PORT OF OAKLAND

June 17, 2003

Mr. Leroy Griffin
City of Oakland
Hazardous Materials Program Manager
1605 Martin Luther King Jr. Way
Oakland, CA 94612

Mr. Barney Chan
Alameda County Health Care Services Agency
Environmental Protection Division
1131 Harbor Bay Parkway, #250
Alameda, CA 94502-6577

SUBJECT: UST SITE INVESTIGATION REPORT
FAA TRACON FACILITY,
OAKLAND INTERNATIONAL AIRPORT

Dear Mr. Griffin and Mr. Chan:

Enclosed is a copy of the April 2003 site investigation report entitled "*UST Site Investigation Report, FAA TRACON Facility, Naval Auxiliary Air Station Oakland*", located at the North Field, Oakland International Airport, Oakland, California. This phase II site investigation report was prepared by Forsgren Associates/Brown and Caldwell, an as-needed environmental consultant retained by the U.S. Army Corps of Engineers (ACE).

The Port of Oakland is requesting that the City of Oakland transfer this site to the Alameda County Health Care Services Agency, Local Oversight Program (LOP).

Should you have any questions or need additional information, please contact me directly at 627-1118. Thank you both for your assistance and support on this project.

Sincerely,

Dale Klettke, CHMM
Associate Environmental Scientist
Environmental Health & Safety Compliance

Enclosure

c: w/o enc. Balraj Sandhu, P.E. U.S. Army Corps of Engineers, 1325 J Street
Sacramento, CA 95814

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UST Site Investigation Report
FAA TRACON Facility
Naval Auxiliary Air Station Oakland

Located in

Oakland, California

FINAL

Prepared By:

FORSGREN ASSOCIATES/BROWN AND CALDWELL

A Joint Venture

Prepared For:

U.S. Army Corps
of Engineers
Sacramento District

APRIL 2003

UST Site Investigation Report

FAA TRACON Facility
Naval Auxiliary Air Station Oakland

located in

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April 2003

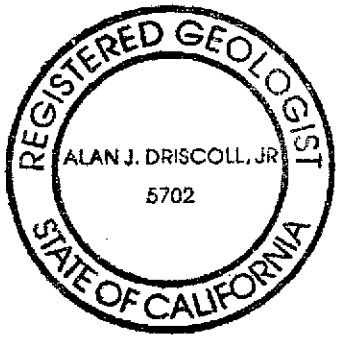
UST Site Investigation Report
FAA Tracon Facility, NAVAL Auxiliary AIR STATION OAKLAND
OAKLAND, CALIFORNIA

Signatures of principal personnel responsible for development and execution of the Naval Auxiliary Air Station (NAAS) Oakland UST Site Inspection Report for the FAA TRACON Facility, Oakland, California.

Approved:

John Moeller, Ph.D.
QA/QC Manager

Alan Driscoll, R.G.
Project Manager



UST Site Investigation Report
FAA Tracon Facility, NAVAL Auxiliary AIR STATION OAKLAND
OAKLAND, CALIFORNIA
DISTRIBUTION LIST

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PORT OF OAKLAND **ENVIRONMENTAL MANAGEMENT OFFICE** Mr. Dale Klettke 530 Water Street Jack London Square Oakland, CA 94604-2064	1
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LIST OF ACRONYMS

ADR	automated data review
BTEX	benzene, toluene, ethylbenzene, and xylene
CDQMP	Chemical Data Quality Management Plan
COC	chain of custody
CP	Communication Plan
DOD	Department of Defense
DRO	diesel range organics
DTSC	Department of Toxic Substances Control
EDD	electronic data deliverables
EEIS	engineering and environmental investigation services
FAA	Federal Aviation Administration
FA/BC	Forsgren Associates/Brown and Caldwell
FSP	Field Sampling Plan
GRO	gasoline range organics
IDW	investigation derived waste
MCL	maximum contaminant level
MTBE	methyl tert-butyl ether
mg/kg	milligrams per kilogram
NAAS	Naval Auxiliary Air Station, Oakland
PID	photoionization detector
PQL	practical quantitation limit
RCRA	Resource Conservation Recovery Act
RMP	Risk Management Plan
RRO	residual range organics
SDG	sample delivery group
SOHR	Site Operational History Report
SSHP	Site Safety and Health Plan
STLC	soluble threshold limit concentration
TBA	tert-butyl alcohol
TCE	trichloroethylene

TCLP	toxicity characteristic leaching procedure
TRACON	Terminal Radar Approach Control
TPH	total petroleum hydrocarbons
TPH-D	total petroleum hydrocarbons as diesel
TPH-G	total petroleum hydrocarbons as gasoline
TRPH	total recoverable petroleum hydrocarbons
TTLC	total threshold limit concentration
µg/L	micrograms per liter
USA	Underground Service Alert
USACE	United States Army Corps of Engineers
UST	underground storage tank
VOC	volatile organic compound
WET	waste extraction test

1.0 INTRODUCTION

This Report has been prepared by Forsgren Associates/Brown and Caldwell, a Joint Venture (FA/BC), to document the investigation of four underground storage tanks (USTs) located at the Federal Aviation Administration (FAA) Terminal Radar Approach Control (TRACON) facility, former Naval Auxiliary Air Station (NAAS), Oakland, California. The investigation was conducted under U.S. Army Corps of Engineers (USACE) Environmental Engineering and Investigation Services (EEIS) Contract No. DACW05-97-D-0038, Delivery Order 014. Investigation activities were conducted in accordance with the approved Work Plan (FA/BC, 2002a) and were designed to determine if the USTs have impacted the environment and if the tanks represent a threat to human health and the environment. Field investigation activities were completed according to the Work Plan components: a Field Sampling Plan (FSP), a Risk Management Plan (RMP), a Communication Plan (CP), and a Site Safety and Health Plan (SSHP). The Work Plan is incorporated here by reference (FA/BC, 2002a).

2.0 SITE BACKGROUND AND PREVIOUS INVESTIGATIONS

The TRACON facility is located on Grumman Street, within the boundaries of the former NAAS Oakland and in what is currently called the North Field Area of the Oakland International Airport, about five miles south of downtown Oakland, California. (Figure 1). The USTs are situated in the east parking area of the FAA TRACON facility and were formerly used for aviation fuel storage (Figure 2).

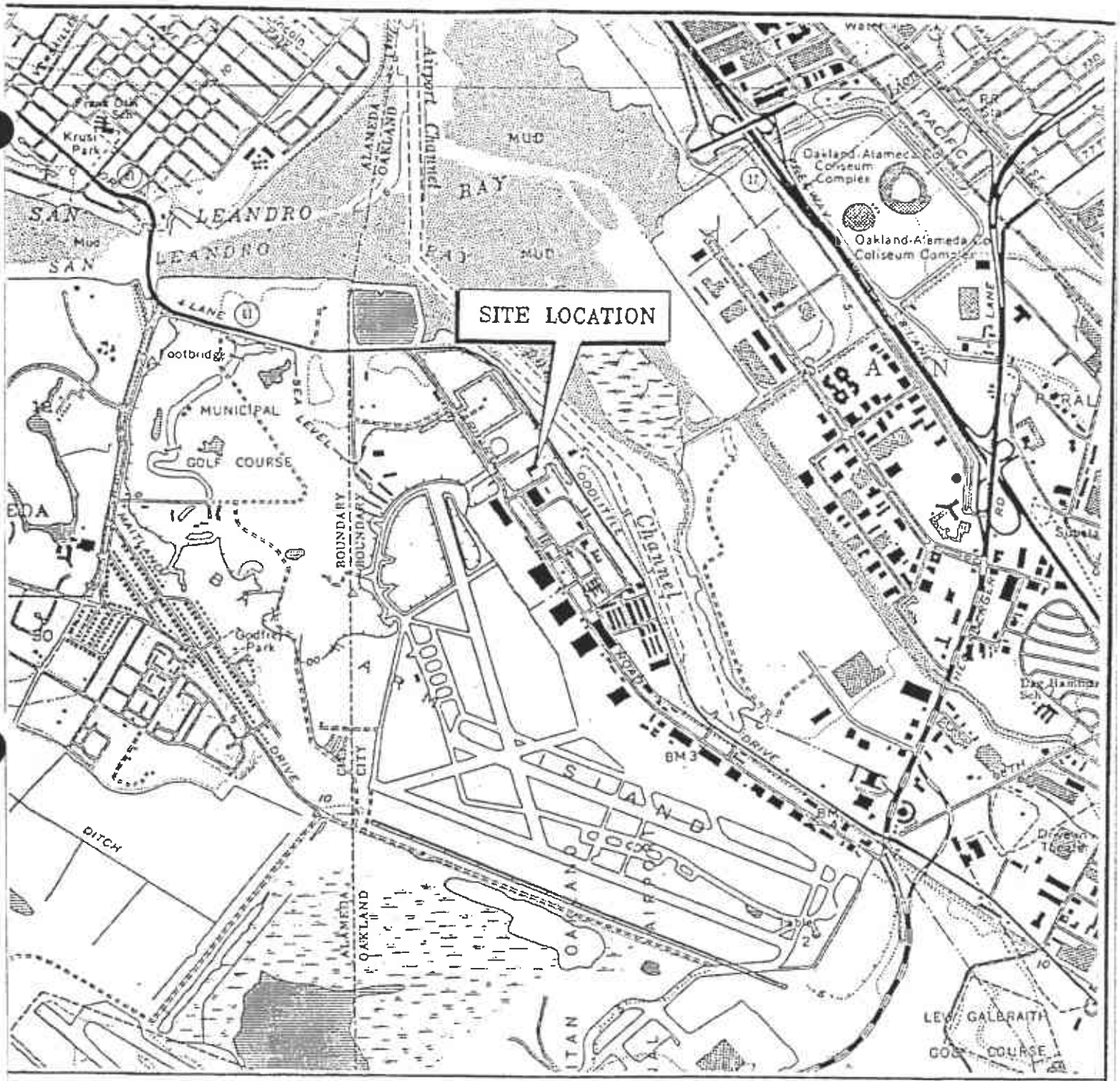
FA/BC prepared a Site Operational History Report (SOHR) that outlined the location and former use of the four large USTs at the TRACON site (FA/BC, 2002b). Design drawings reviewed during the preparation of the SOHR indicate that one 210,000-gallon concrete UST (UST No. 5) was located in the northwest portion of the parking area, east of the existing FAA TRACON Building. In addition, three 100,000-gallon concrete USTs (UST Nos. 6, 7, and 8) are indicated on the drawings south and east of the 210,000-gallon UST (Figure 2). According to historical documentation, UST No. 5 and UST No. 8 were used for the storage of JP-3 aviation fuel, UST No. 6 was used to store a military-specification "115/145", high-octane aviation fuel, and UST No. 7 stored a commercial-grade formulation, "91/96", unleaded fuel (FA/BC 2002b). An earlier geophysical survey detected underground anomalies consistent with the location of the tanks shown on historical drawings (FA/BC, 2001).

The area above the USTs is paved and used as a secured parking lot for the FAA TRACON facility. The parking lot measures approximately 270 feet by 225 feet (approximately 61,000 square feet). No buildings or trees are in the immediate vicinity of the tanks. However, a concrete pad supporting four, 40-foot high antenna towers is located approximately 50 feet southwest of the UST No. 5 location (Figure 2).

3.0 PURPOSE AND SCOPE OF WORK

This physical examination of the USTs presumed to be present beneath the TRACON parking area was undertaken with several objectives in mind. The first was to determine if the tanks or remnants thereof were still present as indicated by historical drawings and the corresponding locations identified by anomalous geophysical survey readings. The second was to locate access ports, to gain access to the tanks, and to visually inspect each tank's interior. The third objective was to collect samples of the contents and to determine the physical condition of the tanks.

The scope of work included inspection of all four former fuel storage tanks by excavating suspected locations of tank access ports and/or manways and then gaining access through those ports. In the event that access could not be gained through ports or manways, the tank roof, if intact, was to be cut in order to gain access. Once accessed, tank contents, if any, were to be sampled and analyzed for petroleum hydrocarbons. The sampling plans included instructions for sampling both liquid and sludge (FA/BC, 2002a).



CALIFORNIA

QUADRANGLE LOCATION

PROJECT LOCATION MAP

0 1/2 1 MILE

SCALE

N

USGS 7.5 MIN. QUADRANGLES: SAN LEANDRO, CALIFORNIA AND OAKLAND EAST, CALIFORNIA
CONTOUR INTERVAL: 20 FEET
DATED: 1959/REV. 1980

Forsgren Associates/
BROWN AND CALDWELL
A JOINT VENTURE

UST SITE INVESTIGATION

GENERAL PROJECT LOCATION, NAAS OAKLAND, CA

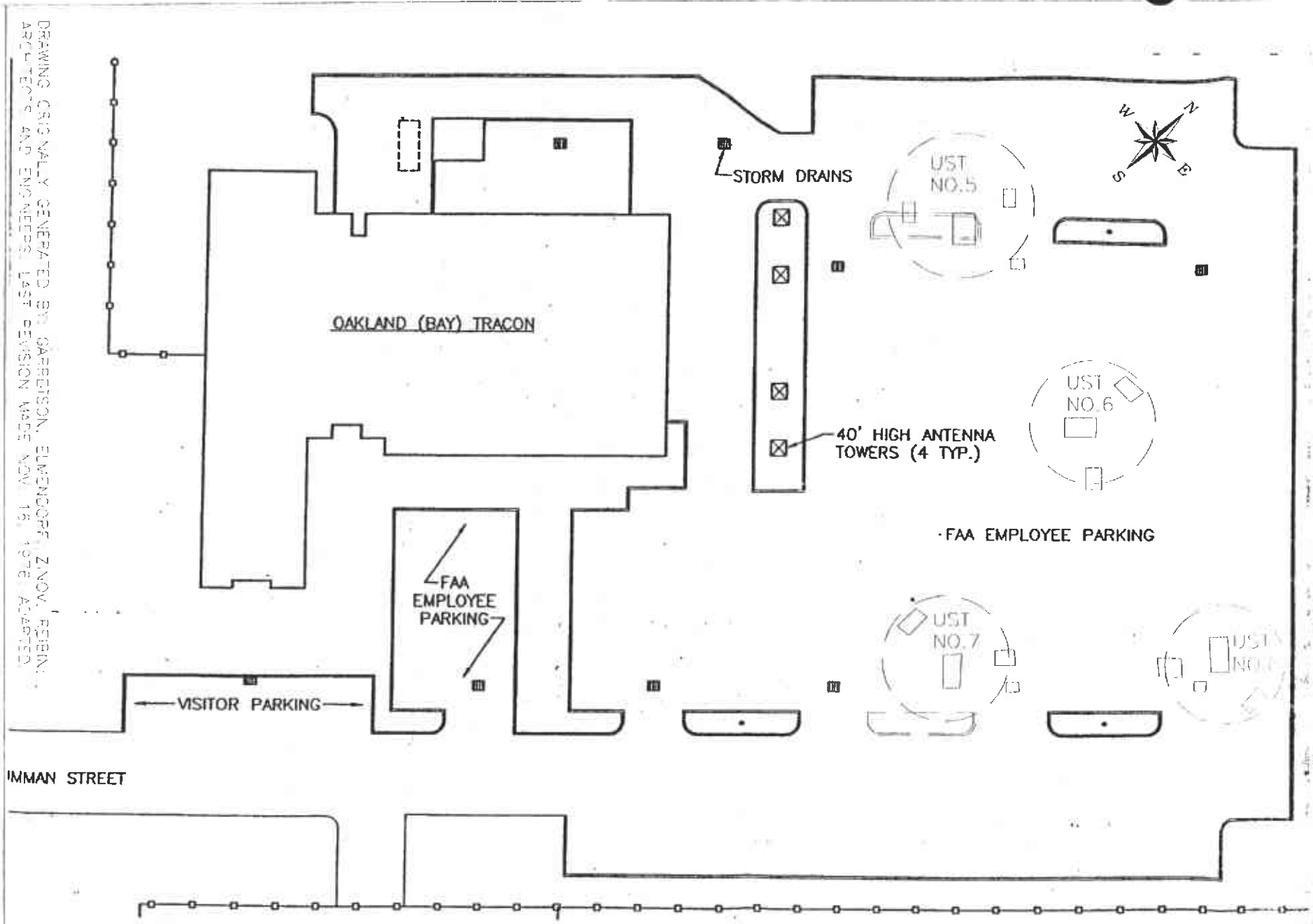
PROJECT NO. 00714

FIGURE NO. 1

12/13/03

FIG1LOC-JAN03.DWG DWG
Path: P:\US ARMY CORPS\OAKLAND SITE INSPECTION\CAD\
CAD User: JROGERS
11-29-10

Date/Time 28 JAN 11:39:11 CAD User: JROGERS Path: P:\US ARMY CORPS\OAKLAND AND SITE INSPECTION\CAD\ FIG2SITE JAN03.DWG.DWG



DRAWING ORIGINALLY GENERATED BY GARRISON, ELMENDORF, ZINOVI, FEIBIN; ARCHITECTS AND ENGINEERS. LAST REVISION MADE NOV 15, 1976. ADAPTED

Forsgren Associates/
BROWN AND CALDWELL
A JOINT VENTURE

UST SITE INVESTIGATION

FAA TRACON FACILITY, NAAS OAKLAND, CA

JAN '2/'2/03

PROJECT NO 00714

FIGURE NO 2

4.0 FIELD INVESTIGATIONS

Field investigations, sampling, and physical examination of the tanks were conducted from 18 November through 20 November 2002. The environmental excavation subcontractor was R&M Environmental and Infrastructure, Inc. of Oakland, California. Photographs of the field activities were provided by R&M, and are included as Appendix C.

Exploratory excavation of each tank was guided by the results of the geophysical survey (FA/BC, 2001). Underground Service Alert (USA) marked utilities up to the property line. The geophysical survey delineated the location of storm sewer lines, buried electrical utilities, and UST outlines within the property boundary. All were marked on the asphalt surface for easy reference during excavation activities. Prior to commencement of excavation the FA/BC site manager and project manager, subcontractor personnel, the USACE project manager, and FAA personnel inspected the site of each proposed excavation to determine the optimal location for excavation that would accomplish the investigation goals while not interfering with underground utilities or FAA operations.

The asphalt surface was removed with a backhoe and excavation was extended to the expected depth of the tank top, as estimated from the historical information and the geophysics data. When no top was encountered beyond the expected depth, the excavation was refocused on the tank wall as indicated by the geophysical survey.

Soils removed from the excavation were screened with a photoionization detector (PID), although strong petroleum odor in the excavation made it obvious that petroleum contamination was present in all of the excavations. All excavated soil was stockpiled on plastic sheeting and covered with plastic while the soil was sampled and characterized for disposal.

Tank investigations began in the southeast corner of the site at UST No. 8 and concluded with UST No. 5 in the northwest corner. The excavations and findings for each tank are described in the following sections in the order in which they were examined.

4.1 UST No. 8

Historical drawings show this tank in the aviation fuel storage area as Tank 16-1. According to research, this reinforced-concrete tank was constructed prior to 1952 and is known to have been used to store the jet fuel JP-3, developed in the late 1940s. This fuel had a high vapor pressure similar to aviation gasoline of today. The tank was reported to have a capacity of 100,000 gallons, measuring 42 feet in diameter with a depth of 10 feet.

Excavations during this investigation and the results of the previous geophysical survey (FA/BC, 2001) confirmed the location and configuration of this tank. The exploratory excavation into this tank measured from 4 to 12 feet wide and 25 feet long. The tank wall and attached roof remnant was encountered in the excavation at a depth of approximately 4 feet. Exploratory excavation continued to a depth of 10 feet in an attempt to locate the tank bottom. Well-sorted, dark gray sand with a strong petroleum odor was found at the same depth. The pit reached a depth of 10 feet. Groundwater infiltrated the excavation to a depth of 7 feet. A grab sample of this water was collected for analysis in accordance with the project work plan.

The accumulated water was pumped out of the excavation into a holding tank to await characterization and eventual disposal and the excavation backfilled with imported clean fill material.

4.2 UST No. 7

The SOHR identified this aviation fuel tank as "Tank 16-2" with a capacity of 100,000 gallons. According to historical documents, the reinforced-concrete tank was used to store a commercial-grade unleaded fuel called "91/96". UST No. 7 is a duplicate of UST No. 8 in terms of constructed dimensions and material. It measures 42 feet in diameter and is reportedly 10 feet deep. The exploratory pit for this tank measured 6 to 7 feet wide, 8 to 9 feet long, and up to 6 1/2 feet deep. The tank wall and roof remnants were encountered at a depth of 4 feet. Sandy fill material exhibiting a strong petroleum odor was also discovered at this depth. This dark gray sandy material appears to have been used to backfill the tank after demolition of the concrete roof at some time in the past. Groundwater infiltrated the excavation to a depth of 4 feet. A grab sample of this water was collected for analysis according to the project work plan. The accumulated water was pumped

from the pit to a temporary holding tank prior to backfill placement and to await disposal characterization. The excavation was backfilled with imported clean fill material.

4.3 UST No. 6

This 100,000-gallon-capacity reinforced-concrete tank is identified on historical drawings as "Tank 16-3". According to historical documents, a military-specification-grade fuel, designated "115/145", was stored in this tank. This fuel apparently carried the highest antiknock rating of any aviation fuel in large-scale production at the time. The tank measures 42 feet in diameter and is 10 feet deep, according to historical construction documents. Again, these dimensions were confirmed by this investigation and by the previously completed geophysical survey. An excavation measuring 4 feet wide, 8 feet long, and up to 6 1/2 feet deep was required to examine the tank's condition, depth, and construction. Approximately 6 inches of groundwater accumulated in the bottom of this pit from which a grab sample of water was collected for analysis prior to backfilling the trench with imported clean fill material.

4.4 UST No. 5

According to historical documents, this steel-constructed tank had a capacity of 210,000 gallons and measured 53 feet in diameter and 13 feet in depth. It is located in the northwest portion of the FAA TRACON parking area and was designated as "Tank 16-4" on historical drawings. It was apparently used to store JP-3 fuel, as was UST No. 8. The geophysical survey and excavations for this investigation confirmed the steel construction of the tank and its dimensions.

The excavation required to examine this tank measured 6 to 9 feet wide, 12 feet long, and up to 9 feet deep. The 1/2-inch steel-plate wall of the tank was found at a depth of 9 feet in a position consistent with that indicated by the historical drawings and by the geophysical survey. Sandy fill material indicative of tank filling found in the other excavations was encountered at a depth of 4 feet. Groundwater accumulated rapidly in the bottom of this pit from which a grab sample of water was collected for analysis according to the project Workplan. The excavation was backfilled with imported clean fill material.

