Advanced
GeoEnvironmental, Inc.

25 August 2008
AGE-NC Project No. 03-1101

Mr. Reed Rinehart
Rinehart Oil, Inc.
2401 North State Street
Ukiah, California 95482

Subject: **Additional Subsurface Investigation Report**
RINEHART OIL, INC. - OAKLAND TRUCK STOP
1107 5th Street, Oakland, California

Dear Mr. Rinehart:

Advanced GeoEnvironmental, Inc. has prepared the enclosed *Additional Subsurface Investigation Report* for the above-referenced site. The cone penetrometer test (CPT) was conducted as required by Mr. Jerry Wickham of the County Environmental Health Services - Department of Environmental Protection, to assess the lateral and vertical extent of petroleum hydrocarbon impact to ground water resulting from an unauthorized release from underground storage tanks. The scope of work included the advancement of three CPT sounding borings and the advancement of seven borings for the collection of grab ground water samples.

The opportunity to provide this service is greatly appreciated. If you have any questions or require further information, please contact our office at (707) 570-1418.

Sincerely,

***Advanced* GeoEnvironmental, Inc.**

Shawn Agarwal
Staff Geologist

2318 Fourth Street, Santa Rosa, California 95404
Telephone (707) 570-1418 Fax (707) 570-1461

Advanced
GeoEnvironmental, Inc.

25 August 2008
AGE-NC Project No. 03-1101

Mr. Jerry Wickham
Alameda County Environmental Health Services
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502-6577

Subject: **Additional Subsurface Investigation Report**
RINEHART OIL, INC. - OAKLAND TRUCK STOP
1107 5th Street, Oakland, California

Dear Mr. Wickham:

At the request of Mr. Reed Rinehart of RinoPacific, Inc., *Advanced* GeoEnvironmental, Inc. has prepared the enclosed *Additional Subsurface Investigation Report* for the above-referenced site. The cone penetrometer test (CPT) was conducted as required by the Alameda County Environmental Health Services - Department of Environmental Protection, to assess the lateral and vertical extent of petroleum hydrocarbon impact to ground water resulting from an unauthorized release from underground storage tanks. The scope of work included the advancement of three CPT sounding borings and the advancement of seven borings for the collection of grab ground water samples.

If you have any questions or require further information, please contact our office at (707) 570-1418.

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Shawn Agarwal
Staff Geologist

Enclosure

cc: Mr. Reed Rinehart - RinoPacific, Inc.

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Telephone (707) 570-1418 Fax (707) 570-1461

Additional Subsurface Investigation Report
RINEHART OIL, INC. - OAKLAND TRUCK STOP
1107 5th Street, Oakland, California

25 August 2008
AGE-NC Project No. 03-1101

PREPARED FOR:

Mr. Reed Rinehart
RINEHART OIL, INC.

PREPARED BY:

Advanced GeoEnvironmental, Inc.

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Additional Subsurface Investigation Report
RINEHART OIL, INC. - OAKLAND TRUCK STOP
1107 5TH Street, Oakland, California

25 August 2008
AGE-NC Project No. 03-1070

Advanced **GeoEnvironmental, Inc.**
837 Shaw Road, Stockton, California

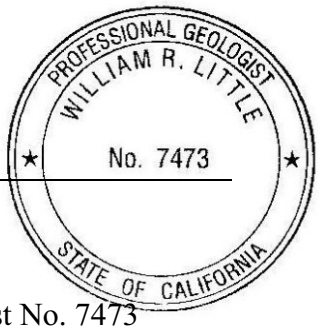
PREPARED BY:

Shawn K. Agarwal
Staff Geologist

PROJECT MANAGER:

Arthur E. Deicke
Project Scientist

REVIEWED BY:



William R. Little
Senior Project Geologist
California Professional Geologist No. 7473

Additional Subsurface Investigation Report
RINEHART OIL, INC. - OAKLAND TRUCK STOP
1107 5th Street, Oakland, California

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1107 5th Street, Oakland, California

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RINEHART OIL, INC. - OAKLAND TRUCK STOP
1107 5th Street, Oakland, California

1.0. INTRODUCTION

At the request of Mr. Reed Rinehart of RinoPacific, Inc., *Advanced* GeoEnvironmental, Inc. (AGE) has prepared the enclosed *Additional Subsurface Investigation Report* for the site located at 1107 5th Street, Oakland, California. Cone penetrometer test (CPT boring activities were conducted as required by the Alameda County Environmental Health Services - Department of Environmental Protection (ACEHS-DEP) to assess the lateral and vertical extent of petroleum hydrocarbon impact to ground water resulting from an unauthorized release from underground storage tanks (UST). The scope of work included the advancement of three CPT sounding borings and the advancement of seven borings for the collection of grab ground water samples. The location of the site is illustrated in Figure 1; a site plan is shown in Figure 2.

The CPT work was conducted in accordance with the *Additional Site Assessment Work Plan* dated 28 August 2008, and approved by the ACEHS-DEP by letter dated 18 April 2008. This report provides a description of the scope of work, procedures for CPT borings, and grab ground water sample collection. Additionally, the report presents the findings, conclusions, and recommendations of the investigation.

This report has been prepared in accordance with the California Regional Water Quality Control Board's *Tri-Regional Board Staff Recommendations for Preliminary Evaluation and Investigation of Underground Tank Sites* guidelines for the investigation of UST sites. Historical site background information documenting an unauthorized release of petroleum hydrocarbon compounds at the site is presented in Appendix A.

2.0. SCOPE OF WORK

Based on the results of the previous site investigations and remedial actions, a vertical assessment was required near the former UST release area and additional site assessment was required to the north and east of the site. The recent site investigation activities were conducted utilizing CPT technology. CPT allows electronic logging of subsurface stratigraphy and the collection of in-situ ground water samples at various depths. The purpose of the CPT investigation was to assess the lateral and vertical extent of petroleum hydrocarbon impacted ground water on and off-site. The scope of work consisted of the following tasks:

- Advancement of three CPT soil borings;
- Collection and analysis of grab ground water samples from the CPT locations; and
- Preparation of this report presenting AGE's findings, conclusions, and recommendations.

3.0. SITE INVESTIGATION ACTIVITIES

On 24 and 25 July 2008, AGE conducted the additional subsurface investigation at the site utilizing 25-ton truck mounted CPT drill rig. Prior to mobilization, the area of investigation was clearly marked and a utility clearance obtained through Underground Service Alert. An update to the health and safety plan presently on-file was prepared (including a traffic control plan) in accordance with *Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities* (National Institute for Occupational Safety and Health Administration, U.S. Coast Guard and U.S. Environmental Protection Agency, 1985). In addition, appropriate access and drilling permits were obtained from the City of Oakland and from the Alameda County Public Works Agency (ACPWA), respectively.

3.1. CPT SOIL BORINGS

A total of three borings (CPT-4 through CPT-6) were advanced to collect subsurface lithologic data and to collect discrete ground water samples (Figure 2). CPT boring (CPT-4) was advanced on-site, approximately 40 feet northeast of the former UST area. CPT boring CPT-5 was advanced off-site, in the dirt area on the north side of 5th Street. CPT boring CPT-6 was advanced east of the site, on the eastern edge of Chestnut Street. Locations of the CPT borings are shown on Figure 2.

Due to refusal, the total depths of the lithologic soundings in borings CPT-4, CPT-5, and CPT-6 were 49 feet bsg, 47 feet bsg and 45 feet bsg respectively. CPT soil boring procedures are presented in Appendix C.

3.2. CPT LITHOLOGIC SOUNDINGS

The ground water assessment was conducted utilizing CPT technology and techniques. A Gregg In-Situ 25-ton CPT rig equipped with hydraulic rams was used to advance an electronically instrumented piezocone attached to 1.5-inch diameter push rods. The electronic piezocone (CPTU) was used to infer hydrogeologic profiling of soil composition, strength, and additional hydrogeologic information. These measurements relate to specific soil properties which can be used to identify soil types. CPT lithology data is presented in Appendix C.

