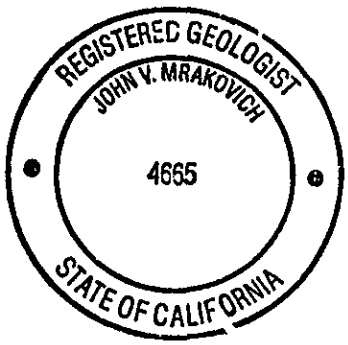
REMEDIATION AND DISPOSAL OF STOCKPILED CONTAMINATED SOIL

834 BLOSSOM WAY
HAYWARD, CA 94541

Mr. George Haywood
132 Ivy Drive
Orinda, CA 94563

Submitted By:
TANK PROTECT ENGINEERING
Of Northern California, Inc.
July 20, 1993

John V. Mrakovich, Ph.D.
Registered Geologist



Jeff J. Farhoomand, M.S.
Civil Engineer

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OF
STOCKPILED CONTAMINATED SOIL

834 BLOSSOM WAY
HAYWARD, CA 94541

July 20, 1993

This report has been prepared by the staff of **Tank Protect Engineering of Northern California, Inc.** under direction of an Engineer and/or Geologist whose seal(s) and/or signature(s) appear hereon.

The findings, recommendations, specifications or professional opinions are presented, within the limits prescribed by the client, after being prepared in accordance with generally accepted professional engineering and geologic practice. We make no other warranty, either expressed or implied.

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1.0 INTRODUCTION

The subject site is a residence located at 834 Blossom Way in the City of Hayward in Alameda County, California. The owner of the property is Mr. George Haywood [telephone no. (510) 376-4117] who resides at 132 Ivy Drive in Orinda, California 94563. The following background discussion is based on information provided by Mr. Haywood and written correspondence from the Alameda County Health Care Services Agency (ACHCSA) to Mr. Haywood.

In 1989, one 500-gallon, underground diesel tank, one 1,000-gallon, underground gasoline tank, associated dispensers, and piping were removed from the subject site. On May 15, 1991, soil samples collected in native soil from beneath the location of the former tanks at depths ranging from 7 to 12.5 feet detected total petroleum hydrocarbons as gasoline (TPHG) up to 24,000 parts per million (ppm).

Fuel contaminated soil was removed from the floor of the excavation to a depth of about 15 feet and stockpiled on site. About 130 cubic yards (cyds) of soil were stockpiled on site as a result of tank removal activities and excavation of contaminated soil.

Two discrete soil samples were collected by California State Department of Health Services (DHS) certified Trace Analysis Laboratory, Inc. (TAL), located in Hayward, California, from the floor of the excavation on September 23, 1991 to verify that all contaminated soil had been removed. TAL analyzed the 2 samples for total petroleum hydrocarbons as diesel (TPHD) and TPHG by the DHS Method; and for benzene, toluene, ethylbenzene, and xylenes (BTEX) by the United States Environmental Protection Agency (EPA) Method 8020. All analytical results were nondetectable.

The contaminated stockpiled soil was remediated, on site, by aeration under the supervision of Mr. Haywood. Aeration was conducted by using a front-end loader to turn the soil. TAL sampled the stockpile on April 13, 1992 to evaluate the effectiveness of the aeration. TAL collected 1 discrete soil sample from each side of the stockpile (4 sides) and composited the 4 samples in the laboratory for analysis for TPHD, TPHG, and BTEX by the above analytical methods. TPHD and TPHG were

detected at concentrations of 340 ppm and .680 ppm, respectively. Ethylbenzene and xylenes were detected at concentrations of .0082 ppm and .042 ppm, respectively.

Because contamination was still present, the stockpile was again aerated under the supervision of Mr. Haywood and sampled a second time by TAL on October 1, 1992; the stockpile was sampled as above but analyzed only for TPHD. TPHD was detected at a concentration of 420 ppm; due to a typographical error, TAL originally reported TPHD at a concentration of 42 ppm, on October 15, 1992. TAL revised their report on May 11, 1993. See Appendix A for TAL's revised report.

Because Mr. Haywood desired to reuse the stockpiled soil on site to backfill the excavation and because the stockpiled soil required additional remediation for that use, Mr. Haywood contracted with Tank Protect Engineering of Northern California, Inc. (TPE) on January 20, 1993 to bioremediate and aerate the soil in an attempt to achieve contaminant concentrations acceptable for on-site reuse.

TPE submitted a January 25, 1993 WORKPLAN FOR REMEDIATION OF STOCKPILED CONTAMINATED SOIL, 834 BLOSSOM WAY, HAYWARD, CA (WP) to Mr. Haywood for his approval and delivery to the ACHCSA and the California Regional Water Quality Control Board-San Francisco Bay Region (CRWQCB). The WP was approved by the ACHCSA in their January 29, 1993 letter (see Appendix A) and implemented by TPE on March 8, 1993.

The following documents remediation and disposal of the stockpiled soil.

2.0 REMEDIATION OF CONTAMINATED STOCKPILED SOIL

2.1 Prefield Activities

On January 20, 1993, TPE collected a sample of the soil for a bio-inhibition test to determine if bioremediation of the soil was a viable option. The bio-inhibition test determined that the soil was amenable to bioremediation (see Solmar Corp. January 28, 1993 letter in Appendix A).

Prior to beginning remediation activities, TPE notified the Bay Area Air Quality Management District on March 8, 1993.

2.2 Bioremediation and Aeration of Stockpiled Soil

On March 8, 1993, TPE began remediation by aerating the soil and applying nutrients to prepare the soil for inoculation. The soil was aerated by turning with a front-end loader and nutrients were applied simultaneously with a sprayer.

On March 9, 1993, the soil was aerated a second time and simultaneously inoculated with a proprietary bacterial culture formulated to destroy TPHD and TPHG chemicals. The bacterial culture was applied with a sprayer while turning the soil.

