

**PHASE II ENVIRONMENTAL SITE ASSESSMENT
LIFT STATION RENEWAL/ REPLACEMENT
GALLERIA AREA LIFT STATIONS
WBS NO. S-000267-0109-3
HOUSTON, TEXAS**

Reported to:

ARCADIS U.S, INC.

Houston, Texas

Submitted by:

GEOTEST ENGINEERING, INC.

Houston, Texas

REPORT NO. 1130018301, dated July 23, 2014

Key Map Nos. 497 G, H & M



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Report No. 1130018301

July 23, 2014

Mr. Edward Quiroz, P.E.
ARCADIS U.S, Inc.
2929 Briarpark Drive, Suite 300
Houston, Texas 77042

**Reference: Phase II Environmental Site Assessment (ESA)
Lift Station Renewal/Replacement
Galleria Area Lift Stations
WBS NO. S-000267-0109-3
Houston, Texas**

Dear Mr. Quiroz:

We are pleased to submit the final Phase II Environmental Site Assessment report for the referenced project. A draft report was submitted to you on December 9, 2013. This final report supersedes all previously submitted reports, transmittals, ect. for the referenced project. This study was authorized by Work Authorization No. 08192013-1 dated August 19, 2013 by accepting our proposal No. 1130028099 dated August 2, 2013.

We appreciate the opportunity to be of service to you. If we can be of further assistance, please call us.

Sincerely,
GEOTEST ENGINEERING, INC.
TBPE Registration No. F-410

Naresh Kolli, P.E.
Assistant Project Manager

Mohan Ballagere, P.E.
Vice President



MBANK\ego

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1.0 EXECUTIVE SUMMARY

A Phase II Environmental Site Assessment (the study) was conducted for ARCADIS U.S, Inc. for the Lift Station Renewal/Replacement of Galleria Area Lift Stations in Houston, Texas. The details of the project were discussed in Section 2.1 of this report.

As per the Phase I ESA study performed by Geotest Engineering, Inc., Report No. 1130016601 dated May 7, 2013; six (6) Recognized Environmental Conditions (REC) were identified along the project alignments (project area).

This study was based on the ASTM guidelines for Phase II Environmental Site Assessment, designation ASTM 1903-11 (2011) as modified by City of Houston Department of Public Works and Engineering Design Manual, Chapter 11 – Geotechnical and Environmental Requirements Subsection, Phase II Environmental Requirements, dated July 1, 2012. This study included drilling and continuous sampling of sixteen (16) environmental borings, each to a depth of 15 feet, performing analytical tests on soil and groundwater samples (if encountered) to evaluate the presence or absence of soil and/or groundwater contamination and preparation of a Phase II ESA report.

The principal findings and conclusions developed from this study are summarized below:

- The measured values of organic vapors in the field ranged from 0.0 ppm to 260 ppm. The measured organic vapors were higher than 25 ppm in borings EB-2, EB-3 and EB-5 through EB-8.
- Three (3) soil samples (from borings EB-5, EB-6 and EB-7) were tested for Volatile Organic Compounds (VOCs); thirteen (13) soil samples (from borings EB-1 through EB-4 and EB-8 through EB-16A) were tested for BTEX – MTBE and sixteen (16) soil samples (from boring EB-1 through EB-16A) were tested for TPH (Total Petroleum Hydrocarbon).

- The analytical tests indicated that chemical of concern (COC), Toluene was detected in boring EB-3.

The COC TPH, and VOCs (Ethylbenzene, Naphthalene, P-Cymene, Sec-Butylbenzene, n-Butylbenzene, n-Propylbenzene and Trimethylbenzene) were detected in boring EB-7. The detected TPH in boring EB-7 was above the Texas Commission on Environmental Quality (TCEQ), Texas Risk Remediation Program (TRRP), TIER 1, Protective Concentration Levels (PCLs) for residential guidelines (based on TIER 1 PCLs on 0.5 acre source area and ^{GW}soil_{ing} exposure pathway).

- Based on the analytical test results, the COCs were detected in borings EB-3 and EB-7 and the measured organic vapors were higher than 25 ppm in borings EB-2, EB-3 and EB-5 through EB-8, hence the following areas are identified as potentially petroleum contaminated area (PPCA).
 - **Area from Station 28+50 to 31+00 along N Post Oak Lane.**
 - **Area from Station 13+50 to 19+50 along Woodway Drive.**
- It is recommended that the Occupational Safety and Health Administration (OSHA) requirements (29 CFR 1926) and COH Guide Specifications 02105 and 02120 should be followed for workers safety during excavations and handling of the site soils in aforementioned areas.
- Activities that related to excavation and handling of site soils are regulated under the OSHA Construction Standard 29 CFR 1910 Subpart H.

2.0 INTRODUCTION

2.1 General

A Phase II Environmental Site Assessment (the study) was conducted for ARCADIS U.S, Inc. for Lift Station Renewal/Replacement of Galleria Area Lift Stations in Houston, Texas. The project is comprised of design and construction of sanitary sewer with a total length of approximately 19,760 linear feet (LF) in the Galleria Area (Project Area). The project area includes several alignments. The project also includes elimination of several lift stations and construction of a new lift station. The project location map is shown on Figure 1.

As per the Phase I ESA study performed by Geotest Engineering, Inc., Report No. 1130016601 six (6) Recognized Environmental Conditions (RECs) were identified along the project alignments (project area). The identified REC sites are given below.

REC Site	Address	No. of Borings
Exxon Mobil	8605 Memorial Drive	4
TPG 577 07	8602 Memorial Drive	
Texaco	5121 Woodway Drive	3
Former Mobil 12 WDY	5010 Woodway Drive	3
Pinehollow Condominiums	4950 Woodway Drive	3
Woodway Mobil	5139 Woodway Drive	3

To evaluate the migration of the contaminants in soil and groundwater (if encountered) in the project area, a Phase II Environmental Site Assessment was recommended.

This study was authorized by Work Authorization No. 08192013-1 dated August 19, 2013 by accepting our proposal No. 1130028099 dated August 2, 2013.

2.2 Objectives

The objectives of this study are to evaluate the presence of soil and ground water (if encountered) contamination from the RECs in the project area to identify the potential impacts on the proposed construction. This study was performed in general accordance with ASTM guidelines for Phase II Environmental Site Assessment, designation ASTM 1903-11 (2011) (Reference 2) as modified by City of Houston Department of Public Works and Engineering Infrastructure Design Manual, Chapter 11 – Geotechnical and Environmental Requirements Subsection, Phase II Environmental Requirements, dated July 1, 2012 (Reference 3).

2.3 Scope of the Study

The scope of work is generally based on the ASTM guidelines for Phase II Environmental Site Assessment, designation ASTM E 1903-11 (2011) Standard, City of Houston Department of Public Works and Engineering Infrastructure Design Manual, Chapter 11 – Geotechnical and Environmental Requirements Subsection, Phase II Environmental Requirements. The scope consists of the following:

- Coring the existing concrete pavement to access the subsurface soils at sixteen (16) locations.
- Drilling and continuously sampling a total of sixteen (16) environmental borings utilizing Geoprobe each to a depth of 15 feet near the RECs;
- Screen each soil sample in the field for the presence of volatile compounds using a photoionization detector (PID);
- Develop 1-inch temporary wells for groundwater (if encountered) sampling and then plug and abandon;
- Conduct analytical tests on sixteen (16) soil samples and five (5) ground water samples (if encountered);

- Prepare a Phase II environmental report documenting the field investigation and analytical test results in accordance with ASTM Practice E 1903 as modified by City of Houston Infrastructure Design Manual, Chapter 11, Environmental Requirements Section 11.26.

2.4 Special Terms and Conditions

There were no special terms or conditions.

2.5 Limitations and Exceptions of Assessment

The scope of this Phase II ESA is limited to matters exclusively described herein. In preparing this report, Geotest has relied upon the information derived from secondary sources. All recommendations, findings and conclusions stated in this report are based upon the facts and circumstances as they existed at the time this report was prepared (e.g., Federal, State and Local Laws, Rules, Regulations and other matters that Geotest deemed relevant). A change in any facts or circumstances upon which this report was based may affect the findings, conclusions and validity of our recommendations expressed herein.

The subsurface conditions described in this report and the results of analytical tests are based on sixteen (16) completed borings drilled at specific locations. However, variation in soil conditions and level of contamination, if any, may occur between the completed borings. The depth of the groundwater level may vary with changes in environmental conditions such as frequency and magnitude of rainfall.

2.6 Limiting Conditions and Methodology Used

This Phase II ESA is limited to the data derived from the soil borings and the laboratory tests performed on the samples recovered from the project area. Following this section of the report, Section 3 provides a subsurface investigation; Section 4 describes the laboratory analytical program, Section 5 describes the data evaluation, Section 6 contains conclusions and Section 7 contains references.

3.0 SUBSURFACE INVESTIGATION

3.1 Field Investigation Methodologies

The field investigation methodology takes into consideration the potential distributions of contaminants with respect to the properties, behavior and transportation characteristics. The sampling plan was designed to provide for the collection of potentially contaminated environmental media, if they occur, at locations and depths where the highest concentrations are likely to occur.

These investigation methodologies were developed in general accordance with ASTM Standard D 5730: Guide to Site Characteristics for Environmental Purposes with Emphasis on Soil, Rock, The Vadose Zone and Groundwater (Reference 4).

Personal health and safety precautions were followed in accordance with applicable federal and state laws or local equivalents and any requirements imposed by the owner, occupant or field personnel.

No test pits were excavated as part of this Phase II ESA study.

The field investigation includes drill and continuously sample sixteen (16) environmental borings (designated as EB-1 through EB-16A) at the proposed RECs for this study. During drilling, the boring EB-16 was offset to EB-16A due to encounter of hard obstruction at 3 feet. All the boring locations including the RECs are shown on Figures 2.1 and 2.2, Plan of Borings.

In each boring, geoprobe tubes were pushed to collect samples. At the start of the each boring, all sampling tools were decontaminated with a phosphate-free Liquid-Nox detergent, followed by a Freon rinse and a final deionized water rinse to reduce possible sample cross-contamination. The sampling tools, however, were decontaminated after every sample recovery. After extrusion, the soil samples were placed in EPA-approved laboratory-provided glass jars. All the samples were then placed in a cooler with ice.

Geotest’s representative visually field-classified the recovered soil samples. Notations of soil type, color and odor, if present, were recorded on the soil boring logs. Soil classifications presented on the log of borings are based on visual field classification and have not been verified by geotechnical laboratory soil testing. All the borings were grouted with cement-bentonite grout at the end of drilling.

The environmental boring logs are presented on Figures A-1 through A-16 in Appendix A. A key to symbols and terms used on the boring logs is presented on Figure A-17 in Appendix A.

During the field investigation, field screening for organic vapor concentrations was performed on all soil samples recovered from the borings. The measurements were made in the field with a benzene-calibrated, HNU DL-101 Photo-Ionization Detector (PID). Results of the field PID screening are summarized as “Field Screening – Organic Vapor” on the boring logs presented on Figures A-1 through A-16 in Appendix A.

3.2 Selected Sites

As per the Phase I ESA study performed by Geotest Engineering, Inc., Report No. 1130016601 dated May 7, 2013, six (6) Recognized Environmental Conditions (RECs) were identified in the project area. The identified REC sites are given below.

REC Site	Address
Exxon Mobil	8605 Memorial Drive
TPG 577 07	8602 Memorial Drive
Texaco	5121 Woodway Drive
Former Mobil 12 WDY	5010 Woodway Drive
Pinehollow Condominiums	4950 Woodway Drive
Woodway Mobil	5139 Woodway Drive

4.0 LABORATORY ANALYTICAL PROGRAM

4.1 Chemical Testing Plan

All soil samples were screened in the field for organic vapors with a Photo-Ionization Detector (PID). The selected number of analytical tests are given below.

- Thirteen (13) BTEX -MTBE (from borings EB-1 through EB-4 and EB-8 through EB-16A);
- Sixteen (16) TPH (from borings EB-1 through EB-16A); and
- Three (3) Volatile Organic Compounds (VOCs) (from borings EB-5 through EB-7).

The results are presented in Appendix B.

4.2 Sampling and Chemical Analyses and Methods

4.2.1 Soil. Soil samples were obtained by pushing a geoprobe tube. After extrusion, the soil samples were collected and placed in EPA-approved laboratory-provided glass jars and then placed in a portable ice cooler with ice. Based on the field screening for organic vapor, one soil sample from each boring was selected for analytical testing. The samples selected for analytical testing are given below.

Boring No.	Sample Depth, ft	Boring No.	Sample Depth, ft
EB-1	14-15	EB-9	6-8
EB-2	4-6	EB-10	12-14
EB-3	10-12	EB-11	8-10
EB-4	10-12	EB-12	14-15
EB-5	10-12	EB-13	14-15
EB-6	12-14	EB-14	4-6
EB-7	12-14	EB-15	10-12
EB-8	4-6	EB-16A	10-12

4.2.2 Groundwater. Groundwater was not encountered in the borings.

The analytical tests and corresponding test methods are listed below.

Benzene, Toulene, Ethyl Benzene, Xylene (BTEX)	SW 8260
Total Petroleum Hydrocarbon (TPH)	TX 1005
Volatile Organic Compounds (VOCs)	SW-846 8260 Sub: TX104704295

The samples were transported along with the chain-of-custody documentation to XENCO Laboratories in Houston, Texas for analytical testing.

5.0 DATA EVALUATION

5.1 Subsurface Conditions

5.1.1 Geologic Setting. Based on the Geologic Atlas of Texas - Houston Sheet, the project area is in the Beaumont Formation. The clays and sands of this formation are overconsolidated as a result of desiccation or frequent raising and lowering of the sea level and subsequently the groundwater table. Consequently, clays of this formation have moderate to high shear strength and relatively low compressibility. Sands of the Beaumont Formation are typically very fine and often silty. Further there is evidence in the Houston area of the occurrence of cemented material (sandstone and siltstone) deposits within the Beaumont Formation.

5.1.2 Hydrogeologic Conditions. There are three major water-producing components in the region; Chicot (shallowest), Evangeline and Jasper (deepest) aquifers. The Chicot and Evangeline aquifers have base altitudes as deep as 600 and 1,500 feet below mean sea level, respectively. Most of the groundwater usage in the region is supplied by the Chicot and Evangeline aquifers. The permeability of the subsurface soils ranges from low permeable sandy lean clay and lean clay to very low permeable fat clay. The general groundwater flow in the area is typically from northwest to southeast.

5.1.3 Verification of Conceptual Site Model. The conceptual site model and sampling plan developed for the site were verified during the Phase II ESA assessment activities. The Quality Assurance (QA)/Quality Control (QC) procedures described in the chemical testing plan were adequate to verify the data acceptability.

5.2 Analytical Data

5.2.1 Soil. The analytical test results for each sample were compared against the Texas Commission on Environmental Quality (TCEQ), Texas Risk Remediation Program (TRRP), TIER 1, Protective Concentration Levels (PCLs) for residential guidelines (based on TIER 1 PCLs on 0.5 acre source area and ^{GW}soil_{ing} exposure pathway) (Reference 5).

The analytical tests indicated that chemicals of concern (COC), Toluene was detected in boring EB-3.

The COCs TPH, and VOC's (Ethylbenzene, Naphthalene, Sec-Butylbenzene, n-Butylbenzene, n-Propylbenzene and Trimethylbenzene) were detected in boring EB-7. The detected TPH in boring EB-7 was above the Texas Commission on Environmental Quality (TCEQ), Texas Risk Remediation Program (TRRP), TIER 1, Protective Concentration Levels (PCLs) for residential guidelines (based on TIER 1 PCLs on 0.5 acre source area and ^{GW}soil_{ing} exposure pathway). A summary of analytical test results and the TIER 1 PCLs are presented in Tables 1.1. The VOCs detected in boring EB-7 are presented in Table 1.2.

5.2.2 Groundwater. No ground water was encountered in all the borings EB-1 through EB-16A drilled for this study, hence no testing was performed.

6.0 CONCLUSIONS

6.1 Summary of the Investigation Results

The measured values of organic vapors in the field ranged from 0.0 ppm to 260 ppm. The measured organic vapors were higher than 25 ppm in borings EB-2, EB-3 and EB-5 through EB-8.

The COC TPH, and VOCs (Ethylbenzene, Naphthalene, P-Cymene, Sec-Butylbenzene, n-Butylbenzene, n-Propylbenzene and Trimethylbenzene) were detected in boring EB-7. The detected TPH in boring EB-7 was above the Texas Commission on Environmental Quality (TCEQ), Texas Risk Remediation Program (TRRP), TIER 1, Protective Concentration Levels (PCLs) for residential guidelines (based on TIER 1 PCLs on 0.5 acre source area and ^{GW}soil_{ing} exposure pathway).

The analytical tests for the VOC's (from boring EB-5 through EB-7) indicated that they were below the limits of TCEQ TRRP TIER 1 PCLs.

6.2 Impact on Planned Construction

Based on the analytical test results, the COCs were detected in borings EB-3 and EB-7 and the measured organic vapors were higher than 25 ppm in borings EB-2, EB-3 and EB-5 through EB-8, hence the following areas are identified as potentially petroleum contaminated area (PPCA).

- **Area from Station 28+50 to 31+00 along N Post Oak Lane.**
- **Area from Station 13+50 to 19+50 along Woodway Drive.**

It is recommended that the Occupational Safety and Health Administration (OSHA) requirements (29 CFR 1926) (Reference 7) and COH Guide Specifications 02105 and 02120 (Reference 8) should be followed for workers safety during excavations and handling of the site soils in aforementioned areas.

Activities that related to excavation and handling of site soils are regulated under the OSHA Construction Standard 29 CFR 1910 Subpart H.

7.0 REFERENCES

1. Phase I Environmental Site Assessment (ESA), by Geotest Engineering, Inc., Report No. 1130016601 dated May 7, 2013.
2. ASTM guidelines for Phase II Environmental Site Assessment, ASTM 1903-11 (2011)
3. City of Houston Department of Public Works and Engineering Infrastructure Design Manual, Chapter 11 – Geotechnical and Environmental Requirements Subsection, Phase II Environmental Requirements, dated July 1, 2012.
4. ASTM Standard D 5730 Guide to Site Characteristics for Environmental Purposes with Emphasis on Soil, Rock, the Vadose Zone and Groundwater.
5. TCEQ (TNRCC) Regulatory Guidance-Remediation Division-RG-366/TRRP- Tier 1 PCL Tables June 19, 2012.
6. TCEQ Texas-Specific Background Soil Concentration Levels.
7. OSHA Regulations (Standards – 29 CFR)
8. City of Houston Standard Specification Section 02105 and Section 02120.

TABLES

	<u>Table</u>
Summary of Analytical Test Results (Soil)	1.1 and 1.2

TABLE 1.1
SUMMARY OF ANALYTICAL TEST RESULTS (Soil)

LOCATION (See Figures 2.1 and 2.2)		TCEQ TRRP TIER 1 Soil PCLs (mg/kg)	BTEX (mg/kg)				TPH (mg/kg)
Boring No.	Sample Depth, ft	Residential ⁽¹⁾	Benzene	Toluene	Ethyl Benzene	Total Xylenes	MTBE (mg/kg)
EB-1	14-15		0.026	8.2	7.6	120	0.62
EB-2	4-6		<0.00126	<0.00116	<0.00126	<0.00126	<0.00629
EB-3	10-12		<0.00126	<0.00116	<0.00126	<0.00126	<0.00629
EB-4	10-12		<0.00126	0.147	<0.00126	<0.00126	<0.00629
EB-5	10-12		<0.00126	<0.00116	<0.00126	<0.00126	<0.00629
EB-6	12-14		<0.00654	<0.00116	<0.00654	<0.0578	<0.0131
EB-7	12-14		<0.00654	<0.00116	<0.00654	<0.0578	<0.0131
EB-8	4-6		<0.00126	<0.00116	<0.00126	<0.00126	<0.00629
EB-9	6-8		<0.00126	<0.00116	<0.00126	<0.00126	<0.00629
EB-10	12-14		<0.00126	<0.00116	<0.00126	<0.00126	<0.00629
EB-11	8-10		<0.00126	<0.00116	<0.00126	<0.00126	<0.00629
EB-12	14-15		<0.00126	<0.00116	<0.00126	<0.00126	<0.00629
EB-13	14-15		<0.00126	<0.00116	<0.00126	<0.00126	<0.00629
EB-14	4-6		<0.00126	<0.00116	<0.00126	<0.00126	<0.00629
EB-15	10-12		<0.00126	<0.00116	<0.00126	<0.00126	<0.00629
EB-16A	10-12		<0.00126	<0.00147	<0.00126	<0.00126	<0.00629

Note: Value in **BOLD** shows exceeds the TCEQ TRRP TIER 1 PCLs

Details of these tests are provided in Appendix B.

