

# GROUNDWATER TECHNOLOGY, INC.

STID 1360

4057 Port Chicago Highway, Concord, CA 94520 (415) 671-2387

FAX: (415) 685-9148

## LETTER OF TRANSMITTAL

TO:	Ms. Pam Evans	DATE: January 14, 1993
ADDRESS:	Alameda County Health Care Services Division of Hazardous Materials Department of Environmental Health 80 Swan Way, Room 200 Oakland, California 94621	
ATTENTION:	Ms. Pam Evans	
PROJECT NUMBER:	020203324	
PROJECT ADDRESS:	15595 Washington Street, San Lorenzo, California	
SUBJECT:	Enclosed please find a copy of a report prepared by Groundwater Technology for the referenced site. This report is being forwarded to you at the request of Burt Kebo. Mr. Kebo also requested a report prepared for Texaco U.S.A. titled, "Subsurface Hydrocarbon Investigation, Texaco Service Station, 15595 Washington Street, San Lorenzo, California, October 17, 1986" be forwarded to you. Groundwater Technology will not forward this report without approval from Texaco Environmental Services. Please contact Mr. Ron Ziellnski at (510) 236-1770 for information regarding approval for release of this report.	

If you have any questions or comments, please contact our Concord office at (510-671-2387).

Sincerely,  
GROUNDWATER TECHNOLOGY, INC.

*Tim Watchers*

Tim Watchers  
Project Geologist

*Texaco Environmental Services  
108 Cutting Blvd.  
Richmond, CA  
94804*

STID 1360



# GROUNDWATER TECHNOLOGY, INC.

4057 Port Chicago Highway, Concord, CA 94520 (415) 671-2387

FAX: (415) 685-9148

December 4, 1992

Project No. 020203324

Ms. Nhi To  
Tracy Federal Bank  
1655 Willow Pass Road  
Concord, California 94520

SUBJECT: Report of Sampling Activities  
15595 Washington Street  
San Lorenzo, California

Dear Ms. Nhi To:

Groundwater Technology was contacted by Tracy Federal Bank to conduct a limited investigation of the above-referenced site (Attachment 1, Figures 1 and 2). Tracy Federal Bank is processing a commercial loan for the property, and the investigation is part of the agreement for the loan. The purpose of this investigation was to provide Tracy Federal Bank with a report of the petroleum hydrocarbon concentrations in groundwater by using existing groundwater monitoring wells, which were installed by Groundwater Technology on August 8, 1986. The site is currently operated as a Shell Service Station.

## MONITORING AND SAMPLING ACTIVITIES

On November 12, 1992, Groundwater Technology, monitored the depth to water (DTW) in three groundwater monitoring wells, purged the monitoring wells by hand bailing, and collected water samples from the monitoring wells. Water samples were analyzed for concentrations of benzene, toluene, ethylbenzene, and xylenes (BTEX) and total petroleum hydrocarbons-as-gasoline (TPH-G) by Environmental Protection Agency (EPA) Methods 8015/8020. The work at the site was performed according to Groundwater Technology Inc. Standard Operating Procedures (SOPs) 8 through 11 (Attachment 2). A Site Safety Plan was also prepared for the site and was reviewed and signed by the Groundwater Technology field technician before beginning site activities.

On November 12, 1992, the protective road box lids and caps to the monitoring wells were removed and the groundwater level in the monitoring wells was allowed to stabilize. The monitoring wells were then gauged to determine depth to separate-phase hydrocarbons (if present), DTW, and total well depth (TWD). Separate-phase hydrocarbons were not detected in the monitoring wells. The TWDs were measured at approximately 15 feet below the top of the casings. The DTW was

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measured at 11.37 feet in MW-1, at 10.55 feet in MW-2, and 11.32 feet in MW-3. Wellhead elevation data was not available to calculate the groundwater surface elevation in each well. The groundwater monitoring data is summarized in Table 1 (Attachment 3).

