GETTLER-RYAN INC.

TRANSMITTAL

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

DATE: May 28, 1999
PROJ. #: 140107.04-1
SUBJECT: Work Plan
Tosco 76 Branded Facility
No. 7376
4191 First Street
Pleasanton, California

FROM:
Clyde J. Galantine
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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: Chuck Headlee, Regional Water Quality Control Board
Scott Seery , Alameda County Health Care Services Agency

GETTLER-RYAN INC.

WORK PLAN FOR A SUBSURFACE INVESTIGATION

at

Tosco 76 Branded Facility No. 7376
4191 First Street
Pleasanton, California

Report No. 140107.04-1

Prepared for:

Mr. David De Witt
Tosco Products Company
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San Ramon, California 94583

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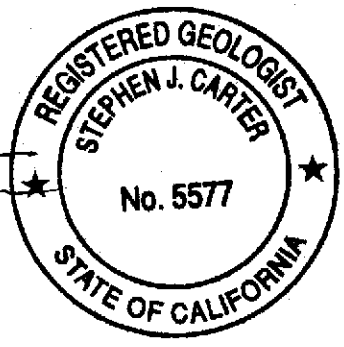

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at

Tosco 76 Branded Facility No. 7376
4191 First Street
Pleasanton, California

Report No. 140107.04-1

INTRODUCTION

At the request of Tosco Products Company (Tosco), Gettler-Ryan Inc. (GR), has prepared this Work Plan to install two groundwater monitoring wells and drill one exploratory soil boring to evaluate groundwater conditions down- and crossgradient of the subject site. The soil boring will be used to collect grab groundwater samples to determine the vertical extent of petroleum hydrocarbons in the water column and further evaluate variations in lithologic conditions encountered in on-site borings versus off-site borings that appear to cause perched groundwater in wells MW-5, MW-7, and MW-8. This work plan is prepared in response to an Alameda County Health Care Services Agency (ACHCSA) request for a work plan in a meeting with Tosco, Regional Water Quality Control Board (RWQCB), and ACHCSA personnel on April 20, 1999.

The proposed work includes: updating the site safety plan; obtaining the required well installation permits and offsite access; advancing three offsite soil borings; collecting a minimum of three groundwater sample from the saturated zone utilizing Hydropunch technology; installing groundwater monitoring wells in two of the borings; surveying wellhead elevations; developing and sampling the wells; 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 well installation. In addition, soil samples will be collected for physical parameters for use in a Risk-Based Corrective Action (RBCA) evaluation. This work is proposed to evaluate the lateral extent of the petroleum hydrocarbon plume in the area downgradient (northwest) and crossgradient (northeast) of the subject site.

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 Underground Storage Tank Regulations, 1994, RWQCB's Tri-Regional Board Staff Recommendations for Preliminary Investigation and Evaluation of Underground Tank Sites*, and the ACHSCA guidelines.

SITE DESCRIPTION

General

The subject site is an operating service station located on the north corner of the intersection of First Street and Ray Street in Pleasanton, California (Figure 1). The site is bounded to the northwest by a former Southern Pacific Railroad right-of-way currently owned by Alameda County, to the north and northeast by a commercial building, to the southeast by First Street, and to the southwest by Ray Street. Properties in the immediate site vicinity are used for a mix of residential and commercial purposes that include restaurants and shopping facilities. The site is located at an approximate elevation of 366 feet above sea level. Current site facilities consist of a kiosk with four product dispenser islands and two 12,000-gallon double-wall fiberglass gasoline underground storage tanks (USTs). Locations of the pertinent site features are shown on the Site Plan (Figure 2).

Geology and Hydrogeology

The subject site is located at the base of the northwest end of the Valle De San Jose. The site is underlain by Holocene age coarse grain non-marine alluvium interpreted to be alluvial fan deposits. These deposits are composed of unconsolidated and well bedded, moderately sorted, permeable sand and silt, with coarse sand and gravel becoming abundant toward fan heads and in narrow canyons (Helley, 1979). The site is also located approximately 1,000 feet west of the Pliocene and/or Pleistocene non-marine sedimentary Livermore Gravel (Diblee, 1980).

Previous subsurface studies performed by AGS, KEI, and GR indicate the site is underlain by alluvium to a maximum explored depth of 96.5 feet bgs. The unsaturated (vadose) zone is comprised predominantly of fill material overlying discontinuous strata of silt, clay, gravels, and sands. The saturated zone is comprised of interbedded silts, sands, clay and gravels.

