PORT OF OAKLAND

March 21, 1996

Mr. Barney Chan
Alameda County Health Care Agency
Environmental Protection Division
1131 Harbor Bay Pkwy., #250
Alameda, CA 94502-6577

SUBJECT: SUBSURFACE INVESTIGATION REPORT FOR KEEP ON TRUCKING AT 370 8TH STREET, OAKLAND, CALIFORNIA - FORMER ABOVEGROUND STORAGE TANK FACILITY (ADJACENT TO FORMER BUILDING H-213)

Dear Mr. Chan:

Enclosed please find the Quarterly Groundwater Sampling Report for the second and third quarter of 1995 at the former aboveground tank site located at Keep on Trucking facilities.

If you have any questions or need additional information, please call me at (510) 272-1118.

Sincerely,

Susa Gates

Susa Gates

Enclosure

cc with enclosure: Richard Padovani
Rick Hiett

530 Water Street ■ Jack London's Waterfront ■ P.O. Box 2064 ■ Oakland, California 94604-2064
Telephone (510) 272-1100 ■ Fax (510) 272-1172 ■ TDD (510) 763-5703 ■ Cable address, PORTOFOAK, Oakland

#3335

PORT OF OAKLAND

August 3, 1995

Mr. Barney Chan
Alameda County Health Care Agency
Environmental Protection Division
1131 Harbor Bay Pkwy., #250
Alameda, CA 94502-6577

SUBJECT: SUBSURFACE INVESTIGATION REPORT, QUARTERLY SAMPLING AND FREE PHASE PRODUCT RECOVERY AT KEEP ON TRUCKING, 370 8TH STREET, OAKLAND, CALIFORNIA - FORMER ABOVEGROUND TANK SPILL

Dear Mr. Chan:

Enclosed please find the subsurface investigation report at the former aboveground tank spill site located at Keep on Trucking in Oakland, California. The site investigation showed continued contamination from diesel and gasoline in both groundwater and soil. It appears that additional data is needed to further characterize the horizontal extent of the petroleum contamination prior to developing a corrective action plan. This would be achieved by using a hydraulically powered soil and groundwater sampling system to obtain samples from the perimeter of the cluster of six monitoring wells. A proposed work plan will be sent to you in the next month.

If you have any questions, please call me at (510) 272-1118.

Sincerely,

Susa Gates

Susa Gates
Environmental Scientist

95 AUG -7 ENVIR PRO

Enclosure

cc w/out enclosure: Neil Werner
George Mead
Gil Jensen

cc w/ enclosure: Richard Padovani
Rick Hiett
Michel Delehunt
Michelle Heffes

Telephone (510) 272-1100 ■ Fax (510) 272-1172 ■ TDD (510) 763-5703 ■ Cable address: PORTOFOAK, Oakland

Western Operations

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

Clayton
ENVIRONMENTAL
CONSULTANTS

Limited Subsurface Investigation Quarterly Sampling and Free Phase Product Recovery at the Keep On Trucking Site Oakland, California

Clayton Project No. 58560.15
July 25, 1995

CONTENTS

CONTENTS
(continued)

1.0 INTRODUCTION

Clayton Environmental Consultants, Inc. was retained by the Port of Oakland to perform a soil and groundwater investigation and perform quarterly groundwater monitoring and sampling at the Keep On Trucking facility located at 370 8th Avenue in Oakland, California.

The site is located in a commercial area of the City of Oakland, southeast of 8th Street (Figure 1). Keep On Trucking Company, a tenant of the Port of Oakland, previously operated a fueling system at the site. The fueling system was removed after it was discovered that the system was a source of diesel contamination in soil and groundwater. During September 1993, Uribe & Associates conducted a subsurface investigation at the site. Clayton's subsurface investigation was performed in response to a September 6, 1994 request from the Alameda County Health Care Services Agency (ACHCSA).

This investigation was performed to further characterize the extent of soil and groundwater contamination at the site. This report includes results of quarterly monitoring and sampling of the existing wells. In addition, interim product removal measures were performed to address the free phase product previously identified in one of the on-site groundwater monitoring wells.

2.0 BACKGROUND

In October 1992 the United States Coast Guard (USCG) observed diesel in Clinton Basin. A subsequent investigation by the Port of Oakland identified diesel in the storm drains at the Ninth Avenue Terminal. The Port of Oakland immediately began remediation and clean up activities of the storm drains. Subsequent investigations by the Port of Oakland indicated that the source of diesel was a leaking underground piping system associated with a diesel aboveground storage tank (AST) at the subject site.

During the period from December 1992 to February 1993, the fuel system was disconnected and removed from the site. Contaminated soil was excavated and removed from the site in April 1993. During the excavation activities a previously unknown underground storage tank (UST) was discovered and removed from the site by Riedel Environmental Services.

During September 1993, Uribe and Associates conducted a subsurface investigation at the site. The investigation included installation and sampling of four monitoring wells (MW-1 through MW-4). The location of these monitoring wells is shown on Figure 2. The soil samples collected from the monitoring wells were analyzed for total petroleum hydrocarbons as diesel (TPH-D). Table 1 summarizes results of TPH-D analysis for the soil samples collected from monitoring well borings MW-1 through MW-4 by Uribe and Associates.

Uribe and Associates performed a quarterly groundwater monitoring program for five quarters from September 1993 through September 1994. Clayton has performed quarterly groundwater monitoring at the site since December 1994. During both groundwater monitoring events, groundwater samples were collected from monitoring wells MW-1 through MW-4 and analyzed for the presence of TPH-D and benzene, toluene, ethylbenzene, and xylenes (BTEX). Groundwater samples collected by Clayton in April 1995 were also analyzed for the presence of total petroleum hydrocarbons as gasoline (TPH-G). Due to the presence of free phase product, groundwater samples have not been collected from MW-4 since June 1994.

During the monitoring well development activities in September 1993, 4 to 12 inches of free phase product was observed in monitoring well MW-4. The monitoring well MW-4 was purged once per week from September to November 1993, to remove the free phase product from the well. According to the Uribe and Associate report dated December 2, 1993, the "bailing activities ceased on November 1, 1993, after all the diesel had apparently been removed. The last two weeks of bailing recorded only a sheen still present on the water." However, during the quarterly groundwater monitoring and sampling in June and September 1994, 6 to 10 inches of free phase product was noted in monitoring well MW-4.

Groundwater monitoring results and well construction data collected from monitoring wells MW-1 through MW-4 from September 1993 through December 1994 are summarized in Table 2.

On September 6, 1994, the ACHCSA requested a work plan for further subsurface investigation to:

- Delineate the extent of free phase product identified in MW-4, and
- Describe proposed remedial activities to abate the free phase product in MW-4

On February 21, 1995, Clayton submitted a work plan to address the ACHCSA's request. The work plan was approved by the ACHCSA on March 13, 1995 (Appendix A). This report describes the work performed in response to the work plan.

3.0 TECHNICAL RATIONALE

Previous investigations at the subject site have indicated that soil and groundwater contamination may exist beyond the boundaries established by monitoring wells MW-1 through MW-4. In addition, free phase product has been detected in monitoring well MW-4 since its installation in September 1993. To further delineate the soil and groundwater contamination, Clayton installed two monitoring wells, MW-5 and MW-6 in locations recommended by Mr. Barney Chan of ACHCSA (see Figure 2).

To address the free phase product in well MW-4, Clayton installed a passive skimmer in groundwater monitoring well MW-4 on April 10, 1995. The passive skimmer is currently collecting free phase product which enters the well using an oil-philic membrane which only allows free phase product to pass through to a collection reservoir. The product in the skimmer was emptied into a double contained storage drum approximately every 2 weeks. A record of the volume removed is presented in Appendix B.

To evaluate the groundwater flow direction and extent of groundwater contamination at the site, groundwater depths are measured and samples are collected quarterly. The results of the subsurface investigation and interior product skimming activities will be evaluated to determine future remedial actions at the site.

3.1 SCOPE OF WORK

The scope of work for this investigation was based on Clayton's February 21, 1995 work plan and subsequent to the March 13, 1995 ACHCSA letter, and designed to perform an interim remedial action and further investigate the extent of the soil and groundwater contamination near the former AST. The following subsections describe the additional investigative and remedial tasks performed at the subject site.

3.1.1 Health and Safety Plan

A health and safety plan was prepared for the work outlined in the work plan in accordance with the requirements of Title 29 of the Code of Federal Regulations, Section 1910.120 (29 CFR 1910.120) and California Occupational Safety and Health Administration (Cal/OSHA) General Industry Safety Order (GISO) 5192.

3.1.2 Underground Utilities Identification and Permitting

Before commencing the field activities, Clayton obtained the necessary permits from the Zone 7 Water Agency (Appendix C).

Prior to commencing drilling activities, Clayton contacted Underground Service Alert (USA) and a utility locating service to identify the utilities leading to the site. The identified utilities were marked on the ground. Clayton did not drill within 3 feet of a known utility line.

3.1.3 Borehole Drilling and Soil Sample Collection

To further define the horizontal extent of soil and groundwater contamination, Clayton retained the services of a HEW, Inc., a licensed drilling contractor, to drill two boreholes, at locations recommended by Mr. Barney Chan of ACHCSA. The boreholes were drilled using a truck mounted drill rig equipped with 8-inch diameter hollow stem augers. The boreholes were drilled and converted into monitoring wells MW-5 and MW-6 on March 30, 1995 (Figure 2).

Soil samples were collected at approximately 5-foot intervals for lithologic logging purposes, using a 2.5-inch split barrel sampler. During the drilling of the boreholes, the soil characteristics were noted in the field. Distinguishing features such as color, odor, and relative soil moisture content were noted (see Appendix D). To aid in locating contamination, Clayton screened the soil cuttings during drilling using a photoionization detector (PID), and visual senses to detect petroleum compounds. Soil samples were collected for laboratory analyses at 5 feet below ground surface (bgs) from each borehole. PID readings of 153 ppm and 38.5 ppm were noted in soil samples collected from MW-6 at 5.5 and 10.5 feet bgs, respectively. A PID reading of 35.7 ppm was noted in a soil sample collected from MW-5 at 5.5 feet bgs. No other positive PID readings were noted during field screening of soil samples retrieved from both boreholes. No soil samples were collected for laboratory analysis below the saturated zone.

Soil samples were collected in precleaned brass tubes for subsequent laboratory analyses. The brass tubes were sealed with teflon sheets, plastic caps, and immediately placed in a refrigerated cooler for transfer to Clayton's State-certified laboratory in Pleasanton, California. Legal chain-of-custody procedures were followed for handling of soil samples.

The soil cuttings and sampling spoils generated by the drilling process were placed into individually labeled, Department of Transportation (DOT)-approved 55-gallon drums and left onsite pending proper disposal based on results of the laboratory analyses.

3.1.4 Monitoring Well Installation

The boreholes were converted into monitoring wells by using 2-inch diameter schedule 40 polyvinyl chloride (PVC) casing. Monitoring well construction details are presented in Appendix D. MW-5 and MW-6 were constructed with solid casing from 0.5 to 5-feet bgs and the well screen comprised of 0.010-inch slotted casing from 5 to 20-feet bgs. The sand pack in both wells consisted of 2/12 sand from 4 to 20 feet bgs, extending 1-foot above the screen. Bentonite seals were placed in the annular space above the sand packs extending from 4 to 5-feet bgs. Both wells were sealed to the surface using cement grout. The wells were secured by using locking caps in Christie boxes raised above the surface grade by approximately 1 inch to prevent surface run-off from entering the well heads. The depth of the top of the well screen for monitoring wells MW-5 and MW-6 are included in Table 2.

Drilling and sampling activities were be conducted in accordance with Clayton's drilling, well construction and sampling protocols for borehole/monitoring well installation (Appendix E), under the supervision of a Clayton geologist registered in the State of California.

3.1.5 Monitoring Well Development and Sampling

The well seals in the newly constructed wells were allowed to set for at least 48 hours prior to well development. The monitoring wells were developed to increase their yield and minimize the fine-grained material entering the well casing. Well development was accomplished by removing finer materials from the natural formations surrounding the perforated sections of the wells. Because development of the well can volatilize contaminants, the wells were allowed to stabilize for at least 48 hours between development and the first purging/sampling event.

On April 10. 1995, groundwater samples were collected from MW-1, MW-2, MW-3, MW-5, and MW-6 using clean disposable bailers. Because 0.81-feet of free phase product was detected in MW-4, a groundwater sample was not collected from this well. The groundwater samples were collected in clean laboratory supplied containers and placed immediately into an iced cooler for transport to Clayton's State-certified laboratory for analysis. The groundwater sampling activities were conducted in accordance with Clayton's drilling, well construction and sampling protocols for borehole/monitoring well installation (Appendix E). Water sampling field survey forms are presented in Appendix F.

Water generated from well development and sampling was placed into DOT-approved, 55-gallon drums and remains onsite pending proper disposal.

3.1.6 Well Head Survey

On May 10, 1995, the locations and well head elevations of monitoring wells MW-1 through MW-7 were surveyed by GeoTopo, Inc., a licensed land surveyor, using a Port of Oakland reference datum with an elevation of 3.20 feet below mean sea level. GeoTopo's monitoring well survey report is included in Appendix G. GeoTopo's surveyed elevations converted relative to mean sea level are presented in Table 2. The locations of the wells are depicted on Figure 2.

3.1.7 Quarterly Groundwater Monitoring and Sampling

Clayton monitored and collected groundwater samples from the six monitoring wells, MW-1 through MW-6, on April 10. 1995. The water samples were delivered to the State-certified laboratory using proper chain-of-custody procedures. Since free phase phase product was observed in well MW-4, the thickness was noted and a water sample was not collected. Clayton collected data on the depth to water from each well in order to calculate the average groundwater flow direction and gradient for the subject site.

Groundwater surface elevation measurements obtained on April 10, 1995, were used to determine shallow groundwater flow direction beneath the site to be predominantly west-southwest towards San Francisco Bay. The gradient magnitude varied from 0.02 to 0.05 feet per foot. Historical information from September 1993 to December 1994 indicated the groundwater flow direction varied from southwest to northeast.

Water generated from well development and sampling were placed into DOT-approved, 55-gallon drums pending proper disposal.

3.1.8 Laboratory Analysis

During this investigation, two soil samples (one per borehole) and six groundwater samples were collected and transported to Clayton's State-certified laboratory in Pleasanton, California.

The soil and groundwater samples were analyzed using the following United States Environmental Protection Agency (USEPA) Methods in accordance with the Regional Water Quality Control Board (RWQCB) guidelines for minimum verification analyses for leaking diesel tanks:

- USEPA Method 8020 for BTEX
- USEPA Method 8015 (Modified) for TPH-D
- USEPA Method 8015 (Modified) for Total Petroleum Hydrocarbons as Gasoline (TPH-G)

The analytical results for the soil samples are presented in Table 3. Results of analyses performed on groundwater samples are presented in Table 2. Copies of the State-certified analytical laboratory report is included in Appendix H.

3.1.9 Skimmer Installation, Operation, and Maintenance

Clayton installed a passive skimmer in monitoring well MW-4 on April 10, 1995. The skimmed product has been collected and transferred to a drum, with secondary containment, on a bi-monthly basis. The table in Appendix B presents a summary of the volume of free product recovered and the free product thickness in April, May, and June 1995. The volume of free product recovered decreased from 0.10 gallons on April 17 and 18, 1995 to 0.01 gallons on May 12, 1995. No free product has been measured in MW-4 or recovered in the passive skimmer since May 12, 1995.

The contents of the drum remain onsite and will be periodically transported to a proper disposal facility.

Clayton will continue to inspect the skimmer twice a month and perform necessary maintenance. During the site visits the quantity of recovered product the product thickness will be noted. The frequency of site visits may be modified based on the rate of product recovery.

4.0 FINDINGS AND CONCLUSIONS

Based on our field investigation and laboratory analysis our findings follow:

- TPH-D was detected in the soil samples obtained from 5 feet bgs from MW-5 and MW-6 at concentrations of 180 mg/Kg and 1,600 mg/Kg, respectively. TPH-G was detected in the soil samples obtained from 5 feet bgs from MW-5 and MW-6 at concentrations of 6.0 mg/Kg and 240 mg/Kg, respectively. BTEX compounds were detected only in the soil sample obtained from 5 feet bgs from MW-5 at concentrations ranging from 0.006 to 0.065 mg/Kg.

- TPH-D was detected in groundwater samples collected from the five monitoring wells at concentrations ranging from 330 µg/L to 10,000 µg/L. Samples obtained from the two new monitoring wells MW-5 and MW-6, revealed the highest concentrations, 6,200 and 10,000 µg/L, respectively.

- BTEX compounds were detected in groundwater samples collected from monitoring wells MW-5 and MW-6. Benzene was detected at concentrations of 3.1 µg/L and 4.4 µg/L in groundwater samples collected from MW-5 and MW-6, respectively. These concentrations exceed the MCL of 1 µg/L for benzene. BTEX was not detected in groundwater samples collected from MW-1, MW-2, and MW-3.

- TPH-G was detected at concentrations of 1,100 µg/L and 1,300 µg/L in groundwater samples collected from MW-5 and MW-6, respectively. TPH-G was not detected in groundwater samples collected from MW-1, MW-2, and MW-3.

- Based on the groundwater elevations measured on April 10, 1995, the groundwater flow direction was calculated to be west-southwest towards San Francisco Bay. Historical information from September 1993 to December 1994 indicated the groundwater flow direction varied from southwest to northeast.

- Detectable concentrations of TPH-D were detected in the groundwater samples collected from wells MW-1, MW-2, MW-3, MW-5 and MW-6. Additionally, free phase product or a sheen has been noted in well MW-4 during each well measurement. The extent of TPH-D contamination in the groundwater has not been defined at the subject site.

- Product skimming activities have reduced the thickness of product in well MW-4 from 0.81 feet on April 10, 1995 to a sheen on May 16, 1995.

This report prepared by:

George W. Mead, IV, R.G.
Project Geologist

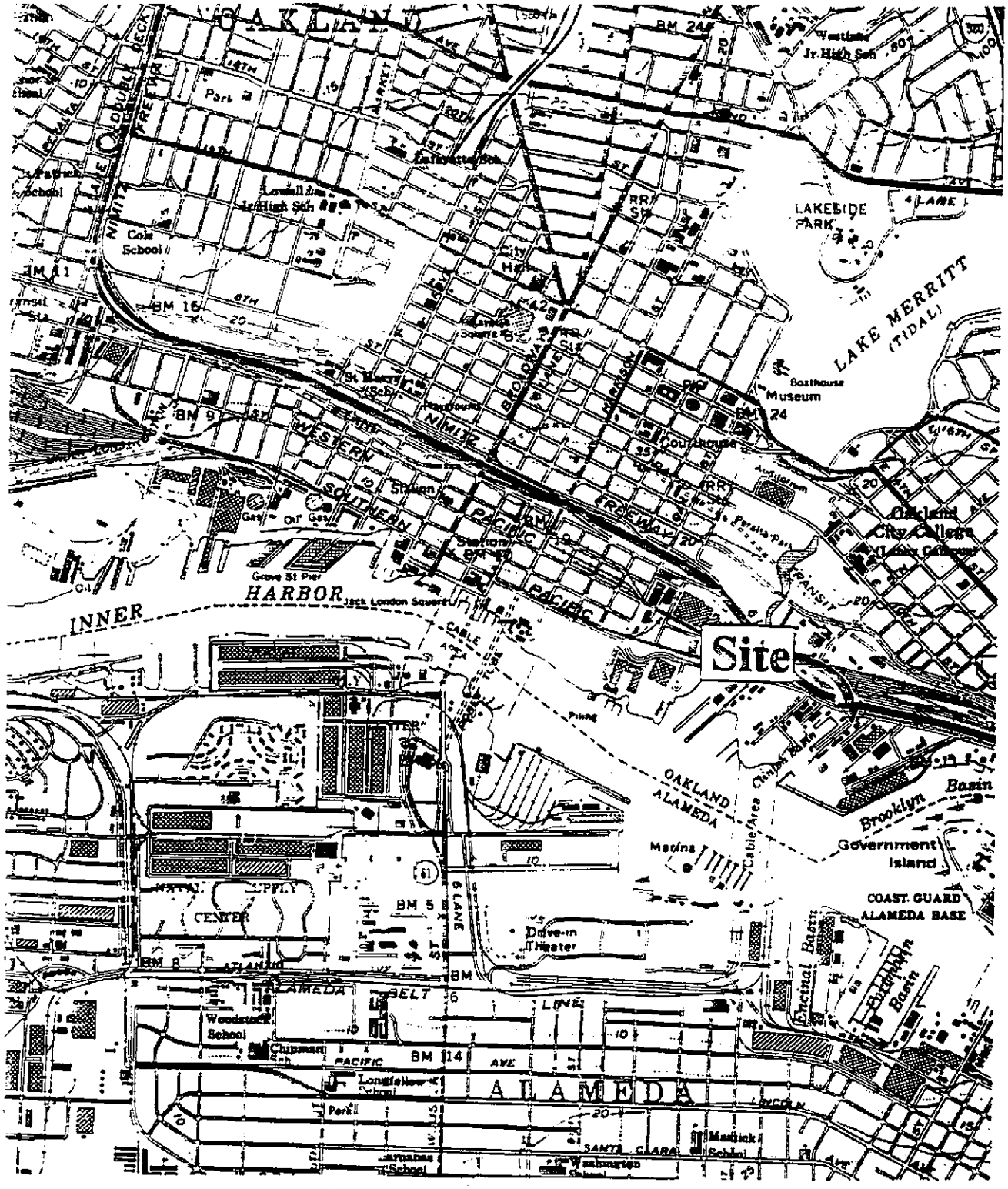
REGISTERED GEOLOGIST
GEORGE W. MEAD IV
No. 6223
STATE OF CALIFORNIA

This report reviewed by:

John F. Vargas, R.G.
Supervisor, Geosciences and Remediation
Western Operations

July 26, 1995

REGISTERED GEOLOGIST
JOHN F. VARGAS
NO. 5046
STATE OF CALIFORNIA

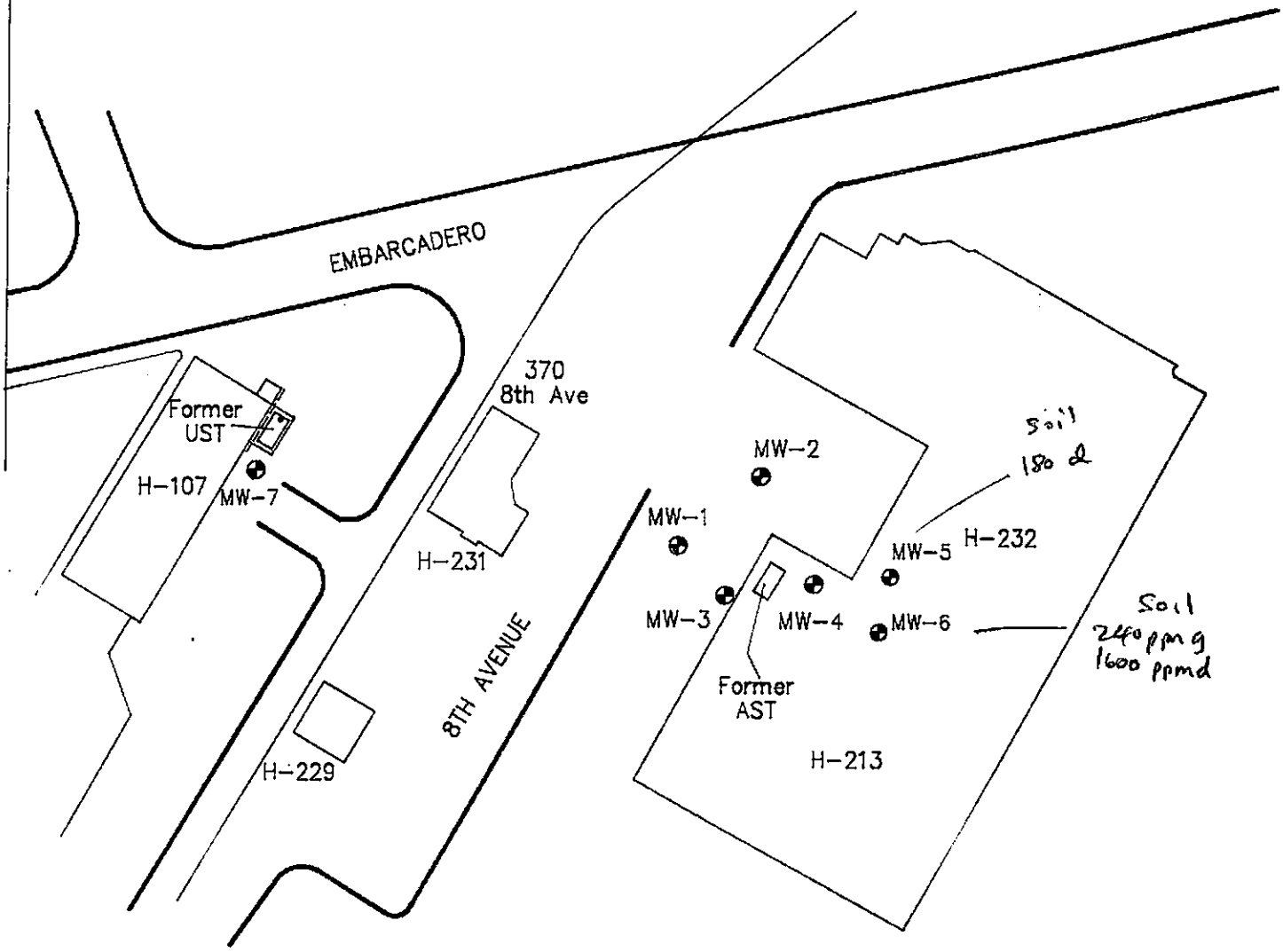


Site Location and Topographic Map
KEEP ON TRUCKING FACILITY
370 8th Street
Oakland, California

Clayton Project No. 63560.16

Figure 1

Clayton
ENVIRONMENTAL CONSULTANTS



LEGEND

- Monitoring Well

Dominant Groundwater Flow Direction (4/95)

(not to scale)

Monitoring Well Locations
KEEP ON TRUCKING FACILITY
370 8th Street
Oakland, California

Clayton Project No. 58560.15

Figure 2

Clayton ENVIRONMENTAL CONSULTANTS

58560-15.1-17

Table 1
Analytical Summary for the Soil Samples
Collected by Uribe and Associates -
August and September 1993 (MW-1 through MW-4)
and CEC - March 1995 (MW-5 and MW-6)

All concentrations in milligrams per kilogram (mg/kg)

Well Number	Depth	THP-D	TPH-G
MW-1	10.5	9	NA
	16.0	ND	NA
MW-2	6.0	ND	NA
	15.5	ND	NA
MW-3	5.0	120	NA
	15.0	3	NA
	20.0	ND	NA
MW-4	5.5	7,100	NA
	10.5	520	NA
	15.5	6	NA
MW-5	5.0	180	6
MW-6	5.0	1,600	240

TPH-D Total petroleum hydrocarbons as diesel
TPH-G Total petroleum hydrocarbons as gasoline
ND Not detected at or above the analytical detection limit
NA Not analyzed

Table 2
Analytical Summary for Groundwater Samples
Collected From October 1993 through April 1995
All Concentrations in Micrograms per Liter (ug/L)

	Date	Depth to Water	Depth to top of Screen	Top of Casing* Geotopo	Groundwater* Elevation/Clayton	Top of Casing* Uribe	Groundwater** Elevation/Uribe	Depth to FP (in feet)	FP Thickness (in feet)	TPH-D	TPH-G	Benzene	Toluene	Ethybenzene	Xylenes
MW-1	9/20/93	5.20	5.5	6.79	1.59	10.28	5.08	NA	0.00	1,600	NS	ND	ND	ND	ND
	1/12/94	5.15	5.5	6.79	1.64	10.28	5.13	NA	0.00	610	NS	ND	ND	ND	ND
	3/31/94	4.09	5.5	6.79	2.70	10.28	6.19	NA	0.00	510	NS	ND	ND	ND	ND
	6/2/94	4.82	5.5	6.79	1.97	10.28	5.46	NA	0.00	540	NS	ND	ND	ND	ND
	9/30/94	5.63	5.5	6.79	1.16	10.28	4.65	NA	0.00	390	NS	ND	ND	ND	ND
	12/22/94	5.00	5.5	6.79	1.79	10.28	5.28	NA	0.00	210	NS	ND	ND	ND	ND
	4/10/95	4.94	5.5	6.79	1.85	10.28	5.34	NA	0.00	330	ND	ND	ND	ND	ND
MW-2	9/20/93	4.40	5.0	7.12	2.72	10.69	6.29	NA	0.00	1,900	NS	0.50	ND	ND	ND
	1/12/94	4.75	5.0	7.12	2.37	10.69	5.94	NA	0.00	1,800	NS	ND	ND	ND	ND
	3/31/94	5.01	5.0	7.12	2.11	10.69	5.68	NA	0.00	1,800	NS	ND	ND	ND	ND
	6/2/94	4.61	5.0	7.12	2.51	10.69	6.08	NA	0.00	870	NS	ND	ND	ND	ND
	9/30/94	4.93	5.0	7.12	2.19	10.69	5.76	NA	0.00	1,200	NS	ND	ND	ND	ND
	12/22/94	4.43	5.0	7.12	2.69	10.69	6.26	NA	0.00	610	NS	ND	ND	ND	ND
	4/10/95	4.03	5.0	7.12	3.09	10.69	6.66	NA	0.00	550	ND	ND	ND	ND	ND
MW-3	9/20/93	15.20	10.0	6.92	-8.28	10.54	-4.66	NA	0.00	680	NS	ND	0.30	ND	ND
	1/12/94	5.70	10.0	6.92	1.22	10.54	4.84	NA	0.00	430	NS	ND	ND	ND	ND
	3/31/94	4.23	10.0	6.92	2.69	10.54	6.31	NA	0.00	690	NS	ND	ND	ND	ND
	6/2/94	3.86	10.0	6.92	3.06	10.54	6.68	NA	0.00	280	NS	ND	ND	ND	ND
	9/30/94	5.44	10.0	6.92	1.48	10.54	5.10	NA	0.00	480	NS	ND	ND	ND	ND
	12/22/94	4.87	10.0	6.92	2.05	10.54	5.67	NA	0.00	630	NS	ND	ND	ND	ND
	4/10/95	7.64	10.0	6.92	-0.72	10.54	2.90	NA	0.00	830	ND	ND	ND	ND	ND
MW-4	9/20/93	5.80	5.0	8.78	2.98	12.33	6.53	5.13	0.67	1,300	NS	140.00	110.00	40.00	235.00
	1/12/94	4.10	5.0	8.78	4.68	12.33	8.23	sheen	sheen	32,000	NS	71.00	41.00	20.00	150.00
	3/31/94	4.20	5.0	8.78	4.58	12.33	8.13	3.62	0.58	410,000	NS	140.00	20.00	47.00	310.00
	6/2/94	3.88	5.0	8.78	4.90	12.33	8.45	3.38	0.50	NS	NS	NS	NS	NS	NS
	9/30/94	4.80	5.0	8.78	3.98	12.33	7.53	4.80	0.00	NS	NS	NS	NS	NS	NS
	12/22/94	3.47	5.0	8.78	5.31	12.33	8.86	2.63	0.84	NS	NS	NS	NS	NS	NS
	4/10/95	3.80	5.0	8.78	4.98	12.33	8.53	2.99	0.81	NS	NS	NS	NS	NS	NS
	5/16/95	3.07	5.0	8.78	5.71	12.33	9.26	3.07	0.00	NS	NS	NS	NS	NS	NS
MW-5	4/10/95	4.64	5.0	8.64	4.00	NA	NA	4.64	0.00	6,200	1,100	3.10	ND	2.90	11.30
MW-6	4/10/95	4.12	5.0	8.66	4.54	NA	NA	4.12	0.00	80,000	1,300	4.40	ND	0.70	0.80

FP Free Phase
TPH-D Total petroleum hydrocarbons as Diesel
NA Not Applicable
ND Not Detected at or above analytical detection limits
NS Not Sampled
* Elevation relative to mean sea level
** Elevation reference unkown

APPENDIX A

ALAMEDA COUNTY HEALTH CARE SERVICE AGENCY'S APPROVAL LETTER

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

RAFAT A. SHAHID, ASST. AGENCY DIRECTOR

DEPARTMENT OF ENVIRONMENTAL HEALTH

ALAMEDA COUNTY-ENV. HEALTH DEPT.
ENVIRONMENTAL PROTECTION DIV.
1131 HARBOR BAY PKWY., #250
ALAMEDA CA 94502-6577
(510)567-6700

March 13, 1995
SLIC # 3335

Ms. Susa Gates
Port of Oakland
530 Water St.
P.O. Box 2064
Oakland CA 94604-2064

Re: Comment on Revised Work Plan for Limited Subsurface Investigation and Free Product Recovery at Keep On Trucking, 370-8th Ave., Oakland CA 94606

Dear Ms. Gates:

Our office has completed our review of the above referenced work plan which modifies and replaces the original December 22, 1994 version. The modifications were discussed with myself and Mr. Dariush Dastmachi of Clayton Environmental Consultants. In essence, the locations of the two additional monitoring wells proposed were moved to better determine the extent of soil and groundwater contamination in the area of monitoring well MW-4. In addition, a free product skimmer is proposed to be installed in monitoring well MW-4.

This work plan is acceptable and this field work should be implemented as soon as possible with following additions/ modifications:

1. Please contact me at least **48 hours prior to the field work** so I may arrange to be present if possible.

2. Please survey the wells at this site relative to mean sea level.

3. Based on the relative high levels of benzene being detected in MW-4, please add the parameter, TPHg, to the analysis of the soil and groundwater samples.

4. The installation of a free product skimmer should be considered a temporary remedial action. A Corrective Action Plan, CAP, per Title 23, Division 3, Chapter 16, Section 2725 should also be in your immediate plans. Please update your attempts to complete a CAP in your future quarterly monitoring reports. As mentioned in my prior letter, perhaps the investigation on the underground diesel tank can be scheduled along with this field work.

APPENDIX B

FREE PHASE PRODUCT RECOVERY FIELD MEASUREMENTS

FLOATING PRODUCT REMOVAL FROM PASSIVE SKIMMER IN MW-4

KEEP ON TRUCKING
370 8th Street
Oakland, California

Clayton Project No. 58560.15

Date	Initials	Product Thickness	Product Volume	Comments
4-17-95	RS		0.10 GAL	
4-18-95	RS		0.10 GAL	
4-26-95	RS	2 INCHES	0.03 GAL	
5-12-95	M.S.	1½ INCHES	0.01 GAL	
5-16-95	RS	NONE	NONE	SHEEN
6-12.95	M.S	NONE	NONE	SHEEN

K:\WP60\EMS\FPR-MW4.FRM

APPENDIX C

MONITORING WELL PERMIT

ZONE 7 WATER AGENCY

5997 PARKSIDE DRIVE PLEASANTON, CALIFORNIA 94588 VOICE (510) 484-2600
FAX (510) 462-3914

DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

LOCATION OF PROJECT Keep On Trucking
370 5th Street
Oakland, CA

CLIENT
Name Port of Oakland
Address 530 Water St. Voice
City Oakland Zip 94604-2064

APPLICANT
Name John Vargo - Clayton Environmental Consultants Inc Fax 426-0106
Address 1252 Quarry Lane Voice 426-2676
City Pleasanton, CA Zip 94566

TYPE OF PROJECT

Well Construction		Geotechnical Investigation	
Cathodic Protection		General	
Water Supply		Contamination	X
Monitoring	X	Well Destruction	

PROPOSED WATER SUPPLY WELL USE
Domestic ___ Industrial ___ Other ___
Municipal ___ Irrigation ___

DRILLING METHOD:
Mud Rotary ___ Air Rotary ___ Auger X
Cable ___ Other ___

DRILLER'S LICENSE NO. C57- 384167

WELL PROJECTS
Drill Hole Diameter 8 in. Maximum
Casing Diameter 2 in. Depth 20 ft.
Surface Seal Depth 4-6 ft. Number 4

GEOTECHNICAL PROJECTS
Number of Borings 2 Maximum
Hole Diameter 8 in. Depth 20 ft.

ESTIMATED STARTING DATE 3/29/95
ESTIMATED COMPLETION DATE 3/30/95

I hereby agree to comply with all requirements of this permit and Alameda County Ordinance No. 73-68.

APPLICANT'S SIGNATURE John Vargo Date 3/27/95

FOR OFFICE USE

PERMIT NUMBER ___
LOCATION NUMBER ___

PERMIT CONDITIONS

Circled Permit Requirements Apply

A. GENERAL
1. A permit application should be submitted so as to arrive at the Zone 7 office five days prior to proposed starting date.
2. Submit to Zone 7 within 60 days after completion of permitted work the original Department of Water Resources Water Well Drillers Report or equivalent for well Projects, or drilling logs and location sketch for geotechnical projects.
3. Permit is void if project not begun within 90 days of approval date.

B. WATER WELLS, INCLUDING PIEZOMETERS
1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth is 50 feet for municipal and industrial wells or 20 feet for domestic and irrigation wells unless a lesser depth is specially approved. Minimum seal depth for monitoring wells is the maximum depth practicable or 20 feet.

C. GEOTECHNICAL. Backfill bore hole with compacted cuttings or heavy bentonite and upper two feet with compacted material. In areas of known or suspected contamination, tremied cement grout shall be used in place of compacted cuttings.

D. CATHODIC. Fill hole above anode zone with concrete placed by tremie.

E. WELL DESTRUCTION. See attached.

Approved ___ Date ___

91992

APPENDIX D

BORING LOGS AND WELL CONSTRUCTION DETAILS

Monitoring Well No. MW-5

PROJECT: Port of Oakland-Keep on Trucking
DRILL RIG: Hollow Stem Auger
INITIAL GW DEPTH: 5 ft.

DATE: 3/30/95
HOLE DIA.: 8 in.
FINAL GW: 4.64 ft.

LOGGED BY: Richard Silva
SAMPLER: Split Spoon
HOLE ELEV.: 9.99 ft. MSL

DESCRIPTION	USCS CLASS	GRAPHIC LOG	DEPTH	SAMPLE	BLOWS/FOOT	WELL CONSTRUCTION DETAIL
SILTY GRAVEL: brown (10 YR, 4/2), moist, fill material	Conc. Fill		0–2			Christy Box; Cement Grout Seal
SILTY SAND: black (7.5 YR, 2/0), fine grained, very loose, water saturated PID reading = 35.7 ppm VOCs @ 5.5 ft bgs	SM		3–6		2	2" ø Sch.40 Blank PVC; Bentonite Pellet Seal
CLAY: dark gray (2.5 YR, 4/0), very soft, moist PID reading = 0 ppm VOCs @ 10.5 ft bgs	CL		7–12		2	2" ø Sch.40 Slotted PVC (0.010")

Clayton Environmental Consultants
1252 Quarry Lane
Pleasanton, California

Notes:

Project No. 58580.15

Monitoring Well No. MW-5

PROJECT: Port of Oakland-Keep on Trucking
DRILL RIG: Hollow Stem Auger
INITIAL GW DEPTH: 5 ft.

DATE: 3/30/95
HOLE DIA.: 8 in.
FINAL GW: 4.64 ft.

LOGGED BY: Richard Silva
SAMPLER: Split Spoon
HOLE ELEV.: 8.99 ft. MSL

DESCRIPTION	USCS CLASS	GRAPHIC LOG	DEPTH	SAMPLE	BLOWS/FOOT	WELL CONSTRUCTION DETAIL
CLAY: dark gray (2.5 YR, 4/0), moist, very soft PID reading = 0 ppm VOCs @ 15.5 ft bgs	CL		12 13 14 15 16 17 18 19 20		2	2/12 Sand Pack
Bottom of Boring @ 20 ft bgs			21 22 23 24			

Prepared By/Date: [signature] 6-20-95

Approved By/Date: [signature] 6-20-95

Clayton Environmental Consultants
1252 Quarry Lane
Pleasanton, California

Notes:

Project No. 58580.15

Monitoring Well No. MW-6

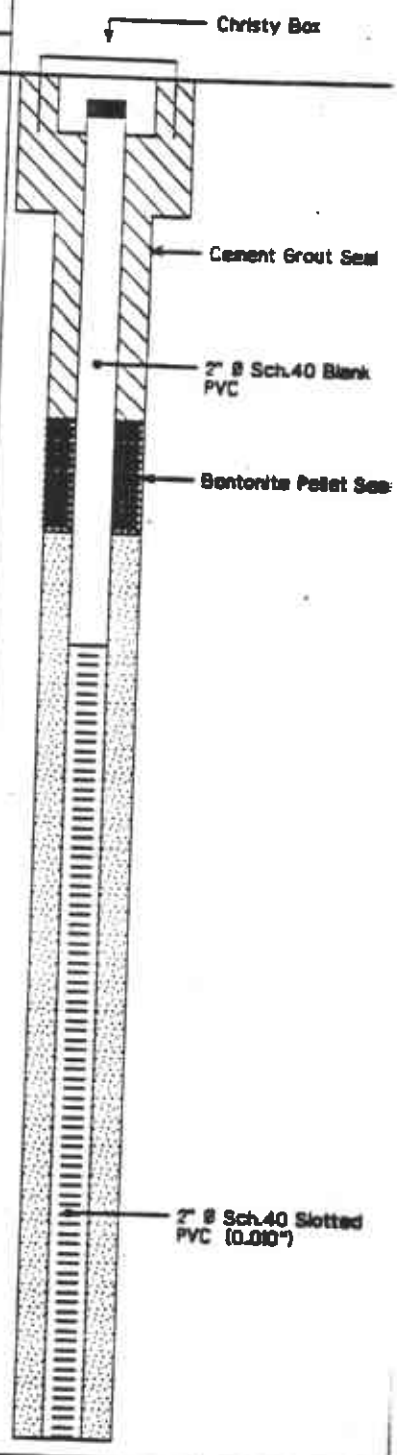
PROJECT: Port of Oakland-Keep on Trucking
DRILL RIG: Hollow Stem Auger
INITIAL GW DEPTH: ft.

DATE: 3/30/95
HOLE DIA.: 8 in.
FINAL GW: 4.12 ft.

LOGGED BY: Richard Silva
SAMPLER: Split Spoon
HOLE ELEV.: 11.86 ft. MSL

DESCRIPTION	USCS CLASS	GRAPHIC LOG	DEPTH	SAMPLE	BLOWS/FOOT
SILTY GRAVEL: brown (10 YR, 4/2), moist, fill material	Conc. / Fill		0		
			1		
			2		
	CL		3		
			4		
SILTY CLAY: very dark gray (10 YR, 3/1), firm, moist PID reading = 153 ppm VOCs @ 5.5 ft bgs			5		7
			6		
			7		
			8		
			9		
SILTY CLAY: black (7.5 YR, 2/0), moist, wood fragments, hydrogen sulfide odor PID reading = 38.5 ppm VOCs @ 10.5 ft bgs			10		2
			11		
			12		

WELL CONSTRUCTION DETAIL



Clayton Environmental Consultants
1252 Quarry Lane
Pleasanton, California

Notes:

Project No. 58580.15

Monitoring Well No. MW-6

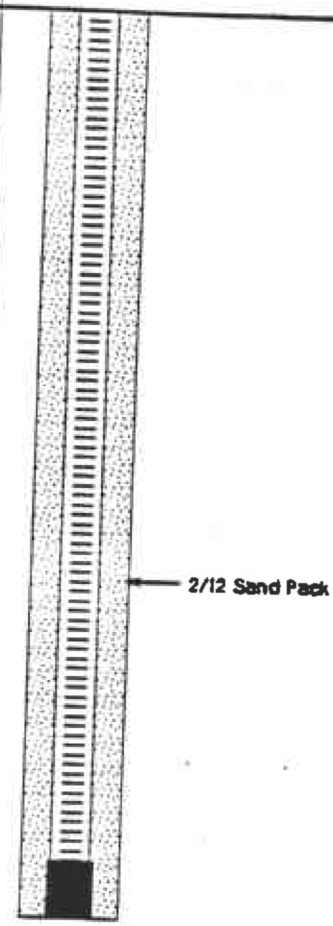
PROJECT: Port of Oakland-Keep on Trucking
DRILL RIG: Hollow Stem Auger
INITIAL GW DEPTH: ft.

DATE: 3/30/95
HOLE DIA.: 8 in.
FINAL GW: 4.12 ft.

LOGGED BY: Richard Silva
SAMPLER: Split Spoon
HOLE ELEV.: 11.86 ft. MSL

DESCRIPTION	USCS CLASS	GRAPHIC LOG	DEPTH	SAMPLE	BLOWS/FOOT
	CL		12		
			13		
			14		
SILTY CLAY: very dark gray (10 YR, 3/1), hydrogen sulfide odor PID reading = 32.8 ppm VOCs @ 15.5 ft bgs			15		2
			16		
			17		
			18		
Sea shell fragments			19		
Bottom of Boring @ 20 ft bgs			20		
			21		
			22		
			23		
			24		

WELL CONSTRUCTION DETAIL



Prepared By/Date: [signature] / 6-20-95

Approved By/Date: [signature] / 6/26/95

Clayton Environmental Consultants
1252 Quarry Lane
Pleasanton, California

Notes:

Project No. 58580.15

APPENDIX E

DRILLING, WELL CONSTRUCTION AND SAMPLING PROTOCOLS FOR BOREHOLE/MONITORING WELL INSTALLATION

DRILLING, WELL CONSTRUCTION, AND SAMPLING PROTOCOLS FOR BOREHOLE/MONITORING WELL INSTALLATION

BOREHOLE INSTALLATION

Clayton Environmental Consultants, Inc. acquires the proper governmental agency permits to bore, drill, or destroy all proposed boreholes and monitoring wells that intersect with groundwater aquifers and writes a health and safety plan.

Clayton subcontracts only with drillers who possess a current C-57 water well contractor's license issued by the State of California and whose personnel have attended the OSHA 40-hour Hazardous Materials Safety Training. Prior to starting work, a "tailgate" safety meeting including discussion of the safety hazards and precautions relevant to the particular job will be held with all personnel working on the job. Well drillers are identified on permit applications.

Borings are drilled dry by hollow- or solid-stem, continuous flight augers. Augers, drill rods, and other working components of the drilling rig are steam-cleaned before arriving onsite to prevent the introduction of contaminants. These components are also steam-cleaned between borings away from boring locations. Cleaned augers, rods, and other components are stored, and/or covered when not in use.

Our bore logs include a detailed description of subsurface stratigraphy. Clayton examines the soil brought to the surface by drilling operations, and samples undisturbed soil every 5 feet or as otherwise specified. Soil cuttings are screened for hydrocarbon contamination using a photoionization detector. Boring logs are filled out in the field by a professional geologist, civil engineer, engineering geologist who is registered by the State of California, or a technician who is trained and working under the supervision of one of the previously mentioned persons, using the Unified Soil Classification System.

SOIL SAMPLING

Soil samples are taken every 5 feet, at areas of obvious contamination, or as otherwise specified, with a California modified split-spoon sampler that is lined with three six-inch brass tubes. The sampler and rod are inserted into the borehole to the current depth and a hammer of known weight and height above the sampler are allowed to free-fall onto the rod, advancing the assembly 18 inches into undisturbed soil. Clayton uses the number of blows necessary to drive the sampler into the ground to help evaluate the consistency of materials encountered. The sampler is then pulled from the borehole and disassembled, and the three brass tubes are separated for inspection and labeling.

Clayton uses new brass liners or liners cleaned with a trisodium phosphate (TSP) solution, double rinsed with clean tap water, and air dried prior to each sampling. The sampler is also cleaned with TSP and rinsed with tap water between sampling events.

Soil samples selected for laboratory analysis are left in the brass liners, sealed with aluminum foil and plastic caps, taped for air tightness, labeled, and immediately placed into a pre-cooled ice

chest chilled to less than 4°C. Labels contain the following information: site name, date and time sampled, borehole number and depth, and the sampler's initials. The samples are transported under chain-of-custody to a state-certified laboratory. The laboratory analyzes soil samples within the prescribed holding time, storing them at temperatures below 4°C at all times.

Pending results of laboratory analysis, excess drilling and sampling cuttings are placed into Department of Transportation (DOT)-approved drums, labeled with the name of the site, address, and well number, and left at the site. Uncontaminated soil may be disposed of by the client. Soil found to contain levels of contaminants above local or state action levels will require that the client dispose of it in accordance with hazardous waste regulations. At the client's request, we will assist with the disposal of contaminated soil.

WELL CONSTRUCTION

Boreholes are converted to monitoring wells by placing 2-inch or 4-inch diameter well casing with flush-threaded joints and slotted screen into the borehole. Construction materials include polyvinyl chloride (PVC), stainless steel, or low carbon steel. The most suitable material for a particular installation will depend on the parameters to be monitored. All screens and casings used are in a contaminant-free condition when placed in the ground. No thread lubrication is used, other than teflon tape, for connecting the casing segments.

Wells extend at least 10 feet into the upper saturated zone, but do not extend through any clay layers greater than 5 feet that are below the shallow water table. The standard practice for wells installed at hydrocarbon contamination sites is to construct a well with a 20-foot long perforated interval extending 15 feet below and 5 feet above the water table in an unconfined aquifer. The top of the well is solid casing. The annular space of the borehole is backfilled with washed, kiln-dried sand to a point at least 1 foot above the slotted screen. A seal above the filter pack is formed by placing a 1- to 2-foot layer of bentonite pellets on top of the sand. The bentonite pellets are moistened by pouring clean tap water down the hole so that they can expand and seal the annulus. A neat cement grout is placed above the bentonite seal and brought to the ground surface.

Well casings are protected from surface contamination, accidental damage, and unauthorized entry or tampering with water-tight locking caps on the well casings. The caps are usually surrounded by a concrete vault. Wells are clearly identified with a metal tag or other device where the following information is recorded: well number, depth to water, depth of well, casing data including location of screened interval.

WELL DEVELOPMENT

The well seal in newly developed wells must set up for 48 to 72 hours prior to development. Since development of the well can volatilize contaminants present, the well must also settle for at least 48 to 72 hours between development and the first purging/sampling incident.

All monitoring wells are initially developed to clean the well and stabilize sand, gravel, and disturbed aquifer materials around the screened internal perforations. Wells are developed by pumping (or bailing) and surging until water turbidity and specific conductance stabilize. In some cases, where wells are installed in low permeability formations and the wells purge dry, the well

is allowed to recover and is purged dry three times. Clean tap water is introduced into the well if it does not recover rapidly enough.

Pending results by laboratory analysis, purge water from well development and sampling is placed into DOT-approved drums, labeled with the name of the site, address, well number, and left at the site. Uncontaminated water may be disposed of by the client. Water found to contain levels of contaminants above local or state action levels requires that the client dispose of it in accordance with hazardous waste requirements. At the client's request, we can assist with the disposal of contaminated purge water.

GROUNDWATER SAMPLING

To collect a representative sample of the groundwater, stagnant water within the well casing and filter material must be purged and fresh aquifer water allowed to replace it. The water is purged from the well by pumping or bailing at least three well volumes. Well volumes are calculated by measuring depth to groundwater to the nearest 0.01 foot upon arrival at the well before any purging has begun. Groundwater samples are collected only after purging has been of sufficient duration for pH, temperature, and electrical conductivity to stabilize. When purging low-yield wells, the wells are purged to dryness. When the well recovers to 80% of the depth measured upon arrival, samples are collected.

Field sampling logs maintained for each well include:

- Monitoring well identification
- Static water level, before and after pumping
- Well depth
- Condition of water prior to purging (e.g., amount of free product)
- Purge rate and volume
- pH, temperature, and conductivity during purging
- Time purged
- Time of sample collection
- Sampling method
- Name of sampler
- Climatic conditions

Water samples are collected using clean teflon bailers. All equipment that contacts samples is thoroughly cleaned before arrival at the site and between sampling events.

Water is collected in clean laboratory-supplied containers, labeled, placed immediately into an ice chest pre-cooled to 4°C, and transported to Clayton's laboratory for analysis. One trip blank will be furnished in accordance with our quality assurance/quality control (QA/QC) program.

All samples are collected in such a manner so as to minimize the volatilization of a sample due to agitation and/or transfer from bailer to sample container. Samples are collected so that contaminants most sensitive to volatilization are sampled first.

Preservatives are not added to any sample, unless instructed. If requested, they are supplied by Clayton's laboratory.

All sample containers are labeled in the field. Labels contain the following information: project name, sample identification number, project number, date and time of collection, and sampler's initials.

Under no circumstances are sealed sample containers opened by anyone other than the laboratory personnel who perform the requested analyses. If it is necessary for samples or sample chests to leave the immediate control of the sampler prior to delivery to the laboratory, for example during shipment by an overnight shipper, a custody seal is placed on each sample container and/or sample chest to ensure that the samples have not been tampered with during transportation. The custody seal is signed by the sampler, and the date and time that the seal was placed is recorded. The elapsed time between sample collection and delivery to the laboratory never exceeds 48 hours. Water samples are not held for more than 14 days prior to analysis and are kept at 4°C at all times.

To document and trace samples from time of collection, a signed chain-of-custody record is filled out by the sampler and accompanies the samples through the laboratory analyses. The completed chain-of-custody is included with the analytical report from the laboratory.

REFERENCES

Groundwater Monitoring Guidelines, Revised February 1990. Alameda County District Groundwater Protection Program.

Leaking Underground Fuel Tank (LUFT) Field Manual: Guidelines for Site Assessment, Cleanup, and Underground Tank Closure, May 1988. State of California LUFT Task Force.

Regional Board Staff Recommendations for Initial Evaluation and Investigation of Underground Tanks, Revised November 1989. North Coast, San Francisco Bay, and Central Valley regions of the California State Water Quality Control Board.

Standards for the Construction and Destruction of Wells and Other Deep Excavations in Santa Clara County, Revised June 1989. Santa Clara Valley Water District.

APPENDIX F

WATER SAMPLING FIELD SURVEY FORMS

CLAYTON ENVIRONMENTAL CONSULTANTS, INC.

WATER SAMPLING FIELD SURVEY FORM

Job # 58560.15 Site: KEEP ON TRUCKING Date: APRIL 10, 1995

Well # MW-1 Sampling Team: R. SILVA

Sampling Method: DISPOSABLE BAILER

Field Conditions: CLEAR SKIES, WARM, SLIGHT BREEZE

Describe Equipment D-Con Before Sampling This Well: SUBMERSIBLE PUMP WAS WASHED WITH DETERGENT THEN TRIPLE RINSED

Total Depth of Well: 15.01 feet Time: 1130 Depth to Water Before Pumping: 4.94 feet

Volume Height of Water Column:		Diameter 2-inch	Diameter 4-inch	Volume		Purge Factor		To Purge
10.07 feet	*	(.16)	.65	= 1.61 gal	*	5	=	8.05

Depth Purging From: 14 feet Time Surging Begins: 1135

Notes on Initial Discharge: CLEAR, SULFUR ODOR

Time	Volume Purged	pH	Conductivity	T	Notes
1137	2-GAL	6.8	2000+	17.9	CLEAR
1139	4-GAL	6.8	2000+	18.4	CLEAR, PURGED DRY
1145	6-GAL	6.8	2000+	19.5	CLEAR
1147	8-GAL	6.8	2000+	19.3	CLEAR, PURGED DRY

CLAYTON ENVIRONMENTAL CONSULTANTS, INC.

WATER SAMPLING FIELD SURVEY FORM

Job # 5B560.18 15 Site: KEEP ON TRUCKING Date: APRIL 10, 1995

Well # MW-2 Sampling Team: R. SILVA

Sampling Method: DISPOSABLE BAILER

Field Conditions: CLEAR SKIES, WARM, WINDY

Describe Equipment D-Con Before Sampling This Well: SUBMERSIBLE PUMP WAS WASHED WITH DETERGENT THEN TRIPLE RINSED

Total Depth of Well: 14.92 feet Time: 1340 Depth to Water Before Pumping: 4.03 feet

Volume Height of Water Column:		Diameter 2-inch	Diameter 4-inch	Volume		Purge Factor		To Purge
10.89	feet *	(.16)	.65	= 1.74	gal *	5	=	8.70

Depth Purging From: 14 feet Time Surging Begins: 1347

Notes on Initial Discharge: CLEAR

Time	Volume Purged	pH	Conductivity	T	Notes
1348	2-GAL	6.8	2000+	18.0	CLEAR, PURGED DRY
1400	4-GAL	6.8	2000+	18.4	CLEAR, PURGED DRY
	6-GAL				
	8-GAL				

EWATER.TBL (11/21/88)

CLAYTON ENVIRONMENTAL CONSULTANTS, INC.

WATER SAMPLING FIELD SURVEY FORM

Job # 58560.18 15 Site: KEEP ON TRUCKING Date: APRIL 10, 1995

Well # MW-3 Sampling Team: R. SILVA

Sampling Method: DISPOSABLE BAILER

Field Conditions: CLEAR SKIES, WARM, WINDY

Describe Equipment D-Con Before Sampling This Well: SUBMERSIBLE PUMP WAS WASHED WITH DETERGENT THEN TRIPLE RINSED

Total Depth of Well: 19.48 feet Time: 1237 Depth to Water Before Pumping: 7.64 feet

Volume Height of Water Column		Diameter 2-inch	Diameter 4-inch		Volume		Purge Factor		To Purge
11.84	feet *	(.16)	.65	=	1.89	gal *	5	=	9.45

Depth Purging From: 19 feet Time Surging Begins: 1242

Notes on Initial Discharge: CLEAR

Time	Volume Purged	pH	Conductivity	T	Notes
1243	2-GAL	6.8	2000+	18.2	CLEAR
1244	4-GAL	6.8	2000+	18.7	CLEAR, PURGED DRY
1257	6-GAL	6.8	2000+	18.8	CLEAR
1258	8-GAL	6.8	2000+	18.8	CLEAR, PURGED DRY

CLAYTON ENVIRONMENTAL CONSULTANTS, INC.

WATER SAMPLING FIELD SURVEY FORM

Job # 15 / 18560.15 Site: KEEFE ON TRUCKING Date: APRIL 10, 1995

Well # MW-5 Sampling Team: R. SILVA

Sampling Method: DISPOSABLE BAILER

Field Conditions: CLEAR SKIES, WARM, WINDY

Describe Equipment D-Con Before Sampling This Well: SUBMERSIBLE PUMP WAS WASHED WITH DETERGENT THEN TRIPLE RINSED

Total Depth of Well: 19.44 feet Time: 1430 Depth to Water Before Pumping: 4.64 feet

Volume Height of Water Column:		Diameter 2-inch	Diameter 4-inch	Volume		Purge Factor		To Purge
14.80	feet *	(.16)	.65	= 2.37	gal *	5	=	11.85

Depth Purging From: 19 feet Time Surging Begins: 1435

Notes on Initial Discharge: GRAYISH, SILTY

Time	Volume Purged	pH	Conductivity (✓ S/geta #)	T	Notes
1437	3-GAL	6.4	2000+	16.5	CLOUDY
1439	6-GAL	6.2	2000+	16.1	CLOUDY
1441	9-GAL	6.1	2000+	16.1	CLOUDY
1443	12-GAL	5.9	2000+	16.4	CLOUDY

EWATER.TBL (11/21/88)

CLAYTON ENVIRONMENTAL CONSULTANTS, INC.

WATER SAMPLING FIELD SURVEY FORM

Job # 55560.15 Site: KEEP ON TRUCKING Date: APRIL 10, 1995

Well # MW-6 Sampling Team: RICHARD SILVA

Sampling Method: DISPOSABLE BAILER

Field Conditions: _____

Describe Equipment D-Con Before Sampling This Well: _____

Total Depth of Well: 20.04 feet Time: 1515 Depth to Water Before Pumping: 4.12 feet

Volume Height of Water Column:		Diameter 2-inch	Diameter 4-inch	Volume		Purge Factor		To Purge
15.92	feet *	(.16)	.65	= 2.55	gal *	5	=	12.75

Depth Purging From: 20 feet Time Surging Begins: 1520

Notes on Initial Discharge: GRAYISH, SILTY, STRONG ODOR

Time	Volume Purged	pH	Conductivity	T	Notes
1522	3-GAL	6.8	2000+	16.9	CLOUDY, ODOR
1524	6-GAL	6.8	2000+	16.6	CLEAR, ODOR
1526	9-GAL	6.8	2000+	16.5	CLEAR, ODOR
1528	12-GAL	6.9	2000+	17.0	CLEAR, ODOR

APPENDIX G

GEOTOPO INC. MONITORING WELL SURVEY REPORT

SURVEYING - MAPPING - GIS/CADD SERVICES
RIGHT OF WAY SERVICES

FAX TRANSMISSION

GEOTOPO INC.

To:	George M. (Clayton Environmental)	**Date:**	July 12, 1995
Fax #:	426-0106	**Pages:**	1. including this cover sheet.
From:	Ken Alcock		
Subject:	Bench Mark info.		

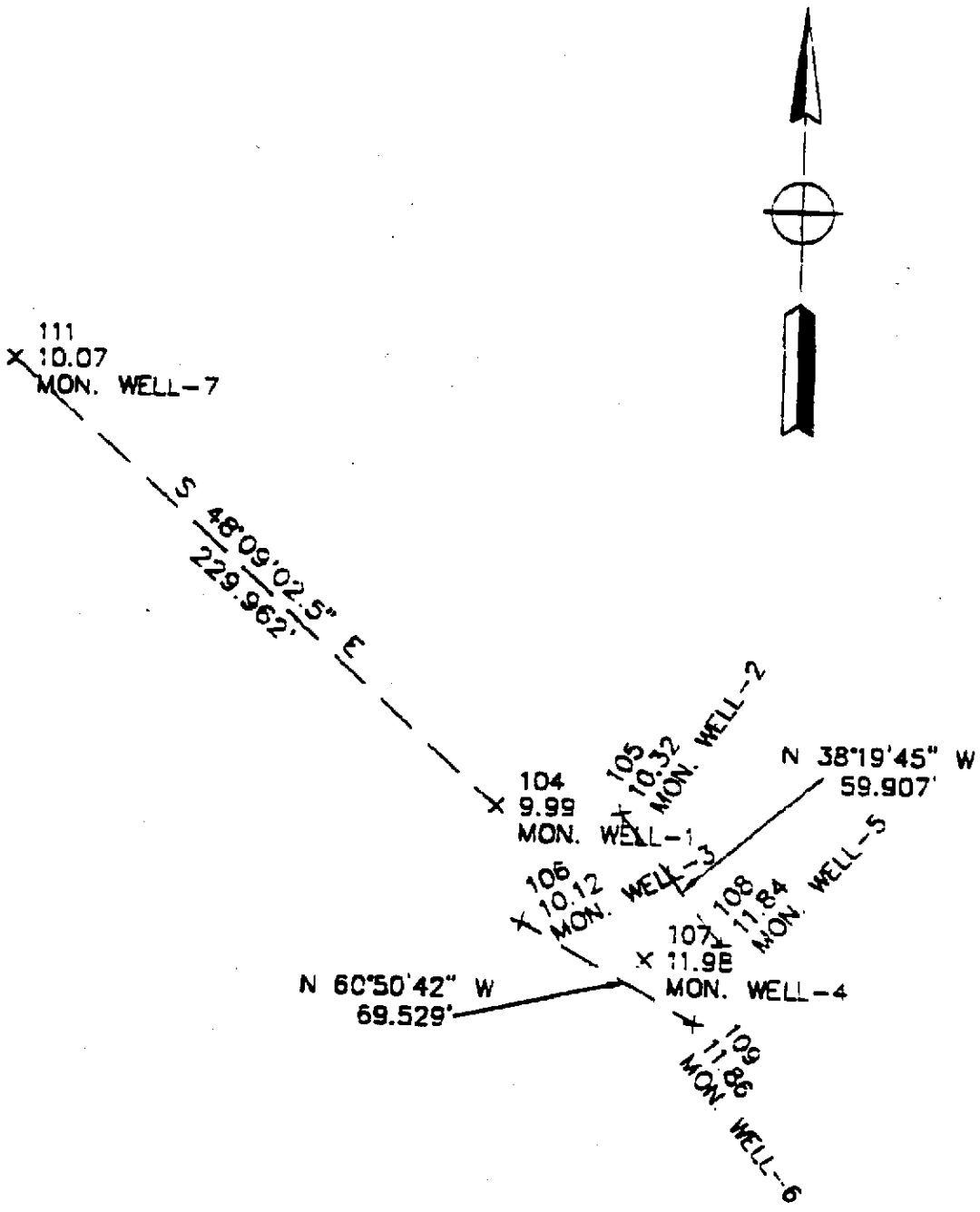
COMMENTS:

George,
Reference to mean sea level per the Port of Oakland is 3.2' below mean sea level.
This would be for the wells we located out on 8th and Embarcadero.

Thank you

Ken Alcock
Survey Tech.

1611 Telegraph Ave., Suite 488. Oakland CA 94612 • (510) 763-2239 • Fax (510) 763-6401



GEOTOPO
SURVEYING & MAPPING
1611 TELEGRAPH STE 608 OAKLAND CA 94612
(510)763-3330 FAX (510)763-6401

MONITORING WELLS
OF
8TH AND EMBARCADERO

DRAWN BY: KRA	REVISIONS:
CHECKED BY: WJP	
SCALE: 1"=60'	
DATE: 5/11/95	
SHEET: 1 OF: 1	JOB NO: 94523

L:\OCA\P\94523\CLAYTON.DWG

CLAYTON.CRD

POINT	NORTHING	EASTING	ELEVATION	NOTE
100	2114637.9570	6054056.9620	10.3698	MON. REX
101	2114326.8919	6055235.6816	10.7800	MON. PIER
102	2115136.1660	6052732.3980	999999999.0000	MON. SHIP
103	2114627.8345	6053918.5118	10.1343	PT. SHORNA
104	2114476.8124	6053807.9116	9.9936	MON. WELL-1
105	2114475.2262	6053850.7894	10.3204	MON. WELL-2
106	2114436.2577	6053817.3194	10.1153	MON. WELL-3
107	2114424.1662	6053860.0530	11.9834	MON. WELL-4
108	2114429.8002	6053886.7021	11.8409	MON. WELL-5
109	2114402.3849	6053878.0394	11.8555	MON. WELL-6
110	2115136.1841	6052732.3499	10.3123	MON SHIP

APPENDIX H

CERTIFIED LABORATORY REPORTS

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

Clayton
ENVIRONMENTAL
CONSULTANTS

July 7, 1995

Mr. Dariush Dastmalchi
CLAYTON ENVIRONMENTAL CONSULTANTS, INC.
1252 Quarry Lane
Pleasanton, CA 94566

ADDITIONAL REPORT
Client Ref.: 58560.18
Clayton Project No.: 95041.43

Dear Mr. Dastmalchi:

Attached is our additional analytical laboratory report for the samples received on April 10, 1995 and originally reported on April 24, 1995. As requested, results for TPH-Gasoline are provided for all samples previously analyzed for BTEX. Also enclosed is a copy of the Chain-of-Custody record acknowledging receipt of these samples.

We appreciate the opportunity to assist you. If you have any questions concerning this report, please contact Suzanne Haus, Client Services Supervisor, at (510) 426-2657.

Sincerely,

Michael Lynch for

Harriotte A. Hurley, CIH
Director, Laboratory Services
San Francisco Regional Office

HAH/ses

Attachments

Analytical Results
for
Clayton Environmental Consultants, Inc.
Client Reference: 58560.18
Clayton Project No. 95041.43

Sample Identification:	MW-1	Date Sampled:	04/10/95
Lab Number:	9504143-01C	Date Received:	04/10/95
Sample Matrix/Media:	WATER	Date Prepared:	04/13/95
Preparation Method:	EPA 5030	Date Analyzed:	04/13/95
Method Reference:	EPA 8015/8020	Analyst:	WAS

Analyte	CAS #	Concentration (ug/L)	Method Detection Limit (ug/L)
BTEX/Gasoline			
Benzene	71-43-2	ND	0.4
Ethylbenzene	100-41-4	ND	0.3
Toluene	108-88-3	ND	0.3
o-Xylene	95-47-6	ND	0.4
p,m-Xylenes	--	ND	0.4
Gasoline	--	ND	50
Surrogates		Recovery (%)	QC Limits (%)
a,a,a-Trifluorotoluene	98-08-8	108	50 - 150

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

Analytical Results
for
Clayton Environmental Consultants, Inc.
Client Reference: 58560.18
Clayton Project No. 95041.43

Sample Identification:	MW-2	Date Sampled:	04/10/95
Lab Number:	9504143-02C	Date Received:	04/10/95
Sample Matrix/Media:	WATER	Date Prepared:	04/13/95
Preparation Method:	EPA 5030	Date Analyzed:	04/13/95
Method Reference:	EPA 8015/8020	Analyst:	WAS

Analyte	CAS #	Concentration (ug/L)	Method Detection Limit (ug/L)
BTEX/Gasoline			
Benzene	71-43-2	ND	0.4
Ethylbenzene	100-41-4	ND	0.3
Toluene	108-88-3	ND	0.3
o-Xylene	95-47-6	ND	0.4
p,m-Xylenes	--	ND	0.4
Gasoline	--	ND	50
Surrogates		Recovery (%)	QC Limits (%)
a,a,a-Trifluorotoluene	98-08-8	102	50 - 150

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

Analytical Results
for
Clayton Environmental Consultants, Inc.
Client Reference: 58560.18
Clayton Project No. 95041.43

Sample Identification:	MW-3	Date Sampled:	04/10/95
Lab Number:	9504143-03C	Date Received:	04/10/95
Sample Matrix/Media:	WATER	Date Prepared:	04/13/95
Preparation Method:	EPA 5030	Date Analyzed:	04/13/95
Method Reference:	EPA 8015/8020	Analyst:	WAS

Analyte	CAS #	Concentration (ug/L)	Method Detection Limit (ug/L)
BTEX/Gasoline			
Benzene	71-43-2	ND	0.4
Ethylbenzene	100-41-4	ND	0.3
Toluene	108-88-3	ND	0.3
o-Xylene	95-47-6	ND	0.4
p,m-Xylenes	--	ND	0.4
Gasoline	--	ND	50
Surrogates		Recovery (%)	QC Limits (%)
a,a,a-Trifluorotoluene	98-08-8	108	50 - 150

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

Analytical Results
for
Clayton Environmental Consultants, Inc.
Client Reference: 58560.18
Clayton Project No. 95041.43

Sample Identification:	MW-5	Date Sampled:	04/10/95
Lab Number:	9504143-04C	Date Received:	04/10/95
Sample Matrix/Media:	WATER	Date Prepared:	04/14/95
Preparation Method:	EPA 5030	Date Analyzed:	04/14/95
Method Reference:	EPA 8015/8020	Analyst:	WAS

Analyte	CAS #	Concentration (ug/L)	Method Detection Limit (ug/L)
BTEX/Gasoline			
Benzene	71-43-2	3.1	0.4
Ethylbenzene	100-41-4	2.9	0.3
Toluene	108-88-3	ND	0.3
o-Xylene	95-47-6	4.8	0.4
p,m-Xylenes	--	6.5	0.4
Gasoline	--	1100	50
Surrogates		Recovery (%)	QC Limits (%)
a,a,a-Trifluorotoluene	98-08-8	93	50 - 150

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

Analytical Results
for
Clayton Environmental Consultants, Inc.
Client Reference: 58560.18
Clayton Project No. 95041.43

Sample Identification:	MW-6	Date Sampled:	04/10/95
Lab Number:	9504143-05C	Date Received:	04/10/95
Sample Matrix/Media:	WATER	Date Prepared:	04/14/95
Preparation Method:	EPA 5030	Date Analyzed:	04/14/95
Method Reference:	EPA 8015/8020	Analyst:	WAS

Analyte	CAS #	Concentration (ug/L)	Method Detection Limit (ug/L)
BTEX/Gasoline			
Benzene	71-43-2	4.4	0.4
Ethylbenzene	100-41-4	0.7	0.3
Toluene	108-88-3	ND	0.3
o-Xylene	95-47-6	ND	0.4
p,m-Xylenes	--	0.8	0.4
Gasoline	--	1300	50
Surrogates		Recovery (%)	QC Limits (%)
a,a,a-Trifluorotoluene	98-08-8	98	50 - 150

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

Analytical Results
for
Clayton Environmental Consultants, Inc.
Client Reference: 58560.18
Clayton Project No. 95041.43

Sample Identification:	METHOD BLANK	Date Sampled:	--
Lab Number:	9504143-07A	Date Received:	--
Sample Matrix/Media:	WATER	Date Prepared:	04/13/95
Preparation Method:	EPA 5030	Date Analyzed:	04/13/95
Method Reference:	EPA 8015/8020	Analyst:	WAS

Analyte	CAS #	Concentration (ug/L)	Method Detection Limit (ug/L)
BTEX/Gasoline			
Benzene	71-43-2	ND	0.4
Ethylbenzene	100-41-4	ND	0.3
Toluene	108-88-3	ND	0.3
o-Xylene	95-47-6	ND	0.4
p,m-Xylenes	--	ND	0.4
Gasoline	--	ND	50
Surrogates		Recovery (%)	QC Limits (%)
a,a,a-Trifluorotoluene	98-08-8	107	50 - 150

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

Analytical Results
for
Clayton Environmental Consultants, Inc.
Client Reference: 58560.18
Clayton Project No. 95041.43

Sample Identification: See Below
Lab Number: 9504143
Sample Matrix/Media: WATER
Extraction Method: EPA 3510
Method Reference: EPA 8015 (Modified)

Date Received: 04/10/95
Date Extracted: 04/14/95
Date Analyzed: 04/18/95

Lab Number	Sample Identification	Date Sampled	TPH-D (ug/L)		Method Detection Limit (ug/L)
-01	MW-1	04/10/95	330	a	50
-02	MW-2	04/10/95	550	a	50
-03	MW-3	04/10/95	830	a	50
-04	MW-5	04/10/95	6200		50
-05	MW-6	04/10/95	10000		50
-07	METHOD BLANK	--	ND		50

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

TPH-D = Extractable petroleum hydrocarbons from C10 to C42 quantitated as diesel.
a Sample does not match the typical diesel pattern.
Sample appears to be a mixture of diesel and oil.

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

Clayton
ENVIRONMENTAL
CONSULTANTS

July 14, 1995

Mr. Dariush Dastmalchi
CLAYTON ENVIRONMENTAL CONSULTANTS, INC.
1252 Quarry Lane
Pleasanton, CA 94566

ADDITIONAL REPORT
Client Ref.: 59007.00
Clayton Project No.: 95034.44

Dear Mr. Dastmalichi:

Attached is our additional analytical laboratory report for the samples received on March 30, 1995. As requested on July 10, 1995, samples 01 and 05 were analyzed for TPH-Gas. Also enclosed is a copy of the Chain-of-Custody record acknowledging receipt of these samples.

Please note that any unused portion of the samples will be discarded after May 13, 1995, unless you have requested otherwise.

We appreciate the opportunity to assist you. If you have any questions concerning this report, please contact Suzanne Haus, Client Services Supervisor, at (510) 426-2657.

Sincerely,

Michael Lynch for

Harriotte A. Hurley, CIH
Director, Laboratory Services
San Francisco Regional Office

HAH/caa

Attachments

Analytical Results
for
Clayton Environmental Consultants, Inc.
Client Reference: 59007.00
Clayton Project No. 95034.44

Sample Identification:	MW-6 AT 5FT BGS	Date Sampled:	03/30/95
Lab Number:	9503444-01A	Date Received:	03/30/95
Sample Matrix/Media:	SOLID	Date Prepared:	04/06/95
Preparation Method:	EPA 5030	Date Analyzed:	04/06/95
Method Reference:	EPA 8015/8020	Analyst:	WAS

Analyte	CAS #	Concentration (mg/kg)	Method Detection Limit (mg/kg)
BTEX/Gasoline			
Benzene	71-43-2	ND	0.005
Ethylbenzene	100-41-4	ND	0.005
Toluene	108-88-3	ND	0.005
o-Xylene	95-47-6	ND	0.005
p,m-Xylenes	--	ND	0.005
Gasoline	--	240 a	0.3
Surrogates		Recovery (%)	QC Limits (%)
a,a,a-Trifluorotoluene	98-08-8	85	50 - 150

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

Results are reported on a wet-weight basis, as received.
a Sample appears to be weathered gasoline.

Analytical Results
for
Clayton Environmental Consultants, Inc.
Client Reference: 59007.00
Clayton Project No. 95034.44

Sample Identification:	MW-5 AT 5FT BGS	Date Sampled:	03/30/95
Lab Number:	9503444-05A	Date Received:	03/30/95
Sample Matrix/Media:	SOLID	Date Prepared:	04/06/95
Preparation Method:	EPA 5030	Date Analyzed:	04/06/95
Method Reference:	EPA 8015/8020	Analyst:	WAS

Analyte	CAS #	Concentration (mg/kg)	Method Detection Limit (mg/kg)
BTEX/Gasoline			
Benzene	71-43-2	0.020	0.005
Ethylbenzene	100-41-4	0.020	0.005
Toluene	108-88-3	0.006	0.005
o-Xylene	95-47-6	0.020	0.005
p,m-Xylenes	--	0.045	0.005
Gasoline	--	6.0 a	0.3
Surrogates		Recovery (%)	QC Limits (%)
a,a,a-Trifluorotoluene	98-08-8	109	50 - 150

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

Results are reported on a wet-weight basis, as received.
a Sample appears to be weathered gasoline.

Analytical Results
for
Clayton Environmental Consultants, Inc.
Client Reference: 59007.00
Clayton Project No. 95034.44

Sample Identification:	METHOD BLANK	Date Sampled:	--
Lab Number:	9503444-08A	Date Received:	--
Sample Matrix/Media:	SOLID	Date Prepared:	04/06/95
Preparation Method:	EPA 5030	Date Analyzed:	04/06/95
Method Reference:	EPA 8015/8020	Analyst:	WAS

Analyte	CAS #	Concentration (mg/kg)	Method Detection Limit (mg/kg)
BTEX/Gasoline			
Benzene	71-43-2	ND	0.005
Ethylbenzene	100-41-4	ND	0.005
Toluene	108-88-3	ND	0.005
o-Xylene	95-47-6	ND	0.005
p,m-Xylenes	--	ND	0.005
Gasoline	--	ND	0.3
Surrogates		Recovery (%)	QC Limits (%)
a,a,a-Trifluorotoluene	98-08-8	108	50 - 150

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

Results are reported on a wet-weight basis, as received.

Analytical Results
for
Clayton Environmental Consultants, Inc.
Client Reference: 59007.00
Clayton Project No. 95034.44

Sample Identification: See Below
Lab Number: 9503444
Sample Matrix/Media: SOLID
Extraction Method: EPA 3550
Method Reference: EPA 8015 (Modified)

Date Received: 03/30/95
Date Extracted: 04/08/95
Date Analyzed: 04/12/95

Lab Number	Sample Identification	Date Sampled	TPH-D (mg/kg)		Method Detection Limit (mg/kg)
-01	MW-6 AT 5FT BGS	03/30/95	1600	a	1
-05	MW-5 AT 5FT BGS	03/30/95	180	a	1
-08	METHOD BLANK	--	ND		1

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

Results are reported on a wet-weight basis, as received.
TPH-D = Extractable petroleum hydrocarbons from C10 to C42 quantitated as diesel.
a Sample does not match the typical diesel pattern.
Sample appears to be a mixture of diesel and oil.

Clayton ENVIRONMENTAL CONSULTANTS

REQUEST FOR LABORATORY ANALYTICAL SERVICES

For Clayton Use Only	Page 1 of
Project No.	
Batch No.	9412322
Ind. Code	W.P.
Date Logged In 12/27	By G

REPORT RESULTS TO

Name: Dagwish Dastmalchi | Title:
Company: CEC | Dept.:
Mailing Address:
City, State, Zip:
Telephone No.: | Telefax No.:

Date Results Req.: STANDARD TAT | Rush Charges Authorized? ☐ Yes ☒ No | Phone / Fax Results ☐ ☐

Special Instructions: (method, limit of detection, etc.)

Explanation of Preservative: P-HCl

Samples are: (check if applicable)
☐ Drinking Water
☐ Collected in the State of New York

SEND INVOICE TO

Purchase Order No.: | Client Job No.: 54007.00
Name:
Company: KEEP ON TRUCKING | Dept.:
Address:
City, State, Zip:

ANALYSIS REQUESTED
(Enter an 'X' in the box below to indicate request; Enter a 'P' if Preservative ad

CLIENT SAMPLE IDENTIFICATION	DATE SAMPLED	MATRIX/ MEDIA	AIR VOLUME (specify units)	Number of Containers	BTEX	TPH-DIESEL	HOLD	FOR LAB USE ONLY
MW-1	12-22-94	WATER	40 ML	2	X			-01AB
MW-1			LITER	2		X		-01CD
MW-2			40 ML	2	X			-02A
MW-2			LITER	2		X		-02C
MW-3			40 ML	2	X			-03A
MW-3			LITER	2		X		-03C
TRIP BLANK	12-22-94	WATER	40 ML	1			X	-04A

CHAIN OF CUSTODY

Collected by: M. Springman (print) | Collector's Signature: M. Springman
Relinquished by: M. Springman | Date/Time 12-22-94 3:55PM | Received by: | Date/Time
Relinquished by: | Date/Time | Received at Lab by: [signature] | Date/Time 12/27/94
Method of Shipment: | Sample Condition Upon Receipt: ☒ Acceptable ☐ Other (explain)

Authorized by: _____ Date _____
(Client Signature Must Accompany Request)

Please return completed form and samples to one of the Clayton Environmental Consultants, Inc. labs listed below:

22345 Roethel Drive, Novi, MI 48375, (810) 344-1770
Raritan Center, 160 Fieldcrest Ave., Edison, NJ 08837, (908) 225-8040
400 Chastain Center Blvd., N.W., Suite 490, Kennesaw, GA 30144
1252 Quarry Lane, Pleasanton, CA 94566, (510) 426-2657

DISTRIBUTION:
WHITE - Clayton Laborat
YELLOW - Clay