

GROUNDWATER TECHNOLOGY, INC.

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

FAX: (415) 685-9148

July 2, 1993

Project No. 020303139

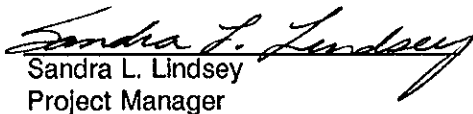
Ms. Juliet Shin
Alameda County Health Care Services Agency
Department of Environmental Health
80 Swan Way, Room 200
Oakland, California 94621

SUBJECT: Second Quarter 1993 Monitoring and Sampling Report
Southland Site No. 19035
100 Lewelling Boulevard, San Lorenzo, California

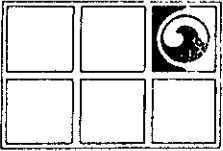
Dear Ms. Shin:

On behalf of The Southland Corporation, Groundwater Technology, Inc. submits this copy of the above-referenced report. If you have any questions or comments please feel free to contact us at (510) 671-2387.

Sincerely,
Groundwater Technology, Inc.


Sandra L. Lindsey
Project Manager

cc: Mr. Richard Hiatt, Regional Water Quality Control Board, Oakland, California



GROUNDWATER TECHNOLOGY, INC.

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

FAX. (415) 685-9148

July 2, 1993

Project No. 020203139

Mr. Bob Vasquez
The Southland Corporation
Environmental Services
5820 Stoneridge Mall Road, Suite 310
Pleasanton, California 94566

SUBJECT: Second Quarter 1993 Monitoring and Sampling Report
Southland Site No. 19035
100 Lewelling Boulevard, San Lorenzo, California

Dear Mr. Vasquez:

This Second Quarter 1993 Monitoring and Sampling Report presents the results of monitoring and sampling activities performed by Groundwater Technology, Inc. at The Southland Corporation (Southland) Site No. 19035 located at 100 Lewelling Boulevard in San Lorenzo, California (Attachment 1, Figure 1) between April 1 and June 30, 1993.

The activities during this reporting period included:

- Monitoring four on-site groundwater monitoring wells (Figure 2) to measure depth to water (DTW) and to check for the presence of separate-phase hydrocarbons.
- Collecting groundwater samples from the four monitoring wells and submitting them to a California-certified laboratory for benzene, toluene, ethylbenzene, and xylenes (BTEX) and total petroleum hydrocarbons-as-gasoline (TPH-G) analyses using Environmental Protection Agency (EPA) Methods 8020/8015.

GROUNDWATER MONITORING DATA

Groundwater monitoring was performed on June 1, 1993. Before monitoring, the wellcaps were opened to allow the water in each well to stabilize to atmospheric pressure. The DTW and depth to separate-phase hydrocarbons were measured to the nearest 0.01 foot from the top of the well casing using an ORS Environmental Equipment INTERFACE PROBE™ Well Monitoring System.

3139R013.030

No separate-phase hydrocarbons were observed in the four groundwater monitoring wells on June 1, 1993. The groundwater monitoring results are summarized in Attachment 2, Table 1.

The potentiometric surface for June 1, 1993, is illustrated on the Site Plan (Figure 2). Based on the available data, the estimated groundwater flow direction is toward the southwest. The groundwater gradient is approximately 0.003 foot per foot.

MONITORING WELL SAMPLING AND ANALYTICAL RESULTS

On June 1, 1993, groundwater samples were collected from the four monitoring wells (MW-1 through MW-4). Before sampling, at least 4 well-casing volumes of groundwater were removed from each of the monitoring wells by hand bailing unless the wells purged dry. The groundwater samples were collected using a Teflon® sampler. Groundwater samples were placed in 40-milliliter glass vials acidified with hydrochloric acid to preserve the samples. The samples were then sealed using Teflon® septum caps, labeled with the job identification number, the sample number, date, time, and type of laboratory analysis required. The samples were stored on ice and transported with a chain-of-custody record to GTEL Environmental Laboratories, Inc. in Concord, California. Groundwater sampling SOPs are included in Attachment 3.

