PES Environmental, Inc.
Engineering & Environmental Services

A Report Prepared For:

Dolan Rental Company
6393 Scarlett Court
Dublin, California

QUARTERLY GROUNDWATER MONITORING REPORT APRIL TO NOVEMBER 1994 DUBLIN ROCK & READY MIX DUBLIN, CALIFORNIA

JANUARY 11, 1995

By:

8/9/95 27 drums at site - Probably purged water, soil cutting - Need to profile + dispose

Alicia D. Andrews
Staff Engineer x242

Michael D. Thompson, P. E.
Associate Engineer

102.0100.003

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1.0 INTRODUCTION

This report presents the results of quarterly groundwater monitoring performed by PES Environmental, Inc. (PES) during April, August and November 1994 on behalf of the Dolan Rental Company at the Dublin Rock and Ready Mix site (the Site) in Dublin, California (Plate 1). The quarterly groundwater monitoring was requested in a letter dated March 25, 1994, from the Alameda County Health Care Services Agency, Department of Environmental Health (ACDEH) to the Dolan Rental Company. The letter requested the collection of groundwater samples, preparation of this report, and evaluation of the need for additional monitoring wells.

2.0 BACKGROUND

PES has performed several 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 Monitoring Wells MW-2 and MW-4, respectively (see 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 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 was detected at concentrations of 120,000 ppb and 380 ppb in Monitoring Wells MW-2 and MW-4, respectively. Petroleum hydrocarbons were not identified in Monitoring Wells MW-1 and MW-3. Groundwater in the immediate vicinity of the former underground tank (at 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 GROUNDWATER MONITORING

Quarterly groundwater sampling from Monitoring Wells MW-1 through MW-4 was conducted by Blaine Tech Services, Inc., (Blaine Tech) under PES' supervision on April 4, August 12 and November 29, 1994. Before purging and sampling groundwater from the wells, the depth to groundwater was measured in each of the four monitoring wells to a precision of 0.01 feet using an electronic water-level sounder. The portion of the water-level sounder that was submerged in the well 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. Discharge 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 following 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.

4.0 GROUNDWATER MONITORING RESULTS

4.1 Groundwater Elevations and Flow

Groundwater elevations measured on April 7, August 12, and November 29, 1994 indicate a southerly to southwesterly flow direction with gradients of 0.006, 0.012, and 0.015 feet per feet, respectively. Groundwater elevations are presented in Table 1. Plates 2 through 6 present groundwater elevation contours for groundwater monitoring events between 1991 and 1994.

4.2 Chemical Analysis Results

TPHg concentrations in Monitoring Well MW-2 ranged from 90,000 to 140,000 ppb and TPHg concentrations in MW-4 ranged from 1,000 to 1,100 ppb during the monitoring events. Benzene, toluene, ethylbenzene, and xylenes were detected at concentrations ranging from 17000 to 21000 ppb, 7500 to 14000 ppb, 3000 to 4300 ppb, and 15000 to 21000 ppb, respectively in Monitoring Well MW-2. In Monitoring Well MW-4, benzene, toluene, ethylbenzene and xylenes were detected at concentrations ranging from 2 to 61 ppb, <0.5 ppb (method reporting limit) to 5.5 ppb, 8 to 17 ppb, and 4 to 12 ppb, respectively.

TPHg was not present at or above method reporting limits in Monitoring Wells MW-1 and MW-3 during the monitoring events. Benzene and toluene were detected in Monitoring Well MW-1 at 1 ppb during the August 12, 1994 sampling event. In Monitoring Well MW-3, benzene, toluene, ethylbenzene, and xylenes were detected in the April 7, 1994 sampling event at concentrations of 2.5, 5.5, 0.9, and 5.1 ppb, respectively. No other petroleum

hydrocarbons were identified in Monitoring Wells MW-1 and MW-3. Chemical analysis reports are presented in Appendix B. Chemical analysis results are presented in Table 2 and Plate 7.

5.0 CONCLUSIONS AND RECOMMENDATIONS

During previous PES investigations, groundwater was found to contain hydrocarbons in an area south to southeast of the former underground tank location. Groundwater in the immediate vicinity of the underground tank was found to contain a thin layer of floating product. Petroleum hydrocarbons were not identified in groundwater samples collected from areas north and southeast of the former underground tank, (MW-1 and MW-3, respectively).

During quarterly groundwater elevations performed in 1994, groundwater was found to flow in a southwesterly direction, consistent with previous groundwater monitoring. The results of chemical analyses of groundwater samples indicated a decrease in petroleum hydrocarbon concentrations at the former underground tank location (MW-2). Petroleum hydrocarbon concentrations at a location downgradient from the former underground tank location (MW-4) showed little variation during the quarterly monitoring. Petroleum hydrocarbons were either not detected or were found at low concentrations in areas north and southeast of the former underground tank.

In order to further monitor the presence of petroleum hydrocarbons in groundwater, PES has scheduled the installation of additional monitoring wells southeast and west of former underground tank location on January 16, 1994. PES will notify the ACDEH and obtain well permits prior to performing well installation activities.

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	95.21
MW-1	9/30/92	5.34	100.03	94.69
MW-1	4/7/94	3.38	100.03	96.65
MW-1	8/12/94	4.23	100.03	95.80
MW-1	11/29/94	3.44	100.03	96.59
MW-2	11/27/91	4.92	100.10	95.18
MW-2	9/30/92	5.42	100.10	94.68
MW-2	4/7/94	3.48	100.10	96.62
MW-2	8/12/94	4.18	100.10	95.92
MW-2	11/29/94	3.76	100.10	96.34
MW-3	11/27/91	4.96	100.00	95.04
MW-3	9/30/92	5.46	100.00	94.54
MW-3	4/7/94	3.66	100.00	96.34
MW-3	8/12/94	4.37	100.00	95.63
MW-3	11/29/94	3.60	100.00	96.40
MW-4	11/21/91	5.26	100.35	95.09
MW-4	9/30/92	5.78	100.35	94.57
MW-4	4/7/94	4.02	100.35	96.33
MW-4	8/12/94	4.81	100.35	95.54
MW-4	11/29/94	4.39	100.35	95.96

Notes

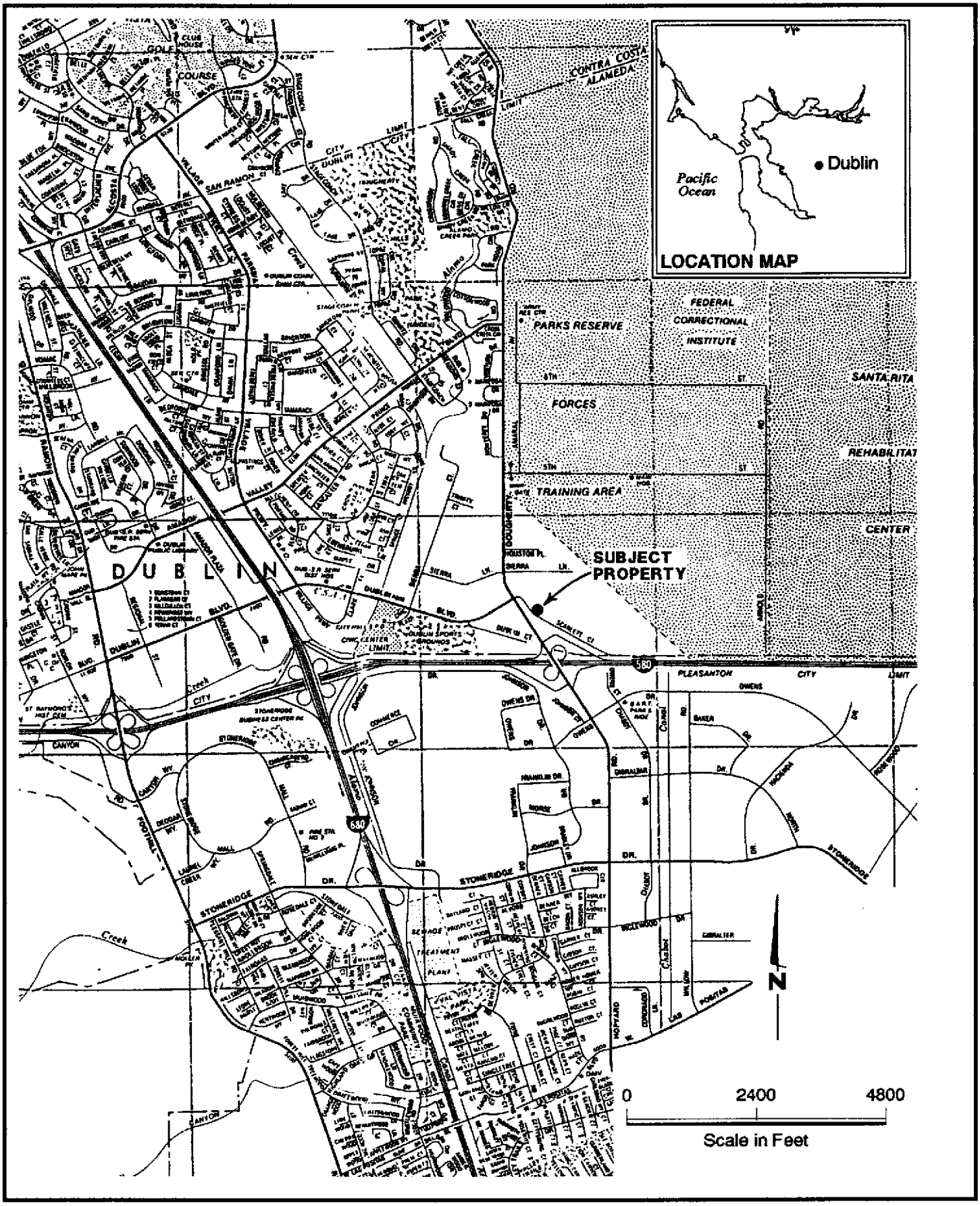
(1) = Top of Casing Measured Relative to Monitoring Well MW-3

