

Prepared for

Berkeley Lake Village Owners Association, LLC
P.O. Box 283
Adairsville, GA, 30103

VOLUNTARY REMEDIATION PROGRAM PROGRESS REPORT

**BERKELEY LAKE VILLAGE OWNERS
ASSOCIATION SITE
DULUTH, GEORGIA
HSI #10844**

Prepared by

Geosyntec 
consultants

engineers | scientists | innovators

1255 Roberts Boulevard, Suite 200
Kennesaw, Georgia 30144

Project Number GR5658

July 2016

PROFESSIONAL ENGINEER CERTIFICATION

I certify that I am a qualified engineer who has received a baccalaureate or post-graduate degree in the natural science or engineering, and have sufficient training and experience in environmental assessment and corrective measures, as demonstrated by state registration and completion of accredited university courses, that enable me to make sound professional judgments. I further certify that this report was prepared by myself or by a subordinate working under my direction.



Peter J. de Haven
Registered Professional Engineer
Georgia Registration # 28392

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1. INTRODUCTION

1.1 Site Description

On behalf of Berkeley Lake Village Owners Association (BLVOA), Geosyntec Consultants (Geosyntec) has prepared this progress report for the facility located at 3351 North Berkeley Lake Rd NW in the City of Duluth, Gwinnett County, Georgia as part of its participation in the Voluntary Remediation Program Application (VRPA). Berkeley Lake Village (BLV) is part of a larger multi-parcel site designated as the North Berkeley Lake Road Site (NBLRS) by the Georgia Environmental Protection Division (EPD). Geosyntec has prepared this report specifically for parcels described below and referred to as Berkeley Lake Village (BLV) or hereafter referred to as “the site”.

The site has Gwinnett County parcel IDs of 6290 232 and 6267 030 and a location corresponding to latitude 33.9834 and longitude -84.1702. The approximate area of the site is 5.3 acres. The parcel 6290 232 includes the parking lot and common areas between the on-site building footprints (**Figure 1**). The additional parcel (6267 030) is located to the southwest and consists of some landscaped areas and detention basin. There are eight additional subdivided parcels within the boundary of the “site”. Two of these parcels are future building footprints (6290 242 and 6290 243) and there are six other parcels with multi-story buildings used for commercial use. These parcels are limited to the building footprints and are administratively part of the site; however, they are not effectively involved with the VRP since they are all capped by concrete foundations. The BLVOA has decided to add two additional parcels to the BLV site. The first parcel (6290 230) is the undeveloped corner tract and the other parcel (6290 231) runs along Peachtree Industrial Boulevard. The approximate area of the newly expanded site is 9.9 acres. A revised VRP Application Form with the updated property information is included in **Appendix A**. The site property is bounded to the east by North Berkeley Lake Road NW and the Gwinnett Regional Distribution Center (GRDC) (commercial/warehousing), and to the west by Peachtree Industrial Boulevard and commercial buildings. There is an undeveloped parcel to the north of the site and the Gwinnett County Fire Department Station No. 19 (Fire Station) directly to the south. The general area surrounding the BLV site is heavy commercial and industrial use. An aerial photograph of the site is shown on **Figure 2**.

1.2 Site Background

In 2006, the Gwinnett Regional Distribution Center (GRDC) property, located directly east of the BLV site, was placed on the Hazardous Site Inventory (HSI), Site #10844, for elevated levels of arsenic in the soil and groundwater. In 2013, during planning for the installation of a gravity sewer line in the area, the Gwinnett County Department of Water Resources conducted soil sampling at the Fire Station after finding that the adjacent GRDC was listed on the HSI. This investigation revealed levels of arsenic exceeding the Hazardous Site Response Act (HSRA) soil notification concentration of 41 milligrams per kilogram (mg/kg). Subsequently, a release notification was submitted to the EPD and the Fire Station was listed on the HSI in December 2013. An EPD inspection of the Fire Station noted that a daycare center was located less than 300 feet from the property. In August 2013, EPD personnel conducted a preliminary and limited investigation of the BLV site during which seven surface soil samples were collected from the site, including four from an area that was being used for an outdoor playground. Six of the soil samples from the site had concentrations of arsenic that exceeded the default risk reduction standard (RRS) residential soil of 20 mg/kg HSRA notification concentration of 41 mg/kg. In October 2013, BLVOA received a HSRA Release Notification letter from EPA, and in February 2014, the BLV site was listed on the HSI. Two additional adjacent parcels, Diamond Crystal Brands and Suzanna's Kitchen, were also placed on the HSI.

Geosyntec conducted additional field investigations of site surface soils in January and December 2015. The field investigations confirmed the widespread presence of arsenic at values greater than the notification concentration of 41 mg/kg. The arsenic concentrations ranged from 35.3 mg/kg to 239.7 mg/kg. A sediment and water sample were collected in the detention pond and analyzed for arsenic. The arsenic concentration in the sediment sample was below the soil notification concentration and the concentration in the surface water sample was below the in-stream water quality standard.

2. SUMMARY OF ACTIONS DURING THE REPORTING PERIOD

This section discusses activities conducted since the submittal of the December 2015 Progress Report.

Two permanent groundwater monitoring wells were installed at the BLV site from 30 November 2015 to 1 December 2015. The wells were installed using direct push technology to log the soil and determine the depth of the water table, and hollow-stem augers to install the well casing and filter pack. The well construction consisted of 2-inch, schedule 40-PVC with a 10-foot pre-packed well screen. A sand filter pack extending approximately 2 feet above the screen was installed around the pre-packed screen, a bentonite seal was extended 2 feet above that, and a bentonite-grout mixture was installed up to the surface. Monitoring well MW-01 is located at the southwest corner of the site, and is screened from 30-40 ft bgs. Monitoring well MW-02 is located near the northeast corner of the site, and is screened from 20-30 ft bgs (**Figure 3**).

