BLAINE
TECH SERVICES INC.

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

compiled March 24, 1989

APR 6 '89 H.C.H.

Chevron USA, Inc.
2410 Camino Ramon
San Ramon, CA 94583

Attention: Vic Ortega

SITE:
Chevron Service Station no. **2582**
7420 Dublin Boulevard
Dublin, California

PROJECT:
Confirmation water
sample following the
evacuation of pit water

SAMPLED ON:
March 17, 1989

CUMULATIVE FORMAT SAMPLING REPORT 89076-C-3

This Cumulative Sampling Report includes the following:

	DATE	REPORT #	ACTIVITY
SECTION ONE	02/16/89	89047-M-1	Tank removal sampling
SECTION TWO	03/06/89	89065-M-1	Interface and subsurface water sampling
SECTION THREE	03/17/89	89076-C-3	Subsurface water sampling

The Cumulative Report format presents all the environmental sampling and documentation activities performed by our firm during this project. The reports are presented in chronological order. Each sampling event is presented as a Section within the Cumulative Sampling Report. SECTION ONE contains the earliest work, SECTION TWO contains the next subsequent work, with additional Sections being added as more sampling is performed. **The most recent information is always contained in the last Section of a Cumulative Report.**

BLAINE
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February 16, 1989

Chevron USA, Inc.
2410 Camino Ramon
San Ramon, CA 94583

Attn: Vic Ortega

SITE:
Chevron Service Station no. 2582
7420 Dublin Boulevard
Dublin, California

PROJECT:
Tank removal

SAMPLED ON:
February 16, 1989

TANK REMOVAL SAMPLING REPORT 89047-M-1

This report describes the initial environmental sampling and documentation performed by our firm on this project. In addition to the text of the Sampling Report, supporting documents are provided as attachments. These include the chain of custody and the certified analytical laboratory report. All of these documents should be kept together and preserved as a file of interrelated records which, together, comprise the documentation of the work performed at the site. In the event that additional work is required, it may be advantageous to adopt a cumulative report format so that <u>all</u> information on the various phases of work at the site can be easily reviewed.

SCOPE OF REQUESTED SERVICES

In accordance with your request, our office was asked to provide field personnel who would be sent to the site for the specific purpose of obtaining environmental samples following the removal of three underground gasoline storage tanks.

Our personnel would collect the samples, arrange for the proper analyses of the samples and maintain adequate documentation for 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, Regional Water Quality Control Board, and the specific directions of the Local Implementing Agency (LIA) inspector.

Acting in this regard, our personnel would perform those specific technical functions necessary to the proper performance of environmental sampling and documentation, and complete this work as an independent and disinterested third party.

EXECUTION OF THE WORK

The subject site is located within the overall jurisdiction of the Regional Water Quality Control Board -- San Francisco Bay Region. Initial inspection and evaluation of the site is customarily conducted by the local implementing agency (LIA), which was the Alameda County Health Department. The local implementing agency was represented by Mr. Gil Wistar, who was present to observe the tank removal and sampling.

Personnel from our office arrived at the subject site on Thursday, February 16, 1989. Chevron USA, Inc. representative Mr. Vic Ortega, was also present to observe the tank removal and sampling.

In accordance with the local regulations and the field judgment of the LIA representative, a detailed inspection was conducted in which the tanks were visually inspected and likely failure points were probed with small pointed metal examination tools. No holes were observed in any of the tanks.

TANK I.D.	SIZE IN GALLONS	TANK CONTENT	MATERIAL OF CONSTRUCTION	INSPECTION FOUND
A	5,000	GASOLINE	FIBERGLASS	NO HOLES
B	10,000	GASOLINE	FIBERGLASS	NO HOLES
C	10,000	GASOLINE	FIBERGLASS	NO HOLES

When Blaine Tech Services, Inc. personnel arrived at the subject site, water was observed surrounding the tanks within the tank pit. After the removal of the three gasoline tanks, three capillary zone samples (samples #1, #2 and #3) were obtained. The depth to water at the time of the sampling was approximately eleven feet (11') below grade. These soil samples were obtained from the capillary zone along the eastern wall of the tank pit adjacent to the fill end of the tanks at approximate depths of ten a half feet (10.5') and eleven feet (11') below grade.

A fourth capillary zone soil sample (sample #4) was obtained from the northern wall of the tank pit, adjacent to the fill end of Tank C, at a depth of ten a half feet (10.5') below grade.

One subsurface water sample (sample #5) was obtained from a pool of water standing in the impression left by Tank B, at the end opposite the fill pipe. This sample was obtained at a depth of eleven and a half feet (11.5') below grade. The number of samples and sample locations were dictated by LIA representative, Mr. Gil Wistar.

Information on the exact location of a particular sampling point will be found on the UNDERGROUND STORAGE TANK REMOVAL AND SAMPLING LOG and the TABLE OF SAMPLING LOCATIONS AND ANALYTICAL RESULTS. The location of individual sampling points is shown on DIAGRAM TWO. Additional information on the exact method of sample collection will be found in the SAMPLING METHODOLOGY section of this report.

After completion of the field work, the sample containers were delivered to Sequoia Analytical Laboratory in Redwood City, California. Sequoia Analytical Laboratory is a California Department of Health Services certified Hazardous Materials Testing Laboratory and is listed as DOHS HMTL #145.

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.

DIAGRAMS & TABLES

Graphic and Tabular presentation of all samples

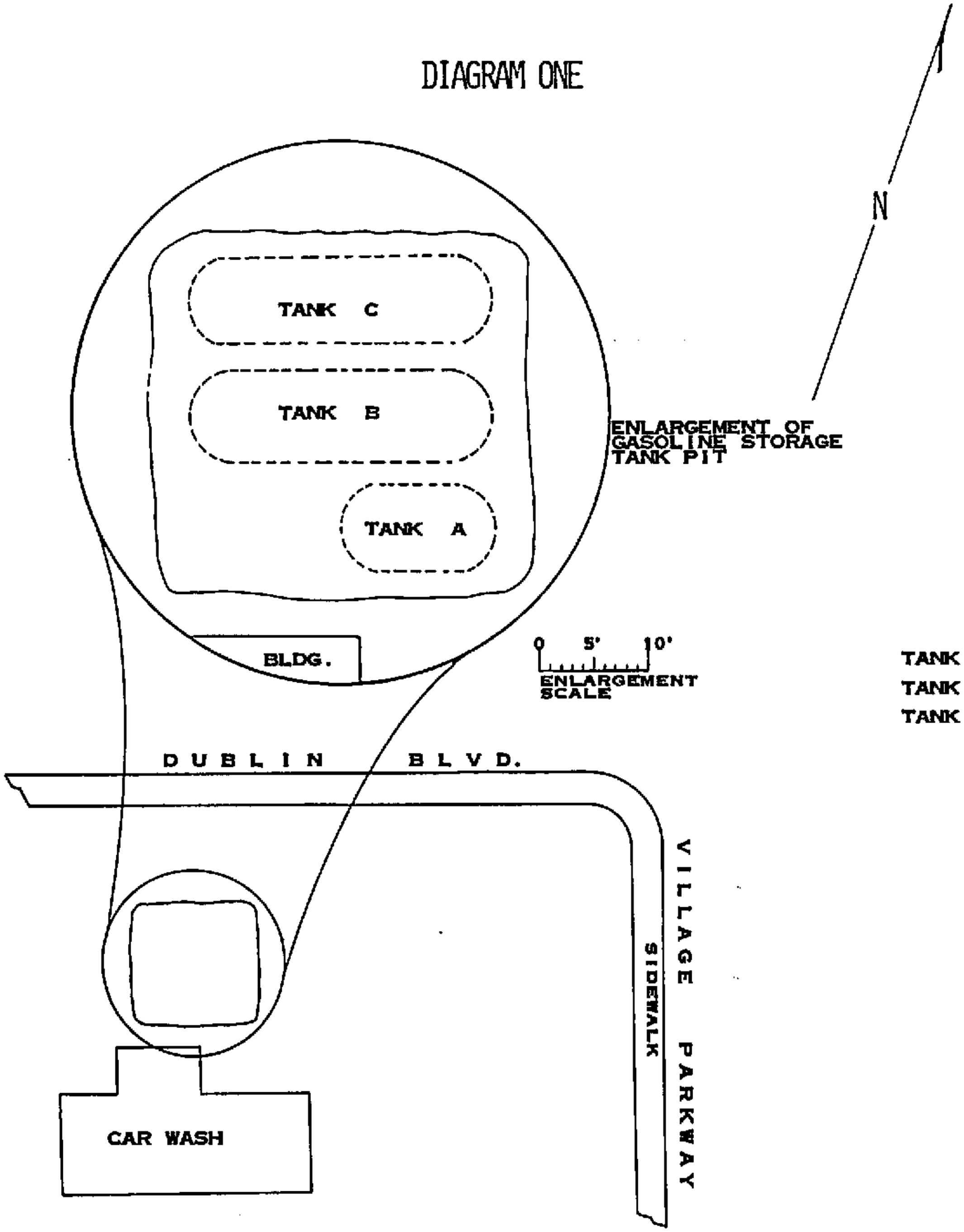
The TABLE OF SAMPLING LOCATIONS AND ANALYTICAL RESULTS relies on a system of designated SAMPLING AREAS which are specific locations on the site which correspond to the fuel dispensing fixtures that were originally in place there. Briefly, the tanks are assigned a letter and a suffix which comprise a descriptive identification. Even when the tanks have been removed, all samples taken in that area of the site are referenced to that particular SAMPLING AREA which can be cross referenced to construction blueprints, permit drawings and similar documents.

DIAGRAM ONE shows the location of key features of the site including streets, property lines, and the location of underground storage tanks. The diagram shows that each tank has been assigned an arbitrary letter designation (Tank A, Tank B etc.). This simplifies communications concerning a particular tank by providing a nomenclature that does not rely on descriptions by size and tank contents.

DIAGRAM TWO shows a finer level of detail. A descriptive suffix is added to the tank identification letter, in order to designate a SAMPLING AREA at that particular end of that tank. For example, Tank A is given an F suffix to indicate the fill pipe end and AF is used to define the area in which samples are taken. The opposite end of the tank from the fill pipe is given an OP suffix, and that SAMPLING AREA is, thereafter, referred to as Aop. The approximate midpoint of the tank is given an M suffix if a sample is taken from that location.

The relationship between a given tank and its sample collection points is more precisely illustrated in the UNDERGROUND STORAGE TANK REMOVAL AND SAMPLING LOGS. A log sheet is filled out for each of the tanks that was removed from the site. The log sheets contain end views and cross sections of each tank which graphically depict the SAMPLING AREAS at each end of that tank. Whenever holes are discovered in a tank during either removal or a post-removal inspection, the location of the holes is indicated on the TSR projection.

DIAGRAM ONE

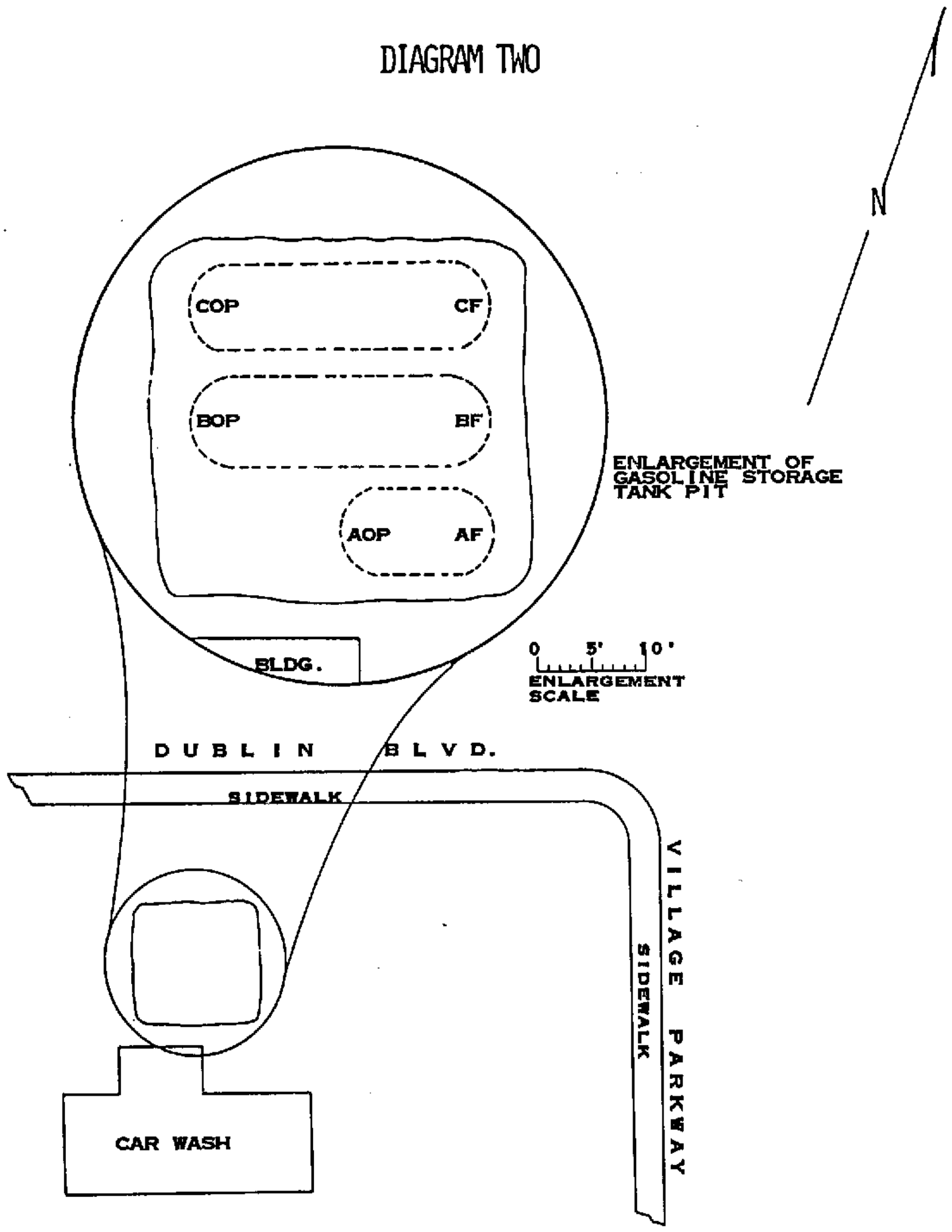


SCALE: 0 20' 40'

MAP REF: THOMAS BROS.
ALAMEDA CO.
P.35 E-3

TANK A	5,000	GALLON GASOLINE, FIBERGLASS TANK
TANK B	10,000	GALLON GASOLINE, FIBERGLASS TANK
TANK C	10,000	GALLON GASOLINE, FIBERGLASS TANK

DIAGRAM TWO



SCALE: 0 20' 40'

MAP REF: THOMAS BROS.
ALAMEDA CO.
P.35 E-3

SAMPLING PERFORMED BY MARGO MACKEY
DIAGRAM PREPARED BY BRENT ADAMS

TABLE OF SAMPLING LOCATIONS AND ANALYTICAL RESULTS

Analytical Results are given in Parts Per Million -- PPM

										PPM					
I.D. GIVEN THIS SAMPLE AREA	SAMPLE DEPTH IN FT. BELOW GRADE	SAMPLING LOCATION DICTATED BY	TYPE & METHOD FOR THE SAMPLE OBTAINED	SAMPLE MATRIX	DATE SAMPLED	BTS CHAIN OF CUSTODY I.D.	BTS SAMPLE I.D.	NAME OF DOHS HMTL LABORATORY	LABORATORY SAMPLE I.D.	TPH AS GAS	BEN-ZENE	TOL-UENE	ETHYL BEN-ZENE	XY-LENES	ORGANIC LEAD
AF	10.5	LIA	CAPILLAR	SOIL	02/16/89	89047-M-1	#1	SEQUOIA	902-1655	2.6	0.36	ND	ND	0.16	ND
BF	10.5	LIA	CAPILLAR	SOIL	02/16/89	89047-M-1	#2	SEQUOIA	902-1656	1.9	0.62	ND	0.13	ND	ND
Bop	11.5	LIA	SUBSURF	WATER	02/16/89	89047-M-1	#5	SEQUOIA	902-1659	100	19	25	4.600	22	--
CF	11.0	LIA	CAPILLAR	SOIL	02/16/89	89047-M-1	#3	SEQUOIA	902-1657	2.4	0.64	ND	0.14	ND	ND
	10.5	LIA	CAPILLAR	SOIL	02/16/89	89047-M-1	#4	SEQUOIA	902-1658	29	1.1	0.61	0.88	5.7	ND

GENERAL PRACTICES WITHIN A MULTIPLE AGENCY HIERARCHY

U.S. Environmental Protection Agency standards serve as the foundation for all field sampling operations performed by our firm. The EPA SW 846 is the primary publication from which procedures are derived, though there are additional EPA sources such as training films and verbal communications. Sampling related to underground storage tanks and tank related threats to groundwater are governed by the California Water Resources Control Board and its Regional Water Quality Control Boards. While some aspects of field and laboratory work may be delegated to the California Department of Health Services, the CWRCB and the nine Regional Water Quality Control Boards establish the general and specific criteria for sampling performed in connection with underground storage tanks. This is done through the publication of guidance documents, the issuance of memoranda, and verbal announcements.

