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June 20, 2014

Mr. Keith Nowell
Alameda County Health Care Services Agency
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577

Subject: **Work Plan –CPT Investigation**

Site: **76 Station No. 5191/5043**
449 Hegenberger Road
Oakland, California
Fuel Leak Case No. RO0000219

Dear Mr. Nowell;

I declare under penalty of perjury that to the best of my knowledge the information and/or recommendations contained in the attached report is/are true and correct.

If you have any questions or need additional information, please call:

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Sincerely,

PACIFIC CONVENIENCE & FUEL

WALTER SPRAGUE
Director of Retail Services

Attachment

Work Plan - CPT Investigation

76 Station No. 5191/5043
449 Hegenberger Road
Oakland, CA

Alameda County Health Care Services Agency
Fuel leak Case No. RO0000219
Regional Water Quality Control Board
San Francisco Bay No. 01-1601

GeoTracker Global ID No.T0600101476

Antea Group Project No. I42705191
June 20, 2013

Prepared for:
Mr. Keith Nowell
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1.0 INTRODUCTION

Antea Group has prepared this work plan proposing the advancement of two (2) cone penetration test (CPT) borings CPT-1 and CPT-2 in preparation for soil excavations at the site located at 449 Hegenberger Road in Oakland, California. The purpose of the proposed CPT borings is to obtain additional data for shoring design for the excavations.

1.1 Site Description

The site is currently an operating 76 station located at 449 Hegenberger Road in Oakland, California (**Figure 1**). The site contains six fuel dispensers on two dispenser islands under a single canopy, three fuel underground storage tanks (USTs) on the north side of the site, a carwash facility on the west side of the site, and a station building in the central portion of the site. The current site features are shown on **Figure 2**. A summary of previous assessment and sensitive receptors are presented in **Attachment A**.

2.0 SITE GEOLOGY AND HYDROGEOLOGY

The site is underlain by Holocene-age bay mud. The bay mud typically consists of unconsolidated, saturated clay and sandy clay that is rich in organic material. The bay mud locally contains lenses and stringers of silt, well-sorted sand and gravel, and beds of peat.

The most recent monitoring and sampling event was conducted at the site on June 12, 2014. The measured depth to groundwater ranged from 2.39 feet to 5.76 feet below top of casing (TOC). The groundwater flow direction was east southeast with an average hydraulic gradient of 0.024 foot per foot.

3.0 PROPOSED ACTIVITIES

3.1 Permitting, Utility Notification, and Borehole Clearance

Before commencing field activities Antea Group will update the Health and Safety Plan in accordance with state and federal requirements for use during boring activities. Antea Group will obtain drilling permits for the advancement of two CPT borings from from the Alameda County Public Works Agency. Prior to drilling, Underground Service Alert (USA) will be notified, as required by law, and a private utility

locator will be employed to clear the boring locations for underground utilities. In addition, a hand auger will be used to clear the borings to a depth of 5 feet bgs prior to CPT boring advancement.

3.2 CPT Advancement

Antea Group will advance CPT boring CPT-1 in the center of proposed excavation area A1 and CPT boring CPT 2 in proposed excavation area A2 (**Figure 2**). The CPT borings will be advanced to a total depth of approximately 50 feet in order to collect data for the soil. Subsequent to boring advancement, the location will be backfilled to the surface with neat cement using the rods as a tremie pipe.

3.3 Disposal of Drill Cuttings and Wastewater

Soil cuttings and decontamination water generated during the wells destruction activities will be placed into properly labeled 55-gallon Department of Transportation (DOT) approved steel drums. Samples of the drill cuttings and decontamination water will be collected, properly labeled, placed on ice, and submitted to a California-certified laboratory for analysis of total petroleum hydrocarbons as gasoline (TPHg), benzene, toluene, ethylbenzene, and total xylenes (BTEX), and methyl tertiary-butyl ether (MTBE) by Environmental Protection Agency (EPA) Method 8260, and CAM 17 metals by EPA Method 6010. Chain-of-custody documentation will accompany the samples during transportation to the laboratory. Subsequent to receiving the laboratory analytical results, the drummed soil cuttings and decontamination wastewater will be profiled, transported, and disposed of at an approved facility.

4.0 REPORTING

Following completion of the field work and receipt of analytical results, a report will be prepared and submitted within 60 days. The report will present the details of the boring advancement activities, including a copy of the drilling permit, details of disposal activities and copies of disposal documents (if available), and copies of CPT logs. Required electronic submittals will be uploaded to the State Geotracker database.

