

See  
11/5/93



1050 Melody Lane, Suite 160, Roseville, California 95678

(916) 782 2110 Fax (916) 786 7836 11:04

Date: **November 2, 1993**

Project Name: **Corwood Car Wash**

**6973 Village Parkway**

**Dublin, California**

To: **Ms. Eva Chu**  
**Alameda County Health Care Services**  
**Hazardous Materials Division**  
**80 Swan Way, Room 200**  
**Oakland, California 94621**

From: **Craig D. Robertson**  
Ext: \_\_\_\_\_

Memo: **Attached, please find the results report for site assessment at the subject site. If you have any questions, please contact us at (916)782-2110.**

For your	cc: <b>R.L. Woodward, R.L. Woodward Industries, Inc.</b>	
Use _____	<b>E. So, San Francisco Bay Regional Water Quality Control Board</b>	
Approval _____	<b>C.K. Noma, Wendal, Rosen, Black, Dean &amp; Levitan</b>	
Review _____		
Information <b>XXXXX</b> _____		
Other _____		

Project # 92-078

Letter of Transmittal



1050 Melody Lane, Suite 160, Roseville, California 95678

(916) 782 2110 Fax (916) 786 7830

November 1, 1993

Mr. Roger L. Woodward  
R. L. Woodward Industries, Inc.  
Post Office Box 2688  
Dublin, California 94568

Subject: **Results Report for Site Assessment**  
Corwood Car Wash  
6973 Village Parkway, Dublin, California

Dear Mr. Woodward:

Aegis Environmental, Inc. (Aegis), is pleased to present R.L. Woodward Industries, Inc. (Woodward), this report documenting site assessment activities performed at the subject site on June 8-9, 1993 (Figure 1). The work included installation and development of three groundwater monitoring wells, well gauging, and sampling. The work was performed in response to a letter to Woodward from the Alameda County Health Care Services Agency, Hazardous Materials Division, dated June 29, 1992. This report is based, in part, on information provided to Aegis by Woodward. All field activities pertaining to events in this report were conducted according to the Aegis Standard Operating Procedures (SOP) included in Attachment 1.

### **PURPOSE**

The purpose of this investigation was to assess the presence of petroleum hydrocarbons in shallow soils and groundwater in the vicinity of the underground storage tanks (UST) located at the west end of the site (Figure 2).

## **BACKGROUND**

The site is located at the south eastern corner of the intersection of Village Parkway and Lewis Road in Dublin, California (Figure 1). It is an operating full service car wash which also retails unleaded gasoline. There are two 10,000-gallon underground fuel storage tanks (UST) located at the north western corner of the site (Figure 2).

Timmerman Engineering Construction (Timmerman) replaced the old pump islands, pumps, and ancillary piping before April 1991. In April 1991, Gold Coast Technologies, Inc. (Gold Coast), of Ventura, California, supervised interior tank lining and cathodic protection for the two UST. During the cathodic protection anode placement, a subsurface investigation was performed around the tank cluster. Four on-site soil borings were drilled and sampled to depths up to 20 feet below grade (bg). The borings were drilled to assess subsurface conditions around the UST. Petroleum hydrocarbons were detected in soil and groundwater samples collected from the borings.

## **SCOPE**

The following scope of work was completed:

- Three 8-inch diameter soil borings were drilled, logged, and sampled on site.
- The three borings were completed as 2-inch-diameter monitoring wells with perforated casing set between approximately 5 to 25 feet bg.
- Selected soil samples were submitted to a state-certified laboratory for analysis of petroleum hydrocarbons.
- Each well was developed, purged, and sampled. Groundwater samples were delivered to a state-certified laboratory for analysis of petroleum hydrocarbons.
- Drill cuttings were temporarily stockpiled on site and covered with plastic sheeting, pending analytical results for disposal at an appropriate facility.
- Monitoring well development and purge water was stored on site in 55-gallon, Department of Transportation-approved drums. Upon receipt of the analytical results, the development and purge water will be disposed of at an appropriate facility.
- The top-of-casing elevation of each well was surveyed to the nearest 0.01 foot by a state-licensed surveyor.
- The data was evaluated and a results report was prepared.

## **RESULTS OF SOIL BORING AND SAMPLING**

On June 8, 1993, Aegis personnel supervised the drilling and sampling of three, 8-inch diameter, soil borings and their construction as groundwater monitoring wells. The wells were installed at the northwestern corner of the site, in the vicinity of the UST (Figure 2). Soil samples were collected at five foot intervals and selected samples were submitted for laboratory analysis.

Two-inch-diameter groundwater monitoring wells MW-1 through MW-3 were installed in the borings to total depths of approximately 26 feet bg. The soil boring logs and well completion details are included in Attachment 2.

All soils encountered in the borings were silty clays varying in consistency from soft to very stiff. No odors were noted in soil samples from MW-1. Slight odors were noted in samples from 5 and 10 feet bg in MW-2, and 5, 10, and 15 feet bg in MW-3. Groundwater was first encountered between 13 and 15-feet bg.

### **Soil Sample Analytical Results**

Soil samples from 5.5 and 10.5-feet bg were selected from each boring for analysis. The samples were analyzed for the following:

- Total petroleum hydrocarbons (TPH), as diesel, by EPA Method 8015.
- TPH, as gasoline, by EPA Method 8015.
- Benzene, toluene, ethylbenzene, and total xylenes (BTEX) by EPA Method 8020.
- Total lead by EPA Method 7421.

No petroleum hydrocarbons were detected in the samples collected from the MW-1 boring. TPH, as gasoline and diesel were detected in the 5.5-foot sample from MW-2 and MW-3, and the 10.5-foot sample from MW-3. Only the 5.5 foot sample from the MW-3 boring contained a detectable concentration of benzene (1.0 ppm).

The analytical results are summarized in Table 1. The distribution of TPH, as diesel, gasoline, and benzene in the soil is shown on Figure 3. The laboratory analytical report and chain-of-custody form are included in Attachment 3.

## **GROUNDWATER MONITORING AND SAMPLING**

On June 9, 1993, depth to groundwater measurements were collected from the three new groundwater monitoring wells prior to purging and sampling (Table 2). Groundwater elevations calculated from these measurements indicate groundwater flows to the south/southeast at an average gradient of 0.005 ft/ft (Figure 4).

### **Groundwater Analytical Results**

On June 9, 1993, groundwater samples were collected from the three monitoring wells, and analyzed for:

- TPH, as diesel, by modified EPA Method 8015.
- TPH, as gasoline, by modified EPA Method 8015.
- BTEX by EPA Method 8020.
- Total lead by EPA Method 7421.

Petroleum hydrocarbons were not detected in the groundwater sample collected from MW-1. Benzene and ethylbenzene concentrations of 0.0005 ppm were reported in the sample collected from MW-3. The highest concentrations of benzene, TPH, as gasoline, and diesel were found in the sample collected from MW-2.

The groundwater analytical results are summarized in Table 3. Figure 5 is a distribution map of TPH, as diesel, gasoline, and benzene in groundwater.

## **RECOMMENDATIONS/CONCLUSIONS**

Since the initial investigation of April 1, 1991, benzene concentrations in the groundwater appear to have decreased by nearly three orders of magnitude. Gold Coast reported a benzene concentration of 3.0 ppm in the groundwater sample collected from their boring BB-15. During the investigation of August 1993, the highest concentration of benzene was detected in the groundwater sample from MW-2 at 0.013 ppm. Soil samples also appear to have reduced benzene concentrations. A copy of Gold Coast's report, *Soil and Groundwater Sampling, 6973 Village Parkway, Dublin, California*, dated May 1991 is included as Attachment 4.

The preceding observation suggests natural attenuation of petroleum hydrocarbons in the soil and groundwater. Further, the engineering controls implemented in April 1991 create a closed system which gives early warning of any potential unauthorized releases. These improvements include:

- Interior UST lining.
- Cathodic protection.
- Overspill/overflow protection.
- Red Jacket<sup>®</sup> monitoring system featuring:
  - daily inventories;
  - daily precision tank testing; and,
  - liquid sensor monitoring in turbine sump.
- Double wall ancillary piping.
- New multiple product dispensers.

In lieu of further investigation, Aegis recommends quarterly monitoring with a re-evaluation after one year.

## REMARKS/SIGNATURES

The interpretations and/or conclusions contained within this report reflect our professional opinions. These opinions are based on currently available information, and were developed in accordance with accepted geologic, hydrogeologic, and engineering practices for 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 R.L. Woodward Industries, Inc. Any reliance on this report by third parties shall be at such parties' sole risk. This report was prepared under the supervision and review of the professional geologist, registered with the state of California, whose signature appears below.

We appreciate the opportunity to provide R.L. Woodward Industries, Inc. with geologic, engineering, and environmental consulting services. If you have any questions please contact us at (916) 782-2110.

Sincerely,

**AEGIS ENVIRONMENTAL, INC.**



Craig D. Robertson  
Project Geologist



Paul Graff  
Senior Geologist  
CRG No. 5600



\_\_\_\_\_  
Date

CDR/PKG/sdh

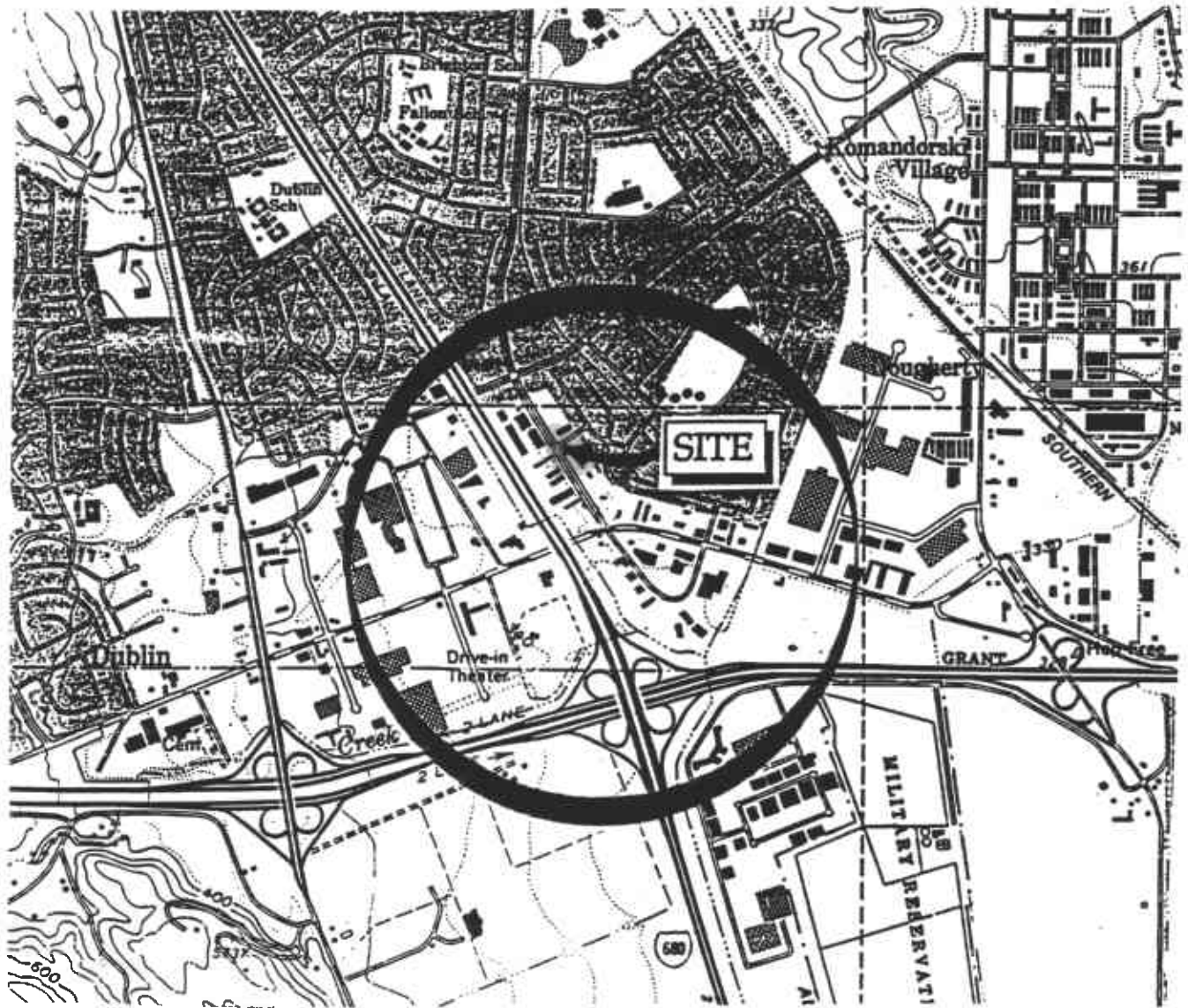
cc: E. Chu, Alameda County Department of Environmental Health  
E. So, San Francisco Bay Regional Water Quality Control Board  
C.K. Noma, Wendel, Rosen, Black, Dean & Levitan

<b>FIGURES:</b>	FIGURE 1 . . . . . SITE LOCATION MAP
	FIGURE 2 . . . . . SITE MAP
	FIGURE 3 . . . . . DISTRIBUTION MAP OF TPH, AS DIESEL, GASOLINE, AND BENZENE IN SOIL: JUNE 8, 1993
	FIGURE 4 . . . . . POTENTIOMETRIC SURFACE MAP: JUNE 9, 1993
	FIGURE 5 . . . . . DISTRIBUTION MAP OF TPH, AS DIESEL, GASOLINE, AND BENZENE IN GROUNDWATER: JUNE 9, 1993

<b>TABLES:</b>	TABLE 1 . . . . . ANALYTICAL RESULTS: SOIL JUNE 8, 1993
	TABLE 2 . . . . . GROUNDWATER MONITORING DATA: JUNE 9, 1993
	TABLE 3 . . . . . ANALYTICAL RESULTS: GROUNDWATER JUNE 9, 1993

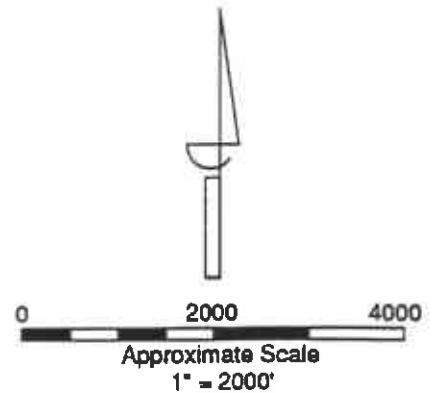
<b>ATTACHMENTS:</b>	ATTACHMENT 1 . . . . . STANDARD OPERATING PROCEDURES
	ATTACHMENT 2 . . . . . SOIL BORING LOGS AND MONITORING WELL CONSTRUCTION DETAILS
	ATTACHMENT 3 . . . . . LABORATORY ANALYTICAL REPORTS AND CHAIN OF CUSTODY FORMS
	ATTACHMENT 4 . . . . . GOLD COAST TECHNOLOGIES REPORT




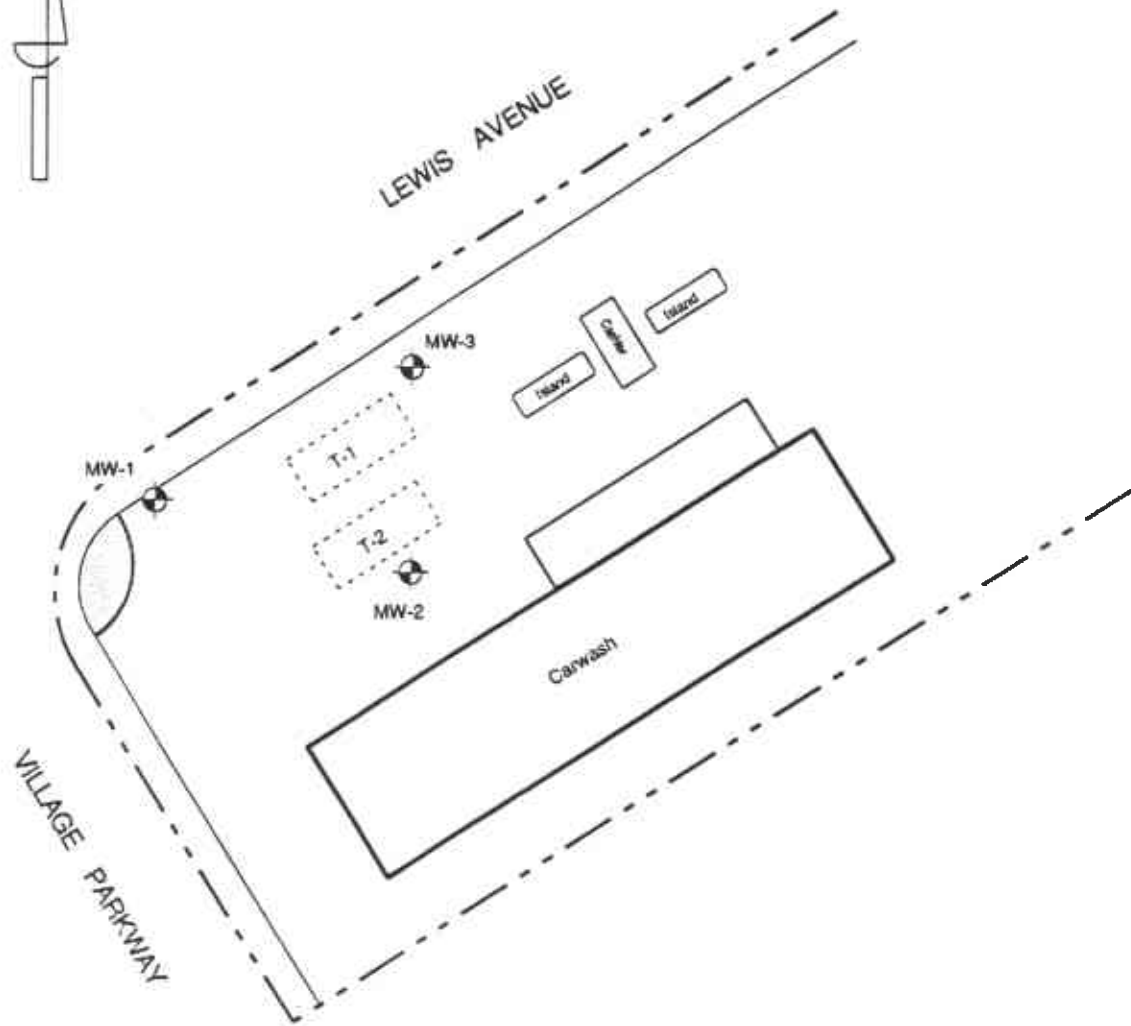


**GENERAL NOTES:**

BASE MAP FROM USGS  
7.5 MINUTE TOPOGRAPHIC  
DUBLIN , CA



 <b>AEGIS ENVIRONMENTAL, INC.</b>		<b>SITE LOCATION MAP</b>  Corwood Carwash 6973 Village Parkway Dublin, CA	<b>FIGURE</b>  <b>1</b>
DRAWN BY: <b>Ed Bernard</b>	DATE: October 27, 1992		PROJECT NUMBER: <b>10-92078</b>
REVISED BY:	DATE:		
REVIEWED BY:	DATE:		



**LEGEND**



Monitoring Well



Underground Storage Tank

**NOTES**

Site Sketch After Site Map  
By Gold Coast Technologies, Inc.  
May 1991

All Locations Are Approximate



**AEGIS ENVIRONMENTAL, INC.**

**SITE MAP**

**FIGURE**

**2**

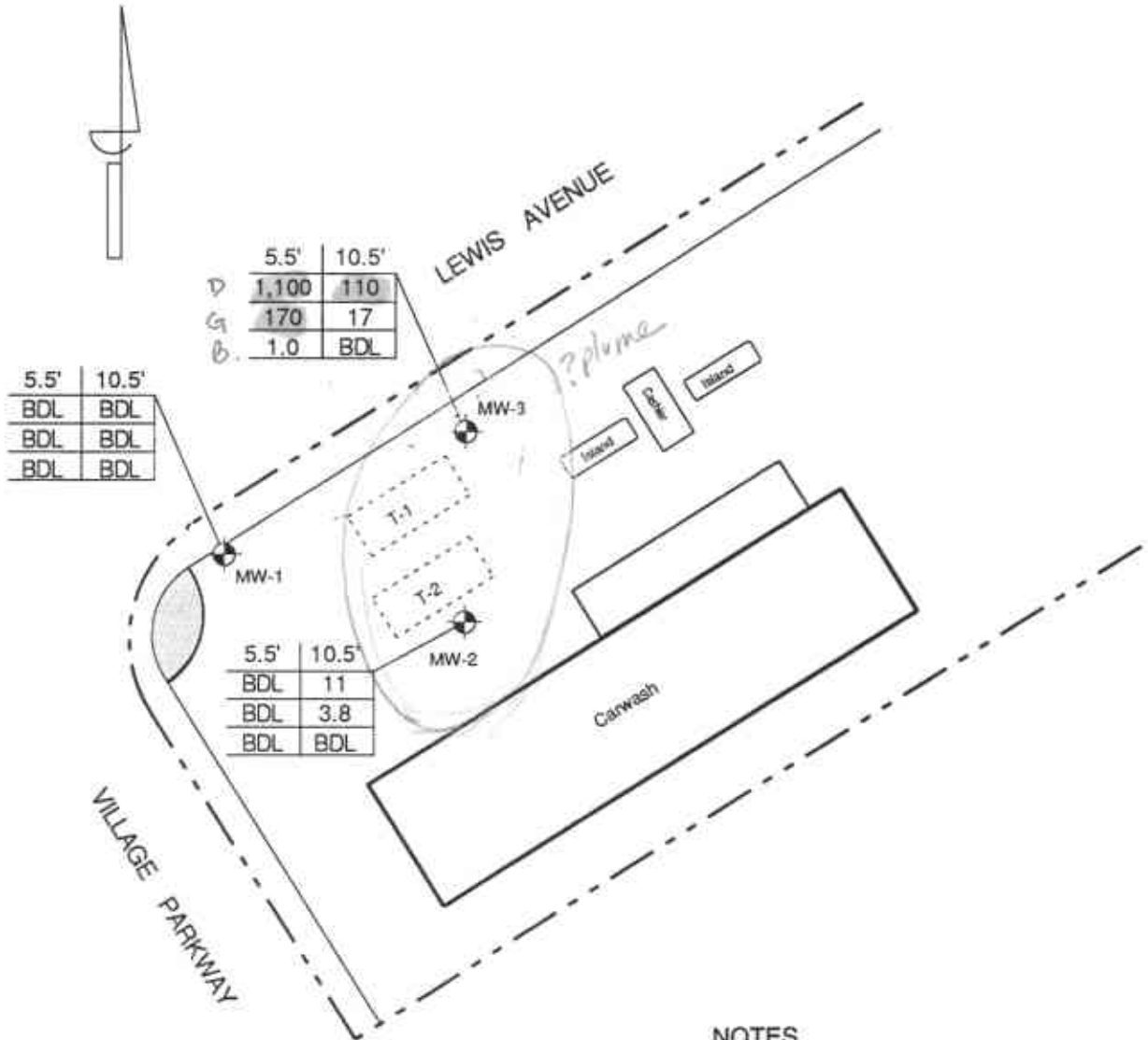
DRAWN BY: J. Paradis      DATE: October 6, 1993