3.3. IN-SITU GROUND WATER SAMPLING AND ANALYSIS

Based on the results of previous site investigations and the CPT soundings, three depth intervals were selected within boring CPT-4 for the collection of in-situ ground water samples to assess the

lateral and vertical extent of petroleum hydrocarbon impact to ground water. For borings CPT-5 and CPT-6, two depth intervals were selected for the collection of in-situ ground water samples to assess lateral extent of hydrocarbon impact to ground water to the north and east of the site. Following completion of the initial sounding for the collection of lithologic data, ground water samples were collected from selected depth intervals (zone) based on previously acquired CPT-lithology data identifying potential hydrostratigraphic units of interest. To collect a grab ground water sample, a HydroPunch sampling tool was pushed into the specified zone, then withdrawn approximately three to four feet to expose an inlet screen; the interior of the sampling tool filled with water and a 1-inch outer diameter (O.D.) stainless steel bailer was lowered and utilized to extract a ground water sample. Seven grab ground water samples were collected from the following intervals:

- 22 to 25 feet bsg, 34 to 38 feet bsg, and 45 to 49 feet bsg from three separate borings immediately adjacent to boring CPT-4;
- 28 to 32 feet bsg and 42 to 45 feet bsg from two separate borings immediately adjacent to CPT-5; and
- 20 to 24 feet bsg and 36 to 40 feet bsg from two separate borings immediately adjacent to CPT-6.

Following sample collection, samples were placed in laboratory-supplied containers: three 40-ml volatile organic analysis (VOA) vials without sample preservative and into one 1-liter amber bottle without preservative and transported under chain of custody to Cal Tech Environmental Laboratories (CTEL), a California Department of Public Health (CDPH)-certified laboratory. All samples were analyzed for:

- Total petroleum hydrocarbons quantified as gasoline (TPH-g) and diesel (TPH-d) in accordance with EPA Method 8015 Modified and
- Benzene, toluene, ethylbenzene, and total xylenes (BTEX), fuel oxygenates di-isopropyl ether (DIPE), methyl tertiary-butyl ether (MTBE), ethyl tertiary-butyl ether (ETBE), tertiary-amyl methyl ether (TAME) and tertiary-butyl alcohol (TBA), and lead scavengers 1,2-dichloroethane (1,2-DCA), and 1,2-dibromoethane (EDB) in accordance with EPA Method 8260B.

4.0. FINDINGS

The general subsurface soil profile was modeled based on CPT data and soil samples collected from the soil borings advanced on- and off-site. The impact of the fuel release on ground water was assessed by laboratory analysis of selected ground water samples. Discussion of the subsurface soil

profile and ground water analytical results is presented below.

4.1. SUBSURFACE SOIL PROFILE

In CPT-4, silty sand, sandy silt and clayey silt was inferred from 5 to 20 feet bsg, sand was inferred from 20 to 25 feet bsg, 30 to 41 feet bsg, 43 to 47 feet bsg and 48 to 49 feet bsg. Stiff cemented sand was encountered between 25 and 30 feet bsg, 41 to 42 feet bsg and 47 to 48 feet bsg.

In CPT-5, silty sand, sandy silt and clayey silt was inferred from 5 to 8 feet bsg, 10 to 14 feet bsg, 21 to 25 feet bsg. Sand was inferred from 26 to 27 feet bsg, and 29 to 47 feet bsg. Clay was inferred between 15 to 19 feet bsg.

In CPT-6, silty sand, sandy silt and clayey silt, was inferred from 5 to 13 feet bsg, 15 to 21 feet bsg. Sand was noted between 21 to 24 feet bsg, 26 to 27 feet bsg, 30 to 31 feet bsg, and 33 to 40 feet bsg.

CPT-generated boring logs are presented in Appendix B.

4.2. GROUND WATER ANALYTICAL RESULTS

A total of seven ground water samples were collected from borings CPT-4 through CPT-5 and submitted for laboratory analysis. No contaminants of concern were detected in any of the samples analyzed. The analytical results of ground water samples are summarized in Table 3. The laboratory analytical report is presented in Appendix D.

5.0. SUMMARY AND CONCLUSIONS

On the basis of the information reviewed and collected during this investigation, AGE concludes:

- The general lithology of the site consists of silty soils between 5 and 20 feet bsg, and sands between 20 and 50 feet bsg.
- Based on the analytical results of ground water samples collected from the CPT investigation, the contaminate plume does not appear to be migrating to the north or east of the site.

6.0. RECOMMENDATIONS

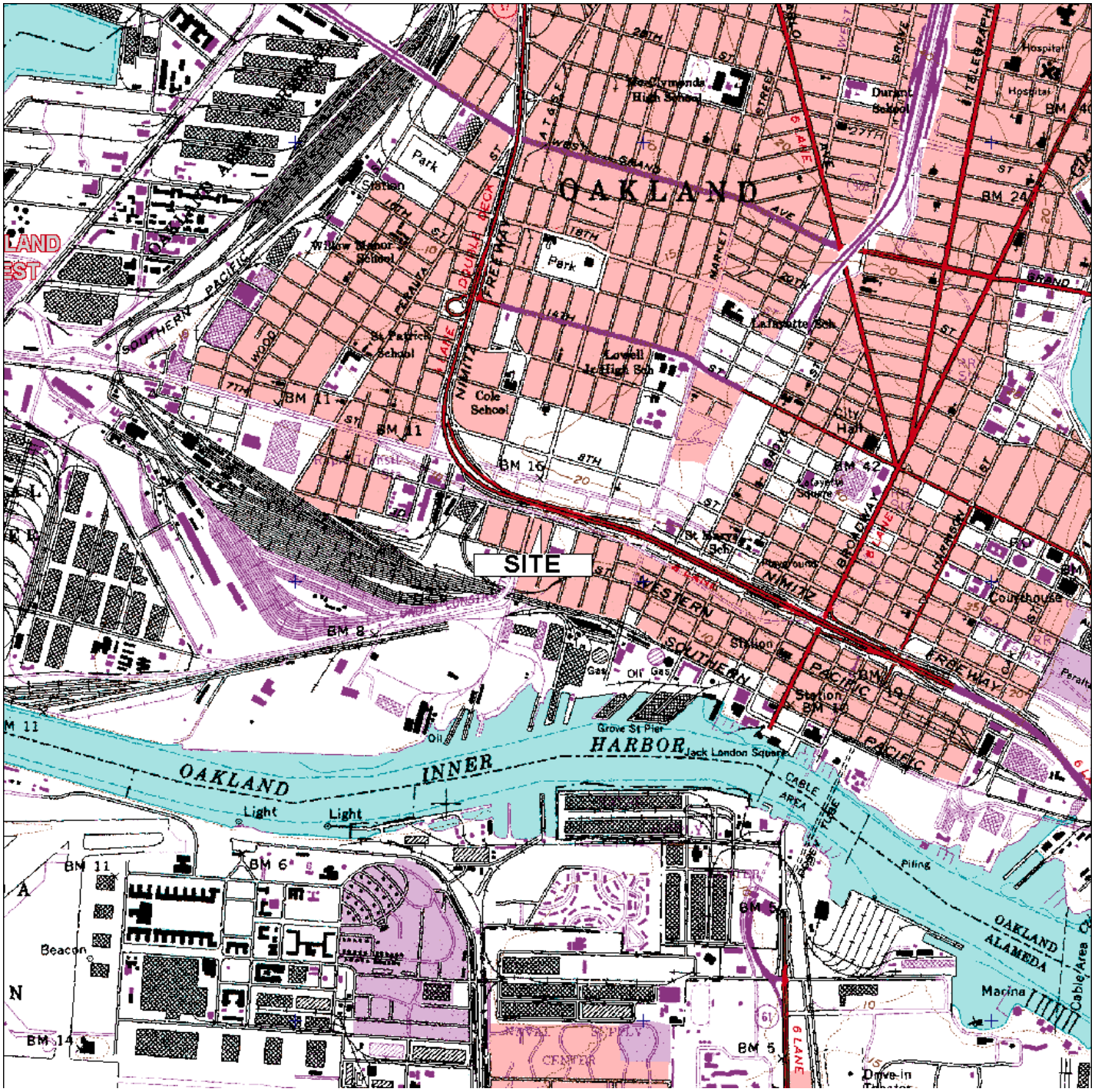
Based upon data reviewed and collected at the site, AGE recommends:

- Performance of a ground water monitoring event documenting the third quarter 2008.

