Former Griffin Technology Site
6132 Victor Manchester Road
Farmington, New York
BCP Site #C835008

Engineering Control Implementation Work Plan

Prepared for:
FLARE Center, LLC

Prepared By:

Lu Engineers
ENVIRONMENTAL • TRANSPORTATION • CIVIL
175 Sully's Trail, Suite 202
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Pittsford, NY 14534

September 2014

Engineering Control Implementation Work Plan

Former Griffin Technology Site
6132 Victor Manchester Road
Farmington, New York
BCP Site #C835008

I, _____, certify that I am currently a NYS registered professional engineer and that this Interim Remedial Measures Work Plan was prepared in accordance with applicable statutes and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10).

_____
Robert W. Hutteman, P.E.
Project Director (NYS P.E. License #)
Lu Engineers

_____
Gregory Andrus, CHMM
Project Manager
Lu Engineers

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1.0 Introduction

Lu Engineers has prepared this Interim Remedial Measures (IRM) Work Plan on behalf of Mr. Robin Hays, owner of the former Griffin Technology Site; for approval by the New York State Department of Environmental Conservation (NYSDEC) Division of Environmental Remediation (DER). This plan has been prepared in accordance with NYSDEC Department of Environmental Restoration DER-10 "Technical Guidance for Site Investigation and Remediation".

This work plan provides a scope of work for completion of supplemental engineering controls (ECs) to mitigate the migration of dissolved phase chlorinated solvents from the subject Site to the southwest. The NYSDEC Region 8 Division of Environmental Remediation is requiring the Site owner to implement this engineering control program.

Implementation of the effort described in this Work Plan will result in the reduction of concentrations of groundwater contamination within soil and bedrock at the Site. The findings of previous investigations and remedial efforts were used to determine appropriate remedial measures necessary to address indentified exceedances 6 NYCRR Part 703 Class GA Groundwater Standards for trichloroethene (TCE) and its degradation products cis-1,2-dichloroethene (DCE), 1,1-DCE and vinyl chloride (VC). Concentrations of 1,1,1-trichloroethane (TCA) and its degradation product 1,1-dichloroethane (DCA) will also be reduced by the selected remedial approach.

1.1 Site Description

The Former Griffin Technology property (Site) is located at 6132 Victor-Manchester Road, Ontario County, Farmington, New York. The location of the Site is indicated on the Site Location Map (Figure 1). The Site Plan (Figure 2) provides detail on the Site layout as well as the location of wells and other features.

The Brownfield Cleanup Agreement (BCA) describes the Site as consisting of Tax Parcel 29.00-1-12 and the southern quarter of parcel 29.00-1-76-1. The Site is bordered by a wooded area to the north, Victor-Manchester Road to the south, a wooded area to the east, and an auto-repair facility to the west.

1.2 Site History

Griffin Technology operated on the Site from 1975 until the mid-1990s performing photo coating (laminating) operations. TCE was believed to be present in liquid waste that was released onto the ground outside the western door of the Site building from approximately 1975 until 1986. It is estimated that a total of approximately 490 gallons of waste was released in 5 gallon increments over that time frame (BB&L, July 1991).

The contaminated waste liquid evidently migrated downward through the soil in the release area located in the vicinity of ROW-2 (Figure 2) and into the groundwater. Dissolved and likely free-phase waste liquid subsequently migrated down gradient toward the south west,

consistent with the direction of groundwater flow. TCE has been detected in Site bedrock located at an average depth of approximately ten (10) feet below grade.

A network of seventeen groundwater monitoring wells are present on the Site, which were used to horizontally and vertically delineate the TCE plume affecting both overburden and bedrock. A groundwater recovery system was implemented at the Site in 1997, in accordance with a 1996 IRM Work Plan (Woodward-Clyde, 1996). Three (3) recovery wells screened into bedrock across the overburden/bedrock interface, began operating in 1997. A forth recovery well went into operation in 1999. The recovery system operated for ten years. Although groundwater analytical results indicated a diminished extent of groundwater contamination, concentrations of contaminants of concern still exceeded Class GA groundwater quality standards, indicating that the recovery system may have reached its performance limits.

The Site was admitted in the BCP, in 2007, the groundwater recovery system was deactivated, and an ISCO was applied in accordance with an NYSDEC-approved Remedial Design Document. An aqueous solution containing approximately 13,530 pounds of potassium permanganate was injected into fifteen injection wells at the Site between July and September 2008. On-Site observation wells indicated that the potassium permanganate solution had dispersed across majority of the Site. Quarterly groundwater monitoring was implemented at the Site following ISCO implementation, in accordance with a NYSDEC-approved Site Management Plan (SMP). Eight quarterly rounds of groundwater samples have been collected to date.

The latest round of sampling and laboratory analysis was completed in November 2013. Results from this sampling event indicate that levels of TCE and other contaminants of concern have re-bounded to levels observed prior to the permanganate injection program. The failure of the permanganate injection to adequately reduce levels of target contaminants has necessitated consideration of alternative remedial methods to more effectively mitigate groundwater contamination at the Site.

1.3 Previous Site Assessments and Investigations

Previous environmental work includes, but is not limited to the following:

- Interim Remedial Measures Work Plan (IRM) 1996 by Woodward-Clyde
- Three (3) recovery wells screened in bedrock across the overburden/bedrock interface began operation in 1997
- Forth recovery well went into operation in 1999
- Admitted to BCP in 2007
- ISCO applied w/ NYSDEC-approved Remedial Design Document by SWRNA in 2008
- Site Management Plan (SMP) 2008
- Site Management Plan Periodic Review Report, S&W Redevelopment of North America, LLC in 2011
- Corrective Measure Plan (CMP) by Labella in 2012
- Final well sampling report (Test America, November 2013)

2.0 Summary of Environmental Conditions

Lu Engineers has relied on available documentation, as noted in Section 1.3, to ascertain the current nature and extent of contamination at the subject Site. In particular, the findings of the November 2013 groundwater sampling event are used as a basis for determining an effective treatment technology. A copy of this laboratory report is included as Appendix 1.

In an effort to understand the Site's indigenous microbial population in groundwater, three samples were obtained and relinquished to Microbial Insights, Inc. for microbial "Census" analysis. This analysis revealed the presence of several species of dechlorinating bacteria at low concentrations. A copy of this analytical report is included as Appendix 2. It is inferred that the low levels of these microbes identified may be due to the permanganate injection program, which indiscriminately oxidizes all organic materials coming into contact with the remedial agent. The presence of these bacteria, even in the relatively low levels identified, indicates the potential for enhancement of microbial degradation of groundwater contaminants. Technologies for enhancement of microbial degradation were therefore evaluated in the context of available data on subsurface conditions at the Site.

The following sections briefly summarize the findings of the previous investigations and EBS and RI/FS activities conducted to date and provide a detailed analysis of the nature and extent of contaminated media requiring remediation. A more complete description of the current status of the investigation process relative to the Former Griffin Technology Site can be found in the documentation of previous investigations referenced herein.

2.1 Definition of IRM Areas of Concern

Previous investigations have identified the affected area of the property as the portion of 6132 NY Route 96 located to immediate west of the former Griffin Technology building. This portion of the property has been legally subdivided as indicated on Figure 2. No remedial effort outside of the boundaries of this parcel is planned at the present time. Figure 3 provides additional detail on the distribution of contaminants of concern in Site groundwater.

2.2 Standards, Criteria, and Guidance

In addition to mitigating off-Site migration of groundwater contamination, the intent of the planned remedial effort is to reduce concentrations of Site contaminants of concern to below the applicable standards (Site Cleanup Objectives (SCOs)) listed in 6NYCRR Part 703 as follows:

Table 2.2 SCOs

Substance	CAS No.	Max. Allowed Conc. (ug/L)*
1,1,1-trichloroethane	71-55-6	5 ug/L
1,1-dichloroethane	75-34-3	5 ug/L
1,1-dichloroethene	75-35-4	5 ug/L
cis-1,2-dichloroethene	156-59-2	5 ug/L
vinyl chloride	75-01-4	2 ug/L
trichloroethene	79-01-6	5 ug/L

* Class GA Standards 6NYCRR Part 703

3.0 Alternatives Analysis Summary

An alternatives analysis was completed prior to implementation of the previous remedial strategy including permanganate injection. The permanganate injection program failed to adequately reduce chlorinated solvent concentrations in groundwater such that off-Site migration would be mitigated. The presence of dechlorinating bacteria in Site groundwater indicates the fact that the contaminants of concern are being degraded by natural attenuation and microbial consumption. Based on research and discussions with the NYSDEC, emulsified vegetable oil (EVO) is considered a viable approach to enhance the microbial degradation process by introducing nutrients into the groundwater to encourage bacterial consumption of the target Site contaminants. A detailed description of the material planned for the current injection program is included as Appendix 3.

It is understood that the NYSDEC's primary concern with respect to the subject Site is the prevention of off-Site migration of contaminants via downgradient groundwater flow. It is contended that injection of EVO throughout the affected area of the Site will mitigate the downgradient migration of contaminants by reducing and/or eliminating contaminant concentrations through the process of microbial degradation.

4.0 Scope of Work

The scope of work for this project includes the injection of a total of 640 gallons of EVO into the injection wells located at the Site. This quantity of EVO was determined based on the United States Department of Defense Environmental Security Technology Certification Program (ESTCP) document entitled "Protocol for Enhanced In-Situ Bioremediation Using Emulsified Edible Oil", dated May 2006. This document includes a spreadsheet for calculating the mass balance for remediation of various contaminants using EVO. Parameters used to populate this spreadsheet were obtained from previous Site reports. A copy of the spreadsheet used for determining the volume required for the subject Site is attached as Appendix 4.

Lu Engineers plans to inject the EVO into the 14 Site injection wells (IW-1 through 14). The material will be mixed and injected using a Geoprobe, Inc. "Geopump" by Trec Environmental Services, Inc.. The volume injected into each point will be based on the level of contamination identified in the area of each IW during the November 2013 sampling event and the ability of each well to accept the EVA material. The wells located immediately upgradient of the highest concentrations of chlorinated solvents (IW-4, 5 and 6) will be targeted for proportionally larger volumes of EVO due to their strategic location.

The EVO injections will take place one month apart to allow the material to permeate the aquifer prior to the second application. A total of 320 gallons of EVO will be injected during each event. The first confirmatory sampling round will be completed two months following the second injection event and will include OW-1 through 9 (9 samples total). Groundwater will be sampled in accordance with all applicable protocols and analyzed for VOCs by EPA Method 8260. A second sampling round will be completed three months after the first and will include the same wells and analytes. Based on the results of this sampling effort, the success of the

remedial approach will be reviewed with project stakeholders including the NYSDEC to determine future sampling frequency and/or the possible need for additional remedial effort.

The Site limits are defined as indicated in the attached mapping (Figure 2). No permanent equipment or facilities will be constructed or installed as part of the remedial process. Equipment and materials will be mobilized and demobilized to and from the Site as part of each injection event and subsequent sampling.

The project schedule is planned as follows:

Table 4.0 Schedule

MONTH / Remedial Task	1	2	3	4	5	6	7
Initial EVO Injection							
Second EVO Injection							
Initial Post-Injection Groundwater Sampling							
Second Post Injection Groundwater Sampling							

5.0 Geographic Information System Database

A GIS database will be used identify, track, and document the IRM activities as they progress. The database will also prove to be an efficient vehicle for location of IRM areas and evaluating data from previous investigations. The scope of work will include incorporating the current geodatabase into an updated spatial database with an interactive GIS map. Data will be submitted to NYSDEC electronically and compliant with the NYSDEC's EQuIS system.

6.0 QA/QC Protocols

Lu Engineers is responsible for the project management, coordination and scheduling, subcontracting, and quality assurance/quality control (QA/QC) of IRM activities. General QA/QC procedures, including sample preparation and holding times, are described in the QAPP included as Appendix 5.

Samples will be obtained, handled and characterized in accordance with NYSDEC Analytical Services Protocol (ASP) methods. Once obtained, samples will be immediately labeled and stored on ice in a cooler. Analytical work will be performed by an appropriately qualified New York State Department of Health (NYSDOH) Environmental Laboratory Approval Plan (ELAP) accredited, Contract Laboratory Protocol (CLP) certified subcontracted laboratory. The

subcontracted laboratory will be accredited for the category of parameters analyzed, as outlined in DER-10, Section 2.1. Analytical methods reflect the requirements of the NYSDEC ASP, revised July 2005. Chain-of-custody requirements will be strictly adhered to for designated analyses.

A listing of anticipated samples, analytes, methods, and QA/QC samples to be collected during this project is included in the attached QAPP. The QAPP protocols will not be deviated from except to collect additional samples, if necessary.

7.0 Health and Safety

A Site-specific HASP has been prepared for this project and is included as Appendix 6. The HASP will be reviewed by all employees visiting the Site before starting Site work. Other entities can adopt the protocols set forth in the HASP, or can develop their own HASP which must be submitted to the NYSDEC. Monitoring of the work area and screening of soil and groundwater will be conducted throughout the duration of IRM activities using the following (or equivalent) instrumentation:

- TSI Dustrak, Sidepack or equivalent for particulate monitoring, as necessary
- EntryRAE Multi-Gas Monitor (or equivalent), as necessary
- MiniRAE 3000 PID equipped with a 10.2 eV or 10.6 eV lamp, as necessary.

Air monitoring at the Site will be continuous during ground intrusive activities and during the demolition of building slabs and asphalt pavement. Air monitoring will be periodic during non-intrusive activities. A written CAMP is provided as Appendix 7.

All workers on-Site will have completed the Occupational Health and Safety (OSHA) 40-hour Hazardous Waste Operations (HAZWOPER) training with current refresher courses. A copy of the HASP will be available on-Site at all times during the IRM activities.
Professional personnel entering the Site will have current OSHA HAZWOPER Certifications. Non-professional personnel will maintain OSHA 10-hour Certifications, at a minimum.

8.0 Engineering Control Implementation Report

Upon receipt and review of data from the second post-injection sampling event, a brief report will be prepared including:

- A discussion of the remedial work completed;
- Site Plan(s) with locations of remedial activities;
- Quantities of materials used;
- Photographs;
- Tabulated and mapped post-injection groundwater sampling results, including comparison to Class GA Groundwater Standards; and
- Laboratory analytical reports and chain-of-custody forms.

FIGURES

Former Griffin Technology Site
6132 Victor Manchester Road
Farmington, New York
BCP Site #C835008

Engineering Control Implementation Work Plan

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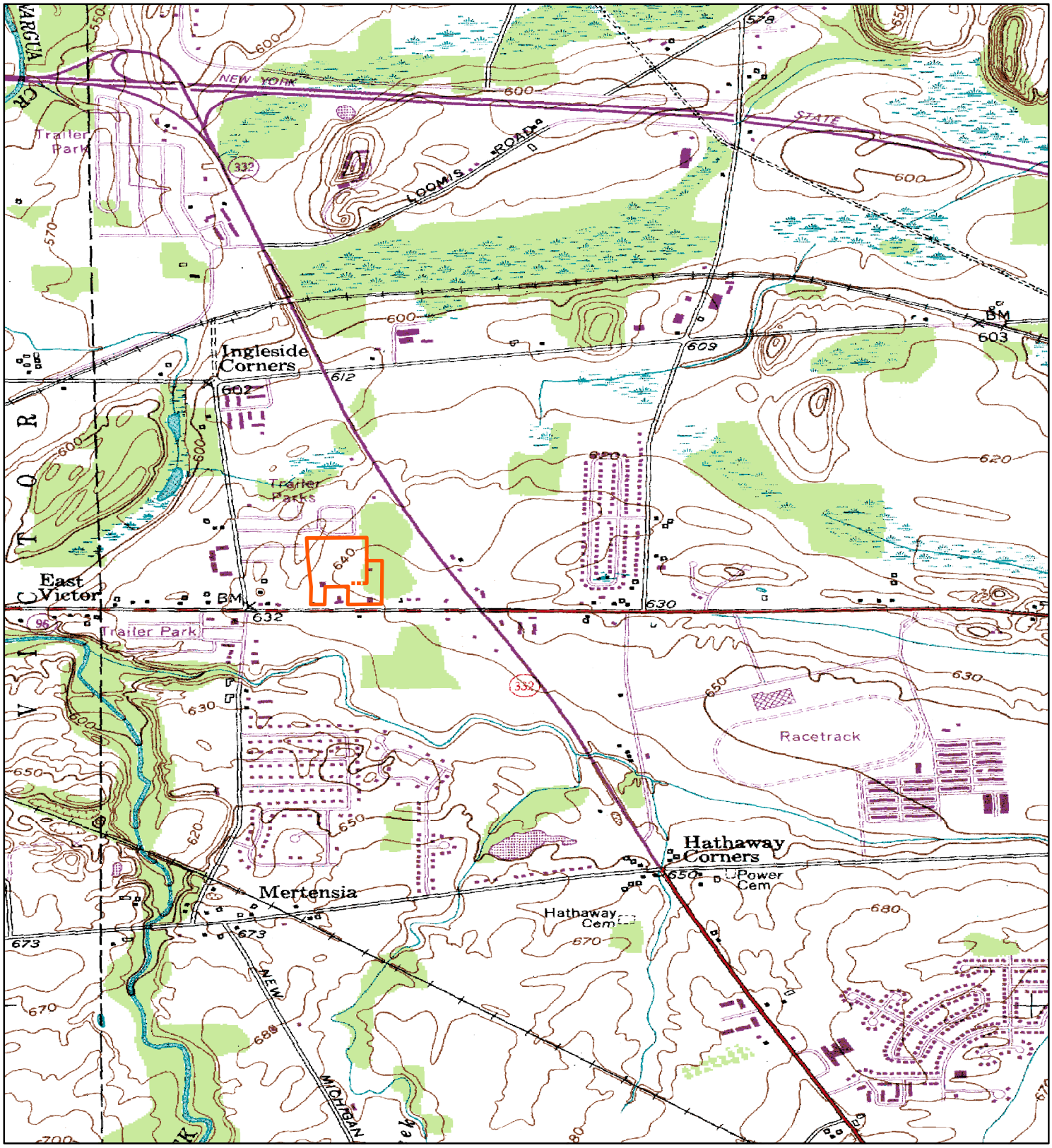

1 inch = 2,000 feet

0 500 1,000 2,000 3,000 4,000 Feet

N W E S

New York Quadrangle Location

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FIGURE 1
SITE LOCATION PLAN

6132 AND 6162 ROUTE 96
FARMINGTON, NEW YORK

DATE: FEBRUARY 2014
SCALE: AS NOTED
DRAWN/CHECKED: SMK/JB
DATA SOURCE: USGS DRG RASTER QUADRANGLES

Prevailing Groundwater Flow Direction

IW-2
IW-7
IW-4
IW-1
IW-8
RW-4
IW-13
MW-2S/IW-15S
IW-2
ROW-1
IW-9
ROW-2
IW-14
IW-5
IW-3
IW-10
IW-6
IW-11
MW-5S
MW-5D
RW-3

Legend

VOC Concentration

- 57 - 100
- 101 - 150
- 151 - 200
- 201 - 250
- 251 - 300
- 301 - 350
- 351 - 400
- 401 - 450
- 451 - 500
- 501 - 550

- <all other values>
- HH
- Injection Well
- Monitoring Well
- Observation Well
- Recovery/ Observation Well
- Site Building
- Parcel Lines

N W E S

1 inch = 40 feet

0 15 30 60 90 120 Feet

DATE: JULY 2014
PROJECT NO: 50227-01
DRAWN/CHECKED: SMK/GLA
DATA SOURCE: S&W FIGURE 2, NYS GIS CLEARINGHOUSE ORTHOIMAGERY

FIGURE 2
FORMER GRIFFIN TECHNOLOGY SITE
GROUNDWATER SAMPLING RESULTS - NOVEMBER 2013
6132 AND 6162 ROUTE 96, FARMINGTON, NEW YORK

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Prevailing Groundwater Flow Direction

OW-9/MW-3:
1,1,1-Trichloroethane: 0 ug/L
1,1-Dichloroethane: 0 ug/L
1,1-Dichloroethene: 0 ug/L
cis-1,2-Dichloroethene: 12 ug/L
Vinyl Chloride: 5.8 ug/l
Trichloroethene: 39 ug/L

OW-8/MW-4:
1,1,1-Trichloroethane: 1 ug/L
1,1-Dichloroethane: 0.95 ug/L
1,1-Dichloroethene: 0 ug/L
cis-1,2-Dichloroethene: 24 ug/L
Vinyl Chloride: 50 ug/l
Trichloroethene: 61 ug/L

OW-7:
1,1,1-Trichloroethane: 2.6 ug/L
1,1-Dichloroethane: 3 ug/L
1,1-Dichloroethene: 0 ug/L
cis-1,2-Dichloroethene: 65 ug/L
Vinyl Chloride: 74 ug/l
Trichloroethene: 60 ug/L

OW-6/RW-2:
1,1,1-Trichloroethane: 3.4 ug/L
1,1-Dichloroethane: 2.7 ug/L
1,1-Dichloroethene: 0.56 ug/L
cis-1,2-Dichloroethene: 67 ug/L
Vinyl Chloride: 33 ug/l
Trichloroethene: 100 ug/L

OW-5:
1,1,1-Trichloroethane: 1.6 ug/L
1,1-Dichloroethane: 2.5 ug/L
1,1-Dichloroethene: 0.33 ug/L
cis-1,2-Dichloroethene: 52 ug/L
Vinyl Chloride: 30 ug/l
Trichloroethene: 57 ug/L

OW-4:
1,1,1-Trichloroethane: 2 ug/L
1,1-Dichloroethane: 0.95 ug/L
1,1-Dichloroethene: 0 ug/L
cis-1,2-Dichloroethene: 23 ug/L
Vinyl Chloride: 9.9 ug/l
Trichloroethene: 54 ug/L

OW-1:
1,1,1-Trichloroethane: 11 ug/L
1,1-Dichloroethane: 2 ug/L
1,1-Dichloroethene: 0.49 ug/L
cis-1,2-Dichloroethene: 62 ug/L
Vinyl Chloride: 19 ug/l
Trichloroethene: 420 ug/L

OW-2:
1,1,1-Trichloroethane: 1.4 ug/L
1,1-Dichloroethane: 0 ug/L
1,1-Dichloroethene: 0 ug/L
cis-1,2-Dichloroethene: 3.5 ug/L
Vinyl Chloride: 0 ug/l
Trichloroethene: 54 ug/L

OW-3:
1,1,1-Trichloroethane: 5.2 ug/L
1,1-Dichloroethane: 0.9 ug/L
1,1-Dichloroethene: 0 ug/L
cis-1,2-Dichloroethene: 31 ug/L
Vinyl Chloride: 9.8 ug/l
Trichloroethene: 200 ug/L

IW-2, IW-7, IW-8, IW-13, IW-9, IW-14, IW-10, IW-11, MW-5S, MW-5D, RW-3, IW-4, RW-4, MW-2S/IW-15S, ROW-1, ROW-2, IW-5, IW-6, IW-1, IW-2, IW-3

Legend

VOC Concentration

- 57 - 100
- 101 - 150
- 151 - 200
- 201 - 250
- 251 - 300
- 301 - 350
- 351 - 400
- 401 - 450
- 451 - 500
- 501 - 550

- <all other values>
- HH
- Injection Well
- Monitoring Well
- Observation Well
- Recovery/ Observation Well
- Site Building
- Parcel Lines

N, W, E, S

1 inch = 40 feet

0 15 30 60 90 120 Feet

DATE: JULY 2014
PROJECT NO: 50227-01
DRAWN/CHECKED: SMK/GLA
DATA SOURCE: S&W FIGURE 2, NYS GIS CLEARINGHOUSE ORTHOIMAGERY

FIGURE 3
FORMER GRIFFIN TECHNOLOGY SITE
GROUNDWATER SAMPLING RESULTS - NOVEMBER 2013

6132 AND 6162 ROUTE 96, FARMINGTON, NEW YORK

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APPENDICES

Former Griffin Technology Site
6132 Victor Manchester Road
Farmington, New York
BCP Site #C835008

Engineering Control Implementation Work Plan

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TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Tel: (716)691-2600

TestAmerica Job ID: 480-49430-1
Client Project/Site: Former Griffin Technology Site

For:
LaBella Associates PC
300 State Street
Suite 201
Rochester, New York 14614

Attn: Mr. Daniel Noll

Authorized for release by:
11/18/2013 1:07:44 PM
Rebecca Jones, Project Management Assistant I
rebecca.jones@testamericainc.com

Designee for

Melissa Deyo, Project Manager I
(716)504-9874
melissa.deyo@testamericainc.com

Table of Contents

Client: LaBella Associates PC
Project/Site: Former Griffin Technology Site

TestAmerica Job ID: 480-49430-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job ID: 480-49430-1

Laboratory: TestAmerica Buffalo

Narrative

Job Narrative
480-49430-1

Receipt
The samples were received on 11/5/2013 6:10 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.6º C.

