REPORT OF SOIL BORING INVESTIGATION
FOR UST CLOSURE-IN PLACE

CALIFORNIA SYRUP & EXTRACT COMPANY
1355 55TH STREET
EMERYVILLE, CALIFORNIA

CWEC 20539-001-01
STID 4592

Prepared for:

California Syrup & Extract Company
P. O. Box 8305
Emeryville, CA 94577

Prepared by:

Century West Engineering Corporation
7950 Dublin Blvd., Suite 203
Dublin, California 94268

November 10, 1993

centurywest
ENGINEERING CORPORATION

November 10, 1993

UST Local Oversite Program
Alameda County Health Agency
Department of Environmental Health
80 Swan Way, Suite 200
Oakland, CA 94621

Attention: Ms. Susan Hugo

Subject: Report of Soil Boring Investigation
For UST Closure-in-Place
California Syrup and Extract Company
1355 55th Street
Emeryville, California
CWEC 20539-001-01

Ladies and Gentlemen:

Century West Engineering is pleased to submit this report on behalf of California Syrup and Extract Company for the subject site located in Emeryville, California. This report documents activities conducted towards closure-in-place of eight underground storage tanks (USTs) located at the subject site. These activities included: (1) Sampling the contents of the underground storage tanks; (2) Accurately locating each end of the eight USTs; (3) Drilling and sampling soils from 13 soil borings located close to the ends of each of the USTs; (4) Laboratory analysis of a total of 16 soil samples; and (5) Preparing this summary report.

Based on field and laboratory results, it appears that five of the eight USTs did not leak. Two of the remaining USTs (Tank No. 2 waste oil and Tank No. 3 diesel), which are located adjacent to each other, showed low levels of motor oil and diesel constituents. The third remaining UST (Tank No. 4 ammonia) showed elevated levels of ammonia in subsurface soils.

Based on these results, we propose that: (1) California Syrup and Extract be allowed to close the eight USTs in-place in accordance with a closure plan to be approved by Alameda County LOP and Emeryville Fire Department; and (2) Two ground water monitoring wells be installed, one in an expected downgradient (westerly) direction from Tank No. 3 and one downgradient from Tank No. 5.

7950 Dublin Blvd., Suite 203 Dublin, California 94568 Phone: (510) 551-7774 FAX: (510) 551-7776

We appreciate the opportunity to present this report for your review. Please contact us if you have questions or require additional information.

Very truly yours,

James E. Gribi
Geologist

Ted Zaferatos
Vice President

JEG/TZ:cc
Enclosures

cc: Alan Mooney, California Syrup and Extract

TABLE OF CONTENTS

1.0 INTRODUCTION

This report documents the recent soil boring investigation conducted at the subject site in Emeryville, California (see Figure 1 for site location). The purpose of these soil borings was to sample soils adjacent to each end of eight unused underground storage tanks (USTs) in order to meet UST closure-in-place requirements pursuant to Section 2672 of CCR Title 23 Waters, Chapter 16. The reason California Syrup and Extract is pursuing closure-in-place of the eight USTs is the potential risk to the adjacent California Syrup and Extract building posed by attempting to remove the USTs.

1.1 Brief Site Background

The California Syrup and Extract Company facility comprises a large brick and mortar building which faces the 55th Street sidewalk. California Syrup and Extract Company began operations in the building in about 1910, producing and bottling syrup and vinegar for commercial sales. Syrup and vinegar was produced and bottled at the facility up until the mid 1980s, and in the 1960s, bulk ammonia was also bottled at the facility. The east portion of the facility was rented out in the 1970s, and the west portion has been used for storage since the mid 1980s.

The eight USTs are located beneath the sidewalk adjacent to the California Syrup and Extract facility (see Figure 2 for location of USTs). These USTs were installed at various times throughout the life of the facility, and were used to store vehicle fuels, such as gasoline and diesel, and for bulk storage of aqueous ammonia and denatured alcohol for use in California Syrup and Extract's business. All of the USTs were installed prior to current Federal and State UST permitting and closure regulations. Thus, as each UST outlived its usefulness, it was simply taken out of use. UST construction and usage details for the eight USTs are summarized in Table 1.

Table 1
UST CONSTRUCTION & USE
California Syrup & Extract Site

Tank ID	*Capacity (gal)*	*Product Stored*	*Construction Material*	*Depth to Bottom of Tank*	*Installation Date*	*Last Used*
1 (east)	10,000	Diesel	Single wall steel	12.0 ft	1953	1973
2	550-1,000	Fuel oil/Waste oil	Single wall steel	6.25 ft	1930	1981
3	1,000	Diesel	Single wall steel	7.25 ft	1948	1981
4	1,000	Aqueous ammonia	Single wall steel	9.5 ft	1960	1965
5	1,000	Gasoline	Single wall steel	7.5 ft	1930	1965

Table 1
UST CONSTRUCTION & USE
California Syrup & Extract Site

Tank ID	*Capacity (gal)*	*Product Stored*	*Construction Material*	*Depth to Bottom of Tank*	*Installation Date*	*Last Used*
6	6,000-10,300	Denatured alcohol	Single wall black iron	11.0 ft	1955	1985
7	10,000	Denatured alcohol	Single wall fiberglass	10.5 ft	1965	1985
8 (west)	10,000	Denatured alcohol	Single wall fiberglass	10.5 ft	1965	1985

Recently, California Syrup & Extract became aware of the need to close these USTs pursuant to State and local UST regulations. However, upon consulting a structural engineer, it was determined that removal of the USTs is not possible without seriously compromising the adjoining California Syrup and Extract building foundation. Thus, it is the desire of California Syrup and Extract to close these USTs in place in accordance with Section 2672 of CCR Title 23 Waters, Chapter 16. These regulations require that *"The owner of an underground storage tank being closed pursuant to this section shall demonstrate to the satisfaction of the local agency that no unauthorized release has occurred."* These regulations indicate that soil sampling is required to demonstrate that no releases have occurred. Furthermore, these regulations state that if ground water depth is less than 20 feet, then ground water monitoring will be required. This report documents verification soil sampling activities conducted at the project site.

1.2 Scope of Work

In phone discussions with Ms. Susan Hugo of Alameda County UST Local Oversight Program (LOP), it was determined that verification soil samples for each UST could be obtained by drilling and sampling vertical borings directly adjacent to either end of each of the USTs. This was achieved through the combined efforts of California Syrup and Extract Company and Century West Engineering. Activities conducted by California Syrup and Extract included:

- Providing historical information about the USTs and the subject facility.
- Providing UST specifications (where available).
- Providing sampling and laboratory analysis of fluids contained in each of the USTs.

- Saw cutting concrete sidewalk to provide access for locating ends of each tank and for borings.
- Assisting with locating ends of tanks.
- Restoring sidewalk to original condition.

Century West Engineering was contracted by California Syrup and Extract Company to provide the following services:

- Prepare an amended workplan for submittal to Alameda County UST Local Oversight Program.
- Assist with locating ends of tanks.
- Drill and sample 13 soil borings near the ends of each of the USTs.
- Analyze selected soil samples for targeted constituents.
- Prepare a summary report for submittal to Alameda County UST Local Oversight Program.

1.3 Regulatory Approval

In May 1993, California Syrup and Extract Co. submitted *Work Plan for Preliminary Site Assessment to Close in Place Underground Storage Tanks Located at 1355 55th Street, Emeryville, California.* Prior to beginning the soil boring investigation, Century West Engineering submitted an amended workplan, dated June 29, 1993, to Alameda County UST Local Oversight Program. Verbal approval to implement the amended workplan was obtained from Ms. Susan Hugo of Alameda County LOP. In addition, notification was given to Alameda County LOP approximately 48 hours prior to beginning the field work.

Prior to beginning drilling activities, Underground Services Alert (USA) was notified, and an underground utilities survey was conducted by Subtronic Corporation. In addition, a Site Safety Plan was issued to the drilling crew and a tailgate safety meeting was conducted.

1.4 Limitations

In part, these findings, conclusions, and recommendations are based on the best available information known or made available by regulators, other consultants or other sources. Over time, the surficial evidence of some activities are obscured or obliterated entirely. It is possible that certain adverse conditions could exist at the site which were not detected in this evaluation.

The services provided under this contract as described in this report include professional opinions and judgments based on data collected. These services have been provided according to generally accepted environmental protocol. The opinions and conclusions contained in this report are typically based on information obtained from:

1. Observations and measurements made by our field staff.
2. Contacts and discussions with regulatory agencies and others.

2.0 DESCRIPTION OF FIELD ACTIVITIES

All field activities were directed towards insuring that all local and State requirements for closure-in-place were adequately met. Field activities included: (1) Verifying the contents of each of the USTs; (2) Accurately locating both ends of each of the USTs; (3) Drilling and sampling 13 soil borings; and (4) Laboratory analysis of selected soil samples. These field activities are described in the following sections of this report.

2.1 Identification of Residual Tank Fluids
2.2 Locating Tank Ends
2.3 Drilling and Sampling of Soil Borings
2.4 Laboratory Analysis

2.1 Identification of Residual Tank Fluids

Prior to beginning the soil boring investigation, California Syrup and Extract contracted Waste Oil Recovery Systems to pump out residual fluids from each of the USTs. After pumping out the tanks, California Syrup and Extract sampled the small volume of remaining fluid in each of the tanks in May 1993 in order to verify the contents of each of the tanks. These results are summarized in Table 2. Laboratory data reports for these samples are contained in Appendix A.

Table 2
ANALYTICAL RESULTS OF TANK CONTENTS
California Syrup and Extract Site

Tank ID	*Product Stored*	*Analyses Performed*	*Result (ppm)*
1 (east)	Diesel	TPH-diesel	44,000
2	Fuel oil/Waste oil	--	--
3	Diesel	TPH-diesel	340
4	Aqueous ammonia	Ammonia Nitrogen	0.29

Table 2
ANALYTICAL RESULTS OF TANK CONTENTS
California Syrup and Extract Site

Tank ID	*Product Stored*	*Analyses Performed*	*Result (ppm)*
5	Gasoline	TPH-gasoline, Benzene Toluene Xylenes Ethylbenzene Lead	170 16 20 20 1.8 0.69
6	Denatured alcohol	Alcohols Isopropyl	43,000
7	Denatured alcohol	Alcohols Isopropyl	8,100
8 (west)	Denatured alcohol	Alcohols Isopropyl	490

2.2 Locating Tank Ends

In order to meet closure-in-place requirements imposed by Alameda County UST Local Oversight Program it was necessary to site the soil borings directly adjacent to both ends of each of the tanks (see Figure 2). Tank No. 2 and Tank No. 4 were located lengthwise directly adjacent to each other. Thus, only three borings were required for these two tanks, with one boring between the tanks and one boring at either end of the tanks. Tank No. 6, Tank No. 7, and Tank No. 8 were directly adjacent to each other lengthwise. Thus, only four borings were required, with the two middle borings doubling for the middle tank ends and the two adjacent outer tank ends. The remaining tanks, Tank No. 1, Tank No. 4, and Tank No. 5, each had borings drilled at either end of the tank.

In order to site the borings within close proximity to each end of the USTs, it was necessary to locate the ends of the tanks accurately. An electromagnetic survey was attempted; however, due to metal rebar in the sidewalk, this method was not effective. After exploring various alternatives, it was determined that physical location of the tank ends would be the most accurate and reliable method. Thus, the tank ends were located as follows: (1) The approximate locations of the tank ends were located on the overlying sidewalk based on the known approximate tank volumes and the tank diameters; (2) Where the approximate tank ends were located, rectangular sections of the concrete sidewalk were cut and removed to provide access to underlying soils; and (3) A thin metal rod was used to probe shallow soils and backfill material to find the tank ends. Although some rectangle cuts had to be enlarged lengthwise to find a particular tank end, this method was very effective in locating each tank end. Thus, we were able to site each of the borings accurately within approximately one foot from the tank ends.

The capacities of Tank Nos. 2 and 6 were reported as 550 to 1,000 gallons and 6,000 to 10,000 gallons, respectively. Based on the locations of the ends of these tanks, we estimate the volume of Tank No. 2 to be approximately 700 gallons, and the volume of Tank No. 6 to be 10,000 gallons.

2.3 Drilling and Sampling of Soil Borings

The 13 soil borings were drilled by Kvilhaug Well Drilling using hollow stem auger equipment Most of the borings were drilled to a final depth of approximately ten feet below grade, which represented the approximate ground water depth. Because no ground water was encountered in IB-2, this boring was bottomed at 14 feet, approximately two feet below the bottom of the adjacent tank (Tank No. 1).

During drilling, soils were field screened by a qualified Century West Engineering geologist using sight, smell, and a photoionization detector (PID). Boring logs for the 13 soil borings are contained in Appendix B.

Soils from each of the borings were sampled: (1) At the final auger depth; and (2) At shallower depths where obvious hydrocarbons were detected using field screening methods. These shallower samples included both undisturbed samples and grab samples. Undisturbed soils were sampled in advance of the auger as follows: (1) A two-inch inside diameter California-style split spoon sampler was driven into undisturbed soil ahead of the drill bit; (2) The sampler was raised quickly to the surface and the brass liners exposed; (3) The brass liner containing the most undisturbed soil was quickly sealed with aluminum foil and plastic end caps, labeled, and wrapped tightly with tape; and (4) The sealed soil sample was immediately placed in a cooler with crushed ice for transport to the analytical laboratory under formal chain-of-custody. Grab samples of obviously hydrocarbon-laden drilling cuttings were taken from IB-1, IB-6, IB-11, and IB-12. These samples were taken directly from drilling cuttings using a brass sampling tube as described above.

