HYDROGEOLOGIC INVESTIGATION RESULTS

Shell Oil Company
Retail Gasoline Station
318 South Livermore Avenue
Livermore, California

Aegis Project No. 89-041

July 16, 1990

Prepared By:
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1.0 INTRODUCTION

This report presents the results of the hydrogeologic investigation and installation of ground water monitoring wells at the Shell Oil Company retail gasoline station located at 318 South Livermore Avenue, Alameda County, Livermore California.

1.1 Purpose

The purpose of this investigation was to:

- Complete the characterization of the soil and hydrogeologic conditions beneath the site.
- Assess the presence of petroleum hydrocarbons in soil and ground water.
- Establish whether further investigation and/or mitigation of petroleum hydrocarbons in soil and ground water is required.

1.2 Scope

The investigative scope of work is summarized below. Methods used during the investigation are presented in Appendix A.

- Installed four ground water monitoring wells.
- Soil samples recovered from the soil borings were logged and classified according to the Unified Soil Classification System. Soil boring logs are included in Appendix B.
- Recovered samples were screened for the presence of organic vapors with an H-nu photoionization detector (PID) and the highest instrument reading from each sample was recorded on the boring logs.
- Drill cuttings were placed on and covered with visquene. Two samples were obtained from this pile.
- Based on soil classification, PID screening, and depth, representative samples from each boring were submitted to a state-certified laboratory for analysis under prescribed chain of custody procedures.
- Soil samples were submitted for analysis for low/medium boiling point hydrocarbons (TPH as gasoline) with BTEX

distinction and total lead.

- On June 15 1990, the wells were developed using 3 liter reusable bailers.

- The wells were sampled on June 21, 1990 after purging using dedicated Voss, single-sample disposable bailers. Water samples were shipped to a state-certified laboratory for analysis under prescribed chain of custody procedures.

- Well riser elevations were surveyed by a California licensed surveyor on June 7, 1990 and referenced to the city of Livermore benchmark A37, a city monument at 1st St. and South Livermore Ave.

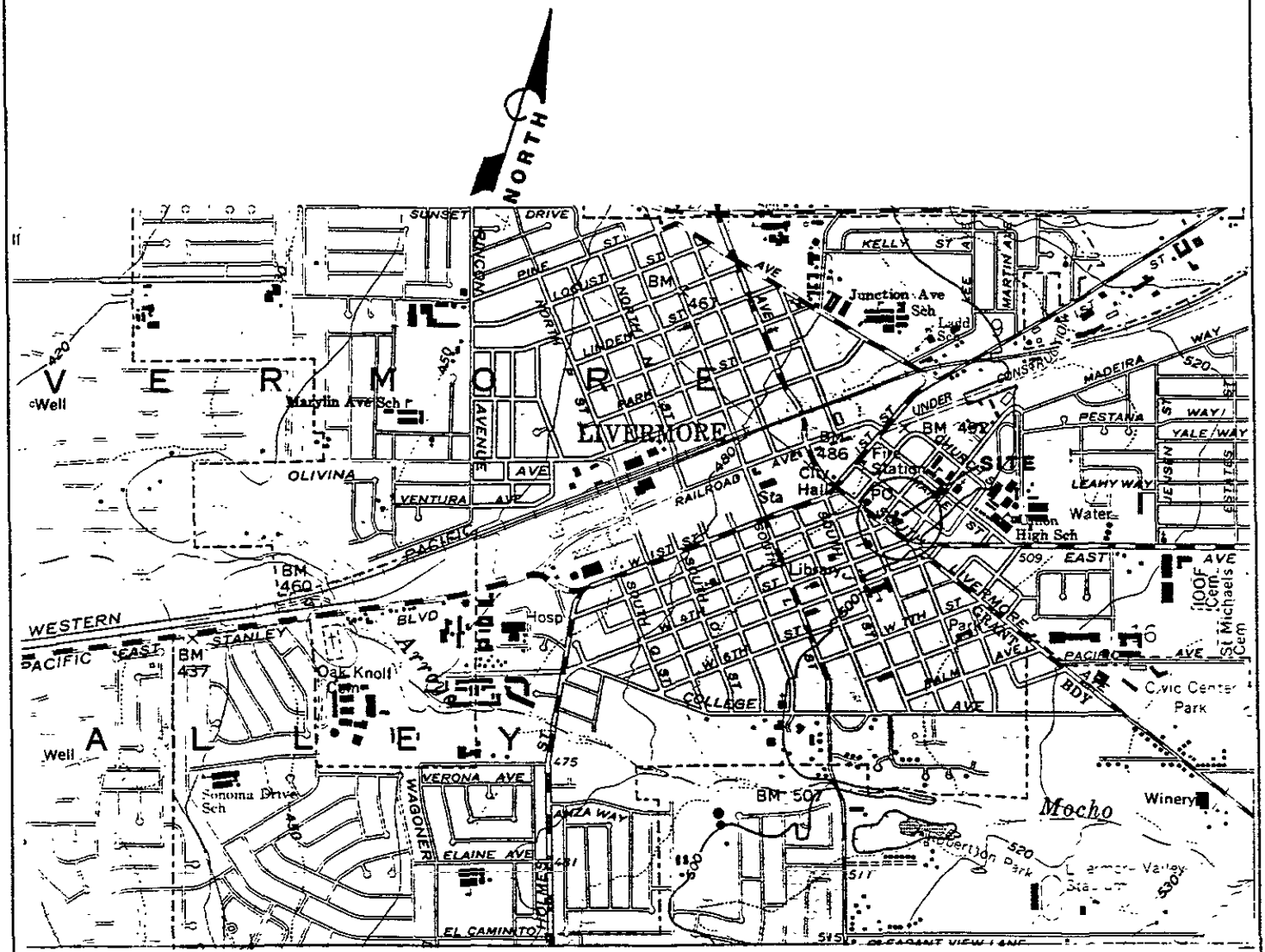
2.0 BACKGROUND INFORMATION

Information on the site was obtained from previous work initiated by Woodward-Clyde Consultants, Aegis Environmental Consultants Inc. (Aegis') Tank Closure Report, a site visit, discussions with the station manager, and state geologic maps. In November of 1989, analysis of soil samples taken from soil excavated during UST removal revealed detectable levels of gasoline and gasoline constituents, particularly in the vicinity of the fill pipe ends of the storage tanks. Subsequently, soils in the tank basin were over-excavated and resampled. Resampling of the tank excavation pit in December of 1989 revealed non-detectable levels of gasoline in soil samples (Aegis' Tank Closure Report, February 18, 1990).

NO! Sample No! RR-A 180 ppm TPH-G, 35 ppm were found.

2.1 Site Location

The site is located at 318 S. Livermore Ave. and Third St. in a residential/commercial area of downtown Livermore (Figure 1). The site's Livermore Quadrangle location is Township 3 south, Range 2 east, Section 8. Additional site location and site description information is presented in Aegis' Tank Closure Report and Hydrogeological Investigation Work Plan (Aegis, Feb.18,1990).



SCALE: 1" = 2000'

0 2000

GENERAL NOTES:

BASE MAP FROM LIVERMORE 7.5 MINUTE TOPOGRAPHIC

FIGURE 1
SITE LOCATION MAP
Shell Service Station
318 South Livermore Ave.
Livermore, Ca.

AEGIS JOB NO. 89-041

DRAWN BY: Ed Bernard DATE: Dec.11,1989
REVIEWED BY: DATE:

2.2 Site History

Aegis' Tank Closure Report (Feb. 18, 1990) presents a Summary of Results From the Phase I investigation. This summary describes initial work performed by Woodward-Clyde Consultants for the phase I investigation and work performed by Aegis to complete the phase I investigation and prepare a closure report.

2.3 Adjacent Land Uses

The site lies within the downtown portion of Livermore where commercial properties are interspersed with residential properties, schools, churches, and a library. Across S. Livermore Ave. are residences, immediately next to the site, to the south, is a pizza restaurant, and across 3rd St., to the north, is another gasoline retail station.

