√ec
9/22

August 11, 1992

CERTIFIED ENVIRONMENTAL CONSULTING INC.

REF: 92-173-667.811

Mr. Jim Pitzer 447-2560 x 6405
Livermore VA Medical Center
4951 Arroyo Road
Livermore, CA 94550

shD # 2949

RE: Quarterly groundwater sampling results for the VA Medical Center Fire Station at 4951 Arroyo Road Livermore, CA.

Dear Mr. Pitzer:

Enclosed is a copy of the third quarter groundwater monitoring results for Livermore VA, 4951 Arroyo Road, Livermore, CA. Three wells were sampled using CEC's standard water sampling protocols as contained in Appendix A of this report. The samples were analyzed for Oil & Grease, TPH-diesel and BTX&E . The analysis for Oil & Grease Hydrocarbons was completed at the request of Ms. Eva Chu from Alameda County Health Department. The samples were below detection limits on all parameters. The site map, water level data, field observations and data, laboratory results and a chain of custody are attached.

The samples were found to be below detection limits so no further remedial actions are recommended at this time. Quarterly sampling should continue to assure that the site is free from contamination.

Please let us know if you have any questions.

Yours truly,

Scott L. Parker
Senior Project Manager

for Stanley L. Klemetson, Ph.D., P.E.
Vice President

Enclosures

cc: Eva Chu
Hazardous Materials Specialist

140 West Industrial Way
Benicia, California 94510

Ofc (707) 745-0171
Fax (707) 745-0163
(800) 447-0171

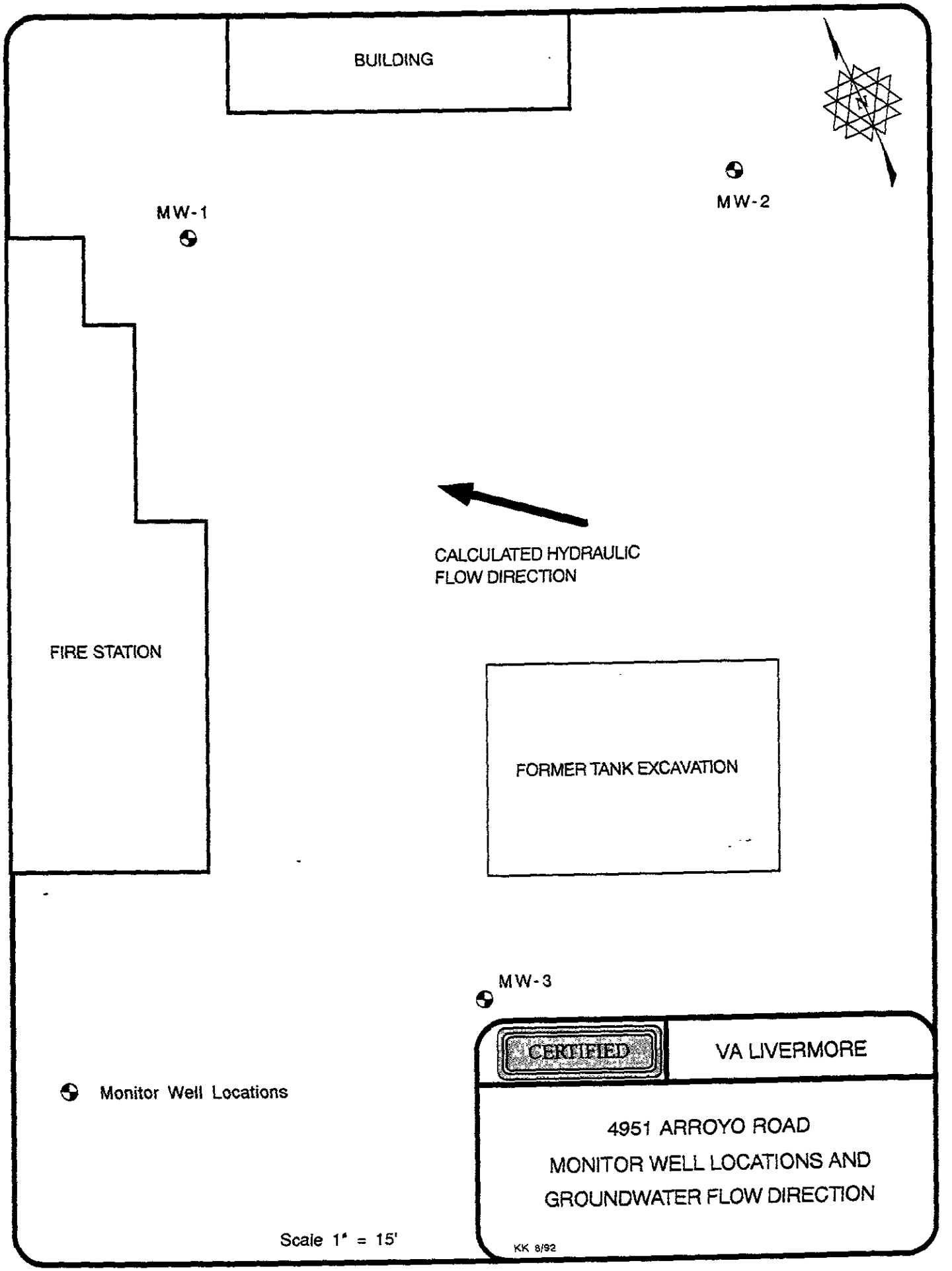
APPENDIX A

Water Sampling in Wells and Boreholes

SAMPLING RESULTS FOR THE VA MEDICAL CENTER FIRE STATION
NOVEMBER 1991 TO AUGUST 1992

WELL NUMBER	SAMPLE DATE	TPH-Diesel ppm	Benzene ppb	Toluene ppb	Ethyl Benzene ppb	Xylene ppb	Oil & Grease mg/L
MW-1	11/06/91	ND	15	0.8	4	76	-
	03/03/92	ND	ND	ND	ND	ND	-
	07/31/92	ND	ND	ND	ND	ND	ND
MW-2	11/06/91	ND	ND	ND	ND	ND	-
	03/03/92	ND	ND	ND	ND	ND	-
	07/31/92	ND	ND	ND	ND	ND	ND
MW-3	11/06/91	ND	ND	ND	ND	ND	-
	03/03/92	ND	ND	ND	ND	ND	-
	07/31/92	ND	ND	ND	ND	ND	ND

ND - Non-detectable levels


BUILDING
MW-1
MW-2
CALCULATED HYDRAULIC
FLOW DIRECTION
FIRE STATION
FORMER TANK EXCAVATION
MW-3
Monitor Well Locations
Scale 1" = 15'
CERTIFIED
VA LIVERMORE
4951 ARROYO ROAD
MONITOR WELL LOCATIONS AND
GROUNDWATER FLOW DIRECTION
KK 8/92

DATE: 11/6/91

PAGE 1 OF 1

FIELD SURVEY RECORD

CLIENT V.A. Medical Center LOCATION Livermore, CA

SURVEYORS _____ WEATHER _____

STATION	BACK SIGHT +	HI	FORE SIGHT	ELEVATION	WATER DEPTH 7/31/92	WATER ELEVATION
MW-1	5.69	105.69		100.00	14.81	85.19 (7/31/92)
MW-2			7.89	97.8	11.00	86.80 (7/31/92)
MW-3			4.31	101.38	14.71	86.69 (7/31/92)

