	"	"	"	"	"	
10061-02-6	trans-1,3-Dichloropropene	< 0.50	U	µg/l	0.50	0.20	1	"	"	"	"	"	
100-41-4	Ethylbenzene	< 0.50	U	µg/l	0.50	0.17	1	"	"	"	"	"	
87-68-3	Hexachlorobutadiene	< 0.50	U	µg/l	0.50	0.40	1	"	"	"	"	"	
591-78-6	2-Hexanone (MBK)	< 10.0	U	µg/l	10.0	0.54	1	"	"	"	"	"	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
POT-1	P1097	Aqueous	23-Jun-15 13:20	24-Jun-15
SC09226-01				

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	MDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Volatile Organic Compounds													
Purgeable Organic Compounds													
98-82-8	Isopropylbenzene	< 0.50	U	µg/l	0.50	0.24	1	EPA 524.2	26-Jun-15	26-Jun-15	NAA	1512507	
99-87-6	4-Isopropyltoluene	< 0.50	U	µg/l	0.50	0.22	1	"	"	"	"	"	
1634-04-4	Methyl tert-butyl ether	< 0.50	U	µg/l	0.50	0.13	1	"	"	"	"	"	
108-10-1	4-Methyl-2-pentanone (MIBK)	< 10.0	U	µg/l	10.0	0.26	1	"	"	"	"	"	
75-09-2	Methylene chloride	< 0.50	U	µg/l	0.50	0.21	1	"	"	"	"	"	
91-20-3	Naphthalene	< 0.50	U	µg/l	0.50	0.40	1	"	"	"	"	"	
103-65-1	n-Propylbenzene	< 0.50	U	µg/l	0.50	0.22	1	"	"	"	"	"	
100-42-5	Styrene	< 0.50	U	µg/l	0.50	0.18	1	"	"	"	"	"	
630-20-6	1,1,1,2-Tetrachloroethane	< 0.50	U	µg/l	0.50	0.24	1	"	"	"	"	"	
79-34-5	1,1,2,2-Tetrachloroethane	< 0.50	U	µg/l	0.50	0.32	1	"	"	"	"	"	
127-18-4	Tetrachloroethene	< 0.50	U	µg/l	0.50	0.39	1	"	"	"	"	"	
108-88-3	Toluene	< 0.50	U	µg/l	0.50	0.33	1	"	"	"	"	"	
87-61-6	1,2,3-Trichlorobenzene	< 0.50	U	µg/l	0.50	0.14	1	"	"	"	"	"	
120-82-1	1,2,4-Trichlorobenzene	< 0.50	U	µg/l	0.50	0.38	1	"	"	"	"	"	
71-55-6	1,1,1-Trichloroethane	< 0.50	U	µg/l	0.50	0.21	1	"	"	"	"	"	
79-00-5	1,1,2-Trichloroethane	< 0.50	U	µg/l	0.50	0.18	1	"	"	"	"	"	
79-01-6	Trichloroethene	< 0.50	U	µg/l	0.50	0.38	1	"	"	"	"	"	
75-69-4	Trichlorofluoromethane (Freon 11)	< 0.50	U	µg/l	0.50	0.49	1	"	"	"	"	"	
96-18-4	1,2,3-Trichloropropane	< 0.50	U	µg/l	0.50	0.18	1	"	"	"	"	"	
95-63-6	1,2,4-Trimethylbenzene	< 0.50	U	µg/l	0.50	0.27	1	"	"	"	"	"	
108-67-8	1,3,5-Trimethylbenzene	< 0.50	U	µg/l	0.50	0.21	1	"	"	"	"	"	
75-01-4	Vinyl chloride	< 0.50	U	µg/l	0.50	0.34	1	"	"	"	"	"	
179601-23-1	m,p-Xylene	< 0.50	U	µg/l	0.50	0.38	1	"	"	"	"	"	
95-47-6	o-Xylene	< 0.50	U	µg/l	0.50	0.21	1	"	"	"	"	"	
109-99-9	Tetrahydrofuran	**0.73**	J	µg/l	2.00	0.38	1	"	"	"	"	"	
994-05-8	Tert-amyl methyl ether	< 0.50	U	µg/l	0.50	0.24	1	"	"	"	"	"	
637-92-3	Ethyl tert-butyl ether	< 0.50	U	µg/l	0.50	0.14	1	"	"	"	"	"	
108-20-3	Di-isopropyl ether	< 0.50	U	µg/l	0.50	0.16	1	"	"	"	"	"	
75-65-0	Tert-Butanol / butyl alcohol	< 10.0	U	µg/l	10.0	2.29	1	"	"	"	"	"	
Surrogate recoveries:													
460-00-4	*4-Bromofluorobenzene*	*95*			*80-120 %*			"	"	"	"	"	
2037-26-5	*Toluene-d8*	*100*			*80-120 %*			"	"	"	"	"	
17060-07-0	*1,2-Dichloroethane-d4*	*107*			*80-120 %*			"	"	"	"	"	
1868-53-7	*Dibromofluoromethane*	*98*			*80-120 %*			"	"	"	"	"	
General Chemistry Parameters													
	Nitrate/Nitrite as N	< 0.500	R01, U, D	mg/l	0.500	0.472	50	EPA 353.2	26-Jun-15	26-Jun-15	RLT	1512538	X

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1512507 - SW846 5030 Water MS										
Blank (1512507-BLK1)						Prepared & Analyzed: 26-Jun-15				
1,1,2-Trichlorotrifluoroethane (Freon 113)	< 0.50	U	µg/l	0.50						
Acetone	< 10.0	U	µg/l	10.0						
Acrylonitrile	< 0.50	U	µg/l	0.50						
Benzene	< 0.50	U	µg/l	0.50						
Bromobenzene	< 0.50	U	µg/l	0.50						
Bromochloromethane	< 0.50	U	µg/l	0.50						
Bromodichloromethane	< 0.50	U	µg/l	0.50						
Bromoform	< 0.50	U	µg/l	0.50						
Bromomethane	< 0.50	U	µg/l	0.50						
2-Butanone (MEK)	< 10.0	U	µg/l	10.0						
n-Butylbenzene	< 0.50	U	µg/l	0.50						
sec-Butylbenzene	< 0.50	U	µg/l	0.50						
tert-Butylbenzene	< 0.50	U	µg/l	0.50						
Carbon disulfide	< 0.50	U	µg/l	0.50						
Carbon tetrachloride	< 0.50	U	µg/l	0.50						
Chlorobenzene	< 0.50	U	µg/l	0.50						
Chloroethane	< 0.50	U	µg/l	0.50						
Chloroform	< 0.50	U	µg/l	0.50						
Chloromethane	< 0.50	U	µg/l	0.50						
2-Chlorotoluene	< 0.50	U	µg/l	0.50						
4-Chlorotoluene	< 0.50	U	µg/l	0.50						
1,2-Dibromo-3-chloropropane	< 0.50	U	µg/l	0.50						
Dibromochloromethane	< 0.50	U	µg/l	0.50						
1,2-Dibromoethane (EDB)	< 0.50	U	µg/l	0.50						
Dibromomethane	< 0.50	U	µg/l	0.50						
1,2-Dichlorobenzene	< 0.50	U	µg/l	0.50						
1,3-Dichlorobenzene	< 0.50	U	µg/l	0.50						
1,4-Dichlorobenzene	< 0.50	U	µg/l	0.50						
Dichlorodifluoromethane (Freon12)	< 0.50	U	µg/l	0.50						
1,1-Dichloroethane	< 0.50	U	µg/l	0.50						
1,2-Dichloroethane	< 0.50	U	µg/l	0.50						
1,1-Dichloroethene	< 0.50	U	µg/l	0.50						
cis-1,2-Dichloroethene	< 0.50	U	µg/l	0.50						
trans-1,2-Dichloroethene	< 0.50	U	µg/l	0.50						
1,2-Dichloropropane	< 0.50	U	µg/l	0.50						
1,3-Dichloropropane	< 0.50	U	µg/l	0.50						
2,2-Dichloropropane	< 0.50	U	µg/l	0.50						
1,1-Dichloropropene	< 0.50	U	µg/l	0.50						
cis-1,3-Dichloropropene	< 0.50	U	µg/l	0.50						
trans-1,3-Dichloropropene	< 0.50	U	µg/l	0.50						
Ethylbenzene	< 0.50	U	µg/l	0.50						
Hexachlorobutadiene	< 0.50	U	µg/l	0.50						
2-Hexanone (MBK)	< 10.0	U	µg/l	10.0						
Isopropylbenzene	< 0.50	U	µg/l	0.50						
4-Isopropyltoluene	< 0.50	U	µg/l	0.50						
Methyl tert-butyl ether	< 0.50	U	µg/l	0.50						
4-Methyl-2-pentanone (MIBK)	< 10.0	U	µg/l	10.0						
Methylene chloride	< 0.50	U	µg/l	0.50						
Naphthalene	< 0.50	U	µg/l	0.50						
n-Propylbenzene	< 0.50	U	µg/l	0.50						
Styrene	< 0.50	U	µg/l	0.50						
1,1,1,2-Tetrachloroethane	< 0.50	U	µg/l	0.50						

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1512507 - SW846 5030 Water MS										
Blank (1512507-BLK1)					Prepared & Analyzed: 26-Jun-15					
1,1,2,2-Tetrachloroethane	< 0.50	U	µg/l	0.50						
Tetrachloroethene	< 0.50	U	µg/l	0.50						
Toluene	< 0.50	U	µg/l	0.50						
1,2,3-Trichlorobenzene	< 0.50	U	µg/l	0.50						
1,2,4-Trichlorobenzene	< 0.50	U	µg/l	0.50						
1,1,1-Trichloroethane	< 0.50	U	µg/l	0.50						
1,1,2-Trichloroethane	< 0.50	U	µg/l	0.50						
Trichloroethene	< 0.50	U	µg/l	0.50						
Trichlorofluoromethane (Freon 11)	< 0.50	U	µg/l	0.50						
1,2,3-Trichloropropane	< 0.50	U	µg/l	0.50						
1,2,4-Trimethylbenzene	< 0.50	U	µg/l	0.50						
1,3,5-Trimethylbenzene	< 0.50	U	µg/l	0.50						
Vinyl chloride	< 0.50	U	µg/l	0.50						
m,p-Xylene	< 0.50	U	µg/l	0.50						
o-Xylene	< 0.50	U	µg/l	0.50						
Tetrahydrofuran	< 2.00	U	µg/l	2.00						
Tert-amyl methyl ether	< 0.50	U	µg/l	0.50						
Ethyl tert-butyl ether	< 0.50	U	µg/l	0.50						
Di-isopropyl ether	< 0.50	U	µg/l	0.50						
Tert-Butanol / butyl alcohol	< 10.0	U	µg/l	10.0						
Surrogate: 4-Bromofluorobenzene	*47.2*		µg/l		*50.0*		*94*	*80-120*		
Surrogate: Toluene-d8	*50.1*		µg/l		*50.0*		*100*	*80-120*		
Surrogate: 1,2-Dichloroethane-d4	*54.2*		µg/l		*50.0*		*108*	*80-120*		
Surrogate: Dibromofluoromethane	*50.6*		µg/l		*50.0*		*101*	*80-120*		
LCS (1512507-BS1)					Prepared & Analyzed: 26-Jun-15					
1,1,2-Trichlorotrifluoroethane (Freon 113)	**23.6**		µg/l		20.0		118	80-120		
Acetone	**21.9**		µg/l		20.0		110	70-130		
Acrylonitrile	**22.0**		µg/l		20.0		110	70-130		
Benzene	**20.9**		µg/l		20.0		105	80-120		
Bromobenzene	**20.3**		µg/l		20.0		102	80-120		
Bromochloromethane	**20.7**		µg/l		20.0		104	80-120		
Bromodichloromethane	**21.8**		µg/l		20.0		109	80-120		
Bromoform	**20.4**		µg/l		20.0		102	80-120		
Bromomethane	**28.1**	QC2	µg/l		20.0		141	80-120		
2-Butanone (MEK)	**22.1**		µg/l		20.0		111	70-130		
n-Butylbenzene	**21.6**		µg/l		20.0		108	80-120		
sec-Butylbenzene	**22.1**		µg/l		20.0		110	80-120		
tert-Butylbenzene	**21.9**		µg/l		20.0		109	80-120		
Carbon disulfide	**22.9**		µg/l		20.0		114	70-130		
Carbon tetrachloride	**22.5**		µg/l		20.0		112	80-120		
Chlorobenzene	**20.2**		µg/l		20.0		101	80-120		
Chloroethane	**23.3**		µg/l		20.0		116	80-120		
Chloroform	**20.3**		µg/l		20.0		101	80-120		
Chloromethane	**21.9**		µg/l		20.0		109	80-120		
2-Chlorotoluene	**21.2**		µg/l		20.0		106	80-120		
4-Chlorotoluene	**21.1**		µg/l		20.0		106	80-120		
1,2-Dibromo-3-chloropropane	**19.4**		µg/l		20.0		97	80-120		
Dibromochloromethane	**22.5**		µg/l		20.0		113	80-120		
1,2-Dibromoethane (EDB)	**21.2**		µg/l		20.0		106	80-120		
Dibromomethane	**20.6**		µg/l		20.0		103	80-120		
1,2-Dichlorobenzene	**20.9**		µg/l		20.0		104	80-120		