Other agencies, such as Air Pollution Control Districts, may require additional samples, but these are usually in addition to samples required by the RWQCB. Local implementing agency (LIA) inspectors are frequently present during the tank removal phase of a project and either direct or request that samples be taken according to RWQCB specifications. Additional samples may, and frequently are, taken at the request of the LIA inspector.

Based on field conditions directly observable by the LIA inspector, our field personnel may be asked to collect samples that are tailored to the specific situation and which the inspector judges will provide substantial information about the site. Quite often these directions or suggestions coincide with the sampling areas established by the RWQCB as the proper collection points for samples which will be used as the Primary Criteria for a Regulatory Agency Determination on whether additional exploration or remediation will be required at a particular site. Similarly, there are instances when the LIA inspector's judgments do not coincide with Board specifications.

Two common examples of this are as follows:

1. A local implementing agency inspector notes that soil dug up from the correct RWQCB interface sampling point is relatively clean, but observes that there is quite obviously contaminated backfill underlying the center of the tank. The inspector directs that the contaminated backfill should be taken instead of the clean interface soil so as to provide information about the "worst case" conditions within the tank pit.

2. The soil at the specified interface sampling depth is found to be slightly contaminated, but much less so than the soil only a few inches above. Noting the relatively dense soil, the local implementing agency inspector decides not to have the interface soil sampled and has the backhoe dig deeper to see if the contamination diminishes to acceptable levels. This exploration saves the property owner the cost of running two samples at that location, and enables the inspector to directly observe the condition of the deeper soil.

In both examples, different material is collected in lieu of a standard RWQCB interface sample. Further, the material collected is substantially different from what would have been obtained by taking representative soil at the Board specified sampling location. Note that both of these samples were taken at the direction of the local implementing agency inspector who was present at the site and elected to select alternative sampling locations. Note too, that these alternative samples may provide more information about the site than standard Board specified samples. However, as the LIA elected samples do not accurately reflect soil conditions at the sampling points specified by the RWQCB, the decision making process may be hampered.

Clearly there is no advantage in limiting the ability of the regulator in the field to make prudent judgments. Likewise, regulatory personnel and consultants who will review the reports without benefit of having been present at the site need to know that the samples taken were not obtained at the standard locations. A simple resolution to these situations is a brief notation indicating that the sampling was elective rather than in accordance with a standard Board specification. These notations appear in the third column of the TABLE OF SAMPLING LOCATIONS AND ANALYTICAL RESULTS. By referring to the notations in column three and four in the TABLE, any party reviewing the report should be able to determine if something other than Board standard samples were obtained, and when variant sampling was performed, clarify whether it was elected by the LIA inspector, elected by our field personnel, or the result of some physical condition at the site that made it impossible to obtain material from the correct sampling location.

SPECIFIC SAMPLING METHODOLOGIES USED ON THIS PROJECT

Capillary Zone Soil Sample: The capillary zone is the soil horizon immediately above the surface of standing groundwater into which moisture is drawn by capillary action. Capillary zone sampling is most often requested in open pit and open trench situations where lost petroleum products are evident or suspected. In these cases, it is reasoned that a sample of the capillary zone will demonstrate whether or not fuel has been drawn up into the soil above the groundwater and, thereby, provide a rough indication of the volume and duration of the lost fuel condition.

Engineers of the Region 2 RWQCB staff have specified the correct sampling area as being from zero to six inches above the surface of the standing perched water and no more than twelve inches back into the native soil from the lateral backfill/native soil interface.

There are two weaknesses which tend to invalidate capillary zone sampling on the basis of inconsistent results. First, is the difficulty encountered in locating the true surface of the perched water above which the capillary zone resides. The removal of the tank and backfill material tends to artificially lower the water in the immediate vicinity of the tank pit below the true standing water level and mislead observers attempting to evaluate where the capillary zone is located. Second, the zone itself is a narrow horizon which is bordered on the top and bottom by soil which would not be expected to contain nearly the concentration of fuel hydrocarbons as the capillary zone proper. Collecting the correct material is complicated by conditions at the site which usually consist of a broad excavation, with vertical walls descending into a water filled pit. Because of these conditions, direct approach to the sampling area is difficult, dangerous, or impossible.

Assuming that the true and original surface of the perched water can be determined, samples can be safely obtained by one of the following methods. The backhoe bucket can be used to dig up a segment of the pit wall that contains the capillary zone and bring it up for inspection and sampling. An alternative method is to use sections of light weight drill rod and a drive shoe which contains a brass sample liner. This train can be extended across the pit, positioned, and used to drive an undisturbed soil sample.

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 in the TABLE, 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 <u>any</u> 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.

GENERAL ADVISORY ON POSITIVE RESULTS

Blaine Tech Services, Inc. provides sampling and documentation. The proper technical execution of this work demands a high level of dedication to the principle that data gathering should be performed by impartial individuals who are also disinterested in the outcome of the analytical procedures. To function as a disinterested and independent third party Blaine Tech Services, Inc. makes it a policy to not become involved in either the interpretation of results or the sale of any consulting services or remediation packages. There are an ample number of firms who can provide consulting services and make proposal on whatever level of work they feel should be undertaken.

Even though we do not engage in the interpretation of analytical results, the making of recommendations, or the issuance of proposals on how best to remediate environmental conditions, we have been asked by the engineering staff of the Regional Water Quality Control Board to include in our reports an advisory section outlining the general type of additional actions which may be required when contamination is found. This advisory is not intended to characterize conditions at this particular site or replace the services of a consulting firm specializing in the investigation, characterization and remediation of such conditions as may exist. Rather, it is intended to advise you that such additional actions may be required even though some time may elapse before you are contacted by one of the interested regulatory agencies.

In Region 2 (which is regulated by the San Francisco Regional Water Quality Control Board), the thresholds are readily defined in the Board's publication, Guidelines For Addressing Fuel Leaks. According to this document, soil which has less than 100 parts per million total petroleum fuel hydrocarbon (TPH) contamination does not generally require immediate additional action. Board engineers emphasize that this does not mean that some action might not be required in the future. Still, the site is assigned a low priority unless it is situated in an area of high hydrogeologic concern.

The detection of more than 100 ppm TPH in the native soil beneath a tank is generally considered grounds for requiring an additional investigation in the form of soil borings and installation of at least one groundwater monitoring well followed by periodic monitoring. The detection of 1000 ppm TPH is usually viewed by the Board as an unacceptable level of fuel saturation which will mandate excavation of the effected ground down to the furthest practicable reach of conventional excavating machinery followed by soil borings and installation of groundwater monitoring wells.

Other regions use different standards for determining when a groundwater investigation will be required. For example benzene is often used in lieu of TPH. Even very low levels of benzene are often seen as grounds for requiring a subsurface investigation. This criteria may be relaxed or stiffened depending on the location of the site in relation to different groundwater systems, the depth to water, type of soil, and the concentrations of benzene involved.

The above standards apply only to fuels. When samples taken in connection with a waste oil tank or a solvent tank are found to contain even small amounts of any of the EPA priority pollutants (such as TCE, PCE, DCE etc. which are detected by EPA methods 8010, 8020, and 8240) more stringent standards are often applied. In these cases, soil borings and monitoring well installation may be required if there is any detectable amount of any of the EPA priority pollutant compounds.

When contaminants are found to have reached the water underlying a site, the Board customarily requires that additional work be undertaken in order to define the extent of the contamination.

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

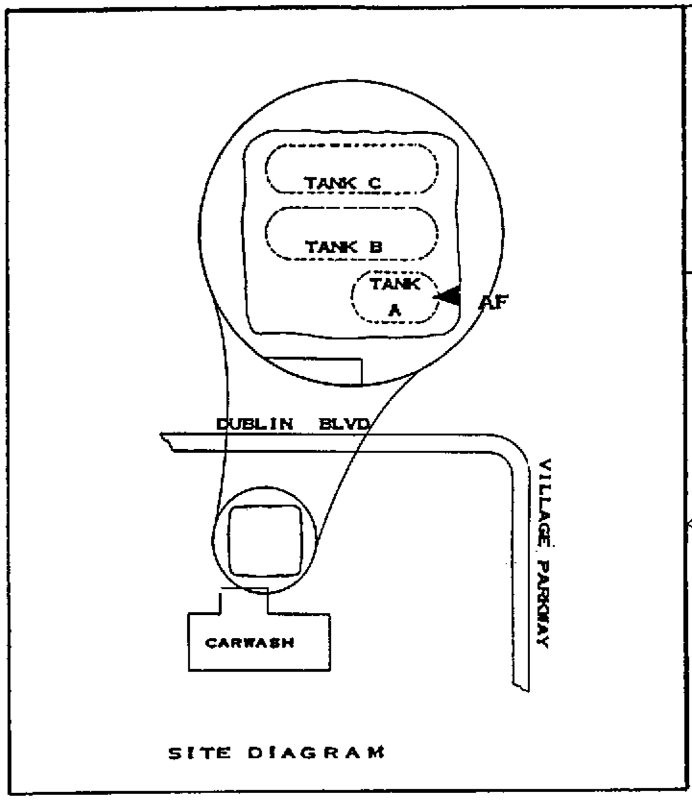
Alameda County Health
Hazardous Materials Management
420 27th Street
Oakland, CA 94612
ATTN: Gil Wistar

Please call if we can be of any further assistance.

Richard C. Blaine

RCB/dmp

attachments: supporting documents



SITE DIAGRAM

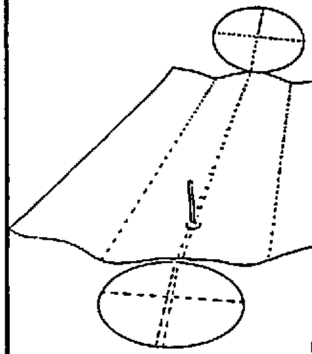
BLAINE
TECH SERVICES

UNDERGROUND STORAGE TANK
REMOVAL AND SAMPLING LOG

TANK
A

TANK A 5,000 GALLON GASOLINE TANK
FIBERGLASS CONSTRUCTION

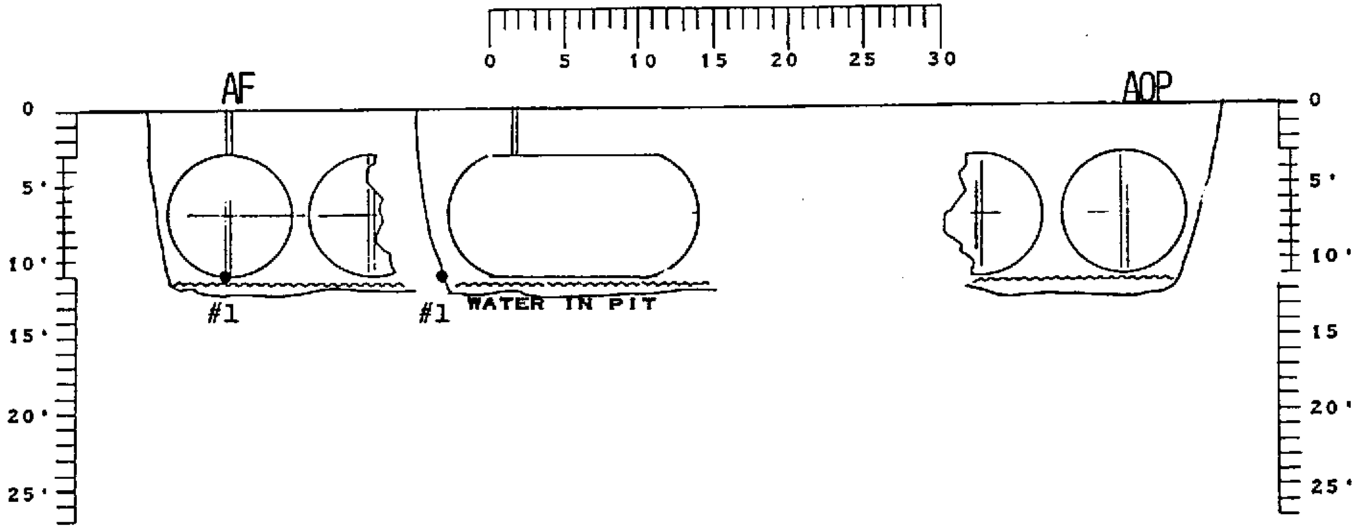
TSR PROJECTION



INSPECTION OF THE TANK FOLLOWING REMOVAL FOUND

☐ HOLES IN THE LOCATIONS DEPICTED ON THE TSR PROJECTION

■ NO HOLES



Analytical Results are given in Parts Per Million -- PPM

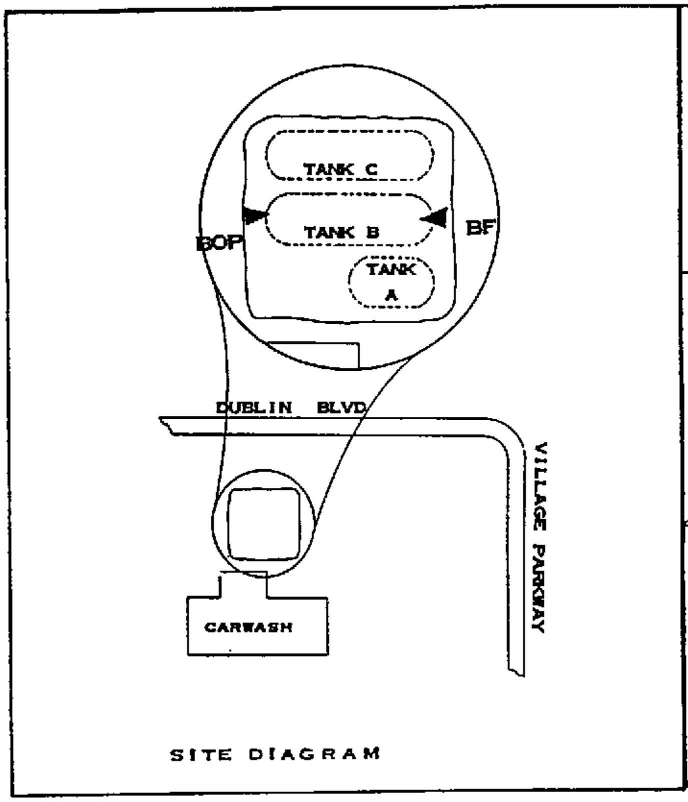
I.D. GIVEN THIS SAMPLE AREA	SAMPLE DEPTH IN FT. BELOW GRADE	SAMPLING LOCATION DICTATED BY	TYPE & METHOD FOR THE SAMPLE OBTAINED	SAMPLE MATRIX	DATE SAMPLED	BTS CHAIN OF CUSTODY I.D.	BTS SAMPLE I.D.	NAME OF DOHS HMTL LABORATORY	LABORATORY SAMPLE I.D.	PPM TPH AS GAS	BEN-ZENE	TOL-UENE	ETHYL BEN-ZENE	XY-LENES	ORGANIC LEAD
AF	10.5	LIA	CAPILLAR	SOIL	02/16/89	89047-M-1	#1	SEQUOIA	902-1655	2.6	0.36	ND	ND	0.16	ND