FORM # CECF

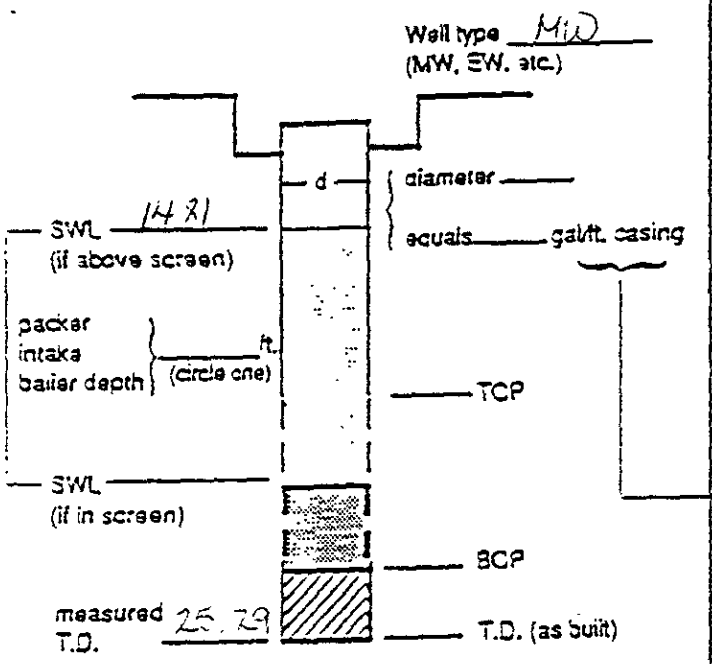
SAMPLING EVENT DATA SHEET

(fill out completely)

WELL OR LOCATION MW-1

PROJECT V.A. Med. Center EVENT 3rd Quarterly Sample SAMPLER K. Kleinfelter DATE 7/31/92

Well / Hydrologic statistics



Action	Time	Pump rate	IWL (low yield)
Start pump / Begin	4:04		
Stop	4:32		
Sampled	5:22		
(Final IWL)	14.37		

Purge calculation

____ gal/ft. * ____ ft. = ____ gals x 3 = ____ gals.

SWL to BCP or packer to BCP | one volume | purge volume- 3 casings

Head purge calculation (Airlift only)

____ gal/ft.* ____ ft. = ____ gals.

packer to SWL

Equipment Used / Sampling Method / Description of Event:

Tool Kit, Electric Water-Level Sounder, Specific Conductance Meter / PH Meter, Submersible Pump, Bailer, Rubber Gloves, Tubing

Actual gallons purged ____

Actual volumes purged ____

Well yield ⊖ ____
(see below)

CCC # ____

Sample I.D.	Analysis	Lab

Additional comments:

Pump dry atleast 3x

Gallons purged *	TEMP °C (circle one)	EC (µs / cm)	PH	TURBIDITY (NTU)		
1. 1	73.9°	2.41	—	42.3		
2. 5	72.5°	2.44	—	2.35		
3. 10	74.2°	2.30	—	1.50		
4. 15	73.7°	2.37	—	—		
5.						

* Take measurement at approximately each casing volume purged.

⊖ nY - Minimal W.L. drop

MY - WL drop - able to purge 3 volumes during one sitting by reducing pump rate or cycling pump.

LY - Able to purge 3 volumes by returning later or next day.

VLY - Minimal recharge unable to purge 3 volumes.

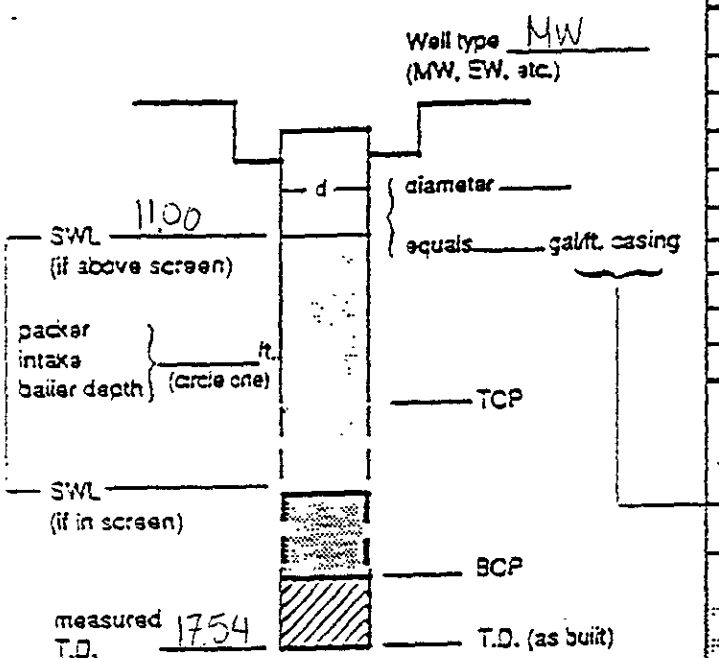
SAMPLING EVENT DATA SHEET

(fill out completely)

WELL OR LOCATION MW-2

PROJECT VA Med Center EVENT 3rd Quarter Sampling SAMPLER K Klemetson DATE 7/31/92

Well / Hydrologic statistics



Action	Time	Pump rate	IWL (low yield
Start pump / Begin	2.07		
Stop			
Sampled	4 31		
(Final IWL)	11.0		

Purge calculation

____ gal/ft. * ____ ft. = ____ gals x 3 = ____ gals.

SWL to BCP or packer to BCP | one volume | purge volume- 3 casings

Head purge calculation (Airlift only)

____ gal/ft. * ____ ft. = ____ gals.

packer to SWL

Equipment Used / Sampling Method / Description of Event:

Refer to MW-1 Sampling Sheet

Actual gallons purged 10

Actual volumes purged ____

Well yield ⊖ ____
(see below)

Additional comments:

Pumped dry atleast 3x

COC #

Sample I.D.	Analysis	Lab

Gallons purged *	TEMP °C / °F (circle one)	EC (µs / cm)	PH	TURBIDITY (NTU)		
1. 1	84.9°	2450	—	25.2		
2. 3	79.6°	2360	—	183.1		
3. 6	76.5°	2260	—	78.8		
4. 8	73.7°	2200	—	76.3		
5. 10	74.3°	2200	—	95.2		

* Take measurement at approximately each casing volume purged.

⊖ HY - Minimal W.L. draw

MY - WL draw - able to purge 3 volumes during one sitting by reducing pump rate or cycling pump.

LY - Able to purge 3 volumes by returning later or next day.

VLY - Minimal recharge unable to purge 3 volumes.

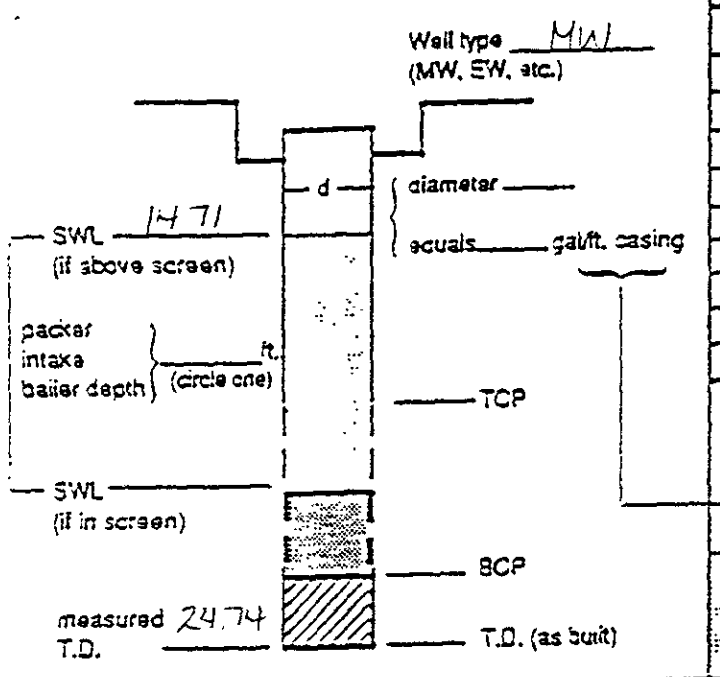
SAMPLING EVENT DATA SHEET

(fill out completely)

WELL OR LOCATION MW-3

PROJECT VA MED. CENTER EVENT 3RD QUARTER SAMP SAMPLER K KIEMETEN DATE 7/31/92

Well / Hydrologic statistics



Action	Time	Pump rate	IWL (low yield
Start pump / Begin	3:00		
Stop	3:40		
Sampled	4:55		
(Final IWL)	14.70		

Purge calculation

____ gal/ft. * ____ ft. = ____ gals x 3 = ____ gals.

SWL to BOP or packer to BOP | one volume | purge volume- 3 casings

Head purge calculation (Airlift only)

____ gal/ft. * ____ ft. = ____ gals.

packer to SWL

Equipment Used / Sampling Method / Description of Event:

Refer to MW-1 Sampling Sheet

Actual gallons purged ____

Actual volumes purged ____

Well yield (see below) ⊖ ____

COC # ____

Sample I.D.	Analysis	Lab

Additional comments:

Gallons purged *	TEMP °C / °F (circle one)	EC (µs / cm)	PH	TURBIDITY (NTU)		
1. 1	83.7°	251	—	>200		
2. 5	75.7°	212	—	2.16		
3. 10	73.1°	207	—	1.53		
4. 15	72.1°	210	—	—		
5. 20	73.0°	214	—	2.40		

* Take measurement at approximately each casing volume purged.