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

(all results 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	2.5	5.5	0.9	5.1
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	100	0.7	250	330
MW-4	9/30/92	380	3.5	2.4	8.9	3.4
MW-4	4/7/94	1100	61	5.5	17	12
MW-4	8/12/94	1000	3	1	8	4
MW-4	11/29/94	1100	2	<0.5	10	6

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

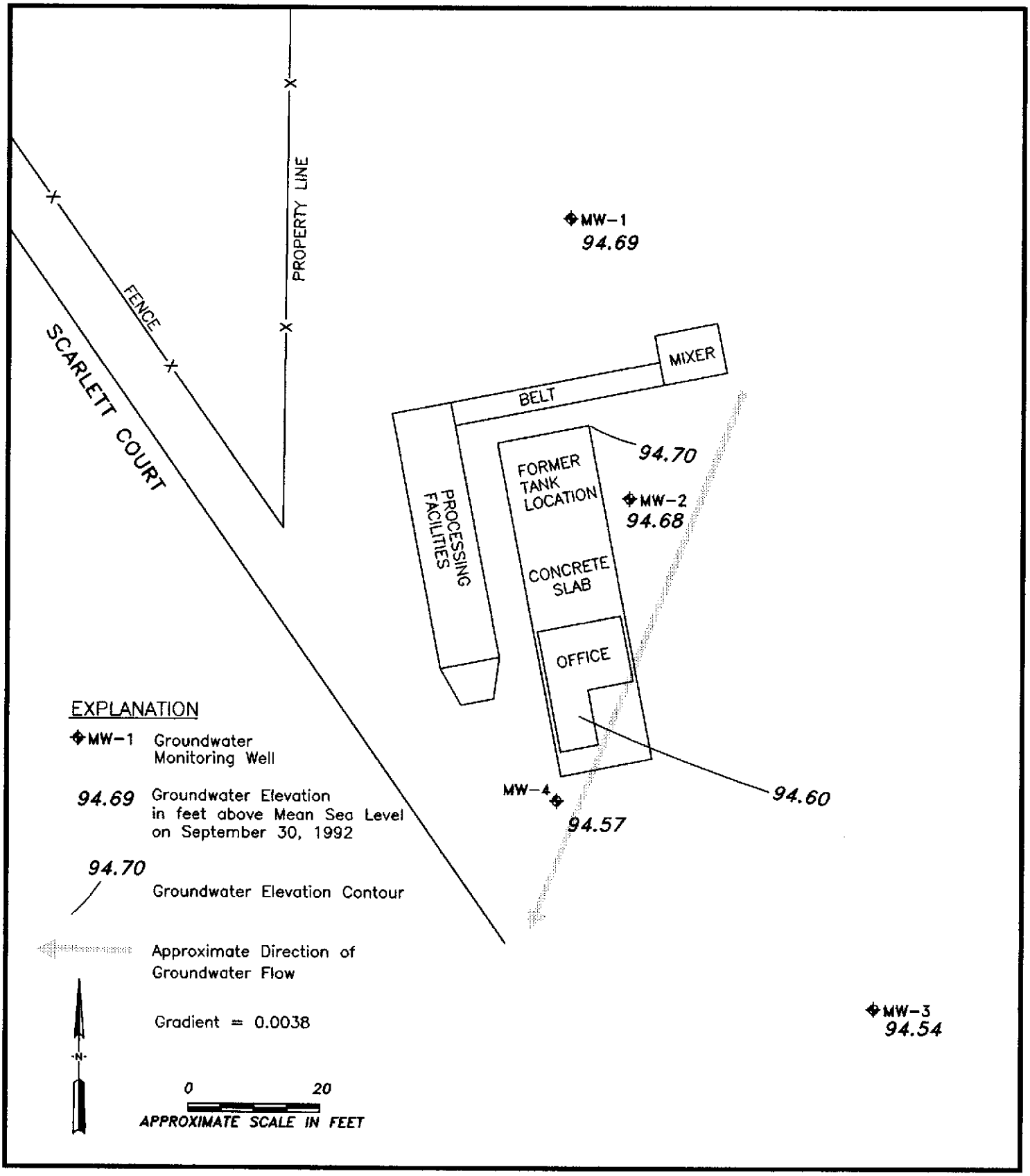


PES Environmental, Inc.
Engineering & Environmental Services

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

PLATE
1

102.0100.003	10201SLM.CDR		1/95
JOB NUMBER	DRAWING NUMBER	REVIEWED BY	DATE

