Shell Oil Company

P.O. Box 4848
511 N. Brookhurst Street
Anaheim, California 92803

October 5, 1989

10/13/89

Mr. Edgar Howell
Alameda County Department of Environmental Health
Hazardous Materials Program
80 Swan Way, Room 200
Oakland, California 94621

Re: Shell Oil service station
waste oil tank closures

Dear Mr. Howell:

Enclosed are our consultants' reports documenting waste oil tank closures at the following Shell Oil Company service stations:

wait until geotanks removed to determine "closure".

318 S. Livermore Avenue, Livermore, CA,

1155 Portola Avenue, Livermore, CA,

809 East Stanley Boulevard, Livermore, CA,

The reports present previous and current data, the site background and history, site and regional hydrogeologic conditions, and other tank closure activities for waste oil tanks removed from the sites since 1986.

Based on the performed chemical analyses, conditions of the removed tanks and tank excavations and the site and regional hydrogeologic conditions, Shell Oil believes that the former waste oil tanks do not pose a potential threat to ground water in the site vicinity. Therefore, we request closure of the former excavations.

If you have any questions or would like to meet to discuss these sites, please call me at (714) 520-3713.

Sincerely Yours,

Wendy Howell

Wendy Howell
Consultant Environmental

WH/wa
cc (w/ Attachments):

Mr. Lester Feldman, San Francisco Bay Area Regional Water Quality Control Board, 1111 Jackson Street, Oakland, California 94607

Mr. Craig Mayfield, Alameda County Flood Control and Water Conservation District (Zone 7), 5997 Parkside Drive, Pleasanton, California 94566

WEISS ASSOCIATES
Consulting in Geology & Geohydrology
2938 McClure Street, Oakland, CA 94609
415-465-1100

October 5, 1989

Wendy Howell
Shell Oil Company
P.O. Box 4848
Anaheim, CA 92803

Re: Shell Service Station
WIC #204-438-003
318 South Livermore Avenue
Livermore, California
WA Job #81-428-01

Dear Ms. Howell:

This letter is submitted to satisfy the tank closure requirements of the California Regional Water Quality Control Board - San Francisco Bay Region (WQCB) and California Administrative Code Title 23 Wafers, Chapter 3, Subchapter 16, Article 7, for the August 1987 removal of a former waste oil tank at the Shell service station at 318 South Livermore Avenue in Livermore, California.

Summarized below are previous and current tank removal data, a site history, site background, discussion of site and regional hydrogeologic conditions, descriptions of current tank closure requirements, and recommendations for additional work to achieve closure of the former waste oil tank excavation.

BACKGROUND

The subject station is located on the northeastern corner of the intersection of Third Street and Livermore Avenue in Livermore, California, about 1,700 ft north of Arroyo Mocho, a perennial stream which drains the eastern portion of Livermore Valley. The operating station retails gasoline from two 5,000 gallon, and two 8,000 gallon steel storage tanks located in the eastern portion of the site adjacent to South Livermore Avenue. The former waste oil tank was buried immediately west of the station building adjacent to East Third Street. A site map showing the location of the former waste oil tank is presented as Attachment A.

SITE HISTORY

Shell Oil Company records indicate that a steel 550 gallon waste oil tank was removed from the site in August 1987 by Petroleum Engineering of Santa Rosa, California, and was replaced with a 550 gallon fiberglass tank. The steel tank was apparently installed in 1965.

Following the tank removal, Blaine Tech Services of San Jose, California (Blaine Tech) observed and documented the tank condition and collected soil samples from stockpiles of soil excavated from the tank pit and from beneath the former tank location. A report presenting the results of the Blaine Tech investigation is presented as Attachment B. Two of the native soil samples from beneath the tank were submitted to Sequoia Analytical Laboratory of Redwood City, California (Sequoia). Sequoia analyzed the soil samples for:

- Oil and Grease by American Public Health Association Standard Method 503E, solvent extraction with gravimetric quantitation,

- Total Petroleum Hydrocarbons as diesel (TPH) by Modified EPA Method 8015, gas chromatography/flame ionization detection (GC/FID),

- Aromatic hydrocarbons, including benzene, toluene, ethylbenzene and xylenes (BETX) by EPA Method 8020, gas chromatography with photoionization detection (GC/PID), and

- Halogenated hydrocarbons by EPA Method 8010, gas chromatography/"Hall" detection (GC/Hall).

The stockpile soil samples were analyzed for flashpoint by Penske-Martens closed cup, and by EPA Method 7421, atomic absorption spectroscopy, for total and organic lead to characterize the stockpile for disposal. All analytic results are compiled in Table 1.

According to Blaine Tech tank removal records, no ground water was encountered in the excavation and the steel tank was rusted and pitted but had no obvious holes when it was removed.

