

Nov. 22, 1989

Mr. Frank Ramos
c/o Mr. Richard P. Flynn
1630 N. Main St., Suite 134
Walnut Creek, Ca. 94596-4609

Re: Workplan-Proposal for Soil and Groundwater Investigation Services at
5293 Crow Canyon Rd., Castro Valley

Dear Mr. Ramos,

The following is Aqua Science Engineer's workplan-proposal for a preliminary site assessment to be conducted at the site referenced above. The scope of work was developed from the Regional Board Staff Recommendations for Initial Evaluation and Investigation of Underground Tanks of June 2, 1988, revised April, 1989. The format for the proposal is from the Workplan for Initial Subsurface Investigation, Proposal Format attachment that accompanied recent correspondence from the Alameda County Dept. of Environmental Health, Hazardous Materials Program offices.

I. INTRODUCTION

A. Statement of Work Scope:

A soil and groundwater investigation is to be conducted at 5293 Crow Canyon Rd. in Castro Valley, Ca., as a result of earlier investigative activities at the site. The site assessment has been mandated by May 8, 1989 correspondence from the Alameda County Dept. of Environmental Health, Hazardous Materials Program. The May 8 letter requires that the vertical and horizontal extent of gasoline and waste oil contamination in the soils and groundwater be determined (Appendix A).

B. Site Location:

The site is located on the southern side of Crow Canyon Rd., east of Castro Valley (Figure 1). From the southern property line the topography slopes steeply downhill toward the southeast and Crow Canyon Creek which flows to the southwest at the bottom of Crow Canyon.

C,D. Background and Site History:

A Shell gasoline station operated at the subject site prior to February, 1989, when three 8,000 gallon gasoline tanks and one 500 gallon waste oil were removed by Aqua Science Engineers. The details of the tank removals and associated sampling are summarized in the project report of March 10, 1989 (Appendix B).

An estimate of the amount of fuel products lost into the soils was not made. To date, no other investigative work has been performed at the site.

II. SITE DESCRIPTION

A. Vicinity Description and Hydrogeologic Setting:

The site rests upon Cretaceous marine sedimentary deposits of the Panoche Formation. The sandstone and claystone beds dip steeply to the southwest and the axis of the Niles Syncline less than 1/2 mile away. Surrounding the valley are Cretaceous marine deposits of the Panoche and Knoxville Formations. The surrounding area is comprised of northwest trending folds and faults, including the East Chabot Fault which lies about one mile to the southwest of the site.

B. C. Vicinity Map:

Though the gas station has been removed, Figure 2 gives the approximate layout of those facilities, as well as the locations of proposed borings and monitoring wells.

D. Existing Soil Contamination and Excavation

Initial soil samples were obtained from the backhoe bucket by driving 2" X 6" brass tubes into the soil until they were full. The tubes were sealed with aluminum foil, teflon caps, and tape, then placed into a cooler with ice. They were transported following chain of custody procedures to a State Certified laboratory with the documentation and results contained in Appendix B.

Groundwater was not encountered in the tankpit excavation, which was excavated to about 13 feet depth. Near surface soils are of the same composition as the sedimentary rocks described above, and were hard.

The soil samples were obtained from beneath the gasoline tank inverts at 13 feet depth and from beneath the wasted oil tank at 7 feet depth.

Six samples of the soils/rock beneath the tanks yielded concentrations of Total Petroleum Hydrocarbons (TPH) as gasoline ranging from non-detectable to 980 parts per million (ppm) and 35 ppm total oil and grease in the tankpit soil sample (Table 1). Benzene concentrations ranged from nondetectable to 4,000 parts per billion (ppb), ethylbenzene from 5 ppb to 17,000 ppb. Toluene was detected at between 100 ppb to 35,000 ppb, with total xylenes between 20 ppb and 75,000 ppb.

No underground utilities were encountered during the tank removal, though Underground Service Alert will be notified before commencement of further investigative work.

Soil excavated from the tankpits was piled onsite where it exists today. A stockpile soil sample was analyzed and the results included in Table 1.

To date, the only permits required for the site have been those related to the tank removals and they are included in the tank removal summary report in Appendix B. Monitoring well construction permits will be obtained before monitoring well drilling is initiated.

Table 1
Soil Sample Analyses

TABLE 1 - SOIL SAMPLE ANALYSIS - TANK REMOVAL

Sample ID (figure 2) Chemical Compound	TA-1 (ppm)	TA-2 (ppm)	TB-1 (ppm)	TB-2 (ppm)	TC-1 (ppm)	TC-2 (ppm)	TD-1 (ppm)
TPH (light)	980.0	210.0	78.0	75.0	ND	19.0	ND
TPH (diesel)	NA	NA	NA	NA	NA	NA	ND
Benzene	4.0	<0.08	0.05	<0.04	ND	0.013	0.007
Ethylbenzene	17.0	0.34	0.29	0.13	0.015	0.022	0.005
Toluene	35.0	0.29	0.26	0.12	0.010	0.035	0.017
Xylenes	75.0	0.27	0.64	0.19	0.062	0.310	0.020
Oil & Grease	NA	NA	NA	NA	NA	NA	35.0

NA - Not Applicable
ND - Not Detected

SOIL SAMPLE ANALYSIS - STOCKPILE

Sample ID	Composite S1 to S4
Chemical Analysis	(ppm)
TPH (light)	84.0
Oil & Grease	775.0

III. Plan For Determining the Extent of Soil Contamination On Site

The plan for determining the extent of soil and groundwater contamination includes drilling, sampling, and analysis of soils and groundwater at the site.

A, B. Describe Method/Technique For Determining Extent of Contamination Within the Excavation, Describe Sampling Methods, Procedures:

Boring Methods, Numbers, Locations, Abandonment

To determine the extent of soil and groundwater contamination present near the excavation and around the site, up to 10 borings are proposed, three of which will be converted to monitoring wells if groundwater is encountered at or above 45 feet drilling depth. A Mobile B-61 or B-57 hydraulic rotary drilling rig with 8 inch hollow stem augers will be used to drill all borings. At all proposed monitoring well locations, drilling will proceed to 45 feet depth.

