2/89

Background

Our field personnel first visited the subject site on Thursday, January 26, 1989, to obtain soil samples from beneath the product lines and the product dispensing pump islands. A total of nine sample were collected from the product line trench and the three western dispenser pump islands. Two soil samples were collected from the eastern island area, where two dispenser pump islands had been located at some point in the past. Finally, a soil sample was collected from an area that smelled of gasoline, but was not closely associated with either the product dispensing pump islands or the product line trench. Discussion of this sampling activity can be found in Blaine Tech Services, Inc. Sampling Report No. 89026-C-1.

We returned to the site on Thursday, February 3, 1989 to obtain samples from the product dispensing pump islands after additional excavation in these areas. In addition, samples were obtained from the areas of the former waste oil and gasoline tank pits. These tank pits were associated with a service station that occupied the site prior to the present fuel dispensing facility. A detailed discussion of this particular sampling activity can be found in Blaine Tech Services, Inc. Sampling Report No. 89034-C-1.

Scope of Requested Services

In accordance with your request, field personnel would be dispatched to the site to obtain additional soil samples from the waste oil tank pit after this pit had been excavated to a depth of thirteen feet (13') below grade. In addition, our personnel would arrange for the proper analyses of the samples, and maintain adequate documentation resulting in the issuance of a formal Sampling Report. The collection of environmental samples was to be performed in accordance with the requirements of the State Water Resources Control Board.

Execution of the Work

Field personnel from our office arrived at the subject site on Wednesday, February 8, 1989 to perform the requested sampling. Our personnel observed the further excavation in the area of the former waste oil tank pit. The pit was enlarged in a westerly direction from ten feet (10') to approximately fifteen feet (15') in length. The depth of the pit was increased from six feet (6') to approximately ten feet (10') below grade. The soil being removed from the floor of the excavation at this point smelled as though it might still contain some waste oil, so excavation was begun in the southwest corner of the pit to extend the depth of the excavation. At approximately twelve feet (12') below grade level, water began to enter this area of new excavation activity.

Mr. Ariu Levi of the Alameda County Department of Health, who was not present to observe the sampling, was contacted by telephone. In response to questioning by our field personnel, Mr. Levi stated that since water was available to sample, his office was going to request that a water sample be obtained. Mr. Levi further stated that it was preferable that the water standing in the excavation be evacuated prior to sampling, but if this was not possible, that a sample of the water was still desirable.

The southwest corner of the waste oil pit was extended to a total depth of approximately fourteen feet (14') below grade, forming a small sump in this corner of the excavation. Approximately two feet of water was allowed to collect in this sump, and one sample of the water was obtained (Sample #3) with a subsurface water sampler. At the time the sample was collected, the water was standing in the sump at a depth of twelve feet (12') below grade level.

Mr. Ray Newsome, the Shell Oil Engineer in charge of this project, requested during a visit to the site earlier in the day that samples should be taken of each of the pit walls at a depth of six feet (6') below grade, and at the bottom of the wall where the wall and the floor intersect. Four soil samples were collected at a depth of six feet (6') below grade from each of the walls of the excavation: Sample #1 from the north wall, Sample #6 from the east wall, Sample #4 from the south wall, and Sample #8 from the west wall. Samples #2 and #7 were collected at a depth of ten feet (10') below grade from the north and east walls, respectively, where the wall and the floor intersect. Samples #5 and #9 were collected at a depth of twelve feet (12') below grade level from the south and west walls, respectively, approximately six inches (6") above the water standing in the sump. All of these soil samples were obtained with a hand driven soil core sampler.

The material removed during this and previous excavation activity in the waste oil tank pit was stockpiled near the northern edge of the property. Four sample containers of soil (Samples #10A - 10D) from this stockpile were collected and submitted to the laboratory to be composited into one sample prior to analysis.