Groundwater samples were analyzed for BTEX and TPH-G using EPA Methods 5030/8020 and modified EPA Method 8015. The results of the laboratory analyses reported no detectable TPH-G or benzene concentrations. Figure 3 illustrates the TPH-G and benzene results of the groundwater samples collected on June 1, 1993. The laboratory analytical reports for the groundwater samples are included in Attachment 4.

CONCLUSIONS AND RECOMMENDATIONS

During this reporting period, four monitoring wells (MW-1 through MW-4) were monitored on June 1, 1993, by Groundwater Technology for DTW and for the presence of separate-phase hydrocarbons. No separate-phase hydrocarbons were observed on June 1, 1993. Monitoring data indicates that the groundwater flows toward the southwest.

Groundwater samples were collected on June 1, 1993, from the four on-site monitoring wells and analyzed for BTEX and TPH-G. Analytical results reported no detectable TPH-G or benzene concentrations.

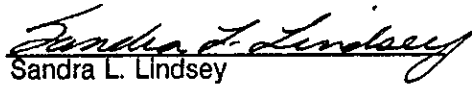
Based on analytical results and subsurface conditions, Groundwater Technology recommends one more quarter of monitoring and sampling to verify the groundwater flow direction and analytical

results. If the analytical results continue to be reported below the method detection limits, Groundwater Technology recommends site closure and abandonment of the monitoring wells.

This concludes Groundwater Technology's Second Quarter 1993 Monitoring and Sampling Report for Southland Site No. 23837 from April 1 through June 30, 1993.


Sincerely,
Groundwater Technology, Inc.
Written/Submitted by


S.C. Hurley, IV
Associate Geologist

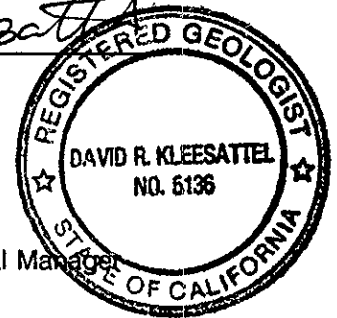

Sandra L. Lindsey
Project Manager

SLL/ly

Groundwater Technology, Inc.
Reviewed/Approved by


David R. Kleesattel
Registered Geologist
No. 5136

For:
John S. Gaines
Vice President, General Manager
West Region



- Attachment 1 Figures
- Attachment 2 Table
- Attachment 3 Groundwater Technology Standard Operating Procedures
- Attachment 4 Laboratory Analytical Report Groundwater Samples

ATTACHMENT 1

FIGURES

- FIGURE 1 SITE LOCATION MAP
- FIGURE 2 SITE PLAN (06/01/93)
- FIGURE 3 TPH-AS-GASOLINE AND BENZENE CONCENTRATION MAP (06/01/93)



**GROUNDWATER
TECHNOLOGY**

4057 PORT CHICAGO HWY
CONCORD, CA 94520
(510) 671-2387



SCALE:

0 FEET 2000

SITE LOCATION MAP

CLIENT:

**THE SOUTHLAND CORPORATION
STORE No. 19035**

DATE:

1/21/93

LOCATION:

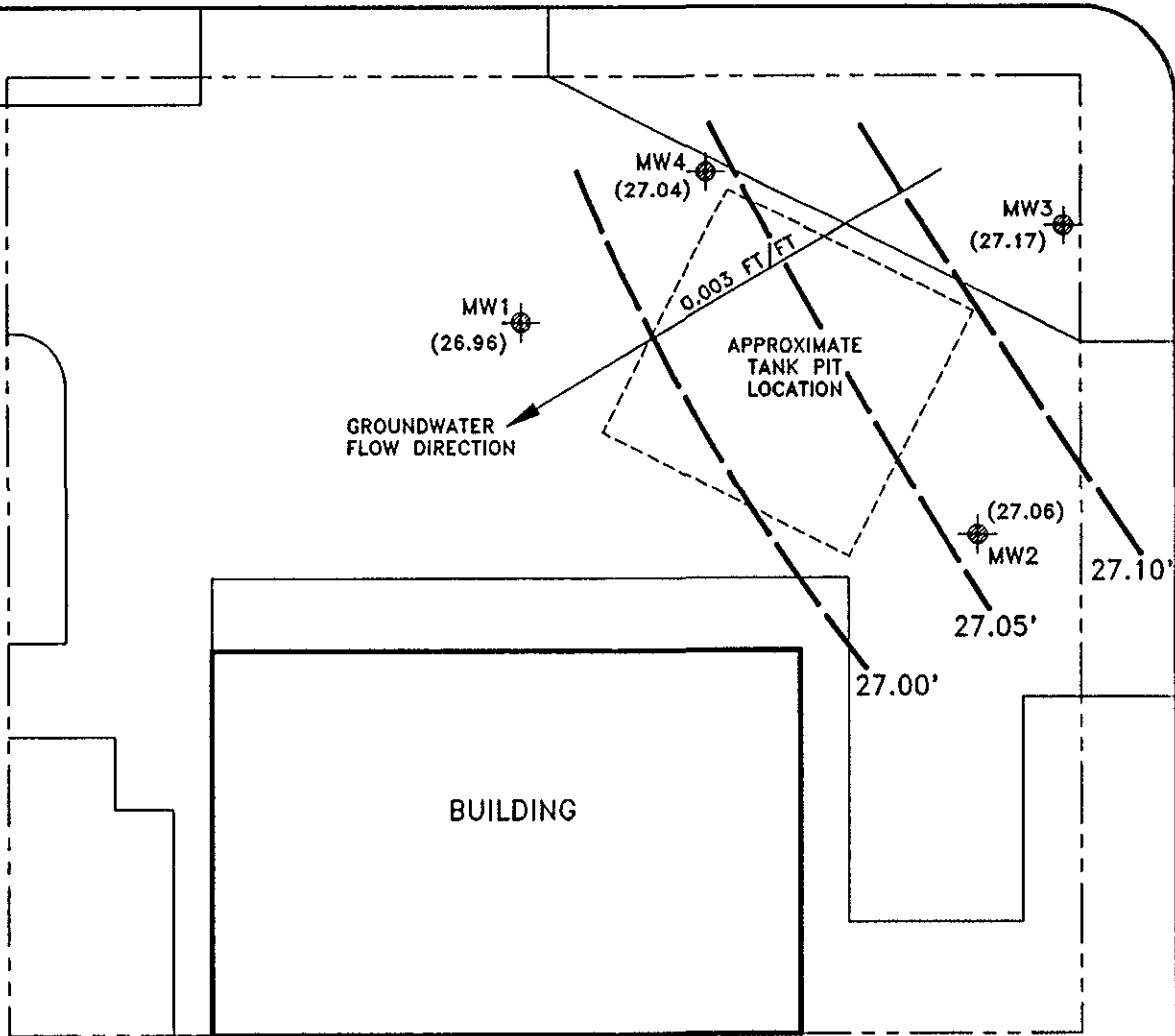
**100 LEWELLING BLVD.
SAN LORENZO, CALIFORNIA**

FIGURE:

1

LEWELLING BLVD.

VIA GRANADA ST.