5.0 SAMPLING AND ANALYSIS

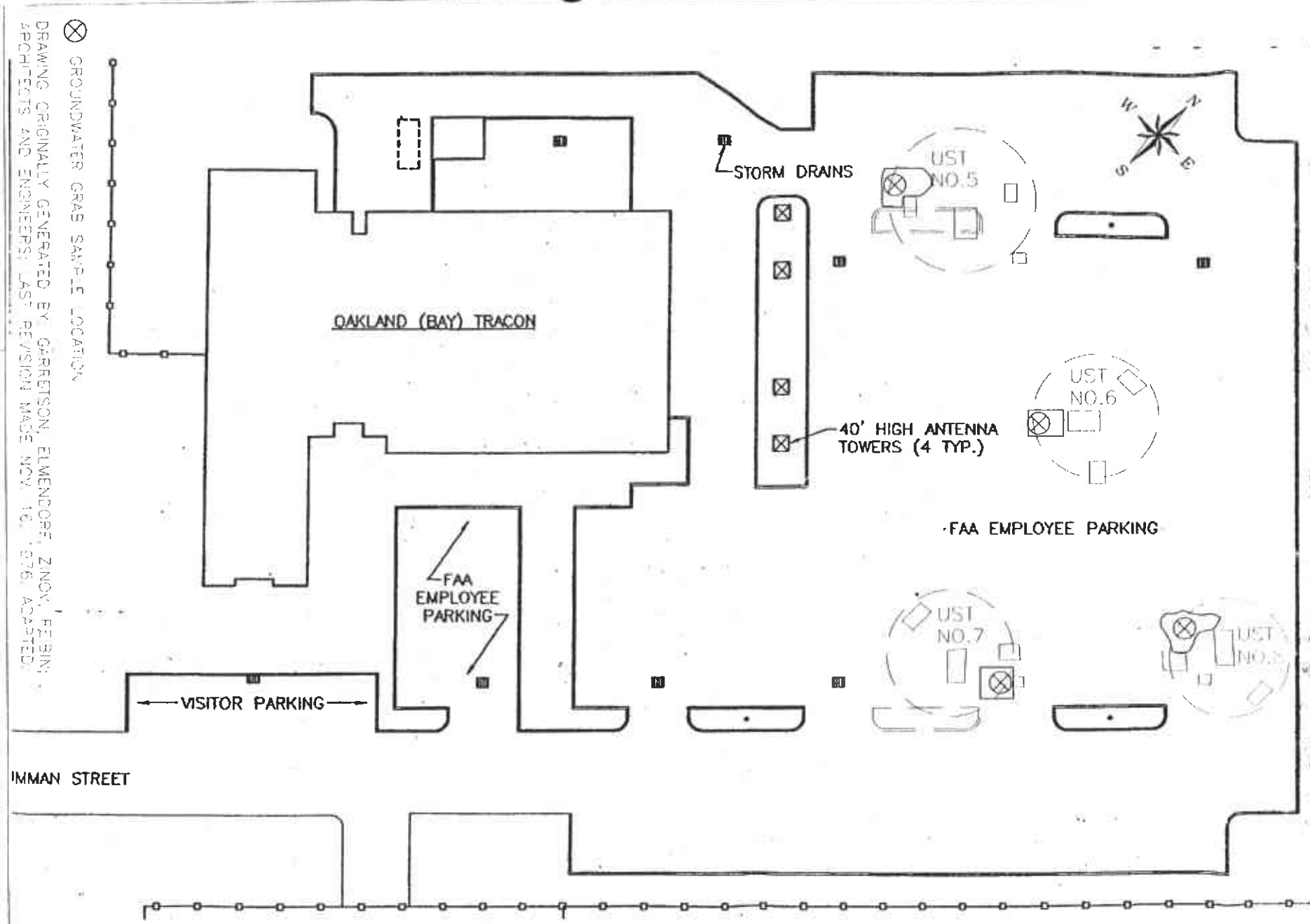
One water sample was collected from each of the four excavations according to the procedures described in the Field Sampling Plan (FSP), which is incorporated into the project Work Plans (FA/BC, 2002a). Sample locations are shown on Figure 3. Samples were packed on ice and shipped under chain of custody (COC) procedures to EMAX Laboratories, Inc. (EMAX) in Torrance, California for analysis by the methods described in the FSP and as instructed on the COC forms that accompanied each sample shipment. COC documents are contained in Appendix A.

5.1 Summary of Analytical Results

Laboratory analytical results for the four water samples collected during the investigation are shown in Table 1. Results shown in the table include only those compounds for which the laboratory reported sample concentrations above the Practical Quantitation Limit (PQL). All other compounds were not detected in the sample tests. Complete analytical results are contained in the laboratory reports found in Appendix A. Elevated concentrations of gasoline, diesel and residual, heavier hydrocarbon components were detected in all four samples. Benzene, toluene, ethylbenzene, and xylenes (BTEX) components were also found in all samples. Other volatile organic compounds (VOCs) were also detected in the samples. Detailed descriptions of the laboratory analytical methods employed to test the investigation samples are presented in the Chemical Data Quality Management Plan (CDQMP) (FA/BC, 2000).

5.1.1 VOCs/BTEX Analysis.

All samples were analyzed in the laboratory for VOCs and BTEX by EPA Method 8260B/5030B. BTEX components were detected in all four samples at concentrations ranging from 11 to 500 μg/L, 12 to 190 μg/L, 15 to 110 μg/L, and 21 to 380 μg/L, respectively. Chlorinated compounds were detected in all four samples, and include methylene chloride (5.7 to 20 μg/L), 1,1-dichloroethane (1 to 10 μg/L), 1,4-dichlorobenzene (8.4 to 8.5 μg/L), trichloroethylene (TCE) (0.24 to 7 μg/L), and vinyl chloride (0.56 to 5.2 μg/L). Other chemicals of potential interest that were detected in these samples include methyl tert-butyl ether (MTBE) (2.3 μg/L), tert-butyl alcohol (TBA) (210 μg/L), acetone (19 μg/L to 80 μg/L), and methyl ethyl ketone (MEK) (96 μg/L). These and other detected chemicals are listed on Table 1.



Forsgren Associates/
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A JOINT VENTURE

UST SITE INVESTIGATION

EXCAVATION AND SAMPLE LOCATIONS, NAAS OAKLAND, CA

PROJECT NO. 00714

FIGURE NO. 3

Table 1.

TPH and VOCs Detected in Groundwater by Method 8015B and 8260B*

Location-ID	TRACON-UST5	TRACON-UST6	TRACON-UST7	TRACON-UST8					
Sample Date	Nov. 19, 2002	Nov. 19, 2002	Nov. 18, 2002	Nov. 18, 2002					
Units	ug/l	ug/l	ug/l	ug/l					
Depth (feet)	7	6	4	3	Number of Detects:	Total Number of Analyses:	Maximum Concen-tration:	MCL ug/l	MCL Exceeded
GASOLINE RANGE ORGANICS	1200	4200	450	740	4	4	4200	n/a	n/a
DIESEL RANGE ORGANICS	21000	220000 J[3]	49000	120000	4	4	220000	n/a	n/a
RESIDUAL RANGE ORGANICS	53000	380000	93000	200000	4	4	380000	n/a	n/a
1,1-DICHLOROETHANE	1.4 J	1 J	10 J[2]	3 J	4	4	10	5	Y
1,2,4-TRICHLOROBENZENE	0.71 J,J[1]	1.3 J[1]	2.3 J[2]	0.44 J	4	4	2.3	70	N
1,2,4-TRIMETHYLBENZENE	36	140	100	35	4	4	140	n/a	n/a
1,2-DICHLOROBENZENE	14	51	75	0.98 J	4	4	75	600	N
1,3,5-TRIMETHYLBENZENE	19	34	30	16	4	4	34	n/a	n/a
1,3-DICHLOROBENZENE	< 0.2	< 0.2	1.7 J[2]	< 0.2	1	4	1.7	n/a	n/a
1,4-DICHLOROBENZENE	< 0.2	8.5	8.4 J[2]	< 0.2	2	4	8.5	5	Y
2-CHLOROTOLUENE	< 0.2	0.89 J	< 0.2	< 0.2	1	4	0.89	n/a	n/a
4-CHLOROTOLUENE	< 0.2	0.72 J	< 0.2	< 0.2	1	4	0.72	n/a	n/a
ACETONE	22	19 J	80 J[2]	25	4	4	80	n/a	n/a
BENZENE	11	500	370	110	4	4	500	1	Y
CARBON DISULFIDE	< 0.2	< 0.2	< 0.2	0.41 J	1	4	0.41	n/a	n/a
CHLOROBENZENE	15	36	44	1.2	4	4	44	n/a	n/a
CHLOROETHANE	1.3 J	4.9	59	< 0.2	3	4	59	n/a	n/a
cis-1,2-DICHLOROETHYLENE	0.76 J	< 0.2	2.2 J[2]	1.5	3	4	2.2	6	N
ETHYLBENZENE	15	110	56	60	4	4	110	700	N
ISOPROPYL ETHER	< 1	10	1.5 J	< 1	2	4	10	n/a	n/a
ISOPROPYLBENZENE (CUMENE)	6.3	8.6	23 J[2]	23	4	4	23	n/a	n/a
M,P-XYLENE	36	380	210	140	4	4	380	1750**	N
METHYL ETHYL KETONE	< 5	< 5	96	< 5	1	4	96	n/a	n/a
METHYL ISOBUTYL KETONE	< 1	8.1 J	80 J[2]	< 1	2	4	80	n/a	n/a
METHYLENE CHLORIDE	< 1	5.7	20 J[2]	< 1	2	4	20	5	Y
NAPHTHALENE	43	140	93	27	3	4	140	n/a	n/a
n-BUTYLBENZENE	16	6.5	21 J[1],J[2]	4.2 J[1]	4	4	21	n/a	n/a
O-XYLENE	21	170	85	56	4	4	170	1750**	N
P-CYMENE	5.2	3.2	9.8 J[2]	2	4	4	9.8	n/a	n/a
SEC-BUTYLBENZENE	6.9	2.4	11 J[2]	1.8	4	4	11	n/a	n/a
t-BUTYLBENZENE	< 0.2	0.38 J	1 J[2]	< 0.2	2	4	1	n/a	n/a
tert-BUTYL ALCOHOL (TBA)	< 5	210 J[1]	< 5	< 5	1	4	210	n/a	n/a

Table 1.

TPH and VOCs Detected in Groundwater by Method 8015B and 8260B*

Location-ID	TRACON-UST5	TRACON-UST6	TRACON-UST7	TRACON-UST8					
Sample Date	Nov. 19, 2002	Nov. 19, 2002	Nov. 18, 2002	Nov. 18, 2002					
Units	ug/l	ug/l	ug/l	ug/l					
Depth (feet)	7	6	4	3	Number of Detects:	Total Number of Analyses:	Maximum Concen-tration:	MCL ug/l	MCL Exceeded
tert-BUTYL METHYL ETHER (MTBE)	2.3	< 0.2	< 0.2	< 0.2	1	4	2.3	13	N
TETRACHLOROETHYLENE (PCE)	< 0.2	< 0.2	0.65 J,J[2]	< 0.2	1	4	0.65	5	N
TOLUENE	12	130	190	64	4	4	190	150	Y
trans-1,2-DICHLOROETHENE	0.57 J	3.5	4.5 J[2]	6.3	4	4	6.3	10	N
TRICHLOROETHYLENE (TCE)	0.24 J	< 0.2	7 J[2]	0.77 J	3	4	7	5	Y
VINYL CHLORIDE	0.56	2.2	5.2 J[2]	0.89	4	4	5.2	0.5	Y

n/a Not applicable

* Only detected compounds are included in this table.

** MCL is for either the single isomer or the sum of the isomers.

QUALIFIER LEGEND:

J The analyte was positively identified at a concentration above the method detection limit (MDL), but below the reporting limit and represents the approximate concentration of the analyte in the sample.

J[1] The analyte was positively identified; the associated numerical value is estimated due to laboratory control spike recoveries or duplicate precision that slightly exceed the established criteria.

J[2] The analyte was positively identified; the associated numerical value is estimated due to matrix spike recoveries that slightly exceeded the established criteria. This is likely due to the high native analyte concentrations present in the parent sample.

J[3] The analyte was positively identified; the associated numerical value is estimated due to surrogate recoveries that exceeded the established criteria. This is likely due to matrix interference.

5.1.2 Total Petroleum Hydrocarbon (TPH) Analysis.

Each of the four water samples was analyzed for various hydrocarbon compounds. The samples were tested for purgeable hydrocarbons or TPH-Gasoline (TPH-G) by EPA Method 8015B/5030B (purge and trap) and for extractable hydrocarbons or TPH-Diesel (TPH-D) by EPA Method 8015B/3520C/3630C (extraction).

TPH-G analysis identifies Gasoline Range Organics (GRO) representing the more volatile hydrocarbon compounds in the carbon range C4 to C12. The TPH-D analysis produces results for hydrocarbon compounds in the carbon range C10 to C24 and generally identified as Diesel Range Organics (DRO). TPH-D testing also yields results for Residual Range Organics (RRO) including hydrocarbon compounds in the carbon range of C20 to C38 and representing non-volatile and more environmentally persistent hydrocarbons similar to motor oil and grease.

Elevated concentrations of GRO were reported in all four samples ranging from 450 μg/L in the UST No. 7 sample to 4,200 μg/L in the sample from UST No. 6. DRO concentrations were detected in all four samples ranging from 21,000 μg/L in the UST No. 5 sample to 220,000 μg/L in the sample collected from UST No. 6. Elevated RRO concentrations were also reported in all four samples ranging from 53,000 μg/L (UST No. 5) to 380,000 μg/L (UST No. 6).

5.1.3 Data Quality Assessment.

The quality of the reported analytical results for water samples collected during this investigation was assessed by means of an Automated Data Review (ADR) tool and supplemental manual review, the details of which are described below. The approach taken in the review of this data set is consistent with the requirements contained in the CDQMP (FA/BC, 2000). In general, the data collected in support of this investigation are considered usable for the purpose of engineering decision-making.

Water samples, collected by FA/BC between 18 November and 20 November 2002, were analyzed for VOCs by SW8260B, and total petroleum hydrocarbons for GRO, DRO, and RRO bySW8015B. Analyses were performed by EMAX and were reported under three sample delivery groups (SDG)

02K173, 02K190, and 02K200. Data was received in both hardcopy and electronic formats. Results were evaluated electronically using electronic data deliverables (EDDs) provided by the laboratory for the two SDGs, which contained the in-situ sample data. For these SDGs, the laboratory data summary forms (hard copy) were reviewed and compared to the automated review output. The SDG, which contained the investigation derived waste (IDW) sample data, was not evaluated electronically, but the laboratory data summary forms (hard copy) were reviewed during this effort. The data were reviewed for sample receipt requirements, technical holding times, method blank contamination, field blank contamination, blank spike accuracy and precision, matrix spike accuracy and precision, surrogate recovery, and field duplicate precision. There were no significant data quality issues associated with these data sets except for field duplicate precision for some analytes (DRO, RRO, t-butanol), which exceeded the specified criteria. This is likely due to sample non-homogeneity.

6.0 INVESTIGATION DERIVED WASTE

Investigation Derived Waste (IDW) consisted of soil excavated during the physical examination of the four USTs and water extracted from the UST No. 7 and UST No. 8 excavations during backfilling activities. Water IDW was temporarily stored on site in a portable steel tank. Excavated soil was stockpiled on plastic sheeting adjacent to each excavation and covered with additional; plastic sheeting. Composite samples of the containerized water and the stockpiled soil were collected and tested in accordance with the FSP to characterize the waste for disposal.

6.1 Soil IDW

The composite soil sample was sent to the laboratory for fast-turnaround analysis for parameters required by the disposal site operator. These parameters included TPH-G, TPH-D, VOCs/BTEX, total recoverable petroleum hydrocarbons (TRPH); and six specified metals. The positive results of these analyses are shown in Table 2. Complete analytical result reports are contained in Appendix A.

Table 2. Constituents Detected in Soil IDW, UST Site Investigation

VOCs & BTEX[1]		Total Petroleum Hydrocarbons[1]		Metals[1]	
Analyte	SP-A-SO1	Parameter	SP-A-SO1	Analyte	SP-A-SO1
1,2,4-trimethylbenzene	0.4	TPH-D DRO	500	Cadmium	ND
1,2-dichlorobenzene	0.063	TPH-G GRO	20	Chromium	13.4
1,3,5-trimethylbenzene	0.1	TPH-D RRO	1,200	Copper	15
ethylbenzene	0.022J	TRPH	1,860	Lead	170
isopropylbenzene	0.015J			Nickel	18.6
m,p-xylenes	0.093			Zinc	55.2
naphthalene	0.38				
o-xylene	0.039				
p-isopropyltoluene	0.028J				
sec-butylbenzene	0.023J				
All other analytes	ND				

ND - not detected

J - The analyte was positively identified at a concentration above the method detection limit (MDL), but below the reporting limit and represents the approximate concentration of the analyte in the sample.

[1] Concentrations in milligrams per kilogram (mg/kg).

Lead was detected at170 mg/kg in the composite soil IDW sample exceeding the Total Threshold Limit Concentration (TTLC) of 150 mg/kg, indicating that the concentration of soluble lead in the soil may be high enough for the soil to be considered hazardous under State or Federal regulations. To test the concentration of soluble lead, a Waste Extraction Test (WET) was performed on a split of the original composite sample. This test showed soluble lead in the sample at a concentration of 5.07 mg/L, exceeding the Soluble Threshold Limit Concentration (STLC) of 5.0 mg/L (see CDQMP Sec. 2.4.1.1; FA/BC, 2000) and categorizing the soil as a California hazardous waste. The next step was to determine if the waste was also considered hazardous under Federal regulations, as defined in the Resource Conservation and Recovery Act (RCRA). This required that a Toxicity Characteristic Leaching Procedure (TCLP) test (by EPA Method SW1311) be completed on the sample of soil IDW (see CDQMP Sec. 2.4.1.2; FA/BC, 2000). The result of this test showed a soluble lead concentration of 0.205 mg/L in the sample, which does not exceed the RCRA limit of 5.0 mg/L. For this reason the soil IDW was categorized as non-RCRA hazardous.

The USACE obtained a temporary Generator Identification Number from the California Department of Toxic Substances Control (DTSC) for completion of the waste manifest and disposal of the soil as non-RCRA hazardous waste. Upon completion of all characterization testing, waste profiling, waste manifest preparation and approval by USACE, and approval of the regulatory agencies and the disposal facility, 75 tons of California hazardous, non-RCRA hazardous waste soil was transported to Chemical Waste Management's Kettleman Hills waste disposal facility near Kettleman City, CA for disposal. Waste disposal documentation is contained in Appendix B.

6.2 Water IDW

A sample of the water stored in a temporary holding tank on site was collected and sent to the laboratory for fast-turnaround analysis for parameters required by the disposal facility. These parameters included TPH-G, TPH-D, VOCs/BTEX, TRPH, and six specified metals. Analytical results indicated that this water contained petroleum compounds, but was non-hazardous. The positive results of these analyses are shown in Table 3. Complete laboratory analytical reports are included in Appendix A.

Upon completion of all characterization testing, waste profiling, approval by USACE, and approval the disposal facility, 1,200 gallons of non-hazardous wastewater were transported to Demenno Kerdoon's treatment facility in Compton, CA for treatment and disposal. Waste disposal documentation is contained in Appendix B.

Table 3. Constituents Detected in Water IDW, UST Site Investigation

VOCs & BTEX[1]		Total Petroleum Hydrocarbons[1]		Metals[1]	
Analyte	SP-A-SO1	Parameter	SP-A-SO1	Analyte	SP-A-SO1
1,1-dichloroethane	1.8J	TPH-D DRO	1700	Cadmium	ND
1,2,4-trimethylbenzene	9.4	TPH-G GRO	420	Chromium	ND
1,2-dichlorobenzene	9.3	TPH-D RRO	980	Copper	0.00102J
1,3,5-trimethylbenzene	2.6	TRPH	7.33	Lead	0.0208
1,4-dichlorobenzene	0.87J			Nickel	0.00323J
4-methyl-2-pentanone	9.3J			Zinc	0.0102J
acetone	24				
benzene	71				
chlorobenzene	9.3				
chloroethane	15				
cis-1,2-dichloroethene	0.51J				
ethylbenzene	8.9				
isopropylbenzene	2				
m,p-xylenes	30				
methylene chloride	3.2				
mtbe	4.4				
n-butylbenzene	0.46J				
naphthalene	11				
o-xylene	11				
p-isopropyltoluene	0.23J				
styrene	0.28J				
tba	23				
toluene	30				
trans-1,2-dichloroethene	1				
trichloroethene	1.2				
vinyl chloride	0.59				

ND - not detected
J - The analyte was positively identified at a concentration above the method detection limit (MDL), but below the reporting limit and represents the approximate concentration of the analyte in the sample.
[1] Concentrations in milligrams per kilogram (µg/L).

7.0 SITE CLEANUP AND ASPHALT SURFACE RESTORATION

After the soil and water IDW were removed from the site, 25 tons of waste asphalt was removed from the site and transported to Aman Environmental Construction in Oakland, CA for recycling. The fill was compacted in several lifts, moistened and compacted several more times prior to restoration of the asphalt surface. Following the removal of all waste from the site and backfill compaction, new asphalt patches were placed over each excavation. All other non-hazardous solid waste was removed and the parking lot surface restored to its pre-investigation condition.

8.0 FINDINGS AND CONCLUSIONS

- All four former fuel storage tanks are still present in the locations shown on the historical drawings and as indicated by the geophysical survey of the site.

- The tanks were removed from service, partially demolished, and backfilled at some time in the past.

- Soil and groundwater in and around the tanks is contaminated with various fuel hydrocarbon constituents, VOCs, and metals (see Table 1).

- Elevated lead concentrations in soil IDW may be derived from the fuel formerly stored in UST No. 6. This fuel had a high antiknock rating. At the time, tetra ethyl lead was the antiknock additive of choice for aviation fuels of the type stored in UST No. 6.

- Chlorinated solvents were detected in samples collected from all four UST excavations. The historic use of these chemicals is not consistent with the documented use of the USTs. For instance, TCE was historically used for metal drying and degreasing; vinyl chloride was used for the manufacture of plastics, as a solvent, as a refrigerant (also a known degradation product of TCE and other chlorinated solvents); methylene chloride was used for paint removal and metal parts degreasing; 1,1-dichloroethane was used for degreasing and drying of metal parts, vinyl chloride manufacturing, paint removal, and fire extinguishers; and 1,4-dichlorobenzene was used in general pesticides and disinfectants. The presence of these compounds suggests other sources for the chemicals.

- Fuel oxygen additives (MTBE and TBA) detected in some of the samples are indicative of more recent fuels, and suggest other sources.

- Site soils are primarily fill material and San Francisco Bay deposits. Groundwater is shallow with flow likely influenced by tidal forces.

- The site is adjacent to the "Airport Channel", a part of the San Francisco Bay, and the chemicals identified during this investigation should be regarded as a threat to the Bay.

9.0 RECOMMENDATIONS

Further characterization of the site is recommended to determine the full nature and extent of the contamination associated with the former fuel storage tanks at the FAA TRACON facility. These further investigations should focus on identification of the source or sources of anomalous concentrations of organic compounds in the groundwater. FA/BC recommends the following:

- Screen other areas of the TRACON facility to determine the extent of TPH and VOC impact. Screen other areas of concern at NAAS Oakland to determine if chemical releases have occurred in the past.

- Complete historical ownership and land use compilation, including all non-Department of Defense (DOD) ownership and usage for the former NAAS Oakland. This information will help identify other potential sources of chemical releases.

- Expand the previously completed SOHR to include the non-DOD operational history, in order to identify other potential sources of chemical releases.

- Collect, review, and interpret all publicly available environmental investigation information for the area in relation to this investigation. This will lead to a better understanding of known chemical releases in the area, and facilitate better planning of future investigations.

- Prepare a digital site base map upon which to overlay all successive phases of investigation-generated data. This will facilitate better management and interpretation of all collected data.