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1512507 - SW846 5030 Water MS										
LCS (1512507-BS1)					Prepared & Analyzed: 26-Jun-15					
1,3-Dichlorobenzene	**21.2**		µg/l		20.0		106	80-120		
1,4-Dichlorobenzene	**19.9**		µg/l		20.0		100	80-120		
Dichlorodifluoromethane (Freon12)	**22.4**		µg/l		20.0		112	80-120		
1,1-Dichloroethane	**20.4**		µg/l		20.0		102	80-120		
1,2-Dichloroethane	**21.7**		µg/l		20.0		108	80-120		
1,1-Dichloroethene	**23.0**		µg/l		20.0		115	80-120		
cis-1,2-Dichloroethene	**20.2**		µg/l		20.0		101	80-120		
trans-1,2-Dichloroethene	**21.1**		µg/l		20.0		106	80-120		
1,2-Dichloropropane	**20.1**		µg/l		20.0		100	80-120		
1,3-Dichloropropane	**20.7**		µg/l		20.0		103	80-120		
2,2-Dichloropropane	**20.2**		µg/l		20.0		101	80-120		
1,1-Dichloropropene	**21.7**		µg/l		20.0		109	80-120		
cis-1,3-Dichloropropene	**19.9**		µg/l		20.0		100	80-120		
trans-1,3-Dichloropropene	**18.8**		µg/l		20.0		94	80-120		
Ethylbenzene	**21.3**		µg/l		20.0		107	80-120		
Hexachlorobutadiene	**21.2**		µg/l		20.0		106	80-120		
2-Hexanone (MBK)	**21.4**		µg/l		20.0		107	70-130		
Isopropylbenzene	**20.9**		µg/l		20.0		104	80-120		
4-Isopropyltoluene	**21.3**		µg/l		20.0		107	80-120		
Methyl tert-butyl ether	**17.9**		µg/l		20.0		90	80-120		
4-Methyl-2-pentanone (MIBK)	**22.2**		µg/l		20.0		111	70-130		
Methylene chloride	**22.7**		µg/l		20.0		114	80-120		
Naphthalene	**19.7**		µg/l		20.0		99	80-120		
n-Propylbenzene	**21.5**		µg/l		20.0		107	80-120		
Styrene	**21.1**		µg/l		20.0		105	80-120		
1,1,1,2-Tetrachloroethane	**21.0**		µg/l		20.0		105	80-120		
1,1,2,2-Tetrachloroethane	**20.9**		µg/l		20.0		104	80-120		
Tetrachloroethene	**21.3**		µg/l		20.0		106	80-120		
Toluene	**20.2**		µg/l		20.0		101	80-120		
1,2,3-Trichlorobenzene	**20.6**		µg/l		20.0		103	80-120		
1,2,4-Trichlorobenzene	**22.5**		µg/l		20.0		113	80-120		
1,1,1-Trichloroethane	**21.8**		µg/l		20.0		109	80-120		
1,1,2-Trichloroethane	**21.1**		µg/l		20.0		106	80-120		
Trichloroethene	**21.2**		µg/l		20.0		106	80-120		
Trichlorofluoromethane (Freon 11)	**23.6**		µg/l		20.0		118	80-120		
1,2,3-Trichloropropane	**21.4**		µg/l		20.0		107	80-120		
1,2,4-Trimethylbenzene	**22.2**		µg/l		20.0		111	80-120		
1,3,5-Trimethylbenzene	**21.8**		µg/l		20.0		109	80-120		
Vinyl chloride	**23.2**		µg/l		20.0		116	80-120		
m,p-Xylene	**21.0**		µg/l		20.0		105	80-120		
o-Xylene	**20.9**		µg/l		20.0		104	80-120		
Tetrahydrofuran	**21.0**		µg/l		20.0		105	70-130		
Tert-amyl methyl ether	**15.2**		µg/l		20.0		76	70-130		
Ethyl tert-butyl ether	**16.5**		µg/l		20.0		82	70-130		
Di-isopropyl ether	**20.0**		µg/l		20.0		100	70-130		
Tert-Butanol / butyl alcohol	**179**		µg/l		200		89	70-130		
Surrogate: 4-Bromofluorobenzene	*49.1*		µg/l		*50.0*		*98*	*80-120*		
Surrogate: Toluene-d8	*50.7*		µg/l		*50.0*		*101*	*80-120*		
Surrogate: 1,2-Dichloroethane-d4	*53.5*		µg/l		*50.0*		*107*	*80-120*		
Surrogate: Dibromofluoromethane	*49.0*		µg/l		*50.0*		*98*	*80-120*		
LCS Dup (1512507-BSD1)					Prepared & Analyzed: 26-Jun-15					

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1512507 - SW846 5030 Water MS										
LCS Dup (1512507-BSD1)					Prepared & Analyzed: 26-Jun-15					
1,1,2-Trichlorotrifluoroethane (Freon 113)	**22.8**		µg/l		20.0		114	80-120	4	20
Acetone	**20.9**		µg/l		20.0		104	70-130	5	30
Acrylonitrile	**22.5**		µg/l		20.0		112	70-130	2	30
Benzene	**21.3**		µg/l		20.0		106	80-120	2	20
Bromobenzene	**20.5**		µg/l		20.0		102	80-120	0.8	20
Bromochloromethane	**21.0**		µg/l		20.0		105	80-120	1	20
Bromodichloromethane	**21.8**		µg/l		20.0		109	80-120	0.3	20
Bromoform	**20.6**		µg/l		20.0		103	80-120	0.6	20
Bromomethane	**25.8**	QC2	µg/l		20.0		129	80-120	9	20
2-Butanone (MEK)	**20.0**		µg/l		20.0		100	70-130	10	30
n-Butylbenzene	**21.7**		µg/l		20.0		109	80-120	0.5	20
sec-Butylbenzene	**21.9**		µg/l		20.0		109	80-120	0.9	20
tert-Butylbenzene	**21.8**		µg/l		20.0		109	80-120	0.5	20
Carbon disulfide	**22.4**		µg/l		20.0		112	70-130	2	30
Carbon tetrachloride	**21.8**		µg/l		20.0		109	80-120	3	20
Chlorobenzene	**20.0**		µg/l		20.0		100	80-120	1	20
Chloroethane	**23.8**		µg/l		20.0		119	80-120	2	20
Chloroform	**20.7**		µg/l		20.0		104	80-120	2	20
Chloromethane	**21.6**		µg/l		20.0		108	80-120	1	20
2-Chlorotoluene	**21.7**		µg/l		20.0		108	80-120	2	20
4-Chlorotoluene	**21.2**		µg/l		20.0		106	80-120	0.4	20
1,2-Dibromo-3-chloropropane	**20.1**		µg/l		20.0		100	80-120	3	20
Dibromochloromethane	**21.5**		µg/l		20.0		108	80-120	5	20
1,2-Dibromoethane (EDB)	**22.7**		µg/l		20.0		113	80-120	7	20
Dibromomethane	**20.7**		µg/l		20.0		103	80-120	0.2	20
1,2-Dichlorobenzene	**21.7**		µg/l		20.0		108	80-120	4	20
1,3-Dichlorobenzene	**20.6**		µg/l		20.0		103	80-120	3	20
1,4-Dichlorobenzene	**20.4**		µg/l		20.0		102	80-120	3	20
Dichlorodifluoromethane (Freon12)	**21.2**		µg/l		20.0		106	80-120	5	20
1,1-Dichloroethane	**20.7**		µg/l		20.0		103	80-120	1	20
1,2-Dichloroethane	**22.4**		µg/l		20.0		112	80-120	3	20
1,1-Dichloroethene	**24.3**	QM9	µg/l		20.0		122	80-120	5	20
cis-1,2-Dichloroethene	**21.0**		µg/l		20.0		105	80-120	4	20
trans-1,2-Dichloroethene	**20.8**		µg/l		20.0		104	80-120	1	20
1,2-Dichloropropane	**20.0**		µg/l		20.0		100	80-120	0.2	20
1,3-Dichloropropane	**21.3**		µg/l		20.0		107	80-120	3	20
2,2-Dichloropropane	**19.6**		µg/l		20.0		98	80-120	3	20
1,1-Dichloropropene	**21.6**		µg/l		20.0		108	80-120	0.6	20
cis-1,3-Dichloropropene	**20.4**		µg/l		20.0		102	80-120	2	20
trans-1,3-Dichloropropene	**18.9**		µg/l		20.0		94	80-120	0.3	20
Ethylbenzene	**21.1**		µg/l		20.0		105	80-120	1	20
Hexachlorobutadiene	**21.3**		µg/l		20.0		106	80-120	0.3	20
2-Hexanone (MBK)	**21.9**		µg/l		20.0		110	70-130	3	30
Isopropylbenzene	**21.1**		µg/l		20.0		106	80-120	1	20
4-Isopropyltoluene	**21.6**		µg/l		20.0		108	80-120	1	20
Methyl tert-butyl ether	**17.9**		µg/l		20.0		90	80-120	0.06	20
4-Methyl-2-pentanone (MIBK)	**22.8**		µg/l		20.0		114	70-130	3	30
Methylene chloride	**23.2**		µg/l		20.0		116	80-120	2	20
Naphthalene	**19.0**		µg/l		20.0		95	80-120	4	20
n-Propylbenzene	**21.3**		µg/l		20.0		107	80-120	0.7	20
Styrene	**21.1**		µg/l		20.0		106	80-120	0.05	20
1,1,1,2-Tetrachloroethane	**22.3**		µg/l		20.0		111	80-120	6	20

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1512507 - SW846 5030 Water MS										
LCS Dup (1512507-BSD1)					Prepared & Analyzed: 26-Jun-15					
1,1,2,2-Tetrachloroethane	**21.4**		µg/l		20.0		107	80-120	3	20
Tetrachloroethene	**21.0**		µg/l		20.0		105	80-120	1	20
Toluene	**20.7**		µg/l		20.0		104	80-120	2	20
1,2,3-Trichlorobenzene	**20.6**		µg/l		20.0		103	80-120	0.2	20
1,2,4-Trichlorobenzene	**22.2**		µg/l		20.0		111	80-120	2	20
1,1,1-Trichloroethane	**21.2**		µg/l		20.0		106	80-120	3	20
1,1,2-Trichloroethane	**21.8**		µg/l		20.0		109	80-120	3	20
Trichloroethene	**21.5**		µg/l		20.0		107	80-120	1	20
Trichlorofluoromethane (Freon 11)	**23.9**		µg/l		20.0		120	80-120	1	20
1,2,3-Trichloropropane	**21.6**		µg/l		20.0		108	80-120	0.5	20
1,2,4-Trimethylbenzene	**22.3**		µg/l		20.0		112	80-120	0.8	20
1,3,5-Trimethylbenzene	**21.9**		µg/l		20.0		110	80-120	0.4	20
Vinyl chloride	**22.3**		µg/l		20.0		112	80-120	4	20
m,p-Xylene	**20.8**		µg/l		20.0		104	80-120	1	20
o-Xylene	**21.9**		µg/l		20.0		109	80-120	5	20
Tetrahydrofuran	**21.6**		µg/l		20.0		108	70-130	3	30
Tert-amyl methyl ether	**15.5**		µg/l		20.0		78	70-130	2	30
Ethyl tert-butyl ether	**17.0**		µg/l		20.0		85	70-130	3	30
Di-isopropyl ether	**20.4**		µg/l		20.0		102	70-130	2	30
Tert-Butanol / butyl alcohol	**175**		µg/l		200		88	70-130	2	30
Surrogate: 4-Bromofluorobenzene	*49.5*		µg/l		*50.0*		*99*	*80-120*		
Surrogate: Toluene-d8	*50.3*		µg/l		*50.0*		*101*	*80-120*		
Surrogate: 1,2-Dichloroethane-d4	*53.9*		µg/l		*50.0*		*108*	*80-120*		
Surrogate: Dibromofluoromethane	*49.6*		µg/l		*50.0*		*99*	*80-120*		

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1512538 - General Preparation										
Blank (1512538-BLK1)						Prepared & Analyzed: 26-Jun-15				
Nitrate/Nitrite as N	< 0.0100	U	mg/l	0.0100						
LCS (1512538-BS1)						Prepared & Analyzed: 26-Jun-15				
Nitrate/Nitrite as N	**0.235**		mg/l	0.0100	0.250		94	90-110		
Reference (1512538-SRM1)						Prepared & Analyzed: 26-Jun-15				
Nitrate/Nitrite as N	**0.277**		mg/l	0.0100	0.314		88	85-115		

Notes and Definitions

D	Data reported from a dilution
J	Detected above the Method Detection Limit but below the Reporting Limit; therefore, result is an estimated concentration (CLP J-Flag).
QC2	Analyte out of acceptance range in QC spike but no reportable concentration present in sample.
QM9	The spike recovery for this QC sample is outside the established control limits. The sample results for the QC batch were accepted based on LCS/LCSD or SRM recoveries within the control limits.
R01	The Reporting Limit has been raised to account for matrix interference.
U	Analyte included in the analysis, but not detected at or above the MDL.
dry	Sample results reported on a dry weight basis
NR	Not Reported
RPD	Relative Percent Difference

Laboratory Control Sample (LCS): A known matrix spiked with compound(s) representative of the target analytes, which is used to document laboratory performance.

Matrix Duplicate: An intra-laboratory split sample which is used to document the precision of a method in a given sample matrix.

Matrix Spike: An aliquot of a sample spiked with a known concentration of target analyte(s). The spiking occurs prior to sample preparation and analysis. A matrix spike is used to document the bias of a method in a given sample matrix.

Method Blank: An analyte-free matrix to which all reagents are added in the same volumes or proportions as used in sample processing. The method blank should be carried through the complete sample preparation and analytical procedure. The method blank is used to document contamination resulting from the analytical process.

Method Detection Limit (MDL): The minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero and is determined from analysis of a sample in a given matrix type containing the analyte.

