CON 12-15
Doc #35815

LIMITED SUBSURFACE INVESTIGATION

Baker Property
Near Hubbell Avenue and NE 44th Drive
Des Moines, Iowa 50317

Prepared For:

Construction Materials Testing
1610 E Madison Avenue
Des Moines, Iowa 50313

Hubbell Realty Company
6900 Westown Parkway
West Des Moines, IA 50266

Prepared by:

9550 Hickman Road, Ste 105
Clive, Iowa 50325

May 3, 2019

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APPENDICES

1.0 EXECUTIVE SUMMARY

A previously completed Phase I Environmental Site Assessment (ESA) identified a recognized environmental concern (REC) associated with the subject property located near Hubbell Avenue and NE 44th Drive, Des Moines, Polk County, Iowa 50317, additionally identified as parcel 08984-997-005; which hereinafter is referred to as the "Property." The following REC was identified in the Phase I ESA:

- A nearby, up-gradient State/Tribal Brownfields site with identified groundwater contamination. The site is located approximately 0.085 miles south of the Property.

Construction Materials Testing and Hubbell Realty Company (Client) requested Impact7G perform a Limited Subsurface Investigation (LSI) to evaluate the REC identified in the referenced Phase I ESA. The LSI was conducted on the Property on April 11, 2019. The purpose of this LSI was to gather soil and groundwater data to evaluate possible environmental impacts from the nearby, up-gradient State/Tribal Brownfields site with identified groundwater contamination. The findings and conclusions are summarized as follows:

Soil samples collected at the Property were analyzed for Benzene, Toluene, Ethylbenzene, and Xylenes (BTEX) and Total Extractable Hydrocarbons (TEHs). Laboratory analysis of the soil samples indicated BTEX constituents were detected above the laboratory's reporting limits. While one TEH constituent was detected above the laboratory's reporting limits, no concentrations were above applicable Iowa Department of Natural Resources (DNR) Statewide Standards (SWS) or applicable Iowa Risk Based Corrective Action (RBCA) Target Levels.

Groundwater samples collected at the Property were analyzed for BTEX and TEHs. Laboratory analysis of the groundwater samples revealed the TEH-Diesel concentration from SB-2 exceeds the Iowa DNR SWS for a Protected Groundwater Source (PGS), but is below the Iowa DNR SWS for a Non-Protected Groundwater Source (NPGS). The TEH-Diesel concentration also exceeds the Iowa RBCA Target Level for actual ingestion but is below the Iowa RBCA Target Level for potential ingestion. No additional TEH constituents and no BTEX constituents were detected above the laboratory's reporting limits.

While TEH-Diesel groundwater concentrations were detected above Iowa DNR SWS for a PGS, Impact7G believes the SWS for a NPGS is more applicable in this case. Currently Polk County has a water well ordinance in place which states "any dwelling or structure shall be connected to public water if any part of the lot or parcel on which the dwelling or structure is located is within 300 feet of the nearest adequate line of a public water supply system." This ordinance limits the exposure risk of the Property as a PGS. As such, Impact7G recommends no further action.

If the user of this LSI desires a determination from the Iowa DNR as to whether these findings constitute a hazardous condition, a request for regulatory review, a copy of this report and a copy of the Phase I ESA may be submitted to the Iowa DNR Contaminated Sites Section for review. Impact7G's conclusions are rendered in accordance with generally accepted professional standards but are not to be construed as a guarantee or warranty as to the potential liability associated with environmental conditions at the site.

2.0 INTRODUCTION

2.1 Purpose

Construction Materials Testing and Hubbell Realty Company contracted with Impact7G to perform a LSI on the Property. The objective of this LSI was to evaluate the current impacts of the previously identified REC associated with the Property. The data gathered during this limited investigation has been compared to the risk-based standards outlined in Iowa Administrative Code (IAC) 567 *Chapter 137: Iowa Land Recycling Program and Response Action Standards* or the Tier 1 RBCA Target Levels in IAC *Chapter 135: Technical Standards and Corrective Action Requirements for Owners and Operators of Underground Storage Tanks (USTs).* Furthermore, this assessment is intended to satisfy the all appropriate inquiry requirements to obtain protection from potential liability under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) as an innocent landowner, a contiguous Property owner, or a bona fide prospective purchaser.

2.2 Problem Statement

A previously completed Phase I ESA identified one (1) REC associated with the Property: a nearby, up-gradient State/Tribal Brownfields site with identified groundwater contamination (See Appendix E). Construction Materials Testing and Hubbell Realty Company requested Impact7G perform a LSI to further explore the REC identified in the Phase I ESA. Impact7G conducted a LSI on the Property on April 11, 2019.

3.0 BACKGROUND

The Property is located within the NE ¼ of Section 21, Township 79 North, Range 23 West in Polk County, Iowa, and is further located at approximately 41° 38’ 26.25” North latitude and 93° 31’ 43.77” West longitude (see Figure 1, Appendix B).

3.1 Site Characteristics

The Property is located near Hubbell Avenue and NE 44th Drive, Des Moines, Polk County, Iowa, additionally identified as parcel 08984-997-005 (see Figure 1, Appendix B).

The Property is located in a primarily agricultural, forested, and commercial area of Des Moines, Iowa and consists of an approximate 29.21 acres of agricultural and forested land with an unnamed tributary of Little Fourmile Creek. The Property north of the stream generally slopes to the south-southeast while the Property south of the stream generally slopes to the northwest.

3.2 Principal User

The principal end user of project information will be Construction Materials Testing and Hubbell Realty Company. Further reliance by others is beyond the scope of this project.

4.0 INVESTIGATION ACTIVITIES

The purpose of this LSI was to gather soil and groundwater data to evaluate possible environmental impacts from the identified groundwater contamination associated with a nearby, up-gradient property. The sampling plan was detailed in a proposal provided to Construction Materials Testing and Hubbell Realty Company on April 3, 2019. The

proposal recommended advancing two (2) soil borings on the Property for the collection of soil and groundwater samples.

On April 11, 2019, two (2) borings (SB-1 and SB-2) were advanced using a track mounted, direct push Geoprobe® drill rig. The two borings were placed downgradient of a nearby, up-gradient State/Tribal Brownfields site with identified groundwater contamination (See Figure 2 in Appendix B).

Soil samples were collected at 1-foot intervals in each soil boring and screened for the presence of VOCs using a Photo Ionization Detector (PID). Prior to screening the soil samples, the PID was field calibrated according to the manufacturer's specifications. Soil samples were visually classified on field boring logs according to grain size, sorting, plasticity, moisture content, color, sample interval, and time of sample collection. A soil sample was collected at each boring from the soil interval representing the greatest risk of contamination based on PID readings. In the event no PID readings >10 ppm were encountered, soil samples were collected from within one foot of the perceived water table while drilling. Soil samples were analyzed for BTEX and TEHs for all borings.