Upon encountering groundwater at less than 45 feet drilling depth, a monitoring well (MW-1) will be drilled to a maximum of 65 feet and installed between the dispenser islands. MW-2 will be placed near the southwest corner of the gasoline tank pit. MW-3 will be located within 5 feet of the waste oil tankpit. If groundwater is not encountered, the borings will backfilled with Portland cement pumped through a tremmie hose from 45 feet depth up to original grade.

Seven soil borings (SB-1 through SB-7) will be drilled to 20 feet maximum depth. SB-1,2,3,4 will be drilled at points along the plumbing between the gas tanks and the dispenser islands. SB-4,5,6 will be drilled along the perimeter of the tankpit. SB-7 is to be drilled at a location underneath the previously removed building. Figure 2 shows the location of all proposed borings. ?

The seven soil borings will be backfilled with Portland cement which will be pumped through a tremmie hose from the bottom of each boring up to original grade.

Soil Classification and Sampling Methods

Each boring will be continuously logged on site by a geologist using the United Soil Classification System. Undisturbed soil samples will be taken at 5 foot intervals with a hammer driven California Split Spoon sampler as drilling progresses. The samples will be collected in precleaned 2" X 6" brass tubes and sealed with plastic caps and tape. All sampling equipment will be cleaned with a brush in a bucket of TSP solution and rinsed twice between samplings. The drilling rig and augers will be high pressure hot washed before arriving on site and between borings.

C. Describe Methods/Criteria for Screening Soil and Storing Soil

The existing soil stockpile is known to contain detectable levels of petroleum hydrocarbons. Soil samples obtained during drilling will be screened with an organic vapor analyzer in the field and all samples yielding a positive reading of any kind will be submitted for analysis.

Soil cuttings generated during drilling will be stored on site in 55 gallon drums with sealing lids pending lab analyses for later disposal. On site treatment of contaminated soils is not a part of the workplan.

D. Security Measures

The site is currently fenced across Crow Canyon Rd. A working area will be established with barricades and warning tape around the drill rig. Within the working area only authorized personnel will be allowed.

IV. Plan For Determining Groundwater Contamination

A. Placement and Rationale For Monitoring Well Placement

Upon encountering groundwater at 45 feet depth or less, MW-1 will be installed to 65 feet maximum depth in the area between the pump islands. MW-2 will be drilled and installed as MW-1 within 5 feet of the waste oil tankpit, with MW-3 established on the southwest corner of the gasoline tankpit. The three wells are located to allow good triangulation of survey points in a groundwater gradient determination, as well as to obtain sample points from specific areas of concern, as noted above.

B. Monitoring Well Drilling and Installation Specs.

Monitoring wells MW-1, 2, 3 will be drilled as described above. All three wells will be constructed of 2 inch Schedule 40 PVC casing, with up to 20 feet of .010" slotted schedule 40 PVC (Figure 4). The well casing will be inserted through the augers, followed by #3 washed sand through the augers in 1 to 2 foot lifts up to at least 2 feet above the perforated casing. One foot of bentonite pellets will be placed above the sand and activated with some water. The seal will be finished up to the surface with cement, and a locking cap and surface cover will be installed (Figure 2).

Soil samples will be collected at 5 foot intervals, starting at 5 feet depth, obtained as described above.

C. Groundwater Sampling Plans

The wells will be developed by the bailing of water into drums until the water appears to be reasonably clear. The water's clearness will be determined subjectively as bailing proceeds. The wells will be sampled as per Pratt Consulting Company's Monitoring Well Protocol of April, 1989 (Appendix B). All soil and groundwater samples to be submitted for analysis will be immediately placed into a cooler with ice and submitted to a State Certified Analytical Laboratory following chain of custody procedures for TPH as gasoline with BTXE distinction using EPA methods 8015/8020/602. Samples from MW-2 and SB-7 will be additionally analyzed for total oil and grease (method 503d & e), and chlorinated hydrocarbons using EPA method 8010/601. MW-2?

Laboratory analysis reports will have QA/QC data on the report itself, and groundwater samples will be analyzed with a duplicate and a blank. Purged water will be stored on site in drums until laboratory analyses are available.

Water level measurements will be taken as per Pratt Consulting Co. protocol noted above.

Chain of custody documentation shall accompany every soil and groundwater sample from the site to the laboratory.

V. Site Safety

Prior to commencement of investigative activities each day, a site safety meeting will be held at the designated command post which will be a vehicle which is proximal to the working area. Emergency procedures to follow in case of fire or severe injury or explosion will be outlined at site safety meetings. The hazards of the known or suspected chemicals on site will be explained at these meetings. Level D protection is the anticipated maximum amount of protection needed. A site safety plan will be on site at all times.

A working area will be established with barricades and warning tape to delineate the zone where hardhats, steel toed shoes must be worn, and where unauthorized personnel will not be allowed.

