PHASE II ENVIRONMENTAL SITE ASSESSMENT
MINNETEX AREA
AND ALMEDA GENOA PLACE
DRAINAGE AND PAVING IMPROVEMENTS
WBS NO. M-000289-0002-3
HOUSTON, TEXAS

Reported to:

KIT PROFESSIONALS, INC.

Houston, Texas

Submitted by:

GEOTEST ENGINEERING, INC.

Houston, Texas

REPORT NO. 1130019801

August 8, 2014

Key Map No. 574 N & S

GEOTEST ENGINEERING, INC.

Geotechnical Engineers & Materials Testing

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Report No. 1130019801
August 8, 2014

Mr. Sree Punukula, P.E.
KIT Professionals, Inc.
2000 W Sam Houston Parkway S, Suite 1400
Houston, Texas 77042

Reference: **Phase II Environmental Site Assessment (ESA)**
Minnetex Area and Almeda Genoa Place
Drainage and Paving Improvements
WBS No. M-000289-0002-3
Houston, Texas

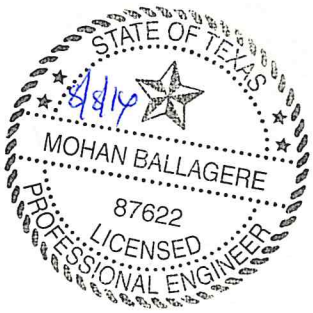
Dear Mr. Punukula:

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 June 5, 2014. This report will supersede all the previously submitted reports, transmittals, etc. for the referenced project. This study was authorized by Authorization to Proceed letter dated April 1, 2014 by accepting our proposal No. 1130030499 dated March 31, 2014.

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

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1.0 EXECUTIVE SUMMARY

A Phase II Environmental Site Assessment study was conducted for KIT Professionals, Inc. for the Minnetex Area and Almeda Genoa Place Drainage and Paving Improvements in Houston, Texas. The project is comprised of approximately 11,730 LF of pavement reconstruction (with rigid pavement) and utilities replacement along several streets in the Minnetex Place and Almeda Genoa Place. The utilities include storm sewer, water line and sanitary sewer with proposed sizes ranging from 6-inch to 12-inch for water line; 8-inch to 36-inch for sanitary sewer and 24-inch to 48-inch storm sewer with 9 feet x 7 feet boxes along Cottingham and Martin Luther King (MLK). The maximum depth of utilities will be 21 feet along Cottingham Street and MLK Boulevard and for all other streets the maximum depth will be 15 feet. The proposed utilities construction is by open cut method.

As per the Phase I ESA study performed by Geotest Engineering, Inc., Report No. 1130018401 dated October 22, 2013; one (1) Recognized Environmental Condition (REC) was identified along the Project Alignment. Point Service Station located at 4609 Almeda Road is identified as REC.

This study was based on the ASTM guidelines for Phase II Environmental Site Assessment, designation ASTM E1903-11 and 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 three (3) environmental borings, each to a depth of 15 feet; screening each soil sample in the field for the presence of volatile compounds using Photo Ionization Detector (PID); developing 1-inch temporary wells for groundwater (if encountered) sampling and then plug and abandon; conducting 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 1.3 ppm to 5.3 ppm.

- Three (3) selected soil samples from borings EB-1, EB-2, EB-3 with available highest Photo-Ionization Detector (PID) readings and one (1) groundwater sample from boring EB-2 were tested for BTEX (Benzene, Toulene, Ethyl Benzene and Xylene)/MTBE (Methyl Tertiary Butyl Ether) and TPH (Total Petroleum Hydrocarbon).

- The results of the tests indicated that the Chemicals of Concern (COC) BTEX and MTBE were detected in soil samples from borings EB-1, EB-2 and the groundwater sample from boring EB-2. **Hence, the planned pavement reconstruction and utilities replacement along Lea Road between Stations 13+00 to 16+00 is identified as potentially petroleum contaminated area (PPCA).**

  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 area.

- 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 study was conducted for KIT Professionals, Inc. for the Minnetex Area and Almeda Genoa Place Drainage and Paving Improvements project in Houston, Texas. The project calls for pavement reconstruction and utilities replacement along several streets in the Minnetex Area and Almeda Genoa Place. The utilities include storm sewer, water line and sanitary sewer with proposed sizes ranging from 6-inch to 12-inch for water line; 8-inch to 36-inch for sanitary sewer and 24-inch to 48-inch storm sewer with 9 feet x 7 feet boxes along Cottingham and Martin Luther King (MLK). The maximum depth of utilities will be 21 feet along Cottingham Street and MLK Boulevard and for all other streets the maximum depth will be 15 feet. The proposed utilities construction is by open cut method. The vicinity map is shown on Figure 1.

In our previous study, "Phase I Environmental Site Assessment (ESA), for Minnetex Area and Almeda Genoa Place Drainage and Paving Improvements Project in Houston, Texas" Geotest Report No. 1130018401 dated October 22, 2013 (Reference 1), one (1) Historic Auto Station site along the proposed Project Alignment was identified as REC. The Historic Auto Station site is listed below.

- Point Service Station located at 4609 Almeda Genoa Road

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

This study was authorized by Authorization to Proceed letter dated April 1, 2014 by accepting our proposal No. 1130030499 dated March 31, 2014.

2.2 Objectives

The objectives of this study are to evaluate the presence of soil and ground water (if encountered) contamination from the Historic Auto Station site along the proposed Project Alignment and 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 E1903-11 (Reference 2) and 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 E1903-11 Standard and 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). The scope consisted of the following:

- Cored the existing concrete pavement to access the subsurface soils at three (3) locations;
- Drilled and continuously sampled three (3) environmental borings utilizing Geoprobe each to a depth of 15 feet;
- Screened each soil sample in the field for the presence of volatile compounds using a Photo Ionization Detector (PID);
- Developed 1-inch diameter temporary monitoring wells for groundwater (if encountered) sample, and then plug and abandon;
- Conducted analytical tests on three (3) soil sample and one(1) ground water sample (if encountered);

- Prepared a Phase II environmental report documenting the field investigation and analytical test results in accordance with ASTM Practice E1903-11 as modified by City of Houston Infrastructure Design Manual, Chapter 11, and 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 expressly 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 three (3) 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 site. 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 distribution 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 included drilling and continuously sampling of three (3) environmental borings (designated as EB-1 through EB-3) along the proposed Minnetex Area and Almeda Genoa Place Drainage and Paving Improvements alignment at the Historic Auto Station site for this study. All the boring locations including the Historic Auto Station site are shown in Plan of Borings, Figure 2.

In each boring, geoprobe tubes were pushed to collect samples. At the starting of 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 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-3 in Appendix A. A key to symbols and terms used on the boring logs is presented on Figure A-4 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) equipped with a 10.2 eV lamp. Results of the field PID screening are summarized as "Field Screening – Organic Vapor" on the boring logs presented on Figures A-1 through A-3 in Appendix A.

Groundwater was encountered during drilling at boring EB-2. A temporary monitoring well was installed in boring EB-2 and a groundwater sample was collected for the study.

3.2 Selected Sites

In our previous study, "Phase I Environmental Site Assessment (ESA), for Minnetex Area and Almeda Genoa Place Drainage and Paving Improvements Project in Houston, Texas" Geotest Report No. 1130018401 dated October 22, 2013 (Reference 1), one (1) Historic Auto Station site along the proposed Project Alignment was identified as Recognized Environmental Condition (REC). The Historic Auto Station site is listed below.

- Point Service Station located at 4609 Almeda Genoa Road

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). Three (3) soil samples with the highest PID readings and one (1) groundwater sample were selected for the analytical testing. The analytical testing includes BTEX (Benzene, Toulene, Ethyl Benzene and Xylene)/MTBE (Methyl Tertiary Butyl Ether) and TPH (Total Petroleum Hydrocarbon).

