PES Environmental, Inc.
Engineering & Environmental Services

435

A Report Prepared For:

Dolan Rental Company
6393 Scarlett Court
Dublin, California

QUARTERLY GROUNDWATER MONITORING REPORT JANUARY TO MARCH 1995 DUBLIN ROCK & READY MIX DUBLIN, CALIFORNIA

MAY 10, 1995

By:

DRAFT

Alicia D. Andrews
Staff Engineer

DRAFT

James L. Jasperse, P. E.
Associate Engineer

102.0100.003

1682 Novato Boulevard • Suite 100 • Novato, California 94947 • TEL (415) 899-1600 • FAX (415) 899-1601

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1.0 INTRODUCTION

This report presents the results of quarterly groundwater monitoring and well installation activities performed by PES Environmental, Inc. (PES) between January and March 1995 on behalf of the Dolan Rental Company at the Dublin Rock and Ready Mix site (the Site) located in Dublin, California (Plate 1). The Alameda County Health Care Services Agency, Department of Environmental Health (ACDEH) approved the well installation and groundwater monitoring activities in a letter dated March 25, 1994. The groundwater monitoring program consists of the collection of groundwater samples and the preparation of a report on a quarterly basis. In addition, the ACDEH approved the installation of additional monitoring wells to more fully characterize the extent of petroleum hydrocarbons in groundwater. This report provides the following: (1) a discussion of background information; (2) a description of the activities associated with the installation of the additional monitoring wells; (3) a summary of groundwater monitoring activities performed during the quarter; and (4) PES' conclusions and recommendations.

2.0 BACKGROUND

An underground fuel storage tank was removed from the site in February 1990. The excavation was backfilled following tank removal and paved with concrete. An investigation performed in October 1990 indicated that petroleum hydrocarbons were present in soil and groundwater in the proximity of the former underground tank location (Henneman, 1990).

PES has performed subsurface investigations to evaluate the extent of petroleum hydrocarbons in soil and groundwater that appear associated with the former presence of an underground tank at the site. A soil and groundwater investigation performed in 1991 included well installation, soil and groundwater sampling, and chemical analysis. During the 1991 investigation, total petroleum hydrocarbons quantified as gasoline (TPHg) were identified at concentrations of 170,000 parts per billion (ppb) and 11,000 ppb in groundwater samples collected from wells MW-2 and MW-4, respectively (Plate 2). TPHg and benzene, toluene, ethylbenzene, and total xylenes (BTEX) were not found at or above the method reporting limits in groundwater samples from wells MW-1 and MW-3. Groundwater was found to flow in a southerly direction during this investigation. The results of this investigation was presented in a January 31, 1992 PES report titled *Soil and Groundwater Investigation, Dublin Rock and Ready Mix Facility, 6393 Scarlett Court, Dublin, California.*

An investigation was performed in 1992 to further evaluate the extent of petroleum hydrocarbons in groundwater. During this investigation, TPHg were detected at concentrations of 120,000 ppb and 380 ppb in wells MW-2 and MW-4, respectively. Petroleum hydrocarbons were not identified in wells MW-1 and MW-3. Groundwater in the immediate vicinity of the former underground tank (well MW-2) was found to contain a thin layer of floating product and elevated petroleum hydrocarbon concentrations appeared limited to an approximate 6,000 square feet area near the former underground tank location. Groundwater was found to flow in a southwesterly direction during this investigation. The results of this investigation were presented in an August 13, 1993 report titled *Phase II Soil and Groundwater Investigation, Dublin Rock and Ready Mix Facility, Dublin, California.*

3.0 INSTALLATION OF MONITORING WELLS MW-5 AND MW-6

The field investigation consisted of: (1) drilling two soil borings to record site lithology; (2) installing two monitoring wells; (3) developing the groundwater monitoring wells; (4) collecting groundwater samples from the monitoring wells; and (5) performing chemical analyses of the groundwater samples. This section summarizes the drilling, well installation, and development activities. A discussion of the groundwater sampling activities is presented in Section 4.0. The locations of the groundwater monitoring wells are shown on Plate 2.

3.1 Drilling and Well Installation

PES supervised the drilling and installation of wells MW-5 and MW-6 on February 23, and March 14, 1995, respectively. Soil cuttings were used for lithologic description and screened for the presence of volatile organic compounds with a photo-ionization detector (PID). The borings were logged by a PES engineer using the Unified Soil Classification System (Plate 3). Boring logs for wells MW-5 and MW-6 are presented on Plates 4 and 5, respectively.

Both borings were advanced 10 feet below ground surface (ft bgs). The borings were lined with 2-inch diameter polyvinyl chloride (PVC) well casing and 0.020-inch slotted well screen. Well MW-5 was screened from 3 to 10 ft bgs and well MW-6 was screened from 5 to 10 ft bgs. Blank 2-inch diameter PVC casing was placed from 0.25 to 3 ft bgs and 0.25 to 5 ft bgs for wells MW-5 and MW-6, respectively. The well screen and blank casing were fitted with flush threaded connections. A Monterey #3 sand filter pack was placed in the annular space from 2.5 to 10 ft bgs and 4 to 10 ft bgs for wells MW-5 and MW-6, respectively. A bentonite seal was placed in the annular space above the sand filter pack and hydrated with potable water. All well materials were installed in the borings through the center of the hollow-stem augers. The annular space above the bentonite seal was grouted from the bentonite seal to 0.25 ft bgs with concrete after auger removal. The wells were completed in a traffic grade utility box set in concrete; the casings were fitted with a locking, water-tight cap. The details of well construction for wells MW-5 and MW-6 are shown graphically on Plates 4 and 5, respectively.

3.2 Well Development

Each monitoring well was developed by Blaine Tech Services, Inc. (Blaine Tech) on March 17, 1995. Development involved surging the well to sort the sand pack materials and pumping and/or bailing to remove fine grained sediment from the casing. A total of 13 and 9 gallons of water were removed from wells MW-5 and MW-6, respectively. Water parameters measured during well development were temperature, pH, electric conductivity, and turbidity. A report prepared by Blaine Tech describing well development activities is presented as Appendix A.

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3.3 Investigative Results

3.3.1 Subsurface Soil Conditions

Surface materials at the site consist of degraded asphalt, concrete, and landscape gravel. Subsurface materials consist primarily of clays with thin sand layers. During well development, the wells dewatered several times during purging further indicating the presence of fine grained subsurface materials. No organic vapors were measured by the PID during drilling activities.

3.3.2 Groundwater Conditions

The analytical results of groundwater samples collected from wells MW-5 and MW-6 are presented in Section 4.2.2.

4.0 GROUNDWATER MONITORING

This section describes the groundwater monitoring activities conducted during the quarter and summarizes the results of the monitoring event. The top of casing elevations (referenced to Mean Sea Level [MSL]) for wells MW-1 through MW-4 were resurveyed on February 20, 1995 while wells MW-5 and MW-6 were surveyed on March 23, 1995. The survey was performed by a California licensed land surveyor. The well survey data is presented as Appendix B. Previously, the top of casing elevations for wells MW-1 through MW-4 where referenced relative to the elevation of well MW-3 which was arbitrarily set at 100 feet. Beginning with this report, water-level elevation data will be referenced to MSL.

4.1 Water-Level Measurements and Groundwater Sample Collection

Groundwater samples from monitoring wells MW-1 through MW-6 were collected by Blaine Tech under PES' supervision on March 21, 1995. Before purging and sampling groundwater from the wells, the depth to groundwater was measured in each of the six monitoring wells to a precision of 0.01 feet using an electronic water-level sounder. The water-level sounder was cleaned with a mild detergent solution and rinsed with detergent solution and rinsed with de-ionized water before each measurement.

Prior to sampling, the groundwater was visually inspected to assess the presence of floating product. A minimum of three well volumes were evacuated prior to sampling using a teflon bailer. Purge water was monitored for pH, temperature, electrical conductivity, and turbidity. Groundwater samples were collected with a clean teflon bailer and decanted into clean 40-milliliter glass vials with teflon lined caps. Samples were immediately labeled and stored in a chilled, thermally-insulated cooler for transport to the analytical laboratory. The samples were analyzed for TPHg and BTEX by EPA Test Methods 8015 Modified and 8020, respectively. Field methods and field parameter measurements are described in the Blaine Tech sampling reports included in Appendix A.

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4.2 Groundwater Monitoring Results

This section presents the results of water-level measurements and chemical analyses of groundwater samples.

4.2.1 Groundwater Elevations and Flow

Groundwater elevations measured on March 21, 1995 indicate a westerly to southwesterly flow direction with a 0.0057 feet per foot gradient consistent with previous measurements of water levels. Groundwater elevations are presented in Table 1. Plate 2 presents groundwater elevation contours based on the March 21, 1995 groundwater monitoring event. The water-level data from wells MW-5 and MW-6 appear to be anomalous and were not contoured. Flooding of portions of the site during heavy rainfall events in January and March 1995 may have affected local water-level elevations. The anomalous water-level data for wells MW-5 and MW-6 will be assessed in future groundwater monitoring events.