Following the completion of soil sampling, each boring was converted to a temporary monitoring well utilizing a 1-inch diameter polyvinyl chloride (PVC) screen and riser. Prior to sampling activities, groundwater was observed between 4-26 feet below ground surface (bgs). The wells were purged of approximately three well volumes prior to sampling. Groundwater samples were obtained with a peristaltic pump and disposable tubing and placed in laboratory supplied sample containers. The samples were immediately placed on ice and submitted to Pace Analytical Services, LLC to be analyzed for the same analyses listed above. Following the completion of groundwater sampling, all wells were properly abandoned in accordance with Chapter 567-39.8 of the Iowa Administrative Code.

4.1 Soil Assessment

Soils encountered in the borings generally consisted of silt, sand, and clay. Boring SB-1 was drilled to a depth of 20 feet bgs and boring SB-2 was drilled to a depth of 35 feet bgs. No petroleum odors were detected, no visible staining was observed, and PID readings were <10 ppm in all borings. Soil samples were collected from the 12-26 foot depth range, which was the interval above the perceived water table. All samples were analyzed for BTEX (Iowa Method OA-1) and TEHs (Iowa Method OA-2). Soil sample locations are shown on Figure 2 in Appendix B. Borelogs are provided in Appendix D.

The following table summarizes those analytical constituents detected above the laboratory reporting limits. Complete laboratory analytical reports can be found in Appendix C.

Table 1 – Soil – TEHs (mg/Kg)

Constituent	SB-1 (12'-13')	SB-2 (25'-26')	Statewide Standard	Tier 1 RBCA Target Level (Soil Leaching to Groundwater)
TEH-Diesel	13.7	26.1	28,000	3,800

Based on the laboratory analytical results, no TEH constituents were detected above applicable Iowa DNR SWS or Iowa Tier 1 RBCA Target Levels. Moreover, no BTEX constituents were detected above the laboratory's reporting limits.

4.2 Groundwater Assessment

Upon completion of soil sampling activities, each boring was converted to a temporary monitoring well. Groundwater was encountered at approximately 4-26 feet bgs. Groundwater flow direction in the area of the borings is anticipated to flow to the northwest toward the unnamed tributary of Little Fourmile Creek and topographically lower elevations.

Groundwater samples were collected from the borings in laboratory-supplied containers and immediately placed on ice. The groundwater samples were submitted to Pace Analytical Services, LLC under chain of custody control for analysis of BTEX and TEHs. Monitoring well construction details are provided in Appendix D.

The following table summarizes those analytical constituents detected above the laboratory reporting limits. Complete laboratory analytical reports can be found in Appendix C.

Table 2 – Groundwater – TEHs (µg/L)

Constituent	SB-1	SB-2	Statewide Standard (PGS)	Statewide Standard (NPGS)	Tier 1 RBCA Target Level (Actual Ingestion)	Tier 1 RBCA Target Level (Potential Ingestion)
TEH-Diesel	790	**2,300**	2,200	44,000	1,200	75,000

Bold results indicate analytical results exceed Statewide Standard for a PGS and Iowa Tier 1 RBCA Target Level for actual ingestion.

Laboratory analysis of the groundwater samples revealed the TEH-Diesel concentration from SB-2 exceeds the Iowa DNR SWS for a PGS, but is below the Iowa DNR SWS for a NPGS. The TEH-Diesel concentration also exceeds the Iowa RBCA Target Level for actual ingestion but is below the Iowa RBCA Target Level for potential ingestion. Currently Polk County has a water well ordinance in place which states "any dwelling or structure shall be connected to public water if any part of the lot or parcel on which the dwelling or structure is located is within 300 feet of the nearest adequate line of a public water supply system." This ordinance limits the exposure risk of the Property as a PGS.

Based on the laboratory analytical results, no additional TEH constituents and no BTEX constituents were detected above the laboratory's reporting limits.

5.0 DEVIATIONS FROM SCOPE

The following deviations from the proposed sampling plan were noted:

1. Boring SB-2 was moved from the proposed location. During drilling at the proposed location, it appeared as though the soil was fill and not native soil. Boring SB-2 was moved to a location with native soil.

Moving boring SB-2 from a location of apparent fill to a location of native soil is not expected to adversely alter the conclusions of this report. No other site-specific conditions warranted deviation from the proposed sampling plan.

6.0 FINDINGS AND CONCLUSIONS

The results of the limited subsurface investigation are summarized as follows:

Soil samples collected at the Property were analyzed for Benzene, Toluene, Ethylbenzene, and Xylenes (BTEX) and Total Extractable Hydrocarbons (TEHs). Laboratory analysis of the soil samples indicated BTEX constituents were detected above the laboratory's reporting limits. While one TEH constituent was detected above the laboratory's reporting limits, no concentrations were above applicable Iowa Department of Natural Resources (DNR) Statewide Standards (SWS) or applicable Iowa Risk Based Corrective Action (RBCA) Target Levels.

Groundwater samples collected at the Property were analyzed for BTEX and TEHs. Laboratory analysis of the groundwater samples revealed the TEH-Diesel concentration from SB-2 exceeds the Iowa DNR SWS for a Protected Groundwater Source (PGS), but is below the Iowa DNR SWS for a Non-Protected Groundwater Source (NPGS). The TEH-Diesel concentration also exceeds the Iowa RBCA Target Level for actual ingestion but is below the Iowa RBCA Target Level for potential ingestion. No additional TEH constituents and no BTEX constituents were detected above the laboratory's reporting limits.

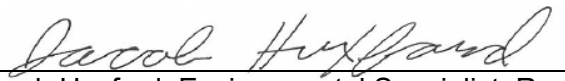
7.0 RECOMMENDATIONS

While TEH-Diesel groundwater concentrations were detected above Iowa DNR SWS for a PGS, Impact7G believes the SWS for a NPGS is more applicable in this case. Currently Polk County has a water well ordinance in place which states "any dwelling or structure shall be connected to public water if any part of the lot or parcel on which the dwelling or structure is located is within 300 feet of the nearest adequate line of a public water supply system." This ordinance limits the exposure risk of the Property as a PGS. As such, Impact7G recommends no further action.

If the user of this LSI desires a determination from the Iowa DNR as to whether these findings constitute a hazardous condition, a request for regulatory review, a copy of this report and a copy of the Phase I ESA may be submitted to the Iowa DNR Contaminated Sites Section for review. Impact7G's conclusions are rendered in accordance with generally accepted professional standards but are not to be construed as a guarantee or warranty as to the potential liability associated with environmental conditions at the site.

8.0 SIGNATURES OF ENVIRONMENTAL PROFESSIONALS

Signatures of the environmental professionals responsible for this report:



Jacob Huxford, Environmental Specialist, Report Preparer

Jon Reis, Senior Project Manager, Report Preparer

Megan Down, Project Manager, Quality Control / Quality Assurance

APPENDIX A

Qualifications

Qualifications

Jacob Huxford – *Environmental Specialist II / Field Work*

Mr. Jacob Huxford is an Environmental Specialist with experience on a variety of projects including Phase I Environmental Site Assessments, Phase II Environmental Site Assessments, asbestos inspections and reporting, lead based paint inspections and reporting, and air quality investigations. Mr. Huxford has completed ASTM 1527-13 compliant site reconnaissance field visits, reviewed local, state, and federal environmental databases, acquired and reviewed historical information, performed warranty deed and lien searches, completed interviews, and prepared Phase I and II ESA reports. He has also collected soil and groundwater samples as part of Phase II ESA reports. Mr. Huxford is 40-hour Hazardous Waste Operations and Emergency Response (HAZWOPER) certified and currently holds an Iowa asbestos inspectors license, abatement contractor/supervisor asbestos license, and is an Iowa lead inspector/risk assessor.