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 with highest PID reading or near invert depth whichever is applicable was selected for analytical testing. The samples selected for analytical testing are given below.

Boring No.	Sample No	Depth, ft
EB-1	S-7	12-14
EB-2	S-6	10-12
EB-3	S-8	14-15

4.2.2 Groundwater. The groundwater sample collected from boring EB-2 was selected for analytical tests.

The analytical tests and corresponding test methods are listed below.

- BTEX/MTBE (SW 8260)
- TPH (TX 1005)

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 over consolidated 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

The analytical tests indicated that soil samples from borings EB-1, EB-2 and groundwater sample from boring EB-2 detected Chemicals of Concern (COC) BTEX and MTBE. The summary of analytical test results and the TIER 1 PCLs are presented in Table 1 (soil samples) and Table 2 (groundwater sample).

Soil and groundwater contamination levels were compared to TCEQ RG-366/ TRRP-23 (Texas Risk Remediation Program), revised on June 29, 2012 regulatory guidance document that includes TIER 1 PCLs (Protective Concentration Levels) for residential guidelines (using 0.5-acre source area and $^{GW}soil_{ing}$ exposure pathway) (Reference 5) and the detected COCs were below the TIER1 PCLs. The details of analytical test results are presented in Appendix B.

6.0 CONCLUSIONS

6.1 Summary of the Investigation Results

The measured values of organic vapor for the soil samples in the field ranged from 1.3 to 5.3 ppm.

The Analytical testing results indicated that the Chemicals of Concern (COC) BTEX and MTBE were detected in soil samples from borings EB-1, EB-2 and the groundwater sample from boring EB-2.

6.2 Impact on Planned Construction

The planned pavement reconstruction and utilities replacement along Lea Road between Stations 13+00 to 16+00 is identified as Potentially Petroleum Contaminated Area (PPCA).

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 area.

Activities that related to excavation and handling of site soils are regulated under the OSHA Construction Standard 29 CFR 1910 Subpart H (Reference 6).

7.0 REFERENCES

1. Phase I Environmental Site Assessment (ESA), for Water Minnetex Area and Almeda Genoa Place Drainage and Paving Improvements Project in Houston, Texas," Geotest Report No. 1130018401 dated October 22, 2013.

2. ASTM E1903-11, ASTM Guidelines for Phase II Environmental Site Assessment, ASTM E1903-11.

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. OSHA Regulations (Standards – 29 CFR)

TABLE

TABLE 1

SUMMARY OF ANALYTICAL TEST RESULTS (Soil)

LOCATION (See Figure 2)		TCEQ TRRP TIER 1 Soil PCLs (mg/kg)	BTEX (mg/kg)				TPH (mg/kg)	MTBE (mg/kg)
			Benzene	Toluene	Ethyl Benzene	Total Xylenes		
Boring No.	**Sample Depth, ft**	**Residential** [(1)]	*0.026*	*8.2*	*7.6*	*120*	*65*	*0.62*
EB-1	12-14		0.000876	0.000841	0.00074	0.00270	<0.877	0.0038
EB-2	10-12		0.000698	0.00137	0.000827	0.00213	<0.877	0.00448
EB-3	14-15		<0.000244	<0.000164	<0.00121	<0.000458	<0.877	<0.000746

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 2

SUMMARY OF ANALYTICAL TEST RESULTS (Water)

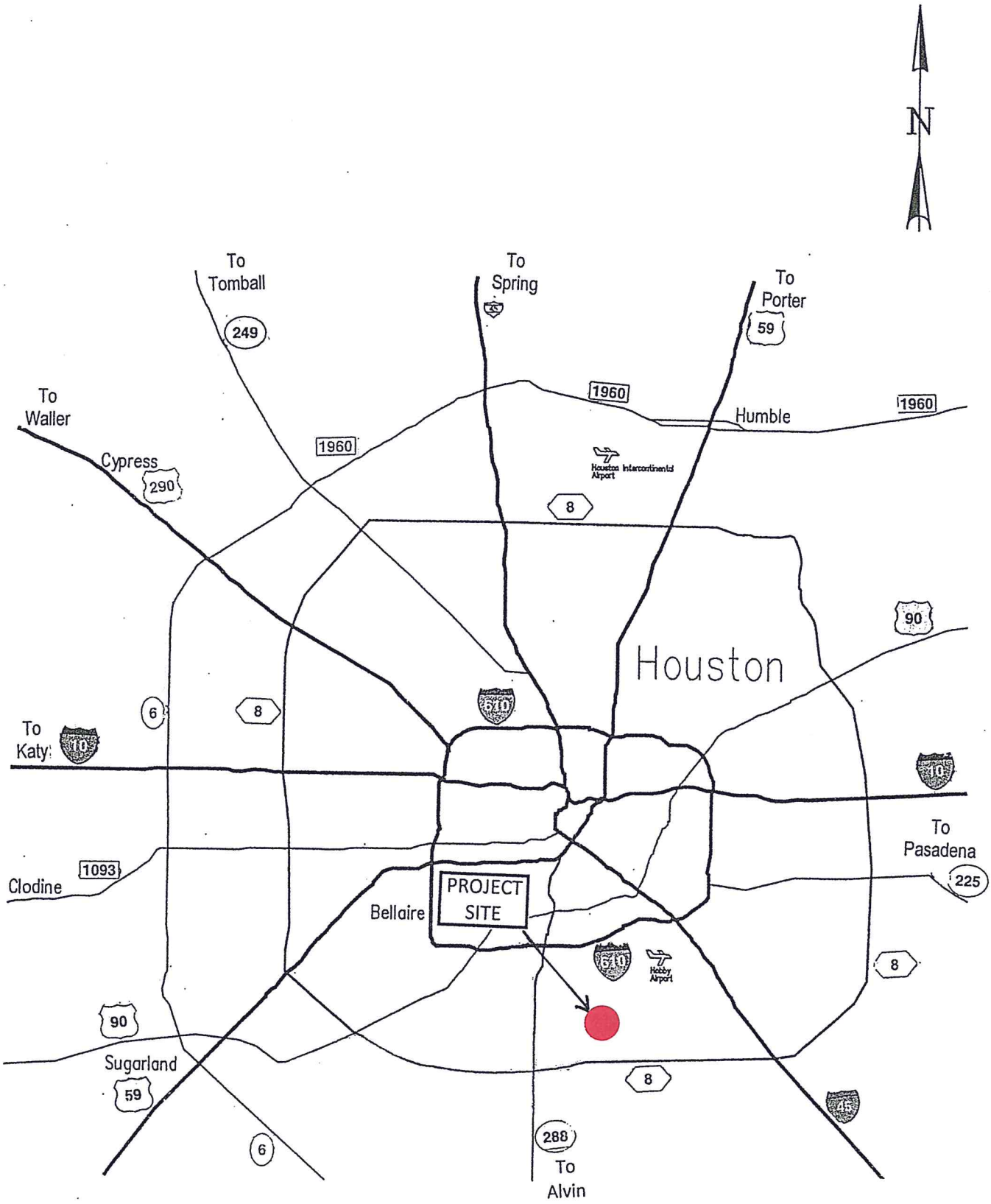
LOCATION (See Figure 2)		TCEQ TRRP TIER 1 Soil PCLs (mg/kg)	BTEX (mg/kg)				TPH (mg/kg)	MTBE (mg/kg)
			Benzene	Toluene	Ethyl Benzene	Total Xylenes		
Boring No.	**Sample Depth, ft**	**Residential** [(1)]	*0.005*	*1.0*	*0.70*	*10.0*	*0.98*	*0.24*
EB-2	12-14		0.000190	0.000510	0.000190	0.000190	<0.100	0.00558