4.2.2 Chemical Analysis Results

TPHg concentrations in wells MW-2 and MW-4 were 83,000 and 1,400 ppb, respectively. In addition, wells MW-2 and MW-4 exhibited the following respective BTEX concentrations: (1) benzene was detected at 17,000 and 200 ppb, (2) toluene was detected at 8,000 and 5 ppb, (3) ethylbenzene was detected at 3,800 and 66 ppb, and (4) xylenes were detected at 17,000 and 18 ppb. Groundwater samples from wells MW-1, MW-3, MW-5, and MW-6 did not contain detectable concentrations of TPHg or BTEX. The laboratory analytical results and chain-of-custody records are presented as Appendix C.

5.0 CONCLUSIONS AND RECOMMENDATIONS

This section discusses PES' conclusions based on available data and recommendations for future site activities.

5.1 Conclusions

The results of water-level measurements collected in March 1995 indicate that groundwater flow is generally to the south-southwest (consistent with previous monitoring events). The analytical results of groundwater samples collected during the quarter indicate that groundwater is affected by petroleum hydrocarbons and BTEX in the vicinity of the former tank (i.e., well MW-2) and downgradient or to the south of the former tank (i.e., well MW-4). These results are also consistent with the results from previous monitoring events. Newly installed wells MW-5 and MW-6 appear to establish the eastern and western extent of affected groundwater at the site, respectively.

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5.2 Recommendations

PES recommends that hydrogen peroxide be introduced to selected monitoring wells to enhance aerobic degradation of petroleum hydrocarbons in groundwater by naturally occurring microorganisms. Hydrogen peroxide serves as a source of oxygen to microorganisms which utilize petroleum hydrocarbons as a food source. This technique has been shown to be an effective means of stimulating biodegradation of petroleum hydrocarbons at similar sites, thus reducing concentrations of petroleum hydrocarbons and BTEX in groundwater. PES recommends that hydrogen peroxide be introduced on a quarterly basis to existing wells MW-2 and MW-4 in addition to a new well which PES proposes be installed in or near the excavation backfill of the former tank.

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6 .0 REFERENCES

Henneman, Kenneth R., 1990. Laboratory Results from Water Samples Taken from Five Borings to Water Around an Old Gas Tank on 10/3/90 at Dublin Rock and Ready Mix, 6393 Scarlett Court, Dublin, California, October 17.

PES Environmental, Inc., 1991. *Soil and Groundwater Investigation, Dublin Rock and Ready Mix Facility, 6393 Scarlett Court, Dublin, California*, January 31.

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DISTRIBUTION

QUARTERLY GROUNDWATER MONITORING REPORT
DECEMBER TO MARCH 1995
DUBLIN ROCK AND READY MIX FACILITY
DUBLIN, CALIFORNIA

MAY 10, 1995

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TABLES

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TABLE 1.
GROUNDWATER ELEVATIONS
DUBLIN ROCK AND READY MIX
6393 SCARLETT COURT
DUBLIN, CALIFORNIA

(all measurements expressed in feet)

Well	Date	Depth to Water	Top of Casing[1]	Groundwater Elevation
MW-1	11/27/91	4.82	100.03 [1]	95.21
MW-1	9/30/92	5.34	100.03 [1]	94.69
MW-1	4/7/94	3.38	100.03 [1]	96.65
MW-1	8/12/94	4.23	100.03 [1]	95.80
MW-1	11/29/94	3.44	100.03 [1]	96.59
MW-1	3/21/95	1.00	326.61 [2]	325.61
MW-2	11/27/91	4.92	100.10 [1]	95.18
MW-2	9/30/92	5.42	100.10 [1]	94.68
MW-2	4/7/94	3.48	100.10 [1]	96.62
MW-2	8/12/94	4.18	100.10 [1]	95.92
MW-2	11/29/94	3.76	100.10 [1]	96.34
MW-2	3/21/95	1.25	326.67 [2]	325.42
MW-3	11/27/91	4.96	100.00 [1]	95.04
MW-3	9/30/92	5.46	100.00 [1]	94.54
MW-3	4/7/94	3.66	100.00 [1]	96.34
MW-3	8/12/94	4.37	100.00 [1]	95.63
MW-3	11/29/94	3.60	100.00 [1]	96.40
MW-3	3/21/95	1.62	326.58 [2]	324.96
MW-4	11/21/91	5.26	100.35 [1]	95.09
MW-4	9/30/92	5.78	100.35 [1]	94.57
MW-4	4/7/94	4.02	100.35 [1]	96.33
MW-4	8/12/94	4.81	100.35 [1]	95.54
MW-4	11/29/94	4.39	100.35 [1]	95.96
MW-4	3/21/95	1.80	326.92 [2]	325.12
MW-5	3/21/95	2.10	326.50 [2]	324.40
MW-6	3/21/95	3.24	327.23 [2]	323.99

Notes

(1) = Top of casing measured relative to monitoring well MW-3 which was arbitrarily assigned an elevation of 100 feet.

(2) = Top of casing elevation was resurveyed for each well on February 10 and March 23, 1995 and referenced to Mean Sea Level elevation.

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TABLE 2.
RESULTS OF CHEMICAL ANALYSIS FOR GROUNDWATER SAMPLES
DUBLIN ROCK AND READY MIX
6393 SCARLETT COURT
DUBLIN, CALIFORNIA

(Concentrations expressed in parts per billion)

Sample I.D.	Date	TPHg	Benzene	Toluene	Ethylbenzene	Xylenes
MW-1	11/27/91	<50	<0.3	<0.3	<0.3	<0.3
MW-1	9/30/92	<50	<0.3	<0.3	<0.3	<0.3
MW-1	4/7/94	<50	<0.5	<0.5	<0.5	<0.5
MW-1	8/12/94	<50	(1)	(1)	<0.5	<2
MW-1	11/29/94	<50	<0.5	<0.5	<0.5	<2
MW-2	11/27/91	170,000	24,000	13,000	3,500	16,000
MW-2	9/30/92	120,000	24,000	15,000	3,800	17,000
MW-2	4/7/94	120,000	21,000	14,000	4,300	21,000
MW-2	8/12/94	140,000	17,000	10,000	4,300	18,000
MW-2	11/29/94	90,000	17,000	7,500	3,400	15,000
MW-3	11/27/91	<50	<0.3	<0.3	<0.3	<0.3
MW-3	9/30/92	<50	<0.3	<0.3	<0.3	<0.3
MW-3	4/7/94	<50	(1)	(1)	(1)	(1)
MW-3	8/12/94	<50	<0.5	<0.5	<0.5	<2
MW-3	11/29/94	<50	<0.5	<0.5	<0.5	<2
MW-4	11/21/91	11,000	(1)	(1)	(1)	(1)
MW-4	9/30/92	(1)	(1)	(1)	(1)	(1)
MW-4	4/7/94	(1)	(1)	(1)	(1)	(1)
MW-4	8/12/94	(1)	(1)	(1)	(1)	(1)
MW-4	11/29/94	(1)	(1)	<0.5	(1)	(1)

Notes
TPHg = Total Petroleum Hydrocarbons Quantified as Gasoline
<50 = Not Detected above Method Reporting Limit

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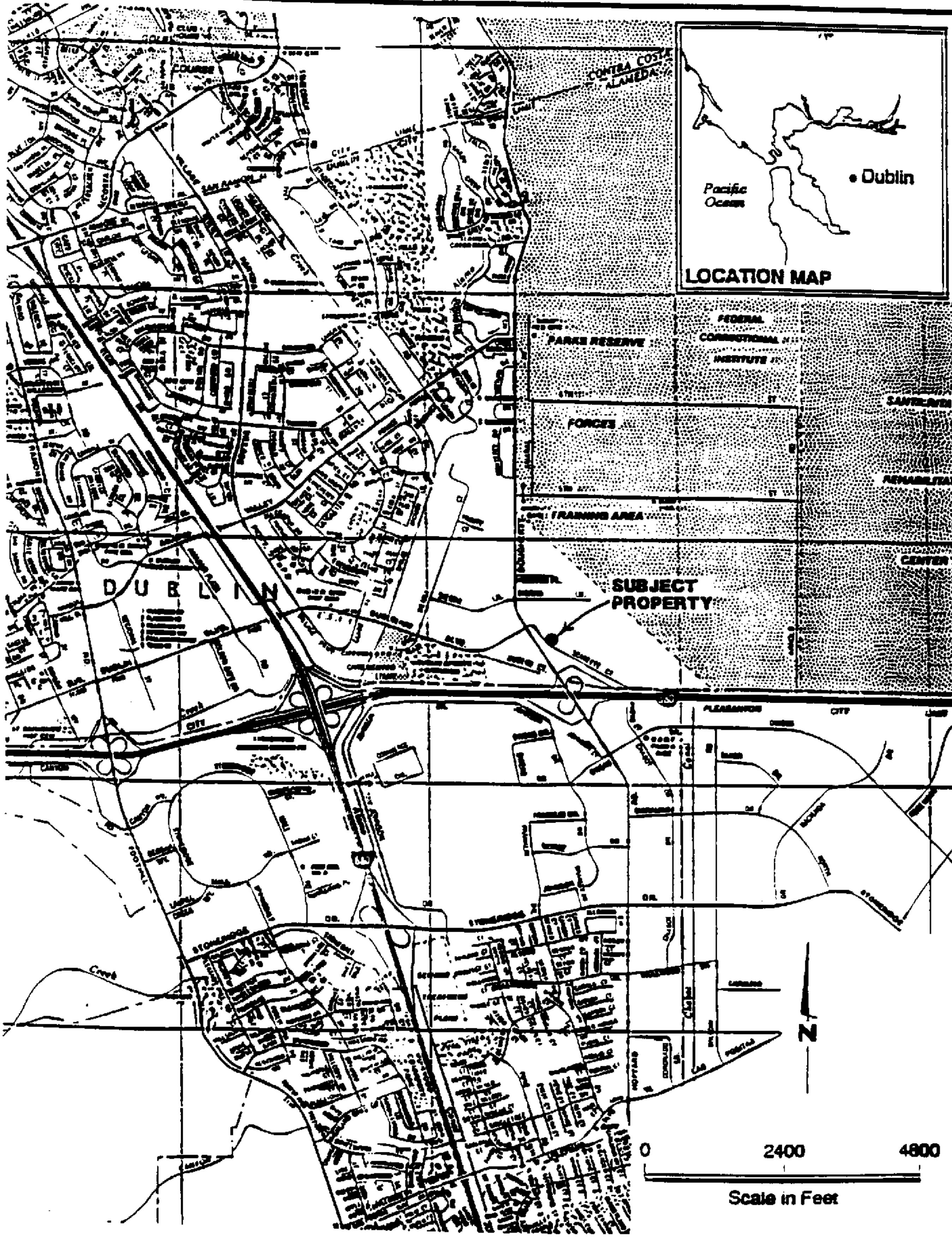
ILLUSTRATIONS