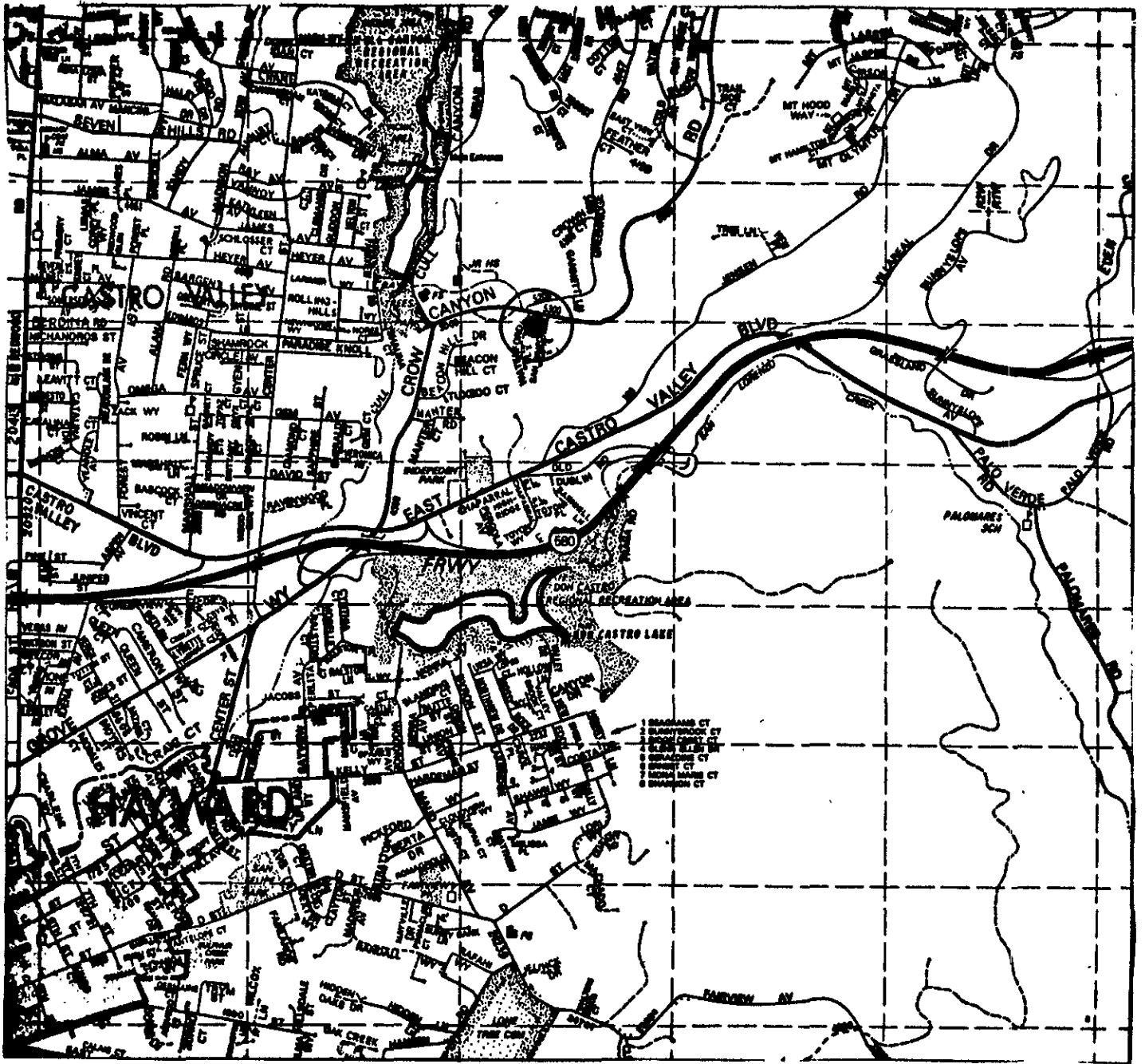
Drilling will not be conducted during lightning storms. If, during drilling, product odors emanating from the hole are deemed to be substantial, drilling personnel will wear Tyvek suits and rubber gloves. Respirators equipped with organic vapor cartridges may be worn as well under these drilling conditions.

The closest hospital is Laurel Hospital which is reached by traveling south on Crow Canyon Rd. to Castro Valley Blvd. where you drive west, turning north onto Lake Chabot Rd. and continuing about two blocks to the hospital on the left. Another nearby hospital is John Muir Emergi-center reached by traveling northeast on Crow Canyon Rd. to the intersection with Porter Dr. The hospital is there on the northwest corner of the intersection.

REPORTING

A complete report of methods, findings, and conclusions will be submitted to the client for forwarding to all appropriate agencies within 30 days of the completion of the investigation.

Figure 1
Site Location Map



Site Location

1 inch = 2,200 feet
from Thomas Bros.

Figure 2
 Site Plan at 5293 Crow Canyon Road, Castro Valley

CROWCANYON ROAD

DISPENSER ISLANDS

UNDERGROUND PIPING TO ISLANDS

MW-1

SB-2

SB-3

SB-4

SB-1

TA-1

SB-5

TA-2

SB-6

TB-1

TB-2

TC-1

TC-2

Building (removed)