Reportable Detection Limit (RDL): The lowest concentration that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions. For many analytes the RDL analyte concentration is selected as the lowest non-zero standard in the calibration curve. While the RDL is approximately 5 to 10 times the MDL, the RDL for each sample takes into account the sample volume/weight, extract/digestate volume, cleanup procedures and, if applicable, dry weight correction. Sample RDLs are highly matrix-dependent.

Surrogate: An organic compound which is similar to the target analyte(s) in chemical composition and behavior in the analytical process, but which is not normally found in environmental samples. These compounds are spiked into all blanks, standards, and samples prior to analysis. Percent recoveries are calculated for each surrogate.

Continuing Calibration Verification: The calibration relationship established during the initial calibration must be verified at periodic intervals. Concentrations, intervals, and criteria are method specific.

Validated by:
Rebecca Merz

SC09226 BM

CHAIN-OF-CUSTODY RECORD

SPECTRUM ANALYTICAL, INC.

Subcontractor:
Spectrum Analytical, Inc. - Agawam, MA
11 Almgren Drive
Agawam, Massachusetts 01001

Phone: (413) 789-9018

EQuISFacilityCode: N/A

WorkOrder : P1097
Project: Jamestown Landfill
Report Type : LEVEL 2
Due Date : 7/3/2015
FAX Due Date :
Report To : Edward A Lawler
Purchase Order : P1097
EDD Types : **Please generate a Little PEL EDD**

= number of containers

Requested Test

Client Sample ID	Collection Date	#	Matrix	DUP/MS/MSD	Mitkem Sample ID	524.2	E353.2_NO2NO3									
POT-1	06/23/2015 13:20	2	Aqueous		P1097-11B	X										
POT-1	06/23/2015 13:20	1	Aqueous		P1097-11C		X									

1) 524.2, VOC 524.2 BY GC-MS
2) E353.2_NO2NO3, NITROGEN (NITRATE) BY AUTOMATED CD REDUCTION

Use 'Client Sample IDs' when reporting data. If needed, truncate 'Client Sample IDs' to fit on reports. Use full 'Client Sample ID' when generating EDD.

Comments:

7-1-3/02
6/24/15 dkc

		Date/Time			Date/Time
Relinquished by:	Edward A Lawler		**Received by:**	Tim Sytsma	6-24-15 1115
Relinquished by:	Tim Sytsma	6-24-15	**Received by:**		6/24/15 1432

06/23/2015 Page 1 of 1

CERTIFICATE OF ANALYSIS

Spectrum Analytical, Inc.
Attn: Mr. Edward A. Lawler
646 Camp Avenue
N. Kingstown, RI 02852

Date Received: 6/23/2015
Date Reported: 7/1/2015
P.O. #: P1097
Work Order #: 1506-13079

DESCRIPTION: PROJECT# P1097 JAMESTOWN LANDFILL

Subject sample(s) has/have been analyzed by our Warwick, R.I. laboratory with the attached results.

Reference: All parameters were analyzed by U.S. EPA approved methodologies.
The specific methodologies are listed in the methods column of the Certificate of Analysis.

Data qualifiers (if present) are explained in full at the end of a given sample's analytical results.
The Detection Limit is defined as the lowest level that can be reliably achieved during routine laboratory conditions.
The Certificate of Analysis shall not be reproduced except in full, without written approval of R.I. Analytical.
Results relate only to samples submitted to the laboratory for analysis.
Test results are not blank corrected.

Certification # (as applicable to the sample's origin state):
RI LAI0033, MA M-RI015, CT PH-0508, ME RI00015, NH 2537, NY 11726

If you have any questions regarding this work, or if we may be of further assistance, please contact our customer service department.

Approved by:

Sharon Baker
MIS / Data Reporting

enc: Chain of Custody

R.I. Analytical Laboratories, Inc.

CERTIFICATE OF ANALYSIS

Spectrum Analytical, Inc.
Date Received: 6/23/2015
Work Order #: 1506-13079

Sample # 001
SAMPLE DESCRIPTION: POT-1 P1097-11D
SAMPLE TYPE:GRAB **SAMPLE DATE/TIME:** 6/23/2015 @ 13:20

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE/TIME ANALYZED	ANALYST
Total Coliform (MPN)	<2	2	MPN/100 ml	SM9221B 19-21ed	6/23/2015 17:35	VAD

Total Coliform, Fecal Coliform by MTF
SM 9221B

...tes gas production "-" = no gas production

Page 63
Analysis Date 6/29/15

QC

	Vol.	LST		BGLB		EC	Results
	(mL)	24	48	24	48	24	(MPN/100 mL)
(-)							
(+)							
1649	SW	-	-	-	-	-	
cd 1449 6/24/15	PA	-	-	-	-	-	
	EA	-	+	-	+	-	
cd 1449 6/25/15	EC	+	/	+		+	

Sample ID 13051-3
CI Check (-)
Initials (+)
Time In 1649
Initials & D/T Out (24 hr.) cd 1449 6/24/15
Initials & D/T Out (48 hr.) cd 6/25/15 1449
Initials & D/T Out (72 hr.) cd 6/26/15 1449
Initials & D/T Out (96 hr.)

Vol. (mL)	LST 24	LST 48	BGLB 24	BGLB 48	EC 24	Results (MPN/100 mL)
10	-	+			+	4
10	-	+			+	
10	-	+			-	
10	-	+			-	
10	-	+			-	
1	-	+			-	
1	-	-				
1	-	-				
1	-	-				
1	-	-				
0.1	-	-				
0.1	-	-				
0.1	-	-				
0.1	~	-				
0.1	-					

Sample ID 13079-1
CI Check (-)
Initials (A)
Time In 1735
Initials & D/T Out (24 hr.) 6-24-15 1551
Initials & D/T Out (48 hr.) 6-25-15
Initials & D/T Out (72 hr.)
Initials & D/T Out (96 hr.)

Vol. (mL)	LST 24	LST 48	BGLB 24	BGLB 48	EC 24	Results (MPN/100 mL)
10	-	-				0,0,0 <2
10	-	-				
10	-	-				
10	-	-				
1	-	-				
1	-	-				
1	-	-				
1	-	-				
1	-	-				
0.1	-	-				
0.1	-	-				
0.1	-	-				
0.1	-	-				
0.1	-	-				

Sample ID
CI Check
Initials
Time In
Initials & D/T Out (24 hr.)
Initials & D/T Out (48 hr.) cd 6/27/15
Initials & D/T Out (72 hr.)
Initials & D/T Out (96 hr.)

Vol. (mL)	LST 24	LST 48	BGLB 24	BGLB 48	EC 24	Results (MPN/100 mL)

	Lot Number	Exp. Date
...hi	482944	10/31/15
...rogenes	48-815	10/31/15
...ruginosa	5631955	4/30/16
	4153340	6/25/15
...B	4124605	7/2/15 6/25/15
...MUG	3567899	6/25/15

Item	Lot Number	Exp. Date
1 mL	2305	10/15
10 mL	4314	11/17
Inoc. Loop	14P3035101	2/18

Refer to SOP for incubation times and temps.

Reviewed By: (A) Date: 6-25-15

SPECTRUM ANALYTICAL, INC.

CHAIN-OF-CUSTODY RECORD

WorkOrder : P1097
Project: Jamestown Landfill
Report Type : LEVEL 2
Due Date : 7/3/2015
FAX Due Date :
Report To : Edward A Lawler
Purchase Order : P1097
EDD Types : EQUIIS_GZA

Subcontractor:
RI Analytical Laboratory
41 Illinois Ave
Warwick, RI 02886

Phone: (401) 737-8500

EQuISFacilityCode: N/A

= number of containers

Client Sample ID	Collection Date	#	Matrix	DUP/MS/MSD	Mitkem Sample ID	Requested Test: SM9221B
POT-1	06/23/2015 13:20	1	Aqueous		P1097-11D	X

1) SM9221B, TOTAL COLIFORM

Use 'Client Sample IDs' when reporting data. If needed, truncate 'Client Sample IDs' to fit on reports. Use full 'Client Sample ID' when generating EDD.

Comments: These samples are expected to contain low coliform concentrations, please analyze at appropriate dilution to report 2 or 3 CFU/100mL..

		Date/Time			Date/Time
Relinquished by:	Edward A. Lawler	6/23 17:00	**Received by:**		6/23 17:20
Relinquished by:		6/23 17:20	**Received by:**		6/23/15 17:20

06/23/2015
Page 1 of 1

4.4°C 1506-13079

Spectrum Analytical Inc. - North Kingstown RI -- Rhode Island Division

WorkOrder: P1097

Client ID: GZA_PROV
Project: Jamestown Landfill
WO Name: Jamestown Landfill, 6/2015
Location: JAMESTOWN_LF,
Comments: N/A

Case:
SDG:
PO: JAMESTOWN LF

HC Due: 07/03/15
Fax Due:
Fax Report: ☐

Report Level: LEVEL 2
Special Program:
EDD: EQUIIS_GZA

Lab Samp ID	Client Sample ID	Collection Date	Date Recv'd	Matrix	Test Code	Samp / Lab Test Comments	HF	HT	MS	SEL	Storage
P1097-01A	GZ-1	06/23/2015 13:00	06/23/2015	Aqueous	SW6020_W	/ Report to PQL only				Y	M4
P1097-01B	GZ-1	06/23/2015 13:00	06/23/2015	Aqueous	SW8260_W	/ RI Landfill List				Y	VOA
P1097-02A	GZ-2	06/23/2015 06:50	06/23/2015	Aqueous	SW6020_W	/ Report to PQL only				Y	M4
P1097-02B	GZ-2	06/23/2015 06:50	06/23/2015	Aqueous	SW8260_W	/ RI Landfill List				Y	VOA
P1097-03A	GZ-3	06/23/2015 07:30	06/23/2015	Aqueous	SW6020_W	/ Report to PQL only				Y	M4
P1097-03B	GZ-3	06/23/2015 07:30	06/23/2015	Aqueous	SW8260_W	/ RI Landfill List				Y	VOA
P1097-04A	GZ-4	06/23/2015 08:20	06/23/2015	Aqueous	SW6020_W	/ Report to PQL only				Y	M4
P1097-04B	GZ-4	06/23/2015 08:20	06/23/2015	Aqueous	SW8260_W	/ RI Landfill List				Y	VOA
P1097-05A	GZ-5	06/23/2015 12:30	06/23/2015	Aqueous	SW6020_W	/ Report to PQL only				Y	M4
P1097-05B	GZ-5	06/23/2015 12:30	06/23/2015	Aqueous	SW8260_W	/ RI Landfill List				Y	VOA
P1097-06A	GZ-6	06/23/2015 12:00	06/23/2015	Aqueous	SW6020_W	/ Report to PQL only				Y	M4
P1097-06B	GZ-6	06/23/2015 12:00	06/23/2015	Aqueous	SW8260_W	/ RI Landfill List				Y	VOA
P1097-07A	GZ-7S	06/23/2015 09:15	06/23/2015	Aqueous	SW6020_W	/ Report to PQL only				Y	M4
P1097-07B	GZ-7S	06/23/2015 09:15	06/23/2015	Aqueous	SW8260_W	/ RI Landfill List				Y	VOA
P1097-08A	GZ-7D	06/23/2015 09:45	06/23/2015	Aqueous	SW6020_W	/ Report to PQL only				Y	M4
P1097-08B	GZ-7D	06/23/2015 09:45	06/23/2015	Aqueous	SW8260_W	/ RI Landfill List				Y	VOA
P1097-09A	GZ-8	06/23/2015 11:00	06/23/2015	Aqueous	SW6020_W	/ Report to PQL only				Y	M4
P1097-09B	GZ-8	06/23/2015 11:00	06/23/2015	Aqueous	SW8260_W	/ RI Landfill List				Y	VOA

HF = Fraction logged in but all tests have been placed on hold

HT = Test logged in but has been placed on hold

06/24/2015 15:17 Lab Client Rep: Edward A Lawler

Spectrum Analytical Inc. - North Kingstown RI -- Rhode Island Division

WorkOrder: P1097

Client ID: GZA_PROV
Project: Jamestown Landfill
WO Name: Jamestown Landfill, 6/2015
Location: JAMESTOWN_LF,
Comments: N/A

Case:
SDG:

HC Due: 07/03/15
Fax Due:
Fax Report: ☐

Report Level: LEVEL 2
Special Program:
EDD: EQUIIS_GZA

PO: JAMESTOWN LF

Lab Samp ID	Client Sample ID	Collection Date	Date Recv'd	Matrix	Test Code	Samp / Lab Test Comments	HF	HT	MS	SEL	Storage
P1097-10A	GZ-9	06/23/2015 11:30	06/23/2015	Aqueous	SW6020_W	/ Report to PQL only				Y	M4
P1097-10B	GZ-9	06/23/2015 11:30	06/23/2015	Aqueous	SW8260_W	/ RI Landfill List				Y	VOA
P1097-11A	POT-1	06/23/2015 13:20	06/23/2015	Aqueous	SW6020_W	/ Report to PQL only				Y	M4
P1097-11B	POT-1	06/23/2015 13:20	06/23/2015	Aqueous	524.2	/ SPECTRUM--For POT-1 only Sub to Spectrum					SUB
P1097-11C	POT-1	06/23/2015 13:20	06/23/2015	Aqueous	E353.2_NO2NO3	/ SPECTRUM--Sub to Spectrum					SUB
P1097-11D	POT-1	06/23/2015 13:20	06/23/2015	Aqueous	SM9221B	/ RIAL--Sub to RIAL, low coliform comment					SUB
P1097-12A	TRIP BLANK	06/23/2015 06:00	06/23/2015	Aqueous	SW8260_W	/ RI Landfill List				Y	VOA

HF = Fraction logged in but all tests have been placed on hold

HT = Test logged in but has been placed on hold

Lab Client Rep: Edward A Lawler

P1097

SPECTRUM ANALYTICAL, INC.
Featuring
HANIBAL TECHNOLOGY

Page 1 of 2

CHAIN OF CUSTODY RECORD

☐ 11 Almgren Drive, Agawam, MA 01001, (413) 789-9018
☐ 8405 Benjamin Road, Ste A, Tampa, FL 33634, (813) 888-9507
☐ 646 Camp Avenue, N Kingstown, RI 02852, (401) 732-3400

Special Handling:

TAT- Indicate Date Needed: STANDARD
- All TATs subject to laboratory approval. Min. 24-hour notification needed for rushes.
- Samples disposed of after 60 days unless otherwise instructed.