GC/MS VOA
Method(s) 8260C: The following sample(s) was diluted to bring the concentration of target analytes within the calibration range: OW-6 (480-49430-4). Elevated reporting limits (RLs) are provided.

Method(s) 8260C: The following samples were diluted to bring the concentration of target analytes within the calibration range: OW-1 (480-49430-10), OW-1 PDB (480-49430-8), OW-3 (480-49430-11), OW-3 PDB (480-49430-9). Elevated reporting limits (RLs) are provided.

No other analytical or quality issues were noted.

Detection Summary

Client: LaBella Associates PC
Project/Site: Former Griffin Technology Site

TestAmerica Job ID: 480-49430-1

Client Sample ID: OW-2 — Lab Sample ID: 480-49430-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,1,1-Trichloroethane	1.4		1.0	0.82	ug/L	1		8260C	Total/NA
cis-1,2-Dichloroethene	3.5		1.0	0.81	ug/L	1		8260C	Total/NA
Trichloroethene	54		1.0	0.46	ug/L	1		8260C	Total/NA

Client Sample ID: OW-4 — Lab Sample ID: 480-49430-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,1,1-Trichloroethane	2.0		1.0	0.82	ug/L	1		8260C	Total/NA
1,1-Dichloroethane	0.95	J	1.0	0.38	ug/L	1		8260C	Total/NA
cis-1,2-Dichloroethene	23		1.0	0.81	ug/L	1		8260C	Total/NA
Trichloroethene	54		1.0	0.46	ug/L	1		8260C	Total/NA
Vinyl chloride	9.9		1.0	0.90	ug/L	1		8260C	Total/NA

Client Sample ID: OW-5 — Lab Sample ID: 480-49430-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,1,1-Trichloroethane	1.6		1.0	0.82	ug/L	1		8260C	Total/NA
1,1-Dichloroethane	2.5		1.0	0.38	ug/L	1		8260C	Total/NA
1,1-Dichloroethene	0.33	J	1.0	0.29	ug/L	1		8260C	Total/NA
cis-1,2-Dichloroethene	52		1.0	0.81	ug/L	1		8260C	Total/NA
Trichloroethene	57		1.0	0.46	ug/L	1		8260C	Total/NA
Vinyl chloride	30		1.0	0.90	ug/L	1		8260C	Total/NA

Client Sample ID: OW-6 — Lab Sample ID: 480-49430-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,1,1-Trichloroethane	3.4		1.0	0.82	ug/L	1		8260C	Total/NA
1,1-Dichloroethane	2.7		1.0	0.38	ug/L	1		8260C	Total/NA
1,1-Dichloroethene	0.56	J	1.0	0.29	ug/L	1		8260C	Total/NA
cis-1,2-Dichloroethene	67		1.0	0.81	ug/L	1		8260C	Total/NA
Vinyl chloride	33		1.0	0.90	ug/L	1		8260C	Total/NA
Trichloroethene - DL	100		2.0	0.92	ug/L	2		8260C	Total/NA

Client Sample ID: OW-7 — Lab Sample ID: 480-49430-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,1,1-Trichloroethane	2.6		1.0	0.82	ug/L	1		8260C	Total/NA
1,1-Dichloroethane	3.0		1.0	0.38	ug/L	1		8260C	Total/NA
cis-1,2-Dichloroethene	65		1.0	0.81	ug/L	1		8260C	Total/NA
Trichloroethene	60		1.0	0.46	ug/L	1		8260C	Total/NA
Vinyl chloride	74		1.0	0.90	ug/L	1		8260C	Total/NA

Client Sample ID: OW-8 — Lab Sample ID: 480-49430-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,1,1-Trichloroethane	1.0		1.0	0.82	ug/L	1		8260C	Total/NA
1,1-Dichloroethane	0.95	J	1.0	0.38	ug/L	1		8260C	Total/NA
cis-1,2-Dichloroethene	24		1.0	0.81	ug/L	1		8260C	Total/NA
Trichloroethene	61		1.0	0.46	ug/L	1		8260C	Total/NA
Vinyl chloride	50		1.0	0.90	ug/L	1		8260C	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: LaBella Associates PC
Project/Site: Former Griffin Technology Site

TestAmerica Job ID: 480-49430-1

Client Sample ID: OW-9 — Lab Sample ID: 480-49430-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	12		1.0	0.81	ug/L	1		8260C	Total/NA
Trichloroethene	39		1.0	0.46	ug/L	1		8260C	Total/NA
Vinyl chloride	5.8		1.0	0.90	ug/L	1		8260C	Total/NA

Client Sample ID: OW-1 PDB — Lab Sample ID: 480-49430-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,1,1-Trichloroethane	10		1.0	0.82	ug/L	1		8260C	Total/NA
1,1-Dichloroethane	1.2		1.0	0.38	ug/L	1		8260C	Total/NA
cis-1,2-Dichloroethene	33		1.0	0.81	ug/L	1		8260C	Total/NA
Vinyl chloride	5.7		1.0	0.90	ug/L	1		8260C	Total/NA
Trichloroethene - DL	450		5.0	2.3	ug/L	5		8260C	Total/NA

Client Sample ID: OW-3 PDB — Lab Sample ID: 480-49430-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,1,1-Trichloroethane	5.3		1.0	0.82	ug/L	1		8260C	Total/NA
1,1-Dichloroethane	0.84	J	1.0	0.38	ug/L	1		8260C	Total/NA
cis-1,2-Dichloroethene	31		1.0	0.81	ug/L	1		8260C	Total/NA
Vinyl chloride	9.5		1.0	0.90	ug/L	1		8260C	Total/NA
Trichloroethene - DL	220		4.0	1.8	ug/L	4		8260C	Total/NA

Client Sample ID: OW-1 — Lab Sample ID: 480-49430-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,1,1-Trichloroethane	11		1.0	0.82	ug/L	1		8260C	Total/NA
1,1-Dichloroethane	2.0		1.0	0.38	ug/L	1		8260C	Total/NA
1,1-Dichloroethene	0.49	J	1.0	0.29	ug/L	1		8260C	Total/NA
cis-1,2-Dichloroethene	62		1.0	0.81	ug/L	1		8260C	Total/NA
Vinyl chloride	19		1.0	0.90	ug/L	1		8260C	Total/NA
Trichloroethene - DL	420		5.0	2.3	ug/L	5		8260C	Total/NA

Client Sample ID: OW-3 — Lab Sample ID: 480-49430-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,1,1-Trichloroethane	5.2		1.0	0.82	ug/L	1		8260C	Total/NA
1,1-Dichloroethane	0.90	J	1.0	0.38	ug/L	1		8260C	Total/NA
cis-1,2-Dichloroethene	31		1.0	0.81	ug/L	1		8260C	Total/NA
Vinyl chloride	9.8		1.0	0.90	ug/L	1		8260C	Total/NA
Trichloroethene - DL	200		4.0	1.8	ug/L	4		8260C	Total/NA

Client Sample ID: DUP — Lab Sample ID: 480-49430-12

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,1,1-Trichloroethane	1.0		1.0	0.82	ug/L	1		8260C	Total/NA
1,1-Dichloroethane	0.92	J	1.0	0.38	ug/L	1		8260C	Total/NA
cis-1,2-Dichloroethene	24		1.0	0.81	ug/L	1		8260C	Total/NA
Trichloroethene	59		1.0	0.46	ug/L	1		8260C	Total/NA
Vinyl chloride	50		1.0	0.90	ug/L	1		8260C	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: LaBella Associates PC
Project/Site: Former Griffin Technology Site

TestAmerica Job ID: 480-49430-1

Client Sample ID: TRIP BLANK **Lab Sample ID: 480-49430-13**

No Detections.

This Detection Summary does not include radiochemical test results.

Client Sample ID: OW-2

Lab Sample ID: 480-49430-1

Date Collected: 11/04/13 10:45

Matrix: Water

Date Received: 11/05/13 18:10

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	**1.4**		1.0	0.82	ug/L			11/13/13 15:10	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			11/13/13 15:10	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.31	ug/L			11/13/13 15:10	1
1,1,2-Trichloroethane	ND		1.0	0.23	ug/L			11/13/13 15:10	1
1,1-Dichloroethane	ND		1.0	0.38	ug/L			11/13/13 15:10	1
1,1-Dichloroethene	ND		1.0	0.29	ug/L			11/13/13 15:10	1
1,2-Dibromo-3-Chloropropane	ND		1.0	0.39	ug/L			11/13/13 15:10	1
1,2-Dibromoethane	ND		1.0	0.73	ug/L			11/13/13 15:10	1
1,2-Dichloroethane	ND		1.0	0.21	ug/L			11/13/13 15:10	1
1,2-Dichloropropane	ND		1.0	0.72	ug/L			11/13/13 15:10	1
Bromodichloromethane	ND		1.0	0.39	ug/L			11/13/13 15:10	1
Bromoform	ND		1.0	0.26	ug/L			11/13/13 15:10	1
Bromomethane	ND		1.0	0.69	ug/L			11/13/13 15:10	1
Carbon tetrachloride	ND		1.0	0.27	ug/L			11/13/13 15:10	1
Chloroethane	ND		1.0	0.32	ug/L			11/13/13 15:10	1
Chloroform	ND		1.0	0.34	ug/L			11/13/13 15:10	1
Chloromethane	ND		1.0	0.35	ug/L			11/13/13 15:10	1
cis-1,2-Dichloroethene	**3.5**		1.0	0.81	ug/L			11/13/13 15:10	1
cis-1,3-Dichloropropene	ND		1.0	0.36	ug/L			11/13/13 15:10	1
Dibromochloromethane	ND		1.0	0.32	ug/L			11/13/13 15:10	1
Dichlorodifluoromethane	ND		1.0	0.68	ug/L			11/13/13 15:10	1
Methylene Chloride	ND		1.0	0.44	ug/L			11/13/13 15:10	1
Tetrachloroethene	ND		1.0	0.36	ug/L			11/13/13 15:10	1
trans-1,2-Dichloroethene	ND		1.0	0.90	ug/L			11/13/13 15:10	1
trans-1,3-Dichloropropene	ND		1.0	0.37	ug/L			11/13/13 15:10	1
Trichloroethene	**54**		1.0	0.46	ug/L			11/13/13 15:10	1
Trichlorofluoromethane	ND		1.0	0.88	ug/L			11/13/13 15:10	1
Vinyl chloride	ND		1.0	0.90	ug/L			11/13/13 15:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*99*		*66 - 137*		*11/13/13 15:10*	*1*
4-Bromofluorobenzene (Surr)	*92*		*73 - 120*		*11/13/13 15:10*	*1*
Toluene-d8 (Surr)	*98*		*71 - 126*		*11/13/13 15:10*	*1*

Client Sample ID: OW-4

Lab Sample ID: 480-49430-2

Date Collected: 11/04/13 12:25

Matrix: Water

Date Received: 11/05/13 18:10

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	**2.0**		1.0	0.82	ug/L			11/13/13 15:34	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			11/13/13 15:34	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.31	ug/L			11/13/13 15:34	1
1,1,2-Trichloroethane	ND		1.0	0.23	ug/L			11/13/13 15:34	1
1,1-Dichloroethane	**0.95**	**J**	1.0	0.38	ug/L			11/13/13 15:34	1
1,1-Dichloroethene	ND		1.0	0.29	ug/L			11/13/13 15:34	1
1,2-Dibromo-3-Chloropropane	ND		1.0	0.39	ug/L			11/13/13 15:34	1
1,2-Dibromoethane	ND		1.0	0.73	ug/L			11/13/13 15:34	1
1,2-Dichloroethane	ND		1.0	0.21	ug/L			11/13/13 15:34	1
1,2-Dichloropropane	ND		1.0	0.72	ug/L			11/13/13 15:34	1

Client Sample ID: OW-4

Lab Sample ID: 480-49430-2

Date Collected: 11/04/13 12:25

Matrix: Water

Date Received: 11/05/13 18:10

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bromodichloromethane	ND		1.0	0.39	ug/L			11/13/13 15:34	1
Bromoform	ND		1.0	0.26	ug/L			11/13/13 15:34	1
Bromomethane	ND		1.0	0.69	ug/L			11/13/13 15:34	1
Carbon tetrachloride	ND		1.0	0.27	ug/L			11/13/13 15:34	1
Chloroethane	ND		1.0	0.32	ug/L			11/13/13 15:34	1
Chloroform	ND		1.0	0.34	ug/L			11/13/13 15:34	1
Chloromethane	ND		1.0	0.35	ug/L			11/13/13 15:34	1
cis-1,2-Dichloroethene	**23**		1.0	0.81	ug/L			11/13/13 15:34	1
cis-1,3-Dichloropropene	ND		1.0	0.36	ug/L			11/13/13 15:34	1
Dibromochloromethane	ND		1.0	0.32	ug/L			11/13/13 15:34	1
Dichlorodifluoromethane	ND		1.0	0.68	ug/L			11/13/13 15:34	1
Methylene Chloride	ND		1.0	0.44	ug/L			11/13/13 15:34	1
Tetrachloroethene	ND		1.0	0.36	ug/L			11/13/13 15:34	1
trans-1,2-Dichloroethene	ND		1.0	0.90	ug/L			11/13/13 15:34	1
trans-1,3-Dichloropropene	ND		1.0	0.37	ug/L			11/13/13 15:34	1
Trichloroethene	**54**		1.0	0.46	ug/L			11/13/13 15:34	1
Trichlorofluoromethane	ND		1.0	0.88	ug/L			11/13/13 15:34	1
Vinyl chloride	**9.9**		1.0	0.90	ug/L			11/13/13 15:34	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*99*		*66 - 137*		*11/13/13 15:34*	*1*
4-Bromofluorobenzene (Surr)	*91*		*73 - 120*		*11/13/13 15:34*	*1*
Toluene-d8 (Surr)	*99*		*71 - 126*		*11/13/13 15:34*	*1*

Client Sample ID: OW-5

Lab Sample ID: 480-49430-3

Date Collected: 11/04/13 13:55

Matrix: Water

Date Received: 11/05/13 18:10

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	**1.6**		1.0	0.82	ug/L			11/13/13 15:58	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			11/13/13 15:58	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.31	ug/L			11/13/13 15:58	1
1,1,2-Trichloroethane	ND		1.0	0.23	ug/L			11/13/13 15:58	1
1,1-Dichloroethane	**2.5**		1.0	0.38	ug/L			11/13/13 15:58	1
1,1-Dichloroethene	**0.33**	**J**	1.0	0.29	ug/L			11/13/13 15:58	1
1,2-Dibromo-3-Chloropropane	ND		1.0	0.39	ug/L			11/13/13 15:58	1
1,2-Dibromoethane	ND		1.0	0.73	ug/L			11/13/13 15:58	1
1,2-Dichloroethane	ND		1.0	0.21	ug/L			11/13/13 15:58	1
1,2-Dichloropropane	ND		1.0	0.72	ug/L			11/13/13 15:58	1
Bromodichloromethane	ND		1.0	0.39	ug/L			11/13/13 15:58	1
Bromoform	ND		1.0	0.26	ug/L			11/13/13 15:58	1
Bromomethane	ND		1.0	0.69	ug/L			11/13/13 15:58	1
Carbon tetrachloride	ND		1.0	0.27	ug/L			11/13/13 15:58	1
Chloroethane	ND		1.0	0.32	ug/L			11/13/13 15:58	1
Chloroform	ND		1.0	0.34	ug/L			11/13/13 15:58	1
Chloromethane	ND		1.0	0.35	ug/L			11/13/13 15:58	1
cis-1,2-Dichloroethene	**52**		1.0	0.81	ug/L			11/13/13 15:58	1
cis-1,3-Dichloropropene	ND		1.0	0.36	ug/L			11/13/13 15:58	1
Dibromochloromethane	ND		1.0	0.32	ug/L			11/13/13 15:58	1

Client Sample ID: OW-5

Lab Sample ID: 480-49430-3

Date Collected: 11/04/13 13:55

Matrix: Water

Date Received: 11/05/13 18:10

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dichlorodifluoromethane	ND		1.0	0.68	ug/L			11/13/13 15:58	1
Methylene Chloride	ND		1.0	0.44	ug/L			11/13/13 15:58	1
Tetrachloroethene	ND		1.0	0.36	ug/L			11/13/13 15:58	1
trans-1,2-Dichloroethene	ND		1.0	0.90	ug/L			11/13/13 15:58	1
trans-1,3-Dichloropropene	ND		1.0	0.37	ug/L			11/13/13 15:58	1
Trichloroethene	**57**		1.0	0.46	ug/L			11/13/13 15:58	1
Trichlorofluoromethane	ND		1.0	0.88	ug/L			11/13/13 15:58	1
Vinyl chloride	**30**		1.0	0.90	ug/L			11/13/13 15:58	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*97*		*66 - 137*		*11/13/13 15:58*	*1*
4-Bromofluorobenzene (Surr)	*91*		*73 - 120*		*11/13/13 15:58*	*1*
Toluene-d8 (Surr)	*98*		*71 - 126*		*11/13/13 15:58*	*1*

Client Sample ID: OW-6

Lab Sample ID: 480-49430-4

Date Collected: 11/04/13 15:25

Matrix: Water

Date Received: 11/05/13 18:10

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	**3.4**		1.0	0.82	ug/L			11/13/13 16:22	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			11/13/13 16:22	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.31	ug/L			11/13/13 16:22	1
1,1,2-Trichloroethane	ND		1.0	0.23	ug/L			11/13/13 16:22	1
1,1-Dichloroethane	**2.7**		1.0	0.38	ug/L			11/13/13 16:22	1
1,1-Dichloroethene	**0.56**	**J**	1.0	0.29	ug/L			11/13/13 16:22	1
1,2-Dibromo-3-Chloropropane	ND		1.0	0.39	ug/L			11/13/13 16:22	1
1,2-Dibromoethane	ND		1.0	0.73	ug/L			11/13/13 16:22	1
1,2-Dichloroethane	ND		1.0	0.21	ug/L			11/13/13 16:22	1
1,2-Dichloropropane	ND		1.0	0.72	ug/L			11/13/13 16:22	1
Bromodichloromethane	ND		1.0	0.39	ug/L			11/13/13 16:22	1
Bromoform	ND		1.0	0.26	ug/L			11/13/13 16:22	1
Bromomethane	ND		1.0	0.69	ug/L			11/13/13 16:22	1
Carbon tetrachloride	ND		1.0	0.27	ug/L			11/13/13 16:22	1
Chloroethane	ND		1.0	0.32	ug/L			11/13/13 16:22	1
Chloroform	ND		1.0	0.34	ug/L			11/13/13 16:22	1
Chloromethane	ND		1.0	0.35	ug/L			11/13/13 16:22	1
cis-1,2-Dichloroethene	**67**		1.0	0.81	ug/L			11/13/13 16:22	1
cis-1,3-Dichloropropene	ND		1.0	0.36	ug/L			11/13/13 16:22	1
Dibromochloromethane	ND		1.0	0.32	ug/L			11/13/13 16:22	1
Dichlorodifluoromethane	ND		1.0	0.68	ug/L			11/13/13 16:22	1
Methylene Chloride	ND		1.0	0.44	ug/L			11/13/13 16:22	1
Tetrachloroethene	ND		1.0	0.36	ug/L			11/13/13 16:22	1
trans-1,2-Dichloroethene	ND		1.0	0.90	ug/L			11/13/13 16:22	1
trans-1,3-Dichloropropene	ND		1.0	0.37	ug/L			11/13/13 16:22	1
Trichlorofluoromethane	ND		1.0	0.88	ug/L			11/13/13 16:22	1
Vinyl chloride	**33**		1.0	0.90	ug/L			11/13/13 16:22	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*100*		*66 - 137*		*11/13/13 16:22*	*1*

Client Sample ID: OW-6

Lab Sample ID: 480-49430-4

Date Collected: 11/04/13 15:25

Matrix: Water

Date Received: 11/05/13 18:10

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*94*		*73 - 120*		*11/13/13 16:22*	*1*
Toluene-d8 (Surr)	*99*		*71 - 126*		*11/13/13 16:22*	*1*

Method: 8260C - Volatile Organic Compounds by GC/MS - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichloroethene	**100**		2.0	0.92	ug/L			11/14/13 00:00	2

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*103*		*66 - 137*		*11/14/13 00:00*	*2*
4-Bromofluorobenzene (Surr)	*97*		*73 - 120*		*11/14/13 00:00*	*2*
Toluene-d8 (Surr)	*102*		*71 - 126*		*11/14/13 00:00*	*2*

Client Sample ID: OW-7

Lab Sample ID: 480-49430-5

Date Collected: 11/05/13 09:45

Matrix: Water

Date Received: 11/05/13 18:10

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	**2.6**		1.0	0.82	ug/L			11/13/13 16:46	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			11/13/13 16:46	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.31	ug/L			11/13/13 16:46	1
1,1,2-Trichloroethane	ND		1.0	0.23	ug/L			11/13/13 16:46	1
1,1-Dichloroethane	**3.0**		1.0	0.38	ug/L			11/13/13 16:46	1
1,1-Dichloroethene	ND		1.0	0.29	ug/L			11/13/13 16:46	1
1,2-Dibromo-3-Chloropropane	ND		1.0	0.39	ug/L			11/13/13 16:46	1
1,2-Dibromoethane	ND		1.0	0.73	ug/L			11/13/13 16:46	1
1,2-Dichloroethane	ND		1.0	0.21	ug/L			11/13/13 16:46	1
1,2-Dichloropropane	ND		1.0	0.72	ug/L			11/13/13 16:46	1
Bromodichloromethane	ND		1.0	0.39	ug/L			11/13/13 16:46	1
Bromoform	ND		1.0	0.26	ug/L			11/13/13 16:46	1
Bromomethane	ND		1.0	0.69	ug/L			11/13/13 16:46	1
Carbon tetrachloride	ND		1.0	0.27	ug/L			11/13/13 16:46	1
Chloroethane	ND		1.0	0.32	ug/L			11/13/13 16:46	1
Chloroform	ND		1.0	0.34	ug/L			11/13/13 16:46	1
Chloromethane	ND		1.0	0.35	ug/L			11/13/13 16:46	1
cis-1,2-Dichloroethene	**65**		1.0	0.81	ug/L			11/13/13 16:46	1
cis-1,3-Dichloropropene	ND		1.0	0.36	ug/L			11/13/13 16:46	1
Dibromochloromethane	ND		1.0	0.32	ug/L			11/13/13 16:46	1
Dichlorodifluoromethane	ND		1.0	0.68	ug/L			11/13/13 16:46	1
Methylene Chloride	ND		1.0	0.44	ug/L			11/13/13 16:46	1
Tetrachloroethene	ND		1.0	0.36	ug/L			11/13/13 16:46	1
trans-1,2-Dichloroethene	ND		1.0	0.90	ug/L			11/13/13 16:46	1
trans-1,3-Dichloropropene	ND		1.0	0.37	ug/L			11/13/13 16:46	1
Trichloroethene	**60**		1.0	0.46	ug/L			11/13/13 16:46	1
Trichlorofluoromethane	ND		1.0	0.88	ug/L			11/13/13 16:46	1
Vinyl chloride	**74**		1.0	0.90	ug/L			11/13/13 16:46	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*99*		*66 - 137*		*11/13/13 16:46*	*1*
4-Bromofluorobenzene (Surr)	*93*		*73 - 120*		*11/13/13 16:46*	*1*