Three gallons of water were purged from each of two monitoring wells (MW-1 and MW-2) and two gallons of water were purged from monitoring well MW-3. Purging groundwater from the monitoring wells before sampling allows formation water to enter the well from which representative samples characteristic of the groundwater are collected. After purging, groundwater samples were collected with a clean Teflon® sampler. Groundwater samples were placed in sterile 40-milliliter glass containers and fitted with plastic caps lined with a Teflon® septum. The samples were sealed so that no air remained inside, labeled, and placed in an insulated cooler for transportation to a California-certified laboratory for analyses. A chain-of-custody record was completed and accompanied the water samples at all times. The water generated during the purging and sampling activities was stored on site in a labeled 55-gallon drum.

#### LABORATORY ANALYTICAL RESULTS

Analytical results of groundwater samples collected on November 12, 1992, reported TPH-G concentrations ranging from 720 parts per billion (ppb) to below the method detection limit (MDL) of 10 ppb in monitoring wells MW-1, MW-2, and MW-3. Concentrations of BTEX were reported at 6 ppb for the samples collected from monitoring well MW-1 and below MDL for the samples from monitoring wells MW-2 and MW-3. The analytical results are summarized in Table 2 (Attachment 3). Laboratory reports and the chain-of-custody record are included in Attachment 4.

#### CONCLUSIONS

Analytical results of the groundwater sample from monitoring well MW-1 reported a benzene concentration above the allowable limit established for drinking water. The maximum allowable limit of benzene for drinking water is 1 ppb. Laboratory results reported other tested constituents below established California State action levels. Groundwater flow direction and gradient could not be calculated because the top of the monitoring well casing elevations is unknown.

#### RECOMMENDATIONS

Groundwater Technology recommends performing quarterly groundwater monitoring and sampling for one year to evaluate the groundwater gradient and flow direction and to monitor the hydrocarbon concentrations during seasonal groundwater fluctuations. To evaluate the groundwater gradient and



flow direction, the wellhead elevations should be professionally surveyed to an established benchmark (relative to mean sea level). The purge water generated during this sampling event should be properly disposed of at a licensed disposal facility.

Groundwater Technology does not know if Alameda County Health Care Services (ACHCS) has been notified of groundwater conditions at this site. Because benzene concentrations in the shallow groundwater exceed established drinking water levels, Groundwater Technology recommends that ACHCS be notified of the results of this investigation.

This concludes Groundwater Technology's letter report of sampling activities at 15595 Washington Avenue in San Lorenzo, California on November 12, 1992.

Groundwater Technology appreciates this opportunity to be of service to Tracy Federal Bank. If you have any questions regarding this letter report please contact us at (510) 671-2387.