The groundwater wells were sampled on 18 December 2015 via low-flow sampling methods, and samples were shipped to the TestAmerica Laboratory in North Canton, Ohio. The laboratory report is provided in Attachment B. The results from the groundwater sampling are shown in Table 1. Arsenic was not detected in MW-02. However, the turbidity in MW-01 never reached an acceptable level after multiple attempts with various low-flow methods. The drilling crew encountered some problems during the installation and it believed that the well may have had cracks in well materials, which may have admitted excess sediment into the well. The lowest turbidity reading was 280 NTU, well above the stabilization criterion of 10 NTU indicated by EPA Region 4 (USEPA, 2013). Therefore it was decided to reject the data from this well. The BLVOA plans to abandon and replace this well to provide a better representation of site conditions.

3. PROPOSED SAMPLING AND REMEDIATION PLAN

The current delineation at the site and neighboring sites suggests that arsenic concentrations above the Type 1 RRS are ubiquitous, with a potential slight gradient of higher to lower arsenic concentrations from the southwest to northeast. The existence of such a gradient will be evaluated with additional sampling (**Figure 4**).

3.1 Sampling Plan

In order to characterize the newly added parcels, approximately 60 new surface soil samples (0-2 ft bgs) will be collected from throughout the new parcels. Samples will be analyzed for arsenic using XRF and/or a fixed based laboratory. If XRF is used, a subset of samples will be sent to a fixed based laboratory for confirmation analysis.

Surface water has already been collected from the pond during dry weather. To address any concerns of offsite migration, an additional surface water sample will be collected from the detention pond during a wet weather event. The strategy for this sampling event will be discussed further with EPD before it is implemented.

Two additional monitoring wells will be installed at the site. One will be installed to replace the faulty well in the vicinity of MW-01 in the southeast portion of the site. A new well will be installed in the newly added parcels (parcel 6290 230 or 6290 231 as shown on Figure 1) to help fully characterize the groundwater across the site.

3.2 Remediation Plan

Geosyntec and BLVOA will evaluate the removal and/or capping of hot spots to achieve a site-wide average concentration that will meet the appropriate risk reduction standards. Various scenarios for removal of two feet of surface soils will be evaluated. The majority of the site is already capped by the presence of asphalt parking lots and buildings. The results of the various scenarios will be presented to EPD for discussion of the optimal approach to meet the site's risk reduction objectives. The additional data collection proposed in Section 2 will be used to define exposure areas to develop an effective remedial design.

Environmental covenants will be implemented at the site so that the areas of the site that are capped remain as such and remain properly maintained. No corrective action on the subsurface soils is planned, and environmental covenants will be put in place so that proper controls are used during any future construction activities that may occur at the site.

4. SCHEDULE

BLVOA proposes the following schedule. The schedule allows the various parties within BLVOA to meet the financial obligations of the remediation plan.

Submit VRP Application, Enrollment in the VRP Program	April 16, 2015
Complete initial horizontal delineation of arsenic impacted soils	Completed December 2015
Complete initial groundwater investigation	January 2016
Complete expanded soil and groundwater investigation on additional parcels	January 2017
Submit updated CSM and update remediation plan, provide cost estimate	June 25, 2017
Complete implementation of remediation plan	June 25, 2018
Submit Compliance Status Report	December 25, 2019

5. REFERENCES

USEPA. 2013. Surface Water Sampling Operating Procedure. SESDPROC-201-R3. Science and Ecosystem Support Division. Athens, Georgia. February 28, 2013. <http://www.epa.gov/sites/production/files/2015-06/documents/Surfacewater-Sampling.pdf>

USEPA. 2014. Soil Sampling Operating Procedure. SESDPROC-300-R3. U.S. EPA Science and Ecosystem Support Division. Athens, Georgia. August 21, 2014. <http://www.epa.gov/sites/production/files/2015-06/documents/Soil-Sampling.pdf>

TABLE

**Table 1. Arsenic Results in Groundwater,
December 2015**

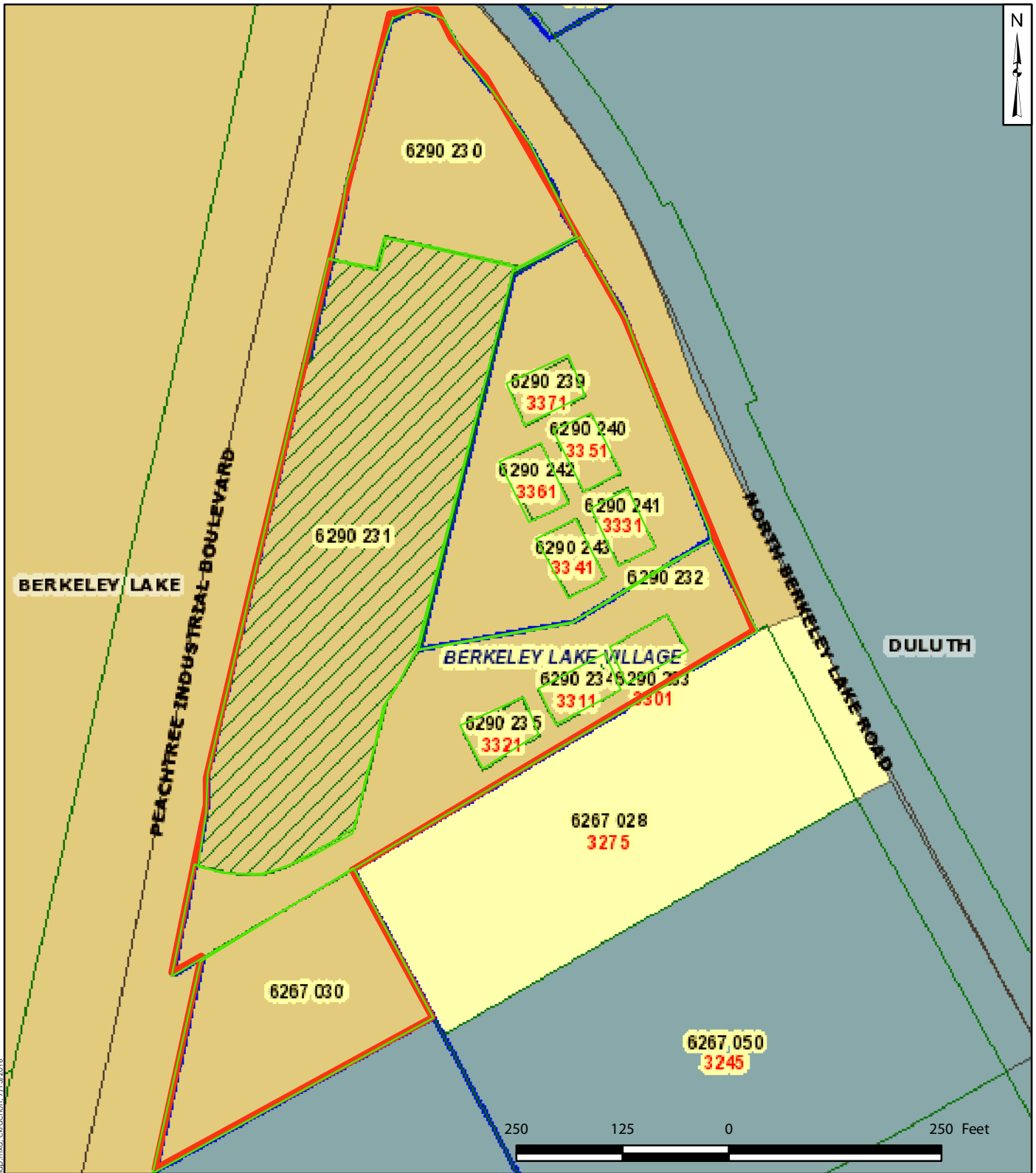
Sample ID	Turbidity (NTU)	Arsenic Concentration	
Groundwater (µg/L)			
MW-02	3.4	2.9	U
MW-02 filtered	NA	2.9	U

