

August 30, 1989

LS
10/13/89

R.L. Stevens Company
P.O. Box 361
San Leandro, CA 94577

Attention: Bob Stevens

SITE:
James Phillipsen Property
1357 High Street
Alameda, California

PROJECT:
Tank Removal

SAMPLED ON:
August 15, 1989

TANK REMOVAL SAMPLING REPORT 890815-M-1

Blaine Tech Services, Inc. performs specialized environmental sampling and documentation as an independent third party. In order to avoid compromising the objectivity necessary for the proper and disinterested performance of this work, Blaine Tech Services, Inc. does not participate in the interpretation of analytical results or become involved with the marketing or installation of remedial systems. The interpretation of results should be performed by representatives of interested regulatory agencies and/or those professionals who are engaged as paid consultants in the business of providing opinions and proposals for further investigation or clean-up activities.

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.

Scope of Requested Services

In accordance with your request, field personnel would be dispatched to the site to observe the tank removal, collect samples, arrange for the proper analyses of the samples, and maintain adequate documentation resulting in the issuance of a formal Sampling Report. The collection of environmental samples was to be performed in accordance with the requirements of the State Water Resources Control Board and the specific directions of the Local Implementing Agency (LIA) inspector present at the site at the time of removal.

Execution of the Tank Removal Sampling

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 Agency. The local implementing agency was represented by Mr. Lawrence Seto, Senior Hazardous Materials Specialist, who was present to observe the tank removal and sampling.

Personnel were dispatched from our office and arrived at the subject site on Tuesday, August 15, 1989. Other interested parties included Mr. Marvin Helms, Fire Prevention Captain, of the Alameda Fire Department.

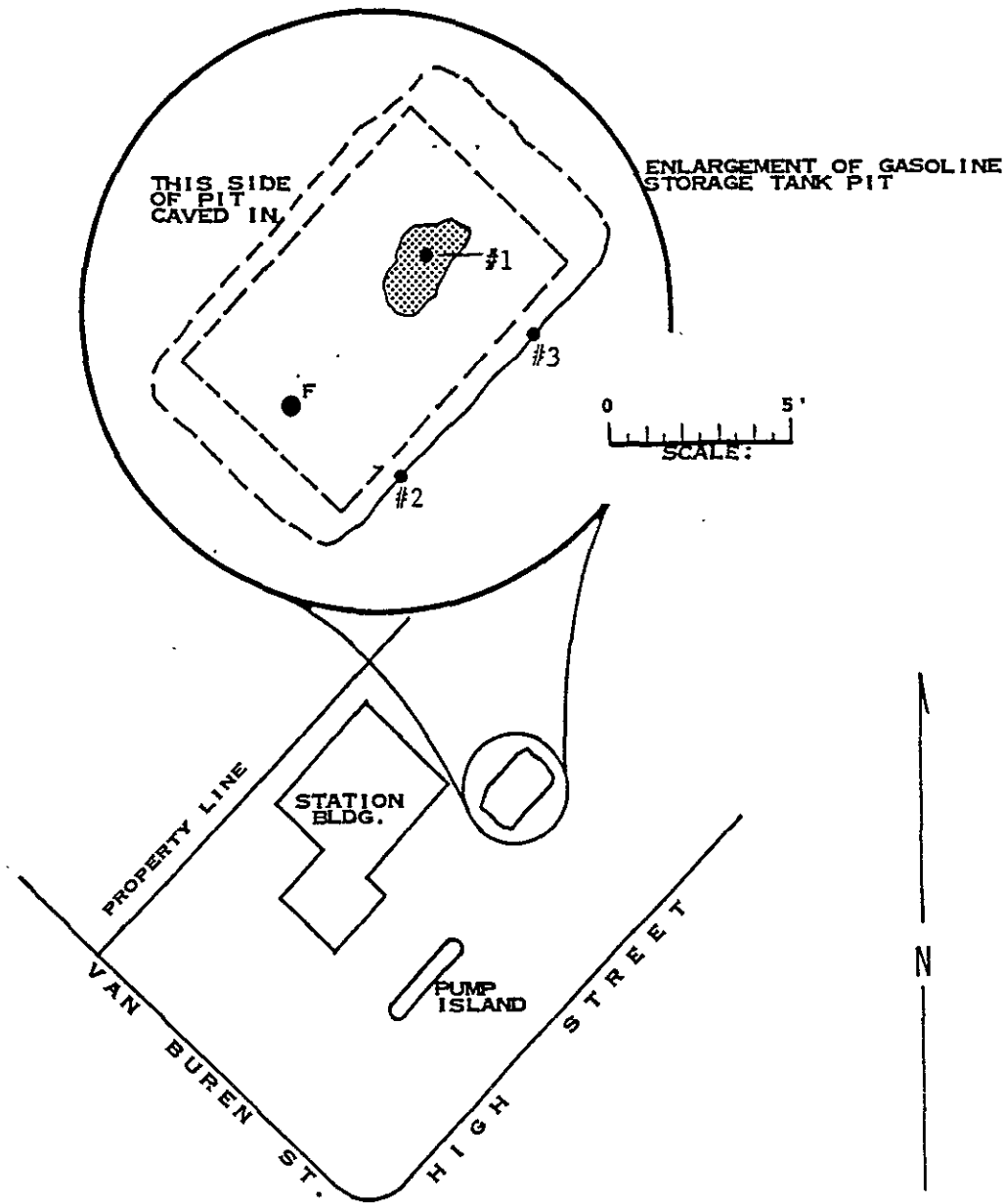
In accordance with the local regulations and the field judgment of the LIA representative, a detailed inspection was conducted in which the tank was visually inspected and likely failure points were probed with small pointed metal examination tools. No holes were observed in the tank.