REVISOR BY:      DATE:

REVIEWED BY:      DATE:

Corwood Carwash  
6973 Village Parkway  
Dublin, CA

PROJECT NUMBER:  
10-92078



**LEGEND**



Monitoring Well



Underground Storage Tank

5.5'
1,100
170
1.0

Depth of Sample  
 Total Petroleum Hydrocarbons as Diesel  
 Total Petroleum Hydrocarbons as Gasoline  
 Benzene

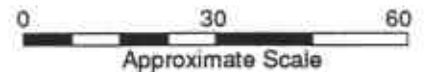
BDL Below Detection Limits

**NOTES**

Site Sketch After Site Map  
 By Gold Coast Technologies, Inc.  
 May 1991

All Locations Are Approximate

All concentrations are in parts-per-million



**AEGIS ENVIRONMENTAL, INC.**

**DISTRIBUTION MAP OF TPH, AS DIESEL, GASOLINE,  
 AND BENZENE IN SOIL June 8, 1993**

**FIGURE**

**3**

DRAWN BY: D. Hada

DATE: October 24, 1993

REVISED BY:

DATE:

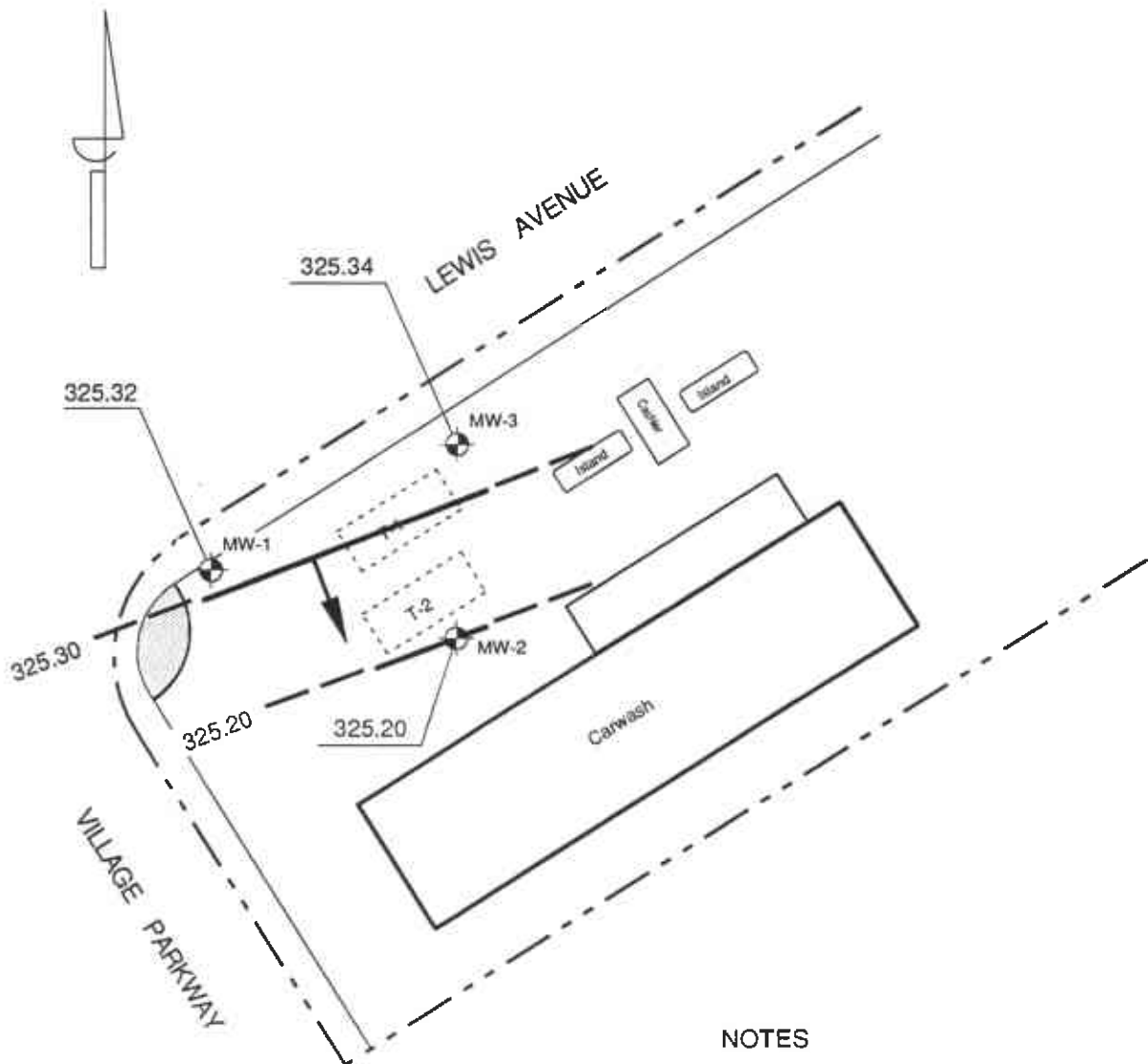
REVIEWED BY:

DATE:

Corwood Carwash  
 6973 Village Parkway  
 Dublin, CA

PROJECT NUMBER:

10-92078



**LEGEND**



Monitoring Well



Underground Storage Tank



Potentiometric Surface Contour Line  
(Dashed Where Inferred)



325.32

Groundwater Elevation in Feet



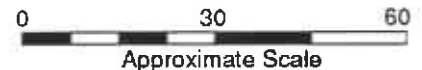
Approximate Direction of Groundwater Flow

**NOTES**

Site Sketch After Site Map  
By Gold Coast Technologies, Inc.  
May 1991

All Locations Are Approximate

Average Hydraulic Gradient = 0.005 ft./ft.  
Contour Interval = 0.1 ft.



**AEGIS ENVIRONMENTAL, INC.**

**POTENTIOMETRIC SURFACE MAP**  
June 9, 1993

**FIGURE**

**4**

DRAWN BY:  
D. Hada

DATE:  
October 24, 1993

REVISED BY:

DATE:

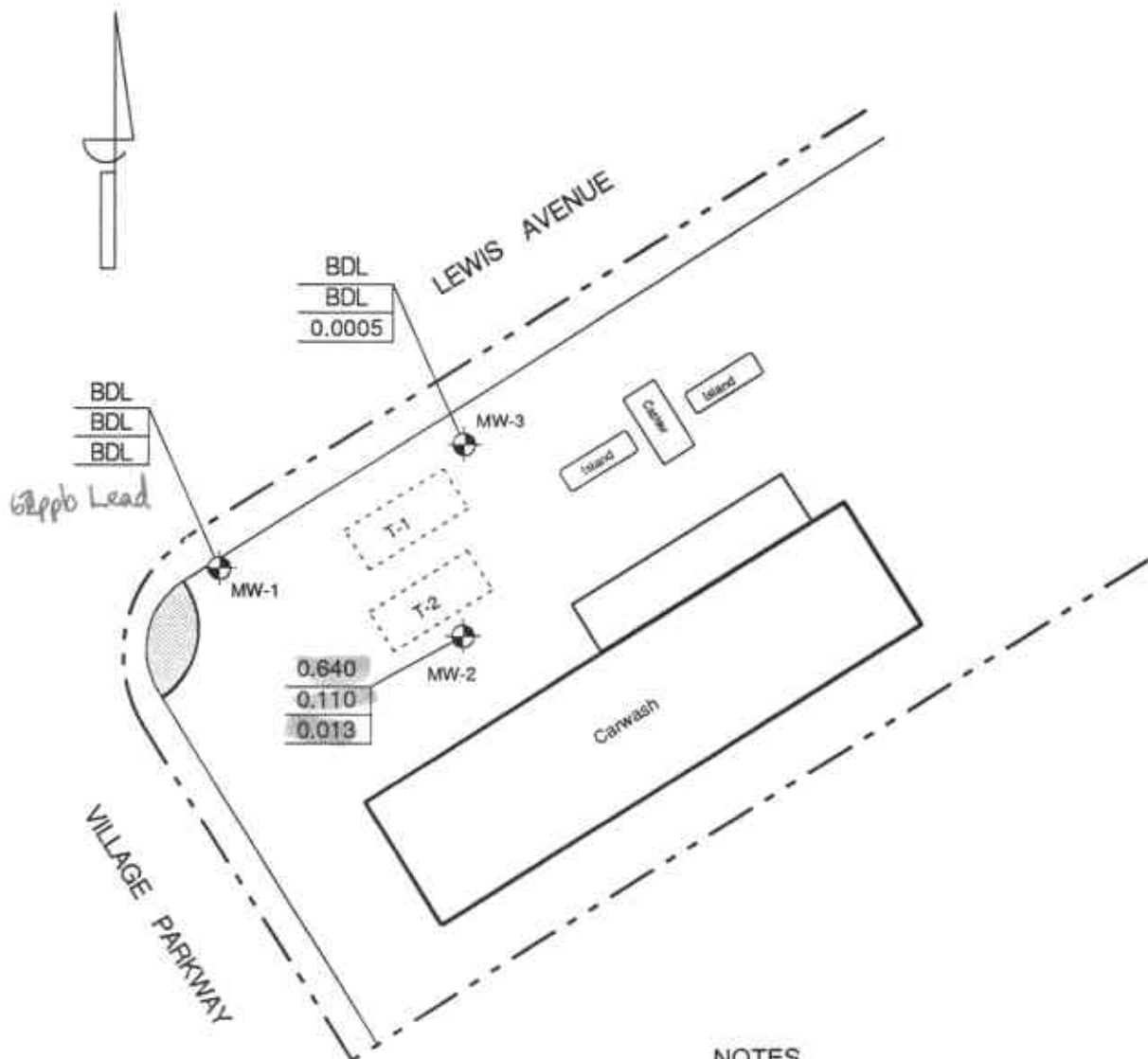
REVIEWED BY:

DATE:

Corwood Carwash  
6973 Village Parkway  
Dublin, CA

PROJECT NUMBER:

10-92078



**LEGEND**

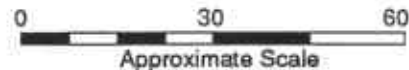
- Monitoring Well
- Underground Storage Tank
- Total Petroleum Hydrocarbons as Diesel
- Total Petroleum Hydrocarbons as Gasoline *ppm*
- Benzene
- BDL** Below Detection Limits

**NOTES**

Site Sketch After Site Map  
By Gold Coast Technologies, Inc.  
May 1991

All Locations Are Approximate

All concentrations are in parts-per-million



**AEGIS ENVIRONMENTAL, INC.**

**DISTRIBUTION MAP OF TPH, AS DIESEL, GASOLINE, AND BENZENE IN GROUNDWATER** June 9, 1993

**FIGURE**

**5**

DRAWN BY: <b>D. Hada</b>	DATE: October 24, 1993
REVISED BY:	DATE:
REVIEWED BY:	DATE:

Corwood Carwash  
6973 Village Parkway  
Dublin, CA

PROJECT NUMBER:  
**10-92078**

TABLE 1

## ANALYTICAL RESULTS: SOIL

CORWOOD CARWASH  
6973 VILLAGE PARKWAY, DUBLIN, CALIFORNIA  
JUNE 8, 1993  
(All results in parts-per-million)

Sample Name	Sample Depth (feet)	Total Petroleum Hydrocarbons		Aromatic Volatile Organics				Total Lead
		Diesel	Gasoline	Benzene	Toluene	Ethyl-benzene	Total Xylenes	
MW1-5.5	5.5	<	<	<	<	<	<	3.1
MW1-10.5	10.5	<	<	<	<	<	<	2.5
MW2-5.5	5.5	<	<	<	<	<	<	<<2.5
MW2-10.5	10.5	11	3.8	<<0.05	<<0.05	<<0.05	<<0.05	<<2.5
MW3-5.5	5.5	1,100	170	1.0	0.17	0.27	1.0	<<2.5
MW3-10.5	10.5	110	17	<<0.05	<<0.05	0.07	0.12	4.1

NOTE: < = Below Practical Quantitation Reporting Limits (PQL) per "Tri-Regional Board Staff Recommendations for Preliminary Evaluation and Investigation of Underground Tank Sites" (August 10, 1990). (PQL for BTEX = 0.005 ppm, TPH, as gasoline = 1.0 ppm, and TPH, as diesel = 5.0).

<< = Below indicated detection limit.

**TABLE 2**

**GROUNDWATER MONITORING DATA  
CORWOOD CARWASH  
6973 VILLAGE PARKWAY, DUBLIN, CALIFORNIA  
JUNE 9, 1993**

*Screen  
Interval*  
  
*5-24'*  
*5-24 1/2'*  
*5-24 1/2'*

Monitoring Well	Date	Reference Elevation (top of casing) <sup>1</sup>	Depth to Groundwater <sup>1</sup>	Groundwater Elevation <sup>2</sup>	Well Depth
MW-1	06/09/93	331.84	6.52	325.32	25.96
MW-2	06/09/93	332.34	7.14	325.20	25.95
MW-3	06/09/93	331.98	6.64	325.34	25.95

- Notes:
- 1 = Measurement and reference elevation taken from notch/mark on top north side of well casing.
  - 2 = Elevation referenced to mean sea level. Surveyed by DST of Dublin, California.
  - Well Depth = Measurement from top of casing to bottom of well.

**TABLE 3**

**ANALYTICAL RESULTS: GROUNDWATER  
CORWOOD CARWASH  
6973 VILLAGE PARKWAY, DUBLIN, CALIFORNIA  
JUNE 9, 1993  
(All results in parts-per-million)**

Sample Name	Total Petroleum Hydrocarbons		Aromatic Volatile Organics				Total Lead
	Diesel	Gasoline	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	
MW-1	<	<	<	<	<	<	0.062
MW-2	0.640	0.110	0.013	<	<	<	<<0.050
MW-3	<	<	0.0005	<	0.0005	<	<<0.050

NOTES:        \*        =        Low/medium boiling point hydrocarbons.  
                  <        =        Below Practical Quantitation Reporting Limits (PQL) per "Tri-Regional Board Staff Recommendations for Preliminary Evaluation and Investigation of Underground Tank Sites" (August 10, 1990). (PQL for BTEX = 0.0005 ppm, TPH, as gasoline = 0.05 ppm, and TPH, as diesel = 0.1 ppm.).  
                  <<       =        Below the indicated detection limit as labeled in the analytical laboratory results report.



**ATTACHMENT 1**  
**STANDARD OPERATING PROCEDURES**

**AEGIS ENVIRONMENTAL, INC.**  
**STANDARD OPERATING PROCEDURES**  
**RE: SOIL BORING SAMPLING**  
**SOP-1**

During drilling, soil samples for chemical analysis are collected in thin-walled brass tubes, of varying diameters and lengths (e.g., 4 or 6 inches long by 2 inches outside diameter). Three or four of the selected tubes, plus a spacer tube, are set in an 18-inch long split-barrel sampler of the appropriate inside-diameter.

Where possible, the split-barrel sampler is driven its entire length either hydraulically or using a 140-pound drop hammer. The sampler is extracted from the borehole and the brass tubes, containing the soil samples, are removed. Upon removal from the sampler, the selected brass tubes are either immediately trimmed and capped with aluminum foil or "Teflon" sheets and plastic caps or the samples are extruded from the tubes and sealed within other appropriate cleaned sample containers. The samples are then hermetically sealed, labeled, and refrigerated for delivery, under strict chain-of-custody, to the analytical laboratory. These procedures minimize the potential for cross-contamination and volatilization of volatile organic compounds (VOC) prior to chemical analysis.

One soil sample collected at each sampling interval is analyzed in the field using either a portable photoionization detector (PID), flame ionization detector, organic vapor analyzer, catalytic gas detector, or an explosimeter. The purpose of this field analysis is to qualitatively determine the presence or absence of hydrocarbons, and the samples to be analyzed at the laboratory. The soil sample is sealed in either a brass tube, glass jar, or plastic bag to allow for some volatilization of VOC. The PID is then used to measure the concentrations of hydrocarbons within the containers's headspace. The data is recorded on both field notes and the boring logs at the depth corresponding to the sampling point.

Other soil samples are collected to document the soil and/or stratigraphic profile beneath the project site, and estimate the relative permeability of the subsurface materials. All drilling and sampling equipment are either steam cleaned or washed in solution and doubly rinsed in deionized water prior to use at each site and between boreholes to minimize the potential for cross-contamination.

In the event the soil samples cannot be submitted to the analytical laboratory on the same day they are collected (e.g., due to weekends or holidays), the samples are temporarily stored until the first opportunity for submittal either on ice in a cooler, such as when in the field, or in a refrigerator at Aegis' office.

**AEGIS ENVIRONMENTAL, INC.**  
**STANDARD OPERATING PROCEDURES**  
**RE: SOIL CLASSIFICATION**  
**SOP-3**

Soil samples are classified according to the Unified Soil Classification System. Representative portions of the samples may be submitted under strict chain-of-custody to an analytical laboratory for further examination and verification of the in-field classification, and analysis of soil mechanical and/or petrophysical properties. The soil types are indicated on logs of either excavations or borings together with depths corresponding to the sampling points, and other pertinent information.

**AEGIS ENVIRONMENTAL, INC.**  
**STANDARD OPERATING PROCEDURES**  
**RE: SAMPLE IDENTIFICATION AND CHAIN-OF-CUSTODY PROCEDURES**  
**SOP-4**

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 is labeled to identify the job number, date, time of sample collection, a sample number unique to the sample, any in-field measurements made, sampling methodology, name(s) of on-site personnel and any other pertinent field observations also recorded on the field excavation or boring log.

Chain-of-custody forms are used to record possession of the sample from time of collection to its arrival at the laboratory. During shipment, the person with custody of the samples will relinquish them to the next person by signing the chain-of-custody form(s) and noting the date and time. The sample-control officer at the laboratory will verify sample integrity, correct preservation, confirm collection in the proper container(s), and ensure adequate volume for analysis.

If these conditions are met, the samples will be assigned unique laboratory log numbers for identification throughout analysis and reporting. The log numbers will be recorded on the chain-of-custody forms and in the legally-required log book maintained in the laboratory. The sample description, date received, client's name, and any other relevant information will also be recorded.

**AEGIS ENVIRONMENTAL, INC.**  
**STANDARD OPERATING PROCEDURES**  
**RE: LABORATORY ANALYTICAL QUALITY ASSURANCE AND CONTROL**  
**SOP-5**

In addition to routine instrument calibration, replicates, spikes, blanks, spiked blanks, and certified reference materials are routinely analyzed at method-specific frequencies to monitor precision and bias. Additional components of the laboratory Quality Assurance/Quality Control program include:

1. Participation in state and federal laboratory accreditation/certification programs;
2. Participation in both U.S. EPA Performance Evaluation studies (WS and WP studies) and inter-laboratory performance evaluation programs;
3. Standard operating procedures describing routine and periodic instrument maintenance;
4. "Out-of-Control"/Corrective Action documentation procedures; and,
5. Multi-level review of raw data and client reports.

**AEGIS ENVIRONMENTAL, INC.**  
**STANDARD OPERATING PROCEDURE**  
**RE: HOLLOW-STEM AUGER MONITORING WELL INSTALLATION AND**  
**DEVELOPMENT**  
**SOP-6**

Boreholes for monitoring wells are drilled using a truck-mounted, hollow-stem auger drill rig. The borehole diameter will be a minimum of 4 inches larger than the outside diameter of the casing when installing well screen. The hollow-stem auger provides minimal interruption of drilling while permitting soil sampling at desired intervals. Soil samples are collected by either hammering or hydraulically pushing a conventional split-barrel sampler containing pre-cleaned 2-inch-diameter brass tubes. A geologist or engineer from Aegis Environmental, Inc., continuously logs each borehole during drilling and constantly checks drill cuttings for indications of both the first recognizable occurrence of groundwater and volatile hydrocarbons using either a portable photoionization detector, flame ionization detector, or an explosimeter. The sampler is rinsed between samples and either steam cleaned or washed with all other drilling equipment between borings to minimize the potential for cross-contamination.

Monitoring wells are cased with threaded, factory-perforated and blank Schedule 40 PVC. The perforated interval consists of slotted casing, generally with 0.020-inch wide by 1.5-inch long slots, with 42 slots per foot. A PVC cap may be secured to the bottom of the casing with stainless steel screws; no solvents or cements are used. Centering devices may be fastened to the casing to ensure even distribution of filter material and grout within the borehole annulus. The well casing is thoroughly washed and/or steam cleaned, or may be purchased as pre-cleaned, prior to installation.

After setting the casing inside the hollow-stem auger, sand or gravel filter material is poured into the annular space to fill from boring bottom to generally 1 foot above the perforated interval. A 1- to 2-foot thick bentonite plug is set above this filter material to prevent grout from infiltrating into the filter pack. Either neat cement, containing about 5 percent bentonite, or sand-cement grout is then tremmied into the annular space from the top of the bentonite plug to near surface. A traffic-rated vault is installed around each wellhead for wells located in parking lots or driveways, while steel "stovepipes" are usually set over wellheads in landscaped areas.

After installation, the wells are thoroughly developed to remove residual drilling materials from the wellbore, and to improve well performance by removing fine material from the filter pack that may pass into the well. Well development techniques used may include pumping, surging, bailing, swabbing, jetting, flushing, and air-lifting. All development water is collected either in drums or tanks for temporary storage, and properly disposed of depending on laboratory analytical results. To minimize the potential for cross-contamination between wells, all development equipment are either steam cleaned or properly washed prior to use.

**AEGIS ENVIRONMENTAL, INC.**  
**STANDARD OPERATING PROCEDURE**  
**RE: GROUNDWATER PURGING AND SAMPLING**  
**SOP-7**

Prior to water sampling, each well is purged by evacuating a minimum of three wetted well-casing volumes of groundwater. When required, purging will continue until either the discharge water temperature, conductivity, or pH stabilize, a maximum of ten well-bore volumes of groundwater have been recovered, or the well is bailed dry. When practical, the groundwater sample should be collected when the water level in the well recovers to at least 80 percent of its static level.

The sampling equipment consists of either a "Teflon" bailer, PVC bailer, or stainless steel bladder pump with a "Teflon" bladder. If the sampling system is dedicated to the well, then the bailer is usually "Teflon," but the bladder pump is PVC with a polypropylene bladder. In general and depending on the intended laboratory analysis, 40-milliliter glass, volatile organic analysis (VOA) vials, with "Teflon" septa, are used as sample containers.

The groundwater sample is decanted into each VOA vial in such a manner that there is no meniscus at the top of the vial. A cap is quickly secured to the top of the vial. The vial is then inverted and gently tapped to see if air bubbles are present. If none are present, the vial is labeled and refrigerated for delivery, under strict chain-of-custody, to the analytical laboratory. Label information should include a unique sample identification number, job identification number, date, time, type of analysis requested, and the sampler's name.