All sampling equipment was thoroughly cleaned and decontaminated between each sample collection by triple rinsing first with water, then with dilute tri-sodium phosphate solution, and finally with distilled water. All downhole drilling equipment, including auger and drill bit, were steam cleaned before and after drilling the borings. Steam cleaning rinseate was contained in sealed drums pending laboratory results. Soil cuttings were stored in sealed and labeled drums pending laboratory results.

2.4 Laboratory Analysis of Soil Samples

A total of 16 soil samples were analyzed at Superior Precision Analytical, Inc. in Martinez, California. Twelve of these samples were samples taken at the final auger depth in all borings except IB-2. Although IB-2 was sampled at the final auger depth of 14 feet, we selected the sample taken at eight feet in depth because it is close to ground water depth. The remaining three samples (IB-1.2, IB-13.1, and IB-9.1) were selected from shallower samples where field evidence of hydrocarbons was noted. Soil samples from each of the

borings were analyzed for the constituents stored in the adjacent UST. Laboratory data reports and chain-of-custody records for all analyses are contained in Appendix C.

3.0 RESULTS OF INVESTIGATION

Because the purpose of this investigation was to provide soil sampling results for closure-in-place of the eight USTs, the results of the soil boring investigation will be presented tank by tank.

3.1 Tank No. 1 Soil Boring Results

Tank No. 1 is a 10,000-gallon diesel UST. Two investigative borings, IB-2 and IB-3, were drilled and sampled adjacent to the ends of this UST. IB-3, the east boring, encountered possible fill sands down to 11 feet, with ground water in the boring at approximately ten feet below grade. IB-2, the west boring, encountered native silty clays down to 14 feet in depth, with no ground water encountered. No hydrocarbon staining or odors were noted in drilling cuttings or samples from either boring. Analytical results from these borings are summarized in Table 3.

Table 3
SOIL ANALYTICAL RESULTS - TANK NO. 1
1355 55th Street UST Site

Sample ID	*Sample Depth*	*Concentration (ppm)*						
		TPH-gas	*TPH-diesel*	*TPH-motor oil*	*Benzene*	*Toluene*	*Xylenes*	*Ethylben.*
IB-3.1	11.0 ft	ND(1)[1]	ND(10)	ND(10)	ND(0.003)	ND(0.003)	ND(0.009)	ND(0.003)
IB-2.1	8.0 ft	ND(1)	ND(10)	ND(10)	ND(0.003)	ND(0.003)	ND(0.009)	ND(0.003)

[1] - Not detected above the levels expressed in the parentheses.

3.2 Tank Nos. 2 and 3 Soil Boring Results

Tank No. 2 is an approximately 700-gallon fuel oil/waste oil UST, and Tank No. 3 is a 1,000-gallon diesel UST. Because these USTs are directly adjacent to each other, three investigative borings (IB-11, IB-1, and IB-10) were drilled and sampled, with IB-1 located between the two USTs.

Native silty clays encountered in IB-11 and IB-1, on either end of Tank No. 2 (the easterly of the two USTs), exhibited strong hydrocarbon odors and grey green hydrocarbon staining below approximately three feet in depth. A grab sample (IB-1.2) of hydrocarbon-stained soil was taken from IB-1 drilling cuttings for laboratory analysis. Soils in IB-10 exhibited less hydrocarbon odors and staining than IB-11 and IB-1 soils. Analytical results from these three borings are summarized in Table 4.

Table 4
SOIL ANALYTICAL RESULTS - TANK NOS. 2 & 3
1355 55th Street UST Site

Sample ID	Sample Depth	Concentration (ppm)						
		TPH-gas	TPH-diesel	TPH-motor oil	Benzene	Toluene	Xylenes	Ethylben.
IB-11.2	9.5 ft	ND(1)[1]	51	65	ND(0.003)	ND(0.003)	ND(0.009)	ND(0.003)
IB-1.1	9.0 ft	1	84	150[1]	ND(0.003)	0.004	0.013	ND(0.003)
IB-1.2	Grab	2	32	50	0.004	0.008	0.028	0.004
IB-10.1	9.0 ft	ND(1)	84	110	ND(0.003)	0.005	ND(0.009)	ND(0.003)

[1] - Shaded values are above regulatory action level of 100 ppm.

The grab sample from IB-1 (IB-1.2) was also analyzed for Total Oil & Grease (nonpolar) and volatile organic compounds (EPA Method 8240). No detectable levels of oil and grease were found (method detection limit=50 ppm), and the only volatile organic compound detected was 0.006 ppm of benzene.

3.3 Tank No. 4 Soil Boring Results

Tank No. 4 is a 1,000-gallon aqueous ammonia UST. Two investigative borings, IB-4 and IB-5, were drilled and sampled adjacent to the ends of this UST. Soils in these borings, which appeared to be native soils, consisted of brown silty clays with no odors or staining. No ground water was encountered in IB-4, and ground water in IB-5 was encountered at approximately eight feet below grade. Analytical results from these borings are summarized in Table 5.

Table 5
SOIL ANALYTICAL RESULTS - TANK NO. 4
1355 55th Street UST Site

Sample ID	Sample Depth	Ammonia (ppm)
IB-4.1	11.0 ft	6.8
IB-5.1	11.0 ft	230
IB-6.2	9.0 ft	ND(0.5)

Because of the high level of ammonia in IB-5, a sample from IB-6, which was located approximately 20 feet west from IB-5, was analyzed for ammonia. This result is also summarized in Table 4.

3.4 Tank No. 5 Soil Boring Results

Tank No. 5 is a 1,000-gallon gasoline UST. Two investigative borings, IB-6 and IB-12, were drilled and sampled adjacent to the ends of this UST. Both borings encountered greenish grey silty clays from approximately five to ten feet below grade, with slight to moderate hydrocarbon odors. Analytical results from these borings are summarized in Table 6. The TPH-gasoline chromatogram for IB-12.2 is included with the laboratory data report in Appendix C.

Table 6
SOIL ANALYTICAL RESULTS - TANK NO. 5
1355 55th Street UST Site

Sample ID	Sample Depth	Concentration (ppm)						
		TPH-gas	TPH-diesel	TPH-motor oil	Benzene	Toluene	Xylenes	Ethylben.
IB-6.2	9.0 ft	16	NA[1]	NA	ND(0.003)	0.021	0.15	0.24
IB-12.2	9.0 ft	ND(1)	ND(10)	ND(10)	0.11	ND(0.003)	ND(0.009)	0.013

[1] - Not analyzed for listed constituent.

Because of the field evidence of fuel hydrocarbons in drilling cuttings from the two borings, the sample from IB-12 (IB-12.2) was also analyzed for TPH-diesel/motor oil. These results are also included in Table 6.

3.5 Tank Nos. 6, 7, and 8 Soil Boring Results

Tank Nos. 6, 7, and 8 are 10,000-gallon alcohol USTs. Because these USTs are directly adjacent to each other, four investigative borings (IB-13, IB-7, IB-8, and IB-9) were drilled and sampled, with IB-7 and IB-8 being located between the middle UST and the two outer USTs.

The two middle borings (IB-7 and IB-8) encountered clean backfill sands down to ground water depth of approximately ten feet below grade. The outer borings (IB-13 and IB-9) encountered green to grey clays with slight hydrocarbon odors in both borings. Soils at approximately eight to ten feet in depth in the westerly boring (IB-9) exhibited strong hydrocarbon odors. Analytical results from these three borings are summarized in Table 7. TPH-gasoline chromatograms for IB-13.2 and IB-9.1 are included with the laboratory data reports in Appendix C.

Table 7
SOIL ANALYTICAL RESULTS - TANK NOS. 6, 7, & 8
1355 55th Street UST Site

Sample ID	Sample Depth	Concentration (ppm)					
		TPH-alcohol[1]	TPH-gas	Benzene	Toluene	Xylenes	Ethylben.
IB-13.1	5.5 ft	ND[2]	ND(1)	ND(0.003)	ND(0.003)	ND(0.009)	ND(0.003)
IB-13.2	10.0 ft	ND	ND(1)	ND(0.003)	ND(0.003)	ND(0.009)	ND(0.003)
IB-7.1	9.5 ft	ND	ND(1)	ND(0.003)	ND(0.003)	ND(0.009)	ND(0.003)
IB-8.2	11.0 ft	ND	ND(1)	ND(0.003)	ND(0.003)	ND(0.009)	ND(0.003)
IB-9.1	6.5 ft	ND	ND(1)	ND(0.003)	ND(0.003)	0.16	0.030
IB-9.2	10.0 ft	ND	ND(1)	ND(0.003)	ND(0.003)	ND(0.009)	ND(0.003)

[1] - Analyzed for TPH as alcohols and ketones by EPA Method 8015 (Modified). This method identifies 14 alcohols and ketones using GC methods.

[2] - Detection limits for the 14 alcohols and ketones range from 2 ppm to 10 ppm. Please see laboratory data reports in Appendix C for specific analytes and detection limits.

Due to field evidence of hydrocarbon, the 6.5-foot sample from IB-9 (IB-9.1) was also analyzed for TPH-diesel/motor oil. No detectable levels of diesel or motor oil were encountered in this sample.

4.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the results summarized above, we conclude the following:

- Tank No. 1 showed no field evidence and no laboratory evidence of diesel hydrocarbon releases.

- Tank Nos. 2 and 3 showed field and laboratory evidence of some hydrocarbon releases from one or both of the USTs. However, the highest TPH result (150 ppm in IB-1.1) was identified as motor oil, which is relatively immobile, and is not a substantial amount above the regulatory action level. Furthermore, because the adjacent westerly boring (IB-4) showed no field evidence of hydrocarbons, we conclude that releases from these USTs have not had a significant impact on soils in an expected downgradient (westerly) direction.

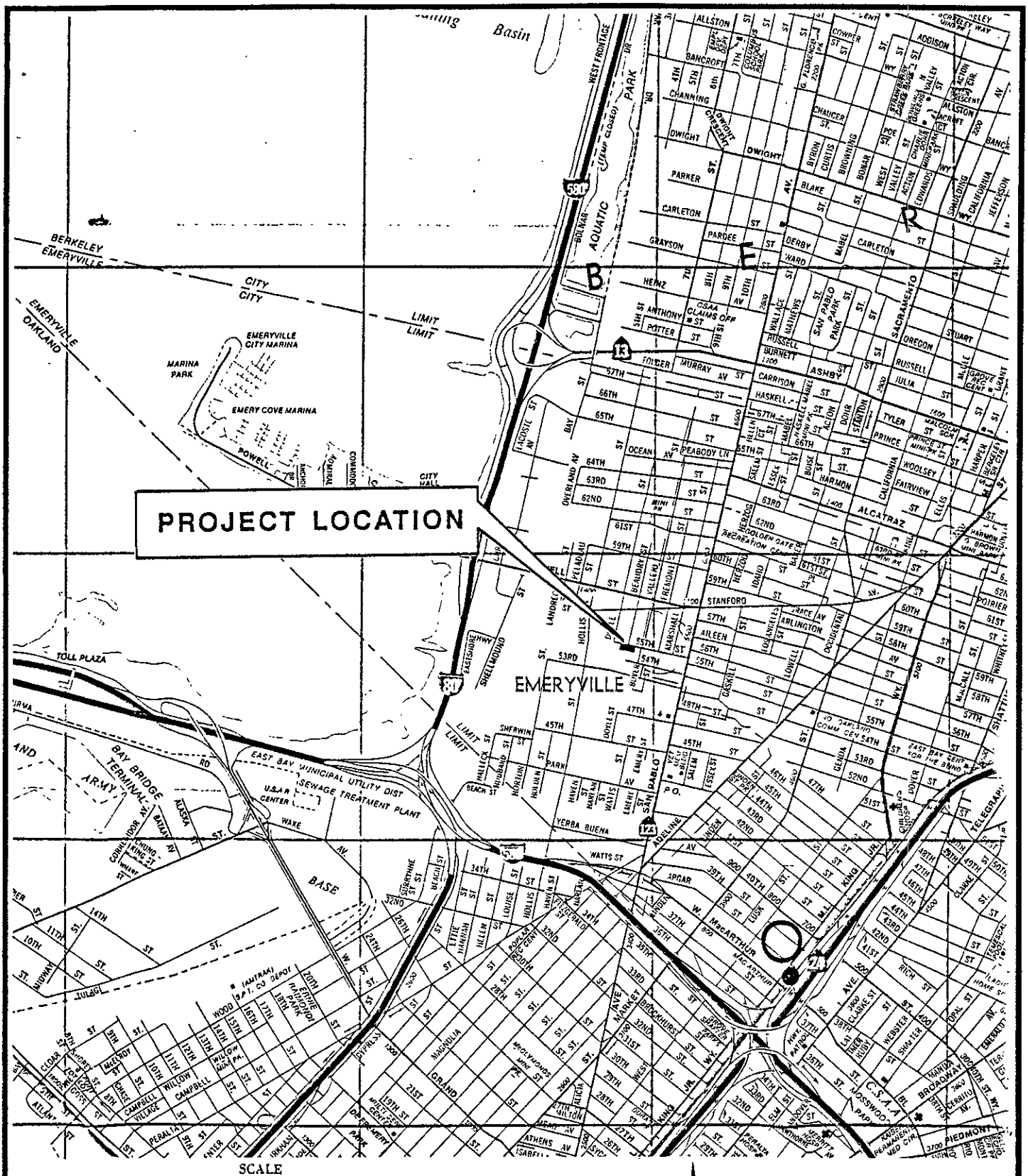
- Tank No. 4 showed evidence of past ammonia releases. However, analytical results from the adjacent westerly boring (IB-6) showed no detectable levels of ammonia. Thus, these releases do not appear to have impacted subsurface soils in an expected downgradient direction.

