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March 5, 1993

Mr. Barney Chan  
Hazardous Materials Specialist  
Department of Environmental Health  
State Water Resources Control Board  
80 Swan Way, Room 200  
Oakland, California 94621

# 4220

**Subject:** Quarterly Groundwater Monitoring Report  
FAA Oakland Airport TRACON Facility

Dear Mr. Chan:

This letter has been prepared to provide the Alameda County Department of Environmental Health (DEH) and the California Regional Water Quality Control Board (CRWQCB) with quarterly groundwater monitoring results at the Federal Aviation Administration (FAA) Oakland International Airport Terminal Radar Approach Control (TRACON) facility. Groundwater samples collected on January 19, 1993, represent the first quarter of postremediation groundwater monitoring as required by the Alameda County DEH in their letter dated November 10, 1992. Present groundwater sampling did not indicate measurable concentrations of total petroleum hydrocarbons (TPH). Low (1 to 4 micrograms per liter [ $\mu\text{g}/\text{l}$ ]) concentrations of benzene, toluene, ethylbenzene, or xylenes (BTEX) were identified in groundwater sample AW-4 collected from the downgradient well.

## BACKGROUND

The FAA Oakland Airport TRACON facility is located in the northeast quarter of Section 20, Township 2 South, Range 3 West of the USGS San Leandro, California, 7.5-Minute Quadrangle map in Alameda County, California, at an approximate elevation of 7 feet above mean sea level. The TRACON building is located in the North Field section of the Oakland International Airport, between Doolittle Drive and Earhart Road, at 1029 Grumman Street in Oakland, California (Figure 1). The Oakland TRACON facility consists of a control building with an emergency generator, and a former underground 1,000-gallon-capacity diesel tank (Figure 2). The land is located on a portion of a former U.S. Navy fuel storage area, is owned by Alameda County, is administered by the Port of Oakland, and is leased to the FAA.

The FAA contracted with Advanced Sciences, Inc. (ASI), to conduct soil sampling following FAA removal of the diesel tank on May 2, 1991, under a permit issued by the Alameda County DEH. Upon excavation, the tank appeared intact with no visible leaks or holes. Neither TPH nor BTEX was detected in soil samples collected beneath the tank. ASI considered the analytical results of a soil sample collected from the soil stockpile (TRACON-5) to be questionable because the laboratory received the sample in a broken container; however, the Alameda County DEH later disagreed with this conclusion.

Groundwater was observed and, at the request of the on-site regulator, sampled in the tank pit excavation at a depth of approximately 5 feet below ground surface following tank removal activities. The groundwater sample had a TPH concentration of 36.6 milligrams per liter with the majority of hydrocarbons slightly less than, at, and greater than C<sub>23</sub>, indicating the presence of hydrocarbons heavier than the diesel fuel previously stored in the FAA tank. BTEX was not detected in groundwater beneath the tank. ASI reported these results to Mr. Barney Chan of the Alameda County DEH in a letter dated August 30, 1991. In this letter, ASI requested site closure from the Alameda County DEH. Potential impacts of petroleum hydrocarbon on groundwater due to other tanks and previous operations by the prior land owner are discussed in an ASI Site Investigation report dated June 1992.

In a letter to Mr. Charley Chamness of the FAA, dated July 26, 1991, Mr. Chan stated that the site had experienced an unauthorized release of petroleum hydrocarbons and requested a work plan to assess the impacts to soil and groundwater and the extent of any such impacts. In a letter to Mr. Jim Williams of the FAA, dated September 16, 1991, Mr. Chan denied the ASI site closure request.

ASI was contracted by the FAA to develop and conduct a site investigation to assess the extent of hydrocarbon-affected soil and the potential for the diesel to impact groundwater quality at the facility. A proposed groundwater monitoring plan was submitted to Mr. Chan and the CRWQCB on February 10, 1992.

On March 4, 1992, as part of the site investigation, three soil borings (AB-1 through AB-3) were advanced to depths of 15 feet. A soil sample collected at a depth of 5 feet in the vicinity of the former tank had a TPH concentration of 580 milligrams per kilogram with no detected BTEX concentrations. Soil borings AB-1 through AB-3 were converted to groundwater monitoring wells AW-1 through AW-3.

Following development, groundwater samples were collected from wells AW-1 through AW-3 on March 26, 1992. TPH was not detected in the wells. BTEX was not detected with the exception of toluene, ethylbenzene, and xylenes just over the lower limit of detection in well AW-2.

ASI submitted a Site Investigation Report for the FAA Oakland International TRACON facility to Mr. Chan of the Alameda County DEH in June 1992. The report summarized the results of the March 1992 drilling and sampling activities, and concluded that diesel-affected soil may be limited to the immediate vicinity of the former tank location.

On August 26, 1992, ASI submitted a Quarterly Monitoring Report to Mr. Chan of the Alameda County DEH for groundwater samples collected from wells AW-1 through AW-3 on August 6, 1992. Neither TPH nor BTEX was detected in these samples.

In anticipation of site remediation, ASI abandoned well AW-2 and installed well AW-4 at the site on August 14, 1992. Soil analytical results of samples collected during the installation of well AW-4 did not indicate measurable concentrations of TPH or BTEX.

Soil remediation occurred at the site on November 18 and 19, 1992, and was initially reported to Mr. Chan of the Alameda County DEH in a letter dated December 1, 1992. A Soil Remediation Report is presently in review, and ASI will submit the final report to the Alameda County DEH and the CRWQCB as soon as the review has been completed.

## QUARTERLY GROUNDWATER SAMPLING

The first round of quarterly groundwater sampling following soil remediation activities at the FAA Oakland International Airport TRACON facility was conducted by ASI personnel on January 19, 1993. All on-site activities were performed under an ASI-approved health and safety plan. The health and safety plan is presented as Attachment 1.

### Sampling Methods

Prior to purging and sampling, water levels were measured in each well from the top of the polyvinyl chloride casing to the nearest 100th of a foot using a Solinst water level indicator. Water level data are presented in Table 1. A potentiometric surface map of the site for January 19, 1993, is presented in Figure 3. This water level data indicates that the groundwater gradient is westerly.

**Table 1**  
**Groundwater level measurements<sup>a</sup>**  
**Oakland Airport TRACON facility**  
**January 19, 1993**

Well Number	Monitoring Well Top of Casing Elevation	Water Level Elevation
AW-1	11.28	9.13
AW-3	10.92	9.53
AW-4	10.52	7.67

Note: Top of monitoring well casings surveyed by Altamont Land Surveyors, Inc., of Pleasanton, California, on April 22 and August 26, 1992.

<sup>a</sup> Measurements indicated in feet above mean sea level.