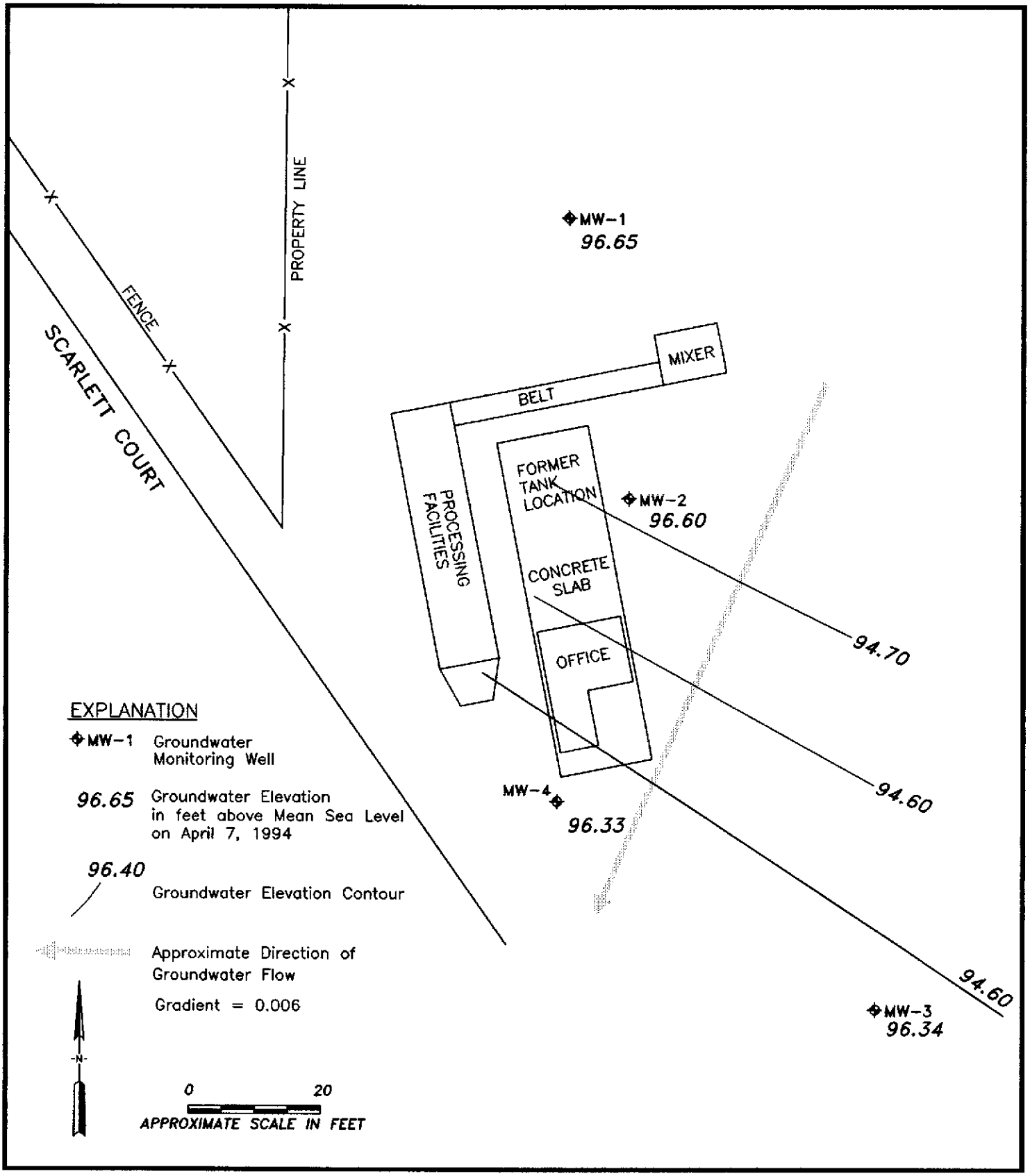


PES Environmental, Inc.
Engineering & Environmental Services

Groundwater Elevations on September 30, 1992
6393 Scarlett Court
Dublin, California

PLATE 3

102.0100.003	000030LS		1/95
JOB NUMBER	DRAWING NUMBER	REVIEWED BY	DATE



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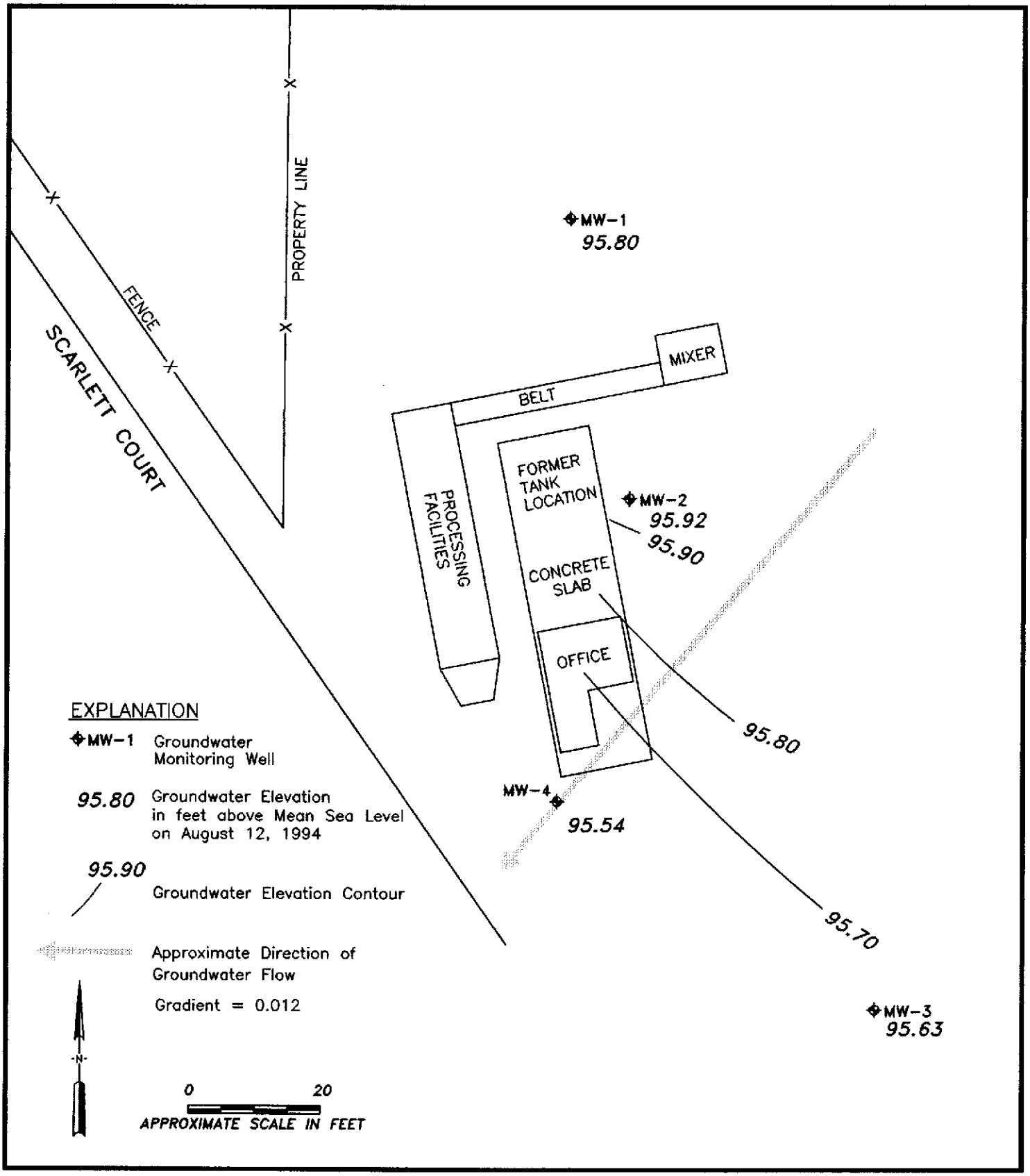
Groundwater Elevations on April 7, 1994
6393 Scarlett Court
Dublin, California

PLATE
4

102.0100.003	000030LS		1/95
JOB NUMBER	DRAWING NUMBER	REVIEWED BY	DATE



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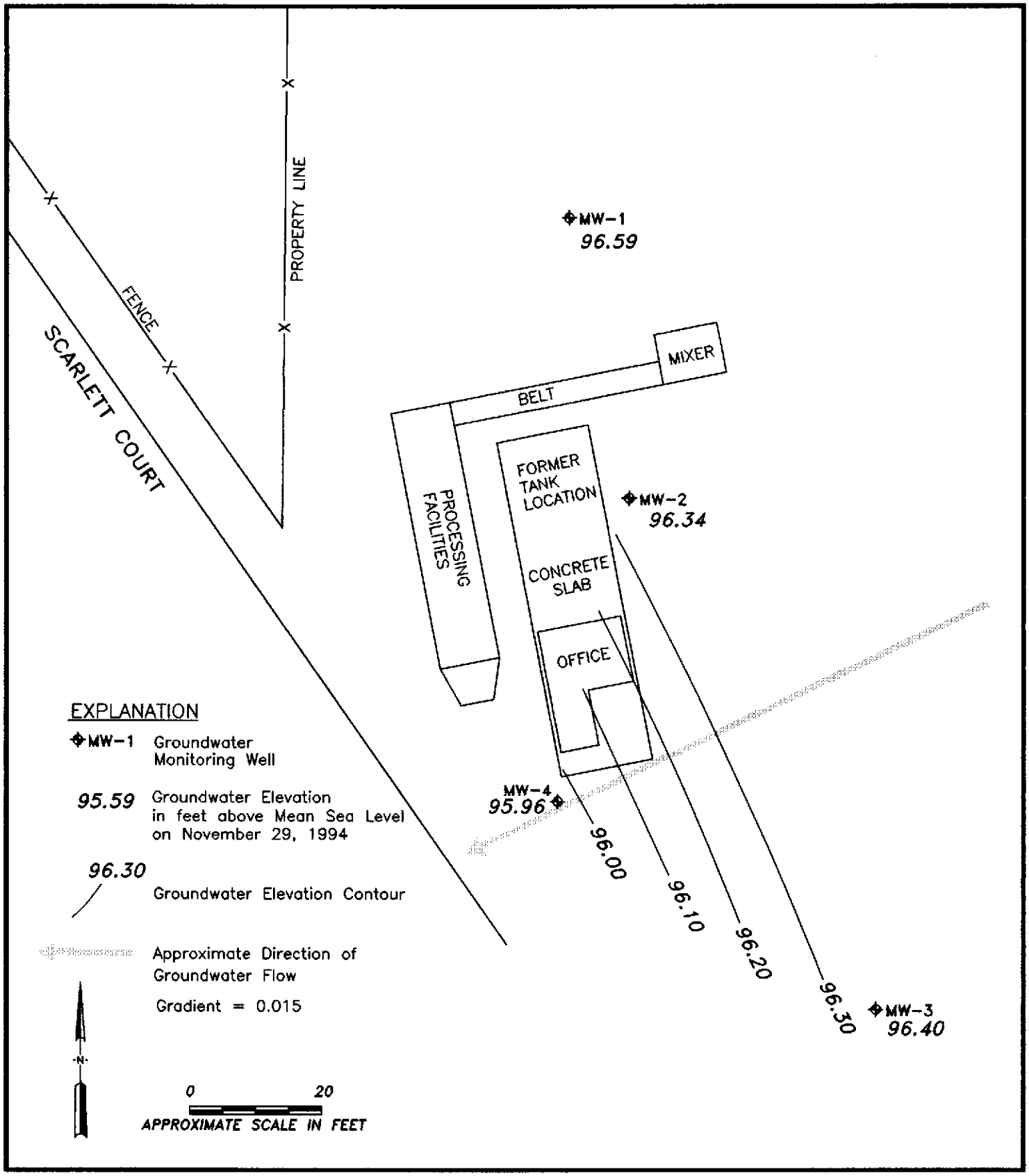
Engineering & Environmental Services