Groundwater has been historically reported at approximately 67.15 to 87.26 feet below top of casing (TOC) in wells MW-1, MW-2B, MW-3, MW-4, and MW-6. Groundwater in wells MW-5, MW-7, and MW-8 has historically been reported at 49.63 to 69.47 feet below TOC, displaying a perched water table relative to wells MW-1, MW-2B, MW-3, MW-4, and MW-6. Evaluation of subsurface data is inconclusive as to why groundwater in wells MW-5, MW-7, and MW-8 is perched relative to the on-site wells. Additional data are required to assess whether the perched conditions are due to localized lithological or structural constraints. The encountered water-bearing zone(s) appears to be unconfined (GR, 1999). A review of Alameda County Flood Control and Water Conversation District-Zone 7 (1993) groundwater data determined that the regional groundwater flow direction in the vicinity of the site was toward the northwest. A product sheen to 0.90 feet of floating product has been observed in well MW-5 since December 1996. The nearest surface water is Arroyo Valle, located approximately 700 feet northwest of the site.

PREVIOUS ENVIRONMENTAL WORK

The site was developed in 1899 as a warehouse to store grains and hay (Amador-Livermore Valley Historical Society, 1994). According to a Sanborn map, an "in-ground" storage tank for oil was installed on-site in 1907. The first service station was built on the site in 1976 (Enviros, 1995).
Between November 8, 1982 and February 8, 1985, the Pleasanton Fire Department (PFD) responded to five separate fuel releases at the site (PFD, 1988).

On June 30, 1987, exploratory soil borings B-1, B-2, and B-3 were drilled at the site and sampled by Applied GeoSystems (AGS). Borings B-1 and B-2 were drilled to a final depth of 46.5 feet below ground surface (bgs) and B-3 was drilled to 55 feet bgs. Three soil samples from each boring were analyzed for Total Petroleum Hydrocarbons as gasoline (TPHg) and benzene, toluene, ethylbenzene, and xylenes (BTEX), except for a sample collected at 35 feet bgs from B-1 (sample S-35-B1) which was also analyzed for Total Petroleum Hydrocarbons as diesel (TPHd). A sample collected at 10 feet bgs from B-3 was reported as not detected for all analytes. The remaining samples contained petroleum hydrocarbons at concentrations ranging from 7.72 to 188.8 parts per million (ppm) of TPHg and 0.07 to 17.1 ppm of benzene. Sample S-35-B1 also contained 1,325 ppm of TPHd. Groundwater was not encountered in the borings (AGS, 1987).

On August 21, 1987, soil boring B-4 was advanced by AGS to a total depth of 66.5 feet bgs. One soil sample collected at 35 feet bgs contained 100.5 ppm of TPHg, 1.4 ppm of benzene, and 1,835 ppm of TPHd. A second soil sample collected at 65 feet bgs was reported as not detected for TPHg, TPHd, and BTEX. Groundwater was not encountered in the boring (AGS, 1987a).

On December 2 through 7, 1987, AGS advanced three soil borings (B-5, B-6, B-7) to a total depth of 96.5 feet bgs and completed the borings as groundwater monitoring wells MW-1, MW-2, and MW-3. The wells were completed at depths of 96.5, 85, and 96.5 feet bgs, respectively. Saturated soil was initially encountered at approximately 80 feet bgs. Two soil samples collected at 35 and 70 feet bgs in boring B-5 were reported as not detected for TPHg, TPHd, and BTEX. One soil sample collected at 35 feet bgs in boring B-6 contained 15.0 ppm of TPHg, 6,300 ppm of TPHd and was not detected for benzene. One soil sample collected at 70 feet bgs in Boring B-6 were reported as not detected for TPHg, TPHd, and BTEX. A sample collected at 55 feet bgs in boring B-7 contained 390 ppm of TPHg, 1.3 ppm of benzene, and 220 ppm of TPHd. A sample collected at 75 feet bgs in boring B-7 contained 5.0 ppm of TPHg, 30.0 ppm of TPHd, and was not detected for BTEX. Groundwater samples collected from well MW-1, MW-2, and MW-3 contained petroleum hydrocarbon concentrations ranging from 0.0500 to 24.000 ppm of TPHg, 0.058 to 2.600 ppm of benzene, and 0.620 to 2.300 ppm of TPHd (AGS, 1987b).

A 1/2-mile radius well survey was performed by AGS in late 1987 or early 1988. A review of the Alameda County Flood Control and Water Conversation District - Zone 7 files identified five water wells and two cathodic protection wells within the 1/2-mile radius of the site. Four of the five water wells are domestic wells and the fifth appears to be a monitoring well (AGS, 1987b and KEI, 1996).

