

# ENVIRONMENTAL PROFILES, INC.

Site Assessments \* Remedial Investigation Feasibility Studies \* Soil and Water Sample Collection \* Compaction Testing

## WORK PLAN GROUNDWATER INVESTIGATION

Project 46591.wp  
Ameriflight, Inc.  
Oakland Airport, Hanger 2  
9171 Earhart Road  
Oakland, California 94621

Prepared For:

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October 1, 1999

ENVIRONMENTAL  
PROTECTION  
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## 1.0 INTRODUCTION

Environmental Profiles, Inc. (EPI) is pleased to submit this report documenting underground storage tank (UST) removal activities at the Oakland Airport Hanger Number 2 facility, Ameriflight facility Oakland (AMO), 9171 Earhart Road, Oakland, California (Figure 1 - Area Map).

AMO maintained two (2) 12,000 gallon USTs at the facility (Figure 2 - Site Map). As a measure of compliance with the Port of Oakland UST regulations, AMO elected to abandon by removal the UST installation.

## 2.0 BACKGROUND

### 2.1 General

The Ameriflight Oakland facility is located at in the North Field complex at the Oakland International Airport, Oakland, California (Figure 1). The facility consists of a two large hanger used primarily for aircraft parking and maintenance, aircraft and car parking, underground storage tanks, dispensers and an overflow tank intended to catch fuel spillage during fuel truck fill operations.

### 2.2 Regional Geology

The site is located in the northeastern portion of the Bay Farm Island. The present-day Bay Farm Island is an alluviated lowland, which has been the site of predominately Recent valley fill material deposition. These alluviated lowlands are essentially a depositional feature. The peninsula is bounded on the northeast by the San Antonio Mountains, on the northwest by the San Francisco Bay, on the west by the City of Oakland, on the south by the San Leandro Marina, and on the east by the San Leandro.

### 2.3 Site Geology

Results of this EPI subsurface investigation indicate that stratigraphic units at both sites lie in the Quaternary Recent Alluvium (Qyal) silts, sands and gravels. The generalized soil stratigraphy is defined as follows:

**From grade to 12 feet bgs - SILTS**, saturated, dense, gray to black in color

**From 12 feet to approximately 14 feet bgs - SILTS and SANDS**, wet, medium stiff to stiff, low plasticity

### 2.4 Regional and Site Hydro geology

The site is hydro geologically located in the northeastern portion of the Bay Farm Island Hydro logic Subarea. The water bearing materials in this subarea are predominately composed of very permeable coarse detritus.

Ground water movement direction generally is in the direction of the hydraulic gradient which follows the slope of the ground water surface from areas of recharge to points of discharge. The regional direction of ground water flow is to the west.

## **2.5 Groundwater**

Groundwater was encountered during UST removal activities and was determined to be approximately nine (9) feet below grade surface (bgs). The elevation of the facility is approximately 4 feet above mean sea level (MSL). Ground water is believed to be largely brackish and unusable due to marine influence.

## **3.0 SCOPE**

### **3.1 Exploratory Soils Borings**

EPI proposes the drilling of six (6) exploratory soils borings as depicted in Figure 2 - Site Map. One (1) borings will be located directly up gradient of MW-1 and the remaining borings will be located down gradient of the former UST installation. Each boring will be drilled by a local subcontractor in possession of a C-57 driller/contractor licence. The borings will be advanced to approximately fifteen (15) feet below grade surface (bgs). An EPI engineer or geologist will be on site to direct all field activities, log soil borings, and collect soil samples.

### **3.2 Soil Sampling**

Each boring will be sampled at approximate five (5) foot intervals beginning at approximately five (5) feet bgs and continued to the total depth explored. Additionally, each boring will have a sample collected at the current potentiometric surface elevation and five (5) feet below the potentiometric surface elevation.