For quality control purposes, a duplicate water sample is collected from each well. This sample is put on hold at the laboratory. When required, a trip blank is prepared at the laboratory and placed in the transport cooler. It is labeled similar to the well samples, remains in the cooler during transport, and is analyzed by the laboratory along with the groundwater samples. In addition, a field blank may be prepared in the field when sampling equipment is not dedicated. The field blank is prepared after a pump or bailer has been either steam cleaned or properly washed, prior to use in the next well, and is analyzed along with the other samples. The field blank analysis demonstrates the effectiveness of the in-field cleaning procedures to prevent cross-contamination.

To minimize the potential for cross-contamination between wells, all well development and water sampling equipment not dedicated to a well is either steam cleaned or properly washed between use. As a second precautionary measure, wells are sampled in order of least to highest concentrations as established by available previous analytical data.

In the event the water samples cannot be submitted to the analytical laboratory on the same day they are collected (e.g., due to weekends or holidays), the samples are temporarily stored until the first opportunity for submittal either on ice in a cooler, such as when in the field, or in a refrigerator at Aegis' office.

**AEGIS ENVIRONMENTAL, INC.**  
**STANDARD OPERATING PROCEDURE**  
**RE: MEASURING LIQUID LEVELS USING WATER LEVEL OR INTERFACE PROBE**  
**SOP-12**

Field equipment used for liquid-level gauging typically includes the measuring probe (water-level or interface) and product bailer(s). The field kit also includes cleaning supplies (buckets, TSP, spray bottles, and deionized water) to be used in cleaning the equipment between wells.

Prior to measurement, the probe tip is lowered into the well until it touches bottom. Using the previously established top-of-casing or top-of-box (i.e., wellhead vault) point, the probe cord (or halyard) is marked and a measuring tape (graduated in hundredths of a foot) is used to determine the distance between the probe end and the marking on the cord. This measurement is then recorded on the liquid-level data sheet as the "Measured Total Depth" of the well.

When necessary in using the interface probe to measure liquid levels, the probe is first electrically grounded to either the metal stove pipe or another metal object nearby. When no ground is available, reproducible measurements can be obtained by clipping the ground lead to the handle of the interface probe case.

The probe tip is then lowered into the well and submerged in the groundwater. An oscillating (beeping) tone indicates the probe is in water. The probe is slowly raised until either the oscillating tone ceases or becomes a steady tone. In either case, this is the depth-to-water (DTW) indicator and the DTW measurement is made accordingly. The steady tone indicates floating hydrocarbons. In this case, the probe is slowly raised until the steady tone ceases. This is the depth-to-product (DTP) indicator and the DTP measurement is made accordingly.

The process of lowering and raising the probe must be repeated several times to ensure accurate measurements. The DTW and DTP measurements are recorded on the liquid-level data sheet. When floating product is indicated by the probe's response, a product bailer is lowered partially through the product-water interface to confirm the product on the water surface, and as further indication of product thickness, particularly in cases where the product layer is quite thin. This measurement is recorded on the data sheet as "product thickness."

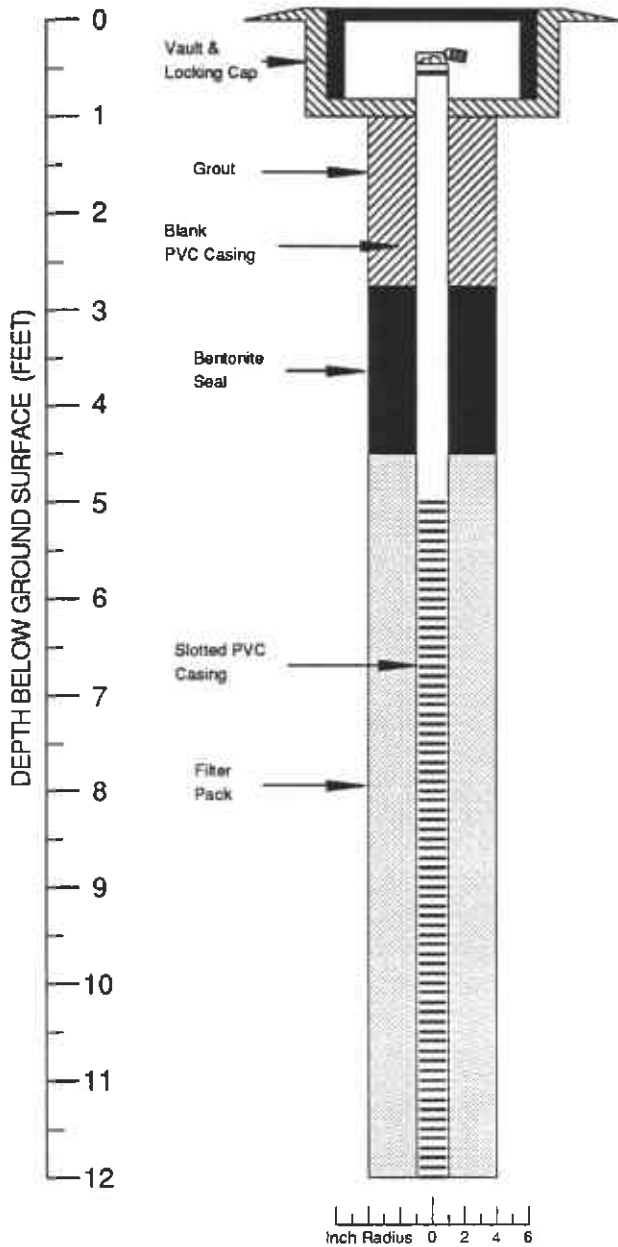
In order to avoid cross-contamination of wells during the liquid-level measurement process, wells are measured in the order of "clean" to "dirty" (where such information is available). In addition, all measurement equipment is cleaned with TSP or similar solution and thoroughly rinsed with deionized water before use, between measurements in respective wells, and at the completion of the day's use.



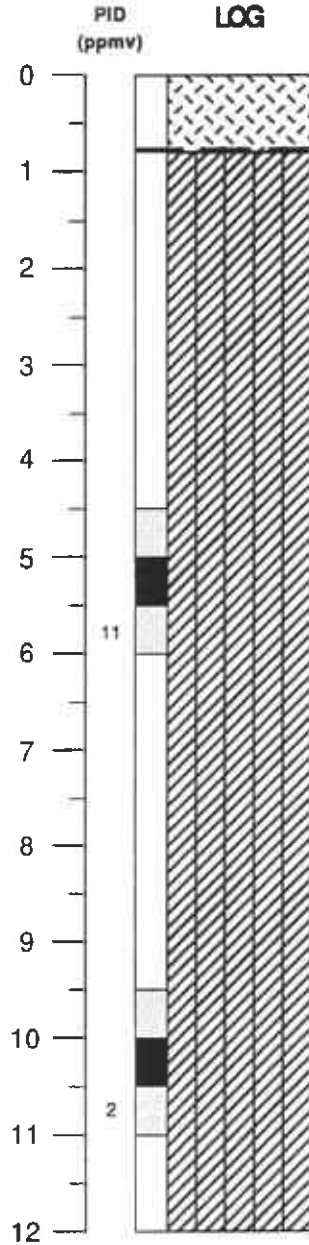
**ATTACHMENT 2**

**SOIL BORING LOGS AND  
MONITORING WELL CONSTRUCTION DETAILS**

### WELL CONSTRUCTION DETAIL



### GRAPHIC LOG



### DESCRIPTION

Concrete

-----

Brown silty CLAY (CL), medium stiff, wet, no odor

Greenish grey silty CLAY (CL), soft, moist, no odor

Grey silty CLAY (CL), stiff, moist, no odor

Logged by: C. Robertson  
 Project Mgr: O. Kittredge  
 Date Drilled: June 8, 1993

Drilling Company: Woodward Drilling  
 Drilling Method: Hollow Stem Auger  
 Driller: E. Forsstrom

Well Head Completion: 08:10 hrs  
 Type of Sampler: Split Spoon  
 TD (Total Depth): 26'

#### Explanation

- Water level during drilling
- Water level in completed well
- Location of recovered drill sample
- Location of sample sealed for chemical analysis
- Sieve sample
- Grab Sample

#### Contacts:

- Solid where certain
- Dotted where approximate
- Dashed where uncertain
- Hachured where gradational
- est K Estimated permeability (hydraulic conductivity)  
1K= primary, 2K= secondary
- NR No Recovery



AEGIS ENVIRONMENTAL, INC.

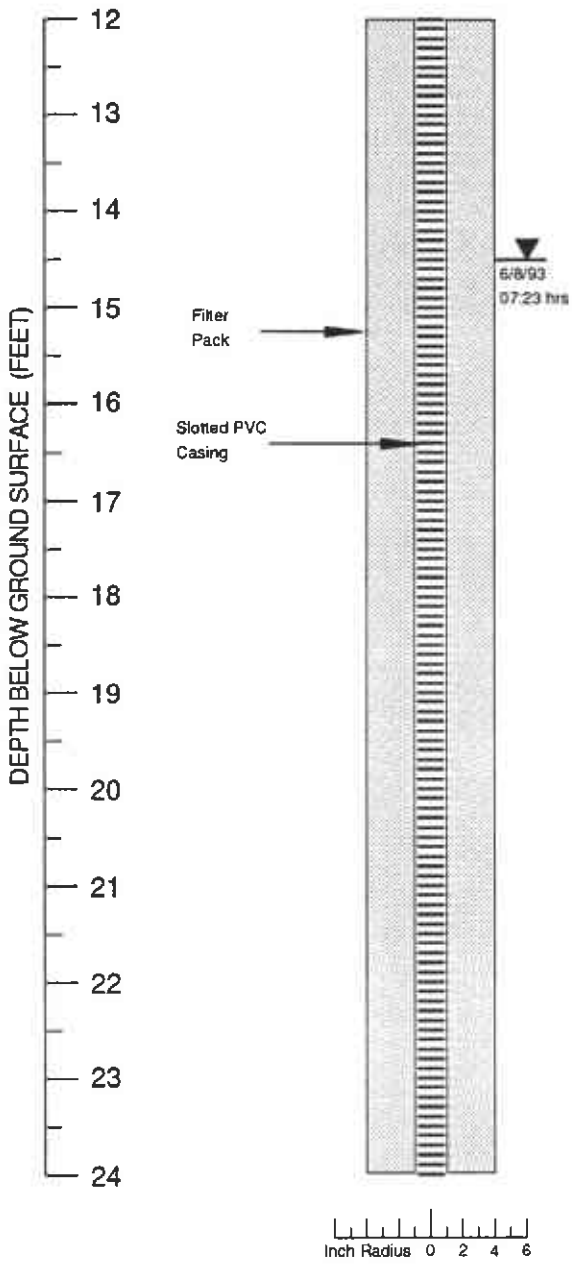
Well Log  
 Monitoring Well 1

JOB NUMBER  
 92-078

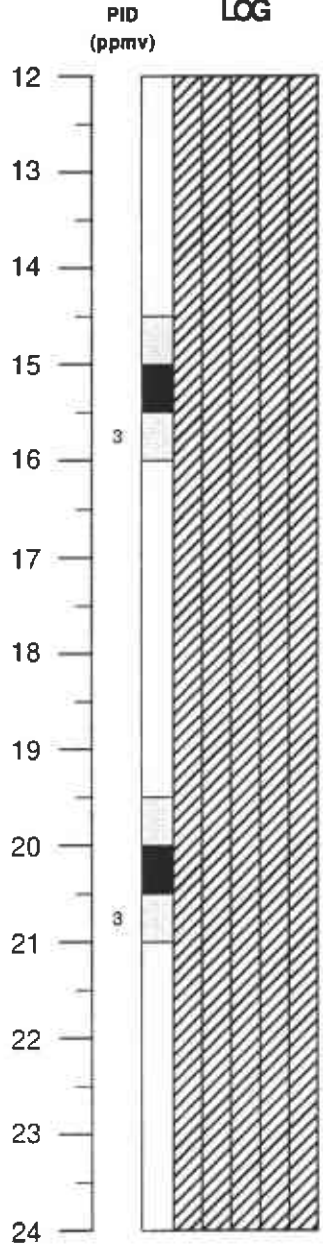
Corwood Carwash  
 6973 Village Parkway  
 Dublin, CA

WELL  
 MW-1

### WELL CONSTRUCTION DETAIL



### GRAPHIC LOG



### DESCRIPTION

Grey silty CLAY (CL), stiff, moist, no odor

Brown silty CLAY (CL), stiff, no odor

(Grades very stiff, no odor)

#### Explanation

- Water level during drilling
- Water level in completed well
- Location of recovered drill sample
- Location of sample sealed for chemical analysis
- Sieve sample
- Grab Sample

#### Contacts:

- Solid where certain
- Dotted where approximate
- Dashed where uncertain
- Hachured where gradational
- est K Estimated permeability (hydraulic conductivity)  
1K= primary, 2K= secondary
- NR No Recovery



AEGIS ENVIRONMENTAL, INC.

#### Well Log

Monitoring Well 1 (continued)

Corwood Carwash  
6973 Village Parkway  
Dublin, CA

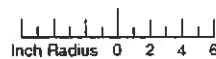
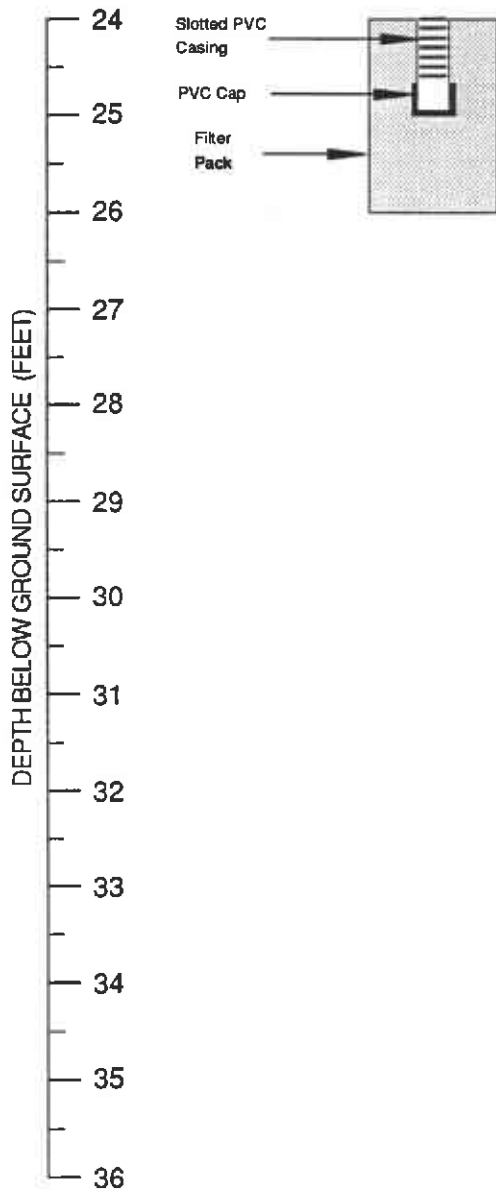
#### JOB NUMBER

92-078

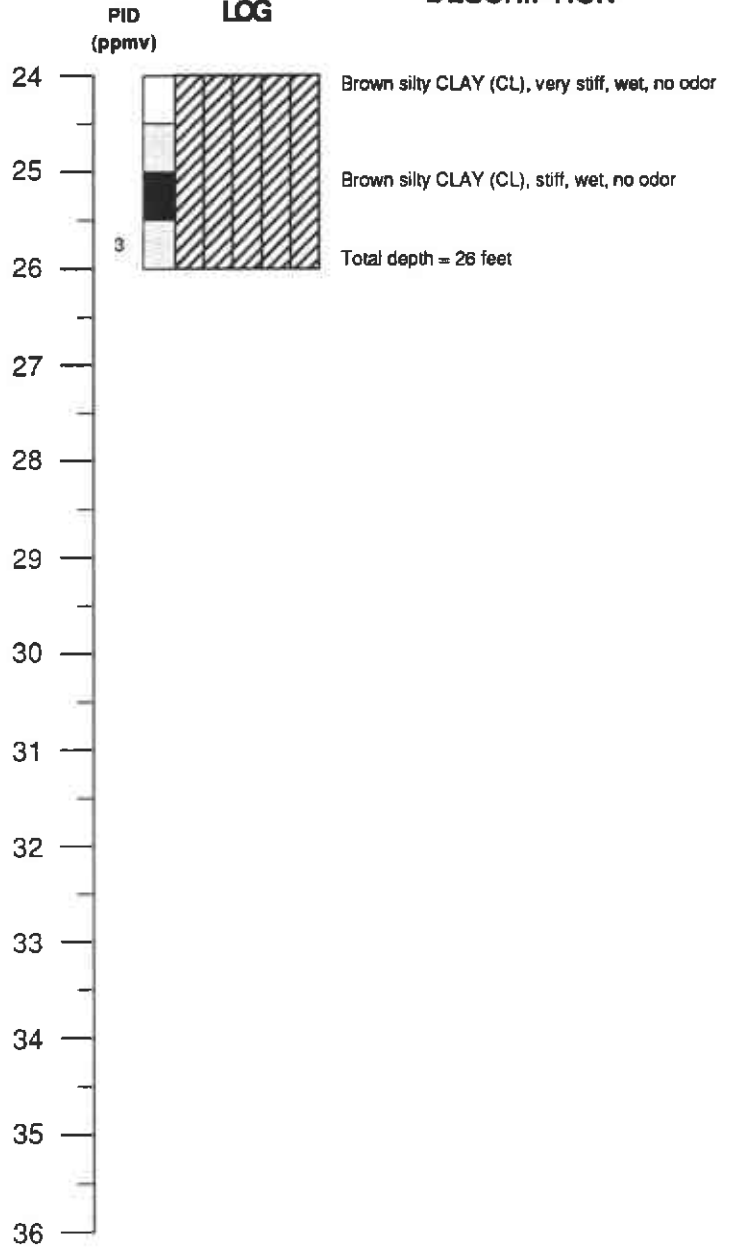
#### WELL

MW-1

### WELL CONSTRUCTION DETAIL



### GRAPHIC LOG



#### Explanation

- Water level during drilling
- Water level in completed well
- Location of recovered drill sample
- Location of sample sealed for chemical analysis
- Sieve sample
- Grab Sample

#### Contacts:

- Solid where certain
- Dotted where approximate
- Dashed where uncertain
- Hachured where gradational
- est K Estimated permeability (hydraulic conductivity)  
1K= primary, 2K= secondary
- NR No Recovery



AEGIS ENVIRONMENTAL, INC.

Well Log

Monitoring Well 1 (continued)

Corwood Carwash  
6973 Village Parkway  
Dublin, CA

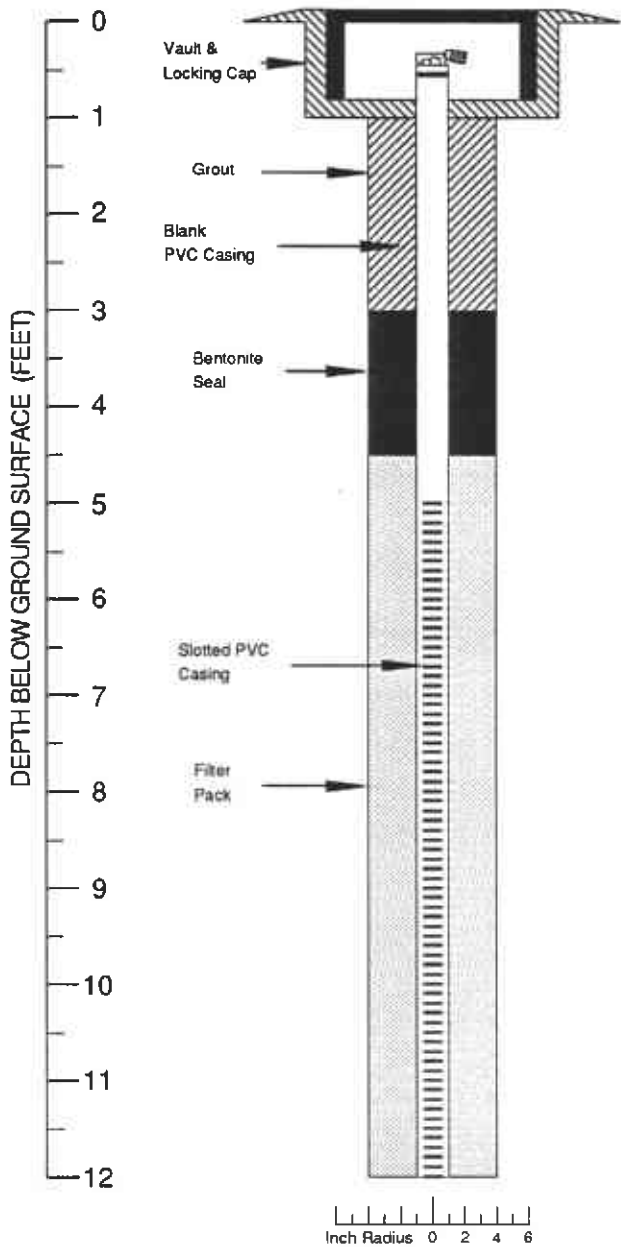
JOB NUMBER

92-078

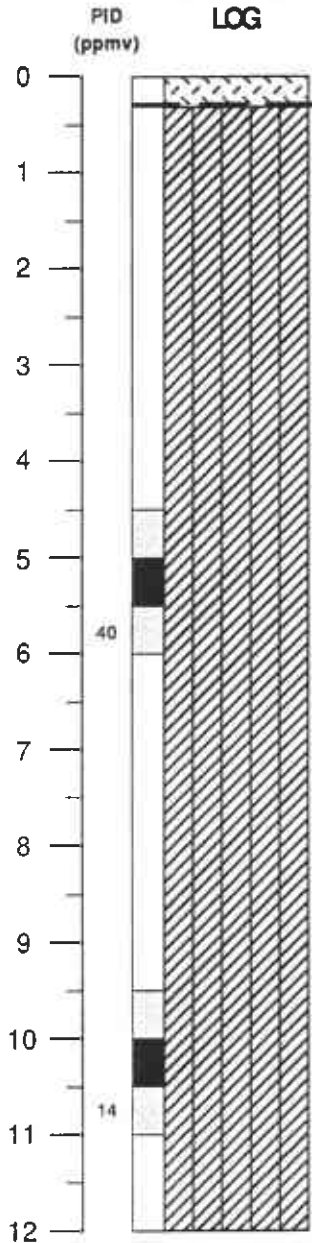
WELL

MW-1

### WELL CONSTRUCTION DETAIL



### GRAPHIC LOG



### DESCRIPTION

Concrete

Brown silty CLAY (CL), medium stiff, moist, no odor

Brown grey silty CLAY (CL), stiff, moist, slight odor

Dark grey silty CLAY (CL), medium stiff, damp, slight odor

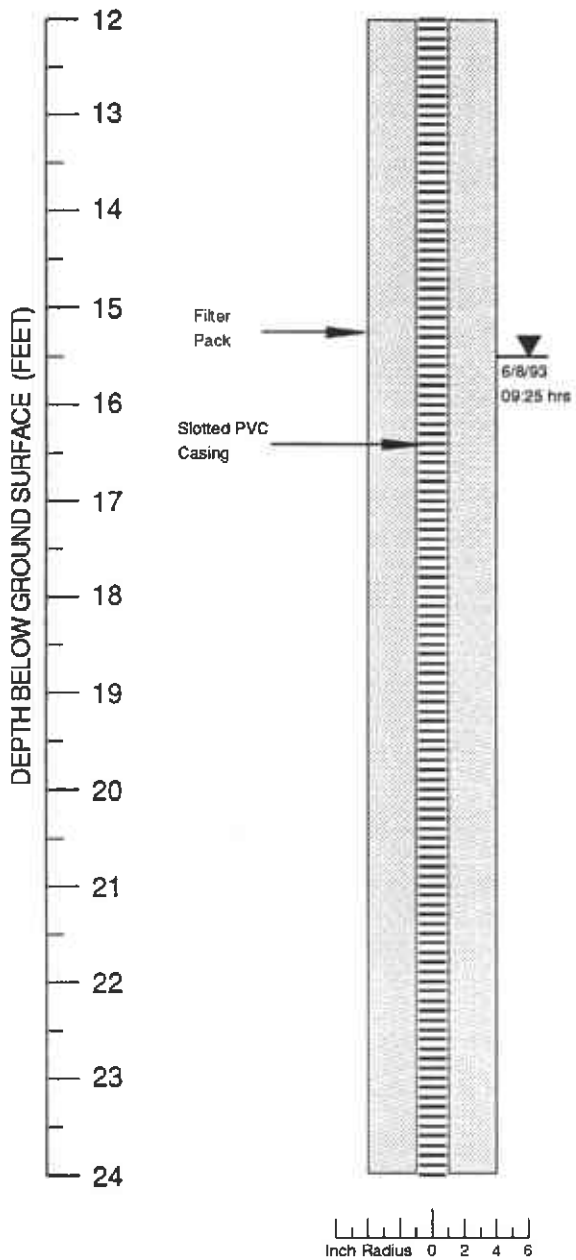
Logged by: C. Robertson	Drilling Company: Woodward Drilling	Well Head Completion: 10:45 hrs
Project Mgr: O. Kittredge	Drilling Method: Hollow Stem Auger	Type of Sampler: Split Spoon
Date Drilled: June 8, 1993	Driller: E. Forsstrom	TD (Total Depth): 26'

