

5510143
DH



GETTLER-RYAN INC.

TRANSMITTAL

TO: Mr. David De Witt
Tosco Marketing Company
2000 Crow Canyon Place, Suite 400
San Ramon, California 94583

DATE: January 13, 2000
PROJ. #: 140158.03-1
SUBJECT: Work Plan
Tosco (Unocal) SS No. 4625
3070 Fruitvale Avenue
Oakland, California

FROM:
Clyde J. Galantine
Project Geologist
Gettler-Ryan Inc.
6747 Sierra Court, Suite J
Dublin, California 94568

WE ARE SENDING YOU:

COPIES	DATED	DESCRIPTION
1	January 13, 2000	Work Plan For Limited Subsurface Investigation

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- For approval Return for corrections Return __ corrected prints
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COMMENTS:

Enclosed is one copy of the above work plan. If you have any questions or comments, please call me at (925) 551-7555.

cc: Thomas Peacock, Alameda County Health Care Services Agency

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HEALTH CARE SERVICES AGENCY
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GETTLER-RYAN INC.

WORK PLAN FOR LIMITED SUBSURFACE INVESTIGATION

at

Tosco (Unocal) Service Station No. 4625
3070 Fruitvale Avenue
Oakland, California

Report No. 140158.03-1

Prepared for:

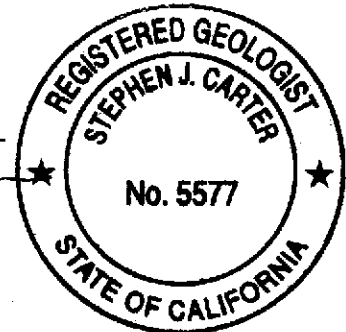
Mr. David De Witt
Tosco Marketing Company
2000 Crow Canyon Place, Suite 400
San Ramon, California 94583

Prepared by:

Gettler-Ryan Inc.
6747 Sierra Court, Suite J
Dublin, California 94568

Clyde J. Galantine
Project Geologist

Stephen J. Carter
Senior Geologist
R.G. 5577



January 13, 2000

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WORK PLAN FOR LIMITED SUBSURFACE INVESTIGATION

at

Tosco (Unocal) Service Station No. 4625
3070 Fruitvale Avenue
Oakland, California

Report No. 140158.03-1

INTRODUCTION

At the request of Tosco Marketing Company (Tosco), Gettler-Ryan Inc. (GR), has prepared this Work Plan for the installation of four on-site groundwater monitoring wells to evaluate soil and groundwater conditions at the subject site. The proposed work includes: writing a site safety plan; obtaining the required permits; installing four on-site groundwater monitoring wells, collecting and submitting selected soil and groundwater samples for chemical and physical analyses; surveying the wellhead elevations; arranging for Tosco's contractors to dispose of the waste materials; conducting a ½-mile well survey; and preparing a report presenting the observations associated with the above scope of work. This work is proposed to delineate soil and groundwater impacted by petroleum hydrocarbons identified during the previous underground storage tank (UST) and product line replacement investigation (GR Report No. 140158.02, dated July 21, 1998). This scope of work was developed in response to a Alameda County Health Care Services Agency (ACHCSA) letter dated November 24, 1999.

The scope of work proposed in this Work Plan is intended to comply with the State of California Water Resources Control Board's *Leaking Underground Fuel Tanks (LUFT) Manual* and *California Tri-Regional Board Staff Recommendations for Preliminary Investigation and Evaluation of Underground Tank Sites*, and the ACHCSA guidelines.

SITE DESCRIPTION

General

The site is located on the southeast corner of the intersection of Fruitvale Avenue and School Street in Oakland, California. The site is currently a Tosco (76 Products) petroleum dispensing operation and service center. The Tosco underground and above ground facilities, including the station building, three dispenser islands, two 12,000-gallon double-wall fiberglass gasoline USTs, and one above ground waste oil tank. Pertinent former and existing site features are shown on Figure 2.

Geology and Hydrogeology

The site is located on the western flank of the Oakland Hills and is underlain by Holocene age alluvium. These deposits are composed of unconsolidated moderately sorted permeable silt with coarse sand and gravel. The northwest-southeast trending Hayward Fault is located approximately 1,500 feet northeast of the site (Helley, 1979). The nearest surface water is Sausal Creek, located approximately 600 feet west of the site.

Based on a previous subsurface investigation, the site is underlain by silt and clay to approximately 14 feet below ground surface (bgs). Groundwater was measured at approximately 8.75 feet bgs during April 1998 UST replacement activities (GR, 1998). The groundwater flow direction is estimated to be toward the south (conversation with ACHSCA personnel). A former environmental site located at 2964 Fruitvale Avenue (approximately 550 feet south of site) had a documented groundwater flow direction of south-southwest to south-southeast (predominantly south) with a depth to water ranging from 6 to 9.44 feet bgs.