Reportedly, in December 1987, the four 12,000-gallon USTs were replaced with two 12,000-gallon double-wall USTs. An unknown volume of contaminated soil was reportedly removed and transported to a Class I facility. The property and facilities were sold to the Unocal Corporation in February 1988 (KEI, 1996 and Enviros, 1995).

In September 1994, KEI performed soil sampling services during a dispenser and product piping upgrade at the site. A total of twelve trench soil samples were collected at approximately 3 feet bgs. Petroleum hydrocarbons were detected in the samples at concentrations ranging from not detected to 8,900 ppm of TPHg, and not detected to 65 ppm of benzene. Upon receipt of the analytical data, overexcavation was performed in the area of two soil samples with elevated hydrocarbon concentrations. Three soil samples were collected at approximately 9 feet bgs. The two overexcavation samples were reported to contain 13 and 17 ppm of TPHg and 0.020 to 0.029 ppm of benzene. The third soil sample, collected laterally between the two overexcavation samples contained 4,400 ppm of TPHg and 29 ppm of benzene (KEI, 1994).

On February 6 and 7, 1995, KEI destroyed monitoring well MW-2 and advanced two soil borings (MW-2B and EB-1). Boring MW-2B was completed as a monitoring well. Well MW-2 was destroyed due to asphalt tar being introduced into the well casing during repaving activities at the site. Soil boring EB-1 was drilled to a total depth of 66 feet bgs and well MW-2B was drilled and constructed to a total depth of 91 feet bgs. A total of twenty-nine soil samples were collected during boring EB-1 and MW-2B drilling activities. Samples collected from 5 to 50 feet bgs from EB-1 contained petroleum hydrocarbon concentrations ranging from 27 to 15,000 ppm of TPHg, 0.29 to 340 ppm of benzene, and 55 to 3,600 ppm of TPHd. Samples collected from 55 to 65 feet bgs from EB-1 contained petroleum hydrocarbon concentrations ranging from not detected to 6.4 ppm of TPHg, not detected to 0.89 ppm of benzene, and not detected for TPHd. Soil samples collected from 5 to 65 feet bgs in well boring MW-2B contained petroleum hydrocarbons concentrations ranging from 1.0 to 720 ppm of TPHg, not detected to 9.5 ppm of benzene, and not detected to 2,400 ppm of TPHd. Soil samples collected from 70 to 80 feet bgs in well boring MW-2B were reported as not detected for TPHg, BTEX, and TPHd (KEI, 1995).

Enviros performed a Phase I Environmental Site Assessment (ESA) for the site in early 1995 (Enviros, 1995). This ESA summarized the site history and previous environmental work performed at the site. The only other property found on the RWQCB's fuel leak list within ¼-mile of the subject site is the Shell Service Station, located approximately 200 feet south of the subject site. Petroleum hydrocarbons at the Shell site had been delineated by shallow soil samples. It was determined that the probability for the Shell site to impact the subject site seemed low.

On July 23 and 24, 1996, KEI advanced three soil borings and completed them as groundwater monitoring wells MW-4, MW-5 and MW-6 to total depths of 73.5 to 93 feet bgs. Well MW-4 was installed on-site and wells MW-5 and MW-6 were installed off-site on the former Southern Pacific Railroad right-of-way. A total of forty-seven soil samples were collected from the well borings and

analyzed for TPHg, BTEX, and fuel fingerprinting. Soil samples from well boring MW-4 contained low concentrations of petroleum hydrocarbons ranging from not detected to 47 ppm of TPHg, not detected to 0.27 ppm of benzene, not detected to 15 ppm of TPHd. Soil samples collected in the upper 50 feet of well boring and MW-5 were reported as not detected for TPHg and TPHd, and contained benzene in concentrations ranging from not detected to 0.038 ppm. Samples collected between 55 and 65 feet bgs in MW-5 contained petroleum hydrocarbon concentrations ranging from 32 to 560 ppm of TPHg, 0.28 to 3.9 ppm of benzene, and not detected to 450 ppm of TPHd. Samples collected from MW-6 contain petroleum hydrocarbon concentrations ranging from not detected to 5.0 ppm of TPHg, not detected to 1.2 ppm of benzene, and not detected for TPHd except for 200 ppm detected at 55 feet bgs. Petroleum hydrocarbon concentrations in the range of kerosene, motor oil, and unidentified extractable hydrocarbons were also identified in the samples collected from the well borings (KEI, 1996).

Approximately 0.90 feet of free product was found in well MW-5 during quarterly monitoring activities on June 27, 1997. In December 1997, (Entrix) performed a forensic geochemical analysis of free product extracted from well MW-5. The Entrix study determined that the free product was most likely composed of a mixture of over 50% refined gasoline and heavier hydrocarbons. The gasoline constituents appeared to be relatively fresh according to Entrix. The heavier hydrocarbon mixture had a carbon distribution ranging from about nC13 to nC33. This distribution is similar in nature to a very weathered crude oil or Bunker C fuel, not refined petroleum products such as diesel #2, motor oil, lube oil, etc. (Entrix, 1997).