Report To: GZA
[redacted]
530 Broadway
Providence RI 02909
Telephone #: 401-421-4140
Project Mgr. Erik Beloff

Invoice To: GZA

P.O. No.: _____ RQN: _____

Project No.: 32220.27
Site Name: Former Jamestown Landfill
Location: Jamestown State: RI
Sampler(s): Erik Beloff

1=Na_2S2O_3 2=HCl 3=H_2SO_4 4=HNO_3 5=NaOH 6=Ascorbic Acid 7=CH_3OH
8= $NaHSO_4$ 9= Deionized Water 10=H_3PO_4 11= _____ 12= _____

List preservative code below: 2 4

QA/QC Reporting Notes:

DW=Drinking Water GW=Groundwater WW=Wastewater
O=Oil SW= Surface Water SO=Soil SL=Sludge A=Air
X1= _____ X2= _____ X3= _____

G=Grab C=Composite

Lab Id:	Sample Id:	Date:	Time:	Type	Matrix	Containers: # of VOA Vials	# of Amber Glass	# of Clear Glass	# of Plastic	Analyses: VOC	Metals	QA/QC Reporting Level
01	GZ-1	6-23-15	1300	G	GW	2			1	X	X	① "POT-1" Analyzed with Drinking Water Methods.
02	GZ-2	6-23-15	0650	G	GW	2			1	X	X	
03	GZ-3	6-23-15	0730	G	GW	2			1	X	X	
04	GZ-4	6-23-15	0820	G	GW	2			1	X	X	
05	GZ-5	6-23-15	1230	G	GW	2			1	X	X	
06	GZ-6	6-23-15	1200	G	GW	2			1	X	X	
07	GZ-75	6-23-15	0915	G	GW	2			1	X	X	
08	GZ-71	6-23-15	0945	G	GW	2			1	X	X	
09	GZ-8	6-23-15	1100	G	GW	2			1	X	X	
10	GZ-9	6-23-15	1130	G	GW	2			1	X	X	

QA/QC Reporting Level: ☐ Level I ☐ Level II ☐ Level III ☐ Level IV ☐ Other _____

State-specific reporting standards: _____

Relinquished by:	Received by:	Date:	Time:	Temp°C
[signature]	Aynsa Hunter	6-23-15	1345	6.1

☐ EDD Format _____
☒ E-mail to erik.beloff@gza.com

Condition upon receipt: Custody Seals: ☐ Present ☐ Intact ☐ Broken
☐ Ambient ☒ Iced ☐ Refrigerated ☐ DI VOA Frozen ☐ Soil Jar Frozen

P1097

SPECTRUM ANALYTICAL, INC.
Featuring
HANIBAL TECHNOLOGY

Page 2 of 2

CHAIN OF CUSTODY RECORD

☐ 11 Almgren Drive, Agawam, MA 01001, (413) 789-9018
☐ 8405 Benjamin Road, Ste A, Tampa, FL 33634, (813) 888-9507
☐ 646 Camp Avenue, N Kingstown, RI 02852, (401) 732-3400

Special Handling:

TAT- Ind icate Date Needed: STANDARD
- All TATs subject to laboratory approval. Min. 24-hour notification needed for rushes.
- Samples disposed of after 60 days unless otherwise instructed.

Report To: GZA
530 Broadway
Providence, RI 02909

Telephone #: 401-421-4140
Project Mgr. Erik Beloff

Invoice To: GZA

P.O. No.: _____ RQN: _____

Project No.: 32220.27
Site Name: Former Jamestown Landfill
Location: Jamestown State: RI
Sampler(s): Erik Beloff

1=Na_2S2O_3 2=HCl 3=H_2SO_4 4=HNO_3 5=NaOH 6=Ascorbic Acid 7=CH_3OH
8= $NaHSO_4$ 9= Deionized Water 10=H_3PO_4 11= _____ 12= _____

List preservative code below: 2 4 3 1

QA/QC Reporting Notes:

DW=Drinking Water GW=Groundwater WW=Wastewater
O=Oil SW= Surface Water SO=Soil SL=Sludge A=Air
X1= _____ X2= _____ X3= _____

G=Grab C=Composite

Lab Id:	Sample Id:	Date:	Time:	Type	Matrix	Containers: # of VOA Vials	# of Amber Glass	# of Clear Glass	# of Plastic	Analyses: VOC	Metals	Nitrate	Total Coliform
11	POT-1	6-23-15	1320	G	DW	2			3	X	X	X	X
12	Trip Blank	6-23-15	0600			2				X			

QA/QC Reporting Level
☐ Level I ☐ Level II
☐ Level III ☐ Level IV
☐ Other _____

State-specific reporting standards: _____

Relinquished by:	Received by:	Date:	Time:	Temp°C
[signature]	[signature]	6-23-15	1345	6.1

☐ EDD Format _____
☐ E-mail to _____

Condition upon receipt: Custody Seals: ☐ Present ☐ Intact ☐ Broken
☐ Ambient ☑ Iced ☐ Refrigerated ☐ DI VOA Frozen ☐ Soil Jar Frozen

Spectrum Analytical Inc. - North Kingstown RI -- Rhode Island Division

Received By: WJL	Page 01 of 00
Reviewed By:	Log-in Date 06/23/2015
Work Order: P1097	Client Name: GZA GeoEnvironmental, Inc.
Project Name/Event: Jamestown Landfill	

Remarks: (1/2) Please see associated sample/extract transfer logbook pages submitted with this data package.

1. Custody Seal(s) — Present / Absent (circled: Present); Intact / Broken (circled: Intact)
2. Custody Seal Nos. — N/A
3. Traffic Reports/ Chain of Custody Records (TR/COCs) or Packing Lists — Present / Absent (circled: Present)
4. Airbill — AirBill / Sticker (circled: AirBill); Present / Absent (circled: Present)
5. Airbill No. — Drop Off N/A
6. Sample Tags — Present / Absent (circled: Absent)
   Sample Tag Numbers — Listed / Not Listed on Chain-of-Custody (circled: Not Listed on Chain-of-Custody)
7. Sample Condition — Intact / Broken/ Leaking (circled: Intact)
8. Cooler Temperature Indicator Bottle — Present / Absent (circled: Absent)

9. Cooler Temperature	6.1 °C
10. Does information on TR/COCs and sample tags agree?	Yes / No (circled: No)
11. Date Received at Laboratory	06/23/2015
12. Time Received	13:45

Lab Sample ID	Preservation (pH) HNO3	H2SO4	HCl	NaOH	H3PO4	VOA Matrix	Soil HeadSpace or Air Bubble > or equal to 1/4"
P1097-01	<2					H	
P1097-02	<2					H	
P1097-03	<2					H	
P1097-04	<2					H	
P1097-05	<2					H	
P1097-06	<2					H	
P1097-07	<2					H	
P1097-08	<2					H	
P1097-09	<2					H	
P1097-10	<2					H	
P1097-11	<2	<2				H	
P1097-12						H	

Sample Transfer

Fraction (1) TVOA/VOA	Fraction (2) SVOA/PEST/ARO
Area #	Area #
By	By
On	On

IR Temp Gun ID:MT-74

CoolantCondition: ICE

Preservative Name/Lot No:

VOA Matrix Key:

US = Unpreserved Soil	A= Air
UA = Unpreserved Aqueous	H = HCl
M = MeOH	E = Encore
N = NaHSO4	F = Freeze

See Sample Condition Notification/Corrective Action Form Yes / No (circled: No)

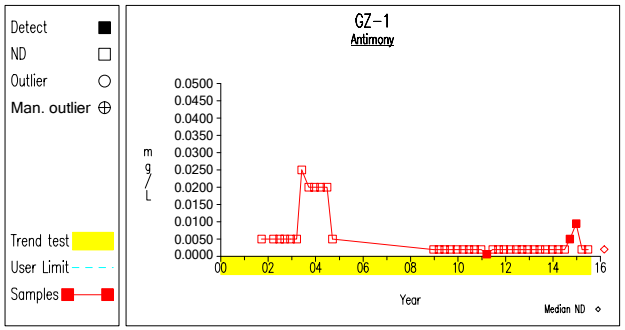
Rad OK Yes / No (circled: Yes)

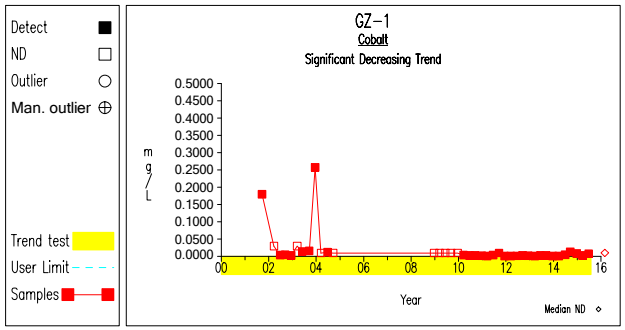
Last Page of Data Report

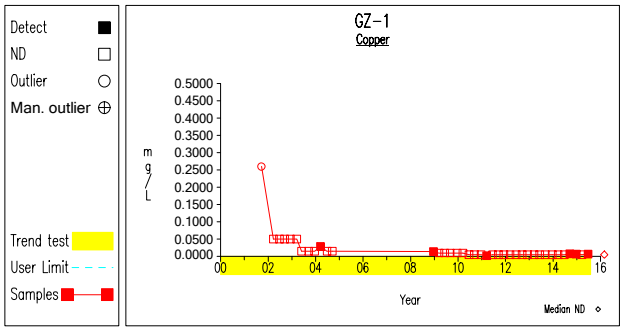
APPENDIX C

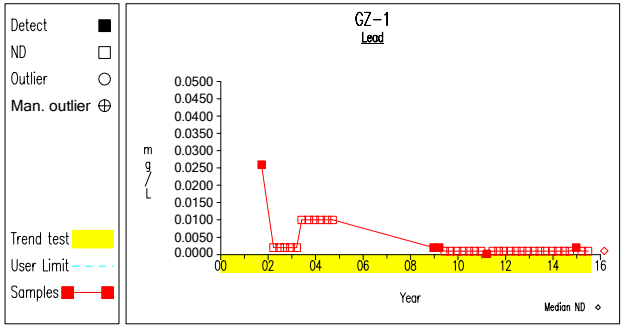
TIMES SERIES PLOTS

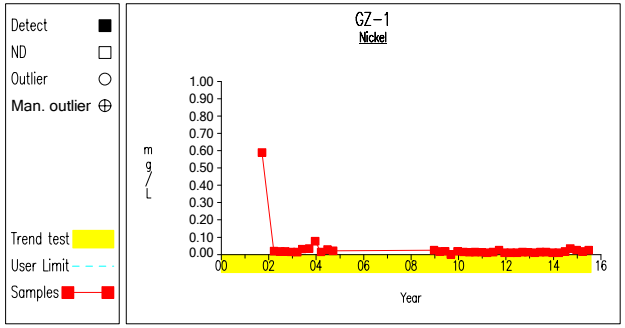
Time Series

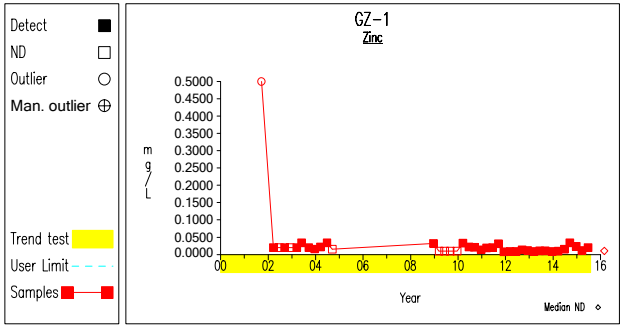

Detect
ND
Outlier
Man. outlier
Trend test
User Limit
Samples
GZ-1
Antimony
mg/L
0.0500
0.0450
0.0400
0.0350
0.0300
0.0250
0.0200
0.0150
0.0100
0.0050
0.0000
00 02 04 06 08 10 12 14 16
Year
Median ND


Detect
ND
Outlier
Man. outlier
Trend test
User Limit
Samples
GZ-1
Cobalt
Significant Decreasing Trend
mg/L
0.5000
0.4500
0.4000
0.3500
0.3000
0.2500
0.2000
0.1500
0.1000
0.0500
0.0000
00 02 04 06 08 10 12 14 16
Year
Median ND

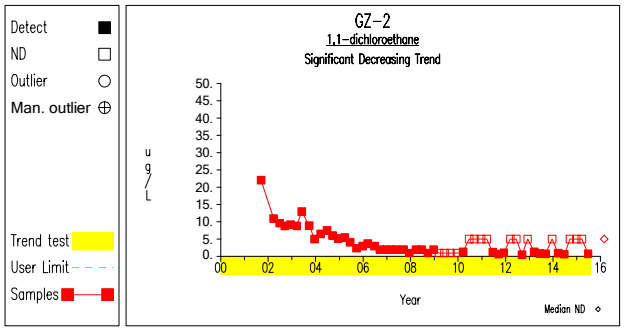

Detect
ND
Outlier
Man. outlier
Trend test
User Limit
Samples
GZ-1
Copper
mg/L
0.5000
0.4500
0.4000
0.3500
0.3000
0.2500
0.2000
0.1500
0.1000
0.0500
0.0000
00 02 04 06 08 10 12 14 16
Year
Median ND