(1) TCEQ TRRP TIER 1 PCLs For 0.5 acre source area and ^{GW}soil_{ing} exposure pathway

TABLE 1.2
SUMMARY OF ANALYTICAL TEST RESULTS
VOCs in boring EB-7

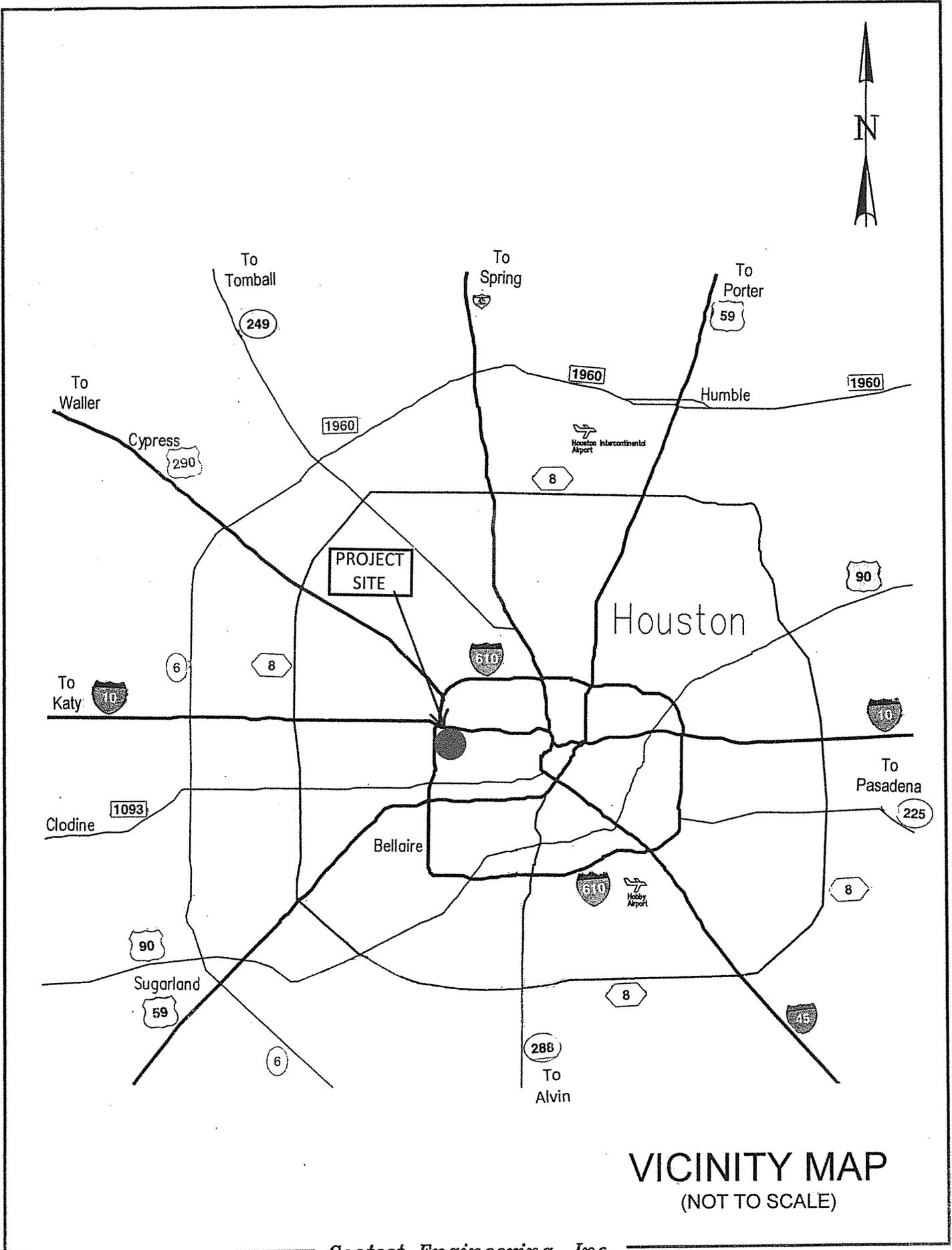
VOC (mg/kg)	TCEQ TRRP TIER 1 Soil PCLs (mg/kg)	Boring No.
		EB-7 (12-14)
Sec-Butyl benzene	85	0.112
n-Butylbenzene	150	0.394
p-Cymene (p-Isopropylbenzene)	230	0.0435
Ethylbenzene	7.6	0.782
Naphthalene	31	1.35
n-Propylbenzene	45	1.08
1,2,4- Trimethylbenzene	49	1.74
1,3,5- Trimethylbenzene	49	0.064

Note: Value in **BOLD** shows exceeds the TCEQ TRRP TIER 1 PCLs
 Details of these tests are provided in Appendix B.

(1) TCEQ TRRP TIER 1 PCLs For 0.5 acre source area and ^{GW}soil_{ing} exposure pathway

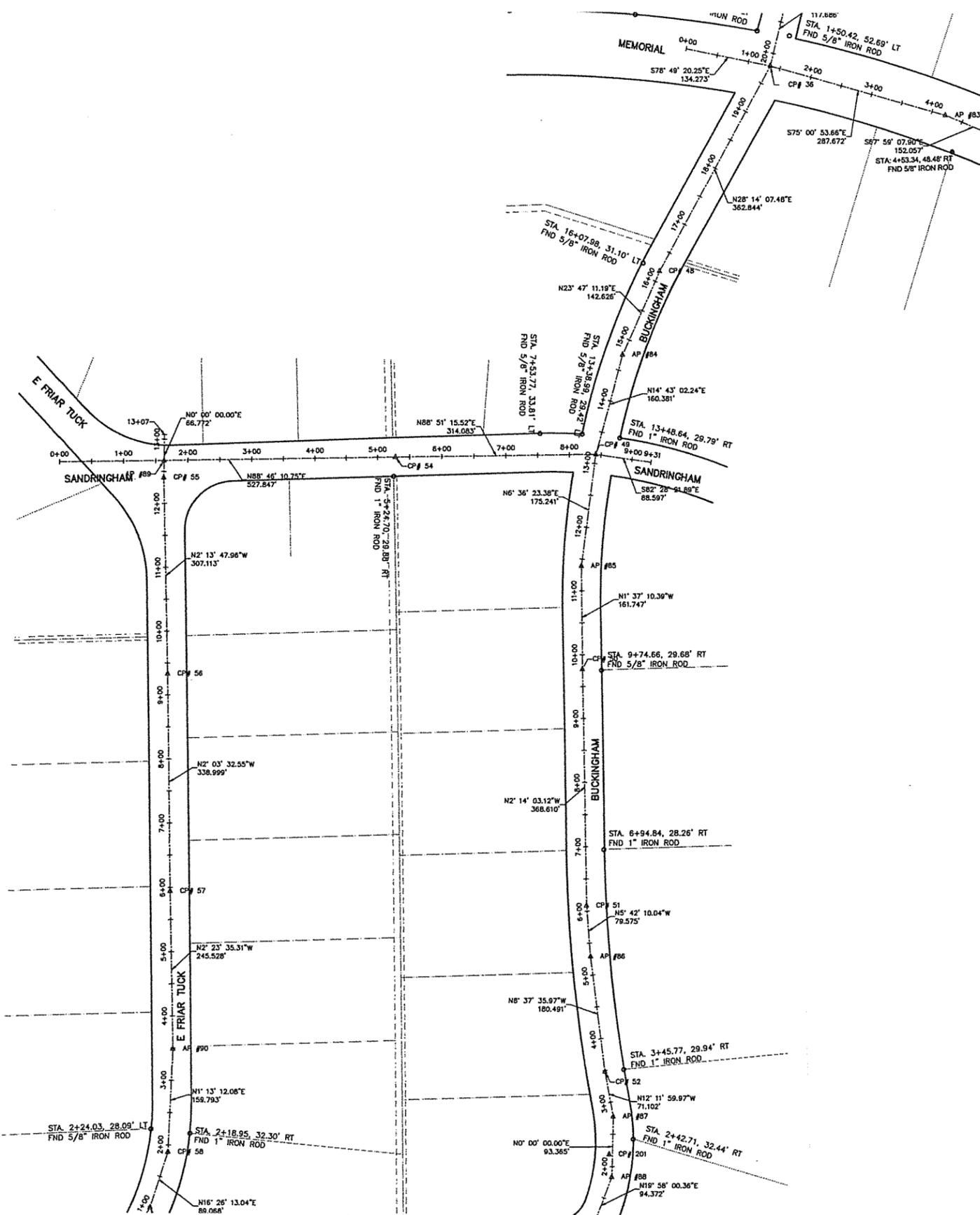
ILLUSTRATIONS

	<u>Figure</u>
Vicinity Map	1
Plan of Borings	2.1 and 2.2

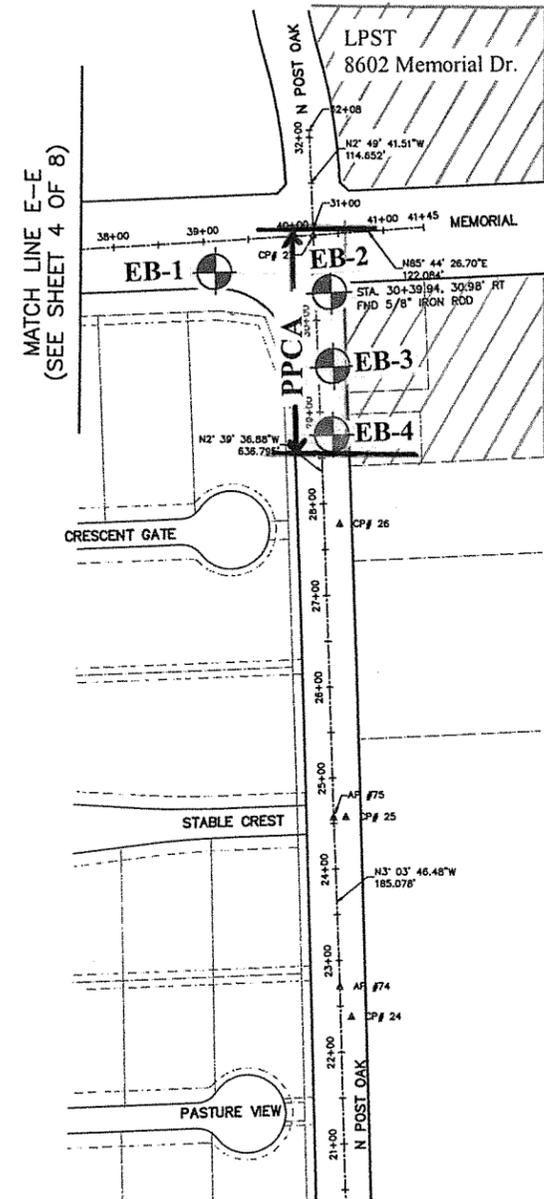


VICINITY MAP

(NOT TO SCALE)



MATCH LINE G-G
(SEE SHEET 2 OF 8)

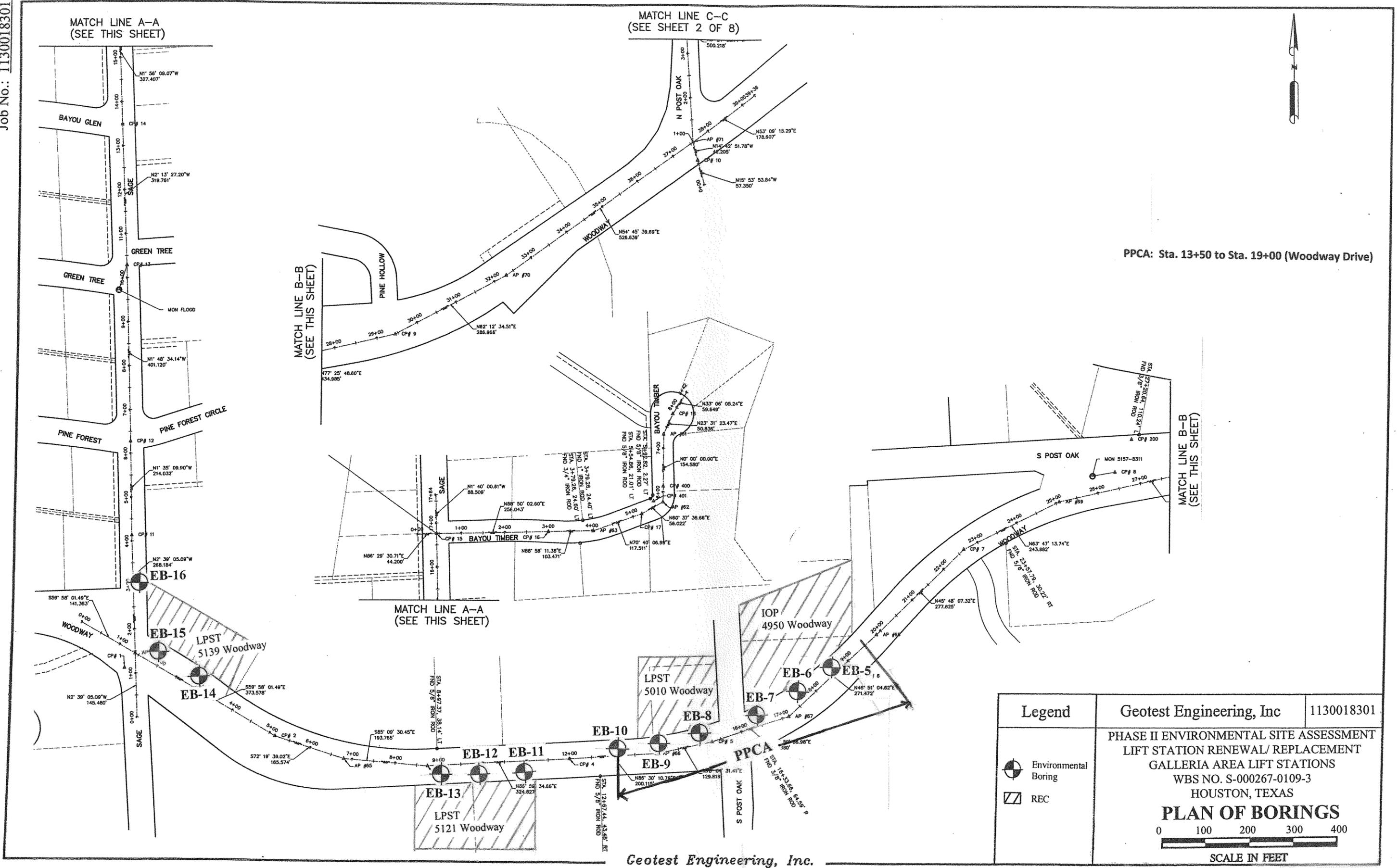


PPCA: Sta. 28+50 to Sta. 31+00 (N. Post Oak Lane)

MATCH LINE D-D
(SEE SHEET 2 OF 8)

Legend Environmental Boring REC	Geotest Engineering, Inc 1130018301
	PHASE II ENVIRONMENTAL SITE ASSESSMENT LIFT STATION RENEWAL/ REPLACEMENT GALLERIA AREA LIFT STATIONS WBS NO. S-000267-0109-3 HOUSTON, TEXAS PLAN OF BORINGS 0 100 200 300 400 SCALE IN FEET

FIGURE 2.1



Geotest Engineering, Inc.

FIGURE 2.2

APPENDIX A

Log of Borings and Symbols Used

LOG OF BORING NO. EB-1

PROJECT : Phase II Environmental Site Assessment
 Lift Station Renewal/Replacement; Galleria Area
 Lift Stations; WBS No. S-000267-0109-3; Houston, Texas
 LOCATION : See Plan of Borings (Figure 2)
 SURFACE ELEVATION : Existing Grade

PROJECT NO. : 1130018301
 COMPLETION DEPTH : 15.0 FT.
 DATE : 08-29-2013

DEPTH, FEET	SYMBOL	SAMPLES	SAMPLER : Shelby Tube/Split Spoon DRY AUGER : .0 TO 15.0 FT. WASH BORE : -- TO -- FT.	DESCRIPTION OF MATERIAL	SPT N-VALUE, BLOWS PER FOOT	HAND PENETROMETER READING, TSF	FIELD SCREENING - ORGANIC VAPOR, ppm	TOTAL PETROLEUM HYDROCARBONS, mg/kg	BTEX, mg/kg				TOTAL BTEX, mg/kg	POLYCYCLIC AROMATIC HYDROCARBONS, mg/kg	VOLATILE ORGANIC COMPOUNDS, mg/kg	TOTAL LEAD, mg/kg
									BENZENE	TOLUENE	ETHYLBENZENE	TOTAL XYLENE				
0				7" Concrete												
0				Brown SANDY CLAY (CL)			0.0									
5				- gray and yellowish brown 4'-6' - w/calcareous and ferrous nodules and ferrous stains 4'-15'			0.0									
							0.3									
							0.3									
10							0.0									
							2.5									
							3.4									
15							2.6	ND	ND	ND	ND	ND	ND			
20																
25																
30																
35																

NOTE :
 ND - Not Detected

DEPTH TO WATER IN BORING :
 No groundwater encountered during drilling.

LOG OF BORING NO. EB-2

PROJECT : Phase II Environmental Site Assessment
 Lift Station Renewal/Replacement; Galleria Area
 Lift Stations; WBS No. S-000267-0109-3; Houston, Texas
 LOCATION : See Plan of Borings (Figure 2)
 SURFACE ELEVATION : Existing Grade

PROJECT NO. : 1130018301
 COMPLETION DEPTH : 15.0 FT.
 DATE : 08-29-2013

DEPTH, FEET	SYMBOL	SAMPLES	SAMPLER : Shelby Tube/Split Spoon DRY AUGER : .0 TO 15.0 FT. WASH BORE : -- TO -- FT.	DESCRIPTION OF MATERIAL	SPT N-VALUE, BLOWS PER FOOT	HAND PENETROMETER READING, TSF	FIELD SCREENING - ORGANIC VAPOR, ppm	TOTAL PETROLEUM HYDROCARBONS, mg/kg	BTEX, mg/kg				TOTAL BTEX, mg/kg	POLYCYCLIC AROMATIC HYDROCARBONS, mg/kg	VOLATILE ORGANIC COMPOUNDS, mg/kg	TOTAL LEAD, mg/kg
									BENZENE	TOLUENE	ETHYLBENZENE	TOTAL XYLENE				
0				3" Asphalt over 4" Limestone												
				Gray and yellowish brown SANDY CLAY (CL)			0.0									
				- w/calcareous and ferrous nodules and ferrous stains 4'-15'			84.9									
5							85.6	ND	ND	ND	ND	ND				
							23.8									
10							11.7									
							8.1									
							4.2									
15							4.8									
				NOTE : ND - Not Detected												
20																
25																
30																
35																

DEPTH TO WATER IN BORING :
 No groundwater encountered during drilling.

LOG OF BORING NO. EB-3

PROJECT : Phase II Environmental Site Assessment
 Lift Station Renewal/Replacement; Galleria Area
 Lift Stations; WBS No. S-000267-0109-3; Houston, Texas

PROJECT NO. : 1130018301

LOCATION : See Plan of Borings (Figure 2)

COMPLETION DEPTH : 15.0 FT.

SURFACE ELEVATION : Existing Grade

DATE : 08-29-2013

DEPTH, FEET	SYMBOL	SAMPLES	SAMPLER : Shelby Tube/Split Spoon DRY AUGER : .0 TO 15.0 FT. WASH BORE : -- TO -- FT.	SPT N-VALUE, BLOWS PER FOOT	HAND PENETROMETER READING, TSF	FIELD SCREENING - ORGANIC VAPOR, ppm	TOTAL PETROLEUM HYDROCARBONS, mg/kg	BTEX, mg/kg				TOTAL BTEX, mg/kg	POLYCYCLIC AROMATIC HYDROCARBONS, mg/kg	VOLATILE ORGANIC COMPOUNDS, mg/kg	TOTAL LEAD, mg/kg
								BENZENE	TOLUENE	ETHYLBENZENE	TOTAL XYLENE				
0			3" Asphalt over 4" Limestone												
			Gray SANDY CLAY (CL) - gray and yellowish brown 2'-4'			1.7									
			- w/calcareous and ferrous nodules and ferrous stains 4'-15'			1.2									
5						2.6									
						2.8									
10						231									
						260	ND	ND	0.0015	ND	ND	0.00			
						95.7									
15						27.1									
			NOTE : ND - Not Detected												
20															
25															
30															
35															

DEPTH TO WATER IN BORING :
 No groundwater encountered during drilling.

LOG OF BORING NO. EB-4

PROJECT : Phase II Environmental Site Assessment
 Lift Station Renewal/Replacement; Galleria Area
 Lift Stations; WBS No. S-000267-0109-3; Houston, Texas

PROJECT NO. : 1130018301

LOCATION : See Plan of Borings (Figure 2)

COMPLETION DEPTH : 15.0 FT.

SURFACE ELEVATION : Existing Grade

DATE : 08-29-2013

DEPTH, FEET	SYMBOL	SAMPLES	SAMPLER : Shelby Tube/Split Spoon DRY AUGER : .0 TO 15.0 FT. WASH BORE : -- TO -- FT.	DESCRIPTION OF MATERIAL	SPT N-VALUE, BLOWS PER FOOT	HAND PENETROMETER READING, TSF	FIELD SCREENING - ORGANIC VAPOR, ppm	TOTAL PETROLEUM HYDROCARBONS, mg/kg	BTEX, mg/kg				TOTAL BTEX, mg/kg	POLYCYCLIC AROMATIC HYDROCARBONS, mg/kg	VOLATILE ORGANIC COMPOUNDS, mg/kg	TOTAL LEAD, mg/kg
									BENZENE	TOLUENE	ETHYLBENZENE	TOTAL XYLENE				
0				3" Asphalt												
				Brown SANDY CLAY (CL)			0.5									
							1.1									
5							1.7									
				-gray and reddish brown w/calcareous and ferrous nodules 8'-15'			3.0									
10							5.1									
							6.5	ND	ND	ND	ND	ND	ND			
							3.0									
15							2.4									
				NOTE : ND - Not Detected												
20																
25																
30																
35																

DEPTH TO WATER IN BORING :
 No groundwater encountered during drilling.

LOG OF BORING NO. EB-5

PROJECT : Phase II Environmental Site Assessment
 Lift Station Renewal/Replacement; Galleria Area
 Lift Stations; WBS No. S-000267-0109-3; Houston, Texas

PROJECT NO. : 1130018301
 COMPLETION DEPTH : 15.0 FT.

LOCATION : See Plan of Borings (Figure 2)

DATE : 08-29-2013

DEPTH, FEET	SYMBOL	SAMPLES	SAMPLER : Shelby Tube/Split Spoon DRY AUGER : .0 TO 15.0 FT. WASH BORE : -- TO -- FT.	DESCRIPTION OF MATERIAL	SPT N-VALUE, BLOWS PER FOOT	HAND PENETROMETER READING, TSF	FIELD SCREENING - ORGANIC VAPOR, ppm	TOTAL PETROLEUM HYDROCARBONS, mg/kg	BTEX, mg/kg				TOTAL BTEX, mg/kg	POLYCYCLIC AROMATIC HYDROCARBONS, mg/kg	VOLATILE ORGANIC COMPOUNDS, mg/kg	TOTAL LEAD, mg/kg
									BENZENE	TOLUENE	ETHYLBENZENE	TOTAL XYLENE				
0				7.5" Concrete												
0				Gray and yellowish brown SANDY CLAY (CL)			32.7									
3							3.6									
5							1.3									
8				-gray very sandy clay 8'-15'			2.1									
10							51.2									
13							105	ND	ND	ND	ND	ND	ND	ND		
14							63.9									
15							79.9									
20				NOTE : ND - Not Detected												
25																
30																
35																

DEPTH TO WATER IN BORING :
 No groundwater encountered during drilling.

LOG OF BORING NO. EB-6

PROJECT : Phase II Environmental Site Assessment
 Lift Station Renewal/Replacement; Galleria Area
 Lift Stations; WBS No. S-000267-0109-3; Houston, Texas

PROJECT NO. : 1130018301
 COMPLETION DEPTH : 15.0 FT.