Sincerely,  
Groundwater Technology, Inc.  
Written/Submitted by

  
Tim Watchers  
Project Geologist

Groundwater Technology, Inc.  
Reviewed/Approved by

  
David R. Kleesattel, R.G.  
District Hydrogeologist

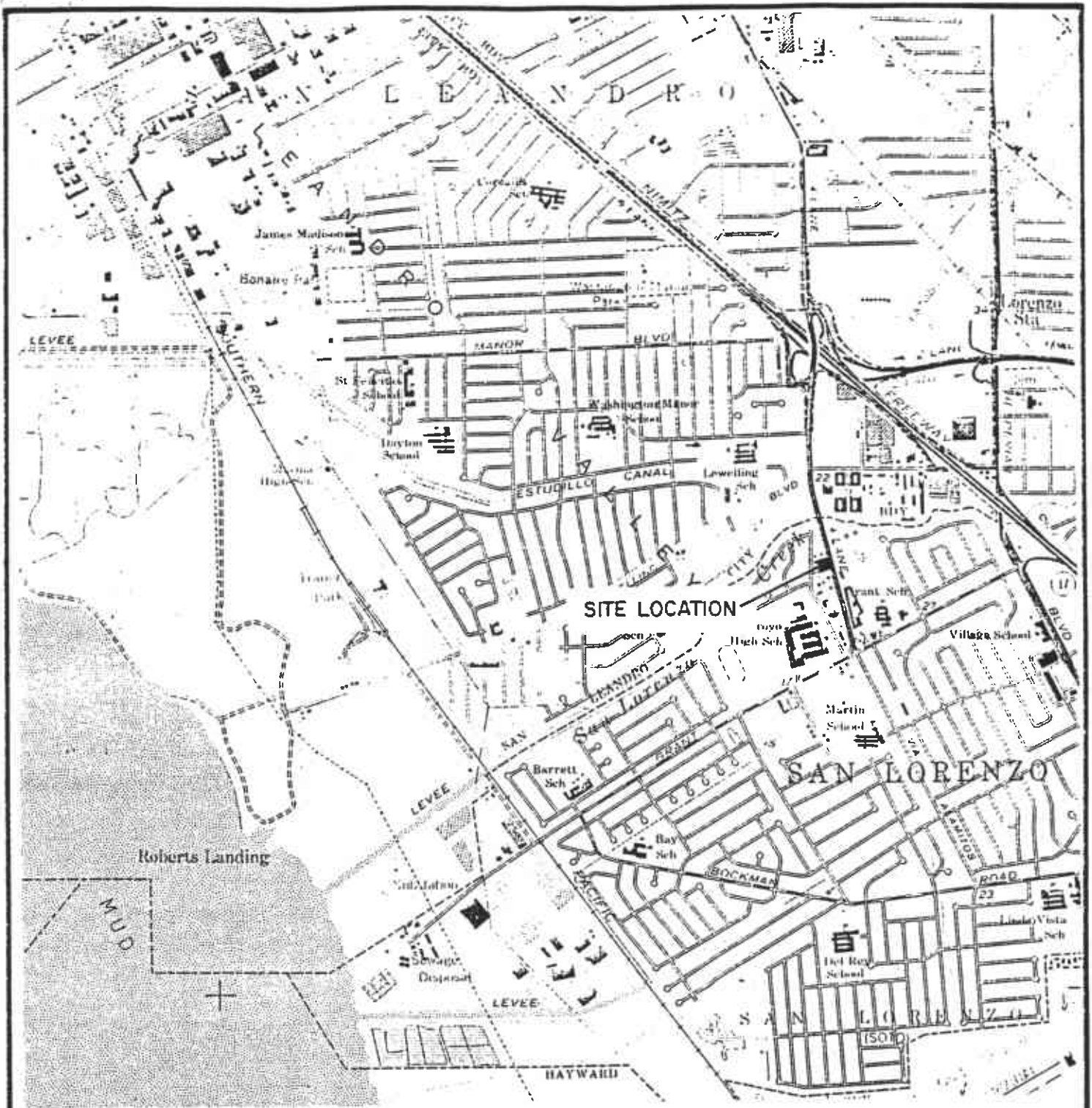
  
Sandra L. Lindsey  
Project Manager

Attachment 1 Figures  
Attachment 2 Standard Operating Procedures  
Attachment 3 Tables  
Attachment 4 Laboratory Report

cc: Mr. Bert Kebo, 5772 Sellers Avenue, Oakley, CA 94561  
Mr. Mehdi Mohammedian, 15595 Washington Street, San Lorenzo, CA 94580