Explanation		Contacts:	
	Water level during drilling		Solid where certain
	Water level in completed well		Dotted where approximate
	Location of recovered drill sample		Dashed where uncertain
	Location of sample sealed for chemical analysis		Hachured where gradational
	Sieve sample	est K	Estimated permeability (hydraulic conductivity) 1K= primary, 2K= secondary
	Grab Sample	NR	No Recovery

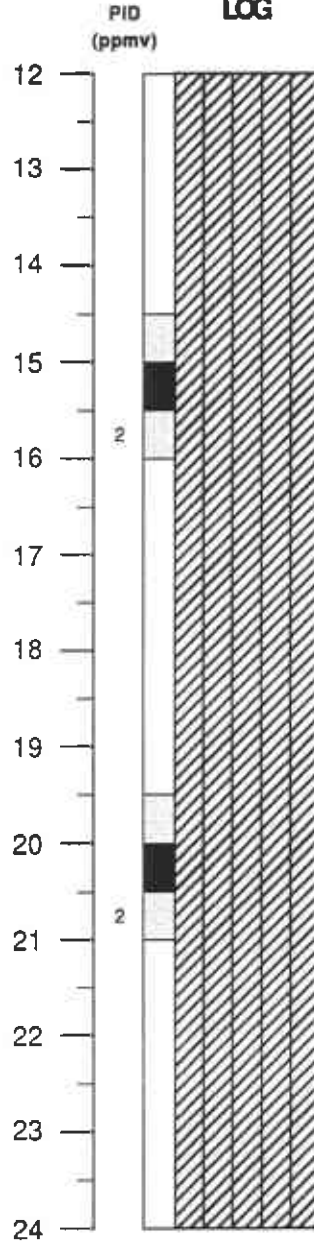
**AEGIS ENVIRONMENTAL, INC.**

Well Log	JOB NUMBER
Monitoring Well 2	92-078
Corwood Carwash 6973 Village Parkway Dublin, CA	WELL
	MW-2

### WELL CONSTRUCTION DETAIL



### GRAPHIC LOG



### DESCRIPTION

Dark grey silty CLAY (CL), medium stiff, damp, slight odor

Greyish brown silty CLAY (CL), stiff, no odor

Light-brownish grey silty CLAY (CL), stiff, no odor

#### Explanation

- Water level during drilling
- Water level in completed well
- Location of recovered drill sample
- Location of sample sealed for chemical analysis
- Sieve sample
- Grab Sample

#### Contacts:

- Solid where certain
- Dotted where approximate
- Dashed where uncertain
- Hachured where gradational
- est K Estimated permeability (hydraulic conductivity)  
1K= primary, 2K= secondary
- NR No Recovery



AEGIS ENVIRONMENTAL, INC.

#### Well Log

Monitoring Well 2 (continued)

Corwood Carwash  
6973 Village Parkway  
Dublin, CA

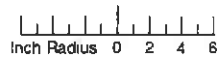
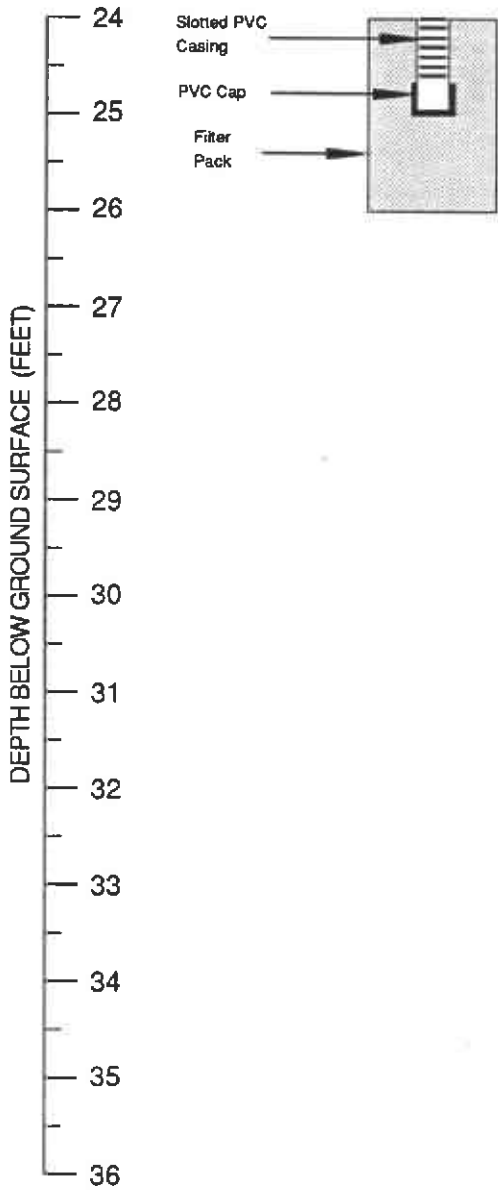
#### JOB NUMBER

92-078

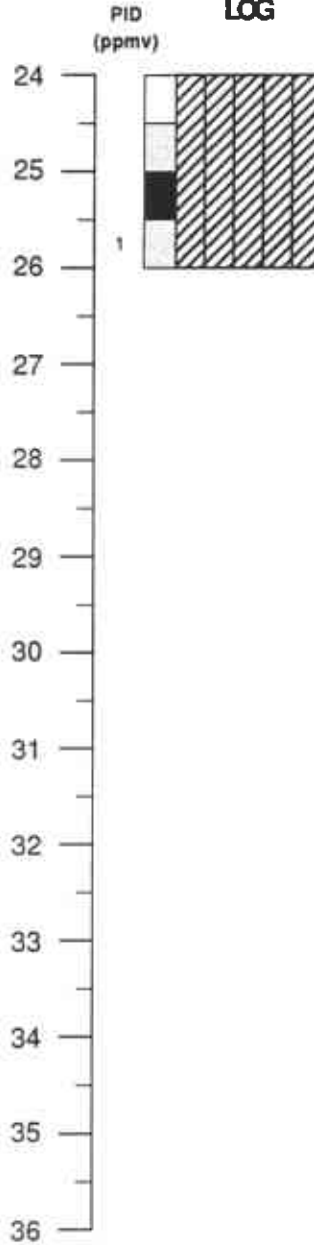
#### WELL

MW-2

**WELL CONSTRUCTION DETAIL**



**GRAPHIC LOG**



**DESCRIPTION**

Light-brownish grey silty CLAY (CL), stiff, no odor

Brown silty CLAY (CL), medium stiff, no odor

Total depth = 26 feet

**Explanation**

- Water level during drilling
- Water level in completed well
- Location of recovered drill sample
- Location of sample sealed for chemical analysis
- Sieve sample
- Grab Sample

**Contacts:**

- Solid where certain
- Dotted where approximate
- Dashed where uncertain
- Hachured where gradational
- est K Estimated permeability (hydraulic conductivity)  
1K= primary, 2K= secondary
- NR No Recovery



**AEGIS ENVIRONMENTAL, INC.**

**Well Log**

Monitoring Well 2 (continued)

**JOB NUMBER**

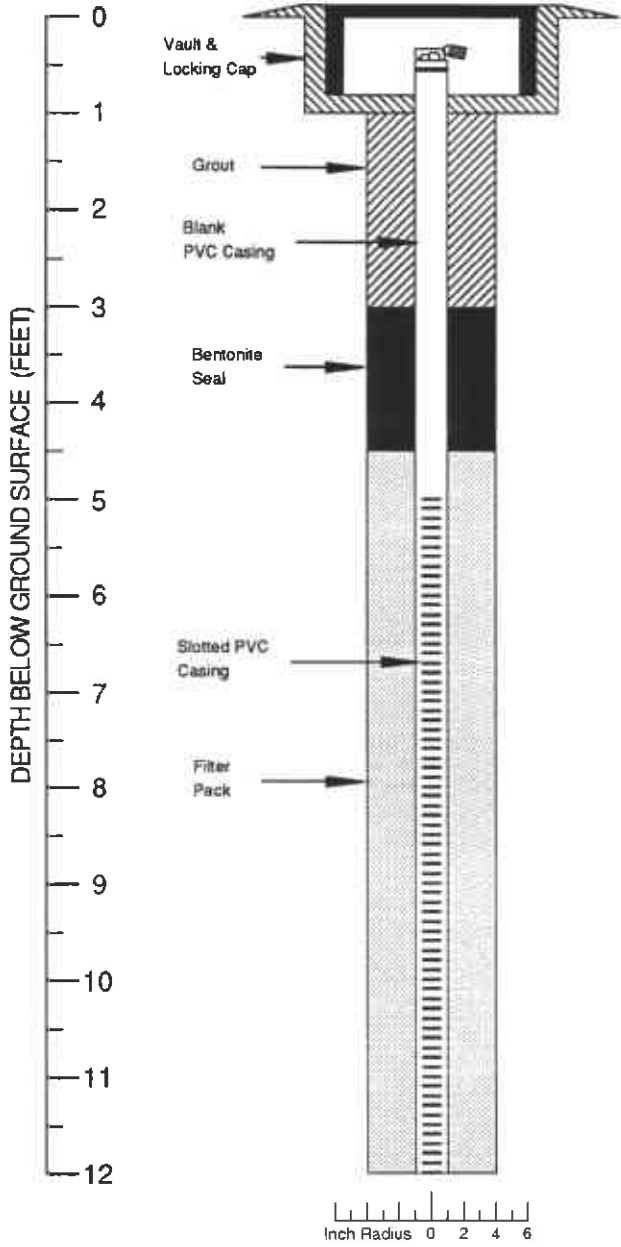
92-078

Corwood Carwash  
6973 Village Parkway  
Dublin, CA

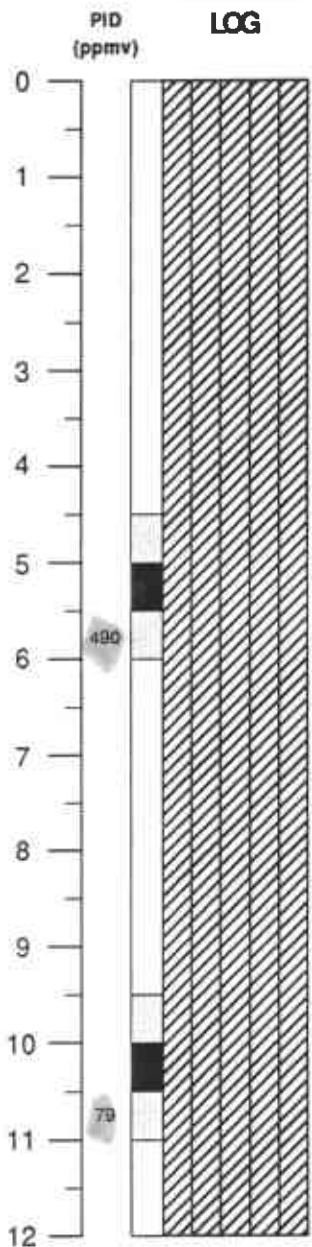
**WELL**

MW-2

### WELL CONSTRUCTION DETAIL



### GRAPHIC LOG



### DESCRIPTION

Very dark grey silty CLAY (CL), medium stiff, damp, slight odor

Very dark grey silty CLAY (CL), medium stiff, damp, slight odor

Logged by: C. Robertson	Drilling Company: Woodward Drilling	Well Head Completion: 12:35 hrs
Project Mgr: O. Kittredge	Drilling Method: Hollow Stem Auger	Type of Sampler: Split Spoon
Date Drilled: June 8, 1993	Driller: E. Forsstrom	TD (Total Depth): 26'

#### Explanation

- |  |   |       |   |
|--|---|-------|---|
|  | Water level during drilling                     |       | Solid where certain   |
|  | Water level in completed well                   |       | Dotted where approximate  |
|  | Location of recovered drill sample              |       | Dashed where uncertain  |
|  | Location of sample sealed for chemical analysis |       | Hachured where gradational  |
|  | Sieve sample                                    | est K | Estimated permeability (hydraulic conductivity)<br>1K= primary, 2K= secondary |
|  | Grab Sample                                     | NR    | No Recovery   |

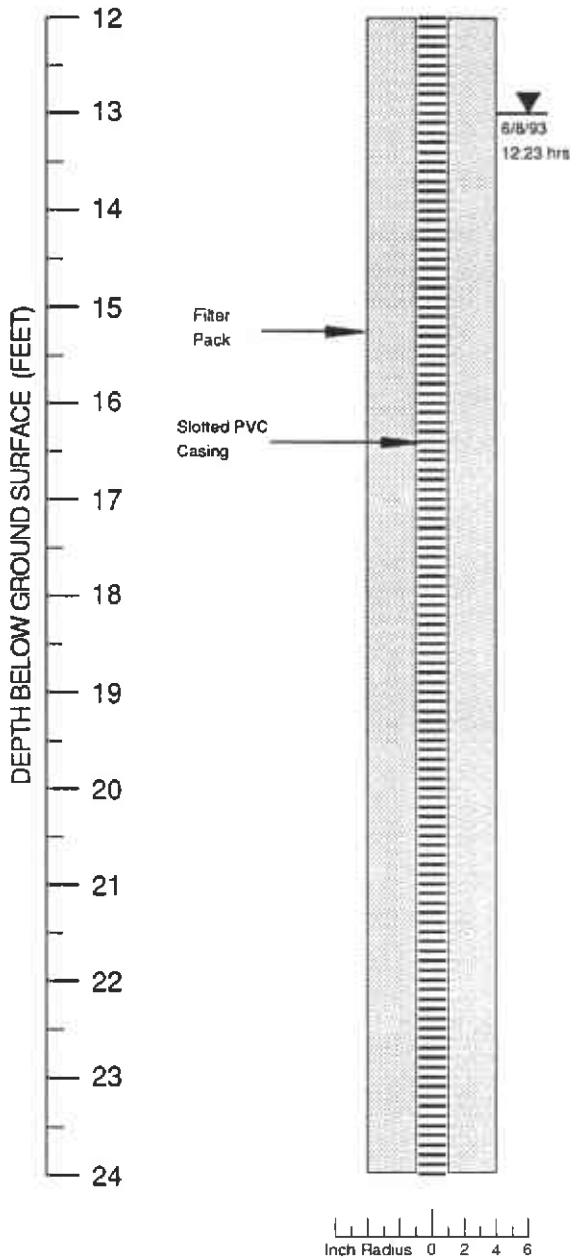


**AEGIS ENVIRONMENTAL, INC.**

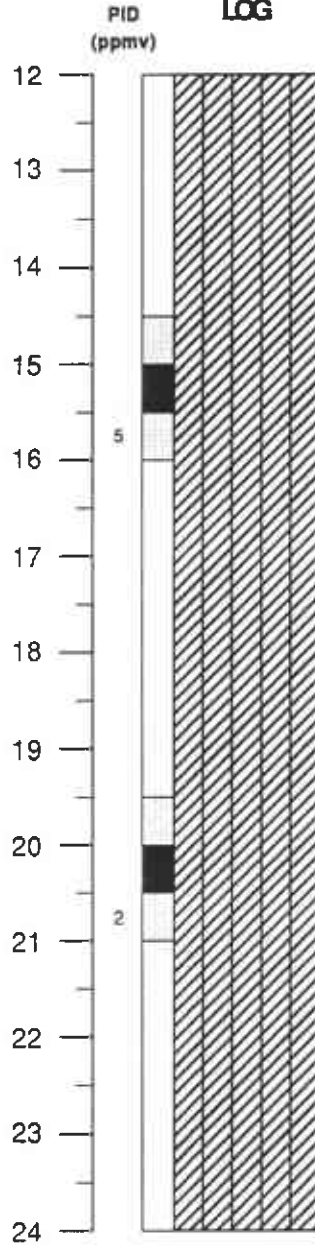
Well Log	<b>JOB NUMBER</b>
Monitoring Well 3	92-078
Corwood Carwash 6973 Village Parkway Dublin, CA	<b>WELL</b>
	MW-3



### WELL CONSTRUCTION DETAIL



### GRAPHIC LOG



### DESCRIPTION

Very dark grey silty CLAY (CL), medium stiff, damp, slight odor

Dark brown silty CLAY (CL), medium stiff, moist, slight odor

Brown silty CLAY (CL), stiff, no odor

#### Explanation

- Water level during drilling
- Water level in completed well
- Location of recovered drill sample
- Location of sample sealed for chemical analysis
- Sieve sample
- Grab Sample

#### Contacts:

- Solid where certain
- Dotted where approximate
- Dashed where uncertain
- Hachured where gradational
- est K Estimated permeability (hydraulic conductivity)  
1K= primary, 2K= secondary
- NR No Recovery



AEGIS ENVIRONMENTAL, INC.

Well Log

Monitoring Well 3 (continued)

Corwood Carwash  
6973 Village Parkway  
Dublin, CA

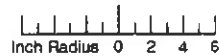
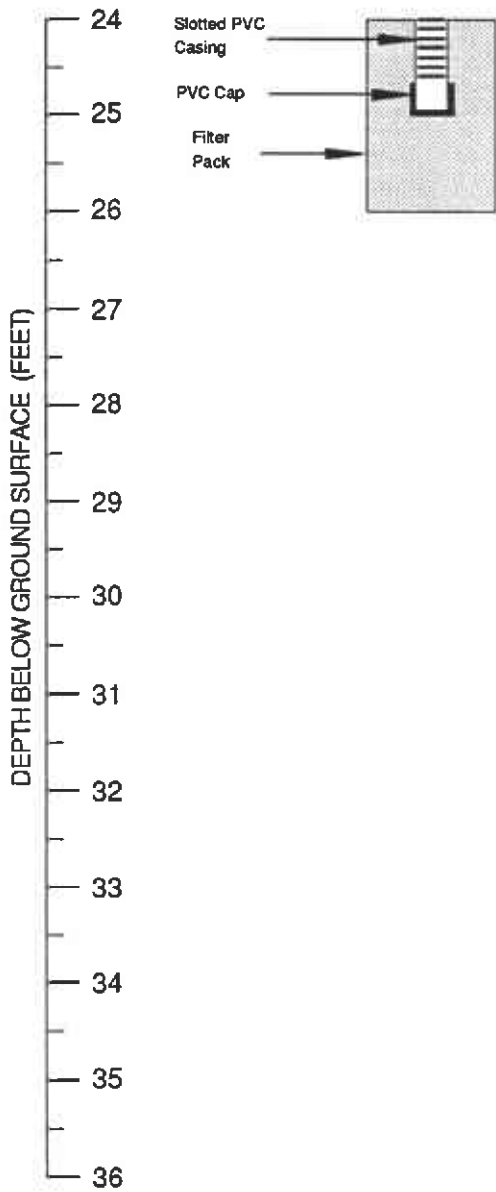
JOB NUMBER

92-078

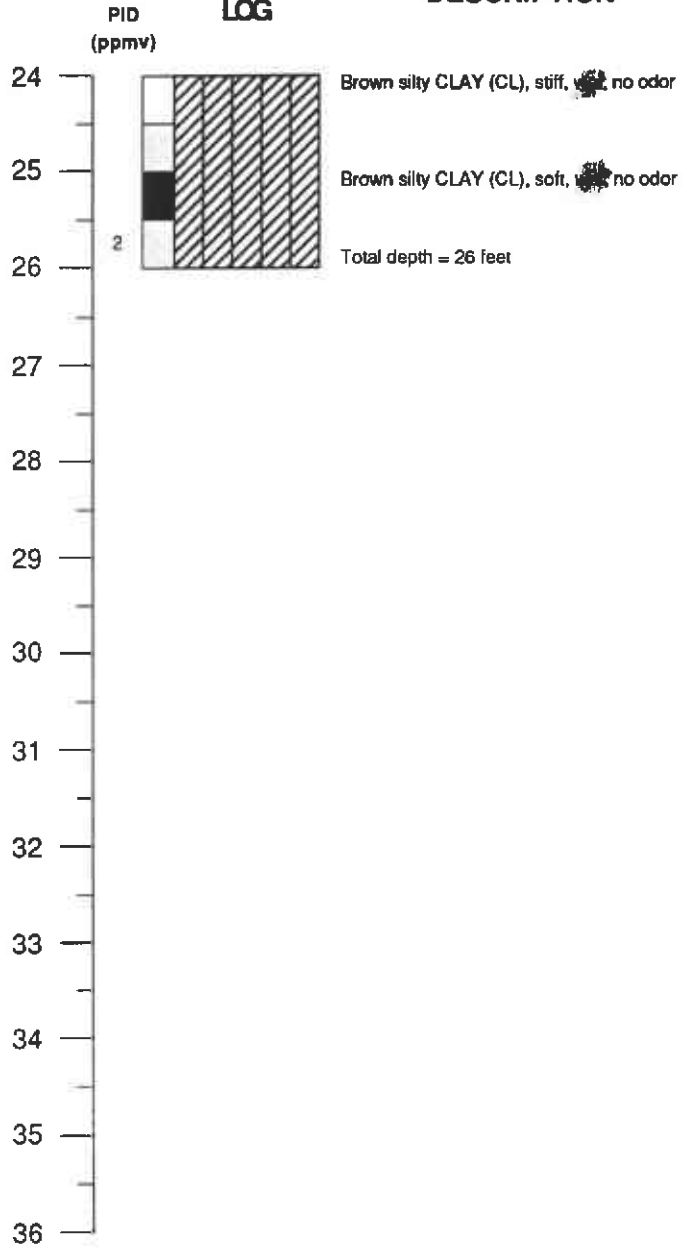
WELL

MW-3

### WELL CONSTRUCTION DETAIL



### GRAPHIC LOG



#### Explanation

- Water level during drilling
- Water level in completed well
- Location of recovered drill sample
- Location of sample sealed for chemical analysis
- Sieve sample
- Grab Sample

#### Contacts:

- Solid where certain
- Dotted where approximate
- Dashed where uncertain
- Hachured where gradational
- est K Estimated permeability (hydraulic conductivity)  
1K= primary, 2K= secondary
- NR No Recovery



AEGIS ENVIRONMENTAL, INC.