5.0 REMARKS

The recommendations contained in this report represent Antea USA, Inc.'s professional opinions based upon the currently available information and are arrived at in accordance with currently accepted professional standards. This report is based upon a specific scope of work requested by the client. The contract between Antea USA, Inc. and its client outlines the scope of work, and only those tasks specifically authorized by that contract or outlined in this report were performed. This report is intended only for the use of Antea USA, Inc.'s client and anyone else specifically identified in writing by Antea USA, Inc. as a user of this report. Antea USA, Inc. will not and cannot be liable for unauthorized reliance by any other third party. Other than as contained in this paragraph, Antea USA, Inc. makes no express or implied warranty as to the contents of this report.

Prepared by:

Jonathan Fillingame Date: 6/20/14
Staff Geologist

Information, conclusions, and recommendations provided by Antea Group in this document regarding the site have been prepared under the supervision of and reviewed by the licensed professional whose signature appears below.

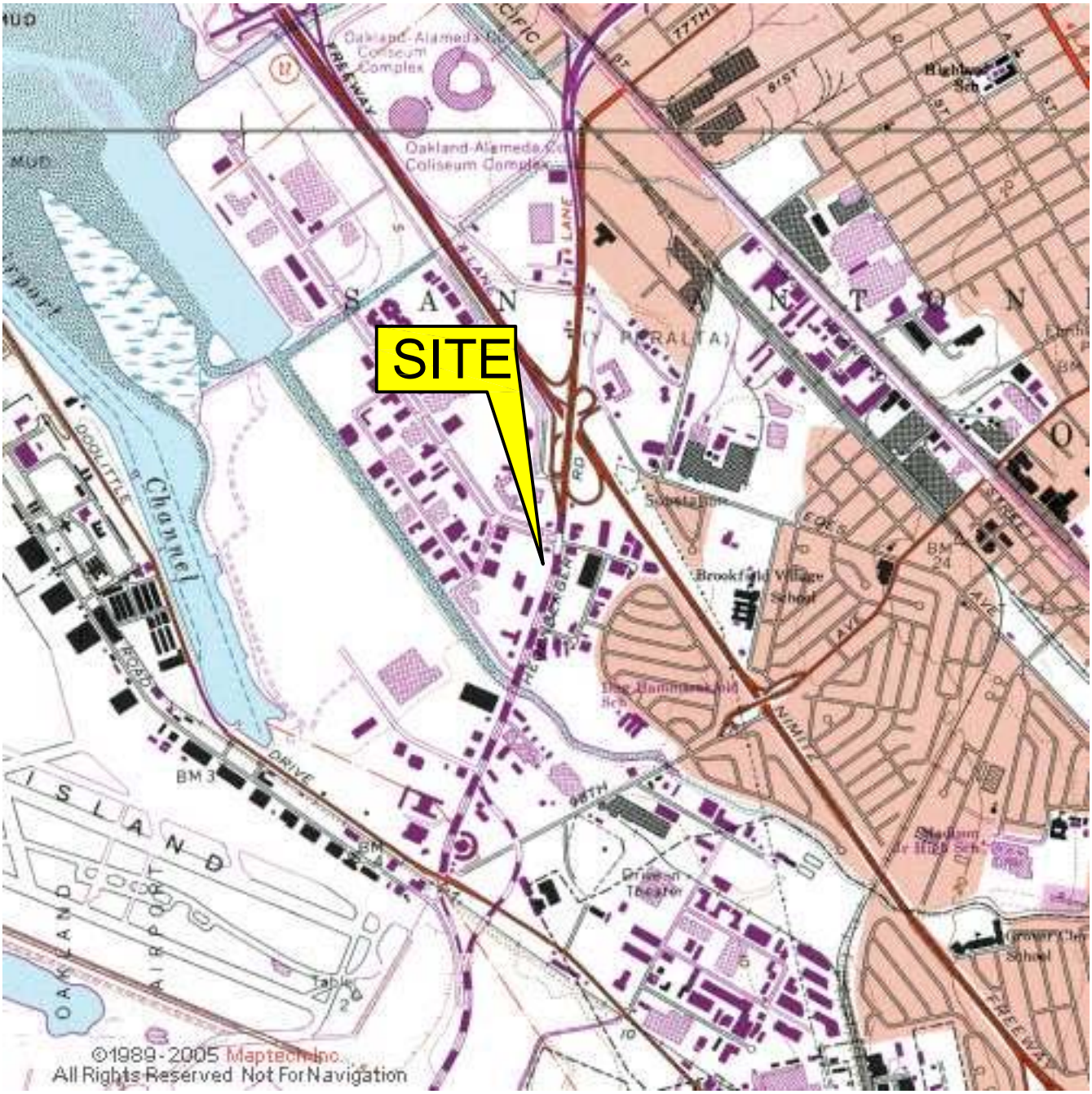
Licensed Approver:

PROFESSIONAL GEOLOGIST
DENNIS SHANNON DETTLOFF
No. 7480
STATE OF CALIFORNIA

Dennis S. Dettloff Date: 6/20/14
Dennis S. Dettloff, P.G.
Senior Project Manager
California Registered Professional Geologist No. 7480

Figures

Figure 1 Site Location Map
Figure 2 Site Plan



North

0 900 1800 FT

SCALE

SOURCE: USGS 7.5 MINUTE TOPOGRAPHIC MAP, OAKLAND EAST QUADRANGLE (1973)

FIGURE 1

SITE LOCATION MAP

76 Station No. 5191/5043
449 HEGENBERGER ROAD
OAKLAND, CALIFORNIA

PROJECT NO. 142611270	DRAWN BY JH 06/02/09
FILE NO. 11270-SiteLocator	PREPARED BY DD
REVISION NO.	REVIEWED BY

DELTA®

LEGEND

- APPROXIMATE PROPERTY BOUNDARY
- MW– MONITORING WELL
- MW– ABANDONED MONITORING WELL
- SB– SOIL BORING LOCATION (ANTEA GROUP 2013)
- HPB– SOIL BORING LOCATION (ANTEA GROUP 2012)
- B– BORING LOCATION
- SOIL SAMPLE LOCATION
- 1995 EXCAVATION AREA
- PROPOSED EXCAVATION AREA
- CPT– PROPOSED CPT BORING

North

0 30

SCALE IN FEET

ADAPTED FROM A MORROW SURVEY ON 5/23/11 AND A SOIL SAMPLING REPORT AND CONTINUING GROUNDWATER INVESTIGATION BY KAPREALIAN ENGINEERING, INC., 6/2/95

FIGURE 2
SITE PLAN WITH PROPOSED LOCATIONS

76 STATION NO. 5191/5043
449 HEGENBERGER ROAD
OAKLAND, CALIFORNIA

PROJECT NO.	PREPARED BY	DRAWN BY
142705191	JF	JH
DATE	REVIEWED BY	FILE NAME
6/20/14	DD	5191-SiteS

antea group

Attachment A

Previous Investigation and Site History Summary

PREVIOUS INVESTIGATION AND SITE HISTORY SUMMARY

October 1991 - Four soil samples were collected from the product pipe trenches at depths of approximately 3 feet below ground surface (bgs) during a dispenser island modification. The product pipe trenches were subsequently excavated to the groundwater depth at 4 to 4.5 feet bgs.

February 1992 - Three monitoring wells, MW-1 through MW-3, were installed at the site to depths ranging from 13.5 to 15 feet bgs.

August 1992 - Three additional monitoring wells, MW-4 through MW-6, were installed at the site to a depth of 13.5 feet bgs.

September 1994 - One 280-gallon waste-oil UST was removed from the site. The UST was made of steel, and no apparent holes or cracks were observed in the UST. One soil sample was collected from beneath the former UST at a depth of approximately 9 feet bgs. No petroleum hydrocarbons were reported.

January 1995 - Two additional monitoring wells, MW-9 and MW-10, were installed to depths of 13 and 15 feet bgs. In addition, monitoring wells MW-4 and MW-5 were destroyed by over-drilling the wells and backfilling with neat cement.

March 1995 - Two 10,000-gallon gasoline USTs and one 10,000-gallon diesel UST were removed from the site. Groundwater was encountered in the tank cavity at a depth of approximately 8.5 feet bgs. Soil samples contained total petroleum hydrocarbons as diesel (TPHd) and benzene, and TPH as gasoline (TPHg). Approximately 125,000 gallons of groundwater were pumped from the site for remediation and properly disposed off-site. Four fuel dispenser islands and associated product piping were also removed. Based on the results of the confirmation samples, the product dispenser islands were over excavated to approximately 6 feet bgs.

March-April 1995 - During demolition activities of the former station building, soil samples were collected from two excavations, which were subsequently over excavated. Confirmation samples contained petroleum hydrocarbons. An additional area on the south side of the former station building was excavated based on photo-ionization detector (PID) readings. Two monitoring wells, MW-1 and MW-2, were destroyed in order to allow for over excavation activities to extend to an area adjacent to the dispenser islands in the southeastern quadrant of the site. The excavated areas were subsequently backfilled with clean-engineered fill.