Jon Reis – Sr. *Project Manager / Report Preparer*

Mr. Jon Reis is an Environmental Professional with experience on a variety of environmental projects including: Phase I and II Environmental site assessments, EPA Brownfield projects, asbestos and lead based paint inspections, air quality investigations, and NEPA projects. Mr. Reis also has experience with wetland delineation projects and informal biological assessments. Mr. Reis received a Master's Degree in Geology and has conducted multiple soil and groundwater sampling events. Mr. Reis is 40-hour Hazardous Waste Operations and Emergency Response (HAZWOPER) certified, state of Minnesota wetland delineator certified, and currently holds an Iowa asbestos inspector's license, an Iowa lead inspector/risk assessor's license, and an Iowa DNR Certified Well Driller License.

Megan Down – Project Manager / Quality Control/Quality Assurance

Megan has a total of fourteen years of experience in the environmental consulting industry. As a Project Manager for Impact7G, Megan primarily oversees the investigation, remediation, and reporting of Leaking Underground Storage Tank (LUST) sites, Free Product sites, and Contaminated sites across Iowa. Her experience in the environmental consulting industry includes, but is not limited to Risk Based Corrective Action (RBCA) investigations (Tier 1/2/3 Site Cleanup Reports, Site Monitoring Reports), free product removal technologies, Corrective Action Design Reporting (CADR), chemical oxidation injection remediation, laser induced fluorescence (LIF) plume definition, soil excavation, land farm application, emergency spill response management and reporting, and Phase I/II Environmental Site Assessments. Megan has also completed numerous Phase I/Phase II Environmental Site Assessments and qualifies as an Environmental Professional. She has performed all aspects of Environmental Site Assessments including on-site visual inspections, soil and groundwater sampling, report writing and report review. She has assisted in further investigation of properties deemed environmental concerns through tank closures and Tier 1 Site Cleanup Investigations.

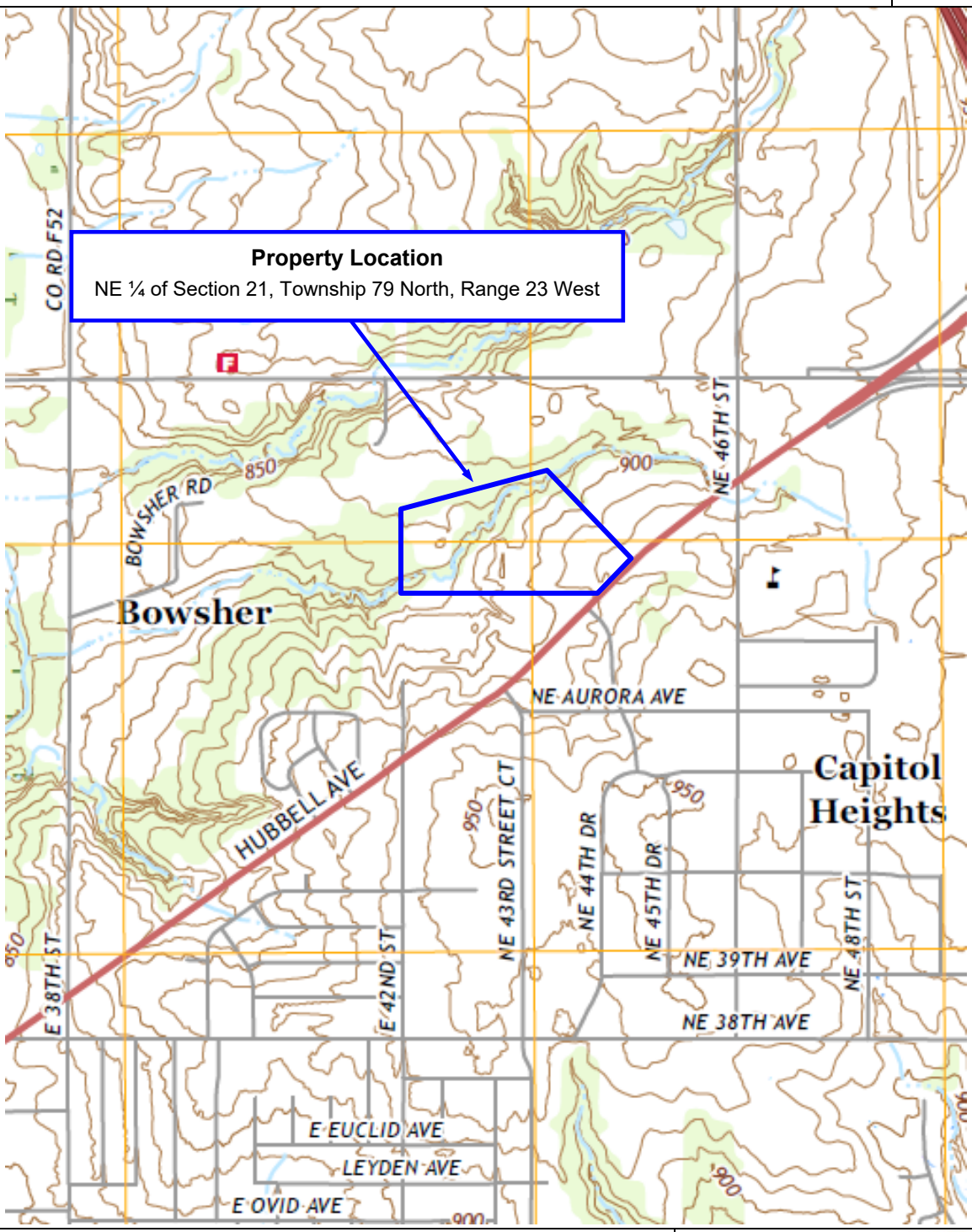
APPENDIX B

Figures

Figure 1 – Property Vicinity Map
Figure 2 – Sample Location Map

FIGURE 1 - PROPERTY VICINITY MAP

North



Property Vicinity Map

Construction Materials Testing & Hubbell Realty Company
Near Hubbell Avenue and NE 44th Drive
Des Moines, Iowa 50317

IMPACT7G

FIGURE 2 - SAMPLE LOCATION MAP

North

Sample Location Map

Construction Materials Testing & Hubbell Realty Company
Near Hubbell Avenue and NE 44th Drive
Des Moines, Iowa 50317

IMPACT7G

APPENDIX C

Laboratory Reports/
Chain of Custody Documentation

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

April 26, 2019

Jon Reis
Impact 7G
9550 Hickman Road, Suite 105
Clive, IA 50325

RE: Project: BAKER PROPERTY PARCEL 08984-99
Pace Project No.: 60299829

Dear Jon Reis:
Enclosed are the analytical results for sample(s) received by the laboratory on April 13, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Hank Kapka
hank.kapka@pacelabs.com
(913)599-5665
PM Lab Management