PREVIOUS ENVIRONMENTAL WORK

A UST, dispenser, and product piping modification project was performed at the site in April and May 1998. Four soil samples were collected from the sidewalls of the UST excavation at a depth of 8.5 feet bgs. Petroleum hydrocarbon concentrations reported in the samples ranged from 44 to 1,700 parts per million (ppm) of Total Petroleum Hydrocarbons as Gasoline (TPHg), 0.16 to 17 ppm of benzene, and not detected to 16 ppm of MtBE. Eight soil samples were collected from beneath the dispensers at a depth of 4 feet bgs. Petroleum hydrocarbon concentrations reported in the samples ranged from not detected to 660 ppm of TPHg, not detected to 5.1 ppm of benzene, and not detected to 150 ppm of MtBE. The area around the dispenser represented by sample UT-1-4 was

overexcavated and resampled at a depth of 8 feet bgs. The sample contained 910 ppm of TPHg, 3.8 ppm of benzene, and 69 ppm of MtBE (GR, 1998).

A 550-gallon single-wall steel waste oil UST and associated remote fill piping were also removed during renovation activities. One soil sample was collected from below the waste oil UST at a depth of 8.5 feet bgs. The sample contained 820 ppm of TPHg, 2.7 ppm of benzene, 200 ppm of Total Petroleum Hydrocarbons as Diesel (TPHd), 56 ppm of Oil and Grease (O&G), and elevated concentrations of various volatile (EPA Method 8240) and semi-volatile organic (EPA Method 8270) compounds and metals. One soil sample was collected beneath the remote fill piping at a depth of 2 feet bgs. The sample was reported as not detected for all petroleum hydrocarbons except for 1.5 ppm of TPHd, and non-anomalous concentrations of metals (GR, 1998).

A total of 1,165.98 tons of soil was removed from the site during renovation activities and transported to Forward Landfill for disposal (GR, 1998). Approximately 40,000 gallons of groundwater were removed from the UST excavation during station renovation activities and transported to the Tosco Refinery in Rodeo, California for treatment.

On November 30, 1999, grab groundwater sample W-1 was collected from a temporary conductor casing that was installed in the UST complex backfill in May 1998. Groundwater was measured in the casing at approximately 10 feet bgs. This grab groundwater sample contained 740 parts per billion (ppb) of MtBE by EPA Method 8260, and was reported as not detected for TPHg and BTEX. The laboratory analytical report and chain of custody form are included in Appendix A.

SCOPE OF WORK

GR proposes to install a total of four groundwater monitoring wells at the locations shown on Figure 2. Soil samples will be collected from the well borings advanced and groundwater samples will be collected from the newly installed wells to characterize the vertical and horizontal extent of hydrocarbon-impacted soil and groundwater at the site. A ½-mile radius well survey will be conducted through the Alameda County Department of Public Works.

To perform this scope of work, GR proposes the following specific tasks:

Task 1. Pre-Field Activities

Prepare a site-specific safety plan and obtain the necessary permits from Alameda County Public Works Agency. Notify Underground Service Alert (USA) least 48 hours prior to initiating work. A subsurface utility locator will inspect each proposed location for buried utilities.

Task 2. Well Installation

Four groundwater monitoring wells will be installed at the locations shown on Figure 2 by a California licensed driller. The first well to be drilled is located approximately 10 feet downgradient of the former waste oil UST. If field screening indicates that petroleum hydrocarbons are present in the subsurface of this location, then the well located immediately south of the first well location (noted "optional" on Figure 2) will be drilled. If field screening does not detect any petroleum hydrocarbons in the first well boring, then the proposed well located in the southwest corner of the site (also shown as "optional" on Figure 2) will be drilled. A GR geologist will monitor the drilling activities, collect soil samples for chemical analyses, describe the encountered soil, and prepare a log of each boring. The well borings will be drilled with eight-inch-diameter hollow-stem augers to a depth of 25 feet bgs.

Groundwater monitoring wells will be constructed of 2-inch diameter Schedule 40 polyvinyl chloride (PVC) well casing and 0.02-inch machine-slotted well screen, as shown on the Proposed Well Construction Detail (Figure 3). Groundwater is anticipated at approximately 10 feet bgs. The proposed wells will be constructed with approximately fifteen feet of screen within the saturated zone and five feet of screen extending above first encountered groundwater.

Soil samples for description and possible chemical analysis will be obtained from each boring at five-foot intervals, as a minimum. Soil samples will be collected with a split-spoon sampler fitted with clean brass or stainless steel sample rings. Sample handling procedures are described in Appendix A. Although the actual number of samples submitted for chemical analysis will depend on site conditions and field screening data, we anticipate a minimum of one unsaturated soil sample from each boring will be submitted for chemical analysis as described in Task 5. In addition, one soil sample collected from above the groundwater table will be analyzed for

physical parameters for possible use in a Risk Based Corrective Action (RBCA) evaluation.

Soil from each sampled interval will be screened in the field for the presence of volatile organic compounds using a photoionization detector (PID). These data will be collected for reconnaissance purposes only, and will not be used as verification of the presence or absence of petroleum hydrocarbons. Field screening procedures are described in Appendix A. Screening data will be recorded on the boring log.