#### Well Log

Monitoring Well 3 (continued)

Corwood Carwash  
6973 Village Parkway  
Dublin, CA

#### JOB NUMBER

92-078

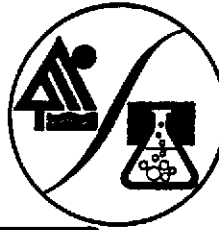
#### WELL

MW-3

**ATTACHMENT 3**

**LABORATORY ANALYTICAL REPORTS  
AND CHAIN OF CUSTODY FORMS**

**Excelchem**  
**Environmental Labs**  
 8112 Patton Avenue  
 Citrus Heights, CA 95610  
 (916) 729-5313



RECEIVED

JUN 25 1993

Anal. *CF/omt*

**ANALYSIS REPORT**

Attention: Mr. Owen Kittridge  
 AEGIS Environmental  
 1050 Melody Lane, #160  
 Roseville, CA 95678

Date Sampled : 6-09-93  
 Date Received: 6-11-93  
 BTEX Analyzed: 6-21-93  
 TPHg Analyzed: 6-21-93  
 TPHd Analyzed: 6-18-93  
 Matrix: Water

Project #: 92-078

	Benzene <u>PPB</u>	Toluene <u>PPB</u>	Ethyl- benzene <u>PPB</u>	Total Xylenes <u>PPB</u>	TPHg <u>PPB</u>	TPHd <u>PPB</u>
Reporting Limit:	0.5	0.5	0.5	0.5	50	100

**SAMPLE**  
**Laboratory Identification**

MW-1 W0693055	ND	ND	ND	ND	ND	ND
MW-2 W0693057	13	ND	ND	ND	110	640
MW-3 W0693059	0.5	ND	0.5	ND	ND	ND

ppb= Parts per billion = ug/L = micrograms per liter  
 ND = Not detected. Compound(s) may be present at concentrations below the reporting limit.

**ANALYTICAL PROCEDURES**

**BTEX**-- Benzene, toluene, ethylbenzene, and total xylene isomers (BTEX) are analyzed by using EPA Method 8020 which utilizes a gas chromatograph (GC) equipped with a photoionization detector (PID).  
**TPHg**--Total petroleum hydrocarbons as gasoline (low-to-medium boiling points) are analyzed by using modified EPA Method 8015, which utilizes a GC equipped with an FID.  
**TPHd**--Total petroleum hydrocarbons as diesel (high boiling points) are measured by extraction using EPA Method 3510 followed by modified EPA 8015 with direct sample injection into a GC equipped with an FID.

*[Signature]*  
 Laboratory Representative

6-22-93  
 Date Reported





**Metal  
EPA Method 6010**

Attention: Mr. John Somers  
Excelchem Environmental Labs  
8112 Patton Avenue  
Citrus Heights, CA 95610

Date Sampled: Jun. 9, 1993  
Date Received: Jun. 16, 1993  
Date Analyzed: Jun. 18, 1993

Project #: 92-078

Project Name: 6973 Village Parkway

Client ID: MW-1

LAB ID: ST93-06-461A

Matrix: Water

Dilution:

Name	Amount	Reporting Limit	Units
Lead (Pb)	62	50	ug/L

ppm = parts per million = mg/Kg = milligram per Kilogram

ND = Not Detected. Compound(s) may be present at concentrations below the detection limit.



R. L. James, Principal Chemist

7/1/93  
Date Reported

SPARGER TECHNOLOGY ANALYTICAL LABORATORY, INC. IS CERTIFIED BY THE STATE OF CALIFORNIA  
DEPARTMENT OF HEALTH SERVICES AS A HAZARDOUS WASTE TESTING LABORATORY  
Certification No. 16143

**Metal  
 EPA Method 6010**

Attention: Mr. John Somers  
 Excelchem Environmental Labs  
 8112 Patton Avenue  
 Citrus Heights, CA 95610

Date Sampled: Jun. 9, 1993  
 Date Received: Jun. 16, 1993  
 Date Analyzed: Jun. 18, 1993

Project #: 92-078

Project Name: 6973 Village Parkway

Client ID: MW-2

LAB ID: ST93-06-462A

Matrix: Water

Dilution:

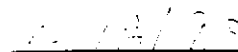
Name	Amount	Reporting Limit	Units
Lead (Pb)	ND	50	ug/L

ppm = parts per million = mg/Kg = milligram per Kilogram

ND = Not Detected. Compound(s) may be present at concentrations below the detection limit.



R. L. James, Principal Chemist



Date Reported

SPARGER TECHNOLOGY ANALYTICAL LABORATORY, INC. IS CERTIFIED BY THE STATE OF CALIFORNIA

DEPARTMENT OF HEALTH SERVICES AS A HAZARDOUS WASTE TESTING LABORATORY

(Certification No. 1614)



**Metal  
EPA Method 6010**

Attention: Mr. John Somers  
Excelchem Environmental Labs  
8112 Patton Avenue  
Citrus Heights, CA 95610

Date Sampled: Jun. 9, 1993  
Date Received: Jun. 16, 1993  
Date Analyzed: Jun. 18, 1993

Project #: 92-078

Project Name: 6973 Village Parkway

Client ID: MW-3

LAB ID: ST93-06-463A

Matrix: Water

Dilution:

Name	Amount	Reporting Limit	Units
Lead (Pb)	ND	50	ug/L

ppm = parts per million = mg/Kg = milligram per Kilogram

ND = Not Detected. Compound(s) may be present at concentrations below the detection limit.



R. L. James, Principal Chemist

6/18/93  
Date Reported

SPARGER TECHNOLOGY ANALYTICAL LABORATORY, INC. IS CERTIFIED BY THE STATE OF CALIFORNIA

DEPARTMENT OF HEALTH SERVICES AS A HAZARDOUS WASTE TESTING LABORATORY

Certification No. 16141

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

# AEGIS Environmental Consultants, Inc.

## Sample Identification/Field Chain of Custody Record

11 / 1  
 Send results to:  
 Aegis Environmental  
 1050 Melody Lane, Suite 160  
 Roseville, CA 95678

Site Address: 6973 Village Park, Dublin  
 AEGIS Project #: 92-078  
 Shipped By: Craig Robertson  
 Shipped To: Excell Chem  
 Project Manager: CWEN Kirtledge

For Shell Projects Only  
 WIC: \_\_\_\_\_  
 AFE: \_\_\_\_\_  
 CT/DL: \_\_\_\_\_  
 Shell Engineer: \_\_\_\_\_  
 Hazardous Materials Suspected? (yes/no)

Sampling Point	Location	Field ID#	Date	Sample Type	No. of Containers	Analysis Required
MW1			6/9/93	water	4	BTEX TPH-Gas, TPH Diesel, Total Lead
MW1B			6/9/93	water	1	HOLD
MW2			6/9/93	water	4	BTEX TPH-Gas, TPH Diesel, Total Lead
MW2B			6/9/93	water	1	HOLD
MW3			6/9/93	water	4	BTEX TPH-Gas, TPH Diesel, Total Lead
MW3B			6/9/93	water	1	HOLD

Sampler(s) (signature) [Signature] 6/9/93 12:32

Field ID	Relinquished By (signature)	Received By (signature)	Date/Time	Comments

Scaled for shipment by: (signature) \_\_\_\_\_ Date/Time: \_\_\_\_\_ Shipment Method: \_\_\_\_\_  
 Received for Lab by: (signature) Mindy Somers Date/Time: 6/11/93 12:30 pm Comments: \_\_\_\_\_



**Metal  
EPA Method 6010/721**

**RECEIVED**  
**JUN 25 1993**  
Ans'd. *CELOMIR*

Attention: Mr. John Somers  
Excelchem Environmental Labs  
8112 Patton Avenue  
Citrus Heights, CA 95610

Date Sampled: Jun 8, 1993  
Date Received: Jun 16, 1993  
Date Analyzed: Jun 18, 1993

Project #: 92-078

Project Name: 6973 Village Parkway

Client ID: MW1-5.5

LAB ID: ST93-06-455A

Matrix: Soil

Dilution:

Name	Amount	Reporting Limit	Units
Lead (Pb)	3.1	2.5	mg/Kg

ppm = parts per million = mg.Kg = milligram per Kilogram

ND = Not Detected. Compound(s) may be present at concentrations below the detection limit.



R. L. James, Principal Chemist



Date Reported

SPARGER TECHNOLOGY ANALYTICAL LABORATORY, INC. IS CERTIFIED BY THE STATE OF CALIFORNIA

DEPARTMENT OF HEALTH SERVICES AS A HAZARDOUS WASTE TESTING LABORATORY

(Certification No. 1614)

**Metal  
EPA Method 6010/721**

Attention: Mr. John Somers  
Excelchem Environmental Labs  
8112 Patton Avenue  
Citrus Heights, CA 95610

Date Sampled: Jun 8, 1993  
Date Received: Jun 16, 1993  
Date Analyzed: Jun 18, 1993

Project #: 92-078

Project Name: 6973 Village Parkway

Client ID: MW1-10.5

LAB ID: ST93-06-456A

Matrix: Soil

Dilution:

Name	Amount	Reporting Limit	Units
Lead (Pb)	2.5	2.5	mg/Kg

ppm = parts per million = mg/Kg = milligram per Kilogram

ND = Not Detected. Compound(s) may be present at concentrations below the detection limit.



R. L. James, Principal Chemist



Date Reported

SPARGER TECHNOLOGY ANALYTICAL LABORATORY, INC. IS CERTIFIED BY THE STATE OF CALIFORNIA

DEPARTMENT OF HEALTH SERVICES AS A HAZARDOUS WASTE TESTING LABORATORY

(Certification No. 1814)

**Metal  
EPA Method 6010/721**

Attention: Mr. John Somers  
Excelchem Environmental Labs  
8112 Patton Avenue  
Citrus Heights, CA 95610

Date Sampled: Jun 8, 1993  
Date Received: Jun 16, 1993  
Date Analyzed: Jun 18, 1993

Project #: 92-078

Project Name: 6973 Village Parkway

Client ID: MW2-5.5

LAB ID: ST93-06-457A

Matrix: Soil

Dilution:

Name	Amount	Reporting Limit	Units
Lead (Pb)	ND	2.5	mg/Kg

ppm = parts per million = mg/Kg = milligram per Kilogram

ND = Not Detected. Compound(s) may be present at concentrations below the detection limit.



R. L. James, Principal Chemist

6/18/93  
Date Reported

SPARGER TECHNOLOGY ANALYTICAL LABORATORY, INC. IS CERTIFIED BY THE STATE OF CALIFORNIA  
DEPARTMENT OF HEALTH SERVICES AS A HAZARDOUS WASTE TESTING LABORATORY  
Certification No. 16141

**Metal  
EPA Method 6010/721**

Attention: Mr. John Somers  
Excelchem Environmental Labs  
8112 Patton Avenue  
Citrus Heights, CA 95610

Date Sampled: Jun 8, 1993  
Date Received: Jun 16, 1993  
Date Analyzed: Jun 18, 1993

Project #: 92-078

Project Name: 6973 Village Parkway

Client ID: MW2-10.5

LAB ID: ST93-06-458A

Matrix: Soil

Dilution:

Name	Amount	Reporting Limit	Units
Lead (Pb)	ND	2.5	mg/Kg

ppm = parts per million = mg/Kg = milligram per Kilogram

ND = Not Detected. Compound(s) may be present at concentrations below the detection limit.



R. L. James, Principal Chemist

6/18/93  
Date Reported

SPARGER TECHNOLOGY ANALYTICAL LABORATORY, INC. IS CERTIFIED BY THE STATE OF CALIFORNIA  
DEPARTMENT OF HEALTH SERVICES AS A HAZARDOUS WASTE TESTING LABORATORY

(Certification No. 1614)

**Metal  
EPA Method 6010/721**

Attention: Mr. John Somers  
Excelchem Environmental Labs  
8112 Patton Avenue  
Citrus Heights, CA 95610

Date Sampled: Jun 8, 1993  
Date Received: Jun 16, 1993  
Date Analyzed: Jun 18, 1993

Project #: 92-078

Project Name: 6973 Village Parkway

Client ID: MW3-5.5

LAB ID: ST93-06-459A

Matrix: Soil

Dilution:

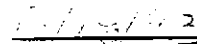
Name	Amount	Reporting Limit	Units
Lead (Pb)	ND	2.5	mg/Kg

ppm = parts per million = mg/Kg = milligram per Kilogram

ND = Not Detected. Compound(s) may be present at concentrations below the detection limit.



R. L. James, Principal Chemist



Date Reported

SPARGER TECHNOLOGY ANALYTICAL LABORATORY, INC. IS CERTIFIED BY THE STATE OF CALIFORNIA  
DEPARTMENT OF HEALTH SERVICES AS A HAZARDOUS WASTE TESTING LABORATORY

(Certification No. 1614)



**Metal  
EPA Method 6010/721**

Attention: Mr. John Somers  
Excelchem Environmental Labs  
8112 Patton Avenue  
Citrus Heights, CA 95610

Date Sampled: Jun 8, 1993  
Date Received: Jun 16, 1993  
Date Analyzed: Jun 18, 1993

Project #: 92-078

Project Name: 6973 Village Parkway

Client ID: MW3-10.5

LAB ID: ST93-06-460A

Matrix: Soil

Dilution:

Name	Amount	Reporting Limit	Units
Lead (Pb)	4.1	2.5	mg/Kg

ppm = parts per million = mg/Kg = milligram per Kilogram

ND = Not Detected. Compound(s) may be present at concentrations below the detection limit.



R. L. James, Principal Chemist

6/18/93  
Date Reported

SPARGER TECHNOLOGY ANALYTICAL LABORATORY, INC. IS CERTIFIED BY THE STATE OF CALIFORNIA

DEPARTMENT OF HEALTH SERVICES AS A HAZARDOUS WASTE TESTING LABORATORY

(Certification No. 1614)

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

# AEGIS Environmental Consultants, Inc.

## Sample Identification/Field Chain of Custody Record

1/2  
 Send results to:  
 Aegis Environmental  
 1050 Melody Lane, Suite 160  
 Roseville, CA 95678

For Shell Projects Only  
 WIC: \_\_\_\_\_  
 AFE: \_\_\_\_\_  
 CT/DL: \_\_\_\_\_  
 Shell Engineer: \_\_\_\_\_  
 Hazardous Materials Suspected? (yes/no)

Site Address: Village of Kelley, Dublin, CA  
6973 Coonwood Court (West)  
 AEGIS Project #: 92-078  
 Shipped By: Craig Robertson  
 Shipped To: Excelchem  
 Project Manager: Caren Kottledge

Sampling Point	Location	Field ID#	Date	Sample Type	No. of Containers	Analysis Required
MW1-5.5			6/8/93	Soil	1	SOIL Diesel, Total BIEX TPH Gas
MW1-10.5			↓	↓	1	BIEX TPH-Gas, Diesel Total Lead
MW1-15.5			↓	↓	1	HOLD
MW1-20.5			↓	↓	1	HOLD
MW1-25.5			↓	↓	1	HOLD
MW2-5.5			↓	↓	1	BIEX TPH-Gas, Diesel Total Lead
MW2-10.5			↓	↓	1	BIEX TPH-Gas, Diesel Total Lead
MW2-15.5			↓	↓	1	HOLD

Sampler(s) (signature) C. Kottledge 6/11/93 12:32

Field ID	Relinquished By (signature)	Received By (signature)	Date/Time	Comments

Sealed for shipment by: (signature) \_\_\_\_\_ Date/Time: \_\_\_\_\_ Shipment Method: \_\_\_\_\_

Received for Lab by: (signature) Mindy Smith Date/Time: 6/11/93 12:30 pm Comments: \_\_\_\_\_

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

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

# AEGIS Environmental Consultants, Inc.

## Sample Identification/Field Chain of Custody Record

2/2  
 Send results to:  
 Aegis Environmental  
 1050 Melody Lane, Suite 160  
 Roseville, CA 95678

Site Address: 6113 Village Parkway, Dublin, CA  
 AEGIS Project #: 92-0787  
 Shipped By: Craig Robertson  
 Shipped To: Excell Chem  
 Project Manager: Bruce Kitchridge

For Shell Projects Only  
 WIC: \_\_\_\_\_  
 AFE: \_\_\_\_\_  
 CT/DL: \_\_\_\_\_  
 Shell Engineer: \_\_\_\_\_  
 Hazardous Materials Suspected? (yes/no) \_\_\_\_\_

Sampling Point	Location	Field ID#	Date	Sample Type	No. of Containers	Analysis Required
MW 2-20.5			6/8/93	Soil	1	HOLD
MW 2-25.5			↓	↓	1	HOLD
MW 3-5.5					1	BTEX, TPH-Gas, Pies Total Lead
MW 3-10.5					1	BTEX, TPH-Gas, Pies Total Lead
MW 3-15.5					1	HOLD
MW 3-20.5					1	HOLD
MW 3-25.5					1	HOLD

Sampler(s) (signature) [Signature] 6/11/93 17:32

Field ID	Relinquished By (signature)	Received By (signature)	Date/Time	Comments

Sealed for shipment by: (signature) \_\_\_\_\_ Date/Time: \_\_\_\_\_ Shipment Method: \_\_\_\_\_

Received for Lab by: (signature) [Signature] Date/Time: 6/11/93 12:30pm Comments: \_\_\_\_\_

**ATTACHMENT 4**  
**GOLD COAST TECHNOLOGIES REPORT**

Soil and Groundwater Sampling  
6973 Village Parkway, Dublin, California

May, 1991

Prepared By:

Gold Coast Technologies  
101 Mill Drive  
Ventura, CA 93001

Project: 91-04.1

# GOLD COAST TECHNOLOGIES

---

May 2, 1991

Mr. Roger Woodward  
Coorwood Car Wash  
POB 2688  
Dublin, CA 94568  
415-828-5151

Dear Mr. Woodward:

Please find the enclosed report "Soil and Groundwater Sampling, 6973 Village Parkway, Dublin, California".

The report covers information obtained during the subsurface investigation of the facility and includes findings, conclusions and recommendations.

If you have any questions or need additional information, please feel free to call anytime. Thank you.

Sincerely,



Darren Rieck  
Project Manager

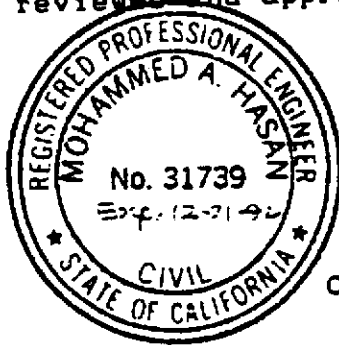
enclosures

*Hasan and Associates*  
CIVIL, MUNICIPAL AND ENVIRONMENTAL ENGINEERS

May 1, 1991

CERTIFICATION

Soil and groundwater sampling for underground tanks at 6973 Village Parkway, Dublin, CA and the interpretation of data generated have been conducted by formally educated and trained personnel working under my general supervision. The field procedures and observational criteria used in their preparation are according to protocols either generated or reviewed and approved by me.



*Mohammed A. Hasan*  
Mohammed A. Hasan  
Calif. Professional Engineer # 31739  
Calif. Regist. Environmental Assessor # 1827

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Appendix A	Soil Sampling Protocol
Appendix B	Laboratory Analysis Chain of Custody Boring Logs
Appendix C	Inventory Records



I. INTRODUCTION

Coorwood Car Wash is located at 6973 Village Parkway, at the corner of Village Parkway and Lewis Avenue in the City of Dublin, California (Figure I).

The site contains two (2) 10,000 gallon underground storage tanks (UST's) containing unleaded and premium unleaded products.