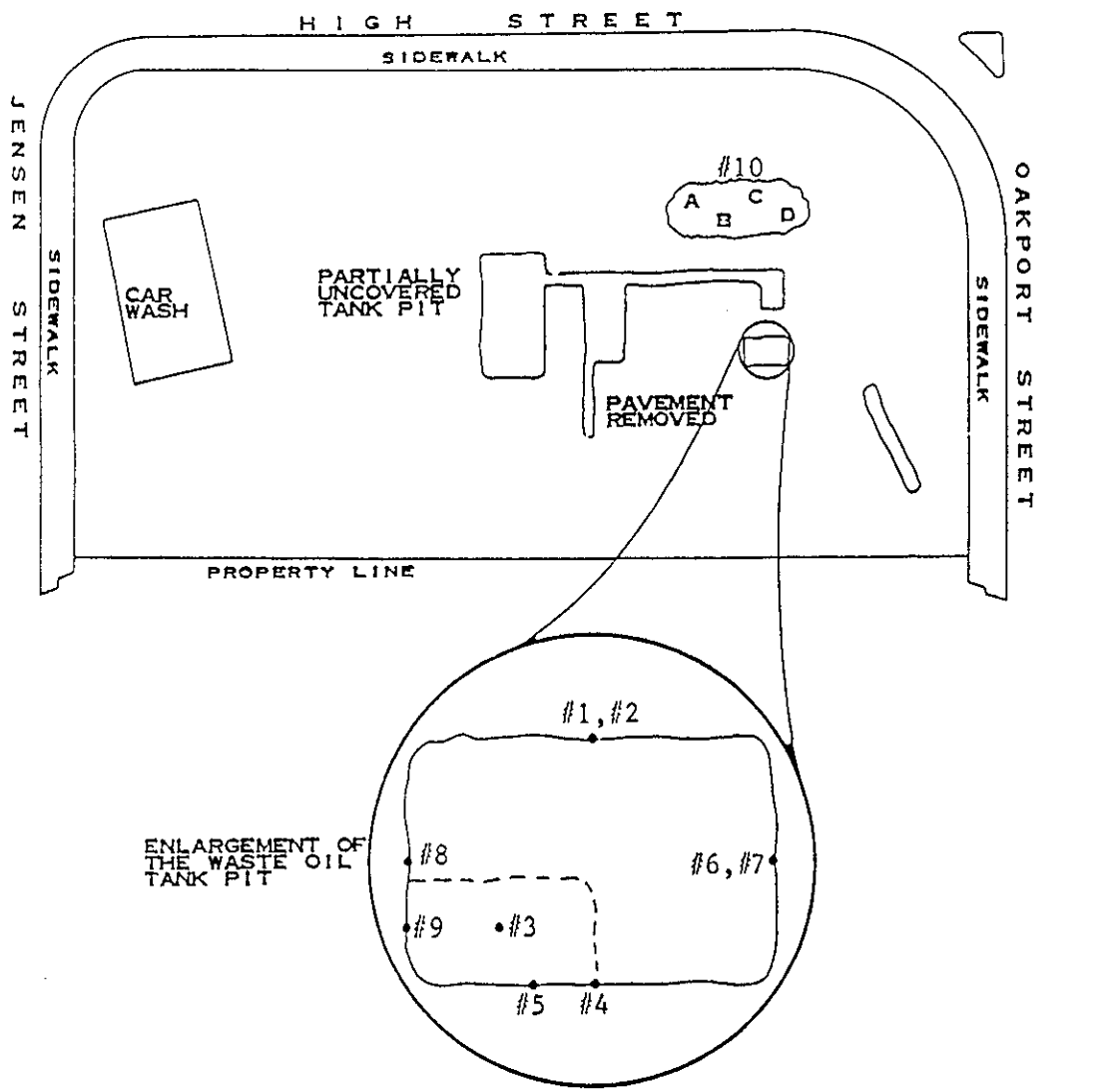
The location of individual sampling points is shown on the diagram on page four. Additional information on the exact method of sample collection will be found in the **Sampling Methodology** section of this report.

Following the completion of the sampling activity, the samples were submitted to the offices of Mobile Chem Labs, Inc., of San Carlos, California. Mobile Chem Labs, Inc. is a California Department of Health Services certified Hazardous Materials Testing Laboratory and is listed as DOHS HMTL #198.

It was requested that the analytical procedures used for these analyses be those specified by the Regional Water Quality Control Board -- San Francisco Bay Region. The methods are defined in attachments to the San Francisco RWQCB (Region 2) publication, Guidelines For Addressing Fuel Leaks and in documents issued to clarify the Board's interpretation of the California LUFT Manual.