Enclosures

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

CERTIFICATIONS

Project: BAKER PROPERTY PARCEL 08984-99
Pace Project No.: 60299829

Kansas Certification IDs

9608 Loiret Boulevard, Lenexa, KS 66219
Arkansas Drinking Water
Missouri Certification Number: 10090
WY STR Certification #: 2456.01
Arkansas Certification #: 19-016-0
Arkansas Drinking Water
Illinois Certification #: 004455
Iowa Certification #: 118
Kansas/NELAP Certification #: E-10116
Louisiana Certification #: 03055
Nevada Certification #: KS000212018-1
Oklahoma Certification #: 9205/9935
Florida: Cert E871149 SEKS WET
Florida: Cert E871149 SEKS WET
Florida: Cert E871149 SEKS WET
Texas Certification #: T104704407-18-11
Utah Certification #: KS000212018-8
Kansas Field Laboratory Accreditation: # E-92587
Missouri Certification: 10070
Missouri Certification Number: 10090

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

SAMPLE SUMMARY

Project: BAKER PROPERTY PARCEL 08984-99
Pace Project No.: 60299829

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60299829001	**SB-1**	Water	04/11/19 16:07	04/13/19 08:45
60299829002	**SB-1**	Solid	04/11/19 13:53	04/13/19 08:45
60299829003	**SB-2**	Water	04/11/19 15:27	04/13/19 08:45
60299829004	**SB-2**	Solid	04/11/19 15:15	04/13/19 08:45

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

SAMPLE ANALYTE COUNT

Project: BAKER PROPERTY PARCEL 08984-99
Pace Project No.: 60299829

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60299829001	**SB-1**	OA2	AHS	6	PASI-K
		EPA 5030B/8260	EMD	11	PASI-K
60299829002	**SB-1**	OA2	AHS	9	PASI-K
		OA1	CJW	3	PASI-K
		ASTM D2974	DWC	1	PASI-K
60299829003	**SB-2**	OA2	AHS	6	PASI-K
		EPA 5030B/8260	EMD	11	PASI-K
60299829004	**SB-2**	OA2	AHS	9	PASI-K
		OA1	CJW	3	PASI-K
		ASTM D2974	DWC	1	PASI-K

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: BAKER PROPERTY PARCEL 08984-99
Pace Project No.: 60299829

Sample: SB-1 **Lab ID: 60299829001** Collected: 04/11/19 16:07 Received: 04/13/19 08:45 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
OA2 GCS	Analytical Method: OA2 Preparation Method: OA2							
Diesel Fuel	ND	mg/L	0.36	1	04/15/19 14:45	04/15/19 17:37	68334-30-5	1e
Gasoline	ND	mg/L	0.36	1	04/15/19 14:45	04/15/19 17:37	8006-61-9	1e
Motor Oil	ND	mg/L	0.36	1	04/15/19 14:45	04/15/19 17:37	64742-65-0	1e
TEH as Diesel No.2	**0.79**	mg/L	0.36	1	04/15/19 14:45	04/15/19 17:37		1e,2e
Surrogates								
p-Terphenyl (S)	63	%	45-114	1	04/15/19 14:45	04/15/19 17:37	92-94-4	
n-Tetracosane (S)	69	%	24-120	1	04/15/19 14:45	04/15/19 17:37	646-31-1	
8260 MSV Iowa UST	Analytical Method: EPA 5030B/8260							
Benzene	ND	ug/L	1.0	1		04/18/19 06:45	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		04/18/19 06:45	100-41-4	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		04/18/19 06:45	1634-04-4	
Toluene	ND	ug/L	1.0	1		04/18/19 06:45	108-88-3	
Xylene (Total)	ND	ug/L	3.0	1		04/18/19 06:45	1330-20-7	
m&p-Xylene	ND	ug/L	2.0	1		04/18/19 06:45	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		04/18/19 06:45	95-47-6	
Surrogates								
Toluene-d8 (S)	101	%	80-120	1		04/18/19 06:45	2037-26-5	
1,2-Dichloroethane-d4 (S)	101	%	77-122	1		04/18/19 06:45	17060-07-0	
4-Bromofluorobenzene (S)	100	%	80-120	1		04/18/19 06:45	460-00-4	
Preservation pH	**5.0**		0.10	1		04/18/19 06:45		pH

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: BAKER PROPERTY PARCEL 08984-99
Pace Project No.: 60299829

Sample: SB-1 **Lab ID: 60299829002** Collected: 04/11/19 13:53 Received: 04/13/19 08:45 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
OA2 GCS	Analytical Method: OA2 Preparation Method: EPA 3546							
Diesel Fuel	ND	mg/kg	11.4	1	04/15/19 17:00	04/17/19 20:20	68334-30-5	
Fuel Oil	ND	mg/kg	11.4	1	04/15/19 17:00	04/17/19 20:20	68553-00-4	
Jet Fuel	ND	mg/kg	11.4	1	04/15/19 17:00	04/17/19 20:20	94114-58-6	
Kerosene	ND	mg/kg	11.4	1	04/15/19 17:00	04/17/19 20:20	8008-20-6	
Mineral Spirits	ND	mg/kg	11.4	1	04/15/19 17:00	04/17/19 20:20	8030-30-6	
Motor Oil	ND	mg/kg	11.4	1	04/15/19 17:00	04/17/19 20:20	64742-65-0	
TEH as Diesel No.2	**13.7**	mg/kg	11.4	1	04/15/19 17:00	04/17/19 20:20		2e
Surrogates								
n-Tetracosane (S)	86	%	63-123	1	04/15/19 17:00	04/17/19 20:20	646-31-1	
p-Terphenyl (S)	75	%	57-123	1	04/15/19 17:00	04/17/19 20:20	92-94-4	
OA1 Volatile Pet. Hydrocarbons	Analytical Method: OA1							
Gasoline Range Organics	ND	mg/kg	1.2	1		04/23/19 14:23		
Surrogates								
4-Bromofluorobenzene (S)	107	%	80-120	1		04/23/19 14:23	460-00-4	
1,2-Dichloroethane-d4 (S)	107	%	80-124	1		04/23/19 14:23	17060-07-0	
Percent Moisture	Analytical Method: ASTM D2974							
Percent Moisture	**15.4**	%	0.50	1		04/15/19 17:00		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: BAKER PROPERTY PARCEL 08984-99
Pace Project No.: 60299829