According to California Syrup and Extract, the aqueous ammonia stored in Tank No. 4 was a 10% solution (10% ammonia in water). According to *Chemical and Process Technology Encyclopedia*, (Doug Considine, Editor, McGraw-Hill, 1974), ammonia is a gas under normal conditions (boiling point = -28°F), is extremely soluble in water, and has a specific gravity of 0.617 at 15° C (lighter than water). Thus, it appears that any aqueous ammonia released from Tank No. 4 would remain in solution and would "float" near the ground water table.

- Analytical results from Tank No. 5 borings (IB-6 and IB-12) showed only low levels of gasoline constituents, which are below regulatory action levels. However, soil cuttings from these two borings contained slight to strong hydrocarbon odors and staining. These data indicate that possible gasoline releases from Tank No. 4, which was used from approximately 1930 until 1965, have degraded over time. This is further confirmed by analytical results from further westerly borings, which showed some field evidence of fuel hydrocarbons, but no detectable TPH-gas, TPH-diesel, or BTXE. In addition, the TPH-gasoline chromatogram for IB-12.2 (see Appendix C) seems to indicate the presence of degraded gasoline (the lighter volatile constituents are not present, leaving low levels of heavy-end gasoline constituents). The TPH-gasoline chromatogram for the adjacent westerly boring, IB-13.2, shows no indication of residual gasoline.

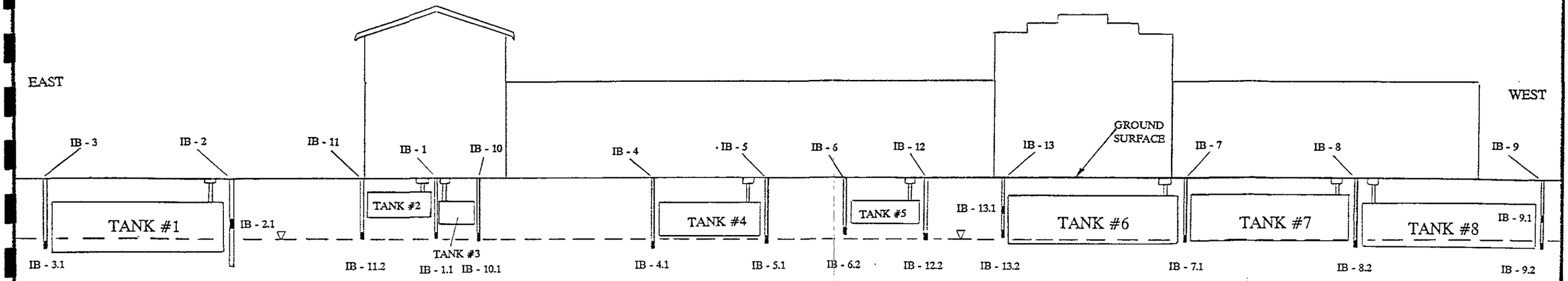
- Tank Nos. 6, 7, and 8 showed no field or laboratory evidence of alcohol releases. The borings on either ends of these three USTs (IB-13 and IB-9) showed visible hydrocarbons staining and odors in subsurface soils. However, as discussed above, we believe these results are from degraded fuel hydrocarbons (gasoline) and are unrelated to possible alcohol releases. The TPH-gasoline chromatogram for the IB-9.1 sample seems to indicate the presence of degraded gasoline (the lighter volatile constituents are not present, leaving low levels of heavy-end gasoline constituents).

Based on the conclusions summarized above, we propose the following: (1) That California Syrup and Extract be allowed to close the eight USTs in-place in accordance with a closure plan to be approved by Alameda County LOP and Emeryville Fire Department; and (2) That two ground water monitoring wells be installed, one downgradient (west) from Tank No. 3 and one downgradient from Tank No. 5.

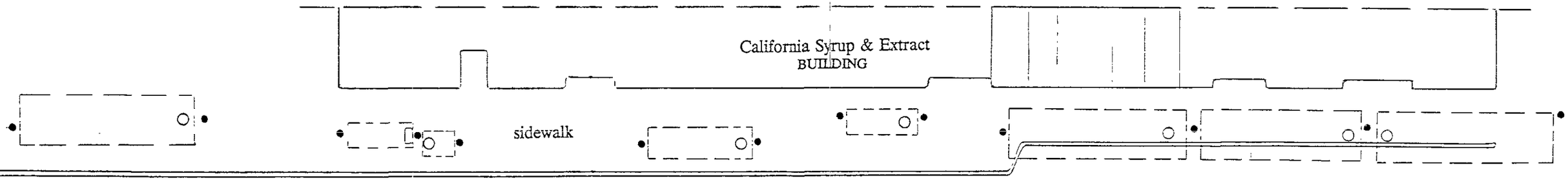


DESIGNED BY:	CHECKED BY:	**FIGURE 1** **SITE VICINITY MAP**	DATE:	FIGURE:
DRAWN BY:	SCALE:		CENTURY WEST ENGINEERING	
DWG. NO.:		CWEC 20539-001-01		

PROFILE VIEW



PLAN VIEW



LEGEND

SOIL BORING

SOIL SAMPLE SELECTED FOR ANALYSIS

▽ - APPROX. GROUND WATER DEPTH.

10 0 10 20 30 40

APPROX. SCALE (FEET)

VERTICLE SCALE = HORIZONTAL SCALE

DESIGN BY		CHECKED BY		APPROVED	
SURVEY BY		SCALE		DATE	
DRAWN BY		DWG NO			

FIGURE 2
SITE PLAN

CWEC 20539-001-01

CENTURY WEST ENGINEERING CORPORATION

APPENDIX A

LABORATORY DATA REPORT FOR UST SAMPLING OF UST FLUIDS

B C Analytical

1255 Powell Street
Emeryville, CA 94608
510/428-2300
Fax: 510/547-3643

ANALYTICAL REPORT

LOG NO: E93-05-522

Received: 28 MAY 93

Mailed: JUN 18 1993

Mr. Donald Drum
LIQUID SUGARS, INC.
P.O.BOX 96
Oakland, CA 94604

REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION, AQUEOUS SAMPLES	DATE SAMPLED
05-522-1	Well	28 MAY 93

PARAMETER	05-522-1
Lead, mg/L	0.024
Nitric Acid Digestion, Date	06.09.93
TPH - Semivolatile Hydrocarbons	
Date Analyzed	06.04.93
Date Extracted	06.03.93
Dilution Factor, Times	1
C10 to C22 (as diesel), ug/L	470
C18 to C35 (as oil), ug/L	<500
Approximate Character, .	DIESEL
TPH-Volatile/BTEX	
Date Analyzed	06.08.93
Dilution Factor, Times	1
Benzene, ug/L	<0.5
Ethylbenzene, ug/L	<0.5
Toluene, ug/L	<0.5
Total Xylene Isomers, ug/L	<0.5
C6 to C14 (as gasoline), ug/L	<50
Other TPH-Volatile/BTEX	---

TECH/ENG DEPT.
JUN 21 1993

BCA

B C Analytical

1255 Powell Street
Emeryville, CA 94608
510/428-2300
Fax: 510/547-3643

LOG NO: E93-05-522

Received: 28 MAY 93

Mr. Donald Drum
LIQUID SUGARS, INC.
P.O.BOX 96
Oakland, CA 94604

REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION, AQUEOUS SAMPLES	DATE SAMPLED
05-522-2	No. 1 Tank	28 MAY 93
05-522-3	No. 3 Tank	28 MAY 93

PARAMETER	05-522-2	05-522-3
Diesel Hydrocarbons 3510/8015		
Date Analyzed	06.04.93	06.07.93
Date Extracted	06.03.93	06.03.93
Dilution Factor, Times	100000	500
C10 to C22 (as diesel), ug/L	44000000	340000
Approximate Character, .	DIESEL	UNKNOWN

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LOG NO: E93-05-522

Received: 28 MAY 93

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LIQUID SUGARS, INC.
P.O.BOX 96
Oakland, CA 94604

REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION, AQUEOUS SAMPLES	DATE SAMPLED
05-522-4	No. 4 Tank	28 MAY 93

PARAMETER	05-522-4
Ammonia Nitrogen, mg/L	0.29

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Oakland, CA 94604

REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION, AQUEOUS SAMPLES	DATE SAMPLED
05-522-5	No. 5 Tank	28 MAY 93

PARAMETER	05-522-5
Lead, mg/L	0.69
Nitric Acid Digestion, Date	06.09.93
TPH-Volatile/BTEX	
Date Analyzed	06.08.93
Dilution Factor, Times	1
Benzene, ug/L	16000
Ethylbenzene, ug/L	1800
Toluene, ug/L	20000
Total Xylene Isomers, ug/L	20000
C6 to C14 (as gasoline), ug/L	170000
Other TPH-Volatile/BTEX	---

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Emeryville, CA 94608
510/428-2300
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LOG NO: E93-05-522

Received: 28 MAY 93

Mr. Donald Drum
LIQUID SUGARS, INC.
P.O.BOX 96
Oakland, CA 94604

REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION, AQUEOUS SAMPLES	DATE SAMPLED
05-522-6	No. 6 Tank	28 MAY 93
05-522-7	No. 7 Tank	28 MAY 93
05-522-8	No. 8 Tank	28 MAY 93

PARAMETER	05-522-6	05-522-7	05-522-8
Alcohols			
N-Butanol, mg/L	<1	730	<10
Ethanol, mg/L	43000	8100	490
Isopropyl Alcohol, mg/L	<1	26	<10
Methanol, mg/L	<1	12	<10
Propanol, mg/L	<1	7	<10

Larry E. Rayfield for
Edward Wilson, Laboratory Director

BCA

CHAIN OF CUSTODY RECORD

BCA Log Number: [illegible]

Client name: Liquid Sugars	Project or PO#:
Address:	Phone #:
City, State, Zip:	Report attention:

Sampled by:

Lab Sample number	Date sampled	Time sampled	Type* See key below	Sample description	Number of containers	Pb	Diesel fuel TPH.3510	Diesel TPH.D.3510	NH3-N	Gas & BTEX TPH.G.5030.8020	Alcohols		Hazardous sample Special handling required	Remarks
1	5/28		AQ	WELL	6	X	X			X				
2	↓		↓	#1 Tank	2		X							C.O.C.
3				No. 3 Tank	2		X							Prepared by
4				No. 4 Tank	1				X					BCA
5				No. 5 Tank	4	X				X				Bonny
6				No. 6 Tank	3						X			Baldwin
7				No. 7 Tank	1						X			
8				No. 8 Tank	~~2~~ BMB 5/28						~~X~~			* CLIENT
														COLLECTED FOR
														TPH.D.3510 for #1 & #3 TANK
														[illegible]

	Signature	Print Name	Company	Date	Time
Relinquished by					
Received by					
Relinquished by	V Barnett	VICTOR BARNETT	Liquid Sugar Inc.	5/29	1440
Received by					
Relinquished by					
Received by Laboratory	Bonny Baldwin	BONNY BALDWIN	BCA	5-28-93	14:40

B C ANALYTICAL

☐ 1255 Powell Street, Emeryville, CA 94608 (510) 428-2300
☐ 801 Western Avenue, Glendale, CA 91201 (818) 247-5737
☐ 1200 Gene Autry Way, Anaheim, CA 92805 (714) 978-0113

Note: Samples are discarded 30 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client's expense.

Disposal arrangements: ______

*KEY: WW—Wastewater SU—Surface Water SO—Soil SL—Sludge PE—Petroleum OT—Other NA—Nonaqueous GW—Groundwater AQ—Aqueous

APPENDIX B

BORING LOGS

CENTURY WEST ENGINEERING CORPORATION

SOIL BORING LOG
CALIFORNIA SYRUP AND EXTRACT

Site Location: 1355 55th Street	Boring ID: IB-1	Total Depth: 10.5 ft
Boring Location: Between Tank #2 and Tank #3 fill ports	Elevation:	Initial GW Depth: 8.5 ft
Purpose:	Logged By: Bob Bogar	Final GW Depth:
Date: July 20, 1993	Blank Casing:	From: To:
Consulting Firm: Century West Engineering	Perforations:	From: To:
Project Number: 20539-001-01	Filter Sand:	From: To:
Drilling Contractor: Kvilhaug Drilling	Bentonite:	From: To:
Drilling Method: Hollow Stem Auger	Grout:	From: To:

Depth		Sample ID	Blow Counts	Profile	Soil Description		Remarks
01 02 03 04 05					0 - 0.5 ft 0.5 - 3.5 ft	Concrete with rebar Dark to light brown CLAY, moist, firm, silty, no hydrocarbon odor or stain.	
06 07 08 09 10	T	IB-1.1[1]		▽	3.5 - 10.5 ft	Grey green CLAY, sl silty, moist, moderate to strong hydrocarbon odor.	IB-1.2: Grab sample from drilling cuttings from ≈ 6 ft.
11	⊥				Total Depth - 10.5 ft Ground Water - 8.5 ft		

[1] - For some of the borings, low clearance under phone lines did not allow the driller to "tower up", and sampler was pushed rather than pounded. Thus, for these borings, no blow counts are recorded.