⊖ HY - Minimal W.L. drop

MY - WL drop - able to purge 3 volumes during one sitting by reducing pump rate or cycling pump.

LY - Able to purge 3 volumes by returning later or next day.

VLY - Minimal recharge unable to purge 3 volumes.

CERTIFIED
ENVIRONMENTAL
CONSULTING INC.
148 West Industrial Way
Benicia, CA 94510
(707) 745-8171 FAX (707) 745-8163

Chain of Custody Record

Date _____ Sheet _____ of _____

Project Number: 92-173-655
Project Name: VA Hospital
Client: _____
Contact: _____
Address: _____

Sampler's Name: K. Klemetson
Sampler's Signature: Kathryn Klemetson

Sample Number	Date	Time	Location
430504	7/31/92	451	MW-1
430505	7/31/92	455	MW-2
430506	7/31/92	522	MW-3

Parameters

Sample Number	B.T.E.X	Total Petroleum Hydrocarbons	Oil and Grease	CAM Metals (18)	General Minerals	Pr. Pollutant Metals (13)	Base/Neu/Acids (Organic)	Pesticides	Volitile Organics (601/602)	Volitile Organics (624)	Asbestos	PCB	Other: Diesel
430504	✓		✓										✓
430505	✓		✓										✓
430506	✓		✓										✓

ICE/T ✓
GOOD CONDITION ✓
HEAD SPACE ABSENT ✓
PRESERVATIVE ✓
APPROPRIATE ✓
CONTAINERS ✓

Lab Name _____
Address _____
Phone Number _____

Turnaround Time
☐ Rush ☐ 24 Hour ☐ 48 Hour ☐ Normal
Report to: [redacted]

Relinquished By	Date	Time	Received By	Date	Time
1. K. Klemetson	8/3/92	8:35	1. [illegible]	8/3	8:35
2.			2.		
3.			3.		
Dispatched By	Date	Time	Received in Lab By	Date	Time

Total Number of Containers This Sheet: _____
Method of Shipment _____
Special Shipment / Handling or Storage Requirements: _____

McCAMPBELL ANALYTICAL INC. | 110 2nd Avenue South, #D7, Pacheco, CA 94553
Tele: 510-798-1620 Fax: 510-798-1622

Certified Environmental Consultants 140 West Industrial Way Benecia, CA 94510-1016	Client Project ID: 92-173-655; VA Hospital	Date Sampled: 07/31/92
		Date Received: 08/03/92
	Client Contact: Scott Parker	Date Extracted:
	Client P.O:	Date Analyzed: 08/04/92

Low Boiling Point (C6-C12) TPH* as Gasoline and BTEX*

EPA methods 5030, modified 8015, and 8020 or 602; California RWQCB (SF Bay Region) method GCFID(5030)

Lab ID	Client ID	Matrix	TPH(G)+	Benzene	Toluene	Ethyl Benzene	Xylenes	% Rec. Surrogate
105833	430504	W	ND	ND	ND	ND	ND	111
105834	430505	W	ND	ND	ND	ND	ND	99
105835	430506	W	ND	ND	ND	ND	ND	99
Detection Limit unless otherwise stated; ND means Not Detected		W	50 ug/L	0.5	0.5	0.5	0.5	
		S	1.0 mg/kg	0.005	0.005	0.005	0.005	

*water samples are reported in ug/L and soils in mg/kg

#cluttered chromatogram; sample peak co-elutes with surrogate peak

+The following descriptions of the TPH chromatogram are cursory in nature and McCampbell Analytical is not responsible for their interpretation: a) predominately unmodified or weakly modified gasoline; b) heavier gasoline range compounds predominate (aged gasoline?); c) lighter gasoline range compounds predominate (the most mobile gasoline compounds); d) heavy and light gasoline range compounds predominate (aged gasoline together with introduced light compounds?); e) gasoline range compounds predominate; no recognizable pattern; f) one to a few isolated peaks present; g) strongly aged gasoline or diesel range compounds predominate.

Edward Hamilton, Lab Director

McCAMPBELL ANALYTICAL INC.
110 2nd Avenue South, #D7, Pacheco, CA 94553
Tele: 510-798-1620 Fax: 510-798-1622

Certified Environmental Consultants 140 West Industrial Way Benecia, CA 94510-1016	Client Project ID: 92-173-655; VA Hospital	Date Sampled: 07/31/92
		Date Received: 08/03/92
	Client Contact: Scott Parker	Date Extracted: 08/08/92
	Client P.O:	Date Analyzed: 08/08/92

Medium Boiling Point (C10-C23) TPH* as Diesel

EPA methods modified 8015, and 3550 or 3510; California RWQCB (SF Bay Region) method GCFID(3550) or GCFID(3510)

Lab ID	Client ID	Matrix	TPH(D)+
105833	430504	W	ND
105834	430505	W	ND
105835	430506	W	ND
Detection Limit unless otherwise stated; ND means Not Detected		W	50 ug/L
		S	10 mg/kg

*water samples are reported in ug/L and soils in mg/kg

cluttered chromatogram; sample peak co-elutes with surrogate peak

+The following descriptions of the TPH chromatogram are cursory in nature and McCampbell Analytical is not responsible for their interpretation: a) predominately unmodified or weakly modified diesel; b) diesel range compounds predominate; no recognizable pattern; c) diesel range compounds together with gasoline range compounds; d) gasoline range compounds predominate; e) medium boiling point pattern that does not match diesel(); f) one to a few isolated peaks present; g) oil range compounds predominate.

Edward Hamilton, Lab Director

McCAMPBELL ANALYTICAL INC.
110 2nd Avenue South, #D7, Pacheco, CA 94553
Tele: 510-798-1620 Fax: 510-798-1622

Certified Environmental Consultants 140 West Industrial Way Benecia, CA 94510-1016	Client Project ID: 92-173-655; VA Hospital	Date Sampled: 07/31/92
		Date Received: 08/03/92
	Client Contact: Scott Parker	Date Extracted: 08/08/92
	Client P.O:	Date Analyzed: 08/08/92

Total Recoverable Petroleum Hydrocarbons as Oil & Grease (with Silica Gel Clean-up) *

Standard Methods 5520 E&F or 503 D&E for solids and 5520 B&F or 503 A&E for liquids

Lab ID	Client ID	Matrix	TRPH
105833	430504	W	ND
105834	430505	W	ND
105835	430506	W	ND
Detection Limit unless otherwise stated; ND means Not Detected		W	5 mg/L
		S	25 mg/kg

*water samples are reported in mg/L and soils in mg/kg

Edward Hamilton, Lab Director

GENERAL CONSIDERATIONS

In general, the composition of water within the well casing and in close proximity to the well is not representative of groundwater quality. This may be due to contamination by drilling fluids or drilling equipment or to disparities between the oxidation-reduction potential in the well and the redox potential in the aquifer. To obtain a representative sample of groundwater, therefore, the well should be pumped or bailed until the well is thoroughly flushed of standing water and contains fresh water from the aquifer. One common procedure is to pump or bail the well until a minimum of three bore volumes (or alternatively, 10 well volumes) have been removed.