BLAINE
TECH SERVICES

UNDERGROUND STORAGE TANK
REMOVAL AND SAMPLING LOG

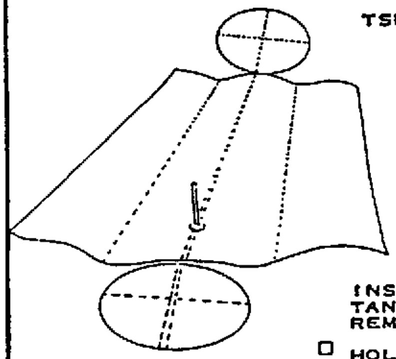
TANK
B

TANK B **10,000 GALLON GASOLINE TANK**
FIBERGLASS CONSTRUCTION



SITE DIAGRAM

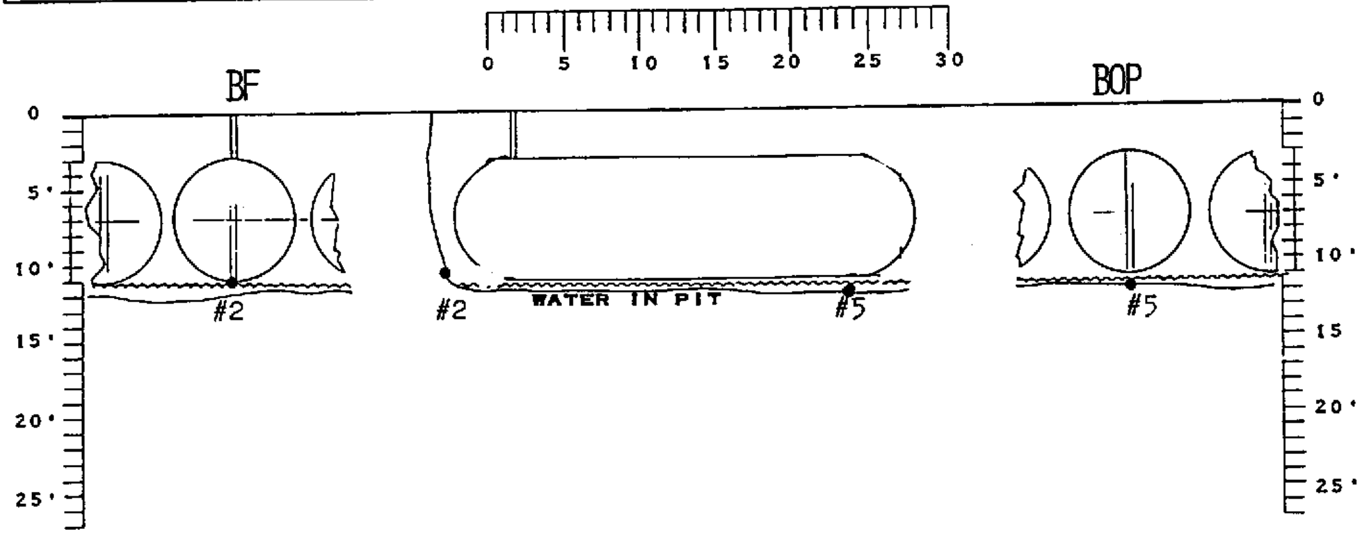
TSR PROJECTION



INSPECTION OF THE TANK FOLLOWING REMOVAL FOUND

☐ HOLES IN THE LOCATIONS DEPICTED ON THE TSR PROJECTION

■ NO HOLES



Analytical Results are given in Parts Per Million -- PPM

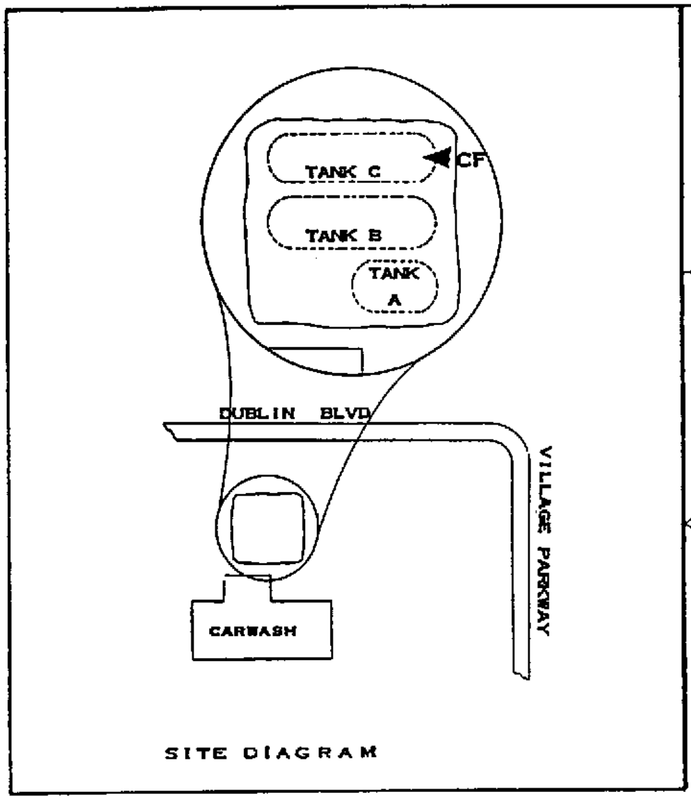
I.D. GIVEN THIS SAMPLE AREA	SAMPLE DEPTH IN FT. BELOW GRADE	SAMPLING LOCATION DICTATED BY	TYPE & METHOD FOR THE SAMPLE OBTAINED	SAMPLE MATRIX	DATE SAMPLED	BTS CHAIN OF CUSTODY I.D.	BTS SAMPLE I.D.	NAME OF DOHS HMTL LABORATORY	LABORATORY SAMPLE I.D.	PPM TPH AS GAS	BEN-ZENE	TOL-UENE	ETHYL BEN-ZENE	XY-LENES	ORGANIC LEAD
BF	10.5	LIA	CAPILLAR	SOIL	02/16/89	89047-M-1	#2	SEQUOIA	902-1656	1.9	0.62	ND	0.13	ND	ND
Bop	11.5	LIA	SUBSURF	WATER	02/16/89	89047-M-1	#5	SEQUOIA	902-1659	100	19	25	4.600	22	--

BLAINE TECH SERVICES

UNDERGROUND STORAGE TANK REMOVAL AND SAMPLING LOG

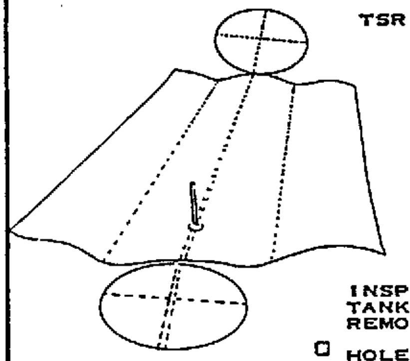
TANK
C

TANK C 10,000 GALLON GASOLINE TANK FIBERGLASS CONSTRUCTION



SITE DIAGRAM

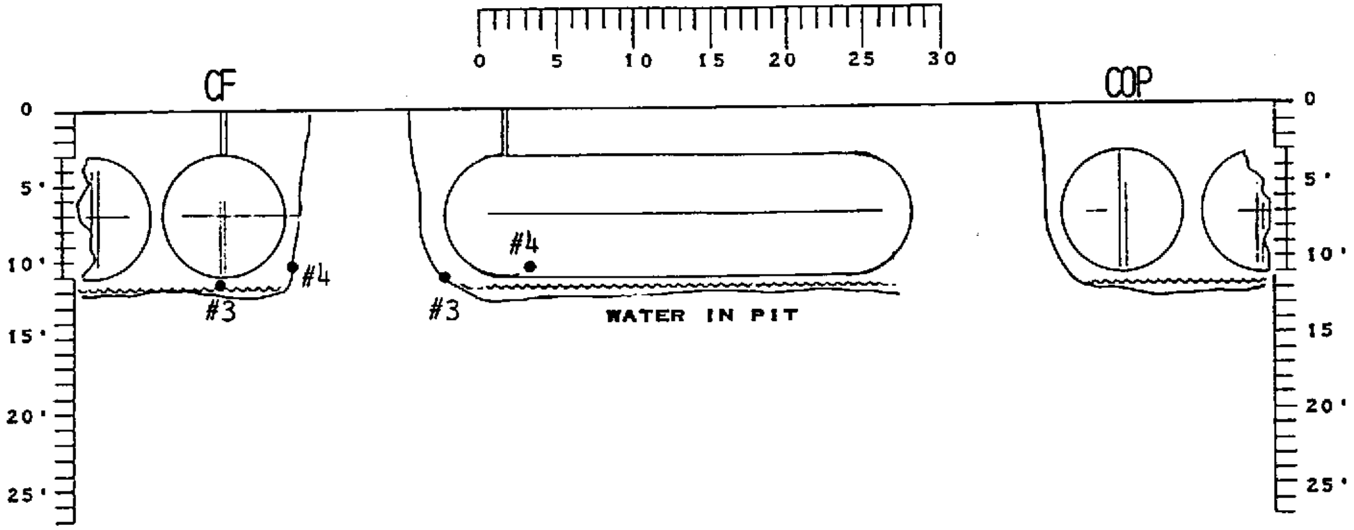
TSR PROJECTION



INSPECTION OF THE TANK FOLLOWING REMOVAL FOUND

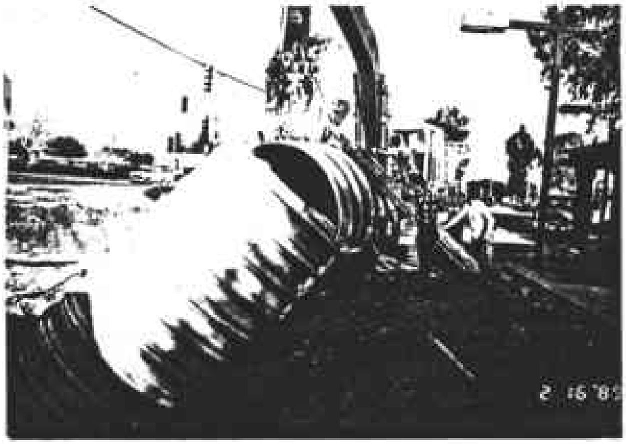
☐ HOLES IN THE LOCATIONS DEPICTED ON THE TSR PROJECTION

■ NO HOLES



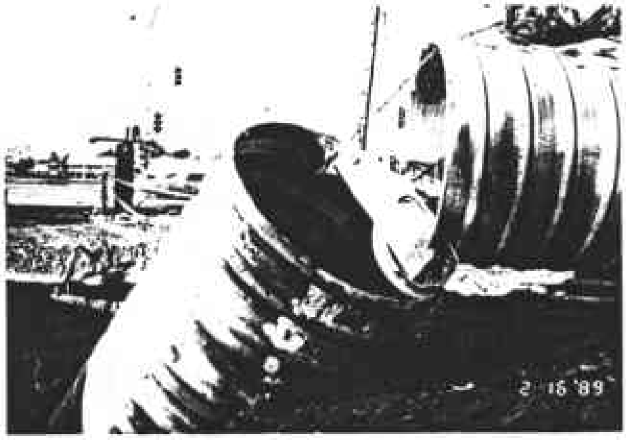
Analytical Results are given in Parts Per Million -- PPM

I.D. GIVEN THIS SAMPLE AREA	SAMPLE DEPTH IN FT. BELOW GRADE	SAMPLING LOCATION DICTATED BY	TYPE & METHOD FOR THE SAMPLE OBTAINED	SAMPLE MATRIX	DATE SAMPLED	BTS CHAIN OF CUSTODY I.D.	BTS SAMPLE I.D.	NAME OF DOHS HMTL LABORATORY	LABORATORY SAMPLE I.D.	TPH AS GAS (PPM)	BEN-ZENE (PPM)	TOL-UENE (PPM)	ETHYL BEN-ZENE (PPM)	XY-LENES (PPM)	ORGANIC LEAD (PPM)
CF	11.0	LIA	CAPILLAR	SOIL	02/16/89	89047-M-1	#3	SEQUOIA	902-1657	2.4	0.64	ND	0.14	ND	ND
	10.5	LIA	CAPILLAR	SOIL	02/16/89	89047-M-1	#4	SEQUOIA	902-1656	29	1.1	0.61	0.88	5.7	ND