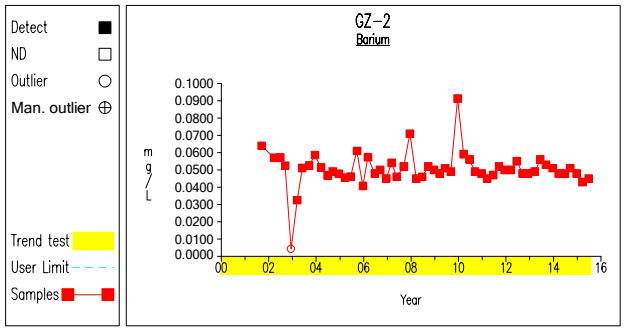

Detect
ND
Outlier
Man. outlier
Trend test
User Limit
Samples
GZ-1
Lead
mg/L
0.0500
0.0450
0.0400
0.0350
0.0300
0.0250
0.0200
0.0150
0.0100
0.0050
0.0000
00 02 04 06 08 10 12 14 16
Year
Median ND

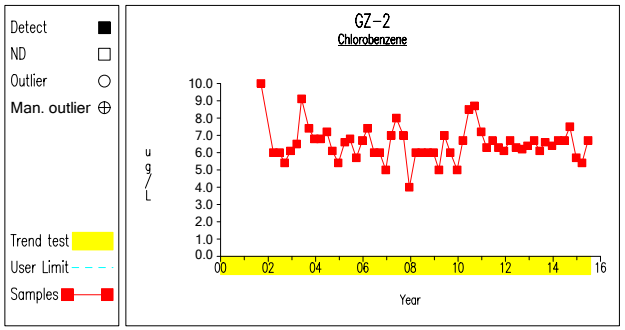

Detect
ND
Outlier
Man. outlier
Trend test
User Limit
Samples
GZ-1
Nickel
mg/L
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
00 02 04 06 08 10 12 14 16
Year

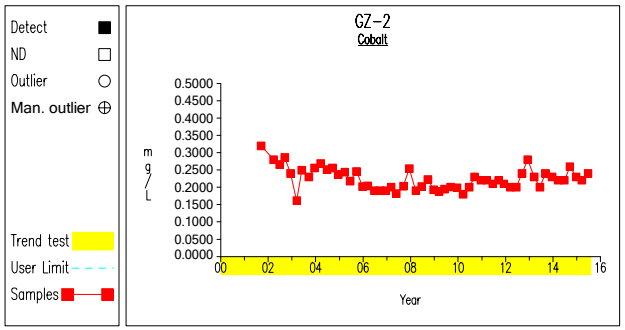

Detect
ND
Outlier
Man. outlier
Trend test
User Limit
Samples
GZ-1
Zinc
mg/L
0.5000
0.4500
0.4000
0.3500
0.3000
0.2500
0.2000
0.1500
0.1000
0.0500
0.0000
00 02 04 06 08 10 12 14 16
Year
Median ND

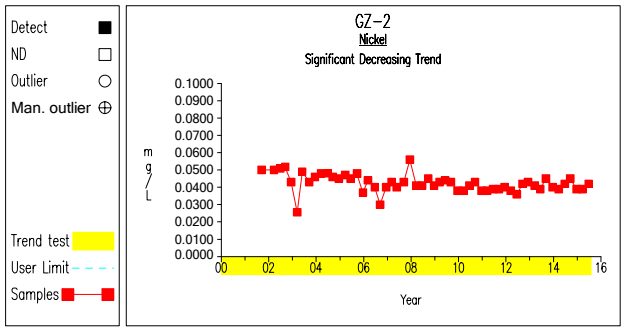
Time Series

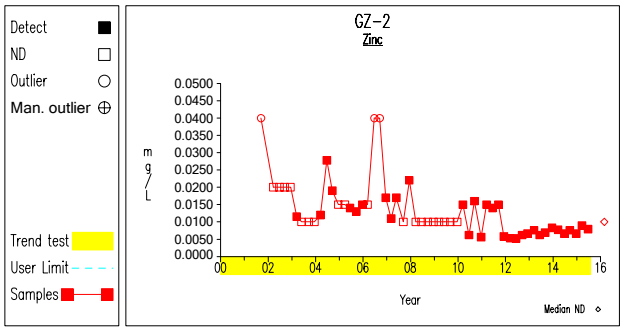

Detect
ND
Outlier
Man. outlier
Trend test
User Limit
Samples
GZ-2
1,1-dichloroethane
Significant Decreasing Trend
u g / L
Year
Median ND


Detect
ND
Outlier
Man. outlier
Trend test
User Limit
Samples
GZ-2
Barium
m g / L
Year

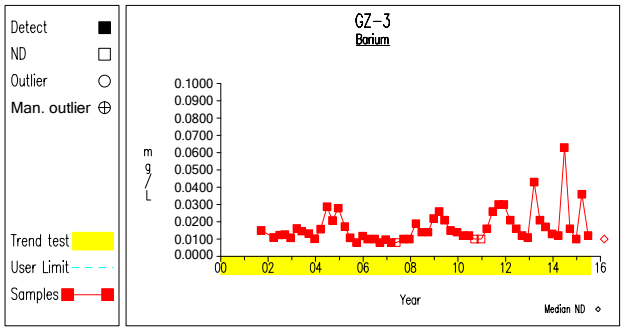

Detect
ND
Outlier
Man. outlier
Trend test
User Limit
Samples
GZ-2
Chlorobenzene
u g / L
Year

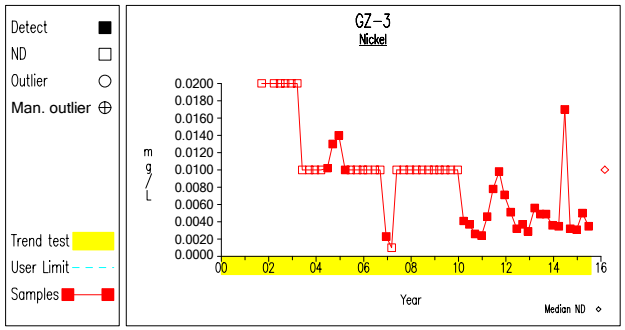

Detect
ND
Outlier
Man. outlier
Trend test
User Limit
Samples
GZ-2
Cobalt
m g / L
Year

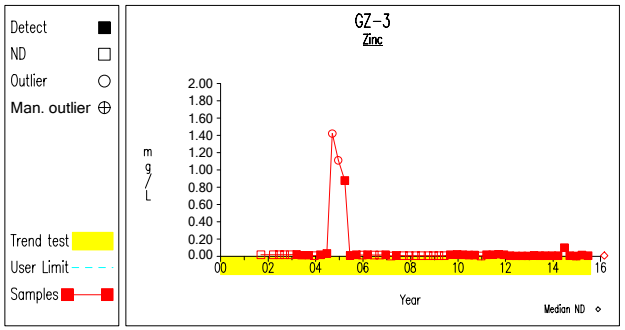

Detect
ND
Outlier
Man. outlier
Trend test
User Limit
Samples
GZ-2
Nickel
Significant Decreasing Trend
m g / L
Year


Detect
ND
Outlier
Man. outlier
Trend test
User Limit
Samples
GZ-2
Zinc
m g / L
Year
Median ND

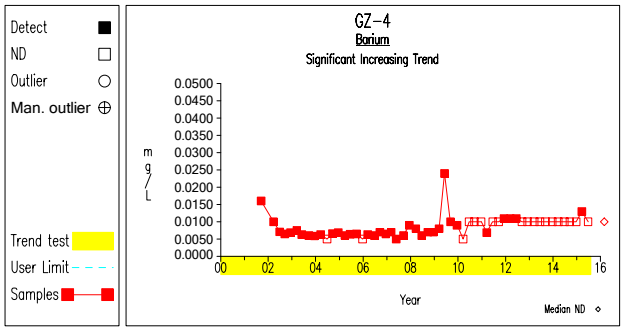
Time Series

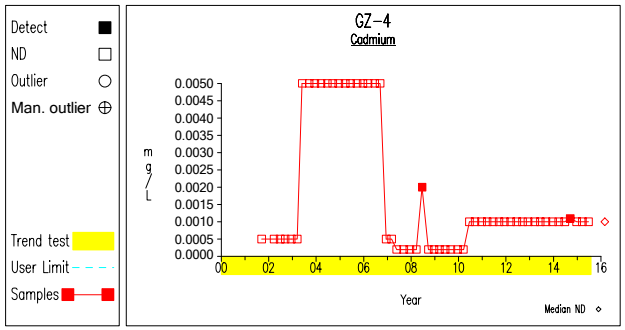

Detect
ND
Outlier
Man. outlier
Trend test
User Limit
Samples
GZ-3
Barium
mg/L
0.1000
0.0900
0.0800
0.0700
0.0600
0.0500
0.0400
0.0300
0.0200
0.0100
0.0000
00
02
04
06
08
10
12
14
16
Year
Median ND

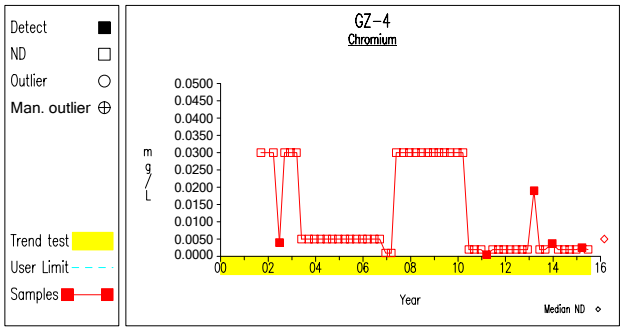

Detect
ND
Outlier
Man. outlier
Trend test
User Limit
Samples
GZ-3
Nickel
mg/L
0.0200
0.0180
0.0160
0.0140
0.0120
0.0100
0.0080
0.0060
0.0040
0.0020
0.0000
00
02
04
06
08
10
12
14
16
Year
Median ND

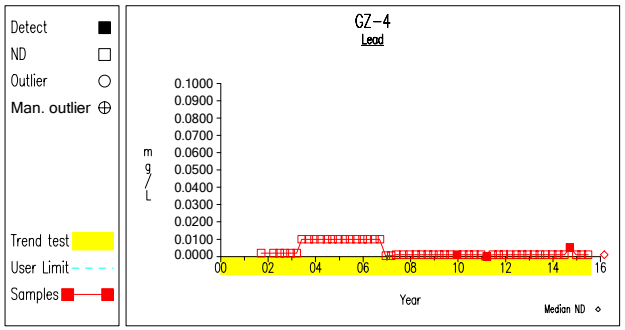

Detect
ND
Outlier
Man. outlier
Trend test
User Limit
Samples
GZ-3
Zinc
mg/L
2.00
1.80
1.60
1.40
1.20
1.00
0.80
0.60
0.40
0.20
0.00
00
02
04
06
08
10
12
14
16
Year
Median ND

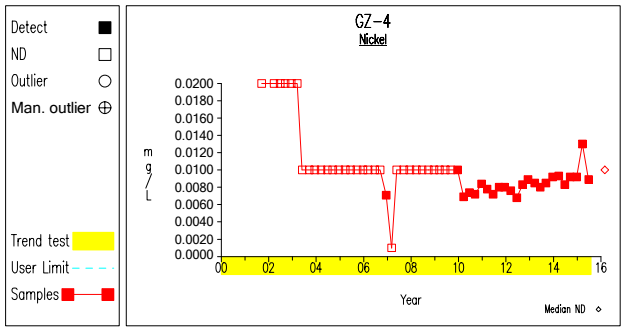
Time Series

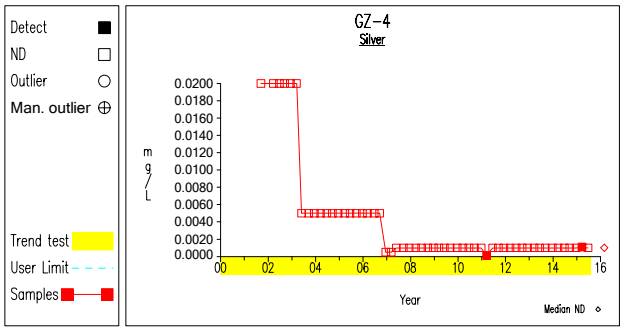

Detect
ND
Outlier
Man. outlier
Trend test
User Limit
Samples
GZ-4
Barium
Significant Increasing Trend
mg/L
Year
Median ND

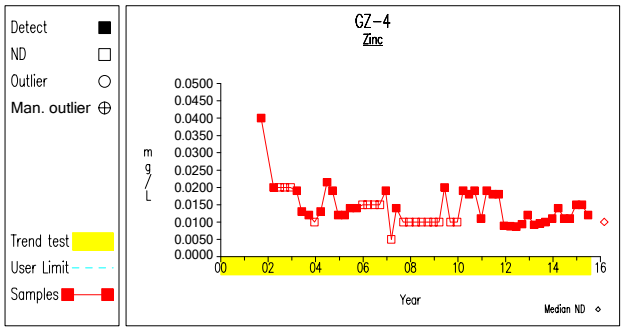

Detect
ND
Outlier
Man. outlier
Trend test
User Limit
Samples
GZ-4
Cadmium
mg/L
Year
Median ND