(E) 8,000 GALLON GASOLINE TANKS TO BE REMOVED

LEGEND

◁ SOIL SAMPLE LOCATION
 (R) EXISTING



TD-1
 MW-3

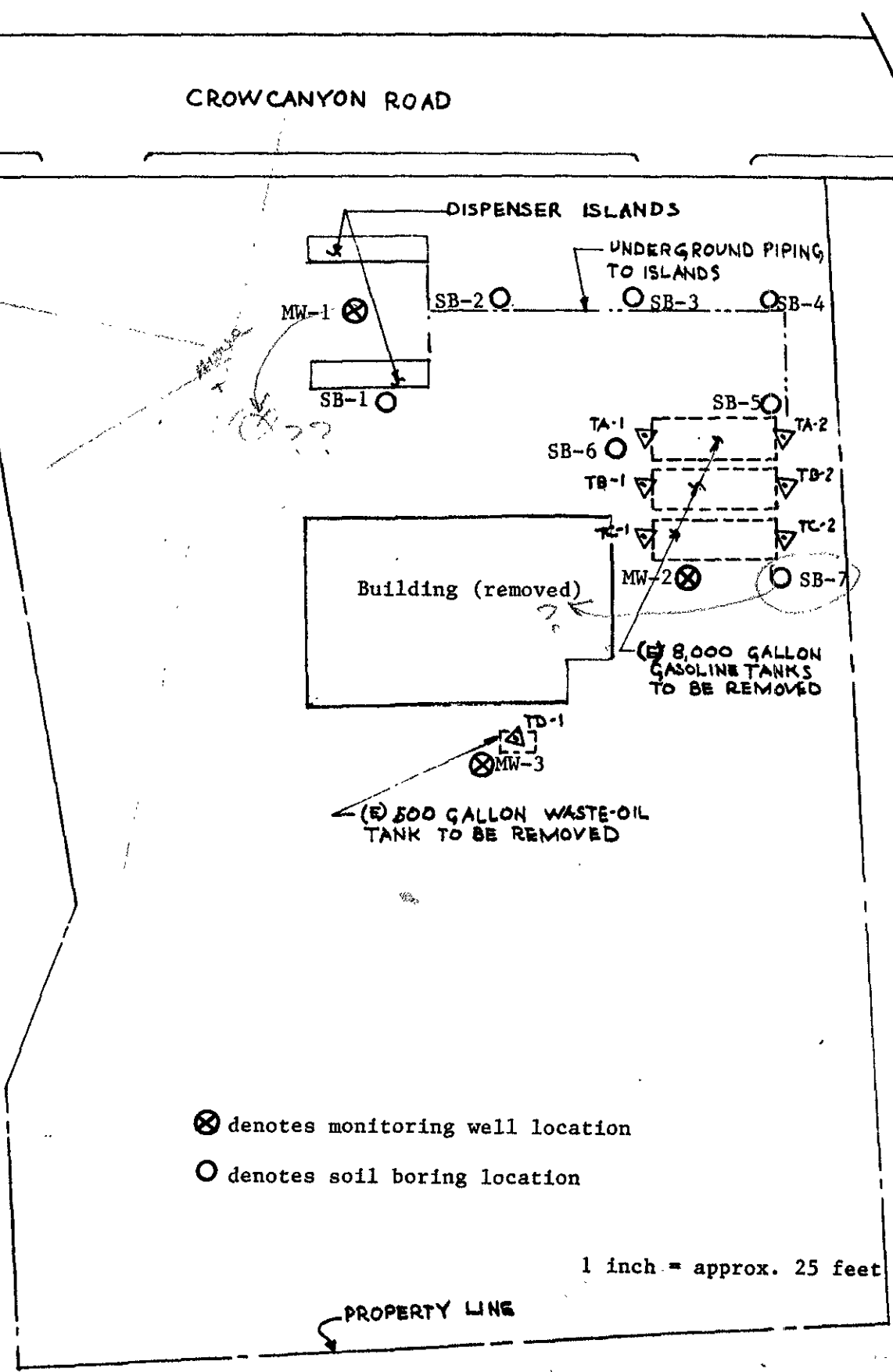
(E) 500 GALLON WASTE-OIL TANK TO BE REMOVED

⊗ denotes monitoring well location

○ denotes soil boring location

1 inch = approx. 25 feet

PROPERTY LINE



APPENDIX A
AGENCY CORRESPONDENCE

ALAMEDA COUNTY
HEALTH CARE SERVICES

AGENCY

DAVID J. KEARS, Agency Director



DEPARTMENT OF ENVIRONMENTAL HEALTH
Hazardous Materials Program
80 Swan Way, Rm. 200
Oakland, CA 94621
(415) 271-4320

May 8, 1989

Mr. Dan Denine
Lakeshore Financial
2100 Lakeshore Ave., Ste. B 444-6658
Oakland, CA 94606

RE: SOIL CONTAMINATION AT 5293 CROW CANYON ROAD, CASTRO VALLEY:
REQUEST FOR PRELIMINARY SITE ASSESSMENT

Dear Mr. Denine:

Our office has completed review of the Aqua Terra Engineers, Inc. report dated March 10, 1989 involving soil sampling and subsequent laboratory analyses following closure February 10, 1989 of four (4) underground storage tanks (UST) at the referenced site. This report identifies substantial soil contamination approaching 1000 ppm of total petroleum hydrocarbons as gasoline (TPH-G) in close proximity to the northernmost fuel UST. An additional composite sample collected from stockpiled material also indicates contamination by total oil and grease (TOG) up to 775 ppm. Contamination exceeding 100 ppm is identified by the Regional Water Quality Control Board - San Francisco Bay Region (RWQCB) as a "confirmed release."

Due to this site's "confirmed release" status, additional investigative work must be performed to further define the extent of vertical and lateral impact upon groundwater and soils resulting from the noted contamination. The information gathered by this investigation must be used to determine an appropriate course of action to remediate the site. This preliminary site assessment should be conducted in accordance with the RWQCB Staff Recommendations for Initial Evaluation and Investigation of Underground Tanks. The major elements of such an investigation are summarized in the attached Appendix A.

In order to proceed with a site investigation, you should obtain professional services from a reputable engineering/geotechnical consulting firm. The responsibility of your consultant is to submit for review a proposal outlining planned activities pertinent

Mr. Dan Denine
Lakeshore Financial
RE: 5293 Crow Canyon Rd.
Castro Valley
May 8, 1989
Page 2 of 2

to meeting the criteria outlined in this letter and the attached Appendix A. Once the preliminary site assessment has been completed, a technical report summarizing site related activities and conclusions must be submitted to this office and the RWQCB. All reports and proposals must be submitted under seal of a California-Certified Engineering Geologist, California-Registered Geologist, or California-Registered Civil Engineer.

This office will oversee the site assessment for the referenced site. This oversight will include our review and comment on work proposals, and technical guidance on appropriate investigative approaches. However, the issuance of monitoring well installation permits will be through Zone 7. The RWQCB may choose to take over as lead agency if it is determined following the site assessment that there has been a substantial impact upon groundwater.

Please submit a Preliminary Site Assessment proposal within 30 days of the receipt of this letter. Accompanying this proposal must be a check totalling \$831 to help defer the cost of our review of this plan and our oversight of the remediation process. This check should be made out to the County of Alameda. A copy of this proposal should also be sent to the RWQCB (Attn: Scott Hugenberger) for their review.