7.0. LIMITATIONS

AGE's professional services were performed using that degree of care and skill ordinarily exercised by environmental consultants practicing in this or similar localities. The findings were based upon analytical results provided by an independent laboratory. Evaluations of the geologic/hydrogeologic conditions at the site for the purpose of this investigation were made from a limited number of available data points (i.e., CPT soundings and ground water samples) and subsurface conditions may vary beyond these data points. No other warranty, expressed or implied, is made as to the professional interpretations, opinions, or recommendations contained in this report.

FIGURES



OAKLAND WEST QUADRANGLE, CALIFORNIA
7.5 MINUTE SERIES (U.S. GEOLOGICAL SURVEY)

N

SCALE
0 2000 4000
FEET

LOCATION MAP

RINEHART – OAKLAND TRUCK STOP
1107 5TH STREET
OAKLAND, CALIFORNIA

Advanced GeoEnvironmental, Inc.
of Northern California

PROJECT NO. AGE-NC-03-1101	FILE: LOCATION	FIGURE: 1
DATE: 27 SEPTEMBER 2004	DRAWN BY: MAC	

SITE PLAN
RINEHART – OAKLAND TRUCK STOP
1107 5TH STREET
OAKLAND, CALIFORNIA

Advanced GeoEnvironmental, Inc.
of Northern California

PROJECT NO. AGE-NC-03-1101 | FILE: OaklandSTR1107 | FIGURE: 2
DATE: 12 AUGUST 2008 | DRAWN BY: MAC

BART AERIAL TRACKS
INTERSTATE 880 OVERPASS
5TH STREET
ADELINE STREET
CHESTNUT STREET
DRIVEWAY
BUILDING
GATED PARKING
APARTMENTS
BUILDINGS
PARKING
CPT-1
MW-16
MW-12
MW-13
MW-15
CPT-5
MW-8
MW-9
MW-1
MW-5
MW-4
MW-6
MW-7
MW-14
MW-3N
MW-10
MW-11
CPT-4
CPT-3
CPT-2
CPT-6
P1
P1-W
P2
P2-W
P3
P3-W
P4
P4-W
P5
P5-W
P6
P7
B-1
B-2
B-3
B-4
B-5
B-6
B-7
B-8
OZ1
OZ2
OZ3
OZ4
OZ5
OZ6
OZ7
OZ8
OZ9
OZ10
OZ11
OZ12
OZ13
OZ14
OZ15
OZ16
OZ17
OZ18
OZ19
OZ20
SCALE
PUMP ISLANDS
FORMER USTs
CURRENT USTs
CURB
WALL
FENCE

LEGEND

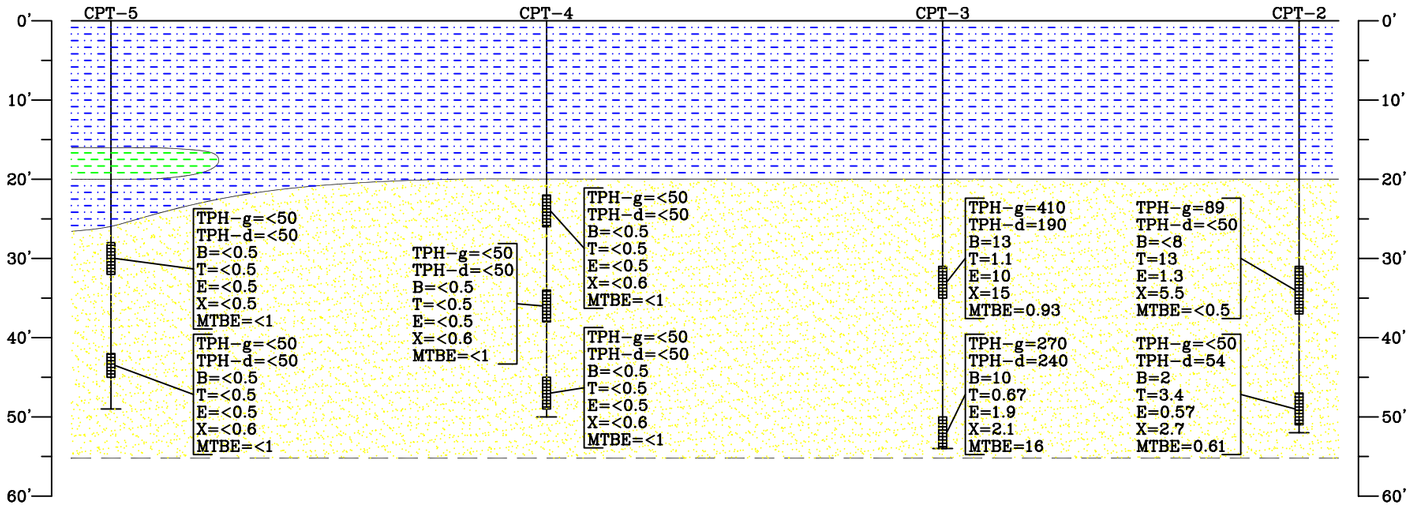
- FORMER UNDERGROUND STORAGE TANK (UST) LOCATION
- EXISTING STRUCTURE
- MW-1 GROUND WATER MONITORING WELL LOCATION & DESIGNATION
- B-6 SOIL BORING LOCATION & DESIGNATION (JULY 2002)
- OZONE SPARGE WELL LOCATION
- SOIL BORING/HYDROPUNCH BORING LOCATION (JULY 2006)
- GEOPROBE SOIL BORING LOCATION (JULY 2006)
- CPT-1 CPT BORING LOCATION (SEPTEMBER 2007)
- CPT-1 CPT BORING LOCATION (July 2008)

N

SCALE
0 40 80
FEET

B
NORTHWEST

B'
SOUTHEAST



LEGEND

- SP/SM/SW – SANDS, DENSE CONSOLIDATED SANDS
- SM/ML – SILTY SANDS & SANDY SILTS, CLAYEY SILTS
- ML/CL – SILTS, SILTY CLAYS, CLAYS

TPH-g=<50
TPH-d=<50
B=<0.5
T=<0.5
E=<0.5
X=<0.6
MTBE=<1

HYDROCARBON REPORTED IN MICROGRAMS PER LITER

SCALE
0 20 40
FEET

GEOLOGICAL CROSS SECTION: B-B'
RINEHART OAKLAND TRUCK STOP
1107 FIFTH STREET
OAKLAND, CALIFORNIA

Advanced GeoEnvironmental, Inc.

PROJECT NO. AGE-NC-03-1101 | FILE: RINEHART B-B' | FIGURE: 3
DATE: 11 AUGUST, 2008 | DRAWN BY: MAC

TABLES

TABLE 1
GRAB GROUND WATER ANALYTICAL RESULTS: TPH and BTEX
RINEHART OAKLAND TRUCK STOP
1107 5th Street, Oakland, California
(µg/l)

Sample I.D.	Date	EPA 8015M		EPA 8260B			
		TPH-g	TPH-d	Benzene	Toluene	Ethyl-benzene	Total Xylenes
P1-W-20	7/7/2006	**33,000**	**310,000**	**110**	<0.5	**2.3**	**17.3**
P1-W-35	7/7/2006	**19,000**	**4,500**	**63**	<0.5	**13**	**10.5**
P2-W-35	7/7/2006	<50	<50	<0.5	<0.5	<0.5	<0.6
P3-W-35	7/7/2006	<50	<50	<0.5	<0.5	<0.5	<0.6
P4-W-10	7/7/2006	**38,000**	**350,000**	<0.5	<0.5	<0.5	<0.6
P4-W-35	7/7/2006	<50	<50	<0.5	<0.5	<0.5	<0.6
P5-W-10	7/6/2006	**2,000**	<50	**32**	**36**	<0.5	<0.6
P5-W-35	7/6/2006	**220**	<50	**3.4**	<0.5	<0.5	<0.6
P6-20-W	7/18/2006	**130**	<50	**2.3**	**5.6**	<0.5	<0.6
P7-20-W	7/18/2006	**6,600**	**13,000**	<0.5	<0.5	<0.5	<0.6
CPT-1A	9/20/2007	<50	<50	<0.3	<0.3	<0.5	<0.5
CPT-1B	9/20/2007	<50	<50	<0.3	<0.3	<0.5	<0.5
CPT-1C	9/20/2007	<50	<50	<0.3	<0.3	<0.5	<0.5
CPT-2B	9/21/2007	**69**	<50	**8**	**13**	**1.3**	**5.5**
CPT-2C	9/21/2007	<50	**54**	**2**	**3.4**	**0.57**	**2.7**
CPT-3B	9/21/2007	**410**	**190**	**13**	**1.1**	**10**	**15**
CPT-3C	9/21/2007	**270**	**240**	**10**	**0.67**	**1.9**	**2.1**
CPT-4-25	7/24/2008	<50	<50	<0.5	<0.5	<0.5	<0.6
CPT-4-38	7/24/2008	<50	<50	<0.5	<0.5	<0.5	<0.6
CPT-4-49	7/24/2008	<50	<50	<0.5	<0.5	<0.5	<0.6
CPT-5-32	7/25/2008	<50	<50	<0.5	<0.5	<0.5	<0.6
CPT-5-45	7/25/2008	<50	<50	<0.5	<0.5	<0.5	<0.6
CPT-6-24	7/25/2008	<50	<50	<0.5	<0.5	<0.5	<0.6
CPT-6-40	7/25/2008	<50	<50	<0.5	<0.5	<0.5	<0.6

