



CITY OF EMERYVILLE

INCORPORATED 1896

PUBLIC WORKS DEPARTMENT
2200 POWELL, 12TH FLOOR
EMERYVILLE, CALIFORNIA 94608

TEL: (510) 596-4330 FAX: (510) 658-8095

February 9, 1993

Alameda County Health Agency
Division of Hazardous Materials
Department of Environmental Health
80 Swan Way Rm. 200
Oakland, CA 94621

ATTN: Brian P. Oliva (R.E.H.S.)

Dear Brian,

Enclosed herewith, please find the Fourth quarter report for the 1333 Park Avenue project as per the requirements. Said work was performed by Tank Protect Engineering.

The generated report of the above company, emphasizes that no product was detected.

Thank you in advance. Should you have any further questions, please call me at (510) 596-4333.

Sincerely yours


Juan C. Arreguin
Public Works Depart.



TANK PROTECT ENGINEERING

2821 Whipple Road
Union City, CA 94587-1233
(510) 429-8088 • (800) 523-8088
FAX (510) 429-8089

January 29, 1993

Mr. Juan Arreguin
City of Emeryville
2200 Powell Street, 12th Floor
Emeryville, CA 94608

Re: Fourth Quarter, 1992 Report, City of Emeryville, 1333 Park Avenue, Emeryville,
CA 94608

Dear Mr. Arreguin:

Tank Protect Engineering of Northern California, Inc. (TPE) is pleased to submit this quarterly letter report of environmental services conducted at the subject site. Previous work conducted at the site is summarized and work conducted during the subject quarter is presented in detail.

BACKGROUND

Work performed by TPE during first quarter, 1992:

- January 2, 1992 - Removed one 2,000-gallon, steel, underground gasoline storage tank and dispenser from the subject site; collected 1 groundwater sample from the water in the tank excavation, a total of 3 discrete soil samples from the tank excavation and from beneath the dispenser, and 2 composite soil samples from the stockpiled soil; analyzed all samples for total petroleum hydrocarbons as gasoline (TPHG) and for benzene, toluene, ethylbenzene, and xylenes (BTEX); additionally, analyzed 1 of the 3 discrete soil samples for total lead and organic lead.

- . January 15, 1992 - Submitted to the client a Workplan for Overexcavation of Contaminated Soil and Installation of Groundwater Monitoring Wells (WORKPLAN) proposing a workplan to investigate and remediate the horizontal and vertical extent of contaminated vadose zone soil by excavation and installation of 3 groundwater monitoring wells.
- . January 29, 1992 - Submitted to the client and the Alameda County Health Care Services Agency an Addenda to Tank Protect Engineering's January 15, 1992 Workplan for Overexcavation of Contaminated Soil and Installation of Groundwater Monitoring Wells, City of Emeryville, 1333 Park Avenue, Emeryville, CA 94608.
- . February 3, 1992 - Overexcavated contaminated vadose zone soil to within the physical constraints present at the site and collected and analyzed 7 verification soil samples for TPHG, BTEX, and organic lead.
- . February 24, 1992 - Backfilled 2 excavations with imported sand and aggregate base material.
- . February 27, 1992 - Sealed 2 excavations with 3-inch layers of asphalt.
- . March 3, 1992 - Conducted a file review at the California Regional Water Quality Control Board (CRWQCB) to investigate the potential for any documented, off-site contamination to be impacting the subject site and to investigate vicinity and site groundwater flow direction to assist TPE in locating 3 groundwater monitoring wells.
- . March 10, 1992 - Collected 1 composite sample from the overexcavation stockpiled soil and analyzed the sample for TPHG and BTEX.
- . March 10 and 11, 1992 - Drilled 3 soil borings to further investigate the horizontal and vertical extent of vadose zone soil contamination and for the construction of 3 groundwater monitoring wells. Collected and

analyzed 4 vadose zone soil samples from the 3 borings for TPHG and BTEX.