If you have any questions, please call Scott Seery, Hazardous Materials Specialist, at 415/271-4320.

Sincerely,



Rafat A. Shahid, Chief
Hazardous Materials Program

RAS:SOS:mam

cc: Howard Hatayama, DHS
Scott Hugenberger, RWQCB
Bob Bohman, Castro Valley Fire Dept.
Gil Jensen, Alameda County District Attorney, Consumer and
Environmental Protection Division
Pari Miraftebi, Alameda County Building and Inspection Dept.
Scott Seery, Alameda County Hazardous Materials Program
Files

Enclosure

APPENDIX B
PREVIOUS INVESTIGATIVE WORKS

March 10, 1989

PROJECT REPORT

UNDERGROUND STORAGE TANK REMOVAL ASSESSMENT
AT 5293 CROW CANYON ROAD, CASTRO VALLEY, CALIFORNIA

Prepared for:

Dan Dineen
Lakeshore Financial
2100 Lakeshore Avenue
Oakland, Ca. 94606

Submitted by:

Aqua Science Engineers
2500 Old Crow Canyon Rd. # 121
San Ramon, CA 94583

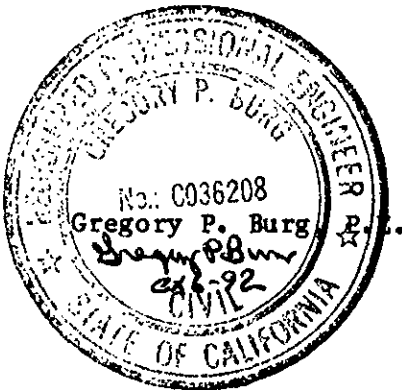


TABLE OF CONTENTS

1.	INTRODUCTION.....	1
2.	INVESTIGATIVE METHODS AND FIELD EXPLORATION.....	1
3.	DISCUSSION AND CONCLUSIONS.....	2
4.	SITE PLAN.....	3
APPENDIX A		
	HAZARDOUS WASTE MANIFEST.....	4
APPENDIX B		
	LABORATORY ANALYSIS AND CHAIN-OF-CUSTODY FORM....	7

1. INTRODUCTION

This report documents activities related to removal of the underground storage tanks located at 5293 Crow Canyon Road, Castro Valley, California.

Our scope of work consisted of the following:

1. Collecting soil samples at each end of the tanks to be removed and submit the samples to a state-certified laboratory for analysis of total petroleum hydrocarbons (TPH) and BTX using approved EPA Methods.
2. Submit a report to the client presenting results.

2. INVESTIGATIVE METHODS AND FIELD EXPLORATION

On February 10, 1989, Aqua Science Engineers obtained soil samples from under the storage tanks removed at 5293 Crow Canyon Road, Castro Valley, California. Soil samples were collect by driving a 4-inch by 2-inch brass tube into the soil using a wooden mallet. The samples were secured using aluminum foil, teflon caps, and sealed with duct tape.

The odor of petroleum products was present in the soil after removal of the tanks. Samples were collected at approximately thirteen (13) feet below grade at each end of the gasoline tanks and approximately seven (7) feet below grade for the waste oil tank. Also, four samples were collected from the excavated material.

The native soil was classified as a fractured sandstone and the backfill material as sand.

No groundwater was encountered during the excavation.

The samples were refrigerated and shipped to Pace Laboratories, Inc. in Novato, Ca. The gasoline samples were prepared and analyzed for TPH (light) and BTXE. The waste oil sample was analyzed for TPH (light & heavy), BTEX, and oil & grease.

The tanks were hauled as hazardous waste under manifest to Erickson, Inc. in Richmond for disposal. A copy of the manifest forms are in Appendix A.

3. DISCUSSION AND CONCLUSIONS

The results of laboratory analysis show contamination is present around the tank pit. TPH (Total Petroleum Hydrocarbons) concentrations at the end of the pit are 980 ppm as gasoline. A copy of the certified laboratory results is included as Appendix B.

An investigation into the vertical and lateral extent of contamination will be required. A workplan will need to be developed to define how the contaminated soil will be remediated; this plan must be submitted to Alameda County Health Hazardous Materials Division (Larry Seto) for approval.

Four samples were collected from the excavated material and a composite analysis completed to determine levels of contamination. This shows that high concentrations of oil & grease are present and that levels of gasoline are low. Additional samples should be collected and analyzed to develop the work plan for remediation, which is outside the scope of this report.

The results of this investigation represent conditions at the time and location at which samples were collected and for the parameters analyzed in the laboratory. It does not fully characterize the site for contamination resulting from other sources or parameters not analyzed.

TABLE 1 - SOIL SAMPLE ANALYSIS - TANK REMOVAL

Sample ID Chemical Compound	TA-1 (ppm)	TA-2 (ppm)	TB-1 (ppm)	TB-2 (ppm)	TC-1 (ppm)	TC-2 (ppm)	TD-1 (ppm)
TPH (light)	980.0	210.0	78.0	75.0	ND	19.0	ND
TPH (diesel)	NA	NA	NA	NA	NA	NA	ND
Benzene	4.0	<0.08	0.05	<0.04	ND	0.013	0.007
Ethylbenzene	17.0	0.34	0.29	0.13	0.015	0.022	0.005
Toluene	35.0	0.29	0.26	0.12	0.010	0.035	0.017
Xylenes	75.0	0.27	0.64	0.19	0.062	0.310	0.020
Oil & Grease	NA	NA	NA	NA	NA	NA	35.0

NA - Not Applicable

ND - Not Detected

TABLE 2 - SOIL SAMPLE ANALYSIS - STOCKPILE

Sample ID	Composite S1 to S4
Chemical Analysis	(ppm)
TPH (light)	84.0
Oil & Grease	775.0