LOCATION : See Plan of Borings (Figure 2)

DATE : 08-29-2013

DEPTH, FEET	SYMBOL	SAMPLES	SAMPLER : Shelby Tube/Split Spoon DRY AUGER : .0 TO 15.0 FT. WASH BORE : -- TO -- FT.	DESCRIPTION OF MATERIAL	SPT N-VALUE, BLOWS PER FOOT	HAND PENETROMETER READING, TSF	FIELD SCREENING - ORGANIC VAPOR, ppm	TOTAL PETROLEUM HYDROCARBONS, mg/kg	BTEX, mg/kg				TOTAL BTEX, mg/kg	POLYCYCLIC AROMATIC HYDROCARBONS, mg/kg	VOLATILE ORGANIC COMPOUNDS, mg/kg	TOTAL LEAD, mg/kg
									BENZENE	TOLUENE	ETHYLBENZENE	TOTAL XYLENE				
0				8" Concrete												
				Gray and yellowish brown SANDY CLAY (CL)			80.6									
				-dark gray sandy clay 4'-6'			95.5									
5							85.1									
							94.1									
10							69.2									
				-gray very sandy clay w/sand seams 12'-15'			63.1									
							77.4	ND	ND	ND	ND	ND			ND	
15							67.9									
20																
25																
30																
35																

NOTE :
 ND - Not Detected

DEPTH TO WATER IN BORING :
 No groundwater encountered during drilling.

LOG OF BORING NO. EB-7

PROJECT : Phase II Environmental Site Assessment PROJECT NO. : 1130018301
 Lift Station Renewal/Replacement; Galleria Area
 Lift Stations; WBS No. S-000267-0109-3; Houston, Texas
 LOCATION : See Plan of Borings (Figure 2) COMPLETION DEPTH : 15.0 FT.
 SURFACE ELEVATION : Existing Grade DATE : 08-30-2013

DEPTH, FEET	SYMBOL	SAMPLES	SAMPLER : Shelby Tube/Split Spoon DRY AUGER : .0 TO 15.0 FT. WASH BORE : -- TO -- FT.	DESCRIPTION OF MATERIAL	SPT N-VALUE, BLOWS PER FOOT	HAND PENETROMETER READING, TSF	FIELD SCREENING - ORGANIC VAPOR, ppm	TOTAL PETROLEUM HYDROCARBONS, mg/kg	BTEX, mg/kg				TOTAL BTEX, mg/kg	POLYCYCLIC AROMATIC HYDROCARBONS, mg/kg	VOLATILE ORGANIC COMPOUNDS, mg/kg	TOTAL LEAD, mg/kg																			
									BENZENE	TOLUENE	ETHYLBENZENE	TOTAL XYLENE																							
0				8" Concrete																															
				Dark gray CLAY (CH) w/sand seams			36.1																												
							64.2																												
5				Gray SANDY CLAY (CL) w/sand seams			32.8																												
							22.8																												
10							16.5																												
							16.1																												
15							255	ND	ND	ND	0.78	ND	0.78	*																					
							52.2																												
20				NOTE : ND - Not Detected																															
				* <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>VOC (mg/kg)</th> <th>EB-7 (12-14)</th> </tr> </thead> <tbody> <tr> <td>Sec-Butyl benzene</td> <td>0.112</td> </tr> <tr> <td>n-Butylbenzene</td> <td>0.394</td> </tr> <tr> <td>p-Cymene (p-Isopropylbenzene)</td> <td>0.0435</td> </tr> <tr> <td>Ethylbenzene</td> <td>0.782</td> </tr> <tr> <td>Napthalene</td> <td>1.35</td> </tr> <tr> <td>n-Propylbenzene</td> <td>1.08</td> </tr> <tr> <td>1,2,4- Trimethylbenzene</td> <td>1.74</td> </tr> <tr> <td>1,3,5- Trimethylbenzene</td> <td>0.064</td> </tr> </tbody> </table>	VOC (mg/kg)	EB-7 (12-14)	Sec-Butyl benzene	0.112	n-Butylbenzene	0.394	p-Cymene (p-Isopropylbenzene)	0.0435	Ethylbenzene	0.782	Napthalene	1.35	n-Propylbenzene	1.08	1,2,4- Trimethylbenzene	1.74	1,3,5- Trimethylbenzene	0.064													
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1,2,4- Trimethylbenzene	1.74																																		
1,3,5- Trimethylbenzene	0.064																																		
25																																			
30																																			
35																																			

DEPTH TO WATER IN BORING :
No groundwater encountered during drilling.

LOG OF BORING NO. EB-8

PROJECT : Phase II Environmental Site Assessment
 Lift Station Renewal/Replacement; Galleria Area
 Lift Stations; WBS No. S-000267-0109-3; Houston, Texas
 LOCATION : See Plan of Borings (Figure 2)
 SURFACE ELEVATION : Existing Grade

PROJECT NO. : 1130018301
 COMPLETION DEPTH : 15.0 FT.
 DATE : 08-30-2013

DEPTH, FEET	SYMBOL	SAMPLES	SAMPLER : Shelby Tube/Split Spoon DRY AUGER : .0 TO 15.0 FT. WASH BORE : -- TO -- FT.	SPT N-VALUE, BLOWS PER FOOT	HAND PENETROMETER READING, TSF	FIELD SCREENING - ORGANIC VAPOR, ppm	TOTAL PETROLEUM HYDROCARBONS, mg/kg	BTEX, mg/kg				TOTAL BTEX, mg/kg	POLYCYCLIC AROMATIC HYDROCARBONS, mg/kg	VOLATILE ORGANIC COMPOUNDS, mg/kg	TOTAL LEAD, mg/kg	
								BENZENE	TOLUENE	ETHYLBENZENE	TOTAL XYLENE					
			DESCRIPTION OF MATERIAL													
0			11" Concrete													
			Dark gray CLAY (CH) w/sand seams			11.5										
			Gray SANDY CLAY (CL) w/sand seams			14.3										
5			-w/calcareous nodules 8'-14'			59.3	ND	ND	ND	ND	ND					
			-gray very sandy clay 10'-12'			4.5										
						8.3										
						4.1										
						3.6										
15			Gray SAND (SM)			4.1										
			NOTE : ND - Not Detected													
20																
25																
30																
35																

DEPTH TO WATER IN BORING :
 No groundwater encountered during drilling.

LOG OF BORING NO. EB-9

PROJECT : Phase II Environmental Site Assessment
 Lift Station Renewal/Replacement; Galleria Area
 Lift Stations; WBS No. S-000267-0109-3; Houston, Texas
 LOCATION : See Plan of Borings (Figure 2)
 SURFACE ELEVATION : Existing Grade

PROJECT NO. : 1130018301
 COMPLETION DEPTH : 15.0 FT.
 DATE : 08-30-2013

DEPTH, FEET	SYMBOL	SAMPLES	SAMPLER : Shelby Tube/Split Spoon DRY AUGER : .0 TO 15.0 FT. WASH BORE : -- TO -- FT.	DESCRIPTION OF MATERIAL	SPT N-VALUE, BLOWS PER FOOT	HAND PENETROMETER READING, TSF	FIELD SCREENING - ORGANIC VAPOR, ppm	TOTAL PETROLEUM HYDROCARBONS, mg/kg	BTEX, mg/kg				TOTAL BTEX, mg/kg	POLYCYCLIC AROMATIC HYDROCARBONS, mg/kg	VOLATILE ORGANIC COMPOUNDS, mg/kg	TOTAL LEAD, mg/kg
									BENZENE	TOLUENE	ETHYLBENZENE	TOTAL XYLENE				
0				7" Concrete												
				Dark gray CLAY (CH) w/sand seams			1.2									
				Gray SANDY CLAY (CL)			3.6									
5							25.7									
				-w/sand layers 10'-15'			13.2	ND	ND	ND	ND	ND	ND			
10							2.4									
				Gray SAND (SM)			2.4									
							2.5									
15							2.2									
				NOTE : ND - Not Detected												
20																
25																
30																
35																

DEPTH TO WATER IN BORING :
 No groundwater encountered during drilling.

LOG OF BORING NO. EB-10

PROJECT : Phase II Environmental Site Assessment
 Lift Station Renewal/Replacement; Galleria Area
 LOCATION : See Plan of Borings (Figure 2)
 SURFACE ELEVATION : Existing Grade

PROJECT NO. : 1130018301
 COMPLETION DEPTH : 15.0 FT.
 DATE : 08-30-2013

DEPTH, FEET	SYMBOL	SAMPLES	SAMPLER : Shelby Tube/Split Spoon DRY AUGER : .0 TO 15.0 FT. WASH BORE : -- TO -- FT.	DESCRIPTION OF MATERIAL	SPT N-VALUE, BLOWS PER FOOT	HAND PENETROMETER READING, TSF	FIELD SCREENING - ORGANIC VAPOR, ppm	TOTAL PETROLEUM HYDROCARBONS, mg/kg	BTEX, mg/kg				TOTAL BTEX, mg/kg	POLYCYCLIC AROMATIC HYDROCARBONS, mg/kg	VOLATILE ORGANIC COMPOUNDS, mg/kg	TOTAL LEAD, mg/kg
									BENZENE	TOLUENE	ETHYLBENZENE	TOTAL XYLENE				
0				7" Concrete												
0				Dark gray CLAY (CH) w/sand seams			2.8									
5				- reddish brown and gray w/calcareous nodules 4'-10'			2.4									
5							1.5									
10				Gray SANDY CLAY (CL)			0.3									
10							0.7									
15				Gray SAND (SM)			0.7									
15							1.8	ND	ND	ND	ND	ND				
15							1.4									
20				NOTE : ND - Not Detected												
25																
30																
35																

DEPTH TO WATER IN BORING :
 No groundwater encountered during drilling.

LOG OF BORING NO. EB-11

PROJECT : Phase II Environmental Site Assessment
 Lift Station Renewal/Replacement; Galleria Area
 Lift Stations; WBS No. S-000267-0109-3; Houston, Texas
 LOCATION : See Plan of Borings (Figure 2)
 SURFACE ELEVATION : Existing Grade

PROJECT NO. : 1130018301
 COMPLETION DEPTH : 15.0 FT.
 DATE : 08-30-2013

DEPTH, FEET	SYMBOL	SAMPLES	SAMPLER : Shelby Tube/Split Spoon DRY AUGER : .0 TO 15.0 FT. WASH BORE : -- TO -- FT.	DESCRIPTION OF MATERIAL	SPT N-VALUE, BLOWS PER FOOT	HAND PENETROMETER READING, TSF	FIELD SCREENING - ORGANIC VAPOR, ppm	TOTAL PETROLEUM HYDROCARBONS, mg/kg	BTEX, mg/kg				TOTAL BTEX, mg/kg	POLYCYCLIC AROMATIC HYDROCARBONS, mg/kg	VOLATILE ORGANIC COMPOUNDS, mg/kg	TOTAL LEAD, mg/kg
									BENZENE	TOLUENE	ETHYLBENZENE	TOTAL XYLENE				
0				7" Concrete												
				Gray CLAY (CH) w/sand seams			3.0									
							6.7									
5				Yellowish brown and gray SANDY CLAY (CL) w/calcareous nodules			9.0									
							7.4									
				- gray and reddish brown clay 8'-15'			9.9	ND	ND	ND	ND	ND	ND			
10							9.0									
							4.3									
15							4.0									
				NOTE : ND - Not Detected												
20																
25																
30																
35																

DEPTH TO WATER IN BORING :
 No groundwater encountered during drilling.

LOG OF BORING NO. EB-12

PROJECT : Phase II Environmental Site Assessment
 Lift Station Renewal/Replacement; Galleria Area
 LOCATION : See Plan of Borings (Figure 2)
 SURFACE ELEVATION : Existing Grade

PROJECT NO. : 1130018301
 COMPLETION DEPTH : 15.0 FT.
 DATE : 08-30-2013

DEPTH, FEET	SYMBOL	SAMPLES	SAMPLER : Shelby Tube/Split Spoon DRY AUGER : .0 TO 15.0 FT. WASH BORE : -- TO -- FT.	SPT N-VALUE, BLOWS PER FOOT	HAND PENETROMETER READING, TSF	FIELD SCREENING - ORGANIC VAPOR, ppm	TOTAL PETROLEUM HYDROCARBONS, mg/kg	BTEX, mg/kg				TOTAL BTEX, mg/kg	POLYCYCLIC AROMATIC HYDROCARBONS, mg/kg	VOLATILE ORGANIC COMPOUNDS, mg/kg	TOTAL LEAD, mg/kg	
								BENZENE	TOLUENE	ETHYLBENZENE	TOTAL XYLENE					
			DESCRIPTION OF MATERIAL													
0			7" Concrete													
0			Gray CLAY (CH) w/sand seams			6.8										
4			- yellowish brown and gray 4'-6'			9.0										
6			- gray and reddish brown w/calcareous nodules 6'-15'			8.3										
7						7.0										
8						7.8										
9						7.1										
10						11.1										
11						11.8	ND	ND	ND	ND	ND	ND				
12																
13																
14																
15																
16																
17																
18																
19																
20																
21																
22																
23																
24																
25																
26																
27																
28																
29																
30																
31																
32																
33																
34																
35																

NOTE :
 ND - Not Detected

DEPTH TO WATER IN BORING :
 No groundwater encountered during drilling.

LOG OF BORING NO. EB-13

PROJECT : Phase II Environmental Site Assessment
 Lift Station Renewal/Replacement; Galleria Area
 Lift Stations; WBS No. S-000267-0109-3; Houston, Texas
 LOCATION : See Plan of Borings (Figure 2)
 SURFACE ELEVATION : Existing Grade

PROJECT NO. : 1130018301
 COMPLETION DEPTH : 15.0 FT.
 DATE : 08-30-2013

DEPTH, FEET	SYMBOL	SAMPLES	SAMPLER : Shelby Tube/Split Spoon DRY AUGER : .0 TO 15.0 FT. WASH BORE : -- TO -- FT.	SPT N-VALUE, BLOWS PER FOOT	HAND PENETROMETER READING, TSF	FIELD SCREENING - ORGANIC VAPOR, ppm	TOTAL PETROLEUM HYDROCARBONS, mg/kg	BTEX, mg/kg				TOTAL BTEX, mg/kg	POLYCYCLIC AROMATIC HYDROCARBONS, mg/kg	VOLATILE ORGANIC COMPOUNDS, mg/kg	TOTAL LEAD, mg/kg	
								BENZENE	TOLUENE	ETHYLBENZENE	TOTAL XYLENE					
			DESCRIPTION OF MATERIAL													
0			7.5" Concrete													
0			Gray CLAY (CH) w/sand seams - yellowish brown and gray 2'-4'			11.1										
5			- w/ferrous nodules and ferrous stains 4'-8'			6.9										
5			- w/calcareous nodules 4'-15'			5.2										
10			- gray and reddish brown 8'-15'			4.0										
10						5.2										
15						5.0										
15						4.8										
15						5.5	ND	ND	ND	ND	ND	ND				
20			NOTE : ND - Not Detected													
25																
30																
35																

DEPTH TO WATER IN BORING :
 No groundwater encountered during drilling.

LOG OF BORING NO. EB-14

PROJECT : Phase II Environmental Site Assessment
 Lift Station Renewal/Replacement; Galleria Area
 Lift Stations; WBS No. S-000267-0109-3; Houston, Texas
 LOCATION : See Plan of Borings (Figure 2)
 SURFACE ELEVATION : Existing Grade

PROJECT NO. : 1130018301
 COMPLETION DEPTH : 15.0 FT.
 DATE : 08-30-2013

DEPTH, FEET	SYMBOL	SAMPLES	SAMPLER : Shelby Tube/Split Spoon DRY AUGER : .0 TO 15.0 FT. WASH BORE : -- TO -- FT.	SPT N-VALUE, BLOWS PER FOOT	HAND PENETROMETER READING, TSF	FIELD SCREENING - ORGANIC VAPOR, ppm	TOTAL PETROLEUM HYDROCARBONS, mg/kg	BTEX, mg/kg				TOTAL BIEX, mg/kg	POLYCYCLIC AROMATIC HYDROCARBONS, mg/kg	VOLATILE ORGANIC COMPOUNDS, mg/kg	TOTAL LEAD, mg/kg	
								BENZENE	TOLUENE	ETHYLBENZENE	TOTAL XYLENE					
			DESCRIPTION OF MATERIAL													
0			6.75" Concrete													
			Gray CLAY (CH) w/sand seams			5.5										
			- gray and reddish brown 4'-6' - w/calcareous nodules 4'-8'			5.5										
5						21.3	ND	ND	ND	ND	ND	ND				
						17.1										
			Gray SANDY CLAY (CL) w/calcareous nodules			6.3										
10						5.3										
			- reddish brown and gray 12'-14'			6.5										
15						15.1										
			NOTE : ND - Not Detected													
20																
25																
30																
35																

DEPTH TO WATER IN BORING :
 No groundwater encountered during drilling.

LOG OF BORING NO. EB-15

PROJECT : Phase II Environmental Site Assessment
 Lift Station Renewal/Replacement; Galleria Area
 Lift Stations; WBS No. S-000267-0109-3; Houston, Texas
 LOCATION : See Plan of Borings (Figure 2)
 SURFACE ELEVATION : Existing Grade

PROJECT NO. : 1130018301
 COMPLETION DEPTH : 15.0 FT.
 DATE : 08-30-2013

DEPTH, FEET	SYMBOL	SAMPLES	SAMPLER : Shelby Tube/Split Spoon DRY AUGER : .0 TO 15.0 FT. WASH BORE : -- TO -- FT.	SPT N-VALUE, BLOWS PER FOOT	HAND PENETROMETER READING, TSF	FIELD SCREENING - ORGANIC VAPOR, ppm	TOTAL PETROLEUM HYDROCARBONS, mg/kg	BTEX, mg/kg				TOTAL BTEX, mg/kg	POLYCYCLIC AROMATIC HYDROCARBONS, mg/kg	VOLATILE ORGANIC COMPOUNDS, mg/kg	TOTAL LEAD, mg/kg	
								BENZENE	TOLUENE	ETHYLBENZENE	TOTAL XYLENE					
			DESCRIPTION OF MATERIAL													
0			7.75" Concrete													
			Dark gray CLAY (CH) w/sand seams			6.0										
			- w/calcareous nodules 4'-15'			5.5										
5			- yellowish brown and gray 6'-8'			5.7										
						6.1										
10			- reddish brown and gray 10'-15'			7.2										
						8.5	ND	ND	ND	ND	ND	ND				
						7.5										
15						4.5										
			NOTE : ND - Not Detected													
20																
25																
30																
35																

DEPTH TO WATER IN BORING :
 No groundwater encountered during drilling.

LOG OF BORING NO. EB-16A

PROJECT : Phase II Environmental Site Assessment
 Lift Station Renewal/Replacement; Galleria Area
 Lift Stations; WBS No. S-000267-0109-3; Houston, Texas

PROJECT NO. : 1130018301
 COMPLETION DEPTH : 15.0 FT.

LOCATION : See Plan of Borings (Figure 2)

DATE : 08-30-2013

DEPTH, FEET	SYMBOL	SAMPLES	SAMPLER : Shelby Tube/Split Spoon DRY AUGER : .0 TO 15.0 FT. WASH BORE : -- TO -- FT.	DESCRIPTION OF MATERIAL	SPT N-VALUE, BLOWS PER FOOT	HAND PENETROMETER READING, TSF	FIELD SCREENING - ORGANIC VAPOR, ppm	TOTAL PETROLEUM HYDROCARBONS, mg/kg	BTEX, mg/kg				TOTAL BTEX, mg/kg	POLYCYCLIC AROMATIC HYDROCARBONS, mg/kg	VOLATILE ORGANIC COMPOUNDS, mg/kg	TOTAL LEAD, mg/kg
									BENZENE	TOLUENE	ETHYLBENZENE	TOTAL XYLENE				
0				3" Asphalt												
0				Gray and brown SANDY CLAY (CL) w/sand seams and ferrous nodules			0.0									
5							0.0									
10							0.0									
15				Gray and brown SILTY CLAY (CL) w/calcareous nodules and ferrous stains			0.0	ND	ND	ND	ND	ND				
15							0.0									
20																
25																
30																
35																

NOTE :
 ND - Not Detected

DEPTH TO WATER IN BORING :
 No groundwater encountered during drilling.

APPENDIX B

LABORATORY REPORT WITH
QUALITY CONTROL INFORMATION

Analytical Report 469652

for

Geotest Engineering, Inc.

Project Manager: Mohan Ballagere

Lift Station Renewal/Replacement Galleria Area

1130018301

18-SEP-13

Collected By: Client



4143 Greenbriar Dr., Stafford, TX 77477

Xenco-Houston (EPA Lab code: TX00122):

Texas (T104704215-13-14-TX), Arizona (AZ0765), Arkansas (08-039-0), Connecticut (PH-0102), Florida (E871002)
Illinois (002082), Indiana (C-TX-02), Iowa (392), Kansas (E-10380), Kentucky (45), Louisiana (03054)
New Hampshire (297408), New Jersey (TX007), New York (11763), Oklahoma (9218), Pennsylvania (68-03610)
Rhode Island (LAO00312), USDA (S-44102), DoD (L11-54)

Xenco-Atlanta (EPA Lab Code: GA00046):

Florida (E87429), North Carolina (483), South Carolina (98015), Kentucky (85), DoD (L10-135)
Louisiana (04176), USDA (P330-07-00105)

Xenco-Tampa Mobile (EPA Lab code: FL01212): Florida (E84900)

Xenco-Lakeland: Florida (E84098)

Xenco-Odessa (EPA Lab code: TX00158): Texas (T104704400-TX)

Xenco-Dallas (EPA Lab code: TX01468): Texas (T104704295-TX)

Xenco Phoenix (EPA Lab Code: AZ00901): Arizona(AZ0757)

Xenco-Phoenix Mobile (EPA Lab code: AZ00901): Arizona (AZM757)

Xenco Tucson (EPA Lab code:AZ000989): Arizona (AZ0758)

18-SEP-13

Project Manager: **Mohan Ballagere**
Geotest Engineering, Inc.
5600 Bintliff
Houston, TX 77036

Reference: XENCO Report No(s): **469652**
Lift Station Renewal/Replacement Galleria Area
Project Address:

Mohan Ballagere:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 469652. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. The uncertainty of measurement associated with the results of analysis reported is available upon request. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by XENCO Laboratories. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 469652 will be filed for 60 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting XENCO Laboratories to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,



Debbie Simmons
Project Manager

*Recipient of the Prestigious Small Business Administration Award of Excellence in 1994.
Certified and approved by numerous States and Agencies.
A Small Business and Minority Status Company that delivers SERVICE and QUALITY*

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Sample Cross Reference 469652



Geotest Engineering, Inc., Houston, TX

Lift Station Renewal/Replacement Galleria Area

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
EB-1 S#8	S	08-29-13 09:00	14 - 15 ft	469652-001
EB-2 S#3	S	08-29-13 10:00	4 - 6 ft	469652-002
EB-3 S#6	S	08-29-13 11:00	10 - 12 ft	469652-003
EB-4 S#6	S	08-29-13 12:00	10 - 12 ft	469652-004
EB-5 S#6	S	08-29-13 13:00	10 - 12 ft	469652-005
EB-6 S#7	S	08-29-13 14:00	12 - 14 ft	469652-006
EB-7 S#7	S	08-30-13 09:00	12 - 14 ft	469652-007
EB-8 S#3	S	08-30-13 10:00	4 - 6 ft	469652-008
EB-9 S#4	S	08-30-13 11:00	6 - 8 ft	469652-009
EB-10 S#7	S	08-30-13 12:00	12 - 14 ft	469652-010
EB-11 S#5	S	08-29-13 13:00	8 - 10 ft	469652-011
EB-12 S#8	S	08-29-13 14:00	14 - 15 ft	469652-012
EB-13 S#8	S	08-29-13 15:00	14 - 15 ft	469652-013
EB-14 S#3	S	08-29-13 16:00	4 - 6 ft	469652-014
EB-15 S#6	S	08-29-13 17:00	10 - 12 ft	469652-015
EB-16A S#6	S	09-13-13 11:00	10 - 12 ft	469652-016



CASE NARRATIVE



Client Name: Geotest Engineering, Inc.