TABLE 1. Analytic Results for Soil, Shell Service Station WIC #204-4380-0303, 318 S. Livermore Avenue, Livermore, California

Sample ID	Depth	Sample Type	Sampled By	Date Sampled	Analytic Lab	Analytic Method	TPH	B	E	T	X	TOG	VOCs	Total Lead	Soluble Lead
							<----------parts per million---------->								
Soil #1	8 ft	Native	BT	8-20-87	SEQ	3550/8010/8015 8020/503E	<1.0	<0.050	<0.050	<0.050	NA	87	ND	NA	NA
Soil #2	11 ft	Native	BT	8-20-87	SEQ	3550/8010/8015 8020/503E	<1.0	<0.050	<0.050	<0.050	NA	48	*1	NA	NA
Soil #3	---	Stockpile Composite	BT	8-20-87	SEQ	3050/7421 WET	NA	NA	NA	NA	NA	NA	NA	69	6.1

Abbreviations:

TPH = Total Petroleum Hydrocarbons as diesel
B = Benzene
E = Ethylbenzene
T = Toluene
X = Xylenes
TOG = Total Oil and Grease
VOCs = Volatile Organic Compounds
NA = Not Analyzed
ND = Not detected at detection limits between 0.005 and 0.020 ppm
BT = Blaine Tech Services, San Jose, CA
SEQ = Sequoia Analytical Laboratory, Redwood City, CA

Analytic Method:

3550 = EPA Method 3550, Sonification Extraction
8010 = EPA Method 8010, Gas Chromatography with "Hall" Detector
8020 = EPA Method 8020, Gas Chromatography with Photoionization Detector
8015 = EPA Method 8015, Gas Chromatography with Flame Ionization
503E = APHA Method 503E, Gravimetric Quantitation of Non-volatile Hydrocarbons
3050 = EPA Method 3050, Acid digestion
7421 = EPA Method 7421, Atomic Absorption Quantitation
WET = DHS Waste Extraction Test

Footnotes

*1 = 1,1,1-trichloroethane detected at 140 ppb.

SITE HYDROGEOLOGIC CONDITIONS

To estimate the stratigraphy, ground water flow direction and the approximate ground water depth in the site vicinity WA:

- Observed neighboring sites and reviewed local and state agency files to determine whether any water wells were nearby, and

- Researched local and regional hydrogeologic data.

Results of this work indicate:

- No water wells or soil borings are on the Shell Oil service station or the adjacent properties.

- An Alameda County Flood Control and Water Conservation District (Zone 7) Fall 1988 ground water contour map for the Livermore ground water basin indicates that 17 wells are within one-half mile of the site.[1] The closest of these wells is about 1,000 ft northeast of the site.

- Based on the Zone 7 contour map, in the vicinity of the subject Shell station unconfined ground water in the upper ground water-bearing zone flows northwestward and occurs at a depth of about 45 ft below ground surface. This flow direction is consistent with the west-northwestward regional ground water flow direction. The Zone 7 map shows two distinct ground water-bearing zones beneath the site. The potentiometric surface of the deeper water-bearing zone is about 75 ft below the potentiometric surface of the upper water-bearing zone and slopes southward towards a deep water well located about 2,000 ft south of the site.

- Alameda County Environmental Health Department (ACEHD) records indicate the lithology and the precise water depths for two of the wells used for the Zone 7 report and a third well not used for the report. Ground water depths in wells

[1] Memorandum from D. Malonkowski to J. Killingstad, March 24, 1989, Fall 1988 Ground Water Level Contour Map, Alameda County Flood Control and Water Conservation District (Zone 7), 3 pp and 2 figures.

2,100 and 3,000 ft southeast of the site, the two wells used for the Zone 7 report, were about 69 and 49 ft respectively. The depth to ground water in the third well, which is about 1,100 ft east of the site at the intersection of 5th and Maple Streets, is about 14 ft.

- The Zone 7 ground water contour map indicates that the ground water depth in the site vicinity in the Fall of 1988 was approximately 45 ft. Historic ground water elevation data for a water well located about 3/4 mile east-northeast of the site (Well ID 352E98K2) indicated the highest historic ground water elevation in this part of the City of Livermore occurred in 1917 when the levels were about 25 ft higher (approximately 20 ft below ground surface) than the Fall 1988 elevations. In recent years, ground water levels were highest in 1984 when they were about 23 ft higher than the Fall 1988 levels.[2]

- Specific information regarding the composition of the subsurface materials at the subject Shell site is not available. However, a California Department of Water Resources (DWR) study indicates an ancestral Arroyo Mocho stream channel is located within 1/4 mile east of the site.[3] Therefore, the Quaternary alluvium underlying the site should be predominantly composed of low-permeability clay and silt, interbedded with moderate to high permeability sand and gravel lenses.

CLOSURE REQUIREMENTS

A 1985 San Francisco Bay Region WQCB tank removal and fuel leak guidance document[4] requires documentation of the integrity of the tank and tank piping and the condition of the tank excavation, collection of soil samples beneath the tank, and analysis of the samples for hydrocarbons. This document requires monitoring well installation only if greater than 100 ppm hydrocarbons are detected in the soil samples, but does not specifically address waste oil tank removals.

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[2] Telephone conversation between J. P. Theisen, WA Project Geologist and Craig Mayfield, Zone 7 Water Resources Engineer, August 24, 1989.

[3] California Department of Water Resources, Bulletin No. 118-2, June 1974, Evaluation of Water Resources: Sunol and Livermore Valleys, 153 pp.