At the least, pumping should continue until water in casing storage has been removed. There are at least two common methods for determining that water in casing storage has been removed and water is flowing freely from the aquifer: (1) Monitor water level while pumping. When the pumping water level has "stabilized," it is likely that little or no water from casing storage is being pumped. The temperature, pH, conductivity, and turbidity of the water should be monitored while pumping. When these parameters "stabilize," it is probable that little or no water from casing storage is being pumped and most of the water is coming from the aquifer.

PURGING

During each round of sampling, static water level will be measured prior to purging using an electronic sounder. All water-level measurements will be recorded to the nearest 0.01 foot with respect to mean sea level.

A minimum of three bore volumes will be purged from the well prior to sampling. To insure that water in the well has been exchanged pumping or bailing shall commence at the top and work downward. The well will be allowed to return to 80 percent of the original water level before sampling.

Temperature, pH, specific conductance, and turbidity will be measured for each bore volume pumped. Purging will continue until these field-measured water quality parameters have stabilized and the water is, in the judgment of the geologist, representative of water in the aquifer. Data obtained from field water quality measurements will be recorded in the field log book or data sheets. A separate aliquot of groundwater collected from the purge water outlet stream will be used for field measurements; samples intended for laboratory analysis will not be used.

Temperature will be measured with a good grade mercury-filled Centigrade thermometer, bimetallic-element thermometer, or electronic thermistor.

Acidity/alkalinity (pH) will be measured by dipping the conductivity probe in the water source or sample; pH will be measured as soon as possible after collection of the sample, preferably within a few minutes.

Conductivity will be measured by dipping the conductivity probe in the water source or sample. The temperature of the sample will be used to calculate specific conductance from the conductivity measurement. Measurements shall be reported in units of micromhos per centimeter at 25 degrees Centigrade.

Turbidity will be measured using a vial of development/purge water and a turbidity meter. The instrument will be calibrated to read between 1 and 400 Nephelometric turbidity units (NTUs). This is a measure of the amount of light scattered at right angles to the path of light passing through the water. The greater the NTU reading, the greater the amount of light scattered by particles in the water, therefore, the greater the turbidity.

SAMPLE COLLECTION

Wells and borings will be sampled using a new, clean, disposable Teflon bailer attached to new, clean string. Sample vials and bottles will be filled to overflowing and sealed so that no air is trapped in the vial or bottle. Once filled, samples shall be inverted and tapped to test for air bubbles. Samples will be contained in vial and bottles approved by the US EPA and the RWQCB, San Francisco Bay Region. Some analyses may require separate sample containers in accordance with EPA methods described in 40 CFR Part 136 and SW-846.

Water samples intended for volatile hydrocarbon analysis will be contained in 40 ml VOA vials prepared according to EPA SW 849 and capped with Teflon-lined septa caps. Samples intended analysis is EPA 602 will contain a small amount of preservative (HCl). Samples intended for EPA 601 and EPA 624 GCMS procedures will not be preserved. Water samples intended for low level diesel analysis will be stored in dark glass 1-liter bottles to reduce degradation by sunlight. Antimicrobial preservative (HCl) may be added to the sample if a prolonged holding time is expected prior to analysis.

Sample containers will be labelled with self-adhesive, preprinted tags. Labels will contain the following information in waterproof ink:

1. Project number (or name)
2. Sample number (or name)
3. Sample location (well number, etc.)
4. Date and time samples were obtained
5. Treatment (preservative added, filtered, etc.)
6. Name of sample collector

All purged water will be stored on site in steel DOT approved drums. Drums will be labeled as to contents, suspected contaminants, date container filled, expected removal date, company name, contact and phone number, sealed and left on-site for subsequent disposal pending analytical results.

DOCUMENTATION

Sampling information will be recorded in ink in a bound notebook with consecutively number pages. Pages will not be removed for any reason. Alternatively, specially formatted field data sheets may be used to record the information collected during water quality sampling. Errata may be marked out with a single line, and initials of person making the change. The log book and data sheets will be placed in the project file when sampling is completed.

FIELD EQUIPMENT DECONTAMINATION PROCEDURES

Bailers and string will be properly disposed of off site. All other sampling equipment, such as buckets and stands, will be decontaminated after each use by washing in an Alconox solution.

All rinseate used in the decontamination process will be stored on site in steel DOT approved drums. Drums will be labeled as to contents, suspected contaminants, date container filled, expected removal date, company name, contact and phone number, sealed and left on-site for subsequent disposal pending analytical results.

Medical Center Livermore CA 94550

Veterans Administration

In Reply Refer To: 599/00/138

Ms. Eva Chu
Department of Environmental Health
Hazardous Materials Program
80 Swan Way, Room 200
Oakland, California 94612

Dear Ms. Chu:

In relation to the removal of our underground storage tanks, enclosed is the third quarterly groundwater monitoring results. Samples analyzed are from W-1, W-2, and W-3 at tank removal site on this Medical Center.

If you require additional information, please contact Mr. Jim Pitzer, Operations Foreman at 510/447-2560, extension 6405 or 6401.

Sincerely,

Marvin E. O'Rear
Medical Center Director

Enclosure

Voc
8/17/92

August 11, 1992

CERTIFIED ENVIRONMENTAL CONSULTING INC.

REF: 92-173-667.811

Ms. Eva Chu
80 Swan Way
Room 200
Oakland, CA 94621

RE: Quarterly groundwater sampling results for the VA Medical Center Fire Station at 4951 Arroyo Road Livermore, CA.

Dear Ms. Chu:

Enclosed is a copy of the third quarter groundwater monitoring results for Livermore VA, 4951 Arroyo Road, Livermore, CA. Three wells were sampled using CEC's standard water sampling protocols as contained in Appendix A of this report. The samples were analyzed for Oil & Grease, TPH-diesel and BTX&E. The analysis for Oil & Grease Hydrocarbons was completed at your request. The samples were below detection limits on all parameters, results are included on table 1. The site map, water level data, field observations and data, laboratory results and a chain of custody are attached.

The samples were found to be below detection limits so no further remedial actions are recommended at this time. Quarterly sampling should continue to assure that the site is free from contamination.

Please let us know if you have any questions.

Yours truly,

Scott L. Parker
Senior Project Manager

for Stanley L. Klemetson, Ph.D., P.E.
Vice President

Enclosures

(pH not measured)

140 West Industrial Way
Benicia, California 94510

Ofc (707) 745-0171
Fax (707) 745-0163
(800) 447-0171

Medical Center Livermore CA 94550

Veterans Administration

August 3, 1992 92 AUG -7 AM 9:59

In Reply Refer To: 599/138

Mr. Scott O. Seery, CHMM
Senior Hazardous Materials Specialist
Alameda County Health Care
Department of Environmental Health
Hazardous Materials Program
80 SwanWay, Room 200
Oakland, CA 94612

RE: Letter of June 29, 1992

Dear Mr. Seery:

The following information is offered in response to the requests made by your office in the letter of June 29, 1992 to Ms. Marcelina Bell.

a. The request that an analysis for TOG be included in the Quarterly Reports submitted on groundwater monitoring has been provided for in the latest report.

b. The request for specific information on the status of the investigation and that reports be submitted under appropriate seal have been provided for in the latest report.

c. With respect to the status of the excavated soil, the actual yardage was 2130 cu. yd. and there was no bioremediation involved. After stockpiling the soil in 150 cu. yd. piles, each pile was tested by Superior Precision Analytical on August 8, 1991. The soil was found to be acceptable for landfill and hauling began August 23, 1991. Enclosed are copies of the final invoice from Semco for the removal and a sample manifest from the destination landfill, B.F.I.

d. Requests for an Underground Tank Closure/Modification Plan and the Above-Ground Tank Installation Plan cannot be met at this time. These plans require information on Contractors and Products. Since this project is currently in the bidding process, that information cannot be provided. The project is scheduled for award by August 31, 1992. At that time, this office will be able to provide all information required in the plans.