Project Name: Lift Station Renewal/Replacement Galleria Area

Project ID: 1130018301
Work Order Number(s): 469652

Report Date: 18-SEP-13
Date Received: 09/03/2013

Sample receipt non conformances and comments:

Full list soil VOCs analyzed by Xenco Dallas facility.

Sample 469652-016 collected 9/13/13 and received 9/13/13, logged in to existing chain of custody 469652 that was submitted on 9/3/13.

Sample receipt non conformances and comments per sample:

None



Certificate of Analysis Summary 469652

Geotest Engineering, Inc., Houston, TX



Project Id: 1130018301

Contact: Mohan Ballagere

Project Name: Lift Station Renewal/Replacement Galleria Area

Date Received in Lab: Tue Sep-03-13 04:47 pm

Report Date: 18-SEP-13

Project Location:

Project Manager: Debbie Simmons

<i>Analysis Requested</i>	<i>Lab Id:</i>	469652-001	469652-002	469652-003	469652-004	469652-005	469652-006
	<i>Field Id:</i>	EB-1 S#8	EB-2 S#3	EB-3 S#6	EB-4 S#6	EB-5 S#6	EB-6 S#7
	<i>Depth:</i>	14-15 ft	4-6 ft	10-12 ft	10-12 ft	10-12 ft	12-14 ft
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	Aug-29-13 09:00	Aug-29-13 10:00	Aug-29-13 11:00	Aug-29-13 12:00	Aug-29-13 13:00	Aug-29-13 14:00
BTEX-MTBE by SW 8260B	<i>Extracted:</i>	Sep-04-13 15:36	Sep-04-13 15:38	Sep-04-13 15:40	Sep-04-13 15:42		
	<i>Analyzed:</i>	Sep-04-13 18:11	Sep-04-13 18:36	Sep-04-13 19:02	Sep-04-13 19:27		
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL		
MTBE		BRL 0.00565	BRL 0.00582	BRL 0.00573	BRL 0.00587		
Benzene		BRL 0.00113	BRL 0.00116	BRL 0.00115	BRL 0.00117		
Toluene		BRL 0.00113	BRL 0.00116	0.00147 0.00115	BRL 0.00117		
Ethylbenzene		BRL 0.00113	BRL 0.00116	BRL 0.00115	BRL 0.00117		
m,p-Xylenes		BRL 0.00226	BRL 0.00233	BRL 0.00229	BRL 0.00235		
o-Xylene		BRL 0.00113	BRL 0.00116	BRL 0.00115	BRL 0.00117		
Total Xylenes		BRL 0.00113	BRL 0.00116	BRL 0.00115	BRL 0.00117		
Total BTEX		BRL 0.00113	BRL 0.00116	0.00147 0.00115	BRL 0.00117		
Percent Moisture	<i>Extracted:</i>	Sep-10-13 16:26					
	<i>Analyzed:</i>						
	<i>Units/RL:</i>	% RL					
Percent Moisture		11.5 1.00	14.4 1.00	13.6 1.00	15.3 1.00	22.0 1.00	15.2 1.00
TPH by Texas1005	<i>Extracted:</i>	Sep-06-13 07:48	Sep-06-13 07:51	Sep-06-13 07:54	Sep-06-13 07:57	Sep-06-13 08:00	Sep-06-13 08:03
	<i>Analyzed:</i>	Sep-06-13 15:53	Sep-06-13 16:17	Sep-06-13 16:41	Sep-06-13 17:07	Sep-06-13 17:31	Sep-06-13 17:55
	<i>Units/RL:</i>	mg/kg RL					
C6-C12 Gasoline Range Hydrocarbons		BRL 56.4	BRL 58.0	BRL 57.3	BRL 58.6	BRL 64.1	BRL 58.6
C12 - C28 Diesel Range Hydrocarbons		BRL 56.4	BRL 58.0	BRL 57.3	BRL 58.6	BRL 64.1	BRL 58.6
C28-C35 Oil Range Hydrocarbons		BRL 56.4	BRL 58.0	BRL 57.3	BRL 58.6	BRL 64.1	BRL 58.6
Total TPH 1005		BRL 56.4	BRL 58.0	BRL 57.3	BRL 58.6	BRL 64.1	BRL 58.6

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Debbie Simmons
Project Manager



Certificate of Analysis Summary 469652

Geotest Engineering, Inc., Houston, TX



Project Id: 1130018301

Contact: Mohan Ballagere

Project Name: Lift Station Renewal/Replacement Galleria Area

Date Received in Lab: Tue Sep-03-13 04:47 pm

Report Date: 18-SEP-13

Project Location:

Project Manager: Debbie Simmons

Analysis Requested	Lab Id:	469652-001	469652-002	469652-003	469652-004	469652-005	469652-006
	Field Id:	EB-1 S#8	EB-2 S#3	EB-3 S#6	EB-4 S#6	EB-5 S#6	EB-6 S#7
	Depth:	14-15 ft	4-6 ft	10-12 ft	10-12 ft	10-12 ft	12-14 ft
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Sampled:	Aug-29-13 09:00	Aug-29-13 10:00	Aug-29-13 11:00	Aug-29-13 12:00	Aug-29-13 13:00	Aug-29-13 14:00
VOAs by SW-846 8260 SUB: TX104704295	Extracted:					Sep-05-13 15:00	Sep-05-13 15:00
	Analyzed:					Sep-05-13 16:47	Sep-05-13 17:03
	Units/RL:					mg/kg RL	mg/kg RL
Benzene						BRL 0.00654	BRL 0.00603
Bromobenzene						BRL 0.00654	BRL 0.00603
Bromochloromethane						BRL 0.00654	BRL 0.00603
Bromodichloromethane						BRL 0.00654	BRL 0.00603
Bromoform						BRL 0.00654	BRL 0.00603
Methyl bromide						BRL 0.00654	BRL 0.00603
tert-Butylbenzene						BRL 0.00654	BRL 0.00603
Sec-Butylbenzene						BRL 0.00654	BRL 0.00603
n-Butylbenzene						BRL 0.00654	BRL 0.00603
Carbon Tetrachloride						BRL 0.00654	BRL 0.00603
Chlorobenzene						BRL 0.00654	BRL 0.00603
Chloroethane						BRL 0.0131	BRL 0.0121
Chloroform						BRL 0.00654	BRL 0.00603
Methyl Chloride						BRL 0.0131	BRL 0.0121
2-Chlorotoluene						BRL 0.00654	BRL 0.00603
4-Chlorotoluene						BRL 0.00654	BRL 0.00603
p-Cymene (p-Isopropyltoluene)						BRL 0.00654	BRL 0.00603
1,2-Dibromo-3-Chloropropane						BRL 0.00654	BRL 0.00603
Dibromochloromethane						BRL 0.00654	BRL 0.00603
1,2-Dibromoethane						BRL 0.00654	BRL 0.00603
Methylene bromide						BRL 0.00654	BRL 0.00603
1,2-Dichlorobenzene						BRL 0.00654	BRL 0.00603
1,3-Dichlorobenzene						BRL 0.00654	BRL 0.00603
1,4-Dichlorobenzene						BRL 0.00654	BRL 0.00603
Dichlorodifluoromethane						BRL 0.00654	BRL 0.00603

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Debbie Simmons
Project Manager

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Certificate of Analysis Summary 469652

Geotest Engineering, Inc., Houston, TX



Project Id: 1130018301

Contact: Mohan Ballagere

Project Name: Lift Station Renewal/Replacement Galleria Area

Date Received in Lab: Tue Sep-03-13 04:47 pm

Report Date: 18-SEP-13

Project Location:

Project Manager: Debbie Simmons

Analysis Requested	Lab Id:	469652-001	469652-002	469652-003	469652-004	469652-005	469652-006
	Field Id:	EB-1 S#8	EB-2 S#3	EB-3 S#6	EB-4 S#6	EB-5 S#6	EB-6 S#7
	Depth:	14-15 ft	4-6 ft	10-12 ft	10-12 ft	10-12 ft	12-14 ft
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Sampled:	Aug-29-13 09:00	Aug-29-13 10:00	Aug-29-13 11:00	Aug-29-13 12:00	Aug-29-13 13:00	Aug-29-13 14:00
VOAs by SW-846 8260 SUB: TX104704295	Extracted:					Sep-05-13 15:00	Sep-05-13 15:00
	Analyzed:					Sep-05-13 16:47	Sep-05-13 17:03
	Units/RL:					mg/kg RL	mg/kg RL
1,2-Dichloroethane						BRL 0.00654	BRL 0.00603
1,1-Dichloroethane						BRL 0.00654	BRL 0.00603
trans-1,2-dichloroethylene						BRL 0.00654	BRL 0.00603
cis-1,2-Dichloroethylene						BRL 0.00654	BRL 0.00603
1,1-Dichloroethene						BRL 0.00654	BRL 0.00603
2,2-Dichloropropane						BRL 0.00654	BRL 0.00603
1,3-Dichloropropane						BRL 0.00654	BRL 0.00603
1,2-Dichloropropane						BRL 0.00654	BRL 0.00603
trans-1,3-dichloropropene						BRL 0.00654	BRL 0.00603
1,1-Dichloropropene						BRL 0.00654	BRL 0.00603
cis-1,3-Dichloropropene						BRL 0.00654	BRL 0.00603
Ethylbenzene						BRL 0.00654	BRL 0.00603
Hexachlorobutadiene						BRL 0.00654	BRL 0.00603
Isopropylbenzene						BRL 0.00654	BRL 0.00603
Methylene Chloride						BRL 0.0131	BRL 0.0121
MTBE						BRL 0.00654	BRL 0.00603
Naphthalene						BRL 0.0131	BRL 0.0121
n-Propylbenzene						BRL 0.00654	BRL 0.00603
Styrene						BRL 0.00654	BRL 0.00603
1,1,1,2-Tetrachloroethane						BRL 0.00654	BRL 0.00603
1,1,2,2-Tetrachloroethane						BRL 0.00654	BRL 0.00603
Tetrachloroethylene						BRL 0.00654	BRL 0.00603
Toluene						BRL 0.00654	BRL 0.00603
1,2,3-Trichlorobenzene						BRL 0.00654	BRL 0.00603
1,2,4-Trichlorobenzene						BRL 0.00654	BRL 0.00603

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Debbie Simmons
Project Manager



Certificate of Analysis Summary 469652

Geotest Engineering, Inc., Houston, TX



Project Id: 1130018301

Contact: Mohan Ballagere

Project Name: Lift Station Renewal/Replacement Galleria Area

Date Received in Lab: Tue Sep-03-13 04:47 pm

Report Date: 18-SEP-13

Project Location:

Project Manager: Debbie Simmons

Analysis Requested	Lab Id:	469652-001	469652-002	469652-003	469652-004	469652-005	469652-006
	Field Id:	EB-1 S#8	EB-2 S#3	EB-3 S#6	EB-4 S#6	EB-5 S#6	EB-6 S#7
	Depth:	14-15 ft	4-6 ft	10-12 ft	10-12 ft	10-12 ft	12-14 ft
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Sampled:	Aug-29-13 09:00	Aug-29-13 10:00	Aug-29-13 11:00	Aug-29-13 12:00	Aug-29-13 13:00	Aug-29-13 14:00
VOAs by SW-846 8260 SUB: TX104704295	Extracted:					Sep-05-13 15:00	Sep-05-13 15:00
	Analyzed:					Sep-05-13 16:47	Sep-05-13 17:03
	Units/RL:					mg/kg RL	mg/kg RL
1,1,2-Trichloroethane						BRL 0.00654	BRL 0.00603
1,1,1-Trichloroethane						BRL 0.00654	BRL 0.00603
Trichloroethylene						BRL 0.00654	BRL 0.00603
Trichlorofluoromethane						BRL 0.00654	BRL 0.00603
1,2,3-Trichloropropane						BRL 0.00654	BRL 0.00603
1,2,4-Trimethylbenzene						BRL 0.00654	BRL 0.00603
1,3,5-Trimethylbenzene						BRL 0.00654	BRL 0.00603
Vinyl Chloride						BRL 0.00262	BRL 0.00241
o-Xylene						BRL 0.00654	BRL 0.00603
m,p-Xylenes						BRL 0.0131	BRL 0.0121

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Project Manager



Certificate of Analysis Summary 469652

Geotest Engineering, Inc., Houston, TX



Project Id: 1130018301

Contact: Mohan Ballagere

Project Name: Lift Station Renewal/Replacement Galleria Area

Date Received in Lab: Tue Sep-03-13 04:47 pm

Report Date: 18-SEP-13

Project Location:

Project Manager: Debbie Simmons

Analysis Requested	Lab Id:	469652-007	469652-008	469652-009	469652-010	469652-011	469652-012	
	Field Id:	EB-7 S#7	EB-8 S#3	EB-9 S#4	EB-10 S#7	EB-11 S#5	EB-12 S#8	
	Depth:	12-14 ft	4-6 ft	6-8 ft	12-14 ft	8-10 ft	14-15 ft	
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	
	Sampled:	Aug-30-13 09:00	Aug-30-13 10:00	Aug-30-13 11:00	Aug-30-13 12:00	Aug-29-13 13:00	Aug-29-13 14:00	
BTEX-MTBE by SW 8260B	Extracted:		Sep-04-13 15:44	Sep-04-13 15:46	Sep-04-13 15:48	Sep-04-13 15:50	Sep-04-13 15:52	
	Analyzed:		Sep-04-13 19:53	Sep-04-13 20:18	Sep-04-13 20:43	Sep-04-13 21:09	Sep-04-13 21:34	
	Units/RL:		mg/kg RL					
MTBE			BRL 0.00581	BRL 0.00585	BRL 0.00598	BRL 0.00583	BRL 0.00614	
Benzene			BRL 0.00116	BRL 0.00117	BRL 0.00120	BRL 0.00117	BRL 0.00123	
Toluene			BRL 0.00116	BRL 0.00117	BRL 0.00120	BRL 0.00117	BRL 0.00123	
Ethylbenzene			BRL 0.00116	BRL 0.00117	BRL 0.00120	BRL 0.00117	BRL 0.00123	
m,p-Xylenes			BRL 0.00233	BRL 0.00234	BRL 0.00239	BRL 0.00233	BRL 0.00245	
o-Xylene			BRL 0.00116	BRL 0.00117	BRL 0.00120	BRL 0.00117	BRL 0.00123	
Total Xylenes			BRL 0.00116	BRL 0.00117	BRL 0.00120	BRL 0.00117	BRL 0.00123	
Total BTEX			BRL 0.00116	BRL 0.00117	BRL 0.00120	BRL 0.00117	BRL 0.00123	
Percent Moisture	Extracted:		Sep-10-13 16:26					
	Analyzed:		Sep-10-13 16:26					
	Units/RL:		% RL					
Percent Moisture			15.2 1.00	14.3 1.00	15.2 1.00	16.7 1.00	14.4 1.00	18.8 1.00
TPH by Texas1005	Extracted:		Sep-06-13 08:06	Sep-06-13 08:09	Sep-06-13 08:12	Sep-06-13 08:15	Sep-06-13 08:18	Sep-06-13 08:21
	Analyzed:		Sep-06-13 19:08	Sep-06-13 19:33	Sep-06-13 19:57	Sep-06-13 20:20	Sep-06-13 20:45	Sep-06-13 21:09
	Units/RL:		mg/kg RL					
C6-C12 Gasoline Range Hydrocarbons			111 59.0	BRL 58.2	BRL 58.7	BRL 59.5	BRL 58.2	BRL 61.0
C12 - C28 Diesel Range Hydrocarbons			BRL 59.0	BRL 58.2	BRL 58.7	BRL 59.5	BRL 58.2	BRL 61.0
C28-C35 Oil Range Hydrocarbons			BRL 59.0	BRL 58.2	BRL 58.7	BRL 59.5	BRL 58.2	BRL 61.0
Total TPH 1005			111 59.0	BRL 58.2	BRL 58.7	BRL 59.5	BRL 58.2	BRL 61.0

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Debbie Simmons
Project Manager



Certificate of Analysis Summary 469652

Geotest Engineering, Inc., Houston, TX



Project Id: 1130018301

Contact: Mohan Ballagere

Project Name: Lift Station Renewal/Replacement Galleria Area

Date Received in Lab: Tue Sep-03-13 04:47 pm

Report Date: 18-SEP-13

Project Location:

Project Manager: Debbie Simmons

Analysis Requested	Lab Id:	469652-007	469652-008	469652-009	469652-010	469652-011	469652-012
	Field Id:	EB-7 S#7	EB-8 S#3	EB-9 S#4	EB-10 S#7	EB-11 S#5	EB-12 S#8
	Depth:	12-14 ft	4-6 ft	6-8 ft	12-14 ft	8-10 ft	14-15 ft
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Sampled:	Aug-30-13 09:00	Aug-30-13 10:00	Aug-30-13 11:00	Aug-30-13 12:00	Aug-29-13 13:00	Aug-29-13 14:00
VOAs by SW-846 8260 SUB: TX104704295	Extracted:	Sep-05-13 15:00					
	Analyzed:	Sep-05-13 17:19					
	Units/RL:	mg/kg RL					
Benzene	BRL	0.0289					
Bromobenzene	BRL	0.0289					
Bromochloromethane	BRL	0.0289					
Bromodichloromethane	BRL	0.0289					
Bromoform	BRL	0.0289					
Methyl bromide	BRL	0.0289					
tert-Butylbenzene	BRL	0.0289					
Sec-Butylbenzene	0.112	0.0289					
n-Butylbenzene	0.394	0.0289					
Carbon Tetrachloride	BRL	0.0289					
Chlorobenzene	BRL	0.0289					
Chloroethane	BRL	0.0578					
Chloroform	BRL	0.0289					
Methyl Chloride	BRL	0.0578					
2-Chlorotoluene	BRL	0.0289					
4-Chlorotoluene	BRL	0.0289					
p-Cymene (p-Isopropyltoluene)	0.0435	0.0289					
1,2-Dibromo-3-Chloropropane	BRL	0.0289					
Dibromochloromethane	BRL	0.0289					
1,2-Dibromoethane	BRL	0.0289					
Methylene bromide	BRL	0.0289					
1,2-Dichlorobenzene	BRL	0.0289					
1,3-Dichlorobenzene	BRL	0.0289					
1,4-Dichlorobenzene	BRL	0.0289					
Dichlorodifluoromethane	BRL	0.0289					

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Debbie Simmons
Project Manager



Certificate of Analysis Summary 469652

Geotest Engineering, Inc., Houston, TX



Project Id: 1130018301

Contact: Mohan Ballagere

Project Name: Lift Station Renewal/Replacement Galleria Area

Date Received in Lab: Tue Sep-03-13 04:47 pm

Report Date: 18-SEP-13

Project Location:

Project Manager: Debbie Simmons

<i>Analysis Requested</i>	<i>Lab Id:</i>	469652-007	469652-008	469652-009	469652-010	469652-011	469652-012
	<i>Field Id:</i>	EB-7 S#7	EB-8 S#3	EB-9 S#4	EB-10 S#7	EB-11 S#5	EB-12 S#8
	<i>Depth:</i>	12-14 ft	4-6 ft	6-8 ft	12-14 ft	8-10 ft	14-15 ft
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	Aug-30-13 09:00	Aug-30-13 10:00	Aug-30-13 11:00	Aug-30-13 12:00	Aug-29-13 13:00	Aug-29-13 14:00
VOAs by SW-846 8260 SUB: TX104704295	<i>Extracted:</i>	Sep-05-13 15:00					
	<i>Analyzed:</i>	Sep-05-13 17:19					
	<i>Units/RL:</i>	mg/kg RL					
1,2-Dichloroethane	BRL	0.0289					
1,1-Dichloroethane	BRL	0.0289					
trans-1,2-dichloroethylene	BRL	0.0289					
cis-1,2-Dichloroethylene	BRL	0.0289					
1,1-Dichloroethene	BRL	0.0289					
2,2-Dichloropropane	BRL	0.0289					
1,3-Dichloropropane	BRL	0.0289					
1,2-Dichloropropane	BRL	0.0289					
trans-1,3-dichloropropene	BRL	0.0289					
1,1-Dichloropropene	BRL	0.0289					
cis-1,3-Dichloropropene	BRL	0.0289					
Ethylbenzene	0.782 D	0.0590					
Hexachlorobutadiene	BRL	0.0289					
Isopropylbenzene	0.178	0.0289					
Methylene Chloride	BRL	0.0578					
MTBE	BRL	0.0289					
Naphthalene	1.35 D	0.118					
n-Propylbenzene	1.08 D	0.0590					
Styrene	BRL	0.0289					
1,1,1,2-Tetrachloroethane	BRL	0.0289					
1,1,1,2,2-Tetrachloroethane	BRL	0.0289					
Tetrachloroethylene	BRL	0.0289					
Toluene	BRL	0.0289					
1,2,3-Trichlorobenzene	BRL	0.0289					
1,2,4-Trichlorobenzene	BRL	0.0289					

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Debbie Simmons
Project Manager



