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QUARTERLY GROUND WATER MONITORING REPORT  
JULY 1992  
CLARK'S HOME AND GARDEN  
23040 CLAWITER ROAD  
HAYWARD, CALIFORNIA

PROJECT 4983

for

Mr. Chester Clark  
521 Triller Lane  
Grants Pass, Oregon 97527

by

TERRATECH, INC.  
1365 Vander Way  
San Jose, California 95112

July 30, 1992



THIRD QUARTERLY GROUND WATER MONITORING REPORT  
JULY 1992  
CLARK'S HOME & GARDEN  
23040 CLAWITER ROAD, HAYWARD

INTRODUCTION

This report describes the work performed for and the findings from Terratech's recent quarterly testing of the shallow ground water at Clark's Home & Garden Center, 23040 Clawiter Road in Hayward (see Figures 1 and 2). The work is being performed according to requirements of the Alameda County Health Agency (ACHA) for follow-up to a fuel leak discovered when two underground storage tanks were removed from the site in 1988.

Background information on this project is presented in Terratech's Project 4983 reports, "Initial Investigation of Ground Water Contamination, . . .," dated September 5, 1991; "Follow-up Ground Water Testing, . . .," dated November 12, 1991; and two subsequent Quarterly Ground Water Sampling and Analysis reports, dated February 26, 1992 and May 6, 1992.

WORK PERFORMED

On July 7, 1992 a member of Terratech's environmental department performed the quarterly sampling of on-site monitoring well MW-1. The depth to standing water in the well was first measured to the nearest 0.01-foot using an electronic probe. The well was then purged using a pre-cleaned Teflon bailer. During purging, temperature, pH and specific conductance measurements were recorded until stable (< 10% variation) readings were obtained. Approximately four well-volumes of water were removed from MW-1 prior to collecting a sample. The sampling technician logged field notes on a Well Sampling Data Sheet (see copy in appendix). Purged water was placed into a labeled drum and left on site.

After purging, ground water from MW-1 was carefully transferred from the bailer into a set of three 40-ml volatile organic analysis (VOA) vials, and a pair of 1-liter amber jars supplied by the testing laboratory. The VOA vials, which contained a small amount of hydrochloric acid preservative, were filled until a positive meniscus formed then sealed with a Teflon septum screw cap. The containers were inverted and tapped to confirm the absence of headspace or bubbles, then immediately labeled and iced. The amber jars were filled, capped labeled and iced.

The sample containers were kept iced or refrigerated from the time of collection until the time of analysis. Sample collection, handling and analytical requests were documented on a chain-of-custody record (appended).

The ground water sample was transferred to and analyzed by NET Pacific, a State-certified laboratory in Santa Rosa, for total petroleum hydrocarbons (TPH) as diesel using EPA Method 3510 extraction and GC-FID detection; TPH as



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gasoline using EPA Method 5030 with GC-FID detection; and the specific fuel compounds - benzene, toluene, ethylbenzene and xylenes (BTEX) using a modified EPA Method 8020.

FINDINGS AND COMMENTS

Table 1 presents a summary of ground water level measurements in MW-1 to-date. The on-site ground water level fell approximately 1.10 feet during the period between the April 4, 1992 and July 7, 1992 quarterly sampling events. Based on previously reviewed information on surrounding fuel leak sites, the local ground water gradient direction is expected to be toward the west.

A prominent fuel odor and surface sheen on purged water were noticed by our sampling technician during the July sampling activities. Recent laboratory analyses of the MW-1 ground water sample detected concentrations of TPH generally similar to historic levels. Concentrations of BTEX, especially benzene, were generally lower than past levels and none appear to exceed state drinking water standards. It still appears that the ground water impact is from a mixture of gasoline and diesel, and possibly other petroleum fuel(s).

Ground water sample analyses results to date are summarized in Table 2. The July 1992 laboratory report is appended.

Pending further regulatory direction and mutual cooperation from the other parties with fuel leaks in this area, Terratech will be proceeded with a fourth round of quarterly monitoring in October, as contracted.