Notes

U: Not detected

NA: Not applicable

FIGURES



N:\N\Northside Bank\Berkeley Lake Village\GIS\mxd\Property_Map.mxd; ckrachon, 7/1/16/2016

Gwinnett County Tax Parcel Map

Berkeley Lake Village
Duluth, Georgia

Geosyntec
consultants

Kennesaw, Georgia

July 2016

Figure

1



N:\N\Northlake_Bank\Berkeley Lake_Village\GIS\Map\NBLV_S_Aerial.mxd, d:\gphoto, 7/15/2016

0 250 500 Feet



 BLV Site

**North Berkeley Lake Road Site
HSI Number 10844**

Berkeley Lake Village
Duluth, Georgia

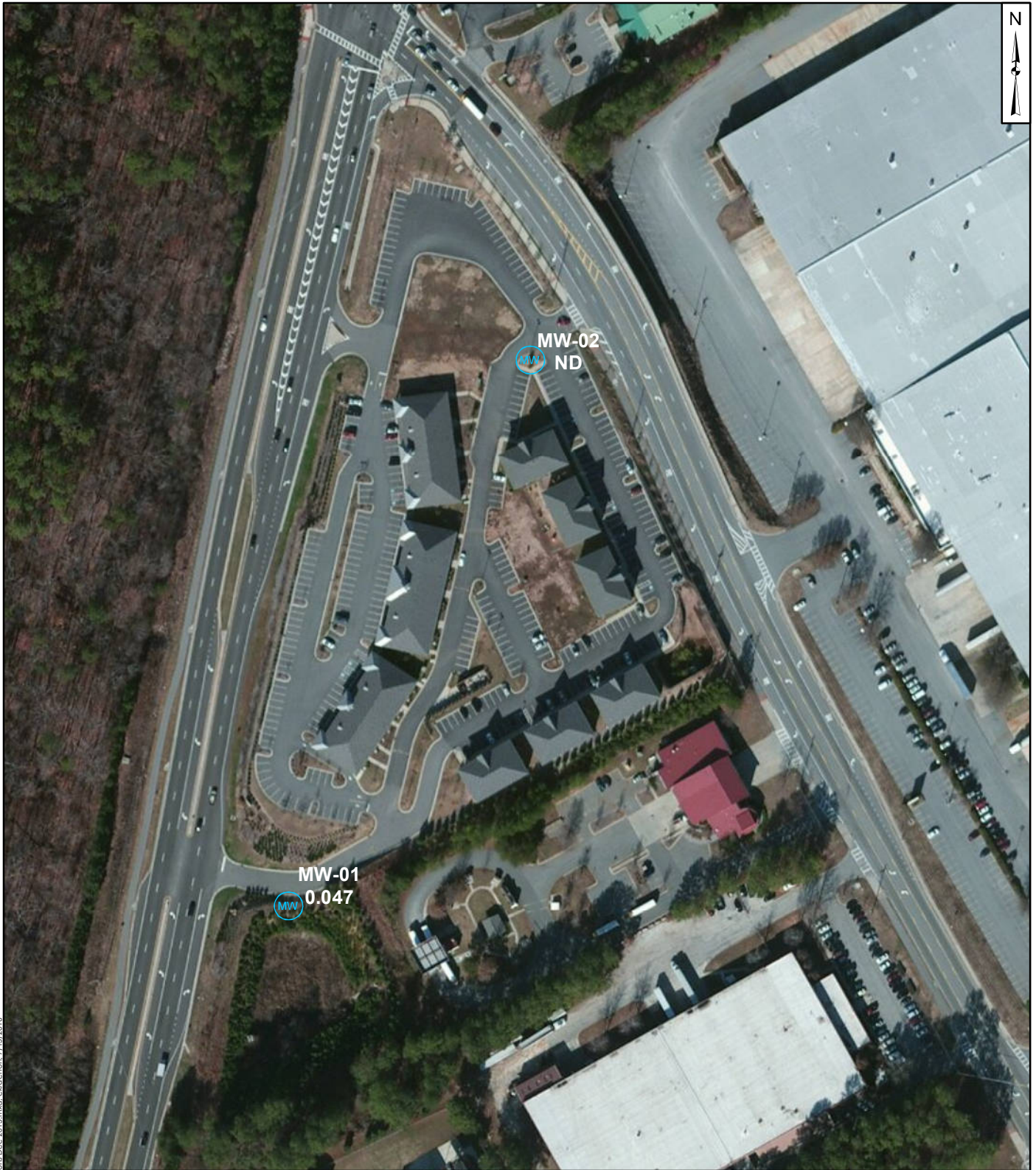
Geosyntec
consultants

Kennesaw, Georgia

July 2016


Figure

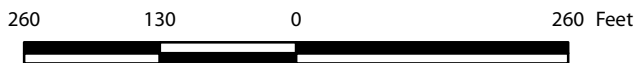
2



N:\N\Northside Bank\Berkeley Lake Village\GIS\mxd\WellLocations_Dec_2015.mxd, c:\arcchom\7/15/2016