2.4 Regional Geology

The site lies within an area of alluvium, lake, and terrace deposits that are unconsolidated and semi-consolidated. The deposits in this area are predominantly nonmarine and were deposited in the Pleistocene-Holocene Epochs of the Quaternary Period. Livermore is immediately adjacent to Pleistocene and/or Pliocene sandstone, shale, and gravel deposits that are mostly loosely consolidated and form hills in the region.*

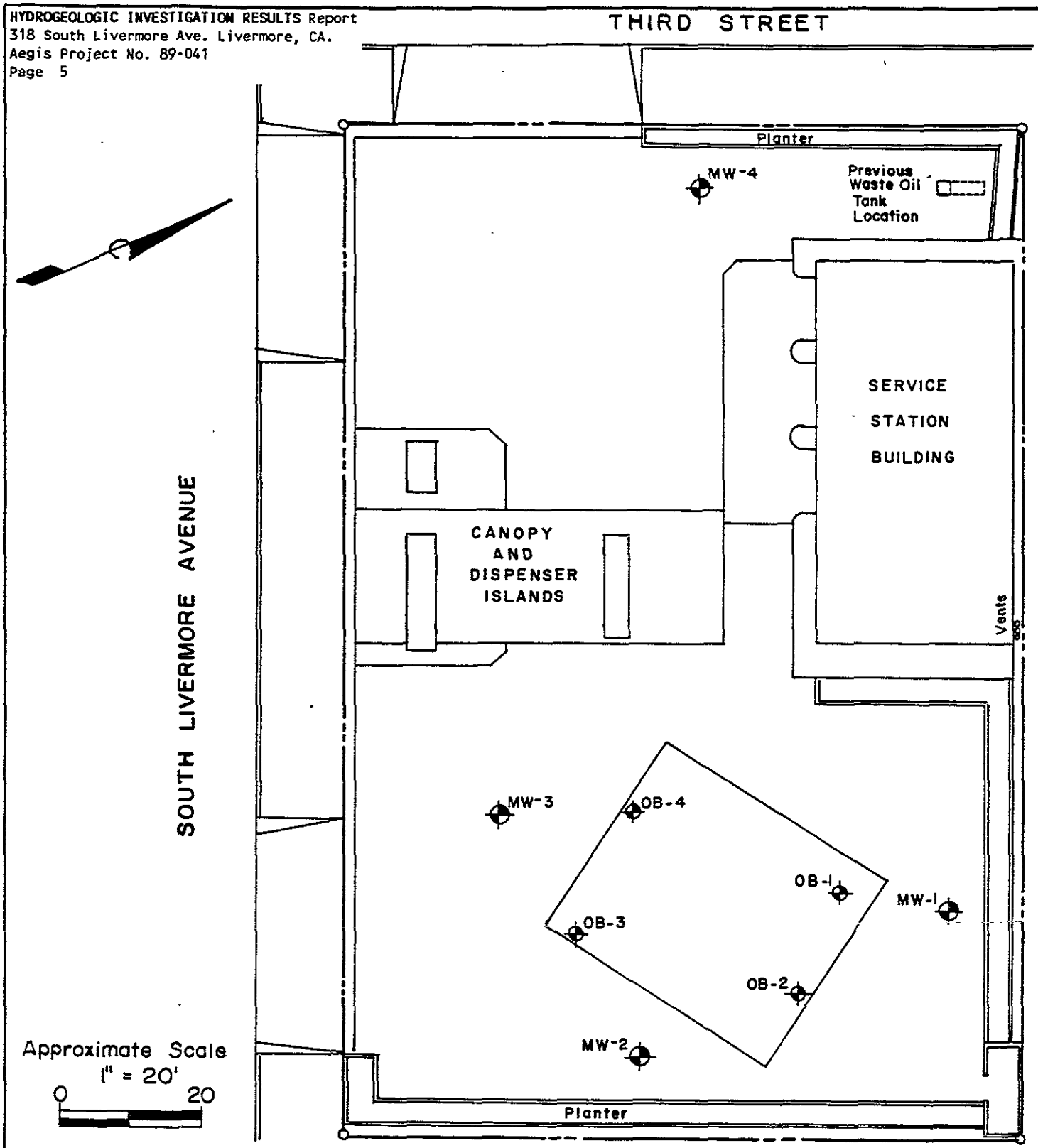
2.5 Utilities/Underground Structure Location

Prior to Aegis' subsurface exploration, Underground Service Alert (USA) was notified of Aegis' intent to construct monitoring wells. Our marked well locations were cleared by USA after local utilities marked their underground line locations.

3.0 PROJECT RESULTS

A total of four soil borings were advanced according to methods described in Appendix A. The locations of the borings are shown in Figure 2. Logs of the soil borings are included in Appendix B. The four borings were converted to 4 inch diameter ground water monitoring wells. Ground water monitoring well construction details are included in Appendix C. A total of eight soil boring samples, one soil stockpile sample, and four water samples were submitted to a state-certified laboratory for analysis. Copies of lab results are presented in Appendix D.

* California Dept. of Conservation, Division of Mines and Geology



NOTE: Site Sketch After Site Plan By R.H. LEE & Associates, Inc. 11/14/86

LEGEND

- Monitoring Well (MW-3)
- Observation Well (OB-2)

FIGURE 2
SITE MAP
Shell Service Station
318 South Livermore Avenue
Livermore, Ca.

AEGIS Job No. 89-041

DRAWN BY: Ed Bernard DATE: June 27,1990
REVIEWED BY:

3.1 Soil Conditions

Soil conditions encountered in the soil borings consisted of very course silty gravel to approximately 15 feet, which was underlain by clays to approximately 35 feet. The clay was underlain by silty clay to the total depth explored. Soil conditions were consistent laterally across the site. Soils were predominantly moist throughout the vadose zone until the saturated zone was encountered at approximately 45 feet below grade.

3.2 Results of Organic Vapor Screening

Vapor screening of soil samples was performed according to methods described in Appendix A. Results of vapor screening are recorded in the soil boring logs. Organic vapor levels above 100 ppm were not detected in any of the soil boring samples. Readings ranged from 0 ppm to 5 ppm.

3.3 Soil Chemical Analyses Results

Two soil samples from each SB-1, SB-2, SB-3, SB-4, and one stockpile sample were submitted to a state-certified laboratory for chemical analysis based on OVA screening, odor observed, soil classification, and depth. All soil samples were analyzed for total petroleum hydrocarbons (TPH) as gasoline (low/medium boiling point hydrocarbons), with BTEX distinction for benzene, toluene, ethyl benzene, and xylenes by EPA method 8015/8020, and total lead by EPA method 7421.

Three of nine soil samples analyzed contained detectable levels of petroleum hydrocarbons constituents. Benzene was detected at 0.0062 ppm and 0.0053 ppm. Toluene was detected at 0.0076 ppm. Ethyl Benzene was detected at 0.0055 ppm. Xylenes were detected at 0.013 ppm and 0.018 ppm. Detection limits were all at 0.0050 ppm. Low/medium boiling point hydrocarbons (TPH as gasoline) were not detected above the 1.0 ppm detection limit (Appendix D).

3.4 Monitoring Well Installation

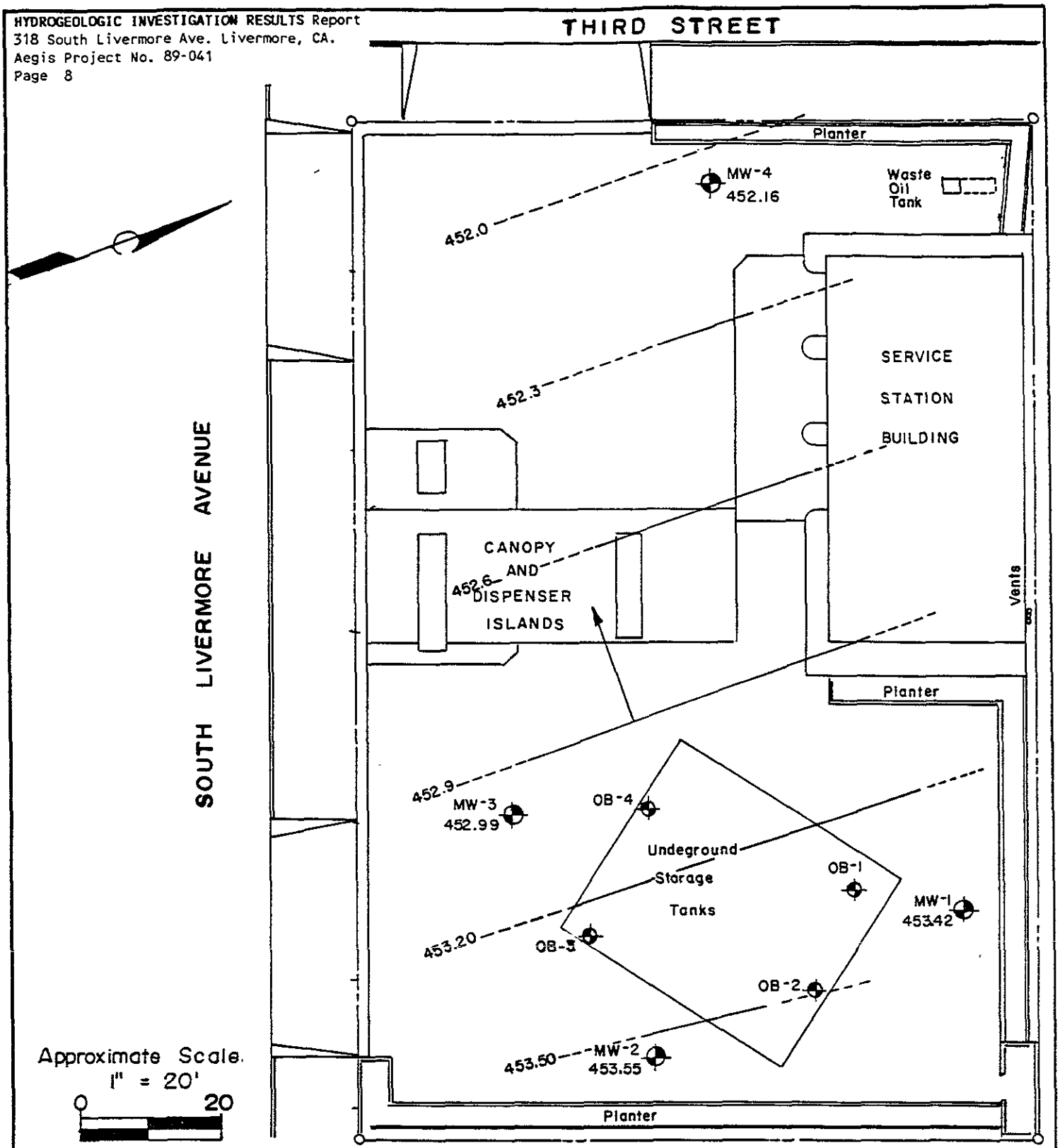
Four soil borings were fitted with 4-inch diameter, schedule 40 PVC pipe with flush threaded joints. The wells were installed to maximum depth of 55.0 and 60.0 feet below grade. The wells were back filled with #3 sand filter pack. 1.5 feet of 1/4-inch Bentonite pellets were placed above the filter pack as an impermeable seal against surface intrusion. The remaining annular well space was filled to approximately eight inches below grade with a Bentonite/Portland grout mixture. Well bottoms were capped with 4-inch diameter PVC slip caps. A 15 foot section of .010-inch machine slotted PVC was placed from the bottom of each well to approximately five feet above the saturated soil zone. The well casings were capped with expansion type, water proof, locking well caps. The top of the wells were completed with the cementing of flush grade, steel, water tight bolted manhole boxes.