Groundwater Elevations on August 12, 1994
6393 Scarlett Court
Dublin, California

PLATE
5

102.0100.003	000030LS		1/95
JOB NUMBER	DRAWING NUMBER	REVIEWED BY	DATE



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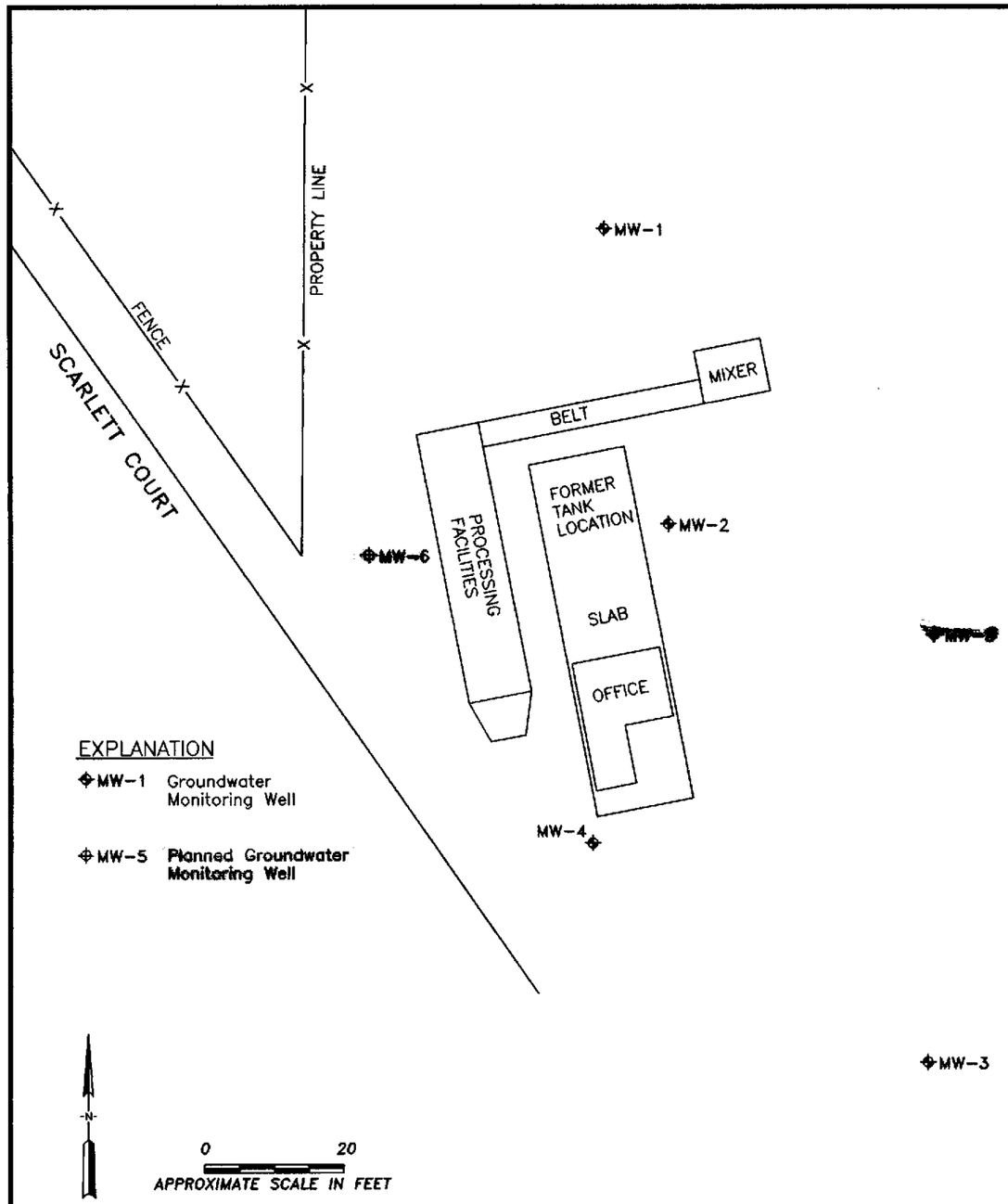
Engineering & Environmental Services

Groundwater Elevations on November 29, 1994
6393 Scarlett Court
Dublin, California

PLATE
6

102.0100.003	000030LS		1/95
JOB NUMBER	DRAWING NUMBER	REVIEWED BY	DATE



	Date	TPHg	Benzene	Toluene	Ethylbenzene	Xylenes
MW-1	11/27/91	<50	<0.3	<0.3	<0.3	<0.3
	9/30/92	<50	<0.3	<0.3	<0.3	<0.3
	4/ 7/94	<50	<0.5	<0.5	<0.5	<0.5
	8/12/94	<50	1	1	<0.5	<2
	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
	9/30/92	120,000	24,000	15,000	3,800	17,000
	4/ 7/94	120,000	21,000	14,000	4,300	21,000
	8/12/94	140,000	17,000	10,000	4,300	18,000
	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
	9/30/92	<50	<0.3	<0.3	<0.3	<0.3
	4/ 7/94	<50	2.5	5.5	0.9	5.1
	8/12/94	<50	<0.5	<0.5	<0.5	<2
	11/29/94	<50	<0.5	<0.5	<0.5	<2
MW-4	11/21/91	11,000	100	0.7	250	330
	9/30/92	380	3.5	2.4	8.9	3.4
	4/ 7/94	1100	61	5.5	17	12
	8/12/94	1000	3	1	8	4
	11/29/94	1100	2	<0.5	10	6

(All expressed in parts per billion)

PES Environmental, Inc.
Engineering & Environmental Services

Chemical Analysis Results for Groundwater Samples
6393 Scarlett Court
Dublin, California