Legend

 Monitoring Well
As concentration (mg/L)



**Monitoring Well Locations
December 2015**

Berkeley Lake Village
Duluth, Georgia

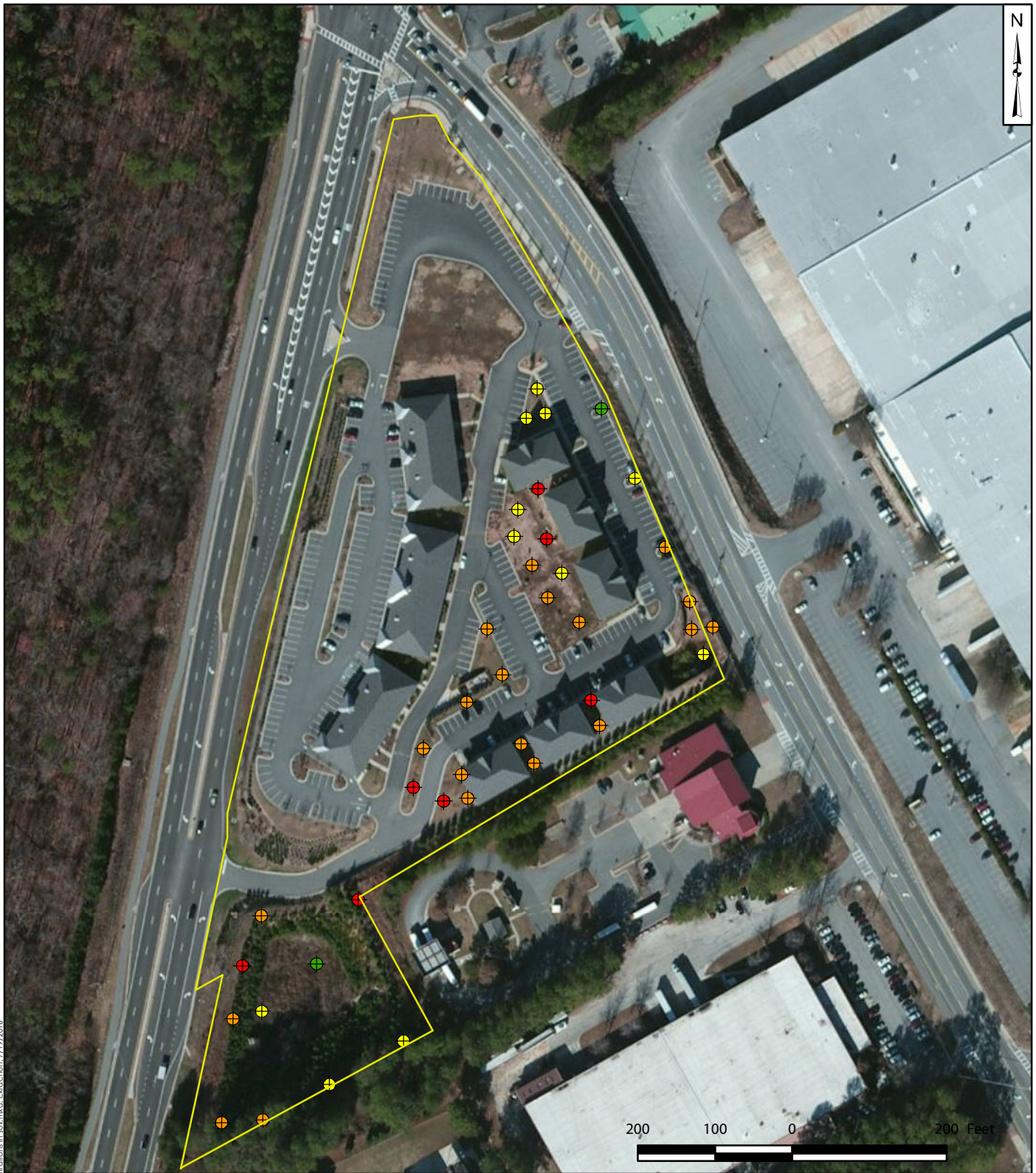
Geosyntec
consultants

Kennesaw, Georgia






Figure


3

July 2016



N:\N\Northside Bank\Berkeley Lake Village\GIS\mxd\As concentrations in soil.mxd; c:\arcchom; 7/19/2016

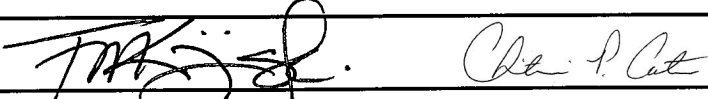
Legend	
	Revised Site Boundary
Arsenic in Soil (mg/kg)	
	0-41 (Type 3 RRS)
	41-73
	73-127
	127-240

2015 Soil Sampling		
Berkeley Lake Village Duluth, Georgia		
 Geosyntec consultants		Figure 4
	Kennesaw, Georgia	July 2016