CENTURY WEST ENGINEERING CORPORATION

SOIL BORING LOG
CALIFORNIA SYRUP AND EXTRACT

Site Location: 1355 55th Street	Boring ID: IB-2	Total Depth: 14.5 ft
Boring Location: West of Tank #1 fill port	Elevation:	Initial GW Depth: -
Purpose:	Logged By: Bob Bogar	Final GW Depth:
Date: July 20, 1993	Blank Casing:	From: To:
Consulting Firm: Century West Engineering	Perforations:	From: To:
Project Number: 20539-001-01	Filter Sand:	From: To:
Drilling Contractor: Kvilhaug Drilling	Bentonite:	From: To:
Drilling Method: Hollow Stem Auger	Grout:	From: To:

Depth		Sample ID	Blow Counts	Profile	Soil Description		Remarks
01 02 03 04 05					0 - 0.5 ft 0.5 - 5.0 ft	Concrete with rebar Light brown CLAY, moist, firm, silty some angular pebbles, no hydrocarbon odor or stain.	
06 07 08 09 10	T ⊥	IB-2.1			5.0 - 10.0 ft	Light green CLAY, moist, firm. slight hydrocarbon odor.	
11 12 13 14 15	T ⊥	IB-2.2			10.0 - 14.5 ft Total depth - 14.5 ft No ground water	Light brown silty CLAY, moist, silty, few pebbles, no hydrocarbon odor or staining.	

CENTURY WEST ENGINEERING CORPORATION

SOIL BORING LOG
CALIFORNIA SYRUP AND EXTRACT

Site Location: 1355 55th Street	Boring ID: IB-3	Total Depth: 11.5 ft
Boring Location: East end of Tank #1	Elevation:	Initial GW Depth: 10.0 ft
Purpose:	Logged By: Bob Bogar	Final GW Depth:
Date: July 20, 1993	Blank Casing:	From: To:
Consulting Firm: Century West Engineering	Perforations:	From: To:
Project Number: 20539-001-01	Filter Sand:	From: To:
Drilling Contractor: Kvilhaug Drilling	Bentonite:	From: To:
Drilling Method: Hollow Stem Auger	Grout:	From: To:

Depth		Sample ID	Blow Counts	Profile	Soil Description		Remarks
01 02 03 04 05					0 - 0.5 ft	Concrete and rebar	
06 07 08 09 10				▽	0.5 - 11.0 ft	Dark brown to grey SAND, (backfill material), sl silty, moist, no hydrocarbon odor or stain.	
11 12 13 14 15	T ⊥	IB-3.1	16 5 8		11.0 - 11.5 ft	Lt brown silty CLAY, wet to saturated, no hydrocarbon odor or stain.	
					Total Depth - 11.5 ft Ground Water - 10.0 ft		

CENTURY WEST ENGINEERING CORPORATION

SOIL BORING LOG
CALIFORNIA SYRUP AND EXTRACT

Site Location: 1355 55th Street	Boring ID: IB-4	Total Depth: 11.5 ft
Boring Location: East end of Tank #4	Elevation:	Initial GW Depth: -
Purpose:	Logged By: Bob Bogar	Final GW Depth:
Date: July 20, 1993	Blank Casing:	From: To:
Consulting Firm: Century West Engineering	Perforations:	From: To:
Project Number: 20539-001-01	Filter Sand:	From: To:
Drilling Contractor: Kvilhaug Drilling	Bentonite:	From: To:
Drilling Method: Hollow Stem Auger	Grout:	From: To:

Depth		Sample ID	Blow Counts	Profile	Soil Description	Remarks
01 02 03 04 05					0 - 0.5 ft Concrete with rebar	
06 07 08 09 10					0.5 - 11.5 ft dark to light brown silty CLAY, moist, firm, no hydrocarbon odor or stain.	
11 12 13 14 15	T ⊥	IB-4.1	10 12 18		Total Depth - 11.5 ft No ground water	

CENTURY WEST ENGINEERING CORPORATION

SOIL BORING LOG
CALIFORNIA SYRUP AND EXTRACT

Site Location: 1355 55th Street	Boring ID: IB-5	Total Depth: 11.0 ft
Boring Location: West end of Tank #4	Elevation:	Initial GW Depth: 8.5 ft
Purpose:	Logged By: Bob Bogar	Final GW Depth:
Date: July 20, 1993	Blank Casing:	From: To:
Consulting Firm: Century West Engineering	Perforations:	From: To:
Project Number: 20539-001-01	Filter Sand:	From: To:
Drilling Contractor: Kvilhaug Drilling	Bentonite:	From: To:
Drilling Method: Hollow Stem Auger	Grout:	From: To:

Depth		Sample ID	Blow Counts	Profile	Soil Description		Remarks
01 02 03 04 05					0 - 0.5 ft	Concrete and rebar	
06 07 08 09 10				▽	0.5 - 10.0 ft	Grey to buff silty SAND, (backfill material), moist to wet, no hydrocarbon odor or stain..	
11 12 13 14 15	T ⊥	IB-5.1	18 18 32		10.0 - 11.5 ft Total depth - 11.0 ft Ground water - 8.5 ft	Light brown CLAY, sl silty, wet to saturated, no hydrocarbon odor or staining.	

CENTURY WEST ENGINEERING CORPORATION

SOIL BORING LOG
CALIFORNIA SYRUP AND EXTRACT

Site Location: 1355 55th Street	Boring ID: IB-6	Total Depth: 9.5 ft
Boring Location: East end of Tank #5	Elevation:	Initial GW Depth: -
Purpose:	Logged By: Bob Bogar	Final GW Depth:
Date: July 20, 1993	Blank Casing:	From: To:
Consulting Firm: Century West Engineering	Perforations:	From: To:
Project Number: 20539-001-01	Filter Sand:	From: To:
Drilling Contractor: Kvilhaug Drilling	Bentonite:	From: To:
Drilling Method: Hollow Stem Auger	Grout:	From: To:

Depth		Sample ID	Blow Counts	Profile	Soil Description		Remarks
01 02 03 04 05					0 - 0.5 ft	Concrete and rebar	
					0.5 - 5.0 ft	Dark to light brown sandy CLAY, silty, moist, firm, some angular pebbles, no hydrocarbon odor or stain.	
06 07 08 09 10	T ⊥	IB-6.1			5.0 - 9.5 ft	Light to dark green silty CLAY, sandy, moist, firm, moderate to strong hydrocarbon odor.	IB-6.1: Grab sample from drilling cuttings from 5 to 9 ft.
11					Total depth - 9.5 ft No ground water		

CENTURY WEST ENGINEERING CORPORATION

SOIL BORING LOG
CALIFORNIA SYRUP AND EXTRACT

Site Location: 1355 55th Street	Boring ID: IB-7	Total Depth: 10.5 ft
Boring Location: West of Tank #6	Elevation:	Initial GW Depth: 10.0 ft
Purpose:	Logged By: Bob Bogar	Final GW Depth:
Date: July 20, 1993	Blank Casing:	From: To:
Consulting Firm: Century West Engineering	Perforations:	From: To:
Project Number: 20539-001-01	Filter Sand:	From: To:
Drilling Contractor: Kvilhaug Drilling	Bentonite:	From: To:
Drilling Method: Hollow Stem Auger	Grout:	From: To:

Depth		Sample ID	Blow Counts	Profile	Soil Description	Remarks
01 02 03 04 05					0 - 0.5 ft Concrete and rebar	
06 07 08 09 10	T	SB-7.1	8 22	▽	0.5 - 10.5 ft Dark brown to grey SAND, (probably backfill material), silty, moist to wet, no hydrocarbon odor or stain.	
11 12 13 14 15	⊥		18		Total Depth - 10.5 ft Ground Water - 10.0 ft	

CENTURY WEST ENGINEERING CORPORATION

SOIL BORING LOG
CALIFORNIA SYRUP AND EXTRACT

Site Location: 1355 55th Street	Boring ID: IB-8	Total Depth: 11.0 ft
Boring Location: West of Tank #7	Elevation:	Initial GW Depth: -
Purpose:	Logged By: Bob Bogar	Final GW Depth:
Date: July 20, 1993	Blank Casing:	From: To:
Consulting Firm: Century West Engineering	Perforations:	From: To:
Project Number: 20539-001-01	Filter Sand:	From: To:
Drilling Contractor: Kvilhaug Drilling	Bentonite:	From: To:
Drilling Method: Hollow Stem Auger	Grout:	From: To:

Depth		Sample ID	Blow Counts	Profile	Soil Description	Remarks
01 02 03 04 05					0 - 0.5 ft Concrete and rebar	
06 07 08 09 10	T ⊥	IB-8.1	4 5 7		0.5 - 11.0 ft Dark to light brown SAND, (backfill material), silty, moist to wet, no hydrocarbon odor or stain.	
11 12	T ⊥	IB-8.2	6 9 24		Total Depth - 12.0 ft No ground water	

CENTURY WEST ENGINEERING CORPORATION

SOIL BORING LOG
CALIFORNIA SYRUP AND EXTRACT

Site Location: 1355 55th Street	Boring ID: IB-9	Total Depth: 11.5 ft
Boring Location: West end of Tank #8	Elevation:	Initial GW Depth: 10.0 ft
Purpose:	Logged By: Bob Bogar	Final GW Depth:
Date: July 21, 1993	Blank Casing:	From: To:
Consulting Firm: Century West Engineering	Perforations:	From: To:
Project Number: 20539-001-01	Filter Sand:	From: To:
Drilling Contractor: Kvilhaug Drilling	Bentonite:	From: To:
Drilling Method: Hollow Stem Auger	Grout:	From: To:

Depth		Sample ID	Blow Counts	Profile	Soil Description	Remarks
01 02 03 04 05					0 - 0.5 ft Concrete and rebar	
06 07 08 09 10	T ⊥	IB-9.1	11 16 26	▽	0.5 - 11.5 ft Light to dark green CLAY, very firm, moist, some angular pebbles, slight hydrocarbon odor.	
11	T ⊥	IB-9.2	10 24 50		Total Depth - 11.5 ft Ground Water - 10.0 ft	

CENTURY WEST ENGINEERING CORPORATION

SOIL BORING LOG
CALIFORNIA SYRUP AND EXTRACT

Site Location: 1355 55th Street	Boring ID: IB-10	Total Depth: 10.5 ft
Boring Location: West of Tank #3	Elevation:	Initial GW Depth: -
Purpose:	Logged By: Bob Bogar	Final GW Depth:
Date: July 21, 1993	Blank Casing:	From: To:
Consulting Firm: Century West Engineering	Perforations:	From: To:
Project Number: 20539-001-01	Filter Sand:	From: To:
Drilling Contractor: Kvilhaug Drilling	Bentonite:	From: To:
Drilling Method: Hollow Stem Auger	Grout:	From: To:

Depth		Sample ID	Blow Counts	Profile	Soil Description		Remarks
01 02 03 04 05					0 - 0.5 ft 0.5 - 4.0 ft	Concrete and rebar Light to dark brown silty CLAY, moist, no hydrocarbon odor or stain.	
06 07 08 09 10	T	IB-10.1			4.0 - 6.0 ft 6.0 - 10.5 ft	Light to dark green CLAY, moist, firm, moderate hydrocarbon odor. Light brown silty CLAY, slight green tinge, moist, moderate to slight hydrocarbon odor.	IB-10.2: Grab sample from drilling cuttings from 4 to 6 ft. Free product found in soil sample
	⊥				Total Depth - 10.5 ft No ground water.		

CENTURY WEST ENGINEERING CORPORATION

SOIL BORING LOG
CALIFORNIA SYRUP AND EXTRACT

Site Location: 1355 55th Street	Boring ID: IB-11	Total Depth: 11.0 ft
Boring Location: East end of Tank #2	Elevation:	Initial GW Depth:
Purpose:	Logged By: Bob Bogar	Final GW Depth:
Date: July 21, 1993	Blank Casing:	From: To:
Consulting Firm: Century West Engineering	Perforations:	From: To:
Project Number: 20539-001-01	Filter Sand:	From: To:
Drilling Contractor: Kvilhaug Drilling	Bentonite:	From: To:
Drilling Method: Hollow Stem Auger	Grout:	From: To:

Depth		Sample ID	Blow Counts	Profile	Soil Description	Remarks
01 02 03 04 05					0 - 0.5 ft Concrete and rebar	IB-11.1: Grab sample taken from cuttings at ≈ 3 ft.
06 07 08 09 10	T	IB-11.2			0.5 - 11.0 ft Light to dark green CLAY, moist, firm, moderate to strong hydrocarbon odor.	
11	⊥				Total Depth - 11.0 ft No ground water.	