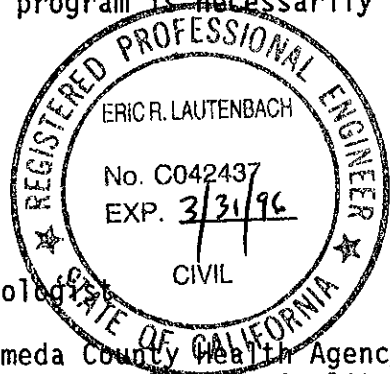
LIMITATIONS

This report and the associated work have been provided in accordance with the general principles and practices currently employed in the environmental consulting profession. This is in lieu of all warranties, express or implied. Our sampling and testing program is necessarily limited.

Report Prepared by:

TERRATECH, INC.

*for* *SCB*  
Shiela M. Chrisley  
Project Environmental Geologist



Reviewed by:

*E. R. Lautenbach*  
Eric R. Lautenbach  
CE 42437

- cc: Juliette Chen - Alameda County Health Agency
- Eddy So - California Regional Water Quality Control Board
- Hugh Murphy - Hayward Fire Department
- Butch Voss - L.H. Voss Materials, Inc.
- Bob Price



<p><u>TABLE 1</u></p> <p>SUMMARY OF GROUND WATER DEPTH MEASUREMENTS</p> <p>Clark's Home and Garden Center                      23040 Clawiter Road                      Hayward, California</p>	
Location and Date	Depth to Ground Water (feet)
MW-1 08/07/91 09/05/91 10/15/91 01/07/92 04/08/92 07/07/92	17.44 17.72 17.92 17.23 15.57 16.67



<p style="text-align: center;"><b>TABLE 2</b></p> <p style="text-align: center;"><b>SUMMARY OF GROUND WATER SAMPLE ANALYSIS RESULTS</b></p> <p style="text-align: center;">Clark's Home and Garden Center 23040 Clawiter Road Hayward, California</p> <p style="text-align: center;">(Concentrations are in parts per billion (ppb))</p>						
Sample Location and Date	TPH as Diesel	TPH as Gasoline	Benzene	Toluene	Ethyl-benzene	Xylenes
MW-1						
08/07/91	7,100	5,900	45	<25	130	520
09/05/91	2,800*	47,000	<50	<50	230	660
10/15/91	13,000	24,000	<50	<50	<50	390
01/07/92	9,000*	23,000**	<50	<50	270	800
04/08/92	3,500	8,100	19	< 5	350	210
07/07/92	6,300	7,000	< 5	< 5	190	170
<b>Action Level/MCL</b>	--	--	1	100	680	1,750