The soil was aerated a third time on April 7, 1993 by turning with a front-end loader.

2.2.1 Verification Soil Sampling Plan

The stockpiled soil was sampled on April 20, 1993 to test the effectiveness of remediation. Sampling was conducted by collecting 1 discrete sample from about each 20 cyds of soil. This sampling frequency is recommended in the CRWQCB draft January 11, 1990 letter which discusses on-site disposal of remediated stockpiled soil.

Prior to sampling, the stockpile was shaped into a rectangle being about 35.75 feet long by about 24.5 feet wide and about 3.72 feet in height (see Figure 1). The stockpile was gridded by rows and columns, such that, each resulting cell contained about 20 cyds of soil. Each cell was numbered in a systematic numerical order and further subdivided into 4 quadrants labeled A, B, C, and D. One sample was collected from 1 quadrant of each cell in a systematic, random sampling plan. According to the sampling plan, samples were collected from each cell in numerical and alphabetical order, i.e., from cell 1 - quadrant A, from cell 2 - quadrant B, from cell 3 - quadrant C, etc. (see Figure 2). The depth of collection for each sample also varied systematically, i.e., soil sample VSP-1A was collected at a depth of about 1.0

foot; soil sample VSP-2B was collected at a depth of about 2.0 feet; soil sample VSP-3C was collected at a depth of about 3.0 feet; and then repeating the depth cycle with soil sample VSP-4D collected at a depth of about 1.0 foot.

The systematic random sampling plan assured that the stockpile was uniformly sampled with no relatively large areas remaining unsampled.

The samples were collected by digging a hole to the target depth into the stockpile to expose a fresh surface and quickly driving a 2-inch diameter by 6-inch long brass tube into the newly exposed surface with a slide-hammer corer. After collecting each sample, the brass tube ends were quickly covered with Teflon sheeting, capped with plastic end-caps, and sealed in plastic bags. The tubes were labeled and placed in an iced-cooler for transport to TAL accompanied by chain-of-custody documentation (see Appendix B for TPE's protocol relative to sample handling procedures).

2.2.1.1 Results of Chemical Analyses

All verification soil samples were analyzed for TPHD and TPHG by the DHS Method, and for BTEX by EPA Method 8020.

Results of chemical analyses detected TPHD in all samples ranging in concentration from a low of 110 ppm to a high of 170 ppm. Ethylbenzene was detected in 1 sample at a concentration of .0092 ppm and xylenes were detected in 2 samples at concentrations of .018 ppm and .094 ppm. All remaining analytical results were nondetectable.

TAL noted in their certified analytical report that the TPHD analyses detected compounds eluting later than the diesel standard.

Results of chemical analyses are summarized in Table 1 and documented in certified analytical reports with a chain-of-custody in Appendix C.

3.0 DISPOSAL OF CONTAMINATED SOIL AND EXCAVATION CLOSURE

Because contamination was still present in the stockpiled soil after remediation, Mr. Haywood contracted with TPE on May 20, 1993 to dispose of the soil at an appropriate landfill and close the excavation with imported fill material.

3.1 Disposal of Contaminated Stockpiled Soil

The above stockpiled soil was disposed of at Redwood Landfill (Class III) located in Novato, California on June 11 and 14, 1993 (see Sanifill, Inc. Invoice in Appendix A).

3.1.1 Soil Sampling

Prior to acceptance of the soil by the landfill, and according to landfill guidelines, 8 discrete samples (SPA 1 through 4 and SPB 1 through 4) were collected for laboratory compositing and for analysis for TPHD, TPHG, and BTEX and 1 discrete sample (SPC-2) was collected for analysis for organic lead. All samples were collected in 2-inch diameter by 6-inch long brass tubes at depths of about 2.0 feet below the stockpile's surface and handled as discussed above in section 2.2.1.

The locations for the 8 discrete samples were chosen by dividing the stockpile into halves, A and B, and further dividing each half into 4 quadrants. A discrete sample was collected from the approximate center of each quadrant.

Sample SPC-2 was collected near the center of the stockpile.

The samples to be analyzed for TPHD, TPHG, and BTEX were delivered to S&W Soil and Water Environmental Laboratory, Inc., located in Boulder Creek, California for compositing and analysis, and the sample for organic lead analysis was delivered to TAL.

The composited samples were analyzed for TPHD by EPA Method 3550, for TPHG by EPA Method 5020, and for BTEX by EPA Method 8020. The discrete sample was analyzed for organic lead by the DHS Method.

3.1.1.1 Results of Chemical Analyses

Composite samples SPA 1-4 and SPB 1-4 detected TPHD at concentrations of 93 ppm and 39 ppm, respectively; no TPHG or BTEX were detected.

No organic lead was detected in sample SPC-2.