Five onsite soil borings (B-8 through B-12) were advanced and two offsite downgradient groundwater monitoring wells (MW-7, MW-8) were advanced and installed by GR between June and August 1998. A total of forty soil samples were collected from the soil and well borings and analyzed for TPHg, BTEX, MtBE, TPHd, and TPHo. Petroleum hydrocarbon concentrations in the soil samples range from not detected for all analytes for soil boring B-8 and well boring MW-7, to a maximum of 1,700 ppm of TPHg and 21 ppm of benzene (B-12 at 37.5 feet bgs), 14,000 ppm of TPHd and 2.6 ppm of MtBE (B-12 at 28.5 feet bgs), and 5,200 ppm of TPHo (B-11 at 10.5 feet bgs). Elevated concentrations of petroleum hydrocarbons were concentrated at 24.5 and 31 feet bgs in boring B-10, from the surface to 61 feet bgs in boring B-11, at 28.5, 37.5 and 47 feet bgs in boring B-12, and at 45.5 feet bgs in well boring MW-8. In addition, two soil samples containing visible free product were collected from boring B-11 (near the former UST excavation) at 10.5 and 61 feet bgs and submitted to Global Geochemistry Corp. for hydrocarbon fingerprinting chemical analysis. The results of these analyses was that the free product from both samples was composed of approximately 90% highly to severely weathered semi-volatile and high boiling components identified as crude oil and 10% of slightly weathered gasoline (GR, 1999).

Groundwater has been monitored on a quarterly basis from December 1994 to the present. Groundwater analytical data collected during monitoring indicates that free product or a product sheen has been present in well MW-5 since December 1996. Excluding MW-5, petroleum hydrocarbon concentrations in the groundwater on-and off-site has ranged from not detected to 19,000 ppb of TPHg, not detected to 950 ppb of benzene, not detected to 4,400 ppb of MtBE, and not detected to 4,000 ppb of TPHd. Depth to

groundwater has fluctuated from approximately 49.63 to 86.02 feet bgs (GR, 1999a). Groundwater flow has ranged from southeast to northwest with a hydraulic gradient of approximately 0.07 to 0.1 feet/feet.

PROPOSED SCOPE OF WORK

The dissolved hydrocarbon plume remains undefined to the north (downgradient) and the northeast (crossgradient). GR proposed to install two groundwater monitoring wells north and northeast of the site to further delineate the dissolved plume.

* The vertical extent of MtBE in the water column has not been investigated. GR proposes to drill one soil boring at the northwest site boundary. Discrete grab groundwater samples will be collected from this boring to evaluate the vertical extent of MtBE. This boring is also situated to further evaluate the change in stratigraphic relations seen in on-site borings versus those seen in off-site well borings MW-5, MW-7, and MW-8. This evaluation should provide insight as to why perched water is found in wells MW-5, MW-7, and MW-8.

GR Field Methods and Procedures are included in Appendix A. To implement this scope of work, GR will perform the following tasks:

Task 1. Pre-Field Activities

Update a site-specific safety plan, and obtain the necessary well installation permits from Zone 7 Water Agency. Tosco will obtain entry agreements for wells to be installed on private property and Alameda County property (formerly railroad right-of-way). Notify Underground Service Alert (USA) a minimum of 48 hours prior to drilling. A subsurface utility locator will also inspect the proposed locations for the presence of subsurface utilities.

Task 2. Soil Boring

Advance one offsite soil boring at the location shown on Figure 2. The soil boring is subject to access and underground and overhead utility locations. Drilling will be performed by a California licensed driller. A GR geologist will observe drilling, collect soil samples for chemical analyses, describe the encountered soil, and prepare a log of each boring. Upon encountering groundwater, a Hydropunch will be used to collect grab groundwater at the groundwater interface, and 5 and 10 feet below the initial groundwater sample. The soil boring will be advanced using 8-inch-diameter hollow-stem augers and truck-mounted drill rig to a total depth of approximately 100 feet bgs. On completion, the boring will be backfilled to ground surface with neat cement containing approximately 5% bentonite powder using a tremie pipe and pump. Drill cuttings will be stockpiled at the site and handled as discussed in Task 3.