Client Sample ID: OW-7

Lab Sample ID: 480-49430-5

Date Collected: 11/05/13 09:45

Matrix: Water

Date Received: 11/05/13 18:10

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	*98*		*71 - 126*		*11/13/13 16:46*	*1*

Client Sample ID: OW-8

Lab Sample ID: 480-49430-6

Date Collected: 11/05/13 11:00

Matrix: Water

Date Received: 11/05/13 18:10

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	**1.0**		1.0	0.82	ug/L			11/13/13 17:10	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			11/13/13 17:10	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.31	ug/L			11/13/13 17:10	1
1,1,2-Trichloroethane	ND		1.0	0.23	ug/L			11/13/13 17:10	1
1,1-Dichloroethane	**0.95**	**J**	1.0	0.38	ug/L			11/13/13 17:10	1
1,1-Dichloroethene	ND		1.0	0.29	ug/L			11/13/13 17:10	1
1,2-Dibromo-3-Chloropropane	ND		1.0	0.39	ug/L			11/13/13 17:10	1
1,2-Dibromoethane	ND		1.0	0.73	ug/L			11/13/13 17:10	1
1,2-Dichloroethane	ND		1.0	0.21	ug/L			11/13/13 17:10	1
1,2-Dichloropropane	ND		1.0	0.72	ug/L			11/13/13 17:10	1
Bromodichloromethane	ND		1.0	0.39	ug/L			11/13/13 17:10	1
Bromoform	ND		1.0	0.26	ug/L			11/13/13 17:10	1
Bromomethane	ND		1.0	0.69	ug/L			11/13/13 17:10	1
Carbon tetrachloride	ND		1.0	0.27	ug/L			11/13/13 17:10	1
Chloroethane	ND		1.0	0.32	ug/L			11/13/13 17:10	1
Chloroform	ND		1.0	0.34	ug/L			11/13/13 17:10	1
Chloromethane	ND		1.0	0.35	ug/L			11/13/13 17:10	1
cis-1,2-Dichloroethene	**24**		1.0	0.81	ug/L			11/13/13 17:10	1
cis-1,3-Dichloropropene	ND		1.0	0.36	ug/L			11/13/13 17:10	1
Dibromochloromethane	ND		1.0	0.32	ug/L			11/13/13 17:10	1
Dichlorodifluoromethane	ND		1.0	0.68	ug/L			11/13/13 17:10	1
Methylene Chloride	ND		1.0	0.44	ug/L			11/13/13 17:10	1
Tetrachloroethene	ND		1.0	0.36	ug/L			11/13/13 17:10	1
trans-1,2-Dichloroethene	ND		1.0	0.90	ug/L			11/13/13 17:10	1
trans-1,3-Dichloropropene	ND		1.0	0.37	ug/L			11/13/13 17:10	1
Trichloroethene	**61**		1.0	0.46	ug/L			11/13/13 17:10	1
Trichlorofluoromethane	ND		1.0	0.88	ug/L			11/13/13 17:10	1
Vinyl chloride	**50**		1.0	0.90	ug/L			11/13/13 17:10	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	*96*		*66 - 137*		*11/13/13 17:10*	*1*
4-Bromofluorobenzene (Surr)	*90*		*73 - 120*		*11/13/13 17:10*	*1*
Toluene-d8 (Surr)	*95*		*71 - 126*		*11/13/13 17:10*	*1*

Client Sample ID: OW-9

Lab Sample ID: 480-49430-7

Date Collected: 11/05/13 12:30

Matrix: Water

Date Received: 11/05/13 18:10

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.82	ug/L			11/14/13 00:24	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			11/14/13 00:24	1

Client Sample ID: OW-9
Date Collected: 11/05/13 12:30
Date Received: 11/05/13 18:10

Lab Sample ID: 480-49430-7
Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.31	ug/L			11/14/13 00:24	1
1,1,2-Trichloroethane	ND		1.0	0.23	ug/L			11/14/13 00:24	1
1,1-Dichloroethane	ND		1.0	0.38	ug/L			11/14/13 00:24	1
1,1-Dichloroethene	ND		1.0	0.29	ug/L			11/14/13 00:24	1
1,2-Dibromo-3-Chloropropane	ND		1.0	0.39	ug/L			11/14/13 00:24	1
1,2-Dibromoethane	ND		1.0	0.73	ug/L			11/14/13 00:24	1
1,2-Dichloroethane	ND		1.0	0.21	ug/L			11/14/13 00:24	1
1,2-Dichloropropane	ND		1.0	0.72	ug/L			11/14/13 00:24	1
Bromodichloromethane	ND		1.0	0.39	ug/L			11/14/13 00:24	1
Bromoform	ND		1.0	0.26	ug/L			11/14/13 00:24	1
Bromomethane	ND		1.0	0.69	ug/L			11/14/13 00:24	1
Carbon tetrachloride	ND		1.0	0.27	ug/L			11/14/13 00:24	1
Chloroethane	ND		1.0	0.32	ug/L			11/14/13 00:24	1
Chloroform	ND		1.0	0.34	ug/L			11/14/13 00:24	1
Chloromethane	ND		1.0	0.35	ug/L			11/14/13 00:24	1
cis-1,2-Dichloroethene	**12**		1.0	0.81	ug/L			11/14/13 00:24	1
cis-1,3-Dichloropropene	ND		1.0	0.36	ug/L			11/14/13 00:24	1
Dibromochloromethane	ND		1.0	0.32	ug/L			11/14/13 00:24	1
Dichlorodifluoromethane	ND		1.0	0.68	ug/L			11/14/13 00:24	1
Methylene Chloride	ND		1.0	0.44	ug/L			11/14/13 00:24	1
Tetrachloroethene	ND		1.0	0.36	ug/L			11/14/13 00:24	1
trans-1,2-Dichloroethene	ND		1.0	0.90	ug/L			11/14/13 00:24	1
trans-1,3-Dichloropropene	ND		1.0	0.37	ug/L			11/14/13 00:24	1
Trichloroethene	**39**		1.0	0.46	ug/L			11/14/13 00:24	1
Trichlorofluoromethane	ND		1.0	0.88	ug/L			11/14/13 00:24	1
Vinyl chloride	**5.8**		1.0	0.90	ug/L			11/14/13 00:24	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*98*		*66 - 137*		*11/14/13 00:24*	*1*
4-Bromofluorobenzene (Surr)	*92*		*73 - 120*		*11/14/13 00:24*	*1*
Toluene-d8 (Surr)	*98*		*71 - 126*		*11/14/13 00:24*	*1*

Client Sample ID: OW-1 PDB
Date Collected: 11/05/13 11:55
Date Received: 11/05/13 18:10

Lab Sample ID: 480-49430-8
Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	**10**		1.0	0.82	ug/L			11/14/13 00:48	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			11/14/13 00:48	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.31	ug/L			11/14/13 00:48	1
1,1,2-Trichloroethane	ND		1.0	0.23	ug/L			11/14/13 00:48	1
1,1-Dichloroethane	**1.2**		1.0	0.38	ug/L			11/14/13 00:48	1
1,1-Dichloroethene	ND		1.0	0.29	ug/L			11/14/13 00:48	1
1,2-Dibromo-3-Chloropropane	ND		1.0	0.39	ug/L			11/14/13 00:48	1
1,2-Dibromoethane	ND		1.0	0.73	ug/L			11/14/13 00:48	1
1,2-Dichloroethane	ND		1.0	0.21	ug/L			11/14/13 00:48	1
1,2-Dichloropropane	ND		1.0	0.72	ug/L			11/14/13 00:48	1
Bromodichloromethane	ND		1.0	0.39	ug/L			11/14/13 00:48	1
Bromoform	ND		1.0	0.26	ug/L			11/14/13 00:48	1

Client Sample ID: OW-1 PDB

Lab Sample ID: 480-49430-8

Date Collected: 11/05/13 11:55

Matrix: Water

Date Received: 11/05/13 18:10

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bromomethane	ND		1.0	0.69	ug/L			11/14/13 00:48	1
Carbon tetrachloride	ND		1.0	0.27	ug/L			11/14/13 00:48	1
Chloroethane	ND		1.0	0.32	ug/L			11/14/13 00:48	1
Chloroform	ND		1.0	0.34	ug/L			11/14/13 00:48	1
Chloromethane	ND		1.0	0.35	ug/L			11/14/13 00:48	1
cis-1,2-Dichloroethene	**33**		1.0	0.81	ug/L			11/14/13 00:48	1
cis-1,3-Dichloropropene	ND		1.0	0.36	ug/L			11/14/13 00:48	1
Dibromochloromethane	ND		1.0	0.32	ug/L			11/14/13 00:48	1
Dichlorodifluoromethane	ND		1.0	0.68	ug/L			11/14/13 00:48	1
Methylene Chloride	ND		1.0	0.44	ug/L			11/14/13 00:48	1
Tetrachloroethene	ND		1.0	0.36	ug/L			11/14/13 00:48	1
trans-1,2-Dichloroethene	ND		1.0	0.90	ug/L			11/14/13 00:48	1
trans-1,3-Dichloropropene	ND		1.0	0.37	ug/L			11/14/13 00:48	1
Trichlorofluoromethane	ND		1.0	0.88	ug/L			11/14/13 00:48	1
Vinyl chloride	**5.7**		1.0	0.90	ug/L			11/14/13 00:48	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*99*		*66 - 137*		*11/14/13 00:48*	*1*
4-Bromofluorobenzene (Surr)	*91*		*73 - 120*		*11/14/13 00:48*	*1*
Toluene-d8 (Surr)	*97*		*71 - 126*		*11/14/13 00:48*	*1*

Method: 8260C - Volatile Organic Compounds by GC/MS - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichloroethene	**450**		5.0	2.3	ug/L			11/14/13 12:39	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*101*		*66 - 137*		*11/14/13 12:39*	*5*
4-Bromofluorobenzene (Surr)	*94*		*73 - 120*		*11/14/13 12:39*	*5*
Toluene-d8 (Surr)	*100*		*71 - 126*		*11/14/13 12:39*	*5*

Client Sample ID: OW-3 PDB

Lab Sample ID: 480-49430-9

Date Collected: 11/05/13 13:40

Matrix: Water

Date Received: 11/05/13 18:10

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	**5.3**		1.0	0.82	ug/L			11/14/13 01:12	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			11/14/13 01:12	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.31	ug/L			11/14/13 01:12	1
1,1,2-Trichloroethane	ND		1.0	0.23	ug/L			11/14/13 01:12	1
1,1-Dichloroethane	**0.84**	**J**	1.0	0.38	ug/L			11/14/13 01:12	1
1,1-Dichloroethene	ND		1.0	0.29	ug/L			11/14/13 01:12	1
1,2-Dibromo-3-Chloropropane	ND		1.0	0.39	ug/L			11/14/13 01:12	1
1,2-Dibromoethane	ND		1.0	0.73	ug/L			11/14/13 01:12	1
1,2-Dichloroethane	ND		1.0	0.21	ug/L			11/14/13 01:12	1
1,2-Dichloropropane	ND		1.0	0.72	ug/L			11/14/13 01:12	1
Bromodichloromethane	ND		1.0	0.39	ug/L			11/14/13 01:12	1
Bromoform	ND		1.0	0.26	ug/L			11/14/13 01:12	1
Bromomethane	ND		1.0	0.69	ug/L			11/14/13 01:12	1
Carbon tetrachloride	ND		1.0	0.27	ug/L			11/14/13 01:12	1

Client Sample ID: OW-3 PDB

Lab Sample ID: 480-49430-9

Date Collected: 11/05/13 13:40

Matrix: Water

Date Received: 11/05/13 18:10

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloroethane	ND		1.0	0.32	ug/L			11/14/13 01:12	1
Chloroform	ND		1.0	0.34	ug/L			11/14/13 01:12	1
Chloromethane	ND		1.0	0.35	ug/L			11/14/13 01:12	1
cis-1,2-Dichloroethene	**31**		1.0	0.81	ug/L			11/14/13 01:12	1
cis-1,3-Dichloropropene	ND		1.0	0.36	ug/L			11/14/13 01:12	1
Dibromochloromethane	ND		1.0	0.32	ug/L			11/14/13 01:12	1
Dichlorodifluoromethane	ND		1.0	0.68	ug/L			11/14/13 01:12	1
Methylene Chloride	ND		1.0	0.44	ug/L			11/14/13 01:12	1
Tetrachloroethene	ND		1.0	0.36	ug/L			11/14/13 01:12	1
trans-1,2-Dichloroethene	ND		1.0	0.90	ug/L			11/14/13 01:12	1
trans-1,3-Dichloropropene	ND		1.0	0.37	ug/L			11/14/13 01:12	1
Trichlorofluoromethane	ND		1.0	0.88	ug/L			11/14/13 01:12	1
Vinyl chloride	**9.5**		1.0	0.90	ug/L			11/14/13 01:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*98*		*66 - 137*		*11/14/13 01:12*	*1*
4-Bromofluorobenzene (Surr)	*92*		*73 - 120*		*11/14/13 01:12*	*1*
Toluene-d8 (Surr)	*97*		*71 - 126*		*11/14/13 01:12*	*1*

Method: 8260C - Volatile Organic Compounds by GC/MS - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichloroethene	**220**		4.0	1.8	ug/L			11/14/13 13:03	4

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*100*		*66 - 137*		*11/14/13 13:03*	*4*
4-Bromofluorobenzene (Surr)	*93*		*73 - 120*		*11/14/13 13:03*	*4*
Toluene-d8 (Surr)	*100*		*71 - 126*		*11/14/13 13:03*	*4*

Client Sample ID: OW-1

Lab Sample ID: 480-49430-10

Date Collected: 11/05/13 15:30

Matrix: Water

Date Received: 11/05/13 18:10

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	**11**		1.0	0.82	ug/L			11/14/13 01:36	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			11/14/13 01:36	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.31	ug/L			11/14/13 01:36	1
1,1,2-Trichloroethane	ND		1.0	0.23	ug/L			11/14/13 01:36	1
1,1-Dichloroethane	**2.0**		1.0	0.38	ug/L			11/14/13 01:36	1
1,1-Dichloroethene	**0.49**	**J**	1.0	0.29	ug/L			11/14/13 01:36	1
1,2-Dibromo-3-Chloropropane	ND		1.0	0.39	ug/L			11/14/13 01:36	1
1,2-Dibromoethane	ND		1.0	0.73	ug/L			11/14/13 01:36	1
1,2-Dichloroethane	ND		1.0	0.21	ug/L			11/14/13 01:36	1
1,2-Dichloropropane	ND		1.0	0.72	ug/L			11/14/13 01:36	1
Bromodichloromethane	ND		1.0	0.39	ug/L			11/14/13 01:36	1
Bromoform	ND		1.0	0.26	ug/L			11/14/13 01:36	1
Bromomethane	ND		1.0	0.69	ug/L			11/14/13 01:36	1
Carbon tetrachloride	ND		1.0	0.27	ug/L			11/14/13 01:36	1
Chloroethane	ND		1.0	0.32	ug/L			11/14/13 01:36	1
Chloroform	ND		1.0	0.34	ug/L			11/14/13 01:36	1

Client Sample ID: OW-1
Date Collected: 11/05/13 15:30
Date Received: 11/05/13 18:10

Lab Sample ID: 480-49430-10
Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloromethane	ND		1.0	0.35	ug/L			11/14/13 01:36	1
cis-1,2-Dichloroethene	**62**		1.0	0.81	ug/L			11/14/13 01:36	1
cis-1,3-Dichloropropene	ND		1.0	0.36	ug/L			11/14/13 01:36	1
Dibromochloromethane	ND		1.0	0.32	ug/L			11/14/13 01:36	1
Dichlorodifluoromethane	ND		1.0	0.68	ug/L			11/14/13 01:36	1
Methylene Chloride	ND		1.0	0.44	ug/L			11/14/13 01:36	1
Tetrachloroethene	ND		1.0	0.36	ug/L			11/14/13 01:36	1
trans-1,2-Dichloroethene	ND		1.0	0.90	ug/L			11/14/13 01:36	1
trans-1,3-Dichloropropene	ND		1.0	0.37	ug/L			11/14/13 01:36	1
Trichlorofluoromethane	ND		1.0	0.88	ug/L			11/14/13 01:36	1
Vinyl chloride	**19**		1.0	0.90	ug/L			11/14/13 01:36	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*100*		*66 - 137*		*11/14/13 01:36*	*1*
4-Bromofluorobenzene (Surr)	*93*		*73 - 120*		*11/14/13 01:36*	*1*
Toluene-d8 (Surr)	*100*		*71 - 126*		*11/14/13 01:36*	*1*

Method: 8260C - Volatile Organic Compounds by GC/MS - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichloroethene	**420**		5.0	2.3	ug/L			11/14/13 13:27	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*102*		*66 - 137*		*11/14/13 13:27*	*5*
4-Bromofluorobenzene (Surr)	*94*		*73 - 120*		*11/14/13 13:27*	*5*
Toluene-d8 (Surr)	*100*		*71 - 126*		*11/14/13 13:27*	*5*

Client Sample ID: OW-3
Date Collected: 11/05/13 15:05
Date Received: 11/05/13 18:10

Lab Sample ID: 480-49430-11
Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	**5.2**		1.0	0.82	ug/L			11/14/13 02:00	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			11/14/13 02:00	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.31	ug/L			11/14/13 02:00	1
1,1,2-Trichloroethane	ND		1.0	0.23	ug/L			11/14/13 02:00	1
1,1-Dichloroethane	**0.90**	**J**	1.0	0.38	ug/L			11/14/13 02:00	1
1,1-Dichloroethene	ND		1.0	0.29	ug/L			11/14/13 02:00	1
1,2-Dibromo-3-Chloropropane	ND		1.0	0.39	ug/L			11/14/13 02:00	1
1,2-Dibromoethane	ND		1.0	0.73	ug/L			11/14/13 02:00	1
1,2-Dichloroethane	ND		1.0	0.21	ug/L			11/14/13 02:00	1
1,2-Dichloropropane	ND		1.0	0.72	ug/L			11/14/13 02:00	1
Bromodichloromethane	ND		1.0	0.39	ug/L			11/14/13 02:00	1
Bromoform	ND		1.0	0.26	ug/L			11/14/13 02:00	1
Bromomethane	ND		1.0	0.69	ug/L			11/14/13 02:00	1
Carbon tetrachloride	ND		1.0	0.27	ug/L			11/14/13 02:00	1
Chloroethane	ND		1.0	0.32	ug/L			11/14/13 02:00	1
Chloroform	ND		1.0	0.34	ug/L			11/14/13 02:00	1
Chloromethane	ND		1.0	0.35	ug/L			11/14/13 02:00	1
cis-1,2-Dichloroethene	**31**		1.0	0.81	ug/L			11/14/13 02:00	1

Client Sample ID: OW-3

Lab Sample ID: 480-49430-11

Date Collected: 11/05/13 15:05

Matrix: Water

Date Received: 11/05/13 18:10

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,3-Dichloropropene	ND		1.0	0.36	ug/L			11/14/13 02:00	1
Dibromochloromethane	ND		1.0	0.32	ug/L			11/14/13 02:00	1
Dichlorodifluoromethane	ND		1.0	0.68	ug/L			11/14/13 02:00	1
Methylene Chloride	ND		1.0	0.44	ug/L			11/14/13 02:00	1
Tetrachloroethene	ND		1.0	0.36	ug/L			11/14/13 02:00	1
trans-1,2-Dichloroethene	ND		1.0	0.90	ug/L			11/14/13 02:00	1
trans-1,3-Dichloropropene	ND		1.0	0.37	ug/L			11/14/13 02:00	1
Trichlorofluoromethane	ND		1.0	0.88	ug/L			11/14/13 02:00	1
Vinyl chloride	**9.8**		1.0	0.90	ug/L			11/14/13 02:00	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*98*		*66 - 137*		*11/14/13 02:00*	*1*
4-Bromofluorobenzene (Surr)	*94*		*73 - 120*		*11/14/13 02:00*	*1*
Toluene-d8 (Surr)	*100*		*71 - 126*		*11/14/13 02:00*	*1*

Method: 8260C - Volatile Organic Compounds by GC/MS - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichloroethene	**200**		4.0	1.8	ug/L			11/14/13 13:51	4

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*98*		*66 - 137*		*11/14/13 13:51*	*4*
4-Bromofluorobenzene (Surr)	*92*		*73 - 120*		*11/14/13 13:51*	*4*
Toluene-d8 (Surr)	*99*		*71 - 126*		*11/14/13 13:51*	*4*

Client Sample ID: DUP

Lab Sample ID: 480-49430-12

Date Collected: 11/05/13 00:00

Matrix: Water

Date Received: 11/05/13 18:10

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	**1.0**		1.0	0.82	ug/L			11/14/13 14:15	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			11/14/13 14:15	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.31	ug/L			11/14/13 14:15	1
1,1,2-Trichloroethane	ND		1.0	0.23	ug/L			11/14/13 14:15	1
1,1-Dichloroethane	**0.92**	**J**	1.0	0.38	ug/L			11/14/13 14:15	1
1,1-Dichloroethene	ND		1.0	0.29	ug/L			11/14/13 14:15	1
1,2-Dibromo-3-Chloropropane	ND		1.0	0.39	ug/L			11/14/13 14:15	1
1,2-Dibromoethane	ND		1.0	0.73	ug/L			11/14/13 14:15	1
1,2-Dichloroethane	ND		1.0	0.21	ug/L			11/14/13 14:15	1
1,2-Dichloropropane	ND		1.0	0.72	ug/L			11/14/13 14:15	1
Bromodichloromethane	ND		1.0	0.39	ug/L			11/14/13 14:15	1
Bromoform	ND		1.0	0.26	ug/L			11/14/13 14:15	1
Bromomethane	ND		1.0	0.69	ug/L			11/14/13 14:15	1
Carbon tetrachloride	ND		1.0	0.27	ug/L			11/14/13 14:15	1
Chloroethane	ND		1.0	0.32	ug/L			11/14/13 14:15	1
Chloroform	ND		1.0	0.34	ug/L			11/14/13 14:15	1
Chloromethane	ND		1.0	0.35	ug/L			11/14/13 14:15	1
cis-1,2-Dichloroethene	**24**		1.0	0.81	ug/L			11/14/13 14:15	1
cis-1,3-Dichloropropene	ND		1.0	0.36	ug/L			11/14/13 14:15	1
Dibromochloromethane	ND		1.0	0.32	ug/L			11/14/13 14:15	1