An 18-inch long Sprague and Henwood (S&H) 1.5-inch inside diameter sampler will be utilized to recover soil samples. Three 1.5" by 6" stainless steel inserts (rings) will be placed inside the S&H sampler prior to recovering each sample. At each sample depth, the sampler will be advanced 18 inches into the subsurface with the blows per foot recorded for evaluation of soil density and consistency.

Following retrieval of the sampler the lowermost stainless steel sample ring will be removed from the sampler, sealed at both ends with Teflon lined plastic end caps, labeled, and immediately placed in a chilled field cooler under EPA chain of custody protocol for transport and subsequent chemical analyses at a State Department of Health (DOH) certified environmental laboratory.

Soil from the remaining rings will be logged and described in accordance with the Unified Soils Classification System (USCS), and field screened for the presence of volatile organic compounds utilizing a photoionization detector (PID) calibrated to a hexane standard.

### **3.3 Laboratory Chemical Analysis**

Soil samples collected from the soils borings will be submitted under EPA chain of custody protocol to a State DOH certified environmental laboratory. Based on site background and field screening samples will be analyzed by the following

- TPH reported as 100 LL Aviation Gas, EPA method 8015(M), detection limit 10.0 mg/kg
- Monoaromatics, BTEX, EPA method 8020/602, detection limit 5.0 µg/kg
- MTBE, EPA method 8020, detection limit 50.0 µg/kg
- Total Lead EPA method 7421 or 7420, detection limit 1.0 mg/kg

## **4.0 GROUNDWATER MONITORING WELL CONSTRUCTION**

### **4.1 General**

Following the completion of drilling and soil sampling activities, the soil borings will be converted to groundwater monitor wells. During the conversion of each of the borings to a monitor well the augers will be slowly removed from each borehole while the well is constructed. This method is generally used to prevent the borehole from collapsing into the well annulus while the well is constructed. The well will be constructed of 2-inch diameter, Schedule 40 PVC slotted (0.020-inch slots) casing from five (5) feet to fifteen feet below (15) feet bgs.

Blank casing from (5) feet bgs to approximately six (6) inches from grade surface will finish each well. All well joints will be flush threaded. The bottom of the well casing will be sealed with a solid PVC flush-threaded cap, and the top of the well will be fitted with a locking well cap.

The annular space between the blank and slotted PVC well casing, and the borehole will be filled with No. 1C Monterey sand from the bottom of the boring (20 feet bgs) to a depth of approximately one (1) foot above the slotted well casing interval (4 feet bgs). The remaining annular space will be filled with a bentonite chip seal to approximately eight (8) inches from grade surface. A traffic rated street well box set in concrete will complete each well to grade.

### **4.2 Monitor Well Development and Purging**

The groundwater monitor wells will be developed and purged using a 2 inch diameter surge block and a 1.5 inch diameter by 3 foot long stainless steel bottom loading bailer. The surge block will be used to mechanically surge the inside of the PVC well casing to remove fine sediments from the geologic formation. The bailer will be subsequently used to remove the sediment suspended in groundwater.

Development and purging will continue until the groundwater being removed with the bailer is relatively clear and free of sediment. A minimum of three to four well volumes of groundwater is generally removed from each well during development. Groundwater purged during development will be placed in DOT 17C 55-gallon drums and labeled appropriately. Drums will be stored on site pending receipt of laboratory chemical analysis results and subsequent disposal.

### **4.3 Groundwater Sampling**

Following installation and development, EPI will collect groundwater samples from each monitor well. Groundwater samples will be collected after the groundwater level in each well has recovered to at least 80 percent of the original static water level measured (in existing wells) prior to development and purging. Four groundwater samples will be collected from each well using a 1.5 inch diameter by 3 foot long disposable sampling bailer and decanted into; two (2) laboratory supplied 40 milliliter, acidified glass volatile organic analysis (VOA) vials, a one (1) liter amber and a 250 milliliter plastic bottle. The vials will be carefully sealed with Teflon lined screw caps eliminating all head space.