LEGEND

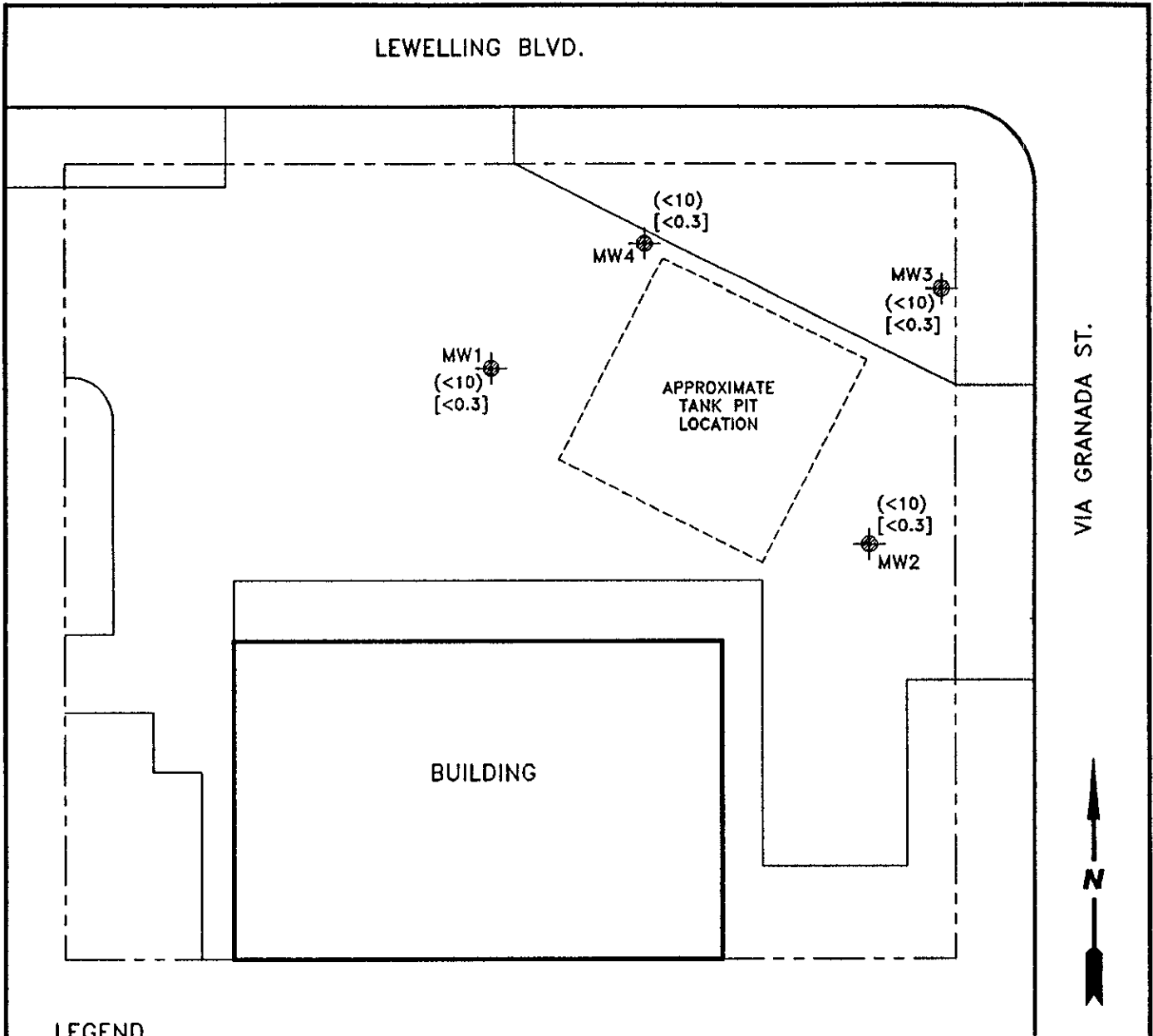
- ⊕ MONITORING WELL
- () POTENTIOMETRIC SURFACE ELEVATION (6/1/93)
- POTENTIOMETRIC SURFACE CONTOUR



GROUNDWATER TECHNOLOGY
 4057 PORT CHICAGO HWY.
 CONCORD, CA 94520
 (510) 671-2387

SITE PLAN

CLIENT: THE SOUTHLAND CORPORATION STORE No. 19035			LOCATION: 100 LEWELLING BLVD. SAN LORENZO, CALIFORNIA		REV. NO.: 0	DATE: 6/28/93
PM <i>SK</i>	PE/RG DRK	DESIGNED SCH	DETAILED ML	ACAD FILE: PSM6193/SP293	PROJECT NO.: 020203139	FIGURE: 2



LEGEND

- ⊕ MONITORING WELL
- () TPH-AS-GASOLINE CONCENTRATION (ppb)
- [] BENZENE CONCENTRATION [ppb]



GROUNDWATER TECHNOLOGY

4057 PORT CHICAGO HWY.
CONCORD, CA 94520
(510) 671-2387

**TPH-AS-GASOLINE & BENZENE
CONCENTRATION MAP
(6/1/93)**

CLIENT: THE SOUTHLAND CORPORATION STORE No. 19035		LOCATION: 100 LEWELLING BLVD. SAN LORENZO, CALIFORNIA		REV. NO.: 0	DATE: 6/21/93
PM <i>[Signature]</i>	PE/RG DRK	DESIGNED SCH	DETAILED ML	ACAD FILE: TPH6193/SP293	PROJECT NO.: 020203139
					FIGURE: 3