Drill cuttings will be stored at the site pending receipt of chemical analytical data and disposal. Stockpiled cuttings will be placed on and covered with plastic sheeting. Four soil samples of the drill cuttings will be collected for disposal characterization as described in Appendix A. These samples will be submitted to the laboratory for compositing into one sample, and then analyzed as described in Task 6. Drill cuttings will be transported to Forward Landfill, located in Manteca, California for disposal. Steam cleaning rinsate wastewater will be stored at the site in properly labeled drums pending disposal.

Task 3. Wellhead Survey.

The elevations of the vault boxes and the top of the PVC casings of the conductor casing and newly installed wells will be surveyed to mean sea level by a California licensed surveyor. The surveyor will also obtain the horizontal coordinates of the newly installed wells.

Task 4. Well Development and Sampling.

The newly installed monitoring wells will be developed after being allowed to stand a minimum of 72 hours after completion. During development, the clarity of the discharged water and selected groundwater parameters (pH, temperature, and conductivity) will be monitored. When the discharge water runs clear and the groundwater parameters have stabilized, a groundwater sample will be collected. The groundwater samples will be analyzed as described in Task 5. Development and groundwater sampling procedures are described in Appendix A. Groundwater removed from the wells during development and sampling will be stored at the site in properly labeled drums pending disposal.

Task 5. Laboratory Analyses.

Soil and groundwater samples will be submitted for chemical analysis by a California state-certified Hazardous Material Testing Laboratory. Drill cutting samples, selected soil samples, and the groundwater samples from the newly installed wells will be analyzed for total petroleum hydrocarbons as gasoline (TPHg) by Environmental Protection Agency (EPA) Method 8015 (Modified), gasoline constituents benzene, toluene, ethylbenzene, and total xylenes (BTEX) and MtBE by EPA Method 8020. In addition, the soil and groundwater samples collected from the well immediately downgradient of the former waste oil tank will be analyzed for total petroleum hydrocarbons as diesel (TPHd) by EPA Method 8015 (Modified), oil and grease by EPA Standard Method 5520, volatile organic compounds (VOCs) by EPA Method 8240, semi-volatile organic compounds (SVOCs) by EPA Method 8270, and total chromium by EPA Method 6010. The soil stockpile sample will be analyzed for TPHg, TPHd, BTEX, MtBE, O&G, VOCs, SVOCs, and total cadmium, chromium, lead, nickel, and zinc by EPA Method 6010. The RBCA soil sample will be analyzed for moisture content, porosity, bulk density, soil pH, grain size, total organic carbon, and permeability.

Task 6. Well Survey

Conduct a ½-mile radius well survey to identify potential groundwater receptors. The survey will be conducted using Alameda County Department of Public Works files.

Task 7. Report Preparation.

Following receipt and analysis of all data, a report will be prepared which summarizes the procedures and findings associated with this investigation. The report will be submitted to Tosco for their use and distribution.

PROJECT STAFF

Mr. Stephen J. Carter, a Registered Geologist in the State of California (R.G. No. 5577) will provide technical oversight and review of the work. Mr. David Vossler, Project Manager, will supervise implementation of the field and office operations. GR employs a staff of geologists, engineers, and technicians who will assist with the project.

SCHEDULE

Implementation of the proposed scope of work will commence upon receipt of regulatory approval.