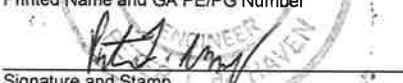
ATTACHMENT A

Revised VRP Checklist

Voluntary Investigation and Remediation Plan Application Form and Checklist

VRP APPLICANT INFORMATION					
COMPANY NAME	Berkeley Lake Village Owners Association, LLC (BLVOA)				
CONTACT PERSON/TITLE	Chris Carter and Ian Kijanski, Board of Directors, BLVOA				
ADDRESS	1465 NORTHSIDE DR NW STE 128, ATLANTA, GA 30318				
PHONE	404-835-9202	FAX		E-MAIL	bbarrett@cmacommunities.com
GEORGIA CERTIFIED PROFESSIONAL GEOLOGIST OR PROFESSIONAL ENGINEER OVERSEEING CLEANUP					
NAME	Peter J. de Haven			GA PE/PG NUMBER	28392
COMPANY	Geosyntec Consultants				
ADDRESS	1255 Roberts Blvd. Ste. 200, Kennesaw, GA, 30144				
PHONE	678-202-9500	FAX	678-202-9501	E-MAIL	pdehaven@geosyntec.com
APPLICANT'S CERTIFICATION					
<p>In order to be considered a qualifying property for the VRP:</p> <p>(1) The property must have a release of regulated substances into the environment;</p> <p>(2) The property shall not be:</p> <p style="margin-left: 20px;">(A) Listed on the federal National Priorities List pursuant to the federal Comprehensive Environmental Response, Compensation, and Liability Act, 42 U.S.C. Section 9601.</p> <p style="margin-left: 20px;">(B) Currently undergoing response activities required by an order of the regional administrator of the federal Environmental Protection Agency; or</p> <p style="margin-left: 20px;">(C) A facility required to have a permit under Code Section 12-8-66.</p> <p>(3) Qualifying the property under this part would not violate the terms and conditions under which the division operates and administers remedial programs by delegation or similar authorization from the United States Environmental Protection Agency.</p> <p>(4) Any lien filed under subsection (e) of Code Section 12-8-96 or subsection (b) of Code Section 12-13-12 against the property shall be satisfied or settled and released by the director pursuant to Code Section 12-8-94 or Code Section 12-13-6.</p> <p>In order to be considered a participant under the VRP:</p> <p>(1) The participant must be the property owner of the voluntary remediation property or have express permission to enter another's property to perform corrective action.</p> <p>(2) The participant must not be in violation of any order, judgment, statute, rule, or regulation subject to the enforcement authority of the director.</p> <p>I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.</p> <p>I also certify that this property is eligible for the Voluntary Remediation Program (VRP) as defined in Code Section 12-8-105 and I am eligible as a participant as defined in Code Section 12-8-106.</p>					
APPLICANT'S SIGNATURE				7-15-2016	
APPLICANT'S NAME/TITLE (PRINT)	Chris Carter and Ian Kijanski, Board of Directors, BLVOA			DATE	

QUALIFYING PROPERTY INFORMATION (For additional qualifying properties, please refer to the last page of application form)			
HAZARDOUS SITE INVENTORY INFORMATION (if applicable)			
HSI Number	10844	Date HSI Site listed	2/25/2014
HSI Facility Name	North Berkeley Lake Road Site	NAICS CODE	
PROPERTY INFORMATION			
TAX PARCEL ID	6290 232	PROPERTY SIZE (ACRES)	3.99
PROPERTY ADDRESS	North Berkeley Lake Rd NW		
CITY	Duluth	COUNTY	Gwinnett
STATE	GA	ZIPCODE	30096
LATITUDE (decimal format)	33.9834	LONGITUDE (decimal format)	-84.1702
PROPERTY OWNER INFORMATION			
PROPERTY OWNER(S)	Berkeley Lake Village Owners Association	PHONE #	404-835-9202
MAILING ADDRESS	1465 NORTHSIDE DR NW STE 128		
CITY	ATLANTA	STATE/ZIPCODE	GA 30318
ITEM #	DESCRIPTION OF REQUIREMENT	Location in VRP (i.e. pg., Table #, Figure #, etc.)	For EPD Comment Only (Leave Blank)
1.	\$5,000 APPLICATION FEE IN THE FORM OF A CHECK PAYABLE TO THE GEORGIA DEPARTMENT OF NATURAL RESOURCES. (PLEASE LIST CHECK DATE AND CHECK NUMBER IN COLUMN TITLED "LOCATION IN VRP." PLEASE DO NOT INCLUDE A SCANNED COPY OF CHECK IN ELECTRONIC COPY OF APPLICATION.)	Check No. 006352 dated April 16, 2015	
2.	WARRANTY DEED(S) FOR QUALIFYING PROPERTY.	Enclosed; Attachment A to VRP Plan	
3.	TAX PLAT OR OTHER FIGURE INCLUDING QUALIFYING PROPERTY BOUNDARIES, ABUTTING PROPERTIES, AND TAX PARCEL IDENTIFICATION NUMBER(S).	Enclosed; Figure 1	
4.	ONE (1) PAPER COPY AND TWO (2) COMPACT DISC (CD) COPIES OF THE VOLUNTARY REMEDIATION PLAN IN A SEARCHABLE PORTABLE DOCUMENT FORMAT (PDF).	Enclosed	
5.	The VRP participant's initial plan and application must include, using all reasonably available current information to the extent known at the time of application, a graphic three-dimensional preliminary conceptual site model (CSM) including a preliminary remediation plan with a table of delineation standards, brief supporting text, charts, and figures (no more than 10 pages, total) that illustrates the site's surface and subsurface setting, the known or suspected source(s) of contamination, how contamination might move within the environment, the potential human health and ecological receptors, and the complete or incomplete exposure pathways that may exist at the site; the preliminary CSM must be updated as the investigation and remediation progresses and an up-to-date CSM must be included in each semi-annual status report submitted to the director by the participant; a PROJECTED MILESTONE SCHEDULE for investigation and remediation of the site, and	Enclosed in the attached VRP Plan	