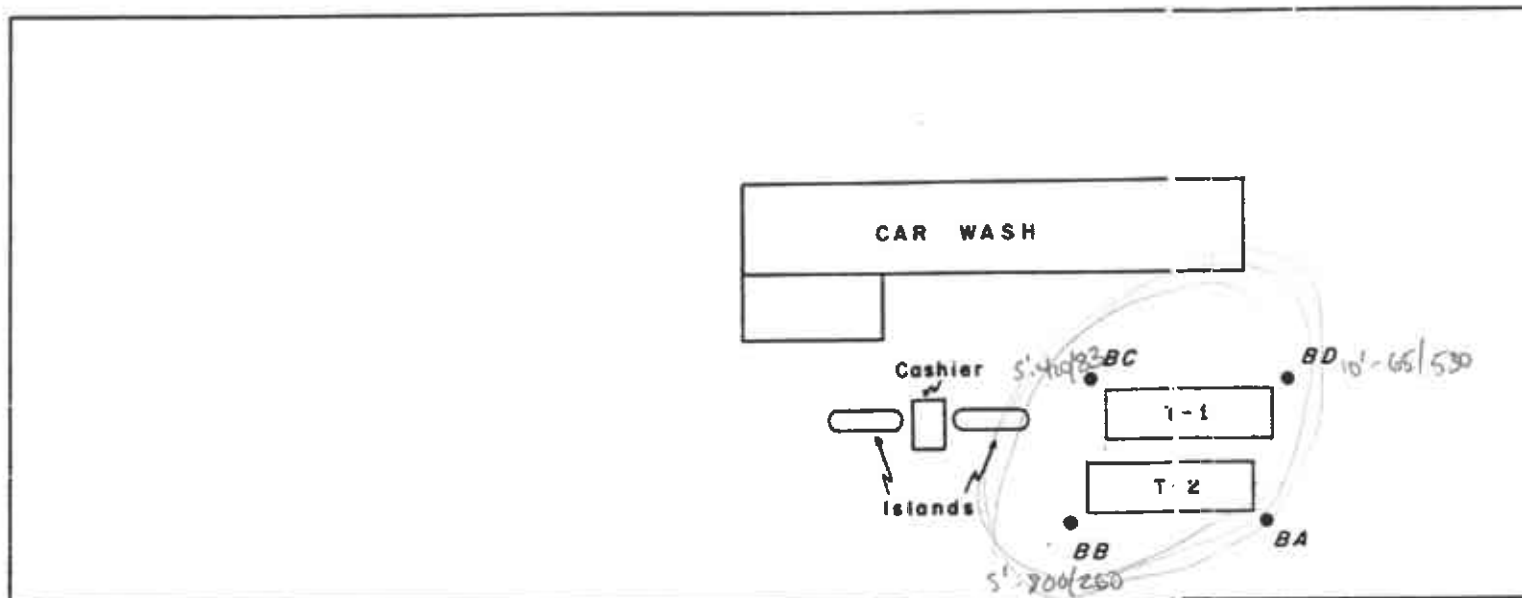
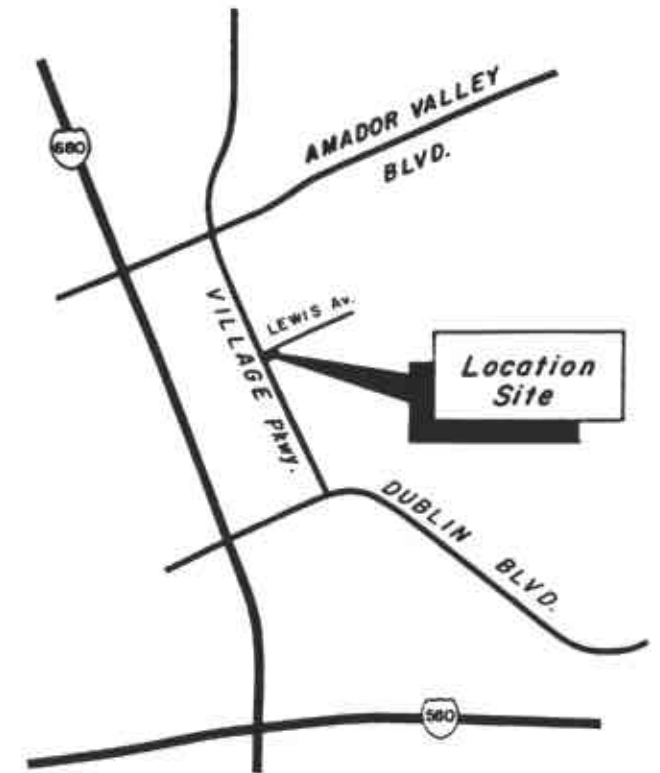
TANK	CAPACITY (Gallons)	PRODUCT
1	10,000	No lead
2	10,000	Super

Timmerman Engineering Construction replaced old dispensing units, set new islands and removed the existing underground piping and replaced it with double walled fiberglass piping.

Gold Coast Technologies, Inc. (GCT) was retained to provide interior tank lining and cathodic protection for the two (2) 10,000 gallon tanks. During the cathodic protection anode placement, a subsurface investigation through soil and groundwater sampling was undertaken. To assess the subsurface conditions around the tank cluster, four (4) boreholes were drilled to the ground water beneath the site.

The scope of assessment services will be limited to the site specific information gathered during the drilling of these boreholes only. Specific information on potential ground water uses, water wells in the area, surrounding contaminated sites, mean sea level and other hydrogeological information may be obtained at the Alameda County Environmental Health Hazardous Materials Division, or the District 2 for the Regional Water Quality Board.

Boring	Depth
BA	20'
BB	15'
BC	20'
BD	15'



**CORWOOD CAR WASH**  
6973 Village Pkwy.  
Dublin, CA.



from TPH-D / TPH-G



LOCATION MAP NO SCALE

## II. GEOLOGY AND HYDROLOGY

The sediments found beneath the site consist of dark grey organic clays with a slight sand content from the five foot sample to dark to light grey inorganic clays with no sand content at the fifteen to twenty foot depths. These sediments are not conducive to migration, though some migration over time may be experienced.

A drilling and sampling program was designed and executed on April 1, 1991 to provide the necessary information to complete the site investigation.

## III. SAMPLING PROTOCOL

- A. The soil sampling protocol is contained in Appendix A. Using a B-75 Mobile Rotary Rig, four (4) boreholes around the tank cluster were drilled. The boreholes were drilled to the top of the water table, upon which water samples were taken.
- B. Table 1 contains a summary of the soil laboratory analysis results.
- C. Table 2 contains a summary of the water laboratory analysis results.

Boring logs, chain of custody and laboratory results are contained in Appendix B.

#### IV. CONCLUSIONS

Appendix C contains inventory records from October 15, 1990 through March 6, 1991. These records demonstrate considerable fluctuation and do not offer substantiating information, but are included for review purposes. The tank system records do not indicate any repairs, but overfill protection was only recently installed, thus, leaving considerable time for years of overfilling.

##### A. SOIL

1. The sediments surrounding the tank cluster show 260 ppm TPH-gas and 800 ppm TPH-diesel at boring BB at five feet and very low to non-detectable levels at the ten foot sample. Boring BC showed 83 ppm TPH-gas and 410 ppm TPH-diesel at the five foot level and boring BD contained 530 ppm TPH-gas and 65 ppm TPH-diesel and 88 ppm xylene at the ten foot sample (Table 1).

2. Study of the soil samples indicate that all levels encountered exist within the first ten feet, higher at the five foot samples.

##### a. BB

BB-5 shows the highest levels with BB-10 showing non-detectable to much lower levels. The soil boring concludes with non-detect at BB-15.

##### b. BC

BC-5 shows low levels, but the deeper samples indicate non-detect.

##### c. BD

BD-10 shows low levels concluding with the fifteen foot sample showing non-detect.

Table 1 Soil Laboratory Analysis Summary mg/kg

Sample #	TPH-G	B	T	X	E	Pb	TPH-D
BA-5	ND	ND	ND	ND	ND	5.1	ND
BA-10	.6	ND	ND	ND	ND	6.4	13
BA-15	ND	ND	ND	ND	ND	4.3	ND
BA-20	ND	ND	ND	ND	ND	7.2	ND
BB-5	260	1.1	ND	.78	5.1	11	800
BB-10	1.4	ND	ND	.012	.007	11.7	26
BB-15	ND	ND	ND	ND	ND	4.7	ND
BC-5	83	.73	ND	ND	2.6	4.4	410
BC-10	ND	ND	ND	ND	.006	7.0	ND
BC-15	ND	ND	ND	ND	ND	5.0	ND
BC-20	ND	ND	ND	ND	ND	10.1	ND
BD-5	ND	.012	ND	ND	ND	3.9	ND
BD-10	530	1.8	22	88	16	5.6	65
BD-15	ND	ND	ND	ND	ND	5.6	ND

## B. WATER

1. Ground water was encountered at approximately fifteen feet for each boring excepting BC, where the water table was sampled at twenty feet (Table 2).
2. The sampling took place during a light rain with every attempt to prevent surface infiltration. There is the possibility that water migrated from the surface, or down the sides of the boring prior to the water sampling.

Part, (1), are analysis by Anamatrix Laboratories and Part, (2), are from Coast to Coast Laboratories.

### a. BA-15 H2O

- (1) BA-15 H2O, reveals low to non-detect.
- (2) BA-15 is non-detectable.

### b. BB-15 H2O

- (1) BB-15 H2O shows 3000 ppb TPH-gas, 1200 ppb benzene, 22 ppb toluene, 45 ppb xylene and 81 ppb ethylbenzene.
- (2) BB-15 shows very similar levels.

### c. BC-20 H2O

- (1) BC-20 H2O reveals low to non-detect.
- (2) BC-20 is non-detectable.

### d. BD-15 H2O

- (1) BD-15 H2O shows 2800 ppb TPH-gas, 490 ppb benzene, 170 ppb toluene, 380 ppb xylene and 140 ppb ethylbenzene.
- (2) BD-15 shows similar levels.

3. Levels for the water are expressed in parts per billion. The samples were taken without the aid of a properly developed water monitoring well and the drill rig auger was not steam cleaned on site, leaving room for cross contamination from the drilling at the higher end of the boring.

**Table 2 Water Laboratory Analysis Summary ug/L**

Sample #	TPH-G	B	T	X	E	Pb	TPH-D
BA-15	ND	1.6	ND	ND	1.1	13 *	ND *
BB-15	3000	1200	22	45	81	10 *	ND *
BC-20	310	24	ND	36	13	ND *	ND *
BD-15	2800	490	170	380	140	11 *	ND *

\* The samples were taken from Coast To Coast analytical only.

**V. Recommendations:**

The recommendations for this site are limited to the four (4) borings and samples taken surrounding the tank cluster.

- o There exists some gasoline and diesel levels in the soil, mostly at the five foot level with some extending to the ten foot level. However, these levels are non-detectable below ten feet. Study of these borings do not indicate that the areas assessed for this report are effecting ground water quality.
- o The ground water samples appear to indicate low levels of each of the contaminants tested for in BB-15 H2O and BD-15 H2O. The reporting limits for this area, as given by the Regional Board for the Alameda County District, are 50 ppb for gasoline and diesel and .5 ppb for BTEX. Some of the levels are above the reporting limits, but the source of these constituents remains unanswered. Further investigation of the background levels normally found in the area and of other potential sources in the vicinity is warranted.
- o If further sampling is required for this site, the auger should be replaced or steam cleaned at five foot intervals, and a water well must be properly developed prior to water sampling.

## VI. Limitations

In connection with an environmental audit or assessment of a site, only a limited amount of service can be performed within times and budgets available under the existing scope of services. As a result, GCT, despite, the use of reasonable care, may fail to detect hazardous substances or underground tanks or may incorrectly determine the concentrations of hazardous substances which are present.

GCT and Hasan & Associates assumes no responsibility for conditions which did not come to its actual knowledge or for conditions not recognized as environmentally unacceptable at the time this report was prepared.



# **APPENDIX A**

Major Divisions			Group Symbols	Soil Description		
COARSE GRAINED SOIL (More Than 50% Material Larger Than The #20 Sieve)	GRAVEL (More Than 30% Material Larger Than #4 Sieve)	Clean GRAVEL (Less Than 5% Fines)	GW	Well Graded Gravel, Sandy GRAVEL. Must have an equal distribution of fine and coarse gravel.		
		GRAVEL With Fines (More Than 5% Fines)	GP	Poorly Graded Gravel, Sandy GRAVEL. Gap Graded, little or no fines.		
		GRAVEL With Fines (More Than 12% Fines)	GM	Silty GRAVEL. Silty, Sandy GRAVEL.		
	SAND (More Than 30% Material Smaller Than #4 Sieve)	Clean SAND (Less Than 5% Fines)	SW	Well Graded Sand, Gravelly SAND. Must have an equal distribution of fine, medium, and coarse sand.		
			SP	Poorly Graded Sand, Gravelly SAND. Gap Graded, little or no fines.		
		SAND With Fines (More Than 17% Fines)	SM	Silty SAND. Silty, Gravelly SAND.		
			SC	Clayey SAND. Clayey, Gravelly SAND.		
			FINE GRAINED SOIL (More Than 50% Material Smaller Than The #200 Sieve)	SILT & CLAY (Liquid Limit Less Than 50)	ML	Inorganic SILT. Sandy or Clayey SILT. Low to No plasticity.
					CL	Inorganic Clay. Sandy or Silty CLAY. Low to Medium plasticity.
OL	Organic SILT or Organic Silty CLAY. Low to medium plasticity.					
SILT & CLAY (Liquid Limit More Than 50)	MH	Inorganic SILT, Micaceous or Detritaceous Sandy SILT. Plastic SILT. Medium to High plasticity.				
	CH	Inorganic CLAY with High plasticity.				
	OH	Organic CLAY & SILT with High plasticity.				
HIGHLY ORGANIC SOIL			PT	PEAT & other Highly Organic soils.		

Particle Size Limits

	75	150	300	600	1200	2000	
SILT & CLAY	SAND			GRAVEL		COBBLES	BOULDERS
	Fine	Medium	Coarse	Fine	Coarse		
	0.075	0.425	0.850	2.0	7.62	25.0	75.0

Note: Borderline classifications may be designated by the use of dual symbols, i.e. GW/GM, CL/ML, etc.

## SOIL SAMPLING PROTOCOL

1. Samples of soil will be bagged 5,10,15,20,30, and 40 foot depths and at the bottom of the discovery well if shorter than 40 feet or deeper than 40 feet. selected core(s) will also be taken in a boring(s) at each tank site.
2. For standard truck mounted auger borings, 6 to 10 inch diameter, the core sampler will be a modified Porter or California model with 2.5 inch diameter brass tube liners. For contaminant plume tracking borings, 1 to 4 inches in diameter drilled by one or two-man portable rigs, the core sampler will be a T-bar core sampler with 0.9 inch diameter cellulose acetate liner or brass liner.
3. The corer will be steam cleaned prior to delivery to the job site.
4. The brass tube liners will be washed in a trisodium phosphate (TSP) and rinsed with fresh water prior to delivery to the site. Cellulose acetate liners are single use only, a new clean liner is used each time.
5. On the site , between each use in wells around chemical tanks, and on all programs for the California Regional Water Quality Control Board, the sampling equipment will be brushed and steam cleaned.
6. On the site, between each use in wells around fuel tanks, the corer will be brushed and washed with TSP and water.
7. The corer will be carefully assembled in a clean work area and carefully run down hole. The Porter corer will be driven by a 140 lb. hammer. The T-Bar corer is driven by an electric impact hammer.
8. When driven the proper distance, the corer will be retrieved and opened in a clean work area. The liners will be removed, the ends immediately sealed in aluminum foil (or teflon seals) capped with the plastic end caps, taped, labeled and placed in the chilled storage container.
9. The soil samples will be maintained and transported, in a chilled state, to the State-Certified laboratory. Under normal circumstances, they will be transported within two (2) days, but in no case will it be more than the allowed EPA standard.
10. Proper Chain of Custody forms will be filled out on site and signed. These will be maintained with the samples and delivered to the laboratory.

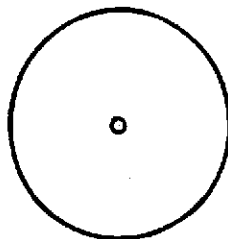
11. Laboratory documentation will be included with the results.
12. Discrete (non-composited) soil samples will be analyzed to routine levels commonly acceptable to the EPA method. Practicable quantification limits for low level concentrations containing halogenated volatiles will be achieved when required. Composited samples, when appropriate to the investigation, will be analyzed to required levels of concentration.

## DISCOVERY WELL DRILLING PROTOCOL

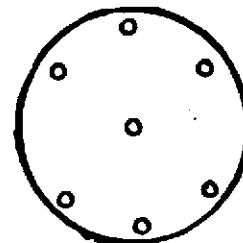
1. Call Underground Service Alert "Call before you dig" at least 48 hours in advance.
2. Set up traffic barriers around the work site.
3. Drill 3/4-inch hole through concrete/asphalt at desired spot for well placement. Vibra probe to 3 to 5 foot depth.
4. If no obstructions are found on initial probing, use a masonry saw, cut a nine inch diameter core through concrete/asphalt. Remove core using the probe hole.

Inspect soil composition for improper or illegal fill surrounding the tanks, i.e., large rocks (8 inch or more long), Chunks of asphalt, cement, broken brick and tile. If questionable fill composition is discovered, first take samples then contact the main office to determine correct procedure.

5. Probe ground beneath concrete with Vibra Probe rod, to 6 to 8 feet in a pattern as shown below:



1). location marked and initial probing



2). Probe to 6 to 8 foot depth

6. In order to avoid cross contamination from a previous site, the drilling and sampling equipment is to be steam cleaned prior to arrival on site and use on any discovery well.

If the program is for testing fuel tanks the augers may be brushed cleaned and hosed down between holes on the same site.

If the program is for discovery wells near chemical tanks and /or a program for the California Regional Water Quality Control Board the augers and sampling equipment will be steam-cleaned between holes.

7. Auger drill a 6-inch diameter well using a "toothless drill bit" to prevent ripping or puncturing a tank or piping. All drilling is to be accomplished at a slow speed (at slow

speed, underground obstacles usually are noticeable by increased resistance on the drill rig, the drill bit may move slower, or a hollow metallic sound be heard). Upon contact, STOP DRILLING and remove the bit from the hole. Manually probe further down. Insert the probe at least five times to discover large obstacles. Fiberglass or metal tanks or piping will make noise and resistance will be felt on the probe rod. Frequent probing will reduce the probability of striking the tank or breaching lines or pipes.

8. Finishing the discovery well. Complete drilling as above to preplanned depth and clean out the hole. Placing the appropriate length of cleaned 2-inch diameter 0.4 inch slotted schedule 40 PVC liner into the well center and backfill with pea gravel. About 10 to 12 inches below the ground surface seal with a 2 to 3 inch bentonite layer. Prepare and finish the surface security traffic well box and cover with a fully enclosing surface seal of concrete as shown on the attached drawing.

# **APPENDIX B**

WELL # BA

LAB RESULTS TPHppm	TLV READING PPM	DEPTH FEET	BLOW COUNT	SAMPLE #	U S C S	L I T H O	SOIL DESCRIPTION
		0'					Concrete cover. Fine tan sands.
ND	0	5'	3,5,6	A-5	OL		Dk grey clay w/ fine tan silty sands inter mixed.
.6	0	10'	2,4,4	A-10	OL		Dk grey moist clay w/ no fines. No odors.
ND	0	15'	3,3,6	A-15	MH		Dk grey clay. Increase moisture. No fines. No odors.
ND	0	20'	3,5,6	A-20	CH		Lighter grey, very moist. No fines.
ND				A-H2O			Water sample, no sheen no odors.

COMMENTS:



CUSTOMER CORWOOD

DATE 4-1-91

PAGE #1 OF 1

LOGGED BY D.R.

DIAMETER OF BORING 8"

WATER AT 15

WELL # BB

LAB RESULTS TPHppm	TLV READING PPM	DEPTH FEET	BLOW COUNT	SAMPLE #	U S C S	L I T H O	SOIL DESCRIPTION
		0'					Concrete cover. Fine tan sands.
260	0	5'	2,3,4	B-5	OL		Dk grey organic clay. Slight odor.
1.4	0	10'	2,3,4	B-10	OL		Lighter grey organic clay. Some fines intermixed. No odor
ND	0	15'		B-15	OL		Lt grey clay. Increase moisture. Some fines. No odors.
3.0				B-H2O			Water sample, no sheen no odors.

COMMENTS:

CUSTOMER CORWOOD

DATE 4-1-91

PAGE #1 OF 1

LOGGED BY D.R.

DIAMETER OF BORING 8"

WATER AT 15

WELL # BC

LAB RESULTS TPHppm	TLV READING PPM	DEPTH FEET	BLOW COUNT	SAMPLE #	U S C S	L I T H O	SOIL DESCRIPTION
		0'					Concrete cover. Fine tan sands.
83	0	5'	2,3,4	C-5	OL		Dark grey organic clay. Slight odor.
ND	0	10'	3,4,4	C-10	OL		Lighter grey to brown clay. Some fines inter mixed. No odor.
ND	0	15'	3,4,5	C-15	OH		Lt grey to brown organic clay. Moist. Some fines. No odor
ND	0	20'	3,4,6	C-20	OH		Lt grey to brown clay. Wet sample, no odor.
.3				C-H20			Water sample, no sheen no odors.

COMMENTS:

CUSTOMER CORWOOD DATE 4-1-91 PAGE #1 OF 1  
 LOGGED BY D.R. DIAMETER OF BORING 8" WATER AT 15

WELL # BD

LAB RESULTS TPHppm	TLV READING PPM	DEPTH FEET	BLOW COUNT	SAMPLE #	U S C S	L I T H O	SOIL DESCRIPTION
		0'					Concrete cover. Fine tan sands.
ND	0	5'	3,4,6	D-5	OL		Fine tan sands to dk grey organic clay. No odors.
530	50	10'	3,5,5	D-10	OL		Dark grey organic clay. Some fines inter mixed. Slight odor.
ND	0	15'		D-15	CH		Lt grey to brown in-organic clay. Moist. No odors.
2.8				D-H2O			Water sample, no sheen no odors.

COMMENTS:

**Coast-to-Coast  
Analytical  
Services**

**Coast-to-Coast  
Analytical Services**  
751 South Kellogg, Suite A  
Goleta, California 93117  
(805) 964-7838

Lab Number: As Listed  
Collected: 04/01/91  
Received: 04/05/91 @ 12:20  
Tested: 04/10/91 by AMR  
Collected by: Darren Rieck

ATTN: Darren Rieck  
Gold Coast Technology  
101 Mill Drive  
Ventura, CA 93001

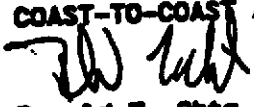
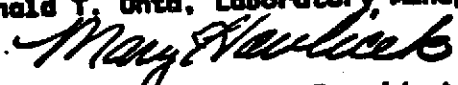
Sample Description:  
Corwood, Waters As Listed  
  
Digested by EPA Method 3065  
by CMS on 04/09/91  
Tested by EPA Method 7421

**REPORT**

LAB NUMBER	SAMPLE DESCRIPTION	TOTAL RECOVERABLE LEVEL FOUND - mg/l LEAD Detection Limit = 0.005 (PQL)*
GE-0546-1	BA-15	0.013 .013
GE-0546-2	BB-15	0.010 .010
GE-0546-3	BC-20	<0.005 <.005
E-0546-4	BD-15	0.011 .001

\*Practical Quantitation Limit

\*\*\*The SOLUBLE THRESHOLD LIMIT CONCENTRATION for lead is 5.0 mg/l as listed in  
22 Cal Adm Code Article 11 Section 66699 as persistent and bioaccumulative  
toxic substance.

Respectfully submitted,  
COAST-TO-COAST ANALYTICAL SERVICES  
  
Ronald T. Ohta, Laboratory Manager  
  
Mary Havlicek, Ph.D., President

MH/ro/jt  
04/10/91  
E0546-pb.wr1 #151

**Coast-to-Coast Analytical Services**

**Coast-to-Coast Analytical Services, Inc.**  
 751 S. Kellogg Avenue, Suite A  
 Goleta, California 93117  
 (805) 964-7838

Lab Number : GE8348-1  
 Collected : 04/01/01  
 Received : 04/05/01  
 Tested : 04/05/01  
 Collected by: Darren Rieck

FUEL FINGERPRINT ANALYSIS BY GC/MS FOR TPH  
 (Modified EPA 8248) as cited in CAL-LUFT, p. A18 (Oct. 1989)\*  
 EXTRACTED BY EPA METHOD 5035 - Purge & Trap

ATTN: Darren Rieck  
 Gold Coast Technology  
 101 Mill Drive  
 Ventura, CA 93001

SAMPLE DESCRIPTION:  
 Corwood, BA - 15, water

Compound Analyzed	Detection Limit (#PQL) in ppm	Concentration in ppm
Benzene	0.0003	not found
Toluene	0.0003	not found
Ethylbenzene	0.0006	not found
Xylenes	0.0006	not found
1,2-Dichloroethane (EDC)	0.0003	not found
Ethylene Dibromide (EDB)	0.0003	not found

TOTAL PURGEABLE PETROLEUM HYDROCARBONS 5.5  
 (Gasoline) <0.5  
 (Diesel 2) <0.5

BTX as a Percent of Fuel not applicable  
 Percent Surrogate Recovery 100.