Certificate of Analysis Summary 469652

Geotest Engineering, Inc., Houston, TX



Project Id: 1130018301

Contact: Mohan Ballagere

Project Name: Lift Station Renewal/Replacement Galleria Area

Date Received in Lab: Tue Sep-03-13 04:47 pm

Report Date: 18-SEP-13

Project Location:

Project Manager: Debbie Simmons

<i>Analysis Requested</i>	<i>Lab Id:</i>	469652-007	469652-008	469652-009	469652-010	469652-011	469652-012
	<i>Field Id:</i>	EB-7 S#7	EB-8 S#3	EB-9 S#4	EB-10 S#7	EB-11 S#5	EB-12 S#8
	<i>Depth:</i>	12-14 ft	4-6 ft	6-8 ft	12-14 ft	8-10 ft	14-15 ft
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	Aug-30-13 09:00	Aug-30-13 10:00	Aug-30-13 11:00	Aug-30-13 12:00	Aug-29-13 13:00	Aug-29-13 14:00
VOAs by SW-846 8260 SUB: TX104704295	<i>Extracted:</i>	Sep-05-13 15:00					
	<i>Analyzed:</i>	Sep-05-13 17:19					
	<i>Units/RL:</i>	mg/kg RL					
1,1,2-Trichloroethane		BRL	0.0289				
1,1,1-Trichloroethane		BRL	0.0289				
Trichloroethylene		BRL	0.0289				
Trichlorofluoromethane		BRL	0.0289				
1,2,3-Trichloropropane		BRL	0.0289				
1,2,4-Trimethylbenzene		1.74 D	0.0590				
1,3,5-Trimethylbenzene		0.0647	0.0289				
Vinyl Chloride		BRL	0.0116				
o-Xylene		BRL	0.0289				
m,p-Xylenes		BRL	0.0578				

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Debbie Simmons
Project Manager



Certificate of Analysis Summary 469652

Geotest Engineering, Inc., Houston, TX



Project Id: 1130018301

Contact: Mohan Ballagere

Project Name: Lift Station Renewal/Replacement Galleria Area

Date Received in Lab: Tue Sep-03-13 04:47 pm

Report Date: 18-SEP-13

Project Location:

Project Manager: Debbie Simmons

<i>Analysis Requested</i>	<i>Lab Id:</i>	469652-013	469652-014	469652-015	469652-016		
	<i>Field Id:</i>	EB-13 S#8	EB-14 S#3	EB-15 S#6	EB-16A S#6		
	<i>Depth:</i>	14-15 ft	4-6 ft	10-12 ft	10-12 ft		
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL		
	<i>Sampled:</i>	Aug-29-13 15:00	Aug-29-13 16:00	Aug-29-13 17:00	Sep-13-13 11:00		
BTEX-MTBE by SW 8260B	<i>Extracted:</i>	Sep-05-13 12:10	Sep-05-13 12:12	Sep-05-13 12:14	Sep-16-13 09:22		
	<i>Analyzed:</i>	Sep-05-13 12:27	Sep-05-13 12:52	Sep-05-13 13:18	Sep-16-13 19:46		
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL		
MTBE		BRL 0.00629	BRL 0.00594	BRL 0.00577	BRL 0.00594		
Benzene		BRL 0.00126	BRL 0.00119	BRL 0.00115	BRL 0.00119		
Toluene		BRL 0.00126	BRL 0.00119	BRL 0.00115	BRL 0.00119		
Ethylbenzene		BRL 0.00126	BRL 0.00119	BRL 0.00115	BRL 0.00119		
m,p-Xylenes		BRL 0.00251	BRL 0.00238	BRL 0.00231	BRL 0.00238		
o-Xylene		BRL 0.00126	BRL 0.00119	BRL 0.00115	BRL 0.00119		
Total Xylenes		BRL 0.00126	BRL 0.00119	BRL 0.00115	BRL 0.00119		
Total BTEX		BRL 0.00126	BRL 0.00119	BRL 0.00115	BRL 0.00119		
Percent Moisture	<i>Extracted:</i>						
	<i>Analyzed:</i>	Sep-10-13 16:26	Sep-10-13 16:26	Sep-10-13 16:26	Sep-17-13 15:10		
	<i>Units/RL:</i>	% RL	% RL	% RL	% RL		
Percent Moisture		20.9 1.00	16.1 1.00	14.1 1.00	16.0 1.00		
TPH by Texas1005	<i>Extracted:</i>	Sep-06-13 08:24	Sep-06-13 08:27	Sep-06-13 08:30	Sep-17-13 07:19		
	<i>Analyzed:</i>	Sep-06-13 21:32	Sep-06-13 21:56	Sep-06-13 22:20	Sep-18-13 01:32		
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL		
C6-C12 Gasoline Range Hydrocarbons		BRL 62.5	BRL 59.2	BRL 57.8	BRL 59.5		
C12 - C28 Diesel Range Hydrocarbons		BRL 62.5	BRL 59.2	BRL 57.8	BRL 59.5		
C28-C35 Oil Range Hydrocarbons		BRL 62.5	BRL 59.2	BRL 57.8	BRL 59.5		
Total TPH 1005		BRL 62.5	BRL 59.2	BRL 57.8	BRL 59.5		

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Debbie Simmons
Project Manager



XENCO Laboratories
CHRONOLOGY OF HOLDING TIMES



Analytical Method : Percent Moisture

Client : Geotest Engineering, Inc.

Work Order #: 469652

Project ID: 1130018301

Field Sample ID	Date Collected	Date Received	Date Extracted	Max Holding Time Extracted (Days)	Time Held Extracted (Days)	Date Analyzed	Max Holding Time Analyzed (Days)	Time Held Analyzed (Days)	Q
EB-5 S#6	Aug. 29, 2013	Sep. 3, 2013				Sep.10, 2013	45	12	P
EB-8 S#3	Aug. 30, 2013	Sep. 3, 2013				Sep.10, 2013	45	11	P
EB-11 S#5	Aug. 29, 2013	Sep. 3, 2013				Sep.10, 2013	45	12	P
EB-7 S#7	Aug. 30, 2013	Sep. 3, 2013				Sep.10, 2013	45	11	P
EB-9 S#4	Aug. 30, 2013	Sep. 3, 2013				Sep.10, 2013	45	11	P
EB-15 S#6	Aug. 29, 2013	Sep. 3, 2013				Sep.10, 2013	45	12	P
EB-1 S#8	Aug. 29, 2013	Sep. 3, 2013				Sep.10, 2013	45	12	P
EB-2 S#3	Aug. 29, 2013	Sep. 3, 2013				Sep.10, 2013	45	12	P
EB-3 S#6	Aug. 29, 2013	Sep. 3, 2013				Sep.10, 2013	45	12	P
EB-4 S#6	Aug. 29, 2013	Sep. 3, 2013				Sep.10, 2013	45	12	P
EB-16A S#6	Sep. 13, 2013	Sep. 3, 2013				Sep.17, 2013	45	4	P
EB-6 S#7	Aug. 29, 2013	Sep. 3, 2013				Sep.10, 2013	45	12	P
EB-10 S#7	Aug. 30, 2013	Sep. 3, 2013				Sep.10, 2013	45	11	P
EB-12 S#8	Aug. 29, 2013	Sep. 3, 2013				Sep.10, 2013	45	12	P
EB-13 S#8	Aug. 29, 2013	Sep. 3, 2013				Sep.10, 2013	45	12	P
EB-14 S#3	Aug. 29, 2013	Sep. 3, 2013				Sep.10, 2013	45	12	P



XENCO Laboratories
CHRONOLOGY OF HOLDING TIMES



Analytical Method : VOAs by SW-846 8260

Client : Geotest Engineering, Inc.

Work Order #: **469652**

Project ID: 1130018301

Field Sample ID	Date Collected	Date Received	Date Extracted	Max Holding Time Extracted (Days)	Time Held Extracted (Days)	Date Analyzed	Max Holding Time Analyzed (Days)	Time Held Analyzed (Days)	Q
EB-5 S#6	Aug. 29, 2013	Sep. 3, 2013				Sep.5, 2013	14	7	P
EB-6 S#7	Aug. 29, 2013	Sep. 3, 2013				Sep.5, 2013	14	7	P
EB-7 S#7	Aug. 30, 2013	Sep. 3, 2013				Sep.5, 2013	14	6	P



XENCO Laboratories
CHRONOLOGY OF HOLDING TIMES



Analytical Method : BTEX-MTBE by SW 8260B

Client : Geotest Engineering, Inc.

Work Order #: 469652

Project ID: 1130018301

Field Sample ID	Date Collected	Date Received	Date Extracted	Max Holding Time Extracted (Days)	Time Held Extracted (Days)	Date Analyzed	Max Holding Time Analyzed (Days)	Time Held Analyzed (Days)	Q
EB-14 S#3	Aug. 29, 2013	Sep. 3, 2013				Sep.5, 2013	14	7	P
EB-2 S#3	Aug. 29, 2013	Sep. 3, 2013				Sep.4, 2013	14	6	P
EB-3 S#6	Aug. 29, 2013	Sep. 3, 2013				Sep.4, 2013	14	6	P
EB-16A S#6	Sep. 13, 2013	Sep. 3, 2013				Sep.16, 2013	14	3	P
EB-15 S#6	Aug. 29, 2013	Sep. 3, 2013				Sep.5, 2013	14	7	P
EB-1 S#8	Aug. 29, 2013	Sep. 3, 2013				Sep.4, 2013	14	6	P
EB-8 S#3	Aug. 30, 2013	Sep. 3, 2013				Sep.4, 2013	14	5	P
EB-10 S#7	Aug. 30, 2013	Sep. 3, 2013				Sep.4, 2013	14	5	P
EB-12 S#8	Aug. 29, 2013	Sep. 3, 2013				Sep.4, 2013	14	6	P
EB-13 S#8	Aug. 29, 2013	Sep. 3, 2013				Sep.5, 2013	14	7	P
EB-11 S#5	Aug. 29, 2013	Sep. 3, 2013				Sep.4, 2013	14	6	P
EB-9 S#4	Aug. 30, 2013	Sep. 3, 2013				Sep.4, 2013	14	5	P
EB-4 S#6	Aug. 29, 2013	Sep. 3, 2013				Sep.4, 2013	14	6	P



XENCO Laboratories
CHRONOLOGY OF HOLDING TIMES



Analytical Method : TPH by Texas1005

Client : Geotest Engineering, Inc.

Work Order #: 469652

Project ID: 1130018301

Field Sample ID	Date Collected	Date Received	Date Extracted	Max Holding Time Extracted (Days)	Time Held Extracted (Days)	Date Analyzed	Max Holding Time Analyzed (Days)	Time Held Analyzed (Days)	Q
EB-1 S#8	Aug. 29, 2013	Sep. 3, 2013	Sep. 6, 2013	14	8	Sep.6, 2013	14	0	P
EB-4 S#6	Aug. 29, 2013	Sep. 3, 2013	Sep. 6, 2013	14	8	Sep.6, 2013	14	0	P
EB-12 S#8	Aug. 29, 2013	Sep. 3, 2013	Sep. 6, 2013	14	8	Sep.6, 2013	14	0	P
EB-2 S#3	Aug. 29, 2013	Sep. 3, 2013	Sep. 6, 2013	14	8	Sep.6, 2013	14	0	P
EB-6 S#7	Aug. 29, 2013	Sep. 3, 2013	Sep. 6, 2013	14	8	Sep.6, 2013	14	0	P
EB-13 S#8	Aug. 29, 2013	Sep. 3, 2013	Sep. 6, 2013	14	8	Sep.6, 2013	14	0	P
EB-3 S#6	Aug. 29, 2013	Sep. 3, 2013	Sep. 6, 2013	14	8	Sep.6, 2013	14	0	P
EB-16A S#6	Sep. 13, 2013	Sep. 3, 2013	Sep. 17, 2013	14	4	Sep.18, 2013	14	1	P
EB-8 S#3	Aug. 30, 2013	Sep. 3, 2013	Sep. 6, 2013	14	7	Sep.6, 2013	14	0	P
EB-10 S#7	Aug. 30, 2013	Sep. 3, 2013	Sep. 6, 2013	14	7	Sep.6, 2013	14	0	P
EB-5 S#6	Aug. 29, 2013	Sep. 3, 2013	Sep. 6, 2013	14	8	Sep.6, 2013	14	0	P
EB-7 S#7	Aug. 30, 2013	Sep. 3, 2013	Sep. 6, 2013	14	7	Sep.6, 2013	14	0	P
EB-11 S#5	Aug. 29, 2013	Sep. 3, 2013	Sep. 6, 2013	14	8	Sep.6, 2013	14	0	P
EB-9 S#4	Aug. 30, 2013	Sep. 3, 2013	Sep. 6, 2013	14	7	Sep.6, 2013	14	0	P
EB-14 S#3	Aug. 29, 2013	Sep. 3, 2013	Sep. 6, 2013	14	8	Sep.6, 2013	14	0	P
EB-15 S#6	Aug. 29, 2013	Sep. 3, 2013	Sep. 6, 2013	14	8	Sep.6, 2013	14	0	P

F = These samples were analyzed outside the recommended holding time.

P = Samples analyzed within the recommended holding time.

- X** In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.
- B** A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
- D** The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.
- E** The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
- F** RPD exceeded lab control limits.
- J** The target analyte was positively identified below the quantitation limit and above the detection limit.
- U** Analyte was not detected.
- L** The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.
- H** The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.
- K** Sample analyzed outside of recommended hold time.
- JN** A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

MDL Method Detection Limit **SDL** Sample Detection Limit **LOD** Limit of Detection

PQL Practical Quantitation Limit **MQL** Method Quantitation Limit **LOQ** Limit of Quantitation

DL Method Detection Limit

NC Non-Calculable

+ NELAC certification not offered for this compound.

* (Next to analyte name or method description) = Outside XENCO's scope of NELAC accreditation

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12600 West I-20 East, Odessa, TX 79765	(813) 620-2000	(813) 620-2033
6017 Financial Drive, Norcross, GA 30071	(432) 563-1800	(432) 563-1713
3725 E. Atlanta Ave, Phoenix, AZ 85040	(770) 449-8800	(770) 449-5477
	(602) 437-0330	



Form 2 - Surrogate Recoveries

Project Name: Lift Station Renewal/Replacement Galleria Area

Work Orders : 469652,

Project ID: 1130018301

Lab Batch #: 922084

Sample: 469652-001 / SMP

Batch: 1 Matrix: Soil

SURROGATE RECOVERY STUDY					
Units: mg/kg	Date Analyzed: 09/04/13 18:11				
BTEX-MTBE by SW 8260B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
Dibromofluoromethane	0.0528	0.0500	106	74-126	
1,2-Dichloroethane-D4	0.0552	0.0500	110	80-120	
Toluene-D8	0.0523	0.0500	105	73-132	
4-Bromofluorobenzene	0.0501	0.0500	100	58-152	

Lab Batch #: 922084

Sample: 469652-002 / SMP

Batch: 1 Matrix: Soil

SURROGATE RECOVERY STUDY					
Units: mg/kg	Date Analyzed: 09/04/13 18:36				
BTEX-MTBE by SW 8260B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
Dibromofluoromethane	0.0529	0.0500	106	74-126	
1,2-Dichloroethane-D4	0.0526	0.0500	105	80-120	
Toluene-D8	0.0500	0.0500	100	73-132	
4-Bromofluorobenzene	0.0518	0.0500	104	58-152	

Lab Batch #: 922084

Sample: 469652-003 / SMP

Batch: 1 Matrix: Soil

SURROGATE RECOVERY STUDY					
Units: mg/kg	Date Analyzed: 09/04/13 19:02				
BTEX-MTBE by SW 8260B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
Dibromofluoromethane	0.0505	0.0500	101	74-126	
1,2-Dichloroethane-D4	0.0515	0.0500	103	80-120	
Toluene-D8	0.0515	0.0500	103	73-132	
4-Bromofluorobenzene	0.0494	0.0500	99	58-152	

Lab Batch #: 922084

Sample: 469652-004 / SMP

Batch: 1 Matrix: Soil

SURROGATE RECOVERY STUDY					
Units: mg/kg	Date Analyzed: 09/04/13 19:27				
BTEX-MTBE by SW 8260B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
Dibromofluoromethane	0.0532	0.0500	106	74-126	
1,2-Dichloroethane-D4	0.0512	0.0500	102	80-120	
Toluene-D8	0.0533	0.0500	107	73-132	
4-Bromofluorobenzene	0.0534	0.0500	107	58-152	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.



Form 2 - Surrogate Recoveries

Project Name: Lift Station Renewal/Replacement Galleria Area

Work Orders : 469652,

Project ID: 1130018301

Lab Batch #: 922084

Sample: 469652-008 / SMP

Batch: 1 **Matrix:** Soil

	SURROGATE RECOVERY STUDY				
Units: mg/kg	Date Analyzed: 09/04/13 19:53				
BTEX-MTBE by SW 8260B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
Dibromofluoromethane	0.0529	0.0500	106	74-126	
1,2-Dichloroethane-D4	0.0537	0.0500	107	80-120	
Toluene-D8	0.0501	0.0500	100	73-132	
4-Bromofluorobenzene	0.0518	0.0500	104	58-152	

Lab Batch #: 922084

Sample: 469652-009 / SMP

Batch: 1 **Matrix:** Soil

	SURROGATE RECOVERY STUDY				
Units: mg/kg	Date Analyzed: 09/04/13 20:18				
BTEX-MTBE by SW 8260B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
Dibromofluoromethane	0.0554	0.0500	111	74-126	
1,2-Dichloroethane-D4	0.0543	0.0500	109	80-120	
Toluene-D8	0.0498	0.0500	100	73-132	
4-Bromofluorobenzene	0.0469	0.0500	94	58-152	

Lab Batch #: 922084

Sample: 469652-010 / SMP

Batch: 1 **Matrix:** Soil

	SURROGATE RECOVERY STUDY				
Units: mg/kg	Date Analyzed: 09/04/13 20:43				
BTEX-MTBE by SW 8260B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
Dibromofluoromethane	0.0543	0.0500	109	74-126	
1,2-Dichloroethane-D4	0.0514	0.0500	103	80-120	
Toluene-D8	0.0499	0.0500	100	73-132	
4-Bromofluorobenzene	0.0512	0.0500	102	58-152	

Lab Batch #: 922084

Sample: 469652-011 / SMP

Batch: 1 **Matrix:** Soil

	SURROGATE RECOVERY STUDY				
Units: mg/kg	Date Analyzed: 09/04/13 21:09				
BTEX-MTBE by SW 8260B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
Dibromofluoromethane	0.0512	0.0500	102	74-126	
1,2-Dichloroethane-D4	0.0494	0.0500	99	80-120	
Toluene-D8	0.0510	0.0500	102	73-132	
4-Bromofluorobenzene	0.0486	0.0500	97	58-152	

* Surrogate outside of Laboratory QC limits
 ** Surrogates outside limits; data and surrogates confirmed by reanalysis
 *** Poor recoveries due to dilution
 Surrogate Recovery [D] = 100 * A / B
 All results are based on MDL and validated for QC purposes.



Form 2 - Surrogate Recoveries

Project Name: Lift Station Renewal/Replacement Galleria Area

Work Orders : 469652,

Project ID: 1130018301

Lab Batch #: 922084

Sample: 469652-012 / SMP

Batch: 1 **Matrix:** Soil

Units: mg/kg

Date Analyzed: 09/04/13 21:34

SURROGATE RECOVERY STUDY

BTEX-MTBE by SW 8260B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
Dibromofluoromethane	0.0561	0.0500	112	74-126	
1,2-Dichloroethane-D4	0.0523	0.0500	105	80-120	
Toluene-D8	0.0516	0.0500	103	73-132	
4-Bromofluorobenzene	0.0485	0.0500	97	58-152	

Lab Batch #: 922139

Sample: 469652-013 / SMP

Batch: 1 **Matrix:** Soil

Units: mg/kg

Date Analyzed: 09/05/13 12:27

SURROGATE RECOVERY STUDY

BTEX-MTBE by SW 8260B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
Dibromofluoromethane	0.0481	0.0500	96	74-126	
1,2-Dichloroethane-D4	0.0498	0.0500	100	80-120	
Toluene-D8	0.0472	0.0500	94	73-132	
4-Bromofluorobenzene	0.0514	0.0500	103	58-152	

Lab Batch #: 922139

Sample: 469652-014 / SMP

Batch: 1 **Matrix:** Soil

Units: mg/kg

Date Analyzed: 09/05/13 12:52

SURROGATE RECOVERY STUDY

BTEX-MTBE by SW 8260B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
Dibromofluoromethane	0.0499	0.0500	100	74-126	
1,2-Dichloroethane-D4	0.0523	0.0500	105	80-120	
Toluene-D8	0.0485	0.0500	97	73-132	
4-Bromofluorobenzene	0.0477	0.0500	95	58-152	

Lab Batch #: 922139

Sample: 469652-015 / SMP

Batch: 1 **Matrix:** Soil

Units: mg/kg

Date Analyzed: 09/05/13 13:18

SURROGATE RECOVERY STUDY

BTEX-MTBE by SW 8260B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
Dibromofluoromethane	0.0494	0.0500	99	74-126	
1,2-Dichloroethane-D4	0.0489	0.0500	98	80-120	
Toluene-D8	0.0497	0.0500	99	73-132	
4-Bromofluorobenzene	0.0499	0.0500	100	58-152	

* Surrogate outside of Laboratory QC limits
 ** Surrogates outside limits; data and surrogates confirmed by reanalysis
 *** Poor recoveries due to dilution
 Surrogate Recovery [D] = 100 * A / B
 All results are based on MDL and validated for QC purposes.



Form 2 - Surrogate Recoveries

Project Name: Lift Station Renewal/Replacement Galleria Area

Work Orders : 469652,

Project ID: 1130018301

Lab Batch #: 922122

Sample: 469652-005 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 09/05/13 16:47

SURROGATE RECOVERY STUDY

VOAs by SW-846 8260 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0549	0.0500	110	65-135	
1,2-Dichloroethane-D4	0.0566	0.0500	113	73-131	
Toluene-D8	0.0551	0.0500	110	78-138	
4-Bromofluorobenzene	0.0529	0.0500	106	81-135	

Lab Batch #: 922122

Sample: 469652-006 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 09/05/13 17:03

SURROGATE RECOVERY STUDY

VOAs by SW-846 8260 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0528	0.0500	106	65-135	
1,2-Dichloroethane-D4	0.0531	0.0500	106	73-131	
Toluene-D8	0.0532	0.0500	106	78-138	
4-Bromofluorobenzene	0.0516	0.0500	103	81-135	

Lab Batch #: 922122

Sample: 469652-007 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 09/05/13 17:19

SURROGATE RECOVERY STUDY

VOAs by SW-846 8260 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0498	0.0500	100	65-135	
1,2-Dichloroethane-D4	0.0523	0.0500	105	73-131	
Toluene-D8	0.0530	0.0500	106	78-138	
4-Bromofluorobenzene	0.0543	0.0500	109	81-135	

Lab Batch #: 922122

Sample: 469652-007 / DL

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 09/05/13 18:08

SURROGATE RECOVERY STUDY

VOAs by SW-846 8260 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0495	0.0500	99	65-135	
1,2-Dichloroethane-D4	0.0478	0.0500	96	73-131	
Toluene-D8	0.0507	0.0500	101	78-138	
4-Bromofluorobenzene	0.0517	0.0500	103	81-135	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.