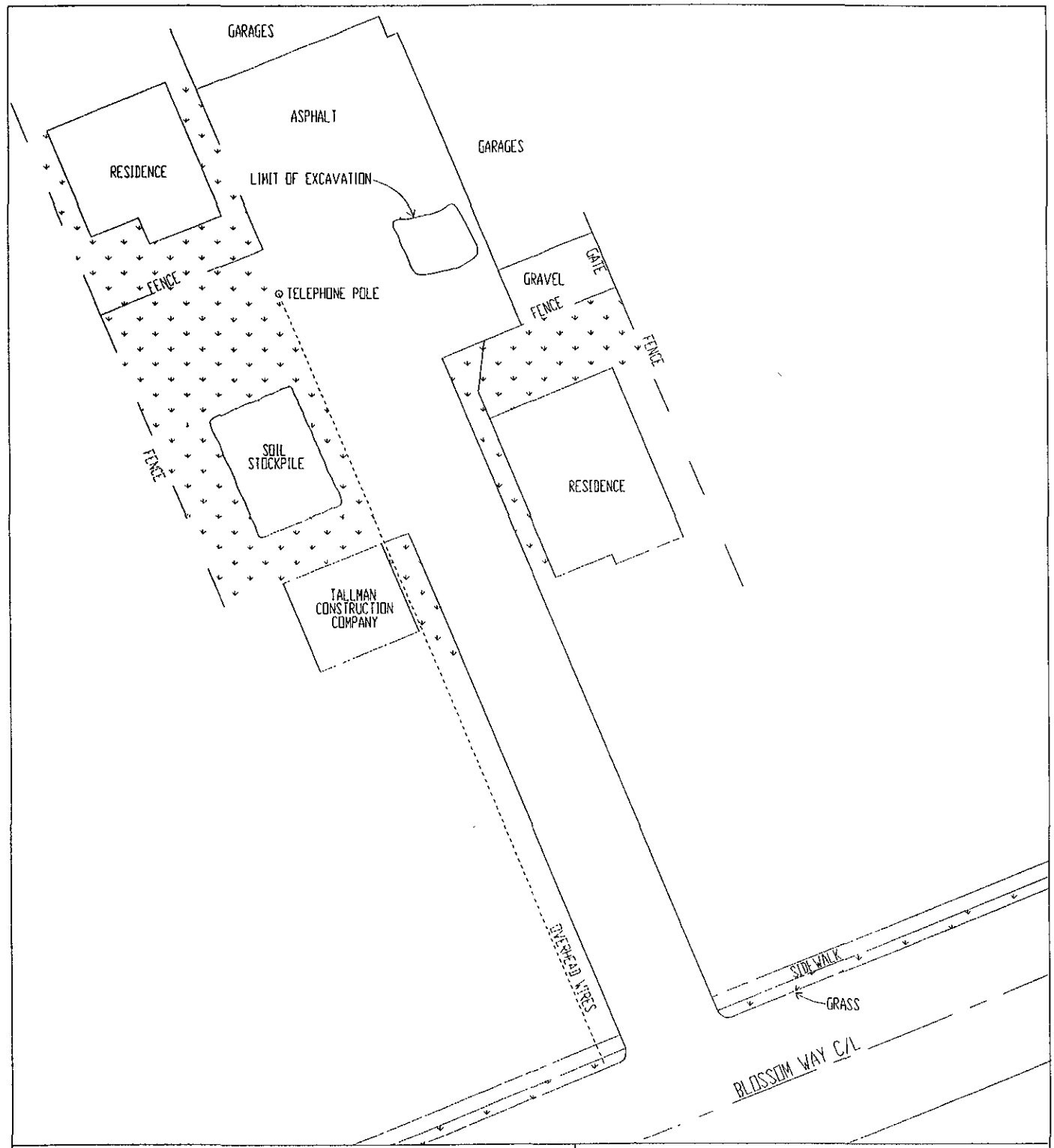
Results of chemical analyses are summarized in Table 1 and documented in certified analytical reports and chain-of-custodies in Appendix C.

3.2 Excavation Closure

TPE closed the excavation on June 11, 1993 by backfilling with about 163 tons of imported class 2 aggregate base material (see Daily Record of Platform Scale Weights in Appendix A).

Soil cuttings from soil boring SB-1 were also used as backfill since the soil was not contaminated based on analyses for TPHD, TPHG, and BTEX (see TPE's April 26, 1993 SOIL BORING REPORT.

The fill was placed in the excavation in 2-foot to 3-foot compacted lifts to ground surface.



LEGEND

-N-

NOTE: NOT ALL FEATURES ARE SHOWN.