4. Site Plan at 5293 Crow Canyon Road, Castro Valley

CROWCANYON ROAD

DISPENSER ISLANDS

UNDERGROUND PIPING
TO ISLANDS

TA-1 TA-2
TB-1 TB-2
TC-1 TC-2

(E) 8,000 GALLON
GASOLINE TANKS
TO BE REMOVED

TD-1

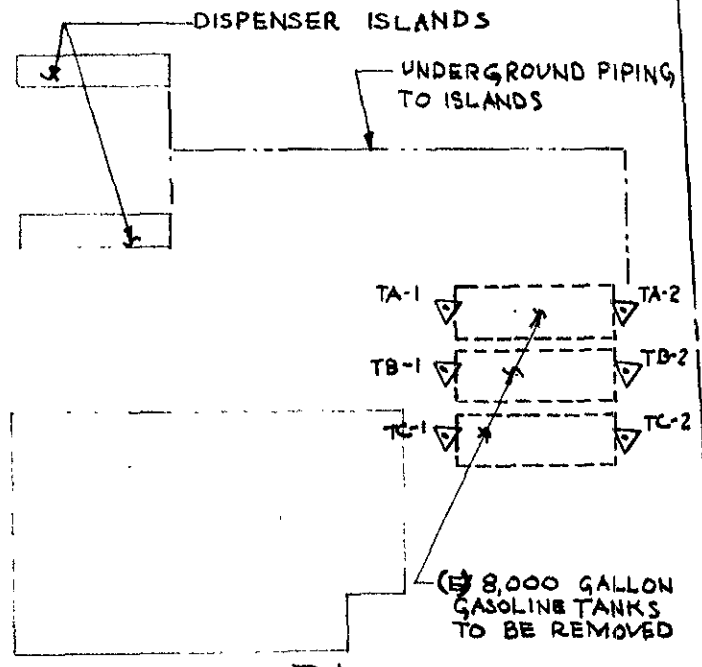
(E) 500 GALLON WASTE-OIL
TANK TO BE REMOVED

LEGEND

▽ SOIL SAMPLE
LOCATION
(F) EXISTING



PROPERTY LINE



APPENDIX A
HAZARDOUS WASTE MANIFEST FORM

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

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator's US EPA ID No. CA000137005	Manifest Document No.	2. Page 1 of	Information in the shaded areas is not required by Federal law.	
3. Generator's Name and Mailing Address LAKE SHORE FINANCIAL SITE 2100 LAKE SHORE AVE OAK		4. Generator's Phone (415) 444-6658 / 5193 CANYON RD		87005589		
5. Transporter 1 Company Name ROGERS TR. & EQUIPMENT		6. US EPA ID Number CA0048624910		E. State Transporter's ID		
7. Transporter 2 Company Name		8. US EPA ID Number		F. Transporter's Phone		
9. Designated Facility Name and Site Address ERICKSON INC. 255 FARR BLVD RICHMOND		10. US EPA ID Number CA0109466392		G. State Facility's ID		
				H. Facility's Phone 415-235-1393		
11. US DOT Description (including Proper Shipping Name, Hazard Class, and ID Number)		12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a. WASTE EMPTY STORAGE TANKS CAL. REGULATED WASTE ONLY		002	TIP	10550	P	State 512 EPA/Other NONE
b.						State EPA/Other
c.						State EPA/Other
d.						State EPA/Other
11. Additional Descriptions for Materials Listed Above 1 EMPTY GASOLINE TANK # 1534 2 EMPTY OIL TANK # 1535		K. Handling Codes for Wastes Listed Above				
15. Special Handling Instructions and Additional Information GLOVES & SAFETY GLASSES						
16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations. If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.						
Printed/Typed Name MARTIN W. CHARK		Signature <i>Martin W. Chark</i>		Month Day Year 1/21/1989		
17. Transporter 1 Acknowledgement of Receipt of Materials						
Printed/Typed Name JOHN H ALLEN		Signature <i>John H Allen</i>		Month Day Year 1/21/1989		
18. Transporter 2 Acknowledgement of Receipt of Materials						
Printed/Typed Name		Signature		Month Day Year		
19. Discrepancy Indication Space						
20. Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in Item 18.						
Printed/Typed Name		Signature		Month Day Year		

GENERATOR

TRANSPORTER

FACILITY

APPENDIX B
LABORATORY ANALYSIS AND CHAIN-OF-CUSTODY FORM

AquaScience Engineers, Inc.
 2500 Old Crow Canyon Rd.
 Suite 121
 San Ramon, CA 94583

March 02, 1989
 PACE Project Number: 490213.506

Attn: Mr. Terry Carter

Re: Lakeshore Financial

Date Sample(s) Collected: 02/10/89
 Date Sample(s) Received: 02/13/89

PACE Sample Number:

<u>Parameter</u>	<u>Units</u>	<u>MDL</u>	70659 TA-1	70660 TA-2	70661 TB-1
------------------	--------------	------------	---------------	---------------	---------------

ORGANIC ANALYSIS

INDIVIDUAL PARAMETERS

Petroleum Fuels, Purgeable, as Gasoline (EPA Method 8015, Modified)	mg/kg	3.0	980	210	78
--	-------	-----	-----	-----	----

PURGEABLE AROMATIC COMPOUNDS, EPA 8020

Benzene	mg/kg	0.004	4.0	LT 0.08	0.05
Ethylbenzene	mg/kg	0.004	17	0.34	0.29
Toluene	mg/kg	0.004	35	0.29	0.26
Xylenes, Total	mg/kg	0.004	75	0.27	0.64

MDL Method Detection Limit, Estimated Value.
 LT Compound not detected at or below LT value, dilution required.

RECEIVED

MAR 08 1989

AQUA SCIENCE ENG.