ATTACHMENT 2

TABLE

TABLE 1 HISTORICAL GROUNDWATER ANALYTICAL RESULTS AND MONITORING DATA

TABLE 1
HISTORICAL GROUNDWATER ANALYTICAL RESULTS AND MONITORING DATA
Southland Site No. 19035
100 Lewelling Boulevard, San Lorenzo, California
(Concentrations in parts per billion)

Well ID/ Elev	Date	Benzene	Toluene	Ethyl- benzene	Xylenes	TPH-G	DTW (ft)	SPT (ft)	GWE (ft)
MW-1 41.90	12/08/92	<0.3	<0.3	<0.3	<0.3	<10	19.07	0.00	22.83
	03/01/93	<0.3	<0.5	<0.3	<0.5	<10	14.69	0.00	27.21
	06/01/93	<0.3	<0.3	<0.3	<0.5	<10	14.95	0.00	26.96
MW-2 42.19	12/08/92	<0.3	<0.3	<0.3	<0.3	<10	19.28	0.00	22.93
	03/01/93	<0.3	<0.3	<0.3	<0.5	<10	14.85	0.00	27.34
	06/01/93	<0.3	<0.3	<0.3	<0.5	<10	15.13	0.00	27.06
MW-3 41.29	12/08/92	<0.3	<0.3	<0.3	<0.3	<10	18.25	0.00	22.99
	03/01/93	<0.3	<0.3	<0.3	<0.5	<10	13.82	0.00	27.47
	06/01/93	<0.3	<0.3	<0.3	<0.5	<10	14.12	0.00	27.17
MW-4 41.44	12/08/92	<0.3	<0.3	<0.3	<0.3	<10	18.54	0.00	22.90
	03/01/93	<0.3	<0.3	<0.3	<0.5	<10	14.12	0.00	27.32
	06/01/93	<0.3	<0.3	<0.3	<0.5	<10	14.40	0.00	27.04

TPH-G = Total petroleum hydrocarbons-as-gasoline
DTW = Depth to water
SPT = Separate-phase hydrocarbon thickness
GWE = Groundwater elevation in feet above mean sea level

ATTACHMENT 3
STANDARD OPERATING PROCEDURES

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

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:

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

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**

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**

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**

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 transferrer 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.

**GROUNDWATER TECHNOLOGY, INC.
STANDARD OPERATING PROCEDURE
CONCERNING SOIL SAMPLING METHODOLOGY
SOP 14**

1. Soil samples should be collected and preserved in accordance with Groundwater Technology Standard Operating Procedure (SOP 15) concerning Soil Sample Collection and Handling when Sampling for Volatile Organics. A hollow stem soil auger should be used to drill to the desired sampling depth. A standard 2 inch diameter split spoon sampler 18 inches in length shall be used to collect the samples. The samples are contained in 2 inch diameter by 6 inch long thin walled brass tube liners fitted into the split spoon sampler (three per sampler).
2. The split spoon sampler should be driven the full depth of the spoon into the soil by a 140 pound hammer. The spoon shall then be extracted from the borehole and the brass tube liners containing the soil sample removed from the sampler. The ends of the liner tubes should be immediately covered with aluminum foil, sealed with a teflon or plastic cap, and taped with duct tape. After being properly identified with sample data entered on a standard chain of custody form the samples shall be placed on dry ice (maintained below 4~C) and transported to the laboratory within 24 hours.
3. One of the three soil samples retrieved at each sample depth shall be analyzed in the field using a photolization detector and/or explosimeter. The purpose of the field analysis is to provide a means to choose samples to be laboratory analyzed for hydrocarbon concentrations and to enable comparisons between the field and laboratory analyses. The soil sample shall be sealed in a plastic bag and allowed to equilibrate with the air surrounding the soil for approximately 10 minutes. One of the two field vapor instruments shall be used to quantify the amount of hydrocarbon released to the air from the soils. The data shall be recorded on the drill logs at the depth corresponding to the sample point.

