55 Glenlake Parkway, NE
Atlanta, GA 30328-3474

Mr. Keith Nowell
Alameda County Department of Environmental Health
1131 Harbor Bay Parkway
Alameda, CA 94502

Subject:
Work Plan for Free Product Delineation
UPS Oakland Hub
8400 Pardee Drive, Oakland, CA 94621
Global ID #T0600100939
State ID #583
EPA ID #CAD 09707509

Dear Mr. Nowell:

Attached please find the Work Plan for Free Product Delineation for the above-referenced site. The work plan, which was prepared for United Parcel Service by ARCADIS U.S., Inc., presents the request to delineate free product at the site.

I declare, under penalty of perjury, that the information and/or recommendations contained in the attached Work Plan are true and correct.

Please feel free to contact me directly at 404.828.8991 if you have any questions or comments.

Sincerely,

United Parcel Service

Paul Harper
Remediation and Assessment Manager

Enclosure

ARCADIS U.S., Inc.
2000 Powell Street, Suite 700
Emeryville, California 94608
Tel 510.596.9500
Fax 510.652.4906
www.arcadis-us.com

Mr. Keith Nowell
Alameda County Department of Environmental Health
1131 Harbor Bay Parkway
Alameda, California 94502

ENVIRONMENT

Subject:
Work Plan for Free Product Delineation
UPS Oakland Hub
8400 Pardee Drive, Oakland, CA 94621
Global ID T0600100939; State ID # 583; EPA ID # CAD 09707509

Date:
September 30, 2014, 2014

Contact:
Dave Sonders

Phone:
561.995.8415 ext 23

Email:
David.Sonders@arcadis-us.com

Dear Mr. Nowell:

On behalf of United Parcel Service (UPS), ARCADIS U.S., Inc. (ARCADIS) is presenting this Work Plan for the delineation of free product at the UPS Oakland Hub (Site). ARCADIS proposes the installation of 18 soil borings to delineate the extent of free product. The location of the site and the surrounding properties are illustrated on **Figures 1** and **2**, respectively. The area of concern is to the northeast of the former underground storage tank (UST) area located in the southeast portion of the subject property as shown on **Figure 3**.

Site Background and History

A review of historical aerial photographs from 1937 to the present indicated that the site was originally a tidal marsh until 1968 and was backfilled and graded in 1968 with imported fill material. Artificial fill has been documented on both the northern and southern fueling areas, at depths ranging from 2 to 10 feet in thickness. Fill material has been observed as sand and clay as well as debris and garbage. No structures were observed on the property until 1975, when the current UPS facility was constructed. The southern fueling area was visible in the photographs in 1985. The Site includes the main UPS parcel sorting building, a parking lot and smaller support structures. The area around the Site is characterized by medium to heavy industrial use and includes the nearby Oakland International Airport. Currently, the Site is approximately 10 feet above mean sea level (amsl) and is located on a narrow peninsula south of San Leandro Bay.

During the 1990 upgrade of the product dispensing system of the southern diesel UST pit, surficial soil and backfill covering the tanks was removed to expose the top of the tanks to perform integrity testing. Water was encountered approximately 8 inches below ground surface during this process and two groundwater samples and one soil sample were collected. Laboratory testing revealed high total petroleum hydrocarbons as diesel (TPH-D) results in groundwater. These results prompted the installation of soil borings and monitoring wells. Routine groundwater monitoring has been ongoing at the site since

1990.

In September 2002, 0.14 feet of free product were measured in monitoring well OW-1. Free product has been regularly monitored in monitoring wells MW-2 and OW-1 since 2002. The free product measured from 2002 to 2011 ranged from approximately 0.01 to 0.13 feet in MW-2 and 0.01 to 0.2 feet in OW-1, with some monthly gauging events measuring no free product. In November 2010, free product was measured in monitoring well MW-3, at a thickness of 0.02 feet. In April 2011, skimmers were installed in monitoring wells MW-2, MW-3, and OW-1. The free product post skimmer installation ranged from 0.01 to 0.28 feet in MW-2, 0.01 to 0.05 feet in MW-3, and 0.01 to 0.3 feet in OW-1, with no free product and sheen being recorded during some monthly gauging events. Prior to installation of the skimmers, approximately 0.48 gallons of free product had been recovered from MW-2 and 1.57 gallons from OW-1. After installation of the skimmers in 2011 to 2014, approximately 1.37 gallons of free product have been removed from MW-2, 1.76 gallons from MW-3, and 1.16 gallons from OW-1.

