SEP 2 4 2001

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TO: David De Witt
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San Ramon, CA 94583

DATE: September 20, 2001
PROJECT NO. 140070.04
SUBJECT: Station 3135, Oakland

From: Jed Douglas

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GETTLER-RYAN INC.

SEP 24 2001

MONITORING WELL INSTALLATION REPORT

at

Tosco (76) Service Station No. 3135
845 66th Avenue,
Oakland, California

Report No. 140070.04

Prepared for:

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September 20, 2001

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MONITORING WELL INSTALLATION REPORT

at

Tosco (76) Service Station No. 3135
845 66th Avenue,
Oakland, California

Report No. 140070.04

1.0 INTRODUCTION

At the request of Tosco Marketing Company (Tosco), Gettler-Ryan Inc. (GR), has prepared this report of subsurface investigative work performed at the subject site. This work was originally proposed in GR Report No. 140237.03-1, ***Work Plan for Monitoring Well Installation,*** dated March 14, 2000. The Alameda County Environmental Health Services (ACEHS) requested a change in the location of the proposed well. A revised Work Plan with a proposed well location on privately owned offsite property was prepared and submitted to the ACEHS, dated August 4, 2000. The work plan was approved by the Alameda County Environmental Health Services (ACEHS), in a letter to Tosco dated March 27, 2000. After receipt of regulatory approval, Tosco initiated offsite access agreement procedures. Tosco's initial attempt at obtaining offsite access was denied by the private property owner. Acquisition of offsite access was not completed until June of 2001. On June 20, 2001, Tosco, the ACEHS, and the private property owner met to determine a mutually agreeable location for the well installation. After the well location was agreed upon, scheduling and permitting of the proposed scope of work was implemented.

This work was performed to assess groundwater conditions downgradient to the south of the subject site, and to define and quantify the lateral extent of dissolved petroleum hydrocarbon constituents in the first encountered groundwater zone. The scope of work included: updating the site safety plan; obtaining the required well installation permit; advancing one offsite soil boring; installing a groundwater monitoring well in the offsite boring; surveying the wellhead elevation; developing and sampling the well; collecting and submitting selected soil and groundwater samples for chemical analysis; arranging for Tosco's contractor to dispose of the waste materials; and preparing a report presenting the observations associated with the soil boring and well installation.

2.0 SITE DESCRIPTION

The subject site is situated on the northwest corner of San Leandro Street and 66th Avenue in Oakland, California (Figure 1). Station facilities currently include two gasoline underground storage tanks (USTs), a 550-gallon waste oil UST, three dispenser islands under canopies, and a service station building. The product dispensers utilize a balanced vapor recovery system. Ten groundwater monitoring wells are present at and in the site vicinity. Locations of the pertinent site features are shown on Figure 2.

3.0 PREVIOUS ENVIRONMENTAL WORK

Historical data indicate that the site has been a service station since 1947. Renovation of the site first occurred in 1967, when the size of the site expanded to its current configuration.

Two 10,000-gallon gasoline USTs, one 280-gallon waste oil UST and product piping were removed from the site in 1989. Confirmation soil samples collected from the UST pit indicated residual concentrations of Total Petroleum Hydrocarbons as gasoline (TPHg) up to 32 parts per million (ppm), benzene up to 1.2 ppm, and Total Oil and Grease (TOG) at less than 50 ppm. Confirmation soil samples collected from the product piping trench indicated residual concentrations of TPHg up to 20 ppm and benzene up to 0.13 ppm. After confirmation soil sampling was complete, approximately 5,000 gallons of groundwater was removed from the UST pit and properly disposed of. A groundwater sample was collected and analyzed after recharge of the UST pit and contained TPHg at 7,900 parts per billion (ppb) and benzene at 850 ppb.

Three 2-inch groundwater monitoring wells (MW-1 through MW-3) and two shallow soil borings (EB-1 and EB-2) were installed at the site in April of 1990 (Figure 2). The three monitoring wells were installed to a depths of approximately 22 feet below ground surface (bgs). Soil samples indicated concentrations of TPHg ranging from 2.2 to 6.8 ppm in well boring MW-2. In soil boring EB-2, TPHg was detected at concentrations ranging from 2,400 to 12,000 ppm. TOG was detected at 7,000 ppm and Total Petroleum Hydrocarbons as diesel (TPHd) at 1,400 ppm. Benzene was detected in soil samples from the three well borings at concentrations ranging from 0.0075 to 0.012 ppm, and in the two soil borings at concentrations ranging from 5 to 84 ppm. The groundwater sample from well MW-3 was reported as nondetect (ND) for all analytes. Groundwater samples from wells MW-1 and MW-2 contained concentrations of TPHg at 22,000 ppb and 65,000 ppb, and benzene at 590 ppb and 3,300 ppb, respectively.

Three 2-inch groundwater monitoring wells (MW-4 through MW-6) were installed at the site in August of 1990. Soil samples indicated detectable concentrations in only one of the well borings, MW-6, at the following concentrations: TPHg ranging from 2.5 to 160 ppm, benzene

ranging from 0.24 to 3.4 ppm, TPHd ranging from 5.1 to 93 ppm, and TOG at 200 ppm. Groundwater samples from well MW-5 were reported as ND. Groundwater samples from wells MW-4 and MW-6 contained concentrations of TPHg at 62,000 ppb and 12,000 ppb, and benzene at 810 ppb and 1,700 ppb, respectively. TPHd was detected in well MW-6 at a concentration of 1,000 ppm.

A Hydropunch groundwater study was performed at the site in January of 1991. Seven Hydropunch sampling points were installed and groundwater samples collected and analyzed. One sample contained TPHg at a concentration of 92 ppb, and benzene at 0.8 ppb.

In March of 1991, the pre-1967 UST pit was over-excavated, and two concrete slabs were removed from depths of approximately 8.5 and 10 feet bgs. Approximately 2,000 cubic yards of impacted soil was removed from the site and properly disposed of. Confirmation soil samples collected from the former UST pit indicated residual concentrations of TPHg at concentrations ranging from 53 to 1,400 ppm. Elevated residual concentrations of TPHg remained in the soil due to the over-excavation being limited by existing product piping. Prior to back-filling the pit, approximately 20,000 gallons of groundwater was pumped from the former UST pit and properly disposed of.

Three 2-inch groundwater monitoring wells (MW-8 through MW-10) were installed in the streets adjacent to the site in September of 1992 (Figure 2). Soil samples were collected and analyzed and indicated detectable concentrations in one of the well borings, MW-10, at the following concentrations: TPHg ranging from ND to 210 ppm, benzene ranging from ND to 0.58 ppm, and TPHd ranging from ND to 39 ppm. Groundwater samples from the three wells were analyzed and samples from MW-8 and MW-9 were reported as ND for all analytes. Groundwater samples from well MW-10 contained concentrations of TPHg at 740 ppb, benzene at 11 ppb, and TPHd at 1600 ppb.

One 2-inch groundwater monitoring well (MW-7) was installed at the site in April of 1993. Soil samples were collected and analyzed and indicated no detectable concentrations of petroleum hydrocarbons. Groundwater samples from the new well were analyzed and indicated no detectable concentrations of petroleum hydrocarbons.

In August of 1998, Oxygen Releasing Compound (ORC) was installed in monitoring well MW-6 to assist with biological attenuation of hydrocarbon compounds. Starting in 1999, the following bio-attenuation parameters have been measured at the site: nitrate; sulfate; ferrous iron; dissolved oxygen; and, oxidation-reduction potential. The results of the measurements of these parameters are presented in GR's annual monitoring and sampling report for the site, dated April 19, 2001. Review of the parameters indicate that bio-attenuation is occurring at the site.

Groundwater monitoring and sampling of the 10 wells has been ongoing at the site since 1990. Historical groundwater flow directions have varied from northeast, northwest, southwest and southeast, and currently flows toward the southeast at a flat gradient of 0.008 feet/feet. A historical groundwater flow directions figure was prepared by GR as part of the ***Site Conceptual Model***, dated May 19, 2000 (Figure 5 in the SCM). The figure revealed that the predominant groundwater flow direction at the site was toward the south-southeast.

4.0 FIELD WORK

Once offsite access was obtained and the location of the proposed well finalized, the well installation was conducted in accordance with GR's workplan dated August 4, 2000, Field Methods and Procedures (Appendix A), and the Site Safety Plan dated July 23, 2001. A monitoring well installation permit (permit No. W01-526) was obtained from the Alameda County Public Works Agency) on June 29, 2001. Copies of the permit are included in Appendix B.

Underground Service Alert was notified as required prior to drilling at the site (reference No. 222228). In addition, Cruz Brothers Locators, a private utility locating service, visited the site prior to drilling to check and clear the proposed boring locations.

4.1 Drilling Activities

On July 25, 2001, a GR geologist observed Woodward Drilling (C-57 #710079) advance one offsite well boring (MW-11) at the location shown on Figure 2. The well boring was drilled to a depth of 20 feet bgs. The boring was drilled using 8-inch diameter hollow-stem augers driven by a truck-mounted drill rig. Soil samples were collected from the boring approximately every five feet. The GR geologist prepared a log of the boring and screened the soil samples for the presence of volatile organic compounds utilizing a photoionization detector (PID). Results of the field screening are presented on the boring log attached in Appendix B.

The offsite boring was completed as a groundwater monitoring well by installing 2-inch diameter poly-vinyl chloride (PVC) well casing through the hollow-stem augers. The well casing consisted of 5 feet of blank PVC casing from ground surface to 5 feet bgs, and 15 feet of 0.010-inch machine slotted PVC casing from 5 feet to 20 feet bgs. Lonestar # 2/12 sand was installed in the annular space from the bottom of the boring to one foot above the top of the screened interval. The well was then sealed with hydrated bentonite followed by neat cement, containing approximately 5% bentonite, to a depth of one foot bgs, and the remainder of the annular space was filled with concrete and a traffic-rated well box completed slightly above grade. An expandable locking well cap was placed on the top of the PVC casing and secured with a lock. Grouting of the monitoring well was approved by Mr. Peter Dominguez of the ACPWA.

Drill cuttings were placed in two labeled 55-gallon steel drums and stored onsite pending analysis and disposal. A four-part composite stockpile soil sample was collected from the drill cuttings and submitted to the laboratory for disposal profiling.

4.2 Well Monitoring, Development, and Sampling

Monitoring, development, and sampling of the monitoring well was performed by GR personnel. Copies of the well development and field monitoring data sheets are included in Appendix C. Monitoring data are summarized in Table 1.

Well MW-11 was developed and sampled on August 10, 2001. Onsite wells MW-1 through MW-7 were also monitored on this date to provide data for the generation of a potentiometric surface map. Depth to groundwater in the well was measured and the well checked for the presence of floating product prior to development. Floating product was not observed in the well. After the well was properly developed, groundwater samples were collected in appropriate containers supplied by the laboratory. Groundwater samples were submitted for chemical analysis under chain-of-custody documentation to Sequoia Analytical in Walnut Creek, California (ELAP # 1271). Copies of the laboratory analytical reports and chain-of-custody records are included in Appendix D.

4.3 Wellhead Survey

Following installation of well MW-11, the well casing elevation was surveyed by Virgil Chavez Land Surveying of Vallejo, California, Licensed California Land Surveyor No. 6323. Top of casing and well monument elevations were measured relative to MSL, and the horizontal locations of the well measured. Well casing elevation data are presented in Table 1. A copy of the surveyor's report is included in Appendix E.