Sample: SB-2 **Lab ID: 60299829003** Collected: 04/11/19 15:27 Received: 04/13/19 08:45 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
OA2 GCS	Analytical Method: OA2 Preparation Method: OA2							
Diesel Fuel	ND	mg/L	1.1	1	04/15/19 14:45	04/15/19 17:45	68334-30-5	1e
Gasoline	ND	mg/L	1.1	1	04/15/19 14:45	04/15/19 17:45	8006-61-9	1e
Motor Oil	ND	mg/L	1.1	1	04/15/19 14:45	04/15/19 17:45	64742-65-0	1e
TEH as Diesel No.2	**2.3**	mg/L	1.1	1	04/15/19 14:45	04/15/19 17:45		1e,2e
Surrogates								
p-Terphenyl (S)	59	%	45-114	1	04/15/19 14:45	04/15/19 17:45	92-94-4	
n-Tetracosane (S)	67	%	24-120	1	04/15/19 14:45	04/15/19 17:45	646-31-1	
8260 MSV Iowa UST	Analytical Method: EPA 5030B/8260							
Benzene	ND	ug/L	1.0	1		04/18/19 07:01	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		04/18/19 07:01	100-41-4	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		04/18/19 07:01	1634-04-4	
Toluene	ND	ug/L	1.0	1		04/18/19 07:01	108-88-3	
Xylene (Total)	ND	ug/L	3.0	1		04/18/19 07:01	1330-20-7	
m&p-Xylene	ND	ug/L	2.0	1		04/18/19 07:01	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		04/18/19 07:01	95-47-6	
Surrogates								
Toluene-d8 (S)	98	%	80-120	1		04/18/19 07:01	2037-26-5	
1,2-Dichloroethane-d4 (S)	102	%	77-122	1		04/18/19 07:01	17060-07-0	
4-Bromofluorobenzene (S)	100	%	80-120	1		04/18/19 07:01	460-00-4	
Preservation pH	**1.0**		0.10	1		04/18/19 07:01		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: BAKER PROPERTY PARCEL 08984-99
Pace Project No.: 60299829

Sample: SB-2 **Lab ID: 60299829004** Collected: 04/11/19 15:15 Received: 04/13/19 08:45 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
OA2 GCS	Analytical Method: OA2 Preparation Method: EPA 3546							
Diesel Fuel	ND	mg/kg	12.2	1	04/15/19 17:00	04/17/19 20:28	68334-30-5	
Fuel Oil	ND	mg/kg	12.2	1	04/15/19 17:00	04/17/19 20:28	68553-00-4	
Jet Fuel	ND	mg/kg	12.2	1	04/15/19 17:00	04/17/19 20:28	94114-58-6	
Kerosene	ND	mg/kg	12.2	1	04/15/19 17:00	04/17/19 20:28	8008-20-6	
Mineral Spirits	ND	mg/kg	12.2	1	04/15/19 17:00	04/17/19 20:28	8030-30-6	
Motor Oil	ND	mg/kg	12.2	1	04/15/19 17:00	04/17/19 20:28	64742-65-0	
TEH as Diesel No.2	**26.1**	mg/kg	12.2	1	04/15/19 17:00	04/17/19 20:28		2e
Surrogates								
n-Tetracosane (S)	89	%	63-123	1	04/15/19 17:00	04/17/19 20:28	646-31-1	
p-Terphenyl (S)	77	%	57-123	1	04/15/19 17:00	04/17/19 20:28	92-94-4	
OA1 Volatile Pet. Hydrocarbons	Analytical Method: OA1							
Gasoline Range Organics	ND	mg/kg	1.2	1		04/25/19 18:07		
Surrogates								
4-Bromofluorobenzene (S)	109	%	80-120	1		04/25/19 18:07	460-00-4	
1,2-Dichloroethane-d4 (S)	109	%	80-124	1		04/25/19 18:07	17060-07-0	
Percent Moisture	Analytical Method: ASTM D2974							
Percent Moisture	**20.7**	%	0.50	1		04/15/19 17:00		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: BAKER PROPERTY PARCEL 08984-99
Pace Project No.: 60299829

QC Batch: 580353
QC Batch Method: OA1
Analysis Method: OA1
Analysis Description: OA1 Volatile Pet. Hydrocarbon
Associated Lab Samples: 60299829002

METHOD BLANK: 2381573 Matrix: Solid
Associated Lab Samples: 60299829002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Gasoline Range Organics	mg/kg	ND	1.0	04/23/19 12:03	
1,2-Dichloroethane-d4 (S)	%	101	80-124	04/23/19 12:03	
4-Bromofluorobenzene (S)	%	101	80-120	04/23/19 12:03	

LABORATORY CONTROL SAMPLE: 2381574

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Gasoline Range Organics	mg/kg	4	3.6	91	71-136	
1,2-Dichloroethane-d4 (S)	%			101	80-124	
4-Bromofluorobenzene (S)	%			100	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2381577 2381578

Parameter	Units	60299829002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Gasoline Range Organics	mg/kg	ND	4.6	4.7	2.8	.82J	60	17	10-187		26	
1,2-Dichloroethane-d4 (S)	%						104	111	80-124			
4-Bromofluorobenzene (S)	%						104	108	80-120			

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: BAKER PROPERTY PARCEL 08984-99
Pace Project No.: 60299829

QC Batch: 580700 Analysis Method: OA1
QC Batch Method: OA1 Analysis Description: OA1 Volatile Pet. Hydrocarbon
Associated Lab Samples: 60299829004

METHOD BLANK: 2382940 Matrix: Solid
Associated Lab Samples: 60299829004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Gasoline Range Organics	mg/kg	ND	1.0	04/25/19 11:31	
1,2-Dichloroethane-d4 (S)	%	109	80-124	04/25/19 11:31	
4-Bromofluorobenzene (S)	%	102	80-120	04/25/19 11:31	

LABORATORY CONTROL SAMPLE: 2382941

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Gasoline Range Organics	mg/kg	4	3.3	82	71-136	
1,2-Dichloroethane-d4 (S)	%			104	80-124	
4-Bromofluorobenzene (S)	%			104	80-120	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: BAKER PROPERTY PARCEL 08984-99
Pace Project No.: 60299829

QC Batch: 579551 Analysis Method: EPA 5030B/8260
QC Batch Method: EPA 5030B/8260 Analysis Description: 8260 MSV Iowa UST
Associated Lab Samples: 60299829001, 60299829003

METHOD BLANK: 2378177 Matrix: Water
Associated Lab Samples: 60299829001, 60299829003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Benzene	ug/L	ND	1.0	04/18/19 05:42	
Ethylbenzene	ug/L	ND	1.0	04/18/19 05:42	
m&p-Xylene	ug/L	ND	2.0	04/18/19 05:42	
Methyl-tert-butyl ether	ug/L	ND	1.0	04/18/19 05:42	
o-Xylene	ug/L	ND	1.0	04/18/19 05:42	
Toluene	ug/L	ND	1.0	04/18/19 05:42	
Xylene (Total)	ug/L	ND	3.0	04/18/19 05:42	
1,2-Dichloroethane-d4 (S)	%	104	77-122	04/18/19 05:42	
4-Bromofluorobenzene (S)	%	102	80-120	04/18/19 05:42	
Toluene-d8 (S)	%	100	80-120	04/18/19 05:42	