Client Sample ID: DUP

Lab Sample ID: 480-49430-12

Date Collected: 11/05/13 00:00

Matrix: Water

Date Received: 11/05/13 18:10

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dichlorodifluoromethane	ND		1.0	0.68	ug/L			11/14/13 14:15	1
Methylene Chloride	ND		1.0	0.44	ug/L			11/14/13 14:15	1
Tetrachloroethene	ND		1.0	0.36	ug/L			11/14/13 14:15	1
trans-1,2-Dichloroethene	ND		1.0	0.90	ug/L			11/14/13 14:15	1
trans-1,3-Dichloropropene	ND		1.0	0.37	ug/L			11/14/13 14:15	1
Trichloroethene	**59**		1.0	0.46	ug/L			11/14/13 14:15	1
Trichlorofluoromethane	ND		1.0	0.88	ug/L			11/14/13 14:15	1
Vinyl chloride	**50**		1.0	0.90	ug/L			11/14/13 14:15	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*100*		*66 - 137*		*11/14/13 14:15*	*1*
4-Bromofluorobenzene (Surr)	*94*		*73 - 120*		*11/14/13 14:15*	*1*
Toluene-d8 (Surr)	*100*		*71 - 126*		*11/14/13 14:15*	*1*

Client Sample ID: TRIP BLANK

Lab Sample ID: 480-49430-13

Date Collected: 11/05/13 00:00

Matrix: Water

Date Received: 11/05/13 18:10

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.82	ug/L			11/14/13 02:48	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			11/14/13 02:48	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.31	ug/L			11/14/13 02:48	1
1,1,2-Trichloroethane	ND		1.0	0.23	ug/L			11/14/13 02:48	1
1,1-Dichloroethane	ND		1.0	0.38	ug/L			11/14/13 02:48	1
1,1-Dichloroethene	ND		1.0	0.29	ug/L			11/14/13 02:48	1
1,2-Dibromo-3-Chloropropane	ND		1.0	0.39	ug/L			11/14/13 02:48	1
1,2-Dibromoethane	ND		1.0	0.73	ug/L			11/14/13 02:48	1
1,2-Dichloroethane	ND		1.0	0.21	ug/L			11/14/13 02:48	1
1,2-Dichloropropane	ND		1.0	0.72	ug/L			11/14/13 02:48	1
Bromodichloromethane	ND		1.0	0.39	ug/L			11/14/13 02:48	1
Bromoform	ND		1.0	0.26	ug/L			11/14/13 02:48	1
Bromomethane	ND		1.0	0.69	ug/L			11/14/13 02:48	1
Carbon tetrachloride	ND		1.0	0.27	ug/L			11/14/13 02:48	1
Chloroethane	ND		1.0	0.32	ug/L			11/14/13 02:48	1
Chloroform	ND		1.0	0.34	ug/L			11/14/13 02:48	1
Chloromethane	ND		1.0	0.35	ug/L			11/14/13 02:48	1
cis-1,2-Dichloroethene	ND		1.0	0.81	ug/L			11/14/13 02:48	1
cis-1,3-Dichloropropene	ND		1.0	0.36	ug/L			11/14/13 02:48	1
Dibromochloromethane	ND		1.0	0.32	ug/L			11/14/13 02:48	1
Dichlorodifluoromethane	ND		1.0	0.68	ug/L			11/14/13 02:48	1
Methylene Chloride	ND		1.0	0.44	ug/L			11/14/13 02:48	1
Tetrachloroethene	ND		1.0	0.36	ug/L			11/14/13 02:48	1
trans-1,2-Dichloroethene	ND		1.0	0.90	ug/L			11/14/13 02:48	1
trans-1,3-Dichloropropene	ND		1.0	0.37	ug/L			11/14/13 02:48	1
Trichloroethene	ND		1.0	0.46	ug/L			11/14/13 02:48	1
Trichlorofluoromethane	ND		1.0	0.88	ug/L			11/14/13 02:48	1
Vinyl chloride	ND		1.0	0.90	ug/L			11/14/13 02:48	1

Client: LaBella Associates PC
Project/Site: Former Griffin Technology Site

TestAmerica Job ID: 480-49430-1

Client Sample ID: TRIP BLANK
Date Collected: 11/05/13 00:00
Date Received: 11/05/13 18:10

Lab Sample ID: 480-49430-13
Matrix: Water

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102		66 - 137		11/14/13 02:48	1
4-Bromofluorobenzene (Surr)	95		73 - 120		11/14/13 02:48	1
Toluene-d8 (Surr)	99		71 - 126		11/14/13 02:48	1

Surrogate Summary

Client: LaBella Associates PC
Project/Site: Former Griffin Technology Site

TestAmerica Job ID: 480-49430-1

Method: 8260C - Volatile Organic Compounds by GC/MS

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)		
		12DCE	BFB	TOL
Lab Sample ID	Client Sample ID	(66-137)	(73-120)	(71-126)
480-49430-1	OW-2	99	92	98
480-49430-2	OW-4	99	91	99
480-49430-3	OW-5	97	91	98
480-49430-3 MS	OW-5	95	92	96
480-49430-3 MSD	OW-5	95	94	93
480-49430-4	OW-6	100	94	99
480-49430-4 - DL	OW-6	103	97	102
480-49430-5	OW-7	99	93	98
480-49430-6	OW-8	96	90	95
480-49430-7	OW-9	98	92	98
480-49430-8	OW-1 PDB	99	91	97
480-49430-8 - DL	OW-1 PDB	101	94	100
480-49430-9	OW-3 PDB	98	92	97
480-49430-9 - DL	OW-3 PDB	100	93	100
480-49430-10	OW-1	100	93	100
480-49430-10 - DL	OW-1	102	94	100
480-49430-11	OW-3	98	94	100
480-49430-11 - DL	OW-3	98	92	99
480-49430-12	DUP	100	94	100
480-49430-13	TRIP BLANK	102	95	99
LCS 480-151699/5	Lab Control Sample	101	103	102
LCS 480-151855/6	Lab Control Sample	94	92	94
LCS 480-151962/4	Lab Control Sample	98	98	99
MB 480-151699/6	Method Blank	99	94	98
MB 480-151855/7	Method Blank	99	92	98
MB 480-151962/5	Method Blank	100	96	102

Surrogate Legend

12DCE = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
TOL = Toluene-d8 (Surr)

Method: 8260C - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 480-151699/6
Matrix: Water
Analysis Batch: 151699

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.82	ug/L			11/13/13 13:04	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			11/13/13 13:04	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.31	ug/L			11/13/13 13:04	1
1,1,2-Trichloroethane	ND		1.0	0.23	ug/L			11/13/13 13:04	1
1,1-Dichloroethane	ND		1.0	0.38	ug/L			11/13/13 13:04	1
1,1-Dichloroethene	ND		1.0	0.29	ug/L			11/13/13 13:04	1
1,2-Dibromo-3-Chloropropane	ND		1.0	0.39	ug/L			11/13/13 13:04	1
1,2-Dibromoethane	ND		1.0	0.73	ug/L			11/13/13 13:04	1
1,2-Dichloroethane	ND		1.0	0.21	ug/L			11/13/13 13:04	1
1,2-Dichloropropane	ND		1.0	0.72	ug/L			11/13/13 13:04	1
Bromodichloromethane	ND		1.0	0.39	ug/L			11/13/13 13:04	1
Bromoform	ND		1.0	0.26	ug/L			11/13/13 13:04	1
Bromomethane	ND		1.0	0.69	ug/L			11/13/13 13:04	1
Carbon tetrachloride	ND		1.0	0.27	ug/L			11/13/13 13:04	1
Chloroethane	ND		1.0	0.32	ug/L			11/13/13 13:04	1
Chloroform	ND		1.0	0.34	ug/L			11/13/13 13:04	1
Chloromethane	ND		1.0	0.35	ug/L			11/13/13 13:04	1
cis-1,2-Dichloroethene	ND		1.0	0.81	ug/L			11/13/13 13:04	1
cis-1,3-Dichloropropene	ND		1.0	0.36	ug/L			11/13/13 13:04	1
Dibromochloromethane	ND		1.0	0.32	ug/L			11/13/13 13:04	1
Dichlorodifluoromethane	ND		1.0	0.68	ug/L			11/13/13 13:04	1
Methylene Chloride	ND		1.0	0.44	ug/L			11/13/13 13:04	1
Tetrachloroethene	ND		1.0	0.36	ug/L			11/13/13 13:04	1
trans-1,2-Dichloroethene	ND		1.0	0.90	ug/L			11/13/13 13:04	1
trans-1,3-Dichloropropene	ND		1.0	0.37	ug/L			11/13/13 13:04	1
Trichloroethene	ND		1.0	0.46	ug/L			11/13/13 13:04	1
Trichlorofluoromethane	ND		1.0	0.88	ug/L			11/13/13 13:04	1
Vinyl chloride	ND		1.0	0.90	ug/L			11/13/13 13:04	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*99*		*66 - 137*		*11/13/13 13:04*	*1*
4-Bromofluorobenzene (Surr)	*94*		*73 - 120*		*11/13/13 13:04*	*1*
Toluene-d8 (Surr)	*98*		*71 - 126*		*11/13/13 13:04*	*1*

Lab Sample ID: LCS 480-151699/5
Matrix: Water
Analysis Batch: 151699

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethane	25.0	21.6		ug/L		86	71 - 129
1,1-Dichloroethene	25.0	20.1		ug/L		80	58 - 121
1,2-Dichloroethane	25.0	21.3		ug/L		85	75 - 127
cis-1,2-Dichloroethene	25.0	21.4		ug/L		85	74 - 124
Tetrachloroethene	25.0	21.4		ug/L		86	74 - 122
trans-1,2-Dichloroethene	25.0	21.2		ug/L		85	73 - 127
Trichloroethene	25.0	20.8		ug/L		83	74 - 123

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 480-151699/5
Matrix: Water
Analysis Batch: 151699

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	101		66 - 137
4-Bromofluorobenzene (Surr)	103		73 - 120
Toluene-d8 (Surr)	102		71 - 126

Lab Sample ID: 480-49430-3 MS
Matrix: Water
Analysis Batch: 151699

Client Sample ID: OW-5
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethane	2.5		25.0	25.6		ug/L		92	71 - 129
1,1-Dichloroethene	0.33	J	25.0	22.7		ug/L		89	58 - 121
1,2-Dichloroethane	ND		25.0	22.9		ug/L		92	75 - 127
cis-1,2-Dichloroethene	52		25.0	73.2		ug/L		87	74 - 124
Tetrachloroethene	ND		25.0	23.6		ug/L		94	74 - 122
trans-1,2-Dichloroethene	ND		25.0	23.6		ug/L		94	73 - 127
Trichloroethene	57		25.0	77.7		ug/L		84	74 - 123

Surrogate	MS %Recovery	MS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	95		66 - 137
4-Bromofluorobenzene (Surr)	92		73 - 120
Toluene-d8 (Surr)	96		71 - 126

Lab Sample ID: 480-49430-3 MSD
Matrix: Water
Analysis Batch: 151699

Client Sample ID: OW-5
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1-Dichloroethane	2.5		25.0	27.6		ug/L		100	71 - 129	7	20
1,1-Dichloroethene	0.33	J	25.0	24.4		ug/L		96	58 - 121	7	16
1,2-Dichloroethane	ND		25.0	24.8		ug/L		99	75 - 127	8	20
cis-1,2-Dichloroethene	52		25.0	75.1		ug/L		94	74 - 124	3	15
Tetrachloroethene	ND		25.0	25.1		ug/L		100	74 - 122	6	20
trans-1,2-Dichloroethene	ND		25.0	25.6		ug/L		102	73 - 127	8	20
Trichloroethene	57		25.0	80.0		ug/L		93	74 - 123	3	16

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	95		66 - 137
4-Bromofluorobenzene (Surr)	94		73 - 120
Toluene-d8 (Surr)	93		71 - 126

Lab Sample ID: MB 480-151855/7
Matrix: Water
Analysis Batch: 151855

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.82	ug/L			11/13/13 22:58	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			11/13/13 22:58	1

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 480-151855/7
Matrix: Water
Analysis Batch: 151855

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.31	ug/L			11/13/13 22:58	1
1,1,2-Trichloroethane	ND		1.0	0.23	ug/L			11/13/13 22:58	1
1,1-Dichloroethane	ND		1.0	0.38	ug/L			11/13/13 22:58	1
1,1-Dichloroethene	ND		1.0	0.29	ug/L			11/13/13 22:58	1
1,2-Dibromo-3-Chloropropane	ND		1.0	0.39	ug/L			11/13/13 22:58	1
1,2-Dibromoethane	ND		1.0	0.73	ug/L			11/13/13 22:58	1
1,2-Dichloroethane	ND		1.0	0.21	ug/L			11/13/13 22:58	1
1,2-Dichloropropane	ND		1.0	0.72	ug/L			11/13/13 22:58	1
Bromodichloromethane	ND		1.0	0.39	ug/L			11/13/13 22:58	1
Bromoform	ND		1.0	0.26	ug/L			11/13/13 22:58	1
Bromomethane	ND		1.0	0.69	ug/L			11/13/13 22:58	1
Carbon tetrachloride	ND		1.0	0.27	ug/L			11/13/13 22:58	1
Chloroethane	ND		1.0	0.32	ug/L			11/13/13 22:58	1
Chloroform	ND		1.0	0.34	ug/L			11/13/13 22:58	1
Chloromethane	ND		1.0	0.35	ug/L			11/13/13 22:58	1
cis-1,2-Dichloroethene	ND		1.0	0.81	ug/L			11/13/13 22:58	1
cis-1,3-Dichloropropene	ND		1.0	0.36	ug/L			11/13/13 22:58	1
Dibromochloromethane	ND		1.0	0.32	ug/L			11/13/13 22:58	1
Dichlorodifluoromethane	ND		1.0	0.68	ug/L			11/13/13 22:58	1
Methylene Chloride	ND		1.0	0.44	ug/L			11/13/13 22:58	1
Tetrachloroethene	ND		1.0	0.36	ug/L			11/13/13 22:58	1
trans-1,2-Dichloroethene	ND		1.0	0.90	ug/L			11/13/13 22:58	1
trans-1,3-Dichloropropene	ND		1.0	0.37	ug/L			11/13/13 22:58	1
Trichloroethene	ND		1.0	0.46	ug/L			11/13/13 22:58	1
Trichlorofluoromethane	ND		1.0	0.88	ug/L			11/13/13 22:58	1
Vinyl chloride	ND		1.0	0.90	ug/L			11/13/13 22:58	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*99*		*66 - 137*		*11/13/13 22:58*	*1*
4-Bromofluorobenzene (Surr)	*92*		*73 - 120*		*11/13/13 22:58*	*1*
Toluene-d8 (Surr)	*98*		*71 - 126*		*11/13/13 22:58*	*1*

Lab Sample ID: LCS 480-151855/6
Matrix: Water
Analysis Batch: 151855

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethane	25.0	23.3		ug/L		93	71 - 129
1,1-Dichloroethene	25.0	22.3		ug/L		89	58 - 121
1,2-Dichloroethane	25.0	23.5		ug/L		94	75 - 127
cis-1,2-Dichloroethene	25.0	23.6		ug/L		94	74 - 124
Tetrachloroethene	25.0	23.8		ug/L		95	74 - 122
trans-1,2-Dichloroethene	25.0	23.4		ug/L		94	73 - 127
Trichloroethene	25.0	23.5		ug/L		94	74 - 123

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*94*		*66 - 137*

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 480-151855/6
Matrix: Water
Analysis Batch: 151855

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	*92*		*73 - 120*
Toluene-d8 (Surr)	*94*		*71 - 126*

Lab Sample ID: MB 480-151962/5
Matrix: Water
Analysis Batch: 151962

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.82	ug/L			11/14/13 11:06	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			11/14/13 11:06	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.31	ug/L			11/14/13 11:06	1
1,1,2-Trichloroethane	ND		1.0	0.23	ug/L			11/14/13 11:06	1
1,1-Dichloroethane	ND		1.0	0.38	ug/L			11/14/13 11:06	1
1,1-Dichloroethene	ND		1.0	0.29	ug/L			11/14/13 11:06	1
1,2-Dibromo-3-Chloropropane	ND		1.0	0.39	ug/L			11/14/13 11:06	1
1,2-Dibromoethane	ND		1.0	0.73	ug/L			11/14/13 11:06	1
1,2-Dichloroethane	ND		1.0	0.21	ug/L			11/14/13 11:06	1
1,2-Dichloropropane	ND		1.0	0.72	ug/L			11/14/13 11:06	1
Bromodichloromethane	ND		1.0	0.39	ug/L			11/14/13 11:06	1
Bromoform	ND		1.0	0.26	ug/L			11/14/13 11:06	1
Bromomethane	ND		1.0	0.69	ug/L			11/14/13 11:06	1
Carbon tetrachloride	ND		1.0	0.27	ug/L			11/14/13 11:06	1
Chloroethane	ND		1.0	0.32	ug/L			11/14/13 11:06	1
Chloroform	ND		1.0	0.34	ug/L			11/14/13 11:06	1
Chloromethane	ND		1.0	0.35	ug/L			11/14/13 11:06	1
cis-1,2-Dichloroethene	ND		1.0	0.81	ug/L			11/14/13 11:06	1
cis-1,3-Dichloropropene	ND		1.0	0.36	ug/L			11/14/13 11:06	1
Dibromochloromethane	ND		1.0	0.32	ug/L			11/14/13 11:06	1
Dichlorodifluoromethane	ND		1.0	0.68	ug/L			11/14/13 11:06	1
Methylene Chloride	ND		1.0	0.44	ug/L			11/14/13 11:06	1
Tetrachloroethene	ND		1.0	0.36	ug/L			11/14/13 11:06	1
trans-1,2-Dichloroethene	ND		1.0	0.90	ug/L			11/14/13 11:06	1
trans-1,3-Dichloropropene	ND		1.0	0.37	ug/L			11/14/13 11:06	1
Trichloroethene	ND		1.0	0.46	ug/L			11/14/13 11:06	1
Trichlorofluoromethane	ND		1.0	0.88	ug/L			11/14/13 11:06	1
Vinyl chloride	ND		1.0	0.90	ug/L			11/14/13 11:06	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	*100*		*66 - 137*		*11/14/13 11:06*	*1*
4-Bromofluorobenzene (Surr)	*96*		*73 - 120*		*11/14/13 11:06*	*1*
Toluene-d8 (Surr)	*102*		*71 - 126*		*11/14/13 11:06*	*1*

Lab Sample ID: LCS 480-151962/4
Matrix: Water
Analysis Batch: 151962

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethane	25.0	24.7		ug/L		99	71 - 129

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 480-151962/4
Matrix: Water
Analysis Batch: 151962

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	25.0	23.3		ug/L		93	58 - 121
1,2-Dichloroethane	25.0	24.5		ug/L		98	75 - 127
cis-1,2-Dichloroethene	25.0	24.7		ug/L		99	74 - 124
Tetrachloroethene	25.0	25.1		ug/L		100	74 - 122
trans-1,2-Dichloroethene	25.0	25.0		ug/L		100	73 - 127
Trichloroethene	25.0	24.9		ug/L		99	74 - 123

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*98*		*66 - 137*
4-Bromofluorobenzene (Surr)	*98*		*73 - 120*
Toluene-d8 (Surr)	*99*		*71 - 126*

GC/MS VOA

Analysis Batch: 151699

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-49430-1	OW-2	Total/NA	Water	8260C	
480-49430-2	OW-4	Total/NA	Water	8260C	
480-49430-3	OW-5	Total/NA	Water	8260C	
480-49430-3 MS	OW-5	Total/NA	Water	8260C	
480-49430-3 MSD	OW-5	Total/NA	Water	8260C	
480-49430-4	OW-6	Total/NA	Water	8260C	
480-49430-5	OW-7	Total/NA	Water	8260C	
480-49430-6	OW-8	Total/NA	Water	8260C	
LCS 480-151699/5	Lab Control Sample	Total/NA	Water	8260C	
MB 480-151699/6	Method Blank	Total/NA	Water	8260C	

Analysis Batch: 151855

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-49430-4 - DL	OW-6	Total/NA	Water	8260C	
480-49430-7	OW-9	Total/NA	Water	8260C	
480-49430-8	OW-1 PDB	Total/NA	Water	8260C	
480-49430-9	OW-3 PDB	Total/NA	Water	8260C	
480-49430-10	OW-1	Total/NA	Water	8260C	
480-49430-11	OW-3	Total/NA	Water	8260C	
480-49430-13	TRIP BLANK	Total/NA	Water	8260C	
LCS 480-151855/6	Lab Control Sample	Total/NA	Water	8260C	
MB 480-151855/7	Method Blank	Total/NA	Water	8260C	

Analysis Batch: 151962

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-49430-8 - DL	OW-1 PDB	Total/NA	Water	8260C	
480-49430-9 - DL	OW-3 PDB	Total/NA	Water	8260C	
480-49430-10 - DL	OW-1	Total/NA	Water	8260C	
480-49430-11 - DL	OW-3	Total/NA	Water	8260C	
480-49430-12	DUP	Total/NA	Water	8260C	
LCS 480-151962/4	Lab Control Sample	Total/NA	Water	8260C	
MB 480-151962/5	Method Blank	Total/NA	Water	8260C	

Lab Chronicle

Client: LaBella Associates PC
Project/Site: Former Griffin Technology Site

TestAmerica Job ID: 480-49430-1

Client Sample ID: OW-2
Lab Sample ID: 480-49430-1
Date Collected: 11/04/13 10:45
Matrix: Water
Date Received: 11/05/13 18:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	151699	11/13/13 15:10	RAL	TAL BUF

Client Sample ID: OW-4
Lab Sample ID: 480-49430-2
Date Collected: 11/04/13 12:25
Matrix: Water
Date Received: 11/05/13 18:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	151699	11/13/13 15:34	RAL	TAL BUF

Client Sample ID: OW-5
Lab Sample ID: 480-49430-3
Date Collected: 11/04/13 13:55
Matrix: Water
Date Received: 11/05/13 18:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	151699	11/13/13 15:58	RAL	TAL BUF

Client Sample ID: OW-6
Lab Sample ID: 480-49430-4
Date Collected: 11/04/13 15:25
Matrix: Water
Date Received: 11/05/13 18:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	151699	11/13/13 16:22	RAL	TAL BUF
Total/NA	Analysis	8260C	DL	2	151855	11/14/13 00:00	LCH	TAL BUF

Client Sample ID: OW-7
Lab Sample ID: 480-49430-5
Date Collected: 11/05/13 09:45
Matrix: Water
Date Received: 11/05/13 18:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	151699	11/13/13 16:46	RAL	TAL BUF

Client Sample ID: OW-8
Lab Sample ID: 480-49430-6
Date Collected: 11/05/13 11:00
Matrix: Water
Date Received: 11/05/13 18:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	151699	11/13/13 17:10	RAL	TAL BUF

Lab Chronicle

Client: LaBella Associates PC
Project/Site: Former Griffin Technology Site

TestAmerica Job ID: 480-49430-1

Client Sample ID: OW-9

Lab Sample ID: 480-49430-7

Date Collected: 11/05/13 12:30
Matrix: Water
Date Received: 11/05/13 18:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	151855	11/14/13 00:24	LCH	TAL BUF