**ATTACHMENT 1**

**FIGURES**

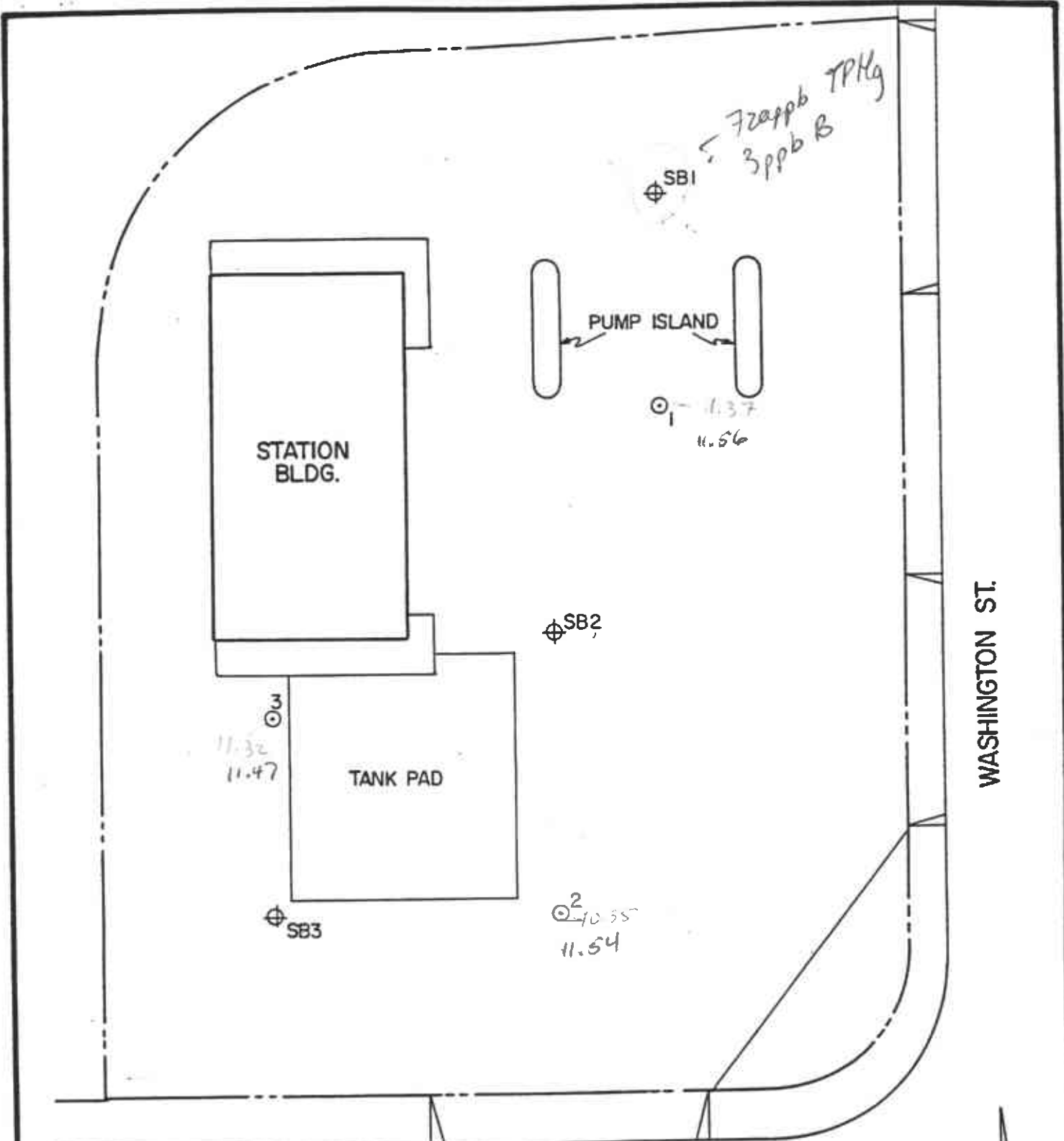


**FIGURE 1**  
**SITE LOCATION MAP**

15595 WASHINGTON AVENUE  
SAN LORENZO, CALIFORNIA



**GROUNDWATER  
TECHNOLOGY**



**LEGEND**  
 ⊙ MONITORING WELL  
 ⊕ SOIL BORING

VIA ENRICO ST.

WASHINGTON ST.

**FIGURE 2**  
**SITE PLAN**

0 FEET 30

**GROUNDWATER TECHNOLOGY**

15595 WASHINGTON AVENUE  
 SAN LORENZO, CALIFORNIA

12/92

**ATTACHMENT 2**

**GROUNDWATER TECHNOLOGY, INC.  
STANDARD OPERATING PROCEDURES**



**GROUNDWATER TECHNOLOGY, INC.  
STANDARD OPERATING PROCEDURE  
CONCERNING GROUNDWATER MONITORING  
SOP 8**

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Groundwater monitoring of wells at the site shall be conducted using an ORS Environmental Equipment (ORS) INTERFACE PROBE™ and SURFACE SAMPLER™. The INTERFACE PROBE™ is a hand-held, battery-operated device for measuring depth to petroleum product and depth to water as measured from an established datum (*i.e.*, top of the well casing which has been surveyed). Separate-phase hydrocarbon (product) thickness is then calculated by subtracting the depth to product from the depth to water. In addition, water elevations are adjusted for the presence of fuel with the following calculation:

$$\text{(Product Thickness) (0.8) + (Water Elevation) = Corrected Water Elevation}$$

Note: The factor of 0.8 accounts for the density difference between water and petroleum hydrocarbons.