LABORATORY CONTROL SAMPLE: 2378178

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	20	20.3	102	80-120	
Ethylbenzene	ug/L	20	20.8	104	80-120	
m&p-Xylene	ug/L	40	42.8	107	80-120	
Methyl-tert-butyl ether	ug/L	20	20.2	101	67-125	
o-Xylene	ug/L	20	20.8	104	81-120	
Toluene	ug/L	20	20.2	101	80-120	
Xylene (Total)	ug/L	60	63.6	106	80-120	
1,2-Dichloroethane-d4 (S)	%			99	77-122	
4-Bromofluorobenzene (S)	%			98	80-120	
Toluene-d8 (S)	%			100	80-120	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: BAKER PROPERTY PARCEL 08984-99
Pace Project No.: 60299829

QC Batch: 579000 Analysis Method: OA2
QC Batch Method: EPA 3546 Analysis Description: OA2 GCS
Associated Lab Samples: 60299829002, 60299829004

METHOD BLANK: 2376277 Matrix: Solid
Associated Lab Samples: 60299829002, 60299829004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Fuel	mg/kg	ND	9.8	04/17/19 17:05	
Fuel Oil	mg/kg	ND	9.8	04/17/19 17:05	
Jet Fuel	mg/kg	ND	9.8	04/17/19 17:05	
Kerosene	mg/kg	ND	9.8	04/17/19 17:05	
Mineral Spirits	mg/kg	ND	9.8	04/17/19 17:05	
Motor Oil	mg/kg	ND	9.8	04/17/19 17:05	
TEH as Diesel No.2	mg/kg	ND	9.8	04/17/19 17:05	
n-Tetracosane (S)	%	77	63-123	04/17/19 17:05	
p-Terphenyl (S)	%	75	57-123	04/17/19 17:05	

LABORATORY CONTROL SAMPLE: 2376278

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Diesel Fuel	mg/kg	79.3	83.8	106	77-126	
n-Tetracosane (S)	%			83	63-123	
p-Terphenyl (S)	%			79	57-123	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2376279 2376280

Parameter	Units	60299825001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Diesel Fuel	mg/kg	ND	104	106	103	104	99	98	60-140	1	33	
n-Tetracosane (S)	%						75	70	63-123			
p-Terphenyl (S)	%						71	65	57-123			

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REPORT OF LABORATORY ANALYSIS

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Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: BAKER PROPERTY PARCEL 08984-99
Pace Project No.: 60299829

QC Batch: 578937 Analysis Method: OA2
QC Batch Method: OA2 Analysis Description: OA2 GCS
Associated Lab Samples: 60299829001, 60299829003

METHOD BLANK: 2376138 Matrix: Water
Associated Lab Samples: 60299829001, 60299829003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Fuel	mg/L	ND	0.40	04/15/19 17:05	
Gasoline	mg/L	ND	0.40	04/15/19 17:05	
Motor Oil	mg/L	ND	0.40	04/15/19 17:05	
TEH as Diesel No.2	mg/L	ND	0.40	04/15/19 17:05	
n-Tetracosane (S)	%	71	24-120	04/15/19 17:05	
p-Terphenyl (S)	%	62	45-114	04/15/19 17:05	

LABORATORY CONTROL SAMPLE: 2376139

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Diesel Fuel	mg/L	12.5	10.7	85	57-109	
n-Tetracosane (S)	%			83	24-120	
p-Terphenyl (S)	%			79	45-114	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: BAKER PROPERTY PARCEL 08984-99
Pace Project No.: 60299829

QC Batch: 579064 Analysis Method: ASTM D2974
QC Batch Method: ASTM D2974 Analysis Description: Dry Weight/Percent Moisture
Associated Lab Samples: 60299829002, 60299829004

METHOD BLANK: 2376443 Matrix: Solid
Associated Lab Samples: 60299829002, 60299829004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Percent Moisture	%	ND	0.50	04/15/19 17:00	

SAMPLE DUPLICATE: 2376444

Parameter	Units	60299777019 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	15.3	15.1	1	20	

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REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: BAKER PROPERTY PARCEL 08984-99
Pace Project No.: 60299829

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-K	Pace Analytical Services - Kansas City

BATCH QUALIFIERS

Batch: 578937

[M5]	A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

Batch: 579551

[M5]	A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

ANALYTE QUALIFIERS

1e	A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.
2e	The sample does not match a profile of laboratory standards. Hydrocarbon fractions are present from the early gasoline to late motor oil range. Quantitation achieved using diesel fuel as a reference standard.
pH	Post-analysis pH measurement indicates insufficient VOA sample preservation.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: BAKER PROPERTY PARCEL 08984-99
Pace Project No.: 60299829

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60299829002	**SB-1**	EPA 3546	579000	OA2	579615
60299829004	**SB-2**	EPA 3546	579000	OA2	579615
60299829001	**SB-1**	OA2	578937	OA2	579184
60299829003	**SB-2**	OA2	578937	OA2	579184
60299829002	**SB-1**	OA1	580353		
60299829004	**SB-2**	OA1	580700		
60299829001	**SB-1**	EPA 5030B/8260	579551		
60299829003	**SB-2**	EPA 5030B/8260	579551		
60299829002	**SB-1**	ASTM D2974	579064		
60299829004	**SB-2**	ASTM D2974	579064		

Pace Analytical
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Sample Condition Upon Receipt

WO# : 60299829

60299829

Client Name: Impact 7G

Courier: FedEx ☑ UPS ☐ VIA ☐ Clay ☐ PEX ☐ ECI ☐ Pace ☐ Xroads ☐ Client ☐ Other ☐

Tracking #: 7749 5545 3728 Pace Shipping Label Used? Yes ☑ No ☐

Custody Seal on Cooler/Box Present: Yes ☑ No ☐ Seals intact: Yes ☑ No ☐

Packing Material: Bubble Wrap ☐ Bubble Bags ☑ Foam ☐ None ☐ Other ☐

Thermometer Used: T-298 Type of Ice: (Wet) Blue None

Cooler Temperature (°C): As-read 5.3 Corr. Factor -0.1 Corrected 5.2

Date and initials of person examining contents: 4/13/19 JJ

Temperature should be above freezing to 6°C

Chain of Custody present:	☑Yes ☐No ☐N/A	
Chain of Custody relinquished:	☑Yes ☐No ☐N/A	
Samples arrived within holding time:	☑Yes ☐No ☐N/A	
Short Hold Time analyses (<72hr):	☐Yes ☑No ☐N/A	
Rush Turn Around Time requested:	☐Yes ☑No ☐N/A	
Sufficient volume:	☑Yes ☐No ☐N/A	
Correct containers used:	☑Yes ☐No ☐N/A	
Pace containers used:	☑Yes ☐No ☐N/A	
Containers intact:	☑Yes ☐No ☐N/A	
Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?	☐Yes ☐No ☑N/A	
Filtered volume received for dissolved tests?	☐Yes ☐No ☑N/A	
Sample labels match COC: Date / time / ID / analyses	☑Yes ☐No ☐N/A	
Samples contain multiple phases? Matrix: wt + SL	☐Yes ☑No ☐N/A	
Containers requiring pH preservation in compliance? (HNO_3, H_2SO_4, HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO)	☐Yes ☐No ☑N/A	List sample IDs, volumes, lot #'s of preservative and the date/time added.
Cyanide water sample checks: Lead acetate strip turns dark? (Record only)	☐Yes ☐No	
Potassium iodide test strip turns blue/purple? (Preserve)	☐Yes ☐No	
Trip Blank present:	☐Yes ☑No ☐N/A	
Headspace in VOA vials (>6mm):	☐Yes ☑No ☐N/A	
Samples from USDA Regulated Area: State: IA	☐Yes ☑No ☐N/A	
Additional labels attached to 5035A / TX1005 vials in the field?	☐Yes ☐No ☑N/A	