Therefore, this office formally requests an extension of the stated deadlines for submitting the Underground Tank Closure/Modification Plan and the Above-Ground Tank Installation Plan until thirty (30) calendar days after the project award date.

Mr. Scott O. Seery, CHMM
Senior Hazardous Materials Specialist 8/3/92

If you have any questions, please contact Mr. Adam Pyles, Project Engineer at 510/447-2560, extension 6158.

Sincerely,

R.W. KANIA
Chief, Engineering Service

Enclosures

cc: Eddy So, Regional Water Quality Control Board

Waste Systems™
BROWNING-FERRIS INDUSTRIES

11-2091

No. 740584

NON-HAZARDOUS SPECIAL WASTE MANIFEST

GENERATOR

Generator Name UC Medical Center
Address 4951 Arlington Rd
Livermore, Ca 94550
Phone No. 415-447-2560

Generating Location UC Medical Center
Address 4951 Arlington Rd
Livermore Ca 94550
Phone No. 415-447-2560

BFI Waste Code | Description of Waste | Quantity | Units | Containers No. | Containers Type

BFI Waste Code	Description of Waste	Quantity	Units	Containers No.	Containers Type
	NON Hazardous Dirt	14	Y	01	T

Type: D - Drum, C - Carton, B - Bag, T - Truck, P - Pound, Y - Yards, O - Other

I hereby certify that the above named material does not contain free liquid as defined by 40 CFR Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations.

UCMC Medical Center — Signature — 112091
Generator Authorized Agent Name — Shipment Date

TRANSPORTER

Truck No. 960
Phone No. (209) 358-4100
Transporter Name Ruan Houlton Trucking
Driver Name (Print) Kevin Kelley
Address 1236 Dairy Ave
Vehicle License No./State 4D57150 / CA
Newman, Ca 95360
Vehicle Certification 2753

I hereby certify that the above named material was picked up at the generator site listed above.

Kevin Kelley — 112091
Driver Signature — Shipment Date

I hereby certify that the above named material was delivered without incident to the destination listed below.

Kevin Kelley — 11209
Driver Signature — Delivery Date

DESTINATION

Site Name BFI Waste Systems
Phone No. 415-447-4949
Address 4201 N. Vasco Rd
Livermore Ca

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

Name of Authorized Agent — Signature — 11209 — Receipt Date

PASS CODE

/86

BFI260-7

TRANSPORTER RETAIN

Cust. No.: 408
Inv. Date: 11/25/91
Order No.: 90-100
Invoice #:

S E N C O

Remit To:
431 West Hatch Road
Modesto, CA 95351
209-524-9653

1741 Leslie Street
San Mateo, CA 94402
415-572-8033

Bill To:
CHIEF ACQUISITION & MATERIAL
DVA MEDICAL CENTER
4951 ARROYO ROAD
LIVERMORE, CALIFORNIA

Job Location/Description
DVA MEDICAL CENTER
PROJECT #90-102R
CONTRACT #V599C-473
LINE ITEM #44 & 45

Terms:	ON RECEIPT	Due Date:	AMOUNT

PROJECT #90-102R:
CONTRACT #V599C-473-REMOVAL OF UNDERGROUND TANKS--
LINE ITEMS # 44 & 45 -- FORM #08-6001A

PROGRESS BILLING FOR REMEDIATION OF CONTAMINATED SOIL --

8/5/91 - 2 LOADS HAULED TO BFI -- 40 CUBIC YARDS
40 CUBIC YARDS OF SOIL & VISQUENE FROM ORIGINAL STOCKPILE OF CONTAMINATED SOIL--
REMOVED FROM BENEATH SPOILS IN PROCESS OF SEGREGATION OF SOIL INTO 150 CUBIC YARD PILES FOR COMPOSITE SAMPLING.

8/23/91 - 19 LOADS HAULED TO BFI -- 342 CUBIC YARDS
8/24/91 - 11 LOADS HAULED TO BFI -- 198 CUBIC YARDS
8/28/91 - 13 LOADS HAULED TO BFI -- 234 CUBIC YARDS
9/19/91 - 3 LOADS HAULED TO BFI -- 42 CUBIC YARDS
9/26/91 - 10 LOADS HAULED TO BFI -- 140 CUBIC YARDS
9/27/91 - 12 LOADS HAULED TO BFI -- 168 CUBIC YARDS
10/7/91 - 21 LOADS HAULED TO BFI -- 298 CUBIC YARDS
10/16/91 - 4 LOADS HAULED TO BFI -- 56 CUBIC YARDS
10/17/91 - 6 LOADS HAULED TO BFI -- 84 CUBIC YARDS
10/22/91 - 3 LOADS HAULED TO BFI -- 38 CUBIC YARDS
11/01/91 - 6 LOADS HAULED TO BFI -- 84 CUBIC YARDS
11/20/91 - 15 LOADS HAULED TO BFI -- 210 CUBIC YARDS
11/21/91 - 14 LOADS HAULED TO BFI -- 196 CUBIC YARDS

TOTAL CUBIC YARDS HAULED TO BFI -- 2,130.00

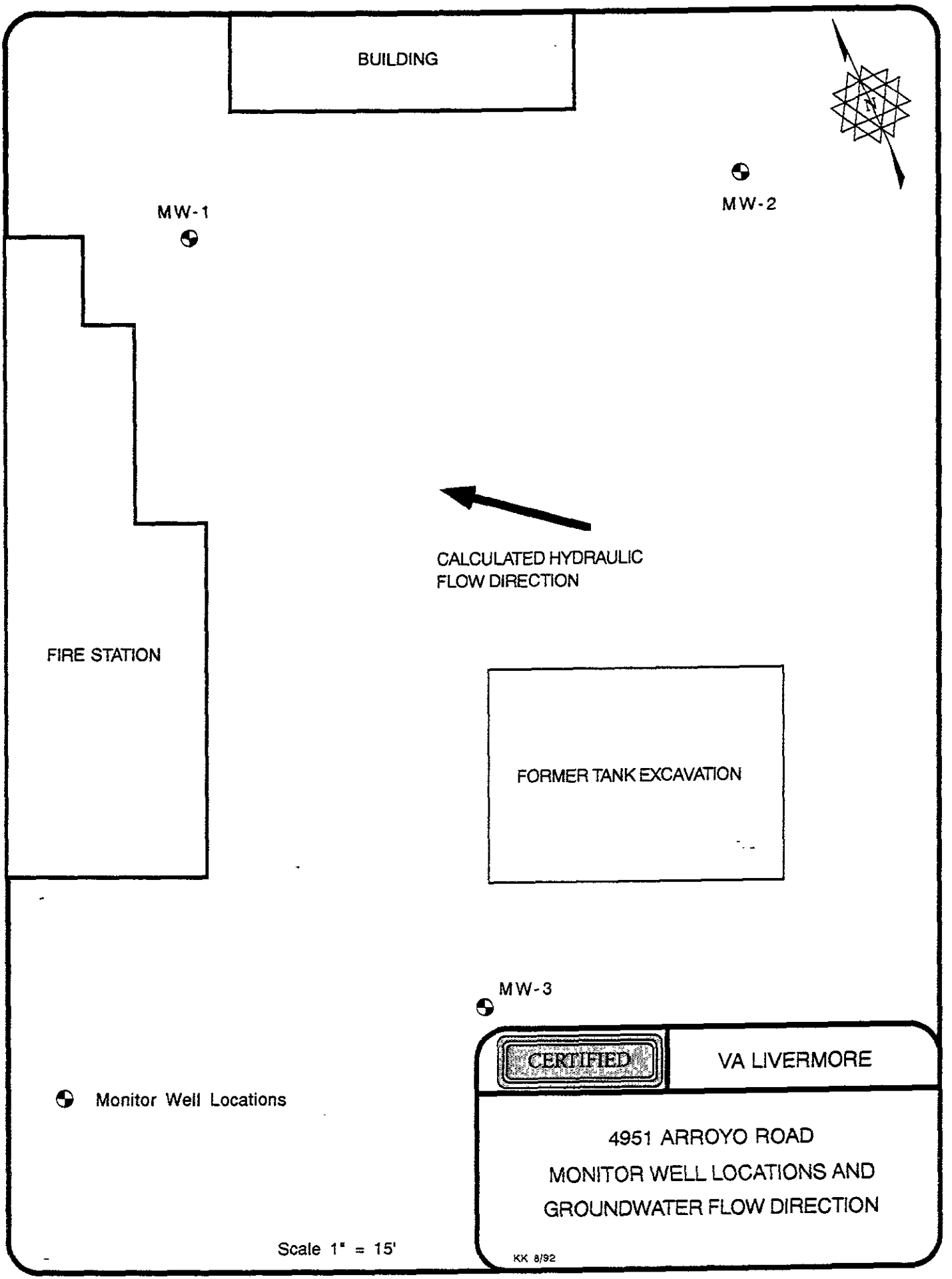
SEE ATTACHED APPLICATION FOR PROGRESS PAYMENT.