Wells AW-1, AW-3, and AW-4 were purged of three casing volumes of groundwater with a Teflon bailer prior to sampling. Purged well water is stored on-site in covered 55-gallon drums.

Following well purging, a disposable Teflon bailer was used to collect a groundwater sample from each well. Each sample was placed into a liter amber glass jar and two 40-milliliter (ml) glass vials. Each 40-ml glass vial was sealed with a Teflon-lined cap with no headspace. The jars and vials were labeled, logged, placed into an insulated cooler with ice, and shipped to Calscience Environmental Laboratory of Stanton, California, under strict chain-of-custody protocol. The chain-of-custody form is presented as Attachment 2.

The groundwater sample in the liter glass jar was analyzed for TPH (as diesel) using California DHS methods. The samples in the two 40-ml glass vials were analyzed for BTEX concentrations using EPA Method 602.

### Laboratory Analytical Results

Groundwater samples from wells AW-1, AW-3, and AW-4 contained no detectable concentrations of TPH. BTEX was not detected in groundwater samples from wells AW-1 or AW-3. The groundwater sample from AW-4, the downgradient well, contained 1.2 µg/l benzene, 3.4 µg/l toluene, 1.2 µg/l ethylbenzene, and 4.0 µg/l xylenes. The groundwater sampling results are presented in Table 2, and the laboratory analytical report is presented as Attachment 3.

**Table 2**  
**Groundwater analytical results<sup>a</sup>**  
**Oakland International Airport TRACON facility**  
**January 19, 1993**

Well Number	TPH <sup>b</sup>	Benzene	Toluene	Ethylbenzene	Xylenes
AW-1	< 0.5	< 0.3	< 0.3	< 0.3	< 0.6
AW-3	< 0.5	< 0.3	< 0.3	< 0.3	< 0.6
AW-4	< 0.5	1.2	3.4	1.2	4.0

<sup>a</sup> Expressed in micrograms per liter unless otherwise noted.

<sup>b</sup> Total petroleum hydrocarbons (as diesel) expressed in milligrams per liter.


## CONCLUSION

Data obtained from the first round of postremediation quarterly sampling conducted on January 19, 1993, did not indicate detectable concentrations of TPH in the FAA Oakland International Airport TRACON facility groundwater monitoring wells. Low levels of BTEX were detected in well AW-4. A detailed discussion of the proposed cleanup criteria for groundwater beneath this site is presented in the site remediation report.

ASI will continue to collect quarterly groundwater samples and record water level data from the facility and report those findings to the Alameda County DEH and the CRWQCB, on behalf of the FAA, to facilitate site closure.

If you have any questions or comments, please contact Len Sinfield or me at (619) 560-8552.

