



February 7, 2017  
G-Logics Project Number 01-0868-J

Mr. Kurt Reiswig  
LMC Gilman Square, LLC  
1325 Fourth Ave, Suite 1700  
Seattle, WA 98101

**Subject: Summary Memo  
January 2017 Second Quarter Groundwater Sampling Results  
Remediation Support and Cleanup Action Report  
Gilman Square  
615 NW Gilman Blvd  
Issaquah, WA**

Dear Mr. Reiswig:

This memo presents the results from the second quarter of groundwater sampling conducted in January 2017 at the Gilman Square Site (Figure 1). For this project, samples were collected from three groundwater-monitoring wells (GL-MW-11, GL-MW-12, and GL-MW-13). Sampling locations are shown on attached Figure 2.

The purpose of this sampling was to assess the current subsurface conditions and the presence of chlorinated solvents in groundwater at the Site. Each sample was analyzed for tetrachloroethylene (PCE) and PCE-degradation compounds (trichloroethene, cis- and trans-1,2-dichloroethene, 1,1-dichloroethene, and vinyl chloride). In addition, samples were analyzed for several geochemical parameters to document the aquifer conditions. This groundwater sampling work was completed in support of the previously conducted remedial excavation, summarized in G-Logics *Interim Cleanup Action Report* (dated December 2, 2015).

**G-Logics, Inc.**  
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01-0868-J-GWQ2-Memo.doc

## **BACKGROUND**

In the fall of 2014, chlorinated-solvent contaminated soil was removed from the Site in the vicinity of a former dry cleaner. After the excavation was completed, three monitoring wells (GL-MW-11, GL-MW-12, and GL-MW-13) were installed in the area where groundwater previously had contained residual concentrations of vinyl chloride (well locations shown on Figure 2). These wells were installed to document groundwater conditions and to monitor the attenuation of the low concentrations of chlorinated solvents.

Groundwater samples collected from these wells in 2015 and 2016 contained detectable concentrations of PCE, cis-1,2-dichloroethene, and/or vinyl chloride. Vinyl chloride historically has been the only analyte detected at concentrations exceeding MTCA Method A cleanup levels (from wells GL-MW-11 and 12). Historical groundwater analytical results are summarized in Table 1.

### **Enhanced Anaerobic Bioremediation**

As discussed in G-Logics memo dated November 10, 2016, in-situ, enhanced-anaerobic bioremediation (EAB) technology was used at the Site with the intent to reduce vinyl-chloride concentrations in the groundwater to below MTCA Method A cleanup levels. In the spring of 2016, an EAB “amendment” solution (mix of nutrients and a carbon source) was injected into wells GL-MW-11, 12, and 13 in order to increase the natural microbial activity present in this area.

Preliminary groundwater sampling was conducted in June and October 2016 to document the aquifer conditions and assess the need for additional injections of the EAB amendment. Geochemical and water-quality parameter results collected during these sampling events displayed that anaerobic conditions had been successfully enhanced by the amendment. No additional injections have been completed.

## **GROUNDWATER SAMPLING**

G-Logics conducted the second round of groundwater sampling in January 2017. During this sampling event, low-flow sampling techniques were utilized, with water-quality parameters measured using a YSI ProDSS multiparameter meter and a flow-through cell. Once parameter readings stabilized, groundwater samples were collected from the three

monitoring wells. Collected samples were submitted to Fremont Analytical of Seattle, Washington for volatile organic analysis by EPA Method 8260. Results are further discussed below.

### **Geochemical and Water-Quality Parameters**

Water-quality parameters (dissolved oxygen, pH, oxidation-reduction potential, and conductivity) were measured in the wells during well purging. Water-quality parameters were measured with a YSI ProDSS multiparameter meter and recorded on the groundwater-sampling logs.

In addition, groundwater samples were analyzed for several geochemical parameters to assess the aquifer conditions. Both the water-quality and geochemical parameter results indicate that the aquifer remains in a reducing/anaerobic condition. These conditions are favorable for the continued biodegradation of the residual chlorinated-solvents potentially present in the subsurface. Water-quality and geochemical parameter results are presented in Table 1.

### **Groundwater Sample Results**

Samples collected during this event did not contain detectable concentrations of chlorinated solvents. However, the samples collected from wells GL-MW-11 and GL-MW-13 required dilution due to “matrix interference” (caused by the amendment added to the subsurface to increase biodegradation of the contaminants). The amendment interferes with the laboratory instruments (called matrix interference), therefore the samples require dilution prior to analysis. Because of this, the reporting limits and method detection limits for vinyl chloride achievable by the laboratory were greater than the MTCA Method A cleanup level for vinyl chloride.

However, detection levels for the sample collected from well GL-MW-12 (with historical detections of vinyl chloride) was able to be adequately measured by the laboratory. Accordingly, vinyl chloride was not detected above the method detection limit (which is below Method A cleanup levels) in the sample collected from well GL-MW-12. A summary of the analytical results is presented in Table 1. The analytical laboratory reports and chain-of-custody documentation for the analyzed samples are attached as Appendix A.

## **Quality Assurance/Quality Control**

The laboratory validated the analytical procedures by processing laboratory-control samples and method-blank samples. Furthermore, one blind-duplicate sample was collected from well GL-MW-12. All results were within acceptable limits for QA/QC standards.

Laboratory QA/QC information also is included with the laboratory reports in Appendix A.

## **CONCLUSIONS**

Based on the information gathered during this sampling event, the perched-groundwater present at the Site remains in an anaerobic/reducing condition and is favorable for biodegradation of chlorinated-solvent contaminants. In addition, analytical results from well GL-MW-12 show that vinyl chloride has been successfully degraded to concentrations below cleanup levels and laboratory method-detection limits. G-Logics believes that this sample is representative of the Site-wide conditions and that this is the second quarter showing favorable analytical results.