- Develop a Conceptual Site Model that describes the site hydrogeology, identifies possible sources of chemical release, identifies possible receptors in the vicinity of the site, and pathways from the sources to the receptors. This will provide a framework for the planning and implementation of future investigations.

10.0 REFERENCES

Forsgren Associates/Brown and Caldwell. 2002a. Site Inspection Work Plans for Former Naval Auxiliary Air Station, Oakland: FAA TRACON Facility - Final. Prepared for the U.S. Army Corps of Engineers. November.

Forsgren Associates/Brown and Caldwell. 2002b. Site Operational History Report, Former Naval Auxiliary Air Station, Oakland, California – Final. Prepared for the U.S. Army Corps of Engineers. October.

Forsgren Associates/Brown and Caldwell. 2001. Oakland NAAS Geophysical Investigation. Prepared for the U.S. Army Corps of Engineers. August.

Forsgren Associates/Brown and Caldwell. 2000. Chemical Data Quality Management Plan - Final. Prepared for the U.S. Army Corps of Engineers. December.

Appendix A
Laboratory Reports and Chain of Custody Documentation

Laboratory Reports

Water Analysis

LABORATORY REPORT FOR

FORSGREN ASSOCIATES

OAKLAND TRACON FACILITY

SW 5030B/8260B
VOLATILE ORGANICS BY GC/MS

SDG#: 02K190

2000

Client	: FORSGREN ASSOCIATES	Date Collected:	11/19/02
Project	: OAKLAND TRACON FACILITY	Date Received:	11/20/02
Batch No.	: 02K190	Date Extracted:	11/30/02 09:57
Sample ID:	TRACON-UST5-A-W01	Date Analyzed:	11/30/02 09:57
Lab Samp ID:	K190-01	Dilution Factor:	1
Lab File ID:	RK8320	Matrix	: WATER
Ext Btch ID:	V003K54	% Moisture	: NA
Calib. Ref.:	RK8343	Instrument ID	: T-003

PARAMETERS	RESULTS (ug/L)	PQL (ug/L)	MDL (ug/L)
1,1,1,2-TETRACHLOROETHANE	ND	1	.2
1,1,1-TRICHLOROETHANE	ND	1	.3
1,1,2,2-TETRACHLOROETHANE	ND	1	.2
1,1,2-TRICHLOROETHANE	ND	1	.2
1,1-DICHLOROETHANE	1.4J	3	.2
1,1-DICHLOROETHENE	ND	1	.2
1,1-DICHLOROPROPENE	ND	1	.2
1,2,3-TRICHLOROBENZENE	ND	1	.2
1,2,3-TRICHLOROPROPANE	ND	2	.2
1,2,4-TRICHLOROBENZENE	.71J	1	.2
1,2,4-TRIMETHYLBENZENE	62E	1	.2
1,2-DIBROMO-3-CHLOROPROPANE	ND	2	1
1,2-DICHLOROBENZENE	14	1	.2
1,2-DICHLOROETHANE	ND	.4	.2
1,2-DICHLOROPROPANE	ND	1	.2
1,2-DIBROMOETHANE	ND	1	.2
1,3,5-TRIMETHYLBENZENE	19	1	.2
1,3-DICHLOROBENZENE	ND	1	.2
1,3-DICHLOROPROPANE	ND	1	.2
1,4-DICHLOROBENZENE	ND	1	.2
2,2-DICHLOROPROPANE	ND	1	.2
2-CHLOROTOLUENE	ND	1	.2
2-HEXANONE	ND	10	1
4-CHLOROTOLUENE	ND	1	.2
4-METHYL-2-PENTANONE	ND	10	1
BENZENE	11	.5	.2
BROMOBENZENE	ND	1	.2
BROMOCHLOROMETHANE	ND	1	.2
BROMODICHLOROMETHANE	ND	1	.2
BROMOFORM	ND	1	.2
BROMOMETHANE	ND	2	.2
CARBON DISULFIDE	ND	1	.2
CARBON TETRACHLORIDE	ND	.4	.2
CHLOROBENZENE	15	1	.2
CHLOROETHANE	1.3J	2	.2
CHLOROFORM	ND	1	.2
CHLOROMETHANE	ND	2	.2
CIS-1,2-DICHLOROETHENE	.76J	1	.2
CIS-1,3-DICHLOROPROPENE	ND	.4	.2
DIBROMOCHLOROMETHANE	ND	1	.2
DIBROMOMETHANE	ND	1	.2
DICHLORODIFLUOROMETHANE	ND	2	.2
ETHYLBENZENE	15	.5	.2
HEXACHLOROBUTADIENE	ND	1	.2
ISOPROPYLBENZENE	6.3	1	.2
M,P-XYLENES	36	1	.3
METHYLENE CHLORIDE	ND	2	1
N-BUTYLBENZENE	16	1	.2
NAPHTHALENE	60E	1	.2
O-XYLENE	21	.5	.2
P-ISOPROPYLTOLUENE	5.2	1	.2
SEC-BUTYLBENZENE	6.9	1	.2
STYRENE	ND	1	.2
TERT-BUTYLBENZENE	ND	1	.2
TETRACHLOROETHENE	ND	1	.2
TOLUENE	12	.5	.2
TRANS-1,2-DICHLOROETHENE	.57J	1	.2
TRANS-1,3-DICHLOROPROPENE	ND	1	.2
TRICHLOROETHENE	.24J	1	.2
TRICHLOROFLUOROMETHANE	ND	1	.2
112TRICHLORO122TRIFLUOROETHANE	ND	2	.2
VINYL ACETATE	ND	5	.7
VINYL CHLORIDE	.56	.5	.2
ACETONE	22	20	5
MEK-BUTANONE	ND	10	5
MTBE	2.3	2	.5
TBA	ND	20	5
DIPE	ND	5	1
ETBE	ND	5	1
TAME	ND	5	.3

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	110	70-130
TOLUENE-D8	120	70-130
BROMOFLUOROBENZENE	81	70-130

PQL: Practical Quantitation Limit

2004

[illegible]	: ERSGREN ASSOCIATES	Date Collected: [illegible]	
[illegible]	: OAKLAND TRACON FACILITY	Date Received:	11/20/02
[illegible] No.	: 02K190	Date Extracted:	12/03/02 02:06
[illegible] ID:	TRACON-UST5-A-W01DL	Date Analyzed:	12/03/02 02:06
[illegible] Samp ID:	K190-01T	Dilution Factor:	5
[illegible] File ID:	RL8013	Matrix	: WATER
[illegible] Batch ID:	VC03L01	% Moisture	: NA
[illegible] Ref.:	RK8343	Instrument ID	: T-C03

ARAMETERS	RESULTS (ug/L)	PQL (ug/L)	MDL (ug/L)
,1,1,2-TETRACHLOROETHANE	ND	5	1
,1,1-TRICHLOROETHANE	ND	5	1.5
,1,2,2-TETRACHLOROETHANE	ND	5	1
,1,2-TRICHLOROETHANE	ND	5	1
,1-DICHLOROETHANE	1.4J	15	1
,1-DICHLOROETHENE	ND	5	1
,1-DICHLOROPROPENE	ND	5	1
,2,3-TRICHLOROBENZENE	ND	5	1
,2,3-TRICHLOROPROPANE	ND	10	1
,2,4-TRICHLOROBENZENE	ND	5	1
,2,4-TRIMETHYLBENZENE	36	5	1
,2-DIBROMO-3-CHLOROPROPANE	ND	10	5
,2-DICHLOROBENZENE	12	5	1
,2-DICHLOROETHANE	ND	2	1
,2-DICHLOROPROPANE	ND	5	1
,2-DIBROMOETHANE	ND	5	1
,3,5-TRIMETHYLBENZENE	8.7	5	1
,3-DICHLOROBENZENE	ND	5	1
,3-DICHLOROPROPANE	ND	5	1
,4-DICHLOROBENZENE	ND	5	1
,2-DICHLOROPROPANE	ND	5	1
CHLOROTOLUENE	ND	5	1
HEXANONE	ND	50	5
CHLOROTOLUENE	ND	5	1
METHYL-2-PENTANONE	ND	50	5
NZENE	8.8	2.5	1
OMOBENZENE	ND	5	1
OMOCHLOROMETHANE	ND	5	1
OMODICHLOROMETHANE	ND	5	1
OMOFORM	ND	5	1
OMOMETHANE	ND	10	1
RBON DISULFIDE	ND	5	1
RBON TETRACHLORIDE	ND	2	1
LOROBENZENE	14	5	1
LOROETHANE	ND	10	1
LOROFORM	ND	5	1
LOROMETHANE	ND	10	2.5
S-1,2-DICHLOROETHENE	ND	5	1
S-[illegible]DICHLOROPROPENE	ND	2	1
[illegible]BROMOMETHANE	ND	5	1
BROMOMETHANE	ND	5	1
CHLORODIFLUOROMETHANE	ND	10	2
HYLBENZENE	12	2.5	1
XACHLOROBUTADIENE	ND	5	1
OPROPYLBENZENE	2.9J	5	1
P-XYLENES	29	5	1.5
THYLENE CHLORIDE	ND	10	5
BUTYLBENZENE	5.5	5	1
PHTHALENE	43	5	1.5
XYLENE	18	2.5	1
ISOPROPYLTOLUENE	1.6J	5	1
C-BUTYLBENZENE	2.1J	5	1
YRENE	ND	5	1
RT-BUTYLBENZENE	ND	5	1
TRACHLOROETHENE	ND	5	1
LUENE	11	2.5	1
ANS-1,2-DICHLOROETHENE	ND	5	1
ANS-1,3-DICHLOROPROPENE	ND	5	1
ICHLOROETHENE	ND	5	1
ICHLOROFLUOROMETHANE	ND	5	1
2TRICHLORO122TRIFLUOROETHANE	ND	10	1
NYL ACETATE	ND	25	3.5
NYL CHLORIDE	ND	2.5	1
ETONE	36J	100	10
-BUTANONE	ND	50	25
TBE	2.6J	10	1
BA	ND	100	25
IPE	ND	25	5
TBE	ND	25	5
AME	ND	25	1.5

URROGATE PARAMETERS	% RECOVERY	QC LIMIT
,2-DICHLOROETHANE-D4	118	70-130
OLUENE-D8	108	70-130
ROMOFLUOROBENZENE	88	70-130

QL: Practical Quantitation Limit

2005

[illegible]	: FORGREN ASSOCIATES	Date [illegible]	: [illegible]
Project	: OAKLAND TRACON FACILITY	Date Received	: 11/30/02
Batch No.	: 02K190	Date Extracted	: 11/30/02 07:13
Sample ID	: TRACON-UST5-D-W01	Date Analyzed	: 11/30/02 07:13
Lab Samp ID	: K190-02	Dilution Factor	: 1
Lab File ID	: RK3816	Matrix	: WATER
Ext Btch ID	: VC03K54	% Moisture	: NA
Calib. Ref.:	RK3343	Instrument ID	: T-003

PARAMETERS	RESULTS (ug/L)	PQL (ug/L)	MDL (ug/L)
1,1,1,2-TETRACHLOROETHANE	ND	1	.2
1,1,1-TRICHLOROETHANE	ND	1	.2
1,1,2,2-TETRACHLOROETHANE	ND	1	.2
1,1,2-TRICHLOROETHANE	ND	1	.2
1,1-DICHLOROETHANE	ND	3	.2
1,1-DICHLOROETHENE	ND	1	.2
1,1-DICHLOROPROPENE	ND	1	.2
1,2,3-TRICHLOROBENZENE	ND	1	.2
1,2,3-TRICHLOROPROPANE	ND	2	.2
1,2,4-TRICHLOROBENZENE	ND	1	.2
1,2,4-TRIMETHYLBENZENE	ND	1	.2
1,2-DIBROMO-3-CHLOROPROPANE	ND	2	.1
1,2-DICHLOROBENZENE	ND	1	.2
1,2-DICHLOROETHANE	ND	.4	.2
1,2-DICHLOROPROPANE	ND	1	.2
1,3-DIBROMOETHANE	ND	1	.2
1,3,5-TRIMETHYLBENZENE	ND	1	.2
1,3-DICHLOROBENZENE	ND	1	.2
1,3-DICHLOROPROPANE	ND	1	.2
1,4-DICHLOROBENZENE	ND	1	.2
2,2-DICHLOROPROPANE	ND	1	.2
2-CHLOROTOLUENE	ND	1	.2
2-HEXANONE	ND	10	1
4-CHLOROTOLUENE	ND	1	.2
4-METHYL-2-PENTANONE	ND	10	1
BENZENE	ND	.5	.2
BROMOBENZENE	ND	1	.2
BROMOCHLOROMETHANE	ND	1	.2
BROMODICHLOROMETHANE	ND	1	.2
BROMOFORM	ND	1	.2
BROMOMETHANE	ND	2	.2
CARBON DISULFIDE	ND	1	.2
CARBON TETRACHLORIDE	ND	.4	.2
CHLOROBENZENE	ND	1	.2
CHLOROETHANE	ND	2	.2
CHLOROFORM	ND	1	.2
CHLOROMETHANE	ND	2	.2
CIS-1,2-DICHLOROETHENE	ND	1	.2
CIS-1,3-DICHLOROPROPENE	ND	.4	.2
DIBROMOCHLOROMETHANE	ND	1	.2
DIBROMOMETHANE	ND	1	.2
DICHLORODIFLUOROMETHANE	ND	2	.2
ETHYLBENZENE	ND	.5	.2
HEXACHLOROBUTADIENE	ND	1	.2
ISOPROPYLBENZENE	ND	1	.2
M,P-XYLENES	ND	1	.2
METHYLENE CHLORIDE	ND	2	1
N-BUTYLBENZENE	ND	1	.2
NAPHTHALENE	ND	1	.2
O-XYLENE	ND	.5	.2
P-ISOPROPYLTOLUENE	ND	1	.2
SEC-BUTYLBENZENE	ND	1	.2
STYRENE	ND	1	.2
TERT-BUTYLBENZENE	ND	1	.2
TETRACHLOROETHENE	ND	1	.2
TOLUENE	ND	.5	.2
TRANS-1,2-DICHLOROETHENE	ND	1	.2
TRANS-1,3-DICHLOROPROPENE	ND	1	.2
TRICHLOROETHENE	ND	1	.2
TRICHLOROFLUOROMETHANE	ND	1	.2
1,2TRICHLORO122TRIFLUOROETHANE	ND	2	.2
VINYL ACETATE	ND	5	.2
VINYL CHLORIDE	ND	.5	.2
ACETONE	ND	20	1
MEK-BUTANONE	ND	10	1
MTBE	ND	2	.2
TBA	ND	20	1
DIPE	ND	5	.2
ETBE	ND	5	.2
TAME	ND	5	.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	104	70-130
TOLUENE-D8	117	70-130
BROMOFLUOROBENZENE	107	70-130

PQL: Practical Quantitation Limit

2006

VOLATILE ORGANICS BY GC/MS

Client : FORSGREN ASSOCIATES
Project : OAKLAND TRACON FACILITY
Batch No. : 02K190
Sample ID: TRACON-UST6-A-W01
Lab Samp ID: K190-03
Lab File ID: RK8821
Ext Btch ID: VC03K64
Cal Ref.: RK8343

Date Collected: 11/19/02
Date Received: 11/20/02
Date Extracted: 11/30/02 10:39
Date Analyzed: 11/30/02 10:39
Dilution Factor: 1
Matrix : WATER
% Moisture : NA
Instrument ID : T-003

PARAMETERS	RESULTS (ug/L)	PQL (ug/L)	MDL (ug/L)
1,1,1,2-TETRACHLOROETHANE	ND	1	.2
1,1,1-TRICHLOROETHANE	ND	1	.3
1,1,2,2-TETRACHLOROETHANE	ND	1	.2
1,1,2-TRICHLOROETHANE	ND	1	.2
1,1-DICHLOROETHANE	1J	3	.2
1,1-DICHLOROETHENE	ND	1	.2
1,1-DICHLOROPROPENE	ND	1	.2
1,2,3-TRICHLOROBENZENE	ND	1	.2
1,2,3-TRICHLOROPROPANE	ND	2	.2
1,2,4-TRICHLOROBENZENE	1.3	1	.2
1,2,4-TRIMETHYLBENZENE	100E	1	.2
1,2-DIBROMO-3-CHLOROPROPANE	ND	2	1
1,2-DICHLOROBENZENE	44E	1	.2
1,2-DICHLOROETHANE	ND	.4	.2
1,2-DICHLOROPROPANE	ND	1	.2
1,2-DIBROMOETHANE	ND	1	.2
1,3,5-TRIMETHYLBENZENE	34	1	.2
1,3-DICHLOROBENZENE	ND	1	.2
1,3-DICHLOROPROPANE	ND	1	.2
1,4-DICHLOROBENZENE	8.5	1	.2
2,2-DICHLOROPROPANE	ND	1	.2
2-CHLOROTOLUENE	.89J	1	.2
2-HEXANONE	ND	10	1
4-CHLOROTOLUENE	.72J	1	.2
4-METHYL-2-PENTANONE	8.7J N9	10	1
BENZENE	170E	.5	.2
BROMOBENZENE	ND	1	.2
BROMOCHLOROMETHANE	ND	1	.2
BROMODICHLOROMETHANE	ND	1	.2
BROMOFORM	ND	1	.2
BROMOMETHANE	ND	2	.2
CARBON DISULFIDE	ND	1	.2
CARBON TETRACHLORIDE	ND	.4	.2
CHLOROBENZENE	36	1	.2
CHLOROETHANE	4.9	2	.2
CHLOROFORM	ND	1	.2
CHLOROMETHANE	ND	2	.2
CIS-1,2-DICHLOROETHENE	ND	1	.2
CIS-1,3-DICHLOROPROPENE	ND	.4	.2
DIBROMOCHLOROMETHANE	ND	1	.2
DIBROMOMETHANE	ND	1	.2
DICHLORODIFLUOROMETHANE	ND	2	.4
ETHYLBENZENE	80E	.5	.2
HEXACHLOROBUTADIENE	ND	1	.2
ISOPROPYLBENZENE	8.6	1	.2
M,P-XYLENES	170E	1	.2
METHYLENE CHLORIDE	5.7 N9	2	1
N-BUTYLBENZENE	6.5	1	.2
NAPHTHALENE	180E	1	.3
O-XYLENE	120E	.5	.2
P-ISOPROPYLTOLUENE	3.2	1	.2
SEC-BUTYLBENZENE	2.4	1	.2
STYRENE	ND	1	.2
TERT-BUTYLBENZENE	.38J	1	.2
TETRACHLOROETHENE	ND	1	.2
TOLUENE	92E	.5	.2
TRANS-1,2-DICHLOROETHENE	3.5	1	.2
TRANS-1,3-DICHLOROPROPENE	ND	1	.2
TRICHLOROETHENE	ND	1	.2
TRICHLOROFLUOROMETHANE	ND	1	.2
112TRICHLORO122TRIFLUOROETHANE	ND	2	.2
VINYL ACETATE	ND	5	.7
VINYL CHLORIDE	2.2	5	.2
ACETONE	19J	20	2
2-BUTANONE	ND	10	5
MTBE	ND	2	.2
TBA	210	20	5
DIPE	10	5	1
ETBE	ND	5	1
TAME	ND	5	.3

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	129	70-130
TOLUENE-D8	112	70-130
BROMOFLUOROBENZENE	102	70-130

PQL: Practical Quantitation Limit

2007

Client	: PURSUREN ASSOCIATES	Date Collected: 11/19/02	
Project	: OAKLAND TRACON FACILITY	Date Received: 11/20/02	
Batch No.	: 02K190	Date Extracted: 12/03/02 04:10	
Sample ID:	TRACON-UST6-A-W01DL	Date Analyzed: 12/03/02 04:10	
Lab Samp ID:	K190-03T	Dilution Factor: 25	
Lab File ID:	RL8016	Matrix : WATER	
QC Batch ID:	VQ03L01	% Moisture : NA	
Calib Ref.:	RK3343	Instrument ID : T-003	

PARAMETERS	RESULTS (ug/L)	PQL (ug/L)	MDL (ug/L)
1,1,2-TETRACHLOROETHANE	ND	25	5
1,1,1-TRICHLOROETHANE	ND	25	7.5
1,1,2,2-TETRACHLOROETHANE	ND	25	5
1,1,2-TRICHLOROETHANE	ND	25	5
1,1-DICHLOROETHANE	ND	75	5
1,1-DICHLOROETHENE	ND	25	5
1,1-DICHLOROPROPENE	ND	25	5
1,2,3-TRICHLOROBENZENE	ND	25	5
1,2,3-TRICHLOROPROPANE	ND	50	5
1,2,4-TRICHLOROBENZENE	ND	25	5
1,2,4-TRIMETHYLBENZENE	140	25	5
1,2-DIBROMO-3-CHLOROPROPANE	ND	50	25
1,2-DICHLOROBENZENE	51	25	5
1,2-DICHLOROETHANE	ND	10	5
1,2-DICHLOROPROPANE	ND	25	5
1,2-DIBROMOETHANE	ND	25	5
1,3,5-TRIMETHYLBENZENE	43	25	5
1,3-DICHLOROBENZENE	ND	25	5
1,3-DICHLOROPROPANE	ND	25	5
1,4-DICHLOROBENZENE	9.9J	25	5
2,2-DICHLOROPROPANE	ND	25	5
2-CHLOROTOLUENE	ND	25	5
2-HEXANONE	ND	250	25
4-CHLOROTOLUENE	ND	25	5
4-METHYL-2-PENTANONE	ND	250	25
BENZENE	500	12	5
BROMOBENZENE	ND	25	5
BROMOCHLOROMETHANE	ND	25	5
BROMODICHLOROMETHANE	ND	25	5
BROMOFORM	ND	25	5
BROMOMETHANE	ND	50	5
CARBON DISULFIDE	ND	25	5
CARBON TETRACHLORIDE	ND	10	5
CHLOROBENZENE	44	25	5
CHLOROETHANE	ND	50	5
CHLOROFORM	ND	25	5
CHLOROMETHANE	ND	50	12
CIS-1,2-DICHLOROETHENE	ND	25	5
CIS-1,3-DICHLOROPROPENE	ND	10	5
DIBROMOMETHANE	ND	25	5
DICHLORODIFLUOROMETHANE	ND	25	5
ETHYLBENZENE	110	50	10
HEXACHLOROBUTADIENE	ND	12	5
ISOPROPYLBENZENE	11J	25	5
M,P-XYLENES	380	25	5
METHYLENE CHLORIDE	ND	25	7.5
N-BUTYLBENZENE	ND	50	25
NAPHTHALENE	140	25	5
O-XYLENE	170	25	7.5
P-ISOPROPYLTOLUENE	ND	12	5
SEC-BUTYLBENZENE	ND	25	5
STYRENE	ND	25	5
TERT-BUTYLBENZENE	ND	25	5
TETRACHLOROETHENE	ND	25	5
TOLUENE	130	12	5
TRANS-1,2-DICHLOROETHENE	ND	25	5
TRANS-1,3-DICHLOROPROPENE	ND	25	5
TRICHLOROETHENE	ND	25	5
TRICHLOROFLUOROMETHANE	ND	25	5
1,2,2TRICHLORO122TRIFLUOROETHANE	ND	50	5
VINYL ACETATE	ND	120	18
VINYL CHLORIDE	ND	12	5
ACETONE	ND	500	50
MEK-2-BUTANONE	ND	250	120
MTBE	ND	50	5
TBA	600	500	120
DIPE	ND	120	25
ETBE	ND	120	25
TAME	ND	120	7.5