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Site Location Map
Dublin Rock & Ready Mix
6393 Scarlett Court
Dublin, California

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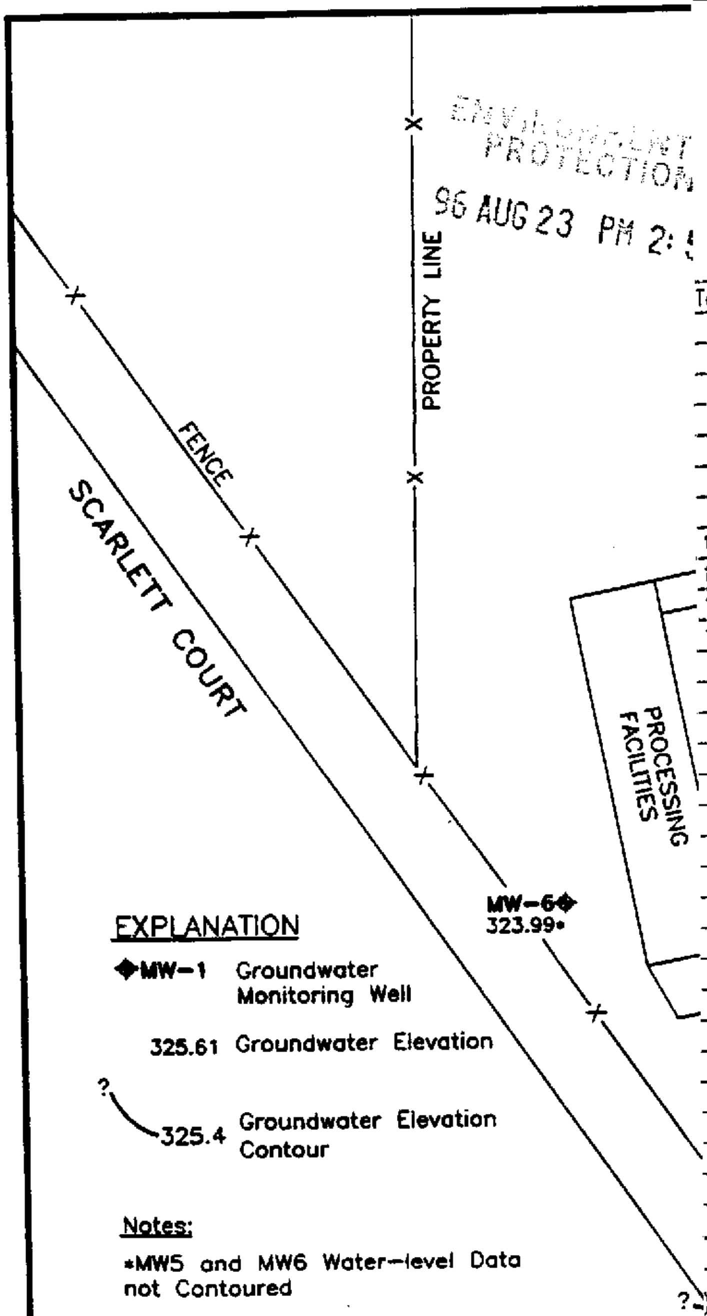
PLATE
1

102.0100.003	10201SLM.CDR	Mdt	12/94
JOB NUMBER	DRAWING NUMBER	REVIEWED BY	DATE



Toluene	Ethylbenzene	Xylenes
<0.3	<0.3	<0.3
<0.3	<0.3	<0.3
<0.5	<0.5	<0.5
1	<0.5	<2
<0.5	<0.5	<2
<0.5	<0.5	<2
13,000	3,500	16,000
15,000	3,800	17,000
14,000	4,300	21,000
10,000	4,300	18,000
7,500	3,400	15,000
8,000	3,800	17,000
<0.3	<0.3	<0.3
<0.3	<0.3	<0.3
5.5	0.9	5.1
<0.5	<0.5	<2
<0.5	<0.5	<2
<0.5	<0.5	<2
0.7	250	330
2.4	8.9	3.4
5.5	17	12
1	8	4
<0.5	10	6
5	66	18
<0.5	<0.5	<2
<0.5	<0.5	<2

ied as Gasoline

EXPLANATION

◆MW-1 Groundwater Monitoring Well

325.61 Groundwater Elevation

?—325.4 Groundwater Elevation Contour

Notes:

*MW5 and MW6 Water-level Data not Contoured

0 20
APPROXIMATE SCALE IN FEET

f Chemical Analyses for Groundwater Samples

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PLATE 2

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Engineering & Environmental Services

JOB NUMBER	DRAWING NUMBER	REVIEWED BY	DATE
102.0100.003	000030Q1	[signature]	5/95

MAJOR DIVISIONS					TYPICAL NAMES
COARSE-GRAINED SOILS MORE THAN HALF IS COARSER THAN NO. 200 SIEVE	GRAVELS MORE THAN HALF GOARSE FRACTION IS LARGER THAN NO.4 SIEVE SIZE	CLEAN GRAVELS WITH LITTLE OR NO FINES	GW		WELL GRADED GRAVELS WITH OR WITHOUT SAND. LITTLE OR NO FINES
			GP		POORLY GRADED GRAVELS WITH OR WITHOUT SAND. LITTLE OR NO FINES
		GRAVELS WITH OVER 15% FINES	GM		SILTY GRAVELS. SILTY GRAVELS WITH SAND
			GC		CLAYEY GRAVELS, CLAYEY GRAVELS WITH SAND
	SANDS MORE THAN HALF GOARSE FRACTION IS LARGER THAN NO.4 SIEVE SIZE	CLEAN SANDS WITH LITTLE OR NO FINES	SW		WELL GRADED SANDS WITH OR WITHOUT GRAVEL. LITTLE OR NO FINES
			SP		POORLY GRADED SANDS WITH OR WITHOUT GRAVEL, LITTLE OR NO FINES
		SANDS WITH OVER 15% FINES	SM		SILTY SANDS WITH OR WITHOUT GRAVEL
			SC		CLAYEYSANDS WITH OR WITHOUT GRAVEL
FINE-GRAINED SOILS MORE THAN HALF IS FINER THAN NO. 200 SIEVE	SILTS AND CLAYS LIQUID LIMIT 50% OR LESS		ML		INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTS WITH SAND AND GRAVEL
			CL		INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY CLAYS WITH SANDS AND GRAVELS, LEAN CLAYS
			OL		ORGANIC SILTS OR CLAYS OF LOW PLASTICITY
	SILTS AND CLAYS LIQUID LIMIT GREATER THAN 50%		MH		INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS, FINE SANDY OR SILTY SOILS, ELASTIC SILTS
			CH		INORGANIC CLAYS OF HIGH PLASTICITY FAT CLAYS
			OH		ORGANIC SILTS OR CLAYS OF MEDIUM TO HIGH PLASTICITY
HIGHLY ORGANIC SOILS			PT		PEAT AND OTHER HIGHLY ORGANIC SOILS

PID (PPM) -Photo Ionization Detector readings in parts per million from field headspace sample screening.

BLOWS/6" -Blows required to drive sampler 6 inches as indicated on the logs using sample drive hammer weight of 140 pounds falling 30 inches.