INVOICE TOTAL: $69,000.00

SAMPLING RESULTS FOR THE VA MEDICAL CENTER FIRE STATION
NOVEMBER 1991 TO AUGUST 1992

WELL NUMBER	SAMPLE DATE	TPH-Diesel ppm	Benzene ppb	Toluene ppb	Ethyl Benzene ppb	Xylene ppb	Oil & Grease mg/L
MW-1	11/06/91	ND	15	0.8	4	76	-
	03/03/92	ND	ND	ND	ND	ND	-
	07/31/92	ND	ND	ND	ND	ND	ND
MW-2	11/06/91	ND	ND	ND	ND	ND	-
	03/03/92	ND	ND	ND	ND	ND	-
	07/31/92	ND	ND	ND	ND	ND	ND
MW-3	11/06/91	ND	ND	ND	ND	ND	-
	03/03/92	ND	ND	ND	ND	ND	-
	07/31/92	ND	ND	ND	ND	ND	ND

ND - Non-detectable levels


BUILDING
N
MW-1
MW-2
CALCULATED HYDRAULIC
FLOW DIRECTION
FIRE STATION
FORMER TANK EXCAVATION
MW-3
Monitor Well Locations
CERTIFIED
VA LIVERMORE
4951 ARROYO ROAD
MONITOR WELL LOCATIONS AND
GROUNDWATER FLOW DIRECTION
Scale 1" = 15'
KK 8/92

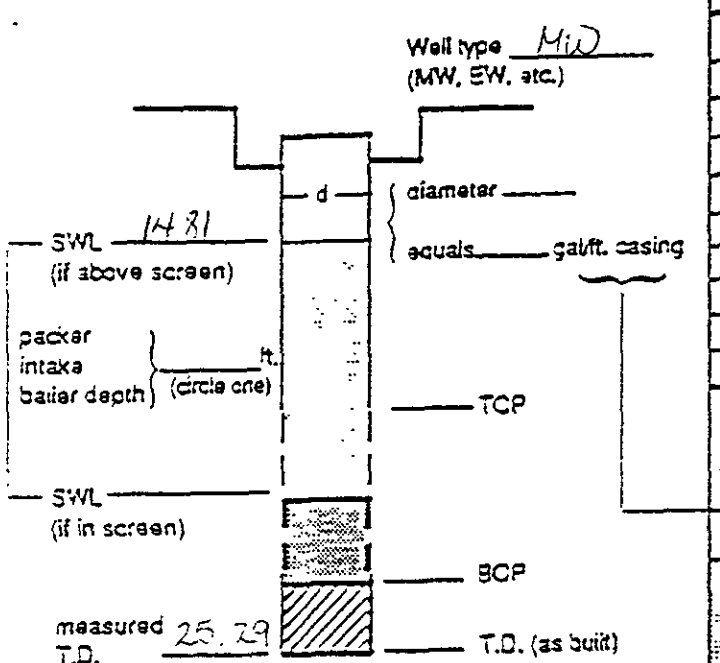
SAMPLING EVENT DATA SHEET

(fill out completely)

WELL OR LOCATION MW-1

PROJECT VA Med. Center EVENT 3rd Quarterly Sample SAMPLER K. Kemerson DATE 7/31/92

Well / Hydrologic statistics



Action	Time	Pump rate	IWL (low yield)
Start pump / Begin	404		
Stop	1422		
Sampled	1522		
(Final IWL)	1437		

Purge calculation

____ gal/ft. * ____ ft. = ____ gals x 3 = ____ gals.

SWL to BOP or packer to BOP | one volume | purge volume-3 casings

Head purge calculation (Airlift only)

____ gal/ft. * ____ ft. = ____ gals.

packer to SWL

Equipment Used / Sampling Method / Description of Event:

Tool Kit, Electric Water-Level Sounder, Specific Conductance Meter / PH Meter, Submersible Pump, Bailer, Rubber Gloves, Tubing

Actual gallons purged ____

Actual volumes purged ____

Well yield ⊖ ____
(see below)

CCC # ____

Sample I.D.	Analysis	Lab

Additional comments:

Pump dry atleast 3x

Gallons purged *	TEMP °C (F) (circle one)	EC (µs / cm)	PH	TURBIDITY (NTU)		
1. 1	73.6°	2.41	—	43.3		
2. 5	72.5°	2.44	—	2.35		
3. 10	74.8°	2.30	—	1.60		
4. 15	73.7°	2.37	—	—		
5.						

* Take measurement at approximately each casing volume purged.

⊖ HY - Minimal W.L. draw

MY - WL draw - able to purge 3 volumes during one sitting by reducing pump rate or cycling pump.

LY - Able to purge 3 volumes by returning later or next day.

VLY - Minimal recharge - unable to purge 3 volumes.

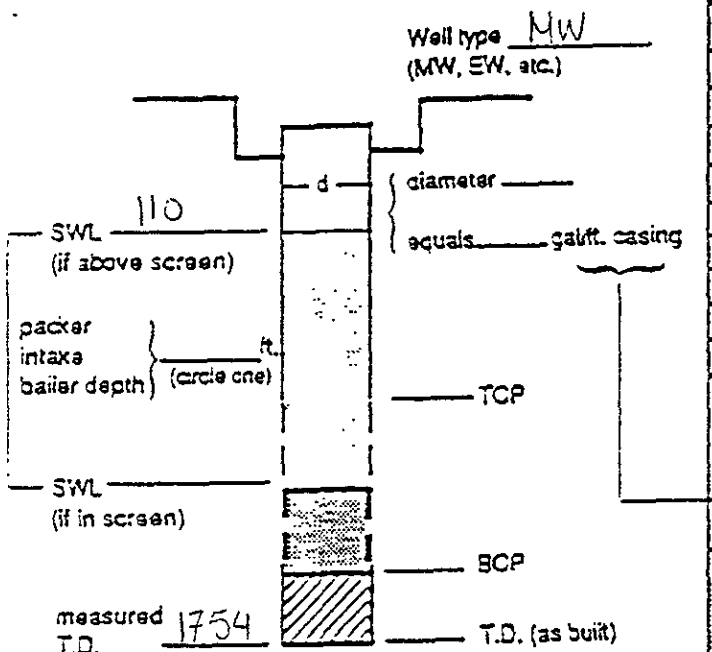
SAMPLING EVENT DATA SHEET

(fill out completely)

WELL OR LOCATION MW-2

PROJECT VA Med Center EVENT 3RD QUARTER SAMPLING SAMPLER K Klemetson DATE 7/31/92

Well / Hydrologic statistics



Action	Time	Pump rate	IWL (low yield)
Start pump / Begin	2.07		
Stop			
Sampled	4 31		
(Final IWL)	110		

Purge calculation

____ gal/ft. * ____ ft. = ____ gals x 3 = ____ gals.

SWL to BOP or packer to BOP | one volume | purge volume- 3 casings

Head purge calculation (Airlift only)

____ gal/ft. * ____ ft. = ____ gals.

packer to SWL

Equipment Used / Sampling Method / Description of Event:

Refer to MW-1 Sampling Sheet

Actual gallons purged 10

Actual volumes purged ____

Well yield ⊖ ____
(see below)

CCC # ____

Sample I.D.	Analysis	Lab

Additional comments:

Pumped dry atleast 3x

Gallons purged *	TEMP °C / °F (circle one)	EC (µs / cm)	PH	TURBIDITY (NTU)		
1. 1	84.9°	2450	—	25.2		
2. 3	79.6°	2300	—	183		
3. 6	76.5°	2260	—	78.8		
4. 8	73.7°	2200	—	76.3		
5. 10	74.3°	2200	—	95.2		

* Take measurement at approximately each casing volume purged.