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

Job No. 1130019801



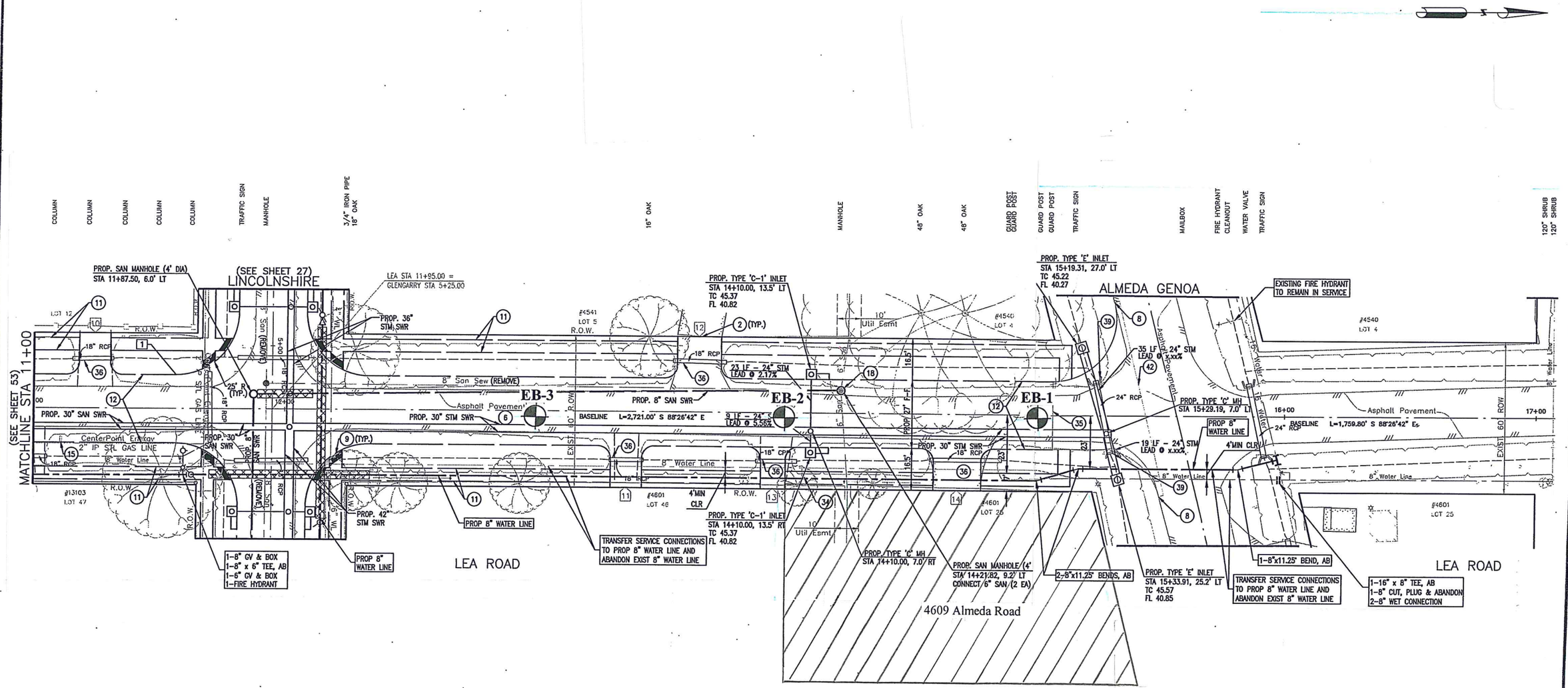
VICINITY MAP

(NOT TO SCALE)

Geotest Engineering, Inc.

FIGURE 1

Job No. : 1130019801



Legend	Geotest Engineering, Inc	1130019801
Boring REC	PHASE II ENVIRONMENTAL SITE ASSESSMENT MINNETEX AREA AND ALMEDA GENOA PLACE DRAINAGE AND PAVING IMPROVEMENTS WBS NO. M-000289-0002-3 HOSTON, TEXAS **PLAN OF BORINGS** 0 20 40 60 80 SCALE IN FEET	

Geotest Engineering, Inc.

FIGURE 2

APPENDIX A

Log of Borings and Symbols Used

LOG OF BORING NO. EB-1

PROJECT : Phase II Environmental Site Assessment
Minnetex Area and Almeda Genoa Place Drainage and Pavin Improvements; WBS No. M-000289-0002-3; Houston, Texas

PROJECT NO. : 1130019801

LOCATION : See Plan of Borings (Figure 2)

COMPLETION DEPTH : 15.0 FT.

SURFACE ELEVATION : Existing Grade

DATE : 04-08-2014

SAMPLER : Shelby Tube/Split Spoon
DRY AUGER : .0 TO 15.0 FT.
WASH BORE : -- TO -- FT.

DEPTH, FEET	SYMBOL	SAMPLES	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	POLYCYLIC AROMATIC HYDROCARBONS, mg/kg	VOLATILE ORGANIC COMPOUNDS, mg/kg	TOTAL LEAD, mg/kg
								BENZENE	TOLUENE	ETHYLBENZENE	TOTAL XYLENE				
0			Gray CLAY (CH) w/sand			2.3									
						2.4									
5			-reddish brown and gray 4'-12'			1.3									
						1.7									
10						2.4									
						2.9									
			Reddish brown SANDY CLAY (CL)			3.6	ND	*	*	*	*	*			
15						2.9									
20															
25															
30															
35															

NOTE :
ND - Not Detected

*

BENZENE	0.00088
TOLUENE	0.00084
ETHYLBENZENE	0.00076
TOTAL XLENE	0.00270
TOTAL BTEX	0.00518

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

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FIGURE A-1

LOG OF BORING NO. EB-2

PROJECT : Phase II Environmental Site Assessment Minnetex Area and Almeda Genoa Place Drainage and Pavin Improvements; WBS No. M-000289-0002-3; Houston, Texas

PROJECT NO. : 1130019801

LOCATION : See Plan of Borings (Figure 2)

COMPLETION DEPTH : 15.0 FT.

SURFACE ELEVATION : Existing Grade

DATE : 04-08-2014

SAMPLER : Shelby Tube/Split Spoon
DRY AUGER : .0 TO 15.0 FT.
WASH BORE : -- TO -- FT.

DESCRIPTION OF MATERIAL

Gray CLAY (CH) w/sand

-reddish brown and gray 4'-12'

-red and brown 10'-12'

Reddish brown SANDY CLAY (CL)

NOTE :
ND - Not Detected
*

BENZENE	0.00070
TOLUENE	0.00137
ETHYLBENZENE	0.00083
TOTAL XLENE	0.00336
TOTAL BTEX	0.00626

DEPTH, FEET	SYMBOL	SAMPLES	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	POLYCYLIC AROMATIC HYDROCARBONS, mg/kg	VOLATILE ORGANIC COMPOUNDS, mg/kg	TOTAL LEAD, mg/kg
							BENZENE	TOLUENE	ETHYLBENZENE	TOTAL XYLENE				
0					1.5									
					2.0									
5					2.0									
					1.6									
10					1.7									
					2.6	ND	*	*	*	*	*			
					2.6									
15					2.8									
20														
25														
30														
35														

DEPTH TO WATER IN BORING :
▽ : Free water encountered at 14.0 ft. during drilling.

Geotest Engineering, Inc.

FIGURE A-2

LOG OF BORING NO. EB-3

PROJECT : Phase II Environmental Site Assessment
Minnetex Area and Almeda Genoa Place Drainage and Pavin Improvements; WBS No. M-000289-0002-3; Houston, Texas

PROJECT NO. : 1130019801

LOCATION : See Plan of Borings (Figure 2)

COMPLETION DEPTH : 15.0 FT.

SURFACE ELEVATION : Existing Grade

DATE : 04-08-2014

SAMPLER : Shelby Tube/Split Spoon
DRY AUGER : .0 TO 15.0 FT.
WASH BORE : -- TO -- FT.