2.5YR 6/2 -Soil Color according to Munsell Soil Color Charts (1994 Revised Edition)

feet MSL -feet above Mean Sea Level

feet BGS -feet below ground surface

☐ - No Soil Sample Recovered

☐ - Partial Soil Sample Recovered

☒ - Undisturbed Soil Sample Recovered

■ - Soil Sample Submitted for Laboratory Analysis

▽ - First Encountered Groundwater Level

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Unified Soil Classification System Chart
Dublin Rock & Ready Mix
6393 Scarlett Court
Dublin, California

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PLATE 3

1020100.001	10201MW1.CDR		5/95
JOB NUMBER	DRAWING NUMBER	REVIEWED BY	DATE

PES Environmental, Inc.
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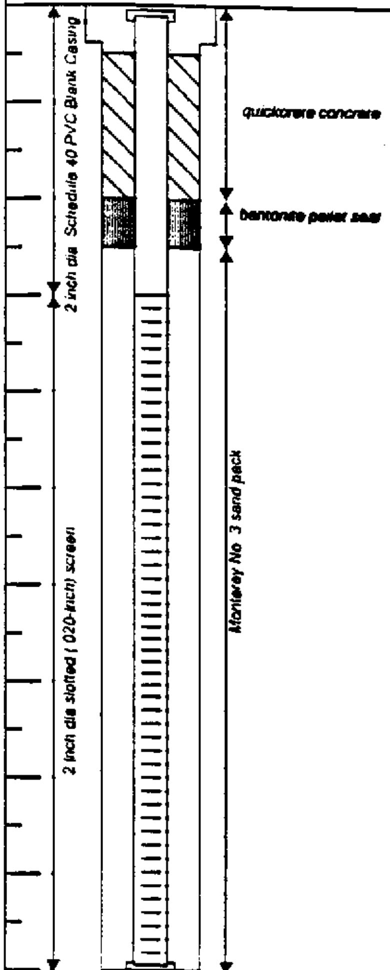
LOG OF MW-5

WELL CONSTRUCTION DETAIL

Christy Box



FID (PPM)	DEPTH (FT)	MATERIALS DESCRIPTION
		ASPHALT WITH CONCRETE
		VERY DARK GRAY CLAY (CL) 2.5YR 3/1, soft, moist, ~5% fine-grained sand. fill material.
ND		
ND		
ND		DARK GRAY CLAYEY SAND (SC) 2.5Y 4/1, medium dense, wet, ~10% clay fines.
	5	
ND		VERY DARK GRAY CLAY (CL) 2.5Y 3/1, soft, moist, ~5% fine-grained sand.
ND		GRAYISH BROWN CLAY (CL) 2.5Y 5/2, soft, moist, ~10% fine-grained to medium-grained sand.
	10	*Bottom of boring at 10 feet below ground surface.*
	15	

(10201mw1.con)

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CLIENT	DOLAN RENTAL COMPANY	DIAMETER OF HOLE	8 inches
LOCATION	Dublin, California	TOTAL DEPTH OF HOLE	10 feet bgs
JOB NUMBER	102.0100.003	TOP OF CASING ELEVATION	326.50 feet MSL
GEOLOGIST/ENGINEER	Alicia Andrews	DATE STARTED	2/23/95
DRILL RIG	CME 45	DATE COMPLETED	2/23/95

PLATE

4

PES Environmental, Inc.
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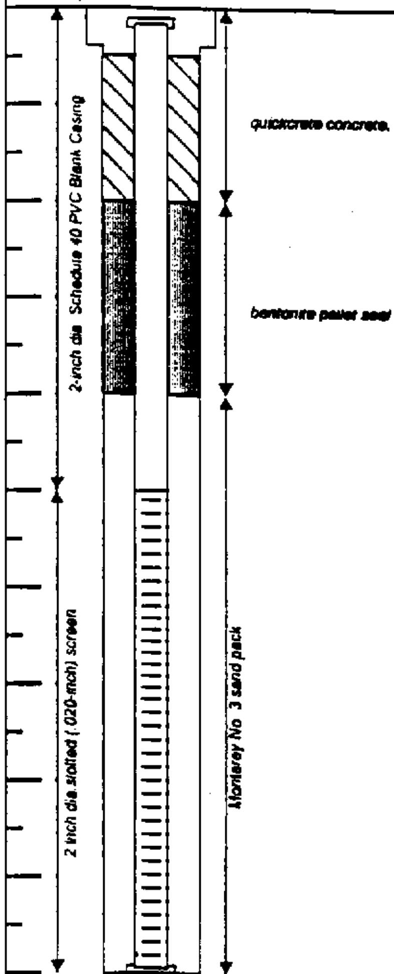
LOG OF MW-6

WELL CONSTRUCTION DETAIL

Christy Box



FID (PPM)	DEPTH (FT)	MATERIALS DESCRIPTION
	0	GRAVEL AT SURFACE
		SANDY FILL MATERIAL
ND		OLIVE SANDY CLAY (CL) 5Y 4/3, firm, damp, ~40% poorly graded medium-grained sand, no odors.
ND	5	DARK OLIVE GRAY SANDY CLAY (CL) 5Y 3/2, soft, moist, ~30% poorly graded medium-grained sand, no odors.
ND		DARK GRAY CLAY (CL) 5Y 4/1, soft, moist, ~20% fine-grained sand, no odors.
	10	*Bottom of boring at 10 feet below ground surface.*
	15	

(10201mw1.cdr)

DRAFT

CLIENT	DOLAN RENTAL COMPANY	DIAMETER OF HOLE	8 inches
LOCATION	Dublin, California	TOTAL DEPTH OF HOLE	10 feet bgs
JOB NUMBER	102.0100.003	TOP OF CASING ELEVATION	327.23 feet MSL
GEOLOGIST/ENGINEER	Alicia Andrews	DATE STARTED	3/14/95
DRILL RIG	Simco 2400	DATE COMPLETED	3/14/95

PLATE

5

APPENDIX A

GROUNDWATER SAMPLING REPORTS
BLAINE TECH SERVICES, INC.

BLAINE
TECH SERVICES INC.

985 TIMOTHY DRIVE
SAN JOSE, CA 95133
(408) 995-5535
FAX (408) 293-8773

April 14, 1995

PES Environmental, Inc.
1682 Novato Blvd., Suite 100
Novato, CA 94947

Attention: Mike Thompson

SITE:
Dublin Rock & Ready Mix
6393 Scarlett Court
Dublin, California

PROJECT:
Well Development

PROJECT INITIATED ON:
March 17, 1995

WELL DEVELOPMENT REPORT 950317-L-2

Blaine Tech Services, Inc. performs specialized environmental sampling and documentation as an independent third party. In order to avoid compromising the objectivity necessary for the proper and disinterested performance of this work, Blaine Tech Services, Inc. does not participate in the interpretation of analytical results or become involved with the marketing or installation of remedial systems. The interpretation of results should be performed by representatives of the interested regulatory agencies and those certified professionals who are engaged as paid consultants in the business of providing professional opinions along with recommendations and proposals for further investigative or remedial activities.

As an independent third party, Blaine Tech Services, Inc. routinely performs evacuation and sampling of groundwater wells. In addition, we are frequently asked to provide specialized personnel, instruments and equipment for well development work. Similar standards of care and cleanliness are required in all these activities and our personnel are accustomed to the safety measures that must be taken.

Scope of Requested Services

Blaine Tech Services, Inc. was asked to provide specialized equipment, instruments and personnel for a well development project being overseen by PES Environmental, Inc..

Execution of the Recent Work

Our personnel arrived at the site on Friday, March 17, 1995 and developed two wells in accordance with our client's specifications communicated to us by Mr. Mike Thompson. A summary of the well development actions is presented in the tables of field data which follow.

MW-5 WELL DEVELOPMENT LOG

Well Designation	Well Diameter (inches)	Well Depth (feet)	Initial Depth to Water (feet)	Volume of single case (gallons)
MW-5	2	9.99	1.89	1.3

Equipment Used: Middleburg pump / 2" Surge block / Bailer

Data collection during well development:

Date	Time	Gallons Removed	Temp. (F)	pH	EC (micromhos)	Turbidity (NTU)	Notes
03/17/95		Surged well for 15 minutes.					
	11:04	2.0	64.1	7.4	5000	>200	Cloudy brown water.
	11:06	3.0	61.6	7.3	5000	>200	
	11:10	5.0	62.2	7.2	5600	>200	
	11:17	Slowed pumping, well is dewatering. Sand, cuttings removed from well bottom.					
	11:18	7.0	65.0	7.7	5600	>200	
	11:24	8.0	64.0	7.7	6000	>200	
	11:28	Dewatered @ 8 gals. Bottom of well is hard, clean.					
	11:33	Depth to water @ 8.98'.					
	11:49	Depth to water @ 6.54'. Surged well for 15 minutes.					
	12:05	Depth to water @ 4.92'.					
	13:35	Depth to water @ 2.36'. Finished development with bailer.					

To be continued.

MW-5 WELL DEVELOPMENT LOG (cont'd)

Date	Time	Removed	(F)	pH	(micromhos)	(NTU)	Notes
3/17/95	13:40	2.0	61.1	7.6	5300	>200	Sand removed from well bottom.
	13:43	3.0	61.3	7.4	5450	>200	
	13:48	4.0	61.3	7.4	5450	>200	Well bottom is hard, clean.
	13:55	5.0	61.5	7.4	5900	>200	
	13:59	6.0	61.7	7.2	6000	>200	
	14:07	7.0	61.7	7.2	--	>200	

14:08 Depth to water @ 9.5'. Well dewatered again.
Total Well depth @ 10.01'.