PLATE 7

102.0100.003	000030LS		1/95
JOB NUMBER	DRAWING NUMBER	REVIEWED BY	DATE

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 18, 1994

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

Attn: Paul Lohman

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

SAMPLING EVENT:
Evacuate and sample four wells

DATE:
April 7, 1994

GROUNDWATER SAMPLING REPORT 940407-F-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	04/07/94			04/07/94			04/07/94			04/07/94	
Well Diameter (in.)	2			2			2			2	
Total Well Depth (ft.)	19.36			19.90			18.92			19.04	
Depth To Water (ft.)	3.38			3.48			3.66			4.02	
Free Product (in.)	NONE			NONE			NONE			NONE	
Reason If Not Sampled	--			--			--			--	
1 Case Volume (gal.)	2.5			2.6			2.4			2.4	
Did Well Dewater?	NO			NO			NO			NO	
Gallons Actually Evacuated	7.5			8.0			7.5			7.5	
Purging Device	BAILER			BAILER			BAILER			BAILER	
Sampling Device	BAILER			BAILER			BAILER			BAILER	
Time	13:15	13:18	13:22	13:40	13:42	13:45	14:28	14:31	14:34	14:05	14:08	14:12
Temperature (Fahrenheit)	68.4	67.5	66.3	66.0	65.6	63.4	63.0	64.4	63.8	63.4	61.6	61.2
pH	7.0	7.0	7.0	7.4	7.1	7.1	7.1	7.1	7.1	7.3	7.1	7.0
Conductivity (micromhos/cm)	3900	4100	4200	2100	1700	1800	4200	4200	4100	2600	2800	2850
Nephelometric Turbidity Units	187.1	>200	>200	>200	>200	>200	>200	>200	>200	>200	>200	>200
BTS Chain of Custody	940407-F-1			940407-F-1			940407-F-1			940407-F-1	
BTS Sample I.D.	MW-1			MW-2			MW-3			MW-4	
DHS HMTL Laboratory	COAST TO COAST			COAST TO COAST			COAST TO COAST			COAST TO COAST	
Analysis	TPH (GAS), BTXE			TPH (GAS), BTXE			TPH (GAS), BTXE			TPH (GAS), BTXE	

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 Coast To Coast Services, Inc. in San Jose, California. Coast To Coast Services, Inc. is certified by the California Department of Health Services as a Hazardous Materials Testing Laboratory and is listed as DOHS HMTL #1719.

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

BLAINE
TECH SERVICES INC.

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

August 25, 1994

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 four wells

DATE:
August 12, 1994

GROUNDWATER SAMPLING REPORT 940812-V-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	08/12/94			08/12/94			08/12/94			08/12/94	
Well Diameter (in.)	2			2			2			2	
Total Well Depth (ft.)	19.31			19.87			18.84			18.96	
Depth To Water (ft.)	4.23			4.18			4.37			4.81	
Free Product (in.)	NONE			NONE			NONE			NONE	
Reason If Not Sampled	--			--			--			--	
1 Case Volume (gal.)	2.41			2.51			2.31			2.26	
Did Well Dewater?	NO			NO			NO			NO	
Gallons Actually Evacuated	7.25			8.0			7.0			7.0	
Purging Device	BAILER			BAILER			BAILER			BAILER	
Sampling Device	BAILER			BAILER			BAILER			BAILER	
Time	10:08	10:13	10:16	10:40	10:45	10:50	09:03	09:11	09:14	09:33	09:40	09:44
Temperature (Fahrenheit)	71.8	65.4	65.2	74.2	66.6	66.6	73.4	68.6	68.4	70.0	64.4	64.4
pH	7.0	7.2	7.2	7.8	7.4	7.2	7.2	6.6	6.6	7.0	6.8	6.8
Conductivity (micromhos/cm)	3000	3000	3000	1600	1600	1800	4200	3800	3800	2400	2200	2200
Nephelometric Turbidity Units	<200	>200	>200	<200	>200	>200	<200	>200	>200	<200	>200	>200
BTS Chain of Custody	940812-V-1			940812-V-1			940812-V-1			940812-V-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	

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.

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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/dk

attachments: chain of custody

BLAINE TECH SERVICES INC.

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

CHAIN OF CUSTODY 940812-V-1

CLIENT PES Environmental

SITE Dublin Rock + Ready Mix
6393 Scarlett Ct
Dublin, CA

SAMPLE I.D.	MATRIX S = SOIL W = H2O	CONTAINERS TOTAL		C = COMPOSITE ALL CONTAINERS	CONDUCT ANALYSIS TO DETECT: TPH GAS, BTEX
MW-1	W	3	BA		✓
MW-2	W	3	|		✓
MW-3	W	3	|		✓
MW-4	W	3	|		✓

LAB AEN DHS #

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

☐ EPA ☐ RWQCB REGION II
☐ LIA
☐ OTHER

SPECIAL INSTRUCTIONS
Invoice + Report to
PES Environmental
Attn: Mike Thompson

cc report to Blaine Tech.

ADD'L INFORMATION	STATUS	CONDITION	LAB SAMPLE #
	Routine		
	|		
	|		
	|		

SAMPLING COMPLETED DATE 8/12/94 TIME 1120

SAMPLING PERFORMED BY F.A. VANDENBROECK

RESULTS NEEDED NO LATER THAN Routine

		DATE	TIME		DATE	TIME
RELEASED BY	F.A. VandenBroeck	8/13/94	1100	RECEIVED BY		
RELEASED BY		DATE	TIME	RECEIVED BY	DATE	TIME
RELEASED BY		DATE	TIME	RECEIVED BY	DATE	TIME

SHIPPED VIA	DATE SENT	TIME SENT	COOLER #

BLAINE
TECH SERVICES INC.

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

August 25, 1994

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 four wells

DATE:
August 12, 1994

GROUNDWATER SAMPLING REPORT 940812-V-1

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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	08/12/94			08/12/94			08/12/94			08/12/94	
Well Diameter (in.)	2			2			2			2	
Total Well Depth (ft.)	19.31			19.87			18.84			18.96	
Depth To Water (ft.)	4.23			4.18			4.37			4.81	
Free Product (in.)	NONE			NONE			NONE			NONE	
Reason If Not Sampled	--			--			--			--	
1 Case Volume (gal.)	2.41			2.51			2.31			2.26	
Did Well Dewater?	NO			NO			NO			NO	
Gallons Actually Evacuated	7.25			8.0			7.0			7.0	
Purging Device	BAILER			BAILER			BAILER			BAILER	
Sampling Device	BAILER			BAILER			BAILER			BAILER	
Time	10:08	10:13	10:16	10:40	10:45	10:50	09:03	09:11	09:14	09:33	09:40	09:44
Temperature (Fahrenheit)	71.8	65.4	65.2	74.2	66.6	66.6	73.4	68.6	68.4	70.0	64.4	64.4
pH	7.0	7.2	7.2	7.8	7.4	7.2	7.2	6.6	6.6	7.0	6.8	6.8
Conductivity (micromhos/cm)	3000	3000	3000	1600	1600	1800	4200	3800	3800	2400	2200	2200
Nephelometric Turbidity Units	<200	>200	>200	<200	>200	>200	<200	>200	>200	<200	>200	>200
BTS Chain of Custody	940812-V-1			940812-V-1			940812-V-1			940812-V-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	

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

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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.

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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

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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/dk

attachments: chain of custody

BLAINE TECH SERVICES INC.

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

CHAIN OF CUSTODY 940812-V-1

CLIENT PES Environmental

SITE Dublin Rock / Ready Mix
6393 Scarlett Ct
Dublin, CA

SAMPLE I.D.	MATRIX (S = SOIL, W = H2O)	CONTAINERS TOTAL		C = COMPOSITE ALL CONTAINERS	TPH GAS, BTEX
MW-1	W	3	BA		✓
MW-2	W	3	"		✓
MW-3	W	3	"		✓
MW-4	W	3	"		✓

CONDUCT ANALYSIS TO DETECT

LAB AEN DHS #

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

☐ EPA ☐ RWQCB REGION II
☐ LIA
☐ OTHER

SPECIAL INSTRUCTIONS
Invoice & Report to
PES Environmental
Attn: Mike Thompson

cc report to Blaine Tech.

ADD'L INFORMATION	STATUS	CONDITION	LAB SAMPLE #
	Routine		
	"		
	"		
	"		

SAMPLING COMPLETED DATE 8/12/94 TIME 1120

SAMPLING PERFORMED BY F.A. VANDENBROECK

RESULTS NEEDED NO LATER THAN Routine

	DATE	TIME		DATE	TIME
RELEASED BY F.A. VanDenBroeck	8/13/94	1100	RECEIVED BY		
RELEASED BY	DATE	TIME	RECEIVED BY	8/15/94	11:00
RELEASED BY	DATE	TIME	RECEIVED BY	DATE	TIME

SHIPPED VIA	DATE SENT	TIME SENT	COOLER #

APPENDIX B

CHEMICAL ANALYSIS REPORTS

COAST-TO-COAST ANALYTICAL SERVICES, INC.