SCALE: 0 50'

MAP REF: THOMAS BROS. ALAMEDA CO. P.12 A-4



#1 SOIL SAMPLE FROM WALL AT 6', ANALYSIS FOR TOTAL PETROLEUM HYDROCARBONS(TPH) AS DIESEL AT MOBIL CHEM LAB

#2 SOIL SAMPLE FROM WALL AT 10' ANALYSIS FOR TPH AS DIESEL

#3 SUBSURFACE WATER SAMPLE ANALYSIS FOR TPH AS GASOLINE, TPH AS DIESEL, AND BENZENE, TOLUENE, XYLENES AND ETHYL BENZENE(BTXE)

#4 SOIL SAMPLE FROM WALL AT 6' ANALYSIS FOR TPH AS DIESEL

#5 SOIL SAMPLE FROM WALL AT 12' ANALYSIS FOR TPH AS DIESEL

#6 SOIL SAMPLE FROM 6' ANALYSIS FOR TPH AS DIESEL

#7 SOIL SAMPLE FROM 10' ANALYSIS FOR TPH AS DIESEL

#8 SOIL SAMPLE FROM 6' ANALYSIS FOR TPH AS DIESEL

#9 SOIL SAMPLE FROM 12' ANALYSIS FOR TPH AS DIESEL

#10 STOCKPILE SOIL COMPOSITE ANALYSIS FOR TPH AS DIESEL

SAMPLING PERFORMED BY STEPHEN CARTER

DIAGRAM PREPARED BY BRENT ADAMS

SAMPLING METHODOLOGIES USED ON THIS PROJECT

Hand Driven Core Sampling: This is another term for the sampling methodology that is often called undisturbed soil sampling. This is the generally preferred sampling method for both geotechnical and environmental investigations because the method captures a relatively undisturbed cylinder of soil which can be retained in its sealed brass liner during transport to a laboratory for very precise examination. Whether driven by a drill rig or a much smaller hand operated slide hammer, the principle attributes of the methodology remain the same.

Because of the tons of force which can be exerted by a drill rig, the samplers, drill rod and hammers are, necessarily, quite massive. Apparatus used in hand augered borings is usually much lighter and more subject to wear and breakage. Specialized hand tools that enable a person to drive samples consist of a sampling shoe (which contains the brass liners), light weight drill rod, and a small slide hammer. These hand operated drive samplers collect samples in the same two inch diameter brass liners used in many drill rig samplers, but collect only a four or six inch long core rather than twelve to twenty four inches of soil commonly obtained by drilling apparatus.

Common uses for hand operated drive samplers include all those applications where an undisturbed soil sample is desired. Typical applications include the collection of soil samples from the bottom of a hand augered boring, capillary zone sampling where a drill rod is used to extend the sampler across an open pit to a selected location on the wall of the excavation, and when sampling soil from the backhoe bucket that is too hard to allow a brass sample liner to be pushed into the soil by hand.

In practice, the sampler is usually overdriven and then retracted. Then the sampler is removed from the drill rods and hammer, opened, and the sample contained in the brass sample liners removed. Samples to be analyzed for environmental hazards are treated according to the same sample handling protocol as all other environmental samples.

Subsurface Water Sample: Subsurface water samples are obtained with a proprietary device which duplicates the functioning of several EPA, commercial, and industrial sampling devices. The device goes beyond the EPA weighted bottle device to include both the ability to position the sample at an exact depth (via an extendible pole) and to securely reseal the sample bottle prior to bringing the sample container up through the surface of the liquid being sampled. Though the device can be used to skim the surface, or obtain aggregate samples of all the water in the pit, the most common application for the device is the collection of samples of that water which is below the surface and petroleum fuel contaminants that may be floating on the surface.

Requests for subsurface samples are usually made by regulatory agency inspectors seeking information to determine if there are large amounts of dissolved constituents in the main body of water (indicating that lost fuel has been in contact with the water for a sufficient length of time to allow a significant discharge of benzene and other soluble compounds into the water) or if a petroleum film on the water may be only the the result of fuel contaminated soil falling into the pit in the course of the present tank excavation work. The frequency of requests for sampling of this sort in several San Francisco Bay area

counties lead to the development of the current version of the device and its issue to all our field personnel.

The "subsurface" designation indicates that the device was used in the following manner: The device was lowered into the body of water with the sample container closed against the intrusion of liquid; the sample container was not opened until it was below the surface of the liquid and any free petroleum that might be floating on the surface; the sample container was opened below the surface and allowed to fill with subsurface liquid; the device was closed before being brought back up through the surface of the body of water.