5.0 RESULTS

5.1 Subsurface Conditions

Soil

Detailed descriptions of the subsurface materials encountered during drilling are presented on the boring log in Appendix B. In general, the soil encountered consisted of fine to coarse sand with varying amounts of gravel to a depth of approximately 18 feet bgs. This material is interpreted to be fill. Below the sand, clay with minor amounts of fine to coarse sand was encountered to a depth of approximately 21.5 feet bgs, the maximum explored depth of this investigation. Soils

encountered were similar to those encountered during previous subsurface investigations at the site, except for the fill materials which appear to extend deeper than encountered in previous borings.

Groundwater

Depth to groundwater in the well was 5.70 feet below the top of casing, as measured on August 16, 2001, prior to purging and sampling of the well. A potentiometric map was generated (Figure 3) from data collected from wells MW-1 though MW-7 and MW-11, which shows groundwater flow direction toward the southeast at a relatively flat gradient of approximately 0.008 ft/ft.

5.2 Laboratory Analysis

Soil and groundwater samples were analyzed by Sequoia Analytical in Petaluma and Walnut Creek, California (ELAP # 2374, 1271). The discrete soil samples were analyzed for TPHg, TPHd, BTEX, and MtBE, by Environmental Protection Agency (EPA) Test Methods 5030, 8015 Modified, 8020 and 8260. The composite soil sample was also analyzed for total lead by EPA Method 6010.

Groundwater samples were analyzed for TPHg, TPHd, BTEX, six fuel oxygenates and two lead scavengers. Copies of the laboratory analytical reports and chain-of-custody records are included in Appendix D.

5.3 Soil Analytical Results

TPHg, and MtBE were reported as ND in the soil samples collected from well boring MW-11. Benzene was detected at a concentration of 0.012 ppm. TPHd was reported at a concentration of 49 ppm, however the laboratory noted that the analyte detected did not resemble diesel fuel.

The composite soil sample from the stockpile (SS-1) was reported as all ND, except for total lead, which was detected at a concentration of 18 ppm. This was an acceptable level for Class III landfill disposal. Soil chemical analytical data are summarized in Table 2.

5.4 Groundwater Analytical Results

TPHg, BTEX, the six fuel oxygenates and two lead scavengers were not detected in the groundwater samples collected from the new well MW-11. TPHd was reported at a concentration of 110 ppb, however the laboratory noted that the analyte detected did not resemble diesel fuel. Groundwater chemical analytical data are summarized in Table 1.

5.5 Waste Disposal

Two 55-gallon drums of soil (drill cuttings) were removed from the site on September 7, 2001, by GR, and transported to Allied Waste's Forward facility in Manteca, California for disposal. A copy of the Allied Waste acceptance letter is included in Appendix F.

6.0 CONCLUSIONS AND RECOMMENDATIONS

The soil sample from well boring MW-11, collected at 5 feet bgs, did not contain detectable concentrations of TPHg or MtBE. However, very low concentrations of benzene (0.012 ppm) and toluene (0.021 ppm) were detected in the soil sample. TPHd was also reported at 79 ppm, but the laboratory noted that the detected compound did not resemble diesel fuel. Based on the distance of well MW-11 from the site (approximately 280 feet), and the unknown current and prior land uses in the immediate vicinity of well MW-11, it is unlikely that the detected hydrocarbons are originating from the Tosco site.

Results of the groundwater sampling indicate that TPHg, BTEX, MtBE and the other fuel oxygenates were not detected. TPHd was detected at 110 ppb, however the laboratory noted that the detected compound did not resemble diesel fuel.

This work was performed to assess soil and groundwater conditions downgradient of the subject site, especially with respect to MtBE in groundwater. The specific goals of this investigation were to define and quantify the lateral extent of MtBE and the other hydrocarbon constituents in the first encountered groundwater zone. It is GRs understanding that as of January 1, 2001, Tosco no longer delivers motor fuel containing MtBE to service stations in northern California.

Based on data from this and previous investigations, the vertical and lateral extent of hydrocarbons in unsaturated soil is defined. The downgradient extent of MtBE and other petroleum hydrocarbons in groundwater has also been defined. The groundwater flow direction determined during the recent August 10, 2001 monitoring event is toward the southeast, at a calculated gradient of 0.008 feet/feet. The predominant groundwater flow direction at the site is south-southeast, as shown in Figure 5 of GR's ***Site Conceptual Model***, dated May 19, 2000.

GR recommends that the new well be added to the annual monitoring program and sampled over the course of one hydrologic cycle. After this period of time, GR will review the data and make additional recommendations, if warranted.

GW elevations might be higher than expected because there's more fill in this area.

7.0 REFERENCES

Gettler-Ryan Inc., 2001, Groundwater Monitoring and Sampling Report, Semi-Annual 2001 – Event of March 5, 2001, Tosco (Unocal) SS #3135, 845 – 66th Street, Oakland, California, dated April 19, 2001.

..., 2000, Site Conceptual Model for Tosco (76) Service Station No. 3135, located at 845 – 66th Avenue, Oakland, California, dated May 19, 2000.

U.S. Geological Survey, 1959, Oakland East Quadrangle, California, 7.5 Minute Series (Topographic): Scale 1:24,000, photorevised 1980.

TABLE 1 - GROUNDWATER CHEMICAL ANALYTICAL DATA

Tosco (76) Service Station No. 3135
845 - 66th Avenue
Oakland, California

Sample No.	Sample Date	Total Well Depth (ft.)	Well[1] Elev. (ft. MSL)	Depth to Water (ft.)	Floating Product (ft.)	Ground Water Elevation (ft. MSL)	TPHg (ppb)	TPHd (ppb)	Benzene (ppb)	Toluene (ppb)	Ethyl-benzene (ppb)	Total Xylenes (ppb)	MtBE (ppb)
MW-11	8/10/01	20.00	2.63	5.70	0.0	(3.07)	<50	110[2]	<0.50	<0.50	<0.50	<0.50	<5.0
Trip Blank	---	---	---	---	---	---	<50	NA	<0.50	<0.50	<0.50	<0.50	<5.0

EXPLANATION:

ft. = feet
ft. MSL = feet relative to Mean Sea Level.
ppb = parts per billion
<50 = not detected at or below laboratories specified reporting limit
--- = not applicable
NA = not analyzed
[1] = Well elevations reported as top of casing (TOC) surveyed by Virgil Chavez, Licensed California Land Surveyor No. 6323.
[2] = Laboratory reports that the hydrocarbon pattern is present in the requested fuel quantitation range but does not resemble the pattern of the requested fuel.

ANALYTICAL LABORATORY:

Sequoia Analytical San Carlos, CA (ELAP #2360)

ANALYTICAL METHODS:

TPHg = Total Petroleum Hydrocarbons as gasoline according to EPA Method 8015 Modified
TPHd = Total Petroleum Hydrocarbons as diesel according to EPA Method 8015 Modified
Benzene, Toluene, Ethylbenzene, and Total Xylenes according to EPA Method 8020
MtBE = Methyl tertiary butyl ether according to EPA Method 8020

TABLE 1 - GROUNDWATER CHEMICAL ANALYTICAL DATA

Tosco (76) Service Station No. 3135
845 - 66th Avenue
Oakland, California

Sample No.	Sample Date	MtBE (ppb)	TBA (ppb)	DIPE (ppb)	ETBE (ppb)	TAME (ppb)	EDB (ppb)	1,2-DCA (ppb)	Ethanol (ppb)
MW-11	8/10/01	<2.0	<100	<2.0	<2.0	<2.0	<2.0	<2.0	<1000
Trip Blank	---	NA	NA	NA	NA	NA	NA	NA	NA

EXPLANATION:

ppb = parts per billion
<2.0 = not detected at or below laboratories specified reporting limit
--- = not applicable
NA = not analyzed

ANALYTICAL METHODS:

MtBE = Methyl tertiary butyl ether according to EPA Method 8260
TBA = tertiary butyl alcohol according to EPA Method 8260
DIPE = di-isopropyl ether according to EPA Method 8260
ETBE = ethyl tertiary butyl ether according to EPA Method 8260
TAME = tertiary amyl methyl ether according to EPA Method 8260
EDB = 1,2-dibromoethane according to EPA Method 8260
1,2-DCA = 1,2-dichloroethane according to EPA Method 8260
Ethanol according to EPA Method 8260

TABLE 2 - SOIL CHEMICAL ANALYTICAL DATA

Tosco (76) Service Station No. 3135
845 - 66th Avenue
Oakland, California

Sample No.	Sample Depth (feet)	Date Collected	TPHg (ppm)	TPHd (ppm)	Benzene (ppm)	Toluene (ppm)	Ethyl-benzene (ppm)	Total Xylenes (ppm)	MtBE (ppm)	Total Lead (ppm)
MW11-5	5	7/25/01	<1.0	79 [1]	0.012	0.021	<0.0050	0.015	<0.050	NA
Stockpile SS-1	--	7/25/01	<1.0	<5.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.050	18

EXPLANATION:

ppm = parts per million
<1.0 = not detected at or below laboratories specified reporting limit
NA = not analyzed
-- = not applicable

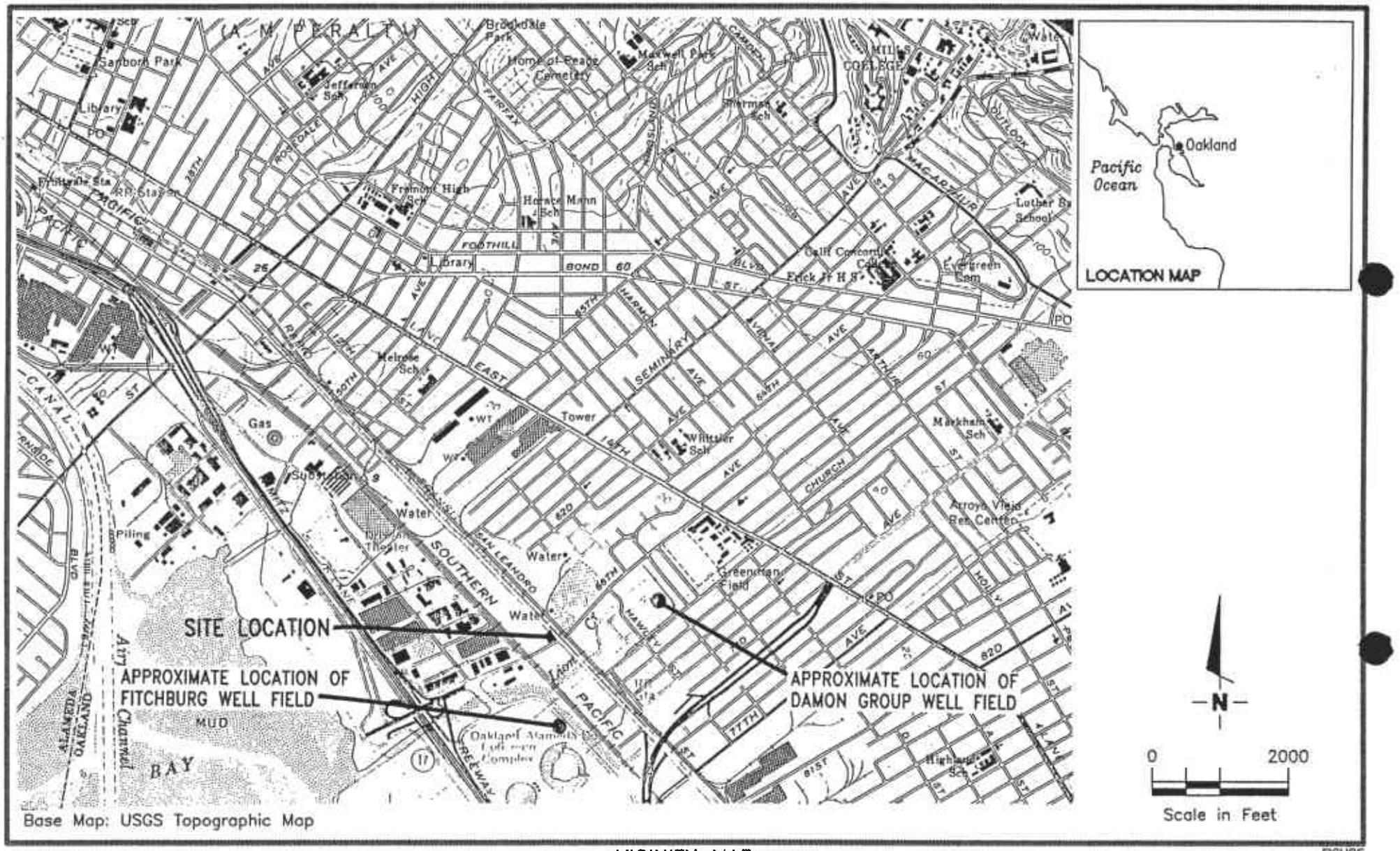
ANALYTICAL LABORATORY:

Sequoia Analytical Petaluma, CA (ELAP #2374)

[1] = Laboratory reports that the hydrocarbon pattern is present in the requested fuel quantitation range but does not resemble the pattern of the requested fuel.