[4] California Regional Water Quality Control Board - San Francisco Bay Region, September 1985, Guidelines for addressing fuel leaks, 24 pp. and 4 attachments.

According to a June 2, 1988 Northern California WQCB guidance document,[5] if less than 100 ppm hydrocarbons are detected in the native soil within 2 ft below the tank, no hydrocarbons are detected in soil at or below the seasonal high ground water level, low permeability soil underlies the tank and no hydrocarbons are in ground water beneath the tank, the tank excavation can generally be closed with no further work.

SITE STATUS WITH RESPECT TO CLOSURE REQUIREMENTS

The results of the previous work at the site and WA's hydrogeologic research indicates:

- Soil samples collected beneath the removed tank contained less than 100 ppm oil and grease and no fuel hydrocarbons. However, 140 ppb 1,1,1-trichloroethane (TCA) was detected in one soil sample, and soluble lead in material excavated from the tank pit exceeded the DHS lead STLC. 69 ppm

- The tank was in apparently good condition at the time of its removal and no evidence of significant tank leakage was noted in the tank excavation following the tank removal.

- The ground water depth in this part of the Livermore Valley is currently about 40 to 45 ft below ground surface. Assuming a historic high ground water level of about twenty ft below ground surface, there is no indication that hydrocarbons are in soil below the historic high ground water elevation.

- Although no site-specific information is available, based on regional subsurface conditions, soil types beneath the site should consist predominantly of fine-grained low-permeability clays and silts, interbedded with layers of sand and gravel.

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[5] North Coast, San Francisco Bay and Central Valley Regional Water Quality Control Boards, June 2, 1988, Regional Board Staff Recommendations for Initial Evaluation and Investigation of Underground Tanks, 18 pp.

RECOMMENDATIONS

Based on these site characteristics and tank condition, there is no evidence that hydrocarbons from the former waste oil tank excavation are a potential threat to ground water. In addition, the tank removal complied with the closure requirements in effect at the time of the removal. Therefore, we recommend that Shell Oil apply for closure of the former waste oil tank excavation by submitting this report to the following agencies:

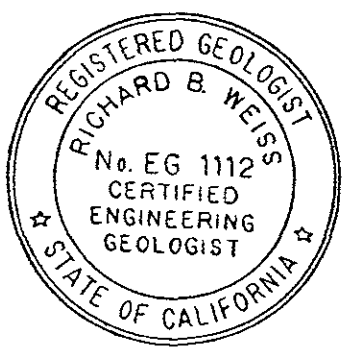
Alameda County Department of Environmental Health
Hazardous Materials Program
80 Swan Way, Room 200
Oakland, California 94621
Attn: Mr. Edgar Howell

California Regional Water Quality Control Board - San Francisco Bay Region
1111 Jackson Street
Oakland, California 94607
Attn: Mr. Lester Feldman

Alameda County Flood Control and Water Conservation District (Zone 7)
5997 Parkside Drive
Pleasanton, CA 94566
Attn: Mr. Craig Mayfield

We are pleased to provide hydrogeologic consulting services to Shell Oil and trust this submittal meets your needs. Please call if you have any questions or comments.

