

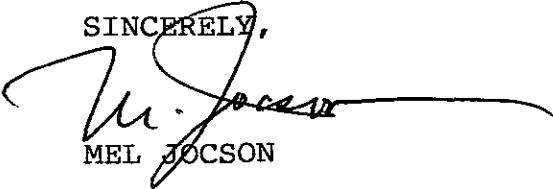
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AUGUST 5, 1994

MS JULIET SHIN
ALAMEDA COUNTY HEALTH CARE SERVICES AGENCY
DEPARTMENT OF ENVIROMENTAL HEALTH
1131 HARBOR BAY PARKWAY
ALAMEDA, CA 94502-6577

ATTACHED HEREWITH IS A COPY OF A QUARTERLY REPORT SUBMITTED
BY TANK PROTECT ENGINEERING RE GROUNDWATER SAMPLING ANALYSIS OF
17771 MEEKLAND AVENUE, HAYWARD, CA 94541 FOR YOUR RECORD.

SINCERELY,



MEL JOCSON



TANK PROTECT ENGINEERING

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

August 4, 1994

Mr. Mel Jocson
Jocson Auto Electric
17771 Meekland Avenue
Hayward, CA 94541

Re: Third Quarter Report, 1994, Jocson Auto Electric, 17771 Meekland Avenue,
Hayward, CA 94541

Dear Mr. Jocson:

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

The following background information was provided to TPE by Mr. Jocson. The property was previously an automobile service station established in 1974. On January 3, 1991, four underground storage tanks (USTs) were removed from the site: one 5,000-gallon gasoline UST, two 3,000-gallon gasoline USTs, and one 300-gallon waste oil UST. Soil samples, collected from beneath the tanks at the time of removal, detected total petroleum hydrocarbons as gasoline (TPHG) at concentrations up to 410 parts per million (ppm).

Based on the above findings, the Alameda County Health Care Services Agency (ACHCSA) required installation and sampling of groundwater monitoring wells to determine whether groundwater beneath the site had been impacted.

On June 27, 1992, four exploratory soil borings were drilled at the site and 3 of the borings were converted into groundwater monitoring wells MW-1, MW-2, and MW-3. Analytical results for soil samples collected on June 27, 1992 from the 4 borings, and groundwater samples collected on July 1, 1992 from the 3 wells, were all nondetectable for TPHG and benzene, toluene, ethylbenzene, and xylenes (BTEX).

The ACHCSA, in a June 9, 1994 letter to Mr. Jocson, required that quarterly monitoring resume for 3 additional quarters. Mr. Jocson contracted with TPE to resume the monitoring program for 3 additional quarters.

WORK PERFORMED BY TPE DURING THIRD QUARTER, 1994:

- July 12, 1994 - Measured depth-to-groundwater in wells MW-1, MW-2, and MW-3 for evaluation of groundwater flow direction and gradient. Collected 1 groundwater sample from each well and analyzed the samples and 1 trip blank sample for TPHG and BTEX.

Details of the above scope of work are presented below.

Groundwater Gradient

On July 12, 1994, depth-to-groundwater was measured from top of casing (TOC) in wells MW-1 through 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 mean sea level, to calculate the elevation of the groundwater level in each well (see attached Table 1).

Attached Figure 1 is a groundwater gradient map constructed from the data collected on July 12, 1994. Groundwater flow direction on July 12, 1994 was south-southeasterly with a gradient of .029 feet per foot.

Based on the groundwater flow direction for the subject quarter, wells MW-1 and MW-3 are up and crossgradient and well MW-2 is downgradient of the location of the former underground fuel tanks.

Groundwater Sampling and Analytical Results

On July 12, 1994, groundwater samples were collected from groundwater monitoring wells MW-1 through MW-3. 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 wells had stabilized (see attached Records of Water Sampling). 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 having Teflon-lined screw caps; measured for turbidity; and labeled with project name, date and time collected, sample number, and sampler name. 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 were analyzed for TPHG by the DHS Method and for BTEX by the Modified United States Environmental Protection Agency Method 8020.

Each well was checked for floating product using a dedicated, disposable polyethylene bailer. No odor or floating product was observed in any of the wells.

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

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

All analytical results for wells MW-1 through MW-3 and the trip blank sample (MW-4) were nondetectable.

Analytical results are summarized in attached Table 2 and documented in an attached certified analytical report and a chain-of-custody.

RECOMMENDATIONS

TPE recommends quarterly groundwater sampling and gradient determination of the 3 wells for 2 additional consecutive quarters at the request of the ACHCSA. TPE recommends that groundwater samples continue to be analyzed for TPHG and BTEX.

The next sampling event is due on about October 12, 1994.

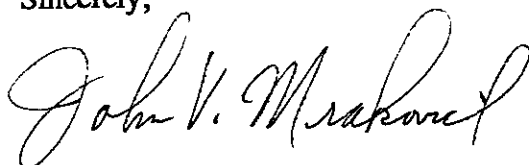
An additional copy of this report has been included for your delivery to:

Ms. Juliet Shin
Alameda County Health Care Services Agency
Department of Environmental Health
1131 Harbor Bay Parkway
Alameda, CA 94502-6577

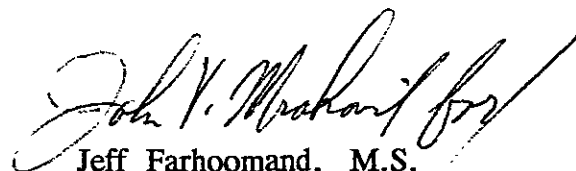
TPE recommends that this quarterly report be submitted with a cover letter signed by Mr. Jocson.

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

Sincerely,



John V. Mrakovich, Ph.D.
Registered Geologist



Jeff Farhoomand, M.S.
Civil Engineer

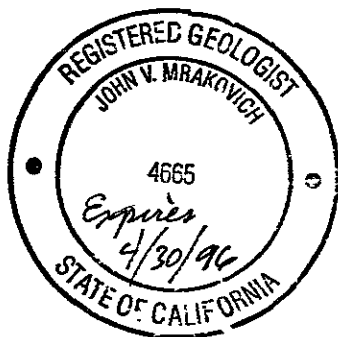


TABLE 1
GROUNDWATER ELEVATION

Well Name	Elevation TOC ¹ (Feet)	Date	Depth-to-Groundwater From TOC	Groundwater Elevation (Feet MSL ²)
MW-1	55.25 ³	07/01/92	19.11 ⁴	36.14
		07/12/94	17.78	37.47
MW-2	54.33 ³	07/01/92	20.02 ⁴	34.31
		07/12/94	18.67	35.66
MW-3	55.05 ³	07/01/92	19.26 ⁴	35.79
		07/12/94	17.92	37.13

¹ TOP-OF-CASING

² MEAN SEA LEVEL

³ ELEVATION REPORTED BY PREVIOUS CONSULTANT (AUGEAS CORPORATION)

⁴ REPORTED BY PREVIOUS CONSULTANT (AUGEAS CORPORATION)

TABLE 2
SUMMARY OF GROUNDWATER SAMPLE ANALYTICAL RESULTS
(ppb¹)

Sample ID Name	Date	TPHG	Benzene	Toluene	Ethyl-Benzene	Xylenes
MW-1	07/01/92	<50	<0.50	<0.50	<0.50	<0.50
	07/12/94	<50	<0.50	<0.50	<0.50	<1.5
MW-2	07/01/92	<50	<0.50	<0.50	<0.50	<0.50
	07/12/94	<50	<0.50	<0.50	<0.50	<1.5
MW-3	07/01/92	<50	<0.50	<0.50	<0.50	<0.50
	07/12/94	<50	<0.50	<0.50	<0.50	<1.5
MW-4 ²	07/12/94	<50	<0.50	<0.50	<0.50	<1.5

¹ PARTS PER BILLION

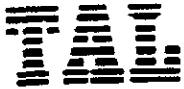
² TRIP BLANK

Trace Analysis Laboratory, Inc.

3423 Investment Boulevard, #8 • Hayward, California 94545

Telephone (510) 783-6960

Facsimile (510) 783-1512



July 18, 1994

Mr. Jeff Farhoomand
Tank Protect Engineering
2821 Whipple Road
Union City, California 94587

Dear Mr. Farhoomand:

Trace Analysis Laboratory received four water samples on July 12, 1994 for your Project No. 317-071294, Mel Jocson, 17771 Meekland Avenue, Hayward, CA (our custody log number 4587).

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 that reads "Scott T. Ferriman". The signature is written in a cursive, flowing style.

Scott T. Ferriman
Project Specialist

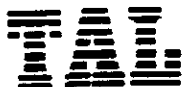
Enclosures

Trace Analysis Laboratory, Inc.

3423 Investment Boulevard, #8 • Hayward, California 94545

Telephone (510) 783-6960

Facsimile (510) 783-1512



LOG NUMBER: 4587
DATE SAMPLED: 07/12/94
DATE RECEIVED: 07/12/94
DATE ANALYZED: 07/15/94
DATE REPORTED: 07/18/94

CUSTOMER: Tank Protect Engineering
REQUESTER: Jeff Farhoomand
PROJECT: No. 317-071294, Mel Jocson, 17771 Meekland Avenue, Hayward, CA

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

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

LOG NUMBER: 4587
 DATE SAMPLED: 07/12/94
 DATE RECEIVED: 07/12/94
 DATE ANALYZED: 07/15/94
 DATE REPORTED: 07/18/94
 PAGE: Two


Sample Type: Water

Method and Constituent:	Units	MW-4		Method Blank	
		Concen- tration	Reporting Limit	Concen- tration	Reporting Limit
DHS Method:					
Total Petroleum Hydro- carbons 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: 112
 % RPD: 0.44

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


 Louis W. DuPuis
 Quality Assurance/Quality Control Manager

4587

TANK PROTECT ENGINEERING



2821 WHIPPLE ROAD
UNION CITY, CA 94587
(415) 429-8088
(800) 523-8088
FAX (415) 429-8089

LAB: Trace
TURNAROUND: 15 day 5-Day 7/13/94
P.O. #: 876 Per MT

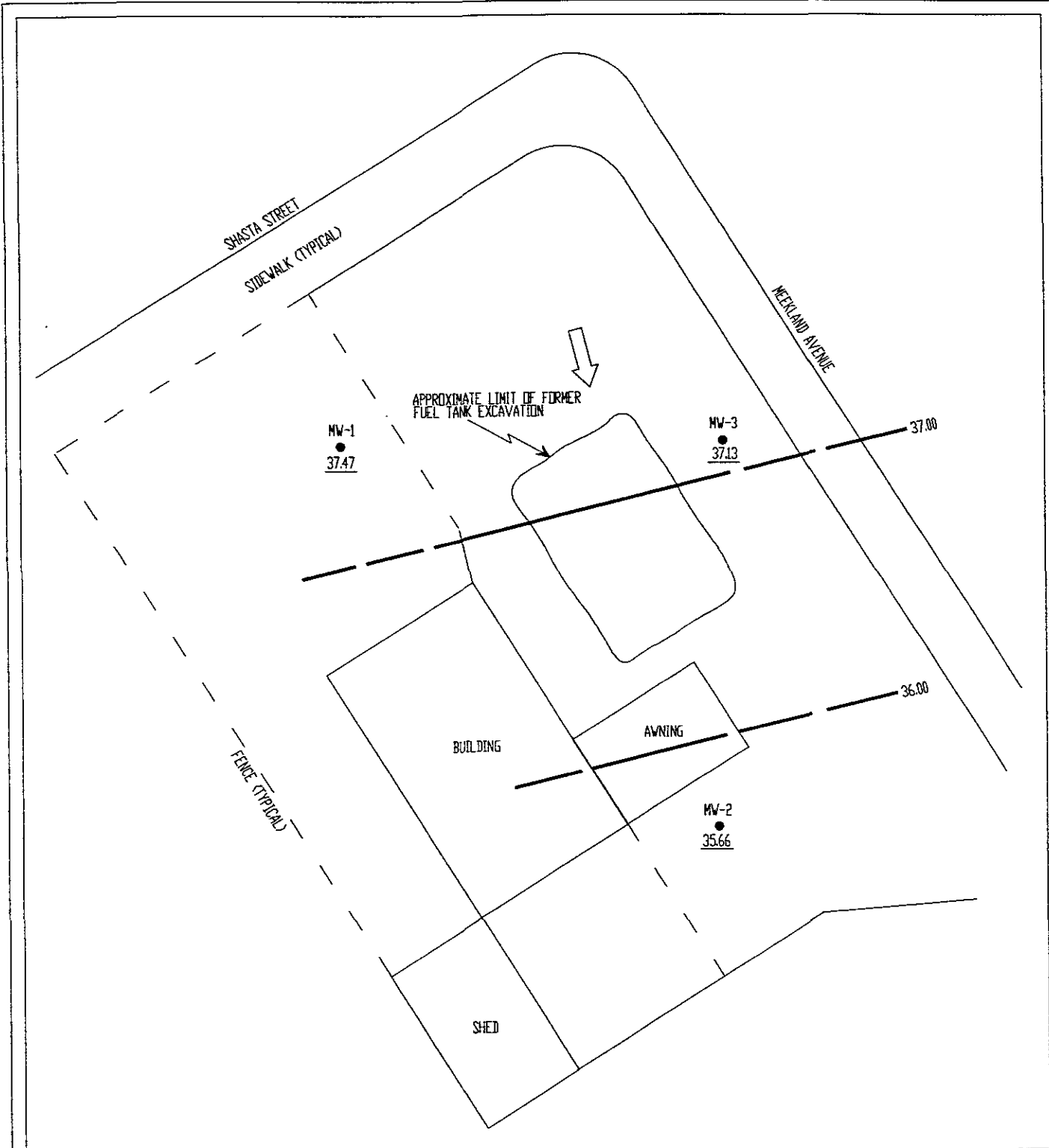
PAGE 1 OF 1

CHAIN OF CUSTODY

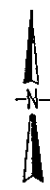
PROJECT NO.		SITE NAME & ADDRESS				(1) TYPE OF CONTAINER	ANALYTES REQUESTED							REMARKS
317071294		Mel Jason 17721 Meekland Ave, Hayward					TOTAL LIGHT HC	AROMATIC HC	TOTAL HEAVY HC	OIL & GREASE	VOC SCAN (624's)	OTHER		
SAMPLER NAME, ADDRESS AND TELEPHONE NUMBER														
Rhett Arbuckle 2821 WHIPPLE ROAD, UNION CITY, CA 94587 (415) 429-8088														
ID NO.	DATE	TIME	SOIL	WATER	SAMPLING LOCATION									
MW-1	7/12/94	11:02		X		2-4oz VOA's	X	X	X	X	X	X		
MW-2		12:37					X	X	X	X	X	X		
MW-3		11:52					X	X	X	X	X	X		
MW-4		13:10					X	X	X	X	X	X		
Relinquished by: (Signature)		Date / Time		Received by: (Signature)		Relinquished by: (Signature)		Date / Time		Received by: (Signature)				
<i>[Signature]</i>		7/12/94 2:00		<i>[Signature]</i>		<i>[Signature]</i>		7/12/94 3:40		<i>[Signature]</i>				
Relinquished by: (Signature)		Date / Time		Received by: (Signature)		Relinquished by: (Signature)		Date / Time		Received by: (Signature)				
Relinquished by: (Signature)		Date / Time		Received for Laboratory by: (Signature)		Date / Time		Remarks						
				<i>[Signature]</i>		7/12/94 13:40 PM								

1/4, water, 2 VOAs each, Tray 2, Grease. 5-Day 7/13/94 per MT

DATE: _____



LEGEND

- MW-1 ● NAME AND LOCATION OF GROUNDWATER MONITORING WELL
 - 37.47 POTENTIOMETRIC ELEVATION
 - 37.00 — POTENTIOMETRIC CONTOUR
 - GROUNDWATER FLOW DIRECTION
- 
 0 20
 SCALE IN FEET

TANK PROTECT ENGINEERING

GROUNDWATER GRADIENT MAP (7/12/94)

JDCSDN AUTO ELECTRIC
 17771 MEEKLAND AVENUE
 HAYWARD, CA 94541

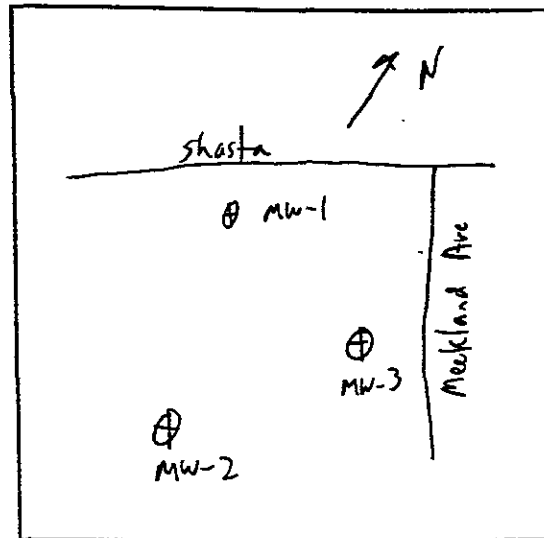
DATE	8/1/94
FIGURE	1
FILE #	317-1
DRAWN BY	AK
CHECKED BY	RA

RECORD OF WATER SAMPLING

PROJECT NO.: 317 DATE: 7/12/94
 PROJECT NAME: Mel Jocson
 PROJECT LOCATION: 17771 Meekland Ave, Hayward
 SAMPLER: RPA
 ANALYSES: TPHG + BTEX

WELL NO.: MW-1
 WELL DIAMETER: 2"
 TOC ELEV: _____
 LOCK NO.: P-605

WELL DEPTH (from construction detail): _____
 WELL DEPTH (measured): 28.45' SOFT BOTTOM?: yes
 DEPTH TO WATER: 17.78' TIME: 10:17
 PRESSURE (circle one): YES OR NO
 IF YES, WAS PRESSURE (circle one): POSITIVE OR NEGATIVE?
1st Pull - Clean



LOCATION MAP

CALCULATED PURGE VOL. (GAL): ~~17.78~~ ^{5.12} (L): 19.36 ACTUAL PURGE VOL. (GAL): _____ (L): 20
 PURGE METHOD: POLY SAMPLE METHOD: POLY

FIELD MEASUREMENTS

Time	Depth to Water (FT)	Vol (L)	Temp (Deg. F)	pH	EC <small>x1000</small>	Clarity	Turbidity (NTU)	Remarks
10:40		4	69.9	6.02	1.41	Clear		No odor
10:45		8	67.6	6.55	1.44	"		"
10:49		12	67.6	7.02	1.38	slightly grey		"
10:52		15	67.6	6.65	1.46	"		"
10:54		18	68.6	6.69	1.46	"		"
10:57		20	68.4	6.67	1.46	"		"
11:02	Sampled Well						>200	

SIGNATURE: [Signature]

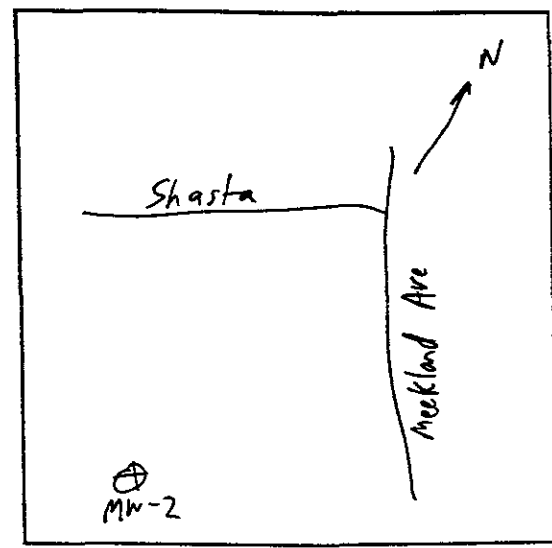
WATER VOL. IN DRUM: 30%
 NEED NEW DRUM?: No

RECORD OF WATER SAMPLING

PROJECT NO.: 317 DATE: 7/12/94
 PROJECT NAME: Mel Jocson
 PROJECT LOCATION: 17771 Meekland Ave, Hayward
 SAMPLER: RPA
 ANALYSES: TPHG + BTEX

WELL NO.: MW-2
 WELL DIAMETER: 2"
 TOC ELEV: _____
 LOCK NO.: P-605

WELL DEPTH (from construction detail): _____
 WELL DEPTH (measured): 28.44' SOFT BOTTOM?: yes
 DEPTH TO WATER: 18.67' TIME: 10:23
 PRESSURE (circle one?): YES OR (NO)
 IF YES, WAS PRESSURE (circle one): POSITIVE OR NEGATIVE?
1st Pull: Clean
 WATER VOLUME IN WELL: 1.56 gal
 [2-INCH CASING = 0.16 GAL/FT] [4-INCH CASING = 0.65 GAL/FT]
 [6-INCH CASING = 1.47 GAL/FT] [1 GAL = 3.78 L]



LOCATION MAP

CALCULATED PURGE VOL. (GAL): 4.69 gal (L): 17.73 ACTUAL PURGE VOL. (GAL): _____ (L): 18
 PURGE METHOD: POLY SAMPLE METHOD: POLY

FIELD MEASUREMENTS

Time	Depth to Water (FT)	Vol (L)	Temp (Deg. F)	pH	EC x1000	Clarity	Turbidity (NTU)	Remarks
12:12		3	73.0	7.86	1.57	slightly silty		No odor
12:15		6	70.3	6.88	1.44	silty		"
12:18		9	70.2	6.71	1.46	"		"
12:21		12	70.6	6.65	1.46	"		"
12:27		15	69.9	6.63	1.48	"		
12:31		18	69.0	6.64	1.49	"		
12:37	Sampled	Well					>200	

SIGNATURE: *[Handwritten Signature]*

WATER VOL. IN DRUM: 30%
 NEED NEW DRUM?: NO

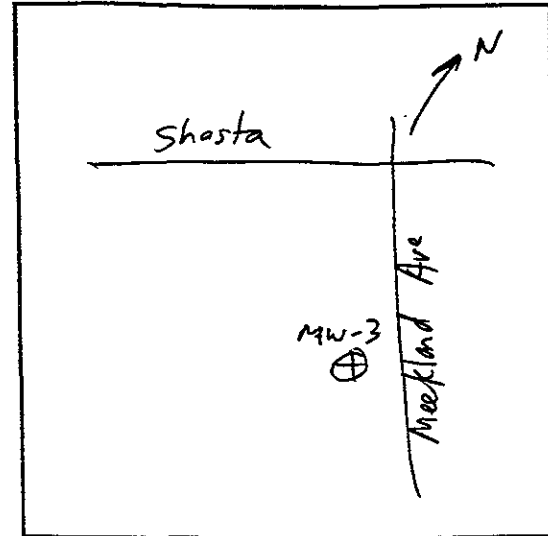
RECORD OF WATER SAMPLING

PROJECT NO.: 317 DATE: 7/12/94
 PROJECT NAME: Mel Jocson
 PROJECT LOCATION: 17771 Meekland Ave, Hayward
 SAMPLER: PPA
 ANALYSES: TPHG + BTEX

WELL NO.: MW-3
 WELL DIAMETER: 2"
 TOC ELEV: _____
 LOCK NO.: P-605

WELL DEPTH (from construction detail): _____
 WELL DEPTH (measured): 28.46' SOFT BOTTOM?: Yes
 DEPTH TO WATER: 17.92' TIME: 10:20
 PRESSURE (circle one): YES OR (NO)
 IF YES, WAS PRESSURE (circle one): POSITIVE OR NEGATIVE?
1st Pull: Clean

WATER VOLUME IN WELL: 1.69 gal
 [2-INCH CASING = 0.16 GAL/FT] [4-INCH CASING = 0.65 GAL/FT]
 [6-INCH CASING = 1.47 GAL/FT] [1-GAL = 3.78 L]



LOCATION MAP

CALCULATED PURGE VOL. (GAL): 5.06 (L): 19.12 ACTUAL PURGE VOL. (GAL): _____ (L): 26
 PURGE METHOD: POLY SAMPLE METHOD: POLY

FIELD MEASUREMENTS

Time	Depth to Water (FT)	Vol (L)	Temp (Deg. F)	pH	EC x1000	Clarity	Turbidity (NTU)	Remarks
11:30		4	73.6	7.06	1.45	slightly turbid		No odor
11:34		8	69.5	7.63	1.48	silty		No odor, silty, light brown
11:36		11	68.3	6.89	1.48	"		"
11:38		14	67.6	7.21	1.40	"		
11:41		17	68.0	6.82	1.42	"		
11:44		20	67.5	7.37	1.54	"		
11:46		23	67.6	6.88	1.49	"		
11:48		26	68.2	6.79	1.47	"		
11:52	Sampled	Well					>200	

SIGNATURE: _____

[Handwritten Signature]

WATER VOL. IN DRUM: 30%
 NEED NEW DRUM?: NO

SAMPLE HANDLING PROCEDURES

Soil and groundwater samples will be packaged carefully to avoid breakage or contamination, and will be delivered to the laboratory in an iced-cooler. 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 cool samples 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.
- . Soil samples collected in brass tubes will be preserved by covering the ends with Teflon tape and capped with plastic end-caps. The tubes will be labeled, sealed in quart size bags, and placed in an iced-cooler for transport to the laboratory.

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 workplan to verify the methods to be employed during sample collection. All sample gathering activities will be recorded in the site file; all sample transfers will be documented in the chain-of-custody; samples are to be identified with 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 or professional 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.

Records will be maintained by a designated TPE field employee 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 MONITORING WELL SAMPLING PROCEDURES

Groundwater monitoring wells will not be sampled until at least 24 to 72 hours (according to local regulatory guidelines) 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 3 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 3 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 an interface or 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 II) for the type of analysis to be performed.

Development and/or purge water will be stored on site in labeled containers. The disposal of the containers and development and/or purge water is the responsibility of the client.

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/Hundredths
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 may be taken in the field 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 log book.

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.