April 1997 - Two additional monitoring wells, MW-7 and MW-8, were installed off-site to the south and east on the neighboring property to a depth of 13 feet bgs. In addition, monitoring well MW-3, which was damaged during site renovation activities, was fully drilled out and reconstructed in the same borehole.

October 2003 - Site environmental consulting responsibilities were transferred to TRC.

April 8-9, 2005 - TRC conducted a 24-hour dual phase extraction (DPE) test at the site using monitoring well MW-6. The 24-hour DPE test was only moderately successful at removing vapor-phase petroleum hydrocarbons from the subsurface; therefore, TRC recommended DPE no longer be considered a viable remedial alternative for the site.

October 2007 - Site environmental consulting responsibilities were transferred to Delta Consultants.

December 2009 - Delta advanced two borings, B-4 and B-5, to depths of 20 feet bgs and 32 feet bgs, respectively. Analytical results from the soil and groundwater samples collected from these two borings indicated that the soil and the groundwater were impacted by petroleum hydrocarbons at these locations.

June 2010 – Delta installed two 4-inch diameter monitoring/extraction wells, MW-11 and MW-12, and two 2-inch diameter monitoring wells, MW-12A and MW-13, at the site. Analytical results from the soil and groundwater samples collected from the MW-12 and MW-12A boring locations indicated that the soil and the groundwater were impacted by petroleum hydrocarbons at these locations.

May 2011 – Antea Group (formally Delta Consultants) installed four 2-inch diameter monitoring wells, MW-14 through MW-17, and advanced one soil boring, B-6, at the site. All four monitoring wells were installed with ten feet of screen from 3 feet bgs to 13 feet bgs. Analytical results of soil samples collected during the monitoring well installation reported TPHg concentrations ranging from 1.0 milligrams per kilogram (mg/kg) (MW-14d13) to 2,490 mg/kg (B-6d9), benzene concentrations ranging from 0.67 mg/kg (B-6d21) to 26.4 mg/kg (B-6d9), toluene concentrations ranging from 0.2 mg/kg (MW-14d10) to 73.9 mg/kg (B-6d9), ethylbenzene concentrations ranging from 0.037 mg/kg (MW-14d13) to 58.1 mg/kg (B-6d9), total xylenes concentrations ranging from 0.066 mg/kg (MW-14d13) to 230 mg/kg (B-6d9), methyl tertiary-butyl ether (MTBE) concentrations ranging from 0.015 mg/kg (MW-15d13) to 0.19 mg/kg (MW-15d8), tertiary-butyl alcohol (TBA) concentrations ranging from 0.014 mg/kg (MW-16d8 and B-6d21) to 0.16 mg/kg (MW-15d8), and lead concentrations ranging from 5.5 mg/kg (MW-16d13) to 16.3 mg/kg (MW-17d9). Diesel range organics (DRO) and DRO with silica gel concentrations were reported; however, all of the results did not match the laboratory standard for diesel. Concentrations of DRO ranged from 2.9 mg/kg (MW-17d13) to 258 mg/kg (B-6d14) and DRO with silica gel concentrations ranged from 2.5 mg/kg (MW-17d13) to 250 mg/kg (B-6d14).

March 2012 – Antea Group advanced five soil borings (HPB-1 through HPB-5) at the site. The borings were advanced using direct push technology. The borings were used to obtain a hydraulic profile of the substrate beneath the site. The data obtained during the investigation will be used to determine the best path forward in terms of remediation.

July 2013 – Antea Group advanced ten soil borings (SB-1 through SB-10) at the site. The borings were advanced using direct push technology. The borings were used to delineate petroleum hydrocarbon impacted soil around

monitoring well MW-6. Results of the investigation can be found in the *Site Investigation Report*, dated January 9, 2014.

June 2014 – Antea Group destroyed four monitoring wells (MW-10, MW-12, MW-12A, and MW-17) at the site. The monitoring wells were destroyed by pressure grouting in preparation for excavation A1.

SENSITIVE RECEPTORS

April 24, 2006, TRC completed a sensitive receptor survey for the site. According to the Department of Water Resources (DWR) records, three water supply wells are located within one-half mile of the site. The closest well is an irrigation well, reported to be, approximately 1,080 feet southeast of the site. In addition, two surface water bodies were observed within a one-half mile radius of the site. San Leandro Creek is located approximately 1,400 feet southwest of the site and flows into the San Leandro Bay. Elmhurst Creek is located approximately 2,220 feet north of the site and also flows into the San Leandro Bay.

Current Consultant: **Antea Group**