Environmental
Science &
Engineering, Inc.
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TO: Alameda County
Health Care Services Agency
Department of Environmental Health
80 Swan Way, Room 200
Oakland, CA 94621

DATE: April 1, 1993

ATTN: Ms. Juliet Shin

JOB NUMBER: 6-92-5005

SUBJECT: Former Bill Chun Texaco Service
2301 Santa Clara Avenue, Alameda, Alameda County, California

WE ARE TRANSMITTING THE FOLLOWING:

Report on Preliminary Site Assessment (March 31, 1993).

CC: Mr. Wayne Chun

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ORIGINATOR

ENVIRONMENTAL SCIENCE & ENGINEERING, INC.

BY Michael E. Quillin

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REPORT ON
PRELIMINARY SITE ASSESSMENT
AT THE
FORMER BILL CHUN TEXACO SERVICE
2301 SANTA CLARA AVENUE
ALAMEDA, ALAMEDA COUNTY, CALIFORNIA

PREPARED FOR

MR. WAYNE CHUN
265 HERON DRIVE
PITTSBURG, CALIFORNIA 94565

PREPARED BY

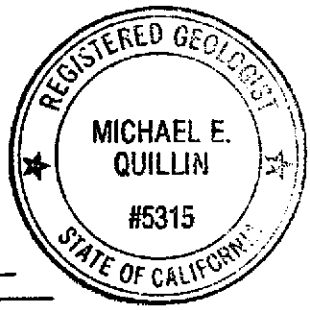
ENVIRONMENTAL SCIENCE & ENGINEERING, INC.
4090 NELSON AVENUE, SUITE J
CONCORD, CALIFORNIA 94520

MARCH 31, 1993

PROJECT NO. 6-92-5005

This report has been prepared by Environmental Science & Engineering, Inc. for the exclusive use of Mr. Wayne Chun as it pertains to his site located at 2301 Santa Clara Avenue, Alameda, Alameda County, California. Our professional services have been performed using that degree of care and skill ordinarily exercised under similar circumstances by other geologists and engineers practicing in this field. No other warranty, express or implied, is made as to professional advice in this report.

REPORT PREPARED BY:



Michael E. Quillin
Senior Hydrogeologist
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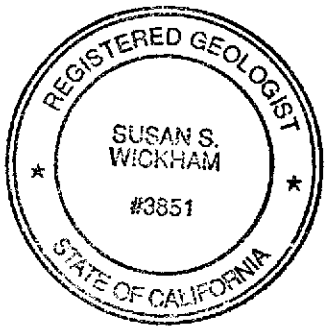
MARCH 31, 1993
DATE

UNDER THE PROFESSIONAL SUPERVISION AND REVIEW OF:

Susan S. Wickham
Senior Geologist
California Registered Geologist No. 3851

March 31, 1993
DATE



PROJECT NO. 6-92-5005

TABLE OF CONTENTS

TABLE OF CONTENTS (Cont.)

FIGURES

TABLES

APPENDICES

1.0 INTRODUCTION

This report was prepared by Environmental Science & Engineering, Inc. (ESE), and presents the findings of a Preliminary Site Assessment (PSA) at the former Bill Chun Texaco Service at 2301 Santa Clara Avenue, Alameda, Alameda County, California (Figure 1 - Location Map). The work described herein was performed by ESE during December 1992 and January 1993, and was conducted in response to an October 2, 1992 request for PSA made by the Alameda County Health Care Services Agency - Department of Environmental Health (Alameda County).

1.1 Objectives and Scope

The objectives of this PSA were as follows:

- To determine if soil and/or ground water lateral to a former underground fuel storage tank (UST) complex have been impacted by fuel,
- To estimate the orientation and magnitude of ground water flow beneath the site, and
- To chemically profile for appropriate disposal approximately 50 cubic yards (cy) of soil stockpiled at the time the former UST complex was excavated and removed.

To accomplish these objectives, ESE conducted the following activities:

- Collected representative samples of previously stockpiled soil, and had them analyzed for profiling and disposal coordination,
- Drilled three soil borings into first ground water and had selected soil samples analyzed for fuel content and related constituents,
- Installed a 2-inch diameter ground water monitoring well in each of the borings and surveyed elevations of the wells relative to mean sea level (MSL),
- Measured static ground water levels in each well and converted them to feet above MSL, and
- Collected ground water samples from the wells and had them analyzed for fuel content and related constituents.

1.2 Site Background

The subject site is located on the northeast corner of Santa Clara Avenue and Oak Street in Alameda, California (Figure 2 - Site Map). The site currently consists of a kiosk with associated canopy and an excavation in the area of the former UST complex.

Investigation at the site was initiated on July 31, 1992 when three steel gasoline tanks (two 550-gallon and one 285-gallon) and the associated fuel lines and dispensers were removed from the site (Parker Environmental Services, 1992). Parker Environmental Services reported that the 285-gallon tank was observed to have a two-inch diameter hole at its base.

During the July 1992 investigation, one soil sample was collected from beneath each tank and from beneath the former fuel island, and two soil samples were collected from the stockpile resulting from tank excavation (Figure 2). Analytical results for soil samples reported concentrations of Total Petroleum Hydrocarbons as Gasoline (TPH-G) ranging from 2.1 to 16,000 milligrams per Kilogram (mg/Kg) or parts per million (ppm). Concentrations of Benzene, Toluene, Ethylbenzene, and Total Xylenes (BTEX) were shown to range from 0.011 to 1,400 ppm. The soil stockpile contained an estimated 50 cubic yards of soil was present at the site when this PSA was initiated.

1.3 Site Physiography and Geology

The site is situated at an approximate elevation of 30 feet above MSL (USGS, 1980). The site and surrounding area are underlain by unconsolidated Pleistocene sediments that are known as the Merritt Sand (Helley and LaJoie, 1979). The unit is composed primarily of loose, well sorted, fine to medium grained sand particles derived from sediments of the Diablo Range to the east. Deposition was mainly fluvial, and occurred during a period of generally lower sea levels than noted at present. The occurrence of first ground water in the area is generally from 10 to 15 feet below ground surface (BGS).

2.0 INVESTIGATION METHODOLOGY

2.1 Soil Investigation

2.1.1 Previously Stockpiled Soil

On December 10, 1992, ESE collected representative soil samples from the soil stockpile resulting from excavation and removal of the former UST complex. The locations of these samples are shown in Figure 2. ESE used a hand auger to collect fresh, undisturbed soil samples from approximately two feet below the surface of the stockpile. ESE's methodology for collecting the samples was consistent with ESE Standard Operating Procedure (SOP) No. 4 for Soil Sampling with Hand Augers in Unconsolidated Formations (See Appendix A - ESE Standard Operating Procedures).

Soil samples were transferred under appropriate chain of custody documentation to Coast-to-Coast Analytical Services (CCAS) of Benecia, California. To profile the soil for disposal purposes, ESE requested CCAS to composite the soil samples and analyze the composite sample for the following:

- Reactivity, Corrosivity, and Ignitability (RCI) using ASTM Method D5409/D4978, EPA Method 9045, and EPA Method 1020, respectively; and
- Fuel Fingerprint Analysis using EPA Method 5030 extraction and EPA Method 8260 cryogenic focusing.

2.1.2 Soil Borings

On January 4 and 5, 1993, ESE supervised the drilling of three soil borings at locations shown in Figure 2. Soils Exploration Services, Inc. (SES), a State-licensed drilling contractor, drilled the borings using a truck-mounted hollow stem auger drill rig. The 8-inch diameter borings were drilled to an approximate depth of 25 feet. ESE collected soil samples for possible chemical analysis at approximately 5-foot intervals. All drilling, sampling, logging, and screening for organic vapors were conducted in strict accordance with ESE SOP No. 1 for Soil Borings and Soil Sampling with Hollow-Stem Augers in Unconsolidated Formations (Appendix A).

Soil samples from each boring showing the highest values for relative organic vapors, as measured with a photoionization detector (PID), were transferred under chain of custody documentation to CCAS. These samples corresponded with the 10-foot depth in each of the borings. CCAS analyzed each sample for Fuel Fingerprinting and organic lead (Title 22 CCR methodology). To profile for disposal soil cuttings resulting from the borings, ESE also requested CCAS to composite the three samples and analyze them for RCI and petroleum hydrocarbons using fuel fingerprint analysis.

2.2 Ground Water Investigation

2.2.1 Monitoring Well Installation

Under the direction of ESE, SES converted each soil boring to a 2-inch diameter monitoring well and developed the wells in accordance with ESE SOP No. 2 for Monitoring Well Installation and Development (Appendix A). The wells are referred to as MW-1, MW-2, and MW-3 in Figure 2. Ground water generated as a result of well development was contained along with decontamination rinse water from auger cleaning in appropriately labeled DOT-rated 55-gallon drums and stored onsite pending laboratory analysis of ground water samples.

2.2.2 Ground Water Monitoring and Sampling

Approximately three days following well development, ESE returned to the site to measure ground water levels in the new wells and collect ground water samples in accordance with ESE SOP No. 3 for Ground Water Monitoring and Sampling from Monitoring Wells (Appendix A). ESE also surveyed top of casing elevations for monitoring wells relative to MSL, using as a datum a U.S. Coast & Geodetic Survey benchmark located immediately north of Oak Street from the site. The elevation above MSL for that benchmark is 30.180 feet.

Ground water samples were collected from each well following appropriate well purging. ESE collected ground water samples using a dedicated disposable bailer for each well, and preserved them for analysis. ESE transferred ground water samples under appropriate chain of custody documentation to CCAS, who analyzed each sample for organic lead and petroleum hydrocarbons using fuel fingerprint analysis. For quality assurance/quality control (QA/QC) purposes, CCAS provided ESE with a trip (travel) blank that was transported to and from the site in the sample cooler, and analyzed for benzene, toluene, ethylbenzene, and total xylenes (BTEX) using fuel fingerprint analysis.

Purge water and decontamination water generated as a result of well sampling activities were contained in DOT-rated 55-gallon drums pending receipt of analytical results. A total of three drums of water (including development water and decontamination rinsate from drilling activities) are currently stored at the site.

2.3 Soil and Water Disposal

Soil stockpiled from previous UST excavation and ESE's drilling activities, well development and purge water, and decontamination rinsate from well drilling and ground water sampling activities were profiled as described previously as a means of determining appropriate methods for disposal of the materials. Profiling and disposal were coordinated through Integrated Wastestream Management, Inc. (IWM) of Milpitas, California. All disposal is being conducted under appropriate manifest procedures by California licensed waste haulers. At the time this report was prepared, stockpiled soil from the UST excavation have been removed. Disposal of drill cuttings and water contained onsite is pending.

3.0 FINDINGS

3.1 Soil Investigation

3.1.1 Previously Stockpiled Soil

Analytical results for the composite sample from previously stockpiled soil are summarized in Table 1 - Analytical Results for Soil Samples. The laboratory report for those analyses are presented in Appendix B - Analytical Results for Previously Stockpiled Soil Samples. The results show that none of the parameters were detected at or above the practical quantitation limits (PQLs) for the analytical methodology. In addition, the soil was shown to be nonhazardous with respect to RCI.

3.1.2 Soil Borings

Geologic logs and well completion diagrams prepared by ESE for each boring are presented as Appendix C - Boring Logs and Well Completion Summaries. The logs show that shallow native soils at the site are composed of medium to dense silty sand from immediately beneath shallow site fill materials to depths of at least 25 feet, with little variation across the site. Ground water was found at approximately 15 feet deep in each boring. Soil samples screened for organic vapors using a PID each showed generally high concentrations of hydrocarbon vapors at the 10-foot depth. ESE noted the most striking visual and olfactory evidence of petroleum hydrocarbons in these samples. Soil samples collected for visual observation at and below the depth of first ground water showed no odor or a slight odor of petroleum hydrocarbons.

Soil samples from the 10-foot depth in each of the three borings were analyzed for petroleum hydrocarbons using fuel fingerprint analysis. At the request of ESE, the three samples were composited by CCAS for profiling purposes and analyzed for petroleum hydrocarbons using fuel fingerprint analysis, organic lead, and RCI. The results of these analyses are summarized in Table 1, and the associated laboratory reports are presented as Appendix D - Analytical Results for Soil Boring Samples.

Results presented in Table 1 demonstrate that fuel hydrocarbons in the gasoline range (including BTEX) were detected in each sample. For borings MW-1 and MW-3, Total Petroleum Hydrocarbons as Gasoline (TPH-G) were quantified as weathered gasoline, which is consistent with the generally trace to nondetected (ND) concentrations of BTEX noted for those samples (BTEX are the most volatile fraction of gasoline, and tend to decrease relative to TPH-G over time). TPH-G for the sample from boring MW-2 was quantified as newer gas by virtue of the elevated BTEX concentrations. EDC (1,2-Dichloroethane), EDB (1,2-Dibromomethane) and fuel in the Diesel 2 range (TPH-D) were not detected in any of the samples.

The composite sample from the three soil borings reported detectable BTEX and TPH-G (quantified as weathered gas). In addition, the sample was shown to be reactive by virtue of sulfide (Table 1). The sample was not ignitable or corrosive.

3.2 Ground Water Investigation

3.2.1 Ground Water Elevations

Surveyed well elevations, water levels measured by ESE on January 7, 1993, and ground water elevations (in feet above MSL) are presented in tabular form and contoured in Figure 3 - Ground Water Elevations. **The direction of ground water flow inferred from these results is generally west, with an estimated gradient of 150 feet/mile (.03 ft/ft).**

3.2.2 Ground Water Chemistry

Analytical results for ground water samples collected from each well by ESE on January 7, 1993 are summarized in Table 2 - Analytical Results for Ground Water Samples. The laboratory report for these samples is presented as Appendix E - Analytical Results for Ground Water Samples. Analytical results are graphically displayed relative to the site in Figure 4 - Petroleum Hydrocarbons in Ground Water.

The results displayed in Table 2 and Figure 4 indicate that petroleum hydrocarbons are present in each well. Based on the laboratory's report for BTEX as a percentage of fuel (Appendix E), TPH-G detected in MW-3 appears to be weathered gas, whereas TPH-G detected in MW-1 and MW-2 appears to be associated with newer gasoline. Organic lead was not detected in any of the samples. The lowest overall concentrations of petroleum hydrocarbons were noted for MW-3, which appears to be cross-gradient from the original UST location, and upgradient from the former fuel dispensers.

A trip blank collected for QA/QC purposes was analyzed for BTEX, and the results are also presented in Table 2. None of the constituents were detected at or above the method PQLs, indicating that ESE's sample handling and transport procedures did not cause ground water samples to become contaminated.

4.0 CONCLUSIONS

Based on the findings of the PSA performed at the subject site, ESE concludes the following:

- Soil stockpiled as a result of former UST excavation and removal showed no detectable petroleum hydrocarbons, and was not characteristically hazardous by virtue of RCI. This soil is suitable for disposal at a Class III nonhazardous landfill.

- Soils found in three shallow borings indicate that the site is characterized by silty sands to depths of about 25 feet. Visual observation of selected soil samples from each boring indicates that soils in each of those areas have been impacted by petroleum hydrocarbons.

- Soil samples collected for laboratory analysis from the 10-foot depth in each boring reported detectable concentrations of TPH-G. Samples from borings MW-1 and MW-3, located distally to the former USTs relative to MW-2, reported TPH-G as weathered gas.

- A composite sample of drill cuttings from the three borings was reported to be hazardous by virtue of sulfide reactivity. These soils may require special handling and disposal.

- Ground water elevations measured in wells MW-1, MW-2, and MW-3 on January 7, 1993 indicate that ground water flow beneath the site is generally to the west with a magnitude of approximately 150 feet per mile. These findings suggest that the preferred direction of petroleum hydrocarbon migration in ground water will be toward the west.

- Ground water samples collected from the wells on January 7, 1993 show detectable petroleum hydrocarbons in each of the wells. TPH-G reported for MW-3 was an order of magnitude lower than that reported for the other two wells, and was quantified as weathered gas. Organic lead was not detected in any of the samples.

5.0 RECOMMENDATIONS

Based on the findings and conclusions stated herein, ESE recommends the following course of action:

- Appropriate disposal of drill cuttings, which have been shown to be hazardous by virtue of reactivity, and development and purge water from site monitoring wells, should be coordinated as soon as possible. Soils stockpiled from previous UST excavation have already been removed and disposed. At such time that feasibility of site remediation is evaluated (if appropriate), onsite treatment of drill cuttings can be evaluated.

- Because soil and ground water at the site have been shown to be impacted by petroleum hydrocarbons, remedial investigation should be initiated to define the lateral and vertical extent of contamination. Remedial investigation, at a minimum, should include:

    - Excavation of three additional borings near site boundaries to investigate the extent of petroleum hydrocarbons in soil,

    - Installation of monitoring wells in the new borings to aid in definition of the ground water gradient and the lateral extent of petroleum hydrocarbons in ground water,

    - Aquifer testing to evaluate the feasibility of ground water extraction in association with site remediation, if necessary,

    - Vapor extraction testing for vadose zone soil (vapor extraction may be an viable and more cost-effective remedial alternative for site soil due to the generally sandy nature of shallow soil at the site), and

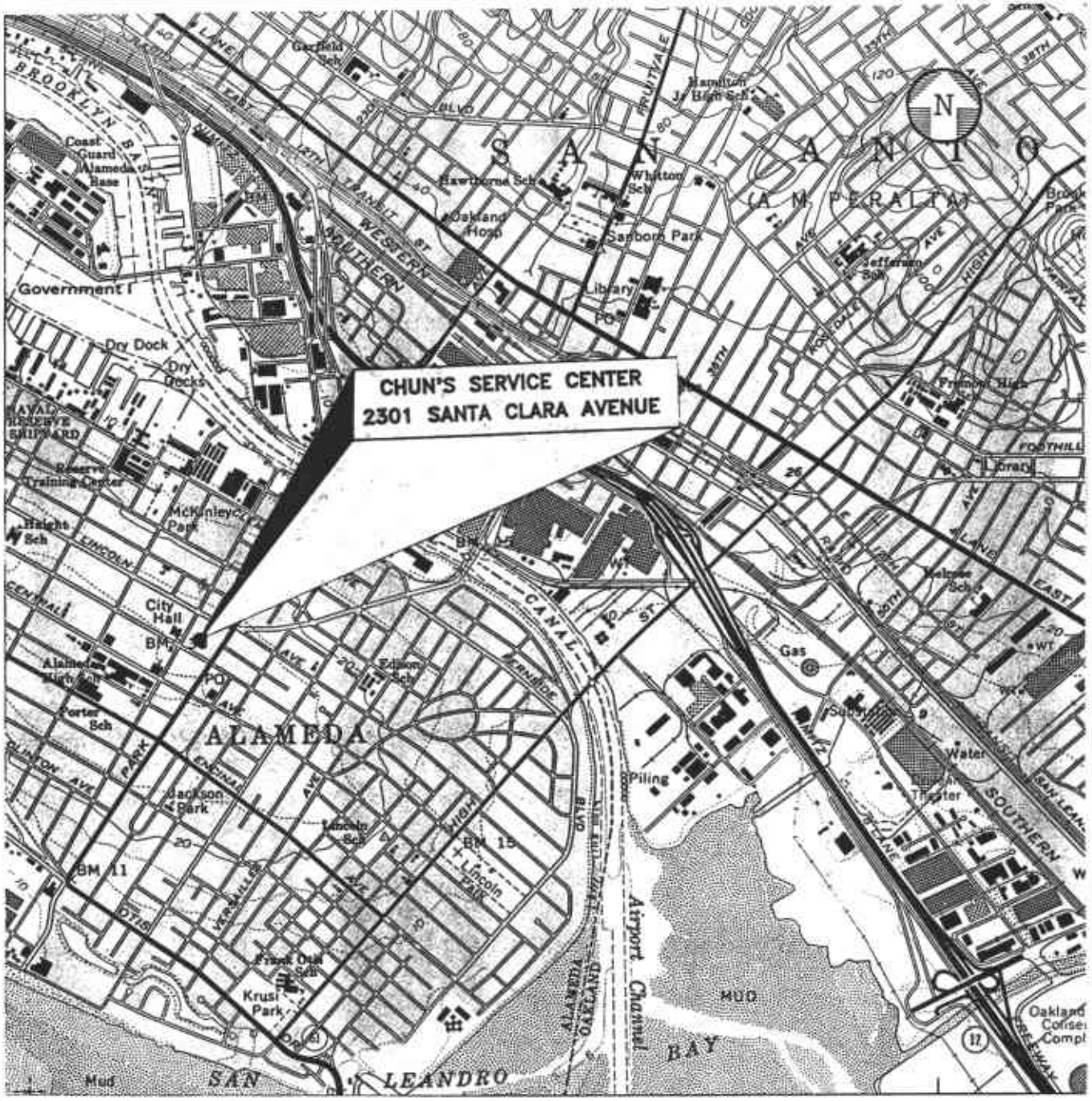
    - Quarterly ground water monitoring and reporting.

6.0 REFERENCES

Helley, E.J. and K.R. LaJoie, 1979, "Flatland Deposits of the San Francisco Bay Region, California - Their Geology and Engineering Properties, and their Importance to Comprehensive Planning", U.S. Geologic Survey Professional Paper 943, United States Government Printing Office, Washington, D.C., 88 pp.

Parker Environmental Services, 1992, Letter Communication to Jim Brinker of Burnabe & Brinker regarding underground tank removal soil sampling and analysis at 2301 Santa Clara Avenue, Alameda, California, August 4, 1992.

United States Department of the Interior, Geologic Survey, 1959, Oakland East, California 7.5-Minute Topographic Quadrangle Map (Photorevised 1980).



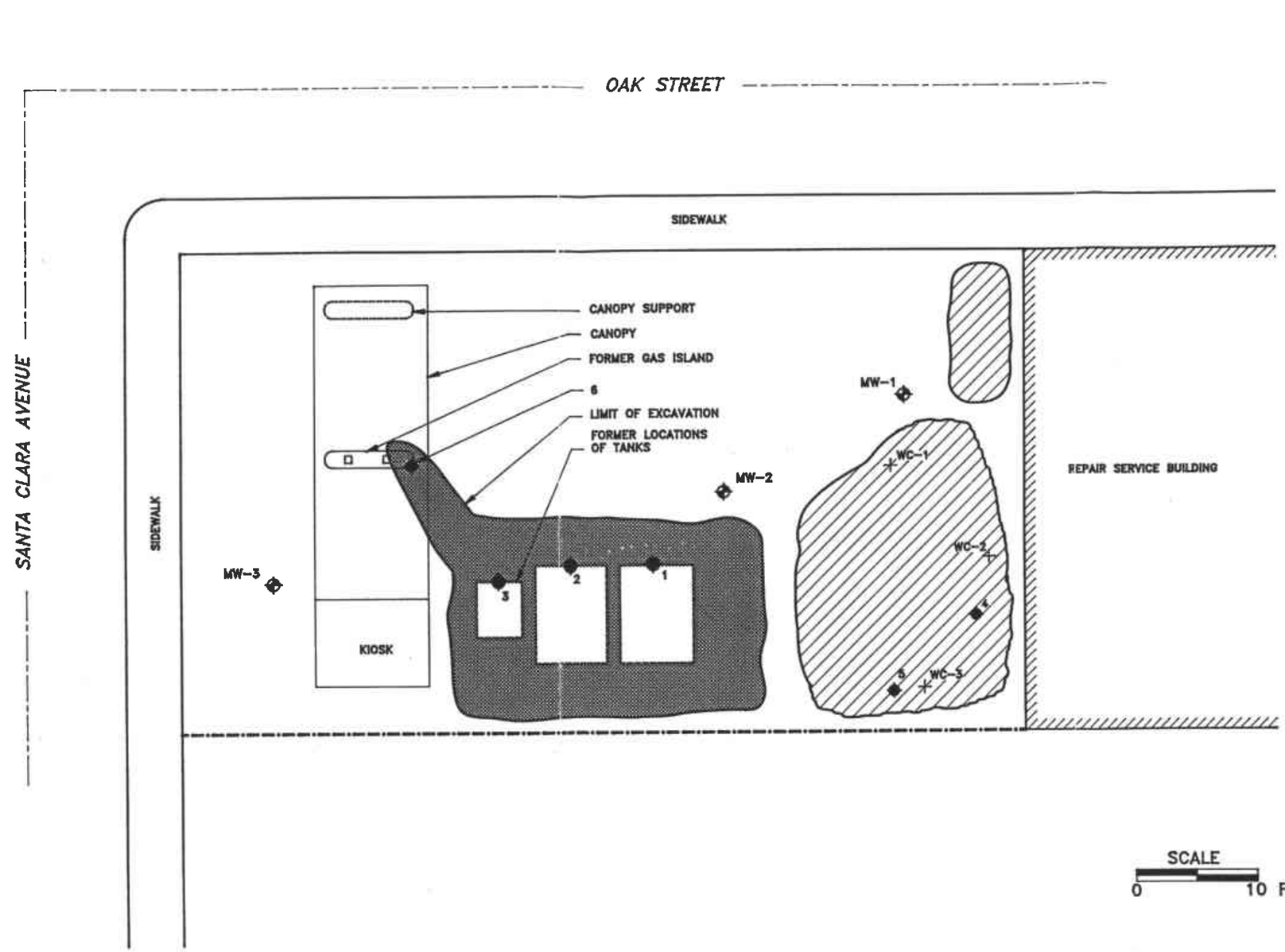
SCALE 1:24000

1 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

SOURCE: U.S.G.S. 7.5 Minute Quadrangle Map:
Oakland East, CA (1959; Photorevised 1980)

ESE A GILBOOP COMPANY Environmental Science & Engineering, Inc.	DATE 9/92	PROJ/PROP 50051001	CHUN'S SERVICE CENTER 2301 SANTA CLARA AVENUE ALAMEDA, CALIFORNIA
4090 Nelson Avenue, Ste. J Concord, California 94520	DRAWN BY DWR	CAD FILE 6-92-5005	FIGURE 1 LOCATION MAP
	APPROVED BY	REVISED	



LEGEND

- ESE Monitoring Well Location
- Sampling point. Samples collected by Parker Enviromental on July 31, 1992
- \+ Stockpiled soil sampling point, samples collected by ESE on December 10, 1992
- Property Boundary
- Soil Pile

ESE A CALCORP Company — Environmental Science & Engineering, Inc. 4090 NELSON AVENUE, SUITE J CONCORD, CA 94520	DATE 1/93	PROJ. NO. 6-92-5005	CHUN'S SERVICE STATION 2301 SANTA CLARA AVENUE ALAMEDA, CALIFORNIA
	DRAWN BY DWR	CAD FILE 50051002	
	APPROVED BY	REVISED 2/93 MEQ	FIGURE 2 SITE MAP

OAK STREET

SANTA CLARA AVENUE

SIDEWALK

SIDEWALK

KIOSK

REPAIR SERVICE BUILDING

B	20,000
T	8,500
E	1,500
X	4,300
EDC	550
EDB	ND
TPH–G	85,000
TPH–D	ND
LEAD	ND

MW–2

B	14,000
T	17,000
E	2,500
X	8,800
EDC	470
EDB	ND
TPH–G	110,000
TPH–D	ND
LEAD	ND

MW–1

MW–3

B	170
T	70
E	ND
X	ND
EDC	ND
EDB	ND
TPH–G	8,500*
TPH–D	ND
LEAD	ND

LEGEND

- ESE Monitoring Well Location
- Property Boundary
- Soil Pile
- Limits of Existing Excavation

B	Benzene
T	Toluene
E	Ethylbenzene
X	Total Xylenes
EDC	1,2–Dichloroethane
EBC	1,2–Dibromoethane
TPH–G	Total Petroleum Hydrocarbons–Gas
*	TPH–G Quantified as Weathered Gas
TPH–D	Total Petroleum Hydrocarbons–Diesel
LEAD	Organic Lead
ND	Not detected at or above the method Practical Quantitation Limit

All concentrations in ug/L or parts per billion, except organic lead, in mg/L or parts per million

SCALE 0 10 FEET

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CHUN'S SERVICE CENTER
2301 SANTA CLARA AVENUE
ALAMEDA, CALIFORNIA

FIGURE 4
PETROLEUM HYDROCARBONS IN GROUND WATER (JANUARY 7, 1993)

TABLE 1

ANALYTICAL RESULTS FOR SOIL SAMPLES
2301 SANTA CLARA AVENUE
ALAMEDA, CALIFORNIA

Sample Description	Sample Depth (Feet)	Date Sampled	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethyl Benzene (mg/Kg)	Total Xylenes (mg/Kg)	EDC (mg/Kg)	EDB (mg/Kg)	TPH-D (mg/Kg)	TPH-G (mg/Kg)	Organic Lead (mg/Kg)	Flashpoint (Degrees F)	pH	Presence of Cyanide (mg/Kg)	Presence of Sulfide (mg/Kg)
Composite WC-1; WC-2; WC-3	2	12/9/92	ND	ND	ND	ND	ND	ND	ND	ND	--	>200[a]	8.0[b]	Negative[c]	Negative[c]
MW-1	10	1/4/93	1.5	17	10	54	ND	ND	ND	640*	--	--	--	--	--
MW-2	10	1/4/93	110	850	210	1,200	ND	ND	ND	5800	--	--	--	--	--
MW-3	10	1/5/93	ND	2	ND	1.4	ND	ND	ND	2,100*	--	--	--	--	--
Composite MW-1; MW-2; MW-3	10	1/4 - 1/5/93	43	180	65	240	ND	ND	ND	6,100*	ND	>200[a]	6.2[b]	Negative[c]	Positive[d]
PQL	--	--	0.5	1.0	0.5	0.5	0.5	0.5	50	50	0.1	--	--	--	--

NOTES:

EDC - 1,2 - Dichloroethane
EDB - 1,2 - Dibromoethane
TPH-D - Total Petroleum Hydrocarbons as Diesel
TPH-G - Total Petroleum Hydrocarbons as Gasoline
mg/Kg - Milligrams per kilogram or parts per million (ppm)
-- Not analyzed
ND - Not detected at or above Practical Quantitation Limits (PQL)
PQL - Practical Quantitation Limit for Analytical Methodology
* - Quantified as Weathered Gas
a - Not ignitable
b - Not corrosive
c - Not reactive
d - Reactive

F:\...\5005\TABLE1&2

TABLE 2

ANALYTICAL RESULTS FOR GROUND WATER SAMPLES
2301 SANTA CLARA AVENUE
ALAMEDA, CALIFORNIA

Sample Description	Date Sampled	Benzene (µg/L)	Toluene (µg/L)	Ethyl Benzene (µg/L)	Xylene (µg/L)	EDC (µg/L)	EDB (µg/L)	TPH-G (µg/L)	TPH-D (µg/L)	Organic Lead (mg/L)
MW-1	1/7/93	14,000	17,000	2,500	8,800	470	ND	110,000	ND	ND
MW-2	1/7/93	20,000	8,500	1,500	4,300	550	ND	85,000	ND	ND
MW-3	1/7/93	170	70	ND	ND	ND	ND	8,500*	ND	ND
Trip Blank	1/7/93	ND	ND	ND	ND	--	--	--	--	--
PQL		20	50	30	30	30	30	3,000	3,000	0.03

NOTES:

EDC - 1,2 - Dichloroethane
EDB - 1,2 - Dibromoethane
TPH-G - Total Petroleum Hydrocarbons as Gasoline
TPH-D - Total Petroleum Hydrocarbons as Diesel
µg/L - Micrograms per liter or parts per billion (ppb)
ND - Not detected at or above Practical Quantitation Limits (PQL)
-- - Not analyzed
* - Quantified as Weathered Gas
PQL - Practical Quantitation Limit for Analytical Methodology

APPENDIX A

ESE STANDARD OPERATING PROCEDURES

ENVIRONMENTAL SCIENCE & ENGINEERING, INC.
CONCORD, CALIFORNIA OFFICE

STANDARD OPERATING PROCEDURE NO. 1
FOR SOIL BORINGS AND SOIL SAMPLING WITH HOLLOW-STEM AUGERS IN UNCONSOLIDATED FORMATIONS

Environmental Science & Engineering, Inc. (ESE) typically drills soil borings using a truck-mounted, continuous-flight, hollow-stem auger drill rig. The drill rig is owned and operated by a drilling company possessing a valid State of California C-57 license. The soil borings are conducted under the direct supervision and guidance of an experienced ESE geologist. The ESE geologist logs each borehole during drilling in accordance with the Unified Soil Classification System (USCS). Additionally, the ESE geologist observes and notes the soil color, relative density or stiffness, moisture content, odor (if obvious) and organic content (if present). The ESE geologist will record all observations on geologic boring logs.

Soil samples are collected during drilling at a minimum of five-foot intervals by driving an 18-inch long Modified California Split-spoon sampler (sampler), lined with new, thin-wall brass sleeves, through the center of and ahead of the hollow stem augers, thus collecting a relatively undisturbed soil sample core. The brass sleeves are typically 2-inches in diameter and 6-inches in length. The sampler is driven by dropping a 140-pound hammer 30-inches onto rods attached to the top of the sampler. Soil sample depth intervals and the number of hammer blows required to advance the sampler each six-inch interval are recorded by the ESE geologist on geologic boring logs. The ends of one brass sleeve are covered with Teflon sheeting, then covered with plastic end caps. The end caps are sealed to the brass sleeve using duct tape. Each sample is then labeled and placed on ice in a cooler for transport under chain of custody documentation to the designated analytical laboratory. A portion of the remaining soil in the sampler is placed in either a new Ziploc® bag or a clean Mason Jar® and set in direct sunlight to enhance the volatilization of any Volatile Organic Compounds (VOCs) present in the soil. After approximately 15-minutes that sample is screened for VOCs using a photoionization detector (PID). The PID measurements will be noted on the geologic boring logs. The PID provides qualitative data for use in selecting samples for laboratory analysis. Soil samples from the saturated zone (beneath the ground-water table) are collected as described above, are not screened with the PID, and are not submitted to the analytical laboratory. The samples from the saturated zone are used for descriptive purposes. Soil samples from the saturated zone may be retained as described above for physical analyses (grain size, permeability and porosity testing).

If the soil boring is not going to be completed as a well, then the boring is typically terminated upon penetrating the saturated soil horizon or until a predetermined interval of soil containing no evidence of contamination is penetrated. This predetermined interval is typically based upon site specific regulatory or client guidelines. The boring is then backfilled using either neat cement, neat cement and bentonite powder mixture (not exceeding 5% bentonite), bentonite pellets, or a sand and cement mixture (not exceeding a 2:1 ratio of sand to cement). However, if the boring is to be completed as a monitoring well, then the boring is continued until either a competent, low estimated-permeability, lower confining soil layer is found or 10 to 15-feet of the saturated soil horizon is penetrated, whichever occurs first. If a low estimated-permeability soil layer is found, the soil boring will be advanced approximately five-feet into that layer to evaluate its competence as a lower confining layer, prior to the termination of that boring.

All soil sampling equipment is cleaned between each sample collection event using an Alconox® detergent and tap water solution followed by a tap water rinse. Additionally, all drilling equipment and soil sampling equipment is cleaned between borings, using a high pressure steam cleaner, to prevent cross-contamination. All wash and rinse water is collected and contained onsite in Department of Transportation approved containers (typically 55-gallon drums) pending laboratory analysis and proper disposal/recycling.

ENVIRONMENTAL SCIENCE & ENGINEERING, INC.
CONCORD, CALIFORNIA OFFICE

STANDARD OPERATING PROCEDURE NO. 2
FOR MONITORING WELL INSTALLATION AND DEVELOPMENT
PAGE 1

Environmental Science & Engineering, Inc. (ESE) typically installs ground-water monitoring wells in unconsolidated sediments drilled using a truck-mounted hollow-stem auger drill rig. The design and installation of all monitoring wells is performed and supervised by an experienced ESE geologist. Figure A - Typical ESE Monitoring Well Construction Diagram (attached) graphically displays a typical ESE well completion. Prior to the construction of the well, the portion of the borehole that penetrates a lower confining layer (if any) is filled with bentonite pellets. The monitoring well is then constructed by inserting polyvinylchloride (PVC) pipe through the center of the hollow stem augers. The pipe (well-casing) is fastened together by joining the factory threaded pipe ends. ESE typically uses two-inch or four-inch diameter pipe for ground-water monitoring wells. The diameter of the borehole is typically 6-inches greater than that of the diameter of the well-casing, but is at least four-inches greater than that of the well casing. The lowermost portion of the well-casing will be factory perforated (typically having slot widths of 0.010-inch or 0.020-inch). The slotted portion of the well-casing will extend from the bottom of the boring up to approximately five-feet above the occurrence of ground water. A PVC slip or threaded cap will be placed at the bottom end of the well-casing, and a locking expandable well cap will be placed over the top (or surface) end of the well-casing. A sand pack (typically No. 2/12 or No. 3 Monterey sand) will be placed in the borehole annulus, from the bottom of the well-casing up to one to two-feet above the top of the slotted portion, by pouring the clean sand through the hollow stem augers. One to two-feet of bentonite pellets will be placed on top of the sand pack. The bentonite pellets will then be hydrated with three to four-gallons of potable water, to protect the sand pack from intrusion during the placement of the sanitary seal. The sanitary seal (grout) will consist of either neat cement, a neat cement and bentonite powder mixture (containing no more than 5% bentonite), or a neat cement and sand mixture (containing no more than a 2:1 sand to cement ratio). If, the grout seal is to be greater than 30-feet in depth or if standing water is present in the boring on top of the bentonite pellet seal, then the grout mixture will be tremied into the boring from the top of the bentonite seal using either a hose, pipe or the hollow-stem augers, which serve as a tremie. The well will be protected at the surface by a water tight utility box. The utility box will be set into the grout mixture so that it is less than 0.1-foot above grade, to prevent the collection of surface water at the well head. If the well is set within the public right of way, then the utility box will be Department of Transportation (DOT) traffic rated, and the top of the box will be set flush to grade. If the well is constructed in a vacant field a brightly painted metal standpipe may be used to protect the well from traffic. If a standpipe is used, it will be held in place with a grout mixture and will extend one to two-feet above ground surface. All well completion details will be recorded by the ESE geologist on the geologic boring logs.

Subsequent to the solidification of the sanitary seal of the well (a minimum of 72 hours), the new well will be developed by an ESE geologist or field technician. Well development will be performed using surging, bailing and overpumping techniques. Surging is performed by raising and lowering a surge block through the water column within the slotted interval of the well casing. The surge block utilized has a diameter just smaller than that of the well casing, thus, forcing water flow through the sand pack due to displacement and vacuum caused by the movement of the surge block. Bailing is performed by lowering a bailer to the bottom of the well and gently bouncing the bailer off of the well end cap, then removing the full bailer and repeating the procedure. This will bring any material (soil or PVC fragments) that may have accumulated in the well into suspension for removal. Overpumping is performed by lowering a submersible pump to the bottom of each well and pumping at the highest sustainable rate without completely evacuating the well casing. Effective well development will settle the sand pack surrounding the well-casing, which will improve the filtering properties of the sand pack and allow water to flow more easily through the sand pack; improve the communication between the aquifer and the well by aiding the removal of any smearing of fine sediments along the borehole penetrating the aquifer; and, remove fine sediments and any foreign objects (PVC fragments) from the well casing. The ESE geologist or

technician will monitor the ground water purged from the well during development for clarity, temperature, pH and conductivity. Development of the well will proceed until the well produces relatively clear, sand-free water with stable temperature, pH and conductivity measurements. At a minimum, 10 well-casing volumes of ground water will be removed during the development process. Measurements of temperature, conductivity, pH and volume of the purged water and observations of purge water clarity and sediment content will be recorded on the ESE Well Development Data Forms. All equipment used during the well development procedure will be cleaned using an Alconox® detergent and tap water solution followed by a tap water rinse prior to use in each well. All ground water purged during the well development process and all equipment rinse water will be collected and contained onsite in DOT approved containers (typically 55-gallon drums) pending analytical results and proper disposal or recycling.

ENVIRONMENTAL SCIENCE & ENGINEERING, INC.
CONCORD, CALIFORNIA OFFICE

STANDARD OPERATING PROCEDURE NO. 3
FOR GROUND-WATER MONITORING AND SAMPLING FROM MONITORING WELLS

Environmental Science & Engineering, Inc. (ESE) typically performs ground-water monitoring at project sites on a quarterly basis. As part of the monitoring program an ESE staff member will first gauge the depth to water and free product (if present) in each well, then collect ground-water samples from each well. Depth to water measurements are taken by lowering an electric fiberglass tape measure into the well and recording the occurrence of water in feet below a fixed datum set on the top of the well-casing. If free-phase liquid hydrocarbons (free product) are known or suspected to be present in the well, then an electric oil/water interface probe is used to determine the depth to the occurrence of ground-water and the free product in feet below the fixed datum on the top of the well-casing. Depth to water and depth to product measurements are measured and recorded within an accuracy of 0.005-foot. The electric tape and the electric oil/water interface probe are washed with an Alconox® detergent and tap water solution then rinsed with tap water between uses in different wells.

Ground-water samples are collected from a well subsequent to purging a minimum of three to four well-casing volumes of ground water from the well, if the well bails dry prior to the removal of the required minimum volume, then the samples are collected upon the recovery of the ground water in that well to 80% of its initial static level. Ground water is typically purged from monitoring wells using either a hand-operated positive displacement pump, constructed of polyvinylchloride (PVC); a new (precleaned), disposable polyethylene bailer; or, a variable-flow submersible pump, constructed of stainless steel and Teflon®. The hand pumps and the submersible pumps are cleaned between each use with an Alconox® detergent and tap water solution followed by a tap water rinse. During the well purging process the conductivity, pH and temperature of the ground water are monitored by the ESE staff member. Ground-water samples are collected from the well subsequent to the stabilization of the of the conductivity, pH and temperature of the purge water, and the removal of four well-casing volumes of ground-water (unless the well bails dry). The parameters are deemed to have stabilized when two consecutive measurements are within 10% of each other, for each respective parameter. The temperature, pH, conductivity and purge volume measurements, and observations of water clarity and sediment content will be documented by the ESE staff member on ESE Ground-Water Sampling Data Forms.

Ground-water samples are collected by lowering a new (precleaned), disposable polyethylene bailer into the well using new, disposable nylon cord. The filled bailer is retrieved, emptied, then filled again. The ground water from this bailer is decanted into appropriate laboratory supplied glassware and/or plastic containers (if sample preservatives are required, they are added to the empty containers at the laboratory prior to the sampling event). The containers are filled carefully so that no headspace is present to avoid volatilization of the sample. The filled sample containers are then labeled and placed in a cooler with ice for transport under chain of custody documentation to the designated analytical laboratory. The ESE staff member will document the time and method of sample collection, and the type of sample containers and preservatives (if any) used. These facts will appear on the ESE Ground-Water Sampling Data Forms. ESE will collect a duplicate ground-water sample from one well for every ten wells sampled at each site. The duplicate will be a blind sample (its well designation will be unknown to the laboratory). The duplicate sample is for Quality Assurance and Quality Control (QA/QC) purposes, and provides a check on ESE sampling procedures and laboratory sample handling procedures. When VOCs are included in the laboratory analyses, ESE will include a trip blank, if required, in the cooler with the ground-water samples for analysis for the identical VOCs. The trip blank is supplied by the laboratory and consists of deionized water. The trip blank is for QA/QC purposes and provides a check on both ESE and laboratory sample handling and storage procedures. Since disposable bailers are used for sample collection, and are not reused, no equipment blank (rinsate) samples are collected.

ENVIRONMENTAL SCIENCE & ENGINEERING, INC.
CONCORD, CALIFORNIA OFFICE

STANDARD OPERATING PROCEDURE NO. 4
FOR SOIL SAMPLING WITH HAND AUGERS
IN UNCONSOLIDATED FORMATIONS

When collecting shallow soil samples or soil samples from limited access areas, Environmental Science & Engineering, Inc. (ESE) typically uses a manually operated bucket-type auger (hand auger) The augering is conducted by an experienced ESE geologist. The ESE geologist documents all soils retrieved as cuttings or core in accordance with the Unified Soil Classification System (USCS). Additionally, the ESE geologist observes and notes the soil color, relative density or stiffness, moisture content, odor (if obvious) and organic content (if present).

Soil samples are collected during hand-augering at selected intervals by driving a 6-inch long punch auger sample tube (sampler), lined with a new, thin-wall brass or stainless steel sleeve (sleeve), into undisturbed soil. The sleeve is typically 2-inches in diameter and 6-inches in length. The sampler is advanced into the soil by manually dropping a weighted handle onto a rod attached to the sampler. Soil sample depth intervals are recorded by the ESE geologist on geologic boring logs. The ends of the sleeve containing sampled soil are covered with Teflon® sheeting, then covered with plastic end caps. The end caps are sealed to the sleeve using organically inert duct tape known to not contain any Volatile Organic Compounds (VOCs). Each sample is then labeled and placed on ice in a cooler for transport under chain of custody documentation to the designated analytical laboratory. Excess soil collected in the sampler may be placed in either a new Ziploc® bag or a clean Mason Jar® and set in direct sunlight to enhance the volatilization of any VOCs present in the soil. After approximately 15-minutes that sample is screened for VOCs using a photoionization detector (PID). The PID measurements will be noted on the geologic boring logs. The PID provides qualitative data for use in selecting samples for laboratory analysis. Soil samples from the saturated zone (beneath the ground-water table) may be collected but are not screened with the PID, and are not submitted to the analytical laboratory. The samples from the saturated zone are used for descriptive purposes, and may be retained for physical analyses (grain size, permeability and porosity testing).

Upon completion, the boring is backfilled using either neat cement, neat cement and bentonite powder mixture (not exceeding 5% bentonite), bentonite powder or pellets, or a sand and cement mixture (not exceeding a 2:1 ratio of sand to cement).

Hand auger buckets are cleaned between use in each borehole and all soil sampling equipment is cleaned between each sample collection event to prevent cross-contamination. Equipment is washed using an Alconox® detergent and tap water solution followed by a tap water rinse. All wash and rinse water is collected and contained onsite in Department of Transportation approved containers (typically 55-gallon drums) pending laboratory analysis and proper disposal/recycling.

APPENDIX B

ANALYTICAL RESULTS FOR PREVIOUSLY STOCKPILED SOIL SAMPLES

COAST · TO · COAST ANALYTICAL SERVICES

Air, Water & Hazardous Waste Sampling, Analysis & Consultation
Certified Hazardous Waste, Chemistry, Bacteriology & Bioassay Laboratories

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

Lab Number : BD-0809-1
Project : 6-9-5005 Wayne Chun,
2301 Santa Clara Ave., Alameda,

CLIENT: Mike Quillin
Environmental Science & Engineering
4090 Nelson Avenue Suite J
Concord, CA 94520

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	DATE RECEIVED
WC-1, WC-2, WC-3 Composite	Soil	Chris Valcheff	12/09/92	12/10/92

CONSTITUENT	*PQL	RESULT	UNITS	METHOD	ANALYZED	BY	NOTES
PRESENCE OF CYANIDE		Negative	NA	ASTM D5049	12/17/92	DS	
PRESENCE OF SULFIDE		Negative	NA	ASTM D4978	12/14/92	DS	

San Jose Lab Certifications: CAELAP #1204
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)

JAN 12 1993

12/23/92

MC/sab/dds
CN92121701

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

Nick F. Gaone
Nick Gaone, Inorganics Manager

Marissa Coronel
Laboratory Director

COAST - TO - COAST ANALYTICAL SERVICES

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NorCal Division (Benicia Laboratory) (707) 747-2757
6006 Egret Court, Benicia, California 94510 FAX (707)747-2765

CLIENT: Mike Quillin
Environmental Science & Engineering
4090 Nelson Avenue Suite J
Concord, CA 94520

Lab Number : BD-0809-1
Project : 6-9-5005 Wayne Chun, 2301 Santa Clara Ave., Alameda,
Analyzed : 12/11/92
Analyzed by: HC
Method : As Listed

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	DATE RECEIVED
WC-1, WC-2, WC-3 Composite	Soil	Chris Valcheff	12/09/92	12/10/92

CONSTITUENT	(CAS RN)	*PQL mg/Kg	RESULT mg/Kg	NOTE
FUEL FINGERPRINT ANALYSIS				1,2
Benzene	(71432)	0.005	ND	
Toluene	(108883)	0.005	ND	
Ethylbenzene	(100411)	0.005	ND	
Xylenes, Total		0.005	ND	
1,2-Dichloroethane (EDC)	(107062)	0.005	ND	
1,2-Dibromoethane (EDB)	(106934)	0.005	ND	
Total Petroleum Hydrocarbons (Gasoline)		0.5	ND	
Total Petroleum Hydrocarbons (Diesel 2)		0.5	ND	
BTX as a percent of fuel			Not Appl.	
1,2-Dichloroethane-d4 (Percent Surrogate Recovery)	(107062)		104.	
Toluene-d8 (Percent Surrogate Recovery)			99.	
p-Bromofluorobenzene (Percent Surrogate Recovery)			104.	

Benicia Lab Certifications: CAELAP #1719; L.A.Co.CSD #10185
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)
(1) ANALYZED by CAL DHS DRAFT TPH (modified) and EPA 8260 (GC/MS)
(2) EXTRACTED by EPA 5030 (purge-and-trap)

12/15/92
INCOS 50-387
MC/trk/htc
BDL11I1

Respectfully submitted,
COAST-TO-COAST ANALYTICAL SERVICES, INC.
Marissa C. Coronel
Marissa Coronel
Laboratory Director

COAST : TO : COAST ANALYTICAL SERVICES

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6006 Egret Court, Benicia, California 94510 FAX (707)747-2765

Lab Number : BD-0809-1
Project : 6-9-5005 Wayne Chun, 2301 Santa Clara Ave., Alameda,

CLIENT: Mike Quillin
Environmental Science & Engineering
4090 Nelson Avenue Suite J
Concord, CA 94520

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	DATE RECEIVED
WC-1, WC-2, WC-3 Composite	Soil	Chris Valcheff	12/09/92	12/10/92

CONSTITUENT	*PQL	RESULT	UNITS	METHOD	ANALYZED	BY	NOTES
Flashpoint	1	>200.	degrees F	EPA 1020	12/17/92	TD	1,2

Benicia Lab Certifications: CAELAP #1719; L.A.Co.CSD #10185
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)
(1) Sample Preparation on 12/17/92
(2) Standard used was N,N-Dimethyl-Formamide, which flashed at 135 degrees F

12/23/92
SETA
MC/trk/abs
BDL17F1

Respectfully submitted,
COAST-TO-COAST ANALYTICAL SERVICES, INC.
Marissa C. Coronel
Marissa Coronel
Laboratory Director

COAST - TO - COAST ANALYTICAL SERVICES

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6006 Egret Court, Benicia, California 94510 FAX (707)747-2765

Lab Number : BD-0809-1
Project : 6-9-5005 Wayne Chun, 2301 Santa Clara Ave., Alameda,

CLIENT: Mike Quillin
Environmental Science & Engineering
4090 Nelson Avenue Suite J
Concord, CA 94520

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	DATE RECEIVED
WC-1, WC-2, WC-3 Composite	Soil	Chris Valcheff	12/09/92	12/10/92

CONSTITUENT	*PQL	RESULT	UNITS	METHOD	ANALYZED	BY	NOTES
pH	0.1	8.0	Units	EPA 9045	12/14/92	TD	

Benicia Lab Certifications: CAELAP #1719; L.A.Co.CSD #10185
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)

12/16/92
CPIC
MC/trk/abs
BDL14P2

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

Marissa C. Coronel

Marissa Coronel
Laboratory Director

COAST · TO · COAST ANALYTICAL SERVICES

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NorCal Division (Benicia Laboratory) (707) 747-2757
6006 Egret Court, Benicia, California 94510 FAX (707)747-2765

QC Batch ID: BDL11I1

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

Analyzed : 12/11/92
Analyzed by: HC
Method : As Listed

METHOD BLANK

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED DATE RECEIVED
METHOD BLANK	Solid		

CONSTITUENT	(CAS RN)	*PQL mg/Kg	RESULT mg/Kg	NOTE
FUEL FINGERPRINT ANALYSIS				1,2
Benzene	(71432)	0.005	ND	
Toluene	(108883)	0.005	ND	
Ethylbenzene	(100411)	0.005	ND	
Xylenes, Total		0.005	ND	
1,2-Dichloroethane (EDC)	(107062)	0.005	ND	
1,2-Dibromoethane (EDB)	(106934)	0.005	ND	
Total Petroleum Hydrocarbons (Gasoline)		0.5	ND	
Total Petroleum Hydrocarbons (Diesel 2)		0.5	ND	
BTX as a percent of fuel			Not Appl.	
1,2-Dichloroethane-d4 (Percent Surrogate Recovery)	(107062)		111.	
Toluene-d8 (Percent Surrogate Recovery)			94.	
p-Bromofluorobenzene (Percent Surrogate Recovery)			98.	

Benicia Lab Certifications: CAELAP #1719; L.A.Co.CSD #10185
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)
(1) ANALYZED by CAL DHS DRAFT TPH (modified) and EPA 8260 (GC/MS)
(2) EXTRACTED by EPA 5030 (purge-and-trap)

12/15/92
INCOS 50-387
MC/trk/htc
BD0809-1

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

Marissa C. Coronel

Marissa Coronel
Laboratory Director

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Air, Water & Hazardous Waste Sampling, Analysis & Consultation
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6006 Egret Court, Benicia, California 94510 FAX (707)747-2765

QC Batch ID: BDL11I1

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

Analyzed : 12/11/92
Analyzed by: HC
Method : As Listed

QC SPIKE
REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED DATE	RECEIVED
QC SPIKE	Solid			

CONSTITUENT	*PQL mg/Kg	SPIKE AMOUNT	RESULT mg/Kg	%REC	NOTE
FUEL FINGERPRINT ANALYSIS					1,2
Total Petroleum Hydrocarbons (Gasoline)	0.5	7.1	8.4	118.	
Total Petroleum Hydrocarbons (Diesel 2)	0.5		NS		
BTX as a percent of fuel			Not Appl.		
1,2-Dichloroethane-d4 (Percent Surrogate Recovery)		100.	97.		
Toluene-d8 (Percent Surrogate Recovery)		100.	109.		
p-Bromofluorobenzene (Percent Surrogate Recovery)		100.	115.		

Benicia Lab Certifications: CAELAP #1719; L.A.Co.CSD #10185
* RESULTS listed as 'NS' were not spiked. PQL = Practical Quantitation Limit
(1) ANALYZED by CAL DHS DRAFT TPH (modified) and EPA 8260 (GC/MS)
(2) EXTRACTED by EPA 5030 (purge-and-trap)

12/17/92
INCOS 50-387
MC/trk/abs/htc
BD0809-1

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

Marissa C. Coronel

Marissa Coronel
Laboratory Director

COAST - TO - COAST ANALYTICAL SERVICES

Air, Water & Hazardous Waste Sampling, Analysis & Consultation
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6006 Egret Court, Benicia, California 94510 FAX (707)747-2765

QC Batch ID: BDL11I1

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

Analyzed : 12/11/92
Analyzed by: HC
Method : As Listed

QC SPIKE
REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	DATE RECEIVED
QC SPIKE DUPLICATE	Solid			

CONSTITUENT	*PQL mg/Kg	SPIKE AMOUNT	RESULT mg/Kg	%REC	%DIFF	NOTE
FUEL FINGERPRINT ANALYSIS						1,2
Total Petroleum Hydrocarbons (Gasoline)	0.5	7.1	7.0	99.	18.	
Total Petroleum Hydrocarbons (Diesel 2)	0.5		NS			
BTX as a percent of fuel			Not Appl.			
1,2-Dichloroethane-d4 (Percent Surrogate Recovery)		100.	100.			
Toluene-d8 (Percent Surrogate Recovery)		100.	103.			
p-Bromofluorobenzene (Percent Surrogate Recovery)		100.	100.			

Benicia Lab Certifications: CAELAP #1719; L.A.Co.CSD #10185
* RESULTS listed as 'NS' were not spiked. PQL = Practical Quantitation Limit
(1) ANALYZED by CAL DHS DRAFT TPH (modified) and EPA 8260 (GC/MS)
(2) EXTRACTED by EPA 5030 (purge-and-trap)

12/17/92
INCOS 50-387
MC/trk/abs/htc
BD0809-1

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

Marissa C. Coronel

Marissa Coronel
Laboratory Director

CHAIN OF CUSTODY RECORD

DATE 12-9-92 PAGE 1 OF 1

PROJECT NAME WAYNE CHINN

ADDRESS 2301 SANTA CLARA AV. ALAMEDA, CA

PROJECT NO. 6-9-5005

SAMPLED BY CHRIS VALCHEFF

LAB NAME

ESE Environmental Science & Engineering, Inc.

4090 Nelson Avenue
Suite J
Concord, CA 94520

(415) 685-4053

Fax (415) 685-5323

SAMPLE #	DATE	TIME	LOCATION	ANALYSES TO BE PERFORMED: FUEL HYDROCARBONS (8015)	ANALYSES TO BE PERFORMED: RCI	MATRIX	NUMBER OF CONTAINERS	REMARKS (CONTAINER, SIZE, ETC.)
						MATRIX		B00809
WC-1	12-9-92	0700	ALAMEDA	X	X	SOIL	1	
WC-2	↓	0705	↓	X	X	↓	1	COMPOSITE WC-1, WC-2, WC-3
WC-3	↓	0710	↓	X	X	↓	1	

RELINQUISHED BY: (signature)	RECEIVED BY: (signature)	date	time
1.	M. Quill	12-9-92	1700
2. M. Quill		12/10/92	1130
3.			
4.			
5.			

3 TOTAL NUMBER OF CONTAINERS

REPORT RESULTS TO: MIKE QUILLIN

SPECIAL SHIPMENT REQUIREMENTS: CLAS COURIER

INSTRUCTIONS TO LABORATORY (handling, analyses, storage, etc.): NORMAL TURN AROUND

SAMPLE RECEIPT

CHAIN OF CUSTODY SEALS	
REC'D GOOD CONDTN/COLD	
CONFORMS TO RECORD	

APPENDIX C

BORING LOGS AND WELL COMPLETION SUMMARIES

Environmental Science & Engineering, Inc.

BORING LOG AND WELL COMPLETION SUMMARY

MW-1

Page 1 of 1

WELL COMPLETION

- Completion Depth: 25 Feet

	Size/Type	From	To
Casing:	2" PVC SCH. 40	0	10
Screen:	Slot 0.02" PVC	10	25
Filter:	2/12 Sand	25	9
Seal:	Bentonite	9	8
	Grout	8	0

Well Cap or Box: Flush mounted traffic rated

Project Name: Bill Chun Texaco Project No: 6-92-5005
Location: 2301 Santa Clara Avenue, Alameda, California

Driller: Soils Exploration Services, Inc.
Method: Hollow Stem Auger
Hole Diameter: 8 in. O.D. Total Depth: 25 Feet
Ref. Elevations: 31.18 Feet AMSL (TOC)
Logged By: Chris Valcheff

Dates:
Start: 1-4-93
Finish: 1-4-93

Depth (ft)	Lithologic Description	USC	Graphic Log: Sample/Blows	Graphic Log: Lithology	Graphic Log: Well Installation	Vapor	Remarks: Water, drilling/completion, summary, sample type
0	Asphalt						
	FILL	SC					
	CLAYEY SAND; grey, 25-30% clay, medium to coarse grained sands, medium dense, moist, no odor.						
	NATIVE	SM					
	SILTY SAND; dark brown, 10-20% silt, medium grained sand, medium dense, damp, no odor.						
	As above, light brown.						
5	As above, grey, heavy hydrocarbon odor.	SM	2, 4, 5			22	Sample @ 6.0 Feet
10	As above, moist.	SM	3, 13, 10			225	Sample @ 10 Feet
15	SILTY SAND; brown, 10-20% silt, medium grained, sand, medium dense, wet, slight hydrocarbon odor.	SM	2, 12, 15				Sample @ 15 Feet, only 6" of recovery Water @ 15.5 Feet
20	As above, no odor.		8, 14, 20				Sample saturated with water
25							Total Drilled Depth: 25 Feet

REGISTERED GEOLOGIST
MICHAEL E. QUILLIN
#5315
STATE OF CALIFORNIA

Environmental Science & Engineering, Inc.

BORING LOG AND WELL COMPLETION SUMMARY

MW-2

Page 1 of 1

WELL COMPLETION

- Completion Depth: 25 Feet

Size/Type	From	To
Casing: 2" PVC SCH. 40	0	10
Screen: Slot 0.02" PVC	10	25
Filter: 2/12 Sand	25	9
Seal: Bentonite	9	8
Grout	8	0

Well Cap or Box: Flush mounted traffic rated

Project Name: Bill Chun Texaco Project No: 6-92-5005
Location: 2301 Santa Clara Avenue, Alameda, California

Driller: Solis Exploration Services, Inc.
Method: Hollow Stem Auger
Hole Diameter: 8 in. O.D. Total Depth: 25 Feet
Ref. Elevations: 31.21 Feet AMSL (TOC)
Logged By: Chris Valcheff

Dates:
Start: 1-4-93
Finish: 1-4-93

Depth (ft)	Lithologic Description	USC	Graphic Log: Sample/Blows	Graphic Log: Lithology	Graphic Log: Well Installation	Vapor	Remarks (Water, drilling/completion, summary, sample type)
0	Asphalt						
	FILL SILTY SAND; dark brown, 10-20% silt, medium grained sand, medium dense, moist, no odor.	SM					
	NATIVE SILTY SAND; light brown, 5-10% silt, medium grained sand, medium dense, damp, no odor.	SM					
5	As above, slight hydrocarbon odor.	SM	4 5 7			120	Sample @ 6.0 Feet
	SILTY SAND; blue/grey, 10-20% silt, fine to medium grained sand, moist, dense, strong hydrocarbon odor.						
10		SM	9 14 14			300	Sample @ 10 Feet, only 6" of recovery
	As above, light brown, moist, no odor.						
15		SM	8 4 16				No recovery with 2" sampler standard = 6" recovery ▼ Water @ 15 Feet
							Standard Pen - recover ~ 6"
20	As above, wet.		10 15 19				
25							Total Drilled Depth: 25 Feet

REGISTERED GEOLOGIST
MICHAEL E. QUILLIN
#5315
STATE OF CALIFORNIA

Environmental Science & Engineering, Inc.

BORING LOG AND WELL COMPLETION SUMMARY

MW-3

Page 1 of 1

WELL COMPLETION

Completion Depth: 25 Feet

Size/Type	From	To
Casing: 2" PVC SCH. 40	0	10
Screen: Slot 0.02" PVC	10	25
Filter: 2/12 Sand	25	9
Seal: Bentonite	9	8
Grout	8	0

Well Cap or Box: Flush mounted traffic rated

Project Name: Bill Chun Texaco Project No: 6-92-5005

Location: 2301 Santa Clara Avenue, Alameda, California

Driller: Soils Exploration Services, Inc.
Method: Hollow Stem Auger
Hole Diameter: 8 in. O.D. Total Depth: 25 Feet
Ref. Elevations: 30.89 Feet AMSL (TOC)
Logged By: Chris Valcheff

Dates:
Start: 1-5-93
Finish: 1-5-93

Depth (ft)	Lithologic Description	USC	Graphic Log: Sample/Blows	Vapor	Remarks (Water, drilling/completion, summary, sample type)
0	Concrete				
	FILL				
	SILTY SAND; dark brown, 10-20% silt, medium grained sand, medium dense, damp, no odor.	SM			
	NATIVE				
	SILTY SAND; light brown, 5-10% silt, fine to medium grained sand, medium dense, damp, no odor.	SM			
5		SM	2, 4, 7	5.0	Sample @ 6.0 Feet
	SILTY SAND; blue/grey, 10-20% silts, fine to medium grained sand, moist, dense, strong hydrocarbon odor.				
10	As above, saturated with liquid, dense, strong hydrocarbon odor.	SM	7, 14, 19	300	Sample @ 10 Feet
	SILTY SAND; light brown, 10-20% silts, fine to medium grained sand, dense, wet, slight hydrocarbon odor.				
15		SM	10, 20, 23	19	Water @ 15 Feet Sample @ 15.5 Feet
20	As above.		8, 12, 22		No Recovery - wet
25					Total Drilled Depth 25 Feet

REGISTERED GEOLOGIST
MICHAEL E. QUILLIN
#5315
STATE OF CALIFORNIA

APPENDIX D

ANALYTICAL RESULTS FOR SOIL BORING SAMPLES

COAST · TO · COAST ANALYTICAL SERVICES

Air, Water & Hazardous Waste Sampling, Analysis & Consultation
Certified Hazardous Waste, Chemistry, Bacteriology & Bioassay Laboratories

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NorCal Division (Benicia Laboratory) (707) 747-2757
6006 Egret Court, Benicia, California 94510 FAX (707)747-2765

CLIENT: Mike Quillin
Environmental Science & Engineering
4090 Nelson Avenue Suite J
Concord, CA 94520

Lab Number : BJ-0051-1
Project : 6-92-5005 Wayne Chun, 2301 Santa Clara Ave., Alam
Analyzed : 01/22/93
Analyzed by: HC
Method : As Listed

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	DATE RECEIVED
[redacted]' (BJ0005-1A)	[redacted]	Chris Valcheff	01/04/93	01/06/93

CONSTITUENT	(CAS RN)	*PQL mg/Kg	RESULT mg/Kg	NOTE
FUEL FINGERPRINT ANALYSIS				1,2,3
Benzene	(71432)	0.5	1.8	
Toluene	(108883)	1.	17.	
Ethylbenzene	(100411)	0.5	10.	
Xylenes, Total		0.5	54.	
1,2-Dichloroethane (EDC)	(107062)	0.5	ND	
1,2-Dibromoethane (EDB)	(106934)	0.5	ND	
Total Petroleum Hydrocarbons (Diesel 2)		50.	ND	
Total Petroleum Hydrocarbons (Weathered Gas)		50.	640.	
BTX as a percent of fuel			11.	
1,2-Dichloroethane-d4 (Percent Surrogate Recovery)	(107062)		92.	
Toluene-d8 (Percent Surrogate Recovery)			101.	
p-Bromofluorobenzene (Percent Surrogate Recovery)			85.	

Benicia Lab Certifications: CAELAP #1719; L.A.Co.CSD #10185
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)
(1) ANALYZED by CAL DHS DRAFT TPH (modified) and EPA 8260 (GC/MS)
(2) EXTRACTED by EPA 5030 (purge-and-trap)
(3) High concentration of some analytes caused the sample to be run diluted resulting in raised Practical Quantitation Limits for analytes. Refer to instrument blank for undiluted Practical Quantitation Limits.

01/24/93
INCOS 50-387
MC/trk/htc
BJA22I1

RECEIVED
JAN 27

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

Marissa C. Coronel

Marissa Coronel
Laboratory Director

COAST · TO · COAST ANALYTICAL SERVICES

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6006 Egret Court, Benicia, California 94510 FAX (707)747-2765

CLIENT: Mike Quillin
Environmental Science & Engineering
4090 Nelson Avenue Suite J
Concord, CA 94520

Lab Number : BJ-0051-2
Project : 6-92-5005 Wayne Chun,
2301 Santa Clara Ave., Alam
Analyzed : 01/22/93
Analyzed by: HC
Method : As Listed

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	DATE RECEIVED
MW-2-10' (BJ0005-1B)	Soil	Chris Valcheff	01/04/93	01/06/93

CONSTITUENT	(CAS RN)	*PQL mg/Kg	RESULT mg/Kg	NOTE
FUEL FINGERPRINT ANALYSIS				1,2,3
Benzene	(71432)	2.	110.	
Toluene	(108883)	5.	650.	
Ethylbenzene	(100411)	2.	210.	
Xylenes, Total		2.	1200.	
1,2-Dichloroethane (EDC)	(107062)	2.	ND	
1,2-Dibromoethane (EDB)	(106934)	2.	ND	
Total Petroleum Hydrocarbons (Gasoline)		300.	5800.	
Total Petroleum Hydrocarbons (Diesel 2)		300.	ND	
BTX as a percent of fuel			37.	
1,2-Dichloroethane-d4 (Percent Surrogate Recovery)	(107062)		91.	
Toluene-d8 (Percent Surrogate Recovery)			111.	
p-Bromofluorobenzene (Percent Surrogate Recovery)			86.	

Benicia Lab Certifications: CAELAP #1719; L.A.Co.CSD #10185
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)
(1) ANALYZED by CAL DHS DRAFT TPH (modified) and EPA 8260 (GC/MS)
(2) EXTRACTED by EPA 5030 (purge-and-trap)
(3) High concentration of some analytes caused the sample to be run diluted resulting in raised Practical Quantitation Limits for analytes. Refer to instrument blank for undiluted Practical Quantitation Limits.

01/25/93
INCOS 50-387
MC/trk/htc
BJA22I1

Respectfully submitted,
COAST-TO-COAST ANALYTICAL SERVICES, INC.
Marissa C. Coronel
Marissa Coronel
Laboratory Director

COAST - TO - COAST ANALYTICAL SERVICES

Air, Water & Hazardous Waste Sampling, Analysis & Consultation
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NorCal Division (Benicia Laboratory) (707) 747-2757
6006 Egret Court, Benicia, California 94510 FAX (707)747-2765

CLIENT: Mike Quillin
Environmental Science & Engineering
4090 Nelson Avenue Suite J
Concord, CA 94520

Lab Number : BJ-0051-3
Project : 6-92-5005 Wayne Chun,
2301 Santa Clara Ave., Alam
Analyzed : 01/22/93
Analyzed by: HC
Method : As Listed

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED DATE	RECEIVED
MW-3-10' (BJ0005-1C)	Soil	Chris Valcheff	01/05/93	01/06/93

CONSTITUENT	(CAS RN)	*PQL mg/Kg	RESULT mg/Kg	NOTE
FUEL FINGERPRINT ANALYSIS				1,2,3
Benzene	(71432)	0.5	ND	
Toluene	(108883)	1.	2.	
Ethylbenzene	(100411)	0.5	ND	
Xylenes, Total		0.5	1.4	
1,2-Dichloroethane (EDC)	(107062)	0.5	ND	
1,2-Dibromoethane (EDB)	(106934)	0.5	ND	
Total Petroleum Hydrocarbons (Diesel 2)		50.	ND	
Total Petroleum Hydrocarbons (Weathered Gas)		50.	2100.	
BTX as a percent of fuel			0.2	
1,2-Dichloroethane-d4 (Percent Surrogate Recovery)	(107062)		102.	
Toluene-d8 (Percent Surrogate Recovery)			129.	
p-Bromofluorobenzene (Percent Surrogate Recovery)			91.	

Benicia Lab Certifications: CAELAP #1719; L.A.Co.CSD #10185
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)
(1) ANALYZED by CAL DHS DRAFT TPH (modified) and EPA 8260 (GC/MS)
(2) EXTRACTED by EPA 5030 (purge-and-trap)
(3) High concentration of some analytes caused the sample to be run diluted resulting in raised Practical Quantitation Limits for analytes. Refer to instrument blank for undiluted Practical Quantitation Limits.

01/24/93
INCOS 50-387
MC/trk/htc
BJA22I1

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

Marissa C. Coronel

Marissa Coronel
Laboratory Director

COAST - TO - COAST ANALYTICAL SERVICES

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NorCal Division (Benicia Laboratory) (707) 747-2757
6006 Egret Court, Benicia, California 94510 FAX (707)747-2765

QC Batch ID: BJA22I1

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

Analyzed : 01/22/93
Analyzed by: HC
Method : As Listed

METHOD BLANK
REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	DATE RECEIVED
METHOD BLANK	Solid			

CONSTITUENT	(CAS RN)	*PQL mg/Kg	RESULT mg/Kg	NOTE
FUEL FINGERPRINT ANALYSIS				1,2
Benzene	(71432)	0.005	ND	
Toluene	(108883)	0.01	ND	
Ethylbenzene	(100411)	0.005	ND	
Xylenes, Total		0.005	ND	
1,2-Dichloroethane (EDC)	(107062)	0.005	ND	
1,2-Dibromoethane (EDB)	(106934)	0.005	ND	
Total Petroleum Hydrocarbons (Gasoline)		0.5	ND	
Total Petroleum Hydrocarbons (Diesel 2)		0.5	ND	
BTX as a percent of fuel			Not Appl.	
1,2-Dichloroethane-d4 (Percent Surrogate Recovery)	(107062)		87.	
Toluene-d8 (Percent Surrogate Recovery)			100.	
p-Bromofluorobenzene (Percent Surrogate Recovery)			84.	

Benicia Lab Certifications: CAELAP #1719; L.A.Co.CSD #10185
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)
(1) ANALYZED by CAL DHS DRAFT TPH (modified) and EPA 8260 (GC/MS)
(2) EXTRACTED by EPA 5030 (purge-and-trap)

01/24/93
INCOS 50-387
MC/trk/htc
BJ0051-3

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

Marissa C. Coronel

Marissa Coronel
Laboratory Director

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FAX (707)747-2765

QC Batch ID: BJA22I1

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

Analyzed : 01/22/93
Analyzed by: HC
Method : As Listed

QC SPIKE
REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	DATE RECEIVED
QC SPIKE	Solid			

CONSTITUENT	*PQL mg/Kg	SPIKE AMOUNT	RESULT mg/Kg	%REC	NOTE
FUEL FINGERPRINT ANALYSIS					1,2
Benzene	0.005	0.17	0.16	94.	
Toluene	0.01	0.72	0.66	92.	
Ethylbenzene	0.005	0.16	0.15	94.	
Xylenes, Total	0.005	0.84	0.78	93.	
1,2-Dichloroethane (EDC)	0.005		NS		
1,2-Dibromoethane (EDB)	0.005		NS		
Total Petroleum Hydrocarbons (Gasoline)	0.5	7.1	6.1	86.	
Total Petroleum Hydrocarbons (Diesel 2)	0.5		NS		
BTX as a percent of fuel		24.	26.		
1,2-Dichloroethane-d4 (Percent Surrogate Recovery)		100.	95.		
Toluene-d8 (Percent Surrogate Recovery)		100.	105.		
p-Bromofluorobenzene (Percent Surrogate Recovery)		100.	79.		

Benicia Lab Certifications: CAELAP #1719; L.A.Co.CSD #10185
* RESULTS listed as 'NS' were not spiked. PQL = Practical Quantitation Limit
(1) ANALYZED by CAL DHS DRAFT TPH (modified) and EPA 8260 (GC/MS)
(2) EXTRACTED by EPA 5030 (purge-and-trap)

01/24/93
INCOS 50-387
MC/trk/htc
BJ0051-3

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

Marissa C. Coronel

Marissa Coronel
Laboratory Director

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QC Batch ID: BJA22I1

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

Analyzed : 01/22/93
Analyzed by: HC
Method : As Listed

QC SPIKE
REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED DATE RECEIVED
QC SPIKE DUPLICATE	Solid		

CONSTITUENT	*PQL mg/Kg	SPIKE AMOUNT	RESULT mg/Kg	%REC	%DIFF	NOTE
FUEL FINGERPRINT ANALYSIS						1,2
Benzene	0.005	0.17	0.16	94.	0.	
Toluene	0.01	0.72	0.65	90.	1.5	
Ethylbenzene	0.005	0.16	0.16	100.	6.5	
Xylenes, Total	0.005	0.84	0.78	93.	0.	
1,2-Dichloroethane (EDC)	0.005		NS			
1,2-Dibromoethane (EDB)	0.005		NS			
Total Petroleum Hydrocarbons (Gasoline)	0.5	7.1	6.1	86.	0.	
Total Petroleum Hydrocarbons (Diesel 2)	0.5		NS			
BTX as a percent of fuel		24.	26.			
1,2-Dichloroethane-d4 (Percent Surrogate Recovery)		100.	89.			
Toluene-d8 (Percent Surrogate Recovery)		100.	102.			
p-Bromofluorobenzene (Percent Surrogate Recovery)		100.	81.			

Benicia Lab Certifications: CAELAP #1719; L.A.Co.CSD #10185
* RESULTS listed as 'NS' were not spiked. PQL = Practical Quantitation Limit
(1) ANALYZED by CAL DHS DRAFT TPH (modified) and EPA 8260 (GC/MS)
(2) EXTRACTED by EPA 5030 (purge-and-trap)

01/24/93
INCOS 50-387
MC/trk/htc
BJ0051-3

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

Marissa C. Coronel

Marissa Coronel
Laboratory Director

CHAIN OF CUSTODY RECORD

390051 390052

DATE 1-4-93 PAGE 1 OF 1

PROJECT NAME

ADDRESS 2301 SANTA CLARA AVE. ALAMEDA, CA

PROJECT NO. 6-92-5005

SAMPLED BY CHRIS VALCARCEL

LAB NAME

ESE Environmental Science & Engineering, Inc.
A CH2M HILL company
4090 Nelson Avenue Suite J Concord, CA 94520
(415) 685-4053
Fax (415) 685-5323

SAMPLE #	DATE	TIME	LOCATION	FUEL FINGERPRINT (8260)	ORGANICS LEAD	RCI - COMPOSITE (SEE NOTE)	MATRIX	NUMBER OF CONTAINERS	REMARKS (CONTAINER, SIZE, ETC.)
MW-2-10'	1-4-93	1335	ALAMEDA	X	X	X	SOIL	1	-2
MW-2-15'		1345						1	HOLD
MW-2-6'		1320						1	HOLD
MW-1-10'		0950		X	X	X		1	-1
MW-1-6'		0945						1	HOLD
MW-1-15'		1000						1	HOLD

ANALYSES TO BE PERFORMED

MATRIX

RELINQUISHED BY: (signature)	RECEIVED BY: (signature)	date	time
1. C. Valcarcel	M. Quilin	1-4-93	1800
2. M. Quilin	J. GREGORY	1-6-93	0915
3.			
4.			
5.			

6 TOTAL NUMBER OF CONTAINERS

REPORT RESULTS TO: MIKE QUILIN

SPECIAL SHIPMENT REQUIREMENTS: CCAS COURIER

SAMPLE RECEIPT

CHAIN OF CUSTODY SEALS	
REC'D GOOD CONDTN/COLD	
CONFORMS TO RECORD	

INSTRUCTIONS TO LABORATORY (handling, analyses, storage, etc.):
NORMAL TA *COMPOSITE MW-1 @ 10' MW-2 @ 10' MW-3 @ 10' FOR RCI

CHAIN OF CUSTODY RECORD

DATE 1-5-93 PAGE 1 OF 1

PROJECT NAME WAYNE GWN

ADDRESS 2301 SANTA CLARA AVE
ALAMEDA, CA

PROJECT NO. 6-92-5005

SAMPLED BY CHRIS VALCHEFF

LAB NAME

ESE Environmental Science & Engineering, Inc.
4090 Nelson Avenue
Suite J
Concord, CA 94520
(415) 685-4053
Fax (415) 685-5323

SAMPLE #	DATE	TIME	LOCATION	ANALYSES TO BE PERFORMED: FUEL FINGERPRINT (8020)	ANALYSES TO BE PERFORMED: ORGANIC LEAD	ANALYSES TO BE PERFORMED: PCT - SEE NOTE	MATRIX	NUMBER OF CONTAINERS	REMARKS (CONTAINER, SIZE, ETC.)
MW-3-6'	1-5-93	9:35	ALAMEDA				SOIL	1	HOLD
MW-3-10'	1-5-93	10:00	ALAMEDA	X	X	X	SOIL	1	-3
MW-3-15.5'	1-5-93	10:15	ALAMEDA				SOIL	1	HOLD

RELINQUISHED BY: (signature)	RECEIVED BY: (signature)	date	time
1. C. K. Valch	M. Quillin	1-5-93	15:00
2. M. Quillin	J. GREGORY	1-6-93	0915
3.			
4.			
5.			

3 TOTAL NUMBER OF CONTAINERS

REPORT RESULTS TO: MIKE QUILLIN

SPECIAL SHIPMENT REQUIREMENTS: COAST TO COAST ANALYTICAL COURIER

SAMPLE RECEIPT

CHAIN OF CUSTODY SEALS	
REC'D GOOD CONDTN/COLD	
CONFORMS TO RECORD	

INSTRUCTIONS TO LABORATORY (handling, analyses, storage, etc.):

NORMAL T/A

* COMPOSITE MW-3@10' W/ MW-2@10' and MW-1@10'

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Anaheim, CA • Tempe, AZ • Valparaiso, IN • Westbrook, ME • Indianapolis, IN

NorCal Division (Benicia Laboratory) (707) 747-2757
6006 Egret Court, Benicia, California 94510 FAX (707)747-2765

CLIENT: Mike Quillin
Environmental Science & Engineering
4090 Nelson Avenue Suite J
Concord, CA 94520

Lab Number : BJ-0005-1
Project : 6-92-5005 Wayne Chun,
2301 Santa Clara Ave, Alame
Analyzed : 01/14/93
Analyzed by: HC
Method : As Listed

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED DATE RECEIVED
MW-1-10', MW-2-10', MW-3-10'	Soil	Chris Valcheff	01/06/93

CONSTITUENT	(CAS RN)	*PQL mg/Kg	RESULT mg/Kg	NOTE
FUEL FINGERPRINT ANALYSIS				1,2
Benzene	(71432)	5.	43.	
Toluene	(108883)	10.	180.	
Ethylbenzene	(100411)	5.	65.	
Xylenes, Total		5.	240.	
1,2-Dichloroethane (EDC)	(107062)	5.	ND	
1,2-Dibromoethane (EDB)	(106934)	5.	ND	
Total Petroleum Hydrocarbons (Diesel 2)		500.	ND	
Total Petroleum Hydrocarbons (Weathered Gas)		500.	6100.	
BTX as a percent of fuel			8.6	
1,2-Dichloroethane-d4 (Percent Surrogate Recovery)	(107062)		78.	
Toluene-d8 (Percent Surrogate Recovery)			96.	
p-Bromofluorobenzene (Percent Surrogate Recovery)			96.	

Benicia Lab Certifications: CAELAP #1719; L.A.Co.CSD #10185
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)
(1) ANALYZED by CAL DHS DRAFT TPH (modified) and EPA 8260 (GC/MS)
(2) EXTRACTED by EPA 5030 (purge-and-trap)

02/02/93
INCOS 50-387
MC/trk/abs
BJA14I1

Respectfully submitted,
COAST-TO-COAST ANALYTICAL SERVICES, INC.
Marissa C. Coronel

Marissa Coronel
Laboratory Director

COAST - TO - COAST ANALYTICAL SERVICES

Air, Water & Hazardous Waste Sampling, Analysis & Consultation
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San Luis Obispo Division (805) 543-2553
141 Suburban Road, San Luis Obispo, California 93401 FAX (805) 543-2685

Lab Number : BJ-0005-1
Project : 6-92-5005 Wayne Chun,
2301 Santa Clara Ave, Alame

CLIENT: Mike Quillin
Environmental Science & Engineering
4090 Nelson Avenue Suite J
Concord, CA 94520

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED DATE	RECEIVED
MW-1-10', MW-2-10', MW-3-10'	Soil	Chris Valcheff		01/06/93

CONSTITUENT	*PQL	RESULT	UNITS	METHOD	ANALYZED	BY	NOTES
Lead, Organic	0.1	ND	mg/Kg	22CAC	01/12/93	JW	

Lab Certifications: CAELAP #1598 & #1783, UTELAP #E-142, A2LA #0136-01, L.A.Co.CSD #10187.
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)

02/02/93

MH/wcc/jlw
JA12EPB

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

Mary Havlicek

Mary Havlicek, Ph.D.
President

COAST · TO · COAST ANALYTICAL SERVICES

Air, Water & Hazardous Waste Sampling, Analysis & Consultation
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San Luis Obispo Division (805) 543-2553
141 Suburban Road, San Luis Obispo, California 93401 FAX (805) 543-2685

QC Batch ID: JA12EPB

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

METHOD BLANK
REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED DATE RECEIVED
METHOD BLANK	Solid		

CONSTITUENT	*PQL	RESULT	UNITS	METHOD	ANALYZED	BY NOTE
Lead, Organic	0.1	ND	mg/Kg	22CAC	01/12/93	JW

Lab Certifications: CAELAP #1598 & #1783, UTELAP #E-142, A2LA #0136-01, L.A.Co.CSD #10187.
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)

02/02/93

MH/wcc/jlw
BJ0005-1

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

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Mary Havlicek, Ph.D.
President

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San Luis Obispo Division (805) 543-2553
141 Suburban Road, San Luis Obispo, California 93401 FAX (805) 543-2685

QC Batch ID: JA12EPB

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

QC MATRIX SPIKE
REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	DATE RECEIVED
MATRIX SPIKE	Solid			

CONSTITUENT	ORIGINAL	SPIKE	RESULT	%REC	UNITS	METHOD	ANALYZED	BY	NOTE
Lead, Organic	ND	14.	12.	86.	mg/Kg	22CAC	01/12/93	JW	

Lab Certifications: CAELAP #1598 & #1783, UTELAP #E-142, A2LA #0136-01, L.A.Co.CSD #10187.
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)

02/02/93

MH/wcc/jlw
BJ0005-1

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141 Suburban Road, San Luis Obispo, California 93401 FAX (805) 543-2685

QC Batch ID: JA12EPB

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

QC MATRIX SPIKE
REPORT OF ANALYTICAL RESULTS

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

CONSTITUENT	ORIGINAL	SPIKE	RESULT	%DIFF	UNITS	METHOD	ANALYZED	BY	NOTE
Lead, Organic	ND	14.	9.1	27.	mg/Kg	22CAC	01/12/93	JW	

Lab Certifications: CAELAP #1598 & #1783, UTELAP #E-142, A2LA #0136-01, L.A.Co.CSD #10187.
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)

02/02/93

MH/wcc/jlw
BJ0005-1

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NorCal Division (Benicia Laboratory) (707) 747-2757
6006 Egret Court, Benicia, California 94510 FAX (707)747-2765

Lab Number : BJ-0005-1
Project : 6-92-5005 Wayne Chun,
2301 Santa Clara Ave, Alameda

CLIENT: Mike Quillin
Environmental Science & Engineering
4090 Nelson Avenue Suite J
Concord, CA 94520

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	DATE RECEIVED
MW-1-10', MW-2-10', MW-3-10'	Soil	Chris Valcheff		01/06/93

CONSTITUENT	*PQL	RESULT	UNITS	METHOD	ANALYZED	BY	NOTES
Flashpoint	1	>200.	degrees F	EPA 1020	01/11/93	TD	1,2

Benicia Lab Certifications: CAELAP #1719; L.A.Co.CSD #10185
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)
(1) Sample Preparation on 01/11/93 by TID
(2) Standard used was N,N-Dimethyl-Formamide, which flashed at 135 degrees F

01/14/93
PS
MC/trk/abs
BJA11F1

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

Marissa C. Coronel

Marissa Coronel
Laboratory Director

COAST · TO · COAST ANALYTICAL SERVICES

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NorCal Division (Benicia Laboratory) (707) 747-2757
6006 Egret Court, Benicia, California 94510 FAX (707)747-2765

Lab Number : BJ-0005-1
Project : 6-92-5005 Wayne Chun, 2301 Santa Clara Ave, Alame

CLIENT: Mike Quillin
Environmental Science & Engineering
4090 Nelson Avenue Suite J
Concord, CA 94520

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED DATE	RECEIVED
MW-1-10', MW-2-10', MW-3-10'	Soil	Chris Valcheff		01/06/93

CONSTITUENT	*PQL	RESULT	UNITS	METHOD	ANALYZED	BY	NOTES
pH	0.1	6.2	Units	EPA 9045	01/20/93	TD	

Benicia Lab Certifications: CAELAP #1719; L.A.Co.CSD #10185
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)

02/02/93
CPIC
MC/trk/abs
BJA20P1

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

Marissa C. Coronel

Marissa Coronel
Laboratory Director

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

Lab Number : BJ-0005-1
Project : 6-92-5005 Wayne Chun,
2301 Santa Clara Ave, Alameda

CLIENT: Mike Quillin
Environmental Science & Engineering
4090 Nelson Avenue Suite J
Concord, CA 94520

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	DATE RECEIVED
MW-1-10', MW-2-10', MW-3-10'	Soil	Chris Valcheff		01/06/93

CONSTITUENT	*PQL	RESULT	UNITS	METHOD	ANALYZED	BY	NOTES
PRESENCE OF CYANIDE	0.5	Negative	mg/Kg	ASTM D5049	01/18/93	CL	
PRESENCE OF SULFIDE	0.5	Positive	mg/Kg	ASTM D4978	01/20/93	CL	

San Jose Lab Certifications: CAELAP #1204
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)

01/21/93

MC/sab/cml
CN93011801

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

Nick Gaone, Inorganics Manager

Marissa Coronel
Laboratory Director

CHAIN OF CUSTODY RECORD

DATE 1-4-93 PAGE 1 OF 1

PROJECT NAME

ADDRESS 2301 SANTA CLARA AVE.
ALAMEDA, CA

PROJECT NO. 6-92-5005

SAMPLED BY CHRIS VALCARCEL

LAB NAME

ESE Environmental Science & Engineering, Inc.
A CH2M HILL Company
4090 Nelson Avenue
Suite J
Concord, CA 94520
(415) 685-4053
Fax (415) 685-5323

SAMPLE #	DATE	TIME	LOCATION	FUEL FINGERPRINT (BOLD)	ORGANICS (8240)	RCI - COMPOSITE (SEE NOTE)	MATRIX	NUMBER OF CONTAINERS	REMARKS (CONTAINER, SIZE, ETC.)
MW-2-10'	1-4-93	1335	ALAMEDA	X	X	X	SOIL	1	
MW-2-15'		1345						1	HOLD
MW-2-6'		1320						1	HOLD
MW-1-10'		0950		X	X	X		1	
MW-1-6'		0945						1	HOLD
MW-1-15'		1000						1	HOLD

RELINQUISHED BY: (signature)	RECEIVED BY: (signature)	date	time
1. C. Valcarcel	M. Quilin	1-4-93	1900
2. M. Quilin	J. GREGORY	1-6-93	0915
3.			
4.			
5.			

6 TOTAL NUMBER OF CONTAINERS

REPORT RESULTS TO: MIKE QUILIN

SPECIAL SHIPMENT REQUIREMENTS: CCAS COURIER

SAMPLE RECEIPT

CHAIN OF CUSTODY SEALS	
REC'D GOOD CONDTN/COLD	
CONFORMS TO RECORD	

INSTRUCTIONS TO LABORATORY (handling, analyses, storage, etc.):
NORMAL TA *COMPOSITE MW-1@10' MW-2@10' MW-3@10' FOR RCI

CHAIN OF CUSTODY RECORD

DATE 1-5-93 PAGE 1 OF 1

PROJECT NAME WAYNE CHUN

ADDRESS 2301 SANTA CLARA AVE
ALAMEDA, CA

PROJECT NO. 6-92-5005

SAMPLED BY CHRIS VALCHEFF

LAB NAME

ESE Environmental Science & Engineering, Inc.
A CH2M HILL Company
4090 Nelson Avenue
Suite J
Concord, CA 94520
(415) 685-4053
Fax (415) 685-5323

SAMPLE #	DATE	TIME	LOCATION	ANALYSES TO BE PERFORMED: FUEL FINGERPRINT (8260)	ANALYSES TO BE PERFORMED: ORGANIC LEAD	ANALYSES TO BE PERFORMED: RCT-SEE NOTE	MATRIX	NUMBER OF CONTAINERS	REMARKS (CONTAINER, SIZE, ETC.)
MW-3-6'	1-5-93	9:35	ALAMEDA				SOIL	1	HOLD
MW-3-10'	1-5-93	10:00	ALAMEDA	X	X	X	SOIL	1	
MW-3-15.5'	1-5-93	10:15	ALAMEDA				SOIL	1	HOLD

RELINQUISHED BY: (signature)	RECEIVED BY: (signature)	date	time
1. C K Valch	M. Quillin	1-5-93	15:00
2. M. Quillin	J. GREGORY	1-6-93	0915
3.			
4.			
5.			

3 TOTAL NUMBER OF CONTAINERS

REPORT RESULTS TO: MIKE QUILLIN

SPECIAL SHIPMENT REQUIREMENTS: COAST TO COAST ANALYTICAL COURIER

SAMPLE RECEIPT

CHAIN OF CUSTODY SEALS	
REC'D GOOD CONDTN/COLD	
CONFORMS TO RECORD	

INSTRUCTIONS TO LABORATORY (handling, analyses, storage, etc.):

NORMAL T/A * COMPOSITE MW-3 @ 10' W/ MW-2 @ 10' and MW-1 @ 10'

APPENDIX E

ANALYTICAL RESULTS FOR GROUND WATER SAMPLES

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San Luis Obispo Division (805) 543-2553
141 Suburban Road, San Luis Obispo, California 93401 FAX (805) 543-2685

CLIENT: Mike Quillin
Environmental Science & Engineering
4090 Nelson Avenue Suite J
Concord, CA 94520

Lab Number : BJ-0020-1
Project : 6-92-5005 Wayne Citun,
2301 Santa Clara Ave., Alar

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED DATE	RECEIVED
MW-1	Aqueous	Paul Marsden	01/07/93	01/08/93

CONSTITUENT	*PQL	RESULT	UNITS	METHOD	ANALYZED	BY	NOTES
Lead, Organic	0.03	ND	mg/L	22CAC	01/25/93	JW	

Lab Certifications: CAELAP #1598 & #1783, UTELAP #E-142, A2LA #0136-01, L.A.Co.CSD #10187.
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)

01/27/93

MH/wcc/jlw
JA25EPBA

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

Mary Havlicek

Mary Havlicek, Ph.D.
President

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San Luis Obispo Division (805) 543-2553
141 Suburban Road, San Luis Obispo, California 93401 FAX (805) 543-2685

Lab Number : BJ-0020-2
Project : 6-92-5005 Wayne Citun,
2301 Santa Clara Ave., Alam

CLIENT: Mike Quillin
Environmental Science & Engineering
4090 Nelson Avenue Suite J
Concord, CA 94520

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	DATE RECEIVED
MW-2	Aqueous	Paul Marsden	01/07/93	01/08/93

CONSTITUENT	*PQL	RESULT	UNITS	METHOD	ANALYZED	BY	NOTES
Lead, Organic	0.03	ND	mg/L	22CAC	01/25/93	JW	

Lab Certifications: CAELAP #1598 & #1783, UTELAP #E-142, A2LA #0136-01, L.A.Co.CSD #10187.
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)

01/27/93

MH/wcc/jlw
JA25EPBA

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

Mary Havlicek

Mary Havlicek, Ph.D.
President

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Anaheim, CA • Tempe, AZ • Valparaiso, IN • Westbrook, ME • Indianapolis, IN

San Luis Obispo Division (805) 543-2553
141 Suburban Road, San Luis Obispo, California 93401 FAX (805) 543-2685

Lab Number : BJ-0020-3
Project : 6-92-5005 Wayne Citun,
2301 Santa Clara Ave., Alam

CLIENT: Mike Quillin
Environmental Science & Engineering
4090 Nelson Avenue Suite J
Concord, CA 94520

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	DATE RECEIVED
MW-3	Aqueous	Paul Marsden	01/07/93	01/08/93

CONSTITUENT	*PQL	RESULT	UNITS	METHOD	ANALYZED	BY	NOTES
Lead, Organic	0.03	ND	mg/L	22CAC	01/25/93	JW	

Lab Certifications: CAELAP #1598 & #1783, UTELAP #E-142, A2LA #0136-01, L.A.Co.CSD #10187.
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)

01/27/93

MH/wcc/jlw
JA25EPBA

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Mary Havlicek

Mary Havlicek, Ph.D.
President

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6006 Egret Court, Benicia, California 94510 FAX (707)747-2765

CLIENT: Mike Quillin
Environmental Science & Engineering
4090 Nelson Avenue Suite J
Concord, CA 94520

Lab Number : BJ-0020-1
Project : 6-92-5005 Wayne Citun,
2301 Santa Clara Ave., Alam
Analyzed : 01/14/93
Analyzed by: HC
Method : As Listed

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	DATE RECEIVED
[redacted]	[redacted]	Paul Marsden	01/07/93	01/08/93

CONSTITUENT	(CAS RN)	*PQL µg/L	RESULT µg/L	NOTE
FUEL FINGERPRINT ANALYSIS				1,2
Benzene	(71432)	20.	[redacted]	
Toluene	(108883)	50.	[redacted]	
Ethylbenzene	(100411)	30.	[redacted]	
Xylenes, Total		30.	[redacted]	
1,2-Dichloroethane (EDC)	(107062)	30.	[redacted]	
1,2-Dibromoethane (EDB)	(106934)	30.	ND	
Total Petroleum Hydrocarbons (Gasoline)		3000.	[redacted]	
Total Petroleum Hydrocarbons (Diesel 2)		3000.	ND	
BTX as a percent of fuel			[redacted]	
1,2-Dichloroethane-d4 (Percent Surrogate Recovery)	(107062)		[redacted]	
Toluene-d8 (Percent Surrogate Recovery)			[redacted]	
p-Bromofluorobenzene (Percent Surrogate Recovery)			[redacted]	

Benicia Lab Certifications: CAELAP #1719; L.A.Co.CSD #10185
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)
(1) ANALYZED by CAL DHS DRAFT TPH (modified) and EPA 8260 (GC/MS)
(2) EXTRACTED by EPA 5030 (purge-and-trap)

01/21/93
INCOS 50-387
MC/trk
BJA14I1

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

Marissa C. Coronel

Marissa Coronel
Laboratory Director

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6006 Egret Court, Benicia, California 94510 FAX (707) 747-2765

CLIENT: Mike Quillin
Environmental Science & Engineering
4090 Nelson Avenue Suite J
Concord, CA 94520

Lab Number : BJ-0020-2
Project : 6-92-5005 Wayne Citun,
2301 Santa Clara Ave., Alam
Analyzed : 01/14/93
Analyzed by: HC
Method : As Listed

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED DATE	RECEIVED
[redacted]	[redacted]	Paul Marsden	01/07/93	01/08/93

CONSTITUENT	(CAS RN)	*PQL µg/L	RESULT µg/L	NOTE
FUEL FINGERPRINT ANALYSIS				1,2
Benzene	(71432)	20.	[redacted]	
Toluene	(108883)	50.	[redacted]	
Ethylbenzene	(100411)	30.	[redacted]	
Xylenes, Total		30.	4300.	
1,2-Dichloroethane (EDC)	(107062)	30.	550.	
1,2-Dibromoethane (EDB)	(106934)	30.	ND	
Total Petroleum Hydrocarbons (Gasoline)		3000.	[redacted]	
Total Petroleum Hydrocarbons (Diesel 2)		3000.	ND	
BTX as a percent of fuel			40.	
1,2-Dichloroethane-d4 (Percent Surrogate Recovery)	(107062)		[redacted]	
Toluene-d8 (Percent Surrogate Recovery)			[redacted]	
p-Bromofluorobenzene (Percent Surrogate Recovery)			[redacted]	

Benicia Lab Certifications: CAELAP #1719; L.A.Co.CSD #10185
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)
(1) ANALYZED by CAL DHS DRAFT TPH (modified) and EPA 8260 (GC/MS)
(2) EXTRACTED by EPA 5030 (purge-and-trap)

01/21/93
INCOS 50-387
MC/trk
BJA14I1

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

Marissa C. Coronel

Marissa Coronel
Laboratory Director

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CLIENT: Mike Quillin
Environmental Science & Engineering
4090 Nelson Avenue Suite J
Concord, CA 94520

Lab Number : BJ-0020-3
Project : 6-92-5005 Wayne Citun,
2301 Santa Clara Ave., Alam
Analyzed : 01/14/93
Analyzed by: HC
Method : As Listed

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	DATE RECEIVED
[redacted]	[redacted]	Paul Marsden	01/07/93	01/08/93

CONSTITUENT	(CAS RN)	*PQL µg/L	RESULT µg/L	NOTE
FUEL FINGERPRINT ANALYSIS				1,2
Benzene	(71432)	20.	[redacted]	
Toluene	(108883)	50.	[redacted]	
Ethylbenzene	(100411)	30.	ND	
Xylenes, Total		30.	ND	
1,2-Dichloroethane (EDC)	(107062)	30.	ND	
1,2-Dibromoethane (EDB)	(106934)	30.	ND	
Total Petroleum Hydrocarbons (Diesel 2)		3000.	ND	
Total Petroleum Hydrocarbons (Crude Oil)		3000.	ND	
Total Petroleum Hydrocarbons (Jet Fuel)		3000.	ND	
Total Petroleum Hydrocarbons (Kerosene)		3000.	ND	
Total Petroleum Hydrocarbons (Stoddard)		3000.	ND	
Total Petroleum Hydrocarbons (Weathered Gas)		3000.	[redacted]	
BTX as a percent of fuel			[redacted]	
1,2-Dichloroethane-d4 (Percent Surrogate Recovery)	(107062)		[redacted]	
Toluene-d8 (Percent Surrogate Recovery)			[redacted]	
p-Bromofluorobenzene (Percent Surrogate Recovery)			[redacted]	

Benicia Lab Certifications: CAELAP #1719; L.A.Co.CSD #10185
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)
(1) ANALYZED by CAL DHS DRAFT TPH (modified) and EPA 8260 (GC/MS)
(2) EXTRACTED by EPA 5030 (purge-and-trap)

01/21/93
INCOS 50-387
MC/trk
BJA14I1

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

Marissa C. Coronel

Marissa Coronel
Laboratory Director

COAST · TO · COAST ANALYTICAL SERVICES

Air, Water & Hazardous Waste Sampling, Analysis & Consultation
Certified Hazardous Waste, Chemistry, Bacteriology & Bioassay Laboratories

San Luis Obispo, CA • Benicia, CA • Camarillo, CA • San Jose, CA
Anaheim, CA • Tempe, AZ • Valparaiso, IN • Westbrook, ME • Indianapolis, IN

NorCal Division (Benicia Laboratory) (707) 747-2757
6006 Egret Court, Benicia, California 94510 FAX (707)747-2765

CLIENT: Mike Quillin
Environmental Science & Engineering
4090 Nelson Avenue Suite J
Concord, CA 94520

Lab Number : BJ-0020-5
Project : 6-92-5005 Wayne Citun,
2301 Santa Clara Ave., Alam
Analyzed : 01/14/93
Analyzed by: HC
Method : EPA 8260

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	DATE RECEIVED
Trip Blank	Aqueous	Paul Marsden		01/08/93

CONSTITUENT	(CAS RN)	*PQL µg/L	RESULT µg/L	NOTE
BTEX (PURGEABLE AROMATICS)				1
Benzene	(71432)	0.5	ND	
Toluene	(108883)	1.	ND	
Ethylbenzene	(100411)	0.5	ND	
Xylenes, Total		0.5	ND	

Benicia Lab Certifications: CAELAP #1719; L.A.Co.CSD #10185
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)
(1) EXTRACTED by EPA 5030 (purge-and-trap)

01/21/93
INCOS 50-387
MC/trk
BJA14I1

Respectfully submitted,
COAST-TO-COAST ANALYTICAL SERVICES, INC.
Marissa C. Coronel
Marissa Coronel
Laboratory Director

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San Luis Obispo Division (805) 543-2553
141 Suburban Road, San Luis Obispo, California 93401 FAX (805) 543-2685

QC Batch ID: JA25EPBA

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

METHOD BLANK
REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	DATE RECEIVED
METHOD BLANK	Aqueous			

CONSTITUENT	*PQL	RESULT	UNITS	METHOD	ANALYZED	BY	NOTE
Lead, Organic	0.03	ND	mg/L	22CAC	01/25/93	JW	

Lab Certifications: CAELAP #1598 & #1783, UTELAP #E-142, A2LA #0136-01, L.A.Co.CSD #10187.
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)

01/27/93

MH/wcc/jlw
BJ0020-3

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

Mary Havlicek

Mary Havlicek, Ph.D.
President

COAST · TO · COAST ANALYTICAL SERVICES

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141 Suburban Road, San Luis Obispo, California 93401 FAX (805) 543-2685

QC Batch ID: JA25EPBA

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

QC MATRIX SPIKE
REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	DATE RECEIVED
MATRIX SPIKE	Aqueous			

CONSTITUENT	ORIGINAL	SPIKE	RESULT	%REC	UNITS	METHOD	ANALYZED	BY	NOTE
Lead, Organic	ND	3.0	3.3	110.	mg/L	22CAC	01/25/93	JW	

Lab Certifications: CAELAP #1598 & #1783, UTELAP #E-142, A2LA #0136-01, L.A.Co.CSD #10187.
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)

01/27/93

MH/wcc/jlw
BJ0020-3

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

Mary Havlicek

Mary Havlicek, Ph.D.
President

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141 Suburban Road, San Luis Obispo, California 93401 FAX (805) 543-2685

QC Batch ID: JA25EPBA

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

QC MATRIX SPIKE
REPORT OF ANALYTICAL RESULTS

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

CONSTITUENT	ORIGINAL	SPIKE	RESULT	%DIFF	UNITS	METHOD	ANALYZED	BY	NOTE
Lead, Organic	ND	3.0	3.1	6.3	mg/L	22CAC	01/25/93	JW	

Lab Certifications: CAELAP #1598 & #1783, UTELAP #E-142, A2LA #0136-01, L.A.Co.CSD #10187.
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)

01/27/93

MH/wcc/jlw
BJ0020-3

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

Mary Havlicek

Mary Havlicek, Ph.D.
President

BJ0020

CHAIN OF CUSTODY RECORD

DATE 1-7-93 PAGE 1 OF 1

PROJECT NAME Wayne Citgo

ADDRESS 2301 Santa Clara Av.
Alameda, CA.

PROJECT NO. 6-92-5005

SAMPLED BY Paul Marsden

LAB NAME

ESE Environmental Science & Engineering, Inc.
4090 Nelson Avenue
Suite J
Concord, CA 94520
(415) 685-4053
Fax (415) 685-5323

SAMPLE #	DATE	TIME	LOCATION	ANALYSES TO BE PERFORMED: 8020 Fuel Fingerprint	Organic Lead	BTEX								MATRIX	NUMBER OF CONTAINERS	REMARKS (CONTAINER, SIZE, ETC.)	
MW-1	1-7-93	1350	Santa Clara	X	X									Water	3	1 liter 2 Voas	1
MW-2	"	1345	"	X	X									"	3	" "	2
MW-3	"	1335	"	X	X									"	3	" "	3
Dup	"	1340	"											"	3	" " MQ	4
Trip	"		"			X								"	1	1-Voa	5

RELINQUISHED BY: (signature)	RECEIVED BY: (signature)	date	time
1.		1/7/93	1700
2.		1/8/93	0955
3.			
4.			
5.			

13 TOTAL NUMBER OF CONTAINERS

REPORT RESULTS TO:

SPECIAL SHIPMENT REQUIREMENTS

INSTRUCTIONS TO LABORATORY (handling, analyses, storage, etc.):

SAMPLE RECEIPT

CHAIN OF CUSTODY SEALS	
REC'D GOOD CONDTN/COLD	
CONFORMS TO RECORD	