Following collection samples will be labeled and immediately placed in an blue ice chilled cooler under EPA chain of custody protocol for transport and subsequent laboratory chemical analyses to a State DOH certified laboratory. As part of EPI's quality control/quality assurance program, a duplicate sample and equipment sample blank will be collected and labeled. All development, purging, and sampling equipment will be washed with biodegradable Enviroclean (Monoflex brand) phosphate-free detergent and triple rinsed with clean water prior to sampling each well.

### **4.4 Groundwater Laboratory Chemical Analysis**

Based on site background groundwater samples submitted for laboratory chemical analyses will be analyzed by the following:

- TPH reported as 100 LL Aviation gas, EPA Method 8015(M), detection limit 0.5 mg/l
- Monoaromatics, BTEX, EPA Method 602/8020, detection limit 0.5 to 1.5 µg/l
- MTBE, EPA Method 602/8020, detection limit 10.0 µg/l

### **4.5 Groundwater Gradient Determination**

Following installation of the groundwater monitor wells, top of casing elevations will be measured to within 0.01 foot relative to mean sea level or an arbitrary datum located on site. Survey points of each well casing will be clearly marked on top of the PVC casings.

Following conclusion of field investigation activities and receipt of laboratory chemical analyses results, a report summarizing all field activities, inclusive of laboratory chemical analyses results, professional recommendations and conclusions will be prepared and submitted for review.

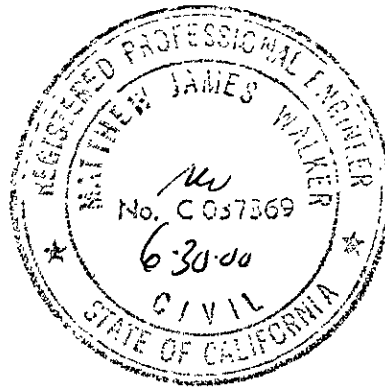
Should you have any questions, comments or require additional information regarding this project, please contact the undersigned at (562) 493-2190 during normal business hours. Thank you.

Mr. Mark Livingston  
October 1, 1999  
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Reviewed by:



Matthew J. Walker  
California Civil Engineer 37369



# **APPENDIX A**

## **Regulatory Directives**



# UNDERGROUND STORAGE TANK UNAUTHORIZED RELEASE (LEAK) / CONTAMINATION SITE REPORT

<b>EMERGENCY</b> <input type="checkbox"/> YES <input type="checkbox"/> NO	<b>HAS STATE OFFICE OF EMERGENCY SERVICES REPORT BEEN FILED?</b> <input type="checkbox"/> YES <input type="checkbox"/> NO	<b>FOR LOCAL AGENCY USE ONLY:</b> I HEREBY CERTIFY THAT I HAVE DISTRIBUTED THIS INFORMATION ACCORDING TO THE DISTRIBUTION SHOWN ON THE INSTRUCTION SHEET ON THE BACK PAGE OF THIS FORM.
<b>REPORT DATE</b> 6 / 1 / 9 8	<b>CASE #</b> 121	<b>DATE</b> 6/1/98

<b>REPORTED BY</b>	<b>NAME OF INDIVIDUAL FILING REPORT</b> (32) 473 2190	<b>PHONE</b> (32) 473 2190	<b>SIGNATURE</b> Environmental Profiles Inc
	<b>REPRESENTING</b> <input type="checkbox"/> LOCAL AGENCY <input checked="" type="checkbox"/> OWNER/OPERATOR <input type="checkbox"/> REGIONAL BOARD <input type="checkbox"/> OTHER	<b>COMPANY OR AGENCY NAME</b> Environmental Profiles Inc	
<b>ADDRESS</b> 5480 Katella Avenue Suite 211 Los Alamitos CA 90720			