Notes:
µg/l: micrograms per liter
TPH-g: total petroleum hydrocarbons quantified as gasoline
TPH-d: total petroleum hydrocarbons quantified as diesel

TABLE 2
GRAB GROUND WATER ANALYTICAL RESULTS: FUEL ADDITIVES
RINEHART OAKLAND TRUCK STOP
1107 5th Street, Oakland, California
(µg/l)

EPA 8260B								
Sample I.D.	Date	MTBE	DIPE	ETBE	TAME	TBA	1,2-DCA	EDB
P1-W-20	7/7/2006	**11,000**	<1	<1	**17**	<10	**4.7**	<0.5
P1-W-35	7/7/2006	**9,200**	<1	<1	**16**	<10	**3.4**	<0.5
P2-W-35	7/7/2006	<1	<1	<1	<1	<10	<0.5	<0.5
P3-W-35	7/7/2006	<1	<1	<1	<1	<10	<0.5	<0.5
P4-W-10	7/7/2006	**4,000**	<1	<1	**5.3**	<10	<0.5	<0.5
P4-W-35	7/7/2006	<1	<1	<1	<1	<10	<0.5	<0.5
P5-W-10	7/6/2006	**950**	<1	<1	**3.4**	<10	<0.5	<0.5
P5-W-35	7/6/2006	**180**	<1	<1	<1	<10	<0.5	<0.5
P6-20-W	7/18/2006	**4.1**	<1	<1	<1	<10	<0.5	<0.5
P7-20-W	7/18/2006	**36**	<1	<1	<1	<10	<0.5	<0.5
CPT-1A	9/20/2007	<0.5	<0.5	<0.5	<0.5	<10	<0.5	<0.5
CPT-1B	9/20/2007	<0.5	<0.5	<0.5	<0.5	<10	<0.5	<0.5
CPT-1C	9/20/2007	<0.5	<0.5	<0.5	<0.5	<10	<0.5	<0.5
CPT-2B	9/21/2007	<0.5	<0.5	<0.5	<0.5	<10	<0.5	<0.5
CPT-2C	9/21/2007	**0.61**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CPT-3B	9/21/2007	**0.93**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CPT-3C	9/21/2007	**16**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CPT-4-25	7/24/2008	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CPT-4-38	7/24/2008	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CPT-4-49	7/24/2008	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CPT-5-32	7/25/2008	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CPT-5-45	7/25/2008	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CPT-6-24	7/25/2008	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CPT-6-40	7/25/2008	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Notes:

µg/l:	micrograms per liter
MTBE:	methyl tertiary-butyl eth
DIPE:	di-isopropyl ether
ETBE:	ethyl tertiary-butyl ether
TAME:	tertiary-amyl methyl eth
TBA:	tertiary-butyl alcohol
1,2-DCA:	1,2-dichloroethane
EDB:	1,2-dibromoethane

APPENDIX A

Appendix A - Historical Background
RINEHART OIL, INC. - OAKLAND TRUCK STOP
1107 5th Street, Oakland, California

A.1. BACKGROUND

The site is located at 1107 5th Street in a commercial and industrial area of west Oakland, California (Figure 1). The property contains a service station building, four fuel dispenser islands, a truck scale, scale house, and two underground storage tanks (USTs). The site has been operating as a truck stop for the past 40 years.

A.2. REGIONAL GEOLOGIC/HYDROGEOLOGIC SETTING

The site is situated within the Coast Range Geomorphic Province of California. This geomorphic province contains coastal foothills and mountains and extends from the Tehachapi Mountains in the south to the Klamath Mountains in the north. The western and eastern boundaries of this province are comprised of the Pacific Ocean and the Great Valley Geomorphic Province, respectively.

The site is located in the Franciscan Complex, which is subdivided into four major divisions identified as the Northern Coast Range, the Franciscan Block, the Diablo Range, and the Nacimiento Block. The site is situated within the Franciscan Block, an assemblage of variably deformed and metamorphosed rock units. The surface is composed of Quaternary alluvium; at depth, the site is underlain by rocks of the Franciscan Complex, which are composed predominately of detrital sedimentary rocks with volcanic tuffs and deep ocean marine sediments. The Franciscan lithologies typically have low porosity and permeability.

Based upon the General Soil Map from the *Soil Survey of Alameda County, Western Part*, issued by the United States Department of Agriculture Soil Conservation Service in 1981, the site area is situated within the Urban Land-Danville complex. This complex is located on low terraces and alluvial fans at an elevation of about 20 feet to 300 feet above mean sea level (MSL), and consists of approximately 60% Urban Land, 30% Danville soil, and 10% other soils. Danville soil is a silty clay loam that formed in alluvium originating primarily from sedimentary rock; Urban land consists of areas covered by roads, parking lots, and buildings. The nearest surface water feature in the vicinity of the property is the Oakland Estuary, approximately 2,400 feet to the south of the property.

Beginning in October 1996, ground water monitoring has been conducted at the site to assess the seasonal variation of elevation, gradient, and flow direction, and to define the impact of petroleum hydrocarbon compounds and fuel oxygenating compounds in shallow ground water beneath the site. Based on data from previous monitoring events, ground water at the property varies seasonally between approximately 10 inches to 6 feet below surface grade (bsg). The ground water flow has varied from southwest to north. This may be affected by changing recharge and discharge patterns, as well as leaking pipes.

A.3. UNDERGROUND STORAGE TANK REMOVAL

In March 1999, two 10,000-gallon diesel USTs, one 10,000-gallon gasoline UST, and one 8,000-gallon gasoline UST were removed from the site. The approximate location of the former USTs is shown on Figure 2.

Interim remedial action was performed during the UST removal to address contaminated soil and ground water. Approximately 2,100 tons of contaminated soil were removed from the excavation. Soil samples were collected from the excavation and stockpiles as directed by the Fire Inspector. Contaminated ground water was removed from the excavation pit; approximately 33,000 gallons of water were pumped into temporary storage tanks, which were then transported and disposed off-site. Approximately 1,700 tons of backfill was placed in the excavation. Results of the soil samples taken during the excavation are not available.

A.4. PREVIOUS SITE ASSESSMENT ACTIVITIES

In November 1996, ground water monitoring wells MW-1 through MW-3 were installed to a depth of 20 feet bsg to assess contamination from an unauthorized release of fuel, which was repaired as soon as it was discovered. Product recovery sumps equipped with skimmers were installed in the wells and approximately 6 gallons of gasoline were recovered.

Monitoring well MW-2 was destroyed in January 1999. Additional monitoring wells MW-4 through MW-9 were installed to a total depth of 20 feet bsg in August 2000. Contamination was detected in each of the wells, and free product was occasionally evident in well MW-7.

Monitoring wells MW-10 and MW-11 were installed in May 2002 to a total depth of 12 feet bsg. At this time, well MW-3 was abandoned and well MW-3N was installed to a depth of 12 feet bsg.

In July 2002, eight soil borings were advanced on 5th Street and Chestnut Street to total depths between 5 feet and 8 feet bsg to determine if contamination was migrating off-site along preferential pathways (i.e. utility trenches). Sample results indicated high methyl tertiary-butyl ether (MTBE) concentrations that ranged from 170,000 micrograms per liter (µg/l) to 460,000 µg/l in grab ground water samples from borings drilled directly north of the site, along the 5th Street sewer line. Borings east of the site had little to no contamination.