2 16 '89


VICE CAR WASH
2


VICE CAR WASH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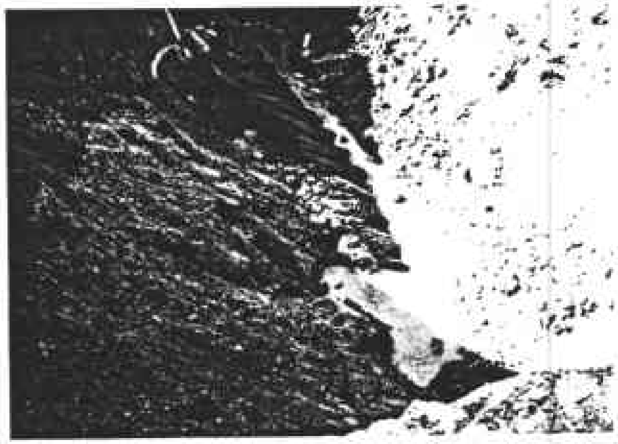
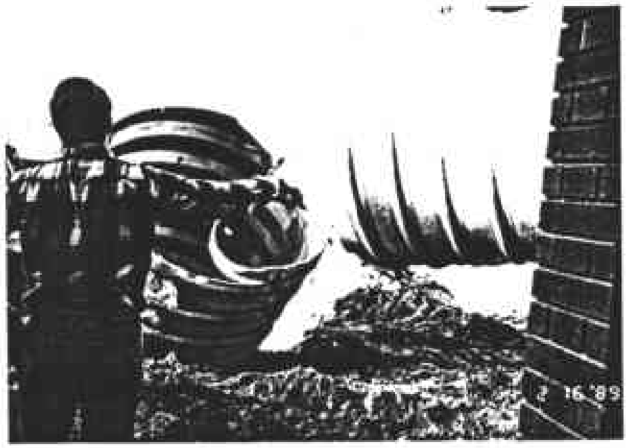
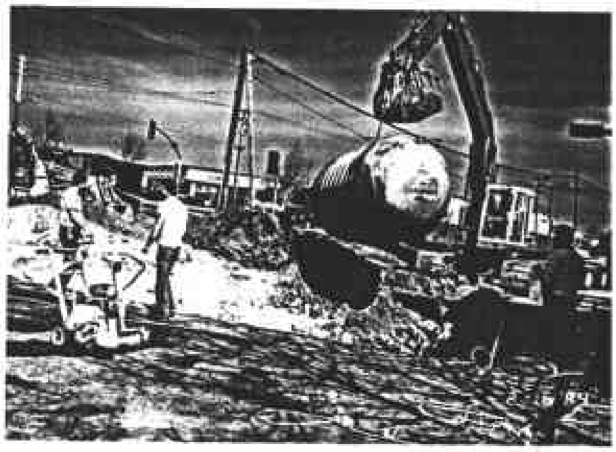
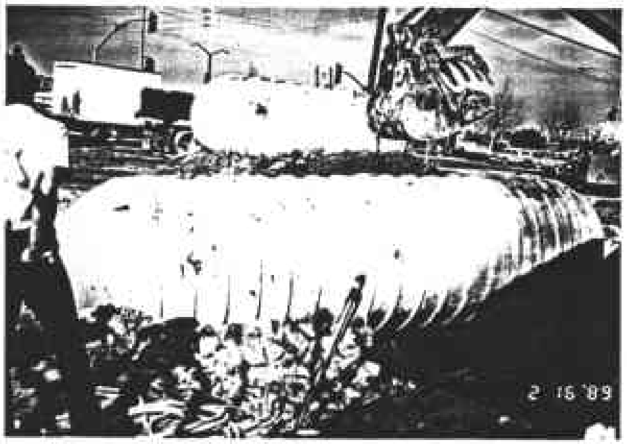
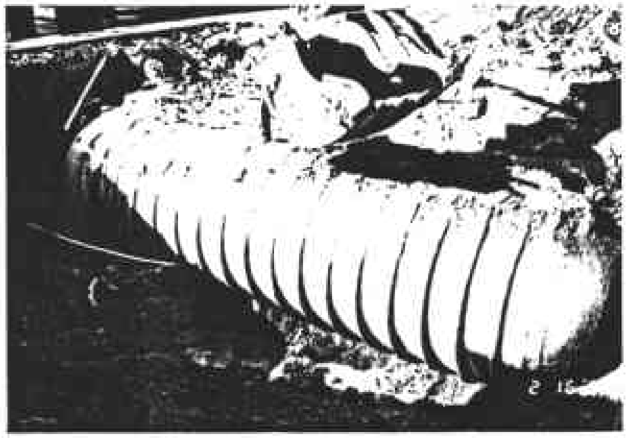


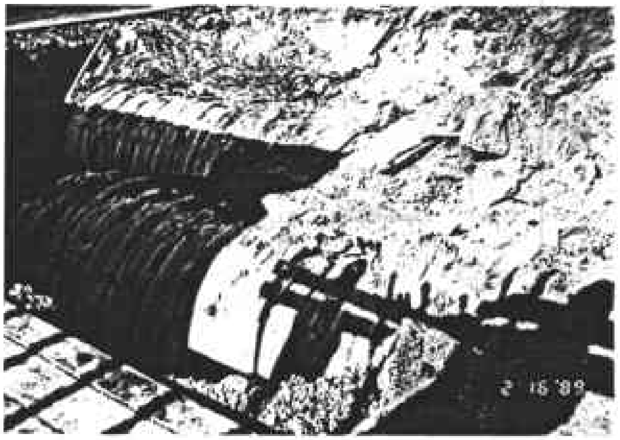

2 16 '89




2 16 '89


FULL SERVICE CAR WASH




2 16 '89

BLAINE
TECH SERVICES INC.

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

CHAIN OF CUSTODY # 89047M1

SITE SPECIFICATION Chevron # 2582
7420 Dublin Blvd.
Dublin, CA

( ) Bill BLAINE TECH SERVICES, Inc.
(✗) Bill Chevron
Attn. Vic Ortega
(415) 842-9639

SPECIAL INSTRUCTIONS

SAMPLE I.D.	QUANTITY	TYPE	OK	ANALYSIS TO DETECT	STATUS	RESULTS	LAB NUMBER
#1	1	Soil		TPH as Gas, BTXE, Total Organic Lead	8hr.		
#2	↓	↓		↓	8hr		
#3	↓	↓		↓	8hr		
#4	↓	↓		↓	8hr.		
#5	4	liquid		TPH as Gas, BTXE	8hr.		

Field sampling was performed by Mary Mackey

Sampling was completed at 5:00 AM/[✓ PM] 2-16-1988

RELEASE OF SAMPLES FROM (name,time,date) ——››››› INTO THE CUSTODY OF (name,time,date)

from M Mackey @ 6:00 AM/[✓ PM] 2/16-88 -> to @ 6:00 AM/PM 2/16-88

from ____ @ __:__ AM/PM ____-88 -> to ____ @ __:__ AM/PM ____-88

from ____ @ __:__ AM/PM ____-88 -> to ____ @ __:__ AM/PM ____-88

The laboratory designated to perform these analyses is: Sequoia DHS HMTL # 145

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.

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

Chevron U.S.A. Inc.	Client Project ID:	BTS #89047M1, Chevron #2582, Dublin	Sampled:	Feb 16, 1989
P.O. Box 5004	Matrix Descript:	Soil	Received:	Feb 16, 1989
San Ramon, CA 94583-0804	Analysis Method:	EPA 5030 or 3810/8015/8020	Analyzed:	Feb 17, 1989
Attention: Vic Ortega	First Sample #:	902-1655	Reported:	Feb 17, 1989

TOTAL PETROLEUM FUEL HYDROCARBONS with BTEX DISTINCTION (EPA 8015/8020)

Sample Number	Sample Description	Low/Medium B.P. Hydrocarbons mg/kg (ppm)	Benzene mg/kg (ppm)	Toluene mg/kg (ppm)	Ethyl Benzene mg/kg (ppm)	Xylenes mg/kg (ppm)
902-1655	#1	2.6	0.36	N.D.	N.D.	0.16
902-1656	#2	1.9	0.62	N.D.	0.13	N.D.
902-1657	#3	2.4	0.64	N.D.	0.14	N.D.
902-1658	#4	29	1.1	0.61	0.88	5.7
Detection Limits:		**1.0**	**0.05**	**0.1**	**0.1**	**0.1**

Low to Medium Boiling Point Hydrocarbons are quantitated against a gasoline standard.
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

Chevron U.S.A. Inc.	Client Project ID: BTS #89047M1, Chevron #2582, Dublin	Sampled:	Feb 16, 1989
P.O. Box 5004	Sample Descript: Soil	Received:	Feb 16, 1989
San Ramon, CA 94583-0804	Analysis Method: California LUFT Manual, 12/87	Analyzed:	Feb 17, 1989
Attention: Vic Ortega	First Sample #: 902-1655	Reported:	Feb 17, 1989

ORGANIC LEAD

Sample Number	Sample Description	Sample Results mg/kg (ppm)
902-1655	#1	N.D.
902-1656	#2	N.D.
902-1657	#3	N.D.
902-1658	#4	N.D.

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

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

Chevron U.S.A. Inc.	Client Project ID:	BTS #89047M1, Chevron #2582, Dublin	Sampled:	Feb 16, 1989
P.O. Box 5004	Sample Descript.:	Water, #5	Received:	Feb 16, 1989
San Ramon, CA 94583-0804	Analysis Method:	EPA 5030/ 8015/8020	Analyzed:	Feb 17, 1989
Attention: Vic Ortega	Lab Number:	902-1659	Reported:	Feb 17, 1989

TOTAL PETROLEUM FUEL HYDROCARBONS WITH BTEX DISTINCTION (EPA 8015/8020)

Analyte	Detection Limit ug/L (ppb)	Sample Results ug/L (ppb)
Low to Medium Boiling Point Hydrocarbons	50.0	100,000
Benzene	0.5	19,000
Toluene	0.5	25,000
Ethyl Benzene	0.5	4,600
Xylenes	0.5	22,000

Low to Medium Boiling Point Hydrocarbons are quantitated against a gasoline standard.
Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

Arthur G. Burton
Laboratory Director

TABLE OF SAMPLING LOCATIONS AND ANALYTICAL RESULTS

Analytical Results are given in Parts Per Million -- PPM

I.D. GIVEN THIS SAMPLE AREA	SAMPLE DEPTH IN FT. BELOW GRADE	SAMPLING LOCATION DICTATED BY	TYPE & METHOD FOR THE SAMPLE OBTAINED	SAMPLE MATRIX	DATE SAMPLED	BTS CHAIN OF CUSTODY I.D.	BTS SAMPLE I.D.	NAME OF DOHS HMTL LABORATORY	LABORATORY SAMPLE I.D.	PPM					
										TPH AS GAS	BENZENE	TOLUENE	ETHYL BENZENE	XYLENES	ORGANIC LEAD
AF	10.5	LIA	CAPILLAR	SOIL	02/16/89	89047-M-1	#1	SEQUOIA	902-1655	2.6	0.36	ND	ND	0.16	ND
BF	10.5	LIA	CAPILLAR	SOIL	02/16/89	89047-M-1	#2	SEQUOIA	902-1656	1.9	0.62	ND	0.13	ND	ND
Bop	11.5	LIA	SUBSURF	WATER	02/16/89	89047-M-1	#5	SEQUOIA	902-1659	100	19	25	4.600	22	--
CF	11.0	LIA	CAPILLAR	SOIL	02/16/89	89047-M-1	#3	SEQUOIA	902-1657	2.4	0.64	ND	0.14	ND	ND
	10.5	LIA	CAPILLAR	SOIL	02/16/89	89047-M-1	#4	SEQUOIA	902-1658	29	1.1	0.61	0.88	5.7	ND

BLAINE
TECH SERVICES INC.

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

March 14, 1989

Chevron USA, Inc.
2410 Camino Ramon
San Ramon, CA 94583

Attn: Vic Ortega

SITE:
Chevron Service Station no. 2582
7420 Dublin Boulevard
Dublin, California

PROJECT:
Samples collected from the
gasoline tank pit bottom
following the evacuation of water

SAMPLED ON:
March 6, 1989

SAMPLING REPORT 89065-M-1

Summary of Recent Sampling

	DATE	REPORT #	ACTIVITY
SECTION ONE	02/16/89	89047-M-1	Tank removal sampling
SECTION TWO	03/06/89	89065-M-1	Interface and subsurface water sampling

This report is SECTION TWO within the chronological Cumulative Report which contains all relevant materials for work done on this project at the subject site.

Background

Blaine Tech Services, Inc. personnel first visited the subject site on February 16, 1989 to observe the removal of three gasoline tanks and to obtain samples. Water was observed surrounding the tanks within the tank pit. Following the tank removal, three capillary zone samples were obtained along the eastern wall of the pit adjacent to the fill end of the tanks. One subsurface water sample was obtained from a pool of water standing in the impression left by Tank B. Further discussion of this sampling activity can be found in Blaine Tech Services, Inc. Sampling Report 89047-M-1, which is Section One of this cumulative report.

Scope of Most Recent Sampling Activity

In accordance with your request, field personnel from our office were dispatched to the site to collect samples from the gasoline tank pit bottom following the evacuation of water in the pit. We would also arrange for the proper analyses of the samples, and maintain adequate documentation culminating in the issuance of a formal Sampling Report.

Execution of the Most Recent Work

When Blaine Tech Services, Inc. personnel arrived at the subject site, water was being pumped out of the gasoline tank pit and an hydraulic excavator was scheduled to arrive in order to remove the backfill material present in the pit. Chevron USA, Inc. representative, Mr. Bob Foss, requested that we return later in the afternoon to collect samples.

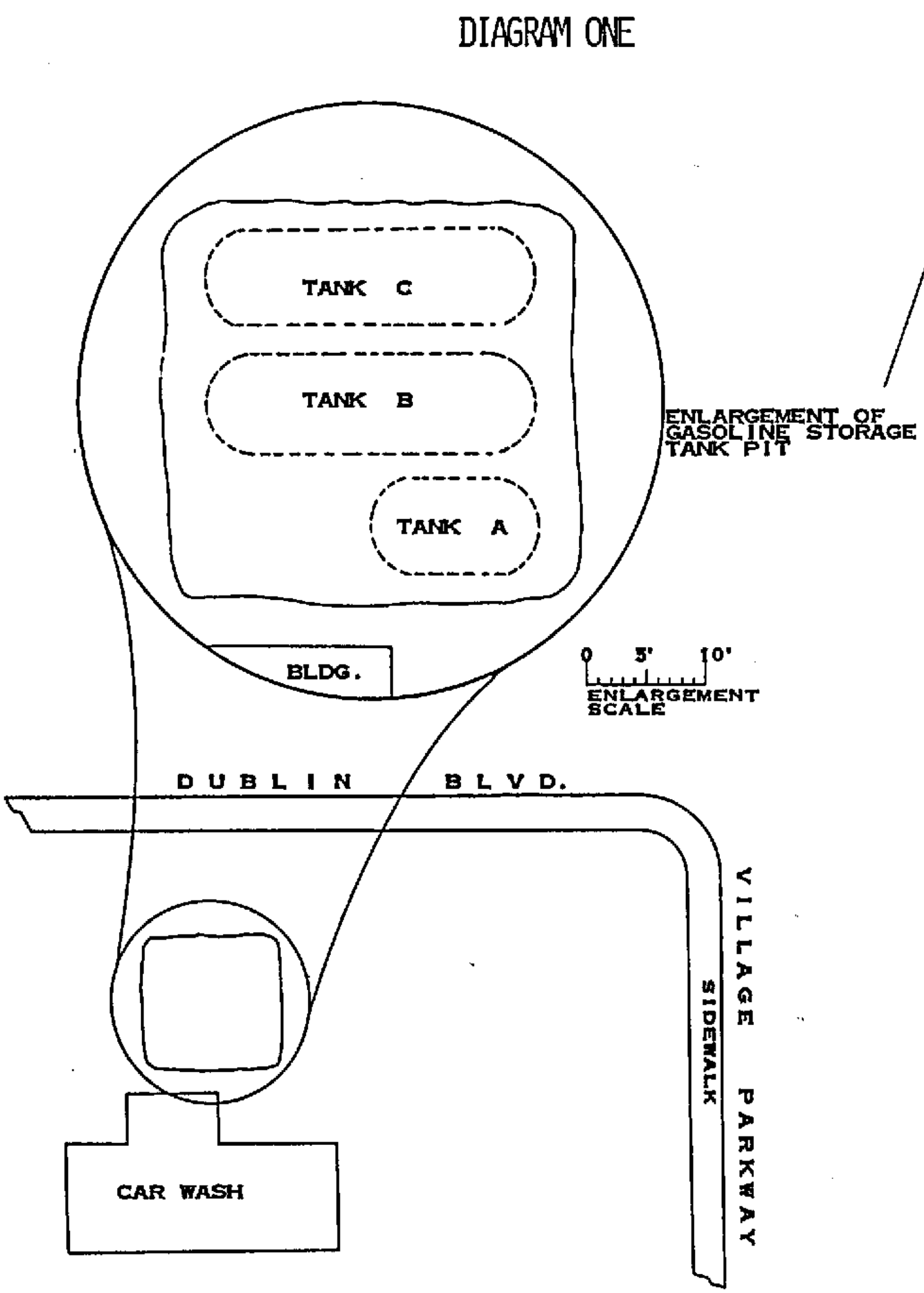
A pool of water remained in the gasoline tank pit bottom upon our return to the site. At the direction of Mr. Bob Foss, one interface sample was obtained from beneath each of the three gasoline tanks at the fill pipe end. These samples (#1, #2 and #3) were obtained at a depth of fifteen to sixteen feet (15-16') below grade.