DEPTH, FEET	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: BENZENE	BTEX, mg/kg: TOLUENE	BTEX, mg/kg: ETHYLBENZENE	BTEX, mg/kg: TOTAL XYLENE	TOTAL BTEX, mg/kg	POLYCYLIC AROMATIC HYDROCARBONS, mg/kg	VOLATILE ORGANIC COMPOUNDS, mg/kg	TOTAL LEAD, mg/kg
0	Gray CLAY (CH) w/sand			1.8									
	-reddish brown and gray 4'-12'			4.7									
5				3.6									
				3.3									
10	-red and brown 10'-12'			3.9									
	Reddish brown SANDY CLAY (CL)			4.4									
				4.4									
15				5.3	ND	ND	ND	ND	ND	ND			
20													
25													
30													
35													

NOTE :
ND - Not Detected

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

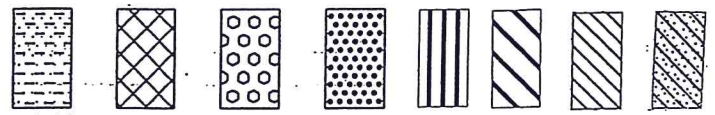
Geotest Engineering, Inc.

FIGURE A-3

Job No. 1130019801

SYMBOLS AND TERMS USED ON BORING LOGS

SOIL TYPES
(SHOWN IN SYMBOL COLUMN)



Asphaltic Concrete | Fill | Gravel | Sand | SILT . CLAY | LEAN CLAY | Sandy LEAN CLAY

Predominant type shown heavy

SAMPLER TYPES
(SHOWN IN SAMPLES COLUMN)

Pitcher Barrel | Nx Core | Shelby Tube | Piston | Split Spoon | No Recovery | Auger

TERMS DESCRIBING CONSISTENCY OR CONDITION

Basic Soil Type	Density or Consistency	Standard Penetration Resistance, (1) Blows/ft.	Unconfined Compressive Strength (q_u), (2) Tons/sq. ft.
Cohesionless	Very loose	Less than 4	Not applicable
	Loose	4 to <10	Not applicable
	Medium dense	10 to <30	Not applicable
	Dense	30 to <50	Not applicable
	Very dense	50 or greater	Not applicable
Cohesive	Very soft	Less than 2	Less than 0.25
	Soft	2 to <4	0.25 to <0.5
	Firm/Medium stiff	4 to <8	0.5 to <1.0
	Stiff	8 to <15	1.0 to <2.0
	Very stiff	15 to <30	2.0 to <4.0
	Hard	30 or greater	4 or greater

(1) Number of blows from 140-lb. weight falling 30-in. to drive 2-in. OD, 1-3/8-in. ID, split barrel sampler (ASTM D1586)

(2) q_u may also be approximated using a pocket penetrometer

TERMS CHARACTERIZING SOIL STRUCTURE

Parting: -paper thin in size Seam: -1/8" to 3" thick Layer: -greater than 3"

Slickensided	- having inclined planes of weakness that are slick and glossy in appearance.
Fissured	- containing shrinkage cracks, frequently filled with fine sand or silt; usually more or less vertical.
Laminated	- composed of thin layers of varying color and texture.
Interbedded	- composed of alternate layers of different soil types.
Calcareous	- containing appreciable quantities of calcium carbonate.
Well graded	- having wide range in grain sizes and substantial amounts of all intermediate particle sizes.
Poorly graded	- predominantly of one grain size, or having a range of sizes with some intermediate size missing.
Flocculated	- pertaining to cohesive soils that exhibit a loose knit or flakey structure.

APPENDIX B

LABORATORY REPORT WITH
QUALITY CONTROL INFORMATION

Analytical Report 482932

for

Geotest Engineering, Inc.

Project Manager: Mohan Ballagere

Minnetex Place Phase II ESA

1130019801

03-JUN-14

Collected By: Client

4143 Greenbriar Dr., Stafford, TX 77477

Xenco-Houston (EPA Lab code: TX00122):
Texas (T104704215-14-16-TX), Arizona (AZ0765), Florida (E871002), Louisiana (03054)
New Jersey (TX007), North Carolina(681), Oklahoma (9218), Pennsylvania (68-03610)

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-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)

03-JUN-14

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

Reference: XENCO Report No(s): **482932**
Minnetex Place Phase II ESA
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) 482932. 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. 482932 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

Debbie Simmons
Project Manager

Sample Cross Reference 482932

Geotest Engineering, Inc., Houston, TX

Minnetex Place Phase II ESA

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
EB-1 S-7	S	04-08-14 10:00	12 - 14 ft	482932-001
EB-2 S-6	S	04-08-14 09:00	10 - 12 ft	482932-002
EB-3 S-8	S	04-08-14 11:00	14 - 15 ft	482932-003
EB-2 (water)	W	04-08-14 09:00		482932-004

CASE NARRATIVE

Client Name: Geotest Engineering, Inc.
Project Name: Minnetex Place Phase II ESA

Project ID: *1130019801*
Work Order Number(s): *482932*

Report Date: *03-JUN-14*
Date Received: *04/08/2014*

This laboratory is NELAC accredited under the Texas Laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted. The data have been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory.

Sample receipt non conformances and comments:

Report revised 6/3/14 reporting to TRRP limits

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-938193 BTEX-MTBE by SW 8260B
Sample had pH=6. Analysis occured within 7day holding time criteria for unpreserved samples

Batch: LBA-938201 BTEX-MTBE by SW 8260B
Ethylbenzene, Toluene, m,p-Xylenes detected in the blank below the MQL but above the SDL; possible laboratory contamination indicating a potential high bias. Samples affected are: 482932-002, -001.

Certificate of Analytical Results
482932

Geotest Engineering, Inc., Houston, TX
Minnetex Place Phase II ESA

Sample Id: **EB-1 S-7** Matrix: Soil Sample Depth: 12 - 14 ft

Lab Sample Id: 482932-001 Date Collected: 04.08.14 10.00 Date Received: 04.08.14 15.03

Analytical Method: TPH by Texas1005 Prep Method: 1005

Analyst: FOV % Moist: 13.93 Tech: FOV

Seq Number: 938348 Date Prep: 04.10.14 16.00

Prep seq: 653785

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
C6-C12 Gasoline Range Hydrocarbons	PHC612	<2.73	57.8	2.73	mg/kg	04.11.14 02:41	U	1
C12 - C28 Diesel Range Hydrocarbons	PHCG1028	<1.87	57.8	1.87	mg/kg	04.11.14 02:41	U	1
C28-C35 Oil Range Hydrocarbons	PHCG2835	<0.783	57.8	0.783	mg/kg	04.11.14 02:41	U	1
Total TPH 1005	PHC635	<0.783		0.783	mg/kg	04.11.14 02:41	U	

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
o-Terphenyl	91	70 - 130	%		
1-Chlorooctane	87	70 - 130	%		

Analytical Method: BTEX-MTBE by SW 8260B Prep Method: 5030B

Analyst: SAD % Moist: 13.93 Tech: SAD

Seq Number: 938201 Date Prep: 04.09.14 18.24

Prep seq: 653739

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
MTBE	1634-04-4	**0.00380**	0.00576	0.000679	mg/kg	04.09.14 20:11	J	1
Benzene	71-43-2	**0.000876**	0.00115	0.000222	mg/kg	04.09.14 20:11	J	1
Toluene	108-88-3	**0.000841**	0.00115	0.000149	mg/kg	04.09.14 20:11	BJ	1
Ethylbenzene	100-41-4	**0.000761**	0.00115	0.000110	mg/kg	04.09.14 20:11	J	1
m,p-Xylenes	179601-23-1	**0.00178**	0.00231	0.000417	mg/kg	04.09.14 20:11	J	1
o-Xylene	95-47-6	**0.000922**	0.00115	0.000264	mg/kg	04.09.14 20:11	J	1
Total Xylenes	1330-20-7	**0.00270**		0.000264	mg/kg	04.09.14 20:11		
Total BTEX		**0.00518**		0.000110	mg/kg	04.09.14 20:11		