* Development began with 1.75" middleburg pump until pump broke down. The remaining casing volumes were removed with a teflon bailer.

* The purge water at 5 casing volumes (8 gals.) was very turbid. The purge water at 10 casing volumes (13 gals.) would have had a turbidity value greater than 200 NTU, if the middleburg pump was used for the entire development.

14:08 End log.

MW-6 WELL DEVELOPMENT LOG

Well Designation	Well Diameter (inches)	Well Depth (feet)	Initial Depth to Water (feet)	Volume of single case (gallons)
MW-6	2	9.89	3.98	0.9

Equipment Used: Bailer / Middleburg pump / 2" Surge Block

Data collection during well development:

Date	Time	Gallons Removed	Temp. (F)	pH	EC (micromhos)	Turbidity (NTU)	Notes
03/17/95	Surged well for 15 minutes.						
	12:34	1.0	65.5	7.7	3400	>200	Brown cloudy water.
	12:35	2.0	61.5	7.6	3400	>200	
	12:37	3.0	61.1	7.5	3300	>200	Sand, cuttings removed.
	12:38	4.0	60.4	7.4	3200	>200	
	Middleburg pump was not working. Finished development with bailer. Well bottom is hard and clean.						
	13:05	5.0	59.2	7.4	3200	>200	
	13:09	6.0	58.7	7.4	3200	>200	Depth to water @ 6.74' during purge.
	13:14	7.0	58.5	7.4	3150	>200	
	13:18	8.0	58.5	7.6	3200	>200	
	13:22	9.0	58.8	7.6	3200	>200	Total well depth @ 9.89'.
	13:22	End well development.					

STANDARD PROCEDURES

Overview

Because formations vary in their geologic composition, transmissivity and water production capability, well development cannot be reduced to a set of fixed procedures that will always produce a complete and satisfactory result if just repeated for a predetermined period of time. Instead, well development is accomplished by selecting procedures that (a.) repair that portion of the native formation that was disrupted by the cutting action of the well drilling tool, and (b.) promote the flow of water out of the native formation into the newly installed well (through the granular filter pack and well screen). Execution of development actions that are not appropriate to the native formation will be inefficient and in some cases even deleterious.

Time constraints usually prevent a precise classification of the saturated zone materials by analysis of soil samples for physical characteristics at a laboratory equipped to do physical testing. Physical tests cannot usually be completed during the brief timespan of a project that combines exploration, design, and well installation into a one day effort. Instead, the subjective judgments of the field geologist are recorded in the boring log and well installation log. The field geologist must quickly evaluate soil types by their appearance and observable characteristics and record his or her estimation of the material in the log according to the categorical definitions provided by the Unified Soil Classification System. These categorical judgments are also the basis for determining the final construction specifications of the well.

The well's total depth, the length of the screened interval, the slot size, and the size of the sand used in the filter pack are all decided on the *appearance* of soil cuttings and whatever quick tests the field geologist can perform. Because the physical specifications for the well are set at that moment and cannot be corrected later, any misclassification of soil that results in a mismatching of the well to the native formation will have to be addressed and corrected (to whatever extent is possible) with well development actions, alone.

Well development work can be directed in two ways:

> First, specific well development actions can be called for by the geologist who installed the wells or by another professional reviewing that installation work. Typically, consultants specify the use of certain equipment and techniques.
>
> Second, the consultant or client can define the goal which is being sought and place limits on the amount of effort which should be taken to achieve the goal.

Of the two types of direction, the second is far more common and also more important. Defining the extent of effort which can be expended is vital to controlling costs on a project and scheduling personnel and equipment to complete the work. Moreover, it is possible to undertake and complete work without the added and frequently unnecessary effort of working out very detailed specification which may be impractical or unwarranted.

This does not mean that our personnel cannot make use of well installation logs when they are available or are not receptive to very specific directions from the consultant. It does, however, mean that when very detailed directions are given, rapid communications between our personnel and the geologist become very important. This is especially true of sites where multiple wells have been installed, because wells even a short distance apart may demonstrate quite different characteristics which may require a rapid reevaluation of what well development procedures are appropriate in light of the hydrologic condition presented by the native formation at that location on the site.

In most cases, tightly controlled action sequences are less productive than more general directions combined with plain statements of what evaluation criteria should be used for judging the progress and completeness of the well development work. The most common standards are volumetric (removal of set volumes of water), recharge rate, and water clarity (measured as nephelometric turbidity units). Given these goals and limitations, our personnel can work independently of the project geologist. In most cases, our personnel can proceed with the work without supervision or direction by relying on empirical information obtained directly from the water in the well.

Selection of Development Equipment

Each Blaine Tech Services, Inc. vehicle provided for a well development project will have a wide assortment of development tools including stainless steel surgeblocks and swabs, several types of pumps, and complete instrumentation for determining standard parameters. Special equipment which includes certain types of winches, jetting heads, and drop surging pumps can be provided.

General Policy

Truly difficult conditions which can only be resolved by the application of massive force or large volumes of high pressure air should be addressed by a drilling or pump installation contractor. Blaine Tech Services, Inc. is not in the heavy salvage business and has a general policy against the use of tools or techniques which provide enough mechanical advantage to pose a serious risk of damaging the well. The same policy prohibits introducing foreign materials into a well which could carry contaminants into the groundwater. In keeping with this policy, our personnel avoid surging with slugs of effluent water, or jetting with unfiltered air unless these actions are specifically requested by a registered professional who is cognizant of the problems and hazards that accompany the action. In a similar vein, our personnel will, whenever possible, avoid development actions that are likely to seal clay formations or promote bridging, and make every attempt to call obvious indications of such conditions to the attention of the project geologist so that a different regimen can be selected.

Effluent Materials

Groundwater well sampling protocols call for the evacuation of a sufficient volume of water from the well to insure that the sample is collected from water that has been newly drawn into the well from the surrounding geologic formation.

Well development routinely generates as much or more effluent water as does routine evacuation prior to monitoring. In some cases very large amounts of water must be removed from the well before a satisfactory level of development has been achieved. The effluent water from these development actions must be contained. Blaine Tech Services, Inc. will place this water in appropriate containers of the client's choice or bring new DOT 17 E drums to the site which are appropriate for the containment of the effluent materials. The determination of how to properly dispose of the effluent water must usually await the results of laboratory analyses of subsequent samples collected from each individual groundwater well. If those individual samples do not establish whether or not the effluent water is contaminated, or if effluent from more than one source has been combined in the same container, it may be necessary to conduct additional analyses on the effluent material.

Decontamination

All apparatus is brought to the site in clean and serviceable condition. The equipment will be decontaminated after use in each well and before leaving the site. Decontamination consists of complete disassembly of the device to a point where a jet of steam cleaner water can be directed onto all the internal surfaces. Blaine Tech Services, Inc. frequently modifies apparatus to allow complete disassembly and proper cleaning.

Personnel

All Blaine Tech Services, Inc. personnel receive 29 CFR 1910.120 training as soon after being hired as is practical. In addition, many of our personnel have additional certifications that include specialized training in level B supplied air apparatus and the supervision of employees working on hazardous materials sites. Employees are not sent to a site unless we are confident they can adhere to any site safety provisions in force at the site and unless we know that they can follow the written provisions of an SSP and the verbal directions of an SSO.

In general, employees sent to a site to perform groundwater well sampling will assume an OSHA level D (wet) environment exists unless otherwise informed. The use of gloves and double glove protocols protects both our employees and the integrity of the samples being collected. Additional protective gear and procedures for higher OSHA levels of protection are available.

Please call if we can be of any further assistance.

James Allen fr.

Richard C. Blaine

RCB/lp

BLAINE
TECH SERVICES INC.

985 TIMOTHY DRIVE
SAN JOSE, CA 95133
(408) 995-5535
FAX (408) 293-8773

April 11, 1995

PES Environmental, Inc.
1682 Novato Blvd. Suite 100
Novato, CA 94947

Attn: Mike Thompson

SITE:
Dublin Rock & Ready Mix
6393 Scarlett Court
Dublin, California

SAMPLING EVENT:
Evacuate and sample six wells

DATE:
March 21, 1995

GROUNDWATER SAMPLING REPORT 950321-D-1

Blaine Tech Services, Inc. performs specialized environmental sampling and documentation as an independent third party. In order to avoid compromising the objectivity necessary for the proper and disinterested performance of this work, Blaine Tech Services, Inc. does not participate in the interpretation of analytical results or become involved with the marketing or installation of remedial systems.

This report deals with the groundwater well sampling performed by our firm in response to your request. Data collected in the course of our work at the site is presented in the TABLE OF WELL MONITORING DATA. This data was collected during our inspection, well evacuation, and sample collection. Measurements include the total depth of the well and depth to water. Water surfaces were further inspected for the presence of immiscibles. A series of electrical conductivity, pH, and temperature readings were obtained during well evacuation and at the time of sample collection. Recharge performance can be evaluated by comparing the anticipated three, four, or five case volume evacuation gallonage with the volume which could actually be purged.