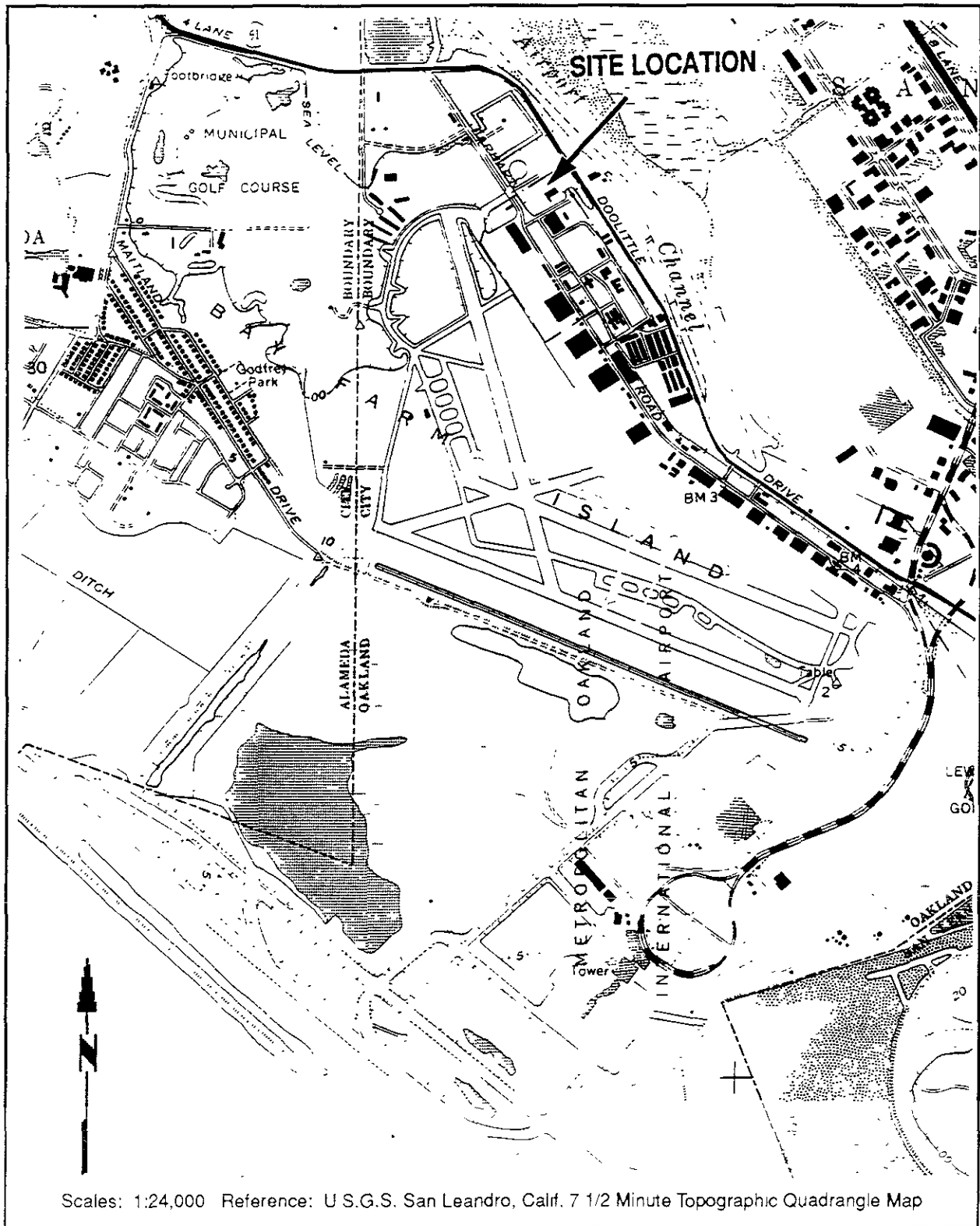
Sincerely,

  
Sarah J. Battelle, R.G. #4869  
Project Manager



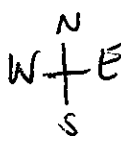
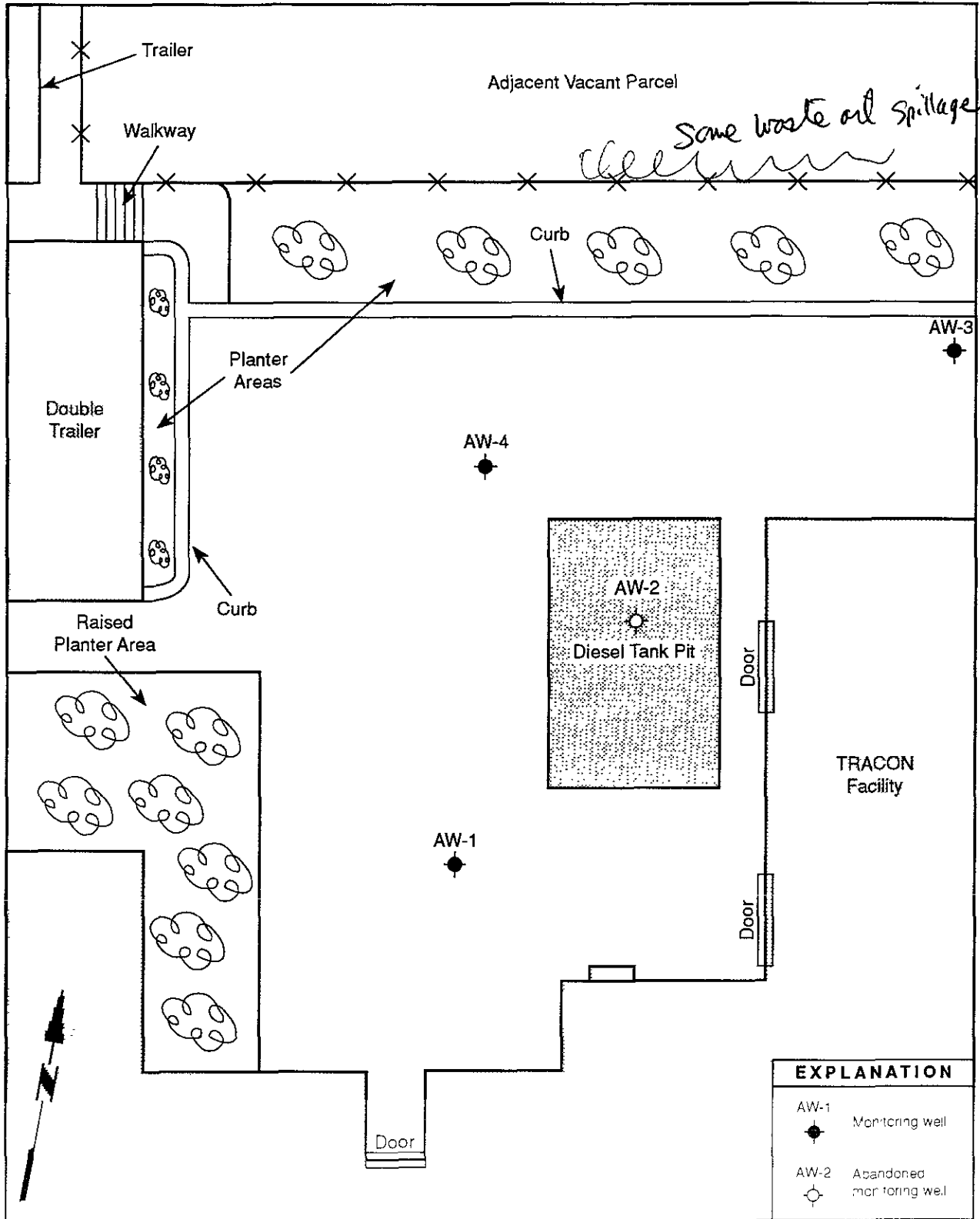
Attachments: Figure 1 - Site Location  
Figure 2 - Site Plan  
Figure 3 - Potentiometric Surface Map, January 19, 1993  
Attachment 1 - Health and Safety Plan  
Attachment 2 - Chain-of-Custody Form  
Attachment 3 - Laboratory Analytical Report

cc: R. Hiatt, CRWQCB  
N. Werner, Port of Oakland  
Charley Chamness, FAA - Los Angeles  
ASI File 9788-49