#PQL - Practical Quantitation Limit  
 \* Cal DHS has approved use of this method for these analytes by this laboratory.  
 (ppm = milligrams/liter)

Respectfully submitted,  
 COAST-TO-COAST ANALYTICAL SERVICES

*Marissa C. Coronel*  
 Marissa C. Coronel, Laboratory Director

*Mary Havlicek*  
 Mary Havlicek, Ph.D., President

ge8348f1.wr1  
 MH/jam/mc  
 madg1/04/08/01

**Coast-to-Coast  
Analytical  
Services**

**Coast-to-Coast  
Analytical Services, Inc.**  
751 S. Kellogg Avenue, Suite A  
Goleta, California 93117  
(805) 964-7838

Lab Number : 069546-2  
Collected : 04/01/91  
Received : 04/05/91  
Tested : 04/08/91  
Collected by: Darren Rieck

FUEL FINGERPRINT ANALYSIS BY GC/MS FOR TPH  
(Modified EPA 8240) as cited in CAL-LUFT, p. A18 (Oct. 1989)\*

ATTN: Darren Rieck  
Gold Coast Technology  
101 Mill Drive  
Ventura, CA 93001

EXTRACTED BY EPA METHOD 8030 - Purge & Trap  
SAMPLE DESCRIPTION:  
Corwood, BB - 15, water

Compound Analyzed	Detection Limit (#PQL) in ppm	Concentration in ppm
Benzene	0.003	0.43
Toluene	0.003	0.015
Ethylbenzene	0.006	0.007
Xylenes	0.006	0.068
1,2-Dichloroethane (EDC)	0.003	not found
Ethylene Dibromide (EDB)	0.003	not found
<hr/>		
TOTAL PURGEABLE PETROLEUM HYDROCARBONS	0.5	3.3
(Gasoline)		<0.5
(Diesel 2)		
<hr/>		
BTX as a Percent of Fuel		16.
<hr/>		
Percent Surrogate Recovery		98.

#PQL - Practical Quantitation Limit  
\* Cal DHS has approved use of this method for these analytes by this laboratory.  
(ppm = milligrams/liter)

Respectfully submitted,  
COAST-TO-COAST ANALYTICAL SERVICES  
*Marissa C. Coronel*  
Marissa C. Coronel, Laboratory Director  
*Mary Havlicek*  
Mary Havlicek, Ph.D., President

069546f2.wrt  
MH/mm/mc  
madg1/04/09/91

**Coast-to-Coast Analytical Services**

**Coast-to-Coast Analytical Services, Inc.**  
 751 S. Kellogg Avenue, Suite A  
 Galeta, California 93117  
 (805) 964-7838

Lab Number : GE8546-3  
 Collected : 04/01/91  
 Received : 04/05/91  
 Tested : 04/09/91  
 Collected by: Darren Rieck

FUEL FINGERPRINT ANALYSIS BY GC/MS FOR TPH  
 (Modified EPA 8240) as cited in CAL-LUFT, p. A18 (Oct. 1989)\*

ATTN: Darren Rieck  
 Gold Coast Technology  
 101 Mill Drive  
 Ventura, CA 93001

EXTRACTED BY EPA METHOD 5030 - Purge & Trap  
 SAMPLE DESCRIPTION:  
 Corwood, BC - 20. water

Compound Analyzed	Detection Limit (#PQL) in ppm	Concentration in ppm
Benzene	0.0003	not found
Toluene	0.0003	not found
Ethylbenzene	0.0006	not found
Xylenes	0.0006	not found
1,2-Dichloroethane (EDC)	0.0003	not found
Ethylene Dibromide (EDB)	0.0003	not found
-----		
TOTAL PURGEABLE PETROLEUM HYDROCARBONS	0.5	
(Gasoline)		<0.5
(Diesel 2)		<0.5
-----		
BTX as a Percent of Fuel		not applicable
Percent Surrogate Recovery		102.

#PQL - Practical Quantitation Limit  
 \* Cal DHS has approved use of this method for these analytes by this laboratory.  
 (ppm = milligrams/liter)

Respectfully submitted,  
**COAST-TO-COAST ANALYTICAL SERVICES**  
*Marissa C. Coroneal*  
 Marissa C. Coroneal, Laboratory Director  
*Mary Havlicek*  
 Mary Havlicek, Ph.D., President

ge8546f3.wr1  
 MH/am/ac  
 msdg1/04/10/91

Coast-to-Coast  
Analytical  
Services

Coast-to-Coast  
Analytical Services, Inc.  
751 S. Kellogg Avenue, Suite A  
Goleta, California 93117  
(805) 964-7838

Lab Number : GE9548-4  
Collected : 04/01/91  
Received : 04/05/91  
Tested : 04/08/91  
Collected by: Darren Rieck

FUEL FINGERPRINT ANALYSIS BY GC/MS FOR TPH  
(Modified EPA 8240) as cited in CAL-LUFT, p. A18 (Oct. 1989)\*

ATTN: Darren Rieck  
Gold Coast Technology  
101 Mill Drive  
Ventura, CA 93001

EXTRACTED BY EPA METHOD 5035 - Purge & Trap

SAMPLE DESCRIPTION:  
Corwood, BD - 15, water

Compound Analyzed	Detection Limit (#PQL) in ppm	Concentration in ppm
Benzene	0.003	0.21
Toluene	0.003	0.001
Ethylbenzene	0.006	0.013
Xylenes	0.006	0.30
1,2-Dichloroethane (EDC)	0.003	not found
Ethylene Dibromide (EDB)	0.003	not found
-----		
TOTAL PURGEABLE PETROLEUM HYDROCARBONS	0.5	2.5
(Gasoline)		<0.5
(Diesel 2)		
-----		
BTX as a Percent of Fuel		26.
Percent Surrogate Recovery		77.

#PQL - Practical Quantitation Limit

\* Cal DHS has approved use of this method for these analytes by this laboratory.  
(ppm = milligrams/liter)

Respectfully submitted,  
COAST-TO-COAST ANALYTICAL SERVICES

*Marissa C. Coronel*  
Marissa C. Coronel, Laboratory Director

*Mary Havlicek*  
Mary Havlicek, Ph.D., President

ge954874.wr1  
MH/sm/mc  
mdg1/04/09/91



**Coast-to-Coast  
Analytical  
Services**

**Coast-to-Coast  
Analytical Services, Inc.**  
781 S. Kellogg Avenue, Suite A  
Coleta, California 93117  
(805) 864-7838

Lab Number : 8548891  
Collected :  
Received :  
Tested : 04/08/91  
Collected by:

**FUEL FINGERPRINT ANALYSIS BY GC/MS FOR TPH**  
(Modified EPA 8240) as cited in CAL-LUFT, p. A18 (Oct. 1989)\*  
EXTRACTED BY EPA METHOD 8030 - Purge & Trap  
**SAMPLE DESCRIPTION:**  
Instrument Blank

Compound Analyzed	Detection Limit (#PQL) in ppm	Concentration in ppm
Benzene	0.0003	not found
Toluene	0.0003	not found
Ethylbenzene	0.0006	not found
Xylenes	0.0006	not found
1,2-Dichloroethane (EDC)	0.0003	not found
Ethylene Dibromide (EDB)	0.0003	not found
<hr/>		
TOTAL PURGEABLE PETROLEUM HYDROCARBONS	0.05	
(Gasoline)		<0.05
(Diesel 2)		<0.05
<hr/>		
BTX as a Percent of Fuel		not applicable
Percent Surrogate Recovery		103.

#PQL - Practical Quantitation Limit

\* Cal DHS has approved use of this method for these analytes by this laboratory.  
(ppm = milligrams/liter)

Respectfully submitted,  
COAST-TO-COAST ANALYTICAL SERVICES

*Marissa C. Coronel*  
Marissa C. Coronel, Laboratory Director

*Mary Havlicek*  
Mary Havlicek, Ph.D., President

8548891f.wr1  
MH/mm/mc  
msdg1/04/09/91

**OAST - TO - OAST ANALYTICAL SERVICES**

141 Suburban Road  
751 S. Kellogg, Suite A  
1885 North Kelly Road  
9333 Tech Center Dr., Ste. 800  
2400 Cumberland Dr.

San Luis Obispo, CA 93401  
Goleta, CA 93117  
Napa, CA 94558  
Sacramento, CA 95826  
Valparaiso, Indiana 46383

(805) 543-2553  
(805) 964-7838  
(707) 257-7211  
(916) 368-1333  
(219) 464-2389

FAX (805) 543-2685  
FAX (805) 964-4386  
FAX (707) 226-1001  
FAX (916) 362-2484  
FAX (219) 462-2953

**CHAIN OF CUSTODY**

Page 1 of 1

PLEASE PRINT IN PEN

Contact AS? Phone # (707) 257-7211 FAX # (707) 226-1001

City Goleta State CA Zip 93117

Project Name/Number 10000 Project MGR AS?

Due Date 1/15/91 Circle for RUSH    Copies To:    Auth. Init.   

Sample Description	Date/Time Col'd	*Matrix	# of Containers	Pres.	Fill y/n	Analysis	Remarks	Lab ID #
3A 15	/		1			FF T 1-1		116
3B 15	/		1			FF		2
3C 20	/		1			FF		3
3D 15	/		1			FF		4
	/							
	/							
	/							
	/							

Relinquished By	Date/Time	Received By	Relinquished By	Date/Time	Received By
<u>P.A.</u>	<u>1/10/91</u>	<u>[Signature]</u>	<u>[Signature]</u>	<u>1/15/91</u>	<u>[Signature]</u>

Shipping Method	Shipping #	Received By	Date/Time	Condition (See Remarks)		
				Cold	Sealed	Intact
			/	/	/	/

REMARKS \_\_\_\_\_

- \* Matrix:
- DW - Drinking Water
- WW - Wastewater
- GW - Groundwater
- SW - Surface Water
- IM - Impinger
- FI - Filter
- FP - Free Product
- A/G - Air/Gas
- SL - Sludge/Soil/Solid

**REPORT SUMMARY**  
**ANAMETRIX, INC. (408)432-8192**

MR. DARREN REICH  
 GOLD COAST  
 101 MILL DRIVE  
 VENTURA, CA 93001

Workorder # : 9104011  
 Date Received : 04/01/91  
 Project ID : N/A  
 Purchase Order: N/A  
 Department : GC  
 Sub-Department: TPH

**SAMPLE INFORMATION:**

ANAMETRIX SAMPLE ID	CLIENT SAMPLE ID	MATRIX	DATE SAMPLED	METHOD
9104011- 1	BA-5	SOIL	04/01/91	TPHd
9104011- 2	BA-10	SOIL	04/01/91	TPHd
9104011- 3	BA-15	SOIL	04/01/91	TPHd
9104011- 4	BA-20	SOIL	04/01/91	TPHd
9104011- 6	BB-5	SOIL	04/01/91	TPHd
9104011- 7	BB-10	SOIL	04/01/91	TPHd
9104011- 8	BB-15	SOIL	04/01/91	TPHd
9104011-10	BC-5	SOIL	04/01/91	TPHd
9104011-11	BC-10	SOIL	04/01/91	TPHd
9104011-12	BC-15	SOIL	04/01/91	TPHd
9104011-13	BC-20	SOIL	04/01/91	TPHd
9104011-15	BD-5	SOIL	04/01/91	TPHd
9104011-16	BD-10	SOIL	04/01/91	TPHd
9104011-17	BD-15	SOIL	04/01/91	TPHd
9104011- 1	BA-5	SOIL	04/01/91	TPHg/BTEX
9104011- 2	BA-10	SOIL	04/01/91	TPHg/BTEX
9104011- 3	BA-15	SOIL	04/01/91	TPHg/BTEX
9104011- 4	BA-20	SOIL	04/01/91	TPHg/BTEX
9104011- 5	BA-15 H2O	WATER	04/01/91	TPHg/BTEX
9104011- 6	BB-5	SOIL	04/01/91	TPHg/BTEX
9104011- 7	BB-10	SOIL	04/01/91	TPHg/BTEX
9104011- 8	BB-15	SOIL	04/01/91	TPHg/BTEX
9104011- 9	BB-15 H2O	WATER	04/01/91	TPHg/BTEX

**REPORT SUMMARY**  
**ANAMETRIX, INC. (408)432-8192**

**MR. DARREN REICH**  
**GOLD COAST**  
**101 MILL DRIVE**  
**VENTURA, CA 93001**

**Workorder # : 9104011**  
**Date Received : 04/01/91**  
**Project ID : N/A**  
**Purchase Order: N/A**  
**Department : GC**  
**Sub-Department: TPH**

**SAMPLE INFORMATION:**

<b>ANAMETRIX SAMPLE ID</b>	<b>CLIENT SAMPLE ID</b>	<b>MATRIX</b>	<b>DATE SAMPLED</b>	<b>METHOD</b>
9104011-10	BC-5	SOIL	04/01/91	TPHg/BTEX
9104011-11	BC-10	SOIL	04/01/91	TPHg/BTEX
9104011-12	BC-15	SOIL	04/01/91	TPHg/BTEX
9104011-13	BC-20	SOIL	04/01/91	TPHg/BTEX
9104011-14	BC-20 H2O	WATER	04/01/91	TPHg/BTEX
9104011-15	BD-5	SOIL	04/01/91	TPHg/BTEX
9104011-16	BD-10	SOIL	04/01/91	TPHg/BTEX
9104011-17	BD-15	SOIL	04/01/91	TPHg/BTEX
9104011-18	BD-15 H2O	WATER	04/01/91	TPHg/BTEX

REPORT SUMMARY  
ANAMETRIX, INC. (408)432-8192

MR. DARREN REICH  
GOLD COAST  
101 MILL DRIVE  
VENTURA, CA 93001

Workorder # : 9104011  
Date Received : 04/01/91  
Project ID : N/A  
Purchase Order: N/A  
Department : GC  
Sub-Department: TPH

QA/QC SUMMARY :

- No QA/QC problems encountered for these samples.

Cheryl Balmer 4/10/91  
Department Supervisor Date

Loeth Voigt 4/10/91  
Chemist Date

**ANALYSIS DATA SHEET - TOTAL PETROLEUM HYDROCARBONS  
(GASOLINE WITH BTEX)  
ANAMETRIX, INC. - (408) 432-8192**

Anamatrix W.O.: 9104011  
Matrix : WATER  
Date Sampled : 04/01/91

Project Number : N/A  
Date Released : 04/09/91

COMPOUNDS	Reporting Limit (ug/L)	Sample I.D.# BA-15 WATER	Sample I.D.# BB-15 WATER	Sample I.D.# BC-20 WATER	Sample I.D.# BD-15 WATER	Sample I.D.# 12B0405B BLANK
Benzene	0.5	1.6	1200	24	490	ND
Toluene	0.5	ND	22	ND	170	ND
Ethylbenzene	0.5	1.1	81	13	140	ND
Total Xylenes	0.5	ND	45	36	380	ND
TPH as Gasoline	50	ND	3000	310	2800	ND
‡ Surrogate Recovery		145‡	147‡	100‡	142‡	96‡
Instrument I.D.		HP12	HP12	HP12	HP12	HP12
Date Analyzed		04/04/91	04/04/91	04/05/91	04/04/91	04/05/91
RLMF		1	25	5	25	1

ND - Not detected at or above the practical quantitation limit for the method.  
 TPHg - Total Petroleum Hydrocarbons as gasoline is determined by GCFID using EPA Method 5030.  
 BTEX - Benzene, Toluene, Ethylbenzene, and Total Xylenes are determined by modified EPA Method 8020.  
 RLMF - Reporting Limit Multiplication Factor.  
 Anamatrix control limits for surrogate recovery are 53-147‡.

All testing procedures follow California Department of Health Services (Cal-DHS) approved methods.

James J. Lutz 04-11-91  
Analyst Date

Charles Balmer 4/11/91  
Supervisor Date

**ANALYSIS DATA SHEET - TOTAL PETROLEUM HYDROCARBONS  
(GASOLINE WITH BTEX)  
ANAMETRIX, INC. - (408) 432-8192**

Anamatrix W.O.: 9104011  
Matrix : WATER  
Date Sampled : 04/01/91

Project Number : N/A  
Date Released : 04/09/91

COMPOUNDS	Reporting Limit (ug/L)	Sample I.D.# 12B0404C BLANK
Benzene	0.5	ND
Toluene	0.5	ND
Ethylbenzene	0.5	ND
Total Xylenes	0.5	ND
TPH as Gasoline	50	ND
% Surrogate Recovery		94%
Instrument I.D.		HP12
Date Analyzed		04/05/91
RLMF		1

- ND - Not detected at or above the practical quantitation limit for the method.
- TPHg - Total Petroleum Hydrocarbons as gasoline is determined by GCFID using EPA Method 5030.
- BTEX - Benzene, Toluene, Ethylbenzene, and Total Xylenes are determined by modified EPA Method 8020.
- RLMF - Reporting Limit Multiplication Factor.  
Anamatrix control limits for surrogate recovery are 53-147%.

All testing procedures follow California Department of Health Services (Cal-DHS) approved methods.

Scott Vogt 4/1/91  
Analyst Date

Cheryl Balmer 4/1/91  
Supervisor Date

**ANALYSIS DATA SHEET - TOTAL PETROLEUM HYDROCARBONS  
(GASOLINE WITH BTEX)  
ANAMETRIX, INC. - (408) 432-8192**

Anamatrix W.O.: 9104011  
Matrix : SOIL  
Date Sampled : 04/01/91

Project Number : N/A  
Date Released : 04/09/91

COMPOUNDS	Reporting Limit (mg/Kg)	Sample I.D.# BA-5	Sample I.D.# BA-10	Sample I.D.# BA-15	Sample I.D.# BA-20	Sample I.D.# BB-5
Benzene	0.005	ND	ND	ND	ND	1.1
Toluene	0.005	ND	ND	ND	ND	ND
Ethylbenzene	0.005	ND	ND	ND	ND	5.1
Total Xylenes	0.005	ND	ND	ND	ND	0.78
TPH as Gasoline	0.5	ND	0.6	ND	ND	260
‡ Surrogate Recovery		99‡	112‡	72‡	86‡	123‡
Instrument I.D.		HP4	HP4	HP4	HP4	HP4
Date Analyzed		04/04/91	04/04/91	04/04/91	04/05/91	04/04/91
RLMF		1	1	1	1	25

ND - Not detected at or above the practical quantitation limit for the method.  
 TPHg - Total Petroleum Hydrocarbons as gasoline is determined by GCFID using EPA Method 5030.  
 BTEX - Benzene, Toluene, Ethylbenzene, and Total Xylenes are determined by modified EPA Method 8020.  
 RLMF - Reporting Limit Multiplication Factor.  
 Anamatrix control limits for surrogate recovery are 53-147%.  
 All testing procedures follow California Department of Health Services (Cal-DHS) approved methods.

David Voigt 4/10/91  
Analyst Date

Charles Bremer 4/10/91  
Supervisor Date



**ANALYSIS DATA SHEET - TOTAL PETROLEUM HYDROCARBONS AS DIESEL  
ANAMETRIX, INC. (408) 432-8192**

Anametrix W.O.: 9104011  
 Matrix : SOIL  
 Date Sampled : 04/01/91  
 Date Extracted: 04/02/91

Project Number : N/A  
 Date released : 04/09/91  
 Instrument I.D.: HP9

<u>Anametrix I.D.</u>	<u>Client I.D.</u>	<u>Date Analyzed</u>	<u>Reporting Limit (mg/Kg)</u>	<u>Amount Found (mg/Kg)</u>
9104011-01	BA-5	04/02/91	10	ND
9104011-02	BA-10	04/02/91	10	13
9104011-03	BA-15	04/02/91	10	ND
9104011-04	BA-20	04/02/91	10	ND
9104011-06	BB-5	04/02/91	10	800
9104011-07	BB-10	04/03/91	10	26
9104011-08	BB-15	04/03/91	10	ND
9104011-10	BC-5	04/03/91	10	410
9104011-11	BC-10	04/03/91	10	ND
9104011-12	BC-15	04/03/91	10	ND
9104011-13	BC-20	04/03/91	10	ND
9104011-15	BD-5	04/03/91	10	ND
9104011-16	BD-10	04/03/91	10	65
9104011-17	BD-15	04/03/91	10	ND
DSBL040291	METHOD BLANK	04/03/91	10	ND

**Note :** Reporting limit is obtained by multiplying the dilution factor times 10mg/Kg.

ND - Not detected at or above the practical quantitation limit for the method.

TPHd - Total Petroleum Hydrocarbons as diesel is determined by GCFID following sample extraction by EPA Method 3550.

All testing procedures follow California Department of Health Services (Cal-DHS) approved methods.

Gene Juarez                      04-11-91  
 Analyst                                      Date

Cheryl Balmer                      4/11/91  
 Supervisor                                      Date

**ANALYSIS DATA SHEET - TOTAL PETROLEUM HYDROCARBONS  
(GASOLINE WITH BTEX)  
ANAMETRIX, INC. - (408) 432-8192**

Anamatrix W.O.: 9104011  
Matrix : SOIL  
Date Sampled : 04/01/91

Project Number : N/A  
Date Released : 04/09/91

Reporting Limit	Sample I.D.# BB-10	Sample I.D.# BB-15	Sample I.D.# BC-5	Sample I.D.# BC-10	Sample I.D.# BC-15
-----	-----	-----	-----	-----	-----
COMPOUNDS (mg/Kg)	-07	-08	-10	-11	-12
-----	-----	-----	-----	-----	-----
Benzene	0.005	ND	ND	0.73	ND
Toluene	0.005	ND	ND	ND	ND
Ethylbenzene	0.005	0.007	ND	2.6	0.006
Total Xylenes	0.005	0.012	ND	ND	ND
TPH as Gasoline	0.5	1.4	ND	83	ND
† Surrogate Recovery	118%	128%	136%	66%	77%
Instrument I.D.	HP4	HP4	HP4	HP4	HP4
Date Analyzed	04/05/91	04/04/91	04/05/91	04/04/91	04/04/91
RLMF	1	1	25	1	1

- 
- ND - Not detected at or above the practical quantitation limit for the method.
  - TPHg - Total Petroleum Hydrocarbons as gasoline is determined by GCFID using EPA Method 5030.
  - BTEX - Benzene, Toluene, Ethylbenzene, and Total Xylenes are determined by modified EPA Method 8020.
  - RLMF - Reporting Limit Multiplication Factor. Anamatrix control limits for surrogate recovery are 53-147%.

All testing procedures follow California Department of Health Services (Cal-DHS) approved methods.