TABLE OF WELL MONITORING DATA

Well I.D.	MW-1			MW-2			MW-3			MW-4		
Date Sampled	03/21/95			03/21/95			03/21/95			03/21/95		
Well Diameter (in.)	2			2			2			2		
Total Well Depth (ft.)	19.40			20.02			18.90			18.98		
Depth To Water (ft.)	1.0			1.25			1.62			1.80		
Free Product (in.)	NONE			NONE			NONE			NONE		
Reason If Not Sampled	--			--			--			--		
1 Case Volume (gal.)	2.9			3.0			2.8			2.7		
Did Well Dewater?	NO			NO			NO			NO		
Gallons Actually Evacuated	9.0			9.0			8.5			8.5		
Purging Device	BAILER			BAILER			BAILER			BAILER		
Sampling Device	BAILER			BAILER			BAILER			BAILER		
Time	09:40	09:45	09:50	11:55	12:00	12:05	09:10	09:15	09:20	11:25	11:30	11:35
Temperature (Fahrenheit)	67.4	68.4	67.6	70.2	70.4	70.0	72.4	73.4	73.0	74.6	70.4	70.0
pH	6.8	7.0	7.0	7.2	6.8	6.8	7.0	6.8	6.8	7.8	7.2	7.2
Conductivity (micromhos/cm)	4000	4000	4000	2000	3000	3000	4000	4000	4000	3000	3000	3000
Nephelometric Turbidity Units	38.8	31.5	28.8	145.6	52.5	25.4	83	150	150	175.2	>200	>200
BTS Chain of Custody	950321-D-1			950321-D-1			950321-D-1			950321-D-1		
BTS Sample I.D.	MW-1			MW-2			MW-3			MW-4		
DHS HMTL Laboratory	AEN			AEN			AEN			AEN		
Analysis	TPH (GAS), BTEX			TPH (GAS), BTEX			TPH (GAS), BTEX			TPH (GAS), BTEX		

TABLE OF WELL MONITORING DATA

Well I.D.	MW-5			MW-6		
Date Sampled	03/21/95			03/21/95		
Well Diameter (in.)	2			2		
Total Well Depth (ft.)	10.08			9.94		
Depth To Water (ft.)	2.10			3.24		
Free Product (in.)	NONE			NONE		
Reason If Not Sampled	--			--		
1 Case Volume (gal.)	1.3			1.1		
Did Well Dewater?	NO			NO		
Gallons Actually Evacuated	4.0			3.5		
Purging Device	BAILER			BAILER		
Sampling Device	BAILER			BAILER		
Time	10:15	10:20	10:25	10:55	11:00	11:05
Temperature (Fahrenheit)	61.4	62.4	61.8	69.5	70.8	70.2
pH	7.2	7.0	7.0	7.2	7.2	7.2
Conductivity (micromhos/cm)	5500	5500	6000	3000	3000	3000
Nephelometric Turbidity Units	>200	>200	>200	>200	>200	>200
BTS Chain of Custody	950321-D-1			950321-D-1		
BTS Sample I.D.	MW51			MW-6		
DHS HMTL Laboratory	AEN			AEN		
Analysis	TPH (GAS), BTEX			TPH (GAS), BTEX		

EQUIPMENT

Selection of Sampling Equipment

The determination of what apparatus is to be used on particular wells may be made by the property owner or the professional consultant directing the performance of the monitoring on the property owner's behalf. If no specific requirement is made known to us, our personnel will select equipment that will accomplish the work in the most efficient manner. Our personnel are equipped with a variety of sampling devices that include USGS/Middleburg pumps, down hole electric submersible pumps, air lift pumps, suction pumps, and bailers made of both Teflon and stainless steel.

Evacuation and Sampling Equipment Mechanics

When equipment is not selected by the client, the apparatus for well evacuation and sample collection is selected by our field personnel based on an evaluation of the field conditions. Four types of devices are commonly available for employment:

Bailers
High Volume Suction Pumps
Electric Submersible Pumps
USGS/Middleburg positive displacement sampling pumps

Bailers were selected for the collection of samples at this site.

Bailers: A bailer, in its simplest form, is a hollow tube which has been fitted with a check valve at the lower end. The device can be lowered into a well by means of a cord. When the bailer enters the water, the check valve opens and liquid flows into the interior of the bailer. The bottom check valve prevents water from escaping when the bailer is drawn up out of the well.

Two types of bailers are used in groundwater wells at sites where fuel hydrocarbons are of concern. The first type of bailer is made of a clear material such as acrylic plastic and is used to obtain a sample of the surface and the near surface liquids in order to detect the presence of visible or measurable fuel hydrocarbon floating on the surface. The second type of bailer is made of Teflon or stainless steel and is used as an evacuation and/or sampling device.

Bailers are inexpensive and relatively easy to clean. Because they are manually operated, variations in operator technique may have a greater influence than would be found with more automated sampling equipment. Also where fuel hydrocarbons are involved, the bailer may include near surface contaminants that are not representative of water deeper in the well.

STANDARD PRACTICES

Evacuation

There are few accepted groundwater sampling protocols that do not call for the evacuation of at least three case volumes of water prior to sample collection, and there are situations where up to ten case volumes of evacuation may be requested. Different professional consultants may specify different levels of evacuation prior to sampling or may request that specific parameters be used to determine when to collect the sample. Our personnel use several standard instruments to record the changes in parameters as the well is evacuated. These instruments are used regardless of whether or not a specific volumetric standard has been called for. As a result, the consultant will always be provided with a record of the pH, EC, and temperature changes that occurred during the evacuation process. Additional information obtained with different types of instruments (such as dissolved oxygen and turbidity meters) can also be collected if requested in advance.

Effluent Materials

Groundwater well sampling protocols call for the evacuation of a sufficient volume of water from the well to insure that the sample is collected from water than has been newly drawn into the well from the surrounding geologic formation. The evacuation of this purge water creates a volume of effluent water which must be contained. Blaine Tech Service, Inc. will place this water in appropriate containers of the client's choice or bring new DOT 17 E drums to the site which are appropriate for the containment of the effluent materials. The determination of how to properly dispose of the effluent water must usually await the results of laboratory analyses of the sample collected from the groundwater well. If that sample does not establish whether or not the effluent water is contaminated, or if effluent from more than one source has been combined in the same container, it may be necessary to conduct additional analyses on the effluent material.

Observations and Measurements

Included in the scope of work are routine measurements and investigative procedures which are intended to determine if the wells are suitable for evacuation and sampling. These include measurement (from the top of the well case) of the total depth of the well; the depth to water, and the thickness of any free product zone (FPZ) encountered. The presence of a significant free product zone may interfere with efforts to collect a water sample that accurately reflects the condition of groundwater lying below the FPZ. This interference is caused by adhesion of petroleum to any device being lowered through the FPZ and the likelihood that minute globules of petroleum may break free of the sampling device and be included in the sample. Accordingly, evaluation of analytical results from wells containing any amount of free petroleum should take into account the possibility that positive results have been skewed higher by such an inclusion. The decision to sample or not sample such wells is left to the discretion of our field personnel at the site and the consultant who establishes sampling guidelines based on the need for current information on groundwater conditions at the site.

Sampling Methodology

Samples were obtained by standardized sampling procedures that follow an evacuation and sample collection protocol. The sampling methodology conforms with State and Regional Water Quality Control Board standards and specifically adheres to EPA requirements for apparatus, sample containers and sample handling as specified in publication SW 846.

Sample Containers

Sample material is collected in specially prepared containers appropriate to the type of analyses intended. Our firm uses new sample containers of the type specified by either EPA or the RWQCB. Often times analytical laboratories wish to supply the sample containers because checks performed on these bottles are often part of a comprehensive laboratory QC program. In cases where the laboratory does not supply sample containers our personnel collect water samples in containers that are appropriate to the type of analytical procedure that the sample is to receive. For example, 40 ml volatile organic analysis vials (VOAs) are used when analysis for gasoline and similar light volatile compounds is intended. These containers are prepared according to EPA SW 846 and will usually contain a small amount of preservative when the analysis is for TPH as gasoline or EPA 602. Vials intended for EPA 601 analysis and EPA 624 GCMS procedures are not preserved. The closure of volatile organic analysis water sample containers is accomplished with an open headed (syringe accessible) plastic screw cap brought down on top of a Teflon faced septum which is used to seal the sample without headspace.

Water samples intended for semivolatile and nonvolatile analysis such as total oil and grease (TOG) and diesel (TPH HBF) are collected and transported in properly prepared new glass liter bottles. Dark amber glass is used in the manufacture of these bottles to reduce any adverse effect on the sample by sunlight. Antimicrobial preservative may be added to the sample liquid if a prolonged holding time is expected prior to analysis. Closure is accomplished with a heavy plastic screw cap.

Groundwater well samples intended for metals analysis are transported in new plastic bottles and preserved with nitric acid. Our personnel can field filter the sample liquid prior to placing it in the sample container if instructed to perform this procedure.