One subsurface water sample (#4) was obtained from the pool of water standing in the former location of Tank B. This sample was obtained from the end opposite the fill pipe at a depth of eleven and quarter feet (11.25') below grade.

Information on the exact location of a particular sampling point will be found on the UNDERGROUND STORAGE TANK REMOVAL AND SAMPLING LOG and the TABLE OF SAMPLING LOCATIONS AND ANALYTICAL RESULTS. The SAMPLING METHODOLOGY section of this report contains a description of the procedures used.

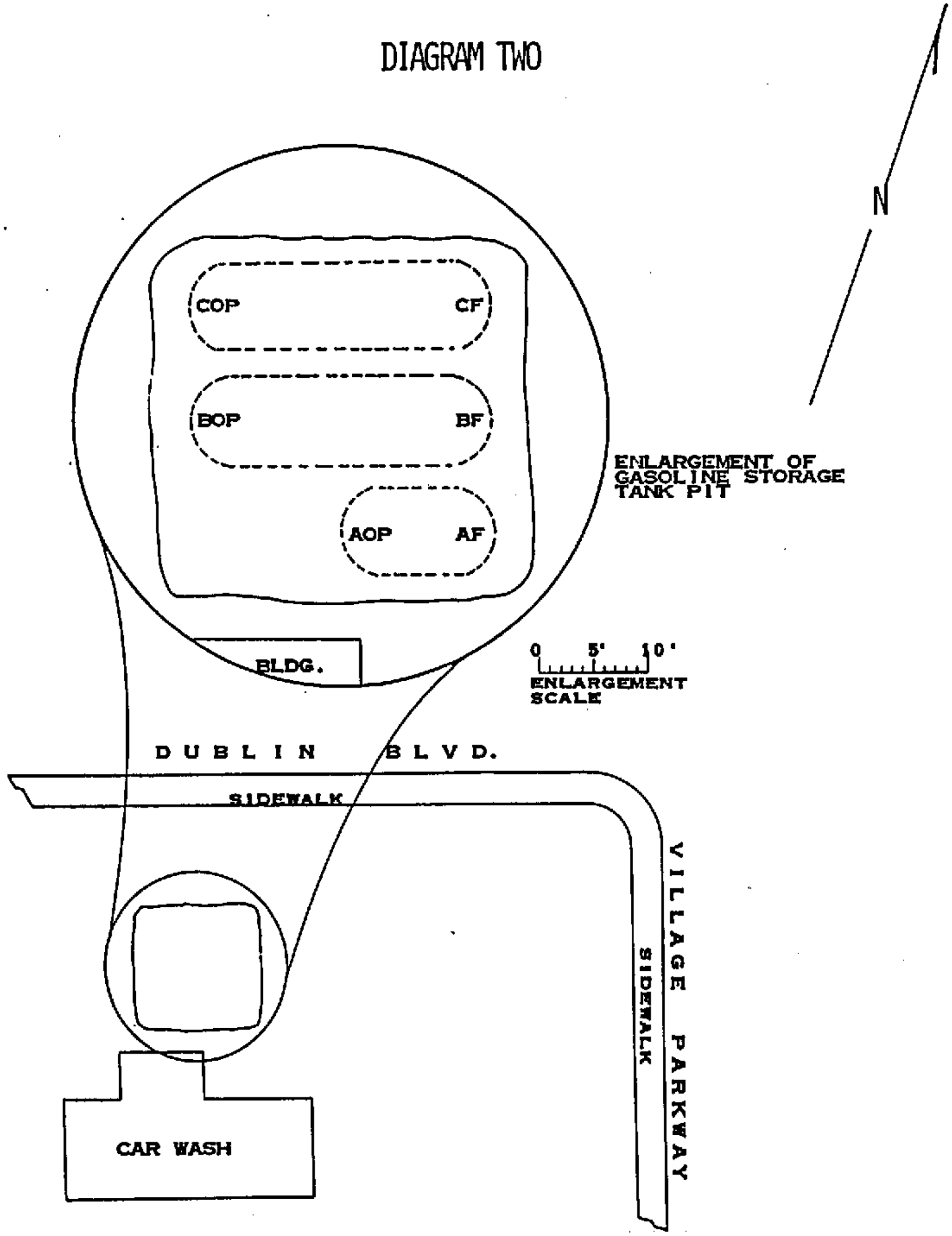
After completion of the field work, the sample containers were delivered to Sequoia Analytical Laboratory in Redwood City, California. Sequoia Analytical Laboratory is a California Department of Health Services certified Hazardous Materials Testing Laboratory and is listed as DOHS HMTL #145.

DIAGRAM ONE



TANK A	5,000 GALLON GASOLINE, FIBERGLASS TANK
TANK B	10,000 GALLON GASOLINE, FIBERGLASS TANK
TANK C	10,000 GALLON GASOLINE, FIBERGLASS TANK

DIAGRAM TWO



SCALE: 0 20' 40'

MAP REF: THOMAS BROS.
ALAMEDA CO.
P.35 E-3

SAMPLING PERFORMED BY MARGO MACKEY
DIAGRAM PREPARED BY BRENT ADAMS

TABLE OF SAMPLING LOCATIONS AND ANALYTICAL RESULTS

Analytical Results are given in
Parts Per Million -- PPM

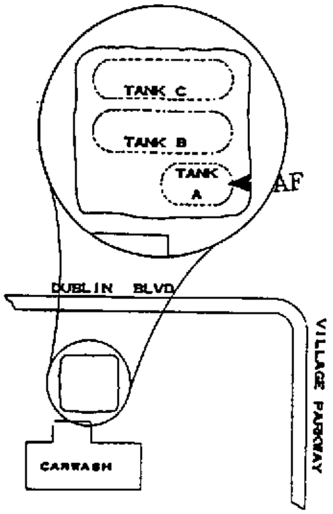
I.D. GIVEN THIS SAMPLE AREA	SAMPLE DEPTH IN FT. BELOW GRADE	SAMPLING LOCATION DICTATED BY	TYPE & METHOD FOR THE SAMPLE OBTAINED	SAMPLE MATRIX	DATE SAMPLED	BTS CHAIN OF CUSTODY I.D.	BTS SAMPLE I.D.	NAME OF DOHS HMTL LABORATORY	LABORATORY SAMPLE I.D.	PPM TPH AS GAS	PPM BEN-ZENE	PPM TOL-UENE	PPM ETHYL BEN-ZENE	PPM XY-LENES	ORGANIC LEAD
AF	10.5	LIA	CAPILLAR	SOIL	02/16/89	89047-M-1	#1	SEQUOIA	902-1655	2.6	0.36	ND	ND	0.16	ND
	16.0	ELECTIVE	INTRFACE	SOIL	03/06/89	89065-M-1	#3	SEQUOIA	903-0454	ND	ND	ND	ND	ND	—
BF	10.5	LIA	CAPILLAR	SOIL	02/16/89	89047-M-1	#2	SEQUOIA	902-1656	1.9	0.62	ND	0.13	ND	ND
	15.0	ELECTIVE	INTRFACE	SOIL	03/06/89	89065-M-1	#2	SEQUOIA	903-0453	ND	ND	ND	ND	ND	--
Bop	11.5	LIA	SUBSURF	WATER	02/16/89	89047-M-1	#5	SEQUOIA	902-1659	100	19	25	4.600	22	--
	11.25	ELECTIVE	SUBSURF	WATER	03/06/89	89065-M-1	#4	SEQUOIA	903-0455	29	0.56	1.9	1.0	5.4	--
CF	11.0	LIA	CAPILLAR	SOIL	02/16/89	89047-M-1	#3	SEQUOIA	902-1657	2.4	0.64	ND	0.14	ND	ND
	10.5	LIA	CAPILLAR	SOIL	02/16/89	89047-M-1	#4	SEQUOIA	902-1658	29	1.1	0.61	0.88	5.7	ND
	15.0	ELECTIVE	INTRFACE	SOIL	03/06/89	89065-M-1	#1	SEQUOIA	903-0452	3.1	ND	ND	ND	0.18	--

BLAINE
TECH SERVICES

UNDERGROUND STORAGE TANK REMOVAL AND SAMPLING LOG

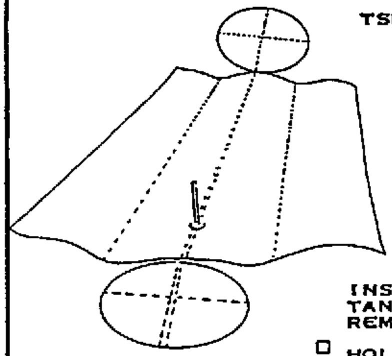
TANK
A

TANK A 5,000 GALLON GASOLINE TANK
FIBERGLASS CONSTRUCTION



SITE DIAGRAM

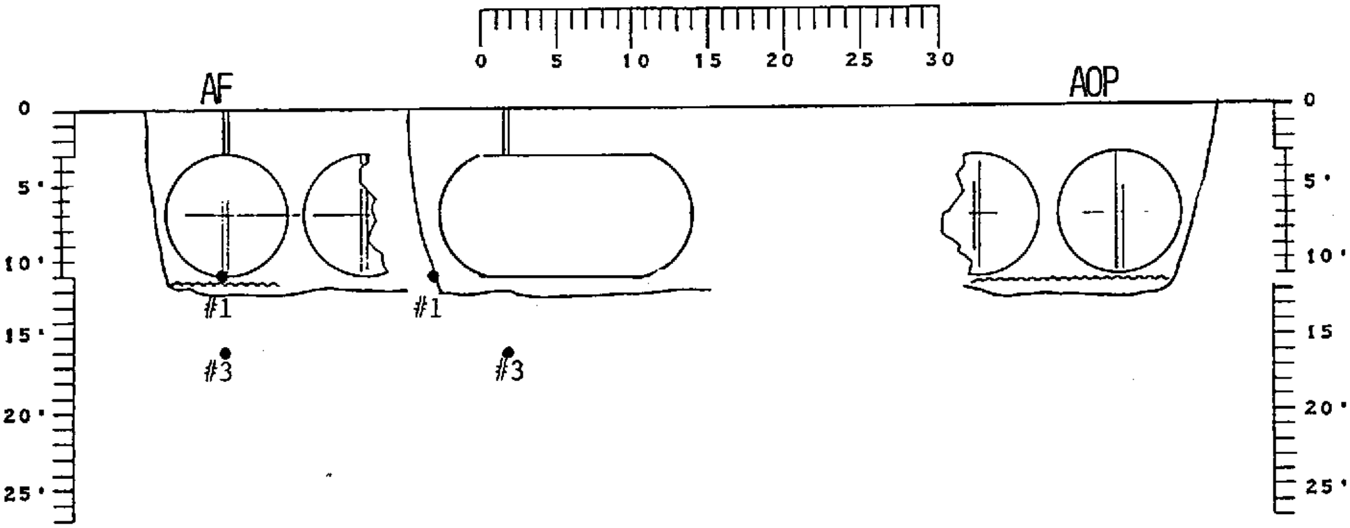
TSR PROJECTION



INSPECTION OF THE TANK FOLLOWING REMOVAL FOUND

☐ HOLES IN THE LOCATIONS DEPICTED ON THE TSR PROJECTION

■ NO HOLES



Analytical Results are given in Parts Per Million -- PPM

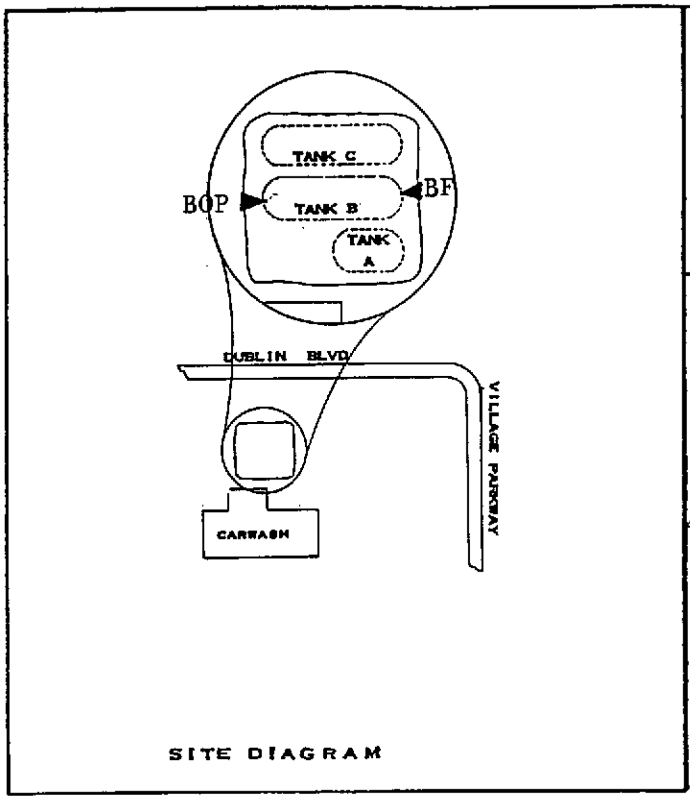
I.D. GIVEN THIS SAMPLE AREA	SAMPLE DEPTH IN FT. BELOW GRADE	SAMPLING LOCATION DICTATED BY	TYPE & METHOD FOR THE SAMPLE OBTAINED	SAMPLE MATRIX	DATE SAMPLED	BTS CHAIN OF CUSTODY I.D.	BTS SAMPLE I.D.	NAME OF DOHS HMTL LABORATORY	LABORATORY SAMPLE I.D.	PPM TPH AS GAS	BEN-ZENE	TOL-UENE	ETHYL BEN-ZENE	XY-LENES	ORGANIC LEAD
AF	10.5	LIA	CAPILLAR	SOIL	02/16/89	89047-M-1	#1	SEQUOIA	902-1655	2.6	0.36	ND	ND	0.16	ND
	16.0	ELECTIVE	INTRFACE	SOIL	03/06/89	89065-M-1	#3	SEQUOIA	903-0454	ND	ND	ND	ND	ND	—