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
Dibromofluoromethane	105	74 - 126	%		
1,2-Dichloroethane-D4	95	80 - 120	%		
Toluene-D8	101	73 - 132	%		
4-Bromofluorobenzene	95	58 - 152	%		

Certificate of Analytical Results
482932

Geotest Engineering, Inc., Houston, TX
Minnetex Place Phase II ESA

Sample Id: **EB-2 S-6** Matrix: Soil Sample Depth: 10 - 12 ft

Lab Sample Id: 482932-002 Date Collected: 04.08.14 09.00 Date Received: 04.08.14 15.03

Analytical Method: TPH by Texas1005 Prep Method: 1005

Analyst: FOV % Moist: 22.93 Tech: FOV

Seq Number: 938348 Date Prep: 04.10.14 16.03

Prep seq: 653785

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
C6-C12 Gasoline Range Hydrocarbons	PHC612	<3.06	64.7	3.06	mg/kg	04.11.14 02:59	U	1
C12 - C28 Diesel Range Hydrocarbons	PHCG1028	<2.10	64.7	2.10	mg/kg	04.11.14 02:59	U	1
C28-C35 Oil Range Hydrocarbons	PHCG2835	<0.877	64.7	0.877	mg/kg	04.11.14 02:59	U	1
Total TPH 1005	PHC635	<0.877		0.877	mg/kg	04.11.14 02:59	U	

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
o-Terphenyl	90	70 - 130	%		
1-Chlorooctane	85	70 - 130	%		

Analytical Method: BTEX-MTBE by SW 8260B Prep Method: 5030B

Analyst: SAD % Moist: 22.93 Tech: SAD

Seq Number: 938201 Date Prep: 04.09.14 18.26

Prep seq: 653739

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
MTBE	1634-04-4	**0.00448**	0.00646	0.000761	mg/kg	04.09.14 20:37	J	1
Benzene	71-43-2	**0.000698**	0.00129	0.000249	mg/kg	04.09.14 20:37	J	1
Toluene	108-88-3	**0.00137**	0.00129	0.000167	mg/kg	04.09.14 20:37	B	1
Ethylbenzene	100-41-4	**0.000827**	0.00129	0.000123	mg/kg	04.09.14 20:37	J	1
m,p-Xylenes	179601-23-1	**0.00213**	0.00258	0.000468	mg/kg	04.09.14 20:37	J	1
o-Xylene	95-47-6	**0.00123**	0.00129	0.000296	mg/kg	04.09.14 20:37	J	1
Total Xylenes	1330-20-7	**0.00336**		0.000296	mg/kg	04.09.14 20:37		
Total BTEX		**0.00626**		0.000123	mg/kg	04.09.14 20:37		

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
Dibromofluoromethane	95	74 - 126	%		
1,2-Dichloroethane-D4	96	80 - 120	%		
Toluene-D8	108	73 - 132	%		
4-Bromofluorobenzene	97	58 - 152	%		

Certificate of Analytical Results
482932

Geotest Engineering, Inc., Houston, TX
Minnetex Place Phase II ESA

Sample Id: **EB-3 S-8** Matrix: Soil Sample Depth: 14 - 15 ft

Lab Sample Id: 482932-003 Date Collected: 04.08.14 11.00 Date Received: 04.08.14 15.03

Analytical Method: TPH by Texas1005 Prep Method: 1005

Analyst: FOV % Moist: 21.86 Tech: FOV

Seq Number: 938348 Date Prep: 04.10.14 16.06

Prep seq: 653785

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
C6-C12 Gasoline Range Hydrocarbons	PHC612	<3.02	63.9	3.02	mg/kg	04.11.14 03:16	U	1
C12 - C28 Diesel Range Hydrocarbons	PHCG1028	<2.07	63.9	2.07	mg/kg	04.11.14 03:16	U	1
C28-C35 Oil Range Hydrocarbons	PHCG2835	<0.866	63.9	0.866	mg/kg	04.11.14 03:16	U	1
Total TPH 1005	PHC635	<0.866		0.866	mg/kg	04.11.14 03:16	U	

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
o-Terphenyl	91	70 - 130	%		
1-Chlorooctane	88	70 - 130	%		

Analytical Method: BTEX-MTBE by SW 8260B Prep Method: 5030B

Analyst: SAD % Moist: 21.86 Tech: SAD

Seq Number: 938650 Date Prep: 04.12.14 21.40

Prep seq: 653999

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
MTBE	1634-04-4	<0.000746	0.00634	0.000746	mg/kg	04.12.14 22:00	U	1
Benzene	71-43-2	<0.000244	0.00127	0.000244	mg/kg	04.12.14 22:00	U	1
Toluene	108-88-3	<0.000164	0.00127	0.000164	mg/kg	04.12.14 22:00	U	1
Ethylbenzene	100-41-4	<0.000121	0.00127	0.000121	mg/kg	04.12.14 22:00	U	1
m,p-Xylenes	179601-23-1	<0.000458	0.00253	0.000458	mg/kg	04.12.14 22:00	U	1
o-Xylene	95-47-6	<0.000290	0.00127	0.000290	mg/kg	04.12.14 22:00	U	1
Total Xylenes	1330-20-7	<0.000290		0.000290	mg/kg	04.12.14 22:00	U	
Total BTEX		<0.000121		0.000121	mg/kg	04.12.14 22:00	U	

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
Dibromofluoromethane	99	74 - 126	%		
1,2-Dichloroethane-D4	93	80 - 120	%		
Toluene-D8	101	73 - 132	%		
4-Bromofluorobenzene	96	58 - 152	%		

Certificate of Analytical Results
482932

Geotest Engineering, Inc., Houston, TX
Minnetex Place Phase II ESA

Sample Id: **EB-2 (water)** Matrix: Water Sample Depth:

Lab Sample Id: 482932-004 Date Collected: 04.08.14 09.00 Date Received: 04.08.14 15.03

Analytical Method: TPH by Texas1005 Prep Method: 1005

Analyst: FOV % Moist: Tech: FOV

Seq Number: 938648 Date Prep: 04.14.14 11.51

Prep seq: 653930

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
C6-C12 Gasoline Range Hydrocarbons	PHC612	<0.159	4.96	0.159	mg/L	04.15.14 15:21	U	1
C12 - C28 Diesel Range Hydrocarbons	PHCG1028	<0.163	4.96	0.163	mg/L	04.15.14 15:21	U	1
C28-C35 Oil Range Hydrocarbons	PHCG2835	<0.100	4.96	0.100	mg/L	04.15.14 15:21	U	1
Total TPH 1005	PHC635	<0.100		0.100	mg/L	04.15.14 15:21	U	

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
o-Terphenyl	95	70 - 130	%		
1-Chlorooctane	90	70 - 130	%		

Analytical Method: BTEX-MTBE by SW 8260B Prep Method: 5030B

Analyst: SAD % Moist: Tech: SAD

Seq Number: 938193 Date Prep: 04.09.14 12.18

Prep seq: 653734

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
MTBE	1634-04-4	**0.00558**	0.00500	0.000508	mg/L	04.09.14 13:21		1
Benzene	71-43-2	**0.000190**	0.00100	0.000147	mg/L	04.09.14 13:21	J	1
Toluene	108-88-3	**0.000510**	0.00100	0.000153	mg/L	04.09.14 13:21	BJ	1
Ethylbenzene	100-41-4	**0.000190**	0.00100	0.0000806	mg/L	04.09.14 13:21	J	1
m,p-Xylenes	179601-23-1	<0.000366	0.00200	0.000366	mg/L	04.09.14 13:21	U	1
o-Xylene	95-47-6	**0.000190**	0.00100	0.0000975	mg/L	04.09.14 13:21	BJ	1
Total Xylenes	1330-20-7	**0.000190**		0.0000975	mg/L	04.09.14 13:21	J	
Total BTEX		**0.00108**		0.0000806	mg/L	04.09.14 13:21		