**Site Location**  
**Federal Aviation Administration**  
**Oakland International Airport TRACON Facility**

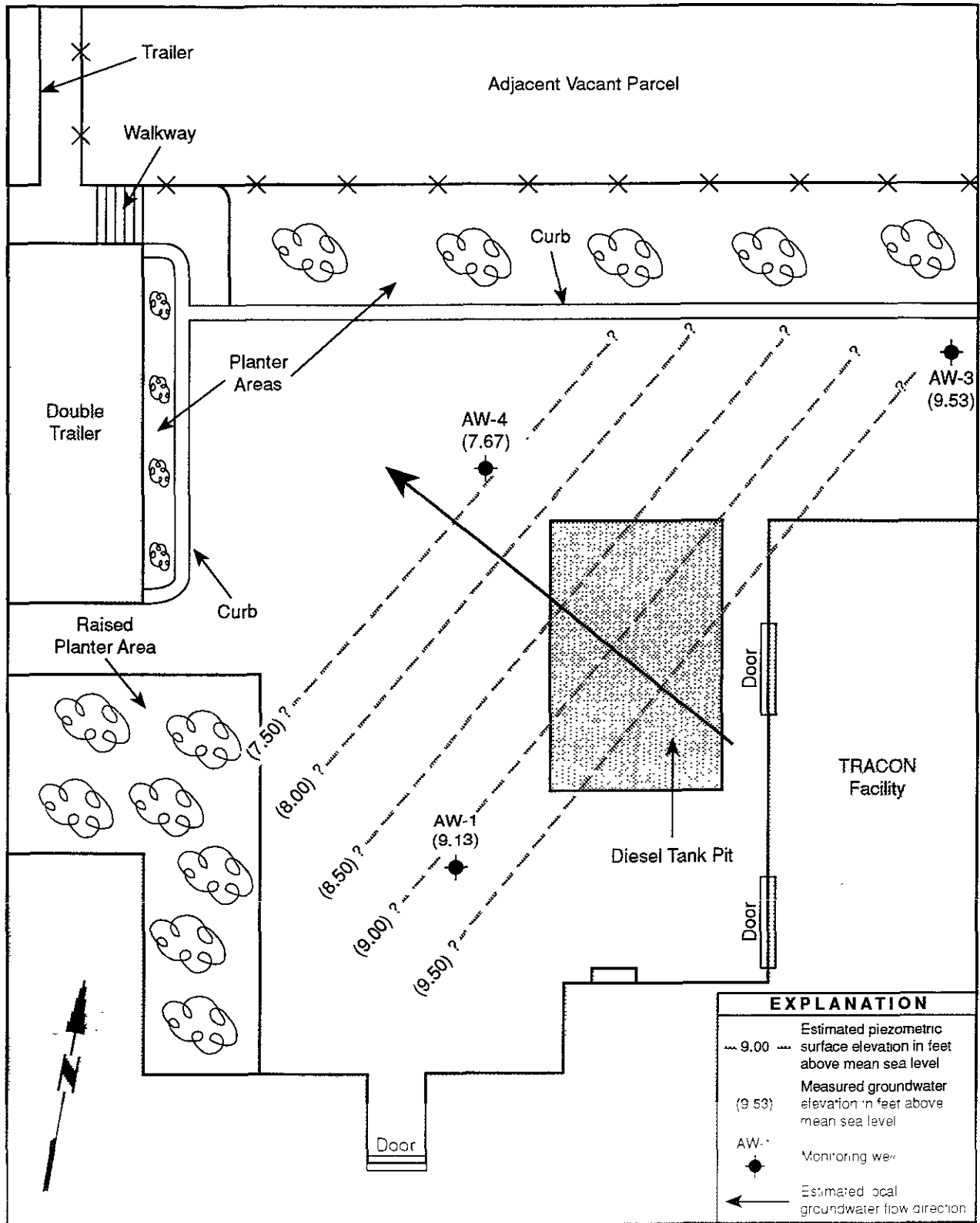
PROJECT NO. 9788-49  
 FIGURE 1



**Site Plan**  
**Federal Aviation Administration**  
**Oakland TRACON Facility**  
**Quarterly Monitoring Report**

PROJECT NO. 9788-49

FIGURE 2



Potentiometric Surface Map - January 19, 1993

Federal Aviation Administration  
Oakland TRACON Facility  
Quarterly Monitoring Report

PROJECT NO. 9788-49

FIGURE 3





**ATTACHMENT 1**  
**HEALTH AND SAFETY PLAN**

Site Name: **FAA OAKLAND ASR, TRACON & ALS**  
 Site Location: **Oakland, CA**  
 ASI Project #: **9788-35, 9788-53, 9788-59**

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### SITE SPECIFIC HEALTH AND SAFETY PLAN

DATE OF WORK: JANUARY 19 AND 20, 1993.

#### SITE PERSONNEL

<u>Site Manager(task supervisor)</u>	<u>Jeff Waldman</u>
<u>Site Safety Officer</u>	<u>Ed Barenthin</u>
<u>Instrument Operator(air mon.)</u>	<u>Ed Barenthin</u>
<u>First Aid/CPR</u>	<u>Jeff Waldman</u>
<u>Samplers</u>	<u>Ed Barenthin</u>

#### SUBCONTRACTORS:

Name: N/A

Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_

Authorized Representative: \_\_\_\_\_

H&S Approval: *Greg McQuarney* Date: 1-15-93

PE Approval: N/A Date: \_\_\_\_\_

PJT MGT Approval: *W. O. Henning for S. Buttrick* Date: 1/15/93

Site Name: FAA OAKLAND ASR, TRACON & ALS  
Site Location: Oakland, CA  
ASI Project #: 9788-35, 9788-53, 9788-59

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## 1.0 SITE TASKS, HAZARDS, AND RELATED INFORMATION

On-Site Task(s): (Y-Yes; N-No)

### Groundwater Sampling:

Samples will be taken from previously installed wells. Activities will involve purging well and sampling when water level returns to normal.

### POTENTIAL SITE HAZARDS:

(Y-Yes; N-No)

<u>N</u>	Confined Space Entry	<u>N</u>	Drill Rig Operations
<u>N</u>	Trenching/Excavation	<u>Y</u>	Fire/Explosion
<u>Y</u>	Inhalation of Toxic Vapors	<u>N</u>	Inhalation of Toxic Dusts
<u>Y</u>	Direct Contact Hazard	<u>N</u>	Heavy Equipment
<u>N</u>	Overhead	<u>Y</u>	Trip, slip, fall
<u>N</u>	Heat Stress	<u>Y</u>	Noise

Site Name: FAA OAKLAND ASR, TRACON & ALS  
Site Location: Oakland, CA  
ASI Project #: 9788-35, 9788-53, 9788-59

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## 2.0 EMERGENCY RESOURCES

Ambulance: 911  
Hospital: KAISER FOUNDATION HOSPITAL  
280 W. McArthur Blvd., Oakland, CA 94611  
(510) 596-1000  
Fire Department: 911  
Nearest Telephone: OAKLAND AIRPORT TRACON FACILITY (510) 784-8515

	<u>Work Hours</u>	<u>Home</u>
Gregory McAnarney	(505) 823-6897	(505) 293-0794
Walter Odenning	(619) 560-8552	(619) 565-1848
Alemeda County Flood Control and Water Conservation Dept.	(619) 339-4236	
State Environmental Agency	(213) 237-0600	

**All injuries, accidents or releases will be reported to ASI's health and safety department as soon as possible. Many chemical exposures must be assessed by a physician at the end of the work shift.**

If ambulance service is more than 30 minutes from the site, the ASI team members will be currently certified in First Aid and CPR.

First aid measures will be taken to stabilize serious injuries if necessary. medical attention will be sought and then the injury will be reported. Serious accidents or injuries must be reported within 24-hours.