In January 2003, a passive skimmer was placed inside monitoring well MW-7 to remove free product. During monitoring activities in April 2004, free-product was noted in MW-8. The passive skimmer in MW-7 was moved to MW-8 to remove the free product.

On 04 and 05 October 2004, a total of thirteen soil borings were advanced at the site. Boring MW14 and the ten ozone sparge well borings were advanced at the north edge of the property to vertical depths of 20 feet and 15 feet below surface grade (bsg), respectively. Borings MW12 and MW13 were advanced in the 5th Street right of way to the north of the property to a vertical depth of 20 feet bsg. Pilot borings MW12 through MW14 were completed as ground water monitoring wells using 2-inch diameter polyvinylchloride (PVC) casing with a 0.020-inch slotted screen installed from 5 feet to 20 feet bsg. The ozone sparge well soil borings were completed with manufacturer-assembled, 2-inch by 24-inch microporous sparge points and blank casing extended to the surface, with a filter pack (No. 2/12 Lonestar sand) installed from 9 feet to 13 feet bsg. A total of three soil samples, taken from the monitoring well pilot borings, were analyzed for petroleum hydrocarbon constituents. In sample MW14-10, 1.8 milligrams per kilogram (mg/kg) TPH-d and 2.0 mg/kg MTBE were detected.

On 05, 06, and 07 July 2006, five soil borings were advanced on-site to a depth of 40 feet below surface grade (bsg) utilizing a CME-75 HT truck-mounted drill rig. On 18 July 2006, two additional soil borings were advanced on-site near the Adeline Street utility corridor to 20 feet bsg utilizing a van-mounted Geoprobe 5400 direct-push probing unit. All borings were continuously cored from surface grade to total depth. Soil and grab ground water samples were collected at selected intervals based on lithology encountered during drilling; grab ground water samples were collected from borings advanced immediately adjacent to P1 through P5, and at total depth in borings P6 and P7. Soil samples were collected between depths of 6 feet and 40 feet bsg from borings P1 through P7 and analyzed for petroleum hydrocarbon constituents. TPH-g was detected in soil samples P1-6, P1-21, P2-8, and P4-7 at concentrations of 210 mg/kg, 2.6 mg/kg, 110 mg/kg, and 10 mg/kg, respectively. TPH-d was detected in samples P1-6, P2-8, and P4-7 at concentrations of 7,600 mg/kg, 680 mg/kg, and 13,000 mg/kg, respectively.

Grab ground water samples were collected from soil borings advanced immediately adjacent to P1 through P5 at selected sandy zones between 10 feet and 35 feet bsg, and from borings P6 and P7 at a depth of 20 feet bsg. TPH-g was detected in boring P1 at 20 feet and 35 feet bsg, in boring P4 at 10 feet bsg, in boring P5 at 10 feet and 35 feet bsg, and in borings P6 and P7 at 20 feet bsg at concentrations ranging from 130 µg/l (P6-20-W) to 38,000 µg/l (P4-W-10). TPH-d was detected in boring P1 at 20 feet and 35 feet bsg, in boring P4 at 10 feet bsg, and in boring P7 at 20 feet bsg at concentrations ranging from 4,500 µg/l (P1-W-35) to 350,000 µg/l (P4-W-10). BTEX constituents were detected in boring P1 at 20 feet and 35 feet bsg, P5 at 10 feet and 35 feet bsg, and P6 at 20 feet bsg at maximum concentrations of 110 µg/l benzene (P1-W-20), 36 µg/l toluene (P5-W-10), 13 µg/l ethylbenzene (P1-W-35), and 17.3 µg/l total xylenes (P1-W-20). MTBE was detected in samples collected from boring P1 at 20 feet and 35 feet bsg, in boring P4 at 10 feet bsg, in boring P5 at 10 feet and 35 feet bsg, and in borings P6 and P7 at 20 feet bsg at concentrations ranging from 4.1 µg/l (P6-20-W) to 11,000 µg/l (P1-W-20). TAME was detected in boring P1 at 20 feet and 35 feet bsg, in boring P4 at 10 feet bsg, and in boring P5 at 10 feet bsg at concentrations ranging from 3.4 µg/l (P5-W-10) to 17 µg/l (P1-W-20). The lead scavenger 1,2-DCA was detected in boring

P1 at 20 feet and 35 feet bsg at concentrations of 4.7 µg/l and 3.4 µg/l, respectively. Benzene was detected in sample P1-21 at a concentration of 0.014 mg/kg. Toluene, ethylbenzene, and xylenes were detected in sample P2-8 at concentrations of 0.22 mg/kg, 0.62 mg/kg, and 4.2 mg/kg, respectively.

A.5. STRATIGRAPHY

In general, a distinct zone of gray-brown to black, moist to saturated peat and clay with a strong, stale odor was encountered throughout the site west of boring P1. The top of the peat zone was encountered at depths between approximately 7 feet on the western end of the site and 12 feet on the eastern end in boring P7, with thickness ranging from approximately 7 feet in boring P2 (east) to 20 feet in boring P4 (west). Clay and sandy clay were encountered in borings P3, P4, and P7 at depths above approximately 7 feet bsg, and gray to dark brown, fine-grained and poorly graded sand and silty sand were identified east of boring P1 and throughout the remaining depth intervals in all other borings.

APPENDIX B

Appendix B
Field Procedures and Protocol
RINEHART OIL, INC. - OAKLAND TRUCK STOP
1107 5th Street, Oakland, California

All field procedures will be overseen by an AGE representative under the supervision of a California Registered Geologist. Procedures for CPT boring advancement, in-situ ground water sampling, CPT boring abandonment, are outlined below.

B.1. CPT LITHOLOGIC SOUNDINGS

The ground water assessment was conducted utilizing CPT technology and techniques. A Gregg In-Situ 25-ton CPT rig equipped with hydraulic rams was used to advance an electronically instrumented piezocone attached to 1.5-inch diameter push rods. The electronic piezocone (CPTU) was used to infer hydrogeologic profiling of soil composition, strength, and additional hydrogeologic information. The CPTU measures cone bearing (tip resistence), sleeve friction, and dynamic pore water pressure at 5-cm intervals during penetration to provide a nearly continuous log. The CPTU test was performed in accordance with ASTM Standard D3441. The continuous boring log was generated utilizing the *Hogentogler Co*.CPT computer program. The *Hogentogler Co.* computer program utilized the *CPT Soil Behavior Classification System* (Robertson, P.K., Campanella, R.G, Gillespie, D. and Greig, J., 1986) to generate a general lithology type and display on a CPT boring log. At selected depth intervals, pore water pressure was monitored over time to estimate relative hydraulic conductivity and hydrostatic head. CPT measures during cone penetration include cone bearing (Qc), sleeve friction(Fs), and dynamic pore water pressure (u). These measurements relate to specific soil properties which can be used to identify soil types.

B.2. IN-SITU GROUND WATER SAMPLING AND ANALYSIS

Based on the results of previous site investigations and the CPT soundings, three depth intervals were selected within boring CPT-1 for the collection of in-situ ground water samples to assess the lateral and vertical extent of petroleum hydrocarbon impacts to ground water. For borings CPT-2 and CPT-3 two depth intervals were selected for the collection of in-situ ground water samples to assess the vertical extent impacts to ground water. Following completion of the initial sounding for the collection lithologic data, ground water samples were collected from selected depth intervals (zone) based on previously acquired CPT-lithology data identifying potential hydrostratigraphic units of interest. In-situ ground water samples were collected from selected relatively permeable saturated intervals using a Hydropunch-equivalent sampler. A stainless steel Hydropunch sampling tool attached to hollow-stem push rods was advanced in a closed position to the desired sampling interval. The push rod was then be retracted approximately four feet exposing the sampler inlet screen and allowing ground water to flow into the sampler. Ground water samples were collected utilizing a ½-inch diameter stainless steel bailer into the screen area.

In-situ ground water samples were collected from CPT-1 location at the first encountered water-bearing unit (ground water table unit identified as the "A-zone") and from a subsequent water-bearing units identified at greater depths (identified as the "B-zone" and C-zone) than the ground water table unit. Ground water samples were collected from borings CPT-2 and CPT-3 at depths within the water-bearing units identified as the B-zone and the C-zone.