⊖ HY - Minimal WL draw

MY - WL draw - able to purge 3 volumes during one sitting by reducing pump rate or cycling pump.

LY - Able to purge 3 volumes by returning later or next day.

VLY - Minimal recharge - unable to purge 3 volumes.

SAMPLING EVENT DATA SHEET

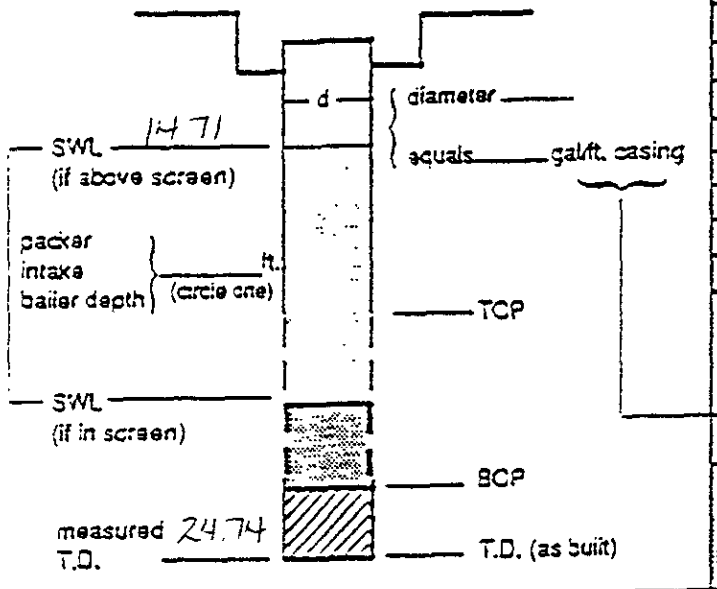
(fill out completely)

WELL OR LOCATION MW-3

PROJECT VA MED. CENTER EVENT 3RD QUARTER SAMPLER K KLEMETSON DATE 7/31/92

Well / Hydrologic statistics

Well type MW1 (MW, EW, etc.)



Action	Time	Pump rate	IWL (low yield)
Start pump / Begin	3.00		
Stop	5.40		
Sampled	4.55		
(Final IWL)	14.70		

Purge calculation

____ gal/ft. * ____ ft. = ____ gals x 3 = ____ gals.

SWL to BCP or packer to BCP | one volume | purge volume-3 casings

Head purge calculation (Airlift only)

____ gal/ft. * ____ ft. = ____ gals.

packer to SWL

Equipment Used / Sampling Method / Description of Event:

Refer to MW-1 Sampling Sheet

Actual gallons purged ____

Actual volumes purged ____

Well yield (see below) ⊖ ____

COC # ____

Sample I.D.	Analysis	Lab

Additional comments:

Gallons purged *	TEMP °C / °F (circle one)	EC (µs / cm)	PH	TURBIDITY (NTU)	
1. 1	83.7°	251	—	>200	
2. 5	75.7°	212	—	2.16	
3. 10	73.1°	207	—	1.53	
4. 15	72.1°	210	—	—	
5. 20	73.0°	214	—	2.40	

* Take measurement at approximately each casing volume purged.

⊖ HY - Minimal W.L. drop | MY - WL drop - able to purge 3 volumes during one sitting by reducing pump rate or cycling pump. | LY - Able to purge 3 volumes by returning later or next day. | VLY - Minimal recharge - unable to purge 3 volumes.

DATE: 11/6/91

PAGE 1 OF 1

FIELD SURVEY RECORD

CLIENT V.A. Medical Center LOCATION Livermore, CA

SURVEYORS _____ WEATHER _____

STATION	BACK SIGHT +	HI	FORE SIGHT	ELEVATION	WATER DEPTH 7/31/92	WATER ELEVATION
MW-1	5.69	105.69		100.00	14.81	85.19 (7/31/92)
MW-2			7.89	97.8	11.00	86.80 (7/31/92)
MW-3			4.31	101.38	14.71	86.69 (7/31/92)

FORM # CECF

CERTIFIED ENVIRONMENTAL CONSULTING INC.
140 West Industrial Way
Benicia, CA 94510
(707) 745-0171 FAX (707) 745-0163

Chain of Custody Record

Date ______ Sheet ____ of ____

Project Number: 92-173-655
Project Name: VA Hospital
Client:
Contact:
Address:

Sampler's Name: K. Klemetson
Sampler's Signature: Kathryn Klemetson

Lab Name:
Address:
Phone Number:

Turnaround Time

☐ Rush ☐ 24 Hour ☐ 48 Hour ☐ Normal

Report to:

[redacted]

Sample Number	Date	Time	Location	B.T.E.X	Total Petroleum Hydrocarbons	Oil and Grease	CAM Metals (18)	General Minerals	Pr. Pollutant Metals (13)	Base/Neu/Acids (Organic)	Pesticides	Volitile Organics (601/602)	Volitile Organics (624)	Asbestos	PCB	Diesel (Other)
430504	7/31/92	431	MW-1	✓		✓										✓
430505	7/31/92	455	MW-2	✓		✓										✓
430506	7/31/92	522	MW-3	✓		✓										✓

ICED ✓
GOOD CONDITION ✓
HEAD SPACE ABSENT ✓
PRESERVATIVE ✓ VOAS | O & G ✗ | METALS | OTHER
APPROPRIATE CONTAINERS ✓

Relinquished By	Date	Time	Received By	Date	Time
1. K. Klemetson	8/3/92	8:35	1. Ed [signature]	8/3	8:35
2.			2.		
3.			3.		

Dispatched By	Date	Time	Received in Lab By	Date	Time

Total Number of Containers This Sheet:

Method of Shipment

Special Shipment / Handling or Storage Requirements:

McCAMPBELL ANALYTICAL INC. | 110 2nd Avenue South, #D7, Pacheco, CA 94553
Tele: 510-798-1620 Fax: 510-798-1622

Certified Environmental Consultants 140 West Industrial Way Benecia, CA 94510-1016	Client Project ID: 92-173-655; VA Hospital	Date Sampled: 07/31/92
		Date Received: 08/03/92
	Client Contact: Scott Parker	Date Extracted:
	Client P.O:	Date Analyzed: 08/04/92

Low Boiling Point (C6-C12) TPH* as Gasoline and BTEX*

EPA methods 5030, modified 8015, and 8020 or 602; California RWQCB (SF Bay Region) method GCFID(5030)

Lab ID	Client ID	Matrix	TPH(G)+	Benzene	Toluene	Ethyl Benzene	Xylenes	% Rec. Surrogate
105833	430504	W	ND	ND	ND	ND	ND	111
105834	430505	W	ND	ND	ND	ND	ND	99
105835	430506	W	ND	ND	ND	ND	ND	99
Detection Limit unless otherwise stated; ND means Not Detected		W	50 ug/L	0.5	0.5	0.5	0.5	
		S	1.0 mg/kg	0.005	0.005	0.005	0.005	

*water samples are reported in ug/L and soils in mg/kg

#cluttered chromatogram; sample peak co-elutes with surrogate peak

+The following descriptions of the TPH chromatogram are cursory in nature and McCampbell Analytical is not responsible for their interpretation: a) predominately unmodified or weakly modified gasoline; b) heavier gasoline range compounds predominate (aged gasoline?); c) lighter gasoline range compounds predominate (the most mobile gasoline compounds); d) heavy and light gasoline range compounds predominate (aged gasoline together with introduced light compounds?); e) gasoline range compounds predominate; no recognizable pattern; f) one to a few isolated peaks present; g) strongly aged gasoline or diesel range compounds predominate.