CENTURY WEST ENGINEERING CORPORATION

SOIL BORING LOG
CALIFORNIA SYRUP AND EXTRACT

Site Location: 1355 55th Street	Boring ID: IB-12	Total Depth: 10.5 ft
Boring Location: West end of Tank #5	Elevation:	Initial GW Depth: -
Purpose:	Logged By: Bob Bogar	Final GW Depth:
Date: July 21, 1993	Blank Casing:	From: To:
Consulting Firm: Century West Engineering	Perforations:	From: To:
Project Number: 20539-001-01	Filter Sand:	From: To:
Drilling Contractor: Kvilhaug Drilling	Bentonite:	From: To:
Drilling Method: Hollow Stem Auger	Grout:	From: To:

Depth		Sample ID	Blow Counts	Profile	Soil Description		Remarks
01 02 03 04 05					0 - 0.5 ft	Concrete	
					0.5 - 5.0 ft	Brown to dark brown CLAY, moist, silty, no hydrocarbon odor or stain.	
06 07 08 09 10	T	IB-12.2			5.0 - 10.5 ft	Grey green CLAY, firm, moist, occas. silty, slight to moderate hydrocarbon odor.	IB-12.1: Grab sample from cuttings from 5 to 10.5 ft.
11	⊥				Total Depth - 10.5 ft No ground water		

CENTURY WEST ENGINEERING CORPORATION

SOIL BORING LOG
CALIFORNIA SYRUP AND EXTRACT

Site Location: 1355 55th Street	Boring ID: IB-13	Total Depth: 11.5 ft
Boring Location: East end of Tank #4	Elevation:	Initial GW Depth: 10.0 ft
Purpose:	Logged By: Bob Bogar	Final GW Depth:
Date: July 21, 1993	Blank Casing:	From: To:
Consulting Firm: Century West Engineering	Perforations:	From: To:
Project Number: 20539-001-01	Filter Sand:	From: To:
Drilling Contractor: Kvilhaug Drilling	Bentonite:	From: To:
Drilling Method: Hollow Stem Auger	Grout:	From: To:

Depth		Sample ID	Blow Counts	Profile	Soil Description		Remarks
01 02 03 04 05					0 - 0.5 ft	Concrete	
					0.5 - 4.0 ft	Grey to dark grey CLAY, moist, no hydrocarbon odor or stain.	
06 07 08 09 10	T ⊥	IB-13.1	9 14 19	▽	4.0 - 10.5 ft	Dark to medium green CLAY, moist, firm, slight hydrocarbon odor.	
11 12	T ⊥	IB-13.2	11 16 22		10.5 - 11.5 ft	Light brown CLAY with some green mottling, strong hydrocarbon odor.	
					Total depth - 11.5 ft Ground water - 10.0 ft		

APPENDIX C

LABORATORY DATA REPORTS AND CHAIN OF CUSTODY RECORDS - SOIL BORING INVESTIGATION

Superior Precision Analytical, Inc.
1555 Burke, Unit I • San Francisco, California 94124 • (415) 647-2081 / fax (415) 821-7123

CENTURY WEST ENGINEERING
Attn: JIM GRIBI

Project 20539-001-01
Reported 07/30/93

TOTAL PETROLEUM HYDROCARBONS

Lab #	Sample Identification	Sampled	Analyzed	Matrix
56838- 1	IB-3.1 AT 11'	07/20/93	07/28/93	Soil
56838- 2	IB-2.1 AT 8'	07/20/93	07/28/93	Soil
56838- 5	IB-11.2 9 1/2'	07/21/93	07/30/93	Soil
56838- 6	IB-1.1 9'	07/20/93	07/28/93	Soil
56838- 7	IB-1.2	07/20/93	07/28/93	Soil
56838- 8	IB-10.1 9'	07/21/93	07/30/93	Soil
56838-13	IB-6.2 9'	07/20/93	07/28/93	Soil
56838-15	IB-12.2 9'	07/21/93	07/28/93	Soil
56838-16	IB-13.1 5 1/2'	07/21/93	07/28/93	Soil
56838-17	IB-13.2 10'	07/21/93	07/28/93	Soil

RESULTS OF ANALYSIS

Laboratory Number:	56838- 1	56838- 2	56838- 5	56838- 6	56838- 7
Gasoline:	ND<1	ND<1	ND<1	1	2
Benzene:	ND<.003	ND<.003	ND<.003	ND<.003	0.004
Toluene:	ND<.003	ND<.003	ND<.003	0.004	0.008
Ethyl Benzene:	ND<.003	ND<.003	ND<.003	ND<.003	0.004
Xylenes:	ND<.009	ND<.009	ND<.009	0.013	0.028
Diesel:	ND<10	ND<10	51	84	32
Motor Oil:	ND<10	ND<10	65	150	50
Oil and Grease:	NA	NA	NA	NA	ND<50
Concentration:	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg

Laboratory Number:	56838- 8	56838-13	56838-15	56838-16	56838-17
Gasoline:	ND<1	16	ND<1	ND<1	ND<1
Benzene:	ND<.003	ND<.003	0.11	ND<.003	ND<.003
Toluene:	0.005	0.021	ND<.003	ND<.003	ND<.003
Ethyl Benzene:	ND<.003	0.24	0.013	ND<.003	ND<.003
Xylenes:	ND<.009	0.15	ND<.009	ND<.009	ND<.009
Diesel:	84	NA	NA	NA	NA
Motor Oil:	110	NA	NA	NA	NA
Oil and Grease:	NA	NA	NA	NA	NA
Concentration:	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg

Superior Precision Analytical, Inc.
1555 Burke, Unit I ▪ San Francisco, California 94124 ▪ (415) 647-2081 / fax (415) 821-7123

CENTURY WEST ENGINEERING
Attn: JIM GRIBI

Project 20539-001-01
Reported 07/30/93

TOTAL PETROLEUM HYDROCARBONS

Lab #	Sample Identification	Sampled	Analyzed	Matrix
56838-18	IB-7.1 9 1/2'	07/21/93	07/29/93	Soil
56838-20	IB-8.2 11'	07/21/93	07/28/93	Soil
56838-21	IB-9.1 6 1/2'	07/21/93	07/28/93	Soil
56838-22	IB-9.2 10'	07/21/93	07/30/93	Soil

RESULTS OF ANALYSIS

Laboratory Number:	56838-18	56838-20	56838-21	56838-22
Gasoline:	ND<1	ND<1	ND<1	ND<1
Benzene:	ND<.003	ND<.003	ND<.003	ND<.003
Toluene:	ND<.003	ND<.003	ND<.003	ND<.003
Ethyl Benzene:	ND<.003	ND<.003	0.030	ND<.003
Xylenes:	ND<.009	ND<.009	0.16	ND<.009
Concentration:	mg/kg	mg/kg	mg/kg	mg/kg

Superior Precision Analytical, Inc.
1555 Burke, Unit I ▪ San Francisco, California 94124 ▪ (415) 647-2081 / fax (415) 821-7123

C E R T I F I C A T E O F A N A L Y S I S

ANALYSIS FOR TOTAL PETROLEUM HYDROCARBONS

QA/QC INFORMATION
SET: 56838

NA = ANALYSIS NOT REQUESTED
ND = ANALYSIS NOT DETECTED ABOVE QUANTITATION LIMIT
mg/kg = parts per million (ppm)

OIL AND GREASE ANALYSIS By Standard Methods Method 5520F:
Minimum Detection Limit in Soil: 50mg/kg

Modified EPA SW-846 Method 8015 for Extractable Hydrocarbons:
Minimum Quantitation Limit for Diesel in Soil: 1mg/kg

EPA SW-846 Method 8015/5030 Total Purgable Petroleum Hydrocarbons:
Minimum Quantitation Limit for Gasoline in Soil: 1mg/kg

EPA SW-846 Method 8020/BTXE
Minimum Quantitation Limit in Soil: 0.003mg/kg

ANALYTE	MS/MSD RECOVERY	RPD	CONTROL LIMIT
Gasoline:	97/99	2%	75-125
Benzene:	108/105	3%	75-125
Toluene:	105/102	3%	75-125
Ethyl Benzene:	105/103	2%	75-125
Xylenes:	103/101	2%	75-125
Oil and Grease:	62/54	14%	50-150
Diesel:	87/89	2%	53-124

Richard Srna, Ph.D.
Cecilia G Joaquin (for)
Laboratory Director

Superior Precision Analytical, Inc.
1555 Burke, Unit I ▪ San Francisco, California 94124 ▪ (415) 647-2081 / fax (415) 821-7123

CENTURY WEST ENGINEERING
Attn: JIM GRIBI

Project 20539-001-01
Reported 30-July-1993

EPA SW-846 METHOD 8240 - VOLATILE ORGANICS

by GAS CHROMATOGRAPHY - MASS SPECTROMETRY

Chronology

Laboratory Number 56844

Identification	Sampled	Received	Extracted	Analyzed	Run #	Lab #
IB-1.2	07/20/93	07/23/93	/ /	07/25/93		1

Superior Precision Analytical, Inc.
1555 Burke, Unit I • San Francisco, California 94124 • (415) 647-2081 / fax (415) 821-7123

CENTURY WEST ENGINEERING
Attn: JIM GRIBI

Project 20539-001-01
Reported 30-July-1993

EPA SW-846 METHOD 8240 - VOLATILE ORGANICS

Laboratory Number	Sample Identification	Matrix
56838- 7	IB-1.2	Soil

RESULTS OF ANALYSIS

Laboratory Number: 56838- 7

Chloromethane:	ND<50
Bromomethane:	ND<50
Vinyl Chloride:	ND<50
Chloroethane:	ND<50
Methylene Chloride:	ND<50
Acetone:	ND<50
Carbon Disulfide:	ND<15
Trichlorofluoromethane:	ND<15
1,1-Dichloroethene:	ND<15
1,1-Dichloroethane:	ND<15
t-1,2-Dichloroethene:	ND<15
Chloroform:	ND<15
1,2-Dichloroethane:	ND<5
2-Butanone:	ND<100
1,1,1-Trichloroethane:	ND<15
Carbon tetrachloride:	ND<15
Vinyl Acetate:	ND<50
Bromodichloromethane:	ND<15
1,2-Dichloropropane:	ND<15
c-1,2-Dichloroethene:	ND<15
c-1,3-Dichloropropene:	ND<15
Trichloroethene:	ND<15
Dibromochloromethane:	ND<15
1,1,2-Trichloroethane:	ND<15
Benzene:	6
t-1,3-Dichloropropene:	ND<15
2-Chloroethyl Vinyl Et:	ND<15
Bromoform:	ND<15
4-Methyl-2-Pentanone:	ND<50
Concentration:	ug/kg

Superior Precision Analytical, Inc.
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EPA SW-846 METHOD 8240 - VOLATILE ORGANICS
Quality Assurance and Control Data - Soil

Laboratory Number 56838

Compound	Method Blank (ug/kg)	PQL (ug/kg)	Average Spike Recovery (%)	Limits (%)	RPD (%)
Chloromethane:	ND<50	50			
Bromomethane:	ND<50	50			
Vinyl Chloride:	ND<50	50			
Chloroethane:	ND<50	50			
Methylene Chloride:	ND<50	50			
Acetone:	ND<50	50			
Carbon Disulfide:	ND<15	15			
Trichlorofluoromethane:	ND<15	15			
1,1-Dichloroethene:	ND<15	15	99%	59-172	1%
1,1-Dichloroethane:	ND<15	15			
t-1,2-Dichloroethene:	ND<15	15			
Chloroform:	ND<15	15			
1,2-Dichloroethane:	ND<5	5			
2-Butanone:	ND<100	100			
1,1,1-Trichloroethane:	ND<15	15			
Carbon tetrachloride:	ND<15	15			
Vinyl Acetate:	ND<50	50			
Bromodichloromethane:	ND<15	15			
1,2-Dichloropropane:	ND<15	15			
c-1,2-Dichloroethene:	ND<15	15			
c-1,3-Dichloropropene:	ND<15	15			
Trichloroethene:	ND<15	15	91%	62-137	2%
Dibromochloromethane:	ND<15	15			
1,1,2-Trichloroethane:	ND<15	15			
Benzene:	ND<5	5	89%	66-142	1%
t-1,3-Dichloropropene:	ND<15	15			
2-Chloroethyl Vinyl Et:	ND<15	15			
Bromoform:	ND<15	15			
4-Methyl-2-Pentanone:	ND<50	50			

Superior Precision Analytical, Inc.
1555 Burke, Unit I ▪ San Francisco, California 94124 ▪ (415) 647-2081 / fax (415) 821-7123

CENTURY WEST ENGINEERING
Attn: JIM GRIBI

Project 20539-001-01
Reported 30-July-1993

EPA SW-846 METHOD 8240 - VOLATILE ORGANICS

Laboratory Number	Sample Identification	Matrix
56838- 7	IB-1.2	Soil

RESULTS OF ANALYSIS

Laboratory Number: 56838- 7

2-Hexanone:	ND<50
Tetrachloroethene:	ND<15
1,1,2,2-Tetracl-ethane:	ND<15
Toluene:	ND<15
Chlorobenzene:	ND<15
Ethyl Benzene:	ND<15
Styrene:	ND<15
Xylenes:	ND<15
1,3-Dichlorobenzene:	ND<15
1,4-Dichlorobenzene:	ND<15
1,2-Dichlorobenzene:	ND<15
1,2-Dichloroethane-d4:	96%
Toluene-d8:	102%
Bromofluorobenzene:	99%

Concentration: ug/kg

Superior Precision Analytical, Inc.
1555 Burke, Unit I ▪ San Francisco, California 94124 ▪ (415) 647-2081 / fax (415) 821-7123

EPA SW-846 METHOD 8240 - VOLATILE ORGANICS
Quality Assurance and Control Data - Soil