Task 3. Well Installation

Install two groundwater monitoring wells at the locations shown on Figure 2. Well locations are subject to access and underground and overhead utility locations. Drilling and well construction activities will be performed by a California licensed driller. A GR geologist will observe drilling, collect soil samples for chemical analyses, describe the encountered soil, and prepare a log of each boring. Well borings will be advanced using 8-inch-diameter hollow-stem augers and truck-mounted drill rig to a depth of approximately 75 (north well) and 95 (northeast well) feet bgs. Groundwater is expected to be encountered at approximately 65 and 83 feet bgs, respectively.

Groundwater monitoring wells will be constructed of 2-inch-diameter Schedule 40 polyvinyl chloride (PVC) well casing and 0.02-inch machine slotted PVC well screen. The screened interval will extend for 20 feet, approximately 10 feet above to 10 feet below groundwater to accommodate any groundwater fluctuations. Proposed Well Construction Details are shown on Figure 3.

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. Screening data will be recorded on the boring logs.

Soil samples for description and possible chemical analysis will be obtained from the borings at five-foot intervals, as a minimum. 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 samples from each boring will be submitted for chemical analysis as described in Task 5. In addition, one vadose-zone soil sample collected from the proposed northeast well boring will be analyzed for RBCA evaluation physical parameters by PTS Laboratories, Inc. (PTS) of Santa Fe Springs, California.

depth? texture? (from determined?)

Drill cuttings will be stockpiled at the site pending disposal. Stockpiled cuttings will be placed on and covered with plastic sheeting. Four soil samples from 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, then analyzed as described in Task 5. Drill cuttings will be transported by a Tosco-approved soil hauler to Forward Landfill, located in Manteca, California. Water generated during cleaning of drilling equipment will be stored in properly labeled drums pending disposal.

Task 4. Wellhead Survey

Following installation, the top of well casing will be surveyed to mean sea level by a California-licensed surveyor. Horizontal coordinates of the well locations will be obtained at the same time.

Task 5. Well Development and Sampling

The newly installed groundwater monitoring wells will be developed after being allowed to stand a minimum of 72 hours following installation. ~~Groundwater samples will be collected immediately upon completion of well development.~~ Groundwater purged from the wells during development and sampling will be stored on-site in approved 55-gallon drums, pending disposal at an approved disposal facility. In addition, semiannual monitoring and sampling of all existing monitoring wells will be conducted at the same time, if feasible. Groundwater samples will be analyzed as described in Task 5. NA!

Task 6. Laboratory Analyses

All samples will be submitted to Sequoia Analytical of Walnut Creek, California (ELAP #1271). Soil samples will be analyzed for TPHg, TPHd, TPHo, benzene, toluene, ethylbenzene, and xylenes (BTEX), and MtBE by EPA Methods 5030/8015/8020. In addition, selected soil samples will be analyzed for RBCA requirements. Groundwater samples will be analyzed for TPHg, TPHd, BTEX, and MtBE by EPA Methods 5030/8015/8020. The disposal characterization sample from the soil stockpile will be analyzed for TPHg, TPHg, TPHo, BTEX, MtBE and total lead. The disposal characterization sample from the drummed groundwater will be analyzed as per disposal facility requirements.

Task 7. Reporting

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

PROJECT STAFF

Mr. Stephen 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 and direct field and office operations. GR employs a staff of geologist, engineers, and technicians who will assist with the project.

SCHEDULE

Implementation of the proposed scope of work will commence upon receipt of regulatory approval, well installation permits, and offsite access agreements. Tosco is currently seeking an off-site access agreement with a property owner to allow the drilling of the soil boring and the northeast monitoring well. Temporary power poles have been installed in the former railroad right-of-way along the housing development property line. These poles are scheduled to be removed by the end of July 1999. This will allow access to install the proposed north monitoring well.

REFERENCES

Alameda County Flood Control and Water Conservation District, 1993, Fall 1993 Groundwater Contour Map Report, dated December 17, 1993.

Amador-Livermore Valley Historical Society, 1994, Conversation with employee and mailed photocopy of site with history of on-site warehouse.

Applied GeoSystems, 1987, Subsurface Environmental Investigation No. 87065-1, dated July 14, 1987.

Applied GeoSystems, 1987a, Supplemental Subsurface Environmental Investigation No. 87086-1, dated September 9, 1987.

Applied GeoSystems, 1987b, Supplemental Subsurface Environmental Investigation No. 87086-3, dated late 1987 or early 1988.

Diblee, T. W. Jr., 1980, Preliminary Geological Map of the Livermore Quadrangle, Alameda and Contra Costa Counties, California: United States Geologic Survey Open File Report 80-533B.

Entrix, Inc., 1997, Forensic Geochemical Analysis of Free Product from MW-5, UNOCAL SS# 7376, Pleasanton, California: Project 351301 dated December 12, 1997.