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	113	70-130
TOLUENE-D8	111	70-130
BROMOFLUOROBENZENE	118	70-130

PQL: Practical Quantitation Limit

2008

[illegible]	: [illegible] ASSOCIATES	Date Collected: [illegible]	
[illegible]	: OAKLAND TRACON FACILITY	Date Received:	11/30/02
Batch No.	: 02K190	Date Extracted:	11/30/02 07:54
Sample ID	: TRACON-UST6-D-W01	Date Analyzed:	11/30/02 07:54
Lab Samp ID	: K190-04	Dilution Factor:	1
Lab File ID	: RK8817	Matrix	: WATER
QXT Batch ID	: VOC3K64	% Moisture	: NA
Calib. Ref.	: RK8343	Instrument ID	: T-003

PARAMETERS	RESULTS (ug/L)	PQL (ug/L)	MDL (ug/L)
,1,1,2-TETRACHLOROETHANE	ND	1	.2
,1,1-TRICHLOROETHANE	ND	1	.3
,1,2,2-TETRACHLOROETHANE	ND	1	.2
,1,2-TRICHLOROETHANE	ND	1	.2
,1-DICHLOROETHANE	ND	3	.2
,1-DICHLOROETHENE	ND	1	.2
,1-DICHLOROPROPENE	ND	1	.2
,2,3-TRICHLOROBENZENE	ND	1	.2
,2,3-TRICHLOROPROPANE	ND	2	.2
,2,4-TRICHLOROBENZENE	ND	1	.2
,2,4-TRIMETHYLBENZENE	ND	1	.2
,2-DIBROMO-3-CHLOROPROPANE	ND	2	1
,2-DICHLOROBENZENE	ND	1	.2
,2-DICHLOROETHANE	ND	.4	.2
,2-DICHLOROPROPANE	ND	1	.2
,2-DIBROMOETHANE	ND	1	.2
,3,5-TRIMETHYLBENZENE	ND	1	.2
,3-DICHLOROBENZENE	ND	1	.2
,3-DICHLOROPROPANE	ND	1	.2
,4-DICHLOROBENZENE	ND	1	.2
,2-DICHLOROPROPANE	ND	1	.2
-CHLOROTOLUENE	ND	1	.2
-HEXANONE	ND	10	1
-CHLOROTOLUENE	ND	1	.2
-METHYL-2-PENTANONE	ND	10	1
ENZENE	ND	.5	.2
ROMOBENZENE	ND	1	.2
ROMOCHLOROMETHANE	ND	1	.2
ROMODICHLOROMETHANE	ND	1	.2
ROMOFORM	ND	1	.2
ROMOMETHANE	ND	2	.2
ARBON DISULFIDE	ND	1	.2
ARBON TETRACHLORIDE	ND	.4	.2
HLOROBENZENE	ND	1	.2
HLOROETHANE	ND	2	.2
HLOROFORM	ND	1	.2
HLOROMETHANE	ND	2	.2
IS-1,2-DICHLOROETHENE	ND	1	.2
IS-1,3-DICHLOROPROPENE	ND	.4	.2
HLORODIBROMOMETHANE	ND	1	.2
IBROMOMETHANE	ND	1	.2
.CH[illegible]DIFLUOROMETHANE	ND	2	.4
HY[illegible]ZENE	ND	.5	.2
EXA[illegible]OROBUTADIENE	ND	1	.2
OPROPYLBENZENE	ND	1	.2
,P-XYLENES	ND	1	.2
ETHYLENE CHLORIDE	ND	2	1
-BUTYLBENZENE	ND	1	.2
APHTHALENE	ND	1	.3
-XYLENE	ND	.5	.2
-ISOPROPYLTOLUENE	ND	1	.2
EC-BUTYLBENZENE	ND	1	.2
TYRENE	ND	1	.2
ERT-BUTYLBENZENE	ND	1	.2
ETRACHLOROETHENE	ND	1	.2
OLUENE	ND	.5	.2
RANS-1,2-DICHLOROETHENE	ND	1	.2
RANS-1,3-DICHLOROPROPENE	ND	1	.2
RICHLOROETHENE	ND	1	.2
RICHLOROFLUOROMETHANE	ND	1	.2
12TRICHLORO122TRIFLUOROETHANE	ND	2	.2
INYL ACETATE	ND	5	.7
INYL CHLORIDE	ND	.5	.2
ETONE	ND	20	5
-BUTANONE	ND	10	5
TBE	ND	2	.2
BA	ND	20	5
IPE	ND	5	1
TBE	ND	5	1
AME	ND	5	.3

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
,2-DICHLOROETHANE-D4	108	70-130
OLUENE-D8	115	70-130
ROMOFLUOROBENZENE	106	70-130

QL: Practical Quantitation Limit

2009

Client	: FORSGREN ASSOCIATES	Date Collected:	11/19/02
Project	: OAKLAND TRACON FACILITY	Date Received:	11/20/02
Batch No.	: 02K190	Date Extracted:	11/30/02 11:21
Sample ID	: TRACON-UST1-A-W01	Date Analyzed:	11/30/02 11:21
Lab Samp ID	: K190-05	Dilution Factor:	1
Lab File ID	: RK3822	Matrix	: WATER
Extraction ID	: V003K64	% Moisture	: NA
Blank Ref.	: RK3343	Instrument ID	: T-003

PARAMETERS	RESULTS (ug/L)	PQL (ug/L)	MDL (ug/L)
1,1,2-TETRACHLOROETHANE	ND	1	.2
1,1,1-TRICHLOROETHANE	ND	1	.3
1,1,2,2-TETRACHLOROETHANE	ND	1	.2
1,1,2-TRICHLOROETHANE	ND	1	.2
1,1-DICHLOROETHANE	1.1J	3	.2
1,1-DICHLOROETHENE	ND	1	.2
1,1-DICHLOROPROPENE	ND	1	.2
1,2,3-TRICHLOROBENZENE	ND	1	.2
1,2,3-TRICHLOROPROPANE	ND	2	.2
1,2,4-TRICHLOROBENZENE	1.5	1	.2
1,2,4-TRIMETHYLBENZENE	110E	1	.2
1,2-DIBROMO-3-CHLOROPROPANE	ND	2	1
1,2-DICHLOROBENZENE	45E	1	.2
1,2-DICHLOROETHANE	ND	.4	.2
1,2-DICHLOROPROPANE	ND	1	.2
1,2-DIBROMOETHANE	ND	1	.2
1,3,5-TRIMETHYLBENZENE	36	1	.2
1,3-DICHLOROBENZENE	ND	1	.2
1,3-DICHLOROPROPANE	ND	1	.2
1,4-DICHLOROBENZENE	8.7	1	.2
2,2-DICHLOROPROPANE	ND	1	.2
2-CHLOROTOLUENE	.97J	1	.2
2-HEXANONE	ND	10	1
4-CHLOROTOLUENE	.7J	1	.2
4-METHYL-2-PENTANONE	11	10	1
BENZENE	190E	.5	.2
BROMOBENZENE	ND	1	.2
BROMOCHLOROMETHANE	ND	1	.2
BROMODICHLOROMETHANE	ND	1	.2
BROMOFORM	ND	1	.2
BROMOMETHANE	ND	2	.2
CARBON DISULFIDE	ND	1	.2
CARBON TETRACHLORIDE	ND	.4	.2
CHLOROBENZENE	38	1	.2
CHLOROETHANE	4.8	2	.2
CHLOROFORM	ND	1	.2
CHLOROMETHANE	ND	2	.5
CIS-1,2-DICHLOROETHENE	ND	1	.2
CIS-1,3-DICHLOROPROPENE	ND	.4	.2
DIBROMOCHLOROMETHANE	ND	1	.2
DIBROMOMETHANE	ND	1	.2
DICHLORODIFLUOROMETHANE	ND	2	.4
ETHYLBENZENE	85E	.5	.2
HEXACHLOROBUTADIENE	ND	1	.2
ISOPROPYLBENZENE	9.3	1	.2
M,P-XYLENES	190E	1	.3
METHYLENE CHLORIDE	ND	2	1
N-BUTYLBENZENE	7.5	1	.2
NAPHTHALENE	170E	1	.3
O-XYLENE	120E	.5	.2
P-ISOPROPYLTOLUENE	3.6	1	.2
SEC-BUTYLBENZENE	2.9	1	.2
STYRENE	ND	1	.2
TERT-BUTYLBENZENE	.38J	1	.2
TETRACHLOROETHENE	ND	1	.2
TOLUENE	100E	.5	.2
TRANS-1,2-DICHLOROETHENE	3.6	1	.2
TRANS-1,3-DICHLOROPROPENE	ND	1	.2
TRICHLOROETHENE	ND	1	.2
TRICHLOROFLUOROMETHANE	ND	1	.2
112TRICHLORO122TRIFLUOROETHANE	ND	2	.2
VINYL ACETATE	ND	5	.7
VINYL CHLORIDE	2.3	.5	.2
ACETONE	ND	20	2
2-BUTANONE	ND	10	5
MTBE	ND	2	.2
TBA	ND	20	5
DIPE	11	5	1
ETBE	ND	5	1
TAME	ND	5	.3

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	121	70-130
TOLUENE-D8	115	70-130
BROMOFLUOROBENZENE	111	70-130

PQL: Practical Quantitation Limit

2010

[redacted]	: FORSGREN ASSOCIATES	Date Collected:	11/19/02
Project	: OAKLAND TRACON FACILITY	Date Received:	11/20/02
Batch No.	: 02K190	Date Extracted:	12/03/02 03:28
Sample ID:	TRACON-UST1-A-W01DL	Date Analyzed:	12/03/02 03:28
Lab Samp ID:	K190-05I	Dilution Factor:	50
Lab File ID:	RL8015	Matrix	: WATER
QC Batch ID:	VC03L01	% Moisture	: NA
Blk. Ref.:	RK8343	Instrument ID	: T-003

PARAMETERS	RESULTS (ug/L)	PQL (ug/L)	MDL (ug/L)
,1,1,2-TETRACHLOROETHANE	ND	50	10
,1,1-TRICHLOROETHANE	ND	50	15
,1,2,2-TETRACHLOROETHANE	ND	50	10
,1,2-TRICHLOROETHANE	ND	50	10
,1-DICHLOROETHANE	ND	150	10
,1-DICHLOROETHENE	ND	50	10
,1-DICHLOROPROPENE	ND	50	10
2,3-TRICHLOROBENZENE	ND	50	10
2,3-TRICHLOROPROPANE	ND	100	10
2,4-TRICHLOROBENZENE	ND	50	10
2,4-TRIMETHYLBENZENE	170	50	10
2-DIBROMO-3-CHLOROPROPANE	ND	100	50
2-DICHLOROBENZENE	62	50	10
2-DICHLOROETHANE	ND	20	10
2-DICHLOROPROPANE	ND	50	10
2-DIBROMOETHANE	ND	50	10
3,5-TRIMETHYLBENZENE	44J	50	10
3-DICHLOROBENZENE	ND	50	10
3-DICHLOROPROPANE	ND	50	10
4-DICHLOROBENZENE	12J	50	10
2-DICHLOROPROPANE	ND	50	10
CHLOROTOLUENE	ND	50	10
HEXANONE	ND	500	50
CHLOROTOLUENE	ND	50	10
METHYL-2-PENTANONE	ND	500	50
NZENE	750	25	10
OMOBENZENE	ND	50	10
OMOCHLOROMETHANE	ND	50	10
OMODICHLOROMETHANE	ND	50	10
OMOFORM	ND	50	10
OMOMETHANE	ND	100	10
RBON DISULFIDE	ND	50	10
RBON TETRACHLORIDE	ND	20	10
LOROBENZENE	51	50	10
LOROETHANE	ND	100	10
LOROFORM	ND	50	10
LOROMETHANE	ND	100	25
S-1,2-DICHLOROETHENE	ND	50	10
S-1,3-DICHLOROPROPENE	ND	20	10
LO[redacted]BROMOMETHANE	ND	50	10
BRO[redacted]ETHANE	ND	50	10
CHLORODIFLUOROMETHANE	ND	100	20
HYLBENZENE	130	25	10
XACHLOROBUTADIENE	ND	50	10
OPROPYLBENZENE	10J	50	10
P-XYLENES	460	50	15
THYLENE CHLORIDE	ND	100	50
BUTYLBENZENE	ND	50	10
PHTHALENE	240	50	15
XYLENE	200	25	10
ISOPROPYLTOLUENE	ND	50	10
C-BUTYLBENZENE	ND	50	10
YRENE	ND	50	10
RT-BUTYLBENZENE	ND	50	10
TRACHLOROETHENE	ND	50	10
LUENE	140	25	10
ANS-1,2-DICHLOROETHENE	ND	50	10
ANS-1,3-DICHLOROPROPENE	ND	50	10
ICHLOROETHENE	ND	50	10
ICHLOROFLUOROMETHANE	ND	50	10
ZTRICHLORO122TRIFLUOROETHANE	ND	100	10
NYL ACETATE	ND	250	35
NYL CHLORIDE	ND	25	10
ETONE	ND	1000	100
BUTANONE	ND	500	250
BE	ND	100	10
A	ND	1000	250
PE	ND	250	50
BE	ND	250	50
ME	ND	250	15

URROGATE PARAMETERS	% RECOVERY	QC LIMIT
,2-DICHLOROETHANE-D4	112	70-130
OLUENE-D8	106	70-130
ROMOFLUOROBENZENE	100	70-130

QL: Practical Quantitation Limit

2011

[illegible]	: FORSGREN ASSOCIATES	Date Collected:	[illegible]
[illegible]	: OAKLAND TRACON FACILITY	Date Received:	[illegible]
[illegible]	: 02K[illegible]3	Date Extracted:	12/02/02 [illegible]6:22
Sample ID:	TRACON-[illegible]ST7-A-wC10L	Date Analyzed:	12/02/02 16:22
Lab Samp ID:	K173-01[illegible]	Dilution Factor:	5
Lab File ID:	RK8896	Matrix	: WATER
QC Batch ID:	VC03K71	% Moisture	: NA
Lab Ref.:	RK8343	Instrument ID	: T-003

PARAMETERS	RESULTS (ug/L)	PQL (ug/L)	MDL (ug/L)
1,1,2-TETRACHLOROETHANE	ND	5	1
1,1-TRICHLOROETHANE	ND	5	1.5
1,2,2-TETRACHLOROETHANE	ND	5	1
1,2-TRICHLOROETHANE	ND	5	1
1-DICHLOROETHANE	12J	15	1
1-DICHLOROETHENE	ND	5	1
1-DICHLOROPROPENE	ND	5	1
2,3-TRICHLOROBENZENE	ND	5	1
2,3-TRICHLOROPROPANE	ND	10	1
2,4-TRICHLOROBENZENE	1.7J	5	1
2,4-TRIMETHYLBENZENE	100	5	1
2-DIBROMO-3-CHLOROPROPANE	ND	10	5
2-DICHLOROBENZENE	75	5	1
2-DICHLOROETHANE	ND	2	1
2-DICHLOROPROPANE	ND	5	1
2-DIBROMOETHANE	ND	5	1
3,5-TRIMETHYLBENZENE	30	5	1
3-DICHLOROBENZENE	1.4J	5	1
3-DICHLOROPROPANE	ND	5	1
4-DICHLOROBENZENE	7.1	5	1
2-DICHLOROPROPANE	ND	5	1
CHLOROTOLUENE	ND	5	1
HEXANONE	ND	50	5
CHLOROTOLUENE	ND	5	1
METHYL-2-PENTANONE	88	50	5
NZENE	340E	2.5	1
OMOBENZENE	ND	5	1
OMOCHLOROMETHANE	ND	5	1
OMODICHLOROMETHANE	ND	5	1
OMOFORM	ND	5	1
OMOMETHANE	ND	10	1
RBON DISULFIDE	ND	5	1
RBON TETRACHLORIDE	ND	2	1
LOROBENZENE	44	5	1
LOROETHANE	59	10	1
LOROFORM	ND	5	1
LOROMETHANE	ND	10	2.5
S-1,2-DICHLOROETHENE	3J	5	1
S-1,3-DICHLOROPROPENE	ND	2	1
[illegible]BROMOMETHANE	ND	5	1
[illegible]ETHANE	ND	5	1
[illegible]DIFLUOROMETHANE	ND	10	2
HYLBENZENE	56	2.5	1
XACHLOROBUTADIENE	ND	5	1
OPROPYLBENZENE	10	5	1
P-XYLENES	210	5	1.5
THYLENE CHLORIDE	26	10	5
BUTYLBENZENE	8.4	5	1
PHTHALENE	93	5	1.5
XYLENE	85	2.5	1
ISOPROPYLTOLUENE	3.8J	5	1
C-BUTYLBENZENE	3.5J	5	1
YRENE	ND	5	1
RT-BUTYLBENZENE	ND	5	1
TRACHLOROETHENE	ND	5	1
LUENE	190	2.5	1
ANS-1,2-DICHLOROETHENE	3.8J	5	1
ANS-1,3-DICHLOROPROPENE	ND	5	1
ICHLOROETHENE	6.2	5	1
ICHLOROFLUOROMETHANE	ND	5	1
2TRICHLORO122TRIFLUOROETHANE	ND	10	1
NYL ACETATE	ND	25	3.5
NYL CHLORIDE	3.4	2.5	1
ETONE	140	100	10
BUTANONE	96	50	25
BE	ND	10	1
A	ND	100	25
PE	ND	25	5
BE	ND	25	5
ME	ND	25	1.5

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2-DICHLOROETHANE-D4	115	70-130
LUENE-D8	112	70-130
ROMOFLUOROBENZENE	98	70-130

L: Practical Quantitation Limit

2005

Client	: [redacted] ASSOCIATES	Date Collected:	11/13/02
Project	: OAKLAND TRACON FACILITY	Date Received:	11/19/02
Batch No.	: 02K173	Date Extracted:	12/02/02 14:59
Sample ID	: TRACON-UST7-A-W010L	Date Analyzed:	12/02/02 14:59
Lab Samp ID	: K173-011	Dilution Factor:	50
Lab File ID	: RK3894	Matrix	: WATER
Ext Batch ID	: VC03K71	% Moisture	: NA
Calib. Ref.	: RK3343	Instrument ID	: T-003

PARAMETERS	RESULTS (ug/L)	PQL (ug/L)	MDL (ug/L)
,1,1,2-TETRACHLORCETHANE	ND	50	10
,1,1-TRICHLORCETHANE	ND	50	15
,1,2,2-TETRACHLORCETHANE	ND	50	10
,1,2-TRICHLORCETHANE	ND	50	10
,1-DICHLORCETHANE	12J	150	10
,1-DICHLORCETHENE	ND	50	10
,1-DICHLORCPROPENE	ND	50	10
,2,3-TRICHLORCBENZENE	ND	50	10
,2,3-TRICHLORCPROPANE	ND	100	10
,2,4-TRICHLORCBENZENE	ND	50	10
,2,4-TRIMETHYLBENZENE	130	50	10
,2-DIBROMO-3-CHLORCPROPANE	ND	100	50
,2-DICHLORCBENZENE	92	50	10
,2-DICHLORCETHANE	ND	20	10
,2-DICHLORCPROPANE	ND	50	10
,2-DIBROMOETHANE	ND	50	10
,3,5-TRIMETHYLBENZENE	38J	50	10
,3-DICHLORCBENZENE	ND	50	10
,3-DICHLORCPROPANE	ND	50	10
,4-DICHLORCBENZENE	ND	50	10
,2-DICHLORCPROPANE	ND	50	10
-CHLORCTOLUENE	ND	50	10
-HEXANONE	ND	500	50
-CHLORCTOLUENE	ND	50	10
-METHYL-2-PENTANONE	ND	500	50
ENZENE	370 Report	25	10
ROMOBENZENE	ND	50	10
ROMOCHLOROMETHANE	ND	50	10
ROMODICHLOROMETHANE	ND	50	10
ROMOFORM	ND	50	10
ROMOMETHANE	ND	100	10
ARBON DISULFIDE	ND	50	10
ARBON TETRACHLORIDE	ND	20	10
HLOROBENZENE	50	50	10
HLOROETHANE	84J	100	10
HLOROFORM	ND	50	10
HLOROMETHANE	ND	100	25
IS-1,2-DICHLOROETHENE	ND	50	10
IS-1,3-DICHLOROPROPENE	ND	20	10
HLORODIBROMOMETHANE	ND	50	10
IBROMOMETHANE	ND	50	10
ICHLORODIFLUOROMETHANE	ND	100	20
THYLBENZENE	65	25	10
EXACHLOROBUTADIENE	ND	50	10
OPROPYLBENZENE	13J	50	10
,P-XYLENES	250	50	15
ETHYLENE CHLORIDE	ND	100	50
-BUTYLBENZENE	ND	50	10
APHTHALENE	120	50	15
-XYLENE	94	25	10
-ISOPROPYLTOLUENE	ND	50	10
EC-BUTYLBENZENE	ND	50	10
TYRENE	ND	50	10
ERT-BUTYLBENZENE	ND	50	10
ETRACHLOROETHENE	11J	50	10
OLUENE	230	25	10
RANS-1,2-DICHLORCETHENE	ND	50	10
RANS-1,3-DICHLORCPROPENE	ND	50	10
RICHLORCETHENE	23J	50	10
RICHLORCFLUORCMETHANE	ND	50	10
12TRICHLORO122TRIFLUOROETHANE	ND	100	10
INYL ACETATE	ND	250	35
INYL CHLORIDE	ND	25	10
ETONE	ND	1000	100
-BUTANONE	ND	500	250
TBE	ND	100	10
BA	ND	1000	250
IPE	ND	250	50
TBE	ND	250	50
AME	ND	250	15

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
,2-DICHLOROETHANE-D4	115	70-130
OLUENE-D8	112	70-130
ROMOFLUOROBENZENE	102	70-130

QL: Practical Quantitation Limit

2006

[illegible]	: FORSGREN ASSOCIATES	Date Collected:	11/18/02
Project	: OAK AND TRACON FACILITY	Date Received:	11/19/02
Lab No.	: 02K173	Date Extracted:	12/02/02 15:42
Sample ID:	TRACON-UST3-A-W01DL	Date Analyzed:	12/02/02 15:42
Lab Sample ID:	K173-02T	Dilution Factor:	10
Lab File ID:	RK8895	Matrix	: WATER
Analytical Batch ID:	VC03K71	% Moisture	: NA
Calib. Ref.:	RK8343	Instrument ID	: T-C03