G-Logics recommends continued groundwater sampling on a quarterly basis with upcoming sampling events planned for April and July 2017. Assuming four quarters of “clean” analytical results (concentrations below MTCA Method A cleanup levels), G-Logics will prepare the final Cleanup Action Report for the Gilman Square site in the summer/fall of 2017. The report will be submitted to Ecology with the request for a No Further Action determination.

## **LIMITATIONS**

The provided scope of services was intended to provide a quarterly assessment of groundwater conditions at the Site. This work was not designed to identify all potential concerns or to eliminate all risk. This work only included services specifically described above.

Land use, site conditions (both on-site and off-site), and other factors will change over time. Since site activities and regulations beyond our control could change at any time after the completion of this report, our observations, findings, and opinions can be considered valid only as of the date of the site sampling.

This report is prepared for the sole use of our client. The scope of services performed during this assessment may not be appropriate for the needs of other users. Re-use of this document or the findings, conclusions, or recommendations presented herein, are at the sole risk of said user(s). Non-compliance with any of these requirements will release G-Logics from any liability resulting from the use of this report by any unauthorized party.

The potentially responsible party is solely responsible for notifying all governmental agencies, and the public at large, of the existence, release, treatment, or disposal of any hazardous materials identified at the project site. G-Logics assumes no responsibility or liability whatsoever for any claim, loss of property value, damage, or injury which results from pre-existing hazardous materials being encountered or present on the project site, or from the discovery of such hazardous materials.

No warranty, either express or implied, is made.

## CLOSING

We appreciate this opportunity to provide our services on this project. Please contact us if you have questions regarding the conducted services or findings of this work.

Sincerely,  
**G-Logics, Inc.**



Rory L. Galloway, LG, LHG  
Principal



Stuart Hyde  
Project Geologist

cc Dan Shieder, Lennar

### Figures:

Figure 1: Site Location Maps  
Figure 2: Current Well Locations

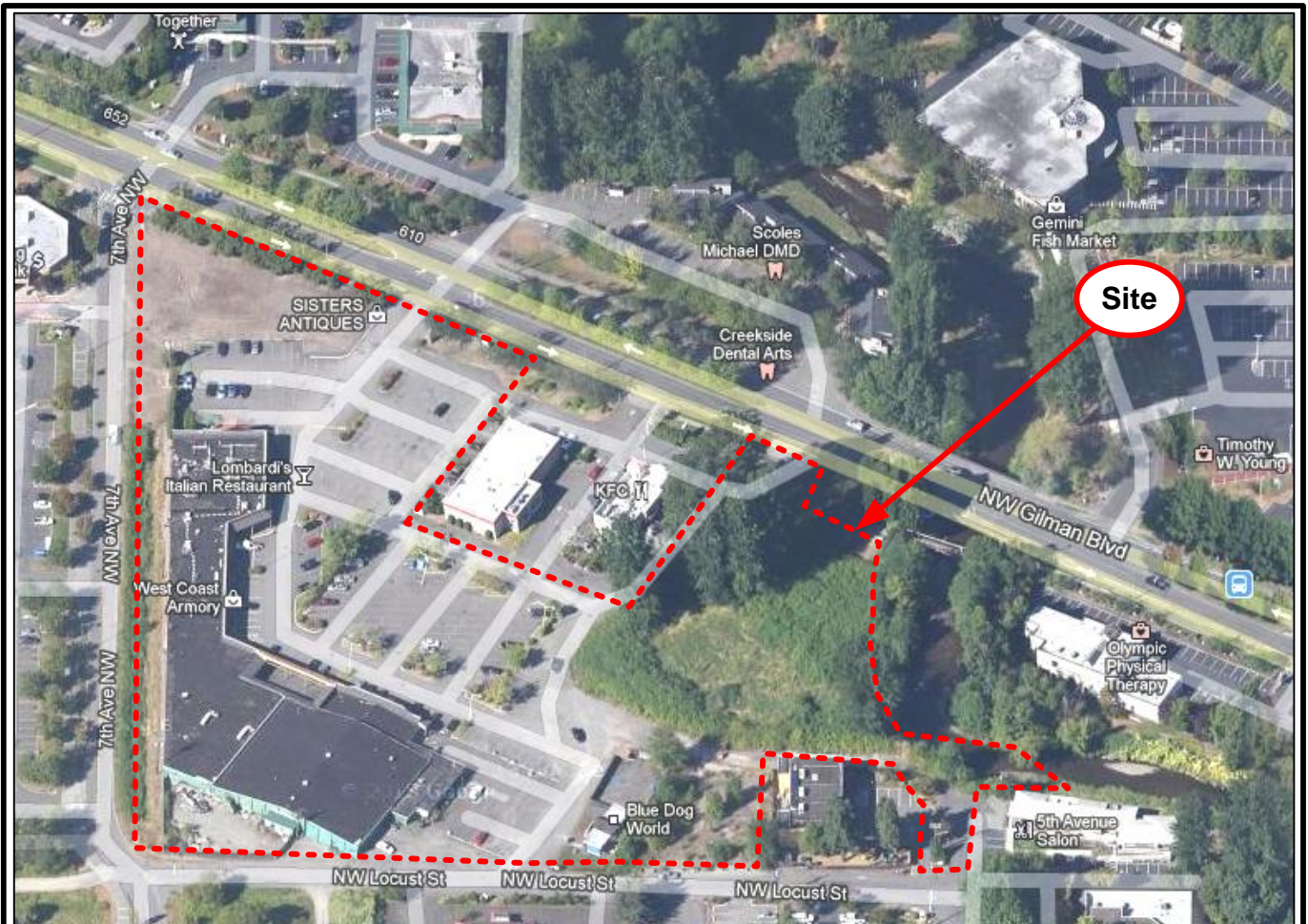
### Tables:

Table 1: Post Remedial Excavation, Groundwater Sample Analyses

### Appendices:

Appendix A: Laboratory Analytical Reports and Chain-of-Custody Documentation

# FIGURES



Aerial Photograph Taken in 2012



Mapping Reference: Delorme and Google Maps






*g-logics*

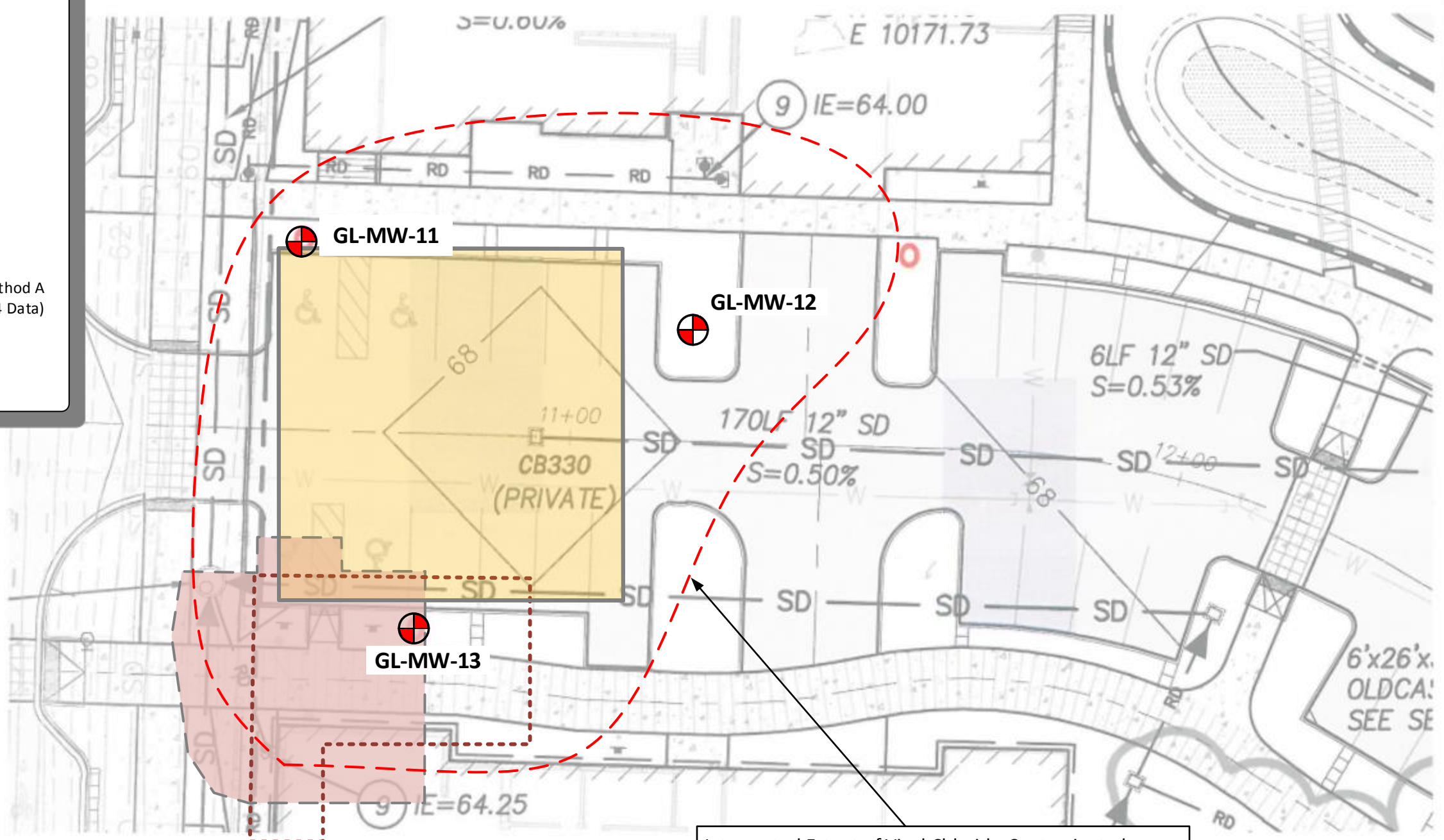
**Site Location Maps**  
**Gilman Square**  
**615 Northwest Gilman Blvd**  
**Issaquah, Washington**

**Figure**  
**1**



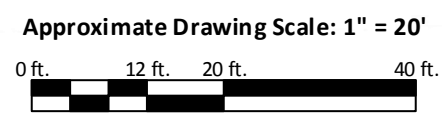
### Legend

-  Approximate Footprint of Former Drycleaner
-  Dewatering- System Excavation Boundary
-  Former Drycleaner Excavation Boundary
-  Original Interpreted Extent of Vinyl Chloride-Contaminated Groundwater (Above MTCA Method A Cleanup Level of 0.2 µg/L, Based on 2013/2014 Data)
-  G-Logics Well Location, Installed in 2015



Interpreted Extent of Vinyl Chloride-Contaminated Groundwater. Based on 2013 and 2014 Groundwater Data.

Note: This figure contains information in color. Black & white photocopies may not be suitable for review.