**GROUNDWATER TECHNOLOGY, INC.
STANDARD OPERATING PROCEDURE
CONCERNING SOIL SAMPLE COLLECTION AND
HANDLING WHEN SAMPLING FOR VOLATILE ORGANICS
SOP 15**

1. Use a sampling means which maintains the physical integrity of the samples. The project sampling protocol will designate a preferred sampling tool. A split spoon sampler with liners, or similar tube sampler which can be sealed, is best.
2. The samples should be sealed in the liner, with teflon plugs (The "California Sampler") or plastic caps.
3. For sending whole-core samples (above):
 - A. Seal ends of liner with teflon plugs or plastic caps, leaving no free air space inside.
 - B. Tape with duct tape.
 - C. Label the sample with the following information: sample identification, depth, date and time, project number and required analyses.
 - D. Place in plastic bag labeled with indelible marker. Use Well #, depth, date, and job #.
 - E. Place inside a second bag and place a labelling tag inside outer bag.
 - F. Enclose samples in a cooler with sufficient ice or dry ice to maintain samples at 4 degrees C during shipment.
 - G. Seal cooler with a lock, or tape with samplers signature so tampering can be detected.
 - H. Package cooler in a box with insulating material. Chain of custody forms can be placed in a plastic bag in this outer box.
 - I. If dry ice is used, a maximum of 5 pounds is allowed by Federal Express without special documents (documents are easy to obtain but are not necessary for under 5 pounds). Write "ORM-A dry ice", " _____ pounds, for research" on outside packaging and on regular airbill under classification. UPS does not accept dry ice.
 - J. Soil cores kept a 4 degrees C are only viable for up to 7 days when aromatic hydrocarbons are involved. The lab should prepare the samples in methanol once in the lab.
4. Good sampling practice would include preparing 1 out of 5 samples to be prepared in duplicates for analysis. These 4 out of 20 samples will be used for the following purposes:
 - A. One in every 20 samples should be analyzed as a field replicate to evaluate the precision of the sampling technique. A minimum of 1 sample per data set is suggested.
 - B. An additional 1 in 20 samples should be selected by sampler to be prepared in duplicate as alternative to Step (A). Choose a different soil type if available.

- C. The remaining 2 in 20 samples should be used by lab for spiking with reference materials for internal QC.

Other QC procedures can be specified at the project manager's discretion. See Table 3-2 (reference 2) attached.

5. Decontamination of equipment in the field requires a detergent wash, with a distilled water rinse.

REFERENCES

1. Soil Sampling Quality Assurance Users Guide, U.S. EPA Environmental Monitoring Systems Laboratory, Las Vegas, NV, EPA 600/4-84-043, May 1984.
2. Preparation of Soil Sampling Protocol. Techniques and Strategies, U.S. EPA, Environmental Monitoring Systems Laboratory, Las Vegas, NV, EPA 600/4-83-020, August 1983 (PB83-206979).
3. Test Methods for Evaluating Solid Waste, U.S. EPA, Office of Solid Waste and Emergency Response, Washington, D.C., SW 846, July 1982.

**GROUNDWATER TECHNOLOGY, INC.
STANDARD OPERATING PROCEDURE
CONCERNING OPERATION/CALIBRATION OF
PHOTOIONIZATION ANALYZER
SOP 19**

1. The Thermo Environmental Instruments Inc. Model 580B OVM Photoionization Analyzer shall be used, using photoionization, to measure the concentration of trace gases over a range of less than 1 ppm to 2,000 ppm. The specific instrument used for investigations related to hydrocarbon contamination should be calibrated for direct readings in parts per million (ppm) volume/volume of isobutylene. Specifics of the detection principle/theory and functions of various components can be found in the manufactures instruction manual.
2. To assure optimum performance, the photolionization analyzer should be calibrated with a standard gas mixture of known concentration from a pressurized container. A daily procedure for calibration involves bringing the probe and readout close to the calibration gas, cracking the valve on the tank and checking the instrument reading. This provides a useful spot check for the instrument.
3. A procedure conducted weekly for more accurate calibration of the instrument from a pressurized container is to connect one side of a "T" to the pressurized container of calibration gas, another side of the "T" to a rotameter and the third side of the "T" directly to the 8" extension to the photoionization probe (see Figure 2). Crack the valve of the pressurized container until a slight flow is indicated on the rotameter. The instrument draws in the volume of sample required for detection, and the flow in the rotameter indicates an excess of sample. Now adjust the span pot so that the instrument reads the exact value of the calibration gas. (If the instrument span setting is changed, the instrument should be turned back to the standby position and the electronic zero should be readjusted, if necessary).