<b>RESPONSIBLE PARTY</b>	<b>NAME</b> Ameriflight Inc <input type="checkbox"/> UNKNOWN	<b>CONTACT PERSON</b> Mark Livingston	<b>PHONE</b> (626) 564-4224 x121
	<b>ADDRESS</b> 4700 Empire Ave #1 Burbank CA 91505		

<b>SITE LOCATION</b>	<b>FACILITY NAME (IF APPLICABLE)</b> Ameriflight Inc.	<b>OPERATOR</b> ( )	<b>PHONE</b> ( )
	<b>ADDRESS</b> 9171 Earhart Road Oakland CA 94621		

<b>SUPPLEMENTING AGENCIES</b>	<b>LOCAL AGENCY</b> Alameda County Health Env. Serv.	<b>AGENCY NAME</b> Barney M. Chan	<b>CONTACT PERSON</b> (510) 507-6700
	<b>REGIONAL BOARD</b> Port of Oakland	<b>D. Klettke</b>	<b>PHONE</b> ( )

<b>SUBSTANCE(S) INVOLVED</b>	(1) Jet fuel as aviation fuel	<b>QUANTITY LOST (GALLONS)</b> <input checked="" type="checkbox"/> UNKNOWN
	<input type="checkbox"/> UNKNOWN	

<b>DISCOVERY/ABATEMENT</b>	<b>DATE DISCOVERED</b> 6/1/98	<b>HOW DISCOVERED</b> <input type="checkbox"/> TANK TEST <input type="checkbox"/> INVENTORY CONTROL <input type="checkbox"/> SUBSURFACE MONITORING <input type="checkbox"/> NOISANCE CONDITIONS	<input checked="" type="checkbox"/> TANK REMOVAL <input checked="" type="checkbox"/> OTHER piping/dispenser removal
	<b>DATE DISCHARGE BEGAN</b> <input checked="" type="checkbox"/> UNKNOWN	<b>METHOD USED TO STOP DISCHARGE (CHECK ALL THAT APPLY)</b> <input type="checkbox"/> REMOVE CONTENTS <input checked="" type="checkbox"/> CLOSE TANK & REMOVE <input type="checkbox"/> REPAIR PIPING <input type="checkbox"/> REPAIR TANK <input type="checkbox"/> CLOSE TANK & FILL IN PLACE <input type="checkbox"/> CHANGE PROCEDURE <input type="checkbox"/> REPLACE TANK <input type="checkbox"/> OTHER	
	<b>HAS DISCHARGE BEEN STOPPED?</b> <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO IF YES, DATE		