**Current Well Locations**  
**Gilman Square**  
 615 Northwest Gilman Blvd  
 Issaquah, Washington

Figure  
 2

Project File: 01-0868-J-GWQ2-F2.vsd



# TABLES



# **APPENDIX A**



3600 Fremont Ave. N.  
Seattle, WA 98103  
T: (206) 352-3790  
F: (206) 352-7178  
info@fremontanalytical.com

**G-Logics**

Stuart Hyde  
40 Second Ave. SE  
Issaquah, WA 98027

**RE: Gilman Square**  
**Work Order Number: 1701323**

February 03, 2017

**Attention Stuart Hyde:**

Fremont Analytical, Inc. received 5 sample(s) on 1/27/2017 for the analyses presented in the following report.

***Dissolved Gases by RSK-175***  
***Ion Chromatography by EPA Method 300.0***  
***Total Organic Carbon by SM 5310C***  
***Volatile Organic Compounds by EPA Method 8260C***

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

A handwritten signature in black ink, appearing to read "Mike C. Ridgeway", written in a cursive style.

Mike Ridgeway  
Laboratory Director

DoD/ELAP Certification #L2371, ISO/IEC 17025:2005  
ORELAP Certification: WA 100009-007 (NELAP Recognized)

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**CLIENT:** G-Logics**Project:** Gilman Square**Work Order:** 1701323**Work Order Sample Summary**

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<b>Lab Sample ID</b>	<b>Client Sample ID</b>	<b>Date/Time Collected</b>	<b>Date/Time Received</b>
1701323-001	GL-MW-11	01/26/2017 3:00 PM	01/27/2017 12:05 PM
1701323-002	GL-MW-12	01/26/2017 1:00 PM	01/27/2017 12:05 PM
1701323-003	GL-MW-13	01/26/2017 2:00 PM	01/27/2017 12:05 PM
1701323-004	GL-MW-Dup	01/26/2017 1:10 PM	01/27/2017 12:05 PM
1701323-005	Trip Blank	01/25/2017 9:40 AM	01/27/2017 12:05 PM

**CLIENT:** G-Logics  
**Project:** Gilman Square

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**I. SAMPLE RECEIPT:**

Samples receipt information is recorded on the attached Sample Receipt Checklist.

**II. GENERAL REPORTING COMMENTS:**

Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

**III. ANALYSES AND EXCEPTIONS:**

Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

### Qualifiers:

- \* - Flagged value is not within established control limits
- B - Analyte detected in the associated Method Blank
- D - Dilution was required
- E - Value above quantitation range
- H - Holding times for preparation or analysis exceeded
- I - Analyte with an internal standard that does not meet established acceptance criteria
- J - Analyte detected below Reporting Limit
- N - Tentatively Identified Compound (TIC)
- Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF)
- S - Spike recovery outside accepted recovery limits
- ND - Not detected at the Reporting Limit
- R - High relative percent difference observed

### Acronyms:

- %Rec - Percent Recovery
- CCB - Continued Calibration Blank
- CCV - Continued Calibration Verification
- DF - Dilution Factor
- HEM - Hexane Extractable Material
- ICV - Initial Calibration Verification
- LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
- MB or MBLANK - Method Blank
- MDL - Method Detection Limit
- MS/MSD - Matrix Spike / Matrix Spike Duplicate
- PDS - Post Digestion Spike
- Ref Val - Reference Value
- RL - Reporting Limit
- RPD - Relative Percent Difference
- SD - Serial Dilution
- SGT - Silica Gel Treatment
- SPK - Spike
- Surr - Surrogate



**Client:** G-Logics

**Collection Date:** 1/26/2017 3:00:00 PM

**Project:** Gilman Square

**Lab ID:** 1701323-001

**Matrix:** Groundwater

**Client Sample ID:** GL-MW-11

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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**Dissolved Gases by RSK-175**

Batch ID: R34245 Analyst: BC

Methane	4.71	0.100	D	mg/L	20	2/3/2017 12:07:00 PM
Ethene	ND	0.00500		mg/L	1	2/3/2017 11:57:00 AM
Ethane	ND	0.00500		mg/L	1	2/3/2017 11:57:00 AM

**Volatile Organic Compounds by EPA Method 8260C**

Batch ID: 16080 Analyst: NG

Vinyl chloride	ND	0.817	DMDL	µg/L	10	1/31/2017 3:46:20 AM
1,1-Dichloroethene	ND	0.356	DMDL	µg/L	10	1/31/2017 3:46:20 AM
trans-1,2-Dichloroethene	ND	0.446	DMDL	µg/L	10	1/31/2017 3:46:20 AM
cis-1,2-Dichloroethene	ND	0.609	DMDL	µg/L	10	1/31/2017 3:46:20 AM
Trichloroethene (TCE)	ND	0.454	DMDL	µg/L	10	1/31/2017 3:46:20 AM
Tetrachloroethene (PCE)	ND	0.359	DMDL	µg/L	10	1/31/2017 3:46:20 AM
Surr: Dibromofluoromethane	99.9	45.4-152	D	%Rec	10	1/31/2017 3:46:20 AM
Surr: Toluene-d8	97.9	40.1-139	D	%Rec	10	1/31/2017 3:46:20 AM
Surr: 1-Bromo-4-fluorobenzene	84.3	64.2-128	D	%Rec	10	1/31/2017 3:46:20 AM

**NOTES:**

MDL - Samples reported to Method Detection Limit (MDL)

Diluted due to matrix.

**Ion Chromatography by EPA Method 300.0**

Batch ID: R34132 Analyst: KT

Nitrite (as N)	ND	1.00	D	mg/L	10	1/27/2017 12:59:00 PM
Nitrate (as N)	ND	1.00	D	mg/L	10	1/27/2017 12:59:00 PM
Sulfate	9.23	3.00	D	mg/L	10	1/27/2017 12:59:00 PM

**NOTES:**

Diluted due to matrix.