In January 2012, ARCADIS installed monitoring wells MW-12 through MW-14 and injection wells IW-1 through IW-6. Free product was discovered during the June 2012 gauging event in monitoring well MW-12 and injection well IW-1. Since June 2012, free product thickness has ranged from 0.14 to 1.4 feet in MW-12 and 0.11 to 1.23 feet in IW-1. Historically, free product thicknesses in the former diesel UST area have been less than 0.10 feet. A map showing the extent and thickness of free product is included as **Figure 4**.

LNAPL Bail-down tests were performed in April 2013 at monitoring wells MW-12 and IW-1. Two bail-down tests were performed at IW-1 with an initial product thickness of 0.84 feet during the first test and 0.42 feet during the second test. A single bail-down test was performed at MW-12 with an initial product thickness of 0.25 feet. Evaluation of bail-down test results at MW-12 indicated a free product transmissivity of 0.46 square feet per day (ft^2/day). Evaluation of the bail-down test results at IW-1 indicated a free product transmissivity of 0.52 ft^2/day for the first test and 0.20 ft^2/day for the second test. There measured transmissivity values fall within the Interstate Technology & Regulatory Council (ITRC) lower limit of practicable recoverability for remediation purposes. Therefore, free product recovery is not technically feasible.

In October 2013, ARCADIS advanced eight cone penetration test (CPT) borings with ultraviolet optical screening tool (CPT/UVOST) to a maximum depth of 18 feet below ground surface (bgs) in an attempt to delineate free product around the former diesel UST pit area. Four borings (CPT-1 through CPT-4) were advanced to assess the extent of free product to the north of the UST pit and in the vicinity of MW-1 and MW-2. Four boring (CPT-5 through CPT-7 and CPT-8A) were advanced in the vicinity of MW-12 and IW-1 to assess the extent of free product in the area approximately 50 feet northeast of the former diesel UST area, where elevated TPH-D were detected in soil in the vicinity of soil borings SB-06 and SB-07. In addition, four direct push locations (SB-13 through SB-16) were advanced to a maximum depth of 15 feet bgs and soil samples were collected.

Analytical results of soil sampling during the direct push investigation within shallow and deep soils on the Comcast property to the south of the former diesel UST area indicate that there were no screening level exceedances for any site constituents.

Results of the UVOST investigation in the vicinity of the former diesel UST area indicate the presence of free product at CPT-4 between 5 and 10 feet bgs, which coincides with the range of historical water levels at the Site and associated smear zone. UVOST results from the area north/northeast of the former diesel UST pit area, near CPT-1, CPT-2, and CPT-3, were inconclusive due to possible interference with site lithologies (e.g. lack of consistent lithology as the area has been filled).

Proposed Scope of Work: Soil Boring Installation

ARCADIS will supervise the installation of 18 soil borings and up to 4 monitoring wells in to delineate the extent of free product. These soil borings and monitoring wells will also assist in the design of an upcoming Pilot Test work plan (to be presented under separate letter). The proposed locations of the soil borings are shown on **Figure 5**. Up to four soil borings will be converted into monitoring wells to delineate the extent of the free product. The location of the monitoring wells will be determined in the field based on soil and groundwater observations using PID readings and visual evidence of free product.

Task 1: Pre-Field Activities

This section discusses the activities that will precede field activities, including revising the Health and Safety Plan (HASP), obtaining relevant permits, and clearing underground utility locations.

Site Health and Safety Plan

Prior to initiating drilling activities, the site-specific HASP will be updated in accordance with UPS, state and federal requirements for use during the proposed field activities.

Permitting

Following approval of this Work Plan by the Alameda County Department of Environmental Health (ACEH), ARCADIS will complete and submit applications to ACEH for drilling permits related to the approved scope of work.

Underground Utility Survey

Underground utilities at the Site have already been located (**Figure 3**). Utilities in the vicinity of the proposed investigation locations will be marked with white paint prior to drilling. Underground Service Alert (USA-North) will be alerted at least 48 hours prior to drilling activities.