<b>SOURCE CAUSE</b>	<b>SOURCE OF DISCHARGE</b> <input type="checkbox"/> TANK LEAK <input type="checkbox"/> UNKNOWN <input checked="" type="checkbox"/> PIPING LEAK <input type="checkbox"/> OTHER	<b>CAUSE(S)</b> <input type="checkbox"/> OVERFILL <input type="checkbox"/> RUPTURE/FAILURE <input type="checkbox"/> SPILL <input type="checkbox"/> CORROSION <input checked="" type="checkbox"/> UNKNOWN <input type="checkbox"/> OTHER
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<b>CASE TYPE</b>	<b>CHECK ONE ONLY</b> <input type="checkbox"/> UNDETERMINED <input type="checkbox"/> SOIL ONLY <input type="checkbox"/> GROUNDWATER <input type="checkbox"/> DRINKING WATER (CHECK ONLY IF WATER WELLS HAVE ACTUALLY BEEN AFFECTED)
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<b>CURRENT STATUS</b>	<b>CHECK ONE ONLY</b> <input type="checkbox"/> NO ACTION TAKEN <input type="checkbox"/> PRELIMINARY SITE ASSESSMENT WORKPLAN SUBMITTED <input type="checkbox"/> POLLUTION CHARACTERIZATION <input type="checkbox"/> LEAK BEING CONFIRMED <input checked="" type="checkbox"/> PRELIMINARY SITE ASSESSMENT UNDERWAY <input type="checkbox"/> POST CLEANUP MONITORING IN PROGRESS <input type="checkbox"/> REMEDIATION PLAN <input type="checkbox"/> CASE CLOSED (CLEANUP COMPLETED OR UNNECESSARY) <input type="checkbox"/> CLEANUP UNDERWAY
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<b>REMEDIAL ACTION</b>	<b>CHECK APPROPRIATE ACTION(S)</b> <input type="checkbox"/> CAP SITE (CS) <input type="checkbox"/> EXCAVATE & DISPOSE (ED) <input type="checkbox"/> REMOVE FREE PRODUCT (FP) <input type="checkbox"/> ENHANCED BIO DEGRADATION (IT) <input type="checkbox"/> CONTAINMENT BARRIER (CB) <input type="checkbox"/> EXCAVATE & TREAT (ET) <input type="checkbox"/> PUMP & TREAT GROUNDWATER (GT) <input type="checkbox"/> REPLACE SUPPLY (RS) <input type="checkbox"/> VACUUM EXTRACT (VE) <input type="checkbox"/> NO ACTION REQUIRED (NA) <input type="checkbox"/> TREATMENT AT HOOKUP (HU) <input type="checkbox"/> VENT SOIL (VS)	<input checked="" type="checkbox"/> OTHER (OT)
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**COMMENTS**

ALAMEDA COUNTY  
HEALTH CARE SERVICES

AGENCY  
DAVID J. KEARS, Agency Director



ENVIRONMENTAL HEALTH SERVICES

1131 Harbor Bay Parkway, Suite 250  
Alameda, CA 94502-8577  
(510) 567-5700  
(510) 337-9335 (FAX)

September 21, 1999  
StiD # 3977

Mr. Tony Ortega  
Ameriflight, Inc.  
4700 Empire Ave., Hanger 1  
Burbank, CA 91505

Re: Request for Technical Report for Ameriflight, Inc., Oakland Airport, Hanger 2  
9171 Earhart Rd., Oakland CA 94621

Dear Mr. Ortega:

Our office has been provided a copy of the August 2, 1999 Underground Storage Tank Closure Report Tanks LF5/6 for the above site, prepared by Environmental Profiles, Inc. The report was provided by Mr. Herman Gomez of the City of Oakland Fire Department. As you are aware, this report details the November 11, 1998 removal of two 12,000 gallon underground tanks used to store aviation and Jet-A fuel. Based upon the results of the soil and grab groundwater samples collected at this removal, this site has experienced a confirmed release of fuel, the extent of which must be determined and possibly remediated. This site has been transferred to the Local Oversight Program (LOP), within Alameda County Environmental Health, to allow our office to provide regulatory oversight. Our office acts in behalf of the Water Board to oversee underground tank fuel release sites. A Notice of Responsibility (NOR) letter will be sent to inform you of this action. In addition, enclosed please find an Unauthorized Release (Leak) Report. This report should be completed and returned to our office within 10 days of receipt.

At this time, you are requested to submit a work plan to determine the extent of both soil and groundwater petroleum contamination at this site. Our office recommends the use of a rapid site assessment technique (eg hydropunch, geoprobe, et al) to obtain this information. Based upon the initial results, you may limit your chemical analysis to Total Petroleum Hydrocarbons as jet fuel and as aviation fuel, BTEX and MTBE. Please confirm the presence of any detected MTBE using EPA Method 8260 or 8240. Please submit your work plan to our office within 45 days or no later than November 5, 1999. You may contact me at (510) 567-6765 if you have any questions.

Sincerely,

Barney M. Chan  
Hazardous Materials Specialist

enclosure (Mr. Ortega)

c B Chan, files  
D Klettke, Port of Oakland, 530 Water St., P O Box 2064, Oakland CA 94604-2064

Wprq9171Barhan