PARAMETERS	RESULTS (ug/L)	PQL (ug/L)	MDL (ug/L)
1,1,2-TETRACHLOROETHANE	ND	10	2
1,1-TRICHLOROETHANE	ND	10	3
1,2,2-TETRACHLOROETHANE	ND	10	2
1,2-TRICHLOROETHANE	ND	10	2
1-DICHLOROETHANE	3.1J	30	2
1-DICHLOROETHENE	ND	10	2
1-DICHLOROPROPENE	ND	10	2
2,3-TRICHLOROBENZENE	ND	10	2
2,3-TRICHLOROPROPANE	ND	20	2
2,4-TRICHLOROBENZENE	ND	10	2
2,4-TRIMETHYLBENZENE	35	10	2
2-DIBROMO-3-CHLOROPROPANE	ND	20	10
2-DICHLOROBENZENE	ND	10	2
2-DICHLOROETHANE	ND	4	2
2-DICHLOROPROPANE	ND	10	2
2-DIBROMOETHANE	ND	10	2
3,5-TRIMETHYLBENZENE	12	10	2
3-DICHLOROBENZENE	ND	10	2
3-DICHLOROPROPANE	ND	10	2
4-DICHLOROBENZENE	ND	10	2
2-DICHLOROPROPANE	ND	10	2
CHLOROTOLUENE	ND	10	2
HEXANONE	ND	100	10
CHLOROTOLUENE	ND	10	2
METHYL-2-PENTANONE	ND	100	10
NZENE	110	5	2
OMOBENZENE	ND	10	2
OMOCHLOROMETHANE	ND	10	2
OMODICHLOROMETHANE	ND	10	2
OMOFORM	ND	10	2
OMOMETHANE	ND	20	2
RBON DISULFIDE	ND	10	2
RBON TETRACHLORIDE	ND	4	2
LOROBENZENE	ND	10	2
LOROETHANE	ND	20	2
LOROFORM	ND	10	2
LOROMETHANE	ND	20	2
S-1,2-DICHLOROETHENE	ND	10	2
S-1,3-DICHLOROPROPENE	ND	4	2
LORODIBROMOMETHANE	ND	10	2
BROMOMETHANE	ND	10	2
CHL DIFLUOROMETHANE	ND	20	4
HYL ENE	60	5	2
XACHLOROBUTADIENE	ND	10	2
OPROPYLBENZENE	22	10	2
P-XYLENES	140	10	4
THYLENE CHLORIDE	ND	20	10
BUTYLBENZENE	ND	10	2
PHTHALENE	26	10	4
XYLENE	56	5	2
ISOPROPYLTOLUENE	ND	10	2
C-BUTYLBENZENE	ND	10	2
YRENE	ND	10	2
RT-BUTYLBENZENE	ND	10	2
TRACHLOROETHENE	64	5	2
LUENE	6.5J	10	2
ANS-1,2-DICHLOROETHENE	ND	10	2
ANS-1,3-DICHLOROPROPENE	ND	10	2
ICHLOROETHENE	ND	10	2
ICHLOROFLUOROMETHANE	ND	10	2
2TRICHLORO122TRIFLUOROETHANE	ND	20	2
NYL ACETATE	ND	50	7
NYL CHLORIDE	ND	5	2
ETONE	43J	200	20
BUTANONE	ND	100	50
TBE	ND	20	2
BA	ND	200	50
PE	ND	50	10
TBE	ND	50	10
AME	ND	50	3

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2-DICHLOROETHANE-D4	118	70-130
OLUENE-D8	113	70-130
ROMOFLUOROBENZENE	106	70-130

QL: Practical Quantitation Limit

2008

LABORATORY REPORT FOR

FORSGREN ASSOCIATES

OAKLAND TRACON FACILITY

METHOD 5030B/8015B
TOTAL PETROLEUM HYDROCARBONS BY PURGE & TRAP

SDG#: 02K190

4000

METHOD 5030B/8015B

TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

Client : FORSGREN ASSOCIATES
Project : OAKLAND TRACON FACILITY
Batch No. : 02K173

Matrix : WATER
Instrument ID : GCTU5Y

SAMPLE ID	EMAX SAMPLE ID	RESULTS (ug/L)	SURR (%)	DLF	MOIST	PQL (ug/L)	MDL (ug/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Receive DATETIME
MBLK1W	VA39K29B	ND	94	1	NA	50	10	11/21/0211:15	11/21/0211:15	EK20041A	EK20034A	VA39K29	NA	11/21/02
LCS1W	VA39K29L	406	117	1	NA	50	10	11/21/0211:49	11/21/0211:49	EK20042A	EK20034A	VA39K29	NA	11/21/02
LCD1W	VA39K29C	430	115	1	NA	50	10	11/21/0212:23	11/21/0212:23	EK20043A	EK20034A	VA39K29	NA	11/21/02
TRACON-UST7-A-W01	K173-01	450	125	1	NA	50	10	11/21/0212:57	11/21/0212:57	EK20044A	EK20034A	VA39K29	11/18/02	11/19/02
TRACON-UST8-A-W01	K173-02	740	123	1	NA	50	10	11/21/0213:34	11/21/0213:34	EK20045A	EK20034A	VA39K29	11/18/02	11/19/02

PQL: Practical Quantitation Limit

4004

METHOD 5030B/8015B

TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

Client : FORSGREN ASSOCIATES
Project : OAKLAND TRACON FACILITY
Batch No. : 02K190

Matrix : WATER
Instrument ID : GC10SV

SAMPLE ID	EMAX SAMPLE ID	RESULTS (ug/L)	SURR (%)	DLF	MOIST	PQL (ug/L)	MDL (ug/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Rece... DATETIM
MBLK1W	VA39K32B	ND	94	1	NA	50	10	11/22/0219:20	11/22/0219:20	EK22012A	EK22009A	VA39K32	NA	11/22/0
LCS1W	VA39K32L	444	118	1	NA	50	10	11/22/0219:54	11/22/0219:54	EK22013A	EK22009A	VA39K32	NA	11/22/0
LCD1W	VA39K32C	452	112	1	NA	50	10	11/22/0220:28	11/22/0220:28	EK22014A	EK22009A	VA39K32	NA	11/22/0
MBLK2W	VA39K33B	ND	92	1	NA	50	10	11/25/0214:44	11/25/0214:44	EK25003A	EK25002A	VA39K33	NA	11/25/0
LCS2W	VA39K33L	401	102	1	NA	50	10	11/25/0215:18	11/25/0215:18	EK25004A	EK25002A	VA39K33	NA	11/25/0
LCD2W	VA39K33C	453	108	1	NA	50	10	11/25/0215:51	11/25/0215:51	EK25005A	EK25002A	VA39K33	NA	11/25/0
TRACON-UST5-A-W01**	K190-01	1200	116	5	NA	250	50	11/25/0220:14	11/25/0220:14	EK25012A	EK25002A	VA39K33	11/19/02	11/20/0
TRACON-UST6-A-W01**	K190-03T	4200	107	20	NA	1000	200	11/25/0216:37	11/25/0216:37	EK25006A	EK25002A	VA39K33	11/19/02	11/20/0
TRACON-UST1-A-W01	K190-05	3000	95	10	NA	500	100	11/23/0201:34	11/23/0201:34	EK22023A	EK22009A	VA39K32	11/19/02	11/23/0
TRACON-UST6-A-W01MS	K190-03U	12900	129	20	NA	1000	200	11/25/0217:11	11/25/0217:11	EK25007A	EK25002A	VA39K33	11/19/02	11/...
TRACON-UST6-A-W01MSD	K190-03V	13400	131	20	NA	1000	200	11/25/0217:53	11/25/0217:53	EK25008A	EK25002A	VA39K33	11/19/02	11/20/0

PQL: Practical Quantitation Limit
** : Presence of heavier hydrocarbon pattern

LABORATORY REPORT FOR

FORSGREN ASSOCIATES

OAKLAND TRACON FACILITY

METHOD 3520C/3630C/8015B
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

SDG#: 02K173

5000

...ETROLEUM HYDROCARBONS ...TRATION

...ient	: FORSGREN ASSOCIATES	Date Collected:	11/18/02
...oject	: OAKLAND TRACON FACILITY	Date Received:	11/19/02
...tch No.	: 02K173	Date Extracted:	11/21/02 10:30
...mple ID	: TRACON-UST7-A-W01	Date Analyzed:	11/26/02 01:11
...b ... ID	: K173-01T	Dilution Factor:	9.6
...b ID	: TK25017A	Matrix :	WATER
...t Btch ID	: DSK030W	% Moisture :	NA
...lib. Ref.:	TK25014A	Instrument ID :	GCT050

...RAMETERS	RESULTS (ug/L)	PQL (ug/L)	MDL (ug/L)
...O	49000	480	200
...O	93000	4800	410

...RROGATE PARAMETERS	% RECOVERY	QC LIMIT
...XACOSANE	DO	65-135

...L: Practical Quantitation Limit
...RR : Hexacosane
...rameter H-C Range
...O C10-C24
...O C20-C38
: Diluted Out

5004

[illegible] SOLID WASTES
[illegible] PETROLEUM HYDROCARBONS BY EXTRACTION

lient	: FORSGREN ASSOCIATES	Date Collected:	11/18/02
roject	: OAKLAND TRACON FACILITY	Date Received:	11/19/02
ation No.	: 02K173	Date Extracted:	11/21/02 10:30
ample ID	: TRACON-UST8-A-W01	Date Analyzed:	11/26/02 13:24
ab S[illegible] ID	: K173-02T	Dilution Factor:	19.2
ab [illegible] ID	: TK25031A	Matrix :	WATER
et Batch ID	: DSK030W	% Moisture :	NA
Calib. Ref.	: TK25026A	Instrument ID :	GCT050

RAMETERS	RESULTS (ug/L)	PQL (ug/L)	MDL (ug/L)
C	120000	960	400
O	200000	9600	830

RROGATE PARAMETERS	% RECOVERY	QC LIMIT
XACOSANE	DO	65-135

L: Practical Quantitation Limit
RR : Hexacosane
rameter H-C Range
O C10-C24
O C20-C38
: Diluted Out

5006

IDW Analysis

Soil IDW

LABORATORY REPORT FOR

FORSGREN ASSOCIATES

OAKLAND TRACON FACILITY

SW 5030B/8260B
VOLATILE ORGANICS BY GC/MS
(SOIL)

SDG#: 02K200

2033

Ref.: RKW094	Instrument ID : T-GC6

RESULTS	PQL	MDL
(mg/kg)	(mg/kg)	(mg/kg)
ND	.029	.012
ND	.029	.012
ND	.029	.012
ND	.029	.012
ND	.029	.012
ND	.029	.012
ND	.029	.012
ND	.029	.012
ND	.029	.012
.4	.029	.012
ND	.058	.012
.063	.029	.012
ND	.029	.012
ND	.029	.012
ND	.029	.012
.1	.029	.012
ND	.029	.012
ND	.029	.012
ND	.029	.012
ND	.029	.012
ND	.029	.012
ND	.12	.029
ND	.029	.012
ND	.12	.029
ND	.029	.012
ND	.058	.012
ND	.029	.012
ND	.029	.012
ND	.058	.017
ND	.029	.012
ND	.029	.012
ND	.029	.012
ND	.058	.029
ND	.029	.012
ND	.029	.012
ND	.029	.012
ND	.058	.017
.022J	.029	.012
ND	.029	.012
.015J	.029	.012
.093	.058	.017
ND	.12	.012
ND	.029	.012
.38	.058	.017
.039	.029	.012
.028J	.029	.012
.023J	.029	.012
ND	.029	.012
ND	.029	.012
ND	.029	.012
ND	.029	.012
ND	.029	.012
ND	.029	.012
ND	.029	.012
ND	.058	.012
ND	.029	.012
ND	.029	.012
ND	.12	.029
ND	.12	.029
ND	.029	.012
ND	.29	.14
ND	.029	.012
ND	.029	.012

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2-DICHLOROETHANE-D4	102	70-130
LUENE-D8	105	70-130
OMOFLUOROBENZENE	98	70-130

L: Practical Quantitation Limit

[illegible] RACON [illegible]
NO. : [illegible]
[illegible] ID: RACON-SP-D-SC[illegible]
[illegible] Samp ID: K[illegible]
[illegible] File ID: RK3[illegible]
[illegible] Batch ID: VC03K23
[illegible] Ref.: RK3[illegible]

Date Received: [illegible]
Date Extracted: [illegible]
Date Analyzed: [illegible] 15:30
Dilution Factor: [illegible]
Matrix : WATER
% Moisture : NA
Instrument ID : [illegible]-CC3

RA[illegible]RS	RESULTS (ug/L)	PQL (ug/L)	MDL (ug/L)
1,1,2-TETRACHLOROETHANE	ND	1	.2
1,1-TRICHLOROETHANE	ND	1	.3
1,2,2-TETRACHLOROETHANE	ND	1	.2
1,2-TRICHLOROETHANE	ND	1	.5
-DICHLOROETHANE	ND	3	.2
1-DICHLOROETHENE	ND	1	.2
1-DICHLOROPROPENE	ND	1	.2
2,3-TRICHLOROBENZENE	ND	1	.2
2,3-TRICHLOROPROPANE	ND	2	.2
2,4-TRICHLOROBENZENE	ND	1	.2
2,4-TRIMETHYLBENZENE	ND	1	.2
2-DIBROMO-3-CHLOROPROPANE	ND	2	1
2-DICHLOROBENZENE	ND	1	.2
2-DICHLOROETHANE	ND	.4	.2
2-DICHLOROPROPANE	ND	1	.2
2-DIBROMOETHANE	ND	1	.2
3,5-TRIMETHYLBENZENE	ND	1	.2
3-DICHLOROBENZENE	ND	1	.2
3-DICHLOROPROPANE	ND	1	.2
4-DICHLOROBENZENE	ND	1	.2
2-DICHLOROPROPANE	ND	1	.2
CHLOROTOLUENE	ND	1	.2
HEXANONE	ND	10	1
CHLOROTOLUENE	ND	1	.2
METHYL-2-PENTANONE	ND	10	1
ZENE	ND	.5	.2
MOBENZENE	ND	1	.2
MOCHLOROMETHANE	ND	1	.2
MODICHLOROMETHANE	ND	1	.2
MOFORM	ND	1	.2
MOMETHANE	ND	2	.2
BON DISULFIDE	ND	1	.2
BON TETRACHLORIDE	ND	.4	.2
OROBENZENE	ND	1	.2
OROETHANE	ND	2	.2
OROFORM	ND	1	.2
OROMETHANE	ND	2	.5
-1,2-DICHLOROETHENE	ND	1	.2
-1,3-DICHLOROPROPENE	ND	.4	.2
ORODIBROMOMETHANE	ND	1	.2
ROMOMETHANE	ND	1	.2
HLORODIFLUOROMETHANE	ND	2	.4
YLB[illegible]ZENE	ND	.5	.2
AC[illegible]OBUTADIENE	ND	1	.2
PR[illegible]BENZENE	ND	1	.2
-XYLENES	ND	1	.3
HYLENE CHLORIDE	ND	2	1
UTYLBENZENE	ND	1	.2
HTHALENE	ND	1	.3
YLENE	ND	.5	.2
SOPROPYLTOLUENE	ND	1	.2
-BUTYLBENZENE	ND	1	.2
RENE	ND	1	.2
T-BUTYLBENZENE	ND	1	.2
RACHLOROETHENE	ND	1	.2
UENE	ND	.5	.2
NS-1,2-DICHLOROETHENE	ND	1	.2
NS-1,3-DICHLOROPROPENE	ND	1	.2
CHLOROETHENE	ND	1	.2
CHLOROFLUOROMETHANE	ND	1	.2
TRICHLORO122TRIFLUOROETHANE	ND	2	.2
YL ACETATE	ND	5	.7
YL CHLORIDE	ND	.5	.2
TONE	ND	20	.2
UTANONE	ND	10	.5
E	ND	2	.2
	ND	20	.5
E	ND	5	1
E	ND	5	1
E	ND	5	.3

RROGATE PARAMETERS	% RECOVERY	QC LIMIT
2-DICHLOROETHANE-D4	98	70-130
UENE-D8	101	70-130
OMOFLUOROBENZENE	98	70-130

L: Practical Quantitation Limit

Batch ID: VOC6K50	Matrix : SOIL
Prep Ref.: RKW094	% Moisture : NA
	Instrument ID : T-QC6

RA[illegible]S	RESULTS (mg/kg)	PQL (mg/kg)	MDL (mg/kg)
1,1,2-TETRACHLOROETHANE	ND	.005	.002
1,1,1-TRICHLOROETHANE	ND	.005	.002
1,1,2,2-TETRACHLOROETHANE	ND	.005	.002
1,1,2-TRICHLOROETHANE	ND	.005	.002
1,1-DICHLOROETHANE	ND	.005	.002
1,1-DICHLOROETHENE	ND	.005	.002
1,1-DICHLOROPROPENE	ND	.005	.002
1,2,3-TRICHLOROBENZENE	ND	.005	.002
1,2,3-TRICHLOROPROPANE	ND	.005	.002
1,2,4-TRICHLOROBENZENE	ND	.005	.002
1,2,4-TRIMETHYLBENZENE	ND	.005	.002
1,2-DIBROMO-3-CHLOROPROPANE	ND	.01	.002
1,2-DICHLOROBENZENE	ND	.005	.002
1,2-DICHLOROETHANE	ND	.005	.002
1,2-DICHLOROPROPANE	ND	.005	.002
1,2-DIBROMOETHANE	ND	.005	.002
1,3,5-TRIMETHYLBENZENE	ND	.005	.002
1,3-DICHLOROBENZENE	ND	.005	.002
1,3-DICHLOROPROPANE	ND	.005	.002
1,4-DICHLOROBENZENE	ND	.005	.002
2,2-DICHLOROPROPANE	ND	.005	.002
2-CHLOROTOLUENE	ND	.02	.005
2-HEXANONE	ND	.005	.002
4-CHLOROTOLUENE	ND	.02	.005
4-METHYL-2-PENTANONE	ND	.005	.002
BENZENE	ND	.01	.002
BROMOBENZENE	ND	.005	.002
BROMOCHLOROMETHANE	ND	.005	.002
BROMODICHLOROMETHANE	ND	.005	.002
BROMOFORM	ND	.01	.003
BROMOMETHANE	ND	.005	.002
CARBON DISULFIDE	ND	.005	.002
CARBON TETRACHLORIDE	ND	.005	.002
CHLOROBENZENE	ND	.01	.003
CHLOROETHANE	ND	.005	.002
CHLOROFORM	ND	.01	.005
CHLOROMETHANE	ND	.005	.002
CIS-1,2-DICHLOROETHENE	ND	.005	.002
CIS-1,3-DICHLOROPROPENE	ND	.005	.002
DIBROMOCHLOROMETHANE	ND	.005	.002
DIBROMOMETHANE	ND	.01	.003
DICHLORODIFLUOROMETHANE	ND	.005	.002
ETHYLBENZENE	ND	.005	.002
HEXACHLOROBUTADIENE	ND	.005	.002
ISOPROPYLBENZENE	ND	.01	.003
M,P-XYLENES	ND	.02	.002
METHYLENE CHLORIDE	ND	.005	.002
N-BUTYLBENZENE	ND	.01	.003
NAPHTHALENE	ND	.005	.002
O-XYLENE	ND	.005	.002
P-ISOPROPYLTOLUENE	ND	.005	.002
SEC-BUTYLBENZENE	ND	.005	.002
STYRENE	ND	.005	.002
TERT-BUTYLBENZENE	ND	.005	.002
TETRACHLOROETHENE	ND	.005	.002
TOLUENE	ND	.005	.002
TRANS-1,2-DICHLOROETHENE	ND	.005	.002
TRANS-1,3-DICHLOROPROPENE	ND	.005	.002
TRICHLOROETHENE	ND	.005	.002
TRICHLOROFLUOROMETHANE	ND	.01	.002
1,2TRICHLORO122TRIFLUOROETHANE	ND	.005	.002
VINYL ACETATE	ND	.005	.002
VINYL CHLORIDE	ND	.02	.005
ACETONE	ND	.02	.005
2-BUTANONE	ND	.005	.002
MTBE	ND	.05	.025
TBA	ND	.005	.002
DIPE	ND	.005	.002
ETBE	ND	.005	.002
TAME			

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	104	70-130
TOLUENE-D8	98	70-130
BROMOFLUOROBENZENE	95	70-130

PQL: Practical Quantitation Limit

TRIX: SOIL

DILUTION FACTOR:	1	1	1	% MOISTURE:	NA
METHOD BLANK ID:	MBLK1S				
LAB SAMPLE ID:	VC06K50Q	VC06K50X	VC06K50Y		
LAB FILE ID:	RK4477	RK4480	RK4481		
TIME EXTRACTED:	11/21/0214:47	11/21/0216:55	11/21/0217:30	DATE COLLECTED:	NA
TIME ANALYZED:	11/21/0214:47	11/21/0216:55	11/21/0217:30	DATE RECEIVED:	11/21/02
[redacted]TCH:	VC06K50	VC06K50	VC06K50		
[redacted]EP:	RKW094	RKW094	RKW094		

SESSION:

RAMETER	BLNK RSLT (mg/kg)	SPIKE AMT (mg/kg)	BS RSLT (mg/kg)	BS % REC	SPIKE AMT (mg/kg)	BSD RSLT (mg/kg)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
1,2-Tetrachloroethane	NC	.02	.0207	104	.02	.0193	97	7	75-125	40
1,1-Trichloroethane	NC	.02	.0199	99	.02	.0197	99	4	75-125	40
1,2,2-Tetrachloroethane	NC	.02	.0239	120	.02	.021	105	13	75-125	40
1,2-Trichloroethane	NC	.02	.0219	109	.02	.0188	94	15	75-125	40
1-Dichloroethane	NC	.02	.0192	96	.02	.0185	92	4	75-125	40
1-Dichloroethene	NC	.02	.0184	92	.02	.0173	86	6	75-125	40
1-Dichloropropene	NC	.02	.0183	92	.02	.0174	87	5	75-125	40
2,3-Trichlorobenzene	NC	.02	.0211	106	.02	.0217	108	2	75-125	40
2,3-Trichloropropane	NC	.02	.0222	111	.02	.0205	103	8	75-125	40
2,4-Trichlorobenzene	NC	.02	.022	110	.02	.0224	112	2	75-125	40
2,4-Trimethylbenzene	NC	.02	.0187	94	.02	.0184	92	2	75-125	40
2-Dibromo-3-chloropropane	NC	.02	.0209	105	.02	.0191	96	9	75-125	40
2-Dichlorobenzene	NC	.02	.02	100	.02	.0194	97	3	75-125	40
2-Dichloroethane	NC	.02	.0207	103	.02	.0188	94	9	75-125	40
2-Dichloropropane	NC	.02	.0193	97	.02	.0176	88	9	75-125	40
2-Dibromoethane	NC	.02	.0218	109	.02	.0192	96	13	75-125	40
3,5-Trimethylbenzene	NC	.02	.0192	96	.02	.0188	94	2	75-125	40
3-Dichlorobenzene	NC	.02	.0203	101	.02	.0202	101	1	75-125	40
3-Dichloropropane	NC	.02	.0216	108	.02	.0193	96	11	75-125	40
4-Dichlorobenzene	NC	.02	.0201	101	.02	.0196	98	3	75-125	40
4-Dichloropropane	NC	.02	.0253	126*	.02	.0247	124	2	75-125	40
hlorotoluene	NC	.02	.0193	97	.02	.0196	98	1	75-125	40
exanone	NC	.04	.0484	121	.04	.0371	93	26	75-125	40
hlorotoluene	NC	.02	.0201	101	.02	.02	100	1	75-125	40
ethyl-2-Pentanone	NC	.04	.0506	127*	.04	.0409	102	21	75-125	40
zene	NC	.02	.0178	89	.02	.0171	86	4	75-125	40
mobenzene	NC	.02	.0198	99	.02	.0192	96	3	75-125	40
mochloromethane	NC	.02	.0211	106	.02	.0188	94	11	75-125	40
modichloromethane	NC	.02	.0199	99	.02	.019	95	4	75-125	40
moform	NC	.02	.0187	93	.02	.0171	86	9	75-125	40
momethane	NC	.02	.0148	74*	.02	.0158	79	7	75-125	40
bon Disulfide	NC	.02	.0176	88	.02	.0178	89	1	75-125	40
bon Tetrachloride	NC	.02	.0178	89	.02	.0174	87	2	75-125	40
orobenzene	NC	.02	.0199	100	.02	.0187	94	6	75-125	40
oroethane	NC	.02	.0175	88	.02	.0179	90	2	75-125	40
oroform	NC	.02	.0192	96	.02	.0181	90	6	75-125	40
oromethane	NC	.02	.0173	87	.02	.0188	94	8	75-125	40
-1,2-Dichloroethene	NC	.02	.0208	104	.02	.0196	98	6	75-125	40
-1,3-Dichloropropene	NC	.02	.0205	103	.02	.019	95	8	75-125	40
or[redacted]romomethane	NC	.02	.0203	101	.02	.0185	93	9	75-125	40
romomethane	NC	.02	.0191	95	.02	.0168	84	13	75-125	40
hlorodifluoromethane	NC	.02	.0173	86	.02	.0179	89	3	75-125	40
ylbenzene	NC	.02	.0185	93	.02	.0178	89	4	75-125	40
achlorobutadiene	NC	.02	.0189	94	.02	.0203	102	7	75-125	40
propylbenzene	NC	.02	.0188	94	.02	.0187	93	1	75-125	40
-Xylenes	NC	.04	.0579	145*	.04	.0558	140*	4	75-125	40
hylene Chloride	NC	.02	.0173J	87	.02	.0159J	79	9	75-125	40
utylbenzene	NC	.02	.0206	103	.02	.0199	100	3	75-125	40
phthalene	NC	.02	.0215	108	.02	.0216	108	0	75-125	40
ylene	NC	.02	.0194	97	.02	.0192	96	1	75-125	40
sopropyltoluene	NC	.02	.0201	100	.02	.0201	101	0	75-125	40
-Butylbenzene	NC	.02	.0177	89	.02	.0176	88	1	75-125	40
rene	NC	.02	.0171	86	.02	.0171	85	0	75-125	40
t-Butylbenzene	NC	.02	.0188	94	.02	.0189	95	1	75-125	40
rachloroethene	NC	.02	.0191	96	.02	.0184	92	4	75-125	40
uene	NC	.02	.0186	93	.02	.0179	89	4	75-125	40
ns-1,2-Dichloroethene	NC	.02	.0187	94	.02	.0187	94	0	75-125	40
ns-1,3-Dichloropropene	NC	.02	.0233	117	.02	.0223	112	4	75-125	40
chloroethene	NC	.02	.0185	92	.02	.0175	88	5	75-125	40
chlorofluoromethane	NC	.02	.02	100	.02	.0209	104	4	75-125	40
Trichloro122trifluoroethane	NC	.02	.0185	93	.02	.0174	87	6	75-125	40
yl Acetate	NC	.02	.0302	151*	.02	.0267	133*	12	75-125	40
yl Chloride	NC	.02	.0186	93	.02	.0184	92	1	75-125	40
tone	NC	.04	.0379	95	.04	.0306	77	21	75-125	40
utanone	NC	.04	.0508	127*	.04	.0393	98	26	75-125	40
e	NC	.02	.0227	113	.02	.0196	98	14	75-125	40
	NC	.1	.146	146*	.1	.106	106	32	75-125	40
	NC	.02	.0215	108	.02	.0195	97	10	75-125	40
	NC	.02	.0224	112	.02	.0201	101	11	75-125	40
	NC	.02	.0227	114	.02	.0196	98	15	75-125	40

RROGATE PARAMETER	SPIKE AMT (mg/kg)	BS RSLT (mg/kg)	BS % REC	SPIKE AMT (mg/kg)	BSD RSLT (mg/kg)	BSD % REC	QC LIMIT (%)
2-Dichloroethane-d4	.05	.0543	109	.05	.0519	104	70-130
uene-d8	.05	.0476	95	.05	.0491	98	70-130
omofluorobenzene	.05	.0491	98	.05	.0497	99	70-130

2041

LABORATORY REPORT FOR

FORSGREN ASSOCIATES

OAKLAND TRACON FACILITY

METHOD 5030B/8015B
TOTAL PETROLEUM HYDROCARBONS
BY PURGE AND TRAP

SDG#: 02K200

4000

METHOD 5030B/8015B

TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

Client : FORSGREN ASSOCIATES
Project : OAKLAND TRACON FACILITY
Batch No. : 02K200

Matrix : SOIL
Instrument ID : GC1059

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/kg)	SURR (%)	DLF	MOIST	PQL (mg/kg)	MDL (mg/kg)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Ke... DA...
MBLK1S	VM39K30B	ND	107	1	NA	1	.524	11/21/0222:14	11/21/0222:14	EK20059A	EK20057A	VM39K30	NA	11...
LCS1S	VM39K30L	24.7	128	1	NA	1	.524	11/21/0222:48	11/21/0222:48	EK20060A	EK20057A	VM39K30	NA	11
LCD1S	VM39K30C	22.3	113	1	NA	1	.524	11/21/0223:22	11/21/0223:22	EK20061A	EK20057A	VM39K30	NA	11...
TRACON-SP-A-S01**	K200-01T	20	122	2	13.1	2.3	1.2	11/22/0210:53	11/22/0210:53	EK20077A	EK20073A	VM39K30	11/20/02	11/...

PQL: Practical Quantitation Limit
** : Presence of heavier hydrocarbon fuel pattern

LABORATORY REPORT FOR

FORSGREN ASSOCIATES

OAKLAND TRACON FACILITY

METHOD 3520C/3550B/3630C/8015B
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

SDG#: 02K200

5000

ent	: FORSGREN ASSOCIATES	Date Collected:	11/20/02
ject	: OAKLAND TRACON FACILITY	Date Received:	11/21/02
ion No.	: 02K200	Date Extracted:	11/21/02 15:30
mple ID:	TRACON-SP-A-SO1	Date Analyzed:	11/25/02 04:03
Samp ID:	K200-01T	Dilution Factor:	10
File ID:	TK24014A	Matrix :	SOIL
Batch ID:	DSK034S	% Moisture :	13.1
ID/Ref.:	TK24005A	Instrument ID :	GCT050

RAMETERS	RESULTS (mg/kg)	PQL (mg/kg)	MCL (mg/kg)
	500	58	12
	1200	580	20

ROGATE PARAMETERS	% RECOVERY	QC LIMIT
ACOSANE	DO	65-135

: Practical Quantitation Limit
R : Hexacosane
ameter H-C Range
C10-C24
C20-C38

: Diluted out

LABORATORY REPORT FOR

FORSGREN ASSOCIATES

OAKLAND TRACON FACILITY

METHOD 418.1
TOTAL RECOVERABLE PETROLEUM HYDROCARBONS

SDG#: 02K200

5036

METHOD 418.1

TOTAL R[illegible]ERABLE PETROLEUM HYDROCARBONS

Client : FORSGREN ASSOCIATES
Project : OAKLAND TRACON FACILITY
Batch No. : 02K200

Matrix : SOIL
Instrument ID : I61

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/kg)	DLF	MOIST	RL (mg/kg)	MDL (mg/kg)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Receiv[illegible] DATETIME
MBLK1S	TRK005SB	ND	1	NA	10	5	11/21/0214:20	11/21/0213:15	TRK005S-03	TRK005S-01	TRK005S	NA	11/21/0[illegible]
LCS1S	TRK005SL	159	1	NA	10	5	11/21/0214:25	11/21/0213:15	TRK005S-04	TRK005S-01	TRK005S	NA	11/21/0[illegible]
LCD1S	TRK005SC	157	1	NA	10	5	11/21/0214:30	11/21/0213:15	TRK005S-05	TRK005S-01	TRK005S	NA	11/21/0[illegible]
TRACON-SP-A-S01	K200-01	1860	10	13.1	115	57.5	11/21/0214:40	11/21/0213:15	TRK005S-07	TRK005S-01	TRK005S	11/20/02	11/21/0[illegible]

RL: Reporting Limit

LABORATORY REPORT FOR

FORSGREN ASSOCIATES

OAKLAND TRACON FACILITY

METHOD 3010A/3550B/6010B
METALS BY ICP

SDG#: 02K200

7000

ient	: FORSGREN ASSOCIATES	Date Collected:	11/20/02
ject	: OAKLAND TRACON FACILITY	Date Received:	11/21/02
G NO.	: 02K200	Date Extracted:	11/21/02 16:00
mple ID:	TRACON-SP-A-S01	Date Analyzed:	11/22/02 13:05
b Samp ID:	K200-01	Dilution Factor:	1
b File ID:	173K032029	Matrix :	SOIL
t [redacted] ID:	IPK067S	% Moisture :	13.1
[redacted] ef.:	173K032026	Instrument ID :	EMAXT173

RAMETERS	RESULTS (mg/kg)	PQL (mg/kg)	MDL (mg/kg)
cmium	ND	1.15	.23
romium	13.4	4.6	.46
pper	15	6.9	.46
ad	170	.921	.276
ckel	18.6	11.5	1.15
nc	55.2	11.5	.23

L: Practical Quantitation Limit

LIENT: FORSGREN ASSOCIATES
LIENT: OAKLAND TRACON FACILITY
OB NO.: 02K200
ETHOD: METHOD 3050B/6010B

==========

ATRIX: SOIL % MOISTURE: 13.1
LUTION FACTOR: 1 5
MPLE ID: TRACON-SP-A-S01 TRACON-SP-A-S01DL
AX SAMP ID: K200-01 K200-01T
B FILE ID: I73K032029 I73K032028
TE EXTRACTED: 11/21/0216:00 11/21/0216:00 DATE COLLECTED: 11/20/02
TE ANALYZED: 11/22/0213:05 11/22/0212:59 DATE RECEIVED: 11/21/02
EP. BATCH: IPK067S IPK067S
LIB. REF: I73K032026 I73K032026

CESSION:

RAMETER	SMPL RSLT (mg/kg)	SERIAL DIL RSLT (mg/kg)	DIF RSLT %	QC LIMIT (%)
dmium	ND	ND	0	10
romium	13.4	13.7J	NA	10
pper	15	14.3J	NA	10
ad	170	171	0	10
ckel	18.6	18.3J	NA	10
nc	55.2	57.2J	NA	10

CLIENT: FORSGREN ASSOCIATES
PROJECT: OAKLAND TRACON FACILITY
SDG NO.: 02K200
METHOD: METHOD 3050B/6010B

MATRIX: SOIL % MOISTURE: 13.1
SLUDGE CTR: 1 1
SAMPLE ID: TRACON-SP-A-S01
CONTROL NO.: K200-01 K200-01A
LAB FILE ID: I73K032029 I73K032025
PRTIME EXTRCTD: 11/21/0216:00 11/21/0216:00 DATE COLLECTED: 11/20/02
PRTIME ANALYZD: 11/22/0213:05 11/22/0212:38 DATE RECEIVED: 11/21/02
PREP. BATCH: IPK067S IPK067S
SOLID. REF: I73K032026 I73K032014

ACCESSION:

PARAMETER	SMPL RSLT (mg/kg)	SPIKE AMT (mg/kg)	MS RSLT (mg/kg)	MS % REC	QC LIMIT (%)
Cadmium	ND	115	105	92	75-125
Chromium	13.4	115	120	93	75-125
Copper	15	115	118	90	75-125
Lead	170	115	276	92	75-125
Nickel	18.6	115	122	90	75-125
Zinc	55.2	115	161	92	75-125

LABORATORY REPORT FOR

FORSGREN ASSOCIATES

OAKLAND TRACON FACILITY

METHOD WET/3010A/6010B
STLC LEAD BY TRACE ICP

SDG#: 02K200A

7000

METHOD WET/3010A/6010B
SOLUBLE LEAD BY TRACE ICP

Client : FORSGREN ASSOCIATES
Project : OAKLAND TRACON FACILITY
Batch No. : 02K200A

Matrix : WATER
Instrument ID : T-131

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	PQL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LF1D	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	IPL002WB	ND	1	NA	.01	.002	12/03/0211:32	12/02/0213:45	I31L006013	I31L006011	IPL002W	NA	12/02/02
LCS1W	IPL002WL	.942	1	NA	.01	.002	12/03/0211:37	12/02/0213:45	I31L006014	I31L006011	IPL002W	NA	12/02/02
LCD1W	IPL002WC	.938	1	NA	.01	.002	12/03/0211:43	12/02/0213:45	I31L006015	I31L006011	IPL002W	NA	12/02/02
TRACON-SP-A-S01	K200-01	5.07	5	NA	.05	.01	12/03/0211:54	12/02/0213:45	I31L006017	I31L006011	IPL002W	11/20/02	11/21/02
TRACON-SP-A-S01DL	K200-01T	4.64	25	NA	.25	.05	12/03/0212:00	12/02/0213:45	I31L006018	I31L006011	IPL002W	11/20/02	11/21/02
MBLK1S	WTK003SB	ND	5	NA	.05	.01	12/03/0212:06	12/02/0213:45	I31L006019	I31L006011	IPL002W	NA	12/02/02

RL: Reporting Limit
STLC Extraction Date: 11/29/02 12:30

7002

LABORATORY REPORT FOR

FORSGREN ASSOCIATES

OAKLAND TRACON FACILITY

TCLP LEAD BY TRACE ICP

SDG#: 02K200B

7000

EMAX QUALITY CONTROL DATA
SERIAL DILUTION ANALYSIS

CLIENT: FORSGREN ASSOCIATES
PROJECT: OAKLAND TRACON FACILITY
BATCH NO.: 02K2008
METHOD: METHOD 1311/3010A/6010B

MATRIX: WATER % MOISTURE: NA

DILUTION FACTOR:	5	25		
SAMPLE ID:	TRACON-SP-A-S01	TRACON-SP-A-S01DL		
EMAX SAMP ID:	K200-01	K200-01T		
LAB FILE ID:	173L022019	173L022020		
DATE EXTRACTED:	12/10/0215:10	12/10/0215:10	DATE COLLECTED:	11/20/02
DATE ANALYZED:	12/11/0213:34	12/11/0213:40	DATE RECEIVED:	11/21/02
PREP. BATCH:	IPL031W	IPL031W		
CALIB. REF:	173L022013	173L022013		

ACCESSION:

PARAMETER	SMPL RSLT (mg/L)	SERIAL DIL RSLT (mg/L)	DIF RSLT %	QC LIMIT (%)
Lead	.205	.204J	ND	10

7005

Water IDW

LABORATORY REPORT FOR

FORSGREN ASSOCIATES

OAKLAND TRACON FACILITY

SW 5030B/8260B
VOLATILE ORGANICS BY GC/MS
(WATER)

SDG#: 02K200

2000

Samp ID: TRACON-BT-A-W01		Date Extracted:	
Lab Samp ID: K200-02		Date Analyzed: 11/21/02 17:56	
Lab File ID: RK3580		Dilution Factor: 1	
Ext Btch ID: VOC3K48		Matrix : WATER	
Calib. Ref.: RK3343		% Moisture : NA	
		Instrument ID : T-003	

[illegible]ERS	RESULTS (ug/L)	PQL (ug/L)	MDL (ug/L)
[illegible]TETRACHLOROETHANE	ND	1	.2
,1,1-TRICHLOROETHANE	ND	1	.3
,1,2,2-TETRACHLOROETHANE	ND	1	.2
,1,2-TRICHLOROETHANE	ND	1	.2
,1-DICHLOROETHANE	1.8J	3	.2
,1-DICHLOROETHENE	ND	1	.2
,1-DICHLOROPROPENE	ND	1	.2
,2,3-TRICHLOROBENZENE	ND	1	.2
,2,3-TRICHLOROPROPANE	ND	2	.2
,2,4-TRICHLOROBENZENE	ND	1	.2
,2,4-TRIMETHYLBENZENE	9.4	1	.2
,2-DIBROMO-3-CHLOROPROPANE	ND	2	1
,2-DICHLOROBENZENE	9.3	1	.2
,2-DICHLOROETHANE	ND	.4	.2
,2-DICHLOROPROPANE	ND	1	.2
,2-DIBROMOETHANE	ND	1	.2
,3,5-TRIMETHYLBENZENE	2.6	1	.2
,3-DICHLOROBENZENE	ND	1	.2
,3-DICHLOROPROPANE	ND	1	.2
4-DICHLOROBENZENE	.87J	1	.2
2-DICHLOROPROPANE	ND	1	.2
CHLOROTOLUENE	ND	1	.2
HEXANONE	ND	10	1
CHLOROTOLUENE	ND	1	.2
METHYL-2-PENTANONE	9.3J	10	1
NZENE	71E	.5	.2
OMOBENZENE	ND	1	.2
OMOCHLOROMETHANE	ND	1	.2
OMODICHLOROMETHANE	ND	1	.2
OMOFORM	ND	1	.2
OMOMETHANE	ND	2	.2
RBON DISULFIDE	ND	1	.2
RBON TETRACHLORIDE	ND	.4	.2
LOROBENZENE	9.3	1	.2
LOROETHANE	15	2	.2
LOROFORM	ND	1	.2
LOROMETHANE	ND	2	.5
S-1,2-DICHLOROETHENE	.51J	1	.2
S-1,3-DICHLOROPROPENE	ND	.4	.2
LORODIBROMOMETHANE	ND	1	.2
BROMOMETHANE	ND	1	.2
CHLORODIFLUOROMETHANE	ND	2	.4
HYLBENZENE	8.9	.5	.2
XA[illegible]OROBUTADIENE	ND	1	.2
O[illegible]LBENZENE	2	1	.2
P-[illegible]ENES	30	1	.3
THYLENE CHLORIDE	3.2	2	1
-BUTYLBENZENE	.46J	1	.2
PHTHALENE	11	1	.3
-XYLENE	11	.5	.2
-ISOPROPYLTOLUENE	.23J	1	.2
EC-BUTYLBENZENE	.28J	1	.2
TYRENE	ND	1	.2
ERT-BUTYLBENZENE	ND	1	.2
ETRACHLOROETHENE	ND	1	.2
OLUENE	30	.5	.2
RANS-1,2-DICHLOROETHENE	1	1	.2
RANS-1,3-DICHLOROPROPENE	ND	1	.2
RICHLOROETHENE	1.2	1	.2
RICHLOROFLUOROMETHANE	ND	1	.2
12TRICHLORO122TRIFLUOROETHANE	ND	2	.2
INYL ACETATE	ND	5	.7
INYL CHLORIDE	.59	.5	.2
CETONE	24	20	2
-BUTANONE	ND	10	5
TBE	4.4	2	.2
BA	23	20	5
IPE	ND	5	1
TBE	ND	5	1
AME	ND	5	.3

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	99	70-130
TOLUENE-D8	104	70-130
BROMOFLUOROBENZENE	87	70-130

PQL: Practical Quantitation Limit

LABORATORY REPORT FOR

FORSGREN ASSOCIATES

OAKLAND TRACON FACILITY

METHOD 5030B/8015B
TOTAL PETROLEUM HYDROCARBONS
BY PURGE AND TRAP

SDG#: 02K200

4000

METHOD 5030B/8015B

TOTAL PETR[illegible]M HYDROCARBONS BY PURGE AND TRAP

Client : FORSGREN ASSOCIATES
Project : OAKLAND TRACON FACILITY
Batch No. : D2K200

Matrix : WATER
Instrument ID : GC10[illegible]

SAMPLE ID	EMAX SAMPLE ID	RESULTS (ug/L)	SURR (%)	DLF	MOIST	PQL (ug/L)	MDL (ug/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	R[illegible] DATE
MBLK1W	VA39K29B	ND	94	1	NA	50	10	11/21/0211:15	11/21/0211:15	EK20041A	EK20034A	VA39K29	NA	11/[illegible]
LCS1W	VA39K29L	406	117	1	NA	50	10	11/21/0211:49	11/21/0211:49	EK20042A	EK20034A	VA39K29	NA	11/[illegible]
LCD1W	VA39K29C	430	115	1	NA	50	10	11/21/0212:23	11/21/0212:23	EK20043A	EK20034A	VA39K29	NA	[illegible]
TRACON-BT-A-W01**	K200-02	420	132	1	NA	50	10	11/21/0218:50	11/21/0218:50	EK20053A	EK20046A	VA39K29	11/20/02	11/[illegible]

PQL: Practical Quantitation Limit
** : Presence of heavier hydrocarbon fuel pattern

4034

...ent	: FORSGREN ASSOCIATES	Date Collected:	11/20/02
...ject	: OAKLAND TRACON FACILITY	Date Received:	11/21/02
...ch No.	: 02K200	Date Extracted:	11/23/02 08:30
...ple ID	: TRACON-BT-A-W01	Date Analyzed:	11/25/02 00:49
...b Samp ID	: K200-02	Dilution Factor:	1.94
...b File ID	: TK24013A	Matrix :	WATER
...n ID	: DSK033W	% Moisture :	NA
...Ref.	: TK24005A	Instrument ID :	GCT050

RAMETERS	RESULTS (ug/L)	PQL (ug/L)	MDL (ug/L)
O	1700	47	20
O	980	470	40

RROGATE PARAMETERS	% RECOVERY	QC LIMIT
XACOSANE	134	65-135

L: Practical Quantitation Limit
RR : Hexacosane

rameter	H-C Range
O	C10-C24
O	C20-C38

LABORATORY REPORT FOR

FORSGREN ASSOCIATES

OAKLAND TRACON FACILITY

METHOD 418.1
TOTAL RECOVERABLE PETROLEUM HYDROCARBONS

SDG#: 02K200

5036

METHOD 418.1

TOTAL RECOVERABLE PETROLEUM HYDROCARBONS

Client : FORSGREN ASSOCIATES
Project : OAKLAND TRACON FACILITY
Batch No. : 02K200

Matrix : WATER
Instrument ID : 161

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	TRK006WB	ND	1	NA	1	.18	11/21/0215:05	11/21/0213:30	TRK006W-03	TRK006W-01	TRK006W	NA	11/21/02
LCS1W	TRK006WL	5.80	1	NA	1	.18	11/21/0215:10	11/21/0213:30	TRK006W-04	TRK006W-01	TRK006W	NA	11/21/02
LCD1W	TRK006WC	5.87	1	NA	1	.18	11/21/0215:15	11/21/0213:30	TRK006W-05	TRK006W-01	TRK006W	NA	11/21/02
TRACON-BT-A-W01	K200-02	7.33	.94	NA	.94	.169	11/21/0215:20	11/21/0213:30	TRK006W-06	TRK006W-01	TRK006W	11/20/02	11/21/02

RL: Reporting Limit

LABORATORY REPORT FOR

FORSGREN ASSOCIATES

OAKLAND TRACON FACILITY

METHOD 3010A/3550B/6010B
METALS BY ICP

SDG#: 02K200

7000

...ent	: FORSGREN ASSOCIATES	Date Collected:	11/20/02
...ject	: OAKLAND TRACON FACILITY	Date Received:	11/21/02
...G NO.	: 02K200	Date Extracted:	11/21/02 15:00
...mple ID:	TRACON-BT-A-W01	Date Analyzed:	11/22/02 12:03
...b Samp ID:	K200-02	Dilution Factor:	1
...b File ID:	I73K032020	Matrix :	WATER
...t ID:	IPK066W	% Moisture :	NA
...Ref.:	I73K032014	Instrument ID :	EMAXTI73

RAMETERS	RESULTS (mg/L)	PQL (mg/L)	MDL (mg/L)
dmium	ND	.005	.0005
romium	ND	.02	.0015
pper	.00102J	.03	.001
ad	.0208	.004	.002
ckel	.00323J	.05	.0025
nc	.0102J	.05	.0015