The ordinary "water sample" designation indicates that the device was used without any attempt to collect subsurface water. In this application the device is lowered into the water with the seal open so as to include both the surface and subsurface water in an aggregate sample. In this application the device duplicates the functioning of another EPA device which consists of a simple bottle or open jar attached to a pole. Ordinary "water samples" may also be collected in bailers which are made of either acrylic plastic, Teflon, or stainless steel. These, however, are usually designated "bailer" samples.

SAMPLE CONTAINERS

Our firm uses new sample containers of the type specified by either EPA or the RWQCB for the collection of samples at sites where underground storage tanks are involved. Water samples are contained in 40 ml volatile organic analysis vials (VOAs) when analysis for gasoline and similar light volatile compounds is intended. These containers are prepared according to EPA SW 846 and will contain a small amount of preservative when the analysis is for TPH as gasoline or EPA 602. Vials intended for EPA 601 analysis and EPA 624 GCMS procedures are not preserved. Closure is accomplished with an open headed (syringe accessible) plastic screw cap brought down on top of a Teflon faced septum which is used to seal the sample without headspace.

Water samples intended for semivolatile and nonvolatile analysis such as total oil and grease (TOG) and diesel (TPH HBF) are collected and transported in properly prepared new glass liter bottles. Dark amber glass is used in the manufacture of these bottles to reduce any adverse effect on the sample by sunlight. Antimicrobial preservative may be added to the sample liquid if a prolonged holding time is expected prior to analysis. Closure is accomplished with a heavy plastic screw cap.

Soil samples for volatile, semivolatile and nonvolatile analyses are all collected in properly prepared new brass liners which are 2 inches in diameter by 4 inches in length. Closure is accomplished with press fit plastic end caps which are fitted to the open ends of brass tube liners after a sheet of aluminum foil is wrapped over the exposed sample material. A non-contributing/nonsubtractive tape is wrapped completely around the joint areas where the plastic caps meet the outer wall of the brass tube. No preservative other than cold storage is used on samples captured in sample containers of this type.

SAMPLE HANDLING PROCEDURES

Solid sample material is captured by advancing the liner into the soil. This may be done by pushing the liner into soft soils or by containing the liner in a drive shoe which can be advanced and then retracted by means of a slide hammer. The open ends of the sample

liner are covered with aluminum foil and plastic end caps. Excess aluminum foil is removed and the edge of the plastic end caps is tightly sealed against the outer surface of the brass liner with an unbroken wrap made with a tape which has been tested to confirm that it does not contribute compounds that would be detected in the type of analyses intended for the sample contained inside of the brass liner. The brass liner is then labeled with the appropriate identification numbers which specify the sampling activity designation number, sample collection area, depth etc. that apply to that particular sample. The sample liner is then placed in an ice chest which contains pre-frozen blocks of an inert ice substitute such a Blue Ice or Super Ice.

Water samples are collected in any of several appropriate devices such as bailers, Coliwasas, Middleburg sampling pumps etc. which are described in detail only as warranted by their employment at a given site. Sample liquid is decanted into new sample containers in a manner which reduces the loss of volatile constituents and follows the applicable EPA procedures for handling volatile organic and semi-volatile compounds. Only two variations from the EPA methods are generally employed. First, preservative is added to the sample container prior to addition of the sample liquid. This method was pioneered by Stoner Laboratories in 1982 and subsequently adopted by laboratories and environmental consulting firms as a practical means of reducing the time that a liquid is allowed to aerate prior to closure of the sampling container. Second, because tests have shown that the preservative readily mixes with sample liquid, glass stirring rods are not used to agitate the sample/preservative mixture.

SAMPLE DESIGNATIONS

All sample containers are identified with both an activity number and a discrete sample identification number. Please note that the activity number is the number that appears on our chain of custody. It is roughly equivalent to a job number, but applies only to work done on a particular day of the year rather than spanning several days as an actual activity often does. This is followed by the sample I.D. number which is usually a simple number such as #1, #2, #3.

CHAIN OF CUSTODY

Samples are continuously maintained in either a chilled ice chest, refrigerator, or freezer from the time of collection until acceptance by the State certified Hazardous Materials Testing Laboratory selected to perform the analytical procedures. If the samples are taken charge of by a different party (such as another person from our office, a courier, etc.) prior to being delivered to the laboratory, appropriate release and acceptance records are made on the chain of custody (time, date, and signature of person releasing the samples followed by the time, date and signature of the person accepting custody of the samples).