The INTERFACE PROBE™ consists of a dual-sensing probe which utilizes an optical liquid sensor and electrical conductivity to distinguish between water and petroleum products. A coated steel measuring tape transmits the sensor's signals to the reel assembly where an audible alarm sounds a continuous tone when the sensor is immersed in petroleum product and an oscillating tone when immersed in water. The INTERFACE PROBE™ is accurate to 1/16th inch.

A SURFACE SAMPLER™ shall be used for visual inspection of the groundwater to note sheens (difficult to detect with the INTERFACE PROBE™), odors, microbial action, etc.

The SURFACE SAMPLER™ used consists of a 12-inch-long case acrylic tube with a Delrin ball which closes onto a conical surface creating a seal as the sampler is pulled up. The sampler is calibrated in inches and centimeters for visual inspection of product thickness.

To reduce the potential for cross contamination between wells, the monitorings shall take place in order from the least to the most contaminated wells. Wells containing separate-phase hydrocarbons (free product) should be monitored last. Between each monitoring the equipment shall be washed with laboratory-grade detergent and double rinsed with distilled water.

**GROUNDWATER TECHNOLOGY, INC.  
STANDARD OPERATING PROCEDURE  
CONCERNING WATER SAMPLING METHODOLOGY  
SOP 9**

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Before water sampling, each well shall be purged by pumping a minimum of four well volumes or until the discharge water indicates stabilization of temperature conductivity and pH. If the well is evacuated before four well volumes are removed or stabilization is achieved, the sample should be taken when the water level in the well recovers to 80 percent of its initial level.

Retrieval of the water sample, sample handling and sample preservation shall be conducted according to Standard Operating Procedure 10 concerning "Sampling for Volatiles In Water." The sampling equipment used shall consist of a Teflon® and/or stainless steel samplers which meet U.S. Environmental Protection Agency (EPA) regulations. Glass vials with Teflon® lids should be used to store the collected samples.

To ensure sample integrity, each vial shall be filled with the sampled water in such a way that the water stands above the lip of the vial. The cap should then be quickly placed on the vial and tightened securely. The vial should then be checked to ensure that air bubbles are not present prior to labeling of the sample. Label information should include a sample identification number, job identification, date, time, type of analysis requested, and sampler's name. Chain-of-custody records shall be completed according to Standard Operating Procedure (SOP) 11 concerning chain of custody.

The vials should be immediately placed in high quality coolers for shipment to the laboratory. The coolers should be packed with sufficient ice or freezer packs to ensure that the samples are kept below 4° Celsius (C). To minimize sample degradation the prescribed analysis shall take place within seven days of sample collection unless specially prepared acidified vials are used.

To minimize the potential for cross contamination between wells, all the well development and water sampling equipment which contacts the groundwater shall be cleaned between each sampling. As a second precautionary measure, the wells shall be sampled in order of increasing contaminant concentrations (the least contaminated well first, the most contaminated well last) as established by previous analysis.



**STANDARD OPERATING PROCEDURE 10  
CONCERNING SAMPLING FOR VOLATILES IN WATER  
(DISSOLVED GASOLINE, SOLVENTS, ETC.)  
SOP 10**

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1. Use only vials properly washed and baked.
2. Use clean sampling equipment. Scrub with Alconox or equivalent laboratory detergent and water followed by a thorough water rinse. Complete with a distilled water rinse.

Sampling equipment which has come into contact with liquid hydrocarbons (free product) should be regarded with suspicion. Such equipment should have tubing and cables replaced and all resilient parts washed with laboratory detergent solution as indicated above. Visible deposits may have to be removed with hexane. Solvent washing should be followed by detergent washing, as indicated above.

This procedure is valid for volatile organic analysis only. For extractable organics (for example, pesticides, or base neutrals for U.S. Environmental Protection Agency [EPA] Method 625 a final rinse with pesticide-grade isopropyl alcohol), followed by overnight or oven drying will be necessary.