0 40

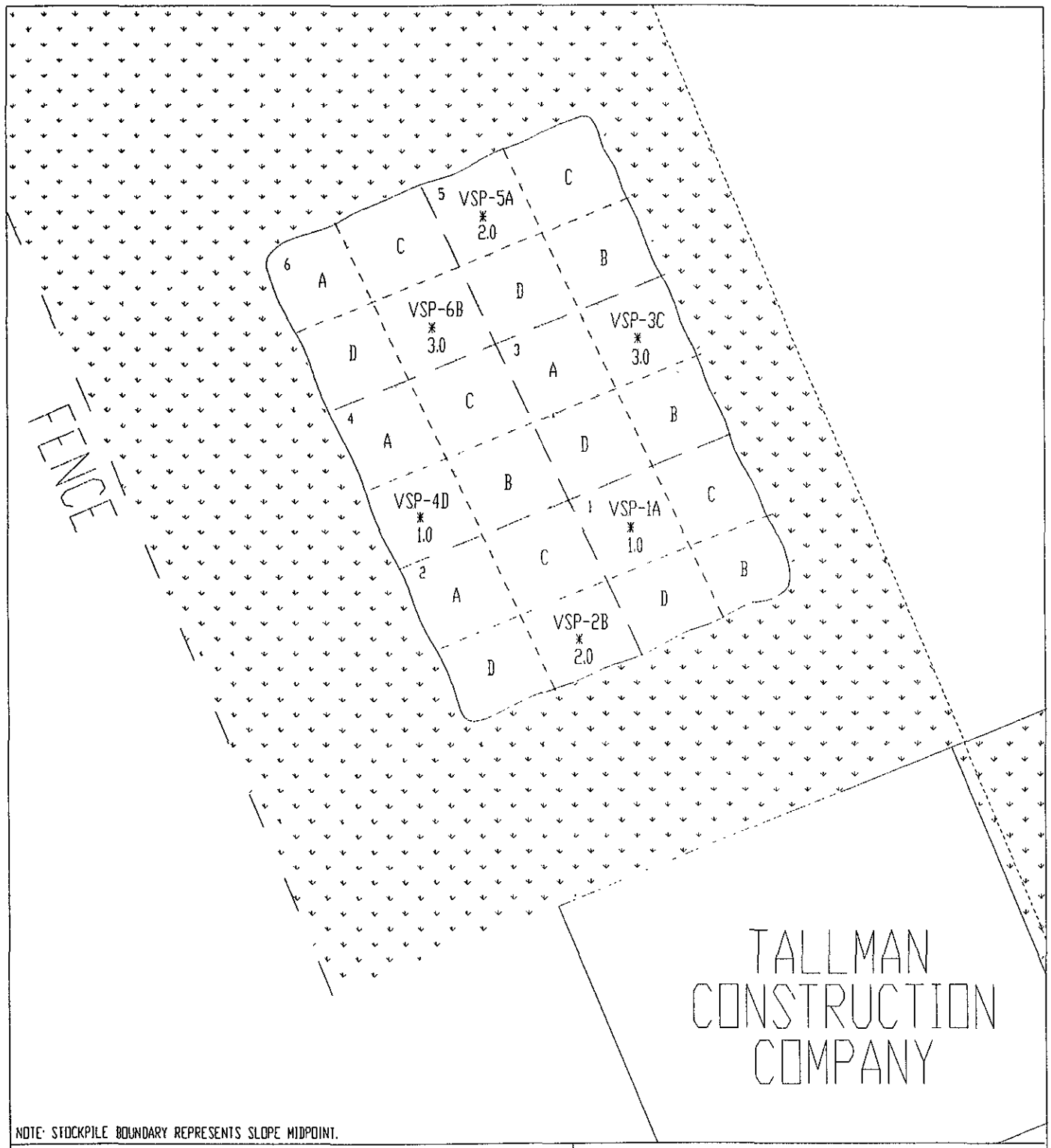
APPROXIMATE SCALE IN FEET

TANK PROTECT ENGINEERING

SITE PLAN
STOCKPILE SAMPLING (5/20/93)

834 BLOSSOM WAY
HAYWARD, CA 94541

DATE	7/1/93
FIGURE	1
FILE #	250-1
DRAWN BY	
CHECKED BY	JVM



NOTE: STOCKPILE BOUNDARY REPRESENTS SLOPE MIDPOINT.

LEGEND

VSP-1A
*
1.0

NAME, LOCATION, AND DEPTH OF SOIL SAMPLE

NOTE: NOT ALL FEATURES ARE SHOWN.

-N-

0 10

APPROXIMATE SCALE IN FEET

TANK PROTECT ENGINEERING

SITE PLAN DETAIL
STOCKPILE SAMPLING (5/20/93)

834 BLOSSOM WAY
HAYWARD, CA 94541

DATE	7/1/93
FIGURE	2
FILE #	250-2
DRAWN BY	
CHECKED BY	JVM

TABLE 1

SUMMARY OF SOIL SAMPLE ANALYTICAL RESULTS

(ppm[1])

Sample ID Name	Date	Depth (feet)	TPHD[2]	TPHG	Benzene	Toluene	Ethyl-Benzene	Xylenes
VSP-1A	04/20/93	1.0	170	<.500	<.0050	<.0050	<.0050	<.015
VSP-2B	04/20/93	2.0	110	<.500	<.0050	<.0050	<.0050	.018
VSP-3C	04/20/93	3.0	110	<.500	<.0050	<.0050	<.0050	<.015
VSP-4D	04/20/93	1.0	130	<.500	<.0050	<.0050	<.0050	<.015
VSP-5A	04/20/93	2.0	130	<.500	<.0050	<.0050	<.0050	<.015
VSP-6B	04/20/93	3.0	150	<.500	<.0050	<.0050	.0092	.094
SPA 1-4	05/20/93	2.0	93.0	<1	<.0050	<.0050	<.0050	<.0050
SPB 1-4	05/20/93	2.0	39.0	<1	<.0050	<.0050	<.0050	<.0050

1 PARTS PER MILLION

2 THE CERTIFIED ANALYTICAL REPORT NOTES THAT THESE SAMPLES CONTAIN COMPOUNDS ELUTING LATER THAN THE DIESEL STANDARD.

APPENDIX A

TRACE ANALYSIS LABORATORY, INC.'S MAY 11, 1993 REVISED REPORT; ALAMEDA COUNTY HEALTH CARE SERVICES AGENCY LETTER DATED JANUARY 29, 1993, APPROVAL OF BIOREMEDIATION WORKPLAN; SOLMAR CORP. JANUARY 28, 1993, LETTER EVALUATION OF SOIL SAMPLES; SANIFILL, INC. INVOICE; AND EAST BAY EXCAVATION CO., INC.'S DAILY RECORD OF PLATFORM SCALE WEIGHTS

Trace Analysis Laboratory, Inc.
3423 Investment Boulevard, #8 • Hayward, California 94545
Telephone (510) 783-6960
Facsimile (510) 783-1512

TAL

LOG NUMBER: 2547
DATE SAMPLED: 10/01/92
DATE RECEIVED: 10/01/92
DATE EXTRACTED: 10/06/92
DATE ANALYZED: 10/08/92
DATE REPORTED: 10/15/92
DATE REVISED: 05/11/93

CUSTOMER: George Haywood

REQUESTER: George Haywood

PROJECT: Aerating Soil, 834 Blossom, Hayward

Sample Type: Soil

Method and Constituent:	Units	Composite of 1, 2, 3 and 4 Concentration	Composite of 1, 2, 3 and 4 Reporting Limit	Method Blank Concentration	Method Blank Reporting Limit
DHS Method:					
Total Petroleum Hydrocarbons as Diesel	ug/kg	420,000	2,400	ND	1,000

QC Summary:

% Recovery: 66
% RPD: 21

Concentrations reported as ND were not detected at or above the reporting limit.

This report was revised to correct an error in the concentration of diesel. The concentration is higher than previously reported.

Louis W. DuPuis
Quality Assurance/Quality Control Manager

ALAMEDA COUNTY
HEALTH CARE SERVICES
AGENCY
DAVID J. KEARS, Agency Director

RAFAT A. SHAHID, ASST. AGENCY DIRECTOR

DEPARTMENT OF ENVIRONMENTAL HEALTH
State Water Resources Control Board
Division of Clean Water Programs
UST Local Oversight Program
80 Swan Way, Rm 200
Oakland, CA 94621
(510) 271-4530

January 29, 1993

Mr. George Haywood
132 Ivy Drive
Orinda, CA 94563

STID 3735

RE: Bioremediation work plan for 848 Blossom Way, Hayward, CA

Dear Mr. Haywood,

This office has received Tank Protect Engineering's work plan, dated January 25, 1993, for the bioremediation of the stockpiled soil at the above site. This plan is acceptable to this office. It is the understanding of this office that this work plan will be implemented within the next 7 weeks.

Thank you for your cooperation. If you have any questions or comments, please contact me at (510) 271-4530.

Sincerely,

Juliet Shin
Hazardous Materials Specialist

cc: Sumadhu Arigala, RWQCB

John V. Mrakovich, Ph.D.
Tank Protect Engineering
2821 Whipple Rd.
Union City, CA 94587

Betty Chaves
848 Blossom Way
Hayward, CA 94541

Edgar Howell-File(JS)

SOLMAR CORP.

January 28, 1993

Mr. John Mrakovich
TANK PROTECT
2821 Whipple Rd.
Union City, CA 94587-1233

Subject: soil sample

Dear Mr. Mrakovich:

The soil sample which was submitted for our Bio-Inhibition Test has been evaluated.

The Bio Inhibition Test is run by taking a portion of the sample, adding water and adjusting the pH and nutrient levels in a flask. The flask is inoculated with our Advanced Bio Cultures™ (ABC) formulation and aerated on a shaker overnight. The solution is plated on media in petri dishes and incubated for a day. Colonies are then counted to assess the population levels in the solution. Significant population levels in the solution indicate little or no toxic effect from the sample on our Advanced Bio Cultures™.

The test results of your sample show a plate count of 50×10^6 cfu/ml., which indicates no inhibition for our ABC formulation. The sample was found to be amenable for bioaugmentation.

Treatment levels of our Advanced Bio Cultures™ formulation would be at the dosage recommended by Peter Witt. If you have any questions regarding this sample or treatment procedures please call him at (714) 538-0881.

We look forward to working with you.

Sincerely,

SOLMAR CORP.

Deborah Hu
Laboratory Services

cc:PCW

Log #:3365
SIF #:12158

PAGE 1

SANIFILL, INC.
Pacific Region
P.O. Box 803828
Houston TX 77280-3828
PHONE: 713/865-9844

INVOICE# 0013866
ACCOUNT# 5070495
DATE: Jun 30, 1993

TANK PROTECT ENG.
2821 WIPPLE RD.

UNION CITY CA 94587

TICKET#	DATE	LANDFILL	TRUCK#	QTY	TYPE	FEE/TAX	RATE	AMOUNT
89104	06/11/93	REDWOOD LANDFILL	NO14	18.00	YDS	OC_PCDI	0	10.000	180.00
	PO Number: HAYWARD							
89105	06/11/93	REDWOOD LANDFILL	NO34	18.00	YDS	OC_PCDI	0	10.000	180.00
	PO Number: HAYWARD							
89106	06/11/93	REDWOOD LANDFILL	ROBELLO	18.00	YDS	OC_PCDI	0	10.000	180.00
	PO Number: HAYWARD							
89107	06/11/93	REDWOOD LANDFILL	ROBELLO	18.00	YDS	OC_PCDI	0	10.000	180.00
	PO Number: HAYWARD							
89298	06/14/93	REDWOOD LANDFILL	T34	18.00	YDS	OC_PCDI	0	10.000	180.00
	PO Number: HAYWARD							
89303	06/14/93	REDWOOD LANDFILL	ROBELLO	18.00	YDS	OC_PCDI	0	10.000	180.00
	PO Number: HAYWARD							
89306	06/14/93	REDWOOD LANDFILL	ROBELLO	18.00	YDS	OC_PCDI	0	10.000	180.00
	PO Number: HAYWARD							
89311	06/14/93	REDWOOD LANDFILL	ROBELLO	18.00	YDS	OC_PCDI	0	10.000	180.00
	PO Number: HAYWARD							
89349	06/14/93	REDWOOD LANDFILL	T34	18.00	YDS	OC_PCDI	0	10.000	180.00
	PO Number: HAYWARD							
89359	06/14/93	REDWOOD LANDFILL	ROBELO	18.00	YDS	OC_PCDI	0	10.000	180.00
	PO Number: HAYWARD							
89394	06/14/93	REDWOOD LANDFILL	ROBELO	18.00	YDS	OC_PCDI	0	10.000	180.00
	PO Number: HAYWARD							

AN * IN THE AMOUNT COLUMN INDICATES THAT ADDITIONAL CHARGES WERE INCURRED ON THAT TICKET - SEE DRIVERS TICKET FOR DETAILS

Payment Due Upon Receipt
Make Checks Payable To Sanifill Inc.
Please reference this Invoice # and
Account # when making payment.

TOTAL TONS 0
TOTAL YARD 198.00

ORIGINAL INVOICE

TO INSURE PROPER CREDIT TO YOUR ACCOUNT PLEASE REFERENCE YOUR ACCOUNT NUMBER AND INVOICE NUMBER(S) ON YOUR CHECK.

Sanifill, Inc.