LABORATORY IDENTIFICATION NUMBERS

Following receipt of the samples and completion of the Chain of Custody form, the laboratory then assigns their own identification numbers to the samples. Different laboratories use different numbering systems and, according to their own internal conventions, may or may not assign sequential numbers to samples which are placed on temporary "hold", pending the results of other analyses. Laboratory identification numbers (if assigned and

available) are included on the DIAGRAM, and will be found on the certified analytical report by the analytical laboratory.

CERTIFIED ANALYTICAL REPORT

The certified analytical report (CAR) generated by the laboratory is the official document in which they issue their findings. The Results of Analyses section of the TABLE OF SAMPLING LOCATIONS AND ANALYTICAL RESULTS should correspond exactly with the laboratory's CAR. Any discrepancy between analytical values should be decided in favor of the CAR, for while it may, itself, be in error with regard to a particular number, the CAR remains the recognized document until such time as it is amended with a corrected report.

The certified analytical report should also be reviewed when samples are taken from below waste oil tanks as any detection of the EPA halogenated and purgeable aromatic compounds may be grounds for requiring further action. Also the TABLE OF SAMPLING LOCATIONS AND ANALYTICAL RESULTS is insufficiently spacious to allow anything more that a simple listing of the detected compounds. The TABLE does not include such information as the detection limits at which other compounds were not detected. The full text of the laboratory report will be found in Section Four of this report.

REPORTAGE

Submission to the Regional Water Quality Control Board and the local implementing agency should include copies of the sampling report, the chain of custody, and the certified analytical report issued by the Hazardous Materials Testing Laboratory. The property owner should attach a cover letter and submit all documents together in a package.

The following addresses have been listed here for your convenience:

Water Quality Control Board
San Francisco Bay Region
1111 Jackson Street
Room 6040
Oakland, CA 94607
ATTN: Greg Zentner

Alameda County Health
Hazardous Materials Management
420 27th Street
Oakland, CA 94612
ATTN: Ariu Levi

Please call if we can be of any further assistance.

Richard C. Blaine

RCB/dmp

attachments: supporting documents

BLAINE
TECH SERVICES INC.

1370 TULLY ROAD, SUITE 505
SAN JOSE, CA 95122
(408) 995-5535

CHAIN OF CUSTODY # 890391

SITE SPECIFICATION Shell Station
630 High Street
Oakland, CA

( ) Bill BLAINE TECH SERVICES, Inc.
(X) Bill Shell O.I.
Attn: Ray Newsome

SPECIAL INSTRUCTIONS

SAMPLE I.D.	QUANTITY	TYPE	OK	ANALYSIS TO DETECT	STATUS	RESULTS	LAB NUMBER
1	1	Soil		TPH (diesel)		19 ppm	
2	1	"		"		"	
3	5	Liq		TPH (gas, diesel), BTXE		"	
4	1	Soil		TPH (diesel)		"	
5	1	"		"		"	
6	1	"		"		"	
7	1	"		"		"	
8	1	"		"		"	
9	1	"		"		"	
10A-10D	4	"		"			

Field sampling was performed by Stephen J. Carter

Sampling was completed at 14:45 AM/PM 2-8-1988

RELEASE OF SAMPLES FROM (name,time,date) ---->>>>> INTO THE CUSTODY OF (name,time,date)

from J. Carter @ 15:5Y AM/PM 2/8 -88 -> to Rivera @ 15:5Y AM/PM 2/8 -88

from _____ @ : AM/PM -88 -> to _____ @ : AM/PM -88

from _____ @ : AM/PM -88 -> to _____ @ : AM/PM -88

The laboratory designated to perform these analyses is Mobile Chem DHS ENTL # 198
NOTE: Procedures and detection limits must confrom to RWQCB Region 2 specifications.
Please include chain of custody number and site specification on reports and invoices.

MOBILE CHEM LABS INC.

733 Dartmouth Avenue
San Carlos, CA 94070 • (415) 591-5820

Shell Oil Co.
P.O. BOX 4023
Concord, CA 94524
Attn: Ray Newsome

Date Sampled:02-08-89
Date Received:02-08-89
Date Reported:02-09-89

Sample Number	Sample Description	Detection Limit	Total Petroleum Hydrocarbons as Diesel
		ppm	ppm
	89039C1-Oakland 630 High St.		
029054	# 1	10	31
029055	# 2	10	41
029057	# 4	10	<10
029058	# 5	10	<10
029059	# 6	10	<10
029060	# 7	10	<10
029061	# 8	10	<10
029062	# 9	10	<10
029063	# 10A-10D	10	41

Note: Analysis was performed using EPA methods 3550 and 8015

MOBILE CHEM LABS

Ronald G. Evans
Lab Director

MOBILE CHEM LABS INC.