- . March 13, 1992 - Disposed of the excavated soil at an appropriate landfill.
- . March 17 and 20, 1992 - Developed the 3 groundwater monitoring wells.
- . March 23, 1992 - Sampled groundwater from the 3 monitoring wells and analyzed 3 groundwater samples for TPHG, BTEX, and organic lead and 1 trip blank for TPHG and BTEX .
- . March 26, 1992 - Surveyed 3 top-of-well casings (TOCs) for elevation to the nearest .01 foot above Mean Sea Level (MSL).

Work performed by TPE during second quarter, 1992:

- . May 29, 1992 - Submitted to the client a Tank Closure Report and Preliminary Site Assessment Report for Remediation of Contaminated Soil and Groundwater Investigation documenting tank closure activities; overexcavation activities; soil and groundwater sampling and analytical results; excavation closure activities; disposal of contaminated soil; installation, development, and sampling of groundwater monitoring wells; and groundwater analytical results.
- . June 25, 1992 - Sampled groundwater from the 3 monitoring wells and analyzed 3 groundwater samples and 1 trip blank for TPHG and BTEX.

Work performed by TPE during third quarter, 1992:

- . July 20, 1992 - Submitted to the client a Second Quarter, 1992 Report, City of Emeryville, 1333 Park Avenue, Emeryville, CA 94608 documenting

work conducted in the above second quarter activities and analytical results with recommendations.

- September 21, 1992 - Sampled groundwater from the 3 monitoring wells and analyzed 3 groundwater samples and 1 trip blank for TPHG and BTEX.

WORK PERFORMED BY TPE DURING FOURTH QUARTER, 1992:

- October 14, 1992 - Submitted to the client a Third Quarter, 1992 Report, City of Emeryville, 1333 Park Avenue, Emeryville, CA 94608 documenting work conducted in the above third quarter activities and analytical results with recommendations.
- December 30, 1992 - Sampled groundwater from the 3 monitoring wells and analyzed 3 groundwater samples and 1 trip blank for TPHG and BTEX.

Details of the work performed on September 21, 1992 are presented below.

Groundwater Gradient

On December 30, 1992, depth-to-groundwater was measured from TOC in wells MW-1, MW-2, and MW-3 to the nearest 0.01 foot using an electronic Solinst water level meter. A minimum of 3 repetitive measurements were made for each level determination to ensure accuracy. Depth-to-groundwater was subtracted from the TOC elevation, measured relative to MSL, to calculate the elevation of the stabilized water level for each well (see attached Table 1).

Attached Figure 1 is a groundwater gradient map constructed from the data collected on December 30, 1992. Groundwater flow direction was westerly north-westerly with a gradient of .0121 feet per foot. Attached Table 2 presents cumulative information

for average groundwater elevations, changes in average groundwater elevation, groundwater flow directions, and groundwater gradients for the site. The direction of groundwater flow beneath the site has been variable, within a range of 118 degrees. The groundwater flow direction calculated for December 30, 1992 is within this range.

Based on the above groundwater flow direction, well MW-1 is down and cross-gradient from the locations of the former gasoline tank and dispenser, well MW-2 is downgradient from the location of the former dispenser, and well MW-3 is down and cross-gradient from the locations of the former gasoline tank and dispenser.

Groundwater Sampling and Analytical Results

On December 30, 1992 groundwater samples were collected from each of the 3 groundwater monitoring wells for chemical analysis. Before sampling, each well was purged a minimum of 3 wetted well volumes with a dedicated polyethylene bailer and until the temperature, conductivity, and pH of the water in the well had stabilized. Since dedicated bailers were used for each well sampled, no decontamination was necessary between sampling events. The water samples were collected in laboratory provided, sterilized, 40-milliliter glass vials and 1-liter bottles provided with teflon-lined screw caps; measured for turbidity; and labeled with project name, date, time collected, sample number, and sampler. The samples were immediately stored on ice for transport to California State Department of Health Services (DHS) certified Trace Analysis Laboratory, Inc. located in Hayward, California accompanied by chain-of-custody documentation. All samples, including 1 trip blank, were analyzed for TPHG by the DHS Method and BTEX by Environmental Protection Agency (EPA) Method 8020.

Each well was checked for floating product using a dedicated, disposable polyethylene bailer. No floating product, sheen, or odor was noted in any of the 3 wells. Clear water was purged from each of the 3 wells.