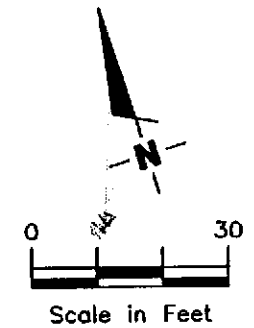
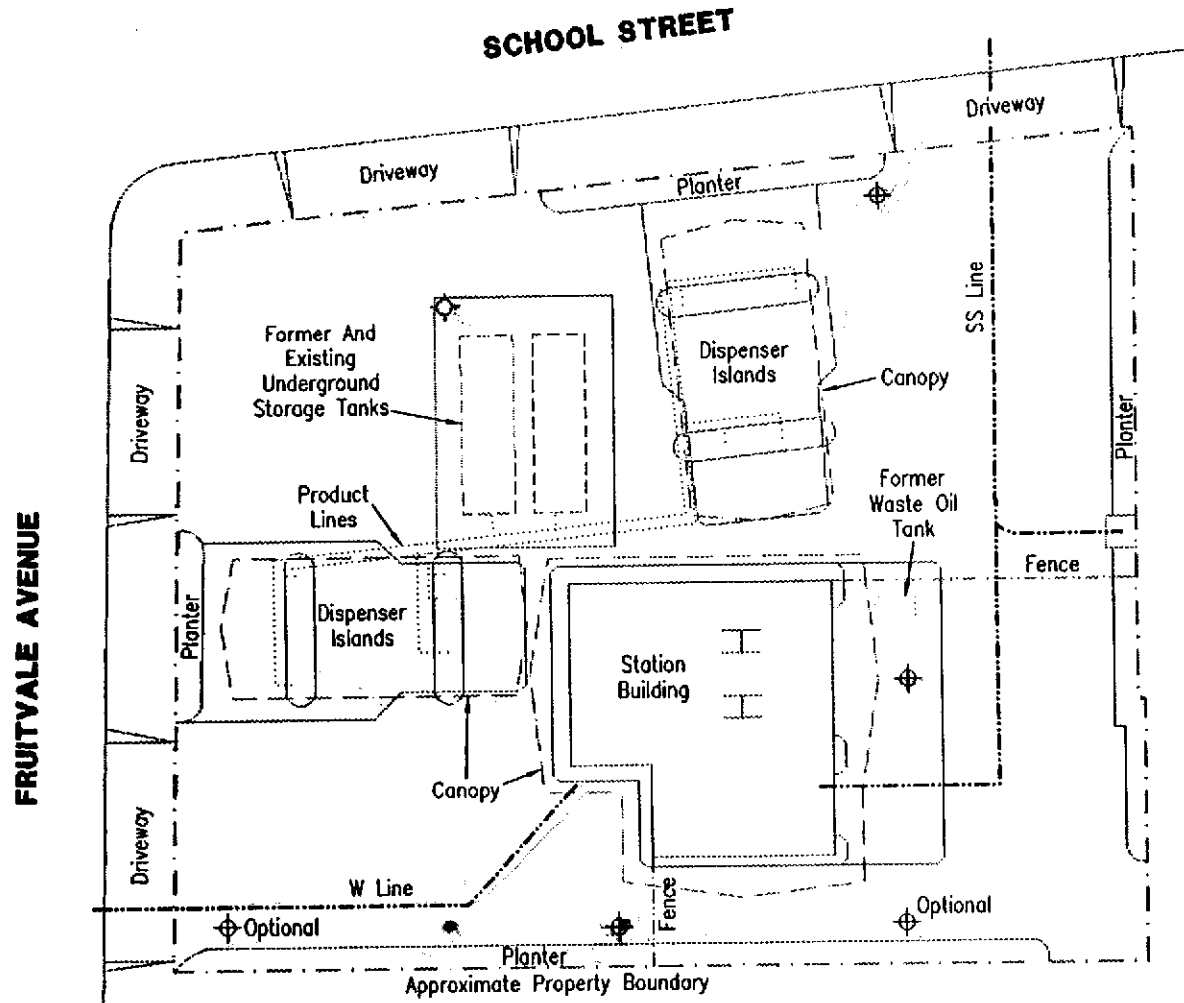
REFERENCES

Gettler-Ryan Inc., 1998, Underground Storage Tank and Product Line Replacement Report for Tosco (Unocal) Service Station 4625, 3070 Fruitvale Avenue, Oakland, California: Report No. 140158.02 dated August 10, 1998.

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. Geological Survey Professional Paper 943.

EXPLANATION

- ⊕ Conductor casing
- ⊕ Proposed monitoring well



Source: Figure Modified From Drawing Provided By Unocal.

FIGURE



Gettler - Ryan Inc.

6747 Sierra Ct., Suite J (510) 551-7555
Dublin, CA 94568

SITE PLAN

Tosco (Unocal) Service Station No. 4625
3070 Fruitvale Avenue
Oakland, California