3. Take duplicate samples. Mark on forms as a single sample with two containers to avoid duplication of analyses.
4. Take a site blank using distilled water or known uncontaminated source. This sample will be run at the discretion of the project manager.
5. Fill out labels and forms as much as possible ahead of time. Use an indelible marker.
6. Preservatives are required for some types of samples. Use specially prepared vials marked as indicated below, or use the appropriate field procedure (SOP 12 for acidification). Make note on forms that samples were preserved. Always have extra vials in case of problems. Samples for volatile analyses should be acidified below pH 2 upright. Eye protection, foot protection, and disposable vinyl gloves are required for handling. Samples designated for expedited service and analyzed within seven (7) days of sampling will be acceptable without preservation. Acid-causing burns. Glasses or goggles (not contact lenses) are necessary for protection of the eyes. Flush eyes with water for 15 minutes if contact occurs and seek medical attention. Rinse off hands frequently with water during handling.

For sampling chlorinated drinking water supplies for chlorinated volatiles, samples shall be preserved with sodium thiosulfate. Use vials labeled "CONTAINS THIOSULFATE." No particular cautions are necessary.

7. Fill vial to overflowing with water, avoiding turbulence and bubbling as much as possible. Water should stand above lip of vial.
8. Carefully, but quickly, slip cap onto vial. Avoid dropping the Teflon® septum from cap by not inverting cap until it is in contact with the vial. Disc should have Teflon® face toward the water. Also avoid touching white Teflon® face with dirty fingers.
9. Tighten cap securely, invert vial, and tap against hand to see there are not bubbles inside.

10. Label vial, using indelible ink, as follows:
- A. Sample I.D. No.
  - B. Job I.D. No.
  - C. Date and Time
  - D. Type of analysis required
  - E. Your name
11. Unless the fabric-type label is used, place Scotch™ tape over the label to preserve its integrity.
12. For chain-of-custody reasons, sample vial should be wrapped end-for-end with Scotch™ tape or evidence tape and signed with indelible ink where the end of the tape seals on itself. The septum needs to be covered.
13. Chill samples immediately. Samples to be stored should be kept at 4° Celsius (C) (30° Fahrenheit [F]). Samples received at the laboratory above 10°C (as measured at glass surface by a thermocouple probe), after overnight shipping, will be considered substandard, so use a high quality cooler with sufficient ice or freezer packs.
14. Fill out Chain-of-Custody Manifest and Analysis Request Form (see Chain of Custody Procedures, SOP 11).



**GROUNDWATER TECHNOLOGY, INC.  
STANDARD OPERATING PROCEDURE  
CONCERNING CHAIN OF CUSTODY  
SOP 11**

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1. Samples must be maintained under custody until shipped or delivered to the laboratory. The laboratory will then maintain custody. A sample is under custody if:
  - a) It is in your possession
  - b) It is in your view after being in your possession
  - c) You locked it up after it was in your possession
  - d) It is in a designated secure area
2. Custody of samples may be transferred from one person to another. Each transferer and recipient must date, sign and note the time on the chain-of-custody form.
3. In shipping, the container must be sealed with tape, and bear the sender's signature across the area of bonding at the ends of the tape to prevent undetected tampering. Each sampling jar should be taped and signed as well. Scotch tape works well.
4. Write "sealed by" and sign in the "Remarks" box at the bottom of the form before sealing the box. Place form in a plastic bag and seal it inside the box.
5. The "REMARKS" section of the form is for documenting details such as:
  - a) Correlation of sample numbers if samples are split between labs.
  - b) QC numbers when lab is logging in the samples.
  - c) Sample temperature and condition when received by lab.
  - d) Preservation notation.
  - e) pH of samples when opened for analysis (if acidified).
  - f) Sampling observation or sampling problem.
6. The chain-of-custody form should be included inside the shipping container. A copy should be sent to the project manager.
7. When the samples are received by the lab, the chain-of-custody form will be dated, signed, and the time noted by a laboratory representative. The form will be retained in the laboratory files along with shipping bills and receipts .
8. At the time of receipt of samples by the laboratory, the shipping container will be inspected and the sealing signature will be checked. The samples will be inspected for condition and bubbles, and the temperature of a representative sample container will be measured externally by a thermocouple probe (held tightly between two samples) and recorded. The laboratory QC numbers will be placed on the labels, in the accession log, and on the chain-of-custody form. If samples are acidified, their pH will be measured by narrow range pH paper at the time of opening for analysis. All comments concerning procedures requiring handling of the samples will be dated and initialed on the form by the laboratory person performing the procedure. A copy of the completed chain-of-custody form with the comments on sample integrity will be returned to the sampler.