Sincerely,
Weiss Associates,



Joseph P. Theisen
Project Geologist

Richard B. Weiss
Principal Hydrogeologist

JPT\RBW:ag

F:\ALL\SHELL\428L1SP9.WP

Encl.: Attachment A - Site Map
Attachment B - Blaine Tech Report

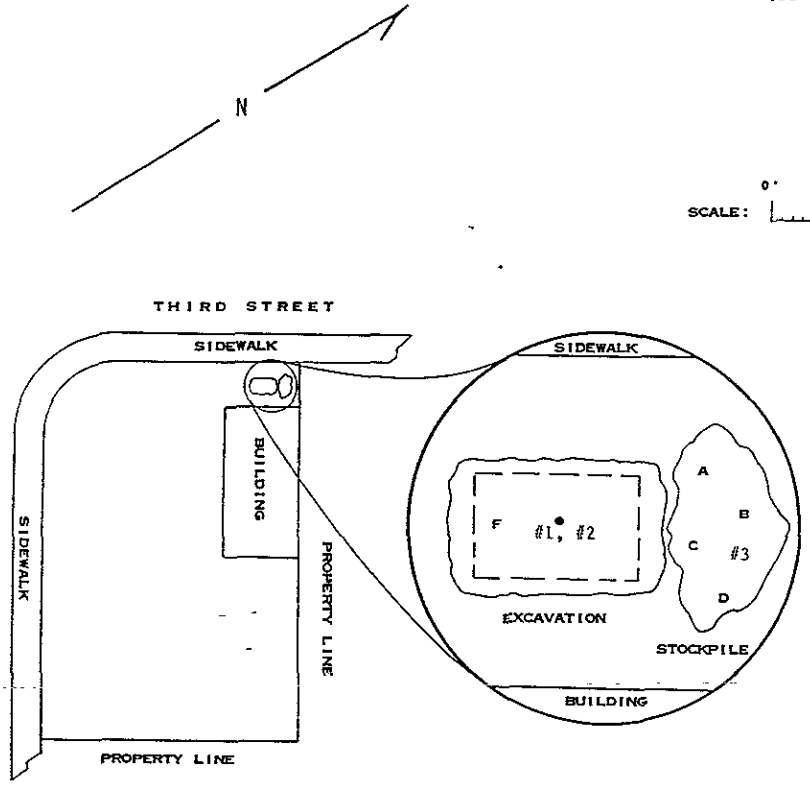
ATTACHMENT A

SITE MAP

ORIGINAL SAMPLING REPORT 87232-C-1 page 2 diagram

BLAINE TECH SERVICES SAMPLING REPORT 87232C1 8-20-87 SHELL STATION, 318 SOUTH LIVERMORE AVENUE, LIVERMORE, CA.

MAP REF: THOMAS BROS., ALAMEDA COUNTY PG. 40 E-7



#1 SOIL FROM 8'

50 PPM VAPOR

ANALYSIS FOR TOTAL OIL AND GREASE (TOG), TOTAL PETROLEUM HYDROCARBONS (TPH) - HIGH BOILING FRACTION (HBF), AND EPA 8010 AND EPA 8020 AT SEQUOIA ANALYTICAL LABORATORY
SEQUOIA LAB NO. 7081426

#2 SOIL FROM 11'

75 PPM VAPOR

ANALYSIS FOR TOG, TPH - (HBF) AND EPA 8010 AND EPA 8020
SEQUOIA LAB NO. 7081428

#3 STOCKPILE SOIL COMPOSITE AT SAMPLE POINTS A-D
ANALYSIS FOR TOG, TPH - (HBF) AND EPA 8010 AND EPA 8020
SEQUOIA LAB NO.

SAMPLING PERFORMED BY STEVE CARTER
DIAGRAM PREPARED BY BRENT E. ADAMS

PAGE 2

ATTACHMENT B

BLAINE TECH REPORT

BLAINE
TECH SERVICES INC.

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

June 28, 1989

Shell Oil Company
P.O. Box 4848
511 North Brookhurst Street
Anaheim, CA 92803

Attn: Peter J. Pugnale
Area Engineer--Environmental
Western Distribution Area

SITE:
Shell Service Station
318 S. Livermore Avenue
Livermore, California

PROJECT:
Archival search for previously unpublished notes made during waste oil tank removal related sampling on

August 20, 1987 Sampling Report 87232-C-1

DOCUMENT PACKAGE 87232-C-1.ADD

Blaine Tech Services Inc. is an independent third party that performs tank removal sampling, groundwater monitoring well sampling and grab sampling services throughout central and northern California. The scope of services is intentionally limited to those that provide objective information. Unlike consulting/remediation vendors who have a complete battery of related investigation, evaluation, and remediation services which they hope to use, Blaine Tech Services, Inc. is only in the business of supplying high quality sampling and documentation. In order to preserve the objectivity necessary for the proper and impartial performance of this work and avoid implicit conflicts of interest, Blaine Tech Services, Inc. does not participate in the interpretation of analytical results or engage in the marketing of remediation systems of any kind.

LIMITATIONS

This information was compiled in response to your request for any additional and potentially useful unpublished notes made by our personnel during the waste oil tank removal project. In order to give an unfragmented presentation, we have assembled a package of *all* the applicable information. The previously unpublished notations are presented along with any existing photographs of the work in progress, followed by a complete reproduction of the original Sampling Report, the chain of custody, and the certified analytical laboratory reports.

Please bear in mind that the present search of our files is a separate scope of work from the original tank removal sampling which was completed with the issuance of our Sampling Report 87232-C-1. It is prudent to remember that this new work carries with it the usual dangers that are inherent in all archival research. In particular, there are two distinct problems that will impede any attempt to make substantive use of the informal notes which have been drawn from our files.

> First, the unpublished information was considered, at the time of its collection, to be ancillary to the core information issued in the formal Sampling Report. After so much time has elapsed it would be difficult to justify elevating those casual contemporaneous notations to a more authoritive status.
>
> Second, the information contained in those casual notes was not collected in a formal and systematic fashion that would allow all parties to have a high degree of confidence that the notes accurately represent *all* the conditions at the site which may now (after several years) be deemed important. In this regard, the primary skepticism that must be applied to the information is not that it is, necessarily, inaccurate but that it *is*, necessarily, incomplete.

These limitations suggest that the previously unpublished notations will mainly be of use in corroborating information available from other sources (such as the already issued reports), but will probably not alter the ranking of the site established by laboratory results and accepted regulatory criteria. These constraints should be taken into account when requesting archival searches and, especially, when evaluating the utility of the unpublished information in relationship to the cost of obtaining it.

BACKGROUND

Blaine Tech Services, Inc. was contacted to perform the collection of samples at this site, and to transport the samples to a state licensed laboratory. The brief report that was subsequently issued followed the standard short form format being used by our firm at that time. Though sparse by contemporary standards, this abbreviated report format had been developed at the request of the RWQCB and was used as a model by several San Francisco Bay area regulatory agencies.