ANALYTICAL METHODS:

TPHg = Total Petroleum Hydrocarbons as gasoline according to EPA Method 8015 Modified
TPHd = Total Petroleum Hydrocarbons as diesel according to EPA Method 8015 Modified
Benzene, Toluene, Ethylbenzene, and Total Xylenes according to EPA Method 8020
MtBE = Methyl tertiary butyl ether according to EPA Method 8020
Total lead according to EPA Method 6010



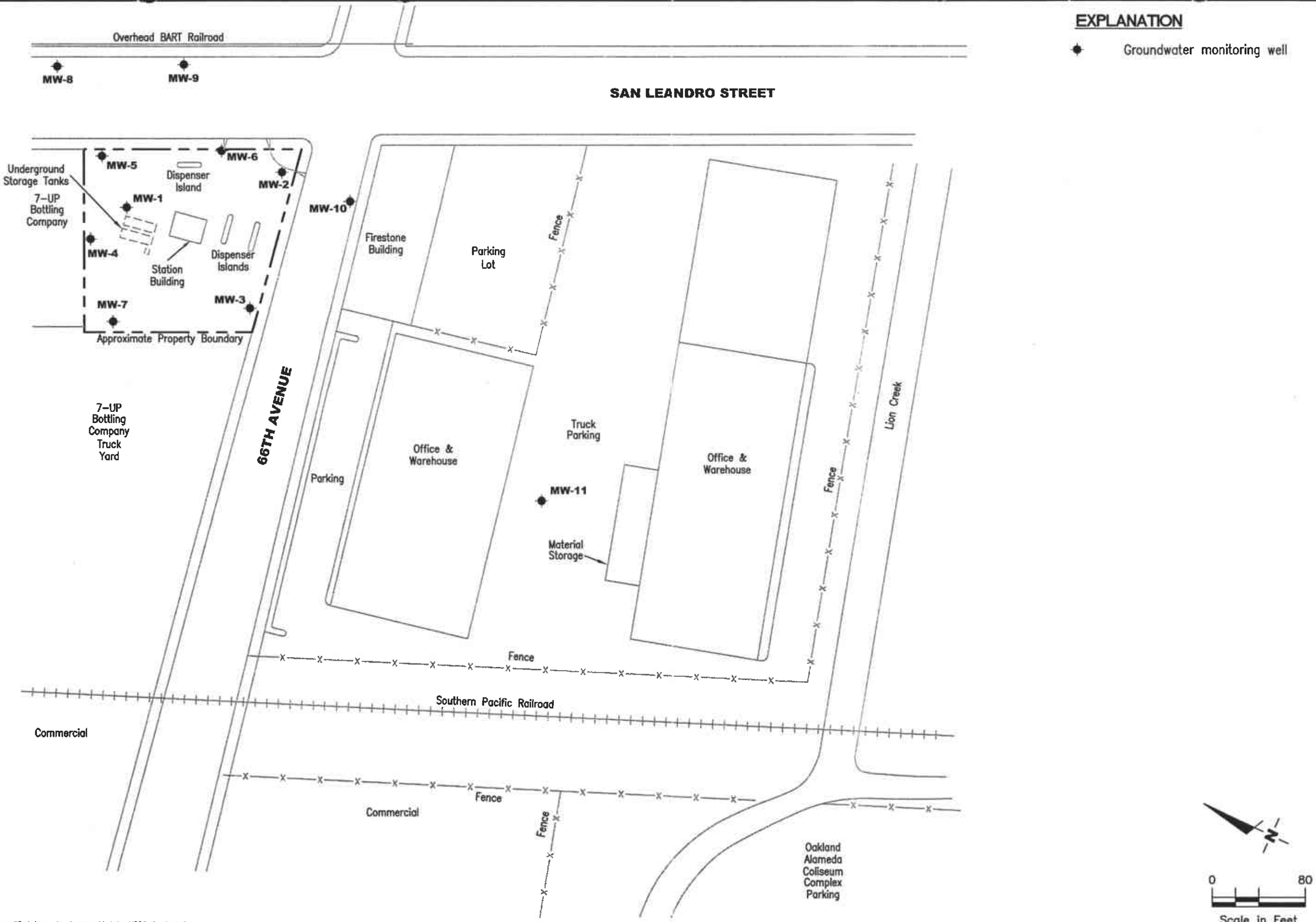
Gettler - Ryan Inc.

6747 Sierra Ct., Suite J (925) 551-7555
Dublin, CA 94568

VICINITY MAP
Tosco (76) Service Station No. 3135
845 66th Avenue
Oakland, California

FIGURE
1

JOB NUMBER	REVIEWED BY	DATE	REVISED DATE
140070.03		02/00	



Source: Figure modified from drawing provided by MPDS Services Inc.

FIGURE 2

EXTENDED SITE PLAN
Tosco (76) Service Station No. 3135
845 66th Avenue
Oakland, California

REVISED DATE

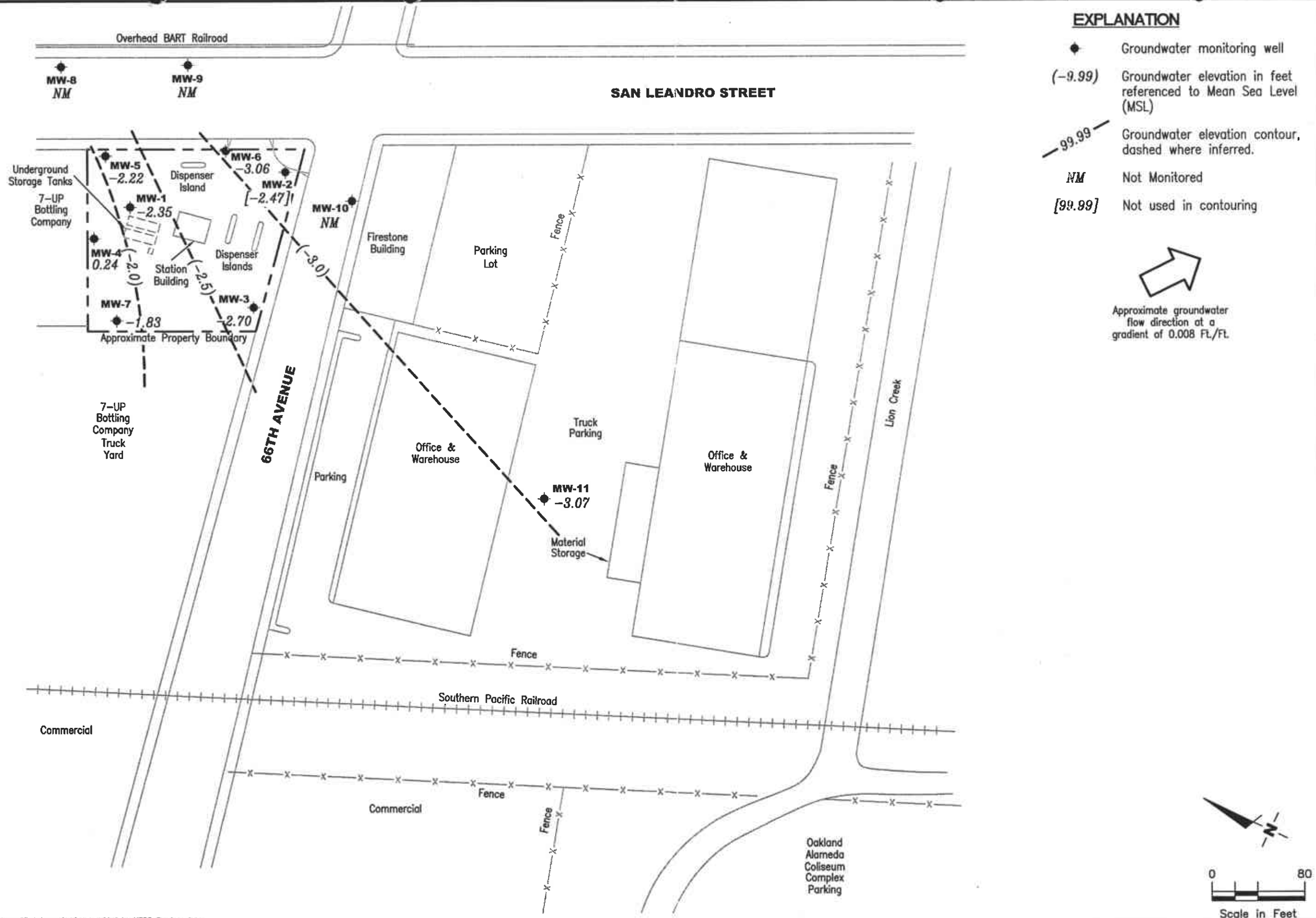
DATE 9/01

GETTLER-RYAN INC.
6747 Sierra Ct., Suite J
Dublin, CA 94568
(925) 551-7555

PROJECT NUMBER 140070

REVIEWED BY

FILE NAME: P:\ENVIRO\TOSCO\3135\A06-3135.DWG | Layout Tab: Well Install Rpt 9-01



EXPLANATION

- ◆ Groundwater monitoring well
- (-9.99) Groundwater elevation in feet referenced to Mean Sea Level (MSL)
- -99.99- Groundwater elevation contour, dashed where inferred.
- NM Not Monitored
- [99.99] Not used in contouring

Approximate groundwater flow direction at a gradient of 0.008 Ft./Ft.

FIGURE 3

POTENTIOMETRIC MAP
Tosco (76) Service Station No. 3135
845 66th Avenue
Oakland, California

REVISED DATE

DATE August 10, 2001

GETTLER-RYAN INC.
6747 Sierra Ct., Suite J
Dublin, CA 94568
(925) 551-7555

PROJECT NUMBER 140070

REVIEWED BY

FILE NAME: P:\ENVRO\TOSCO\3135\A0D-3135.DWG | Layout Tab: Plot3 9-01

Source: Figure modified from drawing provided by MPDS Services Inc..