**NOTES:**

TPH = Total petroleum hydrocarbons

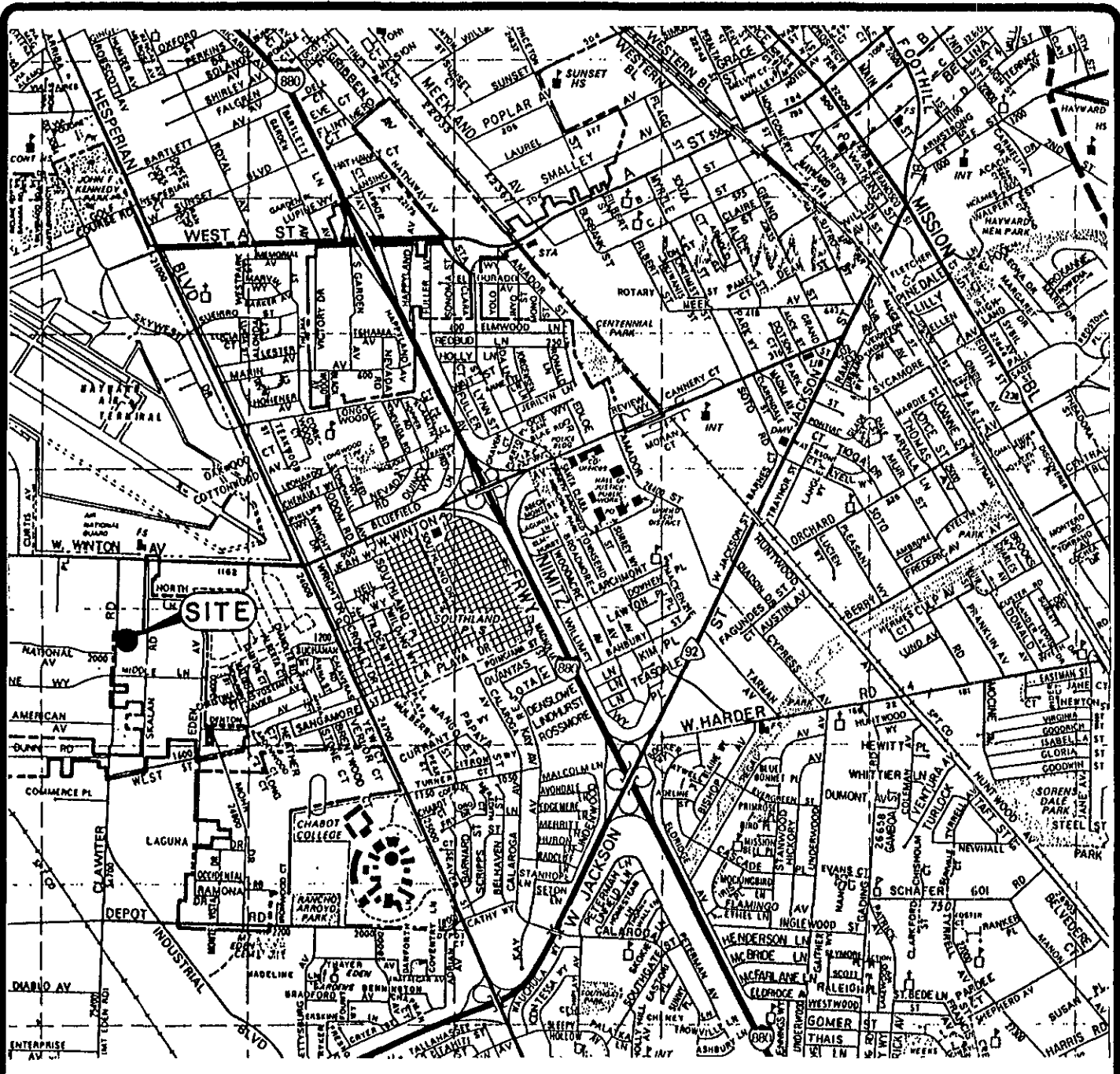
\*Laboratory notes that petroleum hydrocarbon detected as diesel is due to both diesel and a petroleum hydrocarbon lighter than diesel.

\*\*Laboratory notes that petroleum hydrocarbon detected as gasoline does not appear to have a typical gasoline pattern.

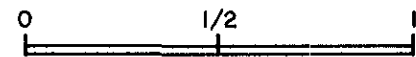
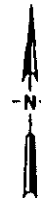
Action Levels and Maximum Contaminant Levels (MCL) are for contaminants in drinking water, as established by the California Department of Health Services.

-- = Action Level or MCL not established for TPH in drinking water. Clean-up guidelines are established on a site-specific basis.





BASE MAP: Thomas Brothers Maps; Alameda County  
1990 edition; p. 58.