Enviros, 1995, Phase I Environmental Site Assessment dated February 24, 1995.

Gettler-Ryan Inc., 1999, Well Installation and Soil Boring Report at Tosco 76 Branded Facility No. 7376, 4191 First Street, Pleasanton, California: Report No. 140107.02-3, dated March 4, 1999.

Gettler-Ryan Inc., 1999a, Fourth Quarter 1998 Groundwater Monitoring and Sampling Report for Tosco 76 Branded Facility No. 7376, 4191 First Street, Pleasanton, California: Job #180075, dated February 26, 1999.

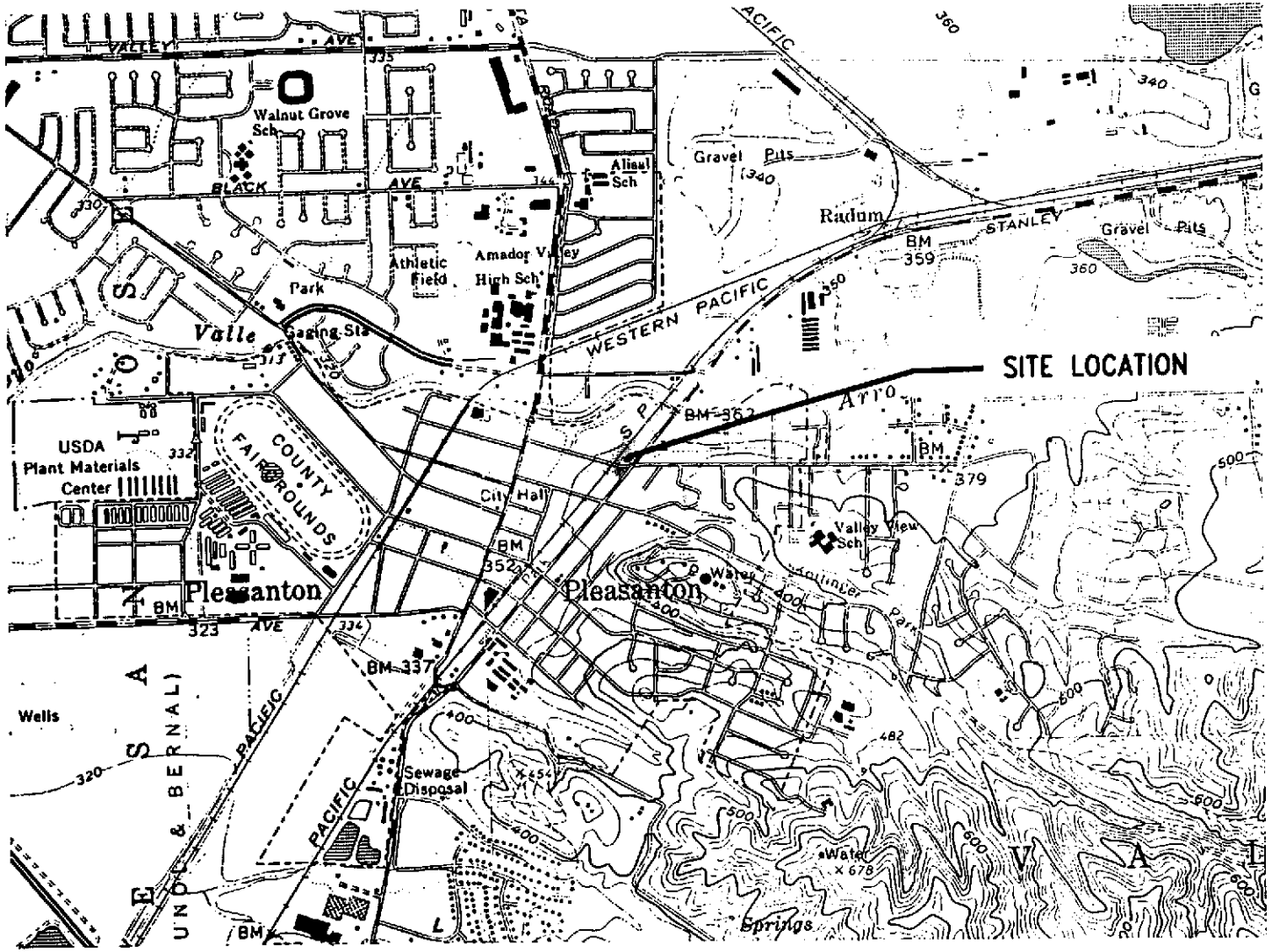
Helley, E.J. and Lajoie, K.R. et.al., 1979, Flatland Deposits of the San Francisco Bay Region, California, Their Geology and Engineering Properties, and Their Importance to Comprehensive Planning: United States Geologic Survey Professional Paper 943.