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
Dibromofluoromethane	90	75 - 131	%		
1,2-Dichloroethane-D4	94	63 - 144	%		
Toluene-D8	100	80 - 117	%		
4-Bromofluorobenzene	104	74 - 124	%		

Certificate of Analytical Results
482932

Geotest Engineering, Inc., Houston, TX
Minnetex Place Phase II ESA

Sample Id: **653734-1-BLK** Matrix: Water Sample Depth:

Lab Sample Id: 653734-1-BLK Date Collected: Date Received:

Analytical Method: BTEX-MTBE by SW 8260B Prep Method: 5030B

Analyst: SAD % Moist: Tech: SAD

Seq Number: 938193 Date Prep: 04.09.14 11.42

Prep seq: 653734

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
MTBE	1634-04-4	<0.000508	0.00500	0.000508	mg/L	04.09.14 11:59	U	1
Benzene	71-43-2	<0.000147	0.00100	0.000147	mg/L	04.09.14 11:59	U	1
Toluene	108-88-3	**0.000220**	0.00100	0.000153	mg/L	04.09.14 11:59	J	1
Ethylbenzene	100-41-4	<0.0000806	0.00100	0.0000806	mg/L	04.09.14 11:59	U	1
m,p-Xylenes	179601-23-1	<0.000366	0.00200	0.000366	mg/L	04.09.14 11:59	U	1
o-Xylene	95-47-6	**0.000170**	0.00100	0.0000975	mg/L	04.09.14 11:59	J	1

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
Dibromofluoromethane	96	75 - 131	%		
1,2-Dichloroethane-D4	101	63 - 144	%		
Toluene-D8	97	80 - 117	%		
4-Bromofluorobenzene	102	74 - 124	%		

Sample Id: **653739-1-BLK** Matrix: Solid Sample Depth:

Lab Sample Id: 653739-1-BLK Date Collected: Date Received:

Analytical Method: BTEX-MTBE by SW 8260B Prep Method: 5030B

Analyst: SAD % Moist: Tech: SAD

Seq Number: 938201 Date Prep: 04.09.14 12.16

Prep seq: 653739

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
MTBE	1634-04-4	<0.000589	0.00500	0.000589	mg/kg	04.09.14 12:33	U	1
Benzene	71-43-2	<0.000192	0.00100	0.000192	mg/kg	04.09.14 12:33	U	1
Toluene	108-88-3	**0.000350**	0.00100	0.000129	mg/kg	04.09.14 12:33	J	1
Ethylbenzene	100-41-4	**0.000110**	0.00100	0.0000955	mg/kg	04.09.14 12:33	J	1
m,p-Xylenes	179601-23-1	**0.000430**	0.00200	0.000362	mg/kg	04.09.14 12:33	J	1
o-Xylene	95-47-6	<0.000229	0.00100	0.000229	mg/kg	04.09.14 12:33	U	1

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
Dibromofluoromethane	90	74 - 126	%		
1,2-Dichloroethane-D4	92	80 - 120	%		
Toluene-D8	102	73 - 132	%		
4-Bromofluorobenzene	92	58 - 152	%		

Certificate of Analytical Results
482932

Geotest Engineering, Inc., Houston, TX
Minnetex Place Phase II ESA

Sample Id: **653785-1-BLK** Matrix: Solid Sample Depth:

Lab Sample Id: 653785-1-BLK Date Collected: Date Received:

Analytical Method: TPH by Texas1005 Prep Method: 1005

Analyst: FOV % Moist: Tech: FOV

Seq Number: 938348 Date Prep: 04.10.14 15.30

Prep seq: 653785

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
C6-C12 Gasoline Range Hydrocarbons	PHC612	<2.36	50.0	2.36	mg/kg	04.11.14 12:46	U	1
C12 - C28 Diesel Range Hydrocarbons	PHCG1028	<1.62	50.0	1.62	mg/kg	04.11.14 12:46	U	1
C28-C35 Oil Range Hydrocarbons	PHCG2835	<0.678	50.0	0.678	mg/kg	04.11.14 12:46	U	1

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
o-Terphenyl	80	70 - 130	%		
1-Chlorooctane	79	70 - 130	%		

Sample Id: **653930-1-BLK** Matrix: Water Sample Depth:

Lab Sample Id: 653930-1-BLK Date Collected: Date Received:

Analytical Method: TPH by Texas1005 Prep Method: 1005

Analyst: FOV % Moist: Tech: FOV

Seq Number: 938648 Date Prep: 04.14.14 11.30

Prep seq: 653930

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
C6-C12 Gasoline Range Hydrocarbons	PHC612	<0.160	5.00	0.160	mg/L	04.15.14 12:43	U	1
C12 - C28 Diesel Range Hydrocarbons	PHCG1028	<0.164	5.00	0.164	mg/L	04.15.14 12:43	U	1
C28-C35 Oil Range Hydrocarbons	PHCG2835	<0.101	5.00	0.101	mg/L	04.15.14 12:43	U	1

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
o-Terphenyl	78	70 - 130	%		
1-Chlorooctane	77	70 - 130	%		

Certificate of Analytical Results
482932

Geotest Engineering, Inc., Houston, TX
Minnetex Place Phase II ESA

Sample Id: **653999-1-BLK** Matrix: Solid Sample Depth:

Lab Sample Id: 653999-1-BLK Date Collected: Date Received:

Analytical Method: BTEX-MTBE by SW 8260B Prep Method: 5030B

Analyst: SAD % Moist: Tech: SAD

Seq Number: 938650 Date Prep: 04.12.14 20.50

Prep seq: 653999

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
MTBE	1634-04-4	<0.000589	0.00500	0.000589	mg/kg	04.12.14 21:35	U	1
Benzene	71-43-2	<0.000192	0.00100	0.000192	mg/kg	04.12.14 21:35	U	1
Toluene	108-88-3	<0.000129	0.00100	0.000129	mg/kg	04.12.14 21:35	U	1
Ethylbenzene	100-41-4	<0.0000955	0.00100	0.0000955	mg/kg	04.12.14 21:35	U	1
m,p-Xylenes	179601-23-1	<0.000362	0.00200	0.000362	mg/kg	04.12.14 21:35	U	1
o-Xylene	95-47-6	<0.000229	0.00100	0.000229	mg/kg	04.12.14 21:35	U	1

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
Dibromofluoromethane	88	74 - 126	%		
1,2-Dichloroethane-D4	86	80 - 120	%		
Toluene-D8	103	73 - 132	%		
4-Bromofluorobenzene	96	58 - 152	%		

Flagging Criteria

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

Form 2 - Surrogate Recoveries

Project Name: Minnetex Place Phase II ESA

Work Orders : 482932, **Project ID:** 1130019801

Lab Batch #: 938193 **Sample:** 653734-1-BKS / BKS **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 04/09/14 11:08

BTEX-MTBE by SW 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0473	0.0500	95	75-131	
1,2-Dichloroethane-D4	0.0487	0.0500	97	63-144	
Toluene-D8	0.0501	0.0500	100	80-117	
4-Bromofluorobenzene	0.0540	0.0500	108	74-124	

Lab Batch #: 938193 **Sample:** 653734-1-BLK / BLK **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 04/09/14 11:59

BTEX-MTBE by SW 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0481	0.0500	96	75-131	
1,2-Dichloroethane-D4	0.0505	0.0500	101	63-144	
Toluene-D8	0.0486	0.0500	97	80-117	
4-Bromofluorobenzene	0.0509	0.0500	102	74-124	

Lab Batch #: 938193 **Sample:** 482681-003 S / MS **Batch:** 1 **Matrix:** Liquid

Units: mg/L **Date Analyzed:** 04/09/14 14:11

BTEX-MTBE by SW 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0449	0.0500	90	75-131	
1,2-Dichloroethane-D4	0.0476	0.0500	95	63-144	
Toluene-D8	0.0516	0.0500	103	80-117	
4-Bromofluorobenzene	0.0553	0.0500	111	74-124	