3.5 Ground Water Conditions

Water levels were obtained on June 15, 1990. No free product was noticed on water from any of the wells. The depth to ground water and riser pipe elevations were used to determine the ground water elevations. The ground water elevation contour map, presented in Figure 3, was compiled from the June 15, water level measurements, Appendix B. The direction of ground water flow beneath the site is toward the west, northwest. The calculated hydraulic gradient is approximately .010 ft/ft.

3.6 Ground Water Chemical Analysis Results

After installation and development, water samples were obtained from each monitoring well according to the methods described in Appendix A, and submitted to a state-certified laboratory for analysis. Water samples were tested for total petroleum hydrocarbons (TPH) as gasoline (low/medium boiling point hydrocarbons) with BTEX distinction by EPA method 8015/8020. All water sample results were below detection levels. Copies of the certified laboratory reports are included in Appendix D.



NOTE: Site Sketch After Site Plan By R.H. LEE & Associates, Inc. 11/14/86

LEGEND

- Monitoring Well (MW-3
- Observation Well (OB-2)
- 453.42 Total Well Head
- ---- 453.20 Ground Water Elevation
- 0.012 ft/ft Hydraulic Gradient
- Direction Of Groundwater

FIGURE 3
GROUND WATER ELEVATION CONTOUR MAP
Shell Service Station
318 South Livermore Ave.
Livermore, Ca.

AEGIS Job No. 89-041

DRAWN BY: Ed Bernard DATE: June 27, 1990
REVIEWED BY: DATE:

3.7 Hydrogeologic Conditions

Ground water was first encountered at approximately 45 feet below ground surface. Elevations of first water encountered during drilling and stabilized water levels were similar, indicating that this aquifer is unconfined. Bail-down recovery tests performed on June 21, 1990 experienced slow recovery times, indicating low permeabilities of the soils.

3.8 Well Recovery Data

MW-1 recharge data collection began with the water table surface at 52.0 feet below grade and the change in the surface level was at a rate of approximately 1 foot per 1.5 minutes. Recharge data collection ended with the ground water elevation at 43.0 feet below grade and the change in the surface level at that depth was at a rate of 1 foot per 24.166 minutes. MW-2 recharge data collection began with the ground water elevation at 51.44 feet below grade and the change in the surface level was at a rate of 1 foot per 2.25 minutes. Recharge data collection ended with the ground water elevation at 44.0 feet below grade and the change in surface level was at a rate of 1 foot per 39.5 minutes. This data indicates a low transmissivity typical of the clay present beneath the site, as indicated in the well logs.

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52

4.0 DISCUSSION OF RESULTS

The following subsections discuss the results of the investigation relevant to the source and extent of petroleum hydrocarbons in subsurface soil and ground water.

4.1 Petroleum Hydrocarbons in Soil

Petroleum hydrocarbon constituents (BTEX) detected in soil samples were well below LUFT action levels. All soil sample results were below detection levels for TPH as gasoline.

4.2 Petroleum Hydrocarbons in Ground Water

Petroleum hydrocarbons constituents (BTEX) were not detected in any of the water samples. All water sample results were below detection levels for TPH as gasoline.

5.0 CONCLUSIONS

Aegis offers the following conclusions regarding investigative activities performed to date at this site.

1) Analysis of soil samples obtained during installation of ground water monitoring wells verifies that soils in the vicinity of the new underground storage tanks and the waste oil tank contain petroleum hydrocarbons either below detection limits or, as in a few samples, only at levels slightly above detection limits. Based on this data, there appears to be no threat to ground water beneath the site from petroleum hydrocarbons.

2) The results of ground water sample analyses indicate that petroleum hydrocarbons are not present above limits of quantification in ground water beneath the site.

6.0 REMARKS/SIGNATURES

The interpretations and conclusions contained in this results report represent our professional opinions. These opinions are based on currently available information and were developed in accordance with currently accepted hydrogeologic and engineering practices at this time and for this specific site. Other than this, no warranty is implied or intended.

This report has been prepared solely for the use of Shell Oil Co. and any reliance on this report by third parties shall be at such parties sole risk.

AEGIS ENVIRONMENTAL CONSULTANTS

This report was prepared by:

Larry Braybrooks
Staff Geologist

Date: 7/17/90

This report was reviewed by:

Clarke H. Owen
Senior Geologist

Date: 7-23-90

The work described herein was performed under the direct supervision of a State of California registered professional geologist:

Pat Wright
Registered Geologist # 529

Date: 7-17-90

REGISTERED GEOLOGIST
PAT WRIGHT
No. 529
STATE OF CALIFORNIA

APPENDIX A

Methods

4.0 METHODS

4.1 Soil Borings

Soil borings will be drilled and soil samples collected under the direction of a State of California registered professional geologist or engineer. The soil borings will be advanced to a depth of approximately five below grade by using a hand auger. The soil borings will be advanced, below five feet to final depth, using a truck-mounted hollow-stem auger drilling rig.

To reduce the possibility of cross-contamination between boreholes, all downhole drilling equipment will be cleaned with a high pressure hot water detergent wash between each boring. To reduce cross-contamination between samples, the split-barrel sampler will be washed in a tri-sodium phosphate solution and double-rinsed in distilled water between each sampling event.

4.1.1 Soil Sampling

Soil sampling will be conducted in accordance with ASTM 1586-84. Using this procedure, a two-inch O.D. split-barrel sampler or a two-inch I.D. California-type sampler is driven into the soil by a 140-pound weight falling 30 inches. After an initial set of 6 inches, the number of blows required to drive the sampler an additional 12 inches is known as penetration resistance, or the "N" value. The N value is used as an empirical measure of the relative density of cohesionless soils and the consistency of cohesive soils.

Upon recovery, a portion of the soil sample will be placed into a disposable container and sealed for later screening with an OVA. Another portion of the soil sample will be used for classification and description. That part of the soil sample collected in a brass tube within the sampler will be stored at approximately 4° C for transport to the laboratory.

4.1.2 Soil Classification

As the samples are obtained in the field, they are classified in accordance with the Unified Soil Classification System (USCS). Representative portions of the samples are then returned to the laboratory for further examination and for verification of the field classification. Logs of the borings indicating the depth and identification of the various soil types, the N value, and pertinent information regarding the method of maintaining and advancing the borehole are also made.

4.1.3 Soil Sample Screening: Portable Photoionization Detector Method

After the soil sample container has been brought to ambient temperature, the head space of the container will be screened with a portable organic vapor analyzer calibrated for direct reading in parts per million volume (ppmv). The sample container will be partially opened and the detector probe immediately placed within the head space of the jar. The highest observed reading will be recorded.

4.2 Groundwater Monitoring Wells

Groundwater monitoring wells will be constructed of 4-inch diameter PVC schedule #40 pipe. Machine slotted screen will extend from a screw on cap at total depth to 5 feet above the water table. Based on information supplied by facility operators, seasonal fluctuation of the groundwater table may be expected. Station personnel report groundwater literally at surface during spring runoff. The minimum depth the well screen can be emplaced and still provide room for proper construction of the well and sanitary seal is five feet bgs. The screened interval will extend from total depth to five feet bgs. Schedule #40 PVC blank pipe will extend from the screened interval to a traffic grade monument box located at ground level. Sand filter pack will extend from total depth to .5 to two feet above the top of the screened interval. One to two feet of bentonite pellets will be emplaced above the sand filter pack to form a sanitary seal. Volclay grout will extend from the bentonite seal to land surface. The well head will be completed with a lockable, expansive bung. The locking well cap will be secured in a traffic grade manhole box flush-mounted in concrete. The well head will be clearly labeled with well number, elevation, and measuring point.