Scott Vogt 4/10/91  
Analyst Date

Cheryl Balmer 4/10/91  
Supervisor Date





**REPORT SUMMARY**  
**ANAMETRIX, INC. (408)432-8192**

**MR. DARREN REICH**  
**GOLD COAST**  
**101 MILL DRIVE**  
**VENTURA, CA 93001**

**Workorder # : 9104011**  
**Date Received : 04/01/91**  
**Project ID : N/A**  
**Purchase Order: N/A**  
**Department : METALS**  
**Sub-Department: METALS**

**SAMPLE INFORMATION:**

<b>ANAMETRIX SAMPLE ID</b>	<b>CLIENT SAMPLE ID</b>	<b>MATRIX</b>	<b>DATE SAMPLED</b>	<b>METHOD</b>
9104011- 1	BA-5	SOIL	04/01/91	6010
9104011- 2	BA-10	SOIL	04/01/91	6010
9104011- 3	BA-15	SOIL	04/01/91	6010
9104011- 4	BA-20	SOIL	04/01/91	6010
9104011- 6	BB-5	SOIL	04/01/91	6010
9104011- 7	BB-10	SOIL	04/01/91	6010
9104011- 8	BB-15	SOIL	04/01/91	6010
9104011-10	BC-5	SOIL	04/01/91	6010
9104011-11	BC-10	SOIL	04/01/91	6010
9104011-12	BC-15	SOIL	04/01/91	6010
9104011-13	BC-20	SOIL	04/01/91	6010
9104011-15	BD-5	SOIL	04/01/91	6010
9104011-16	BD-10	SOIL	04/01/91	6010
9104011-17	BD-15	SOIL	04/01/91	6010
9104011-20	BA, BB, BD-15, BC-20,	WATER	04/01/91	6010
9104011-19	B-SAND	SOIL	04/01/91	7420

**ANALYSIS DATA SHEET - INDIVIDUAL METALS**  
**ANAMETRIX, INC. - (408) 432-8192**

Anamatrix W.O.: 9104011  
 Matrix : SOIL  
 Date Sampled : 04/01/91  
 Project Number: N/A

Date Prepared : 04/02/91  
 Date Analyzed : 04/11/91  
 Date Released : 04/15/91  
 Instrument I.D.: ICP1

-----		-----
ELEMENTS		Lead
-----		(Pb)
EPA METHOD		6010
REPORTING LIMIT		2.0
ANAMETRIX ID	CLIENT ID	(mg/Kg)
-----		
9104011-01	BA-5	5.1
9104011-02	BA-10	6.4
9104011-03	BA-15	4.3
9104011-04	BA-20	7.2
9104011-08	BB-15	4.7
9104011-10	BC-5	4.4
9104011-11	BC-10	7.0
9104011-12	BC-15	5.0
9104011-15	BD-5	3.9
9104011-16	BD-10	5.6
9104011-17	BD-15	5.6
MB0402S	METHOD BLANK	ND

ND : Not detected at or above the practical quantitation limit for the method.

All Metals by EPA Method 6010/7000, Test Method for Evaluating Solid Waste, SW-846 3rd Edition November 1986, and California Administrative Code Title 22, Section 66699.

Wainwright 4/15/91  
 Chemist Date

Richard A. Hobbs 4/15/91  
 Chemist Date

**ANALYSIS DATA SHEET - INDIVIDUAL METALS**  
**ANAMETRIX, INC. - (408) 432-8192**

Anamatrix W.O.: 9104011  
 Matrix : SOIL  
 Date Sampled : 04/01/91  
 Project Number: N/A

Date Prepared : 04/02/91  
 Date Analyzed : 04/11/91  
 Date Released : 04/15/91  
 Instrument I.D.: ICP1

ELEMENTS		Lead (Pb)
EPA METHOD		6010
REPORTING LIMIT		5.0
ANAMETRIX ID	CLIENT ID	(mg/Kg)
9104011-06	BB-5	11.0
9104011-07	BB-10	11.7
9104011-13	BC-20	10.1

ND : Not detected at or above the practical quantitation limit for the method.

All Metals by EPA Method 6010/7000, Test Method for Evaluating Solid Waste, SW-846 3rd Edition November 1986, and California Administrative Code Title 22, Section 66699.

Mandy Rogers 4/15/91  
 Chemist Date

Michael A. Hoban 4/15/91  
 Chemist Date

**ANALYSIS DATA SHEET - TOTAL LEAD EPA METHOD 6010  
ANAMETRIX, INC. - (408) 432-8192**

Anametrix W.O.: 9104011  
 Matrix : WATER  
 Date Sampled : 04/01/91  
 Project Number: N/A

Date Prepared : 04/11/91  
 Date Analyzed : 04/12/91  
 Date Released : 04/15/91  
 Instrument I.D.: ICP1

ELEMENTS		LEAD
EPA METHOD		6010
REPORTING LIMIT		40.0
ANAMETRIX ID	CLIENT ID	(ug/L)
9104011-20 MB0411W	BA, BB, BD-15, BC-20 METHOD BLANK	75.0 ND

ND : Not detected at or above the practical quantitation limit for the method.

All Metals by EPA Method 6010/7000, Test Method for Evaluating Solid Waste, SW-846 3rd Edition November 1986, and California Administrative Code Title 22, Section 66699.

Manny Quipa 4/15/91  
 Chemist Date

Michael A. Hobbs 4/15/91  
 Chemist Date



4/04011

ANAMETRIX CHAIN-OF-CUSTODY

ANAMETRIX Workorder Number

Gold Coast

Send Report Attention of:

Report Due Verbal Due

Number of Entries Type of Containers

Type of Analysis  
 TPH GAS  
 TPH LIQ  
 BTEX  
 Lead  
 TSP

Condition of Samples

Initial

Sample Number Date Time Comp Grab Station Location

Sample Number	Date	Time	Comp	Grab	Station Location	Number of Entries	Type of Containers	TPH GAS	TPH LIQ	BTEX	Lead	TSP	Condition of Samples	Initial
BA-5	4-1-91	8:39				1	Grass	X	X	X	X		Normal TM	
BA-10	"	"				1	"	X	X	X	X		"	
BA-15	"	"				1	"	X	X	X	X		"	
BA-20	"	"				1	"	X	X	X	X		"	
BA-15 H2O	"	"				1	Grass	X	X	X	X		"	
BB-5	"	9:55				1	"	X	X	X	X		"	
BB-10	"	"				1	"	X	X	X	X		"	
BB-15	"	"				1	Grass	X	X	X	X		"	
BB-15 H2O	"	"				1	"	X	X	X	X		"	
BC-5	"	10:52				1	"	X	X	X	X		"	
BC-10	"	"				1	"	X	X	X	X		"	
BC-15	"	"				1	"	X	X	X	X		"	

Relinquished by: (Signature) <i>D. ...</i>	Date/Time 4-1-91 13:45	Received by: (Signature) <i>...</i>	Date/Time 4-1-91 13:45
Relinquished by: (Signature) <i>...</i>	Date/Time 4-1-91 17:00	Received by: (Signature) <i>...</i>	Date/Time 4-1-91 17:00
Relinquished by: (Signature) <i>...</i>	Date/Time	Received by: (Signature)	Date/Time

Remarks:

**ANAMETRIX INC**  
 LABORATORY SERVICES  
 1961 Concourse Drive, Suite E, San Jose, CA 95131  
 Phone: (408)432-8192 Fax: (408)432-8198



41104011


ANAMETRIX CHAIN-OF-CUSTODY

ANAMETRIX Workorder Number						Number of Entries	Type of Containers	Type of Analysis							Condition of Samples	Initial
Gold Coast								TPM Gas				Lead - Total				
Send Report Attention of:								TPM Gas	TPM Diesel	TPM Lead	TPM Lead	TPM Lead	TPM Lead	TPM Lead		
Sample Number	Date	Time	Comp	Grab	Station Location											
BD-20	4-1-91					1	Glass	X	X	X	X				normal PM	
BD-20 H2O						1	Glass	X	X	X	X					
BD-5		BD-20				1	B. jar	X	X	X	X					
BD-10						1	"	X	X	X	X					
BD-15						1	"	X	X	X	X					
BD-15 H2O						1	Glass	X	X	X	X					

Relinquished by: (Signature) <i>[Signature]</i>	Date/Time 4-1-91 13:45	Received by: (Signature) <i>[Signature]</i>	Date/Time 4-1-91 13:45
Relinquished by: (Signature) <i>[Signature]</i>	Date/Time 4-1-91 17:00	Received by: (Signature) <i>[Signature]</i>	Date/Time 4-1-91 17:00
Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time

Remarks:

**ANAMETRIX INC**  
 LABORATORY SERVICES  
 1061 Concourse Drive, Suite E, San Jose, CA 95131  
 Phone: (408)432-8192 Fax: (408)432-8198



# **APPENDIX C**

			92 book	STICK	+/-	87 book	STICK	+/-
1	10/15	S	8870			8467		
2	✓	S	302			584		
3	✓	S	8508	8506	-2	7883	8059	176
4	10/16	S	240			575		
5	✓	S	8268	8257	-11	7368	7327	-31
6	10/17	S	295			769		
7	✓	S	7973	7996	23	6599	6642	43
8	10/18	S	72			261		
9	✓	S	7901	7824	-77	5328	4574	754
10	10/19	S	428			613		
11	✓	S	7473	7398	-75	5705	5823	118
12	10/20	S	298			575		
13	✓	S	7175	7027	-148	5750	5258	108
14	10/21	S	261			553		
15	✓	S	6914	6803	-111	4597	4700	125
16	10/22	S	231			542		
17	✓	S	6683	6675	-8	4425	4222	167
18	10/23	S	201			429		
19	✓	S	6479	6482	3	316	3460	60
20	10/24	S	223			1607		
21	✓	garden	2384			4355		
22	✓	pm	8640	8744	104	9104	9294	190
23	10/25	S	162			399		
24	✓	S	8478	8612	134	8705	8790	65
25	10/26	S	35			856		
26	✓	S	8127	8229	102	7849	7996	147
27	10/27	S	402			681		
28	✓	S	7705	7764	39	7168	7327	169
29	10/28	S	195			444		
30	✓	S	7530	7644	114	6704	6835	111
31	10/29	S	237			608		
32	✓	S	7213	7327	44	6116	6252	136
33	10/30	S	111			481		
34	✓	S	7152	7275	123	5625	6187	562
35	10/31	S	72			177		
36	✓	S	7080	7153	73	5452	5591	133
37	11/1	S	183			679		
38	✓	S	6897	6899	2	4839	4922	83
39	11/2	S	294			141		
40	✓	S	6205	6642	39	4148	4202	54

		1	2	3	4	5	6
		92 Book	Stick	+/-	87 Book	Stick	+/-
1	000F	6603			4148		
2	11/3 S	360			4172		
3	✓ 11/4 S	6243 ✓ 6252		9	3476	3957	481
4	✓ 11/4 S	310			401		
5	✓ 11/4 S	2879			5522		
6	✓ 11/4 S	8812 ✓ 8896		84	8577	8770	193
7	adj. max. October	410			45		
8	11/5 S	156			457		
9	✓ 11/5 S	8666 -3 8665	8605	-1	8125	8285	160
10	11/6 S	146			403		
11	✓ 11/6 S	8530 ✓ 8612		92	7722 ✓ 7822		160
12	11/7 S	211			667		
13	✓ 11/7 S	8309 ✓ 8368		59	7055 ✓ 7184		129
14	11/8 S	220			671		
15	✓ 11/8 S	8089 ✓ 8116		27	6384 ✓ 6482		98
16	11/9 S	270			574		
17	✓ 11/9 S	7819 ✓ 7853		34	5790 ✓ 5989		199
18	11/10 S	858			459		
19	✓ 11/10 S	7521 ✓ 7644		83	5331 ✓ 5459		328
20	11/11 S	178			536		
21	✓ 11/11 S	7383 -3 7398		15	4795	5056	261
22	11/12 S	209			685		
23	✓ 11/12 S	7174 -3 7215		41	4110 ✓ 4202		112
24	11/13 S	167			322		
25	✓ 11/13 S	7007 -3 7091		84	3790	3924	134
26	11/14 S	48			33		
27	✓ 11/14 S	6959 -3 6963		4	3757	3858	101
28	11/15 S	213			576		
29	✓ 11/15 S	40			40		
30	✓ 11/15 S	6726 -3 6675		-51	3227	3376	143
31	11/16 S	184			497		
32	✓ 11/16 S	6542 -2 6579		37	2709	2889	159
33	11/17 S	415			784		
34	✓ 11/17 S	6127 -26 6155		28	1946	1980	34
35	11/18 S	802			392		
36	✓ 11/18 S	5925 -25 5989		64	1854	1884	30
37	11/19 S	190			223		
38	✓ 11/19 S	2290			5260		
39	✓ 11/19 S	8625 -25 8770		145	6531	6835	304
40	11/20 S	187			502		
		6120	6122	11	6232	6252	222

			92 Box	Stick	+/-	87 Box	Stick	+/-
1	00F		8438			6029		
2	11/21	S	290			575		
3	✓	Q	8148	8785	637	-13514	5989	2175
4	11/23	S	342			553		
5	✓	Q	7806	7942	136	4961	5791	230
6	11/24	S	375			507		
7	✓	Q	7431	7398	-33	4454	4656	202
8	11/25	S	48			179		
9	✓	Q	7383	7460	77	4215	4622	347
10	11/30	S	171			424		
11	✓	Q	7212	7215	3	3851	3597	-254
12	11/27	S	160			428		
13	✓	Q	7052	7091	39	3423	3597	174
14	11/28	S	277			276		
15	✓	Q	6775	6899	124	3047	3209	162
16	11/29	S	67			362		
17	✓	Q	6709	6835	127	2685	2889	204
18	11/30	mess	290			617		
19	✓	gas drop	2916			6007		
20	✓	pm	9214	9205	-9	2075	2479	404
21	12/1	S	302			616		
22	✓	Q	8872	9017	145	7459	7764	305
23	12/2	S	193			433		
24	✓	Q	8679	8871	192	7086	7153	117
25	12/3	S	159			417		
26	✓	Q	8520	8612	92	6619	6771	152
27	12/4	S	220			327		
28	✓	Q	8287	8452	165	6229	6279	287
29	12/5	S	195			482		
30	✓	Q	8092	8116	24	5816	6089	279
31	12/6	S	187			599		
32	✓	Q	7905	8059	154	5211	5455	244
33	12/7	S	419			797		
34	✓	Q	7486	7644	158	4414	4722	308
35	12/8	S	420			509		
36	✓	Q	7060	7059	-7	3925	4057	132
37	12/9	S	265			443		
38	✓	Q	6801	6899	98	3462	3708	246
39	6 days	November	44			49		
40	12/10	S	41			313		
	✓	Q	6761	6771	10	3597	3597	184

			1	2	3	4	5	6
			92 book	stick	+/-	87 book	stick	+/-
1	002		6761			2413		
2	12/11	Sila	25			82		
3	✓	pm	6702	6825	99	3331	3629	295
4	12/12	S	181			439		
5	✓	Q	6555	6642	87	2994	3145	251
6	12/13	S	218			489		
7	✓	Q	6387	6383	46	2465	2582	117
8	12/14	S	313			437		
9	✓	Q	6021	6089	65	1968	2038	70
10	12/16	S	140			267		
11	✓	Q	5384	5758	-106	1701	1807	106
12	12/17	S	221			539		
13	✓	Q	5063	5791	128	1172	1210	38
14	12/18	S	144			315		
15	✓	Q	5579	5591	72	827	820	-7
16	12/19	S	81			201		
17	✓	drop	2804	2		5520		
18	✓	pm	8242	8228	-14	6146	6218	172
19	12/20	S	237			481		
20	✓	Q	8005	8116	111	6065	5856	191
21	12/21	S	207			314		
22	✓	Q	7792	7882	84	5357	5392	41
23	12/21	S	321			501		
24	✓	Q	7464	7522	58	4820	5191	371
25	12/23	S	268			576		
26	✓	Q	7196	7327	141	4304	4455	151
27	12/24	S	224			457		
28	✓	Q	6942	6995	53	3832	3957	104
29	12/26	S	241			670		
30	✓	Q	6592	6642	44	3183	3338	155
31	12/27	S	186			56		
32	✓	Q	6412	6449	37	2648	2708	60
33	12/28	S	227			52		
34	✓	Q	629	6089	-36	2016	2027	57
35	12/29	S	280			127		
36	✓	Q	5705	5791	74	1440	1421	-19
37	12/30	S	240			322		
38	✓	drop	2222			5307		
39	✓	pm	8427	8452	5	6924	7153	229
40	12/31	S	221			572		
	✓	Q	8116	8201	85	6302	6482	120

1 2 3 4 5 6

92 Back Stick +/- 87 Back Stick +/-

Line	Notes	92 Back	Stick	+/-	87 Back	Stick	+/-
1	002	8116			6362		
2	1/2 S	151			127		
3	1/3 P	7962	7976	34	5725	5856	131
4	1/3 S	303			274		
5	1/3 ✓	2170			4576		
6	1/3 ✓	9929	9826	-93	9967	9973	6
7	1/4 S	357			710		
8	1/4 P	9572	9501	-71	9257	9330	73
9	1/5 S	359			609		
10	1/5 ✓	9213	9159	-54	8648	8716	68
11	1/6 S	197			642		
12	1/6 P	9016	8969	-47	8906	8729	203
13	1/7 S	46			103		
14	1/7 P	8970	8820	-150	7903	8116	213
15	1/8 S	179			222		
16	1/8 P	8793	8770	-23	7081	7912	231
17	1/9 S	113			307		
18	1/9 P	8680	8718	38	7374	7275	-99
19	1/10 S	203			555		
20	1/10 P	8417	8452	35	6819	7027	208
21	1/11 S	339			449		
22	1/11 P	8078	7997	-81	6370	6242	212
23	1/12 S	137			447		
24	1/12 P	7941	7942	-1	5923	6351	428
25	1/13 S	530			547		
26	1/13 P	7611	7584	-27	5376	5525	149
27	1/14 S	120			418		
28	1/14 P	7491	7337	-154	4958	5191	235
29	1/15 S	228			505		
30	1/15 P	7263	7275	12	4453	4722	269
31	1/16 S	311			922		
32	1/16 P	6452	6995	43	5531	3738	177
33	1/17 S	528			23		
34	1/17 P	6024	6642	18	2998	3145	147
35	1/18 S	305			832		
36	1/18 P	6319	6318	-1	2766	2336	170
37	1/19 S	290			101		
38	1/19 P	6029	5924	-105	1525	1140	75
39	1/20 S	284			493		
40	1/20 P	5745	5791	46	1072	1084	12

raj dec



		1	2	3	4	5	6
		92 Book	SHCK	+/-	97 Book	SHCK	+/-
1	BOF	5745			1072		
2	1/21	212			576		
3	✓				8371		
4	✓	5453	5392	-61	8807	9017	150
5	1/22	205			626		
6	✓	5348	5191	-157	8181	8432	271
7	1/23	207			613		
8	✓	5041	4990	-51	7568	7942	374
9	1/24	238			609		
10	✓	4803	4722	-81	6959	7321	378
11	1/25	323			433		
12	✓	4480	4355	-125	6506	6835	309
13	1/26	112			674		
14	✓	4068	4024	-44	5852	6252	400
15	1/27	144			622		
16	✓	3924	3793	-131	5230	5591	361
17	1/28	225			230		
18	✓	3699	3597	-102	4214	5191	317
19	1/29	148			501		
20	✓	3531	3402	-129	4313	4755	382
21	1/30	<del>235</del>			689		
22	✓	3246	3209	-37	3624	3924	340
23	1/31	240			292		
24	✓	3056	2889	-167	3292	3531	239
25	2/1	292			421		
26	✓	2764	2582	-182	2868	3049	181
27	2/2	36			47		
28	✓	3926	<del>6000</del>		4621		
29	✓	6054	6514	-140	7442	7704	262
30	2/3	142			328		
31	✓	6572	6449	-123	7114	7584	470
32	Adj	+			+		
33	2/4	107			160		
34	✓	6406	6383	-23	6936	7087	72
35	2/5	46			66		
36	✓	6360	6449	89	6889	7337	448
37	2/6	207			315		
38	✓	6513	5989	-1164	6524	6707	183
39	2/7	101			404		
40	✓	6052	6056	4	6120	6514	394

			9200K	STICK	+/-		8700K	STICK	+/-
1	00F		6052				6120		
2	018	S	305				504		
3	✓	♀	5747	5725	-22	→	5616	5756	340
4	019	S	373				669		
5	✓	♀	5374	5358	-16	→	4917	5208	311
6	010	S	216				577		
7	✓	♀	5728	5056	-72	→	4370	4423	53
8	011	S	218				572		
9	✓	♀	4916	4789	-127	→	3792	4057	259
10	012	S	162				469		
11	✓	♀	4748	4722	-26	→	3309	3095	316
12	013	S	290				604		
13	✓	♀	4452	4555	97	→	2725	3081	356
14	014	S	297				663		
15	✓	♀	4161	4123	-38	→	2062	2276	214
16	015	S	216				581		
17	✓	♀	3622				4902		
18	✓	♀	7437	7584	147	→	6284	6235	451
19	016	S	493				666		
20	✓	♀	6944	6899	-45	→	5718	5956	238
21	017	S	229				489		
22	✓	♀	6775	6739	-36	→	5229	5659	430
23	018	S	397				507		
24	✓	♀	6318	6318	0	→	4722	5758	136
25	019	S	257				622		
26	✓	♀	6061	5989	-72	→	4096	4455	369
27	020	S	244				710		
28	✓	♀	5877	5692	-185	→	3376	2712	-265
29	021	S	205				469		
30	✓	♀	3571				4956		
31	✓	♀	9069	9041	-28	→	7263	8201	338
32	022	S	380				627		
33	✓	♀	8689	8558	-131	→	7176	6267	-309
34	023	S	415				738		
35	✓	♀	8274	8285	11	→	6438	6235	397
36	024	S	398				681		
37	✓	♀	7876	7853	-23	→	6757	6122	315
38	025	S	477				577		
39	✓	♀	7399	7522	123	→	5780	5591	411
40	026	S	150				468		
	✓	♀	7249	7153	-96	→	4712	5056	344

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		92 Back	Stick	+1-	87 Back	Stick	+1-
1	00F	7049			4712		
2	2/27 ✓	25			65		
3	✓	7004 ✓	7153	-71	4647 ✓	4956	309
4	2/28 ✓	29			32		
5	✓	7195 ✓	7153	-42	4609 -	4956	347
6	3/1 ✓	36			11		
7	✓	7159 -	7122	-37	4598 ✓	4956	358
8	3/2 ✓	99			11		
9	✓	7060 ✓	7153	93	4497 ✓	4920	435
10	3/5 ✓	91			364		
11	✓	7049 ✓	7091	122	4223 ✓	4600	399
12	3/6 ✓	27			574		
13	✓	7022 ✓	7074	-108	3049	3991	342
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