Lab Batch #: 938193 **Sample:** 482681-003 SD / MSD **Batch:** 1 **Matrix:** Liquid

Units: mg/L **Date Analyzed:** 04/09/14 14:36

BTEX-MTBE by SW 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0441	0.0500	88	75-131	
1,2-Dichloroethane-D4	0.0438	0.0500	88	63-144	
Toluene-D8	0.0505	0.0500	101	80-117	
4-Bromofluorobenzene	0.0542	0.0500	108	74-124	

* 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: Minnetex Place Phase II ESA

Work Orders : 482932, **Project ID:** 1130019801

Lab Batch #: 938201 **Sample:** 653739-1-BKS / BKS **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 04/09/14 11:13

BTEX-MTBE by SW 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0474	0.0500	95	74-126	
1,2-Dichloroethane-D4	0.0445	0.0500	89	80-120	
Toluene-D8	0.0519	0.0500	104	73-132	
4-Bromofluorobenzene	0.0480	0.0500	96	58-152	

Lab Batch #: 938201 **Sample:** 653739-1-BLK / BLK **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 04/09/14 12:33

BTEX-MTBE by SW 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0449	0.0500	90	74-126	
1,2-Dichloroethane-D4	0.0459	0.0500	92	80-120	
Toluene-D8	0.0508	0.0500	102	73-132	
4-Bromofluorobenzene	0.0461	0.0500	92	58-152	

Lab Batch #: 938201 **Sample:** 482961-001 S / MS **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 04/09/14 18:05

BTEX-MTBE by SW 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0507	0.0500	101	74-126	
1,2-Dichloroethane-D4	0.0497	0.0500	99	80-120	
Toluene-D8	0.0499	0.0500	100	73-132	
4-Bromofluorobenzene	0.0508	0.0500	102	58-152	

Lab Batch #: 938201 **Sample:** 482961-001 SD / MSD **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 04/09/14 18:30

BTEX-MTBE by SW 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0519	0.0500	104	74-126	
1,2-Dichloroethane-D4	0.0513	0.0500	103	80-120	
Toluene-D8	0.0516	0.0500	103	73-132	
4-Bromofluorobenzene	0.0463	0.0500	93	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: Minnetex Place Phase II ESA

Work Orders : 482932,

Project ID: 1130019801

Lab Batch #: 938650 **Sample:** 653999-1-BKS / BKS **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 04/12/14 19:28

BTEX-MTBE by SW 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0499	0.0500	100	74-126	
1,2-Dichloroethane-D4	0.0461	0.0500	92	80-120	
Toluene-D8	0.0540	0.0500	108	73-132	
4-Bromofluorobenzene	0.0481	0.0500	96	58-152	

Lab Batch #: 938650 **Sample:** 653999-1-BLK / BLK **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 04/12/14 21:35

BTEX-MTBE by SW 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0438	0.0500	88	74-126	
1,2-Dichloroethane-D4	0.0431	0.0500	86	80-120	
Toluene-D8	0.0513	0.0500	103	73-132	
4-Bromofluorobenzene	0.0480	0.0500	96	58-152	

Lab Batch #: 938650 **Sample:** 482932-003 S / MS **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 04/12/14 23:42

BTEX-MTBE by SW 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0486	0.0500	97	74-126	
1,2-Dichloroethane-D4	0.0436	0.0500	87	80-120	
Toluene-D8	0.0543	0.0500	109	73-132	
4-Bromofluorobenzene	0.0495	0.0500	99	58-152	

Lab Batch #: 938650 **Sample:** 482932-003 SD / MSD **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 04/13/14 00:08

BTEX-MTBE by SW 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0517	0.0500	103	74-126	
1,2-Dichloroethane-D4	0.0466	0.0500	93	80-120	
Toluene-D8	0.0538	0.0500	108	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: Minnetex Place Phase II ESA

Work Orders : 482932, **Project ID:** 1130019801

Lab Batch #: 938348 **Sample:** 653785-1-BKS / BKS **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 04/10/14 23:46

TPH by Texas1005 Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	46.8	50.0	94	70-130	
1-Chlorooctane	98.2	100	98	70-130	

Lab Batch #: 938348 **Sample:** 653785-1-BSD / BSD **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 04/11/14 00:03

TPH by Texas1005 Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	48.2	50.0	96	70-130	
1-Chlorooctane	101	100	101	70-130	

Lab Batch #: 938348 **Sample:** 483052-021 S / MS **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 04/11/14 00:37

TPH by Texas1005 Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	46.6	49.9	93	70-130	
1-Chlorooctane	96.2	99.8	96	70-130	

Lab Batch #: 938348 **Sample:** 483052-021 SD / MSD **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 04/11/14 00:55

TPH by Texas1005 Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	45.2	49.9	91	70-130	
1-Chlorooctane	94.1	99.8	94	70-130	

Lab Batch #: 938348 **Sample:** 653785-1-BLK / BLK **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 04/11/14 12:46

TPH by Texas1005 Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	40.0	50.0	80	70-130	
1-Chlorooctane	78.8	100	79	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: Minnetex Place Phase II ESA

Work Orders : 482932, **Project ID:** 1130019801

Lab Batch #: 938648 **Sample:** 653930-1-BLK / BLK **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 04/15/14 12:43

TPH by Texas1005 Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	3.91	5.00	78	70-130	
1-Chlorooctane	7.70	10.0	77	70-130	

Lab Batch #: 938648 **Sample:** 653930-1-BKS / BKS **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 04/15/14 13:00

TPH by Texas1005 Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	5.47	5.00	109	70-130	
1-Chlorooctane	11.5	10.0	115	70-130	

Lab Batch #: 938648 **Sample:** 653930-1-BSD / BSD **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 04/15/14 13:18

TPH by Texas1005 Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	5.62	5.00	112	70-130	
1-Chlorooctane	11.7	10.0	117	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.

Blank Spike Recovery

Project Name: Minnetex Place Phase II ESA

Work Order #: 482932 **Project ID:** 1130019801

Lab Batch #: 938193 **Sample:** 653734-1-BKS **Matrix:** Water

Date Analyzed: 04/09/2014 **Date Prepared:** 04/09/2014 **Analyst:** SAD

Reporting Units: mg/L **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	<0.000508	0.500	0.467	93	65-135	
Benzene	<0.000147	0.100	0.105	105	66-142	
Toluene	0.000220	0.100	0.0960	96	59-139	
Ethylbenzene	<0.0000806	0.100	0.0994	99	75-125	
m,p-Xylenes	<0.000366	0.200	0.196	98	75-125	
o-Xylene	0.000170	0.100	0.0979	98	75-125	

Lab Batch #: 938201 **Sample:** 653739-1-BKS **Matrix:** Solid

Date Analyzed: 04/09/2014 **Date Prepared:** 04/09/2014 **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	<0.000589	0.500	0.542	108	68-138	
Benzene	<0.000192	0.100	0.104	104	62-132	
Toluene	0.000350	0.100	0.108	108	66-124	
Ethylbenzene	0.000110	0.100	0.110	110	71-134	
m,p-Xylenes	0.000430	0.200	0.219	110	69-128	
o-Xylene	<0.000229	0.100	0.110	110	72-131	

Lab Batch #: 938650 **Sample:** 653999-1-BKS **Matrix:** Solid

Date Analyzed: 04/12/2014 **Date Prepared:** 04/12/2014 **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	<0.000589	0.500	0.509	102	68-138	
Benzene	<0.000192	0.100	0.0801	80	62-132	
Toluene	<0.000129	0.100	0.0818	82	66-124	
Ethylbenzene	<0.0000955	0.100	0.0871	87	71-134	
m,p-Xylenes	<0.000362	0.200	0.168	84	69-128	
o-Xylene	<0.000229	0.100	0.0902	90	72-131	

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: Minnetex Place Phase II ESA