	<p>after enrollment as a participant, must update the schedule in each semi-annual status report to the director describing implementation of the plan during the preceding period. A Gantt chart format is preferred for the milestone schedule.</p> <p>The following four (4) generic milestones are required in all initial plans with the results reported in the participant's next applicable semi-annual reports to the director. The director may extend the time for or waive these or other milestones in the participant's plan where the director determines, based on a showing by the participant, that a longer time period is reasonably necessary:</p>		
5.a.	Within the first 12 months after enrollment, the participant must complete horizontal delineation of the release and associated constituents of concern on property where access is available at the time of enrollment;	To be completed per the VRP Plan	
5.b.	Within the first 24 months after enrollment, the participant must complete horizontal delineation of the release and associated constituents of concern extending onto property for which access was not available at the time of enrollment;	Off-site delineation not required per EPD meeting on 7/31/14	
5.c.	Within 30 months after enrollment, the participant must update the site CSM to include vertical delineation, finalize the remediation plan and provide a preliminary cost estimate for implementation of remediation and associated continuing actions; and	To be completed per the VRP Plan	
5.d.	Within 60 months after enrollment, the participant must submit the compliance status report required under the VRP, including the requisite certifications.	To be completed per the VRP Plan	
6.	<p>SIGNED AND SEALED PE/PG CERTIFICATION AND SUPPORTING DOCUMENTATION:</p> <p>"I certify under penalty of law that this report and all attachments were prepared by me or under my direct supervision in accordance with the Voluntary Remediation Program Act (O.C.G.A. Section 12-8-101, et seq.). I am a professional engineer/professional geologist who is registered with the Georgia State Board of Registration for Professional Engineers and Land Surveyors/Georgia State Board of Registration for Professional Geologists and I have the necessary experience and am in charge of the investigation and remediation of this release of regulated substances.</p> <p>Furthermore, to document my direct oversight of the Voluntary Remediation Plan development, implementation of corrective action, and long term monitoring, I have attached a monthly summary of hours invoiced and description of services provided by me to the Voluntary Remediation Program participant since the previous submittal to the Georgia Environmental Protection Division.</p> <p>The information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."</p> <p><u>PETER J. DUNAWEN 28392</u> <u>7/21/16</u> Printed Name and GA PE/PG Number Date</p> <p><u></u> Signature and Stamp</p>		

ADDITIONAL QUALIFYING PROPERTIES (COPY THIS PAGE AS NEEDED)

PROPERTY INFORMATION			
TAX PARCEL ID	6267 030	PROPERTY SIZE (ACRES)	1.26
PROPERTY ADDRESS	5070 PEACHTREE INDUSTRIAL BLVD		
CITY	BERKELEY LAKE	COUNTY	GWINNETT
STATE	GA	ZIPCODE	30096
LATITUDE (decimal format)	33.9816	LONGITUDE (decimal format)	-84.1713
PROPERTY OWNER INFORMATION			
PROPERTY OWNER(S)	BERKELEY LAKE VILLAGE OWNERS ASSOCIATION	PHONE #	404-835-9202
MAILING ADDRESS	1465 NORTHSIDE DR NW STE 128		
CITY	ATLANTA	STATE/ZIPCODE	GA 30318

PROPERTY INFORMATION			
TAX PARCEL ID	6290 231	PROPERTY SIZE (ACRES)	2.91
PROPERTY ADDRESS	5070 PEACHTREE INDUSTRIAL BLVD		
CITY	BERKELEY LAKE	COUNTY	GWINNETT
STATE	GA	ZIPCODE	30096
LATITUDE (decimal format)	33.9833	LONGITUDE (decimal format)	-84.1710
PROPERTY OWNER INFORMATION			
PROPERTY OWNER(S)	BERKELEY LAKE VILLAGE OWNERS ASSOCIATION	PHONE #	404-835-9202
MAILING ADDRESS	1465 NORTHSIDE DR NW STE 128		
CITY	ATLANTA	STATE/ZIPCODE	GA 30318

PROPERTY INFORMATION			
TAX PARCEL ID	6290 230	PROPERTY SIZE (ACRES)	1.16
PROPERTY ADDRESS	5070 PEACHTREE INDUSTRIAL BLVD		
CITY	BERKELEY LAKE	COUNTY	GWINNETT
STATE	GA	ZIPCODE	30096
LATITUDE (decimal format)	33.9844	LONGITUDE (decimal format)	-84.1707
PROPERTY OWNER INFORMATION			
PROPERTY OWNER(S)	EXCEL FEDERAL CREDIT UNION	PHONE #	
MAILING ADDRESS	5070 PEACHTREE INDUSTRIAL BLVD		
CITY	PEACHTREE CORNERS	STATE/ZIPCODE	GA 30071

ATTACHMENT B

Laboratory Data Report

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Canton

4101 Shuffel Street NW

North Canton, OH 44720

Tel: (330)497-9396

TestAmerica Job ID: 240-59354-1

Client Project/Site: Berkeley Lake

Revision: 1

For:

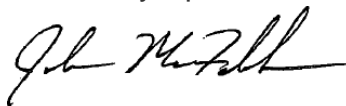
Geosyntec Consultants, Inc.

1255 Roberts Blvd, NW

Suite 200

Kennesaw, Georgia 30144

Attn: Andy Speake



Authorized for release by:

7/21/2016 1:53:33 PM

John McFadden, Project Manager I

(330)497-9396

john.mcfadden@testamericainc.com

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

Client: Geosyntec Consultants, Inc.
Project/Site: Berkeley Lake

TestAmerica Job ID: 240-59354-1

Qualifiers

Metals

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

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
CFL	Contains Free Liquid
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)

Case Narrative

Client: Geosyntec Consultants, Inc.
Project/Site: Berkeley Lake

TestAmerica Job ID: 240-59354-1

Job ID: 240-59354-1

Laboratory: TestAmerica Canton

Narrative

CASE NARRATIVE

Client: Geosyntec Consultants, Inc.

Project: Berkeley Lake

**Report Number: 240-59354-1
Revision 1**

The report was revised on 7/21/16 to exclude the results for sample MW01_121815 (total and dissolved). The well had high field turbidity and the client has decided to abandon and re-install a new well at this location.

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

TestAmerica Canton attests to the validity of the laboratory data generated by TestAmerica facilities reported herein. All analyses performed by TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

This laboratory report is confidential and is intended for the sole use of TestAmerica and its client.

RECEIPT

The samples were received on 12/19/2015 10:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.6° C.