Kaprealian Engineering Incorporated, 1994, Soil Sampling Investigation at Unocal Service Station No. 7376, 4191 First Street, Pleasanton, California: Report No. KEI-J94-0903.R1 dated October 21, 1994.

Kaprealian Engineering Incorporated, 1995, Continuing Groundwater Investigation at Unocal Service Station No. 7376, 4191 First Street, Pleasanton, California: Report No. KEI-P94-0903.R3 dated April 27, 1995.

Kaprealian Engineering Incorporated, 1996, Continuing Groundwater Investigation at Unocal Service Station No. 7376, 4191 First Street, Pleasanton, California: Report No. KEI-P94-0903.R5 dated November 4, 1996.

Pleasanton Fire Department, 1988, Correspondence dated January 29, 1988.



Base Map: USGS Topographic Map

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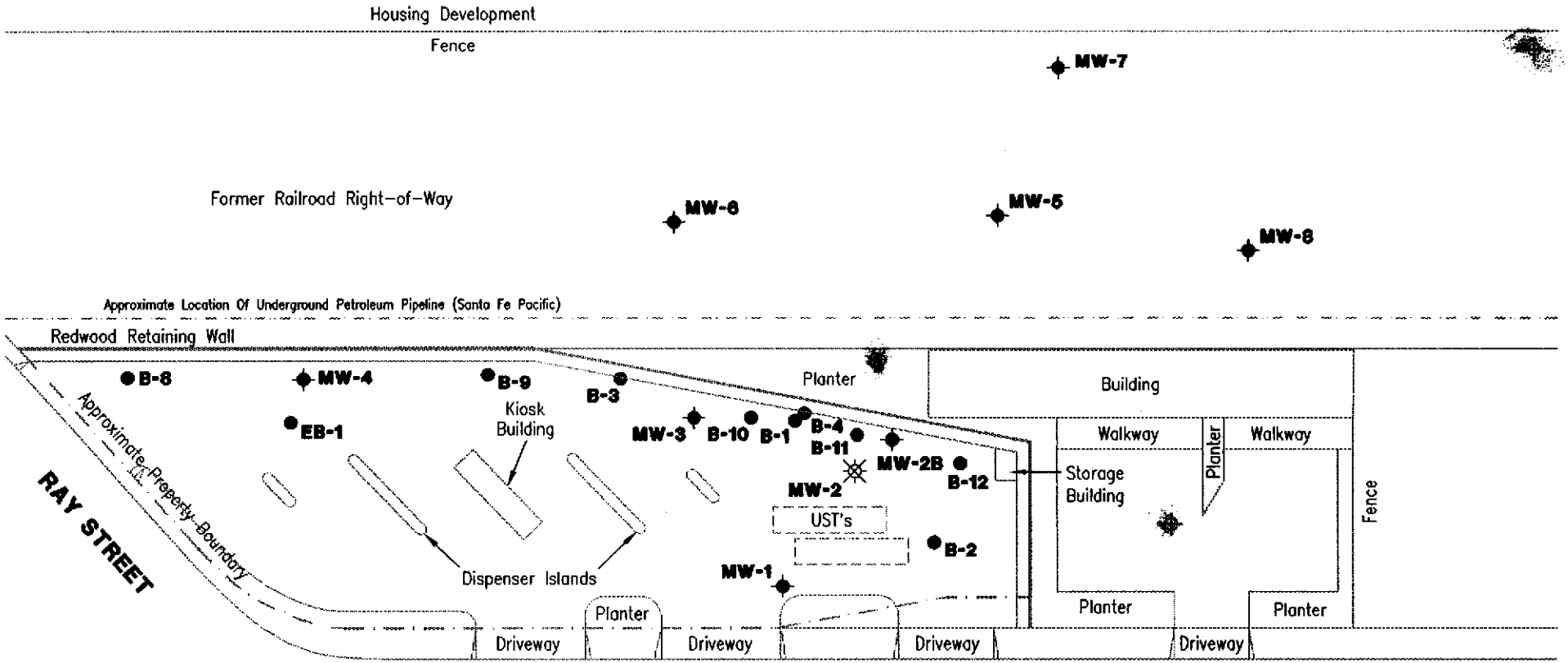
VICINITY MAP
Tosco 76 Branded Facility No. 7376
4191 First Street
Pleasanton, California