APPENDIX A

GR 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 and the Site Safety Plan. GR personnel and subcontractors who perform work at the site are briefed on the of these plans contents 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

Exploratory 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 exploratory soil boring with a split-barrel sampler or other appropriate sampling device fitted with clean brass 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 soil is 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 some soil from one of the sample tubes not retained for chemical analysis and immediately covering the end of the tube with a plastic cap. The PID probe is inserted into the headspace inside the tube through a hole in the plastic cap. 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.

Stockpile Sampling

Stockpile samples consist of four individual sample liners collected from each 100 cubic yards (yd^3) of stockpiled soil material. Four arbitrary points on the stockpiled material are chosen, and discrete soil sample is collected at each of these points. Each discrete stockpile sample is collected by removing the upper 3 to 6 inches of soil, and then driving the stainless steel or brass tube into the stockpiled material with a wooden mallet or hand driven soil sampling device. The sample tubes are then covered on both ends with Teflon sheeting, capped, labeled, placed in the 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.

Construction of Monitoring Wells

Monitoring wells are constructed in the exploratory 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 space adjacent to the entire screened interval. A bentonite transition 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 cap. A lock is placed on the well cap to prevent vandalism and unintentional introduction of materials into the well.

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 50 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 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, 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.

Wellhead Survey

The top of the newly-installed well casing is surveyed by a California-licensed Land Surveyor to mean sea level (MSL).

Well Development

The purpose of well development is to improve hydraulic communication between the well and surrounding aquifer. Prior to development, each well is monitored for the presence of separate-phase hydrocarbons and the depth-to-water is recorded. Wells are then developed by alternately surging the well with the bailer, then purging the well with a pump to remove accumulated sediments and draw groundwater into the well. Development continues until the groundwater parameters (temperature, pH, and conductivity) have stabilized.

Groundwater Monitoring and Sampling

Decontamination Procedures

All physical parameter measuring and sampling equipment are decontaminated prior to sample collection using Alconox or equivalent detergent followed by steam cleaning with deionized water. During field sampling, equipment placed in a well are decontaminated before purging or sampling the next well by cleaning with Alconox or equivalent detergent followed by steam cleaning with deionized water.

Water-Level Measurements

Prior to sampling each well, the static water level is measured using an electric sounder and/or calibrated portable oil-water interface probe. Both static water-level and separate-phase product thickness are measured to the nearest ±0.01 foot. The presence of separate-phase product is confirmed using a clean, acrylic or polyvinylchloride (PVC) bailer, measured to the nearest ±0.01 foot with a decimal scale tape. The monofilament line used to lower the bailer is replaced between borings with new line to preclude the possibility of cross-contamination. Field observations (e.g. product color, turbidity, water color, odors, etc.) are noted. Water-levels are measured in wells with known or suspected lowest dissolved chemical concentrations to the highest dissolved concentrations.

Sample Collection and Labeling

A temporary PVC screen is installed in the boring to facilitate a grab groundwater sample collection. Samples of groundwater are collected from the surface of the water in each well or boring using the Teflon bailer or a pump. The water samples are then gently poured into laboratory-cleaned containers and sealed with Teflon-lined caps, and inspected for air bubbles to check for headspace. The samples are then labeled by an adhesive label, noted in permanent ink, and promptly placed in an ice storage. A Chain-of-Custody Record is initiated and updated throughout handling of the samples, and accompanies the samples to the laboratory certified by the State of California for analyses requested.

APPENDIX B

PERMITS AND BORING LOGS

ALAMEDA COUNTY PUBLIC WORKS AGENCY

WATER RESOURCES SECTION
399 ELMHURST ST. HAYWARD CA. 94544-1395
PHONE (510) 670-5554 MARLON MAGALLANES/FRANK CODD (510) 670-5783
FAX (510)782-1939

DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

LOCATION OF PROJECT Coliseum Business Center
6617 San Leandro Street
Oakland, CA

CLIENT
Name Tosco Marketing Company
Address 2000 Crow Canyon Pl. Phone 925-277-2384
City San Ramon Zip 94583

APPLICANT
Name Geppert-Ryan Inc.
Fax 707-781-3218
Address 1364 N. McDowell Blvd Phone 707-789-3255
City Petaluma Zip 94954

TYPE OF PROJECT

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

PROPOSED WATER SUPPLY WELL USE

New Domestic	☐	Replacement Domestic	☐
Municipal	☐	Irrigation	☐
Industrial	☐	Other Monitoring X	

DRILLING METHOD:

Mud Rotary	☐	Air Rotary	☐	Auger	X
Cable	☐	Other	☐		

DRILLER'S LICENSE NO. 710079

WELL PROJECTS
Drill Hole Diameter 8 in. Maximum
Casing Diameter 2 in. Depth 20 ft.
Surface Seal Depth 4.5 ft. Number one MW-11

GEOTECHNICAL PROJECTS
Number of Borings _____ Maximum
Hole Diameter _____ in. Depth _____ ft.

ESTIMATED STARTING DATE 7-25-01
ESTIMATED COMPLETION DATE 7-25-01

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

APPLICANT'S SIGNATURE _____ DATE 6-28-01

Rev 4-4-00

FOR OFFICE USE

PERMIT NUMBER WO1-526
WELL NUMBER _____
APN _____

PERMIT CONDITIONS
Circled Permit Requirements Apply

A. GENERAL
1. A permit application should be submitted so as to arrive at the ACPWA office five days prior to proposed starting date.
2. Submit to ACPWA within 60 days after completion of permitted work the original Department of Water Resources Well Completion Report.
3. Permit is void if project not begun within 90 days of approval date.

B. WATER SUPPLY WELLS
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.

C. GROUNDWATER MONITORING WELLS INCLUDING PIEZOMETERS
1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth for monitoring wells is the maximum depth practicable or 20 feet.

D. GEOTECHNICAL
Backfill bore hole by tremie with cement grout or cement grout/sand mixture. Upper two-three feet replaced in kind or with compacted cuttings.

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

F. WELL DESTRUCTION
See attached.

G. SPECIAL CONDITIONS

APPROVED _____ DATE 6-29-01

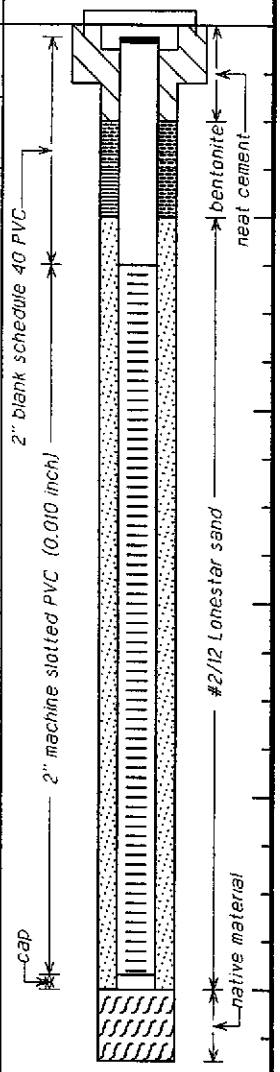
Gettler-Ryan, Inc.

Log of Boring MW-11

PROJECT: *Tosco (76) Service Station No. 3135*	LOCATION: *845 66th Avenue, Oakland, California*
GR PROJECT NO.: *140070.03*	CASING ELEVATION: *2.63 Ft. (MSL)*
DATE STARTED: *07/25/01*	WL (ft. bgs): *5.5* DATE: *07/25/01* TIME: *10:45*
DATE FINISHED: *07/25/01*	WL (ft. bgs): *5.7* DATE: *08/10/01* TIME: *14:35*
DRILLING METHOD: *8 in. Hollow Stem Auger*	TOTAL DEPTH: *21.5 feet*
DRILLING COMPANY: *Woodward Drilling*	GEOLOGIST: *Jed Douglas*

DEPTH (feet)	PID (ppm)	BLOWS/FT. *	SAMPLE NUMBER	SOIL CLASS	GEOLOGIC DESCRIPTION
					Asphalt and base rock.
				fill	Gravel and sand (fill).
4	0	4	MW-11-5.5	SW	WELL GRADED SAND WITH GRAVEL (SW) - very dark gray (10YR 3/1), saturated, very loose; 75% fine to coarse sand, 25% fine to coarse gravel.
8					
12	0	7	MW-11-10		WELL GRADED SAND (SW) - black (N2.5), saturated, loose; 100% fine to coarse sand.
16	0	20	MW-11-15		Color changes to brown (10YR 5/3), becomes medium dense; 90% fine to coarse sand. 10% fine gravel.
				CL	CLAY WITH SAND (CL) - dark yellowish brown (10YR 4/4), moist, stiff; 80% clay, 15% fine to coarse sand, 5% fine gravel.
20	0	15	MW-11-20		
					Bottom of boring at 21.5 feet bgs.
24					(* = Converted to equivalent standard penetration blows/foot.)
28					

WELL DIAGRAM



JOB NUMBER: *140070.03*

APPENDIX C

WELL DEVELOPMENT AND GROUNDWATER SAMPLING FIELD DATA SHEETS

MONITORING WELL OBSERVATION SUMMARY SHEET

CLIENT FACILITY #: Tosco #3135 G-R JOB #: 140070.04

LOCATION: 845 46th Ave. DATE: 8-10-01

CITY: Oakland TIME:

Well ID	Total Depth	Depth to Water	Product Thickness	TOB or TOC	Comments Purged water
MW-1	22.61	7.31		TOC	M. only
MW-2	22.48	6.03			"
MW-3	21.65	5.82			"
MW-4	25.10	4.77			"
MW-5	25.96	6.53			"
MW-6	25.76	7.11			"
MW-7	19.82	6.28			"
MW-11	20.54	5.70			26

Comments:

Sampler: Joe Assistant:

WELL MONITORING/SAMPLING
FIELD DATA SHEET

Client/
Facility # Tosco #3135 Job#: 140070.04

Address: 843 66th Ave. Date: 8-10-01

City: Oakland Sampler: JOC

Well ID MW-1 Well Condition: O.K

Well Diameter 2 in. Hydrocarbon Thickness: 0 in. Amount Bailed (product/water): 0 (gal.)

Total Depth 22.61 ft.

Depth to Water 7.31 ft.

Volume Factor (VF)	2" = 0.17	3" = 0.38	4" = 0.66	6" = 1.50	12" = 5.80

_____ X VF _____ = _____ X 3 (case volume) = Estimated Purge Volume: _____ (gal.)

Purge Equipment: Disposable Bailer, Bailer, Stack, Suction, Grundfos, Other: _____

Sampling Equipment: Disposable Bailer, Bailer, Pressure Bailer, Grab Sample, Other: _____

Starting Time: _____ Weather Conditions: _____

Sampling Time: _____ Water Color: _____ Odor: _____

Purging Flow Rate: _____ gpm. Sediment Description: _____

Did well de-water? _____ If yes; Time: _____ Volume: _____ (gal.)

Time	Volume (gal.)	pH	Conductivity µmhos/cm	Temperature °C	D.O. (mg/L)	ORP (mV)	Alkalinity (ppm)

LABORATORY INFORMATION

SAMPLE ID	(#) - CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
	x VOA VIAL	Y	HCL		TPHG/BTEX/MTBE

COMMENTS: M. only

WELL MONITORING/SAMPLING FIELD DATA SHEET

Client/ Facility # Tosco #3135 Job#: 140070.04

Address: 843 66th Ave. Date: 8-10-01

City: Oakland Sampler: Joe

Well ID MW-2 Well Condition: O.K

Well Diameter 2 in. Hydrocarbon Thickness: 0 in. Amount Bailed (product/water): 6 (gal.)

Total Depth 22.18 ft.

Depth to Water 6.03 ft.