Scale in miles

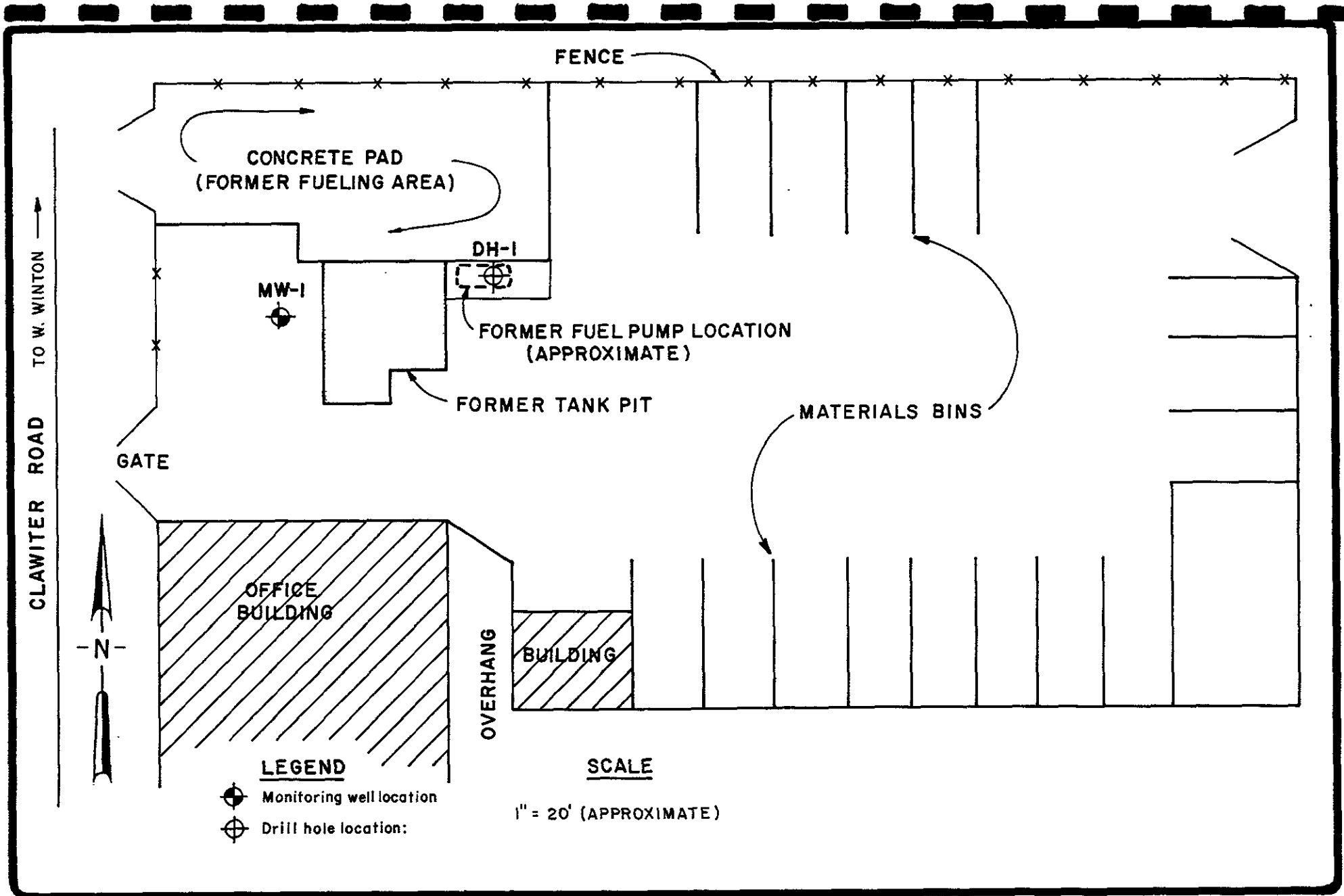


AUG. 1991  
**TERRATECH**

CLARK'S BUILDING MATERIALS  
23040 CLAWITER ROAD  
HAYWARD, CALIFORNIA

**SITE VICINITY MAP**

**FIGURE**  
1  
**PROJECT**  
4983



AUG. 1991  
TERRATECH

CLARK'S BUILDING MATERIALS  
23040 CLAWITER ROAD  
HAYWARD, CALIFORNIA

SITE PLAN

FIGURE  
2  
PROJECT  
4983

APPENDIX

WELL SAMPLING DATA SHEET,  
CHAIN-OF-CUSTODY RECORD  
AND  
ANALYTICAL REPORT





NATIONAL  
ENVIRONMENTAL  
TESTING, INC.

NET Pacific, Inc.  
435 Tesconi Circle  
Santa Rosa, CA 95401  
Tel: (707) 526-7200  
Fax: (707) 526-9623

TERRATECH, INC.

JUL 31 1992

RECEIVED

Shiela Chrisley  
Terratech  
1365 Vander Way  
San Jose, CA 95112

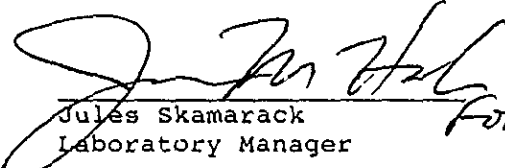
Date: 07/27/1992  
NET Client Acct. No: 70400  
NET Pacific Job No: 92.3811  
Received: 07/09/1992

Client Reference Information

Project:4983

Sample analysis in support of the project referenced above has been completed and results are presented on following pages. Please refer to the enclosed "Key to Abbreviations" for definition of terms. Should you have questions regarding procedures or results, please feel welcome to contact Client Services.