Diluted due to high levels of non-target analytes.

**Total Organic Carbon by SM 5310C**

Batch ID: R34179 Analyst: KT

Total Organic Carbon	60.6	2.50	D	mg/L	5	1/30/2017 10:18:51 PM
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**Client:** G-Logics

**Collection Date:** 1/26/2017 1:00:00 PM

**Project:** Gilman Square

**Lab ID:** 1701323-002

**Matrix:** Groundwater

**Client Sample ID:** GL-MW-12

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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**Dissolved Gases by RSK-175**

Batch ID: R34245 Analyst: BC

Methane	0.516	0.0250	D	mg/L	5	2/3/2017 12:09:00 PM
Ethene	ND	0.00500		mg/L	1	2/3/2017 12:02:00 PM
Ethane	ND	0.00500		mg/L	1	2/3/2017 12:02:00 PM

**Volatile Organic Compounds by EPA Method 8260C**

Batch ID: 16080 Analyst: NG

Vinyl chloride	ND	0.0817	MDL	µg/L	1	1/31/2017 1:44:44 AM
1,1-Dichloroethene	ND	0.0356	MDL	µg/L	1	1/31/2017 1:44:44 AM
trans-1,2-Dichloroethene	ND	0.0446	MDL	µg/L	1	1/31/2017 1:44:44 AM
cis-1,2-Dichloroethene	ND	0.0609	MDL	µg/L	1	1/31/2017 1:44:44 AM
Trichloroethene (TCE)	ND	0.0454	MDL	µg/L	1	1/31/2017 1:44:44 AM
Tetrachloroethene (PCE)	0.447	0.0359	J MDL	µg/L	1	1/31/2017 1:44:44 AM
Surr: Dibromofluoromethane	99.3	45.4-152		%Rec	1	1/31/2017 1:44:44 AM
Surr: Toluene-d8	97.5	40.1-139		%Rec	1	1/31/2017 1:44:44 AM
Surr: 1-Bromo-4-fluorobenzene	93.9	64.2-128		%Rec	1	1/31/2017 1:44:44 AM

**NOTES:**

MDL - Samples reported to Method Detection Limit (MDL)

**Ion Chromatography by EPA Method 300.0**

Batch ID: R34132 Analyst: KT

Nitrite (as N)	ND	1.00	D	mg/L	10	1/27/2017 1:20:00 PM
Nitrate (as N)	ND	1.00	D	mg/L	10	1/27/2017 1:20:00 PM
Sulfate	31.6	3.00	D	mg/L	10	1/27/2017 1:20:00 PM

**Total Organic Carbon by SM 5310C**

Batch ID: R34179 Analyst: KT

Total Organic Carbon	21.1	2.50	D	mg/L	5	1/31/2017 9:25:39 AM
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**Client:** G-Logics

**Collection Date:** 1/26/2017 2:00:00 PM

**Project:** Gilman Square

**Lab ID:** 1701323-003

**Matrix:** Groundwater

**Client Sample ID:** GL-MW-13

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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**Dissolved Gases by RSK-175**

Batch ID: R34245 Analyst: BC

Methane	0.163	0.00500		mg/L	1	2/3/2017 12:04:00 PM
Ethene	ND	0.00500		mg/L	1	2/3/2017 12:04:00 PM
Ethane	ND	0.00500		mg/L	1	2/3/2017 12:04:00 PM

**Volatile Organic Compounds by EPA Method 8260C**

Batch ID: 16080 Analyst: NG

Vinyl chloride	ND	0.817	DMDL	µg/L	10	1/31/2017 4:16:48 AM
1,1-Dichloroethene	ND	0.356	DMDL	µg/L	10	1/31/2017 4:16:48 AM
trans-1,2-Dichloroethene	ND	0.446	DMDL	µg/L	10	1/31/2017 4:16:48 AM
cis-1,2-Dichloroethene	ND	0.609	DMDL	µg/L	10	1/31/2017 4:16:48 AM
Trichloroethene (TCE)	ND	0.454	DMDL	µg/L	10	1/31/2017 4:16:48 AM
Tetrachloroethene (PCE)	ND	0.359	DMDL	µg/L	10	1/31/2017 4:16:48 AM
Surr: Dibromofluoromethane	99.5	45.4-152	D	%Rec	10	1/31/2017 4:16:48 AM
Surr: Toluene-d8	96.7	40.1-139	D	%Rec	10	1/31/2017 4:16:48 AM
Surr: 1-Bromo-4-fluorobenzene	95.1	64.2-128	D	%Rec	10	1/31/2017 4:16:48 AM

**NOTES:**

MDL - Samples reported to Method Detection Limit (MDL)

Diluted due to matrix.

**Ion Chromatography by EPA Method 300.0**

Batch ID: R34132 Analyst: KT

Nitrite (as N)	ND	0.500	D	mg/L	5	1/27/2017 1:09:00 PM
Nitrate (as N)	ND	0.500	D	mg/L	5	1/27/2017 1:09:00 PM
Sulfate	5.88	1.50	D	mg/L	5	1/27/2017 1:09:00 PM

**NOTES:**

Diluted due to matrix.

**Total Organic Carbon by SM 5310C**

Batch ID: R34179 Analyst: KT

Total Organic Carbon	18.0	1.00	D	mg/L	2	1/30/2017 11:56:41 PM
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**NOTES:**

Diluted due to matrix.