B.3. GROUND WATER SAMPLE HANDLING

Ground water samples were collected into laboratory-supplied containers. Ground water samples for BTEX, TPH-g, and fuel additive analyses were collected into 40-ml volatile organic analysis (VOA) vials containing 0.5 ml of hydrochloric acid as preservative. Ground water samples for TPH-d analyses were collected into 1-liter amber bottles without preservative. Following sample collection, the sample containers were appropriately labeled and placed on ice in a cooler until delivered to the laboratory for analysis. Chain-of-custody protocols were used to document sample custody transfer from the field to the analytical laboratory.

B.4. BORING ABANDONMENT

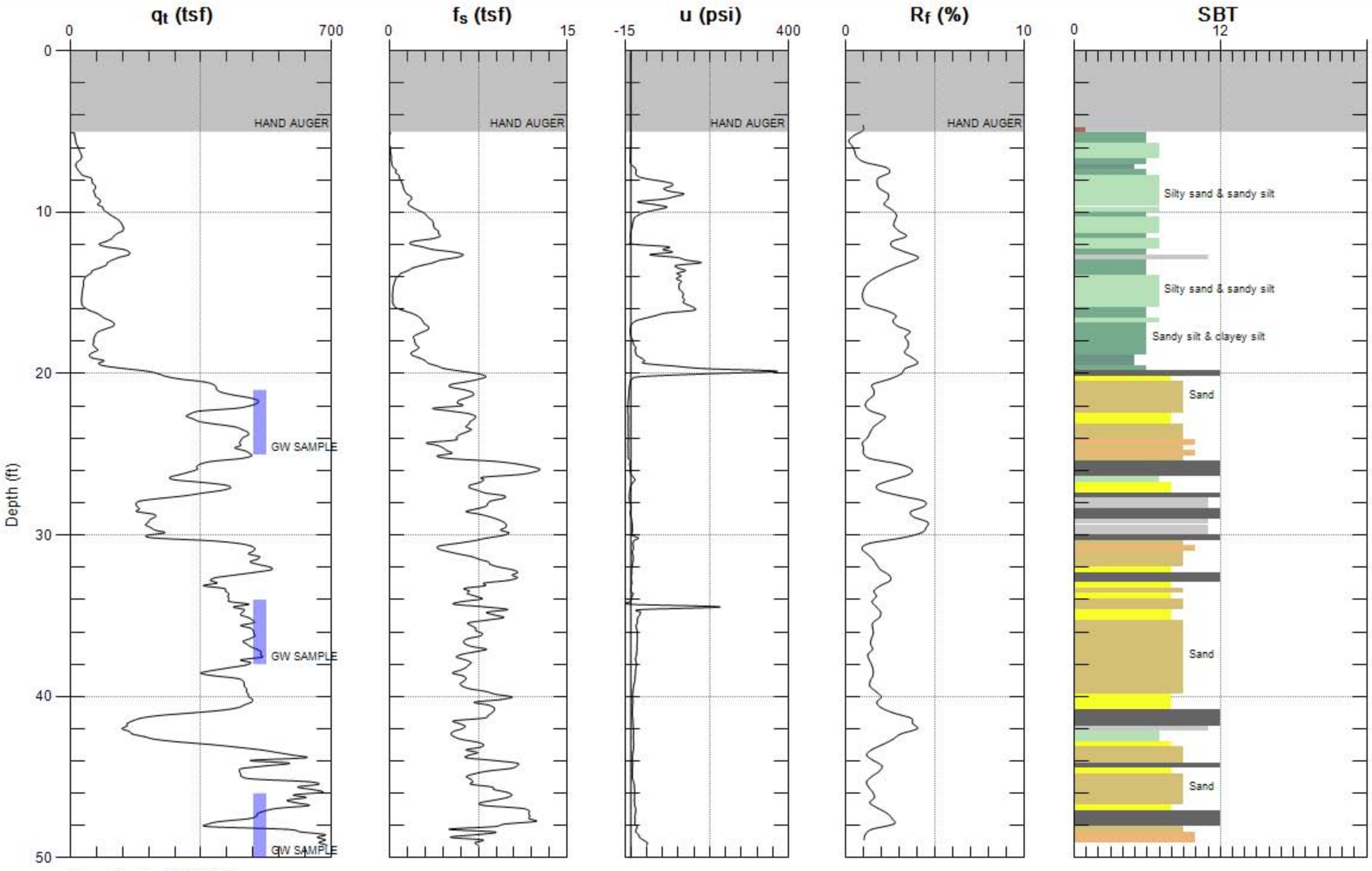
All CPT borings were permanently sealed to prevent vertical migration of potential contaminants. Probe borings were abandoned by backfilling with cement grout from the total depth to surface grade. Soil probe abandonment procedures were approved by the ACPWA.

APPENDIX C

ADVANCED GEOENVIRONMENTAL

Site: RINEHARD TRUCK STOP Engineer: S.AGARWAL

Sounding: CPT-04 Date: 7/24/2008 08:52



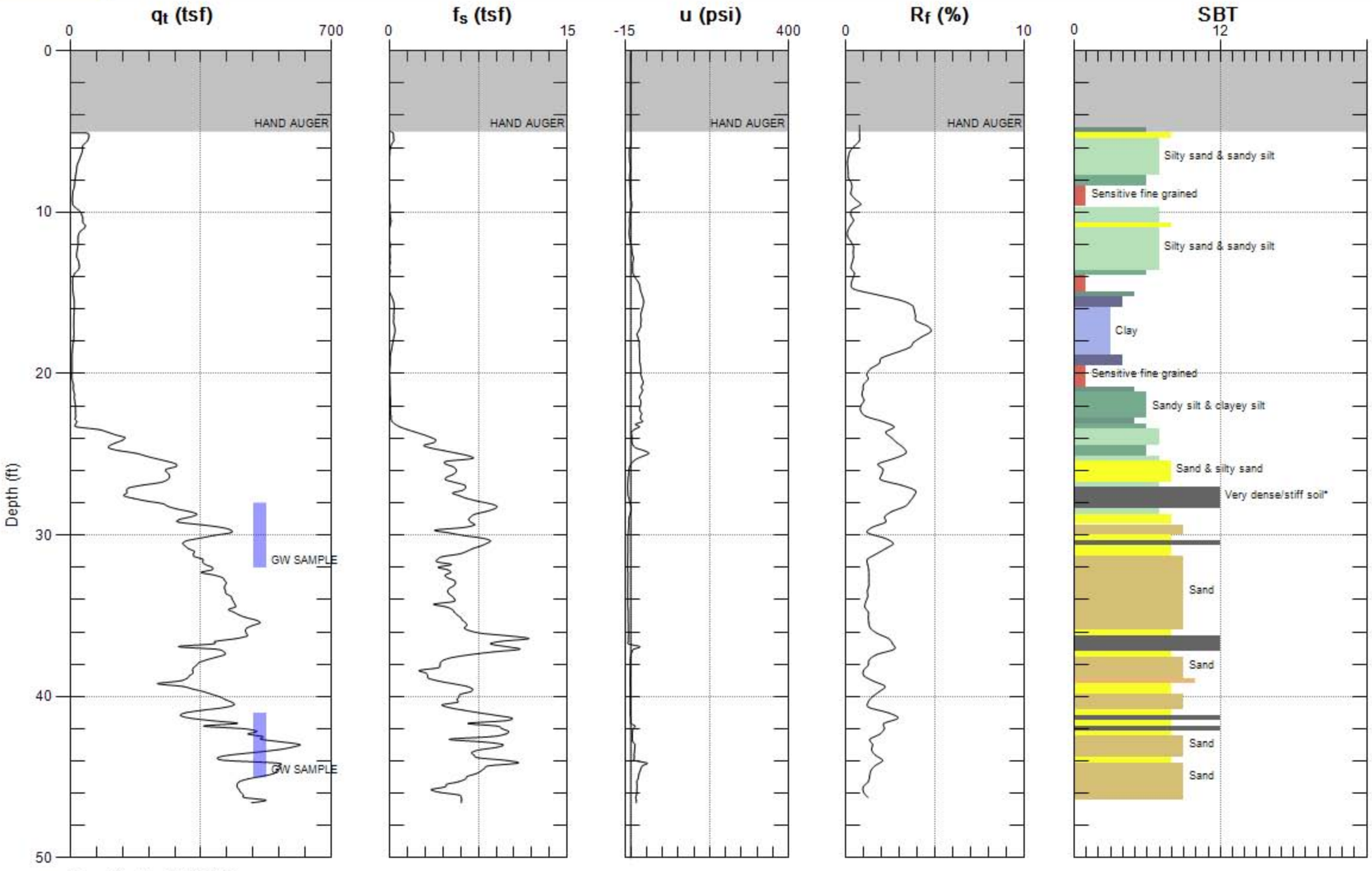
Max. Depth: 49.213 (ft)
Avg. Interval: 0.328 (ft)