BLAINE TECH SERVICES

UNDERGROUND STORAGE TANK REMOVAL AND SAMPLING LOG

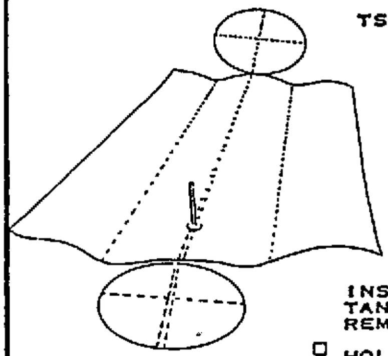
TANK B

TANK B 10,000 GALLON GASOLINE TANK
FIBER GLASS CONSTRUCTION



SITE DIAGRAM

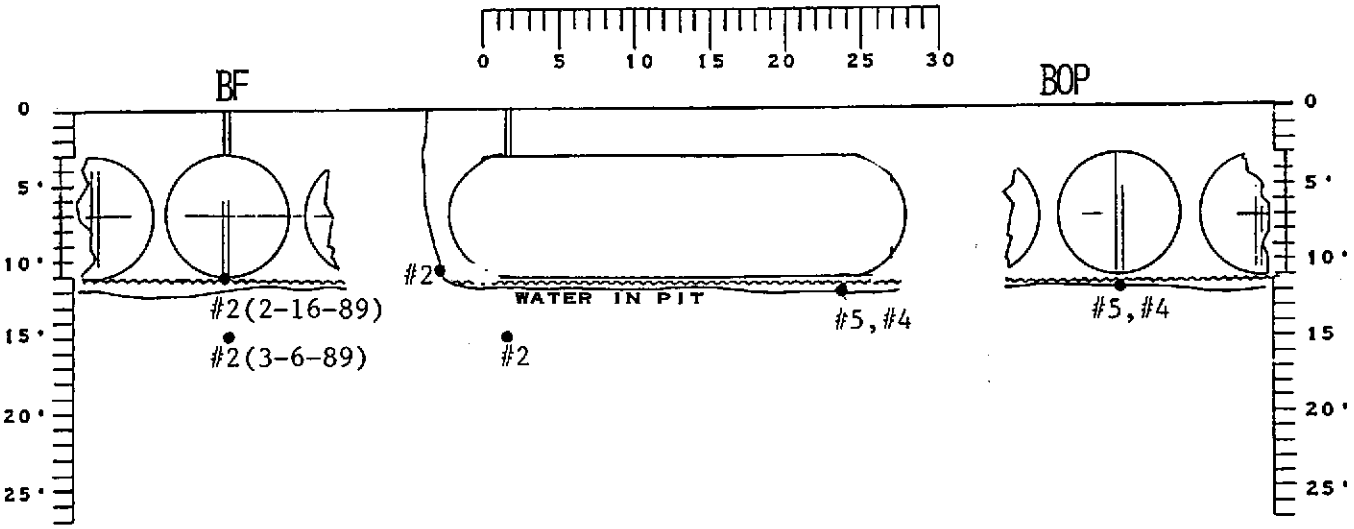
TSR PROJECTION



INSPECTION OF THE TANK FOLLOWING REMOVAL FOUND

☐ HOLES IN THE LOCATIONS DEPICTED ON THE TSR PROJECTION

■ NO HOLES



Analytical Results are given in Parts Per Million — PPM

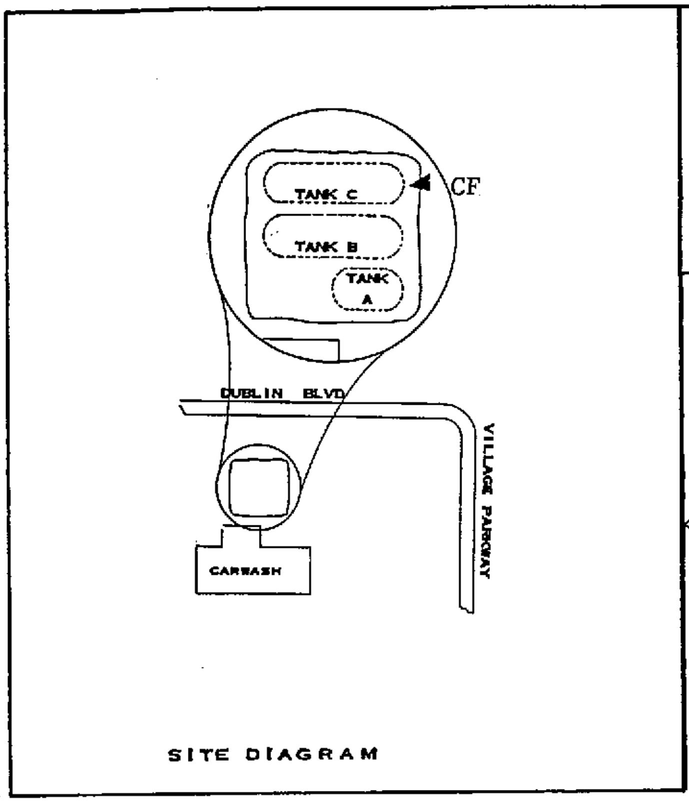
I.D. GIVEN THIS SAMPLE AREA	SAMPLE DEPTH IN FT. BELOW GRADE	SAMPLING LOCATION DICTATED BY	TYPE & METHOD FOR THE SAMPLE OBTAINED	SAMPLE MATRIX	DATE SAMPLED	BTS CHAIN OF CUSTODY I.D.	BTS SAMPLE I.D.	NAME OF DOHS HMTL LABORATORY	LABORATORY SAMPLE I.D.	TPH AS GAS (PPM)	BEN-ZENE (PPM)	TOL-UENE (PPM)	ETHYL BEN-ZENE (PPM)	XY-LENES (PPM)	ORGANIC LEAD
BF	10.5 15.0	LIA ELECTIVE	CAPILLAR INTRFACE	SOIL SOIL	02/16/89 03/06/89	89047-M-1 89065-M-1	#2 #2	SEQUOIA SEQUOIA	902-1656 903-0453	1.9 ND	0.62 ND	ND ND	0.13 ND	ND ND	ND --
Bop	11.5 11.25	LIA ELECTIVE	SUBSURF SUBSURF	WATER WATER	02/16/89 03/06/89	89047-M-1 89065-M-1	#5 #4	SEQUOIA SEQUOIA	902-1659 903-0455	100 29	19 0.56	25 1.9	4.600 1.0	22 5.4	-- --

BLAINE
TECH SERVICES

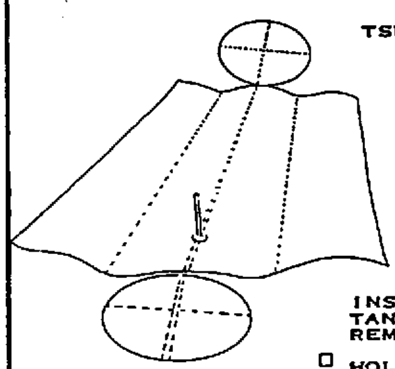
UNDERGROUND STORAGE TANK REMOVAL AND SAMPLING LOG

TANK C

TANK C 10,000 GALLON GASOLINE TANK
FIBERGLASS CONSTRUCTION



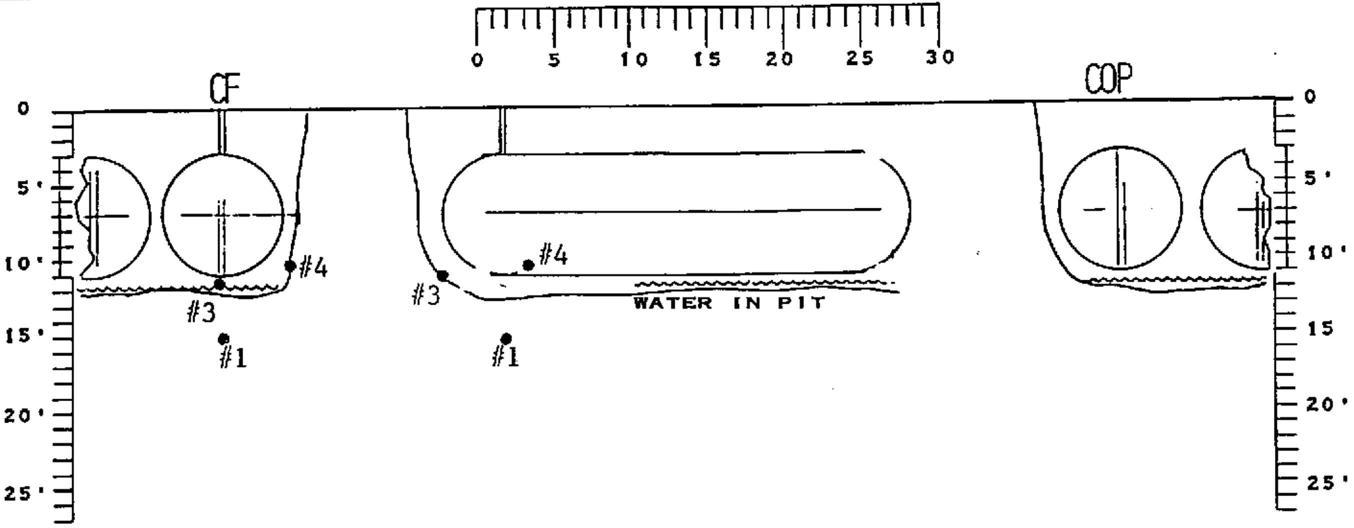
TSR PROJECTION



INSPECTION OF THE TANK FOLLOWING REMOVAL FOUND

☐ HOLES IN THE LOCATIONS DEPICTED ON THE TSR PROJECTION

■ NO HOLES



Analytical Results are given in Parts Per Million — PPM

I.D. GIVEN THIS SAMPLE AREA	SAMPLE DEPTH IN FT. BELOW GRADE	SAMPLING LOCATION DICTATED BY	TYPE & METHOD FOR THE SAMPLE OBTAINED	SAMPLE MATRIX	DATE SAMPLED	BTS CHAIN OF CUSTODY I.D.	BTS SAMPLE I.D.	NAME OF DOHS HMTL LABORATORY	LABORATORY SAMPLE I.D.	PPM: TPH AS GAS	PPM: BEN-ZENE	PPM: TOL-UENE	PPM: ETHYL BEN-ZENE	PPM: XY-LENES	ORGANIC LEAD
CF	11.0	LIA	CAPILLAR	SOIL	02/16/89	89047-M-1	#3	SEQUOIA	902-1657	2.4	0.64	ND	0.14	ND	ND
	10.5	LIA	CAPILLAR	SOIL	02/16/89	89047-M-1	#4	SEQUOIA	902-1658	29	1.1	0.61	0.88	5.7	ND
	15.0	ELECTIVE	INTRFACE	SOIL	03/06/89	89065-M-1	#1	SEQUOIA	903-0452	3.1	ND	ND	ND	0.18	—

SPECIFIC SAMPLING METHODOLOGIES USED ON THIS PROJECT

Capillary Zone Soil Sample: The capillary zone is the soil horizon immediately above the surface of standing groundwater into which moisture is drawn by capillary action. Capillary zone sampling is most often requested in open pit and open trench situations where lost petroleum products are evident or suspected. In these cases, it is reasoned that a sample of the capillary zone will demonstrate whether or not fuel has been drawn up into the soil above the groundwater and, thereby, provide a rough indication of the volume and duration of the lost fuel condition.

Engineers of the Region 2 RWQCB staff have specified the correct sampling area as being from zero to six inches above the surface of the standing perched water and no more than twelve inches back into the native soil from the lateral backfill/native soil interface.

There are two weaknesses which tend to invalidate capillary zone sampling on the basis of inconsistent results. First, is the difficulty encountered in locating the true surface of the perched water above which the capillary zone resides. The removal of the tank and backfill material tends to artificially lower the water in the immediate vicinity of the tank pit below the true standing water level and mislead observers attempting to evaluate where the capillary zone is located. Second, the zone itself is a narrow horizon which is bordered on the top and bottom by soil which would not be expected to contain nearly the concentration of fuel hydrocarbons as the capillary zone proper. Collecting the correct material is complicated by conditions at the site which usually consist of a broad excavation, with vertical walls descending into a water filled pit. Because of these conditions, direct approach to the sampling area is difficult, dangerous, or impossible.

Assuming that the true and original surface of the perched water can be determined, samples can be safely obtained by one of the following methods. The backhoe bucket can be used to dig up a segment of the pit wall that contains the capillary zone and bring it up for inspection and sampling. An alternative method is to use sections of light weight drill rod and a drive shoe which contains a brass sample liner. This train can be extended across the pit, positioned, and used to drive an undisturbed soil sample.

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.

Standard RWQCB Interface Sample: The tank removal sampling followed the standard protocol for obtaining interface samples. These samples fall into the category of samples which are known to be of primary concern to the interested regulatory agencies for determining if additional action will be required at a site and the methodology has been closely defined in State and RWQCB publications, supplements, and presentations. These specify both the acceptable depth and lateral situation of sample collection points. In accordance with these specifications, sample collection is executed as close as possible to the center line (longitudinal axis) of the tank and on a vertical axis with the fill pipe. A corresponding location is also found at the opposite end of the tank whenever standard interface samples are being collected.

Briefly, the method consists of digging up native soil from directly below the fill pipe and the corresponding opposite end of the tank and obtaining a sample from the backfill/native soil interface or a short distance below the interface. In the case of tanks less than 1,000 gallons in capacity, only one sample from beneath the tank is required. A short distance has been defined by Region 2 Board engineers as not greater than twenty-four inches below the backfill/native soil interface and is generally taken to be one foot below the backfill/native soil interface. This soil is brought up in the backhoe bucket. A shovel or trowel is used to cut away surface soil and backfill material which may have been included in the bucket, and the sample is taken by pushing or driving a brass sample liner into the newly exposed soil from the designated depth and location. Additional clarifications by Region 2 Board engineers have indicated that when there is an obvious difference in the relative contamination of soil brought up from the interface depth, then it is the relatively more contaminated soil that should be selected for inclusion in the sample.

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 in the TABLE, 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 <u>any</u> 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: Gil Wistar

Please call if we can be of any further assistance.

Richard C. Blaine

RCB/rfs

attachments: supporting documents

BLAINE
TECH SERVICES INC.

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

CHAIN OF CUSTODY # 89065M1

SITE SPECIFICATION Chevron #2582
7420 Dublin Blvd.
Dublin, CA

( ) Bill BLAINE TECH SERVICES, Inc.
(x) Bill Chevron
Attn: Bob Foss
(415) 842-9594

S P E C I A L   I N S T R U C T I O N S

SAMPLE I.D.	QUANTITY	TYPE	OK	ANALYSIS TO DETECT	STATUS	RESULTS	LAB NUMBER
#1	1	soil		TPH as Gas, BTXE	24hr.		
#2	↓	↓		↓	↓		
#3	↓	↓		↓	↓		
#4	2	liquid		↓	↓		

Field sampling was performed by Marty Mackey

Sampling was completed at 5:15 AM/[✓ PM] 3-6-1988

RELEASE OF SAMPLES FROM (name,time,date) —››››› INTO THE CUSTODY OF (name,time,date)

from M Mackey @ 6:15 AM/[✓ PM] 3/6-88 -> to @ 6:15 AM/[✓ PM] 3/6-88

from ____ @ __:__ AM/PM ____-88 -> to ____ @ __:__ AM/PM ____-88

from ____ @ __:__ AM/PM ____-88 -> to ____ @ __:__ AM/PM ____-88

The laboratory designated to perform these analyses is: Sequoia DHS HMTL # 145

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.