EXCELLENCE IN ANALYSIS

NorCal Division (San Jose Laboratory)
2059 Junction Ave.
San Jose, CA 95131
(408) 955-9077

Lab Number : JK-1144-1
Project : Dublin Rock & RediMix

CLIENT: Paul Lohman
PES Environmental Inc
1682 Novato Boulevard, Suite 100
Novato, CA 94947

Analyzed : 04/14/94
Analyzed by: LD
Method : EPA 8020/8015M

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	DATE RECEIVED
MW-1	Groundwater	Tom Flory	04/07/94	04/08/94

CONSTITUENT	(CAS RN)	*PQL µg/L	RESULT µg/L	NOTE
BTEX + TPH (Gasoline)				1
Benzene		0.5	ND	
Toluene		0.5	ND	
Ethylbenzene		0.5	ND	
Xylenes		0.5	ND	
Total Petroleum Hydrocarbons (Gasoline)		50.	ND	
Percent Surrogate Recovery			96.	

San Jose Lab Certifications: CAELAP #1204
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)
(1) EXTRACTED by EPA 5030 (purge-and-trap)

04/15/94
GC#2/414A308
DT/mcc/cb/lmd
WBTX-041494
CC: 408/995-5535*Richard Blaine
Blaine Tech Services
985 Timothy Drive
San Jose, CA 95133

Respectfully submitted,
COAST-TO-COAST ANALYTICAL SERVICES, INC.

Dudley Torres
Organics Manager

EXCELLENCE IN ANALYSIS

COAST-TO-COAST ANALYTICAL SERVICES, INC.

NorCal Division (San Jose Laboratory)
2059 Junction Ave.
San Jose, CA 95131
(408) 955-9077

CLIENT: Paul Lohman
PES Environmental Inc
1682 Novato Boulevard, Suite 100
Novato, CA 94947

Lab Number : JK-1144-2
Project : Dublin Rock & RediMix

Analyzed : 04/14/94
Analyzed by: LD
Method : EPA 8020/8015M

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	DATE RECEIVED
MW-2	Groundwater	Tom Flory	04/07/94	04/08/94

CONSTITUENT	(CAS RN)	*PQL µg/L	RESULT µg/L	NOTE
BTEX + TPH (Gasoline)				1
Benzene		300.	21000.	
Toluene		300.	14000.	
Ethylbenzene		300.	4300.	
Xylenes		300.	21000.	
Total Petroleum Hydrocarbons (Gasoline)		30000.	120000.	
Percent Surrogate Recovery			106.	

San Jose Lab Certifications: CAELAP #1204
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)
(1) EXTRACTED by EPA 5030 (purge-and-trap)

04/15/94
GC#2/414A309
DT/mcc/lmd
WBTX-041494
CC: 408/995-5535*Richard Blaine
Blaine Tech Services
985 Timothy Drive
San Jose, CA 95133

Respectfully submitted,
COAST-TO-COAST ANALYTICAL SERVICES, INC.

Dudley Torres
Organics Manager

EXCELLENCE IN ANALYSIS

COAST-TO-COAST ANALYTICAL SERVICES, INC.

NorCal Division (San Jose Laboratory)
2059 Junction Ave.

San Jose, CA 95131
(408) 955-9077

Lab Number : JK-1144-3
Project : Dublin Rock & RediMix

CLIENT: Paul Lohman
PES Environmental Inc
1682 Novato Boulevard, Suite 100
Novato, CA 94947

Analyzed : 04/13/94
Analyzed by: LD
Method : EPA 8020/8015M

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	DATE RECEIVED
MW-3	Groundwater	Tom Flory	04/07/94	04/08/94

CONSTITUENT	(CAS RN)	*PQL µg/L	RESULT µg/L	NOTE
BTEX + TPH (Gasoline)				1
Benzene		0.5	2.5	
Toluene		0.5	5.5	
Ethylbenzene		0.5	0.9	
Xylenes		0.5	5.1	
Total Petroleum Hydrocarbons (Gasoline)		50.	ND	
Percent Surrogate Recovery			88.	

San Jose Lab Certifications: CAELAP #1204
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)
(1) EXTRACTED by EPA 5030 (purge-and-trap)

04/15/94
GC#4/413A630
DT/mcc/lmd
WBTX-041494
CC: 408/995-5535*Richard Blaine
Blaine Tech Services
985 Timothy Drive
San Jose, CA 95133

Respectfully submitted,
COAST-TO-COAST ANALYTICAL SERVICES, INC.

Dudley Torres
Organics Manager

EXCELLENCE IN ANALYSIS

COAST-TO-COAST ANALYTICAL SERVICES, INC.

NorCal Division (San Jose Laboratory)
2059 Junction Ave.
San Jose, CA 95131
(408) 955-9077

Lab Number : JK-1144-4
Project : Dublin Rock & RediMix

CLIENT: Paul Lohman
PES Environmental Inc
1682 Novato Boulevard, Suite 100
Novato, CA 94947

Analyzed : 04/14/94
Analyzed by: LD
Method : EPA 8020/8015M

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	DATE RECEIVED
MW-4	Groundwater	Tom Flory	04/07/94	04/08/94

CONSTITUENT	(CAS RN)	*PQL µg/L	RESULT µg/L	NOTE
BTEX + TPH (Gasoline)				1
Benzene		3.	61.	
Toluene		3.	5.5	
Ethylbenzene		3.	17.	
Xylenes		3.	12.	
Total Petroleum Hydrocarbons (Gasoline)		300.	1100.	
Percent Surrogate Recovery			106.	

San Jose Lab Certifications: CAELAP #1204
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)
(1) EXTRACTED by EPA 5030 (purge-and-trap)

04/15/94
GC#2/414A308
DT/mcc/lmd
WBTX-041494
CC: 408/995-5535*Richard Blaine
Blaine Tech Services
985 Timothy Drive
San Jose, CA 95133

Respectfully submitted,
COAST-TO-COAST ANALYTICAL SERVICES, INC.

Dudley Torres
Organics Manager

EXCELLENCE IN ANALYSIS

COAST-TO-COAST ANALYTICAL SERVICES, INC.

NorCal Division (San Jose Laboratory)
2059 Junction Ave.

San Jose, CA 95131
(408) 955-9077

QC Batch ID: WBTX-041494

CLIENT: Coast-to-Coast Analytical Services, Inc.

Analyzed : 04/14/94
Analyzed by: LD
Method : EPA 8020/8015M

METHOD BLANK
REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED DATE RECEIVED
METHOD BLANK	Aqueous		

CONSTITUENT	(CAS RN)	*PQL µg/L	RESULT µg/L	NOTE
BTEX + TPH (Gasoline)				1
Benzene		0.5	ND	
Toluene		0.5	ND	
Ethylbenzene		0.5	ND	
Xylenes		0.5	ND	
Total Petroleum Hydrocarbons (Gasoline)		50.	ND	
Percent Surrogate Recovery			93.	

San Jose Lab Certifications: CAELAP #1204
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)
(1) EXTRACTED by EPA 5030 (purge-and-trap)

04/15/94
GC2-414B305A
DT/mcc/cb/lmd
JK1144-1

Respectfully submitted,
COAST-TO-COAST ANALYTICAL SERVICES, INC.

Dudley Torres
Organics Manager

EXCELLENCE IN ANALYSIS

COAST-TO-COAST ANALYTICAL SERVICES, INC.

NorCal Division (San Jose Laboratory)
2059 Junction Ave.

San Jose, CA 95131
(408) 955-9077

QC Batch ID: WBTX-041494

CLIENT: Coast-to-Coast Analytical Services, Inc.

Analyzed : 04/14/94
Analyzed by: LD
Method : EPA 8020/8015M

QC MATRIX SPIKE
REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	DATE RECEIVED
MATRIX SPIKE	Aqueous			

CONSTITUENT	ORIGINAL RESULT	SPIKE AMOUNT	RESULT µg/L	%REC	NOTE
BTEX + TPH (Gasoline)					1
Benzene	ND	10.	9.6	96.	
Toluene	ND	10.	9.2	92.	
Ethylbenzene	ND	10.	8.9	89.	
Xylenes	ND	30.	27.	90.	
Total Petroleum Hydrocarbons (Gasoline)	ND	250.	230.	92.	