**Client:** G-Logics

**Collection Date:** 1/26/2017 1:10:00 PM

**Project:** Gilman Square

**Lab ID:** 1701323-004

**Matrix:** Groundwater

**Client Sample ID:** GL-MW-Dup

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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**Volatile Organic Compounds by EPA Method 8260C**

Batch ID: 16080

Analyst: NG

Vinyl chloride	ND	0.0817	MDL	µg/L	1	1/31/2017 2:15:06 AM
1,1-Dichloroethene	ND	0.0356	MDL	µg/L	1	1/31/2017 2:15:06 AM
trans-1,2-Dichloroethene	ND	0.0446	MDL	µg/L	1	1/31/2017 2:15:06 AM
cis-1,2-Dichloroethene	ND	0.0609	MDL	µg/L	1	1/31/2017 2:15:06 AM
Trichloroethene (TCE)	ND	0.0454	MDL	µg/L	1	1/31/2017 2:15:06 AM
Tetrachloroethene (PCE)	0.418	0.0359	J MDL	µg/L	1	1/31/2017 2:15:06 AM
Surr: Dibromofluoromethane	102	45.4-152		%Rec	1	1/31/2017 2:15:06 AM
Surr: Toluene-d8	98.0	40.1-139		%Rec	1	1/31/2017 2:15:06 AM
Surr: 1-Bromo-4-fluorobenzene	94.1	64.2-128		%Rec	1	1/31/2017 2:15:06 AM

**NOTES:**

MDL - Samples reported to Method Detection Limit (MDL)

Work Order: 1701323  
 CLIENT: G-Logics  
 Project: Gilman Square

**QC SUMMARY REPORT**  
 Dissolved Gases by RSK-175

Sample ID	<b>LCS-R34245</b>	SampType:	<b>LCS</b>	Units:	<b>mg/L</b>	Prep Date:	<b>2/3/2017</b>	RunNo:	<b>34245</b>		
Client ID:	<b>LCSW</b>	Batch ID:	<b>R34245</b>			Analysis Date:	<b>2/3/2017</b>	SeqNo:	<b>652806</b>		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Methane	465	0.00500	500.0	0	93.0	80	120				
Ethene	476	0.00500	500.0	0	95.3	80	120				
Ethane	477	0.00500	500.0	0	95.4	80	120				

Sample ID	<b>MB-R34245</b>	SampType:	<b>MBLK</b>	Units:	<b>mg/L</b>	Prep Date:	<b>2/3/2017</b>	RunNo:	<b>34245</b>		
Client ID:	<b>MBLKW</b>	Batch ID:	<b>R34245</b>			Analysis Date:	<b>2/3/2017</b>	SeqNo:	<b>652807</b>		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Methane	ND	0.00500									
Ethene	ND	0.00500									
Ethane	ND	0.00500									

Sample ID	<b>1701323-001BREP</b>	SampType:	<b>REP</b>	Units:	<b>mg/L</b>	Prep Date:	<b>2/3/2017</b>	RunNo:	<b>34245</b>		
Client ID:	<b>GL-MW-11</b>	Batch ID:	<b>R34245</b>			Analysis Date:	<b>2/3/2017</b>	SeqNo:	<b>652800</b>		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Methane	3.18	0.00500						3.128	1.66	30	E
Ethene	ND	0.00500						0		0	
Ethane	ND	0.00500						0		0	

**NOTES:**

E - Estimated value. The amount exceeds the linear working range of the instrument.

Work Order: 1701323  
 CLIENT: G-Logics  
 Project: Gilman Square

**QC SUMMARY REPORT**  
 Ion Chromatography by EPA Method 300.0

Sample ID	<b>MB-R34132</b>	SampType:	<b>MBLK</b>	Units:	<b>mg/L</b>	Prep Date:	<b>1/27/2017</b>	RunNo:	<b>34132</b>		
Client ID:	<b>MBLKW</b>	Batch ID:	<b>R34132</b>			Analysis Date:	<b>1/27/2017</b>	SeqNo:	<b>649953</b>		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Nitrite (as N)	ND	0.100									
Nitrate (as N)	ND	0.100									
Sulfate	ND	0.300									

Sample ID	<b>LCS-R34132</b>	SampType:	<b>LCS</b>	Units:	<b>mg/L</b>	Prep Date:	<b>1/27/2017</b>	RunNo:	<b>34132</b>		
Client ID:	<b>LCSW</b>	Batch ID:	<b>R34132</b>			Analysis Date:	<b>1/27/2017</b>	SeqNo:	<b>649954</b>		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Nitrite (as N)	1.46	0.100	1.500	0	97.5	90	110				
Nitrate (as N)	1.45	0.100	1.500	0	96.5	90	110				
Sulfate	7.12	0.300	7.500	0	94.9	90	110				

Sample ID	<b>1701323-003DDUP</b>	SampType:	<b>DUP</b>	Units:	<b>mg/L</b>	Prep Date:	<b>1/27/2017</b>	RunNo:	<b>34132</b>		
Client ID:	<b>GL-MW-13</b>	Batch ID:	<b>R34132</b>			Analysis Date:	<b>1/27/2017</b>	SeqNo:	<b>649958</b>		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Nitrite (as N)	ND	0.500						0		20	D
Nitrate (as N)	ND	0.500						0		20	D
Sulfate	5.92	1.50						5.884	0.534	20	D

Sample ID	<b>1701323-003DMS</b>	SampType:	<b>MS</b>	Units:	<b>mg/L</b>	Prep Date:	<b>1/27/2017</b>	RunNo:	<b>34132</b>		
Client ID:	<b>GL-MW-13</b>	Batch ID:	<b>R34132</b>			Analysis Date:	<b>1/27/2017</b>	SeqNo:	<b>649959</b>		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Nitrite (as N)	7.32	0.500	7.500	0	97.5	80	120				D
Nitrate (as N)	7.21	0.500	7.500	0	96.1	80	120				D
Sulfate	44.4	1.50	37.50	5.884	103	80	120				D