Hired primarily to perform sampling (rather than documenting the entire sequence of events involved in the tank removal process), our personnel directed their documentation efforts mainly to establishing and recording the location from which the sample material was collected. Other data was collected as it was available and as our personnel had time to record it. QC work was directed to verifying the correctness of information in the written reports and did not address the casual notes and comments entered into the file by our field personnel.

ADDITIONAL NOTES ON SAMPLING EVENT 87232-C-1

Waste oil tank removal sampling August 20, 1987

The Shell engineer overseeing work at this site was Mr. Ray Newsome. However, much of the actual work at the site was organized and coordinated by Crosby & Overton acting as the general contractor. Crosby & Overton's representative Mr. Ron Cadiz made the arrangements for Blaine Tech Services personnel to be present at the time of the removal, specified the speed at which different samples would receive different analyses, and wrapped both the sampling and the analytical laboratory charges in with their billing to Shell.

Blaine Tech Services, Inc. personnel were called to the site to take samples following the removal of the waste oil tank on August 20, 1987.

The local regulatory agency was the Livermore Fire Department represented by inspector Fire Inspector Sue Montgomery. Her office phone number was recorded as (415) 447-2232.

Notations not summarized in our report include the following:

Our personnel were not present during the uncovering of the tank. However, our personnel made inquiries of the contractor and backhoe operator. According to the excavators, there was "no stained soil around the fill pipe."

The excavators also reported that on removal of the tank, the backfill material immediately underneath the tank was observed to be free of apparent stains.

As can be seen in the accompanying photographs, the tank was not cut open prior to removal from the tank pit.

Our personnel noted that the tank was rusted and pitted but had no holes.

The native soil at eight feet below grade had no signs of discoloration.

Our personnel also noted that the soil had a distinctive clean smell. They proceeded to check the soil with a Gastech model 1314 outfitted with a windshroud and obtained a reading of 50 ppm-vapor.

Sample #1 was obtained at 8.0' below grade.

Additional excavation was undertaken in the form of exploratory trenching which cut to a depth of 11.0' below grade at the direction of Bill with PEG. (PEG is thought to be an abbreviation for Petroleum Engineering rather than Pacific Environmental Group.) This trenching found no change in the appearance or consistency of the soil found at the RWQCB interface sampling depth.

Sample #2 was obtained at 11.0' below grade which was the furthest extent of excavation undertaken by the backhoe.

Sample #3 was a stockpile sample made up of four brass sample containers collected at different points in the stockpile.

Our personnel also noted that the tank had already been replaced with another tank which was installed and operational.

An RWQCB Checklist For Soil And Groundwater Sampling During Tank Removal was completed.

1) The question regarding the review of inventory records was marked not applicable.

2) The question regarding a visual inspection of the tank for holes or leakage upon removal was marked yes (the tank had no holes).

3) A visual inspection of the associated piping was marked no with the notation: "removed prior to arrival."

4) Visual inspection of the excavation was checked yes.

5) The question regarding collection of two soil samples from beneath each fuel tank was checked yes. (This appears to be an incorrect response in that only the one interface sample was collected.)

6) The question about whether appropriate sample handling techniques were used was answered with a yes.

7) The question regarding the collection of one soil sample from the most obviously contaminated area to be analyzed for TPH, oil/grease, and volatile organic compounds (EPA 8240) was checked off with a yes.

8) Collection of a representative sample of the representative fuel for use as a laboratory standard was checked as being not applicable.

9) The question regarding a high water table and the collection of soil samples from the sidewalls and a water sample was checked as being not applicable.

10) Preparation of a site plan was answered with a yes.

11) Submission to a certified laboratory under a chain of custody was answered with a yes.

12) Our personnel did not make any entry in regard to the completion of an Unauthorized Release Form except to draw a large x through it. We interpret this as an affirmation that our personnel did not consider that the question applied to the work Blaine Tech Services, Inc. was performing at the site.

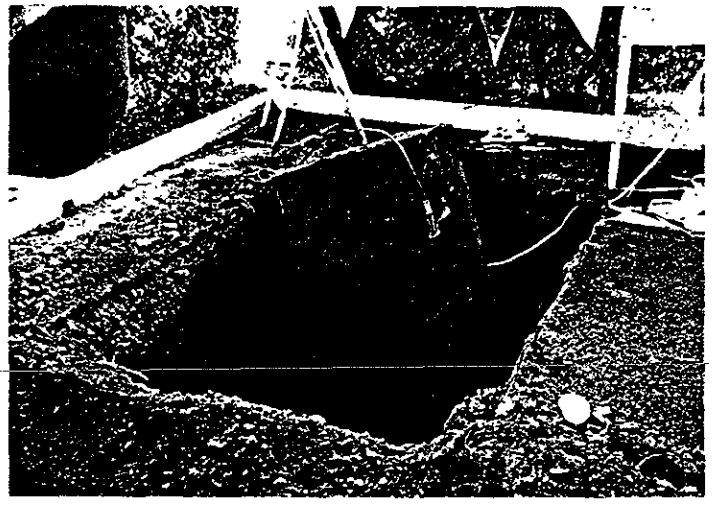
13) The large x cross-out that canceled item twelve above also extended through this item. Again, we interpret this as an indication that our personnel felt that the documents and notifications would be handled by personnel outside our firm.