ATTACHMENT 4
LABORATORY ANALYTICAL REPORT
GROUNDWATER SAMPLES

3139R013.030



4080 Pike Lane
Concord, CA 94520
(510) 685-7852
(800) 544-3422 Inside CA
(800) 423-7143 Outside CA
(510) 825-0720 FAX

Client Number: 020203139
Project ID: 100 Lewelling
San Lorenzo, CA
Work Order Number: C3-06-0006

June 11, 1993

Sandra Lindsey
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 06/01/93, under chain of custody record 30225.

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, Laboratory certificate numbers 194 and 1075, 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.

A handwritten signature in cursive script that reads 'Eileen F. Bullen'.

Eileen F. Bullen
Laboratory Director

Client Number: 020203139
 Project ID: 100 Lewelling
 San Lorenzo, CA
 Work Order Number: C3-06-0006

Table 1
ANALYTICAL RESULTS
 Aromatic Volatile Organics and
 Total Petroleum Hydrocarbons as Gasoline in Water
 EPA Methods 5030, 8020, and Modified 8015^a

GTEL Sample Number		01	02	03	05
Client Identification		SITE BLANK	RBMW1	MW1	MW4
Date Sampled		06/01/93	06/01/93	06/01/93	06/01/93
Date Analyzed		06/10/93	06/10/93	06/10/93	06/10/93
Analyte	Detection Limit, ug/L	Concentration, ug/L			
Benzene	0.3	<0.3	<0.3	<0.3	<0.3
Toluene	0.3	<0.3	<0.3	<0.3	<0.3
Ethylbenzene	0.3	<0.3	<0.3	<0.3	<0.3
Xylene, total	0.5	<0.5	<0.5	<0.5	<0.5
BTEX, total	--	--	--	--	--
TPH as Gasoline	10	<10	<10	<10	<10
Detection Limit Multiplier		1	1	1	1
BFB surrogate, % recovery		101	101	101	102

- 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. Bromofluorobenzene surrogate recovery acceptability limits are 70-130%.

Client Number: 020203139
 Project ID: 100 Lewelling
 San Lorenzo, CA
 Work Order Number: C3-06-0006

Table 1(continued)

ANALYTICAL RESULTS

**Aromatic Volatile Organics and
 Total Petroleum Hydrocarbons as Gasoline in Water**

EPA Methods 5030, 8020, and Modified 8015^a

GTEL Sample Number		07	09	Z061093	
Client Identification		MW3	MW2	METHOD BLANK	
Date Sampled		06/01/93	06/01/93	--	
Date Analyzed		06/11/93	06/11/93	06/10/93	
Analyte	Detection Limit, ug/L	Concentration, ug/L			
Benzene	0.3	<0.3	<0.3	<0.3	
Toluene	0.3	<0.3	<0.3	<0.3	
Ethylbenzene	0.3	<0.3	<0.3	<0.3	
Xylene, total	0.5	<0.5	<0.5	<0.5	
BTEX, total	--	--	--	--	
TPH as Gasoline	10	<10	<10	<10	
Detection Limit Multiplier		1	1	1	
BFB surrogate, % recovery		102	101	96.5	

- 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. Bromofluorobenzene surrogate recovery acceptability limits are 70-130%.