Volume Factor (VF)	2" = 0.17	3" = 0.38	4" = 0.66	6" = 1.50	12" = 5.80

_____ X VF _____ = _____ X 3 (case volume) = Estimated Purge Volume: _____ (gal.)

Purge Equipment: Disposable Bailer, Bailer, Stack, Suction, Grundfos, Other: _____

Sampling Equipment: Disposable Bailer, Bailer, Pressure Bailer, Grab Sample, Other: _____

Starting Time: _____ Weather Conditions: _____

Sampling Time: _____ Water Color: _____ Odor: _____

Purging Flow Rate: _____ gpm. Sediment Description: _____

Did well de-water? _____ If yes; Time: _____ Volume: _____ (gal.)

Time	Volume (gal.)	pH	Conductivity µmhos/cm	Temperature °C	D.O. (mg/L)	ORP (mV)	Alkalinity (ppm)

LABORATORY INFORMATION

SAMPLE ID	(#) - CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
	x VOA VIAL	Y	HCL		TPHG/BTEX/MTBE

COMMENTS: M. only

WELL MONITORING/SAMPLING FIELD DATA SHEET

Client/ Facility # Tosco #3135 Job#: 140070.04

Address: 843 66th Ave. Date: 8-10-01

City: Oakland Sampler: Joe

Well ID MW-3 Well Condition: O.K.

Well Diameter 2 in. Hydrocarbon Thickness: — in. Amount Bailed (product/water): — (gal.)

Total Depth 21.65 ft.

Depth to Water 5.82 ft.

Volume Factor (VF)	2" = 0.17	3" = 0.38	4" = 0.66	6" = 1.50	12" = 5.80

____ X VF ____ = ____ X 3 (case volume) = Estimated Purge Volume: ____ (gal.)

Purge Equipment: Disposable Bailer, Bailer, Stack, Suction, Grundfos, Other: ____

Sampling Equipment: Disposable Bailer, Bailer, Pressure Bailer, Grab Sample, Other: ____

Starting Time: ____ Weather Conditions: ____

Sampling Time: ____ Water Color: ____ Odor: ____

Purging Flow Rate: ____ gpm. Sediment Description: ____

Did well de-water? ____ If yes; Time: ____ Volume: ____ (gal.)

Time	Volume (gal.)	pH	Conductivity µmhos/cm	Temperature °C	D.O. (mg/L)	ORP (mV)	Alkalinity (ppm)

LABORATORY INFORMATION

SAMPLE ID	(#) - CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
	x VOA VIAL	Y	HCL		TPHG/BTEX/MTBE

COMMENTS: M. Only

WELL MONITORING/SAMPLING FIELD DATA SHEET

Client/ Facility # Tosco #3135 Job#: 140070.04

Address: 843 66th Ave. Date: 8-10-01

City: Oakland Sampler: Joe

Well ID MW-4 Well Condition: O-K

Well Diameter 2 in. Hydrocarbon Thickness: 0 in. Amount Bailed (product/water): 0 (gal.)

Total Depth 25.10 ft.

Depth to Water 4.77 ft.

Volume Factor (VF)	2" = 0.17	3" = 0.38	4" = 0.66	6" = 1.50	12" = 5.80

_____ X VF ____ = ____ X 3 (case volume) = Estimated Purge Volume: _____ (gal.)

Purge Equipment: Disposable Bailer, Bailer, Stack, Suction, Grundfos, Other: _____

Sampling Equipment: Disposable Bailer, Bailer, Pressure Bailer, Grab Sample, Other: _____

Starting Time: _____ Weather Conditions: _____

Sampling Time: _____ Water Color: _____ Odor: _____

Purging Flow Rate: _____ gpm. Sediment Description: _____

Did well de-water? _____ If yes; Time: _____ Volume: _____ (gal.)

Time	Volume (gal.)	pH	Conductivity µmhos/cm	Temperature °C	D.O. (mg/L)	ORP (mV)	Alkalinity (ppm)

LABORATORY INFORMATION

SAMPLE ID	(#) - CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
	x VOA VIAL	Y	HCL		TPHG/BTEX/MTBE

COMMENTS: M- only

WELL MONITORING/SAMPLING FIELD DATA SHEET

Client/ Facility # Tosco #3135 Job#: 140070.04

Address: 843 66th Ave. Date: 8-10-01

City: Oakland Sampler: Joe

Well ID MW-5 Well Condition: O.K

Well Diameter 2 in. Hydrocarbon Thickness: 0 in. Amount Bailed (product/water): 0 (gal.)

Total Depth 25.96 ft.

Depth to Water 6.53 ft.

Volume Factor (VF)	2" = 0.17	3" = 0.38	4" = 0.66	6" = 1.50	12" = 5.80

_____ X VF _____ = _____ X 3 (case volume) = Estimated Purge Volume: _____ (gal.)

Purge Equipment: Disposable Bailer, Bailer, Stack, Suction, Grundfos, Other: _____

Sampling Equipment: Disposable Bailer, Bailer, Pressure Bailer, Grab Sample, Other: _____

Starting Time: _____ Weather Conditions: _____

Sampling Time: _____ Water Color: _____ Odor: _____

Purging Flow Rate: _____ gpm. Sediment Description: _____

Did well de-water? _____ If yes; Time: _____ Volume: _____ (gal.)

Time	Volume (gal.)	pH	Conductivity µmhos/cm	Temperature °C	D.O. (mg/L)	ORP (mV)	Alkalinity (ppm)

LABORATORY INFORMATION

SAMPLE ID	(#) - CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
	X VOA VIAL	Y	HCl		TPHG/BTEX/MTBE

COMMENTS: M. only

WELL MONITORING/SAMPLING FIELD DATA SHEET

Client/ Facility # Tosco #3135 Job#: 140070.04

Address: 843 66th Ave. Date: 8-10-01

City: Oakland Sampler: Joe

Well ID MW-6 Well Condition: O.K.

Well Diameter 2 in. Hydrocarbon Thickness: 0 in. Amount Bailed (product/water): 0 (gal.)

Total Depth 25.76 ft.

Depth to Water 7.11 ft.

Volume Factor (VF)	2" = 0.17	3" = 0.38	4" = 0.66	6" = 1.50	12" = 5.80

_____ X VF _____ = _____ X 3 (case volume) = Estimated Purge Volume: _____ (gal.)

Purge Equipment: Disposable Bailer, Bailer, Stack, Suction, Grundfos, Other: _____

Sampling Equipment: Disposable Bailer, Bailer, Pressure Bailer, Grab Sample, Other: _____

Starting Time: _____ Weather Conditions: _____

Sampling Time: _____ Water Color: _____ Odor: _____

Purging Flow Rate: _____ gpm. Sediment Description: _____

Did well de-water? _____ If yes; Time: _____ Volume: _____ (gal.)

Time	Volume (gal.)	pH	Conductivity µmhos/cm	Temperature °C	D.O. (mg/L)	ORP (mV)	Alkalinity (ppm)

LABORATORY INFORMATION

SAMPLE ID	(#) - CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
	4 VOA VIAL	Y	HCL		TPHG/BTEX/MTBE

COMMENTS: MW only

WELL MONITORING/SAMPLING FIELD DATA SHEET

Client/ Facility # Tosco #3135 Job#: 140070.04

Address: 843 66th Ave. Date: 8-10-01

City: Oakland Sampler: JOC

Well ID MW-7 Well Condition: O.K

Well Diameter 2 in. Hydrocarbon Thickness: 0 in. Amount Bailed (product/water): 0 (gal.)

Total Depth 19.82 ft.

Depth to Water 6.28 ft.

Volume Factor (VF)	2" = 0.17	3" = 0.38	4" = 0.66	6" = 1.50	12" = 5.80

_____ X VF _____ = _____ X 3 (case volume) = Estimated Purge Volume: _____ (gal.)

Purge Equipment: Disposable Bailer, Bailer, Stack, Suction, Grundfos, Other: _____

Sampling Equipment: Disposable Bailer, Bailer, Pressure Bailer, Grab Sample, Other: _____

Starting Time: _____ Weather Conditions: _____

Sampling Time: _____ Water Color: _____ Odor: _____

Purging Flow Rate: _____ gpm. Sediment Description: _____

Did well de-water? _____ If yes; Time: _____ Volume: _____ (gal.)

Time	Volume (gal.)	pH	Conductivity µmhos/cm	Temperature °C	D.O. (mg/L)	ORP (mV)	Alkalinity (ppm)

LABORATORY INFORMATION

SAMPLE ID	(#) - CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
	x VOA VIAL	Y	HCL		TPHG/BTEX/MTBE

COMMENTS: Monthly

WELL MONITORING/DEVELOPMENT
FIELD DATA SHEET

Client/ Facility: Tosco #3135 | Job#: 140030.04

Address: 8456 6th Ave | Date: 8-10-01

City: Oakland | Sampler: Joe

Well ID: MW-11 | Well Condition: ok

Well Diameter: 2 in. | Hydrocarbon Thickness: 0 Ft. | Amount Bailed (product/water): 6 (gal.)

Total Depth: 20.51 ft.

Depth to Water: 5.70 ft.

Volume Factor (VF)	2" = 0.17	3" = 0.38	4" = 0.66	6" = 1.50	12" = 5.80

14.81 X VF 0.17 = 2.52 X 3 (case volume) = Estimated Purge Volume: 26 (gal.)

Purge Equipment: Disposable Bailer; Bailer; Stack; (Suction); Grundfos; Other: _____

Sampling Equipment: (Disposable Bailer); Bailer; Pressure Bailer; Grab Sample; Other: _____

Starting Time: 2:35 | Weather Conditions: clear

Sampling Time: 3:20 p.m (1520) | Water Color: slightly turbid | Odor: none

Purging Flow Rate: 1 gpm. | Sediment Description: _____

Did well de-water? _____ | If yes; Time: _____ | Volume: _____ (gal.)

Time	Volume (gal.)	pH	Conductivity (x 1000) µmhos/cm	Temperature °F	D.O. (mg/L)	ORP (mV)	Alkalinity (ppm)
2:50	2.5	7.41	8.16	69.9			
2:52	5	7.42	7.59	71.2			
2:54	7.5	7.43	7.62	71.5			
2:55	10	7.46	7.60	71.6			
2:57	12.5	7.50	7.55	71.6			
2:59	15	7.49	7.51	71.4			
3:01	17.5	7.49	7.48	71.8			
3:03	20	7.50	7.54	71.7			
3:05	22.5	7.51	7.54	72.0			
3:06	26	7.48	7.56	71.8			

LABORATORY INFORMATION

SAMPLE ID	(#) - CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
MW-11	3 VOA	Y	HCl	Seq.	TPHG, BTEX, MTBE
	2 VOA	"	"	"	(6) Oxy's 1,2 DCA/EDB Sy8260
	1 Amb	"	—	"	TPHD

COMMENTS: _____

Virgil Chavez Land Surveying
312 Georgia Street, Suite 225
Vallejo, California 94590-5907
(707) 553-2476 • Fax (707) 553-8698

September 12, 2001
Project No. 2004-08

Jed Douglas
Gettler-Ryan Inc.
1364 N. McDowell Blvd., Suite B2
Petaluma, CA 94954

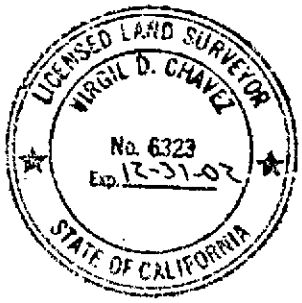
Subject: Monitoring Well Survey
Tosco (76) Unocal Station
845 66th Avenue
Oakland, CA

Dear Jed:

This is to confirm that we have proceeded at your request to survey the ground water monitoring wells located at the above referenced location. The survey was completed on September 11, 2001. The elevations are based on the data you provided. The coordinates are assumed.