Client Sample ID: OW-1 PDB

Lab Sample ID: 480-49430-8

Date Collected: 11/05/13 11:55
Matrix: Water
Date Received: 11/05/13 18:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	151855	11/14/13 00:48	LCH	TAL BUF
Total/NA	Analysis	8260C	DL	5	151962	11/14/13 12:39	LCH	TAL BUF

Client Sample ID: OW-3 PDB

Lab Sample ID: 480-49430-9

Date Collected: 11/05/13 13:40
Matrix: Water
Date Received: 11/05/13 18:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	151855	11/14/13 01:12	LCH	TAL BUF
Total/NA	Analysis	8260C	DL	4	151962	11/14/13 13:03	LCH	TAL BUF

Client Sample ID: OW-1

Lab Sample ID: 480-49430-10

Date Collected: 11/05/13 15:30
Matrix: Water
Date Received: 11/05/13 18:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	151855	11/14/13 01:36	LCH	TAL BUF
Total/NA	Analysis	8260C	DL	5	151962	11/14/13 13:27	LCH	TAL BUF

Client Sample ID: OW-3

Lab Sample ID: 480-49430-11

Date Collected: 11/05/13 15:05
Matrix: Water
Date Received: 11/05/13 18:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	151855	11/14/13 02:00	LCH	TAL BUF
Total/NA	Analysis	8260C	DL	4	151962	11/14/13 13:51	LCH	TAL BUF

Client Sample ID: DUP

Lab Sample ID: 480-49430-12

Date Collected: 11/05/13 00:00
Matrix: Water
Date Received: 11/05/13 18:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	151962	11/14/13 14:15	LCH	TAL BUF

Lab Chronicle

Client: LaBella Associates PC
Project/Site: Former Griffin Technology Site

TestAmerica Job ID: 480-49430-1

Client Sample ID: TRIP BLANK
Date Collected: 11/05/13 00:00
Date Received: 11/05/13 18:10

Lab Sample ID: 480-49430-13
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	151855	11/14/13 02:48	LCH	TAL BUF

Laboratory References:

TAL BUF = TestAmerica Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

Certification Summary

Client: LaBella Associates PC
Project/Site: Former Griffin Technology Site

TestAmerica Job ID: 480-49430-1

Laboratory: TestAmerica Buffalo

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Arkansas DEQ	State Program	6	88-0686	07-06-14
California	NELAP	9	1169CA	09-30-14
Connecticut	State Program	1	PH-0568	09-30-14
Florida	NELAP	4	E87672	06-30-14
Georgia	State Program	4	N/A	03-31-14
Illinois	NELAP	5	200003	09-30-14
Iowa	State Program	7	374	03-01-15
Kansas	NELAP	7	E-10187	01-31-14
Kentucky	State Program	4	90029	12-31-13 *
Kentucky (UST)	State Program	4	30	04-01-14
Louisiana	NELAP	6	02031	06-30-14
Maine	State Program	1	NY00044	12-04-14
Maryland	State Program	3	294	03-31-14
Massachusetts	State Program	1	M-NY044	06-30-14
Michigan	State Program	5	9937	04-01-14
Minnesota	NELAP	5	036-999-337	12-31-13 *
New Hampshire	NELAP	1	2973	09-11-14
New Jersey	NELAP	2	NY455	06-30-14
New York	NELAP	2	10026	04-01-14
North Dakota	State Program	8	R-176	03-31-14
Oklahoma	State Program	6	9421	08-31-14
Oregon	NELAP	10	NY200003	06-09-14
Pennsylvania	NELAP	3	68-00281	07-31-14
Rhode Island	State Program	1	LAO00328	12-31-13
Tennessee	State Program	4	TN02970	04-01-14
Texas	NELAP	6	T104704412-11-2	07-31-14
USDA	Federal		P330-11-00386	11-22-14
Virginia	NELAP	3	460185	09-14-14
Washington	State Program	10	C784	02-10-14
West Virginia DEP	State Program	3	252	12-31-13
Wisconsin	State Program	5	998310390	08-31-14

* Expired certification is currently pending renewal and is considered valid.

Method Summary

Client: LaBella Associates PC
Project/Site: Former Griffin Technology Site

TestAmerica Job ID: 480-49430-1

Method	Method Description	Protocol	Laboratory
8260C	Volatile Organic Compounds by GC/MS	SW846	TAL BUF

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL BUF = TestAmerica Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

Sample Summary

Client: LaBella Associates PC
Project/Site: Former Griffin Technology Site

TestAmerica Job ID: 480-49430-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
480-49430-1	OW-2	Water	11/04/13 10:45	11/05/13 18:10
480-49430-2	OW-4	Water	11/04/13 12:25	11/05/13 18:10
480-49430-3	OW-5	Water	11/04/13 13:55	11/05/13 18:10
480-49430-4	OW-6	Water	11/04/13 15:25	11/05/13 18:10
480-49430-5	OW-7	Water	11/05/13 09:45	11/05/13 18:10
480-49430-6	OW-8	Water	11/05/13 11:00	11/05/13 18:10
480-49430-7	OW-9	Water	11/05/13 12:30	11/05/13 18:10
480-49430-8	OW-1 PDB	Water	11/05/13 11:55	11/05/13 18:10
480-49430-9	OW-3 PDB	Water	11/05/13 13:40	11/05/13 18:10
480-49430-10	OW-1	Water	11/05/13 15:30	11/05/13 18:10
480-49430-11	OW-3	Water	11/05/13 15:05	11/05/13 18:10
480-49430-12	DUP	Water	11/05/13 00:00	11/05/13 18:10
480-49430-13	TRIP BLANK	Water	11/05/13 00:00	11/05/13 18:10

Chain of Custody Record

Temperature on Receipt _____

Drinking Water? Yes ☐ No ☒

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TAL-4124 (1007)

Client: LABELLA ASSOCIATES	Project Manager: DAN NOLL	Date: 11/5/13	Chain of Custody Number: 249062
Address: 300 STATE STREET	Telephone Number (Area Code)/Fax Number: 585 454 6110	Lab Number:	Page 1 of 1
City: ROCHESTER / State: NY / Zip Code: 14614	Site Contact: ANDREW BELVEDERE	Lab Contact:	
Project Name and Location (State): FORMER GRIFFIN TECHNOLOGY SITE	Carrier/Waybill Number:		
Contract/Purchase Order/Quote No.: 212237			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	No. of Containers	Analysis (Attach list if more space is needed): Halogenated VOC by USEPA 8260	Special Instructions/ Conditions of Receipt
OW-2	11/4/13	1045		X						X			3	X	
OW-4	11/4/13	1225		X						X			3	X	
OW-5	11/4/13	1355		X						X			9	X	MS/MSD
OW-6	11/4/13	1525		X						X			3	X	
OW-7	11/5/13	945		X						X			3	X	
OW-8	11/5/13	1100		X						X			3	X	
OW-9	11/5/13	1230		X						X			3	X	
OW-1 PDB	11/5/13	1155		X						X			3	X	
OW-3 PDB	11/5/13	1340		X						X			3	X	
OW-1	11/5/13	1350		X						X			3	X	
OW-3	11/5/13	1505		X						X			3	X	
DUP TRIP BLANK	—	—		X						X			3	X	

480-49430 Chain of Custody

Possible Hazard Identification: ☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal: ☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required: ☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☒ Other STD

QC Requirements (Specify)

1. Relinquished By	Date: 11/5/13	Time: 1810	1. Received By	Date: 11/5/13	Time: 1810
2. Relinquished By	Date:	Time:	2. Received By	Date:	Time:
3. Relinquished By	Date:	Time:	3. Received By	Date:	Time:

Comments: Temp 3.6 ICE #1

DISTRIBUTION: WHITE - Returned to Client with Report, CANARY - Stays with the Sample; PINK - Field Copy

Login Sample Receipt Checklist

Client: LaBella Associates PC

Job Number: 480-49430-1

Login Number: 49430

List Source: TestAmerica Buffalo

List Number: 1

Creator: Kolb, Chris M

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	False	no date or time provided for dup sample
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Sampling Company provided.	True	labella
Samples received within 48 hours of sampling.	True	
Samples requiring field filtration have been filtered in the field.	True	
Chlorine Residual checked.	N/A	

microbialinsights

10515 Research Drive
Knoxville, TN 37932
Phone: (865) 573-8188
Fax: (865) 573-8133
Email: info@microbe.com

Client: Eric Detweiler
Lu Engineers
175 Sullys Trail
Suite 202
Pittsford, NY 14534

Phone: 585-385-7417

Fax:

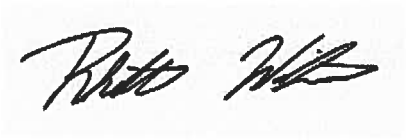
Identifier: 033LB **Date Rec:** 02/18/2014 **Report Date:** 02/25/2014

Client Project #: 50227-03 **Client Project Name:** Finger Lakes Athletic Center

Purchase Order #: 861820

Analysis Requested: CENSUS

Reviewed By:



10515 Research Dr., Knoxville, TN 37932
Tel. (865) 573-8188 Fax. (865) 573-8133

CENSUS

Client: **Lu Engineers**
Project: Finger Lakes Athletic Center

MI Project Number: **033LB**
Date Received: 02/18/2014

Sample Information

Client Sample ID:		**OW-2**	**OW-4**	**OW-8**
Sample Date:		02/17/2014	02/17/2014	02/17/2014
Units:		cells/mL	cells/mL	cells/mL
Analyst:		RW	RW	RW
Dechlorinating Bacteria				
Dehalococcoides	*DHC*	<5.00E-01	<5.00E-01	**2.00E+00**
tceA Reductase	TCE	<5.00E-01	<5.00E-01	**3.00E-01 (J)**
BAV1 Vinyl Chloride Reductase	BVC	<5.00E-01	<5.00E-01	<5.00E-01
Vinyl Chloride Reductase	VCR	<5.00E-01	<5.00E-01	**1.60E+00**
Dehalobacter spp.	*DHBt*	**2.70E+00 (J)**	<5.20E+00	**3.91E+01**

Legend:
NA = Not Analyzed NS = Not Sampled J = Estimated gene copies below PQL but above LQL I = Inhibited
< = Result not detected

Section A: Treatment Area Dimensions

Width perpendicular to groundwater flow (y)	200	ft	61.0	m
Length parallel to groundwater flow (x)	40	ft	12.2	m
Minimum depth to contamination	10	ft	3.0	m
Maximum depth of contamination	20	ft	6.1	m
Treatment thickness (z)	10	ft	3.0	m
Treatment zone cross-sectional area	2,000	ft^2	186	m^2
Treatment zone volume	80,000	ft^3	2,265	m^2
Treatment zone groundwater volume (volume x effective porosity)	89,760	gallons	339,802	L

Section B: Site Hydrogeologic Data

Hydraulic Characteristics				
Total Porosity	0.15	(decimal)		
Effective Porosity	0.15	(decimal)		
Hydraulic Conductivity	0.1	ft/day	3.5E-05	cm/sec
Hydraulic Gradient	0.00343	ft/ft		
Seepage velocity (V_x)	0.0520	ft/day	0.0158	m/day
Groundwater flowrate through treatment area (Q)	117	gallons/day	442	L/day

Section C: Treatment Design Lifespan For One Application	5	year(s)	typical values 5 to 10 years
Total groundwater volume treated over design life	302,716	gallons	1,145,983 L

Section D: Electron Acceptors

Inputs	Typical Value	GW Conc. (mg/L)	MW (g/mole)	e^- equiv./ mole	Stoichmetry *Contaminant/H_2 (wt/wt H_2)*	Hydrogen Demand *(g H_2)*
Dissolved Oxygen (DO)	0 to 8	3	32.0	4	7.94	433.15476
Nitrate Nitrogen (NO_3^- - N)	1 to 10	5	62.0	5	12.30	465.703535
Sulfate (SO_4^{2-})	10 to 500	10	96.1	8	11.91	961.952866
Tetrachloroethene (PCE), C_2Cl_4			165.8	8	20.57	
Trichloroethene (TCE), CHCl:CCl_2		0.42	131.4	6	21.73	22.1532476
cis-1,2-dichloroethene (c-DCE), $C_3H_2Cl_2$		0.06	96.9	4	24.05	2.85947787
Vinyl Chloride (VC), CH_2=CCl_2		0.07	62.5	2	31.00	2.58733456
Carbon tetrachloride, CCl_4			153.8	8	19.08	
Chloroform, $CHCl_3$			119.4	6	19.74	
sym- tetrachloroethane, $C_2H_2Cl_4$			167.8	8	20.82	
1,1,1-Trichloroethane (TCA), CH_3CCl_3		0.002	133.4	6	22.06	0.10389763
1,1-Dichloroethane (DCA), CH_3CHCl_2		0.002	99.0	4	24.55	0.09337435
Chloroethane, C_2H_5Cl			64.9	2	32.18	
Perchlorate, ClO_4^-			99.4	8	12.33	
Hexavalent Chromium, Cr[VI]			52.0	3	17.20	
User added						
User added						
User added						

Section E: Additional Hydrogen Demand and Carbon Losses

Generation (Potential Amount Formed)	Typical Value	GW Conc. (mg/L)	MW (g/mole)	e^- equiv./ mole	Stoichmetry *Contaminant/H_2 (wt/wt H_2)*	Hydrogen Demand *(g H_2)*	DOC Released *(moles)*
Estimated Amount of $Fe2^+$ Formed	10 to 100	20	55.8	1	55.41	413.657819	
Estimated Amount of Manganese (Mn^{2+}) Formed		5	54.9	2	27.25	210.243556	
Estimated Amount of CH_4 Formed	5 to 20	10	16.0	8	1.99	5759.84464	
Target Amount of DOC to Release	60 to 100	70	12.0				6678.78

Note:
Calculations assume:
1.) all reactions go to completion during passage through emulsified edible oil treated zone; and,
2.) perfect reaction stoichiometry.

Section F: Substrate Requirement Calculations Based on Hydrogen Demand and Carbon Losses

Stoichiometric Hydrogen Demand	18	pounds
DOC Released	229	pounds
Pounds Hydrogen Produced per Pound Substrate	0.18	
Typical Soybean Oil Emulsion Concentrate = 0.11		
Substrate Density	7.7	pounds/gallon
Typical Soybean Oil Emulsion Concentrate = 7.66 lbs/gal		

Substrate Requirement Based on Stoichiometric Hydrogen Demand and Carbon Losses

331	pounds
43	gallons

Section G: Substrate Requirement Calculations Based on Adsorptive Capacity of Soil

Adsorptive Capacity of Media (Fractured Bedrock)	0.0001	lbs oil/lbs soil
Bulk density of soil	165	lbs/ft^3
Weight of sediment to be treated	13,207,600	lbs

Substrate Requirement Based on Adsorptive Capacity of Soil

1321	pounds
172	gallons

60% LARGE DROPLET SLOW RELEASE EMULSIFIED VEGETABLE OIL SUBSTRATE (SRS®-FRL) SAFETY DATA SHEET

1. Product Identification

Synonyms:	60% Large Droplet Slow Release Substrate (SRS®-FRL) Emulsified Vegetable Oil (EVO)
Recommended Use:	Treatment of groundwater contaminated with chlorinated solvents and other anaerobically degradable compounds.
Supplier:	Terra Systems, Inc. 130 Hickman Road, Suite 1 Claymont, Delaware 19703 Telephone (302) 798-9553 Fax (302) 798-9554 www.terrasystems.net

2. Hazards Identification

Emergency Overview	
Caution:	May cause eye irritation.
Health Rating:	1 - Slight
Flammability Rating:	1 - Slight
Reactivity Rating:	1 - Slight
Contact Rating:	1 - Slight
Protective Equipment:	Goggles; Proper Gloves
Storage Color Code:	Green (General Storage)
Potential Health Effects	
Inhalation:	Not expected to be a health hazard. If heated, may produce vapors or mists that irritate the mucous membranes and cause irritation, dizziness, and nausea. Remove to fresh air.
Ingestion:	Not expected to be a health hazard via ingestion. Large doses may produce abdominal spasms, diarrhea.
Skin Contact:	No adverse effects expected. May cause irritation or sensitization in sensitive individuals.
Eye Contact:	May cause mild irritation, possible reddening.
Chronic Exposure:	No information found.
Aggravation of Pre-existing Conditions:	No information found.

3. Composition/Information on Ingredients

Ingredient	Synonyms	CAS #	Percent	Hazardous
Soy bean oil	Soya oil	8001-22-7	60%	No
Emulsifiers, lecithin, and proprietary nutrient package containing nitrogen, phosphorus and vitamin B_{12}		Mixture	5 – 15%	No
Sodium lactate	2-hydroxpropionic acid sodium salt	72-17-3	<5%	Yes
Water		7732-18-5	20 - 30%	No

The emulsifiers, lecithin, and nutrient package mixture is a trade secret and consists of ingredients of unknown acute toxicity.

4. First Aid Measures

Inhalation: Not expected to require first aid measures. Remove to fresh air. Get medical attention for any breathing difficulty.

Ingestion: If large amounts were swallowed, give water to drink and get medical advice.

Skin Contact: Not expected to require first aid measures. Wash exposed area with soap and water. Get medical advice if irritation develops.

Eye Contact: Immediately flush eyes with plenty of water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get medical attention if irritation persists.

5. Fire Fighting Measures

Fire: Flash point: >200 C (>392 F). Not considered to be a fire hazard. Isolate from heat and open flame.

Explosion: Not considered to be an explosion hazard. Closed containers may explode if exposed to extreme heat.

Fire Extinguishing Media: Dry chemical, foam, or carbon dioxide. Water spray may be ineffective on fire, but can protect fire-fighters and cool closed containers. Use fog nozzles if water is used.

Special Information: In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full face piece operated in the pressure demand or other positive pressure mode.

6. Accidental Release Measures

Clean-up personnel may require protective clothing. Absorb in sand, paper towels, “Oil Dry”, or other inert material. Scoop up and containerize for disposal. Flush trace residues to sewer with soap and water. Containerized waste may be sent to an approved waste disposal facility.

7. Handling and Storage

Keep in a tightly closed container, stored in a cool, dry, ventilated area. Protect against physical damage. Containers of this material are not hazardous when empty since they do vapors or harmful substances; observe all warnings and precautions listed for the product. Do not store above 49 C (120 F). Keep container tightly closed and upright when not in use to prevent leakage.

8. Exposure Controls/Personal Protection

Airborne Exposure Limits:	None established.
Ventilation System:	Not expected to require any special ventilation.
Personal Respirators (NIOSH Approved):	Not expected to require personal respirator usage.
Skin Protection:	Wear protective gloves and clean body-covering clothing.
Eye Protection:	Use chemical safety goggles and/or a full face shield where splashing is possible. Provide readily accessible eye wash stations and safety showers.
Slips, Trips, and Falls:	Material is slippery when spilled. Clean up with sand, paper towels, “Oil Dry”, or other inert material.

9. Physical and Chemical Properties

Appearance:	White liquid.
Odor:	Vegetable oil.
Solubility:	Miscible in water.
Specific Gravity (water=1):	0.95-0.98. 8.09 pounds per gallon.
pH:	6-7 (40% aqueous solution)
% Volatiles by volume @ 21C (70F):	Negligible.
Boiling Point:	$\geq$ 100C ($\geq$ 212F)
Melting Point:	No information found.
Flash Point (F):	No information found.
Autoignition Temperature:	No information found.
Decomposition Temperature:	No information found.
Vapor Density (Air=1):	No information found.
Vapor Pressure (mm Hg):	< 1.0 @ 20C (68F).
Evaporation Rate (BuAc=1):	No information found.
Viscosity @23 C (73 F):	213 centipoises (1.2 centipoises diluted 1:10)
Partition Coefficient (octanol/water):	No information found.

10. Stability and Reactivity

Stability:	Stable under ordinary conditions of use and storage.
Reactivity:	Not reactive under ordinary conditions.
Hazardous Decomposition Products:	Carbon dioxide and carbon monoxide may form when heated to decomposition.
Hazardous Polymerization:	Will not occur.
Incompatibilities:	Strong oxidizers, acids.
Conditions to Avoid:	Incompatibles. Isolate from heat and open flame.

11. Toxicological Information

Soybean Oil:	No information found on toxicology. It is not a carcinogen listed by IARC, NTP, NIOSH, OSHA, or ACGIH.
Emulsifier/Nutrient Mixture:	No information found on toxicology. It is not a carcinogen listed by IARC, NTP, NIOSH, OSHA, or ACGIH.
Sodium Lactate:	Oral rat LD50: 2,000 mg/kg. 100 mg caused mild irritation to rabbit eye in Draize test. This compound is not listed as a carcinogen by IARC, NRP, NIOSH, OSHA, or ACGIM.
SRS-SD:	The toxicity of the mixture has not been measured.

12. Ecological Information

Environmental Fate:	No information found.
Environmental Toxicity:	No information found.
Degradability:	This product is completely biodegradable under both aerobic and anaerobic conditions.
Soil Mobility:	This compound will move with groundwater until the adsorbed onto the soil. Degradation products may be mobile.
Bioaccumulation Potential:	No information found.

13. Disposal Considerations

Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste disposal facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

14. Transport Information

Not regulated.

15. Regulatory Information

OSHA STATUS: This product is not hazardous under the criteria of the Federal OSHA hazard Communication Standard 29 CFR 1910.1200. However, thermal processing and decomposition fumes from this product may be hazardous as noted in Section 10.

TSCA STATUS: No component of this product is listed on the TSCA inventory.

CERCLA (Comprehensive Response Compensation, and Liability Act): Not reportable.

SARA TITLE III (Superfund Amendments and Reauthorization Act)
Section 312 Extremely Hazardous Substances: None
Section 311/312 Hazard Categories: Non-hazardous Under Section 311/312
Section 313 Toxic Chemicals: None

RCRA STATUS: If discarded in its purchased form, this product would not be a hazardous waste either by listing or by characteristic. However, under RCRA, it is the responsibility of the product user to determine at the time of disposal, whether a material containing the product or derived from the product should be classified as a hazardous waste. (40 CFR 261.20-24)

CALIFORNIA PROPOSITION 65: The following statement is made in order to comply with the California safe Drinking Water and Toxic Enforcement Act of 1986. The product contains no chemicals known to the State of California to cause cancer.

16. Other Information

NFPA Ratings:	Health: **1** Flammability: **1** Reactivity: **1**
Date Prepared:	June 19, 2014
Revision Information:	SDS Section(s) changed since last revision of document include: None.
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Prepared by: Terra Systems, Inc.
Phone Number: (302) 798-9553 (U.S.A.)

Former Griffin Technology Site
BCP Site #C835008
6132 Victor-Manchester Road
Town of Farmington
Ontario County, New York

Implementation of Engineering Control

Quality Assurance Project Plan

Prepared By:
Lu Engineers
ENVIRONMENTAL • TRANSPORTATION • CIVIL
175 Sully's Trail, Suite 202
Pittsford NY, 14534

September 2014

Table of Contents

1.0 Introduction

This Quality Assurance Project Plan (QAPP) was prepared as an integral part of the Work Plan for the Former Griffin Technology Site in the Town of Farmington, and is subject to the review and approval by the New York State Department of Environmental Conservation (NYSDEC). The project work will be performed by Lu Engineers, or conducted under their discretion by NYSDEC-approved contractors. Project-Specific descriptions can be found in the Work Plan.