Sample Handling Procedures

Water samples are collected in any of several appropriate devices such as bailers, Coliwasas, Middleburg sampling pumps etc. which are described in detail only as warranted by their employment at a given site. Sample liquid is decanted into new sample containers in a manner which reduces the loss of volatile constituents and follows the applicable EPA procedures for handling volatile organic and semi-volatile compounds. Only two variations from the EPA methods are generally employed. First, preservative is added to the sample container prior to addition of the sample liquid. We first discovered this method in bottles prepared by Stoner Laboratories in 1982. It was subsequently adopted by many northern California laboratories and environmental consulting firms as a practical means of reducing the time that a liquid is allowed to aerate prior to closure of the sampling container. Second, because tests have shown that the preservative readily mixes with sample liquid, glass stirring rods are not used to agitate the sample/preservative mixture.

Groundwater samples that are to receive metals analyses can be filtered prior to being placed in the plastic sample bottles that contain the nitric acid preservative. The filtration process employs new glass containers which are discarded and laboratory quality disposable filtering containers which are also discarded. A frequently used filtering procedure employs a vacuum pump to draw sample material through a 0.45 micron filter. The 0.45 micron pore size is standard, but the amount of filter available varies with the type of package selected. Filters are selected on the basis of the relative turbidity of the water sample. Samples which are relatively clean can be efficiently filtered with relatively inexpensive filters while very turbid water will require a very large filter with a high tolerance for sediments. One of many such filters our firm uses are the Nalgene Type A filters in which an upper and lower receptacle chamber are affixed to the filter. Sample material is poured into the upper chamber and a vacuum pump attached to the lower chamber. Simple actuation of the vacuum pump induces the flow of water through the filter and into the lower chamber. The sample is then decanted into the laboratory container and the filter assembly discarded.

Following collection, samples are promptly placed in an ice chest containing prefrozen blocks of an inert ice substitute such as Blue Ice or Super Ice. The samples are maintained in either an ice chest or a refrigerator until delivered into the custody of the laboratory.

Sample Designations

All sample containers are identified with both a sampling event number and a discrete sample identification number. Please note that the sampling event number is the number that appears on our chain of custody. It is roughly equivalent to a job number, but applies only to work done on a particular day of the year rather than spanning several days as jobs and projects often do.

Chain of Custody

Samples are continuously maintained in an appropriate cooled container while in our custody and until delivered to the laboratory under our standard chain of custody. If the samples are taken charge of by a different party (such as another person from our office, a courier, etc.) prior to being delivered to the laboratory, appropriate release and acceptance records are made on the chain of custody (time, date, and signature of person releasing the samples followed by the time, date and signature of the person accepting custody of the samples).

Hazardous Materials Testing Laboratory

Samples obtained at this site were delivered to American Environmental Network in Pleasant Hill, California. American Environmental Network is certified by the California Department of Health Services as a Hazardous Materials Testing Laboratory and is listed as DOHS HMTL #1172.

Personnel

All Blaine Tech Services, Inc. personnel receive 29 CFR 1910.120(e)(2) training as soon after being hired as is practical. In addition, many of our personnel have additional certifications that include specialized training in level B supplied air apparatus and the supervision of employees working on hazardous materials sites. Employees are not sent to a site unless we are confident they can adhere to any site safety provisions in force at the site and unless we know that they can follow the written provisions of an SSP and the verbal directions of an SSO.

In general, employees sent to a site to perform groundwater well sampling will assume an OSHA level D (wet) environment exists unless otherwise informed. The use of gloves and double glove protocols protects both our employees and the integrity of the samples being collected. Additional protective gear and procedures for higher OSHA levels of protection are available.

Decontamination

All apparatus is brought to the site in clean and serviceable condition. The equipment is decontaminated after each use and before leaving the site. Decontamination procedures include complete disassembly of the device to a point where a jet of steam cleaner water can be directed onto all the internal surfaces (this applies to the *inside* of the Teflon bladders of USGS/Middleburg pumps). Teflon conductor tubing is connected to the steam cleaner water outlet and water is run through the interior of the tubing for several minutes. The devices are then reassembled and actuated for a period of time as an additional measure. Blaine Tech Services, Inc. frequently modifies apparatus to allow complete disassembly and proper cleaning.

Please call if we can be of any further assistance.

Richard C. Blaine

RCB/lp

attachments: chain of custody

R-3, S-3

BLAINE TECH SERVICES INC

985 TIMOTHY DRIVE
SAN JOSE, CA 95133
(408) 995-5535
FAX (408) 293-8773

CONDUCT ANALYSIS TO DETECT

LAB AEN 9503353 DHS #

ALL ANALYSES MUST MEET SPECIFICATIONS AND DETECTION LIMITS SET BY CALIFORNIA DHS AND

☐ EPA ☐ RWQCB REGION ______
☐ LIA
☐ OTHER

CHAIN OF CUSTODY 950321D1

CLIENT AES Environmental

SITE Dublin Rock & Ready Mix
6393 Scarlett Ct
Dublin CA

SPECIAL INSTRUCTIONS
Invoice & Report to AES
Attn: Mike Thompson

cc report to Blaine Tech.

SAMPLE I.D.			MATRIX (S = SOIL, W = H2O)	CONTAINERS TOTAL		C = COMPOSITE ALL CONTAINERS	TPHg/BTEX							ADD'L INFORMATION	STATUS	CONDITION	LAB SAMPLE #
MW-1		9:55	W	3	01A-C		X										
MW-2		1210	W	3	02A-C		X										
MW-3		925	W	3	03A-C		X										
MW-4		1140	W	3	04A-C		X										
MW-5		1030	W	3	05A-C		X										
MW-6		1110	W	3	06A-C		X										

SAMPLING COMPLETED DATE 3-21-95 TIME 1230
SAMPLING PERFORMED BY MIKE DILLOUGHERY
RESULTS NEEDED NO LATER THAN Standard TAT

RELEASED BY	DATE	TIME	RECEIVED BY	DATE	TIME
M. Dilloughery	3/22/95	1420	Michael E McMullen	3/22/95	14:20
Michael E McMullen	3/22/95	16:35	Lai L Pruitt	3-22-95	1635

SHIPPED VIA	DATE SENT	TIME SENT	COOLER #

APPENDIX B

RESULTS OF MONITORING WELL ELEVATION SURVEY

February 10, 1995
Job No. 95503

Table of Elevations

Dublin Rock and Ready Mix Site
6393 Scarlett Court
Dublin, California

Well No.	Elevation	
MW-1	326.61	Top of PVC casing, north side @ cut notch
	327.03	Top centerline of well cover
MW-2	326.67	Top of PVC casing, north side @ cut notch
	327.03	Top centerline of well cover
MW-3	326.58	Top of PVC casing, north side @ cut notch
	326.82	Top centerline of well cover
MW-4	326.92	Top of PVC casing, north side @ cut notch
	327.20	Top centerline of well cover
MW-5	326.50	Top of PVC casing, north side @ cut notch
	326.88	Top centerline of well cover
MW-6	327.23	Top of PVC casing, north side @ cut notch
	327.52	Top centerline of well cover

Benchmark: City of Dublin Benchmark Dough-SL, chiseled square on the top of curb at the centerline of the catch basin, at the northerly curb return on the Northwest corner of Dougherty Road and Sierra Way.

Elevation = 331.728 M.S.L.

KIER & WRIGHT CIVIL ENGINEERS & SURVEYORS, INC.
5880 WEST LAS POSITAS BOULEVARD, SUITE 34 ♦ PLEASANTON, CALIFORNIA 94588 ♦ (510) 734-8060 ♦ (510) 734-8064

APPENDIX C

CHEMICAL ANALYSIS REPORTS

American Environmental Network

Certificate of Analysis

DOHS Certification: 1172 AIHA Accreditation: 11134

PES ENVIRONMENTAL, INC.
1682 NOVATO BLVD.
SUITE 100
NOVATO, CA 94947

ATTN: MIKE THOMPSON
CLIENT PROJ. ID: 950321D1
CLIENT PROJ. NAME: DUBLIN ROCK

REPORT DATE: 04/03/95

DATE(S) SAMPLED: 03/21/95

DATE RECEIVED: 03/22/95

AEN WORK ORDER: 9503353

PROJECT SUMMARY:

On March 22, 1995, this laboratory received 6 water sample(s).

Client requested sample(s) be analyzed for organic parameters. Results of analysis are summarized on the following page(s). Please see quality control report for a summary of QC data pertaining to this project.

Samples will be stored for 30 days after completion of analysis, then disposed of in accordance with State and Federal regulations. Samples may be archived by prior arrangement.

If you have any questions, please contact Client Services at (510) 930-9090.

Larry Klein
Laboratory Director

cc: Blaine Tech

PES ENVIRONMENTAL, INC.

SAMPLE ID: MW-1
AEN LAB NO: 9503353-01
AEN WORK ORDER: 9503353
CLIENT PROJ. ID: 950321D1

DATE SAMPLED: 03/21/95
DATE RECEIVED: 03/22/95
REPORT DATE: 04/03/95

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	**EPA 8020**				
Benzene	71-43-2	ND	0.5	ug/L	03/28/95
Toluene	108-88-3	ND	0.5	ug/L	03/28/95
Ethylbenzene	100-41-4	ND	0.5	ug/L	03/28/95
Xylenes, Total	1330-20-7	ND	2	ug/L	03/28/95
Purgeable HCs as Gasoline	5030/GCFID	ND	0.05	mg/L	03/28/95

ND = Not detected at or above the reporting limit
* = Value at or above reporting limit

PES ENVIRONMENTAL, INC.