REPORT OF LABORATORY ANALYSIS

Offices:
 Minneapolis, Minnesota
 Tampa, Florida
 Coralville, Iowa
 Novato, California

Mr. Terry Carter
 Page 2

March 02, 1989
 PACE Project Number: 490213.506

PACE Sample Number: Parameter	Units	MDL	70662 TB-2	70663 TC-1	70664 TC-2
<u>ORGANIC ANALYSIS</u>					
<u>INDIVIDUAL PARAMETERS</u>					
Petroleum Fuels, Purgeable, as Gasoline (EPA Method 8015, Modified)	mg/kg	3.0	75	ND	19
<u>PURGEABLE AROMATIC COMPOUNDS, EPA 8020</u>					
Benzene	mg/kg	0.004	LT 0.04	ND	0.013
Ethylbenzene	mg/kg	0.004	0.13	0.015	0.022
Toluene	mg/kg	0.004	0.12	0.010	0.035
Xylenes, Total	mg/kg	0.004	0.19	0.062	0.31

MDL Method Detection Limit, Estimated Value.
 ND Not detected at or above the MDL.
 LT Compound not detected at or below LT value, dilution required.

Mr. Terry Carter
Page 3

March 02, 1989
PACE Project Number: 490213.506

PACE Sample Number:

70665
TD-1
Waste 011

<u>Parameter</u>	<u>Units</u>	<u>MDL</u>	<u>MDL</u>	<u>Waste 011</u>
------------------	--------------	------------	------------	------------------

ORGANIC ANALYSIS

INDIVIDUAL PARAMETERS

Petroleum Fuels, Purgeable, as Gasoline (EPA Method 8015, Modified)	mg/kg	3.0	ND	
--	-------	-----	----	--

PURGEABLE AROMATIC COMPOUNDS, EPA 8020

Benzene	mg/kg	0.004	0.007	
Ethylbenzene	mg/kg	0.004	0.005	
Toluene	mg/kg	0.004	0.017	
Xylenes, Total	mg/kg	0.004	0.020	

EXTRACTABLE FUELS

Extractable Fuels, as Diesel Soxhlet Extraction Date Started	mg/kg	10	ND	02-15-89
---	-------	----	----	----------

TOTAL OIL AND GREASE (GRAV. EPA 9071)

Total Oil and Grease (Freon Extractable) Date Extracted	mg/kg wet	10	35	2-14-89
--	-----------	----	----	---------

MDL Method Detection Limit, Estimated Value.
ND Not detected at or above the MDL.

Offices:
Minneapolis, Minnesota
Tampa, Florida
Coralville, Iowa
Novato, California

REPORT OF LABORATORY ANALYSIS

FORMERLY WESCO LABORATORIES

laboratories, inc

pace

Mr. Terry Carter
Page 4

March 02, 1989
PACE Project Number: 490213.506

PACE Sample Number:

70670
COMPOSITE
S1-1 to
S1-4

Parameter

Units

MDL

ORGANIC ANALYSIS

INDIVIDUAL PARAMETERS

Petroleum Fuels, Purgeable, as Gasoline mg/kg 3.0 84
(EPA Method 8015, Modified)

TOTAL OIL AND GREASE (GRAV. EPA 9071)
Total Oil and Grease (Freon Extractable) mg/kg wet 10 775
Date Extracted 2-14-89

MDL Method Detection Limit, Estimated Value.

Approval:



Wasfi Y. Attalla, Ph.D
Project Manager for
PACE Laboratories



Douglas E. Oram, Ph.D
Technical Reviewer for
PACE Laboratories



REPORT OF LABORATORY ANALYSIS

Offices:
Minneapolis, Minnesota
Tampa, Florida
Coralville, Iowa
Novato, California

AquaScience Engineers, Inc.
2500 Old Crow Canyon Rd.
Suite 121
San Ramon, CA 94583

April 14, 1989
PACE Project Number: 490412500

Attn: Mr. Greg Gouvea

D. Dineen

Date Sample(s) Collected: 04/12/89
Date Sample(s) Received: 04/12/89

PACE Sample Number:
Parameter

<u>Units</u>	<u>MDL</u>	721530 <u>SS-1</u>	721540 <u>SS-2</u>	721550 <u>SS-3</u>
--------------	------------	-----------------------	-----------------------	-----------------------

ORGANIC ANALYSIS

INDIVIDUAL PARAMETERS

Purgeable Fuels, as Gasoline (EPA 8015)	mg/kg wet	1.0	ND	36	ND
PURGEABLE AROMATIC COMPOUNDS, EPA 8020					
Benzene	mg/kg	0.005	ND	0.13	ND
Ethylbenzene	mg/kg	0.005	ND	0.33	ND
Toluene	mg/kg	0.005	0.006	0.33	0.007
Xylenes, Total	mg/kg	0.005	ND	2.4	ND

MDL Method Detection Limit
ND Not detected at or above the MDL.

Approval:

Lisa J. Petersen
Project Manager for
PACE Laboratories

Douglas E. Oram, Ph.D.
Technical Reviewer for
PACE Laboratories

RECEIVED
APR 15 1989
AQUA SCIENCE ENG.