This QAPP presents the policies, organization, objectives, functional activities, and specific quality assurance (QA) and quality control (QC) activities that will be implemented by Lu Engineers for this project. This QAPP is designed to ensure that all technical data generated by Lu Engineers is accurate, representative, and will ultimately withstand judicial scrutiny.

All QA/QC procedures are implemented in accordance with applicable professional technical standards, NYSDEC and Environmental Protection Agency (EPA) requirements, government regulations and guidelines, and specific project goals and requirements. This QAPP is prepared in accordance with all NYSDEC and EPA QAPP guidance documents.

This QAPP incorporates the following activities:

- Sample management and chain of custody;
- Document control;
- Laboratory quality control; and
- Review of project deliverables.

Analytical samples will be collected in the field utilizing standard operating procedures (SOPs) and sent to the contracted New York State Department of Health (NYSDOH) Environmental Laboratory Approval Plan (ELAP) Contract Laboratory Protocol (CLP) certified laboratory for analysis. Field data compilation, tabulation, and analysis will be checked for accuracy. Calculations and other post-field tasks will be reviewed by field personnel and the project manager.

Equipment used to take field measurements will be maintained and calibrated in accordance with established procedures. Records of calibration will be performed in standard fashion following strict guidelines.

Document control procedures will be used to coordinate the distribution, coding, storage, retrieval, and review of all data collected during all sampling task. These include, but are not

limited to, the sampling of soil/sediment, groundwater, and wastes. In addition, the laboratory has developed SOPs for individual analytical methods and internal QC procedures. These documents are an important aspect of their QA program and are available for review upon request.

2.0 Project Objectives

The intent of this project is to remediate contamination at the Former Griffin Technology Site in the Town of Farmington. Sampling of soil, sediment, and groundwater will be used to identify potential exposure pathways and evaluate the Site for future use. The identification of significant Site characteristics, extent of contamination, and exposure pathways (if completed exposure pathways are indicated) will provide the basis for developing remedial alternatives. The scope of work is described in Section 3.0 of the Work Plan submitted under a separate cover.

A complete project description, including Site history and background information, is given in Section 2.0 of the Work Plan.

3.0 Project Organization and Responsibility

In Accordance with Lu Engineers' quality assurance (QA) program, experienced senior technical staff will be assigned to the project QA/QC functions. The management structure provides for direct and constant operational responsibility, clear lines of authority, and the integration of QA activities. The various QA functions are explained below.

QA contacts include Lu Engineers' Project Manager and Quality Assurance Officer. Qualifications of key personnel are included in Appendix D of the Work Plan.

A NYSDOH ELAP-CLP certified laboratory will provide analytical services for the project. A list of their certifications and accreditations will be provided when the laboratory is selected.

Project Director

The project director for this project will be Robert Hutteman, P.E.. As project director, Mr. Hutteman will have overall responsibility for ensuring that the project meets client objectives and Lu Engineers quality standards. In addition, the project director will be responsible for technical quality control and project oversight and will provide the project manager with access to upper management.

Project Manager

The project manager for this project will be Gregory L. Andrus, CHMM. As project manager, he will be responsible for implementing the project and will have the authority to commit the resources necessary to meet project objectives and requirements. The project manager's primary function is to ensure that technical, financial, and scheduling objectives are achieved. The project manager will provide the major point of contact and control for matters concerning the project. The project manager will:

- Work directly with the NYSDEC Regional Office to complete and implement a work plan for the project;
- Define project objectives and schedule;
- Establish project policy and procedures to address the specific needs of the project as a whole, as well as the objectives of each task;
- Acquire and apply technical managerial resources as needed to ensure performance within budget and schedule constraints;
- Orient all staff concerning the project's special considerations;
- Develop and meet ongoing project and/or task staffing requirements, including mechanisms to review and evaluate each task product;
- Review the work performed on each task to ensure its quality, responsiveness, and timeliness;
- Review and analyze overall task performance with respect to planned requirements and authorizations;
- Approve all external reports (deliverables) before their submission to the client;
- Ultimately be responsible for the preparation and quality of interim and final reports; and
- Represent the project team at meetings.

Quality Assurance Officer (QAO)

The QA officer is Steven Campbell, CHMM. He will be responsible for maintaining QA for a specific program and the projects within that program. Specific functions and duties include:

- Providing an external and, thereby, independent QA function to the project;
- Responsibility for field and sampling audits conducted by qualified QA personnel;
- Coordinating with client personnel, Lu Engineers' project manager, laboratory management, and staff to ensure that QA objectives appropriate to the project are set and that personnel are aware of these objectives;

- Coordinating with project management and personnel to ensure that QC procedures appropriate to demonstrating data validity sufficient to meet QA objectives are developed and in place;
- Interfacing with the data validator (if necessary) and development of a project specific data usability report;
- Coordinating with QA personnel to ensure that QC procedures are followed and documented;
- Requiring and/or reviewing corrective actions taken in the event of QC failures;
- Reporting non-conformance with QC criteria or QA objectives, including an assessment of the impact on data quality or project objectives, to the project manager.

Technical Staff

The technical staff (team members) for this project will be drawn from Lu Engineers pool of resources. The technical team staff will be utilized to gather and analyze data and to prepare various task reports and support materials. All of the designated technical team members are experienced professionals who possess the degree of specialization; training and technical competence required to effectively and efficiently performs the required work.

Data Validation & QA Staff

The data validation and QA staff will include data validation chemists, QA auditors, and other technical specialists who remain independent of the laboratory and project management. The staff will independently validate analytical data to assess and summarize their accuracy, precision, and reliability and determine their usability. The staff will also perform audits and document the historical record of project activities, including any factors affecting data usability, such as data discrepancies and deviations from standard practices. The staff will act under the direction of the QA officer and project manager in accordance with specific project requirements.

Third party data validation will be performed by an appropriately qualified subcontracted firm. Resumes of the data validation staff will be obtained and available upon request.

4.0 Sampling Procedures

4.1 Sampling Design

The sampling design for this project is focused on the wells identified in the work plan. An Emulsified Vegetable Oil (EVO) solution is to be injected into existing monitoring wells on site to treat existing contamination on Site.

4.2 QC Sample

Various types of field QC samples are used to check the cleanliness and effectiveness of field handling methods. They are analyzed in the laboratory as samples, and their purpose is to assess the sampling and transport procedures as possible sources of sample contamination and document overall sampling and analytical precision. Rigorous documentation of all field QC samples in the Site logbooks is mandatory.

- **Trip Blanks** are similar to field blanks with the exception that they are not exposed to field conditions. Their analytical results give the overall level of contamination from everything except ambient field conditions. Trip blanks are prepared at the lab prior to the sampling event and shipped with the sample bottles. Trip blanks are prepared by adding organic-free water to a 40-milliliter (ml) volatile organic analysis (VOA) vial. One trip blank will be used with every batch of water samples shipped for volatile organic analysis.

  Each trip blank will be transported to the sampling location, handled like a sample, and returned to the laboratory for analysis without being opened in the field.

- **Field Equipment/Rinsate Blanks** are blank samples designed to demonstrate that sampling equipment has been properly prepared and cleaned before field use and that cleaning procedures between samples are sufficient to minimize cross-contamination. Rinsate blanks are prepared by passing analyte-free water over sampling equipment and analyzing the samples for all applicable parameters. If a sampling team is familiar with a particular site, its members may be able to predict which areas or samples are likely to have the highest concentration of contaminants. Unless other constraints apply, these samples should be taken last to avoid excessive contamination of sampling equipment.

- **Field Duplicates** consist of a set of two (2) samples collected independently at a sampling location during a single sampling event. Field duplicates can be sent to the laboratory so that they are indistinguishable from other analytical samples and personnel performing the analysis are not able to determine which of the samples are field duplicates. Field duplicates are designed to assess the consistency of the overall sampling and analytical system.

Field QC samples and the frequency of analysis for this project are summarized in Table 4.1.

4.2.1 Decontamination Procedures

All decontamination will be performed in accordance with NYSDEC-approved procedures. Sampling methods and equipment have been chosen to minimize decontamination requirements and prevent the possibility of cross-contamination. All drilling equipment will be decontaminated prior to drilling, after drilling each boring/monitoring well, and after the completion of all drilling. Special attention will be given to the drilling assembly, augers, split-spoons, and polyethylene casing. Split-spoons will be decontaminated prior to and following each use.

Split-spoons and other non-disposable sampling equipment, including bailers and stainless steel spoons will be decontaminated using the following procedure:

- Initially cleaning equipment of all foreign matter;
- Scrubbing equipment with brushes in Alconox solution;
- Rinsing equipment with distilled water;
- Triple-rinsing equipment with distilled water; and
- Allowing equipment to air dry.

A temporary decontamination pool will be established in a secure area on site using 6-ml polyethylene sheeting. Fluids generated during decontamination will be collected in the plastic-lined pool. Prior to completion of the project, all decontamination wastes will be transferred into drums for appropriate staging and disposal.

4.3 Sampling Methods

This section describes the sampling procedures to be utilized for each environmental medium that will be collected and analyzed in accordance with the Work Plan and Tables 4.1 and 5.1 of this Plan. All sampling procedures described are consistent with USEPA sampling procedures as described in SW-846, third edition and the NYSDEC ASP, or equivalent.

4.3.1 Groundwater Sampling

The groundwater sampling plan outlined in this subsection has been prepared in general accordance with RCRA Groundwater Monitoring Technical Enforcement Guidance Document 9950.1 (September 1986), Office of Solid Waste and Emergency Response as modified by NYSDEC-specific request.

Static water levels will be measured to within 0.01 foot prior to purging and sampling. Purging and sampling of each well will be accomplished using precleaned dedicated polyethylene bailers on new polypropylene line. All wells will be purged a minimum of three (3) volumes of water standing in the casing or to dryness. Temperature, pH, conductivity, and turbidity will be measured and recorded during purging.
After purging, the turbidity of each well will be measured. If the well water exhibits turbidity above the 50 NTU limit, sampling of the well water for metals only will be delayed for 24 hours. Sample volumes for all other parameters will be collected immediately following purging, with the volatile sample collected first. Upon returning to the well, the turbidity will be remeasured and recorded. No additional purging will be performed. Groundwater samples will be collected according to the following procedures:

- Water clarity will be quantified during sampling with a turbidity meter;
- When transferring water from the bailer to sample containers, care will be taken to avoid agitating the sample, since agitation promotes the loss of volatile constituents;
- Any observable physical characteristics of the groundwater (i.e., color, sheen, odor, turbidity) at the time of sampling will be recorded; and
- Weather conditions (i.e., air temperature, sky condition, recent heavy rainfall, drought conditions) at the time of sampling will be recorded.

All groundwater samples and their accompanying QA/QC samples will be analyzed as specified in the RI Work Plan.

4.4 Sample Documentation

4.4.1 Logbooks

All field activities will be documented in a field logbook. This logbook will provide a record of activities conducted at the Site. All entries will be signed and dated at the end of each day of fieldwork. The field logbook will include the following: date and time of all entries; names of all personnel on Site; weather conditions (temperature, precipitation, etc.); location of activity; and description of activity.

In addition, Lu Engineers will complete the following standard field forms as necessary:

- Test boring/probing log
- Groundwater sampling logs and well development records
- Field sampling record
- Chain of custody for all analytical laboratory sampling

As with any data logbooks, no pages will be removed for any reason. If corrections are necessary, these must be made by drawing a single line through the original entry (so that the original entry can still be read) and writing the corrected entry alongside it. The correction must be initialed and dated.

4.4.2 Sample Identification

All containers of samples collected by Lu Engineers from the project will be identified using a format identified in the field on a label affixed to the sample container (labels are to be covered with Mylar tape). Sample bottles will be labeled prior to sampling to ensure reliable identification.

4.5 Field Instrumentation

All instruments and equipment used during sampling and analysis will be operated, calibrated and maintained according to manufacturer's guidelines and recommendations. Operation, calibration, and maintenance will be performed by personnel properly trained in these procedures. Documentation of calibration information will be maintained in the appropriate logbook or reference file and will be available upon request. Instruments will be calibrated before each use.

5.0 Sample Handling and Custody

This section describes procedures for sample handling and chain-of-custody to be followed by Lu Engineers sampling personnel and the analytical laboratory. The purpose of these procedures is to ensure that the integrity of the samples is maintained during their collection, transportation, storage, and analysis. All chain-of-custody requirements comply with SOPs indicated in EPA sample-handling protocol.

Sample identification documents will be carefully prepared so that sample identification and chain-of-custody can be maintained and sample disposition controlled. Sample identification documents include field notebooks, sample labels, custody seals, chain-of-custody records, and laboratory sample log-in and tracking forms.

The primary objective of the chain-of-custody procedures is to provide an accurate written record that can be used to trace the possession and handling of a sample from the moment of its collection through it analyses. A sample is in custody if it is:

- In someone's physical possession;
- In someone's view;
- Locked up; or
- Kept in a secured area that is restricted to authorized personnel.

5.1 Sample Containers and Preservation

For sampling performed by Lu Engineers, prewashed sample containers obtained from a reliable supplier will be provided by the analytical laboratory. All containers provided by

the laboratory are precleaned (Level 1), with certificates of analysis available for each bottle type. Certifications of Analysis provided by the vendor are kept on file by the laboratory.

All samples will be stored on ice pending delivery to the laboratory. In addition, all water samples for volatile analysis will be preserved with hydrochloric acid (HCl) to a pH of less than 2.0. All water samples for metals analysis will be preserved with nitric acid until the sample pH is lowered to 2.0 standard units or less. Sample pH will be checked in the field using indicator paper. A list of preservatives and holding times for each type of analysis is included in the following Table**.**

Table 5.1 Sample Preservation and Holding Times

Parameter	Method Number	Container Type and Size	Preservation	Holding Time*
Groundwater				
TCL VOCs + 30 TICs	8260C	3 x 40-ml. VOA	Cool to 4°C; minimize headspace; HCl to pH<2	5 days unpreserved / 12 days preserved

* Holding times are based on verified time of sample receipt (VTSR) at the laboratory

Sample preservation will be verified at the lab just prior to extraction, digestion, and/or analysis and the pH will be recorded in the extraction/digestion logbook. The pH may be checked upon arrival, if desired.

If the samples are improperly preserved, a QA/QC discrepancy form will be submitted to the lab manager and QA coordinator for appropriate follow-up action (i.e., evaluation of the data during the data validation process and, if necessary, additional instruction of personnel regarding proper procedures).

5.2 Field Custody Procedures

- Sample bottles must be obtained precleaned from the laboratory or directly from an approved retail source. All containers will be prepared in a manner consistent with the NYSDEC ASP 1991 bottle-washing procedures. Coolers or boxes containing cleaned bottles should be sealed with a custody tape seal during transport to the field or while in storage prior to use.
- All containers will have assigned lot numbers to ensure traceability through the supplier.
- As few persons as possible should handle samples.

- The sample collector is personally responsible for the care and custody of samples collected until the samples are transferred to another person or dispatched properly under chain-of-custody rules.
- The sample collector will record sample data in the field notebook.
- The project manager will determine whether proper custody procedures were followed during the fieldwork and decide if additional samples are required.

5.2.1 Custody Seals

Custody seals are preprinted adhesive-backed seals with security slots designed to break if the seals are disturbed. A custody seal is placed over the cap of individual sample bottles by the sampling technician. Sample shipping containers (coolers, cardboard boxed, etc., as appropriate) are sealed in as many places as necessary to ensure security. Seals must be signed and dated before use. Strapping tape should be placed around the lid to ensure that seals are not accidentally broken during shipment and in a manner that allows easy removal by laboratory personnel. On receipt at the laboratory, the custodian must check (and certify, by completing logbook entries) that seals on boxes and bottles are intact.

5.2.2 Chain-of-Custody Record

The chain-of-custody record must be fully completed in duplicate, using black carbon paper where possible, by the field technician who has been designated by the project manager as responsible for sample shipment to the appropriate laboratory for analysis. In addition, if samples are known to require rapid turnaround in the laboratory because of project time constraints or analytical concerns (i.e., extraction time or sample retention period limitations, etc.), the person completing the chain-of-custody record should note these constraints in the “Remarks” section of the custody record.

5.3 Sample Handling, Packaging, and Shipping

The transportation and handling of samples must be accomplished in a manner that not only protects the integrity of the sample but also prevents any detrimental effects due to the possible hazardous nature of samples. Regulations for packaging, marking, labeling, and shipping hazardous materials are promulgated by the United States Department of Transportation (DOT) in the Code of Federal Regulations (CFR), 49 CFR 171 through 177

5.3.1 Sample Packaging

Samples must be packaged carefully to avoid breakage or contamination and must be shipped to the laboratory at proper temperatures. The following sample packaging requirements will be followed:

- Sample bottle lids must never be mixed. All sample lids must stay with the original containers.
- The sample bottle should never be completely filled except for VOA bottles. At a minimum, a 10% void space should be left in the bottle to allow for expansion. The sample volume level should be marked with a grease pencil or by placing the top of the label at the appropriate sample height.
- All sample bottles must be sealed around the neck or the jar lid with clear tape. Any custody seals should be affixed prior to sealing the bottle.
- All sample bottles shall be placed in plastic zip-lock bags to minimize contact with inert packing material, unless foam inserts are used.
- Foam inserts should be used as inert packing material when shipping low hazard water samples via a common carrier to the laboratory.
- Low-hazard environmental samples are to be cooled. "Blue ice" or some other artificial icing material, or ice placed in plastic bags, may be used. Ice will not be used as a substitute for packing material.
- A duplicate custody record must be placed in a plastic bag and taped to the inside of the cooler lid. Custody seals are affixed to the sample cooler.
- The cooler will be labeled as containing a hazardous material if it contains medium or high-hazard samples. Labeling requirements differ depending on the type of material being shipped; the majority of soil samples may be shipped as a class "9" hazardous material with the proper shipping name "OTHER REGULATED SUBSTANCES (ENVIRONMENTAL SAMPLES)."
- A hazardous material shipping manifest will be completed for each cooler of medium to high-hazard samples and affixed to the lid of the cooler.
- Low-hazard environmental samples do not require a hazardous materials shipping manifest. The words "LABORATORY SAMPLES" should be printed on the top of the cooler for low-hazard samples.
- Samples packaged and shipped as limited-quantity radioactive material must comply with DOT and shipper regulations for package contamination limits, surface exposure rate, and airbill completion.

5.3.2 Shipping Containers

Environmental samples will be properly packaged and labeled for transport and dispatched for analysis to the appropriate subcontracted laboratory for geotechnical analyses. A separate chain-of-custody record must be prepared for each container. The following requirements for marking and labeling of shipping containers will be observed:

- Use abbreviations only where specified;
- The words "This End Up" or "This Side Up" must be clearly printed on the top of the outer package. Upward-pointing arrows should be placed on the sides of the

package. The words “Laboratory Samples” should also be printed on the top of the package; and

- After a container has been closed, two custody seals are placed on the container—one on the front and one on the back. The seals are protected from accidental damage by placing strapping tape over them.

Field personnel will make timely arrangements for transportation of samples to the laboratory. When custody is relinquished to a shipper, field personnel will telephone the laboratory custodian to inform him of the expected time of arrival of the sample shipment and to advise him of any time constraints on sample analysis.

5.3.3 Shipping Procedures

- The coolers in which the samples are packed must be accompanied by a chain-of-custody record. When transferring samples, the individuals relinquishing and receiving them must sign, date, and note the time on the record. This record documents sample custody transfer.
- Samples must be dispatched to the laboratory for analysis with a separate chain-of-custody record accompanying each shipment. Shipping containers must be sealed with custody seals for shipment to the laboratory. The method of shipment, name of courier, and other pertinent information are entered in the “Remarks” section of the chain-of-custody record.
- All shipments must be accompanied by the chain-of-custody record identifying their contents. The original record accompanies the shipment, and the yellow copy is retained by the Field Team Leader.
- If sent by mail, the package is registered with return receipt requested. If sent by common carrier, a bill of lading is used. Freight bills, Postal Service receipts, and bills of lading are retained as part of the permanent documentation.
- Samples must be shipped to the analytical laboratory within 24 to 48 hours from the time of collection.

5.4 Laboratory Custody Procedures

The designated sample custodian at the laboratory will be responsible for maintaining the chain-of-custody for samples received at the lab. Among other things, the custodian must adhere to the following basic requirements:

- When the sample arrives at the lab, the custodian will complete a Cooler Receipt & Preservation Form for each cooler/package container.
- Upon receipt, the coolers are examined for the presence and condition of custody seals, locks, shipping papers, etc. Shipping labels are removed and placed on

scrap paper and added to the receiving paper work. The custodian then completes the chain-of-custody record by signing and recording the date and time the package is opened.

- Acceptance criteria for cooler temperature is 0-6^{o}C. If a cooler exhibits a temperature outside this range, the anomalies are noted on the Cooler Receipt & Preservation Form.
- The custodian will then unload the samples from the cooler(s)/container(s), assign an identification number to each sample container, and affix a barcode label to each sample container for logging in and out of the laboratory information management system (LIMS) system.

Adherence to this procedure will ensure that all samples can be referenced in the computer tracking system. All sample control and chain-of-custody procedures applicable to the analytical laboratory are presented in laboratory SOPs available for review.

6.0 Analytical Methods

All laboratory analyses will be performed by an accredited and appropriately (NYSDEC ELAP CLP) certified analytical laboratory. Inorganic, general analytical, and organic methods to be performed by the laboratory for this project are listed in Table 1 in Appendix A of this QAPP.

6.1 Analytical Capabilities

The analytical laboratory is fully equipped for analysis of all types of water, air, and soil samples for chemical contaminants, bacteriological quality, and general characterization. Proven and approved analytical techniques are used, backed up by a rigorous system of QC and QA checks to ensure reliable and defensible data. All laboratory work is performed in accordance with guidelines established by EPA, the NYSDOH, and the National Institute of Occupational Safety and Health (NIOSH).

Organic analysis is accomplished by gas chromatography (GC), high performance liquid chromatography (HPLC), and or GC/mass spectrometry (MS). Laboratory procedures to be utilized for sample preparation and analysis are referenced in the NYSDEC ASP.

Method Detection Limits

Method detection limits are determined according to procedures outlined in 40 CFR Part 136, Appendix B or EPA CLP. General analytical detection limits are usually determined by the lowest point on the curve. Detection limits are determined at least annually for all appropriate analytical methods. A listing of the laboratory's method detection limits is available upon request.

6.2 Quality Control Samples

Laboratory QC consists of analysis of laboratory blanks, duplicates, spikes, standards, and QC check samples as appropriate to the methodology. These laboratory QC samples are described below.

6.2.1 Laboratory Blanks

Three types of laboratory blanks, one or more of which will be utilized depending on the analysis, are described below:

- Method blanks consist of analyte-free water and are subjected to every step of the analytical procedure to determine possible contamination.
- Reagent blanks are similar to method blanks but incorporate only one of the preparation reagents in the analysis. When a method blank indicates significant contamination, one or more reagent blanks are analyzed to determine the source.
- Calibration blanks consist of pure reagent matrix and are used to zero an instrument's response, thus establishing the baseline.

6.2.2 Calibration Standards

A calibration standard may be prepared in the laboratory by dissolving a known amount of a pure compound in an appropriate matrix. The final concentration calculated from the known quantities is the true value of the standard. The results obtained from these standards are used to generate a standard curve and thereby quantitate the compound in the environmental sample. A minimum of three calibration standards will be used to generate a standard curve for all analyses.