Detect
ND
Outlier
Man. outlier
Trend test
User Limit
Samples
GZ-4
Chromium
mg/L
Year
Median ND

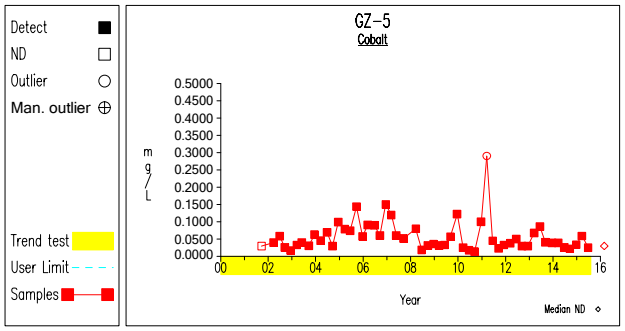

Detect
ND
Outlier
Man. outlier
Trend test
User Limit
Samples
GZ-4
Lead
mg/L
Year
Median ND

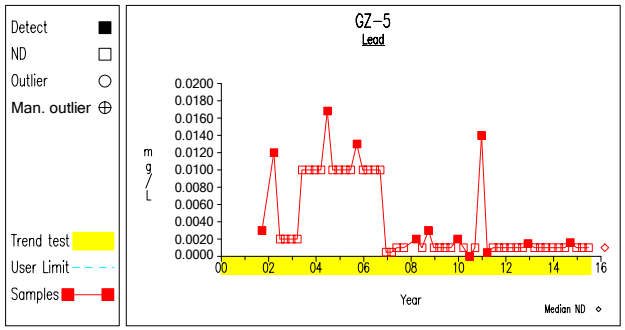

Detect
ND
Outlier
Man. outlier
Trend test
User Limit
Samples
GZ-4
Nickel
mg/L
Year
Median ND

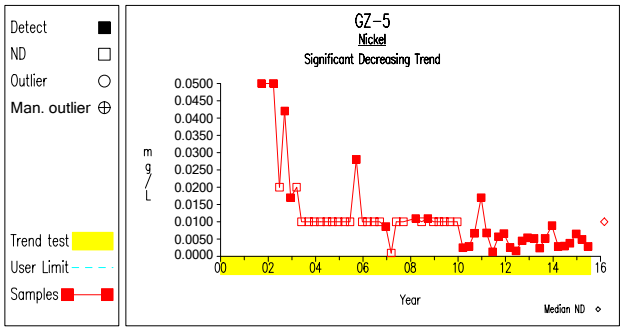

Detect
ND
Outlier
Man. outlier
Trend test
User Limit
Samples
GZ-4
Silver
mg/L
Year
Median ND

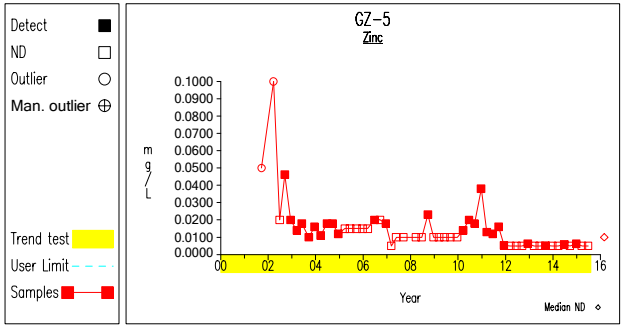

Detect
ND
Outlier
Man. outlier
Trend test
User Limit
Samples
GZ-4
Zinc
mg/L
Year
Median ND

Time Series

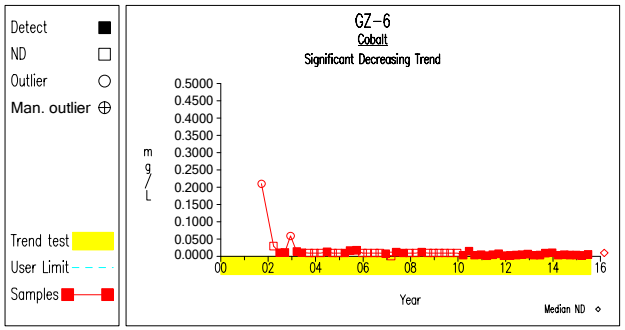

Detect
ND
Outlier
Man. outlier
Trend test
User Limit
Samples
GZ-5
Cobalt
mg/L
0.5000
0.4500
0.4000
0.3500
0.3000
0.2500
0.2000
0.1500
0.1000
0.0500
0.0000
00 02 04 06 08 10 12 14 16
Year
Median ND

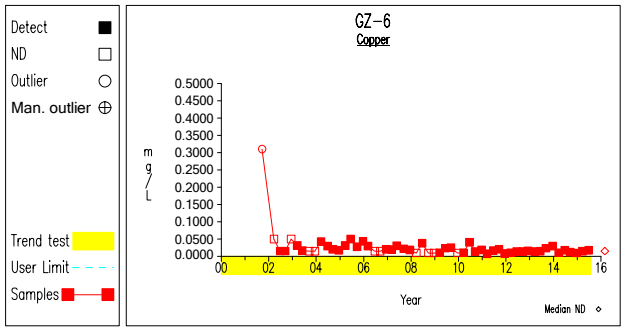

Detect
ND
Outlier
Man. outlier
Trend test
User Limit
Samples
GZ-5
Lead
mg/L
0.0200
0.0180
0.0160
0.0140
0.0120
0.0100
0.0080
0.0060
0.0040
0.0020
0.0000
00 02 04 06 08 10 12 14 16
Year
Median ND

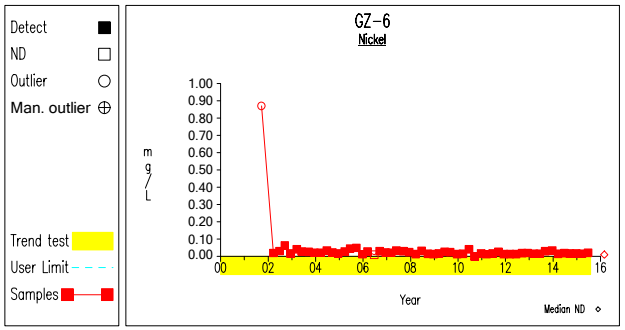

Detect
ND
Outlier
Man. outlier
Trend test
User Limit
Samples
GZ-5
Nickel
Significant Decreasing Trend
mg/L
0.0500
0.0450
0.0400
0.0350
0.0300
0.0250
0.0200
0.0150
0.0100
0.0050
0.0000
00 02 04 06 08 10 12 14 16
Year
Median ND

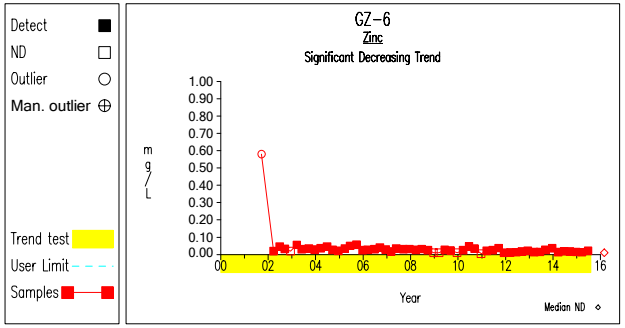

Detect
ND
Outlier
Man. outlier
Trend test
User Limit
Samples
GZ-5
Zinc
mg/L
0.1000
0.0900
0.0800
0.0700
0.0600
0.0500
0.0400
0.0300
0.0200
0.0100
0.0000
00 02 04 06 08 10 12 14 16
Year
Median ND

Time Series

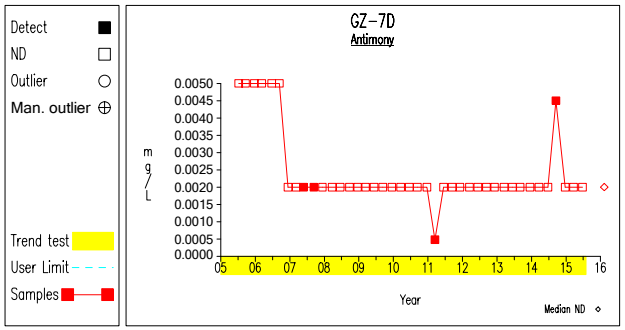

Detect
ND
Outlier
Man. outlier
Trend test
User Limit
Samples
GZ-6
Cobalt
Significant Decreasing Trend
mg/L
0.5000
0.4500
0.4000
0.3500
0.3000
0.2500
0.2000
0.1500
0.1000
0.0500
0.0000
00 02 04 06 08 10 12 14 16
Year
Median ND

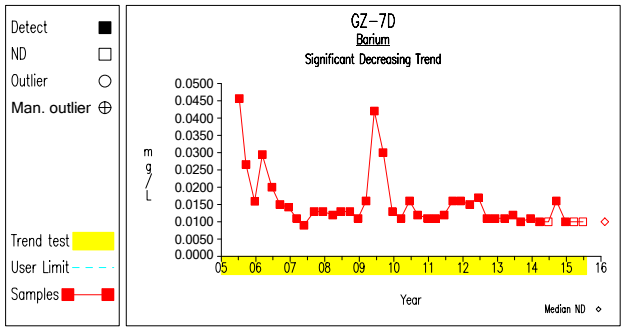

Detect
ND
Outlier
Man. outlier
Trend test
User Limit
Samples
GZ-6
Copper
mg/L
0.5000
0.4500
0.4000
0.3500
0.3000
0.2500
0.2000
0.1500
0.1000
0.0500
0.0000
00 02 04 06 08 10 12 14 16
Year
Median ND

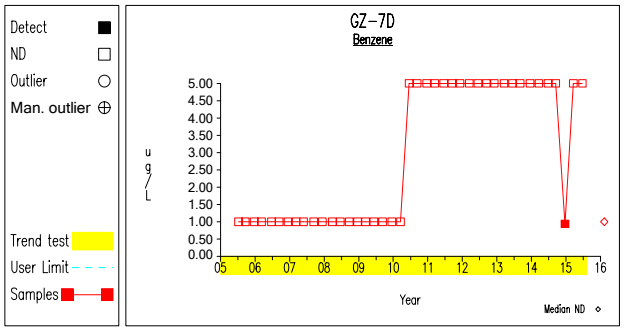

Detect
ND
Outlier
Man. outlier
Trend test
User Limit
Samples
GZ-6
Nickel
mg/L
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
00 02 04 06 08 10 12 14 16
Year
Median ND

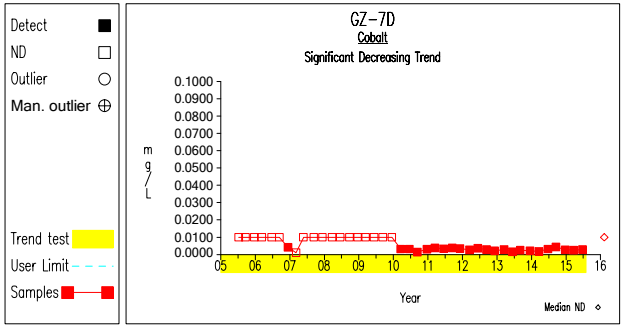

Detect
ND
Outlier
Man. outlier
Trend test
User Limit
Samples
GZ-6
Zinc
Significant Decreasing Trend
mg/L
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
00 02 04 06 08 10 12 14 16
Year
Median ND

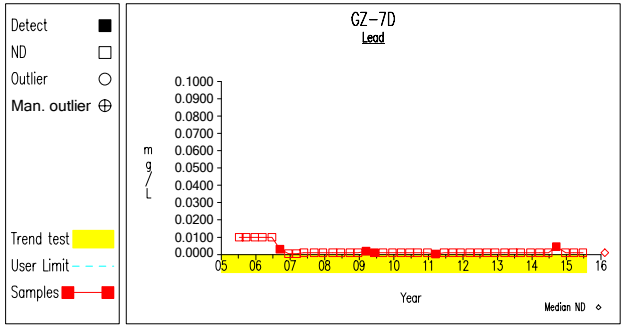
Time Series

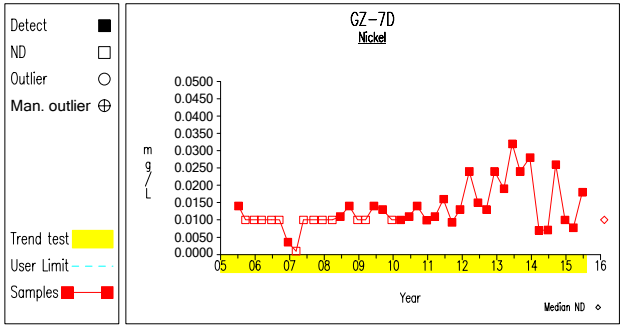

Detect
ND
Outlier
Man. outlier
Trend test
User Limit
Samples
GZ-7D
Antimony
mg/L
Year
Median ND

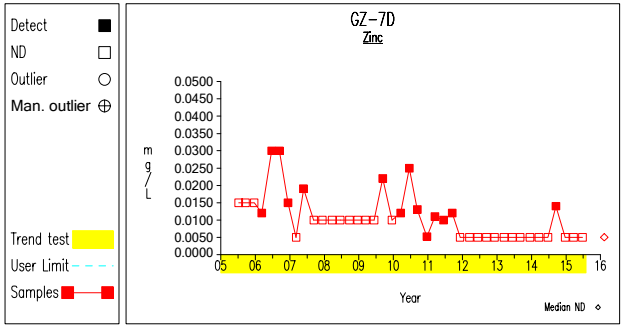

Detect
ND
Outlier
Man. outlier
Trend test
User Limit
Samples
GZ-7D
Barium
Significant Decreasing Trend
mg/L
Year
Median ND