### **ROUTE FROM SITE TO HOSPITAL (See next page for map)**

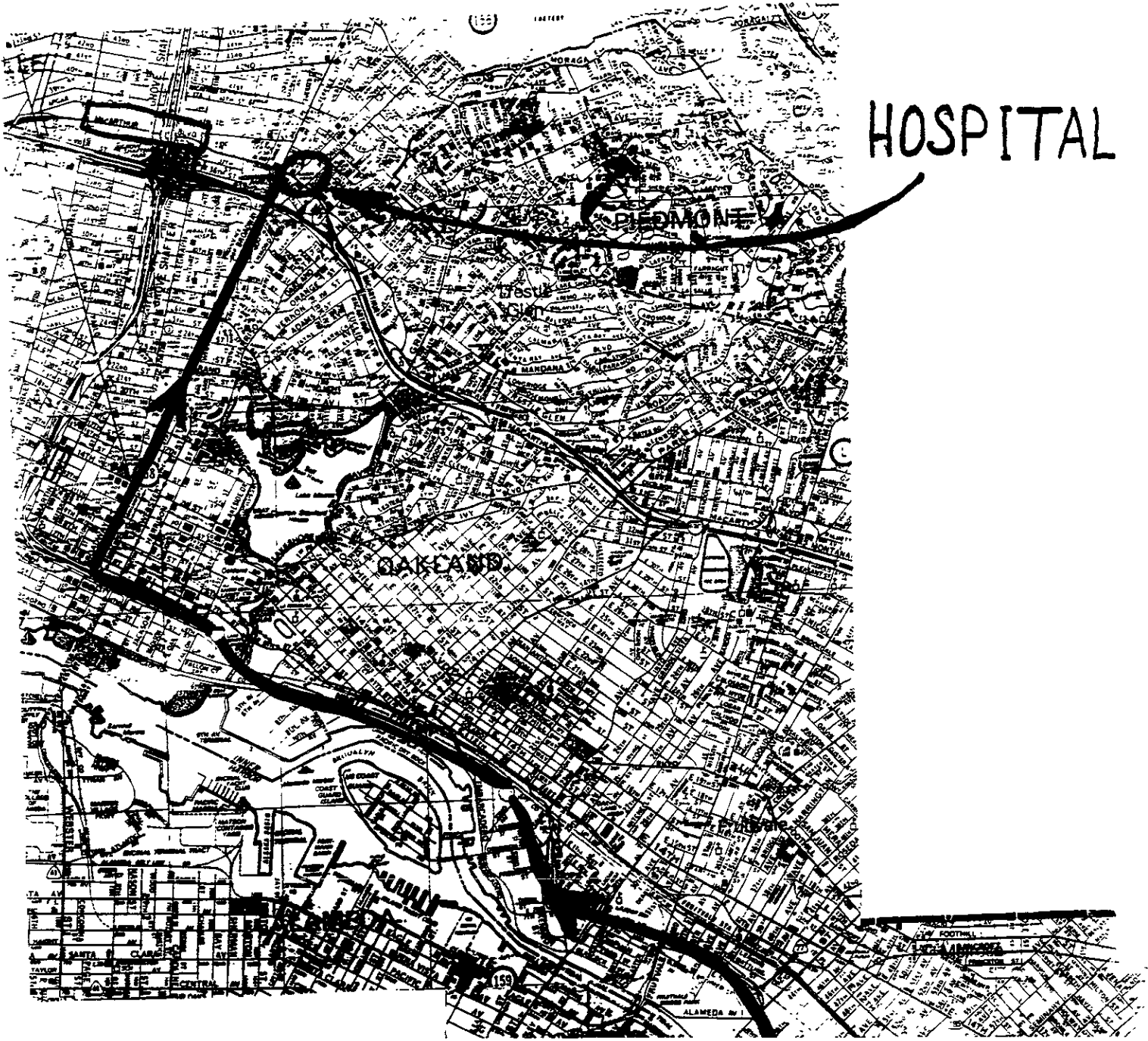
**GO SOUTHEAST ON ERHART TO HEGENBERGER ROAD.  
TURN LEFT (NORTHEAST) ONTO HEGENBERGER ROAD.  
PROCEED TO NIMITZ FREEWAY (HWY 880).  
TAKE 880 NORTH TO BROADWAY.  
PROCEED NORTHEAST TO MCARTHUR BLVD. AND TURN RIGHT.  
THE HOSPITAL IS ON THE LEFT.**

This section must be completed prior to going on-site.

     Completed at time of approval.

  X   Must be completed prior to site inspection. A copy will be sent to Director of Health and Safety (or designee) upon return from field work.

This information is legally required before site entry.



HOSPITAL

PIEDMONT

Site Name: FAA OAKLAND ASR, TRACON & ALS

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Site Location: Oakland, CA

ASI Project #: 9788-35, 9788-53, 9788-59

### 3.0 SITE DESCRIPTION/HISTORY:

#### Site Type:

<input checked="" type="checkbox"/> Active	<input type="checkbox"/> Service Station	<input type="checkbox"/> Military Base
<input type="checkbox"/> Inactive	<input type="checkbox"/> Refinery	<input checked="" type="checkbox"/> Airfield
<input checked="" type="checkbox"/> Secured	<input type="checkbox"/> Tank Farm	<input type="checkbox"/> Other: _____
<input type="checkbox"/> Unsecured	<input type="checkbox"/> Well Field	<input type="checkbox"/> Unknown
<input type="checkbox"/> Enclosed Space	<input type="checkbox"/> Warehouse	

#### Surrounding Population:

<input type="checkbox"/> Rural	<input checked="" type="checkbox"/> Radio Beacon
<input checked="" type="checkbox"/> Urban	<input checked="" type="checkbox"/> Radar
<input type="checkbox"/> Residential	<input type="checkbox"/> VOR/VORTAC
<input checked="" type="checkbox"/> Industrial	<input type="checkbox"/> Microwave Link

### 3.1 Site Description (Past investigations, areas of concern, site history)

The three FAA sites, the Airways Surveillance Radar (ASR), the Terminal Radar Approach Control (TRACON) and the Approach Lighting System (ALS) facilities are all located at the Oakland International Airport, within about 1/4 mile of each other. The sites are located within the security perimeter of the airport and access is tightly restricted. The sites formerly contained underground fuel storage tanks which have been removed and the contaminated soil contamination excavated. The FAA has contracted with ASI to monitor the groundwater at these sites.

#### **Proposed Scope of Work**

At each of the three sites, ASI has been tasked to sample water from three monitoring wells installed adjacent to the former underground fuel tanks on a quarterly basis. Each well will be purged of at least three well-volumes of water and measured to determine the temperature, pH and conductivity of the purged water.

After the water level in each well has recovered from purging, samples will be collected with a teflon bailer according to the appropriate state and local sampling criteria. Samples will then be labeled and sent to a laboratory for analysis to determine TPH and BTEX levels.

Site Name: FAA OAKLAND ASR, TRACON & ALS  
Site Location: Oakland, CA  
ASI Project #: 9788-35, 9788-53, 9788-59

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### 3.2 POTENTIAL SITE HAZARDS

(Y-Yes;N-NO)

#### I. Physical Hazards:

- |            |                      |   |
|------------|----------------------|---|
| <u>N</u>   | Sun Burn             | Sunscreen lotions having a PF of at least 30 should be applied to exposed skin before the start of work each day.   |
| <u>Y</u>   | Fire/Explosion       | Free vapors may accumulate in the monitoring well casings and may form flammable/explosive mixtures. They may also displace oxygen.   |
| <u>N/A</u> | Trenches             | No trenches.  |
| <u>N/A</u> | Drill Rig Operations | No drill rig operations.  |
| <u>Y</u>   | Inhalation of Toxic  | Wells will be bailed and sampled from the upwind side of the monitoring wells. If initial monitoring indicates high vapor concentrations, the wells may vented for approximately five minutes and retested. If the vapor concentrations still exceed the action limit, respiratory protection will be worn. |
| <u>Y</u>   | Direct Contact       | Direct contact with contaminated water may cause a minor expoure to gasoline. Skin protection will prevent direct contact.  |
| <u>Y</u>   | Trip, Slip and Fall  | Establish predesignated routes. Do not step in holes or areas of obvious contamination.   |
| <u>Y</u>   | Overhead             | If overhead hazards exist, hard hats will be required. No overhead hazards noted.   |
| <u>Y</u>   | Noise                | Hearing protection required when working in noisy areas which have the potential to exceed 85 dBA unless monitoring shows that the noise levels are below 85 dBA.   |
| <u>Y</u>   | Microwave Source     | Soil sample locations are not sufficiently near the radar station to pose a microwave hazard.   |

Site Name: FAA OAKLAND ASR, TRACON & ALS  
Site Location: Oakland, CA  
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II. Chemical Hazards: Potential for small quantities of organic vapors. Air monitoring will be conducted prior to well head opening or bailing.