Purge water is stored on site in 55-gallon drums labeled to show material stored, known or suspected contaminant, date filled, expected removal date, company name, contact, and telephone number.

See attached protocols for TPE's sample handling, groundwater sampling, and quality assurance and quality control procedures.

All analytical results for water samples collected from the 3 wells were non-detectable.

Analytical results are summarized in attached Table 3 and documented in an attached certified analytical report and a chain-of-custody.

DISCUSSION AND RECOMMENDATIONS

All analytical results for all water samples collected on December 30, 1992 from the 3 wells were non-detectable.

TPE recommends that quarterly groundwater sampling be continued until 4 consecutive quarters of non-detectable analytical results have been documented at which time TPE would recommend that the City of Emeryville request site closure from the Alameda County Department of Health Services Agency and the CRWQCB. The next sampling event is proposed to be conducted on about March 21, 1993.

An additional 2 copies of this report have been included for your delivery to:

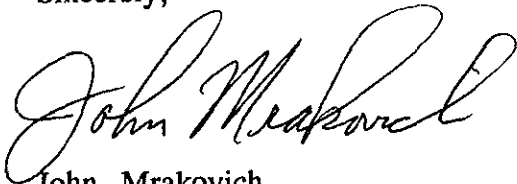
Ms. Susan Hugo
Alameda County Health Care Services Agency
Dept. of Environmental Health
Hazardous Materials Program
80 Swan Way, Room 200
Oakland, CA 94621

California Regional Water Quality Control Board
San Francisco Bay Region
Toxic Cleanup Division
2101 Webster Street, Suite 500
Oakland, CA 94612

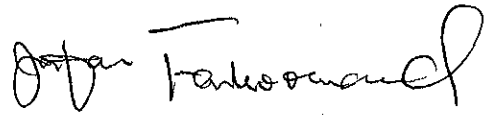
We recommend that this quarterly report be submitted with a cover letter from the City of Emeryville signed by an authorized representative.

If you have any questions, please call TPE at (510) 429-8088.

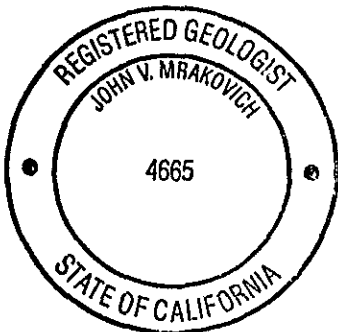
Sincerely,



John Mrakovich
Registered Geologist



Jeff Farhoomand
Civil Engineer



cc: File
Attachments

TABLE 1
GROUNDWATER ELEVATION

Well Name	Elevation TOC ¹ (feet MSL ²)	Date	Depth-To-Water From TOC	Groundwater Elevation (feet MSL)
MW-1	18.96	03/17/92	5.54	13.42
		03/23/92	5.42	13.54
		06/25/92	5.97	12.99
		09/21/92	6.14	12.82
		12/30/92	5.28	13.68
MW-2	20.04	03/17/92	6.33	13.71
		03/23/92	6.04	14.00
		06/25/92	6.88	13.16
		09/21/92	7.04	13.00
		12/30/92	6.04	14.00
MW-3	18.57	03/17/92	5.60	12.97
		03/23/92	4.80	13.77
		06/25/92	5.57	13.00
		09/21/92	5.75	12.82
		12/30/92	4.80	13.77

¹ TOC = TOP OF CASING

² MSL = MEAN SEA LEVEL

TABLE 2
GROUNDWATER ELEVATION, GRADIENT,
AND FLOW DIRECTION DATA

Date	Average Groundwater Elevation (feet MSL ¹)	Change in Average Groundwater Elevation (feet)	Groundwater Gradient	Groundwater Flow Direction
03/17/92	13.37	---	.032	WSW
03/23/92	13.77	+.40	.016	WNW
06/25/92	13.05	-.72	.0074	W
09/21/92	12.88	-.17	.0081	W
12/30/92	13.82	+.94	.0121	WNW

¹ MSL = MEAN SEA LEVEL

TABLE 3
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS
(ppb¹)