Approved by:

  
Jules Skamarack  
Laboratory Manager FOR:

Enclosure(s)



Client Acct: 70400  
 Client Name: Terratech  
 NET Job No: 92.3811

Date: 07/27/1992  
 Page: 2

NET Pacific, Inc

Ref: Project:4983

SAMPLE DESCRIPTION: MW-1  
 Date Taken: 07/07/1992  
 Time Taken: 15:35  
 LAB Job No: (-128980 )

Parameter	Method	Reporting Limit	Results	Units
TPH (Gas/BTXE,Liquid)			--	
METHOD 5030 (GC,FID)			--	
DATE ANALYZED			07-18-92	
DILUTION FACTOR*			10	
as Gasoline	5030	0.05	7.0	mg/L
METHOD 8020 (GC,Liquid)			--	
DATE ANALYZED			07-18-92	
DILUTION FACTOR*			10	
Benzene	8020	0.5	ND	ug/L
Ethylbenzene	8020	0.5	190	ug/L
Toluene	8020	0.5	ND	ug/L
Xylenes (Total)	8020	0.5	170	ug/L
SURROGATE RESULTS			--	
Bromofluorobenzene	5030		113	% Rec.
METHOD 3510 (GC,FID)				
DILUTION FACTOR*			5	
DATE EXTRACTED			07-13-92	
DATE ANALYZED			07-15-92	
as Diesel	3510	0.05	6.3	mg/L



Client Acct: 70400  
Client Name: Terratech  
NET Job No: 92.3811

Date: 07/27/1992  
Page: 3

NET Pacific, Inc

Ref: Project:4983

QUALITY CONTROL DATA

Parameter	Reporting Limits	Units	Cal Verif Stand % Recovery	Blank Data	Spike % Recovery	Duplicate Spike % Recovery	RPD
Gasoline	0.05	mg/L	116	ND	113	112	<1
Benzene	0.5	ug/L	107	ND	88	96	8.0
Toluene	0.5	ug/L	102	ND	101	100	1.0
Diesel	0.05	mg/L	89	ND	98	104	5.4
Motor Oil	0.5	mg/L	88	ND	N/A	N/A	N/A

COMMENT: Blank Results were ND on other analytes tested.



NET Pacific, Inc

## KEY TO ABBREVIATIONS and METHOD REFERENCES

- < : Less than; When appearing in results column indicates analyte not detected at the value following. This datum supercedes the listed Reporting Limit.
- \* : Reporting Limits are a function of the dilution factor for any given sample. To obtain the actual reporting limits for this sample, multiply the stated Reporting Limits by the dilution factor (but do not multiply reported values).
- ICVS : Initial Calibration Verification Standard (External Standard).
- mean : Average; sum of measurements divided by number of measurements.
- mg/Kg (ppm) : Concentration in units of milligrams of analyte per kilogram of sample, wet-weight basis (parts per million).
- mg/L : Concentration in units of milligrams of analyte per liter of sample.
- mL/L/hr : Milliliters per liter per hour.
- MPN/100 mL : Most probable number of bacteria per one hundred milliliters of sample.
- N/A : Not applicable.
- NA : Not analyzed.
- ND : Not detected; the analyte concentration is less than applicable listed reporting limit.
- NTU : Nephelometric turbidity units.
- RPD : Relative percent difference,  $100 \text{ [Value 1 - Value 2] / mean value}$ .
- SNA : Standard not available.
- ug/Kg (ppb) : Concentration in units of micrograms of analyte per kilogram of sample, wet-weight basis (parts per billion).
- ug/L : Concentration in units of micrograms of analyte per liter of sample.
- umhos/cm : Micromhos per centimeter.

### Method References

Methods 100 through 493: see "Methods for Chemical Analysis of Water & Wastes", U.S. EPA, 600/4-79-020, rev. 1983.

Methods 601 through 625: see "Guidelines Establishing Test Procedures for the Analysis of Pollutants" U.S. EPA, 40 CFR, Part 136, rev. 1988.

Methods 1000 through 9999: see "Test Methods for Evaluating Solid Waste", U.S. EPA SW-846, 3rd edition, 1986.

SM: see "Standard Methods for the Examination of Water & Wastewater, 17th Edition, APHA, 1989.