Form 2 - Surrogate Recoveries

Project Name: Lift Station Renewal/Replacement Galleria Area

Work Orders : 469652,

Project ID: 1130018301

Lab Batch #: 922165

Sample: 469652-001 / SMP

Batch: 1 Matrix: Soil

SURROGATE RECOVERY STUDY						
Units: mg/kg	Date Analyzed: 09/06/13 15:53	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
TPH by Texas1005						
Analytes						
o-Terphenyl		46.1	50.0	92	70-130	
1-Chlorooctane		88.9	99.9	89	70-130	

Lab Batch #: 922165

Sample: 469652-002 / SMP

Batch: 1 Matrix: Soil

SURROGATE RECOVERY STUDY						
Units: mg/kg	Date Analyzed: 09/06/13 16:17	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
TPH by Texas1005						
Analytes						
o-Terphenyl		47.8	49.6	96	70-130	
1-Chlorooctane		88.4	99.2	89	70-130	

Lab Batch #: 922165

Sample: 469652-003 / SMP

Batch: 1 Matrix: Soil

SURROGATE RECOVERY STUDY						
Units: mg/kg	Date Analyzed: 09/06/13 16:41	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
TPH by Texas1005						
Analytes						
o-Terphenyl		45.9	49.5	93	70-130	
1-Chlorooctane		88.3	99.0	89	70-130	

Lab Batch #: 922165

Sample: 469652-004 / SMP

Batch: 1 Matrix: Soil

SURROGATE RECOVERY STUDY						
Units: mg/kg	Date Analyzed: 09/06/13 17:07	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
TPH by Texas1005						
Analytes						
o-Terphenyl		51.8	49.7	104	70-130	
1-Chlorooctane		97.5	99.3	98	70-130	

Lab Batch #: 922165

Sample: 469652-005 / SMP

Batch: 1 Matrix: Soil

SURROGATE RECOVERY STUDY						
Units: mg/kg	Date Analyzed: 09/06/13 17:31	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
TPH by Texas1005						
Analytes						
o-Terphenyl		50.6	50.0	101	70-130	
1-Chlorooctane		93.0	99.9	93	70-130	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.



Form 2 - Surrogate Recoveries

Project Name: Lift Station Renewal/Replacement Galleria Area

Work Orders : 469652,

Project ID: 1130018301

Lab Batch #: 922165

Sample: 469652-006 / SMP

Batch: 1 Matrix: Soil

SURROGATE RECOVERY STUDY						
Units: mg/kg	Date Analyzed: 09/06/13 17:55	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
TPH by Texas1005						
Analytes						
o-Terphenyl		47.0	49.8	94	70-130	
1-Chlorooctane		90.0	99.5	90	70-130	

Lab Batch #: 922165

Sample: 469652-007 / SMP

Batch: 1 Matrix: Soil

SURROGATE RECOVERY STUDY						
Units: mg/kg	Date Analyzed: 09/06/13 19:08	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
TPH by Texas1005						
Analytes						
o-Terphenyl		47.9	50.0	96	70-130	
1-Chlorooctane		92.0	100	92	70-130	

Lab Batch #: 922165

Sample: 469652-008 / SMP

Batch: 1 Matrix: Soil

SURROGATE RECOVERY STUDY						
Units: mg/kg	Date Analyzed: 09/06/13 19:33	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
TPH by Texas1005						
Analytes						
o-Terphenyl		49.0	49.9	98	70-130	
1-Chlorooctane		95.9	99.8	96	70-130	

Lab Batch #: 922165

Sample: 469652-009 / SMP

Batch: 1 Matrix: Soil

SURROGATE RECOVERY STUDY						
Units: mg/kg	Date Analyzed: 09/06/13 19:57	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
TPH by Texas1005						
Analytes						
o-Terphenyl		47.7	49.8	96	70-130	
1-Chlorooctane		90.5	99.5	91	70-130	

Lab Batch #: 922165

Sample: 469652-010 / SMP

Batch: 1 Matrix: Soil

SURROGATE RECOVERY STUDY						
Units: mg/kg	Date Analyzed: 09/06/13 20:20	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
TPH by Texas1005						
Analytes						
o-Terphenyl		50.4	49.6	102	70-130	
1-Chlorooctane		95.3	99.2	96	70-130	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.



Form 2 - Surrogate Recoveries

Project Name: Lift Station Renewal/Replacement Galleria Area

Work Orders : 469652,

Project ID: 1130018301

Lab Batch #: 922165

Sample: 469652-011 / SMP

Batch: 1 Matrix: Soil

SURROGATE RECOVERY STUDY						
Units: mg/kg	Date Analyzed: 09/06/13 20:45	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
TPH by Texas1005						
Analytes						
o-Terphenyl		49.2	49.9	99	70-130	
1-Chlorooctane		97.0	99.7	97	70-130	

Lab Batch #: 922165

Sample: 469652-012 / SMP

Batch: 1 Matrix: Soil

SURROGATE RECOVERY STUDY						
Units: mg/kg	Date Analyzed: 09/06/13 21:09	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
TPH by Texas1005						
Analytes						
o-Terphenyl		48.5	49.5	98	70-130	
1-Chlorooctane		95.5	99.0	96	70-130	

Lab Batch #: 922165

Sample: 469652-013 / SMP

Batch: 1 Matrix: Soil

SURROGATE RECOVERY STUDY						
Units: mg/kg	Date Analyzed: 09/06/13 21:32	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
TPH by Texas1005						
Analytes						
o-Terphenyl		49.0	49.5	99	70-130	
1-Chlorooctane		93.6	98.9	95	70-130	

Lab Batch #: 922165

Sample: 469652-014 / SMP

Batch: 1 Matrix: Soil

SURROGATE RECOVERY STUDY						
Units: mg/kg	Date Analyzed: 09/06/13 21:56	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
TPH by Texas1005						
Analytes						
o-Terphenyl		51.0	49.7	103	70-130	
1-Chlorooctane		99.2	99.4	100	70-130	

Lab Batch #: 922165

Sample: 469652-015 / SMP

Batch: 1 Matrix: Soil

SURROGATE RECOVERY STUDY						
Units: mg/kg	Date Analyzed: 09/06/13 22:20	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
TPH by Texas1005						
Analytes						
o-Terphenyl		50.0	49.7	101	70-130	
1-Chlorooctane		94.8	99.4	95	70-130	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.



Form 2 - Surrogate Recoveries

Project Name: Lift Station Renewal/Replacement Galleria Area

Work Orders : 469652,

Project ID: 1130018301

Lab Batch #: 922795

Sample: 469652-016 / SMP

Batch: 1 **Matrix:** Soil

	SURROGATE RECOVERY STUDY				
Units: mg/kg	Date Analyzed: 09/16/13 19:46				
BTEX-MTBE by SW 8260B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0504	0.0500	101	74-126	
1,2-Dichloroethane-D4	0.0528	0.0500	106	80-120	
Toluene-D8	0.0485	0.0500	97	73-132	
4-Bromofluorobenzene	0.0494	0.0500	99	58-152	

Lab Batch #: 922930

Sample: 469652-016 / SMP

Batch: 1 **Matrix:** Soil

	SURROGATE RECOVERY STUDY				
Units: mg/kg	Date Analyzed: 09/18/13 01:32				
TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	56.7	50.0	113	70-130	
1-Chlorooctane	96.5	99.9	97	70-130	

Lab Batch #: 922084

Sample: 643434-1-BLK / BLK

Batch: 1 **Matrix:** Solid

	SURROGATE RECOVERY STUDY				
Units: mg/kg	Date Analyzed: 09/04/13 11:22				
BTEX-MTBE by SW 8260B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0493	0.0500	99	74-126	
1,2-Dichloroethane-D4	0.0486	0.0500	97	80-120	
Toluene-D8	0.0475	0.0500	95	73-132	
4-Bromofluorobenzene	0.0488	0.0500	98	58-152	

Lab Batch #: 922122

Sample: 643470-1-BLK / BLK

Batch: 1 **Matrix:** Solid

	SURROGATE RECOVERY STUDY				
Units: mg/kg	Date Analyzed: 09/05/13 11:13				
VOAs by SW-846 8260 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0496	0.0500	99	65-135	
1,2-Dichloroethane-D4	0.0476	0.0500	95	73-131	
Toluene-D8	0.0490	0.0500	98	78-138	
4-Bromofluorobenzene	0.0521	0.0500	104	81-135	

* Surrogate outside of Laboratory QC limits
 ** Surrogates outside limits; data and surrogates confirmed by reanalysis
 *** Poor recoveries due to dilution
 Surrogate Recovery [D] = 100 * A / B
 All results are based on MDL and validated for QC purposes.



Form 2 - Surrogate Recoveries

Project Name: Lift Station Renewal/Replacement Galleria Area

Work Orders : 469652,

Project ID: 1130018301

Lab Batch #: 922139

Sample: 643476-1-BLK / BLK

Batch: 1 **Matrix:** Solid

	SURROGATE RECOVERY STUDY				
Units: mg/kg	Date Analyzed: 09/05/13 11:36				
BTEX-MTBE by SW 8260B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0495	0.0500	99	74-126	
1,2-Dichloroethane-D4	0.0472	0.0500	94	80-120	
Toluene-D8	0.0474	0.0500	95	73-132	
4-Bromofluorobenzene	0.0499	0.0500	100	58-152	

Lab Batch #: 922165

Sample: 643465-1-BLK / BLK

Batch: 1 **Matrix:** Solid

	SURROGATE RECOVERY STUDY				
Units: mg/kg	Date Analyzed: 09/06/13 11:45				
TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	47.3	50.0	95	70-130	
1-Chlorooctane	90.9	100	91	70-130	

Lab Batch #: 922795

Sample: 643897-1-BLK / BLK

Batch: 1 **Matrix:** Solid

	SURROGATE RECOVERY STUDY				
Units: mg/kg	Date Analyzed: 09/16/13 12:01				
BTEX-MTBE by SW 8260B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0510	0.0500	102	74-126	
1,2-Dichloroethane-D4	0.0522	0.0500	104	80-120	
Toluene-D8	0.0470	0.0500	94	73-132	
4-Bromofluorobenzene	0.0531	0.0500	106	58-152	

Lab Batch #: 922795

Sample: BLK / BLK

Batch: 1 **Matrix:** Solid

	SURROGATE RECOVERY STUDY				
Units: mg/kg	Date Analyzed: 09/16/13 16:18				
BTEX-MTBE by SW 8260B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0468	0.0500	94	74-126	
1,2-Dichloroethane-D4	0.0479	0.0500	96	80-120	
Toluene-D8	0.0494	0.0500	99	73-132	
4-Bromofluorobenzene	0.0518	0.0500	104	58-152	

* Surrogate outside of Laboratory QC limits
 ** Surrogates outside limits; data and surrogates confirmed by reanalysis
 *** Poor recoveries due to dilution
 Surrogate Recovery [D] = 100 * A / B
 All results are based on MDL and validated for QC purposes.



Form 2 - Surrogate Recoveries

Project Name: Lift Station Renewal/Replacement Galleria Area

Work Orders : 469652,

Project ID: 1130018301

Lab Batch #: 922930

Sample: 643906-1-BLK / BLK

Batch: 1 Matrix: Solid

Units: mg/kg		Date Analyzed: 09/17/13 10:09		SURROGATE RECOVERY STUDY		
TPH by Texas1005		Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes						
o-Terphenyl		53.1	50.0	106	70-130	
1-Chlorooctane		87.6	100	88	70-130	

Lab Batch #: 922084

Sample: 643434-1-BKS / BKS

Batch: 1 Matrix: Solid

Units: mg/kg		Date Analyzed: 09/04/13 10:31		SURROGATE RECOVERY STUDY		
BTEX-MTBE by SW 8260B		Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes						
Dibromofluoromethane		0.0522	0.0500	104	74-126	
1,2-Dichloroethane-D4		0.0502	0.0500	100	80-120	
Toluene-D8		0.0487	0.0500	97	73-132	
4-Bromofluorobenzene		0.0476	0.0500	95	58-152	

Lab Batch #: 922139

Sample: 643476-1-BKS / BKS

Batch: 1 Matrix: Solid

Units: mg/kg		Date Analyzed: 09/05/13 10:42		SURROGATE RECOVERY STUDY		
BTEX-MTBE by SW 8260B		Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes						
Dibromofluoromethane		0.0497	0.0500	99	74-126	
1,2-Dichloroethane-D4		0.0519	0.0500	104	80-120	
Toluene-D8		0.0511	0.0500	102	73-132	
4-Bromofluorobenzene		0.0482	0.0500	96	58-152	

Lab Batch #: 922122

Sample: 643470-1-BKS / BKS

Batch: 1 Matrix: Solid

Units: mg/kg		Date Analyzed: 09/05/13 12:01		SURROGATE RECOVERY STUDY		
VOAs by SW-846 8260		Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes						
Dibromofluoromethane		0.0499	0.0500	100	65-135	
1,2-Dichloroethane-D4		0.0510	0.0500	102	73-131	
Toluene-D8		0.0507	0.0500	101	78-138	
4-Bromofluorobenzene		0.0505	0.0500	101	81-135	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.



Form 2 - Surrogate Recoveries

Project Name: Lift Station Renewal/Replacement Galleria Area

Work Orders : 469652,

Project ID: 1130018301

Lab Batch #: 922165

Sample: 643465-1-BKS / BKS

Batch: 1 Matrix: Solid

SURROGATE RECOVERY STUDY						
Units: mg/kg	Date Analyzed: 09/06/13 12:11	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
TPH by Texas1005						
Analytes						
o-Terphenyl		44.9	50.0	90	70-130	
1-Chlorooctane		106	100	106	70-130	

Lab Batch #: 922795

Sample: 643897-1-BKS / BKS

Batch: 1 Matrix: Solid

SURROGATE RECOVERY STUDY						
Units: mg/kg	Date Analyzed: 09/16/13 11:09	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
BTEX-MTBE by SW 8260B						
Analytes						
Dibromofluoromethane		0.0506	0.0500	101	74-126	
1,2-Dichloroethane-D4		0.0511	0.0500	102	80-120	
Toluene-D8		0.0479	0.0500	96	73-132	
4-Bromofluorobenzene		0.0505	0.0500	101	58-152	

Lab Batch #: 922930

Sample: 643906-1-BKS / BKS

Batch: 1 Matrix: Solid

SURROGATE RECOVERY STUDY						
Units: mg/kg	Date Analyzed: 09/17/13 10:31	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
TPH by Texas1005						
Analytes						
o-Terphenyl		44.8	50.0	90	70-130	
1-Chlorooctane		103	100	103	70-130	

Lab Batch #: 922165

Sample: 643465-1-BSD / BSD

Batch: 1 Matrix: Solid

SURROGATE RECOVERY STUDY						
Units: mg/kg	Date Analyzed: 09/06/13 12:35	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
TPH by Texas1005						
Analytes						
o-Terphenyl		40.8	50.0	82	70-130	
1-Chlorooctane		105	100	105	70-130	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.



Form 2 - Surrogate Recoveries

Project Name: Lift Station Renewal/Replacement Galleria Area

Work Orders : 469652,

Project ID: 1130018301

Lab Batch #: 922930

Sample: 643906-1-BSD / BSD

Batch: 1 **Matrix:** Solid

	SURROGATE RECOVERY STUDY				
Units: mg/kg	Date Analyzed: 09/17/13 10:53				
TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	41.4	50.0	83	70-130	
1-Chlorooctane	91.6	100	92	70-130	

Lab Batch #: 922084

Sample: 469646-002 S / MS

Batch: 1 **Matrix:** Soil

	SURROGATE RECOVERY STUDY				
Units: mg/kg	Date Analyzed: 09/04/13 16:54				
BTEX-MTBE by SW 8260B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0473	0.0500	95	74-126	
1,2-Dichloroethane-D4	0.0482	0.0500	96	80-120	
Toluene-D8	0.0531	0.0500	106	73-132	
4-Bromofluorobenzene	0.0517	0.0500	103	58-152	

Lab Batch #: 922139

Sample: 469652-014 S / MS

Batch: 1 **Matrix:** Soil

	SURROGATE RECOVERY STUDY				
Units: mg/kg	Date Analyzed: 09/05/13 18:23				
BTEX-MTBE by SW 8260B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0506	0.0500	101	74-126	
1,2-Dichloroethane-D4	0.0512	0.0500	102	80-120	
Toluene-D8	0.0528	0.0500	106	73-132	
4-Bromofluorobenzene	0.0486	0.0500	97	58-152	

Lab Batch #: 922122

Sample: 469652-005 S / MS

Batch: 1 **Matrix:** Soil

	SURROGATE RECOVERY STUDY				
Units: mg/kg	Date Analyzed: 09/05/13 18:40				
VOAs by SW-846 8260 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0516	0.0500	103	65-135	
1,2-Dichloroethane-D4	0.0539	0.0500	108	73-131	
Toluene-D8	0.0519	0.0500	104	78-138	
4-Bromofluorobenzene	0.0561	0.0500	112	81-135	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.



Form 2 - Surrogate Recoveries

Project Name: Lift Station Renewal/Replacement Galleria Area

Work Orders : 469652,

Project ID: 1130018301

Lab Batch #: 922165

Sample: 468117-003 S / MS

Batch: 1 Matrix: Soil

Units: mg/kg		Date Analyzed: 09/06/13 13:24	SURROGATE RECOVERY STUDY			
TPH by Texas1005		Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes						
o-Terphenyl		38.5	49.9	77	70-130	
1-Chlorooctane		105	99.8	105	70-130	

Lab Batch #: 922795

Sample: 469898-010 S / MS

Batch: 1 Matrix: Soil

Units: mg/kg		Date Analyzed: 09/16/13 15:01	SURROGATE RECOVERY STUDY			
BTEX-MTBE by SW 8260B		Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes						
Dibromofluoromethane		0.0510	0.0500	102	74-126	
1,2-Dichloroethane-D4		0.0598	0.0500	120	80-120	
Toluene-D8		0.0531	0.0500	106	73-132	
4-Bromofluorobenzene		0.0685	0.0500	137	58-152	

Lab Batch #: 922930

Sample: 470374-001 S / MS

Batch: 1 Matrix: Soil

Units: mg/kg		Date Analyzed: 09/17/13 11:39	SURROGATE RECOVERY STUDY			
TPH by Texas1005		Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes						
o-Terphenyl		40.1	49.6	81	70-130	
1-Chlorooctane		90.6	99.2	91	70-130	

Lab Batch #: 922084

Sample: 469646-002 SD / MSD

Batch: 1 Matrix: Soil

Units: mg/kg		Date Analyzed: 09/04/13 17:20	SURROGATE RECOVERY STUDY			
BTEX-MTBE by SW 8260B		Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes						
Dibromofluoromethane		0.0493	0.0500	99	74-126	
1,2-Dichloroethane-D4		0.0536	0.0500	107	80-120	
Toluene-D8		0.0494	0.0500	99	73-132	
4-Bromofluorobenzene		0.0515	0.0500	103	58-152	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.



Form 2 - Surrogate Recoveries

Project Name: Lift Station Renewal/Replacement Galleria Area

Work Orders : 469652,

Project ID: 1130018301

Lab Batch #: 922139

Sample: 469652-014 SD / MSD

Batch: 1 **Matrix:** Soil

	SURROGATE RECOVERY STUDY				
Units: mg/kg	Date Analyzed: 09/05/13 18:48				
BTEX-MTBE by SW 8260B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0505	0.0500	101	74-126	
1,2-Dichloroethane-D4	0.0470	0.0500	94	80-120	
Toluene-D8	0.0528	0.0500	106	73-132	
4-Bromofluorobenzene	0.0484	0.0500	97	58-152	

Lab Batch #: 922122

Sample: 469652-005 SD / MSD

Batch: 1 **Matrix:** Soil

	SURROGATE RECOVERY STUDY				
Units: mg/kg	Date Analyzed: 09/05/13 18:56				
VOAs by SW-846 8260 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0517	0.0500	103	65-135	
1,2-Dichloroethane-D4	0.0506	0.0500	101	73-131	
Toluene-D8	0.0525	0.0500	105	78-138	
4-Bromofluorobenzene	0.0545	0.0500	109	81-135	

Lab Batch #: 922165

Sample: 468117-003 SD / MSD

Batch: 1 **Matrix:** Soil

	SURROGATE RECOVERY STUDY				
Units: mg/kg	Date Analyzed: 09/06/13 13:49				
TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	35.8	49.6	72	70-130	
1-Chlorooctane	95.0	99.2	96	70-130	

Lab Batch #: 922795

Sample: 469898-010 SD / MSD

Batch: 1 **Matrix:** Soil

	SURROGATE RECOVERY STUDY				
Units: mg/kg	Date Analyzed: 09/16/13 15:27				
BTEX-MTBE by SW 8260B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0508	0.0500	102	74-126	
1,2-Dichloroethane-D4	0.0599	0.0500	120	80-120	
Toluene-D8	0.0525	0.0500	105	73-132	
4-Bromofluorobenzene	0.0698	0.0500	140	58-152	

* Surrogate outside of Laboratory QC limits
 ** Surrogates outside limits; data and surrogates confirmed by reanalysis
 *** Poor recoveries due to dilution
 Surrogate Recovery [D] = 100 * A / B
 All results are based on MDL and validated for QC purposes.



Form 2 - Surrogate Recoveries

Project Name: Lift Station Renewal/Replacement Galleria Area

Work Orders : 469652,

Project ID: 1130018301

Lab Batch #: 922930

Sample: 470374-001 SD / MSD

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 09/17/13 12:03

SURROGATE RECOVERY STUDY

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	40.6	49.6	82	70-130	
1-Chlorooctane	90.2	99.1	91	70-130	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = $100 * A / B$

All results are based on MDL and validated for QC purposes.