Well Name	Date	TPHG	Benzene	Toluene	Ethyl-Benzene	Xylenes	Organic Lead
WS	01/02/92	2,700	120	570	140	900	NA ²
MW-1	03/23/92	<64	<0.50	<0.50	<0.50	<1.5	<100
	06/25/92	<50	<0.50	<0.50	<0.50	<1.5	NA
	09/21/92	<50	<0.50	<0.50	<0.50	<1.5	NA
	12/30/92	<50	<0.50	<0.50	<0.50	<1.5	NA
MW-2	03/23/92	<50	1.1	<0.50	<0.50	<1.5	<100
	06/25/92	<50	<0.50	<0.50	<0.50	<1.5	NA
	09/21/92	<50	<0.50	<0.50	<0.50	<1.5	NA
	12/30/92	<50	<0.50	<0.50	<0.50	<1.5	NA
MW-3	03/23/92	<50	<0.50	<0.50	<0.50	<1.5	<100
	06/25/92	<50	<0.50	<0.50	<0.50	<1.5	NA
	09/21/92	<50	<0.50	<0.50	<0.50	<1.5	NA
	12/30/92	<50	<0.50	<0.50	<0.50	<1.5	NA
MW-4 ³	03/23/92	<50	<0.50	<0.50	<0.50	<1.5	NA
	06/25/92	<50	<0.50	<0.50	<0.50	<1.5	NA
	09/21/92	<50	<0.50	<0.50	<0.50	<1.5	NA
	12/30/92	<50	<0.50	<0.50	<0.50	<1.5	NA