DISSOLVED METALS (ICP)

Sample MW02_121015_F (240-59354-2) was analyzed for dissolved metals (ICP) in accordance with EPA SW-846 Method 6010C. The sample was prepared on 12/23/2015 and analyzed on 12/24/2015.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

TOTAL RECOVERABLE METALS (ICP)

Sample MW02_121015 (240-59354-1) was analyzed for total recoverable metals (ICP) in accordance with EPA SW-846 Method 6010C. The sample was prepared on 12/22/2015 and analyzed on 12/23/2015.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Method Summary

Client: Geosyntec Consultants, Inc.
Project/Site: Berkeley Lake

TestAmerica Job ID: 240-59354-1

Method	Method Description	Protocol	Laboratory
6010C	Metals (ICP)	SW846	TAL CAN

Protocol References:

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

Laboratory References:

TAL CAN = TestAmerica Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396



Sample Summary

Client: Geosyntec Consultants, Inc.
Project/Site: Berkeley Lake

TestAmerica Job ID: 240-59354-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-59354-1	MW02_121015	Water	12/10/15 17:55	12/19/15 10:00
240-59354-2	MW02_121015_F	Water	12/10/15 17:55	12/19/15 10:00

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Detection Summary

Client: Geosyntec Consultants, Inc.
Project/Site: Berkeley Lake

TestAmerica Job ID: 240-59354-1

Client Sample ID: MW02_121015

Lab Sample ID: 240-59354-1

No Detections.

Client Sample ID: MW02_121015_F

Lab Sample ID: 240-59354-2

No Detections.

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- 3
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This Detection Summary does not include radiochemical test results.

TestAmerica Canton

Client Sample Results

Client: Geosyntec Consultants, Inc.
Project/Site: Berkeley Lake

TestAmerica Job ID: 240-59354-1

Client Sample ID: MW02_121015

Lab Sample ID: 240-59354-1

Date Collected: 12/10/15 17:55

Matrix: Water

Date Received: 12/19/15 10:00

Method: 6010C - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	2.9	U	15	2.9	ug/L		12/22/15 10:40	12/23/15 10:47	1

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Client Sample Results

Client: Geosyntec Consultants, Inc.
Project/Site: Berkeley Lake

TestAmerica Job ID: 240-59354-1

Client Sample ID: MW02_121015_F

Lab Sample ID: 240-59354-2

Date Collected: 12/10/15 17:55

Matrix: Water

Date Received: 12/19/15 10:00

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	2.9	U	15	2.9	ug/L		12/23/15 08:25	12/24/15 13:57	1

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QC Sample Results

Client: Geosyntec Consultants, Inc.
Project/Site: Berkeley Lake

TestAmerica Job ID: 240-59354-1

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 240-211940/1-A
Matrix: Water
Analysis Batch: 212146

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 211940

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	2.9	U	15	2.9	ug/L		12/22/15 10:40	12/23/15 09:53	1

Lab Sample ID: LCS 240-211940/2-A
Matrix: Water
Analysis Batch: 212146

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 211940

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	2000	2070		ug/L		103	80 - 120

Lab Sample ID: MB 240-212084/1-A
Matrix: Water
Analysis Batch: 212434

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 212084

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	2.9	U	15	2.9	ug/L		12/23/15 08:25	12/24/15 13:41	1

Lab Sample ID: LCS 240-212084/2-A
Matrix: Water
Analysis Batch: 212434

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 212084

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	2000	1980		ug/L		99	80 - 120

Lab Sample ID: 240-59354-2 MS
Matrix: Water
Analysis Batch: 212434

Client Sample ID: MW02_121015_F
Prep Type: Dissolved
Prep Batch: 212084

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	2.9	U	2000	2030		ug/L		102	75 - 125

Lab Sample ID: 240-59354-2 MSD
Matrix: Water
Analysis Batch: 212434

Client Sample ID: MW02_121015_F
Prep Type: Dissolved
Prep Batch: 212084

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	2.9	U	2000	2030		ug/L		101	75 - 125	0	20

TestAmerica Canton

QC Association Summary

Client: Geosyntec Consultants, Inc.
Project/Site: Berkeley Lake

TestAmerica Job ID: 240-59354-1

Metals

Prep Batch: 211940

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-59354-1	MW02_121015	Total Recoverable	Water	3005A	
MB 240-211940/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 240-211940/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

Prep Batch: 212084

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-59354-2	MW02_121015_F	Dissolved	Water	3005A	
MB 240-212084/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 240-212084/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
240-59354-2 MS	MW02_121015_F	Dissolved	Water	3005A	
240-59354-2 MSD	MW02_121015_F	Dissolved	Water	3005A	

Analysis Batch: 212146

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-59354-1	MW02_121015	Total Recoverable	Water	6010C	211940
MB 240-211940/1-A	Method Blank	Total Recoverable	Water	6010C	211940
LCS 240-211940/2-A	Lab Control Sample	Total Recoverable	Water	6010C	211940

Analysis Batch: 212434

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-59354-2	MW02_121015_F	Dissolved	Water	6010C	212084
MB 240-212084/1-A	Method Blank	Total Recoverable	Water	6010C	212084
LCS 240-212084/2-A	Lab Control Sample	Total Recoverable	Water	6010C	212084
240-59354-2 MS	MW02_121015_F	Dissolved	Water	6010C	212084
240-59354-2 MSD	MW02_121015_F	Dissolved	Water	6010C	212084

Lab Chronicle

Client: Geosyntec Consultants, Inc.
Project/Site: Berkeley Lake

TestAmerica Job ID: 240-59354-1

Client Sample ID: MW02_121015

Date Collected: 12/10/15 17:55

Date Received: 12/19/15 10:00

Lab Sample ID: 240-59354-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			211940	12/22/15 10:40	WKD	TAL CAN
Total Recoverable	Analysis	6010C		1	212146	12/23/15 10:47	KLC	TAL CAN

Client Sample ID: MW02_121015_F

Date Collected: 12/10/15 17:55

Date Received: 12/19/15 10:00

Lab Sample ID: 240-59354-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			212084	12/23/15 08:25	WKD	TAL CAN
Dissolved	Analysis	6010C		1	212434	12/24/15 13:57	RKT	TAL CAN

Laboratory References:

TAL CAN = TestAmerica Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

Certification Summary

Client: Geosyntec Consultants, Inc.
Project/Site: Berkeley Lake

TestAmerica Job ID: 240-59354-1

Laboratory: TestAmerica Canton

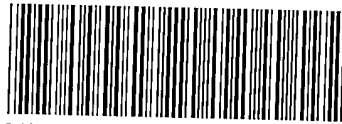
All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
California	NELAP	9	01144CA	06-30-14 *
California	State Program	9	2927	04-30-17
Connecticut	State Program	1	PH-0590	12-31-17
Florida	NELAP	4	E87225	06-30-17
Illinois	NELAP	5	200004	07-31-16 *
Kansas	NELAP	7	E-10336	07-31-16 *
Kentucky (UST)	State Program	4	58	02-23-17
Kentucky (WW)	State Program	4	98016	12-31-16
L-A-B	DoD ELAP		L2315	07-18-16
Minnesota	NELAP	5	039-999-348	12-31-16
Nevada	State Program	9	OH-000482008A	07-31-16 *
New Jersey	NELAP	2	OH001	06-30-17
New York	NELAP	2	10975	03-31-17
Ohio VAP	State Program	5	CL0024	09-14-17
Oregon	NELAP	10	4062	02-23-17
Pennsylvania	NELAP	3	68-00340	08-31-16 *
Texas	NELAP	6	T104704517-15-5	08-31-16 *
USDA	Federal		P330-13-00319	11-26-16
Virginia	NELAP	3	460175	09-14-16 *
Washington	State Program	10	C971	01-12-17
West Virginia DEP	State Program	3	210	12-31-16
Wisconsin	State Program	5	999518190	08-31-16 *

* Certification renewal pending - certification considered valid.

TestAmerica Canton

**CHAIN OF CUSTODY
AND
RECEIVING DOCUMENTS**



240-59354 Chain of Custody

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Serial Number 102671

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

TestAmerica

3.9/c 3.6

THE LEADER IN ENVIRONMENTAL TESTING

Website: www.testamericainc.com
 Phone: (912) 354-7858
 Fax: (912) 352-0165

TestAmerica Savannah
 5102 LaRoche Avenue
 Savannah, GA 31404

Alternate Laboratory Name/Location

TA N Canton

Phone:
 Fax:

PROJECT REFERENCE Berkeley Lake		PROJECT NO. BR5658	PROJECT LOCATION (STATE) GA	MATRIX TYPE	REQUIRED ANALYSIS	PAGE 1 OF 1
TAL (LAB) PROJECT MANAGER		P.O. NUMBER	CONTRACT NO.	AQUEOUS (WATER)		STANDARD REPORT DELIVERY <input checked="" type="checkbox"/>
CLIENT (SITE) PM Cristina Krachon	CLIENT PHONE 497-9396	CLIENT FAX	COMPOSITE (C) OR GRAB (G) INDICATE	SOLID OR SEMISOLID		DATE DUE <input checked="" type="checkbox"/>
CLIENT NAME	CLIENT E-MAIL		NONAQUEOUS LIQUID (OIL, SOLVENT...)	AIR		EXPEDITED REPORT DELIVERY (SURCHARGE) <input type="checkbox"/>
CLIENT ADDRESS						DATE DUE <input type="checkbox"/>
COMPANY CONTRACTING THIS WORK (if applicable)						NUMBER OF COOLERS SUBMITTED PER SHIPMENT: <input type="checkbox"/>
SAMPLE IDENTIFICATION						
DATE	TIME					
12/10/15	17:55	MW02-121015	6X	1	0	REMARKS Sample Filtered w/ 45 micron
12/10/15	17:55	MW02-121015-F	6X	1	0	
12/18/15	13:10	MW01-121815	6X	1	0	
12/18/15	13:10	MW01-121815-F	6X	1	0	Filter in lab
<i>Andrew Sepe</i>						
RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)
<i>Andrew Sepe</i>	12/19/15	15:30				
RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)
<i>Andrew Sepe</i>	12/19/15	16:00				
LABORATORY USE ONLY						
RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY SEAL NO.	SAVANNAH LOG NO.	LABORATORY REMARKS	



TALB240-690 (1008)

Canton Facility

Client Berkeley Lake

Site Name

Cooler unpacked by:

Cooler Received on 12/19/15

Opened on 12/19/15

[Signature]

FedEx: 1st Grd Exp UPS FAS Stetson Client Drop Off TestAmerica Courier Other

Receipt After-hours: Drop-off Date/Time

Storage Location

TestAmerica Cooler # _____ Foam Box Client Cooler Box Other _____

Packing material used Bubble Wrap Foam Plastic Bag None Other _____

COOLANT: Wet Ice Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt

IR GUN# 53 (CF +0.1 °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C

IR GUN# 48 (CF -0.3 °C) Observed Cooler Temp. 3.9 °C Corrected Cooler Temp. 3.6 °C

IR GUN# 5 (CF +0.4 °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C

IR GUN# 8 (CF -0.5 °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C

See Multiple Cooler Form

2. Were custody seals on the outside of the cooler(s)? If Yes Quantity 1 Yes No

-Were custody seals on the outside of the cooler(s) signed & dated? Yes No NA

-Were custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes No

3. Shippers' packing slip attached to the cooler(s)? Yes No

4. Did custody papers accompany the sample(s)? Yes No

5. Were the custody papers relinquished & signed in the appropriate place? Yes No

6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes No

7. Did all bottles arrive in good condition (Unbroken)? Yes No

8. Could all bottle labels be reconciled with the COC? Yes No

9. Were correct bottle(s) used for the test(s) indicated? Yes No

10. Sufficient quantity received to perform indicated analyses? Yes No

11. Were sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# HC559158

12. Were VOAs on the COC? Yes No

13. Were air bubbles >6 mm in any VOA vials? Yes No NA

14. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # _____ Yes No

15. Was a LL Hg or Me Hg trip blank present? Yes No

Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other

Concerning _____

14. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES

Samples processed by:

15. SAMPLE CONDITION

Sample(s) _____ were received after the recommended holding time had expired.

Sample(s) _____ were received in a broken container.

Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)

16. SAMPLE PRESERVATION

Sample(s) _____ were further preserved in the laboratory.

Time preserved: _____ Preservative(s) added/Lot number(s): _____

Temperature readings: _____

<u>Client Sample ID</u>	<u>Lab ID</u>	<u>Container Type</u>	<u>Container pH</u>	<u>Preservative Added (mls)</u>	<u>Lot #</u>
MW02_121015	240-59354-A-1	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW02_121015_F	240-59354-A-2	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW01_121015	240-59354-A-3	Plastic 250ml - with Nitric Acid	<2	_____	_____

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