4.2.1 Monitoring Well Gravel Pack and Slot Size Selection

The size of the gravel pack that will be placed adjacent to the well screen will be determined by the project manager, based on an estimation of the distribution of grain size in the formation which is likely to be encountered within the uppermost saturated zone at the site. Available geologic information will be utilized in the selection of the grain size. The gravel pack will be selected such that it will provide a zone of higher hydraulic conductivity adjacent to the well screen but will not allow passing of the finer-grained formation into the well bore. The slot size of the well screen will be selected such that it will retain a minimum of 95% of the gravel pack material.

4.2.2 Monitoring Well Development

Each monitoring well will be developed after construction with a 1.75-inch-diameter manual pump or by bailing until the water produced is relatively sediment-free or until measurements of pH, specific conductance, and temperature stabilize. If the well is

pumped dry during the development process, recharge rates will be recorded. No water or chemicals will be introduced into the monitoring wells during well development. All developed water will be placed in drums on site for later disposal pursuant to Shell policy.

4.2.3 Ground Water Sampling

A minimum of 24 hours following well development, and after water levels have been allowed to stabilized in the well, three to five wetted casing volumes of liquid will be removed from each well by bailing with a laboratory-cleaned teflon bailer. Measurements of pH, specific conductance, and temperature will be made at regular intervals during this procedure. Removal of liquid from each well will continue until the measurement of pH, specific conductance, and temperature have stabilized. A liquid sample will then be collected from each well with a laboratory-cleaned, dedicated teflon bailer. Each sample will be appropriately labeled and stored on ice from the time of collection through the time of delivery to the laboratory. Ground water samples will be transported to the laboratory and analyzed within the EPA-specified holding times for the requested analyses. Proper chain-of-custody procedures described in section 4.5.2 will be established and followed.

4.2.4 Petroleum Product

If free petroleum product is present in a well, the thickness of the product layer will be measured by application of a water-finding paste to a water-level-indicator tape. A sample of the product will be collected with a laboratory-cleaned teflon bailer and transferred to an appropriate sample container and subsequently submitted to a California-certified laboratory for fuel fingerprint analysis.

4.2.5 Groundwater Well Elevation Survey

Following establishment, ground water monitoring well heads will be surveyed to establish elevation of the well head. Elevations of well head and top of PVC riser will be documented. The monitoring well head survey will be performed by Tom Morrow Surveying, licensed surveyors in the State of California.

4.3 Laboratory Analysis

Soil and groundwater samples will be analyzed pursuant to El Dorado County regulations and Shell requirements. All laboratory analysis will be performed by a state-certified-laboratory.

4.3.1 Sample Analytical Tests

All samples submitted for laboratory analysis will be analyzed for TPH as gasoline ,low/medium boilers, with BTEX distinction by EPA method 8015/8020, total lead by EPA method 7421. Samples will be

analyzed for inorganic lead by EPA method 6010, and organo lead by ASTM d3237-79 (modified) if detectable quantities are indicated by method 7421.

4.4 Quality Assurance Plan

4.4.1 General Sample Collection and Handling Procedures

Proper collection and handling are essential to ensure the quality of a sample. Each sample will be collected in a suitable container, preserved correctly for the intended analysis, and stored prior to analysis for no longer than the maximum allowable holding time. Details on the procedure for collection and handling of soil samples to be used on this project can be found in Section 4.1.

4.4.2 Sample Identification and Chain-of-Custody Procedures

Sample identification and chain-of-custody procedures ensure sample integrity and document sample possession from the time of collection to its ultimate disposal. Each sample container submitted for analysis will have a label affixed to identify the job number, date, and time of sample collection, and a sample number unique to that sample. This information, in addition to a description of the sample, field measurements made, sampling methodology, names of on-site personnel, and any other pertinent field observations will be recorded on the borehole log in the field records. All samples will be analyzed by a state-certified-laboratory.

A chain-of-custody form will be used to record possession of the sample from time of collection to its arrival at the laboratory. When the samples are shipped, the person in custody of them will relinquish the samples by signing the chain-of-custody form and noting the time. The sample-control officer at the laboratory will verify sample integrity and confirm that it was collected in the proper container, preserved correctly, and there is an adequate volume for analysis.If these conditions are met, the sample will be assigned a unique log number for identification throughout analysis and reporting. The log number will be recorded on the chain-of-custody form and in the legally-required log book maintained by the laboratory in the laboratory. The sample description, date received, client's name and any other relevant information will also be recorded.

4.4.3 Analytical Quality Assurance

In addition to routine calibration of the analytical instruments with standards and blanks, the analyst is required to run duplicates and spikes on 10 percent of the analyses to insure an added measure of precision and accuracy. Accuracy is also verified through the following:

1. U.S. Environmental Protection Agency (EPA) and State certification programs.

2. Participation in an interlaboratory or "round-robin" quality assurance program.

3. Verification of results with an alternative method. For example, calcium may be determined by atomic absorption, ion chromatography, or titrimetric methods. Volatile organics may be determined through either purge and trap or liquid-liquid extraction methods.

4.4.4 Miscellaneous Checks of Accuracy

Where trace analysis is involved, purity of the solvents, reagents and gases employed is of great concern. The laboratory maintains a service contract on all major instrumentation; gas chromatograph, atomic absorption, ion chromatography, and total organic carbon analyzers are all serviced and maintained regularly.
The above program is more than sufficient for most needs. Additional quality assurance such as spikes and duplicates on all analyses, will be provided if requested.

APPENDIX B
Soil Boring Logs

PROJECT NAME/LOCATION:	PROJECT NUMBER: 89-041	BORING NUMBER: MW-1	SHEET 1 OF 2
Shell Station 318 S. Livermore Ave. Livermore, CA.	CONTRACTOR: PC Exploration Inc.	DRILLING METHOD: 6.5 " HSA	
	DRILLER: Joe	DRILLING RIG: Mobile B 80	
LAND OWNER: Don Osche	START DATE: 5/29/90 TIME:	COMPLETED: 5/29/90 TIME:	

SAMPLE TYPE	SAMPLER NUMBER	BLOWN COUNTS	SAMPLE INTERVAL	DEPTH (ft.)	DESCRIPTION OF MATERIALS AND CONDITIONS	PID (ppm)	GENERAL OBSERVATION NOTES
					Surface:Asphalt		
ctg				0	Silty Gravel: brown, course, poorly graded, dry.	0	NO PETROLEUM ODOR
ctg				5	Silty Gravel: brown, course, subrounded-subangular, dry.	0	"
* SS	MW1 /B	31 50 /6	10.0 to 12.0	10	Silty Gravel: brown, well graded, dry.	0	"
ctg				15	Silty Gravel: brown, well graded, dry. GM	0	"
SS	MW1 /D	7 12 14	20.0 to 22.0	20	Silt: brown, stiff, slightly clayey, moist.	0	"
ctg				25	Silt: brown, smooth, clayey, moist. ML	0	"
SS	MW1 /F	24 27 28	30.0 to 32.0	30	Silty Gravel: brown, course, well graded, moist. GM	0	"

Field Notes:

SS = Split Spoon Sampler, 2.5 OD
* = Sample Analyzed by Laboratory
ctg = Cuttings sample
First water encountered @ 45 ft.
Soil Description after USCS

Aegis Environmental Consultants

Logged By: L.Braybrooks

PROJECT NAME/LOCATION:	PROJECT NUMBER: 89-041	BORING NUMBER: MW-1	SHEET 2 OF 2
Shell Station 318 S. Livermore Ave. Livermore, CA.	CONTRACTOR: PC Exploration Inc.	DRILLING METHOD: 6.5" HSA	
	DRILLER: Joe	DRILLING RIG: Mobile B 80	
LAND OWNER: Don Osche	START DATE: 5/29/90 TIME:	COMPLETED: 5/29/90 TIME:	

STAMPLE	SAMPLER	BLOWS	SAMPLE	DEPTH (ft.)	DESCRIPTION OF MATERIALS AND CONDITIONS	PID (ppm)	GENERAL OBSERVATION NOTES
SS	MW1/F	24 27 28	30.0 to 32.0	30	Silty Gravel: brown, course, well graded, moist. gm	0	NO PETROLEUM ODOR
ctg				35	Silt: brown, stiff, clayey, moist. ML	0	"
* SS	MW1/H	8 10 12	40.0 to 42.0	40	Clay: brown, smooth, silty, slightly moist.	0	"
ctg				45	Clay: brown, smooth, silty, wet.	0	"
SS	MW1/J	9 10 13	50.0 to 52.0	50	Clay: brown, smooth, silty, saturated. CL	0	"
				55	TOTAL DEPTH 55.0 FT.		
				60			

Field Notes:

Split Spoon Sampler, 2.5 ID
* = Sample Analyzed by Laboratory
ctg = Cuttings sample
First water encountered @ 45 ft.
Soil Description after USCS