East Bay Excavating Co., Inc.
Daily Record of Platform Scale Weights
06/11/93

CUSTOMER: TANK01
NAME: Tank Protect Engineering

JOB #: 003324 MISSION & BLOSSOM
LOCATION: HAYWARD

Tag #	Load#	Truck#	Gross weight	Tare Weight	Net Weight	Time
040262	001	0403	38.80	15.20	23.60	7.47
040272	002	0403	38.20	15.20	23.00	8.55
40279	003	0403	38.25	15.20	23.05	9.42
040285	004	0403	38.90	15.20	23.70	10.37
040293	005	0403	39.65	15.20	24.45	11.26
40297	006	0403	39.10	15.20	23.90	12.36
040306	007	0403	36.85	15.20	21.65	13.30

SUBTOTAL FOR MATERIAL# 3/4" (Class 2) Base 163.35

TOTAL FOR JOB # 003324 163.35

APPENDIX B

SAMPLE HANDLING PROCEDURES

APPENDIX B

SAMPLE HANDLING PROCEDURES

Soil and groundwater samples will be packaged carefully to avoid breakage or contamination, and will be delivered to the laboratory at proper storage temperatures. The following sample packaging requirements will be followed.

- Sample bottle/sleeve lids will not be mixed. All sample lids will stay with the original containers and have custody seals affixed to them.

- Samples will be secured in coolers to maintain custody, control temperature, and prevent breakage during transportation to the laboratory.

- A chain-of-custody form will be completed for all samples and accompany the sample cooler to the laboratory.

- Ice, blue ice, or dry ice (dry ice will be used for preserving soil samples collected for the Alameda County Water District) will be used to keep samples at a constant temperature during transport to the laboratory.

- Each sample will be identified by affixing a pressure sensitive, gummed label, or standardized tag on the container(s). This label will contain the site identification, sample identification number, date and time of sample collection, and the collector's initials.

All groundwater sample containers will be precleaned and will be obtained from a State Department of Health Services certified analytical laboratory.

Sample Control/Chain-of-Custody: All field personnel will refer to this work plan to verify the methods to be employed during sample collection. All sample gathering activities will be recorded in the site log book; all sample transfers will be documented in the site log book; samples are to be identified with TPE labels and all sample

bottles are to be custody-sealed. All information is to be recorded in waterproof ink. All TPE field personnel are personally responsible for sample collection and the care and custody of collected samples until the samples are transferred or properly dispatched.

The custody record will be completed by the field technician who has been designated by the TPE project manager as being responsible for sample shipment to the appropriate laboratory. The custody record will include, among other things, the following information: site identification, name of person collecting the samples, date and time samples were collected, type of sampling conducted (composite/grab), location of sampling station, number and type of containers used, and signature of the TPE person relinquishing samples to a non-TPE person with the date and time of transfer noted. The relinquishing individual will also put all the specific shipping data on the custody record.

Site log books will be maintained by a designated TPE field employee to record, for each sample, site identification, sampling locations, station numbers, dates, times, sampler's name, designation of the samples as a grab or composite, notation of the type of sample (e.g. groundwater, soil boring, etc.), preservatives used, on-site measurement data, and other observations or remarks.

APPENDIX C

CERTIFIED ANALYTICAL REPORTS AND CHAIN-OF-CUSTODY DOCUMENTATION

Trace Analysis Laboratory, Inc.
3423 Investment Boulevard, #8 • Hayward, California 94545
Telephone (510) 783-6960
Facsimile (510) 783-1512

TAL

May 1, 1993

Mr. Marc Zomorodi
Tank Protect Engineering
2821 Whipple Road
Union City, California 94587

Dear Mr. Zomorodi:

Trace Analysis Laboratory received six soil samples on April 20, 1993 for your Project No. 250C042093, 834 Blossom Way (our custody log number 3179).

These samples were analyzed for Total Petroleum Hydrocarbons as Diesel and Gasoline, Benzene, Toluene, Ethylbenzene and Xylenes. Our analytical report and the completed chain of custody form are enclosed for your review.

Trace Analysis Laboratory is certified under the California Environmental Laboratory Accreditation Program. Our certification number is 1199.

If you should have any questions or require additional information, please call me.

Sincerely yours,

Rachel Dolbier
Project Specialist

Enclosures

Trace Analysis Laboratory, Inc.
3423 Investment Boulevard, #8 • Hayward, California 94545
Telephone (510) 783-6960
Facsimile (510) 783-1512

TAL

LOG NUMBER: 3179
DATE SAMPLED: 04/20/93
DATE RECEIVED: 04/20/93
DATE EXTRACTED: 04/20/93
DATE ANALYZED: 04/30/93
DATE REPORTED: 05/01/93

CUSTOMER: Tank Protect Engineering

REQUESTER: Marc Zomorodi

PROJECT: No. 250C042093, 834 Blossom Way

Sample Type: Soil

Method and Constituent:	Units	VSP-1A Concentration	VSP-1A Reporting Limit	VSP-2B Concentration	VSP-2B Reporting Limit	VSP-3C Concentration	VSP-3C Reporting Limit
DHS Method:							
Total Petroleum Hydrocarbons as Diesel	ug/kg	170,000	1,000	110,000	1,000	110,000	1,000

Method and Constituent:	Units	VSP-4D Concentration	VSP-4D Reporting Limit	VSP-5A Concentration	VSP-5A Reporting Limit	VSP-6B Concentration	VSP-6B Reporting Limit
DHS Method:							
Total Petroleum Hydrocarbons as Diesel	ug/kg	130,000	1,000	130,000	1,000	150,000	1,000

Method and Constituent:	Units	Method Blank Concentration	Method Blank Reporting Limit
DHS Method:			
Total Petroleum Hydrocarbons as Diesel	ug/kg	ND	1,000

QC Summary:

% Recovery: 120
% RPD: 17

Concentrations reported as ND were not detected at or above the reporting limit.

These samples contain compounds eluting later than the diesel standard.

TAL Trace Analysis Laboratory, Inc.