San Jose Lab Certifications: CAELAP #1204
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)
(1) EXTRACTED by EPA 5030 (purge-and-trap)

04/15/94
GC2-414B317
DT/mcc/cb/lmd
JK1144-1

Respectfully submitted,
COAST-TO-COAST ANALYTICAL SERVICES, INC.

Dudley Torres
Organics Manager

EXCELLENCE IN ANALYSIS

COAST-TO-COAST ANALYTICAL SERVICES, INC.

NorCal Division (San Jose Laboratory)
2059 Junction Ave.

San Jose, CA 95131
(408) 955-9077

QC Batch ID: WBTX-041494

CLIENT: Coast-to-Coast Analytical Services, Inc.

Analyzed : 04/14/94
Analyzed by: LD
Method : EPA 8020/8015M

QC MATRIX SPIKE
REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	DATE RECEIVED
MATRIX SPIKE DUPLICATE	Aqueous			

CONSTITUENT	ORIGINAL RESULT	SPIKE AMOUNT	RESULT µg/L	%REC	%DIFF	NOTE
BTEX + TPH (Gasoline)						1
Benzene	ND	10.	10.	100.	4.1	
Toluene	ND	10.	9.9	99.	7.3	
Ethylbenzene	ND	10.	9.4	94.	5.5	
Xylenes	ND	30.	30.	100.	11.	
Total Petroleum Hydrocarbons (Gasoline)	ND	250.	230.	92.	0.	

San Jose Lab Certifications: CAELAP #1204
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)
(1) EXTRACTED by EPA 5030 (purge-and-trap)

04/15/94
GC2-414B318
DT/mcc/cb/lmd
JK1144-1

Respectfully submitted,
COAST-TO-COAST ANALYTICAL SERVICES, INC.

Dudley Torres
Organics Manager

BLAINE TECH SERVICES INC

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

CHAIN OF CUSTODY 940407 F1

CLIENT PES

SITE Dublin Rock & Redi-mix
6393 Scarlett CT
Dublin CA.

LAB Coast To Coast DHS #

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

- ☐ EPA
- ☐ LIA
- ☐ OTHER
- ☑ RWQCB REGION 2

SPECIAL INSTRUCTIONS

Invoice & Report to:
PES Environmental
ATTN: Paul Lehman

cc Report to Blaine Tech Services

SAMPLE I.D.			MATRIX S = SOIL W = H2O	CONTAINERS TOTAL	CONTAINERS 40 ml VOA	C = COMPOSITE ALL CONTAINERS	CONDUCT ANALYSIS TO DETECT: TPHG - 8015 / BTEX - 8021	ADD'L INFORMATION	STATUS	CONDITION	LAB SAMPLE #
MW-1	4/7	1325	W	3	HCl		X				JK1144-1
MW-2	4/7	1347	↓	3	↓		X				-2
MW-3	4/7	1438		3			X				-3
MW-4	4/7	1415		3			X				-4

SAMPLING COMPLETED	DATE	TIME
	4-7-94	

SAMPLING PERFORMED BY Tom Flory

RESULTS NEEDED NO LATER THAN

RELEASED BY	DATE	TIME	RECEIVED BY	DATE	TIME
Tom Flory	4/8/94	1215	Fed Ex 150	4/8/94	1215
Fed Ex 150	4/8/94			4/8/94	12:32 p.m.
Tom Flory	4/8/94	12:32 p.m.		4/8/94	1400

SHIPPED VIA

DATE SENT	TIME SENT	COOLER #

Cool, Intact Temp. of cooler upon receipt: 45°F

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: 940812-V-1
CLIENT PROJ. NAME: DUBLIN ROCK

REPORT DATE: 09/06/94

DATE(S) SAMPLED: 08/12/94

DATE RECEIVED: 08/15/94

AEN WORK ORDER: 9408200

PROJECT SUMMARY:

On August 15, 1994, this laboratory received 4 water sample(s).

Client requested samples 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.

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

Larry Klein
Laboratory Director

cc: Blaine Tech Services

PES ENVIRONMENTAL, INC.

SAMPLE ID: MW-1
AEN LAB NO: 9408200-01
AEN WORK ORDER: 9408200
CLIENT PROJ. ID: 940812-V-1

DATE SAMPLED: 08/12/94
DATE RECEIVED: 08/15/94
REPORT DATE: 09/06/94

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	**EPA 8020**				
Benzene	71-43-2	1 *	0.5	ug/L	08/17/94
Toluene	108-88-3	1 *	0.5	ug/L	08/17/94
Ethylbenzene	100-41-4	ND	0.5	ug/L	08/17/94
Xylenes, Total	1330-20-7	ND	2	ug/L	08/17/94
Purgeable HCs as Gasoline	5030/GCFID	ND	0.05	mg/L	08/17/94

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

PES ENVIRONMENTAL, INC.

SAMPLE ID: MW-2
AEN LAB NO: 9408200-02
AEN WORK ORDER: 9408200
CLIENT PROJ. ID: 940812-V-1

DATE SAMPLED: 08/12/94
DATE RECEIVED: 08/15/94
REPORT DATE: 09/06/94

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	**EPA 8020**				
Benzene	71-43-2	17.000 *	50	ug/L	08/19/94
Toluene	108-88-3	10.000 *	50	ug/L	08/19/94
Ethylbenzene	100-41-4	4.300 *	50	ug/L	08/19/94
Xylenes, Total	1330-20-7	18.000 *	200	ug/L	08/19/94
Purgeable HCs as Gasoline	5030/GCFID	140 *	5	mg/L	08/19/94

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

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

PES ENVIRONMENTAL, INC.

SAMPLE ID: MW-3
AEN LAB NO: 9408200-03
AEN WORK ORDER: 9408200
CLIENT PROJ. ID: 940812-V-1

DATE SAMPLED: 08/12/94
DATE RECEIVED: 08/15/94
REPORT DATE: 09/06/94

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	**EPA 8020**				
Benzene	71-43-2	ND	0.5	ug/L	08/19/94
Toluene	108-88-3	ND	0.5	ug/L	08/19/94
Ethylbenzene	100-41-4	ND	0.5	ug/L	08/19/94
Xylenes, Total	1330-20-7	ND	2	ug/L	08/19/94
Purgeable HCs as Gasoline	5030/GCFID	ND	0.05	mg/L	08/19/94

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

PES ENVIRONMENTAL, INC.

SAMPLE ID: MW-4
AEN LAB NO: 9408200-04
AEN WORK ORDER: 9408200
CLIENT PROJ. ID: 940812-V-1

DATE SAMPLED: 08/12/94
DATE RECEIVED: 08/15/94
REPORT DATE: 09/06/94

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	**EPA 8020**				
Benzene	71-43-2	3 *	0.5	ug/L	08/17/94
Toluene	108-88-3	1 *	0.5	ug/L	08/17/94
Ethylbenzene	100-41-4	8 *	0.5	ug/L	08/17/94
Xylenes, Total	1330-20-7	4 *	2	ug/L	08/17/94
Purgeable HCs as Gasoline	5030/GCFID	1.0 *	0.05	mg/L	08/17/94

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

AEN (CALIFORNIA)
QUALITY CONTROL REPORT

AEN JOB NUMBER: 9408200

CLIENT PROJECT ID: 940812-V-1

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 that can reliably be determined during routine laboratory operations. The RL is generally 1 to 10 times the Method Detection Limit (MDL). Reporting limits are matrix and method 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

AEN JOB NO: 9408200
INSTRUMENT: F
MATRIX: WATER

Surrogate Standard Recovery Summary
Method: EPA 8020, 5030 GCFID

Date Analyzed	Client Id.	Lab Id.	Percent Recovery Fluorobenzene
08/17/94	MW-1	01	97
08/19/94	MW-2	02	102
08/19/94	MW-3	03	95
08/17/94	MW-4	04	91

Current QC Limits

Analyte	PERCENT RECOVERY
Fluorobenzene	70-115

QUALITY CONTROL DATA

AEN JOB NO: 9408200
DATE ANALYZED: 08/17/94
SAMPLE SPIKED: 9408131-02
INSTRUMENT: F
MATRIX: WATER

Matrix Spike Recovery Summary
Method: EPA 8020, 5030 GCFID

Analyte	Spike Added (ug/L)	Average Percent Recovery	RPD
Benzene	8.5	111	4
Toluene	32.2	99	2
Hydrocarbons as Gasoline	500	107	2

Current QC Limits

Analyte	Percent Recovery	RPD
Benzene	81-115	10
Toluene	85-112	9
Gasoline	72-119	12

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

*** END OF REPORT ***

BLAINE TECH SERVICES INC.