6.2.3 Reference Standard

A reference standard is prepared in the same manner as a calibration standard but from a different source. Reference standards may be obtained from the EPA. The final concentration calculated from the known quantities is the "true" value of the standard. The important difference in a reference standard is that it is not carried through the same process used for the environmental samples, but is analyzed without digestion or extraction. A reference standard result is used to validate an existing concentration calibration standard file or calibration curve.

6.2.4 Spike Sample

A sample spike is prepared by adding to an environmental sample (before extraction or digestion) a known amount of pure compound of the same type that is to be assayed for in the environmental sample.

Spikes are added at one to 10 times the expected sample concentration or approximately 10 times the method detection limit. These spikes simulate the background and interferences found in the actual samples, and the calculated percent recovery of the spike is taken as a measure of the accuracy of the total analytical method.

A blank spike is the same as a spike sample except the spike is added to analyte-free water. The blank spike is used to determine whether the sample preparation and analysis are under control.

6.2.5 Surrogate Sample

A surrogate is prepared by adding a known amount of pure compound to the environmental sample; the compound selected is not one expected to be found in the sample, but is similar in nature to the compound of interest. Surrogate compounds are added to the sample prior to extraction or digestion. Surrogate spike concentrations indicate the percent recovery of the analytes and, therefore, the efficiency of the methodology.

6.2.6 Internal Standard

Internal standards are similar to surrogate standards in chemical composition but are used to quantify the concentration of analytes sampled based on the relative response factor. Internal standards are added to the environmental sample just prior to instrumental analysis.

6.2.7 Laboratory Duplicate or Matrix Spike Duplicate

Laboratory duplicates are aliquots of the same sample that are split prior to analysis and treated exactly the same throughout the analytical method. Spikes and duplicates for the batch are normally aliquots of the same sample. For organics, spikes are added at approximately 10 times the method detection limit. The relative percent difference (RPD) between the values of the MS and MSD for organics or between the original and the duplicate for inorganics is taken as a measure of the precision of the analytical method.

In general, the tolerance limit for RPDs between laboratory duplicates should not exceed 20% for validation in homogeneous samples.

6.2.8 Check Standard/Samples

Inorganic and organic check standards or samples are prepared with reference standards or are available from the EPA. They are used as a means of evaluating analytical techniques of the analyst. Check standards or samples are subjected to the entire sample procedure, including extraction, digestion, etc., as appropriate for the analytical method utilized. The check standard or sample can provide information on the accuracy of the analytical method independent of various sample matrices.

6.3 Laboratory Instrumentation

Laboratory capabilities will be demonstrated initially for instrument and reagent/ standards performance as well as accuracy and precision of analytical methodology. A discussion of reagent/standard procedures and brief descriptions of calibration procedures for major instrument types follow.

All standards are obtained directly from EPA or through a reliable commercial supplier with a proven record for quality standards. All commercially supplied standards will be traceable to EPA or the National Institute of Standards and Technology (NIST) reference standards and appropriate documentation will be obtained from the supplier. In cases where documentation is not available, the laboratory will analyze the standard and compare the results to a known EPA-supplied or previous NIST-traceable standard.

All sections of the laboratory will have SOP for standard and reagent procedures to document specific standard receipt, documentation, and preparation activities. In general, the individual SOPs incorporate the following items:

- Documentation and labeling of date received, lot number, date opened, and expiration date;
- Documentation of traceability;
- Preparation, storage, and labeling of stock and working solutions; and
- Establishing and documenting expiration dates and disposal of unusable standards.

Each laboratory instrument will be labeled clearly with a unique identifier that relates to all laboratory calibration documentation. Laboratory SOPs and calibration procedures are detailed in the laboratory's Quality Assurance Manual, available upon request.

7.0 Data Reporting and Validation

7.1 Deliverables

Once the contract laboratory has provided all analytical data and hydrogeologic information has been evaluated, Lu Engineers will develop a report on the findings of the remedial measures. The report will be prepared as outlined in Section 8.0 of the Work Plan.

7.1.1 Category B Data Package

If necessary, analytical data for delineation and tank closure samples will be reported by the laboratory with NYSDEC ASP Category B deliverables. The Category B data package includes:

1. A detailed summary of the report contents and any quality control outliers or corrective actions taken.
2. Chain of Custody documentation
3. Sample Information including: date collected, date extracted, date analyzed, and analytical methods.
4. Data (including raw data) for:
   - samples
   - laboratory duplicates
   - method blanks
   - spikes and spike duplicates
   - surrogate recoveries
   - internal standard recoveries
   - calibrations
   - any other applicable QC data
5. Method detection limits and/or instrument detection limits
6. run logs, standard preparation logs, and sample preparation logs
7. percent solids (where applicable)

The backup quality control data must be retained by the laboratory for 6 years and provided to the NYSDEC Project Manager upon request.

Quality Assurance Reports

For the laboratory, a general QA report summarizing problems encountered throughout the laboratory effort, including sample custody, analyses, and reporting, is provided to Lu Engineer's project QA management by the QA coordinator. This report identifies areas of concern and possible resolutions in an effort to ensure data quality.

Upon completion of a project sampling effort, analytical and QC data will be included in a comprehensive report that summarizes the work and provides a data evaluation. A discussion of the validity of the results in the context of QA/QC procedures will be made, as well as a summation of all QA/QC activity.

Serious analytical or sampling problems will be reported to NYSDEC. Time and type of corrective action, if needed, will depend on the severity of the problem and relative overall project importance. Corrective actions may include altering procedures in the field, conducting an audit, or modifying laboratory protocol. All corrective actions will be implemented after notification and approval of NYSDEC.

In addition to the laboratory report narrative, QA data validation reports that include any contractual requirements will also be provided to NYSDEC. These QA reports will be submitted with the analytical data, on a monthly basis, or at the conclusion of the project.

7.2 Data Usability

If necessary prior to the submission to NYSDEC, data will be evaluated for precision, accuracy, and completeness.

QA/QC requirements from both methodology and company protocols will be strictly adhered to during sampling and analytical work. All data generated will be reviewed by comparing and interpreting results from instrumental responses, retention time, determination of percent recovery of spiked samples or blanks, and reproducibility of duplicate sample results. All calculations and data manipulations are included in the appropriate methodology references. Control charts and calibration curves will be used to review the data and identify outlying results.

7.2.1 Data Usability

A Data Usability Summary Report (DUSR) will be provided after review and evaluation of the analytical data package. The DUSR will contain required elements listed in Appendix 2B of *DER-10 Technical Guidance for Site Investigation and Remediation*.

The DUSR will include a description of the samples and analytical procedures used. Any data deficiencies, protocol deviations, or quality control problems will be discussed as to their effect on data results. The report will also include any suggestions for resampling or reanalysis.

Former Griffin Technology Site
6132 Victor-Manchester Road
Town of Farmington
Ontario County, New York
BCP #C835008

Health and Safety Plan

Prepared by:
Lu Engineers
ENVIRONMENTAL • TRANSPORTATION • CIVIL
175 Sully's Trail, Suite 202
Pittsford, New York 14534

September 2014

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Lu Engineers

Site Safety Plan

A. GENERAL INFORMATION

Project Title: Former Griffin Technology Site Lu Project No. 50227

Ontario County, New York

Engineering Control Implementation Work Plan

Project Director and Manager: Gregory L. Andrus, CHMM

Site Safety Officer: Steven A Campbell

Location: 6132 Victor-Manchester Road

Town of Farmington, Ontario County, New York

Prepared by: Gina Ferruzza/ Date Prepared: September 9, 2014

Date Revised:

Approved by: Gregory L. Andrus, CHMM Date Approved:

Site Safety Officer Review: Date Reviewed:

Scope/Objective of Work:

This project includes the subcontracted injection of emulsified vegetable oil (EVO) into an existing network of injection wells located that the subject Site. The EVO is intended to facilitate microbial degradation of the chlorinated solvents present at elevated concentrations in groundwater within Site soil and bedrock. Existing monitoring wells will be sampled periodically to determine the effectiveness of the EVO injection program.

Proposed Date of Field Activities: October 2014

Background Information: [ ] Complete [X] Preliminary (limited analytical data)

Overall Chemical Hazard: [ ] Serious [ ] Moderate

[X] Low [ ] Unknown

Overall Physical Hazard: [ ] Serious [ ] Moderate

[X] Low [ ] Unknown

B. SITE/WASTE CHARACTERISTICS

Waste Type(s):

[X] Liquid [ ] Solid [ ] Sludge [X] Gas/Vapor

Characteristic(s):

[ ] Flammable/Ignitable [X] Volatile [ ] Corrosive [ ] Acutely Toxic

[ ] Explosive (moderate) [ ] Reactive [X] Carcinogen [ ] Radioactive

Other: _____

Physical Hazards:

[ ] Overhead [ ] Confined Space [ ] Below Grade [X] Trip/Fall

[ ] Puncture [ ] Burn [] Cut [X] Splash

[ ] Noise [X] Other: Heat Stress/Cold Stress

Site History/Description and Unusual Features:

Griffin Technology operated on the site from 1975 until the mid-1990s performing photo coating (laminating) operations. TCE was believed to be present in liquid waste that was released onto the ground outside the western door of the site building from approximately 1975 until 1986. It is estimated that approximately 490 gallons of waste was released in 5 gallon increments or less over that time (BB&L, July 1991).

Locations of Chemicals/Wastes: Groundwater

Estimated Volume of Chemicals/Wastes: unknown

Site Currently in Operation: [ ] Yes [X] No [ ] Not Applicable

C. Hazard Evaluation

PHYSICAL HAZARD EVALUATION:		
TASK	**HAZARD(S)**	**HAZARD PREVENTION**
Project	Heat stress/ cold stress exposure	Implement heat stress management techniques such as shifting work hours, increasing fluid intake, and monitoring employees**. See Appendix A.**
	Weather Extremes	Establish site-specific contingencies for severe weather situations. Discontinue work in severe weather.
	Slip/ trip/ fall	Observe terrain and be aware of the dangers of machete, while walking to minimize slips and falls. Steel-toed boots provide additional support and stability. Use adequate lighting. Inspect Site and mark existing hazards.
	Noise	**See Appendix B**
	Native wildlife presents the possibility of insect bites and associated diseases.	Avoid wildlife when possible. Use insect repellant. Check for ticks on skin and clothing.
	Biological (flora, fauna, etc.)	Be aware of sharp, rough vegetation especially during geophysical survey. Wear proper work boots and clothing.
	General physical hazards associated with drilling and excavating operations (overhead equipment, noise).	Hard hats and steel-toed boots required while working around heavy equipment. Keep a safe distance from equipment. **See Appendix B.**
	Heavy Equipment Operation	Define equipment routes, traffic patterns, and site-specific safety measures. Ensure that operators are properly trained and equipment has been properly inspected and maintained. Verify back-up alarms. Ensure that ground spotters are assigned and informed of proper hand signals and communication protocols. Identify special PPE and monitoring needs. Ensure that field personnel do not work in close proximity to operating equipment. Ensure that lifting capacities, load limits, etc., are not exceeded. Overhead obstructions and falling objects.

	Overhead Hazards/ Falling Objects	Wear hard hat. Identify overhead hazards prior to each task.
	Contact with or inhalation of contaminants, potentially in high concentration in soil.	To minimize exposure to chemical contaminants, a thorough review of suspected contaminants should be completed and implementation of an adequate protection program.
	Power Tools	Ensure compliance with 29 CFR 1910 Subpart P.
	Utility Lines	Identify/locate existing utilities prior to work. Ensure overhead utility lines are at least 25 feet away from project activities. Contact utilities to confirm locations, as necessary.
	Contact with or inhalation of decontamination solutions.	Material Safety Data Sheets for all decon solutions. First aid equipment available.
	Installation of sheet piling	Wear steel toe boots, hard hat and safety glasses to avoid slip, trip, fall and overhead hazards. Wear hearing protection to when machines are running to avoid hearing damage. Be aware of pinch dangers.
	Contact with or inhalation of remedial solutions or compounds.	Avoid contact with skin and eyes.

Physical Hazard Evaluation: Basic health and safety protection (steel-toed boots, work clothes, and safety glasses or goggles) will be worn by all personnel at all times. Any allergies should be reported to the Site Safety Officer prior to the start of the project. Respirators and Tyvek suits required for entry into buildings posted for asbestos.

D. SITE SAFETY WORK PLAN

Site Control: Entrances to the Site are gated and locked. Only authorized personnel may enter the Site. On-site buildings are posted for asbestos contamination and therefore, no buildings will be entered unless prior authorization has been granted and proper PPE is worn.

Perimeter Identified? [Y] **Site Secured? [N]**

Work Areas Designated? [Y] **Zone(s) of contamination identified? [Y]**

Anticipated Level of Protection (cross-reference task numbers in Section C):

Level of PPE:	A	B	C	D
		For Entering on-Site buildings only	Available	X

All Site work will be performed at Level D (steel-toed boots, work clothes, eye protection, gloves and hard hats) unless monitoring indicates otherwise. Chemical resistant boots or booties shall be worn as appropriate to avoid contact with wet areas.

Level C will be available and shall be donned if sustained photoionization detector (PID) readings exceed 5 ppm and/or olfactory indications warrant. If building entrance is necessary,

Level B (Tyvek suits and half-face air respirators with HEPA cartridges) will be worn and disposed of within the buildings upon exiting.

Air Monitoring:

Contaminant	Monitoring Device	Frequency
Organic Vapors	MiniRAE 3000 PID	As Necessary
Particulates	Dustrack/Sidepack	Per Generic NYSDOH CAMP

Action Level Organic Vapors:

PID readings of **>5 ppm to 10 ppm** above background in the breathing zone, sustained for greater than 1 minute,

Action: Hault work activities and move away from the vapor source. Consider vapor suppression actions. If PID readings drop to within 5 ppm above background, work may resume with continuous air monitoring.

PID readings of **10 ppm to <25 ppm** above background at breathing zone, sustained for greater than 1 minute,
Action: Stop work and consider upgrade to Level C protection.
PID readings of **>25 ppm** above background at breathing zone, sustained for greater than 1 minute,
Action: Stop work.
All air monitoring results as well as wind direction and speed (estimates) will be documented in the site-specific log book.

Action Level Particulates (Per NYSDOH CAMP):
If the downwind PM-10 particulate level is 100 micrograms per cubic meter (mcg/m3) greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques must be employed. Work may continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed 150 mcg/m3 above the upwind level and provided that no visible dust is migrating from the work area.

If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 150 mcg/m3 above the upwind level, work must be stopped and a re-evaluation of activities initiated. Work can resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 mcg/m3 of the upwind level and in preventing visible dust migration.

Decontamination Solutions and Procedures for Equipment, Sampling Gear, etc.
Specified in work plan.

Personnel Decon Protocol: Soap, water, and paper towels or baby wipes will be available for all personnel and will be used before eating, drinking or leaving the site. Personnel will shower upon return to home or hotel. Disposable PPE will be double bagged and disposed of in a sanitary waste dumpster. Tyvek suits will be disposed of in the site buildings upon exiting the building.

Decon Solution Monitoring Procedures, if Applicable: Based on previous investigations, it is assumed that decontamination solutions may be discharged onsite to the ground surface.

Special Site Equipment, Facilities or Procedures (Sanitary Facilities and Lighting Must Meet 29CFR 1910.120): Due to the remote location of the Site, personnel will be required to maintain the Buddy System. All parties will be required to attend an on-Site briefing, which will identify

the roles of each organization's personnel and will integrate emergency procedures for all Site participants. A portable restroom will be mobilized the Site for the duration of field activities.

Site Entry Procedures and Special Considerations: Entry to the Site should be limited to authorized personnel, through the main gate, in accordance with the AFRL and VRS regulations. The Buddy System should be employed when on-site and entering and exiting the Site, along with the work zone areas.

Work Limitations (time of day, weather conditions, etc.) and Heat/Cold Stress Requirements: All work will be completed during daylights hours. Severe inclement weather may be cause to suspend outdoor activities. Cold stress protocol will dictate work/rest regimen. Heavy equipment will not be used during electrical storms. No transfer of materials can be conducted outside of normal RRS working hours.

Investigation Derived Material (i.e., Expendables, Decon Waste, Cuttings) Disposal: Specified in work plan.

Sampling Handling Procedures Including Protective Wear: All sample handling will be performed while wearing nitrile gloves. To minimize hazards to lab personnel, sample volumes will be no larger than necessary, and the outside of all sample containers will be wiped clean prior to shipment.

Accident and Injury Reporting: Any work-related incident, accident, injury, illness, exposure, or property loss must be reported to the Lu Engineers project manager. This includes:

- Accident, injury, illness, or exposure of an employee;
- Injury of a subcontractor;
- Damage, loss, or theft of property, and/or
- Any motor vehicle accident regardless of fault, which involves a company vehicle, rental vehicle, or personal vehicle while employee is acting in the course of employment.

E. TRAINING REQUIREMENTS

All personnel conducting field activities on site are required to have completed training sessions in accordance with Occupational Safety and Health Administration (OSHA) for Parts 1926 and 1910 (Title 29 Code of Federal Regulations [CFR] Part 1926.65 and Part 1910.120 - Hazardous Waste Operations and Emergency Response- 'HazWOPER'). This training shall consist of a minimum of 40 hours of instruction off-site and three days of actual field experience under the direct supervision of a trained, experienced supervisor. Each employer will maintain documentation stating that its on-site personnel have complied with this regulation.
In addition, each employee PPE worn by each employee will be in compliance with OSHA Parts 1910.132-140. Also, each employee needed to wear a respirator will be in compliance with OSHA Respiratory Protection standards Part 1910.134.

All personnel will have reviewed this HASP and received a site-specific health and safety briefing prior to participating in field work.

All visitors entering the work area must review the HASP and be equipped with the proper PPE. All site personnel and visitors shall sign the last page of the HASP as an acknowledgement that they have read and understand the Site health and safety requirements.

Medical Surveillance Requirements: All Lu Engineers field staff who engage in onsite activities for 30 days or more per year participate in a medical monitoring program and have completed applicable training per 29CFR 1910.120. Respiratory protection program meets requirements of 29CFR 1910.134.

Team Member*	**Responsibility**
Gregory L. Andrus	Project Manager & Field Team Leader
Steven Campbell	Alternate Field Team Leader
Eric Detweiler	Field Geologist/Site Safety Officer
Janet Bissi	Field Technician

* All entries into the work zone require use of "Buddy System".

F. EMERGENCY INFORMATION

LOCAL RESOURCES

Ambulance:	911
Hospital Emergency Room:	
Poison Control Center:	911
Police (include local, county sheriff, state):	911
Fire Department:	911
Airport:	N/A
Laboratory:	
UPS/Federal Express:	**Nearest Fed Ex**: **Nearest UPS**:

SITE RESOURCES

Site Emergency Evaluation Alarm Method:	Sound vehicle horn
Water Supply Source:	Gallons of water will be available in vehicles
Telephone Location, Number:	None available
Cellular Phone, if Available:	Onsite cell # TBD
Other: IFOCV Office	

EMERGENCY CONTACTS

1.	Fire/Police: 911	
2.	Lu Engineers, Safety Director:	(585) 385-7417 (office)
3.	Lu Engineers, Gregory L. Andrus	(585) 385-7417, Ext. 215 (office)
		(585) 732-5786 (Cellular phone)

EMERGENCY ROUTES

Note: Field team must know route(s) prior to start of work.

Directions from the site to Thompson Health: Urgent Care Center (map on following page):

Head East on NY-96 toward Elizabeth Way, take third left onto NY-332 N, take the first right onto Corporate Dr, Destination will be on the left.

On-site Assembly Area:

N/A

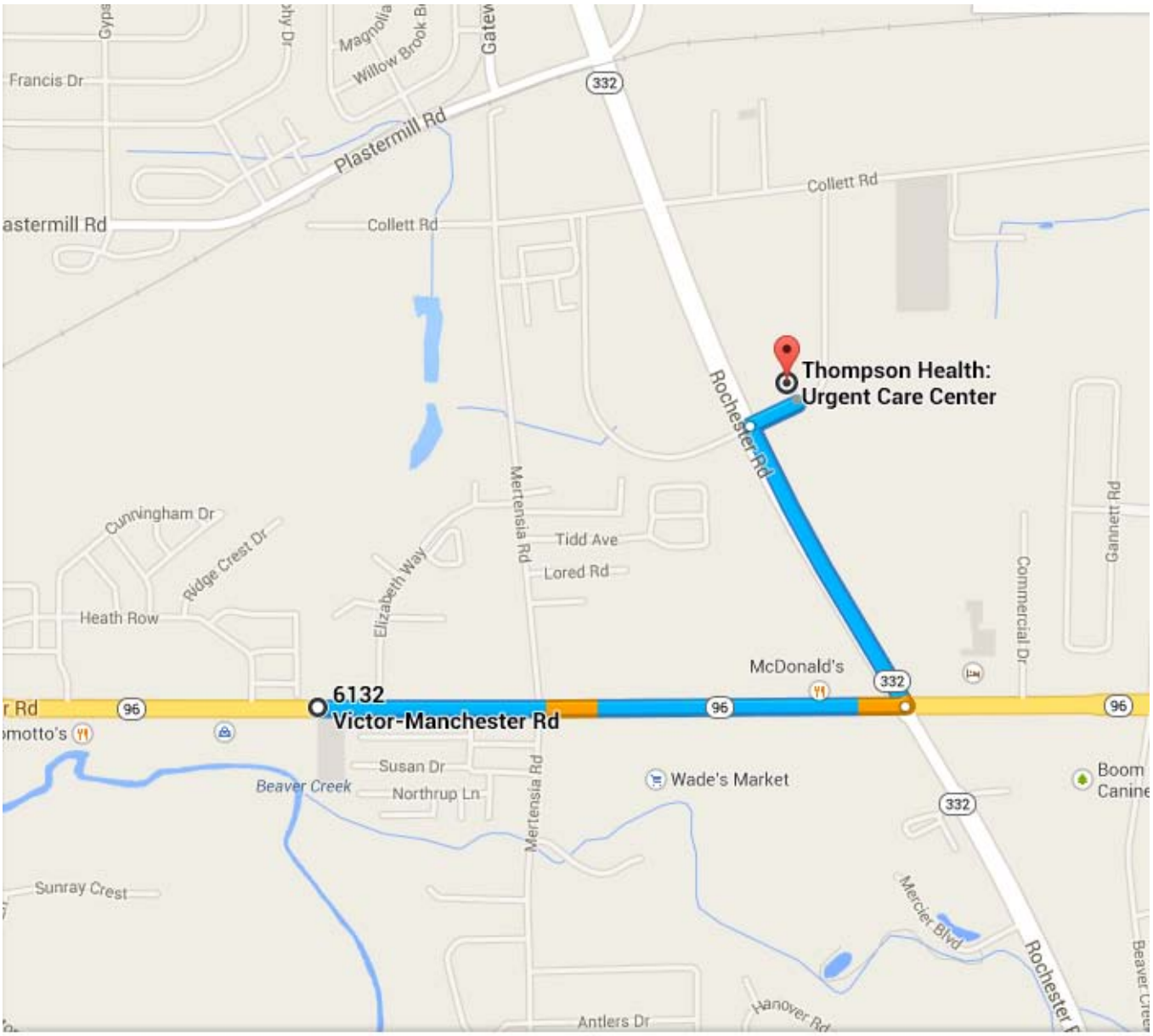
Off-site Assembly Area:

N/A

Emergency egress routes to get off-Site

N/A

Figure 1


Francis Dr
Plastermill Rd
astermill Rd
Collett Rd
Collett Rd
332
Thompson Health:
Urgent Care Center
Rochester Rd
Mertensia Rd
Tidd Ave
Lored Rd
Cunningham Dr
Ridge Crest Dr
Heath Row
Elizabeth Way
Commercial Dr
Gannett Rd
McDonald's
6132
Victor-Manchester Rd
96
Susan Dr
Northrup Ln
Beaver Creek
Wade's Market
Sunray Crest
Mercier Blvd
Antlers Dr
Hanover Rd

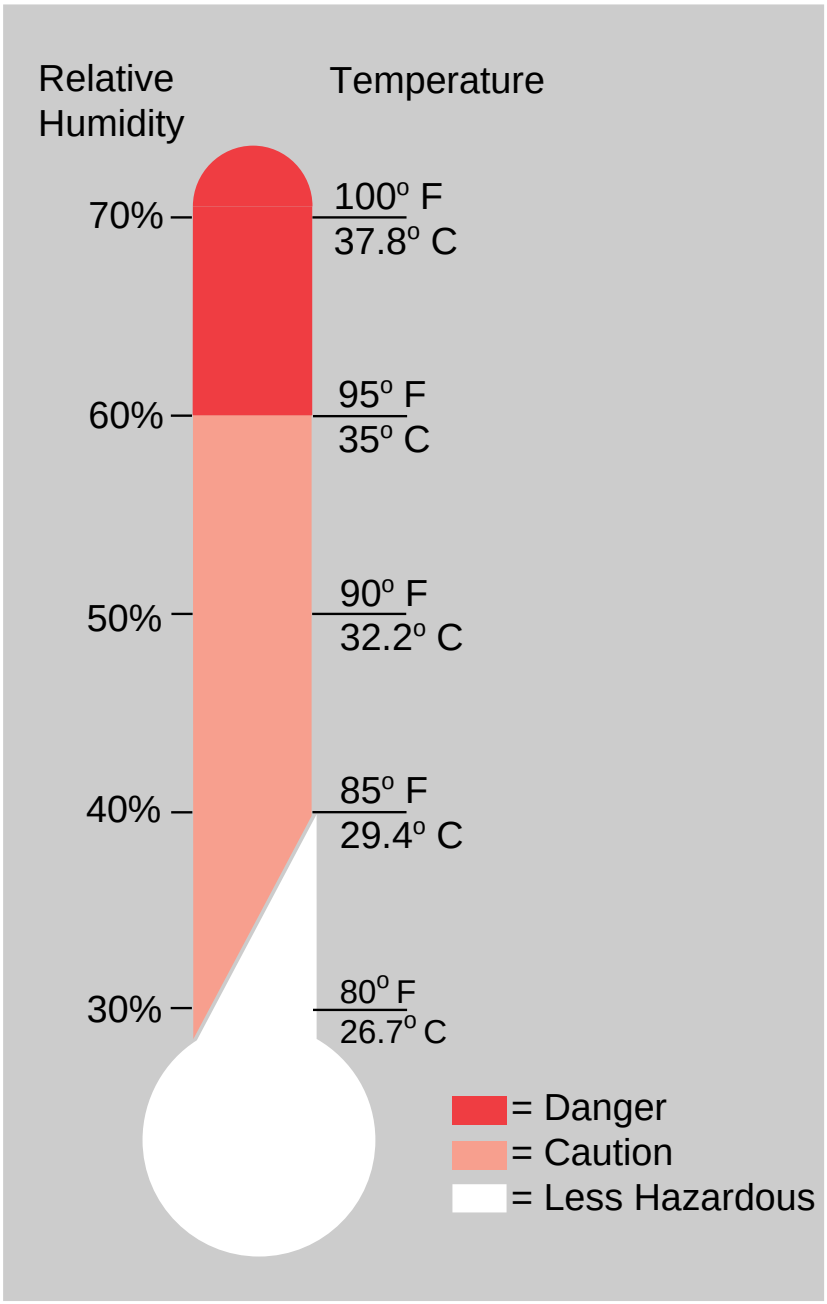
APPENDIX A

HEAT AND COLD EXPOSURE

THE HEAT EQUATION

HIGH TEMPERATURE + HIGH HUMIDITY + PHYSICAL WORK = HEAT ILLNESS

When the body is unable to cool itself through sweating, **serious** heat illnesses may occur. The most severe heat-induced illnesses are **heat exhaustion** and **heat stroke**. If actions are not taken to treat heat exhaustion, the illness could progress to heat stroke and possible **death**.



U.S. Department of Labor
Occupational Safety and Health Administration

OSHA 3154
1998

HEAT EXHAUSTION

What Happens to the Body:

HEADACHES, DIZZINESS/LIGHT HEADEDNESS, WEAKNESS, MOOD CHANGES (irritable, or confused/can't think straight), FEELING SICK TO YOUR STOMACH, VOMITING/THROWING UP, DECREASED and DARK COLORED URINE, FAINTING/PASSING OUT, and PALE CLAMMY SKIN.

What Should Be Done:

- Move the person to a cool shaded area to rest. Don't leave the person alone. If the person is dizzy or light headed, lay them on their back and raise their legs about 6-8 inches. If the person is sick to their stomach lay them on their side.
- Loosen and remove any heavy clothing.
- Have the person drink some cool water (a small cup every 15 minutes) if they are not feeling sick to their stomach.
- Try to cool the person by fanning them. Cool the skin with a cool spray mist of water or wet cloth.
- If the person does not feel better in a few minutes call for emergency help (Ambulance or Call 911).

(If heat exhaustion is not treated, the illness may advance to heat stroke.)

HEAT STROKE—A MEDICAL EMERGENCY

What Happens to the Body:

DRY PALE SKIN (no sweating), HOT RED SKIN (looks like a sunburn), MOOD CHANGES (irritable, confused/not making any sense), SEIZURES/FITS, and COLLAPSE/PASSED OUT (will not respond).

What Should Be Done:

- Call for emergency help (Ambulance or Call 911).
- Move the person to a cool shaded area. Don't leave the person alone. Lay them on their back and if the person is having seizures/fits remove any objects close to them so they won't strike against them. If the person is sick to their stomach lay them on their side.
- Remove any heavy and outer clothing.
- Have the person drink some cool water (a small cup every 15 minutes) if they are alert enough to drink anything and not feeling sick to their stomach.
- Try to cool the person by fanning them. Cool the skin with a cool spray mist of water, wet cloth, or wet sheet.
- If ice is available, place ice packs under the arm pits and groin area.

How to Protect Workers

- Learn the signs and symptoms of heat-induced illnesses and what to do to help the worker.
- Train the workforce about heat-induced illnesses.
- Perform the heaviest work in the coolest part of the day.
- Slowly build up tolerance to the heat and the work activity (usually takes up to 2 weeks).
- Use the buddy system (work in pairs).
- Drink plenty of cool water (one small cup every 15-20 minutes)
- Wear light, loose-fitting, breathable (like cotton) clothing.
- . Take frequent short breaks in cool shaded areas (allow your body to cool down).
- Avoid eating large meals before working in hot environments.
- Avoid caffeine and alcoholic beverages (these beverages make the body lose water and increase the risk for heat illnesses).

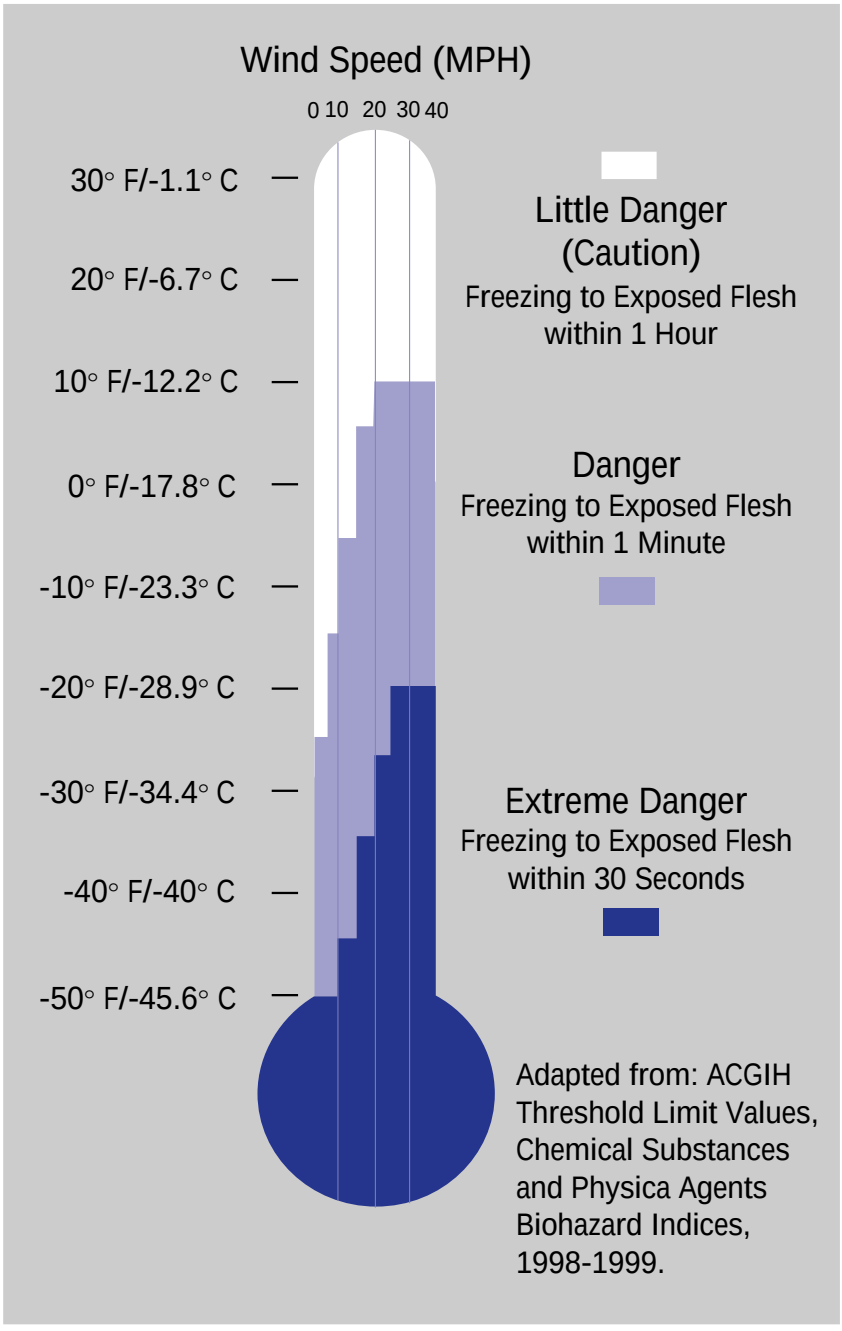
Workers Are at Increased Risk When

- They take certain medication (check with your doctor, nurse, or pharmacy and ask if any medicines you are taking affect you when working in hot environments).
- They have had a heat-induced illness in the past.
- They wear personal protective equipment (like respirators or suits).

THE COLD STRESS EQUATION

LOW TEMPERATURE + WIND SPEED + WETNESS = INJURIES & ILLNESS

When the body is unable to warm itself, serious cold-related illnesses and injuries may occur, and permanent tissue damage and death may result. **Hypothermia** can occur when *land temperatures* are **above** freezing or *water temperatures* are below 98.6°F/ 37°C. Cold-related illnesses can slowly overcome a person who has been chilled by low temperatures, brisk winds, or wet clothing.



U.S. Department of Labor
Occupational Safety and Health Administration

OSHA 3156
1998

FROST BITE

What Happens to the Body:

FREEZING IN DEEP LAYERS OF SKIN AND TISSUE; PALE, WAXY-WHITE SKIN COLOR; SKIN BECOMES HARD and NUMB; USUALLY AFFECTS THE FINGERS, HANDS, TOES, FEET, EARS, and NOSE.

What Should Be Done: (land temperatures)

- Move the person to a warm dry area. Don't leave the person alone.
- Remove any wet or tight clothing that may cut off blood flow to the affected area.
- **DO NOT** rub the affected area, because rubbing causes damage to the skin and tissue.
- **Gently** place the affected area in a warm (105°F) water bath and monitor the water temperature to **slowly** warm the tissue. Don't pour warm water directly on the affected area because it will warm the tissue too fast causing tissue damage. Warming takes about 25-40 minutes.
- After the affected area has been warmed, it may become puffy and blister. The affected area may have a burning feeling or numbness. When normal feeling, movement, and skin color have returned, the affected area should be dried and wrapped to keep it warm. **NOTE:** If there is a chance the affected area may get cold again, do not warm the skin. If the skin is warmed and then becomes cold again, it will cause severe tissue damage.
- Seek medical attention as soon as possible.

HYPOTHERMIA - (Medical Emergency)

What Happens to the Body:

NORMAL BODY TEMPERATURE (98.6° F/37°C) DROPS TO OR BELOW 95°F (35^0 C); FATIGUE OR DROWSINESS; UNCONTROLLED SHIVERING; COOL BLUISH SKIN; SLURRED SPEECH; CLUMSY MOVEMENTS; IRRITABLE, IRRATIONAL OR CONFUSED BEHAVIOR.

What Should Be Done: (land temperatures)

- Call for emergency help (i.e., Ambulance or Call 911).
- Move the person to a warm, dry area. Don't leave the person alone. Remove any wet clothing and replace with warm, dry clothing or wrap the person in blankets.
- Have the person drink warm, sweet drinks (sugar water or sports-type drinks) if they are alert. **Avoid drinks with caffeine** (coffee, tea, or hot chocolate) or alcohol.
- Have the person move their arms and legs to create muscle heat. If they are unable to do this, place warm bottles or hot packs in the arm pits, groin, neck, and head areas. **DO NOT** rub the person's body or place them in warm water bath. This may stop their heart.

What Should Be Done: (water temperatures)

- Call for emergency help (Ambulance or Call 911). Body heat is lost up to 25 times faster in water.
- **DO NOT** remove any clothing. Button, buckle, zip, and tighten any collars, cuffs, shoes, and hoods because the layer of trapped water closest to the body provides a layer of insulation that slows the loss of heat. Keep the head out of the water and put on a hat or hood.
- Get out of the water as quickly as possible or climb on anything floating. **DO NOT** attempt to swim unless a floating object or another person can be reached because swimming or other physical activity uses the body's heat and reduces survival time by about 50 percent.
- If getting out of the water is not possible, wait quietly and conserve body heat by folding arms across the chest, keeping thighs together, bending knees, and crossing ankles. If another person is in the water, huddle together with chests held closely.

How to Protect Workers

- Recognize the environmental and workplace conditions that lead to potential cold-induced illnesses and injuries.
- Learn the signs and symptoms of cold-induced illnesses/injuries and what to do to help the worker.
- Train the workforce about cold-induced illnesses and injuries.
- Select proper clothing for cold, wet, and windy conditions. Layer clothing to adjust to changing environmental temperatures. Wear a hat and gloves, in addition to underwear that will keep water away from the skin (polypropylene).
- Take frequent short breaks in warm dry shelters to allow the body to warm up.
- Perform work during the warmest part of the day.
- Avoid exhaustion or fatigue because energy is needed to keep muscles warm.
- Use the buddy system (work in pairs).
- Drink warm, sweet beverages (sugar water, sports-type drinks). Avoid drinks with caffeine (coffee, tea, or hot chocolate) or alcohol.
- Eat warm, high-calorie foods like hot pasta dishes.

Workers Are at Increased Risk When…

- They have predisposing health conditions such as cardiovascular disease, diabetes, and hypertension.
- They take certain medication (check with your doctor, nurse, or pharmacy and ask if any medicines you are taking affect you while working in cold environments).
- They are in poor physical condition, have a poor diet, or are older.

APPENDIX B

ADDITIONAL POTENTIAL PHYSICAL AND CHEMICAL HAZARDS

ADDITIONAL POTENTIAL PHYSICAL AND CHEMICAL HAZARDS	
POTENTIAL PHYSICAL HAZARDS	**CONTROL METHODS**
Overhead Hazards/Falling Objects	Overhead hazards will be identified prior to each task (i.e., inspecting drill rig mast, building structure). Hard hats will be required for each task that poses an overhead hazard.
Contact with Utilities	Prior to initiating site activities, all utilities will be located by the appropriate utility company and will be marked and/or barricaded to minimize the potential of accidental contact. A minimum distance of 25 feet between the derrick and overhead power lines must be maintained at all times.
Noise Exposure	Areas of potentially high sound pressure levels (>85 dBA) will be restricted to authorized personnel only. Engineering controls will be used to the extent possible. Hearing protection will be made available to all workers on site. Exposure to time-weighted average levels in excess of 85 dBA is not anticipated.
POTENTIAL CHEMICAL HAZARDS	**GENERAL CONTROL METHODS**
Contaminant Inhalation	Direct reading instruments (Op-Tech) and/or olfactory indications will be used to monitor airborne contaminants. Established Lu Engineers' action levels will limit exposure to safe levels. Respiratory protection will be used as

	appropriate.
Contaminant Ingestion	Standard safety procedures such as restricting eating, drinking, and smoking to the support zone and utilizing proper personal decontamination procedures will minimize ingestion as a potential route of exposure.
Dermal Contaminant Contact	The proper selection and use of personal protective clothing and decontamination procedures will minimize dermal contaminant contact.
Potential contact with lower concentration waste and naturally occurring contaminants (i.e., methane)	Dermal contact with contaminants will be minimized by proper use of the following PPE: • Tyvex coveralls • Neoprene gloves • Booties (latex) or over-boots.
Splash hazard	The proper selection and use of personal protective clothing and decontamination procedures will minimize splash contaminant contact.

APPENDIX C

CHEMICAL HAZARD EVALUATION

CHEMICAL HAZARD EVALUATION										
Task Number	Compound	Exposure Limits (TWA)			Dermal Hazard (Y/N)	Route(s) of Exposure	Acute Symptoms	Odor Threshold/ Description	PID	
		PEL	REL	TLV					Correction Factor**	Ioniz. Poten. (eV)
	1,1-dichloroethylene, 1,1-Dicholoroethene	1 ppm	---	5 ppm	N	Inh, Ing, Abs, Con	Irritation, sensitization to eyes, nose, throat, dizziness	Sweet chloroform odor, fruity	0.9	9.79
	1,1,1-trichloroethane	350 ppm	---	350 ppm	Y	Inh, Con	Vomiting, nausea, drowsiness, unconsciousness	100 ppm Mildly Sweet	NR	11
	cis-1,2-dichloroethene	200 ppm	200 ppm	200 ppm	Y	Inh, Ing, Con, Abs	Irritant to skin, eyes, respiratory tract, mucous membranes, liver damage, narcotic effect at high concentrations		0.8	9.66
	trichloroethene* (TCE)	100 ppm (per 6/97 NIOSH Pocket Guide)	25 ppm (per 2005 NIOSH Pocket Guide)	10 ppm	Y	Inh, Abs, Ing, Con	Irritation to eyes, skin, mucous membranes and GI, headache, vertigo, fatigue, giddiness, tremors, vomiting, nausea, may burn skin, visual disturbance, paresthesia, cardiac arrhythmias	Colorless liquid, sometimes dyed blue, chloroform odor	---	9.45
	trichloroethylene* (TCE)	100 ppm	25 ppm (per 2005 NIOSH Pocket Guide)	10 ppm	Y	Inh, Ing, Con, Abs	Irritation to eyes, nose, throat, lungs, GI irritation, light headedness, visual disturbances, excited feeling, nausea, vomiting, flushed skin, confusion, dizziness, headache, loss of equilibrium, CNS damage, dermatitis	Colorless liquid (unless dyed blue), chloroform like odor	0.5	9.45

	vinyl chloride*	1 ppm	---	1 ppm	Y	Inh, Con	Dulled auditory and visual response, headache, weakness, frostbite, GI bleeding, pallor or cyanosis of extremities, abdominal pain, bleeding	Colorless liquefied gas, pleasant odor at high concentrations (3000 ppm)	2.0	9.99

New York State Department of Health
Generic Community Air Monitoring Plan

A Community Air Monitoring Plan (CAMP) requires real-time monitoring for volatile organic compounds (VOCs) and particulates (i.e., dust) at the downwind perimeter of each designated work area when certain activities are in progress at contaminated sites. The CAMP is not intended for use in establishing action levels for worker respiratory protection. Rather, its intent is to provide a measure of protection for the downwind community (i.e., off-site receptors including residences and businesses and on-site workers not directly involved with the subject work activities) from potential airborne contaminant releases as a direct result of investigative and remedial work activities. The action levels specified herein require increased monitoring, corrective actions to abate emissions, and/or work shutdown. Additionally, the CAMP helps to confirm that work activities did not spread contamination off-site through the air.

Reliance on the CAMP should not preclude simple, common-sense measures to keep VOCs, dust, and odors at a minimum around the work areas.

Community Air Monitoring Plan

Continuous monitoring will be required for ground intrusive activities during implementation of the IRM. Ground intrusive activities include, but are not limited to, soil/waste excavation and handling.

Periodic monitoring for VOCs will be required during non-intrusive activities such as the collection of soil samples and waste characterization samples. In some instances, depending upon the proximity of potentially exposed individuals, continuous monitoring may be required during sampling activities. Examples of such situations include sampling staged wastes near a busy urban street, near a public park, or adjacent to a school or residence.

VOC Monitoring, Response Levels, and Actions

Volatile organic compounds (VOCs) must be monitored at the downwind perimeter of the immediate work area (i.e., the exclusion zone) on a continuous basis or as otherwise specified. Upwind concentrations should be measured at the start of each workday and periodically thereafter to establish background conditions, particularly if the wind direction changes. The monitoring work should be performed using equipment appropriate to measure the types of contaminants known or suspected to be present. The equipment should be calibrated at least daily for the contaminant(s) of concern or for an appropriate surrogate. The equipment should be capable of calculating 15-minute running average concentrations, which will be compared to the levels specified below.

- If the ambient air concentration of total organic vapors at the downwind perimeter of the work area or exclusion zone exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities must be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities can resume with continued monitoring.

- If total organic vapor levels at the downwind perimeter of the work area or exclusion zone persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities must be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities can resume provided that the total organic vapor level 200 feet downwind of the exclusion zone or half the distance to the nearest

potential receptor or residential/commercial structure, whichever is less - but in no case less than 20 feet, is below 5 ppm over background for the 15-minute average.

- If the organic vapor level is above 25 ppm at the perimeter of the work area, activities must be shutdown.

All 15-minute readings must be recorded and be available for State (DEC and DOH) personnel to review. Instantaneous readings, if any, used for decision purposes should also be recorded.

Particulate Monitoring, Response Levels, and Actions

Particulate concentrations should be monitored continuously at the upwind and downwind perimeters of the exclusion zone at temporary particulate monitoring stations. The particulate monitoring should be performed using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM-10) and capable of integrating over a period of 15 minutes (or less) for comparison to the airborne particulate action level. The equipment must be equipped with an audible alarm to indicate exceedance of the action level. In addition, fugitive dust migration should be visually assessed during all work activities.

- If the downwind PM-10 particulate level is 100 micrograms per cubic meter (mcg/m3) greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the Site, then dust suppression techniques must be employed. Work may continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed 150 mcg/m3 above the upwind level and provided that no visible dust is migrating off-site from the work area.

- If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 150 mcg/m3 above the upwind level, work must be stopped and a re-evaluation of activities initiated. Work can resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 mcg/m3 of the upwind level and in preventing visible dust migration.

All readings must be recorded and be available for State (DEC and DOH) personnel to review.