Project Name: Lift Station Renewal/Replacement Galleria Area

Work Order #: 469652

Project ID:

1130018301

Lab Batch #: 922084

Sample: 643434-1-BKS

Matrix: Solid

Date Analyzed: 09/04/2013

Date Prepared: 09/04/2013

Analyst: SAD

Reporting Units: mg/kg

Batch #: 1

BLANK /BLANK SPIKE RECOVERY STUDY

BTEX-MTBE by SW 8260B Analytes	Blank Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Control Limits %R	Flags
MTBE	<0.00500	0.500	0.552	110	68-138	
Benzene	<0.00100	0.100	0.110	110	62-132	
Toluene	<0.00100	0.100	0.104	104	66-124	
Ethylbenzene	<0.00100	0.100	0.114	114	71-134	
m,p-Xylenes	<0.00200	0.200	0.220	110	69-128	
o-Xylene	<0.00100	0.100	0.108	108	72-131	

Lab Batch #: 922139

Sample: 643476-1-BKS

Matrix: Solid

Date Analyzed: 09/05/2013

Date Prepared: 09/05/2013

Analyst: SAD

Reporting Units: mg/kg

Batch #: 1

BLANK /BLANK SPIKE RECOVERY STUDY

BTEX-MTBE by SW 8260B Analytes	Blank Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Control Limits %R	Flags
MTBE	<0.00500	0.500	0.529	106	68-138	
Benzene	<0.00100	0.100	0.103	103	62-132	
Toluene	<0.00100	0.100	0.103	103	66-124	
Ethylbenzene	<0.00100	0.100	0.111	111	71-134	
m,p-Xylenes	<0.00200	0.200	0.218	109	69-128	
o-Xylene	<0.00100	0.100	0.106	106	72-131	

Lab Batch #: 922795

Sample: 643897-1-BKS

Matrix: Solid

Date Analyzed: 09/16/2013

Date Prepared: 09/16/2013

Analyst: SAD

Reporting Units: mg/kg

Batch #: 1

BLANK /BLANK SPIKE RECOVERY STUDY

BTEX-MTBE by SW 8260B Analytes	Blank Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Control Limits %R	Flags
MTBE	<0.00500	0.500	0.530	106	68-138	
Benzene	<0.00100	0.100	0.106	106	62-132	
Toluene	<0.00100	0.100	0.0974	97	66-124	
Ethylbenzene	<0.00100	0.100	0.113	113	71-134	
m,p-Xylenes	<0.00200	0.200	0.223	112	69-128	
o-Xylene	<0.00100	0.100	0.109	109	72-131	

Blank Spike Recovery [D] = 100*[C]/[B]

All results are based on MDL and validated for QC purposes.

BRL - Below Reporting Limit

Project Name: Lift Station Renewal/Replacement Galleria Area

Work Order #: 469652

Project ID:

1130018301

Lab Batch #: 922122

Sample: 643470-1-BKS

Matrix: Solid

Date Analyzed: 09/05/2013

Date Prepared: 09/05/2013

Analyst: SOP

Reporting Units: mg/kg

Batch #: 1

BLANK /BLANK SPIKE RECOVERY STUDY

VOAs by SW-846 8260 Analytes	Blank Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Control Limits %R	Flags
Benzene	<0.00500	0.0500	0.0482	96	85-112	
Bromobenzene	<0.00500	0.0500	0.0504	101	86-115	
Bromochloromethane	<0.00500	0.0500	0.0482	96	80-114	
Bromodichloromethane	<0.00500	0.0500	0.0491	98	83-113	
Bromoform	<0.00500	0.0500	0.0498	100	80-120	
Methyl bromide	<0.00500	0.0500	0.0430	86	55-141	
tert-Butylbenzene	<0.00500	0.0500	0.0559	112	86-122	
Sec-Butylbenzene	<0.00500	0.0500	0.0543	109	88-121	
n-Butylbenzene	<0.00500	0.0500	0.0566	113	88-123	
Carbon Tetrachloride	<0.00500	0.0500	0.0490	98	86-116	
Chlorobenzene	<0.00500	0.0500	0.0499	100	88-110	
Chloroethane	<0.0100	0.0500	0.0454	91	71-123	
Chloroform	<0.00500	0.0500	0.0493	99	82-111	
Methyl Chloride	<0.0100	0.0500	0.0471	94	68-122	
2-Chlorotoluene	<0.00500	0.0500	0.0510	102	85-117	
4-Chlorotoluene	<0.00500	0.0500	0.0536	107	87-116	
p-Cymene (p-Isopropyltoluene)	<0.00500	0.0500	0.0559	112	88-121	
1,2-Dibromo-3-Chloropropane	<0.00500	0.0500	0.0501	100	74-125	
Dibromochloromethane	<0.00500	0.0500	0.0507	101	83-115	
1,2-Dibromoethane	<0.00500	0.0500	0.0509	102	84-116	
Methylene bromide	<0.00500	0.0500	0.0486	97	83-113	
1,2-Dichlorobenzene	<0.00500	0.0500	0.0505	101	88-112	
1,3-Dichlorobenzene	<0.00500	0.0500	0.0504	101	90-111	
1,4-Dichlorobenzene	<0.00500	0.0500	0.0497	99	89-110	
Dichlorodifluoromethane	<0.00500	0.0500	0.0532	106	74-126	
1,2-Dichloroethane	<0.00500	0.0500	0.0482	96	78-115	
1,1-Dichloroethane	<0.00500	0.0500	0.0479	96	82-112	
trans-1,2-dichloroethylene	<0.00500	0.0500	0.0487	97	81-114	
cis-1,2-Dichloroethylene	<0.00500	0.0500	0.0497	99	82-114	
1,1-Dichloroethene	<0.00500	0.0500	0.0518	104	82-116	
2,2-Dichloropropane	<0.00500	0.0500	0.0533	107	75-125	
1,3-Dichloropropane	<0.00500	0.0500	0.0497	99	84-114	
1,2-Dichloropropane	<0.00500	0.0500	0.0483	97	83-112	

Blank Spike Recovery [D] = 100*[C]/[B]

All results are based on MDL and validated for QC purposes.

BRL - Below Reporting Limit

Project Name: Lift Station Renewal/Replacement Galleria Area

Work Order #: 469652

Project ID:

1130018301

Lab Batch #: 922122

Sample: 643470-1-BKS

Matrix: Solid

Date Analyzed: 09/05/2013

Date Prepared: 09/05/2013

Analyst: SOP

Reporting Units: mg/kg

Batch #: 1

BLANK /BLANK SPIKE RECOVERY STUDY

VOAs by SW-846 8260 Analytes	Blank Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Control Limits %R	Flags
trans-1,3-dichloropropene	<0.00500	0.0500	0.0527	105	86-117	
1,1-Dichloropropene	<0.00500	0.0500	0.0501	100	83-116	
cis-1,3-Dichloropropene	<0.00500	0.0500	0.0519	104	84-115	
Ethylbenzene	<0.00500	0.0500	0.0519	104	88-115	
Hexachlorobutadiene	<0.00500	0.0500	0.0530	106	82-127	
Isopropylbenzene	<0.00500	0.0500	0.0568	114	86-119	
Methylene Chloride	<0.0100	0.0500	0.0478	96	66-134	
MTBE	<0.00500	0.0500	0.0499	100	74-118	
Naphthalene	<0.0100	0.0500	0.0598	120	68-138	
n-Propylbenzene	<0.00500	0.0500	0.0539	108	85-122	
Styrene	<0.00500	0.0500	0.0537	107	80-125	
1,1,1,2-Tetrachloroethane	<0.00500	0.0500	0.0497	99	88-111	
1,1,1,2-Tetrachloroethane	<0.00500	0.0500	0.0497	99	77-119	
Tetrachloroethylene	<0.00500	0.0500	0.0493	99	80-117	
Toluene	<0.00500	0.0500	0.0483	97	85-114	
1,2,3-Trichlorobenzene	<0.00500	0.0500	0.0549	110	71-137	
1,2,4-Trichlorobenzene	<0.00500	0.0500	0.0570	114	78-130	
1,1,2-Trichloroethane	<0.00500	0.0500	0.0487	97	83-113	
1,1,1-Trichloroethane	<0.00500	0.0500	0.0494	99	83-113	
Trichloroethylene	<0.00500	0.0500	0.0482	96	85-113	
Trichlorofluoromethane	<0.00500	0.0500	0.0551	110	83-117	
1,2,3-Trichloropropane	<0.00500	0.0500	0.0485	97	79-120	
1,2,4-Trimethylbenzene	<0.00500	0.0500	0.0529	106	88-117	
1,3,5-Trimethylbenzene	<0.00500	0.0500	0.0532	106	85-120	
Vinyl Chloride	<0.00200	0.0500	0.0480	96	73-123	
o-Xylene	<0.00500	0.0500	0.0527	105	80-122	
m,p-Xylenes	<0.0100	0.100	0.104	104	87-115	

Blank Spike Recovery [D] = 100*[C]/[B]

All results are based on MDL and validated for QC purposes.

BRL - Below Reporting Limit



BS / BSD Recoveries



Project Name: Lift Station Renewal/Replacement Galleria Area

Work Order #: 469652

Project ID: 1130018301

Analyst: PKH

Date Prepared: 09/06/2013

Date Analyzed: 09/06/2013

Lab Batch ID: 922165

Sample: 643465-1-BKS

Batch #: 1

Matrix: Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

TPH by Texas1005	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes											
C6-C12 Gasoline Range Hydrocarbons	<50.0	1000	1130	113	1000	1150	115	2	70-130	30	
C12 - C28 Diesel Range Hydrocarbons	<50.0	1000	1040	104	1000	1110	111	7	70-130	30	

Analyst: PKH

Date Prepared: 09/17/2013

Date Analyzed: 09/17/2013

Lab Batch ID: 922930

Sample: 643906-1-BKS

Batch #: 1

Matrix: Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

TPH by Texas1005	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes											
C6-C12 Gasoline Range Hydrocarbons	<50.0	1000	1070	107	1000	964	96	10	70-130	30	
C12 - C28 Diesel Range Hydrocarbons	<50.0	1000	971	97	1000	863	86	12	70-130	30	

Relative Percent Difference RPD = 200*|(C-F)/(C+F)|

Blank Spike Recovery [D] = 100*(C)/[B]

Blank Spike Duplicate Recovery [G] = 100*(F)/[E]

All results are based on MDL and Validated for QC Purposes



Form 3 - MS / MSD Recoveries



Project Name: Lift Station Renewal/Replacement Galleria Area

Work Order # : 469652
Lab Batch ID: 922084
Date Analyzed: 09/04/2013
Reporting Units: mg/kg

Project ID: 1130018301

QC- Sample ID: 469646-002 S **Batch #:** 1 **Matrix:** Soil
Date Prepared: 09/04/2013 **Analyst:** SAD

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

BTEX-MTBE by SW 8260B	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes											
MTBE	<0.00679	0.679	0.722	106	0.680	0.747	110	3	68-138	25	
Benzene	0.00352	0.136	0.145	104	0.136	0.146	105	1	62-132	25	
Toluene	<0.00136	0.136	0.157	115	0.136	0.141	104	11	66-124	25	
Ethylbenzene	0.00143	0.136	0.165	120	0.136	0.161	117	2	71-134	25	
m,p-Xylenes	<0.00271	0.271	0.322	119	0.272	0.325	119	1	69-128	25	
o-Xylene	<0.00136	0.136	0.154	113	0.136	0.152	112	1	72-131	25	

Lab Batch ID: 922139
Date Analyzed: 09/05/2013
Reporting Units: mg/kg

QC- Sample ID: 469652-014 S **Batch #:** 1 **Matrix:** Soil
Date Prepared: 09/05/2013 **Analyst:** SAD

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

BTEX-MTBE by SW 8260B	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes											
MTBE	<0.00593	0.593	0.565	95	0.590	0.593	101	5	68-138	25	
Benzene	<0.00119	0.119	0.117	98	0.118	0.123	104	5	62-132	25	
Toluene	<0.00119	0.119	0.110	92	0.118	0.119	101	8	66-124	25	
Ethylbenzene	<0.00119	0.119	0.123	103	0.118	0.132	112	7	71-134	25	
m,p-Xylenes	<0.00237	0.237	0.243	103	0.236	0.249	106	2	69-128	25	
o-Xylene	<0.00119	0.119	0.126	106	0.118	0.130	110	3	72-131	25	

Matrix Spike Percent Recovery $[D] = 100 * (C-A) / B$
 Relative Percent Difference $RPD = 200 * (C-F) / (C+F)$

Matrix Spike Duplicate Percent Recovery $[G] = 100 * (F-A) / E$

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not Applicable
 N = See Narrative, EQL = Estimated Quantitation Limit, NC = Non Calculable - Sample amount is > 4 times the amount spiked.



Form 3 - MS / MSD Recoveries



Project Name: Lift Station Renewal/Replacement Galleria Area

Work Order #: 469652
 Lab Batch ID: 922795
 Date Analyzed: 09/16/2013
 Reporting Units: mg/kg

Project ID: 1130018301

QC- Sample ID: 469898-010 S Batch #: 1 Matrix: Soil
 Date Prepared: 09/16/2013 Analyst: SAD

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

BTEX-MTBE by SW 8260B Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
MTBE	<0.0268	2.68	2.76	103	2.66	3.04	114	10	68-138	25	
Benzene	<0.00537	0.537	0.503	94	0.531	0.530	100	5	62-132	25	
Toluene	<0.00537	0.537	0.527	98	0.531	0.545	103	3	66-124	25	
Ethylbenzene	<0.00537	0.537	0.461	86	0.531	0.505	95	9	71-134	25	
m,p-Xylenes	<0.0107	1.07	0.897	84	1.06	0.955	90	6	69-128	25	
o-Xylene	<0.00537	0.537	0.445	83	0.531	0.462	87	4	72-131	25	

Lab Batch ID: 922165
 Date Analyzed: 09/06/2013
 Reporting Units: mg/kg

QC- Sample ID: 468117-003 S Batch #: 1 Matrix: Soil
 Date Prepared: 09/06/2013 Analyst: PKH

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

TPH by Texas1005 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
C6-C12 Gasoline Range Hydrocarbons	<59.3	1190	1360	114	1180	1250	106	8	70-130	30	
C12 - C28 Diesel Range Hydrocarbons	<59.3	1190	1240	104	1180	1170	99	6	70-130	30	

Lab Batch ID: 922930
 Date Analyzed: 09/17/2013
 Reporting Units: mg/kg

QC- Sample ID: 470374-001 S Batch #: 1 Matrix: Soil
 Date Prepared: 09/17/2013 Analyst: PKH

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

TPH by Texas1005 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
C6-C12 Gasoline Range Hydrocarbons	<49.6	992	931	94	991	953	96	2	70-130	30	
C12 - C28 Diesel Range Hydrocarbons	53.3	992	870	82	991	913	87	5	70-130	30	

Matrix Spike Percent Recovery [D] = 100*(C-A)/B
 Relative Percent Difference RPD = 200*(C-F)/(C+F)

Matrix Spike Duplicate Percent Recovery [G] = 100*(F-A)/E

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not Applicable
 N = See Narrative, EQL = Estimated Quantitation Limit, NC = Non Calculable - Sample amount is > 4 times the amount spiked.



Form 3 - MS / MSD Recoveries



Project Name: Lift Station Renewal/Replacement Galleria Area

Work Order # : 469652

Project ID: 1130018301

Lab Batch ID: 922122

QC- Sample ID: 469652-005 S

Batch #: 1 **Matrix:** Soil

Date Analyzed: 09/05/2013

Date Prepared: 09/05/2013

Analyst: SOP

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

VOAs by SW-846 8260 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Benzene	<0.00635	0.0635	0.0626	99	0.0637	0.0623	98	0	81-116	30	
Bromobenzene	<0.00635	0.0635	0.0703	111	0.0637	0.0706	111	0	73-143	30	
Bromochloromethane	<0.00635	0.0635	0.0632	100	0.0637	0.0636	100	1	78-130	30	
Bromodichloromethane	<0.00635	0.0635	0.0634	100	0.0637	0.0629	99	1	72-122	30	
Bromoform	<0.00635	0.0635	0.0650	102	0.0637	0.0639	100	2	69-134	30	
Methyl bromide	<0.00635	0.0635	0.0572	90	0.0637	0.0567	89	1	58-145	30	
tert-Butylbenzene	<0.00635	0.0635	0.0754	119	0.0637	0.0769	121	2	64-146	30	
Sec-Butylbenzene	<0.00635	0.0635	0.0701	110	0.0637	0.0703	110	0	64-137	30	
n-Butylbenzene	<0.00635	0.0635	0.0695	109	0.0637	0.0703	110	1	57-134	30	
Carbon Tetrachloride	<0.00635	0.0635	0.0616	97	0.0637	0.0607	95	1	75-133	30	
Chlorobenzene	<0.00635	0.0635	0.0612	96	0.0637	0.0597	94	2	85-110	30	
Chloroethane	<0.0127	0.0635	0.0572	90	0.0637	0.0554	87	3	73-136	30	
Chloroform	<0.00635	0.0635	0.0644	101	0.0637	0.0631	99	2	74-124	30	
Methyl Chloride	<0.0127	0.0635	0.0637	100	0.0637	0.0599	94	6	61-137	30	
2-Chlorotoluene	<0.00635	0.0635	0.0704	111	0.0637	0.0707	111	0	78-131	30	
4-Chlorotoluene	<0.00635	0.0635	0.0714	112	0.0637	0.0730	115	2	83-123	30	
p-Cymene (p-Isopropyltoluene)	<0.00635	0.0635	0.0735	116	0.0637	0.0715	112	3	61-141	30	
1,2-Dibromo-3-Chloropropane	<0.00635	0.0635	0.0742	117	0.0637	0.0753	118	1	61-158	30	
Dibromochloromethane	<0.00635	0.0635	0.0684	108	0.0637	0.0670	105	2	72-133	30	
1,2-Dibromoethane	<0.00635	0.0635	0.0698	110	0.0637	0.0674	106	3	78-141	30	
Methylene bromide	<0.00635	0.0635	0.0632	100	0.0637	0.0620	97	2	79-128	30	
1,2-Dichlorobenzene	<0.00635	0.0635	0.0629	99	0.0637	0.0646	101	3	80-118	30	
1,3-Dichlorobenzene	<0.00635	0.0635	0.0629	99	0.0637	0.0630	99	0	82-112	30	

Matrix Spike Percent Recovery $[D] = 100 * (C-A) / B$
Relative Percent Difference $RPD = 200 * (C-F) / (C+F)$

Matrix Spike Duplicate Percent Recovery $[G] = 100 * (F-A) / E$

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not Applicable
N = See Narrative, EQL = Estimated Quantitation Limit, NC = Non Calculable - Sample amount is > 4 times the amount spiked.



Form 3 - MS / MSD Recoveries



Project Name: Lift Station Renewal/Replacement Galleria Area

Work Order #: 469652

Project ID: 1130018301

Lab Batch ID: 922122

QC- Sample ID: 469652-005 S

Batch #: 1 Matrix: Soil

Date Analyzed: 09/05/2013

Date Prepared: 09/05/2013

Analyst: SOP

Reporting Units: mg/kg VOAs by SW-846 8260	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes											
1,4-Dichlorobenzene	<0.00635	0.0635	0.0617	97	0.0637	0.0623	98	1	82-112	30	
Dichlorodifluoromethane	<0.00635	0.0635	0.0631	99	0.0637	0.0603	95	5	72-139	30	
1,2-Dichloroethane	<0.00635	0.0635	0.0643	101	0.0637	0.0636	100	1	67-134	30	
1,1-Dichloroethane	<0.00635	0.0635	0.0643	101	0.0637	0.0640	100	0	70-133	30	
trans-1,2-dichloroethylene	<0.00635	0.0635	0.0643	101	0.0637	0.0625	98	3	73-124	30	
cis-1,2-Dichloroethylene	<0.00635	0.0635	0.0640	101	0.0637	0.0633	99	1	72-126	30	
1,1-Dichloroethene	<0.00635	0.0635	0.0659	104	0.0637	0.0641	101	3	70-133	30	
2,2-Dichloropropane	<0.00635	0.0635	0.0641	101	0.0637	0.0631	99	2	79-118	30	
1,3-Dichloropropane	<0.00635	0.0635	0.0697	110	0.0637	0.0679	107	3	70-143	30	
1,2-Dichloropropane	<0.00635	0.0635	0.0645	102	0.0637	0.0633	99	2	80-118	30	
trans-1,3-dichloropropene	<0.00635	0.0635	0.0725	114	0.0637	0.0697	109	4	70-136	30	
1,1-Dichloropropene	<0.00635	0.0635	0.0642	101	0.0637	0.0639	100	0	78-119	30	
cis-1,3-Dichloropropene	<0.00635	0.0635	0.0659	104	0.0637	0.0650	102	1	75-117	30	
Ethylbenzene	<0.00635	0.0635	0.0683	108	0.0637	0.0659	103	4	76-124	30	
Hexachlorobutadiene	<0.00635	0.0635	0.0544	86	0.0637	0.0580	91	6	44-129	30	
Isopropylbenzene	<0.00635	0.0635	0.0684	108	0.0637	0.0649	102	5	60-138	30	
Methylene Chloride	<0.0127	0.0635	0.0685	108	0.0637	0.0652	102	5	64-149	30	
MTBE	<0.00635	0.0635	0.0686	108	0.0637	0.0656	103	4	60-145	30	
Naphthalene	<0.0127	0.0635	0.0804	127	0.0637	0.0826	130	3	46-146	30	
n-Propylbenzene	<0.00635	0.0635	0.0755	119	0.0637	0.0739	116	2	67-142	30	
Styrene	<0.00635	0.0635	0.0659	104	0.0637	0.0613	96	7	77-120	30	
1,1,1,2-Tetrachloroethane	<0.00635	0.0635	0.0650	102	0.0637	0.0625	98	4	79-124	30	
1,1,2,2-Tetrachloroethane	<0.00635	0.0635	0.0658	104	0.0637	0.0639	100	3	67-137	30	
Tetrachloroethylene	<0.00635	0.0635	0.0626	99	0.0637	0.0608	95	3	75-122	30	

Matrix Spike Percent Recovery $[D] = 100 * (C-A) / B$
 Relative Percent Difference $RPD = 200 * (C-F) / (C+F)$

Matrix Spike Duplicate Percent Recovery $[G] = 100 * (F-A) / E$

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not Applicable
 N = See Narrative, EQL = Estimated Quantitation Limit, NC = Non Calculable - Sample amount is > 4 times the amount spiked.