SBT: Soil Behavior Type (Robertson 1990)

ADVANCED GEOENVIRONMENTAL

Site: RINEHARD TRUCK STOP Engineer: S.AGARWAL

Sounding: CPT-05 Date: 7/24/2008 02:10



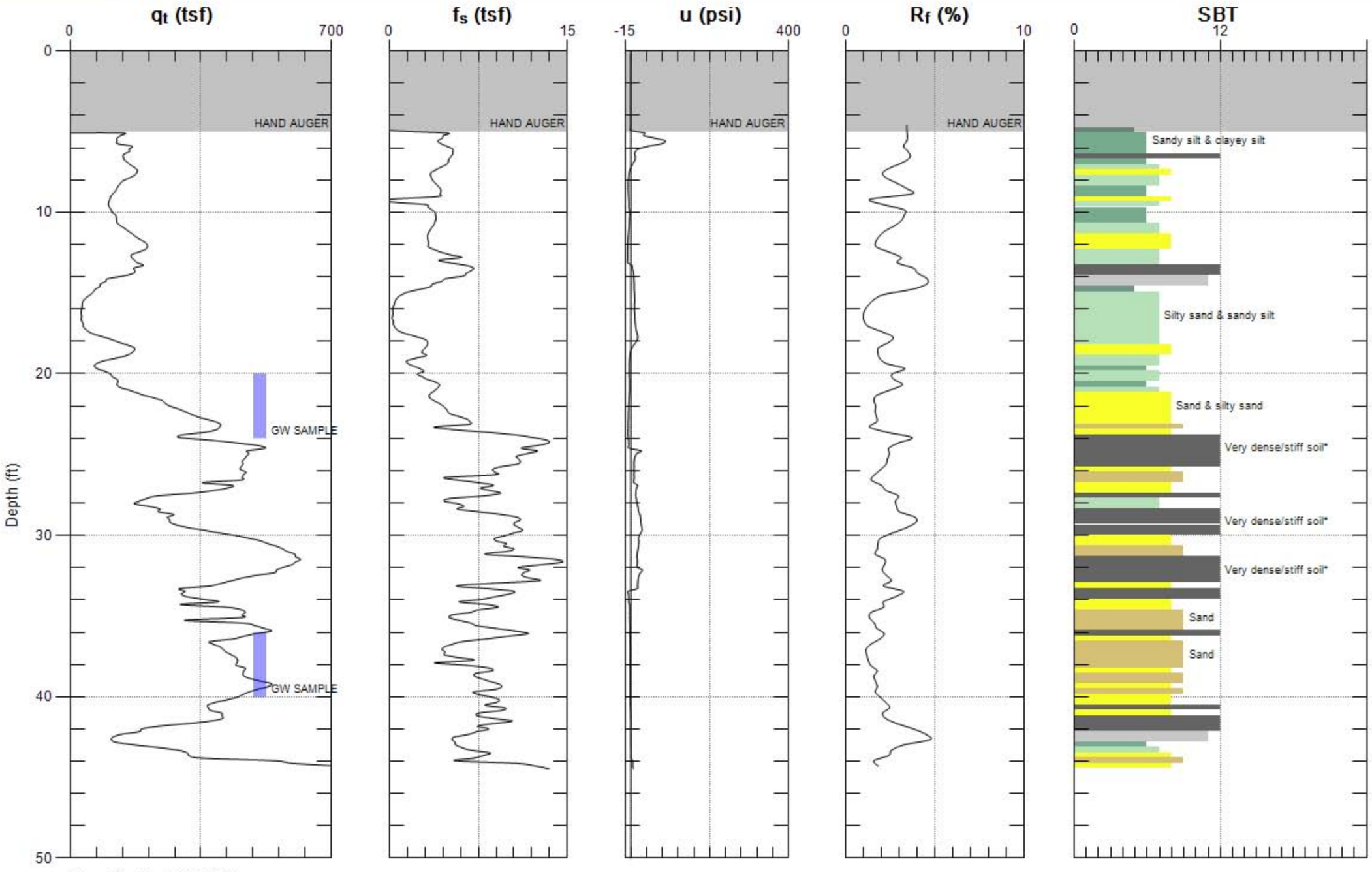
Max. Depth: 46.588 (ft)
Avg. Interval: 0.328 (ft)

SBT: Soil Behavior Type (Robertson 1990)

ADVANCED GEOENVIRONMENTAL

Site: RINEHARD TRUCK STOP Engineer: S.AGARWAL

Sounding: CPT-06 Date: 7/25/2008 07:59



Max. Depth: 44.455 (ft)
Avg. Interval: 0.328 (ft)

SBT: Soil Behavior Type (Robertson 1990)

APPENDIX D

Advanced
GeoEnvironmental, Inc.
837 Shaw Road - Stockton, California - 95215 - (209) 467-1006 - Fax (209) 467-1118

CHAIN OF CUSTODY RECORD

Date 7-25-08 Page 1 of 1

07-213

Client Reed Rinehart

Project Manager: Shawn Agarwal

Phone Number: 800-511-9300

Samplers: (Signature) Shawn Agarwal

Project Name: Rinehart Oakland Truck Stop

Tests Required: TPHg/d, BTEX, 5 fuel oxys

Invoice: AGE ☒ Client ☐

Sample Number	Location Description	Date	Time	Sample Type: Water Comp.	Sample Type: Water Grab.	Sample Type: Air	Solid	No. of Conts.	TPHg/d	BTEX	5 fuel oxys				Notes
CPT-5-32	sampled at 32'	7-25-08	1058		X			4	X	X	X				
CPT-5-46	sampled at 46'	7-25-08	1135		X			4	X	X	X				

Relinquished by: (Signature) Shawn Agarwal — Received by: (Signature) — Date/Time 7-25-08

Relinquished by: (Signature) — Received by: (Signature) — Date/Time

Relinquished by: (Signature) — Received by Mobile Laboratory for field analysis: (Signature) — Date/Time

Dispatched by: (Signature) — Date/Time — Received for Laboratory by: R. Tashima — Date/Time 7-26-08/10:00

S.T.A.T.

Method of Shipment: On Trac

Laboratory Name: Cal Tech

Special Instructions: EDF to admin2@advgeoenv.com

I hereby authorize the performance of the above indicated work.

Shawn Agarwal

CAL TECH Environmental Laboratories

6814 Rosecrans Avenue, Paramount, CA 90723-3146
Telephone: (562) 272-2700 Fax: (562) 272-2789

ANALYTICAL RESULTS*

CTEL Project No: CT214-0807-213
Client Name: Advanced Geo Environmental, Inc.
837 Shaw Road
Stockton, CA 95215
Phone:(209) 467-1006
Fax: (209) 467-1118
Attention: Mr. Art Deicke

Project ID: Global ID: T0607700
Project Name: Oakland Truck Stop

Date Sampled: 07/25/08 @ 11:35
Date Received: 07/26/08 @ 09:00 am
Date Analyzed: 07/28/08
Matrix: Water