Well No.	Rim Elevation	TOC Elevation	Northing	Easting
MW - 1	5.11'	4.96'	5062.81	4941.88
MW - 2	3.81'	3.56'	4929.12	4968.99
MW - 3	3.35'	3.12'	4961.80	4854.83
MW - 4	5.34'	5.01'	5091.27	4915.03
MW - 5	4.60'	4.31'	5078.93	4987.42
MW - 6	4.31'	4.05'	4978.00	4987.30
MW - 7	4.85'	4.45'	5072.64	4846.37
MW - 11	2.87'	2.63'	4707.74	4678.18

Sincerely,



Virgil D. Chavez, PLS 6323

APPENDIX E

LABORATORY ANALYTICAL REPORTS AND CHAIN-OF-CUSTODY RECORDS

Sequoia Analytical

1455 McDowell Blvd, North Ste D
Petaluma, CA 94954
(707) 792-1865
FAX (707) 792-0342
www.sequoialabs.com

14 August, 2001

Jed Douglas
Gettler - Ryan Inc.
1364 North Mc Dowell Blvd., Suite B2
Petaluma, CA 94954-1116

RE: TOSCO
Sequoia Report: P107472

Enclosed are the results of analyses for samples received by the laboratory on 07/25/01 16:25. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Angelee Cari

Angelee Cari
Client Services Representative

CA ELAP Certificate #2374

Sequoia Analytical

1455 McDowell Blvd, North Ste D
Petaluma, CA 94954
(707) 792-1865
FAX (707) 792-0342
www.sequoialabs.com

Gettler - Ryan Inc.	Project: TOSCO	
1364 North Mc Dowell Blvd., Suite B2	Project Number: 3135/Oakland, CA	**Reported:**
Petaluma CA, 94954-1116	Project Manager: Jed Douglas	08/14/01 16:07

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW11-5	P107472-01	Soil	07/25/01 10:45	07/25/01 16:25
SS-1	P107472-05	Soil	07/25/01 11:30	07/25/01 16:25

Sequoia Analytical - Petaluma

Angelee Cari

Angelee Cari, Client Services Representative

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.

Sequoia Analytical

1455 McDowell Blvd, North Ste D
Petaluma, CA 94954
(707) 792-1865
FAX (707) 792-0342
www.sequoialabs.com

Gettler - Ryan Inc.	Project: TOSCO	
1364 North Mc Dowell Blvd., Suite B2	Project Number: 3135/Oakland, CA	**Reported:**
Petaluma CA, 94954-1116	Project Manager: Jed Douglas	08/14/01 16:07

Total Petroleum Hydrocarbons as Gasoline and BTEX by EPA 8015M/8020M

Sequoia Analytical - Petaluma

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW11-5 (P107472-01) Soil Sampled: 07/25/01 10:45 Received: 07/25/01 16:25									
Gasoline (C6-C12)	ND	1.0	mg/kg	1	1070696	07/27/01	07/27/01	EPA 8015M/8020M	
Benzene	**0.012**	0.0050	"	"	"	"	"	"	
Toluene	**0.021**	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	**0.015**	0.0050	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	0.050	"	"	"	"	"	"	
Surrogate: a,a,a-Trifluorotoluene		*207 %*	*65-135*		"	"	"	"	*S-04*
Surrogate: 4-Bromofluorobenzene		*11.9 %*	*65-135*		"	"	"	"	*S-04*
SS-1 (P107472-05) Soil Sampled: 07/25/01 11:30 Received: 07/25/01 16:25									
Gasoline (C6-C12)	ND	1.0	mg/kg	1	1070696	07/27/01	07/27/01	EPA 8015M/8020M	
Benzene	ND	0.0050	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.0050	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	0.050	"	"	"	"	"	"	
Surrogate: a,a,a-Trifluorotoluene		*112 %*	*65-135*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*73.2 %*	*65-135*		"	"	"	"	

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Gettler - Ryan Inc.	Project: TOSCO	
1364 North Mc Dowell Blvd., Suite B2	Project Number: 3135/Oakland, CA	**Reported:**
Petaluma CA, 94954-1116	Project Manager: Jed Douglas	08/14/01 16:07

Total Petroleum Hydrocarbons as Diesel & others by EPA 8015M

Sequoia Analytical - Petaluma

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW11-5 (P107472-01) Soil Sampled: 07/25/01 10:45 Received: 07/25/01 16:25									
Diesel (C10-C24)	**79**	5.0	mg/kg	1	1070649	07/26/01	07/28/01	EPA 8015M-SVOA	HC-12
Surrogate: o-Terphenyl		*79.0 %*	*50-150*		"	"	"	"	
SS-1 (P107472-05) Soil Sampled: 07/25/01 11:30 Received: 07/25/01 16:25									
Diesel (C10-C24)	ND	5.0	mg/kg	1	1070649	07/26/01	07/28/01	EPA 8015M-SVOA	HC-12
Surrogate: o-Terphenyl		*74.5 %*	*50-150*		"	"	"	"	

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Gettler - Ryan Inc.	Project: TOSCO	
1364 North Mc Dowell Blvd., Suite B2	Project Number: 3135/Oakland, CA	**Reported:**
Petaluma CA, 94954-1116	Project Manager: Jed Douglas	08/14/01 16:07

Total Metals by EPA 6000/7000 Series Methods

Sequoia Analytical - Petaluma

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SS-1 (P107472-05) Soil Sampled: 07/25/01 11:30 Received: 07/25/01 16:25									
Lead	**18**	5.6	mg/kg	1	1070742	08/01/01	08/03/01	EPA 6010B	

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Gettler - Ryan Inc.	Project: TOSCO	
1364 North Mc Dowell Blvd., Suite B2	Project Number: 3135/Oakland, CA	**Reported:**
Petaluma CA, 94954-1116	Project Manager: Jed Douglas	08/14/01 16:07

Total Petroleum Hydrocarbons as Gasoline and BTEX by EPA 8015M/8020M - Quality Control

Sequoia Analytical - Petaluma

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1070696 - EPA 5030, soils										
Blank (1070696-BLK1)				Prepared & Analyzed: 07/27/01						
Gasoline (C6-C12)	ND	1.0	mg/kg							
Benzene	ND	0.0050	"							
Toluene	ND	0.0050	"							
Ethylbenzene	ND	0.0050	"							
Xylenes (total)	ND	0.0050	"							
Methyl tert-butyl ether	ND	0.050	"							
Surrogate: a,a,a-Trifluorotoluene	*0.616*		"	*0.600*		*103*	*65-135*			
Surrogate: 4-Bromofluorobenzene	*0.589*		"	*0.600*		*98.2*	*65-135*			
LCS (1070696-BS1)				Prepared & Analyzed: 07/27/01						
Gasoline (C6-C12)	5.26	1.0	mg/kg	5.50		95.6	65-135			
Benzene	0.0874	0.0050	"	0.0660		132	65-135			
Toluene	0.417	0.0050	"	0.397		105	65-135			
Ethylbenzene	0.0931	0.0050	"	0.0920		101	65-135			
Xylenes (total)	0.510	0.0050	"	0.461		111	65-135			
Methyl tert-butyl ether	0.141	0.050	"	0.105		134	65-135			
Surrogate: a,a,a-Trifluorotoluene	*0.618*		"	*0.600*		*103*	*65-135*			
Surrogate: 4-Bromofluorobenzene	*0.614*		"	*0.600*		*102*	*65-135*			
Matrix Spike (1070696-MS1)		**Source: P107488-01**		Prepared & Analyzed: 07/27/01						
Gasoline (C6-C12)	4.85	1.0	mg/kg	5.50	ND	88.2	65-135			
Benzene	0.0746	0.0050	"	0.0660	ND	113	65-135			
Toluene	0.439	0.0050	"	0.397	ND	111	65-135			
Ethylbenzene	0.0964	0.0050	"	0.0920	ND	105	65-135			
Xylenes (total)	0.526	0.0050	"	0.461	ND	114	65-135			
Methyl tert-butyl ether	0.127	0.050	"	0.105	ND	121	65-135			
Surrogate: a,a,a-Trifluorotoluene	*0.624*		"	*0.600*		*104*	*65-135*			
Surrogate: 4-Bromofluorobenzene	*0.549*		"	*0.600*		*91.5*	*65-135*			

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Gettler - Ryan Inc.	Project: TOSCO	
1364 North Mc Dowell Blvd., Suite B2	Project Number: 3135/Oakland, CA	**Reported:**
Petaluma CA, 94954-1116	Project Manager: Jed Douglas	08/14/01 16:07

Total Petroleum Hydrocarbons as Gasoline and BTEX by EPA 8015M/8020M - Quality Control

Sequoia Analytical - Petaluma

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1070696 - EPA 5030, soils										
Matrix Spike Dup (1070696-MSD1)	**Source: P107488-01**			Prepared & Analyzed: 07/27/01						
Gasoline (C6-C12)	4.78	1.0	mg/kg	5.50	ND	86.9	65-135	1.45	20	
Benzene	0.0741	0.0050	"	0.0660	ND	112	65-135	0.672	20	
Toluene	0.435	0.0050	"	0.397	ND	110	65-135	0.915	20	
Ethylbenzene	0.0956	0.0050	"	0.0920	ND	104	65-135	0.833	20	
Xylenes (total)	0.523	0.0050	"	0.461	ND	113	65-135	0.572	20	
Methyl tert-butyl ether	0.122	0.050	"	0.105	ND	116	65-135	4.02	20	
Surrogate: a,a,a-Trifluorotoluene	*0.635*		"	*0.600*		*106*	*65-135*			
Surrogate: 4-Bromofluorobenzene	*0.558*		"	*0.600*		*93.0*	*65-135*			

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Gettler - Ryan Inc.	Project: TOSCO	
1364 North Mc Dowell Blvd., Suite B2	Project Number: 3135/Oakland, CA	**Reported:**
Petaluma CA, 94954-1116	Project Manager: Jed Douglas	08/14/01 16:07

Total Petroleum Hydrocarbons as Diesel & others by EPA 8015M - Quality Control

Sequoia Analytical - Petaluma

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1070649 - EPA 3550A										
Blank (1070649-BLK1)				Prepared: 07/26/01 Analyzed: 07/28/01						
Diesel (C10-C24)	ND	5.0	mg/kg							
Surrogate: o-Terphenyl	*2.68*		"	*3.33*		*80.5*	*50-150*			
LCS (1070649-BS1)				Prepared: 07/26/01 Analyzed: 07/28/01						
Diesel (C10-C24)	29.6	5.0	mg/kg	33.3		88.9	50-150			
Surrogate: o-Terphenyl	*2.95*		"	*3.33*		*88.6*	*50-150*			
Matrix Spike (1070649-MS1)	**Source: P107471-10**			Prepared: 07/26/01 Analyzed: 07/28/01						
Diesel (C10-C24)	25.3	5.0	mg/kg	33.3	ND	72.4	50-150			
Surrogate: o-Terphenyl	*2.45*		"	*3.33*		*73.6*	*50-150*			
Matrix Spike Dup (1070649-MSD1)	**Source: P107471-10**			Prepared: 07/26/01 Analyzed: 07/29/01						
Diesel (C10-C24)	26.3	5.0	mg/kg	33.3	ND	75.4	50-150	3.88	35	
Surrogate: o-Terphenyl	*2.48*		"	*3.33*		*74.5*	*50-150*			