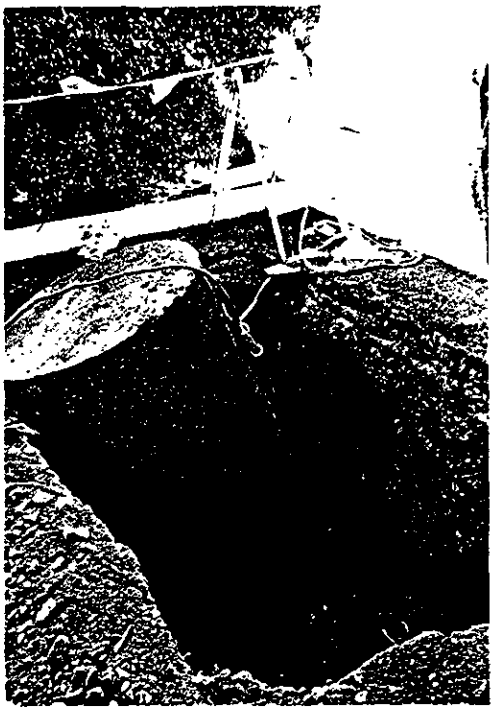
A series of six (6) original color prints were present in the job folder. Three of these prints show the tank uncovered and standing on end with a hook and cable attached, ready to be lifted up out of the pit. One print shows the tank being lifted up, clear of the pit. Another print shows the impression left by the tank in the soil at the bottom of the empty tank pit. The sixth photographs shows soil being dug up out of the empty pit by the backhoe.

Black and white photocopy reproductions of these photographs are presented on the following pages of this Document Package. Please note that the original negatives were not contained in the job folder. In accordance with the filing conventions in use at the time the original work was performed, the photographic negatives were stored in a separate file. If there is a significant need for full color reproductions of the photographs, we can provide color photocopies of the original prints, color photoreproductions of the original prints, or new color prints from the original negatives.

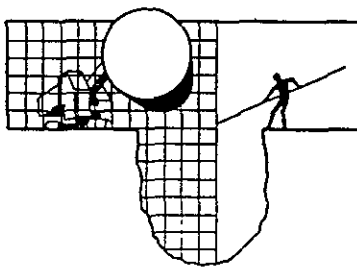
The other remaining papers contained in the job folder are the notes, forms and original diagrams that support the information presented in Sampling Report 87232-C-1. The full text of the Sampling Report, along with the chain of custody records, and certified analytical reports are reproduced in their entirety immediately following the job photographs.

PHOTOGRAPHS (6 COLOR PRINTS)





PHOTOGRAPHS (6 COLOR PRINTS)



BLAINE
TECH SERVICES INC.

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

September 10, 1987

Shell Oil Company
P.O. Box 4023
Concord, CA 94524

ATTENTION: Mr. Ray Newsome

RE: Field sampling at

SHELL STATION
318 SOUTH LIVERMORE AVENUE
LIVERMORE, CA

AUGUST 20, 1987

SAMPLING REPORT

Field sampling was undertaken in accordance with State and local enforcement agency standards and requirements for objective analytical information on the levels of residual contaminants found outside the primary containment structure. This project concerned the following:

Underground storage tank removal

Reason for removal -- replacement with containment tank

Type -- one 650 gallon waste oil

Condition -- tank was rusted and pitted, but no holes

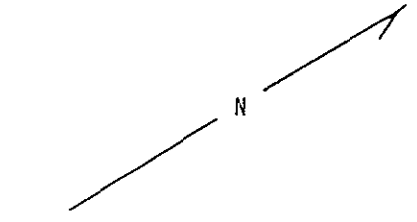
Sampling was performed in accordance with approved methodology at the locations shown on the accompanying site diagram. Additional information is presented on the diagram including our field sampling designations and the lab identification numbers which reference the analytical results which will be found in the separate laboratory report. Sample material was collected in special containers appropriate to the type of analysis intended. Sample containers were sealed, chilled, and transported to the laboratory with standard chain of custody records maintained at each transmittal. This sampling report, the chain of custody, and the analytical report comprise the formal documentation of the sampling conducted during this phase of work at the site.

87232C1 8-20-87 Shell Stn. 318 S. Livermore Ave., Livermore, CA page 1

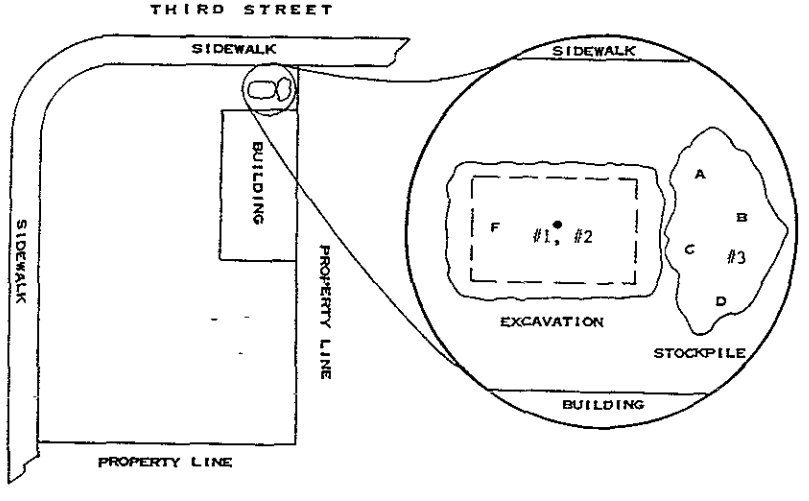
ORIGINAL SAMPLING REPORT 87232-C-1 page 2 diagram