Detect
ND
Outlier
Man. outlier
Trend test
User Limit
Samples
GZ-7D
Benzene
ug/L
Year
Median ND

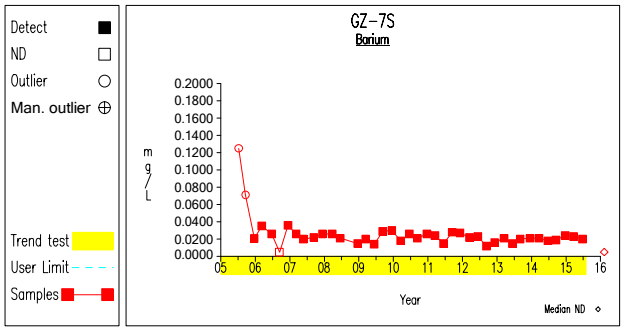

Detect
ND
Outlier
Man. outlier
Trend test
User Limit
Samples
GZ-7D
Cobalt
Significant Decreasing Trend
mg/L
Year
Median ND

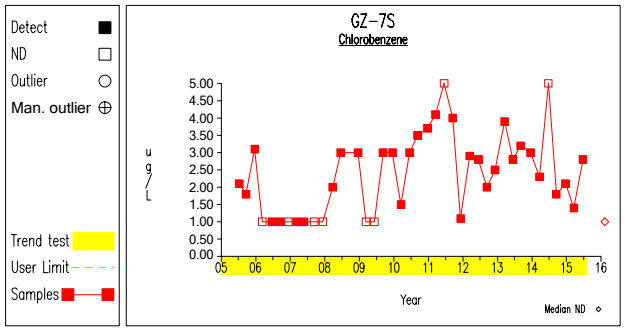

Detect
ND
Outlier
Man. outlier
Trend test
User Limit
Samples
GZ-7D
Lead
mg/L
Year
Median ND

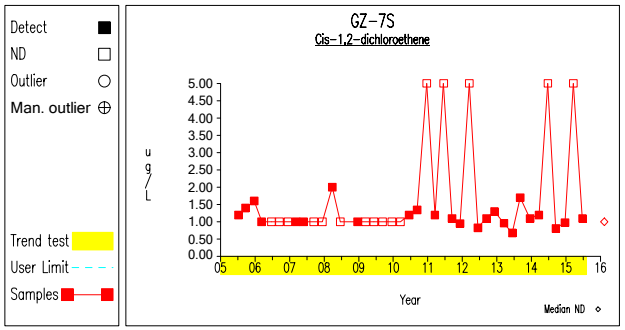

Detect
ND
Outlier
Man. outlier
Trend test
User Limit
Samples
GZ-7D
Nickel
mg/L
Year
Median ND

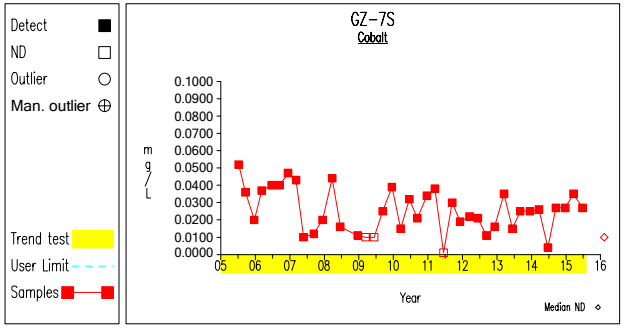

Detect
ND
Outlier
Man. outlier
Trend test
User Limit
Samples
GZ-7D
Zinc
mg/L
Year
Median ND

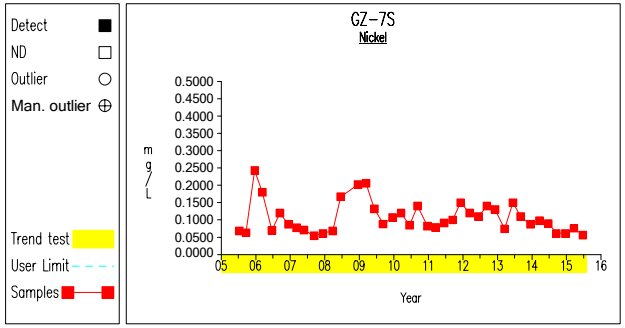
Time Series

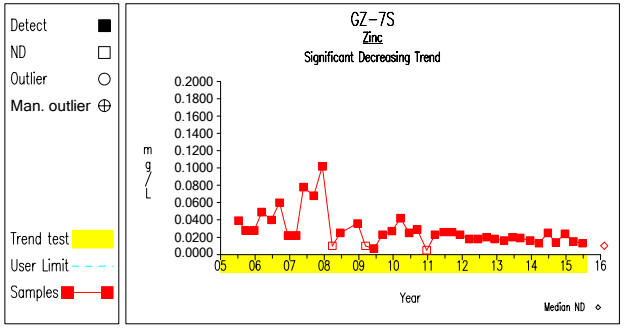

Detect
ND
Outlier
Man. outlier
Trend test
User Limit
Samples
GZ-7S
Barium
mg/L
0.2000
0.1800
0.1600
0.1400
0.1200
0.1000
0.0800
0.0600
0.0400
0.0200
0.0000
05 06 07 08 09 10 11 12 13 14 15 16
Year
Median ND


Detect
ND
Outlier
Man. outlier
Trend test
User Limit
Samples
GZ-7S
Chlorobenzene
ug/L
5.00
4.50
4.00
3.50
3.00
2.50
2.00
1.50
1.00
0.50
0.00
05 06 07 08 09 10 11 12 13 14 15 16
Year
Median ND

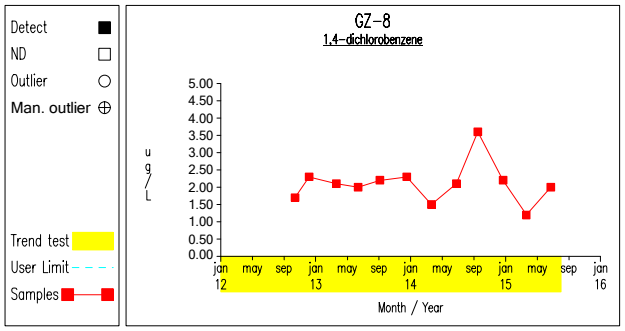

Detect
ND
Outlier
Man. outlier
Trend test
User Limit
Samples
GZ-7S
Cis-1,2-dichloroethene
ug/L
5.00
4.50
4.00
3.50
3.00
2.50
2.00
1.50
1.00
0.50
0.00
05 06 07 08 09 10 11 12 13 14 15 16
Year
Median ND

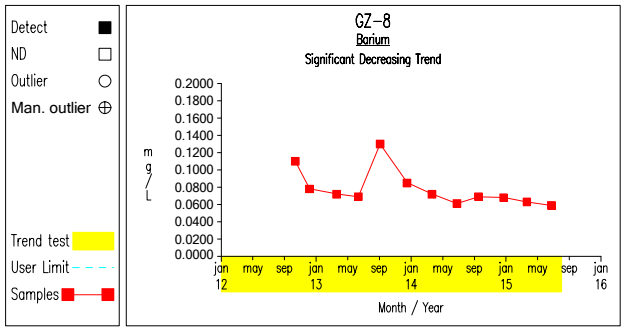

Detect
ND
Outlier
Man. outlier
Trend test
User Limit
Samples
GZ-7S
Cobalt
mg/L
0.1000
0.0900
0.0800
0.0700
0.0600
0.0500
0.0400
0.0300
0.0200
0.0100
0.0000
05 06 07 08 09 10 11 12 13 14 15 16
Year
Median ND

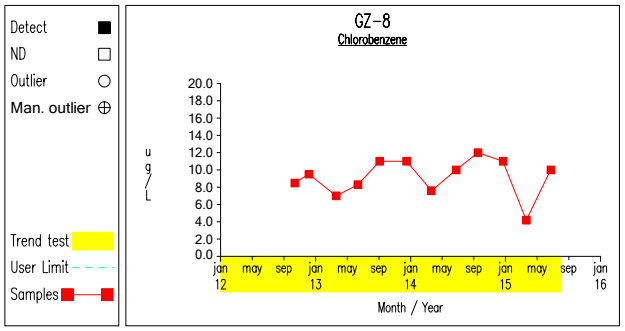

Detect
ND
Outlier
Man. outlier
Trend test
User Limit
Samples
GZ-7S
Nickel
mg/L
0.5000
0.4500
0.4000
0.3500
0.3000
0.2500
0.2000
0.1500
0.1000
0.0500
0.0000
05 06 07 08 09 10 11 12 13 14 15 16
Year

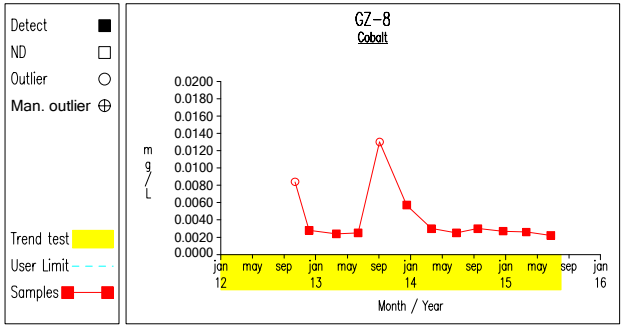

Detect
ND
Outlier
Man. outlier
Trend test
User Limit
Samples
GZ-7S
Zinc
Significant Decreasing Trend
mg/L
0.2000
0.1800
0.1600
0.1400
0.1200
0.1000
0.0800
0.0600
0.0400
0.0200
0.0000
05 06 07 08 09 10 11 12 13 14 15 16
Year
Median ND

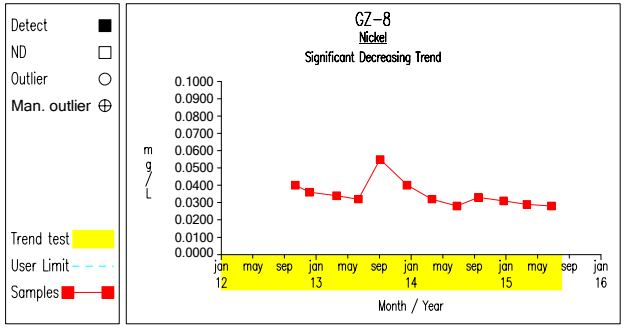
Time Series

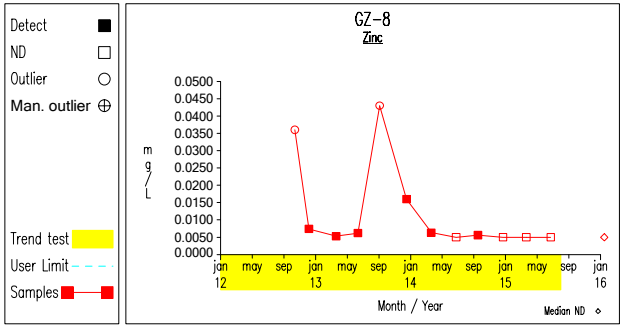

Detect
ND
Outlier
Man. outlier
Trend test
User Limit
Samples
GZ-8
1,4-dichlorobenzene
u g / L
5.00
4.50
4.00
3.50
3.00
2.50
2.00
1.50
1.00
0.50
0.00
jan may sep jan may sep jan may sep jan may sep jan
12 13 14 15 16
Month / Year


Detect
ND
Outlier
Man. outlier
Trend test
User Limit
Samples
GZ-8
Barium
Significant Decreasing Trend
m g / L
0.2000
0.1800
0.1600
0.1400
0.1200
0.1000
0.0800
0.0600
0.0400
0.0200
0.0000
jan may sep jan may sep jan may sep jan may sep jan
12 13 14 15 16
Month / Year

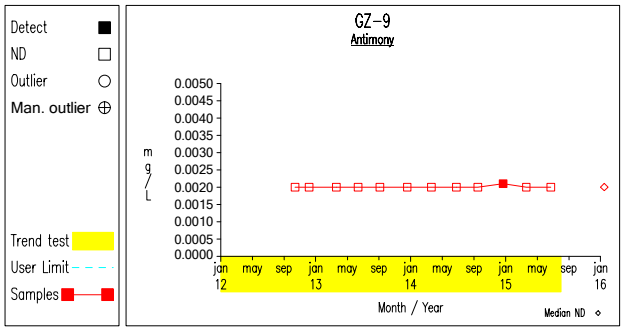

Detect
ND
Outlier
Man. outlier
Trend test
User Limit
Samples
GZ-8
Chlorobenzene
u g / L
20.0
18.0
16.0
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
jan may sep jan may sep jan may sep jan may sep jan
12 13 14 15 16
Month / Year

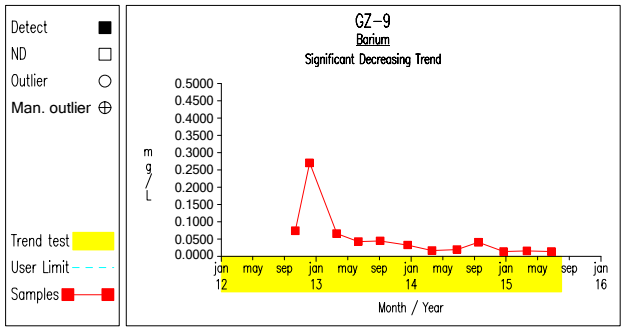

Detect
ND
Outlier
Man. outlier
Trend test
User Limit
Samples
GZ-8
Cobalt
m g / L
0.0200
0.0180
0.0160
0.0140
0.0120
0.0100
0.0080
0.0060
0.0040
0.0020
0.0000
jan may sep jan may sep jan may sep jan may sep jan
12 13 14 15 16
Month / Year