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Gettler - Ryan Inc.	Project: TOSCO	
1364 North Mc Dowell Blvd., Suite B2	Project Number: 3135/Oakland, CA	**Reported:**
Petaluma CA, 94954-1116	Project Manager: Jed Douglas	08/14/01 16:07

Total Metals by EPA 6000/7000 Series Methods - Quality Control

Sequoia Analytical - Petaluma

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1070742 - EPA 3050B										
Blank (1070742-BLK1)				Prepared: 08/01/01 Analyzed: 08/03/01						
Lead	ND	7.5	mg/kg							
LCS (1070742-BS1)				Prepared: 08/01/01 Analyzed: 08/03/01						
Lead	47.2	7.5	mg/kg	50.0		94.4	80-120			
Matrix Spike (1070742-MS1)		**Source: P107471-12**		Prepared: 08/01/01 Analyzed: 08/03/01						
Lead	41.9	6.6	mg/kg	43.9	ND	95.4	75-125			
Matrix Spike Dup (1070742-MSD1)		**Source: P107471-12**		Prepared: 08/01/01 Analyzed: 08/03/01						
Lead	40.6	6.6	mg/kg	43.9	ND	92.5	75-125	3.15	35	

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Gettler - Ryan Inc.	Project: TOSCO	
1364 North Mc Dowell Blvd., Suite B2	Project Number: 3135/Oakland, CA	**Reported:**
Petaluma CA, 94954-1116	Project Manager: Jed Douglas	08/14/01 16:07

Notes and Definitions

HC-12	Hydrocarbon pattern is present in the requested fuel quantitation range but does not resemble the pattern of the requested fuel.
S-04	The surrogate recovery for this sample is outside control limits due to interference from the sample matrix.
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

N° 002682

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
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☐ 1551 Industrial Road • San Carlos, CA 94070 • (650) 232-9600 FAX (650) 232-9612

Consultant Company: Getter-Ryan Inc.	Project Name: 140070.03
Address: 1364 N. McDowell Blvd #B2	TOSCO Engineer (required) Dave Deaver
City: Petaluma State: CA Zip Code: 94954	
Telephone: 707-789-3255 FAX #: 707-789-3218	Site #, City, State: 3135, Oakland, CA
Report To: Jed Douglas Sampler: J. Douglas	QC Data: ☒ Level D (Standard) ☐ Level C ☐ Level B ☐ Level A

Turnaround Time: ☒ 10 Work Days ☐ 5 Work Days ☐ 3 Work Days ☐ 2 Work Days ☐ 1Work Day ☐ 2-8 Hours

☐ Drinking Water ☐ Waste Water ☐ Other

CODE: ☐ Misc. ☐ Detect. ☐ Eval. ☐ Remed. ☐ Demol. ☐ Closure

Analyses Requested

Client Sample I.D.	Date/Time Sampled	Matrix Desc.	# of Cont.	Cont. Type	Sequoia's Sample #	TPH (EPA 8015 Mod. Gas)	BTEX (EPA 8020)	MTBE (EPA 8020)	TPH (EPA 8015 Mod. Diesel)	Volatile Organics (EPA 8260)	MTBE Confirmation (EPA 8260)	Total Lead	Hold	Comments
1. MW11-5	7-25-01/1045	Soil	1	6 inch liner	P107472-01	X	X	X	X		X			Sample "X" end of liner
2. MW11-10	1050	"	1	"	-02								X	
3. MW11-15	1055	"	1	"	-03								X	
4. MW11-20	1100	"	1	"	-04								X	
5. SS-1	1130	"	4	"	-05	X	X	X	X		X			Please Composite 4 liners to one sample prior to analysis (SS-1)
6.														
7.														
8.														
9.														
10.														

COOLER CUSTODY SEALS INTACT ☐ NOT INTACT ☐

COOLER TEMPERATURE 5.0 °C

	Date	Time	Received By	Date	Time
Relinquished By:	7-25-01	1625		7/25/01	1625
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:

Were Samples Received in Good Condition? ☒ Yes ☐ No Samples on Ice? ☒ Yes ☐ No Method of Shipment dropoff Page 1 of 1

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? 14 working days

Approved by: Jed Douglas Signature: _____ Company: Getter-Ryan Date: 8-15-01

Pink - Client
Yellow - Sequoia
White - Sequoia

Sequoia Analytical

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28 August, 2001

Deanna Harding
Gettler-Ryan/Geostrategies(1)
6747 Sierra Court, Suite J
Dublin, CA 94568

RE: Tosco(1)
Sequoia Report: L108075

Enclosed are the results of analyses for samples received by the laboratory on 08/10/01 18:00. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Latonya K. Pelt

Latonya Pelt
Project Manager

CA ELAP Certificate #2360

Sequoia Analytical

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Gettler-Ryan/Geostrategies(1)	Project: Tosco(1)	
6747 Sierra Court, Suite J	Project Number: UNOCAL SS#3135, OAKLAND, CA	**Reported:**
Dublin CA, 94568	Project Manager: Deanna Harding	08/28/01 07:29

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
TB-LB	L108075-01	Water	08/10/01 00:00	08/10/01 18:00
MW-11	L108075-02	Water	08/10/01 15:20	08/10/01 18:00

Sequoia Analytical - San Carlos

Latonya K. Pelt

Latonya Pelt, Project Manager

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.

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Gettler-Ryan/Geostrategies(1)	Project: Tosco(1)	
6747 Sierra Court, Suite J	Project Number: UNOCAL SS#3135, OAKLAND, CA	**Reported:**
Dublin CA, 94568	Project Manager: Deanna Harding	08/28/01 07:29

Total Purgeable Hydrocarbon (C6-C12) by EPA 8015M and BTEX/MTBE by EPA 8021B

Sequoia Analytical - San Carlos

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
TB-LB (L108075-01) Water Sampled: 08/10/01 00:00 Received: 08/10/01 18:00									
Purgeable Hydrocarbons as Gasoline	ND	50	ug/l	1	1080099	08/23/01	08/23/01	DHS LUFT	
Benzene	ND	0.50	"	"	"	"	"	"	
Toluene	ND	0.50	"	"	"	"	"	"	
Ethylbenzene	ND	0.50	"	"	"	"	"	"	
Xylenes (total)	ND	0.50	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	5.0	"	"	"	"	"	"	
Surrogate: a,a,a-Trifluorotoluene		*98.3 %*		*70-130*	"	"	"	"	
MW-11 (L108075-02) Water Sampled: 08/10/01 15:20 Received: 08/10/01 18:00									
Purgeable Hydrocarbons as Gasoline	ND	50	ug/l	1	1080099	08/23/01	08/23/01	DHS LUFT	
Benzene	ND	0.50	"	"	"	"	"	"	
Toluene	ND	0.50	"	"	"	"	"	"	
Ethylbenzene	ND	0.50	"	"	"	"	"	"	
Xylenes (total)	ND	0.50	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	5.0	"	"	"	"	"	"	
Surrogate: a,a,a-Trifluorotoluene		*110 %*		*70-130*	"	"	"	"	

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Gettler-Ryan/Geostrategies(1)	Project: Tosco(1)	
6747 Sierra Court, Suite J	Project Number: UNOCAL SS#3135, OAKLAND, CA	**Reported:**
Dublin CA, 94568	Project Manager: Deanna Harding	08/28/01 07:29

Volatile Organic 8 Oxygenated Compounds by EPA Method 8260B

Sequoia Analytical - San Carlos

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-11 (L108075-02) Water Sampled: 08/10/01 15:20 Received: 08/10/01 18:00									
Ethanol	ND	1000	ug/l	1	1080063	08/15/01	08/15/01	EPA 8260B	
1,2-Dibromoethane	ND	2.0	"	"	"	"	"	"	
1,2-Dichloroethane	ND	2.0	"	"	"	"	"	"	
Di-isopropyl ether	ND	2.0	"	"	"	"	"	"	
Ethyl tert-butyl ether	ND	2.0	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	2.0	"	"	"	"	"	"	
Tert-amyl methyl ether	ND	2.0	"	"	"	"	"	"	
Tert-butyl alcohol	ND	100	"	"	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*111 %*	*76-114*		"	"	"	"	
Surrogate: Toluene-d8		*108 %*	*88-110*		"	"	"	"	

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Gettler-Ryan/Geostrategies(1)	Project: Tosco(1)	
6747 Sierra Court, Suite J	Project Number: UNOCAL SS#3135, OAKLAND, CA	**Reported:**
Dublin CA, 94568	Project Manager: Deanna Harding	08/28/01 07:29

Diesel Hydrocarbons (C12-C24) by DHS LUFT

Sequoia Analytical - Walnut Creek

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-11 (L108075-02) Water	**Sampled: 08/10/01 15:20**	**Received: 08/10/01 18:00**							
Diesel Range Hydrocarbons	**110**	59	ug/l	1	1H20017	08/23/01	08/24/01	EPA 8015M	HC-12
Surrogate: n-Pentacosane		*93.1 %*	*50-150*		"	"	"	"	

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Gettler-Ryan/Geostrategies(1)	Project: Tosco(1)	
6747 Sierra Court, Suite J	Project Number: UNOCAL SS#3135, OAKLAND, CA	**Reported:**
Dublin CA, 94568	Project Manager: Deanna Harding	08/28/01 07:29

Total Purgeable Hydrocarbon (C6-C12) by EPA 8015M and BTEX/MTBE by EPA 8021B - Quality Control

Sequoia Analytical - San Carlos

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1080099 - EPA 5030B (P/T)										
Blank (1080099-BLK1)				Prepared & Analyzed: 08/23/01						
Purgeable Hydrocarbons as Gasoline	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	5.0	"							
Surrogate: a,a,a-Trifluorotoluene	*9.96*		"	*10.0*		*99.6*	*70-130*			
LCS (1080099-BS1)				Prepared & Analyzed: 08/23/01						
Benzene	9.94	0.50	ug/l	10.0		99.4	70-130			
Toluene	9.77	0.50	"	10.0		97.7	70-130			
Ethylbenzene	9.88	0.50	"	10.0		98.8	70-130			
Xylenes (total)	30.5	0.50	"	30.0		102	70-130			
Surrogate: a,a,a-Trifluorotoluene	*10.3*		"	*10.0*		*103*	*70-130*			
LCS (1080099-BS2)				Prepared & Analyzed: 08/23/01						
Purgeable Hydrocarbons as Gasoline	268	50	ug/l	250		107	70-130			
Surrogate: a,a,a-Trifluorotoluene	*11.3*		"	*10.0*		*113*	*70-130*			
Matrix Spike (1080099-MS1)		**Source: L108064-05**		Prepared & Analyzed: 08/23/01						
Purgeable Hydrocarbons as Gasoline	236	50	ug/l	250	ND	94.4	60-140			
Surrogate: a,a,a-Trifluorotoluene	*10.4*		"	*10.0*		*104*	*70-130*			
Matrix Spike Dup (1080099-MSD1)		**Source: L108064-05**		Prepared & Analyzed: 08/23/01						
Purgeable Hydrocarbons as Gasoline	280	50	ug/l	250	ND	112	60-140	17.1	25	
Surrogate: a,a,a-Trifluorotoluene	*11.4*		"	*10.0*		*114*	*70-130*			

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Gettler-Ryan/Geostrategies(1)	Project: Tosco(1)	
6747 Sierra Court, Suite J	Project Number: UNOCAL SS#3135, OAKLAND, CA	**Reported:**
Dublin CA, 94568	Project Manager: Deanna Harding	08/28/01 07:29

Volatile Organic 8 Oxygenated Compounds by EPA Method 8260B - Quality Control

Sequoia Analytical - San Carlos

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1080063 - EPA 5030B [P/T]										
Blank (1080063-BLK1)				Prepared & Analyzed: 08/15/01						
Ethanol	ND	1000	ug/l							
1,2-Dibromoethane	ND	2.0	"							
1,2-Dichloroethane	ND	2.0	"							
Di-isopropyl ether	ND	2.0	"							
Ethyl tert-butyl ether	ND	2.0	"							
Methyl tert-butyl ether	ND	2.0	"							
Tert-amyl methyl ether	ND	2.0	"							
Tert-butyl alcohol	ND	100	"							
Surrogate: 1,2-Dichloroethane-d4	*52.6*		"	*50.0*		*105*	*76-114*			
Surrogate: Toluene-d8	*52.2*		"	*50.0*		*104*	*88-110*			
Blank (1080063-BLK2)				Prepared & Analyzed: 08/15/01						
Ethanol	ND	1000	ug/l							
1,2-Dibromoethane	ND	2.0	"							
1,2-Dichloroethane	ND	2.0	"							
Di-isopropyl ether	ND	2.0	"							
Ethyl tert-butyl ether	ND	2.0	"							
Methyl tert-butyl ether	ND	2.0	"							
Tert-amyl methyl ether	ND	2.0	"							
Tert-butyl alcohol	ND	100	"							
Surrogate: 1,2-Dichloroethane-d4	*55.2*		"	*50.0*		*110*	*76-114*			
Surrogate: Toluene-d8	*54.0*		"	*50.0*		*108*	*88-110*			
Blank (1080063-BLK3)				Prepared & Analyzed: 08/17/01						
Ethanol	ND	1000	ug/l							
1,2-Dibromoethane	ND	2.0	"							
1,2-Dichloroethane	ND	2.0	"							
Di-isopropyl ether	ND	2.0	"							
Ethyl tert-butyl ether	ND	2.0	"							
Methyl tert-butyl ether	ND	2.0	"							
Tert-amyl methyl ether	ND	2.0	"							
Tert-butyl alcohol	ND	100	"							
Surrogate: 1,2-Dichloroethane-d4	*48.4*		"	*50.0*		*96.8*	*76-114*			
Surrogate: Toluene-d8	*50.3*		"	*50.0*		*101*	*88-110*			

Sequoia Analytical

1551 Industrial Road
San Carlos CA 94070
(650) 232-9600
FAX (650) 232-9612
www.sequoialabs.com

Gettler-Ryan/Geostrategies(1)	Project: Tosco(1)	
6747 Sierra Court, Suite J	Project Number: UNOCAL SS#3135, OAKLAND, CA	**Reported:**
Dublin CA, 94568	Project Manager: Deanna Harding	08/28/01 07:29

Volatile Organic 8 Oxygenated Compounds by EPA Method 8260B - Quality Control
Sequoia Analytical - San Carlos

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1080063 - EPA 5030B [P/T]										
LCS (1080063-BS1)				Prepared & Analyzed: 08/15/01						
Methyl tert-butyl ether	45.8	2.0	ug/l	50.0		91.6	70-130			
Surrogate: 1,2-Dichloroethane-d4	*52.9*		"	*50.0*		*106*	*76-114*			
Surrogate: Toluene-d8	*53.1*		"	*50.0*		*106*	*88-110*			
LCS (1080063-BS3)				Prepared & Analyzed: 08/17/01						
Methyl tert-butyl ether	51.4	2.0	ug/l	50.0		103	70-130			
Surrogate: 1,2-Dichloroethane-d4	*49.6*		"	*50.0*		*99.2*	*76-114*			
Surrogate: Toluene-d8	*51.2*		"	*50.0*		*102*	*88-110*			
Matrix Spike (1080063-MS1)		**Source: L108076-03**		Prepared: 08/15/01		Analyzed: 08/17/01				
Methyl tert-butyl ether	48.5	2.0	ug/l	50.0	ND	97.0	60-140			
Surrogate: 1,2-Dichloroethane-d4	*49.7*		"	*50.0*		*99.4*	*76-114*			
Surrogate: Toluene-d8	*49.9*		"	*50.0*		*99.8*	*88-110*			
Matrix Spike Dup (1080063-MSD1)		**Source: L108076-03**		Prepared: 08/15/01		Analyzed: 08/17/01				
Methyl tert-butyl ether	49.1	2.0	ug/l	50.0	ND	98.2	60-140	1.23	25	
Surrogate: 1,2-Dichloroethane-d4	*51.2*		"	*50.0*		*102*	*76-114*			
Surrogate: Toluene-d8	*49.7*		"	*50.0*		*99.4*	*88-110*			

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Gettler-Ryan/Geostrategies(1)	Project: Tosco(1)	
6747 Sierra Court, Suite J	Project Number: UNOCAL SS#3135, OAKLAND, CA	**Reported:**
Dublin CA, 94568	Project Manager: Deanna Harding	08/28/01 07:29

Diesel Hydrocarbons (C12-C24) 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
Batch 1H20017 - EPA 3510B										
Blank (1H20017-BLK1)				Prepared: 08/20/01 Analyzed: 08/21/01						
Diesel Range Hydrocarbons	ND	50	ug/l							
Surrogate: n-Pentacosane	*30.7*		"	*33.3*		*92.2*	*50-150*			
Blank (1H20017-BLK2)				Prepared: 08/23/01 Analyzed: 08/24/01						
Diesel Range Hydrocarbons	ND	50	ug/l							
Surrogate: n-Pentacosane	*25.7*		"	*33.3*		*77.2*	*50-150*			
LCS (1H20017-BS1)				Prepared: 08/20/01 Analyzed: 08/21/01						
Diesel Range Hydrocarbons	445	50	ug/l	500		89.0	60-140			
Surrogate: n-Pentacosane	*30.0*		"	*33.3*		*90.1*	*50-150*			
LCS (1H20017-BS2)				Prepared: 08/23/01 Analyzed: 08/24/01						
Diesel Range Hydrocarbons	437	50	ug/l	500		87.4	60-140			
Surrogate: n-Pentacosane	*31.3*		"	*33.3*		*94.0*	*50-150*			
LCS Dup (1H20017-BSD1)				Prepared: 08/20/01 Analyzed: 08/21/01						
Diesel Range Hydrocarbons	467	50	ug/l	500		93.4	60-140	4.82	50	
Surrogate: n-Pentacosane	*30.7*		"	*33.3*		*92.2*	*50-150*			

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Gettler-Ryan/Geostrategies(1)	Project: Tosco(1)	
6747 Sierra Court, Suite J	Project Number: UNOCAL SS#3135, OAKLAND, CA	**Reported:**
Dublin CA, 94568	Project Manager: Deanna Harding	08/28/01 07:29

Notes and Definitions

HC-12	Hydrocarbon pattern is present in the requested fuel quantitation range but does not resemble the pattern of the requested fuel.
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

Chain-of-Custody-Record

TOSCO

Tosco Marketing Company
2000 Crow Canyon Pl., Ste. 400
San Ramon, California 94583

Facility Number: UNOCAL SS# 3135
Facility Address: 845 66th Avenue, Oakland, CA
Consultant Project Number: 180067.85
Consultant Name: Gettler-Ryan Inc. (G-R Inc.)
Address: 6747 Sierra Court, Suite J, Dublin, CA 94568
Project Contact (Name): Deanna L. Harding
(Phone) 510-551-7555 (Fax Number) 510-551-7888

Contact (Name): Mr. DAVID DENITT
(Phone): (925) 277-2384
Laboratory Name: Sequoia Analytical
Laboratory Release Number:
Samples Collected by (Name): JOE ASEMIAN
Collection Date: 8-10-01
Signature:

Sample ID	Lab Sample Number	Number of Containers	Matrix: S = Soil, A = Air, W = Water, C = Charcoal	Type: G = Grab, C = Composite, D = Discrete	Time	Sample Preservation	Iced (Yes or No)	Analyses To Be Performed: TPH Gas + BTEX w/MTBE (8020)	TPH Diesel (8015)	Oil and Grease (5520)	Purgeable Halocarbons (8010)	Purgeable Aromatics (8020)	Purgeable Organics (8240)	Extractable Organics (8270)	Metals Cd,Cr,Pb,Zn,Ni (TCAP or AA)	Redox Potential	Nitrate/Sulfate	Ferrous Iron FE+2	(6) Oxy's 1,2 DCA EDB 8260	
TB-LB		Voa	W	G	—	HCl	Y	✓											✓	
MW-11		5 VOA 1 AMB	"	"	1520	"	"	✓	✓											

DO NOT BILL TB-LB ANALYSIS

Run 8260 - 6 Oxy's +1,2-DCA & EDB on ALL 8020 Mtbe hits. Thank you.

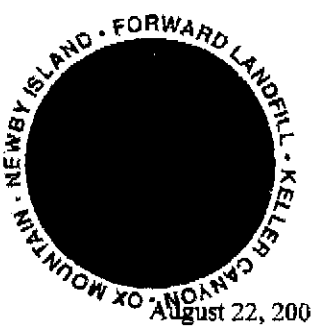
* Ferrous Iron has not been filtered. Please filter and preserve in lab.

Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time
	G-R Inc.	8-10-01 1850			8/10/01 1850
Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time
Relinquished By (Signature)	Organization	Date/Time	Received For Laboratory By (Signature)		Date/Time

Turn Around Time (Circle Choice)
24 Hrs.
48 Hrs.
5 Days
10 Days
As Contracted

APPENDIX F

ALLIED WASTE'S FORWARD LANDFILL ACCEPTANCE LETTER



NORTHERN CALIFORNIA SALES OFFICE • SPECIAL WASTE

Forward • Keller Canyon • Newby Island • Ox Mountain

ALLIED WASTE COMPANIES BFI

August 22, 2001

Gettler-Ryan
1364 N. McDowell Blvd #B2
Petaluma, CA 94954

Attn: Mr. Douglas

Re: Approval No. 1072
Hydrocarbon Contaminated Soil
845 66th Ave. - s/s#3135

Dear Mr. Douglas:

FORWARD INC. is pleased to inform you that the approximately 3 drums of Hydrocarbon Contaminated Soil from the referenced site has been approved for acceptance at our Manteca, California Landfill as a Class 2 waste. This approval has been based on the information provided in the waste profile and associated materials submitted on behalf of Tosco Marketing Company (Generator). Acceptance of the waste is subject to regulatory requirements, and is also subject to the "Terms and Conditions" agreed to and signed by Generator in the waste profile.

Your approval number for this project will be 1072. This number should be used in all scheduling and correspondence with ***FORWARD, INC.*** regarding this waste profile.

This profile shall remain in effect until August 22, 2002, or until any significant changes in the waste stream occur. At that time, ***FORWARD, INC.*** will re-evaluate the profile, and current analytical data and requirements will be reviewed.

Please schedule all waste shipments with the Landfill (209-982-4298) at least 24 hours in advance. The landfills hours of operation are Monday through Friday 6:00 am to 6:00 pm for soil, 6:00 am to 3:00 pm for asbestos, 6:00 am to 5:00 pm for all other waste types.

Thank you for the opportunity to be of service. Should you have any questions, please do not hesitate to contact me or our Customer Service at (800) 204-4242.

Sincerely,

Allied Waste Industries

Brad J. Bonner
Special Waste Sales Manager
Northern, CA

BJB/jf

F:\FORWARD\MERGE FORMS\ACCEPT.DOC