Aegis Environmental Consultants

Logged By: L.Braybrooks

PROJECT NAME/LOCATION:	PROJECT NUMBER: 89-041	BORING NUMBER: MW-2	SHEET 1 OF 2
Shell Station 318 S. Livermore Ave. Livermore, CA.	CONTRACTOR: PC Exploration Inc.	DRILLING METHOD: 6.5" HSA	
	DRILLER: Joe	DRILLING RIG: Mobile B 80	
LAND OWNER: Don Osche	START DATE: 5/29/90 TIME:	COMPLETED: 5/29/90 TIME:	

SAMPLE TYPE	SAMPLE NUMBER	BLOWCOUNTS	SAMPLE INTERVAL	DEPTH (ft.)	DESCRIPTION OF MATERIALS AND CONDITIONS	PID (ppm)	GENERAL OBSERVATION NOTES
					Surface:Asphalt		
ctg				0	Gravel: brown, course, poorly graded, dry.	0	NO PETROLEUM ODOR
SS	MW2 /A	20 30 32	5.0 to 7.0	5	Gravel: brown, silty, dry. GM	0	"
SS	MW2 /B	50 /6	10.0 to 12.0	10	Silt: brown, some gravel, dry.	0	"
* SS	MW2 /C	9 18 20	15.0 to 17.0	15	Silt: brown, slightly clayey, moist.	0	"
SS	MW2 /D	6 15 20	20.0 to 22.0	20	Silt: brown, clayey, moist.	0	"
SS	MW2 /E	8 14 24	25.0 to 27.0	25	Silt: light brown, clayey, some gravel, moist. ML	0	"
SS	MW2 /F	21 50 /6	30.0 to 32.0	30	Silty Gravel: brown, well graded, wet. GM	0	"

Field Notes:

Split Spooner Sampler, 2.5 OD
* = Sample Analyzed by Laboratory
ctg = Cuttings sample
First water encountered @ 45 ft.
Soil Description after USCS

Aegis
Environmental
Consultants

Logged By: L.Braybrooks

PROJECT NAME/LOCATION:	PROJECT NUMBER: 89-041	BORING NUMBER: MW-2	SHEET 2 OF 2
Shell Station 318 S. Livermore Ave. Livermore, CA.	CONTRACTOR: PC Exploration Inc.	DRILLING METHOD: 6.5" HSA	
	DRILLER: Joe	DRILLING RIG: Mobile B 80	
LAND OWNER: Don Osche	START DATE: 5/29/90 TIME:	COMPLETED: 5/29/90 TIME:	

STAMPLE	SAMPLER	BLOWCOUNTS	SIANTPVLAEL	DEPTH (ft.)	DESCRIPTION OF MATERIALS AND CONDITIONS	PID (ppm)	GENERAL OBSERVATION NOTES
SS	MW2 /F		30.0 to 32.0	30	Silty Gravel: brown, well graded, wet. GM		NO PETROLEUM ODOR
* SS	MW2 /G	7 8 12	35.0 to 37.0	35	Silt: brown, stiff, slightly clayey, moist.	0	"
SS	MW2 /H	5 7 9	40.0 to 42.0	40	Silt: brown, smooth, clayey, moist. ML	0	"
ctg				45	Clay: brown, stiff, silty, wet.	0	"
SS	MW2 /J	8 9 11	50.0 to 52.0	50	Clay: brown, smooth, silty, saturated.	0	"
ctg				55	Clay: brown, smooth, silty, saturated. CL	0	"
				60	TOTAL DEPTH 60.0 FT.		

Field Notes:

Split Spoon Sampler, 2.5 ID
* = Sample Analyzed by Laboratory
ctg = Cuttings sample
First water encountered @ 45 ft.
Soil Description after USCS

Aegis Environmental Consultants

Logged By: L.Braybrooks

PROJECT NAME/LOCATION:	PROJECT NUMBER: 89-042	BORING NUMBER: MW-3	SHEET 1 OF 2
Shell Station 318 S Livermore Ave. Livermore, CA.	CONTRACTOR: PC Exploration Inc.		DRILLING METHOD: 6.5" HSA
	DRILLER: Joe		DRILLING RIG: Mobile B 80
LAND OWNER: Don Osche	START DATE: 5/30/90 TIME:		COMPLETED: 5/30/90 TIME:

SAMPLE TYPE	SAMPLER NUMBER	BLOWN COUNTS	SAMPLE INTERVAL	DEPTH (ft.)	DESCRIPTION OF MATERIALS AND CONDITIONS	PID (ppm)	GENERAL OBSERVATION NOTES
					Surface:Asphalt		
ctg				0	Gravel: brown, course, silty, dry.	0	NO PETROLEUM ODOR
SS	MW3/A	25 29 44	5.0 to 7.0	5	Gravel: brown, course, poorly graded, dry. GP	0	"
ctg				10	Silty Gravel: brown, moderately graded, dry. GM	0	"
SS	MW3/C	6 9 13	15.0 to 17.0	15	Silt: brown, stiff, clayey, slightly moist.	0	"
ctg				20	Silt: brown, stiff, clayey, slightly moist.	0	"
* SS	MW3/E	6 15 20	25.0 27.0	25	Silt: brown, stiff, clayey, moist.	0	"
SS	MW3/F	7 13 22	30.0 to 32.0	30	Silt: brown, stiff, clayey, moist. ML	5	FAINT PETROLEUM ODOR

Field Notes:

SS = Split Spoon Sampler, 2.5 OD
* = Sample Analyzed by Laboratory
ctg = Cuttings sample

Soil Description after USCS

Aegis Environmental Consultants

Logged By: L.Braybrooks

PROJECT NAME/LOCATION:	PROJECT NUMBER: 89-041	BORING NUMBER: MW3	SHEET 2 OF 2
Shell Station 318 S. Livermore Ave. Livermore, CA.	CONTRACTOR: PC Exploration Inc.	DRILLING METHOD: 6.5" HSA	
	DRILLER: Joe	DRILLING RIG: Mobile B 80	
LAND OWNER: Don Osche	START DATE: 5/30/90 TIME:	COMPLETED: 5/30/90 TIME:	

SAMPLE TYPE	SAMPLE NUMBER	BLOWCOUNTS	SAMPLE INTERVAL	DEPTH (ft.)	DESCRIPTION OF MATERIALS AND CONDITIONS	PID (ppm)	GENERAL OBSERVATION NOTES
SS				30	Silt: brown, stiff, clayey, moist.	5	FAINT PETROLEUM ODOR
SS	MW3 /G	5 8 12	35.0 to 37.0	35	Silt: brown, stiff, clayey, moist. ML	5	"
ctg				40	Clay: brown, stiff, silty, moist.	0	NO PETROLEUM ODOR
* SS	MW3 /I	10 15 22	45.0 to 47.0	45	Clay: brown, stiff, silty, wet.	0	"
ctg				50	Clay: brown, stiff, silty, saturated. CL	0	"
SS	MW3 /K	12 23 28	55.0 to 57.0	55	Silt: brown, sandy, saturated. ML TOTAL DEPTH 55 FT.	0	"
				60			

Field Notes:

Split Spoon Sampler, 2.5 OD
* = Sample Analyzed by Laboratory
ctg = Cuttings sample
First water encountered @ 45 ft.
Soil Description after USCS

Aegis Environmental Consultants

Logged By: L.Braybrooks

PROJECT NAME/LOCATION:	PROJECT NUMBER: 89-041	BORING NUMBER: MW-4	SHEET 1 OF 2
Shell Station 318 S. Livermore Ave. Livermore, CA.	CONTRACTOR: PC Exploration Inc.	DRILLING METHOD: 6.5" HSA	
	DRILLER: Joe	DRILLING RIG: Mobile B 80	
LAND OWNER: Don Osche	START DATE: 5/30/90 TIME:	COMPLETED: 5/30/90 TIME:	

SAMPLE TYPE	SAMPLE NUMBER	BLOWCOUNTS	SAMPLE INTERVAL	DEPTH (ft.)	DESCRIPTION OF MATERIALS AND CONDITIONS	PID (ppm)	GENERAL OBSERVATION NOTES
					Surface:Asphalt		
ctg				0	Gravel: brown, course, silty, dry.	0	NO PETROLEUM ODOR
SS	MW4 /A	24 26 43	5.0 to 7.0	5	Gravel: brown, course, poorly graded, dry. GP	0	"
* SS	MW4 /B	25 28 41	10.0 to 12.0	10	Silty Gravel: brown, well graded, subangular-subrounded, dry.	0	"
ctg				15	Silty Gravel: brown, moderately graded, rounded, dry. GM	0	"
SS	MW4 /D	9 12 16	20.0 to 22.0	20	Silt: brown, clayey, slightly moist.	0	"
ctg				25	Silt: brown, clayey, moist. ML	0	"
* SS	MW4 /F	27 50 /6	30.0 to 32.0	30	Silty Gravel: brown, course, subrounded-subangular, moderately graded, moist. GM	0	"

Field Notes:

SS = Slpit Spoon Sampler 2.5 ID
* = Sample Analyzed by Laboratory
ctg = Cuttings sample
First water encountered @ 45 ft.
Soil Description after USCS