Client Notification/ Resolution: Copy COC to Client? Y / N Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: _____ Date: _____

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page : 1 Of 1

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Impact 7G	Report To:	Jon Reis	Attention:	Jon Reis
Address:	9550 Hickman Road, Suite 105	Copy To:		Company Name:	Impact 7G, Inc.
	Clive, IA 50325			Address:	
Email:	jreis@impact7g.com	Purchase Order #:		Pace Quote:	
Phone:	515-231-3719 Fax:	Project Name:	Baker Property (Parcel 08984-997-005)	Pace Project Manager:	hank.kapka@pacelabs.com
Requested Due Date:		Project #:		Pace Profile #:	12909

Regulatory Agency	State / Location
	IA

ITEM #	SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test Y/N	OA1	OA2 DRO Reduced Volume	OA1	OA2	Trip BLANK	4/9/19	Residual Chlorine (Y/N)	00299826
1	SB-1	W	G	4-11-19	4:02pm	4-11-19	4:07pm		2				3						X	X	X	X		2JGFU 3DG9H		2AG4U 001
2	SB-1	SL	G	4-11-19	1:49pm	"	1:53pm		2										X	X	X	X		2AG4U		2JGFU 002
3	SB-2	W	G	4-11-19	3:24pm	"	3:27pm		2				3						X	X	X	X		2JGFU 3DG9H		2AG4U 003
4	SB-2	SL	G	4-11-19	3:13pm	"	3:15pm		2										X	X	X	X		2A		2JGFU 004
5																											
6																											
7																											
8																											
9																											
10																											
11																											
12																											

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
	Jacob Huxford	4-12-19	9:40AM	Pace	4/13/19	0845	5.2	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Jacob Huxford

SIGNATURE of SAMPLER: Jacob Huxford DATE Signed: 4-12-19

TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)

APPENDIX D

Borelogs/Monitoring Well Construction Details

Soil Boring Log Diagram for: Construction Materials Testing & Hubbell Realty Company - Baker Property - SB-1

Facility Name: Baker Property, Des Moines, Iowa		**UST Registration No.:** N/A	**LUST No.:** N/A
Well Contractor Name: Impact7G - Kenneth Buttler		**Drilling Method**:** Push GeoProbe	
Well Contractor Registration No: 11103		**Boring Depth (ft) x Diameter (in):** 20' x 2.875"	
Logged by: Jacob Huxford		**Ground Surface Elevation (ASL):** ~903'	
Start Date: 4/11/19	**Finish Date:** 4/11/19	**Top of Casing Elevation (ASL):** N/A	

Depth (feet)	Well Construction Details	Sample No.	Type*	PID/FID (PPM)	USCS	Sample Descriptions: soil, color, classification, observation
0						Surface - Corn Field
1				0.3	CL	Dark Brown Clay/Silt, Most, Soft, Medium Plasticity, No Odor
2				0.1		Brown
3				0.1	ML	Tan Silt/Sand/Clay, Moist, Soft, Low Plasticity, No Odor, Trace Oxidation
4				0.2		
5				0.2		
6				0.2	ML	Tan Silt/Sand with Trace Clay, Moist, Very Soft, Low Plasticity, No Odor, Trace Oxidation
7				0.2		Saturated
8				0.2		
9				0.1		
10				0.1	ML	Tan Silt/Sand, Moist, Soft, Low Plasticity, No Odor, Oxidation
11				0.1	SM	Tan/Gray Sand/Silt, Moist, Soft, Trace Plasticity, No Odor, Oxidation
12				0.1		
13	s	SB-1	CC	0.1		
14	Boring backfilled w/ bentonite upon completion			0.1	SP	Orange Sand, Wet/Saturated, Soft, No Odor, Oxidation
15				0.1	SP	Tan Sand, Wet, Soft, No Plasticity, No Odor, Trace Oxidation
16				0.0	SP	Tan Sand, Saturated, Soft, No Plasticity, No Odor
17				0.0		
18				0.0	ML	Gray/Tan Silt with trace Gravel and Clay, Soft, Trace Plasticity, No Odor, Oxidation
19				0.1		Firm
20	End of boring			0.1	ML	Gray Silt/Clay, Moist, Soft, Medium Plasticity, No Odor
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						

* Sample Types:	** Drilling Method Options:	Symbols to Use:
Split Spoon (SS)	Push GeoProbe	v – Static Water Level
Continuous Core (CC)		s – sample collected

Observation Date: 4/11/19

Time: 4:00 pm

Static Water Level (BGS): 4.0'

Soil Boring Log Diagram for: Construction Materials Testing & Hubbell Realty Company - Baker Property - SB-2

Facility Name: Baker Property, Des Moines, Iowa		**UST Registration No.:** N/A	**LUST No.:** N/A
Well Contractor Name: Impact7G - Kenneth Buttler		**Drilling Method**:** Push GeoProbe	
Well Contractor Registration No: 11103		**Boring Depth (ft) x Diameter (in):** 35' x 2.875"	
Logged by: Jacob Huxford		**Ground Surface Elevation (ASL):** ~878'	
Start Date: 4/11/19	**Finish Date:** 4/11/19	**Top of Casing Elevation (ASL):** N/A	

Depth (feet)	Well Construction Details	Sample No.	Type*	PID/FID (PPM)	USCS	Sample Descriptions: soil, color, classification, observation
0						Surface - Grass
1				0.3	ML	Dark Brown Silt with Trace Sand and Gravel, Dry, Firm, No Odor, No Plasticity
2				0.3		
3				0.3		
4				0.2	ML	Tan/Gray Silt/Sand, Damp, Firm, Trace Plasticity, No Odor, Oxidation
5				0.1		
6				1.0		
7				1.4		
8				0.3		
9				0.8	ML	Tan Silt, Damp, Firm, Trace Plasticity, No Odor, Oxidation
10				0.8		
11				1.2	ML	Tan/Gray Silt/Clay with Trace Gravel/Sand, Soft, Medium Plasticity, No Odor, Oxidation
12				1.1		
13				0.7		
14				0.6		
15				0.5		Gray
16				0.9	ML	Gray Silt/Clay, Moist, Soft, Medium Plasticity, No Odor
17				1.1		
18				1.0		
19				0.8		
20				0.7		
21				1.1	ML	Gray Silt/Clay, Moist, Soft, Medium Plasticity, No Odor
22				1.0		
23				1.2		
24				1.1		Firm
25				0.9		Soft
26	s	SB-2	CC	1.0		Firm
27				1.2		
28				1.1		Soft
29	Boring backfilled w/ bentonite upon completion			0.9		
30				1.0		Firm
31				1.0	ML	Gray/Blue Silt/Clay, Moist, Very Soft, Trace Plasticity, No Odor
32				0.8		
33				1.0		
34				0.6		
35	End of boring			0.8		