733 Dartmouth Avenue
San Carlos, CA 94070 • (415) 591-5820

Shell Oil Co.
P.O. BOX 4023
Concord, CA 94524
Attn: Ray Newsome

Date Sampled:02-08-89
Date Received:02-08-89
Date Reported:02-09-89

Sample Number	Sample Description
029056	89039C1-Oakland 630 High Street # 3 WATER

ANALYSIS

	Detection Limit	Sample Results
	ppb	ppb
Total Petroleum Hydrocarbons as Gasoline	50	1,800
Benzene	0.5	170
Toluene	0.5	240
Xylenes	0.5	170
Ethylbenzene	0.5	34

Note: Analysis was performed using EPA methods 5030 and 602.

MOBILE CHEM LABS

Ronald G. Evans
Lab Director

MOBILE CHEM LABS INC.

733 Dartmouth Avenue
San Carlos, CA 94070 • (415) 591-5820

Shell Oil Co.
P.O. BOX 4023
Concord, CA 94524
Attn: Ray Newsome

Date Sampled:02-08-89
Date Received:02-08-89
Date Reported:02-09-89

Sample Number	Sample Description	Detection Limit	Total Petroleum Hydrocarbons as Diesel
		ppb	ppb
	89039C1-Oakland 630 High St.		
029056	# 3	50	200

Note: Analysis was performed using EPA methods 3510 and 8015

MOBILE CHEM LABS

Ronald G. Evans
Lab Director

SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063
(415) 364-9600 • FAX (415) 364-9233

Mobile Chem Labs, Inc.	Client Project ID:	89039-C-1	Sampled: Feb 3, 1989
733 Dartmouth Avenue	Sample Descript:	Soil, 10A - 10D, Composite	Received: Feb 14, 1989
San Carlos, CA 94070			Analyzed: Feb 15, 1989
Attention: Ronald Evans	Lab Number:	902-1341	Reported: Feb 17, 1989

LABORATORY ANALYSIS

Analyte	Detection Limit	Sample Results Centigrade
Flashpoint (open up)	N.A.	>115

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

Arthur G. Burton
Laboratory Director

SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063
(415) 364-9600 • FAX (415) 364-9233

Mobile Chem Labs, Inc.	Client Project ID:	89039-C-1	Sampled:	Feb 3, 1989
733 Dartmouth Avenue	Sample Descript:	Soil, 10A - 10D composite	Received:	Feb 14, 1989
San Carlos, CA 94070			Extracted:	N/A
Attention: Ronald Evans	Lab Number:	902-1341	Analyzed:	Feb 15, 1989
			Reported:	Feb 17, 1989

LABORATORY ANALYSIS

Analyte	Detection Limit mg/kg	Sample Results mg/kg
Lead	0.05	44

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

Arthur G. Burton
Laboratory Director

SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063
(415) 364-9600 • FAX (415) 364-9233

Mobile Chem Labs, Inc.	Client Project ID:	89039-C-1	Sampled:	Feb 3, 1989
733 Dartmouth Avenue	Sample Descript:	Soil, 10A - 10D composite	Received:	Feb 14, 1989
San Carlos, CA 94070			Extracted:	N/A
Attention: Ronald Evans	Lab Number:	902-1341	Analyzed:	Feb 15, 1989
			Reported:	Feb 17, 1989

LABORATORY ANALYSIS

Analyte	Detection Limit mg/kg	Sample Results mg/kg
Lead	0.05	44

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

Arthur G. Burton
Laboratory Director

SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063
(415) 364-9600 • FAX (415) 364-9233

Mobile Chem Labs, Inc.	Client Project ID:	89039-C-1	Sampled:	Feb 3, 1989
733 Dartmouth Avenue	Sample Descript:	Soil, Composite 10A - 10D	Received:	Feb 14, 1989
San Carlos, CA 94070	Analysis Method:	California LUFT Manual, 12/87	Analyzed:	N/A
Attention: Ronald Evans	First Sample #:	902-1341	Reported:	Feb 17, 1989

ORGANIC LEAD

Sample Number	Sample Description	Sample Results mg/kg (ppm)
902-1341	10A - 10D	2.2

Detection Limits:	**0.05**

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

Arthur G. Burton
Laboratory Director