490213.506

00280

* P.O. Box 535, San Ramon, CA 94583-0535



(415) 820-9391

Project Name: LAKE SHORE FINANCIAL Site: 5293 CROW CANYON RD Date: FEB 16, 1989 Laboratory: PACE

Sample ID	Sample/Container Type	Analyze/ Hold	Analyze For:	Method - Detection Limit	Notes/Remarks
<u>TA1</u>	<u>S/BT</u>	<u>A</u>	<u>TPH LIGHT, BTEX</u>		<u>10 day turnaround</u>
<u>TA2</u>					
<u>TB1</u>					
<u>TB2</u>					
<u>TC1</u>					
<u>TC2</u>					
<u>TD1 WASTE OIL</u>	<u>B</u>	<u>A</u>	<u>TPH LIGHT, BTEX</u> <u>TPH LIGHT, BTEX</u> <u>TPH HEAVY</u> <u>OIL & GREASE</u>		<u>10 day turnaround</u>
<u>SI-1</u>		<u>A/H</u>			
<u>SI-2</u>					
<u>SI-3</u>					
<u>SI-4</u>	<u>S/BT</u>	<u>A/H</u>	<u>TPH LIGHT</u> <u>OIL & GREASE</u>		<u>29 hr turnaround TPH</u> <u>10 day turnaround OIL & GREASE</u> <u>COLLATE FOR ONE ANALYSIS</u> <u>ON SI-1 thru SI-4</u>

S = Soil W = Water O = Other
G = Glass BT = Brass Tube P = Plastic V = Vial Q = Other

Chain of Custody

1. Sampled by: Gregory P. Burg
2. Courier: _____
3. Received by Lab: B. Haran
Date: 2/13/89 Time: 2:35 pm
4. Received in Office: Date: _____

- = Collate all samples for single analysis.
- = Collate and analyze two top samples and if clean, do not analyze other sample.
- = Call ASE for instructions.
- = See attached protocol.

APPENDIX B
WELL SAMPLING PROTOCOL

4081 Clayton Road
Suite 236
Concord, California 94521

1-(415)-686-9496 Office
1-(415)-682-9968 24 Hrs
1-(415)-687-7974 Fax

PRATT CONSULTING COMPANY

WELL MONITORING PROTOCOL

ADOPTED APRIL 1989

The following is a list of the steps that we use when monitoring and sampling, monitoring and recovery wells for sample collection and analysis:

- 1) Remove well box cover at grade and remove cap on well pipe checking the integrity of each and making sure not to allow any standing water or soil/sand to fall into the well pipe. The size of the well and condition of both caps is then noted on the monitoring well field log.
- 2) Using a water level indicator we measure the distance between the top of the well casing and groundwater level before bailing or sampling. This distance is then noted in the monitoring well field log.
- 3) Using the water level indicator we then measure the approximate total depth of usable column. This distance is then noted in the monitoring well field log.
- 4) After finishing with the water level indicator we wash and clean it. (SEE "CLEANING THE EQUIPMENT")
- 5) We calculate the well diameter and the total depth of usable column to determine how many gallons of groundwater we would have to bail from the well to achieve 5 well volumes of groundwater. This is then noted in the monitoring well field log.
- 6) Depending on the size of the well and the depth to groundwater PCC uses 3 different methods to remove the required amount of groundwater. All 3 methods require the use of precleaned equipment. (SEE "CLEANING THE EQUIPMENT")
 - Method 1 We use standard 1.66", 2" or 3.65" PVC or Acrylic bailers. We use fresh nylon mesh rope for each well. We bail the required amount of water out and empty it into a trough which is then pumped up into the holding tanks on the truck. The amount of groundwater which is removed is then noted in the monitoring well field log.
 - Method 2 On 2" wells where groundwater is shallow we use a 3/4" suction pump with precleaned sections of pipe which pumps the groundwater directly into the holding tanks on the truck.
 - Method 3 On 4" or larger wells where groundwater is shallow we use a 1,1/2" suction pump with precleaned sections of pipe which pumps the groundwater directly into the holding tanks on the truck.
- 7) After finishing with the suction pumps, pipe sections, or bailers we wash and clean them between wells. (SEE "CLEANING THE EQUIPMENT")
- 8) Using a water level indicator we measure the distance between the top of the well casing and groundwater level after bailing and before sampling. This distance is then noted in the monitoring well field log.

- 9) We allow the well to recover to a minimum of 80% of it's original level before taking the required samples for analysis. The level of the groundwater at the time of sampling is then noted in the monitoring well field log.
- 10) We preclean a TEFLON 12" bailer (SEE "CLEANING THE EQUIPMENT") and after the final rinse we refill it with distilled or de-ionized water. We collect a sample for analysis from the bailer using a 40 mil VOA vial for quality control purposes. This sample is also submitted to the laboratory.
- 11) After the well has recovered we use a precleaned TEFLON 12" bailer with sampling ends and a new piece of nylon mesh rope to obtain the groundwater sample in the well. We then carefully fill 2, 40 mil VOA vials and cap them and verify there is no head space present. The VOA vials are then carefully labeled and placed in a zip lock bag in a cooler to be stored until delivered to the laboratory. The temperature in the cooler is kept at 4 degrees Celsius.
- 12) After finishing with the TEFLON bailer we wash and clean it. (SEE "CLEANING THE EQUIPMENT")
- 13) We close the well up making sure not to spill any water, sand etc. into the well.

CLEANING THE EQUIPMENT

We use three different types of cleaning solutions depending upon the site specific data available. They are; TSP, Alquinox and liquinox. We always use distilled or de-ionized water for cleaning and rinsing the equipment. If the equipment has been contaminated to the point where we do not feel safe with it before thorough cleaning we take that piece of equipment out of service for the duration of that days project. On occasion that the equipment has been heavily contaminated we use pesticide grade Isopropenahl to clean the equipment followed by rinsing. The equipment consists of pumps, pipe sections, bailers, samplers, water level indicator, and wash buckets.

We reference for sampling the protocol indicated in the EPA's Operating Procedures and Quality Assurance Manual put out in April of 1986. This was written by EPA Region 4. There are additional tests that can be performed such as; PH level, conductivity, and additional analysis that can be performed. Please feel free to contact our office with your questions and concerns.

Sincerely,
PRATT CONSULTING COMPANY

John Pratt

Underground Tank Removal / Tank Installation / Tank Monitoring Systems / Level Indicators / Soil Gas Surveys
Site Characterizations / Monitoring Wells / Recovery Wells / Air Stripping / Soil Ventilation Systems
Drinking Water Surveys / Hazardous Materials Management Plans / Analytical Laboratory
Well Monitoring / Sample Collection