Form 3 - MS / MSD Recoveries



Project Name: Lift Station Renewal/Replacement Galleria Area

Work Order #: 469652

Project ID: 1130018301

Lab Batch ID: 922122

QC- Sample ID: 469652-005 S

Batch #: 1 Matrix: Soil

Date Analyzed: 09/05/2013

Date Prepared: 09/05/2013

Analyst: SOP

Reporting Units: mg/kg VOAs by SW-846 8260	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes											
Toluene	<0.00635	0.0635	0.0644	101	0.0637	0.0633	99	2	75-131	30	
1,2,3-Trichlorobenzene	<0.00635	0.0635	0.0593	93	0.0637	0.0655	103	10	52-125	30	
1,2,4-Trichlorobenzene	<0.00635	0.0635	0.0598	94	0.0637	0.0632	99	6	58-118	30	
1,1,2-Trichloroethane	<0.00635	0.0635	0.0698	110	0.0637	0.0691	108	1	75-127	30	
1,1,1-Trichloroethane	<0.00635	0.0635	0.0636	100	0.0637	0.0640	100	1	80-118	30	
Trichloroethylene	<0.00635	0.0635	0.0610	96	0.0637	0.0612	96	0	67-132	30	
Trichlorofluoromethane	<0.00635	0.0635	0.0697	110	0.0637	0.0684	107	2	75-129	30	
1,2,3-Trichloropropane	<0.00635	0.0635	0.0662	104	0.0637	0.0650	102	2	68-137	30	
1,2,4-Trimethylbenzene	<0.00635	0.0635	0.0729	115	0.0637	0.0720	113	1	62-144	30	
1,3,5-Trimethylbenzene	<0.00635	0.0635	0.0742	117	0.0637	0.0736	116	1	79-131	30	
Vinyl Chloride	<0.00254	0.0635	0.0620	98	0.0637	0.0601	94	3	67-136	30	
o-Xylene	<0.00635	0.0635	0.0683	108	0.0637	0.0646	101	6	70-132	30	
m,p-Xylenes	<0.0127	0.127	0.129	102	0.127	0.128	101	1	78-122	30	

Matrix Spike Percent Recovery $[D] = 100 * (C-A) / B$
Relative Percent Difference $RPD = 200 * (C-F) / (C+F)$

Matrix Spike Duplicate Percent Recovery $[G] = 100 * (F-A) / E$

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not Applicable
N = See Narrative, EQL = Estimated Quantitation Limit, NC = Non Calculable - Sample amount is > 4 times the amount spiked.

Sample Duplicate Recovery

Project Name: Lift Station Renewal/Replacement Galleria Area

Work Order #: 469652

Lab Batch #: 922420

Project ID: 1130018301

Date Analyzed: 09/10/2013 16:26

Date Prepared: 09/10/2013

Analyst: DHE

QC- Sample ID: 469652-001 D

Batch #: 1

Matrix: Soil

Reporting Units: %

SAMPLE / SAMPLE DUPLICATE RECOVERY

Percent Moisture	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Analyte					
Percent Moisture	11.5	11.2	3	20	

Lab Batch #: 922420

Date Analyzed: 09/10/2013 16:26

Date Prepared: 09/10/2013

Analyst: DHE

QC- Sample ID: 469652-011 D

Batch #: 1

Matrix: Soil

Reporting Units: %

SAMPLE / SAMPLE DUPLICATE RECOVERY

Percent Moisture	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Analyte					
Percent Moisture	14.4	13.8	4	20	

Lab Batch #: 922885

Date Analyzed: 09/17/2013 15:10

Date Prepared: 09/17/2013

Analyst: DHE

QC- Sample ID: 470316-001 D

Batch #: 1

Matrix: Soil

Reporting Units: %

SAMPLE / SAMPLE DUPLICATE RECOVERY

Percent Moisture	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Analyte					
Percent Moisture	15.5	14.7	5	20	

Spike Relative Difference RPD $200 * |(B-A)/(B+A)|$
 All Results are based on MDL and validated for QC purposes.
 BRL - Below Reporting Limit



4143 Greenbriar Drive, Starford, TX 77477 281-240-4200
 5332 Blackberry Drive, San Antonio, TX 78238 210-509-3334
 9701 Harry Hines Blvd., Dallas, TX 75220 214-902-0300

12600 West I-20 East, Odessa, TX 79765 432-563-1800
 842 Cantwell, Corpus Christi, TX 78408 361-8840371

ANALYSIS REQUEST & CHAIN OF CUSTODY RECORD
 Serial #: 305286 Page of

Company-City: GEOREST ENGINEERING INC. Phone: (713) 266 0588

Project Name-Location: Previously done at XENCO Project ID: 13001800

Proj. State: AL, FL, GA, LA, MS, NC, NJ, PA, SC, TN, UT Other: Other
 Proj. Manager (PM): Mohan Balagere, P.E.

E-mail Results to: PM and Fax No:
 Invoice to: Accounting Inc. Invoice with Final Report Invoice must have a P.O.

Bill to: Call for P.O.
 Quote/Pricing: P.O. No.:

Reg Program: DRY-CLEAN Land-Fill Waste-Disp NPDES DW TRRP
 QAPP Per-Contract CLP AGCEE NAVY DOE DOD USACE OTHER:

Special DLs (GW DW QAPP MDLs Rls See Lab PM Included Call PM)

Sampler Name: Tiffany Henry Signature: _____
 Sample ID: _____ Sampling Date: _____ Time: _____
 Depth ft' in" m: _____ Matrix: _____ Composite: _____ Grab: _____
 # Containers: _____ Container Size: _____ Container Type: _____
 Preservatives: _____

VCOs Full-List BTEX-MTBE EtOH Oxyg VOHs VOAs
 VCO's PP TCL DW Appdx-1 Appdx-2 CALL Other:
 PAHs SIM
 TX-1005 DRO GRO MA EPH MA VPH
 SVOCs: Full-List DW BN&AE TCL PP Appdx-2 CALL
 OC Pesticides PCBs Herbicides OP Pesticides
 Metals: RCRA-8 RCRA-4 Pb 13PP 23TAL Appdx 1 Appdx2
 SPLP - TCLP (Metals VOCs SVOCs Pest. Herb. PCBs)
 EDB / DBCP
 BTEX-MTBE
 TPH

TATASAP 5h 12h 24h 48h 3d 5d 7d 10d 21d Standard TAT is project specific.
 Addn: PAH above mg/L W, mg/Kg S Highest Hit
 Hold Samples (Surcharges will apply and are pre-approved)
 Sample Clean-ups are pre-approved as needed

Relinquished by (Initials and Sign) _____ Date & Time: _____
 Relinquished to (Initials and Sign) _____ Date & Time: _____
 Total Containers per COC: _____ Cooler Temp: 5.3 °C

1) _____
 2) _____
 3) _____
 4) _____

5) _____
 6) _____
 7) _____
 8) _____
 9) _____
 10) _____

Matrix: Air (A), Product (P), Solid (S), Water (W), Liquid (L)
 Preservatives: Varius (V), HCl pH<2 (H), H2SO4 pH<2 (S), HNO3 pH<2 (N), AspC Acids & NaOH (A), ZnAc&NaOH (Z), (Cool, <4C) (C), None (NA), See Label (L), Other (O)
 Cont. Size: 4oz (4), 8oz (8), 32oz (32), 40ml VOA (40), 1L (1), 500ml (5), Tedlar Bag (B), Varius (V), Other _____
 Cont. Type: Glass Amb (A), Glass Clear (C), Plastic (P), Varius (V)

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9701 Harry Hines Blvd., Dallas, TX 75220 214-902-0300
 12600 West I-20 East, Odessa, TX 79765 432-563-1800

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ANALYSIS REQUEST & CHAIN OF CUSTODY RECORD

Company-City: **ENVIROTEST ENGINEERING INC.** Phone: **(713) 266-0588**
 Project Name-Location: **Left Station Renewal/Replacement Callery Area 1130018301** Project ID:
 Proj. State: TX, AL, FL, GA, LA, MS, NC, Proj. Manager (PM): **Mohan Balagore, P.E.**
 E-mail Results to: **mkall@queststaffing.com** Fax No:
 Invoice to: Accounting Inc. Invoice with Final Report Invoice must have a P.O.
 Bill to:
 Quote/Pricing: P.O. No. Call for P.O.
 Reg Program: UST DRY-CLEAN Land-Fill Waste-Disp NPDES DW TRRP
 QAPP Per-Contract CLP AGCEE NAVY DOE DOD USACE OTHER:
 Special DLs (GW DW QAPP MDLs RLS See Lab PM Included Call PM)

Lab Only: TAT: ASAP 5h 12h 24h 48h 3d 5d 7d 10d 21d Standard TAT is project specific.
 It is typically 5-7 Working Days for level II and 10+ Working days for level III and IV data.

VOA: Full-List BTEX-MTBE EtOH Oxyg VOHs VOAs
 VOA: PP TCL DW Appdx-1 Appdx-2 CALL Other:
 PAHs SIM 8310 8270
 TX-1005 DRO GRO MA EPH MA VPH
 SVOCs: Full-List DW BN&AE TCLP PP Appdx-2 CALL
 OC Pesticides PCBs Herbicides OP Pesticides
 Metals: RCRA-8 RCRA-4 Pb 13PP 23TAL Appdx 1 Appdx2
 SPLP - TCLP (Metals VOCs SVOCs Pest. Herb. PCBs)
 EDB / DBCP

TATASAP 5h 12h 24h 48h 3d 5d 7d 10d 21d
 Addn: PAH above mg/L W, mg/Kg S Highest Hit
 Hold Samples (Surcharges will apply and are pre-approved)
 Sample Clean-ups are pre-approved as needed

Remarks

Addn: Date Rcv. by: From:

Sample ID	Sampling Date	Time	Depth ft' in" m	Matrix	Composite	Grab	# Containers	Container Size	Container Type	Preservatives
✓ 1 EB-11 SH5	8-30-13	1:00 PM	8-10	S						
✓ 2 EB-12 SH8	8-30-13	2:00 PM	14-15	S						
✓ 3 EB-13 SH8	8-30-13	3:00 PM	14-15	S						
✓ 4 EB-14 SH3	8-30-13	4:00 PM	4-5	S						
✓ 5 EB-15 SH6	8-30-13	5:00 PM	10-12	S						

Relinquished by (Initials and Sign) Date & Time Relinquished to (Initials and Sign) Date & Time
 1) _____ 2) _____
 2) _____ 3) _____
 3) _____ 4) _____
 4) _____ 5) _____
 5) _____ 6) _____
 6) _____ 7) _____
 7) _____ 8) _____
 8) _____ 9) _____
 9) _____ 10) _____
 10) _____

Matrix: Air (A), Product (P), Solid (S), Water (W), Liquid (L)
 Preservatives: Various (V), HCl pH<2 (H), H2SO4 pH<2 (S), HNO3 pH<2 (N), Asbc Addn NaOH (A), ZnAc&NaOH (Z), (Cool <4C) (C), None (NA), See Label (L), Other (O)
 Cont. Size: 4oz (4), 8oz (8), 32oz (32), 40ml VOA (40), 1L (1), 500ml (5), Tedlar Bag (B), Various (V), Other _____
 Cont. Type: Glass Amb (A), Glass Clear (C), Plastic (P), Various (V)

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ANALYSIS REQUEST & CHAIN OF CUSTODY RECORD

9701 Harry Hines Blvd., Dallas, TX 75220 214-902-0300
 12600 West I-20 East, Odessa, TX 79765 432-563-1800
 Serial #: 324254 Page of

Company-City
 Societ Engineering, Inc. Houston, TX 77068
 Phone: 713 266 0588
Project Name-Location
 Previously done at XENCO
 Hill Station Research Replacement Galena Area
 Project Manager (PM)
 Proj. State: TX, AL, FL, GA, LA, MS, NC, NJ, PA, SC, TN, UT Other
 Mohan Ballagere
 Fax No:
 E-mail Results to PM and Accounting Inc. Invoice with Final Report Invoice must have a P.O.
 nkelli@getesting.com
Quote/Pricing: P.O. No: Call for P.O.
Reg Program: UST DRY-CLEAN Land-Fill Waste-Disp NPDES DW TRRP
QAPP Per-Contract CLP AGCEE NAVY DOE DOD USACE OTHER:
Special DLs (GW DW QAPP MDLs RLs See Lab PM Included Call PM)

Lab Only:
 TAT: ASAP 5h 12h 24h 48h 3d 5d 7d 10d 21d Standard TAT is project specific.
 It is typically 5-7 Working Days for level II and 10+ Working days for level III and IV data.
 VOA: Full-List (BTEX-MTBE) EIOH Oxyg VOHS VOAS
 VOA: PP TCL DW Appdx-1 Appdx-2 CALL Other:
 PAHs SIM 8310 8270
 TX-1005 DRO GRO MA EPH MA VPH
 SVOCs: Full-List DW BN&AE TCLP PP Appdx-2 CALL
 OC Pesticides PCBs Herbicides OP Pesticides
 Metals: RCRA-8 RCRA-4 Pb 13PP 237AL Appdx 1 Appdx 2
 SPLP - TCLP (Metals VOCs SVOCs Pest. Herb. PCBs)
 EDB / DBCP
 Addn: PAH above mg/L W, mg/kg S Highest Hit
 Hold Samples (Surcharges will apply and are pre-approved)
 Sample Clean-ups are pre-approved as needed

Sample ID	Sampling Date	Time	Depth ft in m	Matrix	Composite	Grab	# Containers	Container Size	Container Type	Preservatives	Sampler Name	Signature	Date & Time	Relinquished to (Initials and Sign)	Date & Time	Total Containers per COC:	Cooler Temp: °C
1	EB-16A S# 6 9-13-13	11:00 AM	10	S	✓	✓	1				Willie Beans	<i>[Signature]</i>	9/13/13 11:00 AM	<i>[Signature]</i>	9/13/13 11:00 AM	1	4.2
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

Relinquished by (Initials and Sign) *[Signature]* Date & Time 9/13/13 11:00 AM
 Relinquished to (Initials and Sign) *[Signature]* Date & Time 9/13/13 11:00 AM
 Total Containers per COC: 1 Cooler Temp: 4.2 °C
 Otherwise agreed on writing. Reports are the Intellectual Property of XENCO until paid. Samples will be held 30 days after final report is e-mailed unless otherwise requested. Rush Charges and Collection Fees are pre-approved if needed.

Preservatives: Various (V), HCl pH<2 (H), H2SO4 pH<2 (S), HNO3 pH<2 (N), Asbc Acid&NaOH(A), Zn+Fe&NaOH(Z), (Cool, <4C) (C), None (NA), See Label (L), Other (O)
 Cont. Size: 4oz (4), 8oz (8), 32oz (32), 40ml VOA (40), 1L (1), 500ml (5), Tedlar Bag (B), Various (V), Other

Matrix: Air (A), Product (P), Solid (S), Water (W), Liquid (L)
 Cont. Type: Glass Amb (A), Glass Clear (C), Plastic (P), Various (V)

Committed to Excellence in Service and Quality
 Notice: Signature of this document and relinquishment of these samples constitutes a valid purchase order from client company to Xenco Laboratories and its affiliates. subcontractors and assigns under Xenco's standard terms and conditions of service unless previously negotiated under a fully executed client contract.
 www.xenco.com



XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In



Client: Geotest Engineering, Inc.

Acceptable Temperature Range: 0 - 6 degC
Air and Metal samples Acceptable Range: Ambient

Date/ Time Received: 09/13/2013 04:47:00 PM

Temperature Measuring device used : r-31

Work Order #: 469652

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	5.7
#2 *Shipping container in good condition?	Yes
#3 *Samples received on ice?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	No
#5 Custody Seals intact on sample bottles?	N/A
#6 *Custody Seals Signed and dated?	N/A
#7 *Chain of Custody present?	Yes
#8 Sample instructions complete on Chain of Custody?	Yes
#9 Any missing/extra samples?	No
#10 Chain of Custody signed when relinquished/ received?	Yes
#11 Chain of Custody agrees with sample label(s)?	Yes
#12 Container label(s) legible and intact?	Yes
#13 Sample matrix/ properties agree with Chain of Custody?	Yes
#14 Samples in proper container/ bottle?	Yes
#15 Samples properly preserved?	Yes
#16 Sample container(s) intact?	Yes
#17 Sufficient sample amount for indicated test(s)?	Yes
#18 All samples received within hold time?	Yes
#19 Subcontract of sample(s)?	N/A
#20 VOC samples have zero headspace (less than 1/4 inch bubble)?	N/A
#21 <2 for all samples preserved with HNO3,HCL, H2SO4?	N/A
#22 >10 for all samples preserved with NaAsO2+NaOH, ZnAc+NaOH?	N/A

*** Must be completed for after-hours delivery of samples prior to placing in the refrigerator**

Analyst: CH	PH Device/Lot#:
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Checklist completed by: Carrie Hurtado Date: 09/04/2013

Checklist reviewed by: Georgia Jones Date: 09/04/2013

APPENDIX C

PHOTOGRAPHS OF DRILLING ACTIVITIES



Drilling Activities



Drilling Activities

APPENDIX D

QUALIFICATIONS OF ENVIRONMENTAL
PROFESSIONAL PARTICIPATING
IN PHASE II ESA

Mohan Ballagere, P.E.
Vice President

EDUCATION

M.S. in Civil Engineering (Geotechnical), 1992, South Dakota School of Mines & Technology, Rapid City, South Dakota
B.S. in Civil Engineering, 1984, University of Mysore, India

PROFESSIONAL REGISTRATION

Texas 2001 Civil Engineering

RELEVANT PROJECT EXPERIENCE

Mr. Ballagere is a Vice President at Geotest Engineering, Inc. He has over 20 years of experience in the civil, geotechnical field and environmental assessment and has worked on various projects involving bridges, water, wastewater, new and overlay pavements, port facilities, private and commercial buildings, Phase I & II Environmental Site Assessments, site reconnaissance, fault studies and ground stabilization. His responsibilities include overseeing field exploration for environmental assessment, reviewing analytical testing, preparation of environmental proposals, performing environmental assessment and reviewing environmental reports pertaining to Phase I & II Environmental Site Assessments and findings and conclusions for environmental impact study projects related to bridges, roads, water, wastewater and storm water. Some of the relevant environmental assessment projects are:

- Phase I ESA Chimney Rock Lift Station Rehabilitation – Houston, Texas
- Phase I and II ESA Tasfield Force Main – Houston, Texas
- Phase I and II ESA Water Line Replacement in the Parkhurst Area – Houston, Texas
- Phase I ESA Buckingham Lift Station – Houston, Texas
- Phase I ESA A. Kuykendall League 29.46 acres – Houston, Texas
- New Ground Water Storage Tanks at District 175 & 184 – Houston, Texas
- Phase II ESA Long Point Rd. at Wirt Rd. Intersection – Houston, Texas
- Phase I ESA San Felipe Rd. Improvements – Houston, Texas
- Phase I and II ESA Sharpstown Area Drainage Improvements – Houston, Texas
- Phase I and II ESA Bellaire/Fondren Intersection Improvements – Houston, Texas
- Phase I ESA Pasadena Lift Station Improvements Pansy, Crenshaw and El Cary – Pasadena, Texas
- Phase I and II Reconstruction of Lyons Avenue from US 59 to Waco – Houston, Texas
- Phase I ESA 12" Water Line along Kingsland Blvd. from Baker Rd. to Harris Co. 346 Water Plant – Houston, Texas
- Phase I ESA Tasfield Community Project – Harris County, Texas
- Phase I ESA S. Gessner - Cravens Project – Houston, Texas
- Ph. I ESA - 16827 Old Richmond Road – Houston, Texas
- Ph. I ESA Historic Holman Street Reconstruction Project – Houston, Texas
- Ph. II ESA Long Point Rd. from 400' East of Hollister to 150 ft. west of Pech Rd. – Houston, Texas



Naresh Kolli, P.E.
Assistant Project Manager

EDUCATION

- **Master of Engineering** in Civil Engineering (Geotechnical Engineering)
McNeese State University, Lake Charles, LA, July 2005.
- **Bachelor of Engineering** in Civil Engineering
Kakatiya University, India, June 2002.

PROFESSIONAL REGISTRATION

Texas 2012 Civil Engineering

RELEVANT PROJECT EXPERIENCE:

Mr. Naresh Kolli, is an Assistant Project Manager at Geotest Engineering, Inc. He has over 8 years of experience in the civil, geotechnical and environmental field and has worked on various projects involving high rise office buildings to single story commercial buildings, warehouses, schools and government projects, Phase I & II Environmental Site Assessments, site reconnaissance and geological and rock profile studies. His responsibilities include coordination of drilling and sampling of soil borings and supervision of laboratory testing, performing engineering analyses and preparation of geotechnical as well as Phase I and II Environmental Site Assessment reports.

- Phase II ESA – Reconstruction of Long Point Road – Houston, Texas
- Phase I ESA – South Point Park and Ride – Houston, Texas
- Phase I ESA – 11730 Sam Houston Parkway, Houston, Texas
- Phase I ESA – Historic Holman Street Reconstruction Project – Houston, Texas.
- Phase I ESA – 18” Waterline Loop Alignment – Pasadena, Texas
- Phase I ESA – 5107 Griggs Road – Houston, Texas
- Phase I ESA – Yale Street Detention Basin – Houston, Texas
- Phase I ESA – Astoria Boulevard – Houston, Texas
- Phase I ESA – Fourth ward Street reconstruction – Houston, Texas
- Phase I and II – 5216 Almeda Road – Houston, Texas
- Phase I ESA – Waterline Replacements Timbergrove Area – Houston, Texas
- Phase I ESA – Waterline Replacements Glenwood Forest Area – Houston, Texas
- Phase I and Phase II ESA – Waterline Replacements Fulton North Area – Houston, Texas
- Phase I ESA – Pavement & Drainage Improvements along Witter Street – Pasadena, Texas
- Phase I ESA – Craigmont Estates Detention Pond – City of Baytown, Texas
- Phase I ESA – Beltway 8 & Feeder Road Drainage Improvements – Pasadena, Texas
- Phase I ESA – Pump & Lift Station Renewal & Replacements; Fairway Lift Station – Houston, Texas
- Phase I ESA – Pump & Lift Station Renewal & Replacements; Grenshaw Lift Station – Houston, Texas
- Phase I ESA – 18" Sanitary Sewer at George Bush IAH
- Phase I ESA – Pump & Lift Station Renewal & Replacement – Post Oak #1 Lift Station – Houston, Texas