L: Practical Quantitation Limit

T:	FORSGREN ASSOCIATES
JECT:	OAKLAND TRACON FACILITY
CH NO.:	02K200
HOD:	METHOD 3010A/6010B

RIX:	WATER		% MOISTURE:	NA
U[illegible] FACTOR:	1	5		
PLE ID:	TRACON-BT-A-W01	TRACON-BT-A-W01DL		
X SAMP ID:	K200-02	K200-02T		
FILE ID:	I73K032020	I73K032021		
E EXTRACTED:	11/21/0215:00	11/21/0215:00	DATE COLLECTED:	11/20/02
E ANALYZED:	11/22/0212:03	11/22/0212:09	DATE RECEIVED:	11/21/02
P. BATCH:	IPK066W	IPK066W		
IB. REF:	I73K032014	I73K032014		

ESSION:

AMETER	SMPL RSLT (mg/L)	SERIAL DIL RSLT (mg/L)	DIF RSLT %	QC LIMIT (%)
mium	ND	ND	0	10
omium	ND	ND	0	10
per	.00102J	ND	NA	10
d	.0208	.017J	NA	10
kel	.00323J	ND	NA	10
c	.0102J	.0329J	NA	10

LIENT: FOSTER WHEELER ASSOCIATES
CLIENT: OAKLAND TRACON FACILITY
G NO.: 02K200
THOD: METHOD 3010A/6010B

MATRIX: WATER % MOISTURE: NA

LIENT SMPL ID:	TRACON-BT-A-W01	
CONTROL NO.:	K200-02	K200-02A
B FILE ID:	I73K032020	I73K032019
TIME EXTRCTD:	11/21/0215:00	11/21/0215:00
TIME ANALYZD:	11/22/0212:03	11/22/0211:56
EP. BATCH:	IPK066W	IPK066W
LIB. REF:	I73K032014	I73K032014

DATE COLLECTED: 11/20/02
DATE RECEIVED: 11/21/02

SESSION:

RAMETER	SMPL RSLT (mg/L)	SPIKE AMT (mg/L)	AS RSLT (mg/L)	AS % REC	QC LIMIT (%)
dmium	NO	1	.944	94	75-125
romium	NO	1	.972	97	75-125
pper	.00102J	1	.984	98	75-125
ad	.0208	1	.993	97	75-125
ckel	.00323J	1	.952	95	75-125
nc	.0102J	1	1.05	104	75-125

Chain of Custody Documentation

FA/BC
GREN[illegible]SOCIATES/BROWN AND CALDWELL
A JOINT VENTURE
[illegible] PROSPECT PARK DRIVE • RANCHO CORDOVA, CA 95670
916-444-0123 • FAX 916-635-8805

CHA[illegible]OF CUSTODY RECORD

COC No. 00114-021120-1

VS01-W1 / #4 / VW01-16 02K200 Page 1 of 2

PROJECT NAME: FMA/TRACON Oakland, CA facility
PROJECT NUMBER: 00114

LABORATORY NAME & ADDRESS: EMAX
1835 W. 205th St.
Torrance, CA 90501

SAMPLE - I.D.	COLLECTION DATE	COLLECTION TIME	SAMPLER'S INITIALS	NUMBER OF CONTAINERS	CONTAINER SIZE AND TYPE	PRESERVATIVE	MATRIX CODE	ANALYSES REQUESTED	FIELD FILTERED	LOC - REQ	TAT	SAMPLING METHOD	DEPTH (FT.) BEGIN / END	PID READING (ppm)
TRACON-SP-A-S01	11/20/02	1000	RMA	2	4oz jar	none	S	8260/5030B (VOCs/BTEX)			24 hours	CS	----	
TRACON-SP-A-S01	11/20/02	1000	RMA	2	4oz jar	none	S	8015B/5030B (TPH-G)			"	CS	----	
TRACON-SP-A-S01	11/20/02	1000	RMA	2	4oz jar	none	S	8015B/3540C, 3545 or 3550B/3630C (TPH-D)			"	CS	----	
TRACON-SP-A-S01	11/20/02	1000	RMA	2	4oz jar	none	S	418.1/5520 (TRPH)			"	CS	----	
TRACON-SP-A-S01	11/20/02	1000	RMA	2	4oz jar	none	S	6010B/3050 (RCRA 8+Cu)			"	CS	----	
TRACON-BT-A-W01	11/20/02	1100	RMA	3	40ml vial	HCl	W	8260/5030B (VOCs/BTEX)			"	CS	----	
TRACON-BT-A-W01	11/20/02	1100	RMA	3	40ml vial	HCl	W	8015B/5030B (TPH-G)			"	CS	----	
TRACON-BT-A-W01	11/20/02	1100	RMA	2	1L amber	H_2SO_4	W	8015B/3510C or 3520C/3630C (TPH-D)			"	CS	----	
TRACON-BT-A-W01	11/20/02	1100	RMA	2	1L amber	H_2SO_4	W	418.1/5520 (TEPH)			"	CS	----	
TRACON-BT-A-W01	11/20/02	1100	RMA	2	poly	HNO_3	W	6010B/3010 (RCRA 8+Cu)			"	CS	----	

COLLECTED & RELEASED BY: Chip Allender — DATE 11/20/02 — TIME 14:30 — COOLER I.D.: C
RECEIVED BY: FedEx — DATE 11/20/02 — TIME 14:30 — RELINQUISHED BY: Chip Allender — DATE / / — TIME :
11-21-02 9:30A
RECORD RETURNED BY: — DATE / / — TIME : — SHIPPING NUMBER:
COURIER:

COMMENTS (see note on back):
T = 3.2 C

DISTRIBUTION: WHITE – PROJECT FILE • CANARY – LAB RECEIPT • PINK – DATA MANAGEMENT • GOLDENROD – FIELD

USE A BALLPOINT PEN, BLACK INK, AND PRE[illegible] FIRMLY. INSTRUCTIONS ARE ON THE BACK.

Forsgren Associates
~~EMCON Environmental and Infrastructure Engineering, Inc.~~
~~7901 Oakport St., Ste. 4700~~
~~Oakland, CA 94621~~
~~(510) 633-... Fax (510) 551-2145~~

CHAIN OF CUSTODY RECORD

DATE: 11/20/02

LABORATORY NUMBER:

~~...0025~~ 00714-021120-1

PAGE 2 OF 2

PROJECT NAME: FAA/TRACON UST Investigation

PROJECT NUMBER: 00714

PROJECT LOCATION: Oakland, CA

SAMPLER(S): DMA

SAMPLER SIGNATURE(S): [signature]

SITE CONTACT/TELEPHONE NUMBER:

PROJECT MANAGER:

TELEPHONE NUMBER:

DESTINATION LABORATORY:

ADDRESS:

CITY: STATE: ZIP:

LABORATORY TELEPHONE NUMBER:

REQUESTED ANALYSIS

	SAMPLE IDENTIFICATION	DATE	TIME	MATRIX TYPE	NO. / TYPE OF CONTAINERS	TURN AROUND TIME	8260 VOCs/BTEX	REMARKS (GRAB, COMPOSITE, ...)
3	TRACON-BT-D-W01	11/20/02	0700	W	1 40ml vial	24 hours	X	NA
4	TRACON-SP-D-S61	11/20/02	0700	W	1 40ml vial	24 hours	X	NA

SPECIAL INSTRUCTIONS:

SHIPPED VIA:

AIRBILL #:

RELINQUISHED BY (SIGNATURE)	PRINT NAME / COMPANY	DATE	TIME	RECEIVED BY (SIGNATURE)	PRINT NAME / COMPANY	DATE
[signature]	Forsgren Associates	11/20/02	1430	FedEx	FedEx	11/20

1004

DISTRIBUTION: WHITE=LABORATORY YELLOW=PROJECT MANAGER PINK=FILE

FA/BC

FORS[redacted]EN ASSOCIATES/BROWN AND CALDWELL
A JOINT VENTURE
2701 PROSPECT PARK DRIVE • RANCHO CORDOVA, CA 95670
916-444-0123 • FAX 916-635-8805

C[redacted]IN OF CUSTODY RECORD

COC No. C[redacted]14-021117

I21/VW01-11

02K190

PROJECT NAME: FAA/TRACON Oakland, CA Facility
PROJECT NUMBER: 00714

LABORATORY NAME & ADDRESS: EMAX
1835 W. 205th St.
Torrance, CA 90501

LINE NO.	SAMPLE – I.D.	COLLECTION DATE	COLLECTION TIME	SAMPLER'S INITIALS	NUMBER OF CONTAINERS	CONTAINER SIZE AND TYPE	PRESERVATIVE	MATRIX CODE	ANALYSES REQUESTED	FIELD FILTERED	QC – REQ	TAT	SAMPLING METHOD	DEPTH (FT.) BEGIN / END
1. 01	TRACON-UST5-A-W01	11/19/02	1430	RMA	3	40ml vials	HCL	W	8260/5030B			21 days	G	----
02	TRACON-UST5-A-W01	11/19/02	1430	RMA	3	40ml vials	HCL	W	8015B/5030B			"	G	----
03	TRACON-UST5-A-W01	11/19/02	1430	RMA	2	1 Lamber	none	W	8015B/(3510C or 3520C)/3630C			"	G	----
2. 04	TRACON-UST5-D-W01	11/19/02	1430	RMA	1	40ml vial	none	W	8260			"		----
3. 05	TRACON-UST6-A-W01	11/19/02	1318	RMA	9	40ml vials	HCl	W	8260/5030B		M	"	G	----
06	TRACON-UST6-A-W01	11/19/02	1318	RMA	9	40ml vials	HCl	W	8015B/5030B		M	"	G	----
07	TRACON-UST6-A-W01	11/19/02	1318	RMA	6	1 Lamber	none	W	8015B/(3510C or 3520C)/3630C		M	"	G	----
4. 08	TRACEN-UST6-D-W01	11/19/02	0730	RMA	1	40ml vial	none	W	8260			"		----
5. 09	TRACON-UST1-A-W01	11/19/02	1350	RMA	3	40ml vials	HCl	W	8260/5030B			"	G	----
10	TRACON-UST1-A-W01	11/19/02	1350	RMA	3	40ml vials	HCL	W	8015B/5030B			"	G	----

COLLECTED & RELEASED BY: Chip Allende Chip All	DATE 11/19/02	TIME 4:50	COOLER I.D.: B		COMMENTS (see note on back):
RECEIVED BY: FED EX	DATE 11/19/02	TIME 4:58	RELINQUISHED BY:	DATE / /	TIME :
SITNIKV	11/20/02	9:30			
RECORD RETURNED BY:	DATE / /	TIME :			
COURIER:			SHIPPING NUMBER:		

DISTRIBUTION: WHITE – PROJECT FILE • CANARY – LAB RECEIPT • PINK – DATA MANAGEMENT • GOLDENROD – FIELD

USE A BALLPOINT PEN, BLACK INK, AND PRE[illegible]FIRMLY. INSTRUCTIONS ARE ON THE BACK.

T = 4.1°C

FA/BC

FORS[redacted]N ASSOCIATES/BROWN AND CALDWELL
A JOINT VENTURE
2701 PROSPECT PARK DRIVE • RANCHO CORDOVA, CA 95670
916-444-0123 • FAX 916-635-8805

C[redacted]N OF CUSTODY RECORD

COC No. C[redacted]4-021119-2

I21/VW01-11 02K190

PROJECT NAME: FAA/TRACON Oakland, CA Facility
PROJECT NUMBER: 00714

LABORATORY NAME & ADDRESS: EMAX
1835 W. 205th St.
Torrance, CA 90501

LINE NO.	SAMPLE - I.D.	COLLECTION DATE	COLLECTION TIME	SAMPLER'S INITIALS	NUMBER OF CONTAINERS	CONTAINER SIZE AND TYPE	PRESERVATIVE	MATRIX CODE	ANALYSES REQUESTED	FIELD FILTERED	QC - REQ	TAT	SAMPLING METHOD	DEPTH (FT.) BEGIN / END
5. or	TRACON-LIST 1-A-W01	11/19/02	1350	RMA	2	1L amber	none	W	8015B/(3510C or 3520C)/3630C			21 days	G	----
02														----
03														----
04														----
05														----
06														----
07														----
08														----
09														----
10									T=4.2°C					----

PRESERVATION (pH)

COLLECTED & RELEASED BY: Chip Allender	DATE 11 19 02	TIME 4:52	COOLER I.D.: B			COMMENTS (see note on back):
RECEIVED BY: Fed Ex	DATE 11 19 02	TIME 4:50	RELINQUISHED BY:	DATE / /	TIME :	
SignNior	11.20.02	9:30				
2						
3						
RECORD RETURNED BY:	DATE / /	TIME :				
COURIER:			SHIPPING NUMBER:			

DISTRIBUTION: WHITE - PROJECT FILE • CANARY - LAB RECEIPT • PINK - DATA MANAGEMENT • GOLDENROD - FIELD

USE A BALLPOINT PEN, BLACK INK, AND PRE[redacted]FIRMLY. INSTRUCTIONS ARE ON THE BACK.

FA/BC

FORS[redacted]EN ASSOCIATES/BROWN AND CALDWELL
A JOINT VENTURE
2701 PROSPECT PARK DRIVE • RANCHO CORDOVA, CA 95670
916-444-0123 • FAX 916-635-8805

C[redacted]IN OF CUSTODY RECORD

COC No. [redacted]14-02118

F21/VW01-05

02K173

PROJECT NAME: FAA/TRACON Oakland, CA Facility
PROJECT NUMBER: 00714

LABORATORY NAME & ADDRESS: EMAX
1835 W. 205TH ST.
Torrance, CA 90501

11/22, 5.5

LINE NO.	SAMPLE - I.D.	COLLECTION DATE	COLLECTION TIME	SAMPLER'S INITIALS	NUMBER OF CONTAINERS	CONTAINER SIZE AND TYPE	PRESERVATIVE	MATRIX CODE	ANALYSES REQUESTED	FIELD FILTERED	QC - REQ	TAT	SAMPLING METHOD	DEPTH (FT.) BEGIN	DEPTH (FT.) END
01	TRACON-UST7-A-W01	11/18/02	1450	RMA	3	40ml vial	Yes HCl	W	8260/5030B			21 days	G		
02	TRACON-UST7-A-W01	11/18/02	1450	RMA	3	40ml vial	HCL	W	8015B/5030B			"	G		
03	TRACON-UST7-A-W01	11/18/02	1450	RMA	2	1L amber	none	W	8015B/(3510C or 3520C)/3630C			"	G		
04	TRACON-UST8-A-W01	11/18/02	1230	RMA	3	40ml vial	HCL	W	8260/5030B			"	G		
05	TRACON-UST8-A-W01	11/18/02	1230	RMA	3	40ml vial	HCL	W	8015B/5030B			"	G		
06	TRACON-UST8-A-W01	11/18/02	1230	RMA	2	1L amber	none	W	8015B/(3510C or 3520C)/3630C			"	G		
07	TRACON-UST8-D-W01	11/18/02	0800	RMA	1	40ml vial	none	W	8260			"			
08	TRACON-UST7-D-W01	11/18/02	0800	RMA	1	40ml vial	none	W	8260			"			
09															
10									T = 3.6°C						

1. 2. 3. 4.

COLLECTED & RELEASED BY: Chip Allen	DATE 11/18/02	TIME 16:00	COOLER I.D.: A			COMMENTS (see note on back):
RECEIVED BY: FEDEX	DATE 11/18/02	TIME 16:00	RELINQUISHED BY:	DATE / /	TIME :	
SITKIKOV	11.19.02	9:45				
RECORD RETURNED BY:	DATE / /	TIME :				
COURIER:			SHIPPING NUMBER:			

DISTRIBUTION: WHITE - PROJECT FILE • CANARY - LAB RECEIPT • PINK - DATA MANAGEMENT • GOLDENROD - FIELD

USE A BALLPOINT PEN, BLACK INK, AND PRESS FIRMLY. INSTRUCTIONS ARE ON THE BACK.

Appendix B
Investigation Derived Waste Disposal Documentation

Please print or type. (Form designed for use on elite (12-pitch) typewriter)

See instructions on back of page 3.

Department of Toxic Substances Control
Sacramento, California

UNIFORM HAZARDOUS WASTE MANIFEST

Generator's U.S. EPA ID No. CA0025603603

Manifest Document No. 371612

2. Page 1 of 1

Information in the shaded areas is not required by Federal law

GENERATOR

1. Generator's Name and Mailing Address
Oakland N.A.S., Army Corps. of Engineers
1325 J Street
Sacramento, CA 95814

4. Generator's Phone (916 B26-8099 3803)

A. State Manifest Document Number 22037162

B. State Generator's ID

5. Transporter 1 Company Name: Asbury Environmental Services

6. US EPA ID Number: CAD028270356

C. State Transporter's ID [Reserved.]

D. Transporter's Phone (800) 974-4495

7. Transporter 2 Company Name

8. US EPA ID Number

E. State Transporter's ID [Reserved.]

F. Transporter's Phone

9. Designated Facility Name and Site Address
Demenno/Kerdoon
2000 N. Alameda Street
Compton, CA 90222

10. US EPA ID Number: CAT080013352

G. State Facility's ID

H. Facility's Phone (310) 537-7100

11. US DOT Description (including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No.	12. Containers Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste Number
a. NON-RCRA HAzardous Waste, Liquid (Oily Water)	01	DT	01200	G	State 223 / EPA/Other NONE
b.					State / EPA/Other
c.					State / EPA/Other
d.					State / EPA/Other

J. Additional Descriptions for Materials Listed Above
11A) 215540

K. Handling Codes for Wastes Listed Above
a. b. c. d.

15. Special Handling Instructions and Additional Information
USE P.P.E
NAERG# 171.
Emergency Contact: Chemtrec (800) 424-9300
PROJECT# 23615A1@
PO#A080007466

SITE ADDRESS: Oakland N.A.S., 1029 Grumman Street Oakland, CA 94621

16. **GENERATOR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

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Printed/Typed Name	Signature	Month	Day	Year
K. Martin Fehling	K. Martin Z. on behalf of DOD	01	16	03

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month	Day	Year
Richard Arredondo		01	16	03

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month	Day	Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.

Printed/Typed Name	Signature	Month	Day	Year

DO NOT WRITE BELOW THIS LINE.

IN CASE OF EMERGENCY OR SPILL, CALL THE NATIONAL RESPONSE CENTER 1-800-424-8802; WITHIN CALIFORNIA, CALL 1-800-852-7550

DTSC 8022A (1/99)
EPA 8700—22

Blue: GENERATOR SENDS THIS COPY TO DTSC WITHIN 30 DAYS.
To: P.O. Box 400, Sacramento, CA 95812-0400

Please print or type. Form designed for use on elite (12-pitch) typewriter.

Department of Toxic Substances Control
Sacramento, California

EMERGENCY RESPONSE CENTER 1-800-424-8802; WITHIN CALIFORNIA, CALL 1-800-852-7550

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. C A C 0 0 2 5 6 0 6 0 5 3
Manifest Document No. 9 6 6 1
2. Page 1 of 1

Information in the shaded areas is not required by Federal law

3. Generator's Name and Mailing Address
Oakland NAS US Army Corps Engineers
1029 Grumman Street, Oakland, CA 94621

4. Generator's Phone (916) 557-6703

A. State Manifest Document Number 21539661

B. State Generator's ID

5. Transporter 1 Company Name B.A.I.

6. US EPA ID Number KAR000041071

C. State Transporter's ID [Reserved.]

D. Transporter's Phone 209-869-3571

7. Transporter 2 Company Name

8. US EPA ID Number

E. State Transporter's ID [Reserved.]

F. Transporter's Phone

9. Designated Facility Name and Site Address
Chem. Waste Mgmt. Inc., Kettleman Hill Disposal Fac.
35251 Old Skyline Road, Kettleman City, CA 93239

10. US EPA ID Number C A T 0 0 0 6 4 6 1 1 7

G. State Facility's ID C A T 0 0 0 6 4 6 1 1 7

H. Facility's Phone (800) 222-2964

11. US DOT Description (including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No.	12. Containers Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste Number
a. Non RCRA Hazardous Waste Solid N.O.S.	001	DT	09018	Y	State 611; EPA/Other none
b.					State; EPA/Other
c.					State; EPA/Other
d.					State; EPA/Other

J. Additional Descriptions for Materials Listed Above
A.) Soil from site investigation profile # EB8554.
UF0470C

K. Handling Codes for Wastes Listed Above
a. b. c. d.

15. Special Handling Instructions and Additional Information
Wear P.P.E. when handling.
Emg. ABCO Environmental, Troy Williams (916)826-3803.

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Printed/Typed Name: R. McGrain Fahrens — Signature: [signature] on behalf of DOD — Month/Day/Year: 01/16/03

17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name: J. Jimenez — Signature: [signature] — Month/Day/Year: 01/20/03

18. Transporter 2 Acknowledgement of Receipt of Materials
Printed/Typed Name — Signature — Month Day Year

19. Discrepancy Indication Space

20. Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.
Printed/Typed Name — Signature — Month Day Year

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EPA 8700—22

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UNIFORM HAZARDOUS WASTE MANIFEST

Generator US EPA ID No. CAC002560605 | Manifest Document No. 39651 | Page 1 of 1 | Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address
Oakland NAS US Army Corps. Engineers
1029 Grumman Street, Oakland, CA 94621

4. Generator's Phone 916 | 557-6703

A. State Manifest Document Number 21539663

B. State Generator's ID

5. Transporter 1 Company Name: B.A.T.'s

6. US EPA ID Number: CAR000040071

C. State Transporter's ID [Reserved]

D. Transporter's Phone (209) 8693571

7. Transporter 2 Company Name

8. US EPA ID Number

E. State Transporter's ID [Reserved]

F. Transporter's Phone

9. Designated Facility Name and Site Address
Chem. Waste Mgmt. Inc., Kettleman Hills Disposal Fac.
35251 Old Skyline Road, Kettleman City, CA 93239

10. US EPA ID Number: CAT000646117

G. State Facility's ID: CAT000646117

H. Facility's Phone: (800) 222-2964

11. US DOT Description (including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No.	12. Containers Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste Number
a. Non RCRA Hazardous Waste Solid N.O.S.	001	DT	2	Y	State 611 / EPA/Other none
b.					State / EPA/Other
c.					State / EPA/Other
d.					State / EPA/Other

J. Additional Descriptions for Materials Listed Above
A.) Soil from site investigation progile # EB8554.
TP01362

K. Handling Codes for Wastes Listed Above
a. b. c. d.

15. Special Handling Instructions and Additional Information
Wear proper protective equipment when handligg.
Eng. ABCO Environmental, Troy Williams (916) 826-3803.

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

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Printed/Typed Name	Signature	Month	Day	Year
R. Martin Fehning	R. Martin on behalf of DGS	01	16	03

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month	Day	Year
Jon Mayfield	Jon Mayfield	01	20	03

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month	Day	Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.

Printed/Typed Name	Signature	Month	Day	Year

DO NOT WRITE BELOW THIS LINE.