Edward Hamilton, Lab Director

McCAMPBELL ANALYTICAL INC.
110 2nd Avenue South, #D7, Pacheco, CA 94553
Telc: 510-798-1620 Fax: 510-798-1622

Certified Environmental Consultants 140 West Industrial Way Benecia, CA 94510-1016	Client Project ID: 92-173-655; VA Hospital	Date Sampled: 07/31/92
		Date Received: 08/03/92
	Client Contact: Scott Parker	Date Extracted: 08/08/92
	Client P.O:	Date Analyzed: 08/08/92

Medium Boiling Point (C10-C23) TPH* as Diesel

EPA methods modified 8015, and 3550 or 3510; California RWQCB (SF Bay Region) method GCFID(3550) or GCFID(3510)

Lab ID	Client ID	Matrix	TPH(D)+
105833	430504	W	ND
105834	430505	W	ND
105835	430506	W	ND
Detection Limit unless otherwise stated; ND means Not Detected		W	50 ug/L
		S	10 mg/kg

*water samples are reported in ug/L and soils in mg/kg

cluttered chromatogram; sample peak co-elutes with surrogate peak

+The following descriptions of the TPH chromatogram are cursory in nature and McCampbell Analytical is not responsible for their interpretation: a) predominately unmodified or weakly modified diesel; b) diesel range compounds predominate; no recognizable pattern; c) diesel range compounds together with gasoline range compounds; d) gasoline range compounds predominate; e) medium boiling point pattern that does not match diesel(); f) one to a few isolated peaks present; g) oil range compounds predominate.

Edward Hamilton, Lab Director

McCAMPBELL ANALYTICAL INC.
110 2nd Avenue South, #D7, Pacheco, CA 94553
Tele: 510-798-1620 Fax: 510-798-1622

Certified Environmental Consultants 140 West Industrial Way Benecia, CA 94510-1016	Client Project ID: 92-173-655; VA Hospital	Date Sampled: 07/31/92
		Date Received: 08/03/92
	Client Contact: Scott Parker	Date Extracted: 08/08/92
	Client P.O:	Date Analyzed: 08/08/92

Total Recoverable Petroleum Hydrocarbons as Oil & Grease (with Silica Gel Clean-up) *

Standard Methods 5520 E&F or 503 D&E for solids and 5520 B&F or 503 A&E for liquids

Lab ID	Client ID	Matrix	TRPH
105833	430504	W	ND
105834	430505	W	ND
105835	430506	W	ND
Detection Limit unless otherwise stated; ND means Not Detected		W	5 mg/L
		S	25 mg/kg

*water samples are reported in mg/L and soils in mg/kg

Edward Hamilton, Lab Director

APPENDIX A

Water Sampling in Wells and Boreholes

GENERAL CONSIDERATIONS

In general, the composition of water within the well casing and in close proximity to the well is not representative of groundwater quality. This may be due to contamination by drilling fluids or drilling equipment or to disparities between the oxidation-reduction potential in the well and the redox potential in the aquifer. To obtain a representative sample of groundwater, therefore, the well should be pumped or bailed until the well is thoroughly flushed of standing water and contains fresh water from the aquifer. One common procedure is to pump or bail the well until a minimum of three bore volumes (or alternatively, 10 well volumes) have been removed.

At the least, pumping should continue until water in casing storage has been removed. There are at least two common methods for determining that water in casing storage has been removed and water is flowing freely from the aquifer: (1) Monitor water level while pumping. When the pumping water level has "stabilized," it is likely that little or no water from casing storage is being pumped. The temperature, pH, conductivity, and turbidity of the water should be monitored while pumping. When these parameters "stabilize," it is probable that little or no water from casing storage is being pumped and most of the water is coming from the aquifer.

PURGING

During each round of sampling, static water level will be measured prior to purging using an electronic sounder. All water-level measurements will be recorded to the nearest 0.01 foot with respect to mean sea level.

A minimum of three bore volumes will be purged from the well prior to sampling. To insure that water in the well has been exchanged pumping or bailing shall commence at the top and work downward. The well will be allowed to return to 80 percent of the original water level before sampling.

Temperature, pH, specific conductance, and turbidity will be measured for each bore volume pumped. Purging will continue until these field-measured water quality parameters have stabilized and the water is, in the judgment of the geologist, representative of water in the aquifer. Data obtained from field water quality measurements will be recorded in the field log book or data sheets. A separate aliquot of groundwater collected from the purge water outlet stream will be used for field measurements; samples intended for laboratory analysis will not be used.

Temperature will be measured with a good grade mercury-filled Centigrade thermometer, bimetallic-element thermometer, or electronic thermistor.

Acidity/alkalinity (pH) will be measured by dipping the conductivity probe in the water source or sample; pH will be measured as soon as possible after collection of the sample, preferably within a few minutes.

Conductivity will be measured by dipping the conductivity probe in the water source or sample. The temperature of the sample will be used to calculate specific conductance from the conductivity measurement. Measurements shall be reported in units of micromhos per centimeter at 25 degrees Centigrade.

Turbidity will be measured using a vial of development/purge water and a turbidity meter. The instrument will be calibrated to read between 1 and 400 Nephelometric turbidity units (NTUs). This is a measure of the amount of light scattered at right angles to the path of light passing through the water. The greater the NTU reading, the greater the amount of light scattered by particles in the water, therefore, the greater the turbidity.

SAMPLE COLLECTION

Wells and borings will be sampled using a new, clean, disposable Teflon bailer attached to new, clean string. Sample vials and bottles will be filled to overflowing and sealed so that no air is trapped in the vial or bottle. Once filled, samples shall be inverted and tapped to test for air bubbles. Samples will be contained in vial and bottles approved by the US EPA and the RWQCB, San Francisco Bay Region. Some analyses may require separate sample containers in accordance with EPA methods described in 40 CFR Part 136 and SW-846.

Water samples intended for volatile hydrocarbon analysis will be contained in 40 ml VOA vials prepared according to EPA SW 849 and capped with Teflon-lined septa caps. Samples intended analysis is EPA 602 will contain a small amount of preservative (HCl). Samples intended for EPA 601 and EPA 624 GCMS procedures will not be preserved. Water samples intended for low level diesel analysis will be stored in dark glass 1-liter bottles to reduce degradation by sunlight. Antimicrobial preservative (HCl) may be added to the sample if a prolonged holding time is expected prior to analysis.

Sample containers will be labelled with self-adhesive, preprinted tags. Labels will contain the following information in waterproof ink:

1. Project number (or name)
2. Sample number (or name)
3. Sample location (well number, etc.)
4. Date and time samples were obtained
5. Treatment (preservative added, filtered, etc.)
6. Name of sample collector

All purged water will be stored on site in steel DOT approved drums. Drums will be labeled as to contents, suspected contaminants, date container filled, expected removal date, company name, contact and phone number, sealed and left on-site for subsequent disposal pending analytical results.

DOCUMENTATION

Sampling information will be recorded in ink in a bound notebook with consecutively number pages. Pages will not be removed for any reason. Alternatively, specially formatted field data sheets may be used to record the information collected during water quality sampling. Errata may be marked out with a single line, and initials of person making the change. The log book and data sheets will be placed in the project file when sampling is completed.

FIELD EQUIPMENT DECONTAMINATION PROCEDURES

Bailers and string will be properly disposed of off site. All other sampling equipment, such as buckets and stands, will be decontaminated after each use by washing in an Alconox solution.

All rinseate used in the decontamination process will be stored on site in steel DOT approved drums. Drums will be labeled as to contents, suspected contaminants, date container filled, expected removal date, company name, contact and phone number, sealed and left on-site for subsequent disposal pending analytical results.