Laboratory ID:	0807-213-1	0807-213-2	**Method**	**Units:**	**Detection Limit**
Client Sample ID:	CPT-5-32	CPT-5-46			
Dilution	1	1			
TPH - Gasoline	ND	ND	EPA 8015M	ug/L	50
TPH – Diesel	ND	ND	EPA 8015M	ug/L	50
VOC, 8260B					
Dilution	1	1			
Methyl-tert-butyl-ether(MtBE)	ND	ND	SW846 8260B	ug/L	1
t-Butyl Alcohol (TBA)	ND	ND	SW846 8260B	ug/L	10
Diisopropyl Ether (DIPE)	ND	ND	SW846 8260B	ug/L	1
Ethyl-t-butyl ether (ETBE)	ND	ND	SW846 8260B	ug/L	1
t-Amyl Methyl Ether (TAME)	ND	ND	SW846 8260B	ug/L	1
1,2-Dichloroethane	ND	ND	SW846 8260B	ug/L	0.5
1,2-Dibromoethane(EDB)	ND	ND	SW846 8260B	ug/L	0.5
Benzene	ND	ND	SW846 8260B	ug/L	0.5
Toluene	ND	ND	SW846 8260B	ug/L	0.5
Ethylbenzene	ND	ND	SW846 8260B	ug/L	0.5
m,p-Xylene	ND	ND	SW846 8260B	ug/L	0.6
o-Xylene	ND	ND	SW846 8260B	ug/L	0.6

ND = Not Detected at the indicated Detection Limit

SURROGATE SPIKE	% SURROGATE RECOVERY		Control Limit
Dibromofluoromethane	93	102	70-130
1,2 Dichloroethaned4	101	117	70-130
Toluene-d8	92	100	70-130
Bromofluorobenzene	118	125	70-130

G. TEJIRIAN

Greg Tejirian
Laboratory Director

*The results are base upon the sample received.

Cal Tech Environmental Laboratories, Inc. ELAP ID #: 2424

Advanced
GeoEnvironmental, Inc.
837 Shaw Road - Stockton, California - 95215 - (209) 467-1006 - Fax (209) 467-1118

CHAIN OF CUSTODY RECORD

Date 7-25-08 Page 1 of 1

07-214

Client Reed Rinehart

Project Manager Shawn Agarwal

Phone Number 800-511-9300

Samplers: (Signature) Shawn Agarwal

Project Name Rinehart Oakland Truck Stop

Invoice: AGE ☒ Client ☐

Sample Number	Location Description	Date	Time	Sample Type: Water Comp.	Sample Type: Water Grab.	Sample Type: Air	Solid	No. of Conts.	TPHg/d	BTEX	5 Fuel Oxys				Notes
CPT-4-25	sampled at 25'	7-24-8	1050		X			4	X	X	X				
CPT-4-38	" " at 38'	7-24-8	1130		X			4	X	X	X				
CPT-4-50	" " at 50'	7-24-8	1212		X			4	X	X	X				
CPT-6-24	" " at 24'	7-25-8	0925		X			4	X	X	X				
CPT6-40	" " at 40'	7-25-8	1005		X			4	X	X	X				

Relinquished by: (Signature) Shawn Agarwal — Received by: (Signature) — Date/Time 7-25-08

Relinquished by: (Signature) — Received by: (Signature) — Date/Time

Relinquished by: (Signature) — Received by Mobile Laboratory for field analysis: (Signature) — Date/Time

S.T.A.T.

Dispatched by: (Signature) — Date/Time — Received for Laboratory by: R Tejada — Date/Time 7-26-08 / 10:12

Method of Shipment: On Trac

Laboratory Name Cal Tech

Special Instructions: EDF to admin2@advgeoenv.com

I hereby authorize the performance of the above indicated work.

Shawn Agarwal

CAL TECH Environmental Laboratories

6814 Rosecrans Avenue, Paramount, CA 90723-3146
Telephone: (562) 272-2700 Fax: (562) 272-2789

ANALYTICAL RESULTS*

CTEL Project No: CT214-0807-214
Client Name: Advanced Geo Environmental, Inc.
837 Shaw Road
Stockton, CA 95215
Phone:(209) 467-1006
Fax: (209) 467-1118

Attention: Mr. Art Deicke

Project ID: Global ID: T0607700
Project Name: Oakland Truck Stop

Date Sampled: 07/25/08 @ 12:12 pm
Date Received: 07/26/08 @ 09:00 am
Date Analyzed: 07/28/08
Matrix: Water

Laboratory ID: / Client Sample ID:	0807-214-1 CPT-4-25	0807-214-2 CPT-4-38	0807-214-3 CPT-4-50	Method	Units:	Detection Limit
Dilution	1	1	1			
TPH - Gasoline	ND	ND	ND	EPA 8015M	ug/L	50
TPH – Diesel	ND	ND	ND	EPA 8015M	ug/L	50
VOC, 8260B						
Dilution	1	1	1			
Methyl-tert-butyl-ether(MtBE)	ND	ND	ND	SW846 8260B	ug/L	1
t-Butyl Alcohol (TBA)	ND	ND	ND	SW846 8260B	ug/L	10
Diisopropyl Ether (DIPE)	ND	ND	ND	SW846 8260B	ug/L	1
Ethyl-t-butyl ether (ETBE)	ND	ND	ND	SW846 8260B	ug/L	1
t-Amyl Methyl Ether (TAME)	ND	ND	ND	SW846 8260B	ug/L	1
1,2-Dichloroethane	ND	ND	ND	SW846 8260B	ug/L	0.5
1,2-Dibromoethane(EDB)	ND	ND	ND	SW846 8260B	ug/L	0.5
Benzene	ND	ND	ND	SW846 8260B	ug/L	0.5
Toluene	ND	ND	ND	SW846 8260B	ug/L	0.5
Ethylbenzene	ND	ND	ND	SW846 8260B	ug/L	0.5
m,p-Xylene	ND	ND	ND	SW846 8260B	ug/L	0.6
o-Xylene	ND	ND	ND	SW846 8260B	ug/L	0.6

ND = Not Detected at the indicated Detection Limit

SURROGATE SPIKE	% SURROGATE RECOVERY			Control Limit
Dibromofluoromethane	110	106	108	70-130
1,2 Dichloroethaned4	123	106	122	70-130
Toluene-d8	104	95	96	70-130
Bromofluorobenzene	122	122	127	70-130

CTEL Project No:	CT214-0807-214
Client Name:	Advanced Geo Environmental, Inc.
	837 Shaw Road
	Stockton, CA 95215
	Phone:(209) 467-1006
	Fax: (209) 467-1118
Attention:	Mr. Art Deicke
Project ID:	Global ID: T0607700
Project Name:	Oakland Truck Stop
Date Sampled:	07/25/08 @ 12:12 pm
Date Received:	07/26/08 @ 09:00 am
Date Analyzed:	07/28/08
	Matrix: Water

Laboratory ID:	0807-214-4	0807-214-5	**Method**	**Units:**	**Detection Limit**
Client Sample ID:	CPT-6-24	CPT-6-40			
Dilution	1	1			
TPH - Gasoline	ND	ND	EPA 8015M	ug/L	50
TPH – Diesel	ND	ND	EPA 8015M	ug/L	50
VOC, 8260B					
Dilution	1	1			
Methyl-tert-butyl-ether(MtBE)	ND	ND	SW846 8260B	ug/L	1
t-Butyl Alcohol (TBA)	ND	ND	SW846 8260B	ug/L	10
Diisopropyl Ether (DIPE)	ND	ND	SW846 8260B	ug/L	1
Ethyl-t-butyl ether (ETBE)	ND	ND	SW846 8260B	ug/L	1
t-Amyl Methyl Ether (TAME)	ND	ND	SW846 8260B	ug/L	1
1,2-Dichloroethane	ND	ND	SW846 8260B	ug/L	0.5
1,2-Dibromoethane(EDB)	ND	ND	SW846 8260B	ug/L	0.5
Benzene	ND	ND	SW846 8260B	ug/L	0.5
Toluene	ND	ND	SW846 8260B	ug/L	0.5
Ethylbenzene	ND	ND	SW846 8260B	ug/L	0.5
m,p-Xylene	ND	ND	SW846 8260B	ug/L	0.6
o-Xylene	ND	ND	SW846 8260B	ug/L	0.6

ND = Not Detected at the indicated Detection Limit

SURROGATE SPIKE	% SURROGATE RECOVERY		Control Limit
Dibromofluoromethane	123	128	70-130
1,2 Dichloroethaned4	121	122	70-130
Toluene-d8	89	90	70-130
Bromofluorobenzene	117	120	70-130

G. Tejirian

Greg Tejirian
Laboratory Director

*The results are base upon the sample received.

Cal Tech Environmental Laboratories, Inc. ELAP ID #: 2424