BLAINE
TECH SERVICES SAMPLING REPORT 87232C1 8-20-87 SHELL STATION, 318 SOUTH LIVERMORE AVENUE, LIVERMORE, CA.

MAP REF: THOMAS BROS. ALAMEDA COUNTY PG. 40 E-7



SCALE: 0' 20' 40'



#1 SOIL FROM 8'
50 PPM VAPOR
ANALYSIS FOR TOTAL OIL AND GREASE (TOG), TOTAL PETROLEUM HYDROCARBONS (TPH) - HIGH BOILING FRACTION (HBF), AND EPA 8010 AND EPA 8020 AT SEQUOIA ANALYTICAL LABORATORY
SEQUOIA LAB NO. 7081426

#2 SOIL FROM 11'
75 PPM VAPOR
ANALYSIS FOR TOG, TPH - (HBF) AND EPA 8010 AND EPA 8020
SEQUOIA LAB NO. 7081428

#3 STOCKPILE SOIL COMPOSITE AT SAMPLE POINTS A-D
ANALYSIS FOR TOG, TPH - (HBF) AND EPA 8010 AND EPA 8020
SEQUOIA LAB NO.

SAMPLING PERFORMED BY STEVE CARTER
DIAGRAM PREPARED BY BRENT E. ADAMS

PAGE 2

REPORTAGE

Submission to the Regional Water Quality Control Board and the local regulatory/enforcement agency should include copies of the sampling report, the chain of custody, and the laboratory report. 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: Tom Callaghan

Alameda County Health
Hazardous Materials Management
420 27th Street
Oakland, Ca 94612
Attn: Edgar Howell

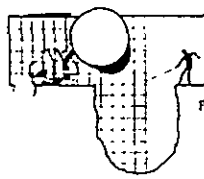
Livermore Fire Department
4550 East Avenue
Livermore, CA 94550
ATTN: Sue Montgomery

Please call if we can be of any further assistance.

Richard C. Blaine

RCB/egk

ORIGINAL SAMPLING REPORT 87232-C-1 chain of custody



BLAINE TECH SERVICES INC.

P.O. BOX 5745
SAN JOSE, CA 95150
(408) 723-3974

PROJECT NUMBER: 87232 C1

SITE ADDRESS: Shell, 318 So. Livermore, Livermore, CA

PLEASE INCLUDE PROJECT NUMBER AND SITE ADDRESS ON LAB REPORTS AND INVOICES.

TURN-AROUND: 2 12-48 hrs; #'s 1, 3a, 3b, 3c, 3d - routine RESULTS BY 8-22-87 LAB USED SEQUOIA

BILLING:
(✓) Bill Blaine Tech Services
( ) BILL

SPECIAL INSTRUCTIONS:
TOG - Total oil & grease
TPH - Total Petroleum hydrocarbons
Composite #3a, 3b, 3c & 3d
#2 - 48 hr. rush

I.D.	TYPE	ANALYSIS TO DETECT	LAB #	LAB RESULTS
#1	Soil	TOG, TPH (8010/8020 high boilers)		
#2	"			
#3 composited	"			

1wk routine
48 hr. rush → #2
1wk routine → #3 composited

Field sampling completed 10:14 AM/PM 8-20-87 performed by Stephen Carter

RELEASED BY		ACCEPTED BY	
12:03 AM/PM 8-20-87	Stephen Carter	12:03 AM/PM 8-20-87	[illegible]
:__ AM/PM - -87		:__ AM/PM - -87	
:__ AM/PM - -87		:__ AM/PM - -87	

SEQUOIA Analytical Laboratory
2549 Middlefield Road
Redwood City, CA 94063 • (415) 364-9222

Blaine Tech Services
P.O. Box 5745
San Jose, CA 95150
Attn: Richard Blaine

Date Sampled: 08/20/87
Date Received: 08/20/87
Date Reported: 09/02/87
BTS #87232C1

Sample Number	Sample Description	Detection Limit ppm	Gravimetric Waste Oil as Petroleum Oil ppm
7081426	Shell at 318 So. Livermore in Livermore, CA - Soil #1	30	87

NOTE: Analysis was performed using EPA extraction method 3550 with Trichlorotriflouroethane as solvent, and gravimetric determination by standard methods 503E.