Task 2: Soil Boring Advancement

ARCADIS will supervise the installation of up to 18 soil borings to delineate the extent of the free product. In the vicinity of MW-12 and IW-1, the free product has been delineated to southeast by MW-13 and to the east by IW-1. Soil borings will be advanced to a depth of 10-15 feet, possibly deeper depending on field observations such as evidence of free product encountered at the bottom of the boring. The soil borings will be advanced northwest of IW-1, around MW-12, between MW-12 and abandoned MW-1 and approximately 30 feet northeast of abandoned MW-1. Boring locations were selected based on current wells with free product and historical soil borings with noted high photo-ionization detector (PID) readings and free product observed during drilling. With the addition of these borings, a radial network of soil borings will be in place to determine the extent of free product. The proposed soil borings will be PB-1 through PB-18. The proposed locations of the soil borings are shown on **Figure 5**.

During soil boring advancement, ARCADIS will collect soil samples. One soil sample will be collected from the vadose zone based on either 1) the highest PID reading for volatile organic compounds (VOCs) or 2) the location one-foot above the water table. The soil samples will be analyzed for the following constituents:

- BTEX by United States Environmental Protection Agency (EPA) Method 8260
- methyl tertiary butyl ether (MTBE) by EPA Method 8260
- TPH-GRO by EPA Method 8015B
- TPH-DRO by EPA Method 8015B [with silica gel cleanup (SGC) using a 10-gram column cleanup based on EPA Method 3630C]

  These are the only constituents of concern at the site.

Task 3: Monitoring Well Installation

Up to four soil borings will be converted into monitoring wells to delineate the extent of the free product. Wells will be assigned based on field observations due to soil and groundwater quality and lithology. Lithology data will assist in the design of the remedial action Pilot Test plan. See below for well construction details.

Well Construction Details

Well Type	Diameter	Total Depth (ft)	Screen Interval	Screen Size (in)	Comments
Monitoring Well	2”	13	3-13	0.010 slotted	Locations to be determined in field

Monitoring wells will be completed per the requirements set forth in the California State Water Resources Control Board Leaking Underground Fuel Tank Guidance Manual (September 2012) and Alameda County requirements, by placing the casing and screen assembly into the borehole, followed by installation of the annular filter pack and annular seal. Monitoring wells will be pre-developed by surging or agitating the water column within the well casing to promote settlement of the filter pack prior to placement of the seal. A transitional one-foot thick seal comprised of bentonite chips will be placed one foot above the screened interval, followed by a one-foot thick neat cement grout to ground surface. Following completion of the monitoring well installation, the well will be pumped until the water column is clear.

Task 4: Investigation-Derived Waste (IDW)

The extracted free product and other investigation-derived waste generated during field activities, including soil cuttings, decontamination or rinse water, and personal protective equipment, will be stored temporarily at the Site in labeled, Department of Transportation-approved 55-gallon drums or similar, until waste disposal is arranged.

Report

Results of the investigation will be summarized and presented in a report submitted 45 days after receipt of all laboratory data.

Schedule

ARCADIS is prepared to initiate field activities immediately upon approval of this Work Plan.

A California registered civil engineer or a California registered professional geologist will supervise the activities conducted under this Work Plan.

If you have any questions, or require additional information, please feel free to contact David Sonders at 561.995.8415 ext 23 or Lucas Goldstein at 510-596-9535. Send any correspondence regarding this project to Mr. Paul Harper of UPS at the address provided below. Please copy ARCADIS on any such correspondence.