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 CONCORD, CA 94520
 (510) 685-7852
 (800) 423-7143

**CHAIN-OF-CUSTODY RECORD
 AND ANALYSIS REQUEST**

30225

Company Name: Groundwater Tech Inc Phone #: 671-2387
 Company Address: 4057 Port Chicago Hwy Concord Site location: 100 Lewelling San Lorenzo, Calif.
 Project Manager: Sandra Lindsey Client Project ID: (#) 020203139, 030504
 (NAME) STHL / Lewelling 6/1/93
 I attest that the proper field sampling procedures were used during the collection of these samples. Sampler Name (Print): Randy Ray Phillips RW

BTEX/602	<input type="checkbox"/>	8020	<input type="checkbox"/>	with MTBE	<input type="checkbox"/>
BTEX/Gas Hydrocarbons PID/FID	<input checked="" type="checkbox"/>	with MTBE	<input type="checkbox"/>		
Hydrocarbons GC/FID Gas	<input type="checkbox"/>	Diesel	<input type="checkbox"/>	Screen	<input type="checkbox"/>
Hydrocarbon Profile (SIMDIS)	<input type="checkbox"/>				
Oil and Grease 413.1	<input type="checkbox"/>	413.2	<input type="checkbox"/>	SM 503	<input type="checkbox"/>
TPH/IR 418.1	<input type="checkbox"/>	SM 503	<input type="checkbox"/>		
EDB by 504	<input type="checkbox"/>	DBCP by 504	<input type="checkbox"/>		
EPA 503.1	<input type="checkbox"/>	EPA 502.2	<input type="checkbox"/>		
EPA 601	<input type="checkbox"/>	EPA 8010	<input type="checkbox"/>		
EPA 602	<input type="checkbox"/>	EPA 8020	<input type="checkbox"/>		
EPA 608	<input type="checkbox"/>	8080	<input type="checkbox"/>	PCB only	<input type="checkbox"/>
EPA 624/PPL	<input type="checkbox"/>	8240/TAL	<input type="checkbox"/>	NBS (+ 15)	<input type="checkbox"/>
EPA 625/PPL	<input type="checkbox"/>	8270/TAL	<input type="checkbox"/>	NBS (+ 25)	<input type="checkbox"/>
EPA 610	<input type="checkbox"/>	8310	<input type="checkbox"/>		
EP TOX Metals	<input type="checkbox"/>	Pesticides	<input type="checkbox"/>	Herbicides	<input type="checkbox"/>
TCLP Metals	<input type="checkbox"/>	VOA	<input type="checkbox"/>	Semi-VOA	<input type="checkbox"/>
EPA Metals - Priority Pollutant	<input type="checkbox"/>	TAL	<input type="checkbox"/>	RCRA	<input type="checkbox"/>
CAM Metals TLC	<input type="checkbox"/>	STLC	<input type="checkbox"/>		
Lead 239.2	<input type="checkbox"/>	200.7	<input type="checkbox"/>	7420	<input type="checkbox"/>
Organic Lead	<input type="checkbox"/>				
Corrosivity	<input type="checkbox"/>	Flash Point	<input type="checkbox"/>	Reactivity	<input type="checkbox"/>

Field Sample ID	GTEL Lab # (Lab use only)	# Containers	Matrix					Method Preserved					Sampling			
			WATER	SOIL	AIR	SLUDGE	PRODUCT	OTHER	HCl	HNO ₃	H ₂ SO ₄	ICE	UNPRESERVED	OTHER (SPECIFY)	DATE	TIME
Site Blank	01	1	X					X			X				6/1/93	2:00
RB MW1	02	1	X					X			X					2:00
MW1	03	2														2:00
RB MW4	04	1														2:10
MW4	05	2														2:10
RB MW3	06	1														2:20
MW3	07	2														2:20
RB MW2	08	1														2:30
MW2	09	2														2:30

TAT: Priority (24 hr) Expedited (48 hr) 7 Business Days Other Business Days

Special Handling: GTEL Contact _____ Quote/Contract # _____ Confirmation # _____ PO # _____

QA / QC LEVEL: BLUE CLP OTHER _____

SPECIAL DETECTION LIMITS

SPECIAL REPORTING REQUIREMENTS

FAX

REMARKS

Lab Use Only Lot # _____ Storage Location: _____

Work Order # **C3060006**

CUSTODY RECORD

Relinquished by Sampler <u>Randy Ray Phillips</u>	Date <u>6/1/93</u>	Time <u>3:40</u>	Received by:
Relinquished by:	Date	Time	Received by:
Relinquished by:	Date <u>6/1/93</u>	Time <u>15:00</u>	Received by Laboratory: <u>Burt E. Lip</u>

Hold