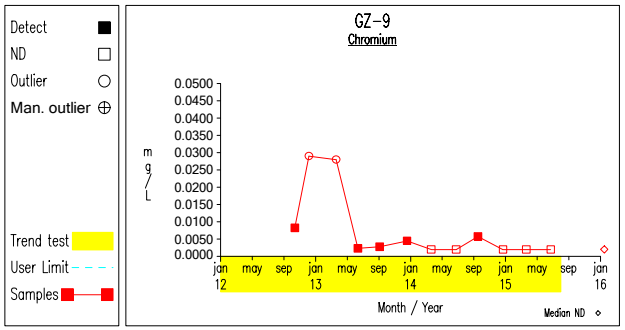

Detect
ND
Outlier
Man. outlier
Trend test
User Limit
Samples
GZ-8
Nickel
Significant Decreasing Trend
m g / L
0.1000
0.0900
0.0800
0.0700
0.0600
0.0500
0.0400
0.0300
0.0200
0.0100
0.0000
jan may sep jan may sep jan may sep jan may sep jan
12 13 14 15 16
Month / Year

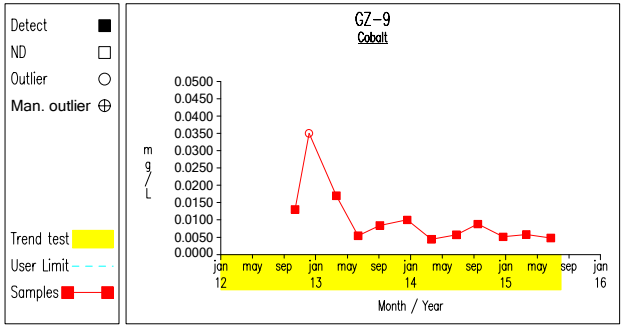

Detect
ND
Outlier
Man. outlier
Trend test
User Limit
Samples
GZ-8
Zinc
m g / L
0.0500
0.0450
0.0400
0.0350
0.0300
0.0250
0.0200
0.0150
0.0100
0.0050
0.0000
jan may sep jan may sep jan may sep jan may sep jan
12 13 14 15 16
Month / Year
Median ND

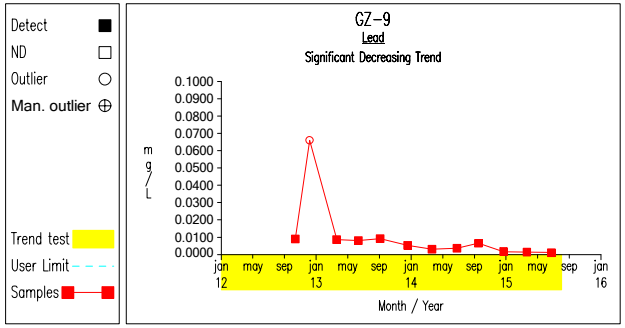
Time Series

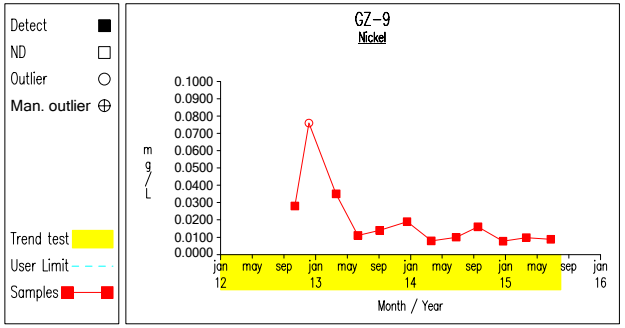

Detect
ND
Outlier
Man. outlier
Trend test
User Limit
Samples
GZ-9
Antimony
m g / L
0.0050
0.0045
0.0040
0.0035
0.0030
0.0025
0.0020
0.0015
0.0010
0.0005
0.0000
jan may sep jan may sep jan may sep jan may sep jan
12 13 14 15 16
Month / Year
Median ND

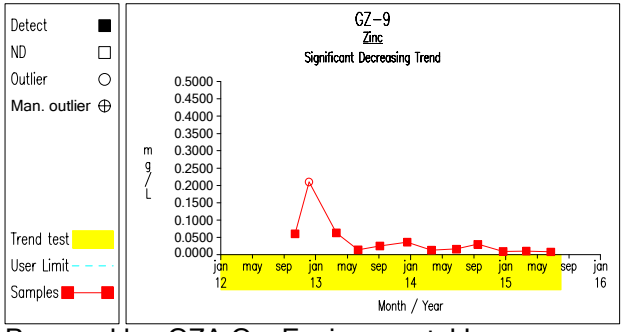

Detect
ND
Outlier
Man. outlier
Trend test
User Limit
Samples
GZ-9
Barium
Significant Decreasing Trend
m g / L
0.5000
0.4500
0.4000
0.3500
0.3000
0.2500
0.2000
0.1500
0.1000
0.0500
0.0000
jan may sep jan may sep jan may sep jan may sep jan
12 13 14 15 16
Month / Year


Detect
ND
Outlier
Man. outlier
Trend test
User Limit
Samples
GZ-9
Chromium
m g / L
0.0500
0.0450
0.0400
0.0350
0.0300
0.0250
0.0200
0.0150
0.0100
0.0050
0.0000
jan may sep jan may sep jan may sep jan may sep jan
12 13 14 15 16
Month / Year
Median ND

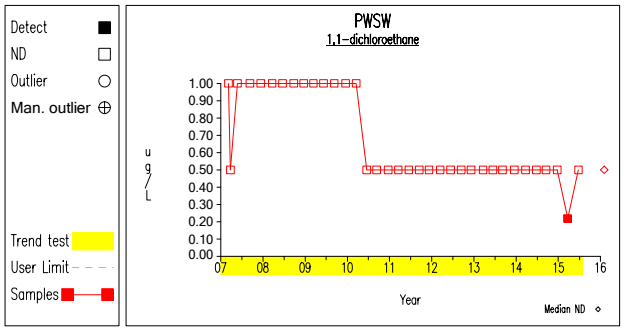

Detect
ND
Outlier
Man. outlier
Trend test
User Limit
Samples
GZ-9
Cobalt
m g / L
0.0500
0.0450
0.0400
0.0350
0.0300
0.0250
0.0200
0.0150
0.0100
0.0050
0.0000
jan may sep jan may sep jan may sep jan may sep jan
12 13 14 15 16
Month / Year

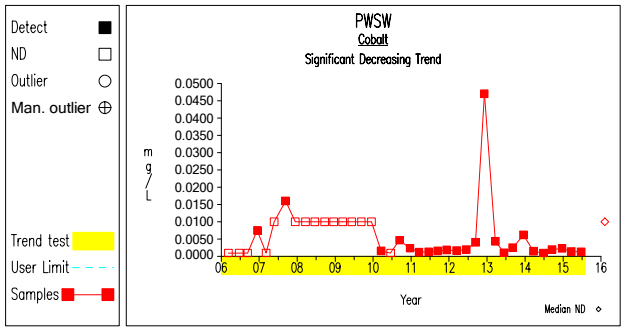

Detect
ND
Outlier
Man. outlier
Trend test
User Limit
Samples
GZ-9
Lead
Significant Decreasing Trend
m g / L
0.1000
0.0900
0.0800
0.0700
0.0600
0.0500
0.0400
0.0300
0.0200
0.0100
0.0000
jan may sep jan may sep jan may sep jan may sep jan
12 13 14 15 16
Month / Year

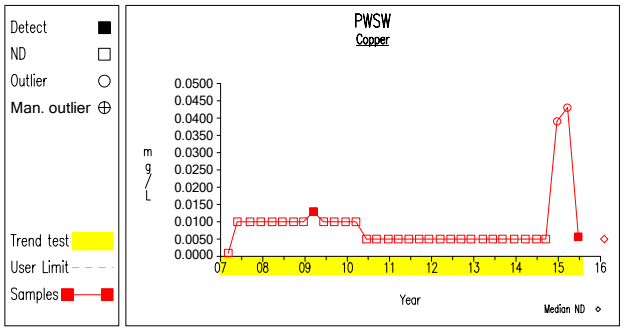

Detect
ND
Outlier
Man. outlier
Trend test
User Limit
Samples
GZ-9
Nickel
m g / L
0.1000
0.0900
0.0800
0.0700
0.0600
0.0500
0.0400
0.0300
0.0200
0.0100
0.0000
jan may sep jan may sep jan may sep jan may sep jan
12 13 14 15 16
Month / Year

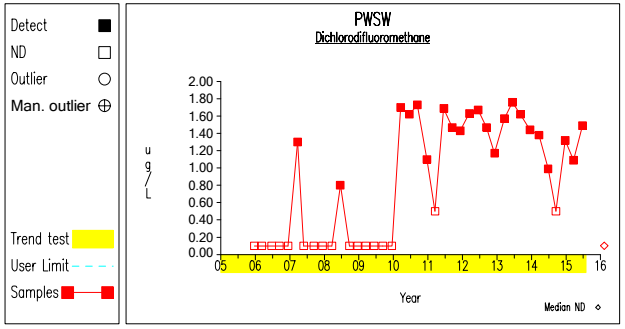

Detect
ND
Outlier
Man. outlier
Trend test
User Limit
Samples
GZ-9
Zinc
Significant Decreasing Trend
m g / L
0.5000
0.4500
0.4000
0.3500
0.3000
0.2500
0.2000
0.1500
0.1000
0.0500
0.0000
jan may sep jan may sep jan may sep jan may sep jan
12 13 14 15 16
Month / Year

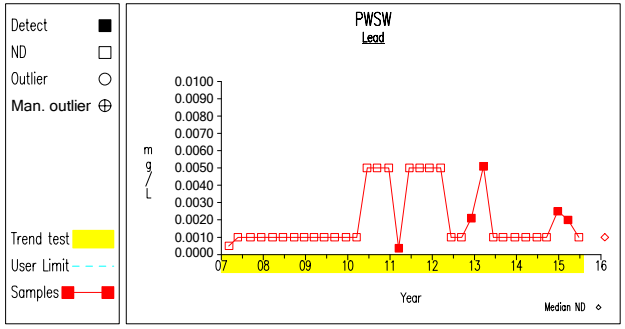
Time Series

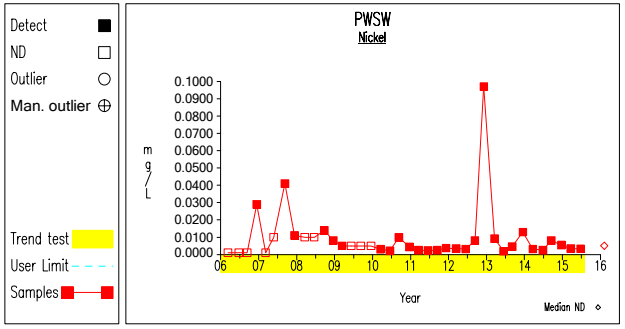

Detect
ND
Outlier
Man. outlier
Trend test
User Limit
Samples
PWSW
1,1-dichloroethane
u g / L
Year
Median ND

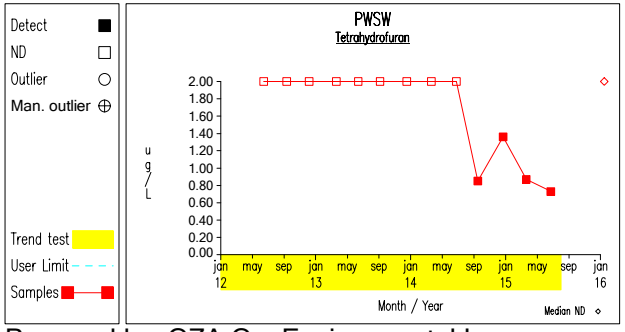

Detect
ND
Outlier
Man. outlier
Trend test
User Limit
Samples
PWSW
Cobalt
Significant Decreasing Trend
m g / L
Year
Median ND

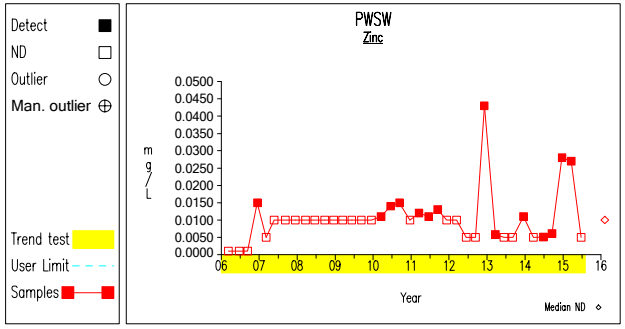

Detect
ND
Outlier
Man. outlier
Trend test
User Limit
Samples
PWSW
Copper
m g / L
Year
Median ND


Detect
ND
Outlier
Man. outlier
Trend test
User Limit
Samples
PWSW
Dichlorodifluoromethane
u g / L
Year
Median ND


Detect
ND
Outlier
Man. outlier
Trend test
User Limit
Samples
PWSW
Lead
m g / L
Year
Median ND


Detect
ND
Outlier
Man. outlier
Trend test
User Limit
Samples
PWSW
Nickel
m g / L
Year
Median ND


Detect
ND
Outlier
Man. outlier
Trend test
User Limit
Samples
PWSW
Tetrahydrofuran
u g / L
Month / Year
Median ND


Detect
ND
Outlier
Man. outlier
Trend test
User Limit
Samples
PWSW
Zinc
m g / L
Year
Median ND