LOG NUMBER: 3179
DATE SAMPLED: 04/20/93
DATE RECEIVED: 04/20/93
DATE EXTRACTED: 04/20/93
DATE ANALYZED: 04/21/93
DATE REPORTED: 05/01/93
PAGE: Two

Sample Type: Soil

Method and Constituent:	Units	VSP-1A Concentration	VSP-1A Reporting Limit	VSP-2B Concentration	VSP-2B Reporting Limit	VSP-3C Concentration	VSP-3C Reporting Limit
DHS Method:							
Total Petroleum Hydrocarbons as Gasoline	ug/kg	ND	500	ND	500	ND	500
Modified EPA Method 8020 for:							
Benzene	ug/kg	ND	5.0	ND	5.0	ND	5.0
Toluene	ug/kg	ND	5.0	ND	5.0	ND	5.0
Ethylbenzene	ug/kg	ND	5.0	ND	5.0	ND	5.0
Xylenes	ug/kg	ND	15	18	15	ND	15

Method and Constituent:	Units	VSP-4D Concentration	VSP-4D Reporting Limit	VSP-5A Concentration	VSP-5A Reporting Limit	VSP-6B Concentration	VSP-6B Reporting Limit
DHS Method:							
Total Petroleum Hydrocarbons as Gasoline	ug/kg	ND	500	ND	500	ND	500
Modified EPA Method 8020 for:							
Benzene	ug/kg	ND	5.0	ND	5.0	ND	5.0
Toluene	ug/kg	ND	5.0	ND	5.0	ND	5.0
Ethylbenzene	ug/kg	ND	5.0	ND	5.0	9.2	5.0
Xylenes	ug/kg	ND	15	ND	15	94	15

Concentrations reported as ND were not detected at or above the reporting limit.

TAL Trace Analysis Laboratory, Inc.

LOG NUMBER: 3179
DATE SAMPLED: 04/20/93
DATE RECEIVED: 04/20/93
DATE EXTRACTED: 04/20/93
DATE ANALYZED: 04/21/93
DATE REPORTED: 05/01/93
PAGE: Three

Sample Type: Soil

Method and Constituent:	Units	Method Blank Concentration	Method Blank Reporting Limit
DHS Method:			
Total Petroleum Hydrocarbons as Gasoline	ug/kg	ND	500
Modified EPA Method 8020 for:			
Benzene	ug/kg	ND	5.0
Toluene	ug/kg	8.2	5.0
Ethylbenzene	ug/kg	ND	5.0
Xylenes	ug/kg	ND	15

QC Summary:

% Recovery: 112
% RPD: 7.6

Concentrations reported as ND were not detected at or above the reporting limit.

Louis W. DuPuis
Quality Assurance/Quality Control Manager

3179

TANK PROTECT ENGINEERING
2821 WHIPPLE ROAD
UNION CITY, CA 94587
(415)429-8088
(800)523-8088
FAX(415)429-8089

LAB: TAL

TURNAROUND: normal

P.O. #: 595

PAGE 1 OF 1

CHAIN OF CUSTODY

PROJECT NO.: Z50C04209 | SITE NAME & ADDRESS: 834 Blossom Way

SAMPLER NAME, ADDRESS AND TELEPHONE NUMBER:
Lee Huckins
2821 WHIPPLE ROAD, UNION CITY, CA 94587 (415) 429-8088

ID NO.	DATE	TIME	SOIL	WATER	SAMPLING LOCATION	(1) TYPE OF CONTAINER	ANALYTES REQUESTED: TOTAL LIGHT HC	AROMATIC HC (BTX)	TOTAL HEAVY HC	OIL & GREASE	VOC SCAN (624's)	OTHER	REMARKS
VSP-1A	4-20	10:15	X		1'	Brass	X	X	X				
VSP-2B	"	"	"		2'	"	"	"	"				
VSP-3C	"	"	"		3'	"	"	"	"				
VSP-4B	"	"	"		1'	"	"	"	"				
VSP-5A	"	"	"		2'	"	"	"	"				
VSP-6B	"	"	"		3'	"	"	"	"				

Relinquished by : (Signature)	Date / Time	Received by : (Signature)	Relinquished by : (Signature)	Date / Time	Received by : (Signature)
Lee Huckins	4-20 | 3:52				
Relinquished by : (Signature)	Date / Time	Received by : (Signature)	Relinquished by : (Signature)	Date / Time	Received by : (Signature)
Relinquished by : (Signature)	Date / Time	Received for Laboratory by: [Signature]	Date / Time	Remarks	
		Maureen Negrette for TAL	4/20/93 | 3:50PM	PICKED UP SOIL	

1-BT EACH, ICE
5 DAY TAT
Y-2

DATE: 04-20-93

Trace Analysis Laboratory, Inc.
3423 Investment Boulevard, #8 • Hayward, California 94545
Telephone (510) 783-6960
Facsimile (510) 783-1512

TAL

June 8, 1993

Mr. Marc Zomorodi
Tank Protect Engineering
2821 Whipple Road
Union City, California 94587

Dear Mr. Zomorodi:

Trace Analysis Laboratory received one soil sample on June 1, 1993 for your Project No. 250C-052093, George Haywood (our custody log number 3292).

This sample was analyzed for Organic Lead. Our analytical report and the completed chain of custody form are enclosed for your review.

Trace Analysis Laboratory is certified under the California Environmental Laboratory Accreditation Program. Our certification number is 1199.

If you should have any questions or require additional information, please call me.

Sincerely yours,

Scott T. Ferriman

Scott T. Ferriman
Project Specialist

Enclosures

Trace Analysis Laboratory, Inc.
3423 Investment Boulevard, #8 • Hayward, California 94545
Telephone (510) 783-6960
Facsimile (510) 783-1512

TAL

LOG NUMBER: 3292
DATE SAMPLED: 05/20/93
DATE RECEIVED: 06/01/93
DATE EXTRACTED: 06/08/93
DATE ANALYZED: 06/08/93
DATE REPORTED: 06/08/93

CUSTOMER: Tank Protect Engineering

REQUESTER: Marc Zomorodi

PROJECT: No. 250C-052093, George Haywood

Sample Type: Soil

Method and Constituent:	Units	SPC-2 Concentration	SPC-2 Reporting Limit	Method Blank Concentration	Method Blank Reporting Limit
DHS Method:					
Organic Lead	ug/kg	ND	1,700	ND	1,700

QC Summary:

% Recovery: 100
% RPD: *

Concentrations reported as ND were not detected at or above the reporting limit.