Laboratory Number 56838

Compound	Method Blank (ug/kg)	PQL (ug/kg)	Average Spike Recovery (%)	Limits (%)	RPD (%)
2-Hexanone:	ND<50	50			
Tetrachloroethene:	ND<15	15			
1,1,2,2-Tetracl-ethane:	ND<15	15			
Toluene:	ND<15	15	88%	59-139	1%
Chlorobenzene:	ND<15	15	95%	60-133	2%
Ethyl Benzene:	ND<15	15			
Styrene:	ND<15	15			
Xylenes:	ND<15	15			
1,3-Dichlorobenzene:	ND<15	15			
1,4-Dichlorobenzene:	ND<15	15			
1,2-Dichlorobenzene:	ND<15	15			
1,2-Dichloroethane-d4:	97%				
Toluene-d8:	102%				
Bromofluorobenzene:	98%				

Definitions:

ND = Not Detected
PQL = Practical Quantitation Limit

RPD = Relative Percent Difference

QC File No. 56838

Cecilia G. Joaquin
Senior Analyst

Superior Precision Analytical, Inc.
1555 Burke, Unit I ▪ San Francisco, California 94124 ▪ (415) 647-2081 / fax (415) 821-7123

CENTURY WEST ENGINEERING
Attn: JIM GRIBI

Project 20539-001-01
Reported 30-July-1993

Alcohols and Ketones by Modified Method 8015

Chronology

Laboratory Number 56838

Identification	Sampled	Received	Extracted	Analyzed	Run #	Lab #
IB-13.1 5 1/2'	07/21/93	07/23/93		07/29/93		16
IB-13.2 10'	07/21/93	07/23/93		07/29/93		17
IB-7.1 9 1/2'	07/21/93	07/23/93		07/29/93		18
IB-8.2 11'	07/21/93	07/23/93		07/29/93		20
IB-9.1 6 1/2'	07/21/93	07/23/93		07/29/93		21
IB-9.2 10'	07/21/93	07/23/93		07/29/93		22

Superior Precision Analytical, Inc.
1555 Burke, Unit I • San Francisco, California 94124 • (415) 647-2081 / fax (415) 821-7123

CENTURY WEST ENGINEERING
Attn: JIM GRIBI

Project 20539-001-01
Reported 30-July-1993

Alcohols and Ketones by Modified Method 8015

Laboratory Number	Sample Identification	Matrix
56838- 16	IB-13.1 5 1/2'	Soil
56838- 17	IB-13.2 10'	Soil
56838- 18	IB-7.1 9 1/2'	Soil
56838- 20	IB-8.2 11'	Soil

RESULTS OF ANALYSIS

Laboratory Number:	56838-16	56838- 17	56838- 18	56838- 20
Methanol:	ND<5	ND<5	ND<5	ND<5
Ethanol:	ND<2	ND<2	ND<2	ND<2
Acetone:	ND<3	ND<3	ND<3	ND<3
iso-Propanol:	ND<2	ND<2	ND<2	ND<2
Methyl-tert-Butylether:	ND<10	ND<10	ND<10	ND<10
n-Propanol:	ND<2	ND<2	ND<2	ND<2
Methyl-Ethylketone:	ND<2	ND<2	ND<2	ND<2
Tetrahydrofuran:	ND<4	ND<4	ND<4	ND<4
1Methoxy-2Propanol:	ND<3	ND<3	ND<3	ND<3
n-Butanol:	ND<2	ND<2	ND<2	ND<2
2Methoxy-Ethanol:	ND<2	ND<2	ND<2	ND<2
Methyl-iso-Butylketone:	ND<6	ND<6	ND<6	ND<6
Cyclohexanone:	ND<2	ND<2	ND<2	ND<2
3-Octanone:	ND<2	ND<2	ND<2	ND<2
Concentration:	mg/kg	mg/kg	mg/kg	mg/kg

Superior Precision Analytical, Inc.
1555 Burke, Unit I ▪ San Francisco, California 94124 ▪ (415) 647-2081 / fax (415) 821-7123

CENTURY WEST ENGINEERING
Attn: JIM GRIBI

Project 20539-001-01
Reported 30-July-1993

Alcohols and Ketones by Modified Method 8015

Laboratory Number	Sample Identification	Matrix
56838- 21	IB-9.1 6 1/2'	
56838- 22	IB-9.2 10'	

RESULTS OF ANALYSIS

Laboratory Number:	56838-21	56838- 22
Methanol:	ND<5	ND<5
Ethanol:	ND<2	ND<2
Acetone:	ND<3	ND<3
iso-Propanol:	ND<2	ND<2
Methyl-tert-Butylether:	ND<10	ND<10
n-Propanol:	ND<2	ND<2
Methyl-Ethylketone:	ND<2	ND<2
Tetrahydrofuran:	ND<4	ND<4
1Methoxy-2Propanol:	ND<3	ND<3
n-Butanol:	ND<2	ND<2
2Methoxy-Ethanol:	ND<2	ND<2
Methyl-iso-Butylketone:	ND<6	ND<6
Cyclohexanone:	ND<2	ND<2
3-Octanone:	ND<2	ND<2
Concentration:	mg/kg	mg/kg

Superior Precision Analytical, Inc.
1555 Burke, Unit I ▪ San Francisco, California 94124 ▪ (415) 647-2081 / fax (415) 821-7123

Alcohols and Ketones by Modified Method 8015
Quality Assurance and Control Data - Water

Laboratory Number 56838

Compound	Method Blank (mg/kg)	PQL (mg/kg)	Average Spike Recovery (%)	Limits (%)	RPD (%)
Methanol:	ND<5	5			
Ethanol:	ND<2	2	105%	60-120	0%
Acetone:	ND<3	3			
Iso-Propanol:	ND<2	2			
Methyl-tert-Butylether:	ND<10	10	98%	60-120	4%
n-Propanol:	ND<2	2			
Methyl-Ethylketone:	ND<2	2			
Tetrahydrofuran:	ND<4	4			
1Methoxy-2Propanol:	ND<3	3			
n-Butanol:	ND<2	2			
Methoxy-Ethanol:	ND<2	2			
Methyl-iso-Butylketone:	ND<6	6	99%	60-120	1%
Cyclohexanone:	ND<2	2			
n-Octanone:	ND<2	2			

Definitions:

ND = Not Detected
PQL = Practical Quantitation Limit

RPD = Relative Percent Difference

SPC File No. 56838

Cecilia G Joaquin
Senior Analyst

Superior Precision Analytical, Inc.
1555 Burke, Unit I ▪ San Francisco, California 94124 ▪ (415) 647-2081 / fax (415) 821-7123

C E R T I F I C A T E O F A N A L Y S I S

LABORATORY NO.: 56838
CLIENT: CENTURY WEST ENGINEERING
CLIENT PROJECT NO.: 20539-001-01

DATE RECEIVED: 07/23/93
DATE REPORTED: 07/30/93

Following is a list of Cross referenced Lab Numbers and Sample I.D.'s for referring to the following reports.

Superior Lab Number	Subbed Lab Number	Customer Sample Identification
56838-10	9307227-01A	IB-4.1 11'
56838-11	9307227-02A	IB-5.1 11'

Subbed to: CLAYTON ENVIRONMENTAL

Western Operations

1252 Quarry Lane
P.O. Box 9019
Pleasanton, CA 94566
(510) 426-2600
Fax (510) 426-0106

Clayton
ENVIRONMENTAL
CONSULTANTS

July 29, 1993

Mr. Mike Heath
SUPERIOR ANALYTICAL LABORATORY
1555 Burke Street, Unit 1
San Francisco, CA 94124

Client Ref.: 56838
Clayton Project No.: 93072.27

Dear Mr. Heath:

Attached is our analytical laboratory report for the samples received on July 27, 1993. A copy of the Chain-of-Custody form acknowledging receipt of these samples is attached.

Please note that any unused portion of the samples will be disposed of after August 28, 1993, unless you have requested otherwise.

We appreciate the opportunity to be of assistance to you. If you have any questions, please contact Suzanne Silvera, Client Services Supervisor, at (510) 426-2657.

Sincerely,

Ronald H. Peters, CIH
Director, Laboratory Services
Western Operations

RHP/tjb
Attachments

Results of Analysis
for
Superior Analytical Laboratory

Client Reference: 56838
Clayton Project No. 93072.27

Sample Matrix/Media: SOIL
Analysis Method: EPA 350.3 (Modified)
Date Received: 07/27/93
Date Analyzed: 07/27/93

Lab Number	Sample Identification	Date Sampled	Ammonia-N (mg/kg)	Detection Limit (mg/kg)
01A	56838-10	07/20/93	6.8	0.5
02A	56838-11	07/20/93	230	0.5
03A	METHOD BLANK	--	<0.5	0.5

ND Not detected at or above limit of detection
< Not detected at or above limit of detection
-- Information not available or not applicable

Results are reported on a wet weight basis, as received

Quality Assurance Results Summary
for
Clayton Project No. 93072.27

Clayton Lab Number: 9307214-03A
Ext./Prep. Method:
Date: / /
Analyst:
Std. Source: ORION WU1
Sample Matrix/Media: SOIL

Analytical Method: EPA350.3
Instrument ID: 03892
Date: 07/27/93
Time: 13:00
Analyst: HYW
Units: MG/KG

Analyte	Sample Result	Spike Level	Matrix Spike Result	MS Recovery (%)	Matrix Spike Duplicate Result	MSD Recovery (%)	Average Recovery (% R)	LCL (% R)	UCL (% R)	RPD (%)	UCL (%RPD)
AMMONIA-NITROGEN	1,940	2,000	3,970	102	4,020	104	103	56	132	1.2	25

LCS = Laboratory Control Sample
ND = Not detected at or above limit of detection
LCL = Lower Control Limit
UCL = Upper Control Limit
SOR = Spike out of range due to high sample concentration.

Superior Precision Analytical, Inc.
825 Arnold Drive, Suite 114 ▪ Martinez, California 94553 ▪ (510) 229-1512 / fax (510) 229-1526

C E R T I F I C A T E O F A N A L Y S I S

LABORATORY NO.: 89360
CLIENT: CENTURY WEST ENGINEERING
CLIENT JOB NO.: 20539-001-01

DATE RECEIVED: 07/23/93
DATE REPORTED: 07/28/93
DATE SAMPLED: 07/21/93

ANALYSIS FOR TOTAL LEAD
by SW-846 Method 6010

LAB #	Sample Identification	Concentration (mg/Kg) Total Lead
1	1B-6.2 9'	6
2	1B-12.2 9'	6

mg/kg - parts per million (ppm)

Method Detection Limit for Lead in Soil: 5 mg/Kg

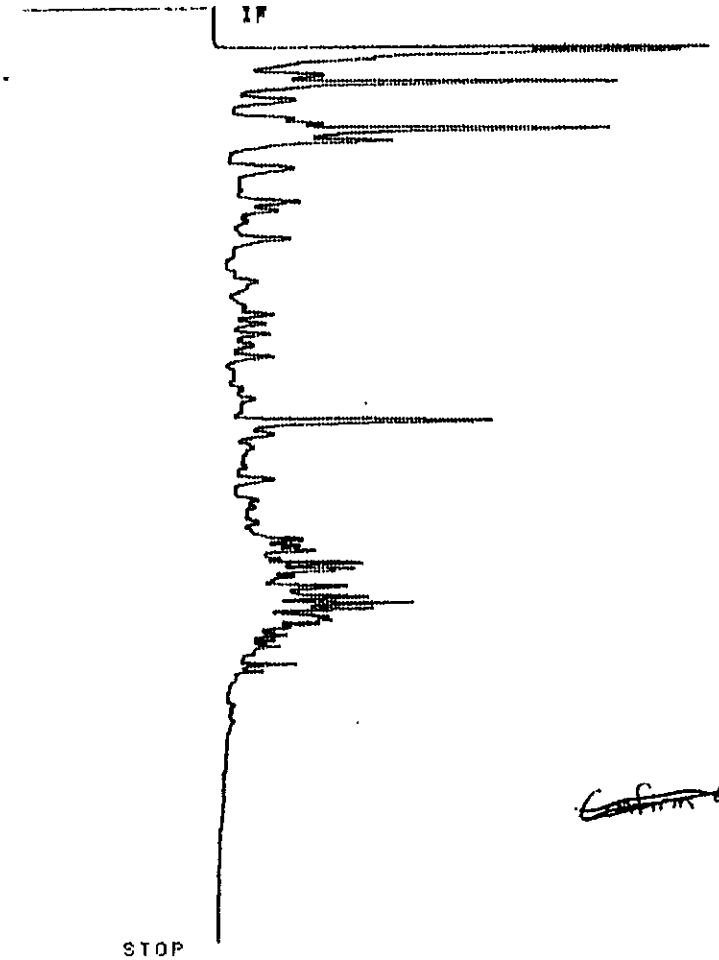
QAQC Summary: MS/MSD Spike Recovery : 98/92%
Duplicate RPD : 6%

Richard Srna, Ph.D.