Sincerely,

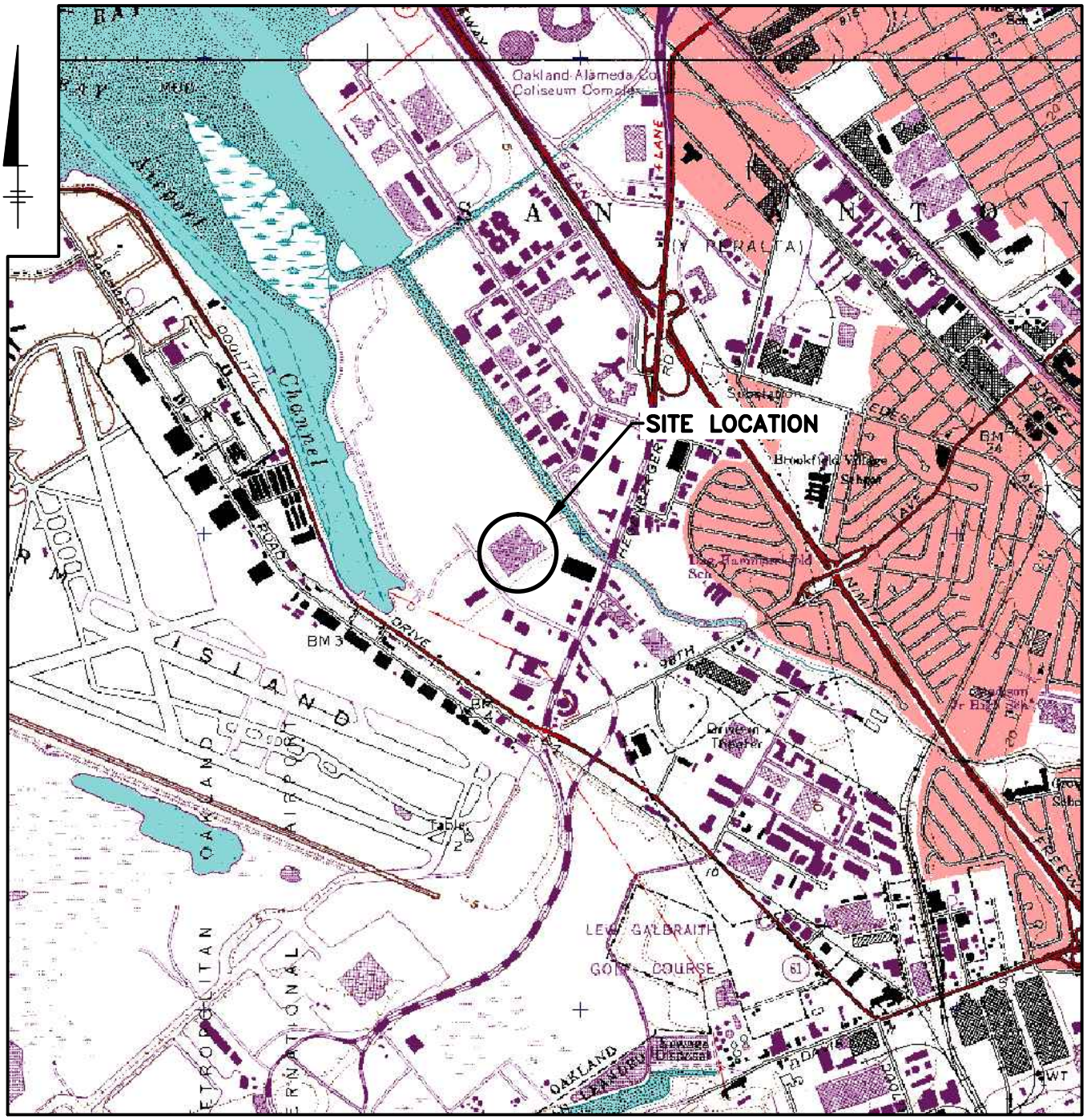
ARCADIS U.S., Inc.

David M. Sonders
Senior Environmental Engineer

Lucas Goldstein, P.E.
Certified Project Manager 2
California P.E. No. C72455

REGISTERED PROFESSIONAL ENGINEER
LUCAS GOLDSTEIN
C 72455
EXP 6/30/16
CIVIL
STATE OF CALIFORNIA

Copies:
Mr. Paul Harper – UPS Corporate Plant Engineering, 55 Glenlake Parkway NE, Atlanta, GA 30328
Mr. Hugh Devery – ARCADIS, 1000 Cobb Place Boulevard, Building 500-A, Kennesaw, GA 30144
File



NOTES:

1. Base Map Source: USGS 7.5 Min. Topo. Quad., San Leandra, Calif.(1993)
2. Property Location is Approximate Only.

0 2000' 4000'

APPROXIMATE SCALE: 1"=2000'

UPS-OAKLAND HUB
8400 PARDEE DRIVE, OAKLAND, CALIFORNIA
GLOBAL ID # T0600100939

SITE LOCATION MAP

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FIGURE
1

SOURCE: AERIAL PHOTOGRAPH PROVIDED BY GOOGLE EARTH PRO.