IN CASE OF EMERGENCY OR SPILL, CALL THE NATIONAL RESPONSE CENTER 1-800-424-8802; WITHIN CALIFORNIA, CALL 1-800-852-7550

GENERATOR

DTSC 8022A (1/99)
EPA 8700—22

Blue: GENERATOR SENDS THIS COPY TO DTSC WITHIN 30 DAYS.
To: P.O. Box 400, Sacramento, CA 95812-0400

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No: CAC002560603 | Manifest Document No: 19564 | 2. Page 1 of 1

Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address
Oakland NAS US Army Corps. Engineers
1029 Grumman Street, Oakland, CA 94621

4. Generator's Phone: (916) 557-6703

A. State Manifest Document Number: 21539664

B. State Generator's ID:

5. Transporter 1 Company Name: B.A.T.

6. US EPA ID Number: CAR000140071

C. State Transporter's ID [Reserved.]:

D. Transporter's Phone: (209) 869-3571

7. Transporter 2 Company Name:

8. US EPA ID Number:

E. State Transporter's ID [Reserved.]:

F. Transporter's Phone:

9. Designated Facility Name and Site Address
Chem. Waste Mgmt. Inc., Kettleman Hills Disposal Fac.
35251 Old Skyline Road, Kettleman City, CA 93239

10. US EPA ID Number: CAT000646117

G. State Facility's ID: CAT000646117

H. Facility's Phone: (800) 222-2964

11. US DOT Description (including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No.	12. Containers Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste Number
a. Non RCRA Hazardous Waste Solid N.O.S.	001	DT		Y	State: 611 / EPA/Other: none
b.					State: / EPA/Other:
c.					State: / EPA/Other:
d.					State: / EPA/Other:

J. Additional Descriptions for Materials Listed Above
A.) Soil from site investigation profile # EB 8554
UPOH791

K. Handling Codes for Wastes Listed Above
a. b. c. d.

15. Special Handling Instructions and Additional Information
Wear P.P.E. when handling.
Eng. ABCO Environmental, Troy Williams (916)826-3803.

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Printed/Typed Name	Signature	Month	Day	Year
R. Martin Fahning	R. Martin Fahning On behalf of DOD	01	16	03

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month	Day	Year
Floyd Smith	Floyd Smith	01	20	03

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month	Day	Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.

Printed/Typed Name	Signature	Month	Day	Year

DO NOT WRITE BELOW THIS LINE.

GENERATOR

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EPA 8700—22

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To: P.O. Box 400, Sacramento, CA 95812-0400

Appendix C
Photographs

Underground Storage Tank Investigation
At the
Former Naval Auxiliary Air Station Oakland
Federal Aviation Administration Terminal Radar Approach Control Facility
1029 Grumman Street
Oakland, CA 94621

Field Support Provided to
Forsgren Associates / Brown and Caldwell, A Joint Venture
3110 Gold Canal Drive, Suite C
Rancho Cordova, CA 95670

By:

R&M Environmental
and Infrastructure Engineering, Inc.
7996 Capwell Drive
Oakland, CA 94621

January 30, 2003

Former Oakland Naval Auxiliary Air Station (ONAAS) Site Inspection

Federal Aviation Administration (FAA) Terminal Radar Approach Control (TRACON) Facility

R&M Environmental and Infrastructure Engineering, Inc. (R&M) supported Forsgren Associates/Brown and Caldwell (FA/BC), a Joint Venture, in a field investigation project for the US Army Corps of Engineers (USACE), Sacramento District (Contract No. DACW05-97-D-0038, Delivery Order 014), at the former ONAAS site (now part of the Oakland International Airport) in Oakland, California. The project involved exploratory excavation to locate and assess the contents of four underground storage tanks (UST) at four locations in a parking lot at the ONAAS site.

Field activities, which were performed during the period of November 18, 2002 through January 29, 2003, consisted of the following:

- Site preparation and environmental protection.
- Excavation.
- Excavation Dewatering.
- Characterization and on-site management of excavation water and soil.
- Offsite disposal of excavation water and soil.
- Backfilling, compaction, and resurfacing of the excavations.

This presentation consists of photographs with captions depicting and describing key elements of field activities.

This "investigation-by-excavation" project was fully successful in meeting its objectives. It revealed a great deal of information about the location, closure status, and subsurface contamination at the previously suspected UST sites. The investigation confirmed the presence of USTs that had apparently been backfilled in-place. Significant petroleum contamination of the soil and groundwater was noted in the four excavation areas. Characterization of samples of excavated soil indicated a requirement for disposal of the excavated soil as non-RCRA hazardous waste. With achievement of the project objectives, the excavations were backfilled with clean, imported material and the site was restored to original condition.

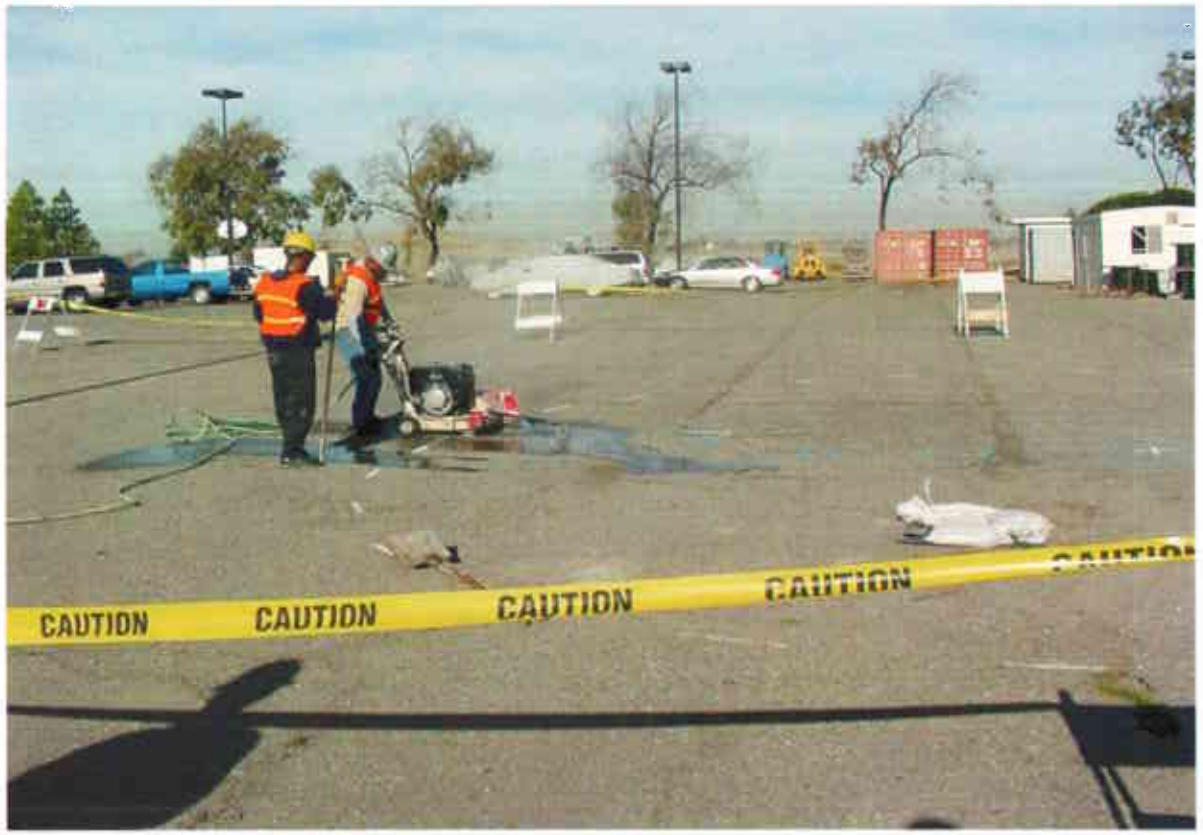
UST Site Investigation by Excavation
Former Oakland Naval Auxiliary Air Station, Oakland, CA

1. Cordoning off the work areas

UST Site Investigation by Excavation
Former Oakland Naval Auxiliary Air Station, Oakland, CA

2. Use of sandbags and plastic sheet to protect storm drains

UST Site Investigation by Excavation
Former Oakland Naval Auxiliary Air Station, Oakland, CA



3. Saw-cutting for pavement removal (Note: The white dash mark on the surface indicates approximate boundary of the tank, based on a prior geophysical survey)

UST Site Investigation by Excavation
Former Oakland Naval Auxiliary Air Station, Oakland, CA

4. Use of Backhoe to breakup and remove pavement

UST Site Investigation by Excavation
Former Oakland Naval Auxiliary Air Station, Oakland, CA

5. Use of PID to test for presence of volatile compounds

UST Site Investigation by Excavation
Former Oakland Naval Auxiliary Air Station, Oakland, CA

6. Transfer of pavement material to temporary on-site pile for offsite disposal

UST Site Investigation by Excavation
Former Oakland Naval Auxiliary Air Station, Oakland, CA

7. Excavation and placement of excavated material on Visqueen laid down adjacent to the excavation

UST Site Investigation by Excavation
Former Oakland Naval Auxiliary Air Station, Oakland, CA

8. Rebar encountered in the excavation (presumably from reinforced wall and/or the previously demolished roof of the tank)

UST Site Investigation by Excavation
Former Oakland Naval Auxiliary Air Station, Oakland, CA

9. Water accumulation in the excavation

UST Site Investigation by Excavation
Former Oakland Naval Auxiliary Air Station, Oakland, CA

10. Water accumulation and rebar in the former location of UST No. 5 (located north and adjacent to the antenna tower island)

UST Site Investigation by Excavation
Former Oakland Naval Auxiliary Air Station, Oakland, CA

11. The exposed rim of the circular steel tank (UST No. 5, north and adjacent to the antenna tower island)

UST Site Investigation by Excavation
Former Oakland Naval Auxiliary Air Station, Oakland, CA

12. Water accumulated in UST No. 8 excavation (in the southeast corner of the parking lot) one day after excavation.

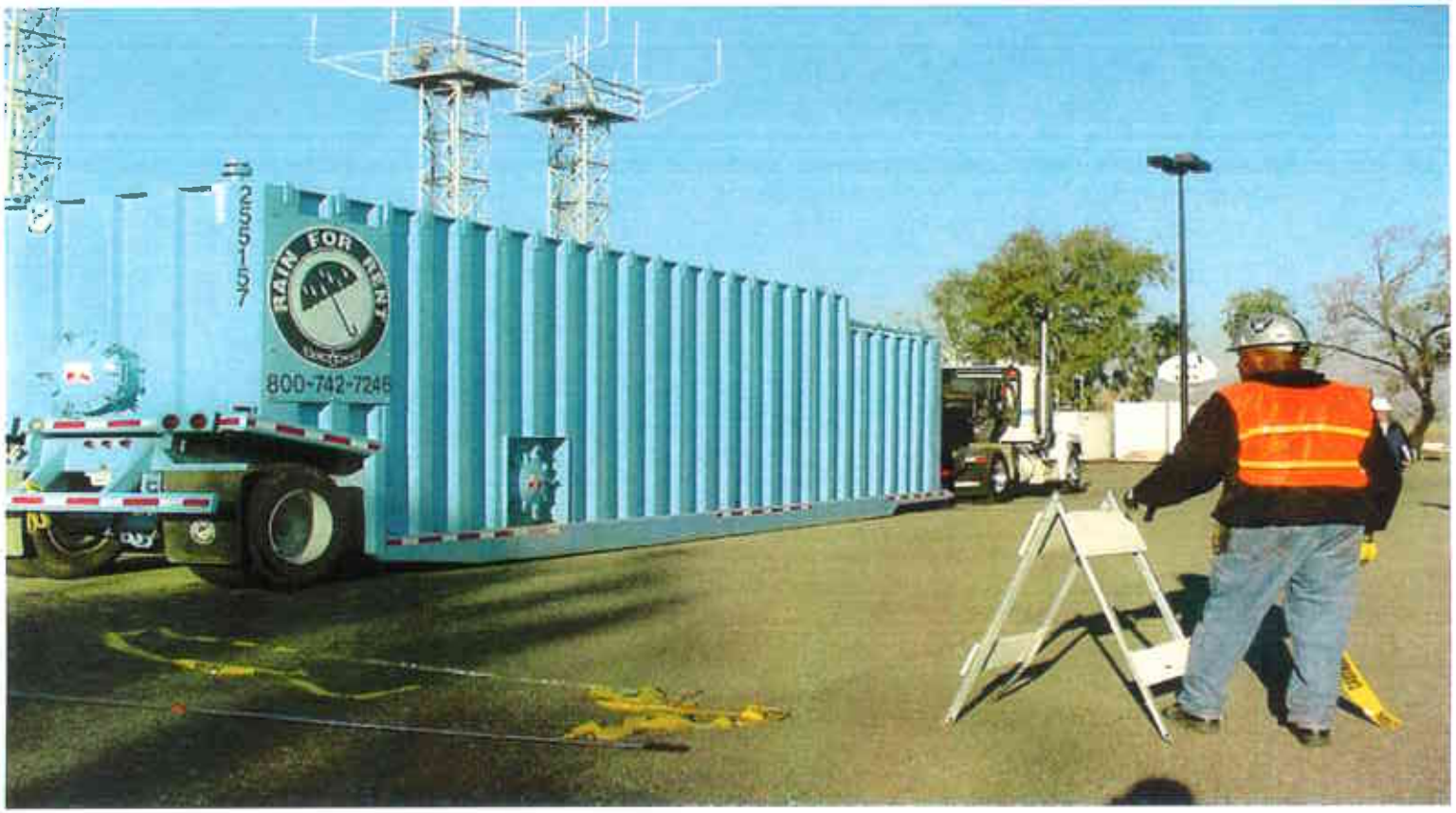
UST Site Investigation by Excavation
Former Oakland Naval Auxiliary Air Station, Oakland, CA

13. Floating product on the surface of water in the excavation for UST No. 8

UST Site Investigation by Excavation
Former Oakland Naval Auxiliary Air Station, Oakland, CA

14. Water accumulation in the excavation for UST No. 6

UST Site Investigation by Excavation
Former Oakland Naval Auxiliary Air Station, Oakland, CA



15. Large tank brought to site for temporary storage of water removed from excavations

UST Site Investigation by Excavation
Former Oakland Naval Auxiliary Air Station, Oakland, CA

16. Excavation dewatering

UST Site Investigation by Excavation
Former Oakland Naval Auxiliary Air Station, Oakland, CA

17. Covering of soil stockpiles with Visqueen

UST Site Investigation by Excavation
Former Oakland Naval Auxiliary Air Station, Oakland, CA

18. Imported clean backfill material being delivered to site

UST Site Investigation by Excavation
Former Oakland Naval Auxiliary Air Station, Oakland, CA

19. Backfilling of excavation (while excavation dewatering is continued)

UST Site Investigation by Excavation
Former Oakland Naval Auxiliary Air Station, Oakland, CA

20. Manual spreading of the backfill material prior to compaction

UST Site Investigation by Excavation
Former Oakland Naval Auxiliary Air Station, Oakland, CA

21. Use of water spray for dust suppression and to improve compaction

UST Site Investigation by Excavation
Former Oakland Naval Auxiliary Air Station, Oakland, CA

22. Use of vibratory-plate compactor on the emplaced backfill material

UST Site Investigation by Excavation
Former Oakland Naval Auxiliary Air Station, Oakland, CA

23. Saw-cutting to produce smooth pavement edges prior to paving

UST Site Investigation by Excavation
Former Oakland Naval Auxiliary Air Station, Oakland, CA

24. Smooth pavement edges produced in the UST No. 8 location prior to paving

UST Site Investigation by Excavation
Former Oakland Naval Auxiliary Air Station, Oakland, CA

25. Sampling of the water from the excavations

UST Site Investigation by Excavation
Former Oakland Naval Auxiliary Air Station, Oakland, CA

26. Field measurement of volatile compounds in the excavated soil

UST Site Investigation by Excavation
Former Oakland Naval Auxiliary Air Station, Oakland, CA

27. Preparing soil samples for shipment to the analytical laboratory for characterization

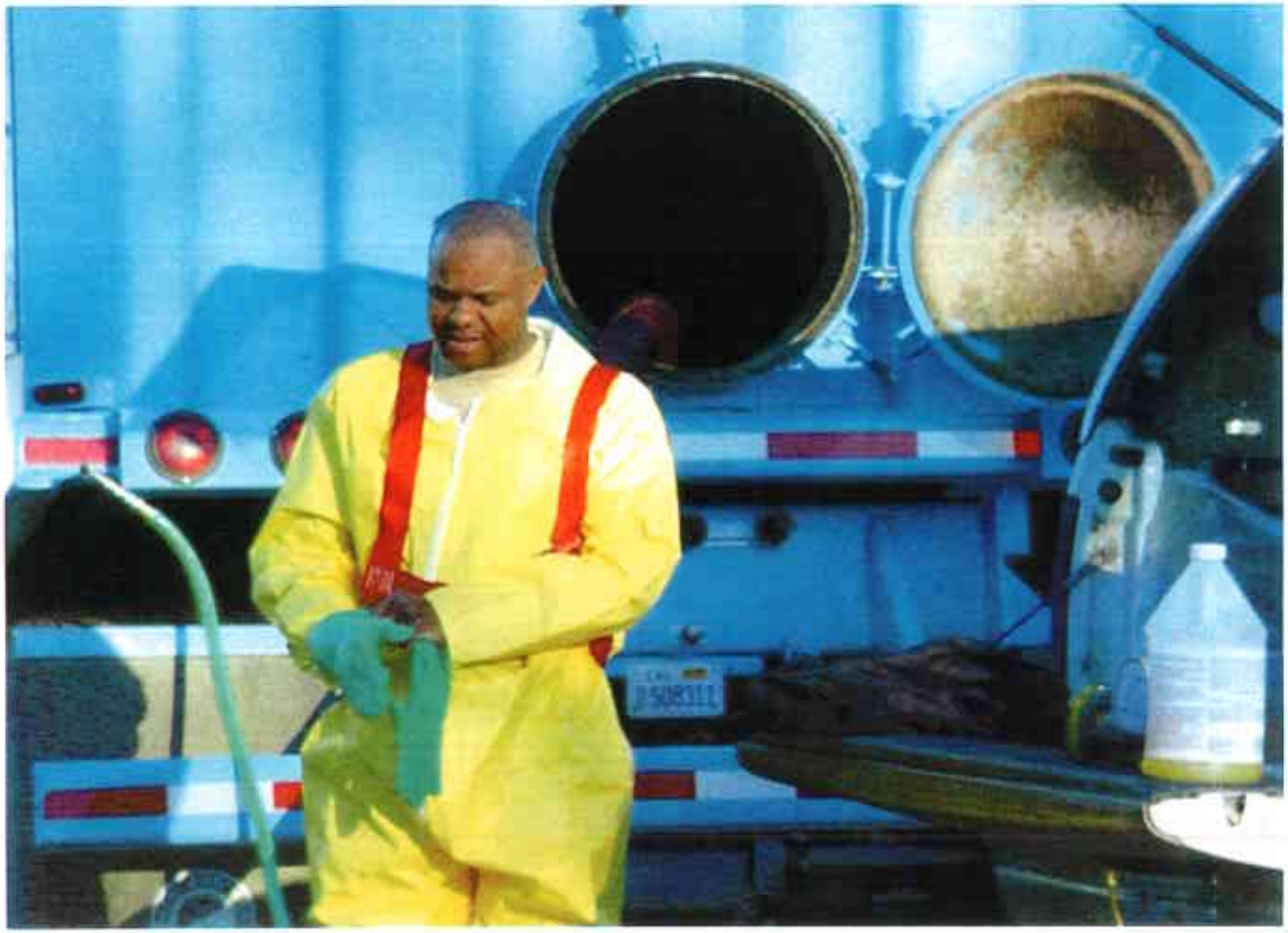
UST Site Investigation by Excavation
Former Oakland Naval Auxiliary Air Station, Oakland, CA

28. Vacuum truck brought to site to remove water in the water storage tank and haul it to an off-site treatment/disposal facility (Demmeno Kerdo facility, Compton, CA)

UST Site Investigation by Excavation
Former Oakland Naval Auxiliary Air Station, Oakland, CA

29. Water being pumped from the on-site water storage tank into a vacuum truck for transportation off-site

UST Site Investigation by Excavation
Former Oakland Naval Auxiliary Air Station, Oakland, CA



30. Donning protective clothing prior to entering water storage tank for final cleaning

UST Site Investigation by Excavation
Former Oakland Naval Auxiliary Air Station, Oakland, CA

31. Manual rinsing and cleaning of the interior of the tank prior to its removal from site

UST Site Investigation by Excavation
Former Oakland Naval Auxiliary Air Station, Oakland, CA

32. Loading of stockpiled soil into trucks for transportation to Water Management, Inc.'s landfill (near Bakersfield, CA) for disposal as non-RCRA hazardous waste

UST Site Investigation by Excavation
Former Oakland Naval Auxiliary Air Station, Oakland, CA

33. Covering the trucks loaded with soil prior to trucks leaving the site

UST Site Investigation by Excavation
Former Oakland Naval Auxiliary Air Station, Oakland, CA

34. A loaded, covered truck leaving the site

UST Site Investigation by Excavation
Former Oakland Naval Auxiliary Air Station, Oakland, CA

35. Pile of pavement material being loaded into a truck for transportation to a nearby offsite recycling center (Aman Environmental Construction, Oakland, CA)

UST Site Investigation by Excavation
Former Oakland Naval Auxiliary Air Station, Oakland, CA

36. Pavement material being loaded into a truck for transportation to a local recycling center (Aman Environmental Construction, Oakland, CA)

UST Site Investigation by Excavation
Former Oakland Naval Auxiliary Air Station, Oakland, CA

37. A view of the site after removal of the water storage tank and stockpiles of excavated soil and asphalt debris, but prior to repaving

UST Site Investigation by Excavation
Former Oakland Naval Auxiliary Air Station, Oakland, CA

38. Smoothening the base prior to further compaction and asphalt paving

UST Site Investigation by Excavation
Former Oakland Naval Auxiliary Air Station, Oakland, CA

39. Additional surface compaction in preparation for paving

UST Site Investigation by Excavation
Former Oakland Naval Auxiliary Air Station, Oakland, CA

40. Final compaction with a roller prior to asphalt paving

UST Site Investigation by Excavation
Former Oakland Naval Auxiliary Air Station, Oakland, CA

41. Treating the edges to ensure good bonding between the old and the new asphalt prior to paving

UST Site Investigation by Excavation
Former Oakland Naval Auxiliary Air Station, Oakland, CA

42. Placement of fresh asphalt onto the surface of the compacted area

UST Site Investigation by Excavation
Former Oakland Naval Auxiliary Air Station, Oakland, CA

43. Manual spreading and smoothening of the deposited asphalt prior to roller compaction

UST Site Investigation by Excavation
Former Oakland Naval Auxiliary Air Station, Oakland, CA

44. Compaction of hot asphalt with a wet roller

UST Site Investigation by Excavation
Former Oakland Naval Auxiliary Air Station, Oakland, CA

45. Resurfaced area at the former location of UST No. 8

UST Site Investigation by Excavation
Former Oakland Naval Auxiliary Air Station, Oakland, CA

46. Resurfaced area at the former location of UST No. 7

UST Site Investigation by Excavation
Former Oakland Naval Auxiliary Air Station, Oakland, CA

47. Resurfaced area at the former location of UST No. 6

UST Site Investigation by Excavation
Former Oakland Naval Auxiliary Air Station, Oakland, CA

48. Resurfaced area at the former location of UST No. 5

UST Site Investigation by Excavation
Former Oakland Naval Auxiliary Air Station, Oakland, CA

49. Removal of storm drain protection on the last day of field activities