(List Chemicals)

Unleaded Motor Fuels  
such as:

Gasoline  
Diesel Fuel  
Jet Fuel

Occupational Exposure Standard: (Inhalation) PEL 300 ppm. Respiratory protection action limit 150ppm. Meter response which corresponds to the action limit is instrument dependent. Vapors are heavier than air and collect in low areas.

Personnel are not authorized to enter into trenches, or other excavations under this task.

#### HEALTH EFFECTS

Components of motor fuels are suspected or confirmed carcinogens. Care should be taken to minimize exposures even when they are below the occupational exposure limits.

Inhalation of vapors may cause dizziness, nausea, headache and irritation of mucous membranes.

Repeated skin contact with liquid may cause dermatitis. Reddening and cracking of the area is common.

#### FIRE AND EXPLOSION HAZARD

Motor fuel vapors are flammable and tend to collect in low lying areas. Care must be taken to exclude ignition sources when vapor concentrations exceed 20% of the lower explosive limit. OSHA does not permit work in atmospheres which exceed 25% of the LEL. California OSHA is more restrictive and does not permit work when atmospheres exceed 20% of the LEL.



Site Name: FAA OAKLAND ASR, TRACON & ALS  
 Site Location: Oakland, CA  
 ASI Project #: 9788-35, 9788-53, 9788-59

#### 4.0 MONITORING EQUIPMENT

All monitoring equipment used during the scope of work will be wrapped in plastic to prevent contamination of the instruments and components. A hole will be cut for sample intake and exhaust.

Safety Equipment	Monitoring Frequency	Action Limit	Action/Logic
PID 11.7 eV probe	(H)	0-35 ppm	Level-D permitted
		> 35 ppm	Use APR or withdraw.
Monitor-4	N/A	>Bkg	No radioactive wastes reported.
LEL/O <sub>2</sub>	(H)	0-10 % LEL	Continue working. Identify sources of vapors.
		abv 10% LEL	Ventilate to reduce vapor concentration in trench. (Intrinsically safe exhaust fan) Have pumper on standby. INERT TANK if necessary. Verify effectiveness. (Be sure that readings are taken at top and bottom of excavations. Vapors will tend to collect at bottom.
Oxygen Content	Not required	19.5 - 25%	No special requirements.
		< 19.5%	Ventilate. Personnel are not authorized to enter oxygen deficient atmospheres without specific written authorization.
Visual	(H)	Pink/Red Skin	Sunburn generally causes mild skin reddening before it becomes severe. Pain from the sunburn is often delayed for several hours. If reddening occurs, additional clothing should be used to cover skin.

- (C) means continuous monitoring
- (H) means monitoring periodically (minimum rate: once per hour)
- (N/A) means not applicable
- (I) means initially.

Site Name: FAA OAKLAND ASR, TRACON & ALS

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Site Location: Oakland, CA

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## 5.0 EXPOSURE SYMPTOMS

No chemical exposure symptoms are generally anticipated at environmental concentrations. The information provided is generally associated with concentrations which exceed PEL concentrations.

### CHEMICAL EXPOSURE

Motor fuels or fuel oils such as gasoline, or number 2 fuel oil.

<u>Location</u>	<u>Splash</u>	<u>Vapor</u>
Eyes	Severe burning	Irritation of eyes.
Inhalation	Splash to face during inhalation could result in aspiration into the lungs. Severe respiratory distress, requiring medical attention.	Irritation of mucous membranes in eyes, nose, throat and lungs. Irritation may be accompanied by nausea, dizziness, odor, and other symptoms
Skin Contact	May cause slight irritation of skin. Repeated contact can cause defatting of skin which results the chemical equivalent of chapping.	No acute exposure symptoms.

### FIRST AID

#### Eyes

Flush eyes with isotonic saline or water for 15 minutes. Seek medical attention.

#### Inhalation

Move victim to fresh air\*.

\* If unconscious, give artificial respiration or CPR as necessary. Seek medical attention.

#### Skin

Remove contaminated clothing. Wash contaminated skin with soap and water.

**Site Name:** FAA OAKLAND ASR, TRACON & ALS  
**Site Location:** Oakland, CA  
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## 6.0 PERSONAL PROTECTIVE EQUIPMENT

Air Purifying Respirator	Per HASP	Airborne contaminants which meet criteria for APR use.
Cartridges	Per HASP	Combination with OV, HEPA approvals. Petroleum Vapors and dusts. R53HE cartridges for AO respirator GMA-H cartridges for MSA respirator
Disposable Coveralls	Required	Contamination avoidance measure.
Chemical Safety Boots	Recommended	Potential contamination with oil and grease. Easily decontaminated.
Leather Safety Boots	Optional	Minor chemical hazard. Physical hazard from heavy equipment.
Disposable Booties (Latex)	Optional	Simplifies decontamination.
Gloves, Chemical: (Outer glove)	Required	Minimizes exposure potential.
Gloves, Surgical: (Inner Glove)	Required	Minimizes skin contact during decontamination.
Eye Protection: Goggles or Glasses	Per HASP	Eye hazards include branches, dust, etc.
Hard Hat	Per HASP	Heavy equipment operations.
Splash Apron	Per HASP	Potential splash hazard during well bailing and sampling. Apron minimizes direct contact.
Hearing Protection	Per HASP	If noise is over 85 decibels: DBA

Site Name: FAA OAKLAND ASR, TRACON & ALS  
 Site Location: Oakland, CA  
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7.0 EQUIPMENT CHECK LIST