Afsaneh. Salimpour for
Laboratory Manager

START PENDING
RUN # 32 JUL 29, 1993 03:12:28
START

IB-12.2 (9')

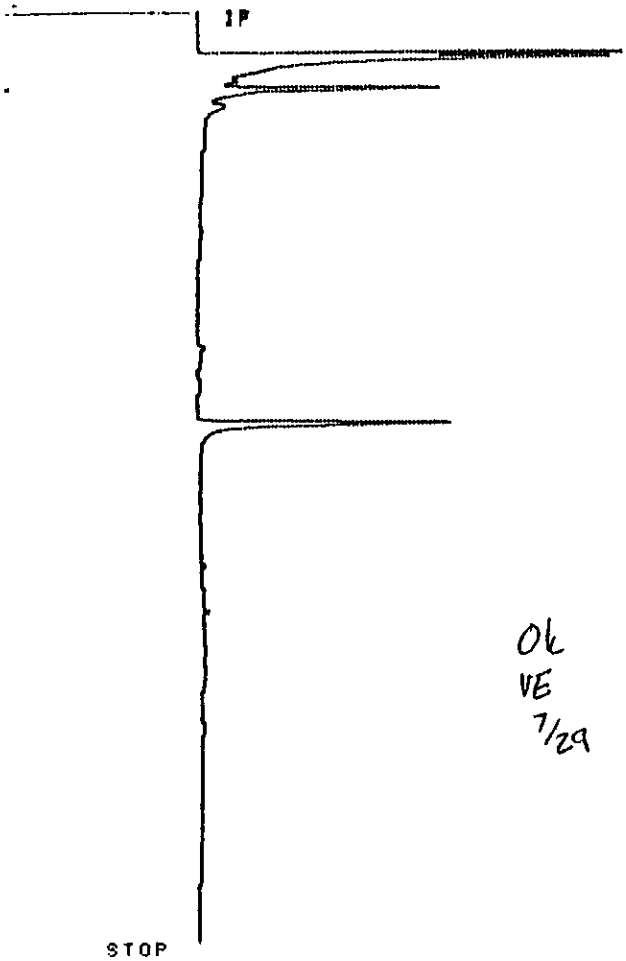


~~Confirm E~~

ND < 1 ppm
OK
AW
7/30/93

Closing signal file H:Q6D9981D.BHC
RUNNUM: 32 ALS POSITION: 19
SAMPLE: 56838-15
SAMPLE AMOUNT: 0.674 ML or G
AREA: 217561.
UG TOTAL: 0.638028
CONCENTRATION: 0.946628 MG/L or MG/KG

START PENDING
RUN # 34 JUL 29, 1993 04:11:58
START



IB-13.2 (10^{-1})

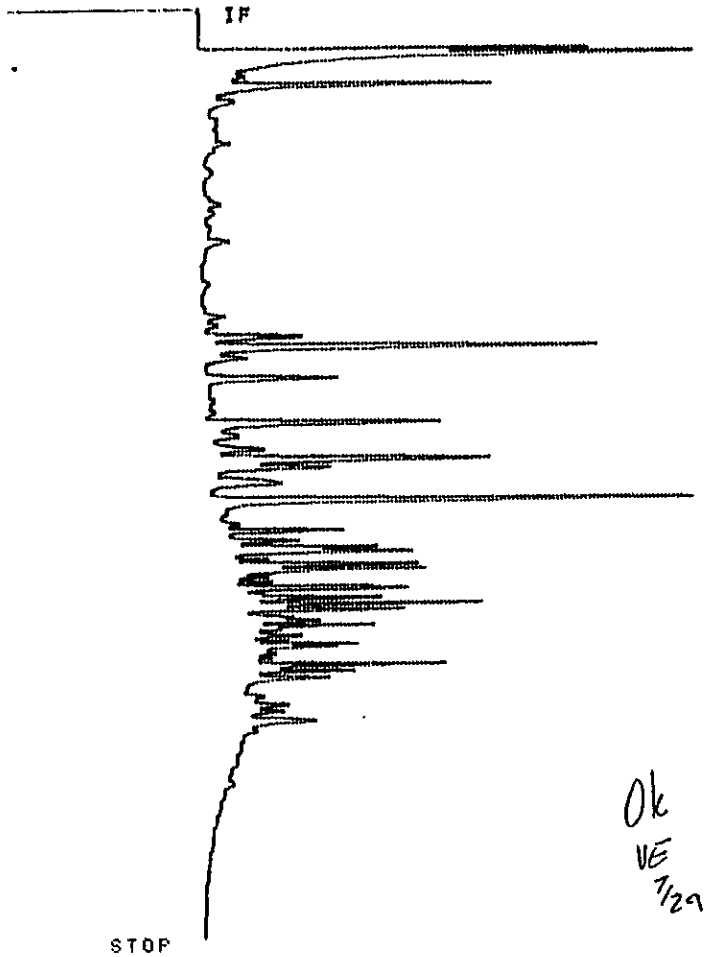
OK
VE
7/29

ND < 1 mg/kg

Closing signal file H:Q6D9A60F.BNC
RUNNUM: 34 ALS POSITION: 21
SAMPLE: 56838-17
SAMPLE AMOUNT: 0.712 ML or G
AREA: 29271.
UG TOTAL: 0.0857744
CONCENTRATION: 0.12047 MG/L or MG/KG

START PENDING
RUN # 37 JUL 29, 1993 05:41:08
START

IB-9.1 (6.5')



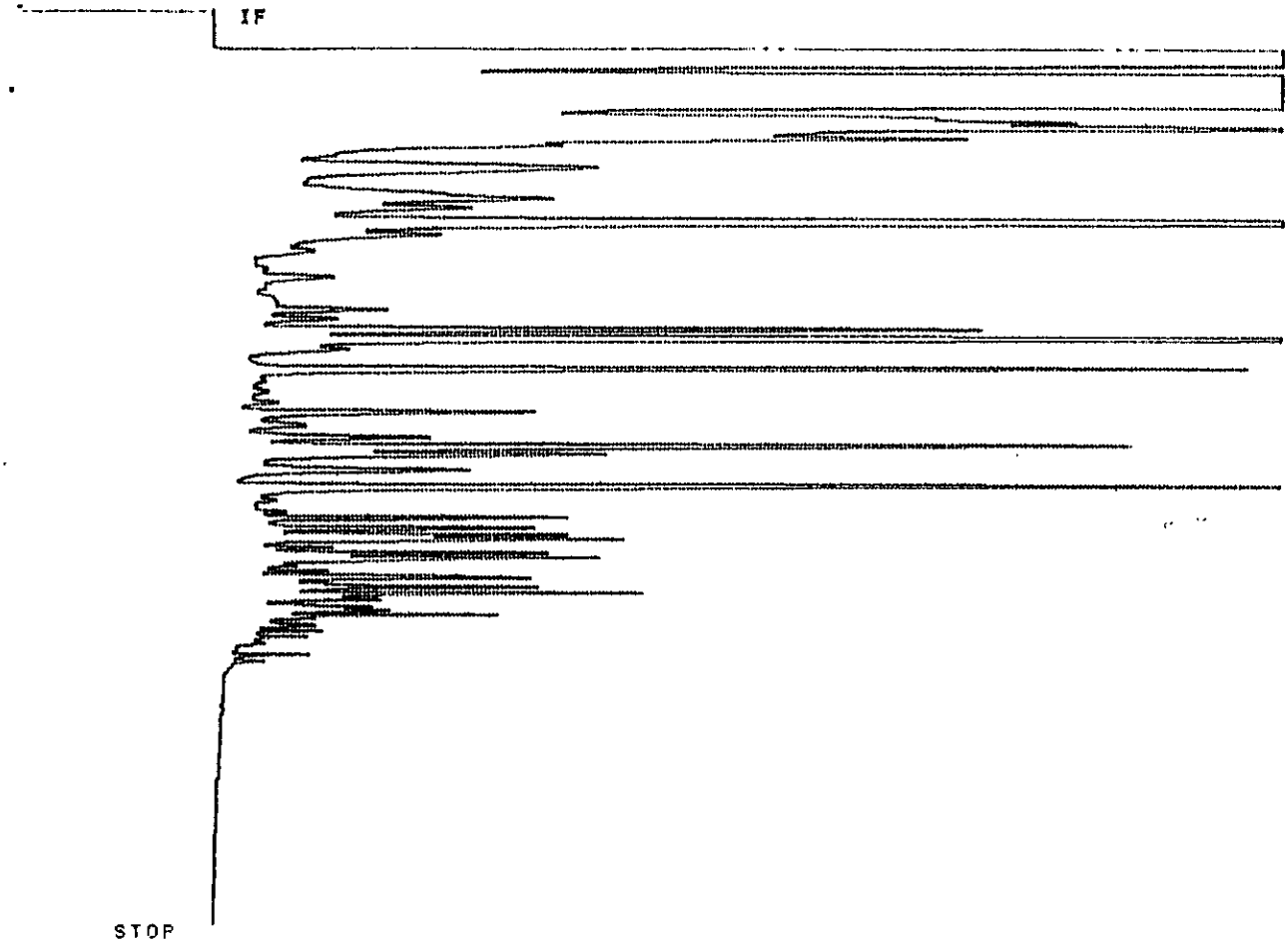
Ok
VE
1/29

ND < 1 mg/kg

Closing signal file H:Q609BAF4.BNC
RUNNUM: 37 ALS POSITION: 24
SAMPLE: 56838-21
SAMPLE AMOUNT: 0.792 ML or G
AREA: 176077.
UG TOTAL: 0.516282
CONCENTRATION: 0.651871 MG/L or MG/KG

START PENDING

RUN # 114 AUG 2, 1993 08:26:05
START



Closing signal file H:Q6DF279E.BNC
RUNNUM: 114 ALS POSITION: 1
SAMPLE: GAS STD
SAMPLE AMOUNT: 5 ML or G
AREA: 2132245.
UG TOTAL: 6.30256
CONCENTRATION: 1.26051 MG/L or MG/KG

GASOLINE STANDARD

NET NATIONAL ENVIRONMENTAL TESTING, INC.

5683B

MOBILE LAB DIVISION, 1072 SERPENTINE LANE, SUITE D, PLEASANTON, CA 94566
(510) 462-4004 PHONE (510) 462-4357 FAX

CHAIN OF CUSTODY RECORD

COMPANY CENTURY WEST ENGINEERING
ADDRESS 7950 DUBLIN BLVD 94568
PHONE (510) 551-7774 FAX (510) 551-7776
PROJECT NAME/LOCATION CSE / EMERYVILLE, CA.
PROJECT NUMBER 20539-001-01
PROJECT MANAGER JIM GRIBI

SAMPLED BY
BOB BOGAR (PRINT NAME) Bob Bog SIGNATURE
(PRINT NAME) SIGNATURE

ANALYSES

TURNAROUND TIME 5 DAY (S)

	DATE	TIME	SAMPLE ID/DESCRIPTION	GRAB	COMP	# OF CONTAINERS	MATRIX	PRESERVED Y/N	TPH-G/BTXE	TPH-D/MO	TOG (Non Polar)	BTXE	TOTAL AMMONIA	Total Lead	Hold	COMMENTS
1	7/20		IB-3.1 at 11'			1	SOIL	ICE	X	X						
2	7/20		IB-2.1 8'			1	"	"	X	X						
3	7/20		IB-2.2 4'			1	"	"							X	
4	7/21		IB-11.1	X		1	"	"							X	
5	7/21		IB-11.2 9½'			1	"	"	X	X						
6	7/20		IB-1.1 9'			1	"	"	X	X						
7	7/20		IB-1.2	X		1	"	"	X	X	X	X				
8	7/21		IB-10.1 9'			1	"	"	X	X						
9	7/21		IB-10.2	X		1	"	"							X	
10	7/20		IB-4.1 11'			1	"	"					X			
11	7/20		IB-5.1 11'			1	"	"					X			
12	7/20		IB-6.1	X		1	"	"							X	
13	7/20		IB-6.2 9'			1	"	"	X					X		
14	7/21		IB-12.1	X		1	"	"							X	
15	7/21		IB-12.2 9'			1	"	"	X					X		

RESULTS TO:

INVOICE TO:

RELINQUISHED BY:	DATE/TIME	RECEIVED BY:	RELINQUISHED BY:	DATE/TIME	RECEIVED BY:
Bob Bog	7/23 8:15 PM	Suman 7/23 12:05			
RELINQUISHED BY	DATE/TIME	RECEIVED BY:	RELINQUISHED BY:	DATE/TIME	RECEIVED FOR LABORATORY BY:

METHOD OF SHIPMENT

REMARKS:

NET NATIONAL ENVIRONMENTAL TESTING, INC.

56838

CHAIN OF CUSTODY RECORD

MOBILE LAB DIVISION, 1072 SERPENTINE LANE, SUITE D, PLEASANTON, CA 94566
(510) 462-4004 PHONE (510) 462-4357 FAX

COMPANY: CENTURY WEST ENGINEERING
ADDRESS: 7900 Dublin Blvd 94568
PHONE: (510) 551-7774 FAX: (510) 551-7776
PROJECT NAME/LOCATION: CSE / EMERYVILLE
PROJECT NUMBER: 20539-001-01
PROJECT MANAGER: JIM GRIBI

SAMPLED BY: Bob Bogar (PRINT NAME) — SIGNATURE: Bob Bog
(PRINT NAME) — SIGNATURE

TURNAROUND TIME: 5 DAY (S)

DATE	TIME	SAMPLE ID/DESCRIPTION	GRAB	COMP	# OF CONTAINERS	MATRIX	PRESERVED Y/N	TPH-G/BTXE	TPH ALCOHOLS	HOLD	COMMENTS
		IB-13.1 5 1/2'			1	SOIL	ICE	X	X		
		IB-13.2 10'			1	"	"	X	X		
		IB-7.1 9 1/2'			1	"	"	X	X		
		IB-8.1 6'			1	"	"			X	
		IB-8.2 11'			1	"	"	X	X		
		IB-9.1 6 1/2'			1	"	"	X	X		
		IB-9.2 10'			1	"	"	X	X		

Please initial: NH
Samples Stored in ice. ✓
Appropriate containers. ✓
Samples preserved. ✓
VOA's without headspace. ✓
Comments:

RESULTS TO:

INVOICE TO:

RELINQUISHED BY:	DATE/TIME	RECEIVED BY:	RELINQUISHED BY:	DATE/TIME	RECEIVED BY:
Bob Bog	7/23 8:15 AM	Suman 12:05 7/23			

RELINQUISHED BY:	DATE/TIME	RECEIVED BY:	RELINQUISHED BY:	DATE/TIME	RECEIVED FOR LABORATORY BY

METHOD OF SHIPMENT

REMARKS:

PT 1 - ORIGINAL - WHITE PT 2 - NET PROJECT MANAGER - YELLOW PT 3 - CUSTOMER COPY - PINK

Superior Precision Analytical, Inc.
1555 Burke, Unit I ▪ San Francisco, California 94124 ▪ (415) 647-2081 / fax (415) 821-7123

C E R T I F I C A T E O F A N A L Y S I S

LABORATORY NO.: 56884-1
CLIENT: CENTURY WEST ENGINEERING
CLIENT PROJECT NO.: 20539-001-01

DATE RECEIVED: 08/03/93
DATE REPORTED: 08/06/93

Following is a list of Cross referenced Lab Numbers and Sample I.D.'s for referring to the following reports.