**Work Order:** 1701323  
**CLIENT:** G-Logics  
**Project:** Gilman Square

**QC SUMMARY REPORT**  
**Ion Chromatography by EPA Method 300.0**

Sample ID	<b>1701323-003DMSD</b>	SampType:	<b>MSD</b>	Units:	<b>mg/L</b>	Prep Date:	<b>1/27/2017</b>	RunNo:	<b>34132</b>		
Client ID:	<b>GL-MW-13</b>	Batch ID:	<b>R34132</b>			Analysis Date:	<b>1/27/2017</b>	SeqNo:	<b>649960</b>		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrite (as N)	7.48	0.500	7.500	0	99.8	80	120	7.316	2.24	20	D
Nitrate (as N)	7.26	0.500	7.500	0	96.8	80	120	7.208	0.705	20	D
Sulfate	44.0	1.50	37.50	5.884	102	80	120	44.35	0.841	20	D



**Work Order:** 1701323  
**CLIENT:** G-Logics  
**Project:** Gilman Square

**QC SUMMARY REPORT**  
**Total Organic Carbon by SM 5310C**

Sample ID <b>1701310-001ADUP</b>	SampType: <b>DUP</b>	Units: <b>mg/L</b>			Prep Date: <b>1/31/2017</b>	RunNo: <b>34179</b>					
Client ID: <b>BATCH</b>	Batch ID: <b>R34179</b>				Analysis Date: <b>1/31/2017</b>	SeqNo: <b>651079</b>					
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Organic Carbon	12.5	2.50						13.52	7.56	20	D

**NOTES:**

Diluted due to matrix.

Sample ID <b>1701310-001AMS</b>	SampType: <b>MS</b>	Units: <b>mg/L</b>			Prep Date: <b>1/31/2017</b>	RunNo: <b>34179</b>					
Client ID: <b>BATCH</b>	Batch ID: <b>R34179</b>				Analysis Date: <b>1/31/2017</b>	SeqNo: <b>651080</b>					
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Organic Carbon	33.6	2.50	25.00	13.52	80.5	70	130				D

**NOTES:**

Diluted due to matrix.

**Work Order:** 1701323  
**CLIENT:** G-Logics  
**Project:** Gilman Square

**QC SUMMARY REPORT**  
**Volatile Organic Compounds by EPA Method 8260C**

Sample ID	<b>LCS-16080</b>	SampType:	<b>LCS</b>	Units:	<b>µg/L</b>	Prep Date:	<b>1/30/2017</b>	RunNo:	<b>34173</b>		
Client ID:	<b>LCSW</b>	Batch ID:	<b>16080</b>			Analysis Date:	<b>1/30/2017</b>	SeqNo:	<b>650904</b>		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Vinyl chloride	17.9	0.200	20.00	0	89.5	48	145				
1,1-Dichloroethene	20.0	1.00	20.00	0	100	65.6	136				
trans-1,2-Dichloroethene	20.2	1.00	20.00	0	101	71.7	129				
cis-1,2-Dichloroethene	20.6	1.00	20.00	0	103	70.2	139				
Trichloroethene (TCE)	20.6	0.500	20.00	0	103	65.2	136				
Tetrachloroethene (PCE)	19.7	1.00	20.00	0	98.7	47.5	147				
Surr: Dibromofluoromethane	25.9		25.00		104	45.4	152				
Surr: Toluene-d8	25.9		25.00		103	40.1	139				
Surr: 1-Bromo-4-fluorobenzene	26.1		25.00		104	64.2	128				

Sample ID	<b>MB-16080</b>	SampType:	<b>MBLK</b>	Units:	<b>µg/L</b>	Prep Date:	<b>1/30/2017</b>	RunNo:	<b>34173</b>		
Client ID:	<b>MBLKW</b>	Batch ID:	<b>16080</b>			Analysis Date:	<b>1/30/2017</b>	SeqNo:	<b>650905</b>		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Vinyl chloride	ND	0.200									
1,1-Dichloroethene	ND	1.00									
trans-1,2-Dichloroethene	ND	1.00									
cis-1,2-Dichloroethene	ND	1.00									
Trichloroethene (TCE)	ND	0.500									
Tetrachloroethene (PCE)	ND	1.00									
Surr: Dibromofluoromethane	24.6		25.00		98.6	45.4	152				
Surr: Toluene-d8	24.1		25.00		96.6	40.1	139				
Surr: 1-Bromo-4-fluorobenzene	20.6		25.00		82.4	64.2	128				

**NOTES:**

Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Sample ID	<b>1701288-003ADUP</b>	SampType:	<b>DUP</b>	Units:	<b>µg/L</b>	Prep Date:	<b>1/30/2017</b>	RunNo:	<b>34173</b>		
Client ID:	<b>BATCH</b>	Batch ID:	<b>16080</b>			Analysis Date:	<b>1/31/2017</b>	SeqNo:	<b>650891</b>		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Vinyl chloride	ND	0.200						0		30	

Work Order: 1701323  
 CLIENT: G-Logics  
 Project: Gilman Square

**QC SUMMARY REPORT**  
**Volatile Organic Compounds by EPA Method 8260C**

Sample ID	<b>1701288-003ADUP</b>	SampType:	<b>DUP</b>	Units:	<b>µg/L</b>	Prep Date:	<b>1/30/2017</b>	RunNo:	<b>34173</b>		
Client ID:	<b>BATCH</b>	Batch ID:	<b>16080</b>			Analysis Date:	<b>1/31/2017</b>	SeqNo:	<b>650891</b>		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1-Dichloroethene	ND	1.00						0		30	
trans-1,2-Dichloroethene	ND	1.00						0		30	
cis-1,2-Dichloroethene	ND	1.00						0		30	
Trichloroethene (TCE)	ND	0.500						0		30	
Tetrachloroethene (PCE)	ND	1.00						0		30	
Surr: Dibromofluoromethane	25.0		25.00		100	45.4	152		0		
Surr: Toluene-d8	24.3		25.00		97.3	40.1	139		0		
Surr: 1-Bromo-4-fluorobenzene	23.6		25.00		94.4	64.2	128		0		

**NOTES:**

Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Sample ID	<b>1701326-001AMS</b>	SampType:	<b>MS</b>	Units:	<b>µg/L</b>	Prep Date:	<b>1/30/2017</b>	RunNo:	<b>34173</b>		
Client ID:	<b>BATCH</b>	Batch ID:	<b>16080</b>			Analysis Date:	<b>1/31/2017</b>	SeqNo:	<b>650898</b>		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Vinyl chloride	22.0	0.200	20.00	0	110	41	165				
1,1-Dichloroethene	21.9	1.00	20.00	0	110	51.6	164				
trans-1,2-Dichloroethene	22.2	1.00	20.00	0	111	63.5	138				
cis-1,2-Dichloroethene	21.4	1.00	20.00	0	107	67.1	123				
Trichloroethene (TCE)	21.6	0.500	20.00	0	108	60.4	134				
Tetrachloroethene (PCE)	21.6	1.00	20.00	0	108	50.3	133				
Surr: Dibromofluoromethane	25.9		25.00		104	45.4	152				
Surr: Toluene-d8	26.0		25.00		104	40.1	139				
Surr: 1-Bromo-4-fluorobenzene	25.9		25.00		104	64.2	128				

Sample ID	<b>1701326-001AMSD</b>	SampType:	<b>MSD</b>	Units:	<b>µg/L</b>	Prep Date:	<b>1/30/2017</b>	RunNo:	<b>34173</b>		
Client ID:	<b>BATCH</b>	Batch ID:	<b>16080</b>			Analysis Date:	<b>1/31/2017</b>	SeqNo:	<b>650899</b>		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Vinyl chloride	21.9	0.200	20.00	0	109	41	165	22.03	0.592	30	
1,1-Dichloroethene	22.3	1.00	20.00	0	111	51.6	164	21.94	1.48	30	

**Work Order:** 1701323  
**CLIENT:** G-Logics  
**Project:** Gilman Square

**QC SUMMARY REPORT**  
**Volatile Organic Compounds by EPA Method 8260C**

Sample ID	<b>1701326-001AMSD</b>	SampType:	<b>MSD</b>	Units:	<b>µg/L</b>	Prep Date:	<b>1/30/2017</b>	RunNo:	<b>34173</b>		
Client ID:	<b>BATCH</b>	Batch ID:	<b>16080</b>			Analysis Date:	<b>1/31/2017</b>	SeqNo:	<b>650899</b>		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
trans-1,2-Dichloroethene	21.8	1.00	20.00	0	109	63.5	138	22.24	1.80	30	
cis-1,2-Dichloroethene	21.4	1.00	20.00	0	107	67.1	123	21.37	0.134	30	
Trichloroethene (TCE)	21.9	0.500	20.00	0	109	60.4	134	21.61	1.12	30	
Tetrachloroethene (PCE)	21.8	1.00	20.00	0	109	50.3	133	21.59	0.894	30	
Surr: Dibromofluoromethane	25.7		25.00		103	45.4	152		0		
Surr: Toluene-d8	26.1		25.00		104	40.1	139		0		
Surr: 1-Bromo-4-fluorobenzene	25.8		25.00		103	64.2	128		0		

Client Name: **GL**  
 Logged by: **Clare Griggs**

Work Order Number: **1701323**  
 Date Received: **1/27/2017 12:05:00 PM**

**Chain of Custody**

1. Is Chain of Custody complete? Yes  No  Not Present   
 2. How was the sample delivered? Client

**Log In**

3. Coolers are present? Yes  No  NA   
 4. Shipping container/cooler in good condition? Yes  No   
 5. Custody Seals present on shipping container/cooler?  
 (Refer to comments for Custody Seals not intact) Yes  No  Not Required   
 6. Was an attempt made to cool the samples? Yes  No  NA   
 7. Were all items received at a temperature of >0°C to 10.0°C \* Yes  No  NA   
 8. Sample(s) in proper container(s)? Yes  No   
 9. Sufficient sample volume for indicated test(s)? Yes  No   
 10. Are samples properly preserved? Yes  No   
 11. Was preservative added to bottles? Yes  No  NA   
 12. Is there headspace in the VOA vials? Yes  No  NA   
 13. Did all samples containers arrive in good condition(unbroken)? Yes  No   
 14. Does paperwork match bottle labels? Yes  No   
 15. Are matrices correctly identified on Chain of Custody? Yes  No   
 16. Is it clear what analyses were requested? Yes  No   
 17. Were all holding times able to be met? Yes  No

**Special Handling (if applicable)**

18. Was client notified of all discrepancies with this order? Yes  No  NA

Person Notified:	<input type="text" value="Stuart Hyde"/>	Date	<input type="text" value="1/27/2017"/>
By Whom:	<input type="text" value="Clare Griggs"/>	Via:	<input type="checkbox"/> eMail <input checked="" type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	<input type="text" value="Confirming sample names/analysis."/>		
Client Instructions:	<input type="text"/>		

19. Additional remarks:

**Item Information**

Item #	Temp °C
Cooler	0.7
Sample	0.2
Temp Blank	0.9

\* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