SAMPLE ID: MW-2
AEN LAB NO: 9503353-02
AEN WORK ORDER: 9503353
CLIENT PROJ. ID: 950321D1

DATE SAMPLED: 03/21/95
DATE RECEIVED: 03/22/95
REPORT DATE: 04/03/95

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	EPA 8020				
Benzene	71-43-2	17,000 *	50	ug/L	03/28/95
Toluene	108-88-3	8,000 *	50	ug/L	03/28/95
Ethylbenzene	100-41-4	3,800 *	50	ug/L	03/28/95
Xylenes, Total	1330-20-7	17,000 *	200	ug/L	03/28/95
Purgeable HCs as Gasoline	5030/GCFID	88 *	5	mg/L	03/28/95

Reporting limits elevated due to high levels of target compounds. Sample run at dilution.

ND = Not detected at or above the reporting limit
* = Value at or above reporting limit

PES ENVIRONMENTAL, INC.

SAMPLE ID: MW-3
AEN LAB NO: 9503353-03
AEN WORK ORDER: 9503353
CLIENT PROJ. ID: 950321D1

DATE SAMPLED: 03/21/95
DATE RECEIVED: 03/22/95
REPORT DATE: 04/03/95

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	**EPA 8020**				
Benzene	71-43-2	ND	0.5	ug/L	03/28/95
Toluene	108-88-3	ND	0.5	ug/L	03/28/95
Ethylbenzene	100-41-4	ND	0.5	ug/L	03/28/95
Xylenes, Total	1330-20-7	ND	2	ug/L	03/28/95
Purgeable HCs as Gasoline	5030/GCFID	ND	0.05	mg/L	03/28/95

ND = Not detected at or above the reporting limit
* = Value at or above reporting limit

PES ENVIRONMENTAL, INC.

SAMPLE ID: MW-4
AEN LAB NO: 9503353-04
AEN WORK ORDER: 9503353
CLIENT PROJ. ID: 950321D1

DATE SAMPLED: 03/21/95
DATE RECEIVED: 03/22/95
REPORT DATE: 04/03/95

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	EPA 8020				
Benzene	71-43-2	200 *	3	ug/L	03/28/95
Toluene	108-88-3	5 *	3	ug/L	03/28/95
Ethylbenzene	100-41-4	66 *	3	ug/L	03/28/95
Xylenes, Total	1330-20-7	18 *	10	ug/L	03/28/95
Purgeable HCs as Gasoline	5030/GCFID	1.4 *	0.3	mg/L	03/28/95

Reporting limits elevated due to high levels of target compounds. Sample run at dilution.

ND = Not detected at or above the reporting limit
* = Value at or above reporting limit

PES ENVIRONMENTAL, INC.

SAMPLE ID: MW-5
AEN LAB NO: 9503353-05
AEN WORK ORDER: 9503353
CLIENT PROJ. ID: 950321D1

DATE SAMPLED: 03/21/95
DATE RECEIVED: 03/22/95
REPORT DATE: 04/03/95

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	**EPA 8020**				
Benzene	71-43-2	ND	0.5	ug/L	03/29/95
Toluene	108-88-3	ND	0.5	ug/L	03/29/95
Ethylbenzene	100-41-4	ND	0.5	ug/L	03/29/95
Xylenes, Total	1330-20-7	ND	2	ug/L	03/29/95
Purgeable HCs as Gasoline	5030/GCFID	ND	0.05	mg/L	03/29/95

ND = Not detected at or above the reporting limit
* = Value at or above reporting limit

PES ENVIRONMENTAL, INC.

SAMPLE ID: MW-6
AEN LAB NO: 9503353-06
AEN WORK ORDER: 9503353
CLIENT PROJ. ID: 950321D1

DATE SAMPLED: 03/21/95
DATE RECEIVED: 03/22/95
REPORT DATE: 04/03/95

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	**EPA 8020**				
Benzene	71-43-2	ND	0.5	ug/L	03/29/95
Toluene	108-88-3	ND	0.5	ug/L	03/29/95
Ethylbenzene	100-41-4	ND	0.5	ug/L	03/29/95
Xylenes, Total	1330-20-7	ND	2	ug/L	03/29/95
Purgeable HCs as Gasoline	5030/GCFID	ND	0.05	mg/L	03/29/95

ND = Not detected at or above the reporting limit
* = Value at or above reporting limit

AEN (CALIFORNIA)
QUALITY CONTROL REPORT

AEN JOB NUMBER: 9503353

CLIENT PROJECT ID: 950321D1

Quality Control and Project Summary

All laboratory quality control parameters were found to be within established limits.

Definitions

Laboratory Control Sample (LCS)/Method Spike(s): Control samples of known composition. LCS and Method Spike data are used to validate batch analytical results.

Matrix Spike(s): Aliquot of a sample (aqueous or solid) with added quantities of specific compounds and subjected to the entire analytical procedure. Matrix spike and matrix spike duplicate QC data are advisory.

Method Blank: An analytical control consisting of all reagents, internal standards, and surrogate standards carried through the entire analytical process. Used to monitor laboratory background and reagent contamination.

Not Detected (ND): Not detected at or above the reporting limit.

Relative Percent Difference (RPD): An indication of method precision based on duplicate analysis.

Reporting Limit (RL): The lowest concentration routinely determined during laboratory operations. The RL is generally 1 to 10 times the Method Detection Limit (MDL). Reporting limits are matrix, method, and analyte dependent and take into account any dilutions performed as part of the analysis.

Surrogates: Organic compounds which are similar to analytes of interest in chemical behavior, but are not found in environmental samples. Surrogates are added to all blanks, calibration and check standards, samples, and spiked samples. Surrogate recovery is monitored as an indication of acceptable sample preparation and instrumental performance.

D: Surrogates diluted out.

#: Indicates result outside of established laboratory QC limits.

QUALITY CONTROL DATA

METHOD: EPA 8020, 5030 GCFID

AEN JOB NO: 9503353
INSTRUMENT: F
MATRIX: WATER

Surrogate Standard Recovery Summary

Date Analyzed	Client Id.	Lab Id.	Percent Recovery Fluorobenzene
03/28/95	MW-1	01	95
03/28/95	MW-2	02	101
03/28/95	MW-3	03	95
03/28/95	MW-4	04	97
03/29/95	MW-5	05	101
03/29/95	MW-6	06	95
QC Limits:			92-109

DATE ANALYZED: 03/28/95
SAMPLE SPIKED: 9503353-03
INSTRUMENT: F

Matrix Spike Recovery Summary

Analyte	Spike Added (ug/L)	Average Percent Recovery	RPD	QC Limits Percent Recovery	QC Limits RPD
Benzene	18.6	95	2	85-109	17
Toluene	52.9	98	4	87-111	16
Hydrocarbons as Gasoline	500	76	13	66-117	19

Daily method blanks for all associated analytical runs showed no contamination over the reporting limit.

*** END OF REPORT ***

R-3,5-3

BLAINE TECH SERVICES INC

985 TIMOTHY DRIVE
SAN JOSE, CA 95133
(408) 995-5535
FAX (408) 293-8773

LAB AEN 9503353 DHS #

ALL ANALYSES MUST MEET SPECIFICATIONS AND DETECTION LIMITS SET BY CALIFORNIA DHS AND

☐ EPA ☐ RWQCB REGION ______
☐ LIA
☐ OTHER

CHAIN OF CUSTODY 950321D1

CLIENT AES Environmental

SITE Dublin Rock & Ready Mix
6393 Scarlett Ct
Dublin CA

SPECIAL INSTRUCTIONS
Invoice & Report to AES
Attn: Mike Thompson

cc report to Blaine Tech.

CONDUCT ANALYSIS TO DETECT: TPHg/BTEX

SAMPLE I.D.			MATRIX (S = SOIL, W = H2O)	CONTAINERS TOTAL		C = COMPOSITE ALL CONTAINERS	TPHg/BTEX	ADD'L INFORMATION	STATUS	CONDITION	LAB SAMPLE #
MW-1		9:55	W	3	01A-C		X				
MW-2		1210	W	3	02A-C		X				
MW-3		925	W	3	03A-C		X				
MW-4		1140	W	3	04A-C		X				
MW-5		1030	W	3	05A-C		X				
MW-6		1110	W	3	06A-C		X				

SAMPLING COMPLETED DATE 3-21-95 TIME 1230

SAMPLING PERFORMED BY MIKE DILLOUGHERY

RESULTS NEEDED NO LATER THAN Standard TAT

RELEASED BY	DATE	TIME	RECEIVED BY	DATE	TIME
M. P. Dilloughery	3/22/95	1420	Michael E. McMillan	3/22/95	14:20
Michael E. McMillan	3/22/95	16:35	Lai L Pruitt	3-22-95	1635

SHIPPED VIA	DATE SENT	TIME SENT	COOLER #	