Superior Lab Number	Subbed Lab Number	Customer Sample Identification
56884-1	9308043.01A	1B-6.2 9'

Subbed to: CLAYTON ENVIRONMENTAL CONSULTANTS

Western Operations

1252 Quarry Lane
P.O. Box 9019
Pleasanton, CA 94566
(510) 426-2600
Fax (510) 426-0106

Clayton
ENVIRONMENTAL
CONSULTANTS

August 5, 1993

Ms. Suman Sharma
SUPERIOR ANALYTICAL LABORATORY
1555 Burke Street, Unit 1
San Francisco, CA 94124

Client Ref.: 56884
Clayton Project No.: 93080.43

Dear Ms. Sharma:

Attached is our analytical laboratory report for the samples received on August 4, 1993. A copy of the Chain-of-Custody form acknowledging receipt of these samples is attached.

Please note that any unused portion of the samples will be disposed of after September 4, 1993, unless you have requested otherwise.

We appreciate the opportunity to be of assistance to you. If you have any questions, please contact Suzanne Silvera, Client Services Supervisor, at (510) 426-2657.

Sincerely,

Ronald H. Peters, CIH
Director, Laboratory Services
Western Operations

RHP/caa
Attachments

Results of Analysis
for
Superior Analytical Laboratory

Client Reference: 56884
Clayton Project No. 93080.43

Sample Matrix/Media: SOIL
Analysis Method: EPA 350.3 (Modified)

Date Received: 08/04/93
Date Analyzed: 08/04/93

Lab Number	Sample Identification	Date Sampled	Ammonia-N (mg/kg)	Detection Limit (mg/kg)
01A	56884-1	07/20/93	<0.5	0.5
02A	METHOD BLANK	--	<0.5	0.5

ND Not detected at or above limit of detection
< Not detected at or above limit of detection
-- Information not available or not applicable

Quality Assurance Results Summary
for
Clayton Project No. 93080.43

Clayton Lab Number:	9308043-01A	Analytical Method:	EPA350.3
Ext./Prep. Method:	EPA350.3	Instrument ID:	03892
Date:	08/04/93	Date:	08/04/93
Analyst:	HYW	Time:	16:30
Std. Source:	ORION WU1	Analyst:	HYW
Sample Matrix/Media:	SOIL	Units:	MG/KG

Analyte	Sample Result	Spike Level	Matrix Spike Result	MS Recovery (%)	Matrix Spike Duplicate Result	MSD Recovery (%)	Average Recovery (% R)	LCL (% R)	UCL (% R)	RPD (%)	UCL (%RPD)
AMMONIA-NITROGEN	ND	10.0	9.64	96	9.87	99	98	56	132	2.4	25

LCS = Laboratory Control Sample
ND = Not detected at or above limit of detection
LCL = Lower Control Limit
UCL = Upper Control Limit
SOR = Spike out of range due to high sample concentration.

9308043

Chain of Custody and Analysis Request

Section I

page 1 of 1

From: Superior Precision Analytical, Inc.
1555 Burke St. Unit I
San Francisco, CA 92124
Phone No. (415) 647-2081 Fax No. (415) 821-7123
Contact: Suman Sharma
P.O. No. 56884

Turn Around Time (circle one)
Same Day 72 Hrs
24 Hrs 5 Day
48 Hrs 10 Day

Superior Precision Analytical, Inc.
P.O. Box 1545
Martinez, California 94553

Work Subcontracted to: Clayton

Section II: Analysis Request

Laboratory Sample Identification	S = Soil A = Air W = Water Matrix	CAM17	Metals:	418.1	8270	8080 (pest. and PCB's)	Benzene				Client Sample Identification	Number of Containers	Preservative (yes or no)			Sampling Remarks
1 56884-1							✓				1-B-6-2-91					☐ Chevron ☒ Non-Chevron **Please Fax Results**
2																
3																
4																
5																
6																
7																
8																
9																
10																
11																
12																

Relinquished by Suman	Date/Time 8/4 8a.m	Received by Jerry Kalo	Date/Time 8/4/93 11:20a	Lab please initial the following:
Organization Superior		Organization C.E.C.		Samples Stored in Ice OK
Relinquished by	Date/Time	Received by	Date/Time	Appropriate Containers ✓
Organization		Organization		Samples Preserved N/A
Relinquished by	Date/Time	Received by	Date/Time	VOAs without Headspace ✓
Organization		Organization		Comments Rec'd 250mL 8T

Superior Precision Analytical, Inc.
1555 Burke, Unit I ▪ San Francisco, California 94124 ▪ (415) 647-2081 / fax (415) 821-7123

CENTURY WEST ENGINEERING
Attn: JIM GRIBI

Project 20539-001-01
Reported 08/04/93

TOTAL PETROLEUM HYDROCARBONS

Lab #	Sample Identification	Sampled	Analyzed	Matrix
2	1B-12.2 9'	07/21/93	08/03/93	Soil
3	IB-9.1 6.5'	07/21/93	08/03/93	Soil

RESULTS OF ANALYSIS

Laboratory Number:	56884- 2	56884- 3
Diesel:	ND<10	ND<10
Motor Oil:	ND<10	ND<10
Concentration:	mg/kg	mg/kg

Superior Precision Analytical, Inc.
1555 Burke, Unit I ▪ San Francisco, California 94124 ▪ (415) 647-2081 / fax (415) 821-7123

C E R T I F I C A T E O F A N A L Y S I S

ANALYSIS FOR TOTAL PETROLEUM HYDROCARBONS

QA/QC INFORMATION
SET: 56884

NA = ANALYSIS NOT REQUESTED
ND = ANALYSIS NOT DETECTED ABOVE QUANTITATION LIMIT
mg/kg = parts per million (ppm)

OIL AND GREASE ANALYSIS By Standard Methods Method 5520F:
Minimum Detection Limit in Soil: 50mg/kg

Modified EPA SW-846 Method 8015 for Extractable Hydrocarbons:
Minimum Quantitation Limit for Diesel in Soil: 10mg/kg

EPA SW-846 Method 8015/5030 Total Purgable Petroleum Hydrocarbons:
Minimum Quantitation Limit for Gasoline in Soil: 1mg/kg

EPA SW-846 Method 8020/BTXE
Minimum Quantitation Limit in Soil: 0.003mg/kg

ANALYTE	MS/MSD RECOVERY	RPD	CONTROL LIMIT
Diesel	75/85	13%	53-124

Richard Srna, Ph.D.
Laboratory Director

CENTURY WEST ENGINEERING

7950 Dublin Boulevard Suite 203
Dublin, California 94568
Phone: (510) 551-7774
Fax: (510) 551-7776

Engineers and Scientists

FACSIMILE TRANSMITTAL

Date: 8/3/93 File No.: 415/821-11.3

To: Cecilia Jacquid
Supervisor

From: Jim Gribi

FAX (510) 551-7776

Number of Pages (including this transmittal): 1

Comments:

Cecilia,

Pursuant to our phone conversation, please conduct the following additional analyses:

SAMPLE ID	ANALYSIS	TAT
1B-6.2	AMMONIA	5-Day
1B-9.1	TPH-D/MO	24-hr
1B-12.2	TPH-D/MO	24-hr

Thanks!

Jim

NATIONAL ENVIRONMENTAL TESTING, INC.

MOBILE LAB DIVISION, 1072 SERPENTINE LANE, SUITE D, PLEASANTON, CA 94566
(510) 462-4004 PHONE (510) 462-4357 FAX

CHAIN OF CUSTODY RECORD

COMPANY CENTURY WEST ENGINEERING
ADDRESS 7950 DUBLIN BLVD 94568
PHONE (510) 551-7774 FAX (510) 551-7776
PROJECT NAME/LOCATION CSE / EMERYVILLE, CA.
PROJECT NUMBER 2053S-001-01
PROJECT MANAGER JIM GRIBI

SAMPLED BY BOB BOGAK (PRINT NAME) — SIGNATURE
(PRINT NAME) — SIGNATURE

ANALYSES

TURNAROUND TIME 5 DAY (S)

	DATE	TIME	SAMPLE ID/DESCRIPTION	GRAB	COMP	# OF CONTAINERS	MATRIX	PRESERVED Y/N	TPH-G/BTXE	TPH-D/MO	TOG (Non Polar)	8240	TOTAL AMMONIA	Total Lead	HOLD	COMMENTS
1	7/20		IB-3.1 @ 11'			1	SOIL	ICE	X	X						
2	7/20		IB-3.1 8'			1	"	"	X	X						
3	7/20		IB-2.2 4'			1	"	"						X		
4	7/21		IB-11.1	X		1	"	"						X		
5	7/21		IB-11.2 9½'			1	"	"	X	X						
6	7/20		IB-1.1 9'			1	"	"	X	X						
7	7/20		IB-1.2	X		1	"	"	X	X	X	X				
8	7/21		IB-10.1 9'			1	"	"	X	X						
9	7/21		IB-10.2	X		1	"	"						X		
10	7/20		IB-4.1 11'			1	"	"				X				
11	7/20		IB-5.1 11'			1	"	"				X				
12	7/20		IB-6.1	X		1	"	"						X		
13	7/20		IB-6.2 9'			1	"	"	X				X			
14	7/21		IB-12.1	X		1	"	"						X		
15	7/21		IB-12.2 9'			1	"	"	X				X			

RESULTS TO:

INVOICE TO:

RELINQUISHED BY:	DATE/TIME	RECEIVED BY:	RELINQUISHED BY:	DATE/TIME	RECEIVED BY:
Bob Bog	7/23 8:18 PM	Sum Nw 7/23 12:05			
RELINQUISHED BY:	DATE/TIME	RECEIVED BY:	RELINQUISHED BY:	DATE/TIME	RECEIVED FOR LABORATORY BY:

METHOD OF SHIPMENT

REMARKS:

PT 1 - ORIGINAL - WHITE PT 2 - NET PROJECT MANAGER - YELLOW PT 3 - CUSTOMER COPY - PINK

NATIONAL ENVIRONMENTAL TESTING, INC.

56 & 58

MOBILE LAB DIVISION, 1072 SERPENTINE LANE, SUITE D, PLEASANTON, CA 94566
(510) 462-4004 PHONE (510) 462-4357 FAX

CHAIN OF CUSTODY RECORD

COMPANY Century West Engineering
ADDRESS 7950 Dublin Blvd 94568
PHONE (510) 551-7774 FAX (510) 551-7776
PROJECT NAME/LOCATION CSE / Emeryville
PROJECT NUMBER 20539-001-01
PROJECT MANAGER Jim Gribi

SAMPLED BY Bob Bogar (PRINT NAME) Bob Bogar (SIGNATURE)
(PRINT NAME) (SIGNATURE)

TURNAROUND TIME: 5 DAY (S)

DATE	TIME	SAMPLE ID/DESCRIPTION	GRAB	COMP	# OF CONTAINERS	MATRIX	PRESERVED Y/N	TPH-G/BTXE	TPH ALCOHOL	HOLD	COMMENTS
7/21		IB-13.1 5½'			1	SOIL	ICE	X	X		
		IB-13.2 10'			1	"	"	X	X		
7/19		IB-7.1 9½'			1	"	"	X	X		
		IB-8.1 6'			1	"	"			X	
		IB-8.2 11'			1	"	"	X	X		
		IB-9.1 6½'			1	"	"	X	X		
7/20		IB-9.2 10'			1	"	"	X	X		

Please initial:
Sample in ice. NH
Sample containers.
Appropriate containers.
Samples preserved.
Sufficient sample.
Comments:

RESULTS TO:

INVOICE TO:

RELINQUISHED BY:	DATE/TIME	RECEIVED BY:	RELINQUISHED BY:	DATE/TIME	RECEIVED BY:
Bob Bogar	7/23 8:15 AM	Summ 7/23 12:05			
RELINQUISHED BY:	DATE/TIME	RECEIVED BY:	RELINQUISHED BY:	DATE/TIME	RECEIVED FOR LABORATORY BY:

METHOD OF SHIPMENT

REMARKS:

PT 1 - ORIGINAL - WHITE PT 2 - NET PROJECT MANAGER - YELLOW PT 3 - CUSTOMER COPY - PINK