SEQUOIA ANALYTICAL LABORATORY

Arthur G. Burton
Laboratory Director

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Date Sampled: 08/20/87
Date Received: 08/20/87
Date Reported: 09/02/87
BTS #87232C1

Sample Number	Sample Description	Detection Limit ppm	Total Hydrocarbons as Diesel ppm
7081426	Shell at 318 So. Livermore in Livermore, CA - Soil #1	1.0	< 1.0

NOTE: Analysis was performed using EPA methods 3550 and 8015.

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Date Sampled: 08/20/87
Date Received: 08/20/87
Date Extracted: 08/27/87
Date Reported: 09/02/87
BTS #87232C1

Sample Number
7081426

Sample Description
Shell at 318 So. Livermore in Livermore, CA - Soil #1

PRIORITY POLLUTANTS
VOLATILE ORGANIC COMPOUNDS
results in ppb

Acrolein	< 10,000	trans-1,2-Dichloroethene	< 50
Acrylonitrile	< 10,000	1,2-Dichloropropane	< 50
Benzene	< 50	1,3-Dichloropropene	< 50
Bromomethane	< 50	Ethylbenzene	< 50
Bromodichloromethane	< 50	Methylene chloride	< 50
Bromoform	< 50	1,1,2,2-Tetrachloroethane	< 50
Carbon tetrachloride	< 50	Tetrachloroethene	< 50
Chlorobenzene	< 50	1,1,1-Trichloroethane	< 50
Chloroethane	< 50	1,1,2-Trichloroethane	< 50
2-Chloroethylvinyl ether	< 50	Trichloroethene	< 50
Chloroform	< 50	Toluene	< 50
Chloromethane	< 50	Vinyl chloride	< 50
Dibromochloromethane	< 50	1,2-Dichlorobenzene	< 50
1,1-Dichloroethane	< 50	1,3-Dichlorobenzene	< 50
1,2-Dichloroethane	< 50	1,4-Dichlorobenzene	< 50
1,1-Dichloroethene	< 50		

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NOTE: Methods 8010 & 8020 of the EPA were used for this analysis.

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Date Sampled: 08-20-87
Date Received: 08-20-87
Date Reported: 08-25-87

BTS #87232-C1

Sample Number	Sample Description	Detection Limit ppm	Gravimetric Waste Oil as Petroleum Oil ppm
7081428	Soil #2 Shell at 318 So. Livermore in Livermore, CA	30	48

NOTE: Analysis was performed using EPA extraction method 3550 with Trichlorotriflouroethane as solvent, and gravimetric determination by standard methods 503E.

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Date Sampled: 08-20-87
Date Received: 08-20-87
Date Reported: 08-25-87

BTS #87232-C1

Sample Number	Sample Description	Detection Limit ppm	Total Hydrocarbons as Diesel ppm
7081428	Soil #2 Shell at 318 So. Livermore in Livermore, CA	1	< 1.0

NOTE: Analysis was performed using EPA methods 3550 and 8015.

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San Jose, CA 95150
Attn: Richard Blaine

Date Sampled: 08-20-87
Date Received: 08-20-87
Date Extracted: 08-21-87
Date Reported: 08-25-87

BTS #87232-C1

Sample Number: 7081428

Sample Description: Soil #2
Shell at 318 So. Livermore
in Livermore, CA

PRIORITY POLLUTANTS
VOLATILE ORGANIC COMPOUNDS
results in ppb

Acrolein	< 10,000	trans-1,2-Dichloroethene	< 50
Acrylonitrile	< 10,000	1,2-Dichloropropane	< 50
Benzene	< 50	1,3-Dichloropropene	< 50
Bromomethane	< 50	Ethylbenzene	< 50
Bromodichloromethane	< 50	Methylene chloride	< 50
Bromoform	< 50	1,1,2,2-Tetrachloroethane	< 50
Carbon tetrachloride	< 50	Tetrachloroethene	< 50
Chlorobenzene	< 50	1,1,1-Trichloroethane	140
Chloroethane	< 50	1,1,2-Trichloroethane	< 50
2-Chloroethylvinyl ether	< 50	Trichloroethene	< 50
Chloroform	< 50	Toluene	< 50
Chloromethane	< 50	Vinyl chloride	< 50
Dibromochloromethane	< 50	1,2-Dichlorobenzene	< 50
1,1-Dichloroethane	< 50	1,3-Dichlorobenzene	< 50
1,2-Dichloroethane	< 50	1,4-Dichlorobenzene	< 50
1,1-Dichloroethene	< 50		

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NOTE: Methods 8010 & 8020 of the EPA were used for this analysis.

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Attn: Richard Blaine

Date Sampled: 08/20/87
Date Received: 08/20/87
Date Reported: 09/09/87
Date Relogged: 09/01/87
BTS #87232C1

Sample Number	Sample Description
7081427	Shell at 318 So. Livermore in Livermore, CA - Soil Composite of 3A,B,C,D

ANALYSIS

Flashpoint, °C: > 110

	STLC mg/L	TTLC mg/kg-wet wt.
Lead	6.1	69
Organic Lead	--	0.40

SEQUOIA ANALYTICAL LABORATORY

Arthur G. Burton
Laboratory Director

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We hope that the foregoing documents will be of use in your work at this site.

Please call if we can be of any further assistance.

Richard C. Blaine

RCB/dmp