Work Order #: 482932 **Project ID:** 1130019801

Analyst: FOV **Date Prepared:** 04/14/2014 **Date Analyzed:** 04/15/2014

Lab Batch ID: 938648 **Sample:** 653930-1-BKS **Batch #:** 1 **Matrix:** Water

Units: mg/L

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

TPH by Texas1005 Analytes	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
C6-C12 Gasoline Range Hydrocarbons	<0.160	100	111	111	100	112	112	1	70-130	25	
C12 - C28 Diesel Range Hydrocarbons	<0.164	100	114	114	100	119	119	4	70-130	25	

Analyst: FOV **Date Prepared:** 04/10/2014 **Date Analyzed:** 04/10/2014

Lab Batch ID: 938348 **Sample:** 653785-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

TPH by Texas1005 Analytes	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
C6-C12 Gasoline Range Hydrocarbons	<2.36	1000	886	89	1000	859	86	3	70-130	30	
C12 - C28 Diesel Range Hydrocarbons	<1.62	1000	860	86	1000	896	90	4	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: Minnetex Place Phase II ESA

Work Order # : 482932 **Project ID:** 1130019801

Lab Batch ID: 938193 **QC- Sample ID:** 482681-003 S **Batch #:** 1 **Matrix:** Liquid

Date Analyzed: 04/09/2014 **Date Prepared:** 04/09/2014 **Analyst:** SAD

Reporting Units: mg/L

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	<0.000508	0.500	0.439	88	0.500	0.415	83	6	65-135	20	
Benzene	<0.000147	0.100	0.109	109	0.100	0.112	112	3	66-142	20	
Toluene	0.000370	0.100	0.102	102	0.100	0.104	104	2	59-139	20	
Ethylbenzene	0.000110	0.100	0.103	103	0.100	0.113	113	9	75-125	20	
m,p-Xylenes	0.000370	0.200	0.205	102	0.200	0.228	114	11	75-125	20	
o-Xylene	0.000190	0.100	0.105	105	0.100	0.110	110	5	75-125	20	

Lab Batch ID: 938201 **QC- Sample ID:** 482961-001 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 04/09/2014 **Date Prepared:** 04/09/2014 **Analyst:** SAD

Reporting Units: mg/kg

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	<0.000723	0.614	0.771	126	0.618	0.740	120	4	68-138	25	
Benzene	<0.000236	0.123	0.142	115	0.124	0.129	104	10	62-132	25	
Toluene	<0.000159	0.123	0.132	107	0.124	0.133	107	1	66-124	25	
Ethylbenzene	<0.000117	0.123	0.139	113	0.124	0.135	109	3	71-134	25	
m,p-Xylenes	0.000605	0.246	0.272	110	0.247	0.273	110	0	69-128	25	
o-Xylene	<0.000281	0.123	0.139	113	0.124	0.141	114	1	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: Minnetex Place Phase II ESA

Work Order # : 482932 **Project ID:** 1130019801

Lab Batch ID: 938650 **QC- Sample ID:** 482932-003 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 04/12/2014 **Date Prepared:** 04/12/2014 **Analyst:** SAD

Reporting Units: mg/kg

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	<0.000749	0.636	0.622	98	0.637	0.698	110	12	68-138	25	
Benzene	<0.000245	0.127	0.0874	69	0.127	0.0946	74	8	62-132	25	
Toluene	0.000368	0.127	0.0949	74	0.127	0.101	79	6	66-124	25	
Ethylbenzene	0.000152	0.127	0.104	82	0.127	0.109	86	5	71-134	25	
m,p-Xylenes	0.000532	0.254	0.194	76	0.255	0.208	81	7	69-128	25	
o-Xylene	<0.000291	0.127	0.104	82	0.127	0.109	86	5	72-131	25	

Lab Batch ID: 938348 **QC- Sample ID:** 483052-021 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 04/11/2014 **Date Prepared:** 04/10/2014 **Analyst:** FOV

Reporting Units: mg/kg

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	<2.73	1160	1030	89	1160	973	84	6	70-130	30	
C12 - C28 Diesel Range Hydrocarbons	<1.87	1160	992	86	1160	975	84	2	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.

Sample Duplicate Recovery

Project Name: Minnetex Place Phase II ESA

Work Order #: 482932

Lab Batch #: 938296 **Project ID:** 1130019801

Date Analyzed: 04/10/2014 18:56 **Date Prepared:** 04/10/2014 **Analyst:** ANS

QC- Sample ID: 482932-003 D **Batch #:** 1 **Matrix:** Soil

Reporting Units: %

	SAMPLE / SAMPLE DUPLICATE RECOVERY				
Percent Moisture **Analyte**	**Parent Sample Result [A]**	**Sample Duplicate Result [B]**	**RPD**	**Control Limits %RPD**	**Flag**
Percent Moisture	21.9	24.9	13	20	

Lab Batch #: 938296

Date Analyzed: 04/10/2014 18:56 **Date Prepared:** 04/10/2014 **Analyst:** ANS

QC- Sample ID: 482938-021 D **Batch #:** 1 **Matrix:** Solid

Reporting Units: %

	SAMPLE / SAMPLE DUPLICATE RECOVERY				
Percent Moisture **Analyte**	**Parent Sample Result [A]**	**Sample Duplicate Result [B]**	**RPD**	**Control Limits %RPD**	**Flag**
Percent Moisture	25.5	26.9	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

ANALYSIS REQUEST & CHAIN OF CUSTODY RECORD

XENCO Laboratories

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

Serial #: 305291 Page 1 of 1

Company-City Geotest Engineering · Com	**Phone** 713 266 0588
Project Name-Location Minnetex Place phase II ESA	☐ Previously done at XENCO **Project ID** 113001980
Proj. State: (TX) AL, FL, GA, LA, MS, NC, NJ, PA, SC, TN, UT Other	**Proj. Manager (PM)** Mohan Ballagere
E-mail Results to nkolli@geotesteng.com	☐ PM and **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)	
Sampler Name T. Murry	**Signature**

Lab Only: 482937-1

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.

	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	TPH.	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	Addn: Date Rcv. by: From:
1	EB-1 S-7	4-8-14	10:00Am	12-14	S		/	2	8	C		/									/					1
2	EB-2 S-6	4-8-14	9:00Am	10-12	S		/	1	8	C		/									/					2
3	EB-3 S-8	4-8-14	11:00Am	14-15	S		/	2	8	C		/									/					3
4	EB-2 (water)	4-8-14	9:00 Am	-	W		/	2		C		/									/					4
5																										5
6																										6
7																										7
8																										8
9																										9
10																										10

Relinquished by (Initials and Sign)	Date & Time	Relinquished to (Initials and Sign)	Date & Time
1)		2)	
3) JMurray	4-8-14 15:03	4)	
5)		6) Carrie K	4/8/14 15:03

Total Containers per COC: Cooler Temp: 14.0 °C Cool/Temp

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 hereby 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**), 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**)

Matrix: Air (**A**), Product (**P**), Solid (**S**), Water (**W**), Liquid (**L**)

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XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: Geotest Engineering, Inc.

Date/ Time Received: 04/08/2014 03:03:00 PM

Work Order #: 482932

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

Temperature Measuring device used : R-31

Sample Receipt Checklist		Comments
#1 *Temperature of cooler(s)?	14	
#2 *Shipping container in good condition?	Yes	
#3 *Samples received on ice?	Yes	local transport, cooling process had begun
#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	"EB-2 (water)" Received only one vial per analysis for "btex & tx1005", limited volume.
#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)?	Yes	
#21 <2 for all samples preserved with HNO3,HCL, H2SO4?	Yes	
#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#:

Checklist completed by: Carrie Hurtado Date: 04/08/2014

Checklist reviewed by: Debbie Simmons Date: 04/09/2014

APPENDIX C

PHOTOGRAPHS OF DRILLING ACTIVITIES

Job No.: 1130019801

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