RESPIRATORY PROTECTION			
	SCBA	A	Air Purifying Respirator (APR)
	ESCBA	A	Cartridges: GMC-H or GMA-H for MSA respirators
	Spare Air Cylinders	A	Respirator Cleaner/Sanitizer
	Cascade System		Air Line
BODY PROTECTION			
X	Splash Apron	A	Hearing Protection
	Coveralls, Cotton	X	Safety Glasses/Goggles
X	Coveralls, Tyvek	X	Boots, Leather Safety
	Coveralls, Coated:	O	Boots, Chemical Safety
X	Gloves, Chemical(Neoprene, nitrile or butyl)	X	Gloves, Surgical
	Gloves, Leather		
X	Hard Hat	O	Disposable Booties
MONITORING INSTRUMENTS/SUPPLIES			
X	HNU probe: ___ 10.2 eV or _X_ 11.7eV		Draeger Kit: Specify Tubes
O	OVM Probe: __ 10.0 or _11.7_eV	X	MSA-260 or 361
	OVA		Zero Air for PID
	RAM-4 Radiation Monitor	X	LEL Standard - ___ Methane, ___ Hexane, ___ Pentane, ___ Other (specify)
X	Std. for PID ( _O_ isobutylene, _X_ hexane)		Ultrapure Hydrogen
	WBGT		Personal Sampling Pumps
	Pump Calibrator		Adsorption Tubes or Cassette Filters
	pH Paper	X	pH Meter
A=Available on-site. O=Optional X=Required			

Site Name: FAA OAKLAND ASR, TRACON & ALS

Site Location: Oakland, CA

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FIRST AID AND MEDICAL MONITORING			
X	First Aid Kit	O	Sun Screen
	Bathroom Scale	X	Drinking Water
O	Thermometer	X	Eye Wash
O	Heat Stress Forms	O	Tarp for Shade
	Chairs or Bench	X	Cooler for Food
SITE CONTROL			
X	Banner Tape	X	Traffic Cones
	Saw Horses		
DECONTAMINATION SUPPLIES			
X	Brushes, long handled	O	Steam Cleaner
	Pressure Sprayer	X	Garden Sprayer
O	Drum Liners	X	Tubs
O	Drums	X	Alconox
	Bottle Brushes	X	Water, deionized
O	Solvent: Methanol	X	Water, potable
SAMPLING EQUIPMENT			
X	Bailers	X	Plastic bags
X	Chain of Custody	X	Rope
O	Drum Liners	X	Sample Labels
O	Duct Tape	X	Security Tape
X	Ice Chests		Shovel
X	Sampling Jars	X	SS Spoons, Trowels, Bowls

A=Available on-site. O=Optional X=Required

Site Name: FAA OAKLAND ASR, TRACON & ALS  
Site Location: Oakland, CA  
ASI Project #: 9788-35, 9788-53, 9788-59

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## 8.0 SITE ENTRY

### 8.1 Work Zones

The excavation and areas where heavy equipment is operating is in the exclusion zone area. Additional high hazard areas include all areas where respiratory protection is required. Entry into the exclusion zone (EZ) or contamination reduction zone (CRZ) will be limited to the number and type personnel who must be there to perform the required task: Only authorized personnel are permitted to enter the EZ or CRZ areas. Entry of unauthorized personnel will require that all work stop until the unauthorized personnel leave the EZ or CRZ areas. **THE EXCLUSION WILL BE CLEARLY MARKED BY ASI, FAA Representative, or the ASI SUBCONTRACTOR.**

Personnel working inside the exclusion zone will practice contamination avoidance. Workers will avoid all unnecessary contact with areas suspected to be contaminated. Areas which are visibly stained or downwind of volatile materials are examples of potentially contaminated areas.

Contamination avoidance also includes actions which limit the potential for personnel and equipment to become contaminated. Common actions include use of disposable coverings on instruments(plastic bag) and boots(latex booties).

### 8.2 Training Requirements

OSHA regulations require that hazardous waste site personnel to have completed the following training before working on a hazardous waste site:

- 40 hour Hazardous Waste Operations and Emergency Response training (HAZWOPER)
- 8 hour Annual HAZWOPER refresher training
- 8 hour Supervisory training (Supervisory Personnel)  
(Task Supervisor, Safety Officer, Instrument Operator)

Unspecified Site Specific training (tailgate meeting to discuss site hazards)

An additional 24 hours of supervised "on the job" training is also required before new workers are allowed to work independently.

Equipment operator must be familiar with calibration, and operation of the monitoring instruments being used.

**Site Name:** FAA OAKLAND ASR, TRACON & ALS  
**Site Location:** Oakland, CA  
**ASI Project #:** 9788-35, 9788-53, 9788-59

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### 8.3 Medical Monitoring Requirements

All hazardous waste site workers must comply with OSHA requirements for medical monitoring. The medical monitoring requirements are:

- \* Baseline Medical Examination
- \* Annual Medical Examination
- \* Exit Medical Examination
- \* Medical Examinations as appropriate if exposure(s) occur

### 8.4 First Aid/CPR Training

In addition to the above training requirements, OSHA requires that medical help be readily available or that at least one team member be trained in First Aid/CPR.

- If the site is more than 30 minutes from the nearest hospital/clinic, one of the team members is required to be currently certified in First Aid and CPR.
- Site conditions may cause serious injuries. Rotating augers of drill rigs can cause severe injuries.
- Slip, trip and fall hazards. If an injury occurs, FAA personnel will be available to transport the ASI worker to the nearest medical facilities.

### 8.5 Buddy System

All hazardous waste site work will be performed using the buddy system. No field work at waste sites is permitted unless at least two persons are present.

**Site Name:** FAA OAKLAND ASR, TRACON & ALS  
**Site Location:** Oakland, CA  
**ASI Project #:** 9788-35, 9788-53, 9788-59

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## **9.0 SITE ACCESS/EGRESS**

Egress from the site will not be obstructed.

Personnel who have worked in the contaminated area, must decontaminate before exiting the site.

## **9.1 PERSONNEL DECONTAMINATION**

Personnel will wash all exposed skin areas with soap and water, and rise with potable water. Decontamination is required whenever the person exits the exclusion zone.

## **9.2 MONITORING EQUIPMENT DECONTAMINATION**

Remove and properly dispose of protective plastic from exterior of instruments. Wipe exposed surface with dampened cloth to remove residual contamination.

## **9.3 SAMPLING EQUIPMENT DECONTAMINATION:**

Per applicable regulatory sampling methods/techniques. At a minimum, wash all sampling equipment with soap and water, then rinse with potable water, and a final rinse with deionized water or high purity/special grade of water. This is required if no dedicated purge and/or sampling equipment (baliars, etc.) are available for each well to be sampled.

## **9.4 WASTE DISPOSAL:**

Purge water and excess sampling water will be left in drums, properly labeled and stored in a secure place for disposal by FAA as per contract specifications. After analytical results are obtained, the water, PPE, and decon liquid/solutions will either be removed and disposed of as hazardous waste or disposed of as non-hazardous waste. Due to the nature of the contaminants, the low potential for extensive direct contact, and the concentration levels of the soils, disposable PPE will be treated as ordinary trash.