2

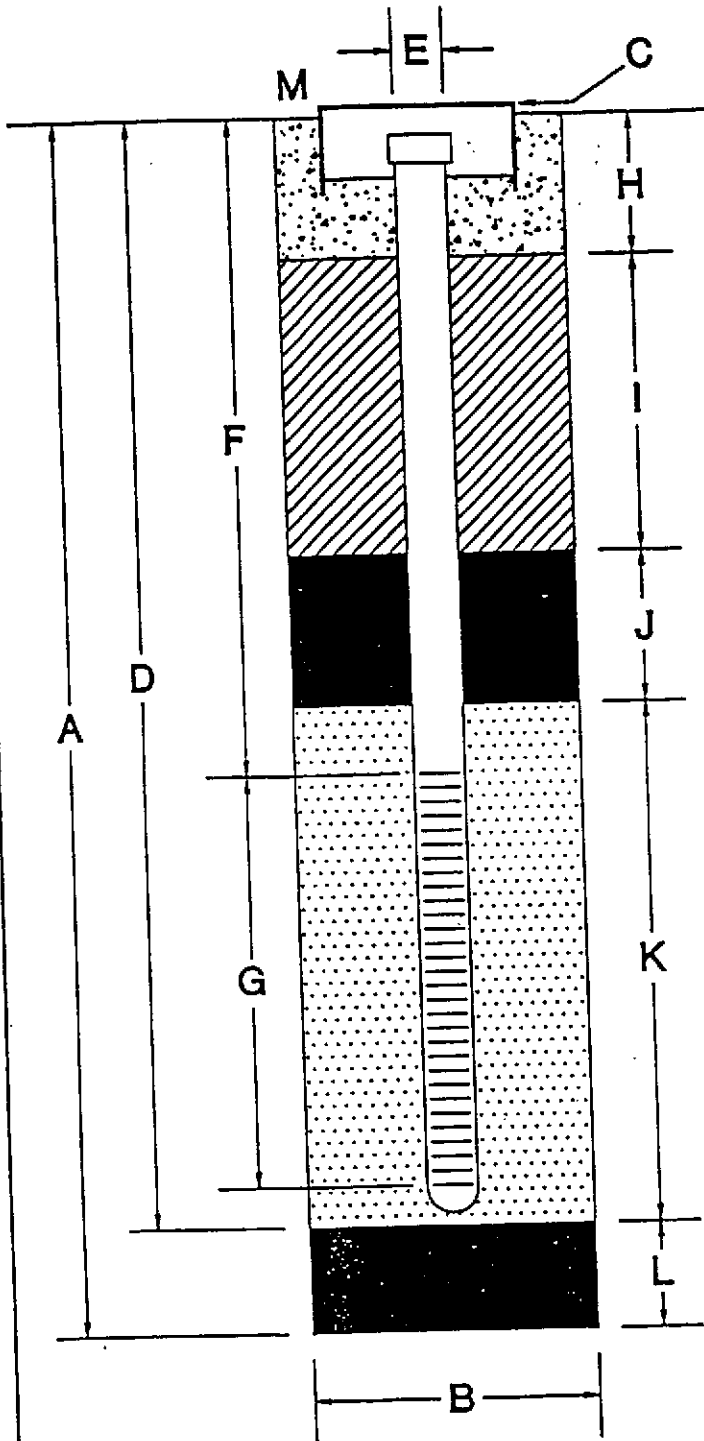
JOB NUMBER
140158.03

REVIEWED BY

DATE
01/00

REVISED DATE

WELL CONSTRUCTION DETAIL



- A Total Depth Of Boring 25 ft.
- B Diameter Of Boring 8 in.
Drilling Method Hollow Stem Auger
- C Top Of Box Elevation _____ ft.
 Referenced To Mean Sea Level
 Referenced To Project Datum
- D Casing Length 25 ft.
Material SCH. 40 PVC
- E Casing Diameter 2 in.
- F Depth To Top Perforations 5 ft.
- G Perforated Length 20 ft.
Perforated Interval From 5 to 25 ft.
Perforation Type SLOTTED SCHD. 40 PVC
Perforation Size .020 in.
- H Surface Seal From 0 to 1 ft.
Seal Material REDI-MIX CONCRETE
- I Backfill From 1 to 3 ft.
Backfill Material NEAT CEMENT
- J Seal From 3 to 4 ft.
Seal Material HYDRATED BENTONITE
- K Gravel Pack From 4 to 25 ft.
Pack Material Lonestar #3 Sand
- L Bottom Seal NONE ft.
Seal Material _____
- M _____

Note: Depths Measured From Initial Ground Surface.



Gettler - Ryan Inc.

6747 Sierra Ct., Suite J (510) 551-7555
Dublin, CA 94568

WELL CONSTRUCTION DETAILS

Tosco (Unocal) Service Station No. 4625
3070 Fruitvale Avenue
Oakland, California

JOB NUMBER
140158.03

REVIEWED BY

DATE
1/00

REVISION DATE

APPENDIX A

Laboratory Analytical Reports And Chain Of Custody Forms



Sequoia Analytical

404 N. Wiget Lane
Walnut Creek, CA 94598
(925) 988-9600
FAX (925) 988-9673

6 December, 1999

Clyde Galantine
Gettler Ryan, Inc. - Dublin
6747 Sierra Court Suite J
Dublin, CA 94568

RE: Tosco

Enclosed are the results of analyses for samples received by the laboratory on 30-Nov-99 14:00. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Melissa Brewer
for
Julianne Fegley
Project Manager



Gettler Ryan, Inc. - Dublin
6747 Sierra Court Suite J
Dublin CA, 94568

Project: Tosco
Project Number: Tosco # 4625
Project Manager: Clyde Galantine

Reported:
06-Dec-99 15:12

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
W-1	W911673-01	Water	30-Nov-99 13:15	30-Nov-99 14:00


Julianne Fegley, Project Manager



Gettler Ryan, Inc. - Dublin
6747 Sierra Court Suite J
Dublin CA, 94568

Project: Tosco
Project Number: Tosco # 4625
Project Manager: Clyde Galantine

Reported:
06-Dec-99 15:12

Total Purgeable Hydrocarbons (C6-C12), BTEX and MTBE by DHS LUFT
Sequoia Analytical - Walnut Creek

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
W-1 (W911673-01) Water Sampled: 30-Nov-99 13:15 Received: 30-Nov-99 14:00									
Purgeable Hydrocarbons	ND	50	ug/l	1	9L02003	01-Dec-99	01-Dec-99	EPA	
Benzene	ND	0.50	"	"	"	"	"	8015M/8020	
Toluene	ND	0.50	"	"	"	"	"	"	
Ethylbenzene	ND	0.50	"	"	"	"	"	"	
Xylenes (total)	ND	0.50	"	"	"	"	"	"	
<i>Surrogate: a,a,a-Trifluorotoluene</i>		96.7 %	70-130	"	"	"	"	"	
W-1 (W911673-01RE1) Water Sampled: 30-Nov-99 13:15 Received: 30-Nov-99 14:00									
Methyl tert-butyl ether	1000	25	ug/l	10	9L02003	01-Dec-99	02-Dec-99	EPA	
<i>Surrogate: a,a,a-Trifluorotoluene</i>		107 %	70-130	"	"	"	"	8015M/8020	

Melissa Brewer
Julianne Fegley, Project Manager
for



Gettler Ryan, Inc. - Dublin
6747 Sierra Court Suite J
Dublin CA, 94568

Project: Tosco
Project Number: Tosco # 4625
Project Manager: Clyde Galantine

Reported:
06-Dec-99 15:12

MTBE Confirmation by EPA Method 8260A

Sequoia Analytical - Walnut Creek

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
W-1 (W911673-01) Water Sampled: 30-Nov-99 13:15 Received: 30-Nov-99 14:00									
Methyl tert-butyl ether	740	20	ug/l	10	9L01011	02-Dec-99	03-Dec-99	EPA 8260A	
Surrogate: Dibromofluoromethane		96.0 %	50-150		"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		98.0 %	50-150		"	"	"	"	

Sequoia Analytical - Walnut Creek

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Melissa Brewer
Julianne Fegley, Project Manager



Gettler Ryan, Inc. - Dublin
6747 Sierra Court Suite J
Dublin CA, 94568

Project: Tosco
Project Number: Tosco # 4625
Project Manager: Clyde Galantine

Reported:
06-Dec-99 15:12

Total Purgeable Hydrocarbons (C6-C12), BTEX and MTBE by DHS LUFT - Quality Control
Sequoia Analytical - Walnut Creek

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 9L02003: Prepared 01-Dec-99 Using EPA 5030B [P/T]

Blank (9L02003-BLK1)

Purgeable Hydrocarbons	ND	50	ug/l							
Benzene	ND	0.50	"							
Toluene	ND	0.50	"							
Ethylbenzene	ND	0.50	"							
Xylenes (total)	ND	0.50	"							
Methyl tert-butyl ether	ND	2.5	"							
<i>Surrogate: a,a,a-Trifluorotoluene</i>	28.8		"	30.0		96.0	70-130			

LCS (9L02003-BS1)

Benzene	21.9	0.50	ug/l	20.0		109	70-130			
Toluene	22.7	0.50	"	20.0		114	70-130			
Ethylbenzene	22.9	0.50	"	20.0		114	70-130			
Xylenes (total)	65.6	0.50	"	60.0		109	70-130			
<i>Surrogate: a,a,a-Trifluorotoluene</i>	32.6		"	30.0		109	70-130			

Matrix Spike (9L02003-MS1)

Source: W911635-04

Benzene	21.2	0.50	ug/l	20.0	ND	106	70-130			
Toluene	21.7	0.50	"	20.0	ND	109	70-130			
Ethylbenzene	21.9	0.50	"	20.0	ND	109	70-130			
Xylenes (total)	63.3	0.50	"	60.0	ND	105	70-130			
<i>Surrogate: a,a,a-Trifluorotoluene</i>	28.5		"	30.0		95.0	70-130			

Matrix Spike Dup (9L02003-MSD1)

Source: W911635-04

Benzene	21.7	0.50	ug/l	20.0	ND	109	70-130	2.33	20	
Toluene	22.3	0.50	"	20.0	ND	111	70-130	2.73	20	
Ethylbenzene	22.4	0.50	"	20.0	ND	112	70-130	2.26	20	
Xylenes (total)	64.3	0.50	"	60.0	ND	107	70-130	1.57	20	
<i>Surrogate: a,a,a-Trifluorotoluene</i>	29.5		"	30.0		98.3	70-130			

Sequoia Analytical - Walnut Creek

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Melissa Brewer
Julianne Fegley, Project Manager



Gettler Ryan, Inc. - Dublin
6747 Sierra Court Suite J
Dublin CA, 94568

Project: Tosco
Project Number: Tosco # 4625
Project Manager: Clyde Galantine

Reported:
06-Dec-99 15:12

MTBE Confirmation by EPA Method 8260A - Quality Control
Sequoia Analytical - Walnut Creek

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
---------	--------	-----------------	-------	-------------	---------------	------	-------------	-----	-----------	-------

Batch 9L01011: Prepared 02-Dec-99 Using EPA 5030B [P/T]

Blank (9L01011-BLK3)

Methyl tert-butyl ether	ND	2.0	ug/l							
Surrogate: Dibromofluoromethane	53.9		"	50.0		108	50-150			
Surrogate: 1,2-Dichloroethane-d4	52.6		"	50.0		105	50-150			

LCS (9L01011-BS3)

Methyl tert-butyl ether	47.4	2.0	ug/l	50.0		94.8	70-130			
Surrogate: Dibromofluoromethane	53.4		"	50.0		107	50-150			
Surrogate: 1,2-Dichloroethane-d4	50.7		"	50.0		101	50-150			

Matrix Spike (9L01011-MS1)

Source: W911438-29

Methyl tert-butyl ether	46.3	2.0	ug/l	50.0	ND	92.6	60-150			
Surrogate: Dibromofluoromethane	49.3		"	50.0		98.6	50-150			
Surrogate: 1,2-Dichloroethane-d4	48.7		"	50.0		97.4	50-150			

Matrix Spike Dup (9L01011-MSD1)

Source: W911438-29

Methyl tert-butyl ether	38.7	2.0	ug/l	50.0	ND	77.4	60-150	17.9	25	
Surrogate: Dibromofluoromethane	46.7		"	50.0		93.4	50-150			
Surrogate: 1,2-Dichloroethane-d4	44.4		"	50.0		88.8	50-150			

Melissa Brewer
Julianne Pegley, Project Manager
for



Gettler Ryan, Inc. - Dublin
6747 Sierra Court Suite J
Dublin CA, 94568

Project: Tosco
Project Number: Tosco # 4625
Project Manager: Clyde Galantine

Reported:
06-Dec-99 15:12

Notes and Definitions

DET Analyte DETECTED
ND Analyte NOT DETECTED at or above the reporting limit
NR Not Reported
dry Sample results reported on a dry weight basis
RPD Relative Percent Difference



Julianne Fegley, Project Manager

Nº 000585

TOSCO

- 885 Jarvis Drive • Morgan Hill, CA 95037 • (408) 776-9600 • FAX (408) 782-6308
- 819 Striker Ave., Suite 8 • Sacramento, CA 95834 • (916) 921-9600 FAX (916) 921-0100
- 404 N. Wiget Lane • Walnut Creek, CA 94598 • (925) 988-9600 FAX (925) 988-9673
- 1455 McDowell Blvd. North, Suite D • Petaluma, CA 94954 • (707) 792-1865 FAX (707) 792-0342
- 1551 Industrial Road • San Carlos, CA 94070 • (650) 232-9600 FAX (650) 232-9612

Consultant Company: <u>Gettler-Ryan</u> <u>140158 .02</u>		Project Name: <u>#4625</u>	
Address: <u>6747 Sierra Ct Suite J</u>		TOSCO Engineer (required) <u>Dave DeWitt</u>	
City: <u>Dublin</u> State: <u>CA</u> Zip Code: <u>94568</u>	Site #, City, State: <u>#4625 Oakland CA</u>		
Telephone: <u>(925) 551-7555</u> FAX #: <u>551-7888</u>	QC Data: <input type="checkbox"/> Level D (Standard) <input type="checkbox"/> Level C <input type="checkbox"/> Level B <input type="checkbox"/> Level A		
Report To: <u>Clyde Galantine</u> Sampler: <u>Clyde Galantine</u>	Analyses Requested		

Turnaround Time: <input type="checkbox"/> 10 Work Days <input type="checkbox"/> 5 Work Days <input checked="" type="checkbox"/> 3 Work Days <input type="checkbox"/> 2-8 Hours	<input type="checkbox"/> Drinking Water
<input type="checkbox"/> 2 Work Days <input type="checkbox"/> 1 Work Day	<input type="checkbox"/> Waste Water
CODE: <input type="checkbox"/> Misc. <input checked="" type="checkbox"/> Detect. <input type="checkbox"/> Eval. <input type="checkbox"/> Remed. <input type="checkbox"/> Demol. <input type="checkbox"/> Closure	<input type="checkbox"/> Other

Client Sample I.D.	Date/Time Sampled	Matrix Desc.	# of Cont.	Cont. Type	Sequoia's Sample #	Analyses Requested							Comments	
						TPH (EPA 8015 Mod. Gas)	BTEX (EPA 8220)	MTBE (EPA 8220)	TPH (EPA 8015 Mod. Diesel)	Volatile Organics (EPA 8260)	MTBE Confirmation (EPA 8260)			
1. <u>W-1</u>	<u>11/30/99 11:15</u>	<u>H2O</u>	<u>4</u>	<u>VOG</u>	<u>01A-D</u>	<u>X</u>	<u>X</u>	<u>X</u>						<u>Run for MTBE by 8260 if positive hit by 8020</u>
2.														
3.														
4.														
5.														
6.														
7.														
8.														
9.														
10.														

Relinquished By: <u>Clyde Galantine</u>	Date: <u>11/30/99</u>	Time: <u>14:00</u>	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By: <u>[Signature]</u>	Date: <u>11/30</u>	Time: <u>14:00</u>

Were Samples Received in Good Condition? Yes No Samples on Ice? Yes No Method of Shipment _____ Page ___ of ___

To be completed upon receipt of report:

1) Were the analyses requested on the Chain of Custody reported? Yes No If no, what analyses are still needed? _____

2) Was the report issued within the requested turnaround time? Yes No If no, what was the turnaround time? _____

Approved by: _____ Signature: _____ Company: _____ Date: _____

Pink - Client
Yellow - Sequoia
White - Sequoia

APPENDIX B

Gettler-Ryan Inc. Field Methods And Procedures

GETTLER-RYAN INC.

FIELD METHODS AND PROCEDURES

Site Safety Plan

Field work performed by Gettler-Ryan Inc. (GR) is conducted in accordance with GR's Health and Safety Plan (revised January 16, 1995) and the Site Safety Plan. GR personnel and subcontractors who perform work at the site are briefed on the contents of these plans prior to initiating site work. The GR geologist or engineer at the site when the work is performed acts as the Site Safety Officer. GR utilizes a photoionization detector (PID) to monitor ambient conditions as part of the Health and Safety Plan.

Collection of Soil Samples

Soil borings are drilled by a California-licensed well driller. A GR geologist is present to observe the drilling, collect soil samples for description, physical testing, and chemical analysis, and prepare a log of the exploratory soil boring. Soil samples are collected from the soil boring with a split-barrel sampling device fitted with 2-inch-diameter, clean brass tube or stainless steel liners. The sampling device is driven approximately 18 inches with a 140-pound hammer falling 30 inches. The number of blows required to advance the sampler each successive 6 inches is recorded on the boring log. The encountered soils are described using the Unified Soil Classification System (ASTM 2488-84) and the Munsell Soil Color Chart.

After removal from the sampling device, soil samples for chemical analysis are covered on both ends with Teflon sheeting or aluminum foil, capped, labeled, and placed in a cooler with blue ice for preservation. A chain-of-custody form is initiated in the field and accompanies the selected soil samples to the analytical laboratory. Samples are selected for chemical analysis based on:

- a. depth relative to underground storage tanks and existing ground surface
- b. depth relative to known or suspected groundwater
- c. presence or absence of contaminant migration pathways
- d. presence or absence of discoloration or staining
- e. presence or absence of obvious gasoline hydrocarbon odors
- f. presence or absence of organic vapors detected by headspace analysis

Field Screening of Soil Samples

A PID is used to perform head-space analysis in the field for the presence of organic vapors from the soil sample. This test procedure involves removing soil from the tip of the sampling device or sample liner into a clean ziplock bag and sealing the bag. After approximately twenty minutes, the bag is opened and the atmosphere within the bag tested using a PID. Head-space screening results are recorded on the boring log. Head-space screening procedures are performed and results recorded as reconnaissance data. GR does not consider field screening techniques to be verification of the presence or absence of hydrocarbons.

Construction of Monitoring Wells

Monitoring wells are constructed in the exploratory soil borings with Schedule 40 polyvinyl chloride (PVC) casing. All joints are thread-joined; no glues, cements, or solvents are used in well construction. The screened interval is constructed of machine-slotted PVC well screen which generally extends from the total well depth to a point above the groundwater.

An appropriately-sized sorted sand is placed in the annular adjacent to the entire screened interval. A bentonite seal is placed in the annular space above the sand, and the remaining annular space is sealed with neat cement or cement grout.

Wellheads are protected with water-resistant traffic-rated vault boxes placed flush with the ground surface. The top of the well casing is sealed with a locking waterproof cap. A lock is placed on the well cap to prevent vandalism and unintentional introduction of materials into the well.

Measurement of Water Levels

The top of the newly-installed well casing is surveyed by a California-licensed Land Surveyor to mean sea level (MSL). Depth-to-groundwater in the well is measured from the top of the well casing with an electronic water-level indicator. Depth-to-groundwater is measured to the nearest 0.01-foot, and referenced to MSL.

Well Development and Sampling

The purpose of well development is to improve hydraulic communication between the well and the surrounding aquifer. Prior to development, each well is monitored for the presence of floating product and the depth-to-water is recorded. Wells are then developed by

alternately surging the well with a vented surge block, then purging the well with a pump or bailer to remove accumulated sediments and draw groundwater into the well. Development continues until the groundwater parameters (temperature, pH, and conductivity) have stabilized. After the wells have been developed, groundwater samples are collected. Well development and sampling is performed by GR.

Storing and Sampling of Drill Cuttings

Drill cuttings are stockpiled on plastic sheeting or stored in drums depending on site conditions and regulatory requirements. Stockpile samples are collected and analyzed on the basis of one composite sample per 100 cubic yards of soil. Stockpile samples are composed of four discrete soil samples, each collected from an arbitrary location on the stockpile. The four discrete samples are then composited in the laboratory prior to analysis.

Each discrete stockpile sample is collected by removing the upper 3 to 6 inches of soil, and then driving the stainless steel or brass sample tube into the stockpiled material with a hand, mallet, or drive sampler. The sample tubes are then covered on both ends with Teflon sheeting or aluminum foil, capped, labeled, and placed in a cooler with blue ice for preservation. A chain-of-custody form is initiated in the field and accompanies the selected soil samples to the analytical laboratory. Stockpiled soils are covered with plastic sheeting after completion of sampling.