Aegis
Environmental
Consultants

Logged By: L.Braybrooks

PROJECT NAME/LOCATION:	PROJECT NUMBER: 89-041	BORING NUMBER: MW-4	SHEET 2 OF 2
Shell Station 318 S. Livermore Ave. Livermore, CA.	CONTRACTOR: PC Exploration Inc.	DRILLING METHOD: 6.5" HSA	
	DRILLER: Joe	DRILLING RIG: Mobile B 80	
LAND OWNER: Don Osche	START DATE: 5/30/90 TIME:	COMPLETED: 5/30/90 TIME:	

STAMPLE	SNAMPLER	BLOWCOUNTS	SIAMPLE	DEPTH (ft.)	DESCRIPTION OF MATERIALS AND CONDITIONS	PID (ppm)	GENERAL OBSERVATION NOTES
SS	MW4 /F	27 50 /6	30.0 to 32.0	30	Silty Gravel: brown, course, subrounded-subangular, moderately graded, moist. GM	0	NO PETROLEUM ODOR
SS	MW4 /G	7 9 10	35.0 to 37.0	35	Silt: brown, stiff, clayey, moist.	0	"
SS	MW4 /H	8 8 12	40.0 to 42.0	40	Silt: brown, stiff, clayey, moist. ML	0	"
ctg				45	Clay: brown, stiff, silty, wet.	0	"
SS	MW4 /J	6 12 14	50.0 to 52.0	50	Clay: brown, smooth, silty, saturated. CL	0	"
				55	TOTAL DEPTH 55 FT.		
				60			

Field Notes:

SS = Split Spoon Sampler, 2.5 ID
* = Sample Analyzed by Laboratory
ctg = Cuttings sample
First water encountered @ 45 ft.
Soil Description after USCS

Aegis Environmental Consultants

Logged By: L.Braybrooks

APPENDIX C

Monitoring Well Construction Details

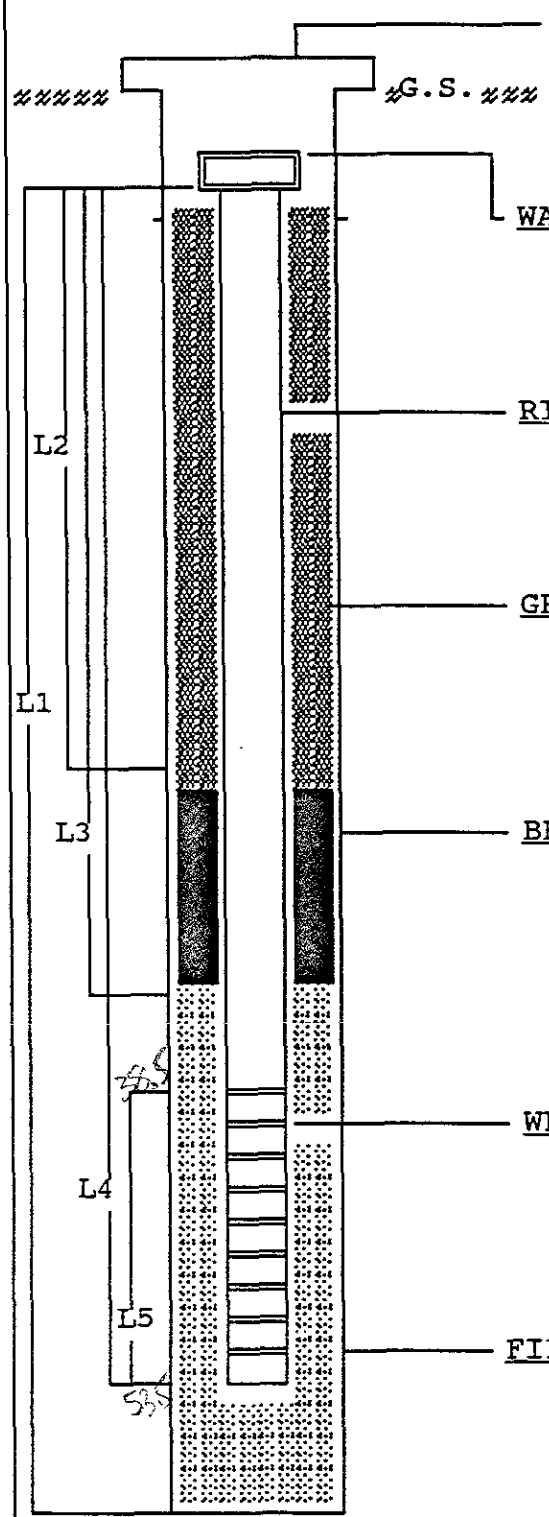
MONITORING WELL CONSTRUCTION DETAILS

PROJECT: 318 S. Livermore Ave. Shell

DATE: 5/29/90

PROJECT NO.: 89-041

WELL NO.: MW-1



CHRISTY BOX

Diameter: 12 inches
Type (flush/above): flush
Entry Tool : 6.5 inch HSA
Length Above Ground: .75 inch

WATER PROOF LOCKING CAP

Type: expansive
Lock Cap: Geostore

RISER MATERIAL

Type Material: PVC
Diameter: 4 inch
Joint Type: flush/threaded

GROUT SEAL

Material Mix: Bentonite Gel/ Portland Cement
Total Depth From Surface: 35.0 ft
Total Thickness: 35.0 ft

BENTONITE SEAL

Type: pellets
Size: .25 inch
Total Thickness: 1.5 ft

WELL SCREEN

Type Material: PVC
Diameter: 4 inch
Joint Type: flush/threaded
Slot Size: .01 inch
Total Length: 15.0 ft
Depth to Bottom: 53.5 ft

FILTER PACK

Type Material: #3 sand
Total Thickness: 17.5 ft
Depth to Bottom: 54.0 ft
Distance Above Screen: 2.0 ft

L1 54.0 ft
L2 35.0 ft
L3 36.5 ft
L4 53.5 ft
L5 15.0 ft

TOTAL DEPTH OF WELL: 54.0 ft
TOTAL DEPTH OF BORING: 54.0 ft
DIAMETER OF BORING: 7.0 inch
METHOD OF DRILLING: HSA
DATE STARTED: 5/29/90
DATE COMPLETED: 5/30/90

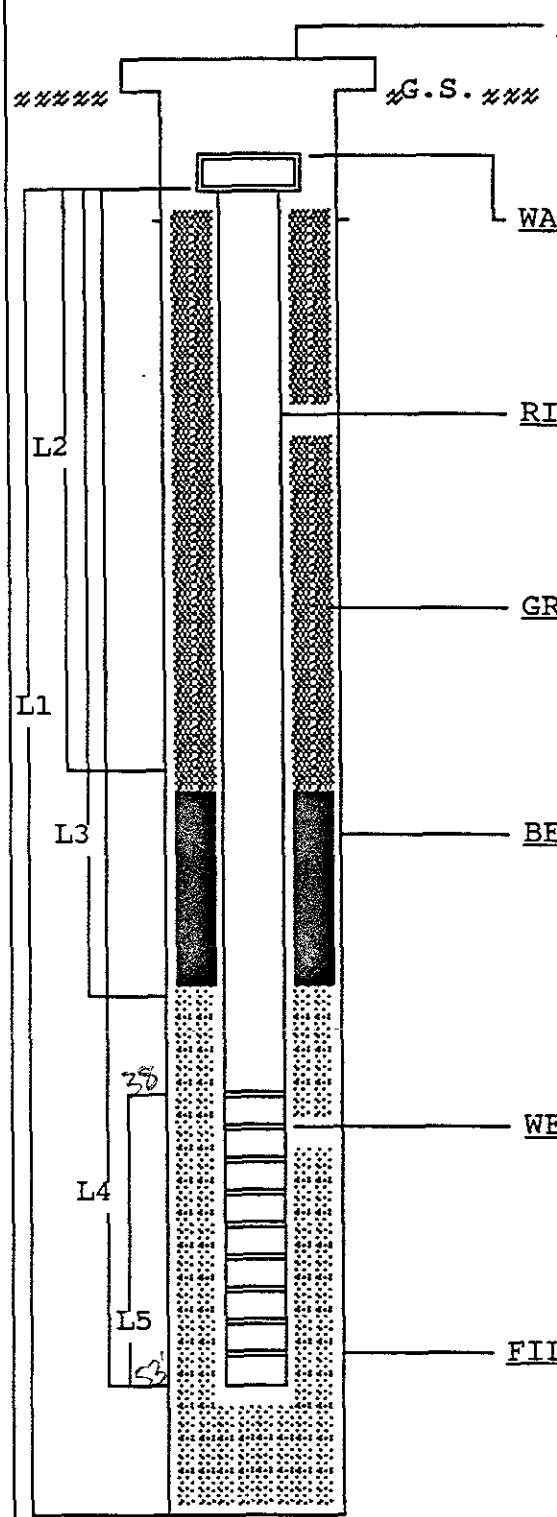
MONITORING WELL CONSTRUCTION DETAILS

PROJECT: 318 S. Livermore Ave. Shell

DATE: 5/29/90

PROJECT NO.: 89-041

WELL NO.: MW-2



CHRISTY BOX
Diameter: 12 inches
Type (flush/above): flush
Entry Tool : 6.5 inch HSA
Length Above Ground: .75 inch