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

Chevron U.S.A. Inc.	Client Project ID:	BTS #89065M1, Chevron #2582, Dublin		Sampled:	Mar 6, 1989
P.O. Box 5004	Matrix Descript:	Soil		Received:	Mar 6, 1989
San Ramon, CA 94583-0804	Analysis Method:	EPA 5030 or 3810/8015/8020		Analyzed:	Mar 7, 1989
Attention: Bob Foss	First Sample #:	903-0452		Reported:	Mar 8, 1989

TOTAL PETROLEUM FUEL HYDROCARBONS with BTEX DISTINCTION (EPA 8015/8020)

Sample Number	Sample Description	Low/Medium B.P. Hydrocarbons mg/kg (ppm)	Benzene mg/kg (ppm)	Toluene mg/kg (ppm)	Ethyl Benzene mg/kg (ppm)	Xylenes mg/kg (ppm)
903-0452	#1	3.1	N.D.	N.D.	N.D.	0.18
903-0453	#2	N.D.	N.D.	N.D.	N.D.	N.D.
903-0454	#3	N.D.	N.D.	N.D.	N.D.	N.D.
Detection Limits:		1.0	0.05	0.1	0.1	0.1

Low to Medium Boiling Point Hydrocarbons are quantitated against a gasoline standard.
Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

Arthur G. Burton
Laboratory Director

Please Note:
cc: Blaine Tech Services, 1370 Tully Rd., Suite 505, San Jose, CA 95122, Attn: Richard Blaine

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

Chevron U.S.A. Inc.	Client Project ID:	BTS #89065M1, Chevron #2582, Dublin	Sampled:	Mar 6, 1989
P.O. Box 5004	Sample Descript.:	Water, #4	Received:	Mar 6, 1989
San Ramon, CA 94583-0804	Analysis Method:	EPA 5030/ 8015/8020	Analyzed:	Mar 6, 1989
Attention: Bob Foss	Lab Number:	9030455 A & B	Reported:	Mar 8, 1989

TOTAL PETROLEUM FUEL HYDROCARBONS WITH BTEX DISTINCTION (EPA 8015/8020)

Analyte	Detection Limit ug/L (ppb)	Sample Results ug/L (ppb)
Low to Medium Boiling Point Hydrocarbons	50.0	29,000
Benzene	0.5	560
Toluene	0.5	1,900
Ethyl Benzene	0.5	1,000
Xylenes	0.5	5,400

Low to Medium Boiling Point Hydrocarbons are quantitated against a gasoline standard.
Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

Arthur G. Burton
Laboratory Director

TABLE OF SAMPLING LOCATIONS AND ANALYTICAL RESULTS

Analytical Results are given in
Parts Per Million -- PPM

										PPM					
I.D. GIVEN THIS SAMPLE AREA	**SAMPLE DEPTH IN FT. BELOW GRADE**	**SAMPLING LOCATION DICTATED BY**	**TYPE & METHOD FOR THE SAMPLE OBTAINED**	**SAMPLE MATRIX**	**DATE SAMPLED**	**BTS CHAIN OF CUSTODY I.D.**	**BTS SAMPLE I.D.**	**NAME OF DOHS HMTL LABORATORY**	**LABORATORY SAMPLE I.D.**	**TPH AS GAS**	**BEN-ZENE**	**TOL-UENE**	**ETHYL BEN-ZENE**	**XY-LENES**	**ORGANIC LEAD**
AF	10.5	LIA	CAPILLAR	SOIL	02/16/89	89047-M-1	#1	SEQUOIA	902-1655	2.6	0.36	ND	ND	0.16	ND
	16.0	ELECTIVE	INTRFACE	SOIL	03/06/89	89065-M-1	#3	SEQUOIA	903-0454	ND	ND	ND	ND	ND	--
BF	10.5	LIA	CAPILLAR	SOIL	02/16/89	89047-M-1	#2	SEQUOIA	902-1656	1.9	0.62	ND	0.13	ND	ND
	15.0	ELECTIVE	INTRFACE	SOIL	03/06/89	89065-M-1	#2	SEQUOIA	903-0453	ND	ND	ND	ND	ND	--
Bop	11.5	LIA	SUBSURF	WATER	02/16/89	89047-M-1	#5	SEQUOIA	902-1659	100	19	25	4.600	22	--
	11.25	ELECTIVE	SUBSURF	WATER	03/06/89	89065-M-1	#4	SEQUOIA	903-0455	29	0.56	1.9	1.0	5.4	--
CF	11.0	LIA	CAPILLAR	SOIL	02/16/89	89047-M-1	#3	SEQUOIA	902-1657	2.4	0.64	ND	0.14	ND	ND
	10.5	LIA	CAPILLAR	SOIL	02/16/89	89047-M-1	#4	SEQUOIA	902-1658	29	1.1	0.61	0.88	5.7	ND
	15.0	ELECTIVE	INTRFACE	SOIL	03/06/89	89065-M-1	#1	SEQUOIA	903-0452	3.1	ND	ND	ND	0.18	--

BLAINE
TECH SERVICES INC.

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

March 24, 1989

Chevron USA, Inc.
2410 Camino Ramon
San Ramon, CA 94583

Attn: Vic Ortega

SITE:
Chevron Service Station no. **2582**
7420 Dublin Boulevard
Dublin, California

PROJECT:
Confirmation water
sample following the
evacuation of pit water

SAMPLED ON:
March 17, 1989

SAMPLING REPORT 89076-C-3

Summary of Recent Sampling

	DATE	REPORT #	ACTIVITY
SECTION ONE	02/16/89	89047-M-1	Tank removal sampling
SECTION TWO	03/06/89	89065-M-1	Interface and subsurface water sampling
SECTION THREE	03/17/89	89076-C-3	Subsurface water sampling

This report is SECTION THREE within the chronological Cumulative Report which contains all relevant materials for work done on this project at the subject site.

Background

Blaine Tech Services, Inc. personnel first visited the subject site on February 16, 1989 to observe the removal of three gasoline tanks and to obtain samples. Water was observed surrounding the tanks within the tank pit. Following the tank removal, three capillary zone samples were obtained along the eastern wall of the pit adjacent to the fill end of the tanks. One subsurface water sample was obtained from a pool of water standing in the impression left by Tank B. Further discussion of this sampling activity can be found in Blaine Tech Services, Inc. Sampling Report 89047-M-1, which is Section One of this cumulative report.

Our field personnel returned to the subject site on March 6, 1989 to obtain interface soil samples following the evacuation of groundwater that had been standing in the tank pit bottom. Three soil samples were obtained from beneath the fill end of each tank at a depth of fifteen and sixteen feet (15-16') below grade. In addition, one subsurface water sample was obtained from a pool of water in the approximate area of the middle of Tank B. Further discussion of this sampling activity is presented in Blaine Tech Services, Inc. Sampling Report 89065-M-1, which is Section Two of this cumulative report.

Scope of Most Recent Sampling Activity

In accordance with your request, field personnel from our office were dispatched to the site to collect one groundwater sample from the gasoline tank pit. In addition, we would arrange for the proper analyses of the samples, and maintain adequate documentation culminating in the issuance of a formal Sampling Report.

Execution of the Most Recent Work

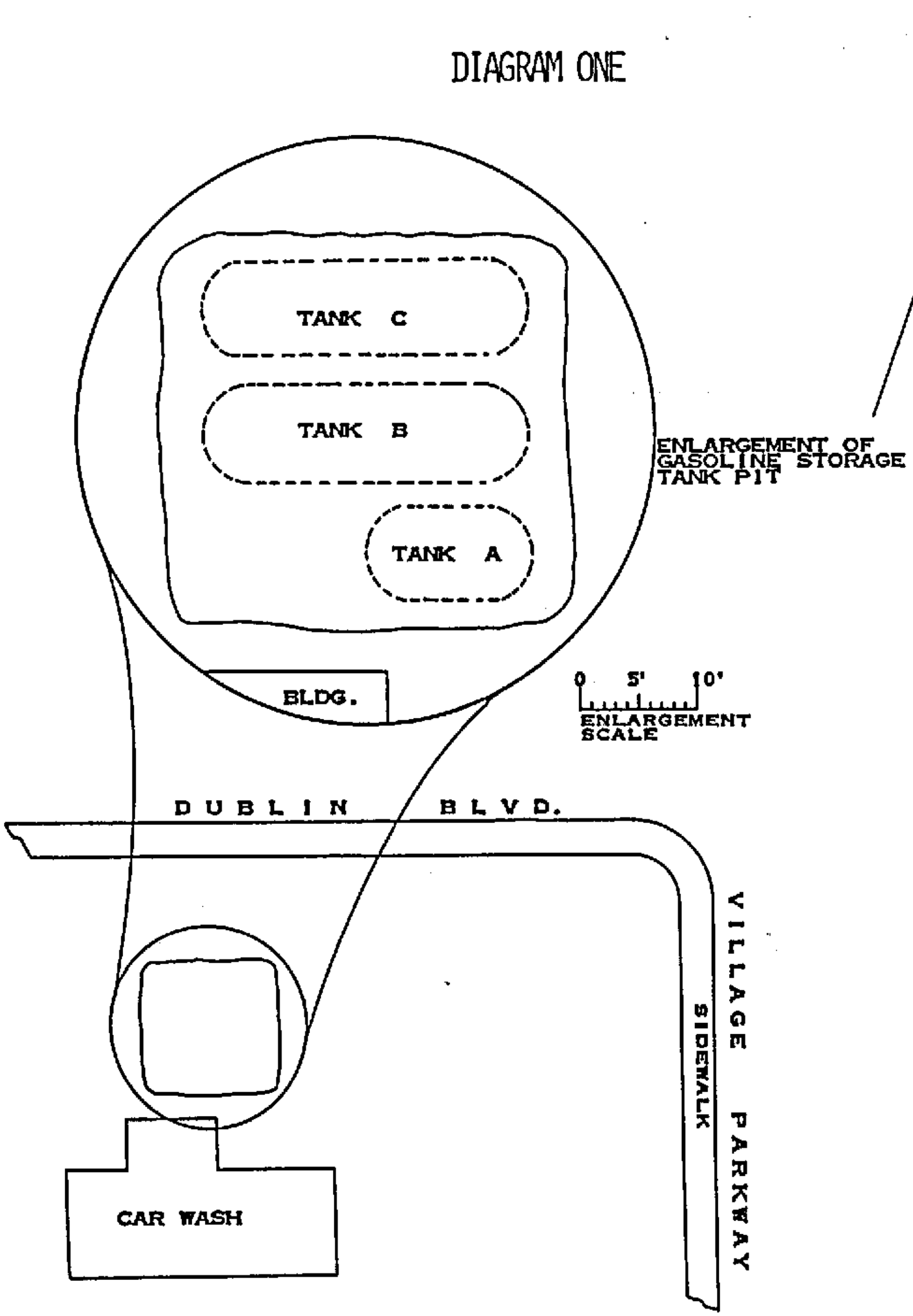
Personnel from our office arrived at the subject site late in the afternoon of Friday, March 17, 1989 to obtain the requested sample. Mr. Bob Foss of Chevron USA, Inc. was also present to observe the sampling. No representative of the local implementing agency was present.

Mr. Foss reported that following the sampling of March 6, 1989, groundwater began to reenter the tank pit. On the morning of March 17, 1989, an attempt was made to pump this water out of the tank pit, but this action failed to significantly lower the water level in the pit. At the time the sample was collected on Friday afternoon, the water in the tank pit was standing at nine feet (9') below the level of the paving. A subsurface water sampling device was used to collect one sample from the area beneath the end of Tank A opposite the fill pipe.

Information on the exact location of a particular sampling point will be found on the UNDERGROUND STORAGE TANK REMOVAL AND SAMPLING LOG and the TABLE OF SAMPLING LOCATIONS AND ANALYTICAL RESULTS. The SAMPLING METHODOLOGY section of this report contains a description of the procedures used.

After completion of the field work, the sample containers were delivered to Sequoia Analytical Laboratory in Redwood City, California. Sequoia Analytical Laboratory is a California Department of Health Services certified Hazardous Materials Testing Laboratory and is listed as DOHS HMTL #145.

DIAGRAM ONE

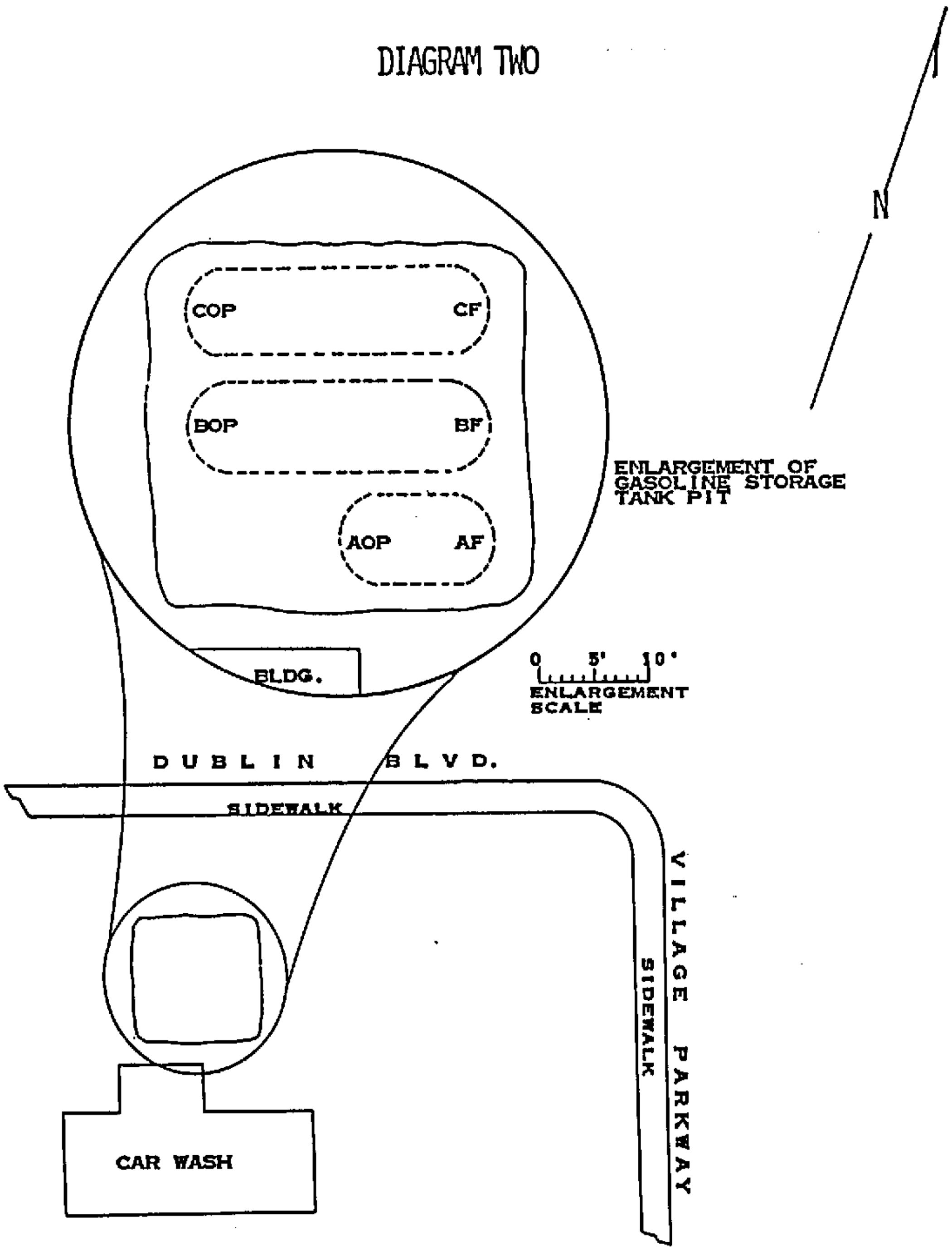


SCALE: 0 20' 40'

MAP REF: THOMAS BROS.
ALAMEDA CO.
P.35 E-3

TANK A	5,000 GALLON GASOLINE, FIBERGLASS TANK
TANK B	10,000 GALLON GASOLINE, FIBERGLASS TANK
TANK C	10,000 GALLON GASOLINE, FIBERGLASS TANK

DIAGRAM TWO



SCALE: 0 20' 40'