TANK I.D.	SIZE IN GALLONS	TANK CONTENT	MATERIAL OF CONSTRUCTION	INSPECTION FOUND
A	2,000	GASOLINE	STEEL	NO HOLES


Water was present inside of the 2,000 gallon tank. This water had to be pumped out of the tank before the tank could be removed from the subsurface. Water was also present in the excavated pit and was standing at eight feet (8') below grade prior to the removal of the tank. Once the water was pumped out of the tank, the tank was removed. Subsequently, the water was pumped out of the excavated pit. Ground water entered into the pit fairly rapidly and sample #1 was collected from this water at a depth of eight and a half feet (8.5') below grade, using a subsurface water device.

Two capillary zone samples were obtained from the same sidewall at either end of the tank. Sample #2 was obtained at the fill pipe end at a depth of six and a half (6.5') below grade. Sample #3 was obtained at the end opposite the fill pipe at a depth of seven feet (7') below grade. The remaining three sidewalls were not sampled due to their unstable condition.

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



SCALE: 0 50'

LEGEND:  = WATER IN PIT

MAP REF: THOMAS BROS.
ALAMEDA CO.
P.11 E-6

- #1 SUBSURFACE WATER SAMPLE
ANALYSIS FOR TOTAL PETROLEUM
HYDROCARBONS (TPH) AS GASOLINE,
AND BENZENE, TOLUENE, XYLENES,
AND ETHYL BENZENE (BTXE) AT
SEQUOIA ANALYTICAL LABORATORY
SEQUOIA LAB NO. 908-1637
- #2 SOIL SAMPLE FROM WALL AT 6.5'
ANALYSIS FOR TPH AS GASOLINE
AND BTXE
SEQUOIA LAB NO. 908-1638
- #3 SOIL SAMPLE FROM WALL AT 7'
ANALYSIS FOR TPH AS GASOLINE
AND BTXE
SEQUOIA LAB NO. 908-1639

SAMPLING PERFORMED BY MARGO MACKEY
DIAGRAM PREPARED BY BRENT ADAMS

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.

SAMPLING METHODOLOGIES USED ON THIS PROJECT

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 re-seal 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 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.

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.

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 noncontributing/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 as Blue Ice or Super Ice.

Water samples are collected in any of several appropriate devices such as bailers, Coliwass, 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 a sampling event number and a discrete sample identification number. Please note that the sampling event 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 jobs and projects often do. This is followed by the sample I.D. number which is usually a simple number such as #1, #2, #3.

CHAIN OF CUSTODY

Samples are continuously maintained in either a chilled ice chest, refrigerator, or freezer from the time of collection until acceptance by the State certified Hazardous Materials Testing Laboratory selected to perform the analytical procedures. If the samples are taken charge of by a different party (such as another person from our office, a courier, etc.) prior to being

delivered to the laboratory, appropriate release and acceptance records are made on the chain of custody (time, date, and signature of person releasing the samples followed by the time, date and signature of the person accepting custody of the samples).

LABORATORY IDENTIFICATION NUMBERS

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

CERTIFIED ANALYTICAL REPORT

The certified analytical report generated by the laboratory is the official document in which they issue their findings. The certified analytical report should be closely reviewed when samples are taken from below waste oil tanks as any detection of the EPA halogenated and purgeable aromatic compounds may be grounds for requiring further action. The certified analytical report is included as an attachment at the close 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: Lawrence Seto

Alameda Fire Dept.
1300 Park Street
Alameda, CA 94501
ATTN: Marvin Helms

Please call if we can be of any further assistance.

for Richard C. Blaine
Richard C. Blaine

RCB/rfs

attachments: supporting documents



SEQUOIA ANALYTICAL

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

Blaine Tech Services
1370 Tully Rd., Suite 505
San Jose, CA 95122
Attention: Richard Blaine

Client Project ID: BTS #890815M1, R.L.Stevens @
Sample Descript.: Water, #1 James Phillipsen Prop., Alameda
Analysis Method: EPA 5030/ 8015/8020
Lab Number: 908-1637 A-D

Sampled: Aug 15, 1989
Received: Aug 16, 1989
Analyzed: Aug 21, 1989
Reported: Aug 23, 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	30.0	29,000
Benzene	0.3	410
Toluene	0.3	1,600
Ethyl Benzene	0.3	1,100
Xylenes	0.3	7,000

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



SEQUOIA ANALYTICAL

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

Blaine Tech Services
1370 Tully Rd., Suite 505
San Jose, CA 95122
Attention: Richard Blaine

Client Project ID: BTS #890815M1, R.L. Stevens @
Matrix Descript: Soil Jamaes Phillipsen Prop., Alameda
Analysis Method: EPA 5030/8015/8020
First Sample #: 908-1638

Sampled: Aug 15, 1989
Received: Aug 16, 1989
Analyzed: Aug 23, 1989
Reported: Aug 23, 1989

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

Sample Number	Sample Description	Low/Medium B.P.	Benzene	Toluene	Ethyl	Xylenes
		Hydrocarbons			Benzene	
		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
		(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
908-1638	#2	3,200	1.8	97	11	880
908-1639	#3	600	1.3	25	21	110

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

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