WATER PROOF LOCKING CAP
Type: expansive
Lock Cap: Geostore

RISER MATERIAL
Type Material: PVC
Diameter: 4 inch
Joint Type: flush/threaded

GROUT SEAL
Material Mix: Bentonite Gel/ Portland Cement
Total Depth From Surface: 25.5 ft
Total Thickness: 25.5 ft

BENTONITE SEAL
Type: pellets
Size: .25 inch
Total Thickness: 1.5 ft

WELL SCREEN
Type Material: PVC
Diameter: 4 inch
Joint Type: flush/threaded
Slot Size: .01 inch
Total Length: 15 ft
Depth to Bottom: 53 ft

FILTER PACK
Type Material: #3 sand
Total Thickness: 24 ft
Depth to Bottom: 60 ft
Distance Above Screen: 2 ft

L1 60 ft
L2 25.5 ft
L3 27 ft
L4 53 ft
L5 15 ft

TOTAL DEPTH OF WELL: 53 ft
TOTAL DEPTH OF BORING: 60 ft
DIAMETER OF BORING: 7 inch
METHOD OF DRILLING: HSA
DATE STARTED: 5/29/90
DATE COMPLETED: 5/30/90

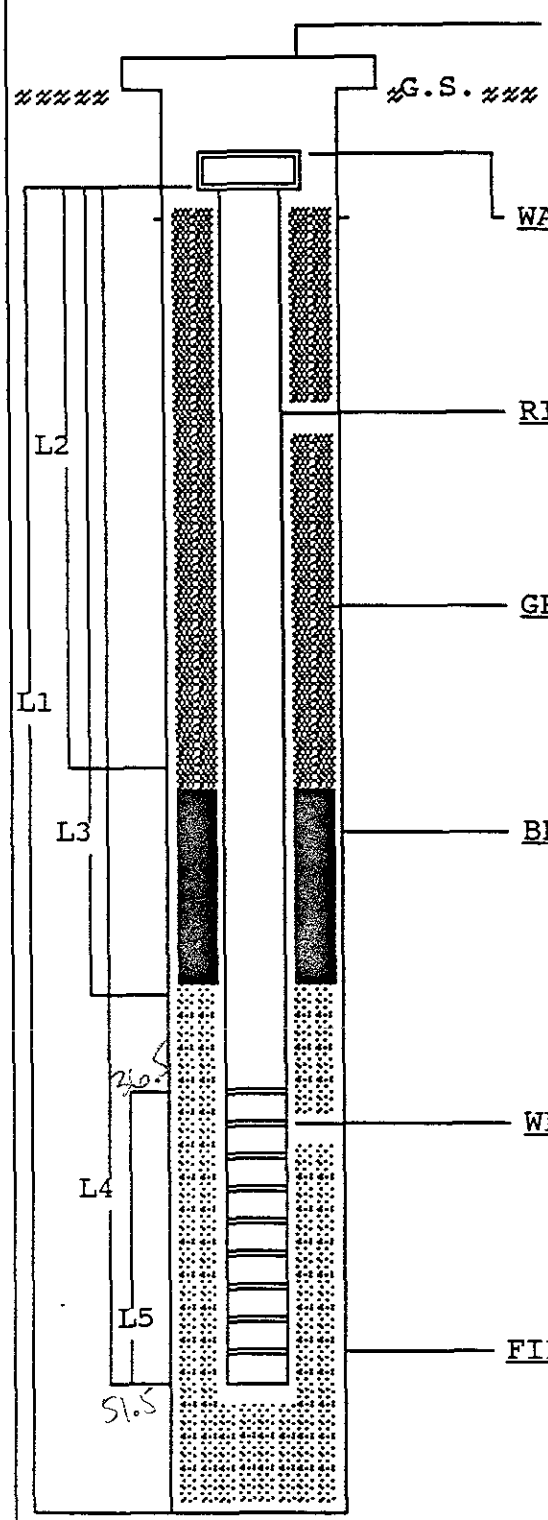
MONITORING WELL CONSTRUCTION DETAILS

PROJECT: 318 S. Livermore Ave. Shell

DATE: 5/29/90

PROJECT NO.: 89-041

WELL NO.: MW-3



CHRISTY BOX
Diameter: 12 inches
Type (flush/above): flush
Entry Tool : 6.5 inch HSA
Length Above Ground: .75 inch

WATER PROOF LOCKING CAP
Type: expansive
Lock Cap: Geostore

RISER MATERIAL
Type Material: PVC
Diameter: 4 inch
Joint Type: flush/threaded

GROUT SEAL
Material Mix: Bentonite Gel/ Portland Cement
Total Depth From Surface: 33.0 ft
Total Thickness: 33.0 ft

BENTONITE SEAL
Type: pellets
Size: .25 inch
Total Thickness: 2.0 ft

WELL SCREEN
Type Material: PVC
Diameter: 4 inch
Joint Type: flush/threaded
Slot Size: .01 inch
Total Length: 15.0 ft
Depth to Bottom: 51.5 ft

FILTER PACK
Type Material: #3 sand
Total Thickness: 17.0 ft
Depth to Bottom: 52.0 ft
Distance Above Screen: 2.0 ft

L1 52.0 ft
L2 33.0 ft
L3 35.0 ft
L4 51.5 ft
L5 15.0 ft

TOTAL DEPTH OF WELL: 51.5 ft
TOTAL DEPTH OF BORING: 52.0 ft
DIAMETER OF BORING: 7.0 inch
METHOD OF DRILLING: HSA
DATE STARTED: 5/30/90
DATE COMPLETED: 5/30/90

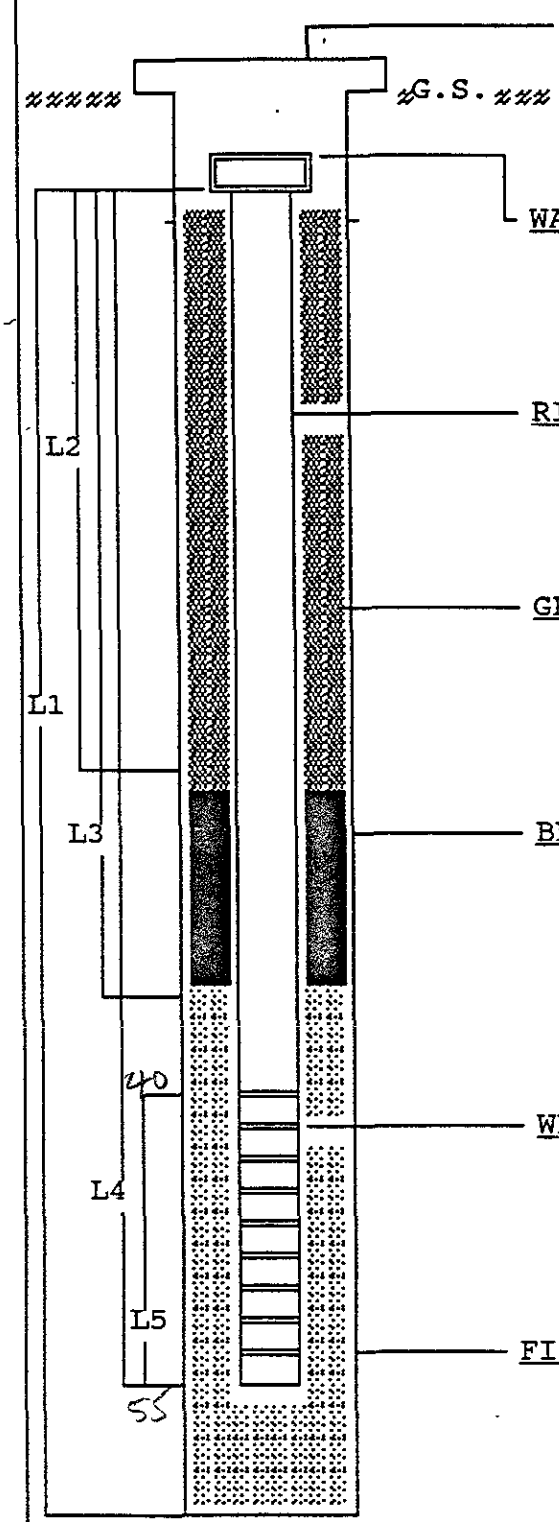
MONITORING WELL CONSTRUCTION DETAILS

PROJECT: 318 S. Livermore Ave. Shell

DATE: 5/29/90

PROJECT NO.: 89-041

WELL NO.: MW-4



CHRISTY BOX
Diameter: 12 inches
Type (flush/above): flush
Entry Tool : 6.5 inch HSA
Length Above Ground: .75 inch

WATER PROOF LOCKING CAP
Type: expansive
Lock Cap: Geostore

RISER MATERIAL
Type Material: PVC
Diameter: 4 inch
Joint Type: flush/threaded

GROUT SEAL
Material Mix: Bentonite Gel/ Portland Cement
Total Depth From Surface: 32.0 ft
Total Thickness: 32.0 ft