* Sample Types:	** Drilling Method Options:	Symbols to Use:
Split Spoon (SS)	Push GeoProbe	v – Static Water Level
Continuous Core (CC)		s – sample collected

Observation Date: 4/11/19

Time: 3:25 pm

Static Water Level (BGS): 26.3'

APPENDIX E

Additional Information

PHASE I ENVIRONMENTAL SITE ASSESSMENT

Baker Property
Near Hubbell Avenue and NE 44th Drive
Des Moines, Iowa 50317

Prepared For:

Construction Materials Testing
1610 E Madison Avenue
Des Moines, Iowa 50313

Hubbell Land Development
6900 Westown Parkway
West Des Moines, IA 50266

Prepared by:

9550 Hickman Road, Suite 105
Clive, Iowa 50325
Impact7G, Inc.

March 29, 2019

Project Summary

Baker Property
Near Hubbell Avenue and NE 44th Drive
Des Moines, Iowa 50317

Project Start Date: March 13, 2019
Phase I ESA Expiration Date: September 9, 2019

Report Component	Sec.	REC[1]	CREC[2]	HREC[3]	De Min[4]	Non-ASTM	Further Action	Comments
Current Property Use	**1.0**						**NO**	
Adjacent Properties	**3.3**						**NO**	
Historical Review	**5.3**						**NO**	
Previous Reports	**4.7**	**X**					**YES**	**See Section 4.7**
User Provided Information	**4.0**						**NO**	
Regulatory Database Review	**5.0**	**X**					**YES**	**See Section 5.1.16**
Site Reconnaissance:	**6.0**						**NO**	
• Hazardous Materials							**NO**	
• Petroleum Materials							**NO**	
Vapor Encroachment Screen	**7.0**	**X**					**YES**	**See Section 7.3**
Interviews	**8.0**						**NO**	
ASTM Non-Scope:	**13.0**						**NO**	

[1] *Recognized Environmental Condition* – See Definition in Executive Summary
[2] *Controlled Recognized Environmental Condition* – See Definition in Executive Summary
[3] *Historical Recognized Environmental Condition* – See Definition in Executive Summary
[4] *De Minimis Condition* – See Definition in Executive Summary

1.0 EXECUTIVE SUMMARY

1.1 Property Description

Impact7G, Inc. (Impact7G) was retained by Construction Materials Testing and Hubbell Realty Company (User) to conduct a Phase I Environmental Site Assessment (ESA), in general conformance with the scope and limitations of ASTM Standard Practice E1527-13 and the Environmental Protection Agency Standards and Practices for All Appropriate Inquiries ((AAI) (40 CFR Part 312)) for the property located near Hubbell Avenue and NE 44th Drive, Des Moines, Polk County, Iowa 50317 (Property). Any exceptions to, or deletions from, this practice are described in Sections 2.4, 6.1 and 12.0 of this report.

The Property is currently owned by Baker Real Estate LP. The Property is located in a primarily agricultural, forested, and commercial area of Des Moines, Iowa (Figure 2, Appendix A), and consists of approximately 29.21 acres of agricultural and forested land with an unnamed stream. There are no existing structures located on the Property.

The Property is described by the Polk County Assessor's Office website as:

Parcel #	Location	Description(s)
08984-997-005	-EX RD- & -EX PARCELS H THRU J BK 14417 PG 700- & -EX ROAD ACQ PLAT BK 14417 PG 699- ALL S OF RY N 100A N OF HUBBELL BLVD NE 1/4 SEC 21-79-23	Agricultural and forested land with an unnamed stream

The adjacent properties consist of the following:

Direction From Property	Description(s)
North	Forested land, agricultural land, and residential development
East	Hubbell Avenue, grass-covered land, an unnamed stream, and paved parking lot followed by residential development
South	Hubbell Avenue and commercial development (including equipment storage)
West	Forested land and an unnamed stream

1.2 Findings/Conclusions

Recognized Environmental Conditions (RECs) are defined by the ASTM Standard Practice E1527-13 as "*the presence or likely presence of any hazardous substances or petroleum products in, on, or at a Property: (1) due to release to the environment; (2) under conditions indicative of a release to the environment; or (3) under conditions that pose a material threat of a future release to the environment*."

- 4338 NE HUBBELL, identified by Facility ID 1204, is located 0.085 miles south of the Property at 4338 Hubbell Avenue in the up-gradient location. Impact7G reviewed correspondence from the Iowa Department of Natural Resources (DNR), a Limited Site Investigation dated February 18, 2008 prepared by Geotech Engineering and Observation, and a Brownfield Initial Site Screening (ISS) dated April 1, 2008 prepared by the Iowa DNR. According to these documents, benzene, TEH diesel and TEH motor oil were detected in groundwater at concentrations that exceed their respective Iowa DNR Tier 1 Standard for actual ingestion. TEH gasoline was detected at 329,000 ug/L with no applicable Tier 1 Standard for TEH gasoline. The Iowa DNR does not require any follow-up action based on the results of the Limited Site Investigation. Though the Iowa DNR does not require any follow-up action, groundwater contamination may be

present on the Property. Based on the presence of groundwater contamination above applicable regulatory standards at this nearby location, this site is considered to represent a REC and a VEC to the Property at this time.

Controlled Recognized Environmental Conditions (CRECs) are defined by the ASTM Standard Practice E1527-13 as "*a REC resulting from a past release of hazardous substances or petroleum products that has been addressed to the satisfaction of the applicable regulatory authority, with hazardous substances or petroleum products allowed to remain place subject to the implementation of required controls*."

- No CRECs were identified as part of this Phase I ESA.

Historical Recognized Environmental Conditions (HRECs) are defined by the ASTM Standard Practice E1527-13 as "*a past release of any hazardous substances or petroleum products that has occurred in connection with the [P]roperty and has been addressed to the satisfaction of the applicable regulatory authority or meeting unrestricted use criteria established by a regulatory authority, without subjecting the [P]roperty to any required controls*."

- No HRECs were identified as part of this Phase I ESA.

De Minimis Conditions are defined by the ASTM Standard Practice E1527-13 as "*a condition that generally does not present a threat to human health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies*."

- No De Minimis Conditions were identified as part of this Phase I ESA.

Non-Scope ASTM Considerations are described by the ASTM Standard Practice E1527-13 as "*environmental issues or conditions at a Property that parties may wish to assess in connection with commercial real estate that are outside the scope of [ASTM Standard Practice E1527-13]*."

- No Non-Scope ASTM Considerations were included as part of this Phase I ESA.

1.3 Professional Opinion

Based on data gathered during this Phase I ESA and Vapor Encroachment Screen, Impact7G believes that further investigation is warranted for the Property at this time. Soil, soil gas, and/or groundwater sampling should be conducted on the Property for chemicals of concern and/or petroleum contaminants. Please refer to Figure 2 in Appendix A for the location of the identified REC.