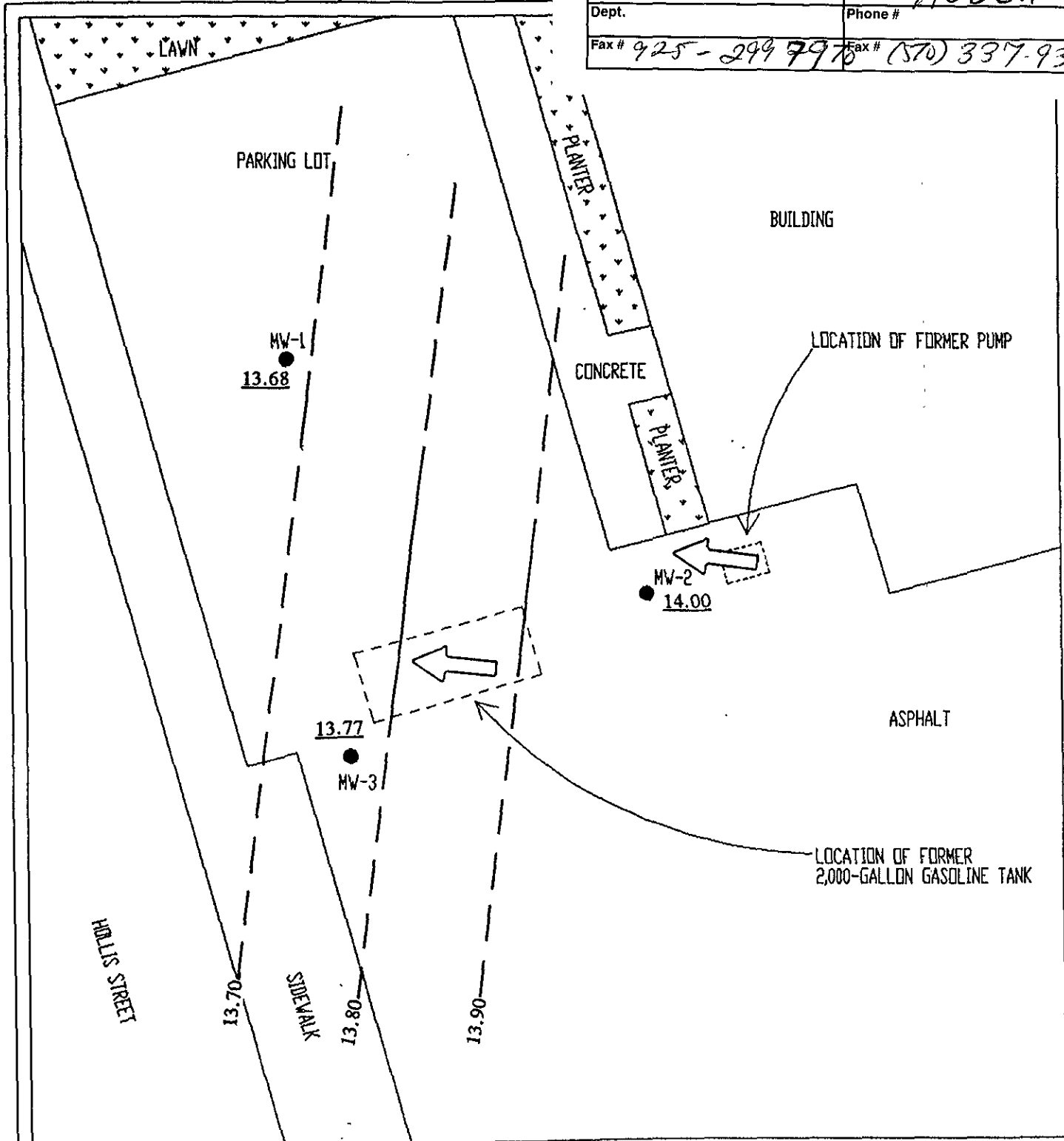
¹ PARTS PER BILLION

² NA = NOT ANALYZED

³ TRIP BLANK

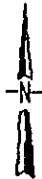
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To	JEFF RUBIN	From	SUSAN HUGG
Co.	SCI	Co.	ACDEH
Dept.		Phone #	
Fax #	925-299-7970	Fax #	(570) 337-9335



LEGEND

- MW-1 ● NAME AND LOCATION OF GROUNDWATER MONITORING WELL
- 13.68 POTENTIOMETRIC ELEVATION (FEET-MSL)
- 13.80 — POTENTIOMETRIC CONTOUR
- ➔ GROUNDWATER FLOW DIRECTION (12/30/92)



0 10
SCALE IN FEET

TANK PROTECT ENGINEERING

GROUNDWATER GRADIENT MAP (12/30/92)

1333 PARK AVENUE EMERYVILLE, CA 94608	DATE	1/19/93
	FIGURE	1
	FILE #	213A-17
	DRAWN BY	MAC
	CHECKED BY	JVM

SAMPLE HANDLING PROCEDURES

Soil and groundwater samples will be packaged carefully to avoid breakage or contamination, and will be delivered to the laboratory at proper storage temperatures. The following sample packaging requirements will be followed.

- Sample bottle/sleeve lids will not be mixed. All sample lids will stay with the original containers and have custody seals affixed to them.
- Samples will be secured in coolers to maintain custody, control temperature, and prevent breakage during transportation to the laboratory.
- A chain-of-custody form will be completed for all samples and accompany the sample cooler to the laboratory.
- Ice, blue ice, or dry ice (dry ice will be used for preserving soil samples collected for the Alameda County Water District) will be used to keep samples at a constant temperature during transport to the laboratory.
- Each sample will be identified by affixing a pressure sensitive, gummed label, or standardized tag on the container(s). This label will contain the site identification, sample identification number, date and time of sample collection, and the collector's initials.

All groundwater sample containers will be precleaned and will be obtained from a State Department of Health Services certified analytical laboratory.

Sample Control/Chain-of-Custody: All field personnel will refer to this work plan to verify the methods to be employed during sample collection. All sample gathering activities will be recorded in the site log book; all sample transfers will be documented in the site logbook; samples are to be identified with TPE labels and all sample bottles are to be custody-sealed. All information is to be recorded in waterproof ink. All TPE field personnel are personally responsible for sample collection and the care

and custody of collected samples until the samples are transferred or properly dispatched.

The custody record will be completed by the field technician who has been designated by the TPE project manager as being responsible for sample shipment to the appropriate laboratory. The custody record will include, among other things, the following information: site identification, name of person collecting the samples, date and time samples were collected, type of sampling conducted (composite/grab), location of sampling station, number and type of containers used, and signature of the TPE person relinquishing samples to a non-TPE person with the date and time of transfer noted. The relinquishing individual will also put all the specific shipping data on the custody record.