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

R3,5-1 AEN 7082

CHAIN OF CUSTODY 940812-V-1

CLIENT PES Environmental

SITE Dublin Rock & Ready Mix
6393 Scarlett Ct
Dublin, CA

SAMPLE I.D.	MATRIX S = SOIL W = H2O	CONTAINERS TOTAL		C = COMPOSITE ALL CONTAINERS	CONDUCT ANALYSIS TO DETECT: TPH GAS, BTEX	ADD'L INFORMATION	STATUS	CONDITION	LAB SAMPLE #
MW-1	W	3	DA		✓		Routine		01A-C
MW-2	W	3	|		✓		|		02A-C
MW-3	W	3	|		✓		|		03A-C
MW-4	W	3	|		✓		|		04A-C

LAB [illegible] DHS #

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

☐ EPA
☐ LIA
☐ OTHER
☐ RWQCB REGION II

SPECIAL INSTRUCTIONS
Invoice + Report to
PES Environmental
Attn: Mike Thompson

cc report to Blaine Tech.

	DATE	TIME	
SAMPLING COMPLETED	8/12/94	1120	
SAMPLING PERFORMED BY	F.A. VANDENBROECK		
RELEASED BY	8/15/94	1100	RECEIVED BY
RELEASED BY	8/15/94	13:00	RECEIVED BY Anna Gillespie
RELEASED BY	DATE	TIME	RECEIVED BY

RESULTS NEEDED NO LATER THAN Routine

DATE	TIME
8/15/94	11:00
8-15-94	1300
DATE	TIME

SHIPPED VIA	DATE SENT	TIME SENT	COOLER #

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: 102.0100.003
CLIENT PROJ. NAME: DUBLIN ROCK

REPORT DATE: 12/15/94

DATE(S) SAMPLED: 11/29/94

DATE RECEIVED: 11/30/94

AEN WORK ORDER: 9411404

PROJECT SUMMARY:

On November 30, 1994, this laboratory received 4 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.

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

Larry Klein
Laboratory Director

cc: F.A. Vandenbroeck (Blaine Tech)

PES ENVIRONMENTAL, INC.

SAMPLE ID: MW-1
AEN LAB NO: 9411404-01
AEN WORK ORDER: 9411404
CLIENT PROJ. ID: 102.0100.003

DATE SAMPLED: 11/29/94
DATE RECEIVED: 11/30/94
REPORT DATE: 12/15/94

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	**EPA 8020**				
Benzene	71-43-2	ND	0.5	ug/L	12/03/94
Toluene	108-88-3	ND	0.5	ug/L	12/03/94
Ethylbenzene	100-41-4	ND	0.5	ug/L	12/03/94
Xylenes, Total	1330-20-7	ND	2	ug/L	12/03/94
Purgeable HCs as Gasoline	5030/GCFID	ND	0.05	mg/L	12/03/94

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

PES ENVIRONMENTAL, INC.

SAMPLE ID: MW-2
AEN LAB NO: 9411404-02
AEN WORK ORDER: 9411404
CLIENT PROJ. ID: 102.0100.003

DATE SAMPLED: 11/29/94
DATE RECEIVED: 11/30/94
REPORT DATE: 12/15/94

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	**EPA 8020**				
Benzene	71-43-2	17,000 *	100	ug/L	12/03/94
Toluene	108-88-3	7,500 *	100	ug/L	12/03/94
Ethylbenzene	100-41-4	3,400 *	100	ug/L	12/03/94
Xylenes, Total	1330-20-7	15,000 *	400	ug/L	12/03/94
Purgeable HCs as Gasoline	5030/GCFID	90 *	10	mg/L	12/03/94

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

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

PES ENVIRONMENTAL, INC.

SAMPLE ID: MW-3
AEN LAB NO: 9411404-03
AEN WORK ORDER: 9411404
CLIENT PROJ. ID: 102.0100.003

DATE SAMPLED: 11/29/94
DATE RECEIVED: 11/30/94
REPORT DATE: 12/15/94

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	**EPA 8020**				
Benzene	71-43-2	ND	0.5	ug/L	12/03/94
Toluene	108-88-3	ND	0.5	ug/L	12/03/94
Ethylbenzene	100-41-4	ND	0.5	ug/L	12/03/94
Xylenes, Total	1330-20-7	ND	2	ug/L	12/03/94
Purgeable HCs as Gasoline	5030/GCFID	ND	0.05	mg/L	12/03/94

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

PES ENVIRONMENTAL, INC.

SAMPLE ID: MW-4
AEN LAB NO: 9411404-04
AEN WORK ORDER: 9411404
CLIENT PROJ. ID: 102.0100.003

DATE SAMPLED: 11/29/94
DATE RECEIVED: 11/30/94
REPORT DATE: 12/15/94

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	**EPA 8020**				
Benzene	71-43-2	2 *	0.5	ug/L	12/03/94
Toluene	108-88-3	ND	0.5	ug/L	12/03/94
Ethylbenzene	100-41-4	10 *	0.5	ug/L	12/03/94
Xylenes, Total	1330-20-7	6 *	2	ug/L	12/03/94
Purgeable HCs as Gasoline	5030/GCFID	1.1 *	0.05	mg/L	12/03/94

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

AEN (CALIFORNIA)
QUALITY CONTROL REPORT

AEN JOB NUMBER: 9411404

CLIENT PROJECT ID: 102.0100.003

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: 9411404
INSTRUMENT: H
MATRIX: WATER

Surrogate Standard Recovery Summary

Date Analyzed	Client Id.	Lab Id.	Percent Recovery Fluorobenzene
12/03/94	MW-1	01	100
12/03/94	MW-2	02	100
12/03/94	MW-3	03	99
12/03/94	MW-4	04	93
QC Limits:			92-109

DATE ANALYZED: 12/02/94
SAMPLE SPIKED: LCS
INSTRUMENT: H

Laboratory Control Sample

Analyte	Spike Added (ug/L)	Percent Recovery	QC Limits Percent Recovery
Benzene	33.3	95	63-117
Toluene	97.5	94	67-114
Hydrocarbons as Gasoline	500	85	63-120

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

*** END OF REPORT ***

R-3, S-3

94114404

BLAINE TECH SERVICES INC.

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

LAB AEN DHS #

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

- ☐ EPA
- ☐ LIA
- ☒ OTHER
- ☒ RWQCB REGION 2

CHAIN OF CUSTODY 941129-V-1

CLIENT AES

SITE Dublin Rock & Ready Mix
6393 Scarlett Ct
Dublin, CA

SPECIAL INSTRUCTIONS
Invoice & Report to AES
Attn: Mike Thompson
100 RD 102.0100.003
Note!
CC report to BTS

SAMPLE I.D.	MATRIX S = SOIL W = H2O	CONTAINERS TOTAL		C = COMPOSITE ALL CONTAINERS	CONDUCT ANALYSIS TO DETECT: TPH/BTEX	ADD'L INFORMATION	STATUS	CONDITION	LAB SAMPLE #
MW-1	W	3	VOAs		✓		Routine	cold/good	01A-C
MW-2	W	3			✓				02A-C
MW-3	W	3			✓				03A-C
MW-4	W	3			✓				04A-C

SAMPLING COMPLETED DATE 11-29-94 TIME 1105

SAMPLING PERFORMED BY F. A. VANDENBROECK

RESULTS NEEDED NO LATER THAN As Conducted.

RELEASED BY	DATE	TIME	RECEIVED BY	DATE	TIME
F. A. VanDenBroeck	11/30/94	1614	Michael E. McMillan	11-30-94	16:14
Michael E. McMillan	11-30-94	17:55	Denise Harrington	11/30/94	1755

SHIPPED VIA	DATE SENT	TIME SENT	COOLER #

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QUARTERLY GROUNDWATER MONITORING REPORT
APRIL TO NOVEMBER 1994
DUBLIN ROCK AND READY MIX FACILITY
DUBLIN, CALIFORNIA

JANUARY 11, 1995

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