BENTONITE SEAL
Type: pellets
Size: .25 inch
Total Thickness: 1.5 ft

WELL SCREEN
Type Material: PVC
Diameter: 4 inch
Joint Type: flush/threaded
Slot Size: .01 inch
Total Length: 15.0 ft
Depth to Bottom: 55.0 ft

FILTER PACK
Type Material: #3 sand
Total Thickness: 17.0 ft
Depth to Bottom: 55.0 ft
Distance Above Screen: 2.0 ft

L1 55.0 ft
L2 32.0 ft
L3 38.0 ft
L4 55.0 ft
L5 15.0 ft

TOTAL DEPTH OF WELL: 55.0 ft
TOTAL DEPTH OF BORING: 55.0 ft
DIAMETER OF BORING: 7.0 ft
METHOD OF DRILLING: HSA
DATE STARTED: 5/30/90
DATE COMPLETED: 5/30/90

APPENDIX D

Laboratory Reports

SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063
(415) 364-9600 • FAX (415) 364-9233

Aegis Environmental Consultants	Client Project ID:	#204-4380-0303, Shell, Livermore	Sampled: May 29-30, 1990
801 Riverside Avenue, Suite C	Matrix Descript:	Soil	Received: May 31, 1990
Roseville, CA 95678	Analysis Method:	EPA 5030/8015/8020	Analyzed: Jun 6, 1990
Attention: Pat Wright	First Sample #:	005-4748	Reported: Jun 13, 1990

TOTAL PETROLEUM FUEL HYDROCARBONS with BTEX DISTINCTION (EPA 8015/8020)

Sample Number	Sample Description	Low/Medium B.P. Hydrocarbons mg/kg (ppm)	Benzene mg/kg (ppm)	Toluene mg/kg (ppm)	Ethyl Benzene mg/kg (ppm)	Xylenes mg/kg (ppm)
005-4748	MW1-B 10'	N.D.	0.0062	0.0076	N.D.	0.013
005-4749	MW1-H 40'	N.D.	N.D.	N.D.	N.D.	N.D.
005-4750	MW2-C 15'	N.D.	0.0053	N.D.	N.D.	N.D.
005-4751	MW2-G 35'	N.D.	N.D.	N.D.	N.D.	N.D.
005-4752	MW3-E 25'	N.D.	N.D.	N.D.	N.D.	N.D.
005-4753	MW3-I 45'	N.D.	N.D.	N.D.	N.D.	N.D.
005-4754	MW4-B 15'	N.D.	N.D.	N.D.	N.D.	N.D.
005-4755	MW4-F 30'	N.D.	N.D.	N.D.	N.D.	N.D.
005-4756	CS-1	N.D.	N.D.	N.D.	0.0055	0.018
Detection Limits:		**1.0**	**0.0050**	**0.0050**	**0.0050**	**0.0050**

Low to Medium Boiling Point Hydrocarbons are quantitated against a gasoline standard.
Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

VM Tague

Vickie Tague
Project Manager

SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063
(415) 364-9600 • FAX (415) 364-9233

Aegis Environmental Consultants	Client Project ID:	#204-4380-0303, Shell, Livermore	Sampled: May 29-30, 1990
801 Riverside Avenue, Suite C	Sample Descript:	Soil	Received: May 31, 1990
Roseville, CA 95678	Analysis for:	Lead	Extracted: Jun 1, 1990
Attention: Pat Wright	First Sample #:	005-4748	Analyzed: Jun 12, 1990
			Reported: Jun 13, 1990

LABORATORY ANALYSIS FOR: Lead

Sample Number	Sample Description	Detection Limit mg/kg	Sample Result mg/kg
005-4748	MW1-B	0.10	4.1
005-4749	MW1-H	0.10	8.9
005-4750	MW2-C	0.10	8.4
005-4751	MW2-G	0.10	9.2
005-4752	MW3-E	0.10	8.8
005-4753	MW3-I	0.10	8.5
005-4754	MW4-B	0.10	6.4
005-4755	MW4-F	0.10	6.0
005-4756	CS-1	0.10	9.0

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

Vickie Tague
Project Manager

Please Note:
318 S. Livermore Ave., Livermore

SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063
(415) 364-9600 • FAX (415) 364-9233

Aegis Environmental Consultants	Client Project ID:	89-041/SHELL	Sampled:	Jun 21, 1990
801 Riverside Avenue, Suite C	Matrix Descript:	Water	Received:	Jun 22, 1990
Roseville, CA 95678	Analysis Method:	EPA 5030/8015/8020	Analyzed:	Jun 27, 1990
Attention: Larry Braybrooks	First Sample #:	006-3792 A	Reported:	Jun 28, 1990

TOTAL PETROLEUM FUEL HYDROCARBONS with BTEX DISTINCTION (EPA 8015/8020)

Sample Number	Sample Description	Low/Medium B.P. Hydrocarbons µg/L (ppb)	Benzene µg/L (ppb)	Toluene µg/L (ppb)	Ethyl Benzene µg/L (ppb)	Xylenes µg/L (ppb)
006-3792 A	MW-1	N.D.	N.D.	N.D.	N.D.	N.D.
006-3793 A	MW-2	N.D.	N.D.	N.D.	N.D.	N.D.
006-3794 A	MW-3	N.D.	N.D.	N.D.	N.D.	N.D.
006-3795 A	MW-4	N.D.	N.D.	N.D.	N.D.	N.D.
Detection Limits:		**30**	**0.30**	**0.30**	**0.30**	**0.30**

Low to Medium Boiling Point Hydrocarbons are quantitated against a gasoline standard.
Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

Vickie Tague
Project Manager

Phone (916) 782 2110
FAX (916) 786-7830

AEGIS Environmental Consultants, Inc.

Sample Identification/Field Chain of Custody Record

Send results to:
Aegis Environmental
801 Riverside, Suite C
Roseville, CA 95678

5 DAY RUSH

Site Address: 318 E. Livermore, Livermore
AEGIS Project #: 89-011
Shipped By: Aegis Environmental Consultants
Shipped To: Sequoia Analytical
Project Manager: Larry Braybrooks

For Shell Projects Only
WIC: 204-4380-0303
AFE: 986683
CT/DL: 54410
Shell Engineer: Stan Roller
Hazardous Materials Suspected? (yes/no)

Sampling Point	Location	Field ID#	Date	Sample Type	No. of Containers	Analysis Required
MW-1	MW-1	MW-1	6-21-90	Water	2	TPH-Gasoline BTEX 8020 3792 A
MW-2	MW-2	MW-2	"	"	2	" 3793 A
MW-3	MW-3	MW-3	"	"	2	" 3794
MW-4	MW-4	MW-4	6-21-90	Water	2	" 3795

Sampler(s) (signature)

Field ID	Relinquished By (signature)	Received By (signature)	Date/Time		Comments
MW-1, MW-2, MW-3, MW-4		Tim M. Fox	6/22/90	12 35	
	Tim M. Fox		6/22/90	4 pm	

Sealed for shipment by: (signature) Date/Time: 6-21-90/2000 Shipment Method: Courier

Received for Lab by: (signature) Date/Time: Comments:

Standard Turnaround

Phone (916) 782 2110
FAX (916) 786-7830

AEGIS Environmental Consultants, Inc.

Sample Identification/Field Chain of Custody Record

5 DAY RUSH

Send results to:
Aegis Environmental
801 Riverside, Suite C
Roseville, CA 95678

Site Address: 318 S. Livermore Ave. Livermore, CA. @ 3rd St.
AEGIS Project #: 89-041
Shipped By: Aegis - Larry Braybrooks
Shipped To: Sequoia Analytical 680 Chesapeake Dr.
Project Manager Pat Wright

For Shell Projects Only
WIC: 204-4380-0303
AFE: 986683
CT/DL: 5441
Shell Engineer: Stan Roller
Hazardous Materials Suspected? (yes/no)

Sampling Point	Location	Field ID#	Date	Sample Type	No. of Containers	Analysis Required
MW-1	10 ft	MW1-B	5/29	BRASS/ Soil	1	TPH gasoline w/BTEX 8015/8020, Pb 7421
MW-1	40 ft.	MW1-H	5/29	"	1	"
MW-2	15 ft.	MW2-C	5/29	"	1	"
MW-2	35 ft.	MW2-G	5/29	"	1	"
MW-3	25 ft.	MW3-E	5/30	"	1	"
MW-3	45 ft.	MW3-I	5/30	"	1	"
MW-4	10' & 30'	MW4-B, MW4-F	5/30	"	2	"
soil pile	center	CS-1	5/30	"	1	"

Sampler(s) (signature) Larry Braybrooks

Field ID	Relinquished By (signature)	Received By (signature)	Date/Time		Comments
all of above	Larry Braybrooks	Kirk Kind (unintelligible)	5-31-90	11:20 AM	

Sealed for shipment by: (signature) Larry Braybrooks Date/Time: 5/31/90 Shipment Method: courier

Received for Lab by: (signature) Derek Neuhaus Date/Time: ~~5-31-90 11~~ 5/31/90, 1.35pm Comments: standard turnaround 5 DAY RUSH

Receiving Laboratory: Please return original form after signing for receipt of samples.