* The RPD is not reportable since the sample prepared in duplicate was not detectable.

Louis W. DuPuis
Quality Assurance/Quality Control Manager

TANK PROTECT ENGINEERING
2821 WHIPPLE ROAD
UNION CITY, CA 94587
(415)429-8088
(800)523-8088
FAX(415)429-8089

3292

LAB: TAL

TURNAROUND: 4 day

P.O. #: 628

PAGE 1 OF 1

CHAIN OF CUSTODY

PROJECT NO. 250C052093

SITE NAME & ADDRESS: George Haywood, 834 Blossom Hayward

SAMPLER NAME, ADDRESS AND TELEPHONE NUMBER:
Lee Huckins
2821 WHIPPLE ROAD, UNION CITY, CA 94587 (415) 429-8088

ID NO.	DATE	TIME	SOIL	WATER	SAMPLING LOCATION	(1) TYPE OF CONTAINER	TOTAL LIGHT HC	AROMATIC HC (BTX)	TOTAL HEAVY HC	OIL & GREASE	VOC SCAN (624's)	OTHER	REMARKS
SPC-2	5/20	11:05	X		20 feet Stockpile	Brass Tube					X		Organic Lead

Relinquished by : (Signature)	Date / Time	Received by : (Signature)	Relinquished by : (Signature)	Date / Time	Received by : (Signature)
Lee Huckins	6/1/93 12:00	Lee Miller	Lee Miller	6/1/93 2:57	
Relinquished by : (Signature)	Date / Time	Received by : (Signature)	Relinquished by : (Signature)	Date / Time	Received by : (Signature)
	6/1/93 2:57	for TAL			
Relinquished by : (Signature)	Date / Time	Received for Laboratory by: [Signature]	Date / Time	Remarks	
				Pick-up, soil, 1-BT, ice Y-2, 4-day TAT	

DATE: 6-1-93

S&W
Soil and Water
Environmental
Laboratory, Inc.

Drinking Water
Waste Water ○ Asbestos
Hazardous Waste – Soil
Calderon Testing – Air

14072 W. Park Avenue
Boulder Creek, CA 95006
(408) 338-3053

Laboratory Report

Client
Tank Protect Engineering
2821 Whipple Rd.
Union City CA 94587

Report Date 05/21/93

Sample Site
Geoge Haywood
834 Blosom

250C-052093

Date Received 05/20/93

Analysis Requested
Total Hydrocarbons - Gas
Total Hydrocarbons - Diesel
BTEX

Procedure
EPA 5020
EPA 3550
EPA 8020

Date Analyzed 05/20/93

S&W Ref. #	Client Ref. #	Matrix/Analysis	Concentration	Detection Limit
1413-TP2=A	SPA 1-4	Soil/TPH-G	*	1 ppm
1413-TP2=A	SPA 1-4	Soil/TPH-D	93.0	1 ppm
1413-TP2=A	SPA 1-4	Soil/BTEX		
		Benzene	*	5 ppb
		Toluene	*	5 ppb
		Ethylbenzene	*	5 ppb
		Xylenes	*	5 ppb
1413-TP2=B	SPB 1-4	Soil/TPH-G	*	1 ppm
1413-TP2=B	SPB 1-4	Soil/TPH-D	39.0	1 ppm
1413-TP2=B	SPB 1-4	Soil/BTEX		
		Benzene	*	5 ppb
		Toluene	*	5 ppb
		Ethylbenzene	*	5 ppb
		Xylenes	*	5 ppb

* No detectable amount @ detection limit

Analyst Signature R. H. Lemon

TANK PROTECT ENGINEERING
2021 WHIPPLE ROAD
UNION CITY, CA 94587
(415)429-8088
(800)523-8088
FAX(415)429-8089

LAB: S&W
TURNAROUND: Normal
P.O. #: 621

1413-TP2

PAGE 1 OF 1

CHAIN OF CUSTODY

PROJECT NO.: 2520
SITE NAME & ADDRESS: George Haywood 834 BLOSSOM WAY
SAMPLER NAME, ADDRESS AND TELEPHONE NUMBER: Lee Hutchins 2821 WHIPPLE ROAD, UNION CITY, CA 94587 (415) 429-8088

ID NO.	DATE	TIME	SOIL	WATER	SAMPLING LOCATION	(1) TYPE OF CONTAINER	TOTAL LIGHT HC	AROMATIC HC (BTX)	TOTAL HEAVY HC	OIL & GREASE	VOC SCAN (624's)	OTHER	REMARKS
SPA-1	5/20	10:20 AM	X		2.0' (STOCKPILE)	Brass Tube	X	X	X				Composite 1-4 A
SPA-2	5/20/93	10:20 AM	X		2.0'	"	X	X	X				
SPA-3	5/20/93	10:20 AM	X		2.0'	"	X	X	X				
SPA-4	5/20/93	10:20 AM	X		2.0'	"	X	X	X				
SPB-1	5/20/93	10:40 AM	X		2.0'	"	X	X	X				Composite 1-4 B
SPB-2	5/20/93	10:40 AM	X		2.0'	"	X	X	X				
SPB-3	5/20/93	10:40 AM	X		2.0'	"	X	X	X				
SPB-4	5/20/93	10:40 AM	X		2.0'	"	X	X	X				

Relinquished by : (Signature)	Date / Time	Received by : (Signature)	Relinquished by : (Signature)	Date / Time	Received by : (Signature)
Lee Hutchins	5/20/93 3:20				
Relinquished by : (Signature)	Date / Time	Received by : (Signature)	Relinquished by : (Signature)	Date / Time	Received by : (Signature)
	5/20/93 7:19				
Relinquished by : (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	
			5/20/93 7:10		

DATE: 5/20/93