**ATTACHMENT 3**

**TABLES**

**TABLE 1**  
**SUMMARY OF GROUNDWATER MONITORING DATA**  
**NOVEMBER 12, 1992**

WELL ID	DTW ((ft)	DTP (ft)	TWD (ft)
MW-1	11.37	ND	15
MW-2	10.55	ND	15
MW-3	11.32	ND	15

DTW = Depth to water  
DTP = Depth to product (separate-phase hydrocarbons)  
TWD = Total well depth  
Measurements in feet from the top of the casing.  
Wellhead elevation data was not available.

**TABLE 2  
SUMMARY OF ANALYTICAL RESULTS**

WELL ID	TPH-AS-GASOLINE	BENZENE	TOLUENE	ETHYLBENZENE	XYLENES
MW-1	720	3	0.5	1	1
MW-2	<10	<0.3	<0.3	<0.3	<0.5
MW-3	69	<0.3	<0.3	<0.3	<0.5

Concentrations in parts per billion



**ATTACHMENT 4**  
**LABORATORY REPORTS**  
**CHAIN-OF-CUSTODY RECORD**



# GTEL

ENVIRONMENTAL  
LABORATORIES, INC.

**Northwest Region**

4080-C Pike Lane  
Concord, CA 94520  
(510) 685-7852  
(800) 544-3422 from inside California  
(800) 423-7143 from outside California  
(510) 825-0720 (FAX)

Client Number: 020203324  
Project ID: San Lorenzo  
Work Order Number: C2-11-292

November 30, 1992

Tim Watchers  
Groundwater Technology, Inc.  
4057 Port Chicago Hwy.  
Concord, CA 94520

Enclosed please find the analytical results for samples received by GTEL Environmental Laboratories, Inc. on 11/12/92, under chain of custody record 19924.

A formal Quality Assurance/Quality Control (QA/QC) program is maintained by GTEL, which is designed to meet or exceed the EPA requirements. Analytical work for this project met QA/QC criteria, unless otherwise stated in the footnotes.

GTEL is certified by the California State Department of Health Services to perform analyses for drinking water, wastewater, and hazardous waste materials according to EPA protocols.

If you have any questions concerning this analysis or if we can be of further assistance, please call our Customer Service Representative.

Sincerely,  
GTEL Environmental Laboratories, Inc.

Eileen F. Bullen  
Laboratory Director

**Table 1**  
**ANALYTICAL RESULTS**  
 Aromatic Volatile Organics and  
 Total Petroleum Hydrocarbons as Gasoline in Water  
 EPA Methods 5030, 8020, and Modified 8015<sup>a</sup>

GTEL Sample Number		01	02	03	04
Client Identification		RBMW3	MW3	MW2	MW1
Date Sampled		11/12/92	11/12/92	11/12/92	11/12/92
Date Analyzed		11/18/92	11/18/92	11/18/92	11/18/92
Analyte	Detection Limit, ug/L	Concentration, ug/L			
Benzene	0.3	<0.3	<0.3	<0.3	3
Toluene	0.3	0.4	<0.3	<0.3	0.5
Ethylbenzene	0.3	<0.3	<0.3	<0.3	1
Xylene, total	0.5	<0.5	<0.5	<0.5	1
BTEX, total	—	0.4	—	—	6
Gasoline	10	<10	69	<10	720
Detection Limit Multiplier		1	1	1	1

a. Test Methods for Evaluating Solid Waste, SW-846, Third Edition, Revision 0, US EPA November 1986. Modification for TPH as gasoline as per California State Water Resources Control Board LUFT Manual protocols, May 1988 revision.