Site log books will be maintained by a designated TPE field employee to record, for each sample, site identification, sampling locations, station numbers, dates, times, sampler's name, designation of the samples as a grab or composite, notation of the type of sample (e.g. groundwater, soil boring, etc.), preservatives used, on-site measurement data, and other observations or remarks.

GROUNDWATER SAMPLING PROCEDURES

Groundwater monitoring wells will not be sampled until at least 72 hours after well development. Groundwater samples will be obtained using either a bladder pump, clear Teflon bailer, or dedicated polyethylene bailer. Prior to collecting samples, the sampling equipment will be thoroughly decontaminated to prevent introduction of contaminants into the well and to avoid cross-contamination. Monitoring wells will be sampled after 4 to 10 wetted casing volumes of groundwater have been evacuated and pH, electrical conductivity, and temperature have stabilized as measured with a Hydac Digital Tester. If the well is emptied before 4 to 10 well volumes are removed, the sample will be taken when the water level in the well recovers to 80% of its initial water level or more.

When a water sample is collected, turbidity of the water will be measured and recorded with a digital turbidimeter. Degree of turbidity will be measured and recorded in nephelometric turbidity units (NTU).

TPE will also measure the thickness of any floating product in the monitoring wells using a probe, clear Teflon, or polyethylene bailer. The floating product will be measured after well development but prior to the collection of groundwater samples. If floating product is present in the well, TPE will recommend to the client that product removal be commenced immediately and reported to the appropriate regulatory agency.

Unless specifically waived or changed by the local, prevailing regulatory agency, water samples shall be handled and preserved according to the latest EPA methods as described in the Federal Register (Volume 44, No.233, Page 69544, Table 11) for the type of analysis to be performed.

MEASUREMENTS

Purged Water Parameter: During purging, discharged water will be measured for the following parameters.

<u>Parameter</u>	<u>Units of Measurement</u>
pH	None
Electrical Conductivity	Micromhos
Temperature	Degrees F or C
Depth to Water	Feet/Tenths
Volume of Water Discharged	Gallons
Turbidity	NTU

Documentation: All parameter measurements shall be documented in writing on TPE development logs.

QUALITY ASSURANCE AND QUALITY CONTROL PROCEDURES

The overall objectives of the field sampling program include generation of reliable data that will support development of a remedial action plan. Sample quality will be checked by the use of proper sampling, handling, and testing methods. Additional sample quality control methods may include the use of background samples, equipment rinsate samples, and trip and field blanks. Chain-of-custody forms, use of a qualified laboratory, acceptable detection limits, and proper sample preservation and holding times also provide assurance of accurate analytical data.

TPE will follow a QA/QC program in the field to ensure that all samples collected and field measurements taken are representative of actual field and environmental conditions and that data obtained are accurate and reproducible. These activities and laboratory QA/QC procedures are described below.

Field Samples: Additional samples taken in the field are used to evaluate both sampling and analytical methods. Three basic categories of QA/QC samples that may be collected are trip samples, field blanks, and duplicate samples.

Trip blanks are a check for cross-contamination during sample collection, shipment, and in the laboratory. Analytically confirmed organic-free water shall be used for organic parameters and deionized water for metal parameters. Blanks will be prepared by the laboratory supplying the sample containers. The blank shall be numbered, packaged, and sealed in the same manner as the other samples. One trip blank will be used for each sample set of less than 20 samples. At least 5% blanks will be used for sets greater than 20 samples. The trip blank is a water sample that remains with the collected samples during transportation and is analyzed along with the field samples to check for residual contamination. The trip blank is not to be opened by either the sample collectors or the handlers.

The field blank is a water sample that is taken into the field and is opened and exposed at the sampling point to detect contamination from air exposure. The water

sample is poured into appropriate containers to simulate actual sampling conditions. Contamination for air exposure can vary considerably from site to site.

The laboratory will not be informed about the presence of field and trip blanks and a false identifying number will be put on the label. Full documentation of these collection and decoy procedure will be made in the site logbook.