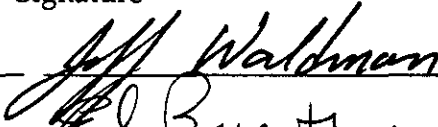

Site Name: FAA OAKLAND ASR, TRACON & ALS  
Site Location: Oakland, CA  
ASI Project #: 9788-35, 9788-53, 9788-59

11.0 UNDERSTANDING AND COMPLIANCE STATEMENT

NOTICE

Advanced Sciences, Incorporated (ASI) and ASI subcontractors do not guarantee the health and safety of any person entering this work site or area. ASI and its subcontractors have made all reasonable efforts to identify and control the hazards present, but due to the nature of the site and site activities, it is impossible to provide protection from all hazards that may be encountered. Strict adherence to the health and safety guidelines set forth herein will reduce, but not eliminate the potential for injury, accident, or exposure at this site. The health and safety guidelines in this plan were prepared specifically for this site, its assigned tasks, and the personnel named in the plan. The plan should not be used on any other site or tasks, or by other personnel, without proper modification by trained and experienced health and safety specialists and approval by the ASI Corporate Health and Safety Manager.

The undersigned persons, listed below, understand the contents of the entire site specific safety plan including this addendum. They also agree to comply with its provisions.

Name (lettered)	Signature	Affiliation
Jeff Waldman		ASI
ED BARENTINI		

The following persons are not required to comply with the provisions of this safety plan, but have been informed of its contents:

Name (lettered)	Signature	Affiliation

Note: All monitoring results are to be documented in the field log book or separate health and safety log. The original of the results is to be placed task file and maintained per OSHA standard 29 CFR 1910.20. Copies of monitoring results will be sent to the Corporate H&S Manager.

**ATTACHMENT 2**  
**CHAIN-OF-CUSTODY FORM**



**ATTACHMENT 3**  
**LABORATORY ANALYTICAL REPORT**

ANALYTICAL REPORT

```

=====
Advanced Sciences, Inc.           Date Sampled:    01/19/93
4909 Murphy Canyon Road, Suite 500  Date Received:   01/21/93
San Diego, CA 92123             Date Extracted:  01/22/93
                                   Date Analyzed:   01/22/93
                                   Work Order No.:  93-01-180
  
```

```

Attn: Jeff Waldman
RE:   FAA Oakland Tracon/9788-49   Method:          EPA 8015M
=====
  
```

All total petroleum hydrocarbon concentrations are reported in mg/L (ppm) using diesel fuel as a standard.

<u>Sample Number</u>	<u>Concentration</u>	<u>Det'n Limit</u>
AW-1	ND	0.5
AW-3	ND	0.5
AW-4	ND	0.5
Method Blank	ND	0.5

<u>Sample Number</u>	<u>Conc. Added</u>	<u>Conc. Rec.</u>	<u>%D</u>
Control Standard	400	364	9

Reviewed and Approved William H. Christensen on 01/29/1993.  
 William H. Christensen  
 Laboratory Operations  
 Manager

EPA 8015M is conducted in accordance with the DHS Method for Total Petroleum Hydrocarbons.

ND denotes not detected at indicated detection limit.

Each sample was received by CEL in a chilled state, intact and with chain-of-custody attached.



ANALYTICAL REPORT

Advanced Sciences, Inc.  
 4909 Murphy Canyon Road, Suite 500  
 San Diego, CA 92123

Date Sampled: 01/19/93  
 Date Received: 01/21/93  
 Date Extracted: P/T  
 Date Analyzed: 01/23/93  
 Work Order No.: 93-01-180  
 Page 1 of 2

Attn: Jeff Waldman

RE: FAA Oakland Tracon/9788-49

Method: EPA 602

All concentrations are reported in ug/L (ppb).

	<u>Concentration</u>	<u>Det'n Limit</u>
<b>Sample Number: AW-1</b>		
Benzene	ND	0.3
Toluene	ND	0.3
Ethylbenzene	ND	0.3
Total Xylenes	ND	0.6
<b>Sample Number: AW-3</b>		
Benzene	ND	0.3
Toluene	ND	0.3
Ethylbenzene	ND	0.3
Total Xylenes	ND	0.6
<b>Sample Number: AW-4</b>		
Benzene	1.2	0.3
Toluene	3.4	0.3
Ethylbenzene	1.2	0.3
Total Xylenes	4.0	0.6
<b>Sample Number: Method Blank</b>		
Benzene	ND	0.3
Toluene	0.4	0.3
Ethylbenzene	ND	0.3
Total Xylenes	0.9	0.6



**Calscience Environmental Laboratories, Inc.**  
**Analytical Quality Control Report**

Client: **Advanced Sciences, Inc.**  
Work Order No.: **93-01-180**  
Method: **EPA 8015M (Aqueous) {DHS Method}**  
Date(s) Analyzed: **01/22/93**  
Page: **1 of 2**

Reviewed by: *S. Luce*  
Date Reviewed: 01/29/93

**Matrix Spike and Spike Replicate Results**

<u>Analyte</u>	<u>[Sample]</u>	<u>[Spike] Added</u>	<u>[Matrix Spike]</u>	<u>%REC</u>	<u>Replicate [Matrix Spike]</u>	<u>%REC</u>	<u>Control Limit %REC</u>	<u>%RPD</u>	<u>Control Limit %RPD</u>
Total Petroleum Hydrocarbons	ND	400	342	85	330	83	65 - 130	2	0 - 20

**Page 1 of 2 notes:**

1. All concentration values contained herein are in mg/L (ppm).



**Calscience Environmental Laboratories, Inc.**  
**Analytical Quality Control Report**

Client: **Advanced Sciences, Inc.**  
 Work Order No.: **93-01-180**  
 Method: **EPA 602**  
 Date(s) Analyzed: **01/22/93**  
 Page: **2 of 2**

Reviewed by: *S. Luce*  
 Date Reviewed: 01/22/93

**Matrix Spike and Spike Replicate Results**

<u>Analyte</u>	<u>[Sample]</u>	<u>[Spike] Added</u>	<u>[Matrix Spike]</u>	<u>%REC</u>	<u>Replicate [Matrix Spike]</u>	<u>%REC</u>	<u>Control Limit %REC</u>	<u>%RPD</u>	<u>Control Limit %RPD</u>
Toluene	ND	20	18	90	20	100	70 - 130	10	0 - 20
Chlorobenzene	ND	20	19	95	21	105	70 - 130	10	0 - 20
Ethylbenzene	ND	20	18	90	21	105	70 - 130	10	0 - 20

**Page 2 of 2 notes:**

1. All concentration values contained herein are in ug/L (ppb).