UPS-OAKLAND HUB
8400 PARDEE DRIVE, OAKLAND, CALIFORNIA
GLOBAL ID # T0600100939

FACILITY LAYOUT MAP

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FIGURE
2

CITY:TAMPA DIV/GROUP:ENV-141 DB:JAR LD:(Opt) PIC:(Opt) PM:(Reqd) TM:(Opt) LYR:(Opt)ON=*;OFF=*REF*
G:\ENVCAD\TAMPA\ACTIVE\00380398 UPS Oakland\00020.00300\FP WP Delineation\B0038398_20_300-SLM2.dwg LAYOUT: 2 SAVED: 9/25/2014 11:26 AM ACADVER: 18.1S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: PLTFULL.CTB PLOTTED: 9/25/2014 11:27 AM BY: RICHARDS, JIM
XREFS: IMAGES: PROJECTNAME: ----
AREA MAP.jpg
UPSOakland.jpg

LEGEND

- MONITORING WELL
- TEMPORARY VACUUM TEST WELL
- PHASE I INJECTION WELL
- ABANDONED MONITORING WELL
- SOIL BORING LOCATION (2010)
- PROPERTY BOUNDARY
- E — UNDERGROUND ELECTRICAL LINE
- S — STORM WATER/SEWER LINE
- W — WATER/FIRE SERVICE/IRRIGATION
- UG — ELECTRIC/WATER LINE
- CATCH BASIN/STORM DRAIN
- LIGHT POST/ POWER POLE

0 50’ 100’

GRAPHIC SCALE

UPS-OAKLAND HUB
8400 PARDEE DRIVE, OAKLAND, CALIFORNIA
GLOBAL ID # T0600100939

SITE MAP

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FIGURE
3

LEGEND

- MONITORING WELL
- TEMPORARY VACUUM TEST WELL
- PHASE I INJECTION WELL
- ABANDONED MONITORING WELL
- PROPERTY BOUNDARY
- E — UNDERGROUND ELECTRICAL LINE
- S — STORM WATER/SEWER LINE
- W — WATER/FIRE SERVICE/IRRIGATION
- UG — ELECTRIC/WATER LINE
- CATCH BASIN/STORM DRAIN
- LIGHT POST/ POWER POLE
- (0.02) HISTORICAL MAXIMUM FREE PRODUCT EXTENT AND THICKNESS OVER 5 YEAR PERIOD
- <0.1 THICKNESS
- 0.1 – 0.5 FT THICKNESS
- 0.5 – 1.0 FT THICKNESS
- >1.0 FT THICKNESS

0 50’ 100’

GRAPHIC SCALE

UPS-OAKLAND HUB
8400 PARDEE DRIVE, OAKLAND, CALIFORNIA
GLOBAL ID # T0600100939

FREE PRODUCT EXTENT AND THICKNESS MAP

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FIGURE
4

LEGEND

- MONITORING WELL
- TEMPORARY VACUUM TEST WELL
- PHASE I INJECTION WELL
- ABANDONED MONITORING WELL
- SOIL BORING LOCATION (2010)
- PROPERTY BOUNDARY
- E — UNDERGROUND ELECTRICAL LINE
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- W — WATER/FIRE SERVICE/IRRIGATION
- UG — ELECTRIC/WATER LINE
- CATCH BASIN/STORM DRAIN
- LIGHT POST/ POWER POLE
- PROPOSED SOIL BORING

0 50' 100'

GRAPHIC SCALE

UPS-OAKLAND HUB
8400 PARDEE DRIVE, OAKLAND, CALIFORNIA
GLOBAL ID # T0600100939

PROPOSED SOIL BORINGS

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FIGURE
5

CITY:TAMPA DIV/GROUP:85 DB:JAR LD:(Opt) PIC:(Opt) PM:(Reqd) TM:(Opt) LYR:(Opt)ON=*;OFF=*REF*
G:\ENVCAD\TAMPA\ACTIVE\00038398 UPS Oakland\0020.00300\FP WP Delineation\B0038398_20_300-FreeProduct.dwg LAYOUT: 5 SAVED: 9/25/2014 11:45 AM ACADVER: 18.1S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: PLTFULL.CTB PLOTTED: 9/25/2014 3:57 PM BY: RICHARDS, JIM