Duplicate samples are identical sample pairs (collected in the same place and at the same time), placed in identical containers. For soils, adjacent sample liners will be analyzed. For the purpose of data reporting, one is arbitrarily designated the sample, and the other is designated as a duplicate sample. Both sets of results are reported to give an indication of the precision of sampling and analytical methods.

The laboratory's precision will be assessed without the laboratory's knowledge by labeling one of the duplicates with false identifying information. Data quality will be evaluated on the basis of the duplicate results.

Laboratory QA/QC: Execution of a strict QA/QC program is an essential ingredient in high-quality analytical results. By using accredited laboratory techniques and analytical procedures, estimates of the experimental values can be very close to the actual value of the environmental sample. The experimental value is monitored for its precision and accuracy by performing QC test designed to measure the amount of random and systematic errors and to signal when correction of these errors is needed.

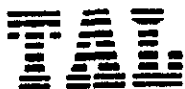
The QA/QC program describes methods for performing QC tests. These methods involve analyzing method blanks, calibration standards, check standards (both independent and EPA-certified standards), duplicates, replicates, and sample spikes. Internal QC also requires adherence to written methods, procedural documentation, and record keeping, and the observance of good laboratory practices.

Trace Analysis Laboratory, Inc.

3423 Investment Boulevard, #8 • Hayward, California 94545

Telephone (510) 783-6960

Facsimile (510) 783-1512



January 15, 1993

Mr. Marc Zomorodi
Tank Protect Engineering
2821 Whipple Road
Union City, California 94587

Dear Mr. Zomorodi:

Trace Analysis Laboratory received four water samples on December 31, 1992 for your Project No. 213B-123092, City of Emeryville (our custody log number 2822).

These samples were analyzed for Total Petroleum Hydrocarbons as Gasoline and Benzene, Toluene, Ethylbenzene and Xylenes. Our analytical report and the completed chain of custody form are enclosed for your review.

Trace Analysis Laboratory is certified under the California Environmental Laboratory Accreditation Program. Our certification number is 1199.

If you should have any questions or require additional information, please call me.

Sincerely yours,

A handwritten signature in black ink, appearing to read 'Rachel Dolbier', written over a horizontal line.

Rachel Dolbier
Project Specialist

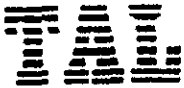
Enclosures

Trace Analysis Laboratory, Inc.

3423 Investment Boulevard, #8 • Hayward, California 94545

Telephone (510) 783-6960

Facsimile (510) 783-1512



LOG NUMBER: 2822
 DATE SAMPLED: 12/30/92
 DATE RECEIVED: 12/31/92
 DATE ANALYZED: 01/12/93
 DATE REPORTED: 01/15/93

CUSTOMER: Tank Protect Engineering
 REQUESTER: Marc Zomorodi
 PROJECT: No. 213B-123092, City of Emeryville

Sample Type: Water

Method and Constituent:	Units	MW-1		MW-2		MW-3	
		Concentration	Reporting Limit	Concentration	Reporting Limit	Concentration	Reporting Limit
DHS Method:							
Total Petroleum Hydrocarbons as Gasoline	ug/l	ND	50	ND	50	ND	50
Modified EPA Method 8020 for:							
Benzene	ug/l	ND	0.50	ND	0.50	ND	0.50
Toluene	ug/l	ND	0.50	ND	0.50	ND	0.50
Ethylbenzene	ug/l	ND	0.50	ND	0.50	ND	0.50
Xylenes	ug/l	ND	1.5	ND	1.5	ND	1.5

Method and Constituent:	Units	MW-4		Method Blank	
		Concentration	Reporting Limit	Concentration	Reporting Limit
DHS Method:					
Total Petroleum Hydrocarbons as Gasoline	ug/l	ND	50	ND	50
Modified EPA Method 8020 for:					
Benzene	ug/l	ND	0.50	ND	0.50
Toluene	ug/l	ND	0.50	ND	0.50
Ethylbenzene	ug/l	ND	0.50	ND	0.50
Xylenes	ug/l	ND	1.5	ND	1.5

QC Summary:

% Recovery: 82
 % RPD: 13

Concentrations reported as ND were not detected at or above the reporting limit.

Louis W. DuPuis
 Quality Assurance/Quality Control Manager