FIGURE 1

JOB NUMBER	REVIEWED BY	DATE	REVISED DATE
140107		February, 1999	



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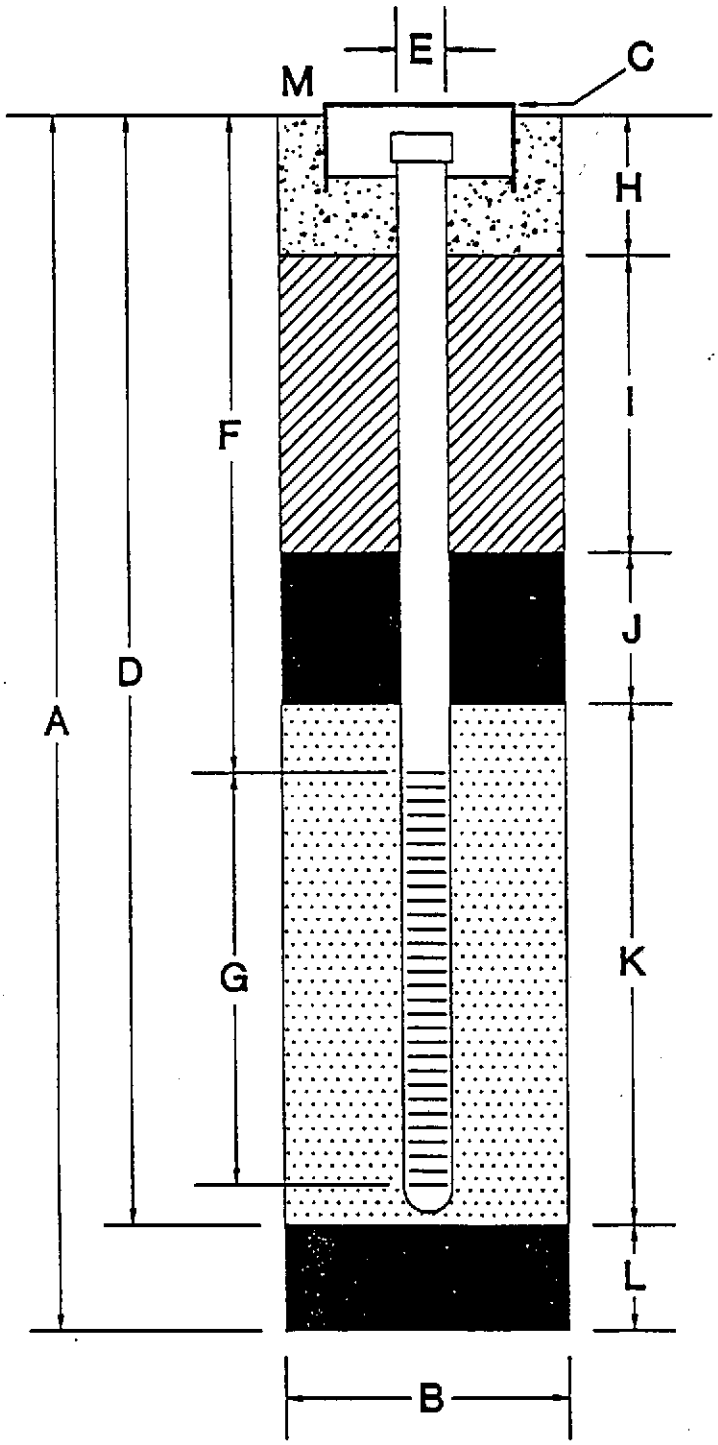
SITE PLAN
Tosco 76 Branded Facility No. 7376
4191 First Street
Pleasanton, California

FIGURE
2

JOB NUMBER	REVIEWED BY	DATE	REVISED DATE
140107.04		06/99	

WELL CONSTRUCTION DETAIL



A Total Depth Of Boring 75 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 75 ft.
Material SCH. 40 PVC

E Casing Diameter 2 in.

F Depth To Top Perforations 55 ft.

G Perforated Length 20 ft.
Perforated Interval From 55 to 75 ft.
Perforation Type SLOTTED SCHD. 40 PVC
Perforation Size 0.02 in.

H Surface Seal From 0 to 1 ft.
Seal Material CONCRETE

I Backfill From 1 to 51 ft.
Backfill Material NEAT CEMENT

J Seal From 51 to 53 ft.
Seal Material BENTONITE

K Gravel Pack From 53 to 75 ft.
Pack Material Lonestar #3 Sand

L Bottom Seal NONE ft.
Seal Material _____

M _____

Note: Depths Measured From Initial Ground Surface.

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WELL CONSTRUCTION DETAIL - NORTH WELL
Tosco 76 Branded Facility No. 7376
4191 First Street
Pleasanton, California

JOB NUMBER	REVIEWED BY	DATE	REVISION DATE
140107		5/99	

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 or aluminum foil, 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 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.

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.