MAP REF: THOMAS BROS.
ALAMEDA CO.
P.35 E-3

SAMPLING PERFORMED BY MARGO MACKEY
DIAGRAM PREPARED BY BRENT ADAMS

TABLE OF SAMPLING LOCATIONS AND ANALYTICAL RESULTS

Analytical Results are given in
Parts Per Million -- PPM

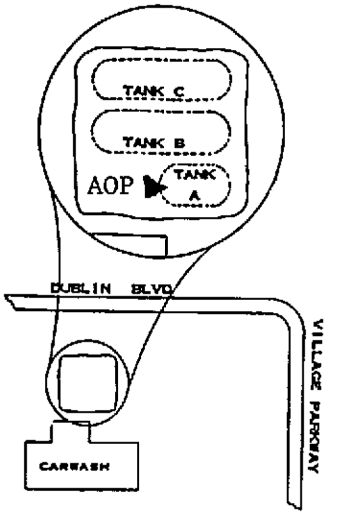
										PPM					
I.D. GIVEN THIS SAMPLE AREA	SAMPLE DEPTH IN FT. BELOW GRADE	SAMPLING LOCATION DICTATED BY	TYPE & METHOD FOR THE SAMPLE OBTAINED	SAMPLE MATRIX	DATE SAMPLED	BTS CHAIN OF CUSTODY I.D.	BTS SAMPLE I.D.	NAME OF DOHS HMTL LABORATORY	LABORATORY SAMPLE I.D.	TPH AS GAS	BEN-ZENE	TOL-UENE	ETHYL BEN-ZENE	XY-LENES	ORGANIC LEAD
AF	10.5	LIA	CAPILLAR	SOIL	02/16/89	89047-M-1	#1	SEQUOIA	902-1655	2.6	0.36	ND	ND	0.16	ND
	16.0	ELECTIVE	INTRFACE	SOIL	03/06/89	89065-M-1	#3	SEQUOIA	903-0454	ND	ND	ND	ND	ND	--
Aop	10.0	ELECTIVE	SUBSURF	LIQUID	03/17/89	89076-C-3	#1	SEQUOIA	903-1814	19	0.1	0.36	0.16	3.2	--
BF	10.5	LIA	CAPILLAR	SOIL	02/16/89	89047-M-1	#2	SEQUOIA	902-1656	1.9	0.62	ND	0.13	ND	ND
	15.0	ELECTIVE	INTRFACE	SOIL	03/06/89	89065-M-1	#2	SEQUOIA	903-0453	ND	ND	ND	ND	ND	--
Bop	11.5	LIA	SUBSURF	WATER	02/16/89	89047-M-1	#5	SEQUOIA	902-1659	100	19	25	4.600	22	--
	11.25	ELECTIVE	SUBSURF	WATER	03/06/89	89065-M-1	#4	SEQUOIA	903-0455	29	0.56	1.9	1.0	5.4	--
CF	11.0	LIA	CAPILLAR	SOIL	02/16/89	89047-M-1	#3	SEQUOIA	902-1657	2.4	0.64	ND	0.14	ND	ND
	10.5	LIA	CAPILLAR	SOIL	02/16/89	89047-M-1	#4	SEQUOIA	902-1658	29	1.1	0.61	0.88	5.7	ND
	15.0	ELECTIVE	INTRFACE	SOIL	03/06/89	89065-M-1	#1	SEQUOIA	903-0452	3.1	ND	ND	ND	0.18	--

BLAINE TECH SERVICES

UNDERGROUND STORAGE TANK REMOVAL AND SAMPLING LOG

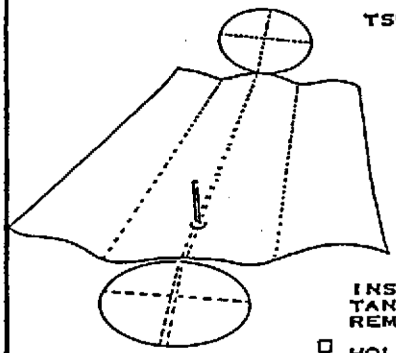
TANK
A

TANK A 5,000 GALLON GASOLINE TANK
FIBERGLASS CONSTRUCTION



SITE DIAGRAM

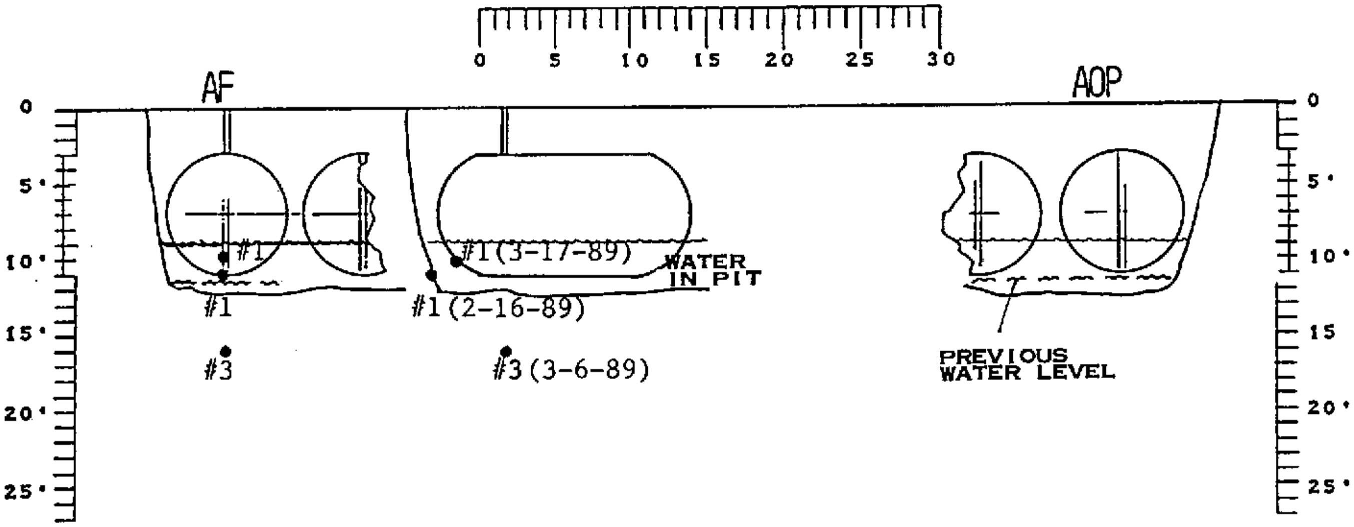
TSR PROJECTION



INSPECTION OF THE TANK FOLLOWING REMOVAL FOUND

☐ HOLES IN THE LOCATIONS DEPICTED ON THE TSR PROJECTION

■ NO HOLES



Analytical Results are given in Parts Per Million -- PPM

I.D. GIVEN THIS SAMPLE AREA	SAMPLE DEPTH IN FT. BELOW GRADE	SAMPLING LOCATION DICTATED BY	TYPE & METHOD FOR THE SAMPLE OBTAINED	SAMPLE MATRIX	DATE SAMPLED	BTS CHAIN OF CUSTODY I.D.	BTS SAMPLE I.D.	NAME OF DOHS HMTL LABORATORY	LABORATORY SAMPLE I.D.	TPH AS GAS	BEN-ZENE	TOL-UENE	ETHYL BEN-ZENE	XY-LENES	ORGANIC LEAD
AF	10.5 16.0	LIA ELECTIVE	CAPILLAR INTRFACE	SOIL SOIL	02/16/89 03/06/89	89047-M-1 89065-M-1	#1 #3	SEQUOIA SEQUOIA	902-1655 903-0454	2.6 ND	0.36 ND	ND ND	ND ND	0.16 ND	ND --
Aop	10.0	ELECTIVE	SUBSURF	LIQUID	03/17/89	89076-C-3	#1	SEQUOIA	903-1814	19	0.1	0.36	0.16	3.2	--

SPECIFIC SAMPLING METHODOLOGIES USED ON THIS PROJECT

Capillary Zone Soil Sample: The capillary zone is the soil horizon immediately above the surface of standing groundwater into which moisture is drawn by capillary action. Capillary zone sampling is most often requested in open pit and open trench situations where lost petroleum products are evident or suspected. In these cases, it is reasoned that a sample of the capillary zone will demonstrate whether or not fuel has been drawn up into the soil above the groundwater and, thereby, provide a rough indication of the volume and duration of the lost fuel condition.

Engineers of the Region 2 RWQCB staff have specified the correct sampling area as being from zero to six inches above the surface of the standing perched water and no more than twelve inches back into the native soil from the lateral backfill/native soil interface.

There are two weaknesses which tend to invalidate capillary zone sampling on the basis of inconsistent results. First, is the difficulty encountered in locating the true surface of the perched water above which the capillary zone resides. The removal of the tank and backfill material tends to artificially lower the water in the immediate vicinity of the tank pit below the true standing water level and mislead observers attempting to evaluate where the capillary zone is located. Second, the zone itself is a narrow horizon which is bordered on the top and bottom by soil which would not be expected to contain nearly the concentration of fuel hydrocarbons as the capillary zone proper. Collecting the correct material is complicated by conditions at the site which usually consist of a broad excavation, with vertical walls descending into a water filled pit. Because of these conditions, direct approach to the sampling area is difficult, dangerous, or impossible.

Assuming that the true and original surface of the perched water can be determined, samples can be safely obtained by one of the following methods. The backhoe bucket can be used to dig up a segment of the pit wall that contains the capillary zone and bring it up for inspection and sampling. An alternative method is to use sections of light weight drill rod and a drive shoe which contains a brass sample liner. This train can be extended across the pit, positioned, and used to drive an undisturbed soil sample.

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.

Standard RWQCB Interface Sample: The tank removal sampling followed the standard protocol for obtaining interface samples. These samples fall into the category of samples which are known to be of primary concern to the interested regulatory agencies for determining if additional action will be required at a site and the methodology has been closely defined in State and RWQCB publications, supplements, and presentations. These specify both the acceptable depth and lateral situation of sample collection points. In accordance with these specifications, sample collection is executed as close as possible to the center line (longitudinal axis) of the tank and on a vertical axis with the fill pipe. A corresponding location is also found at the opposite end of the tank whenever standard interface samples are being collected.

Briefly, the method consists of digging up native soil from directly below the fill pipe and the corresponding opposite end of the tank and obtaining a sample from the backfill/native soil interface or a short distance below the interface. In the case of tanks less than 1,000 gallons in capacity, only one sample from beneath the tank is required. A short distance has been defined by Region 2 Board engineers as not greater than twenty-four inches below the backfill/native soil interface and is generally taken to be one foot below the backfill/native soil interface. This soil is brought up in the backhoe bucket. A shovel or trowel is used to cut away surface soil and backfill material which may have been included in the bucket, and the sample is taken by pushing or driving a brass sample liner into the newly exposed soil from the designated depth and location. Additional clarifications by Region 2 Board engineers have indicated that when there is an obvious difference in the relative contamination of soil brought up from the interface depth, then it is the relatively more contaminated soil that should be selected for inclusion in the sample.

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 in the TABLE, 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 <u>any</u> 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: Gil Wistar

Please call if we can be of any further assistance.

Richard C. Blaine

RCB/rfs

attachments: supporting documents

BLAINE
TECH SERVICES INC.

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

CHAIN OF CUSTODY # 89076CZ

SITE SPECIFICATION Chevron Station #92582
7420 Dublin Boulevard
Dublin, CA

( ) Bill BLAINE TECH SERVICES, Inc.
(✗) Bill Chevron USA
Attn. Bob Foss

S P E C I A L I N S T R U C T I O N S

release #74

SAMPLE I.D.	QUANTITY	TYPE	OK	ANALYSIS TO DETECT	STATUS	RESULTS	LAB NUMBER
1	2	Liq		TPH (gas) BTXE	8 h.		

Field sampling was performed by Stephen Carter

Sampling was completed at 7:42 AM/PM 3-17-1989

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

from S. Carter @ 8:14 [✓ AM]/PM 3/18-89 -> to @ 8:14 [✓ AM]/PM 3/18/89

from ________ @ __:__ AM/PM ____-88 -> to ________ @ __:__ AM/PM ____-88

from ________ @ __:__ AM/PM ____-88 -> to ________ @ __:__ AM/PM ____-88

The laboratory designated to perform these analyses is: Sequoia DHS HMTL #145
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.

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

Chevron U.S.A. Inc.	Client Project ID:	BTS #89076C3, Station #92582, Dublin	Sampled:	Mar 17, 1989
P.O. Box 5004	Sample Descript.:	Water	Received:	Mar 18, 1989
San Ramon, CA 94583-0804	Analysis Method:	EPA 5030/ 8015/8020	Analyzed:	Mar 20, 1989
Attention: Bob Foss	Lab Number:	903-1814	Reported:	Mar 21, 1989

TOTAL PETROLEUM FUEL HYDROCARBONS WITH BTEX DISTINCTION (EPA 8015/8020)

Analyte	Detection Limit µg/L (ppb)	Sample Results µg/L (ppb)
Low to Medium Boiling Point Hydrocarbons	50.0	19,000
Benzene	0.5	100
Toluene	0.5	360
Ethyl Benzene	0.5	160
Xylenes	0.5	3,200

Low to Medium Boiling Point Hydrocarbons are quantitated against a gasoline standard.
Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

Arthur G. Burton
Laboratory Director

Please Note:
cc: Blaine Tech Services, 1370 Tully Rd., Suite 505, San Jose, CA 95122, Attn: Richard Blaine

TABLE OF SAMPLING LOCATIONS AND ANALYTICAL RESULTS

Analytical Results are given in
Parts Per Million -- PPM

										PPM					
I.D. GIVEN THIS SAMPLE AREA	**SAMPLE DEPTH IN FT. BELOW GRADE**	**SAMPLING LOCATION DICTATED BY**	**TYPE & METHOD FOR THE SAMPLE OBTAINED**	**SAMPLE MATRIX**	**DATE SAMPLED**	**BTS CHAIN OF CUSTODY I.D.**	**BTS SAMPLE I.D.**	**NAME OF DOHS HMTL LABORATORY**	**LABORATORY SAMPLE I.D.**	**TPH AS GAS**	**BEN-ZENE**	**TOL-UENE**	**ETHYL BEN-ZENE**	**XY-LENES**	**ORGANIC LEAD**
AF	10.5	LIA	CAPILLAR	SOIL	02/16/89	89047-M-1	#1	SEQUOIA	902-1655	2.6	0.36	ND	ND	0.16	ND
	16.0	ELECTIVE	INTRFACE	SOIL	03/06/89	89065-M-1	#3	SEQUOIA	903-0454	ND	ND	ND	ND	ND	--
Aop	10.0	ELECTIVE	SUBSURF	LIQUID	03/17/89	89076-C-3	#1	SEQUOIA	903-1814	19	0.1	0.36	0.16	3.2	--
BF	10.5	LIA	CAPILLAR	SOIL	02/16/89	89047-M-1	#2	SEQUOIA	902-1656	1.9	0.62	ND	0.13	ND	ND
	15.0	ELECTIVE	INTRFACE	SOIL	03/06/89	89065-M-1	#2	SEQUOIA	903-0453	ND	ND	ND	ND	ND	--
Bop	11.5	LIA	SUBSURF	WATER	02/16/89	89047-M-1	#5	SEQUOIA	902-1659	100	19	25	4.600	22	--
	11.25	ELECTIVE	SUBSURF	WATER	03/06/89	89065-M-1	#4	SEQUOIA	903-0455	29	0.56	1.9	1.0	5.4	--
CF	11.0	LIA	CAPILLAR	SOIL	02/16/89	89047-M-1	#3	SEQUOIA	902-1657	2.4	0.64	ND	0.14	ND	ND
	10.5	LIA	CAPILLAR	SOIL	02/16/89	89047-M-1	#4	SEQUOIA	902-1658	29	1.1	0.61	0.88	5.7	ND
	15.0	ELECTIVE	INTRFACE	SOIL	03/06/89	89065-M-1	#1	SEQUOIA	903-0452	3.1	ND	ND	ND	0.18	--