1365 VANDER WAY  
 SAN JOSE, CA 95112  
 (408) 297-6969

**TERRATECH**

**CHAIN-OF-CUSTODY RECORD**

P.O. NUMBER: 2893  
 TURNAROUND: 10-day

FAX reports upon completion to: (408) 297-7716 Mail reports to: TERRATECH, INC. 1365 VANDER WAY, SAN JOSE, CA 95112 ATTN: Sheila Christley						Number of Containers	Type of Containers	Preserved?	Analysis Required						Remarks
PROJECT NUMBER: <u>4983</u> SAMPLER INITIALS: <u>GCB/DP</u>									TPH as Gasoline	BTEX	TPH as Diesel				
Sample Number	Depth	Date	Time	Medium	Sample Location										
MW-1	-	7/7/92	1535	Water	MW-1	3	40 ml VOAS	Yes	X	X					
MW-1	-	7/7/92	1535	Water	MW-1	2	1 liter ANBERS	NO			X				
CHAIN OF CUSTODY SEALED 7/8/92 1900 MNT serial intact															
Relinquished by (signature): <i>Diane Phillips</i> Company or Agency: <b>TERRATECH, INC</b>		Date/Time 7/8/92 9:00 AM		Received by (signature): <i>Scott Blain</i> Company or Agency: <b>Terratech, Inc</b>		Relinquished by (signature): <i>Scott Blain</i> Company or Agency: <b>Terratech, Inc.</b>		Date/Time 7/8/92 2:25pm		Received by (signature): <i>Mike Cowan</i> Company or Agency: <b>NET</b>					
Relinquished by (signature): <i>Mike Cowan</i> Company or Agency: <b>NET</b>		Date/Time 7/8/92 1900		Received by (signature):  Company or Agency:		Relinquished by (signature): (via NCS) Company or Agency:		Date/Time 7/9/92 0800		Received for Laboratory by (signature): <i>Sample</i> Company or Agency: <b>NET Pacific</b>					

TERRATECH, INC.  
WELL SAMPLING DATA SHEET

PROJECT NAME: CLARK FUEL LEAK - HAYWARD  
PROJECT NUMBER: 4893  
WELL DESIGNATION: MW-1

DATE: 7/7/92  
SAMPLER: DP  
SAMPLE NUMBER: MW-1

CONDITION OF WELL HEAD/VAULT:

TOP OF CASING ELEVATION:  
DEPTH TO GROUND WATER (initial): 16.67  
DEPTH TO BOTTOM OF WELL: MEASURED 23.6' EXPECTED 25'  
HEIGHT OF WATER COLUMN (HWC): 6.93'

CASING DIAMETER: 2"  3" \_\_\_\_\_ 4" \_\_\_\_\_ OTHER \_\_\_\_\_

CALCULATED WELL VOLUME: HWC x V = 6.93 x 0.163 = 1.13 gal  
Volume (V) of 2" well - 0.163 gal/ft  
Volume (V) of 4" well - 0.653 gal/ft

ODOR gasoline - strong SHEEN ? FLOATING PRODUCT THICKNESS NO

PUMP TYPE: PVC HAND \_\_\_\_\_ BLADDER \_\_\_\_\_ PNEUMATIC \_\_\_\_\_  
ELECTRIC \_\_\_\_\_ BAILER  OTHER \_\_\_\_\_

PUMP DEPTH:

TIME	GALLONS PURGED	NO. OF WELL VOLUMES	pH	TEMPERATURE (°F or °C)	CONDUCTIVITY (mmhos/cm or µmhos/cm)	TURBIDITY (NTU or visual)
1515	1.2	~1	7.78	67.67°	4970	—
1521	2.6	~2	8.00	67.70°	4320	—
1529	3.4	~3	7.65	66.40°	3560	—
1535	4.6	~4	7.68	67.80°	4370	—

RECHARGE RATE (qualitative): Good

DEPTH TO WATER (pre-sample collection): ~17'

SAMPLER TYPE: TEFLON BAILER  ACRYLIC BAILER \_\_\_\_\_ ELECTRIC \_\_\_\_\_  
TEFLON BLADDER \_\_\_\_\_ PNEUMATIC PUMP \_\_\_\_\_ OTHER \_\_\_\_\_

SAMPLES COLLECTED: PRESERVED VOA'S 3 UNPRESERVED VOA'S \_\_\_\_\_  
PRESERVED LITERS \_\_\_\_\_ UNPRESERVED LITERS 2  
500 ml PLASTIC BOTTLE WITH PRESERVATIVE FOR METALS:  
FILTERED \_\_\_\_\_ UNFILTERED \_\_\_\_\_  
OTHER \_\_\_\_\_

COMMENTS: