ENVIRONMENTAL LABORATORIES INC.

July 29, 1987

Armour Oil Company
4191 First Street
Pleasanton, California
ATTN: Don Terry

Dear Mr. Terry,

On July 22, 1987, a Petro Tite System Test was performed at the above-referenced location. The test was performed by Michael Stover, E.L.I. Technician. The NFPA Code 329.02 criteria for a tight system is a maximum loss of .05 gallons per hour. Because of the almost infinite variables involved, this is not the permission of actual leakage.

During the stand-pipe test procedure, the internal liquid hydrostatic pressure applied to the underground tank system is generally two to three times greater than normal liquid storage pressures. This increase in hydrostatic pressure will amplify the indicated rate of leak accordingly.

Tank No. 1 - North
Product - Regular
Size - 12,000 gallons
The test showed a minus .930 gallons per hour.
Based on the above criteria, we find the tank tested mathematically not tight.

Due to the fact that tank #1 - North did not pass the integrity tests, we recommend that the following steps be taken:

1. Uncover to isolate your tanks.
2. Nitrogen test vapor and vent lines.
3. Perform Petro Tite product line test.
4. Before covering tanks, retest systems for tightness.

This will give you the information needed to see if you have a piping problem, or if it is a tank failure. If you have any questions, please do not hesitate to contact our office.

This concludes our test and findings on July 22, 1987. If you have any questions regarding the results, please contact me. It is your responsibility to notify your local County Health Department, Environmental Health, within thirty (30) days of the results of this test. This notification is requried by the California Administrative Code, Title 23 Waters, Chapter 3, Water Resources Control Board, Sub-chapter 16, Underground Tank Regulations, Article 4.30.

We have enjoyed working with you on this project. If you need any further information, please feel free to contact our office.

Sincerely,

Johnny A Enos Jr

Johnny Enos
Operations Manager

JE:lg
Encls

Data Sheet for Tank System Tightness Test

petro tite
TANK TESTER

PLEASE PRINT

1. OWNER Property ☒ Tank(s) ☒

Name	Address	Representative	Telephone
ARMOUR OIL	4191 FIRST ST	619 291 1000	
	PLEASANTON, CA		

2. OPERATOR

Name	Address	Telephone
ARMOUR OIL	4191 FIRST ST	619 291 1000

3. REASON FOR TEST (Explain Fully)

TEST FOR SYSTEM TIGHTNESS

4. WHO REQUESTED TEST AND WHEN

Name	Title	Company or Affiliation	Date
DON TERRY		UNOCAL	
WALNUT CREEK CA	Address		415 944 7676 Telephone

5. WHO IS PAYING FOR THIS TEST?

Company, Agency or Individual	Person Authorizing	Title	Telephone
UNOCAL	DON TERRY		
2175 W CALIFORNIA	WALNUT CREEK	CA	94596
Billing Address	City	State	Zip

Attention of: Order No. Other Instructions

6. TANK(S) INVOLVED

Identify by Direction	Capacity	Brand/Supplier	Grade	Approx. Age	Steel/Fiberglass
#4 North	12000	UNOCAL	Reg		Steel

7. INSTALLATION DATA

Location	Cover	Fills	Vents	Siphones	Pumps
North side of station	concrete	4"	2"	NO	Gilbarco Turbine
North inside driveway, Rear of station, etc.	Concrete, Black Top, Earth, etc.	Size, Tiefill make, Drop tubes, Remote Fills	Size, Manifolded	Which tanks?	Suction, Remote, Make if known

8. UNDERGROUND WATER

Depth to the Water table Below 12' ± "

Is the water over the tank? ☐ Yes ☒ No

9. FILL-UP ARRANGEMENTS

Tanks to be filled 6 hr. 7-22-87 Date Arranged by DON TERRY Name 415 954 7676 Telephone

Extra product to "top off" and run TSTT. How and who to provide? Consider NO Lead.

Terminal or other contact for notice or inquiry

Company Name Telephone

10. CONTRACTOR, MECHANICS, any other contractor involved

11. OTHER INFORMATION OR REMARKS

TEST WAS CONDUCTED WITH TEMPORARY VENT RISER

Additional information on any items above. Officials or others to be advised when testing is in progress or completed. Visitors or observers present during test etc.

12. TEST RESULTS

Tests were made on the above tank systems in accordance with test procedures prescribed for petro tite as detailed on attached test charts with results as follows:

Tank Identification	Tight	Leakage Indicated	Date Tested
#4 North	NO	-.930	7/22 or 23/87

13. CERTIFICATION

This is to certify that these tank systems were tested on the date(s) shown. Those indicated as "Tight" meet the criteria established by the National Fire Protection Association Pamphlet 329.

7-23-87 Date

1713 Certificate of Thermal

Russell York Knudsen
414 811 367 Technicians

Environmental Lab. Inc. Testing Contractor or Company. By: Signature

1477 E. Shaw Ste. 150 Fresno CA 93710 Address

14. ARMOUR OIL | 4191 FIRST ST | PLEASANTON | CA | 7/22/87
Name of Supplier, Owner or Dealer | Address No. and Street(s) | City | State | Date of Test

Petro Tite TANK TESTER

15. TANK TO TEST

#4 NORTH
Identity by position

REG
Brand and Grade

16. CAPACITY

Nominal Capacity 12000 Gallons

By most accurate capacity chart available 11907 Gallons

Is there doubt as to True Capacity? [X] NO

See Section "DETERMINING TANK CAPACITY"

From
- [ ] Station Chart
- [ ] Tank Manufacturer's Chart
- [ ] Company Engineering Data
- [X] Charts supplied with Petro Tite
- [ ] Other

17. FILL-UP FOR TEST

Stick Water Bottom before Fill-up 0 to 1/8 in. · 0 Gallons

	Stick Readings to 1/8 in.	Gallons	Total Gallons ea. Reading
Inventory			11907
	TOP 76		+ 63
Product in full tank (up to fill pipe)			11970

Fill up. STICK BEFORE AND AFTER EACH COMPARTMENT DROP OR EACH METERED DELIVERY QUANTITY

Tank Diameter 94"

HEATH CONSULTANTS INC.
100 TOSCA DRIVE
P.O. BOX CS-200
STOUGHTON, MA. 02072-1591

18. SPECIAL CONDITIONS AND PROCEDURES TO TEST THIS TANK

See manual sections applicable. Check below and record procedure in log (26).

[X] Water in tank [X] High water table in tank excavation [X] Line(s) being tested with LVLLT

VAPOR RECOVERY SYSTEM
- [ ] Stage I
- [X] Stage II

19. TANK MEASUREMENTS FOR TSTT ASSEMBLY

Bottom of tank to Grade*	122 "
Add 30" for 4" L	"
Add 24" for 3" L or air seal	"
Total tubing to assemble Approximate	168 "

20. EXTENSION HOSE SETTING

Tank top to grade*	28 "
Extend hose on suction tube 8" or more below tank top	6 "

*If Fill pipe extends above grade, use top of fill.

21. TEMPERATURE/VOLUME FACTOR (a) TO TEST THIS TANK

Is Today Warmer? [ ] Colder? [ ] ___° F Product in Tank ___° F Fill-up Product on Truck ___° F Expected Change (+ or −)

22. Thermal-Sensor reading after circulation 19280 digits 81/82 nearest °F

23. Digits per °F in range of expected change 312 digits

24. 11970 (total quantity in full tank (16 or 17)) × .00058825 (coefficient of expansion for involved product) = 9.3273375 gallons (volume change in this tank per °F)

25. 9.3273375 (volume change per °F (24)) ÷ 312 (Digits per °F in test Range (23)) = 0.0298953125 (Volume change per digit. Compute to 4 decimal places.) This is test factor (

.0299

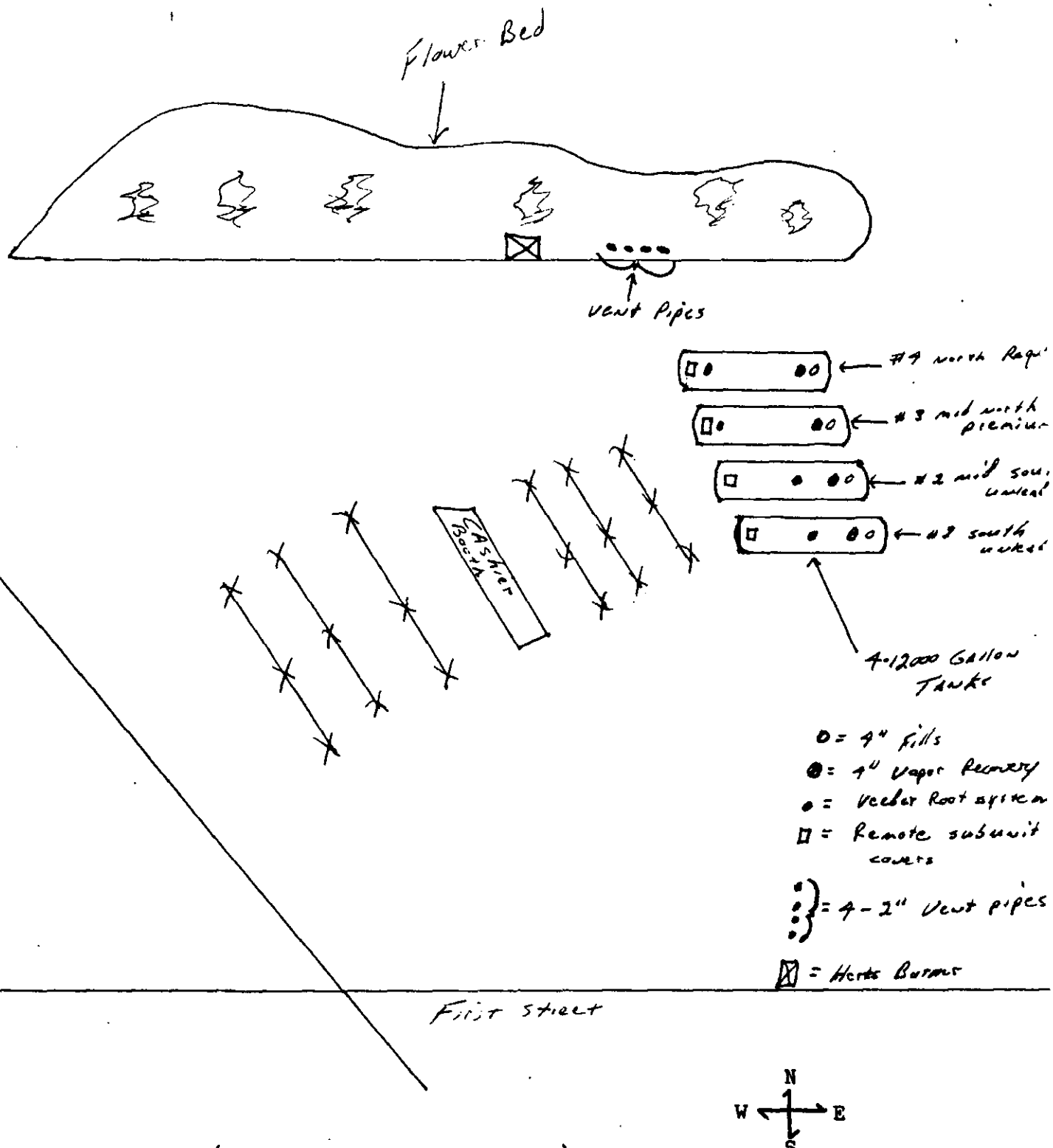
Observed Gravity 56.9
Observed Temperatures 63°
Corrected API Gravity 56.5
C. O. E. .00058825

LOG OF TEST PROCEDURES: #4 North Regular 7-22/23/87

27. DATE / TIME (24 hr.)	28. Record details of setting up and running test. (Use full length of line if needed.)	29. Reading No.	PRESSURE CONTROL: Standpipe Level in Inches — Beginning of Reading	Level to which Restored	RECORD TO .001 GAL.: 32. Product in Graduate — Before Reading	After Reading	Product Replaced (−) / Product Recovered (+)	USE FACTOR (a): 35. Thermal Sensor Reading	36. Change Higher + Lower − (c)	37. Computation (c) × (a) = Expansion + Contraction −	CHANGES EACH READING: Temperature Adjustment — Volume Minus Expansion (+) or Contraction (−) ø33(V) − ø37(T)	ACCUMULATED CHANGE: At High Level record Total End Deflection / At Low Level compute Change per Hour (EPA criteria)
1500	ARRIVED AT SITE: TOOK TANK BURIAL MEASUREMENTS: CHECKED FOR WATER: PLEASE NOTE: IN THE EVENT AIR/VAPOR											
	TOOK INVERNTORY OF PRODUCT ON HAND: PREPARED AREA FOR SETTING UP TESTERS. POCKETS WERE PRESENT IN THE TANK/SYSTEM											
												IT COULD HAVE AN EFFECT ON THE TEST READI
2100	DELIVERY TRUCK ARRIVED: ASSISTED DRIVER IN FILLING TANK, SET UP TEST							FACTOR A=		.0299		
2130	STAND AND STARTED CIRCULATION PUMP, BLED AIR.											
2230	FIRST SENSOR READING		—	42.0	/	/	/	19280	8'/82	3'+		
2245	START SENSOR READING	1	37.8	"	.750	.390	−.360	286	+6	+.179	−.539	
2300	CONT'D HIGH LEVEL TEST	2	37.6	"	.970	.590	−.380	290	+4	+.120	−.500	
2315	" " " "	3	37.6	"	.590	.210	−.380	293	+3	+.090	−.470	
2330	" " " "	4	37.6	"	.980	.600	−.380	295	+2	+.060	−.440	
2345	" " " "	5	37.6	"	.600	.210	−.390	298	+3	+.090	−.480	
2400	" " " "	6	37.6	"	.970	.600	−.370	303	+5	+.150	−.520	
0015	" " " "	7	37.6	"	.600	.200	−.400	307	+4	+.120	−.520	
0030	" " " "	8	37.6	"	.990	.620	−.370	309	+2	+.060	−.430	
0032	drop to low level test	—	—	/	—	—	—	—	—	—	—	—
0045	Cont'd " " "	9	12.8	12.0	.670	.660	+.040	311	+2	+.060	−.020	
0100	" " " "	10	10.7	"	.660	.520	−.140	313	+2	+.060	−.200	
0115	" " " "	11	10.5	"	.520	.350	−.170	316	+3	+.090	−.260	−.930
0130	" " " "	12	10.5	"	.350	.190	−.160	319	+3	+.090	−.250	
0145	" " " "	13	10.1	"	.980	.790	−.190	320	+1	+.030	−.220	
	TEST CONCLUDED, SYSTEM FOUND TO BE TIGHT OR NOT TIGHT ON THIS DAY.											
	AT A 12" LEVEL READING OF −.930 GALLONS PER HOUR 7-23-87											

185

(Plot Plan For Jobsite)



(Plot Plan For Jobsite)

GETTLER-RYAN INC.

WORK PLAN FOR AN OFF-SITE SUBSURFACE INVESTIGATION

at

Tosco (Unocal) Service Station No. 7376
4191 First Street
Pleasanton, California

Report No. 140107.05-1

Prepared for:

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

Prepared by:

Gettler-Ryan Inc.
1364 North McDowell Blvd., Suite B2
Petaluma, California 94954

Clyde J. Galantine
Senior Geologist

Stephen J. Carter
Senior Geologist
R.G. 5577

REGISTERED GEOLOGIST
STEPHEN J. CARTER
No. 5577
STATE OF CALIFORNIA

March 19, 2001

257376 SS X BP
X QM TRANSMITTAL
2 3 4 5 6

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WORK PLAN FOR AN OFF-SITE SUBSURFACE INVESTIGATION

at

Tosco (Unocal) Service Station No. 7376
4191 First Street
Pleasanton, California

Report No. 140107.05-1

INTRODUCTION

At the request of Tosco Products Company (Tosco), Gettler-Ryan Inc. (GR), has prepared this Work Plan to install two off-site groundwater monitoring wells to evaluate groundwater conditions downgradient of the subject site. 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 January 31 and February 2, 2001.

The proposed work includes: updating the site safety plan; obtaining the required well installation permit and right-of-entry agreements; advancing two offsite soil borings; installing groundwater monitoring wells in the two 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. This work is proposed to evaluate the lateral extent of the petroleum hydrocarbon plume in the area downgradient (northwest) 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, 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 135.5 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 87.49 feet below top of casing (TOC) in wells MW-1, MW-2B, MW-3, MW-4, and MW-6. Groundwater in well MW-5 has been historically reported at 49.63 to 70.40 feet below TOC. Groundwater in well MW-5 and nearby wells MW-7, MW-8, and MW-9 have historically appeared "perched" and unconfined. Water table elevations in well MW-5 are generally 15 feet higher, compared to nearby well water table elevations (wells MW-6 and MW-2B). The difference in the groundwater elevations may be a result of lithological or structural constraints (or possibly some offset or displacement in the soils beneath the site in the area between MW-2B and MW-5). The encountered water-bearing zone(s) appears to be unconfined. A review of Alameda County Flood Control and Water Conversation District-Zone 7 (1993) groundwater data indicated that the regional groundwater flow direction in the vicinity of the site was toward the northwest. 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 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).

In October and November 2000, GR advanced one off-site soil boring (B-13) and advanced and installed two off-site groundwater monitoring wells (MW-9, MW-10). A total of twenty eight soil samples were collected from the soil and well borings and analyzed for TPHg, BTEX, and MtBE. Five soil samples collceted from well boring MW-9 between 16 and 60.5 feet bgs were reported as not detected for all analytes. Nine soils samples collected from well boring MW-10 between 5.5 and 90.5 feet bgs were reported as not detected for all analytes except for 9.7 ppm of TPHg and 0.035 ppm of benzene at 38 feet bgs and 240 ppm of TPHg and unidentified hydrocarbons with a carbon range of C6 to C12, 0.71 ppm of benzene, and 1.2 ppm of MtBE by EPA Method 8020 and not detected for MtBE by EPA Method 8260 at 56 feet bgs.. Five samples collected from boring B-13 between 85.5 and 126 feet bgs were reported as not detected for all analytes. Nine soil samples collected from boring B-13 between 7.5 and 73.5 feet bgs contained petroleum hydrocarbons at concentrations ranging from not detected to 14,000 ppm of TPHg and unidentified hydrocarbons with a carbon range of greater than C10 (at 28 feet bgs), not detected to 100 ppm of benzene (at 28 feet bgs), and not detected to 0.18 ppm of MtBE (at 57 feet bgs). Grab groundwater samples were collected each of the borings. Groundwater samples B-13-128.5 and B-13-133, collected at 128.5 and 133 feet bgs from boring B-13, contained 150 and 620 ppb of TPHg, 17 and 53 ppb of benzene, and 3.5 and 3.7 ppb of MtBE, respectively. Groundwater sample G-1, collected from well boring MW-9 at 55 feet bgs, contained 66 ppb of MtBE and was reported as not detected for TPHg and MtBE.

Groundwater sample MW-10-90, collected at 90 feet bgs from well boring MW-10, was reported as not detected for TPHg and benzene, and contained 34 ppb of MtBE. Groundwater sample MW-10-95, collected at 95 feet bgs from well boring MW-10, was reported as not detected for benzene, and contained 230 ppb of TPHg and 54 ppb of MtBE (GR, 2000a).

Groundwater has been monitored on a quarterly basis from December 1994 to the present. Groundwater analytical data collected during monitoring indicate that free product or a product sheen has been present in well MW-5 since December 1996. The origin of this thick, viscous product has not been identified. Excluding MW-5, petroleum hydrocarbon concentrations in the groundwater on-and off-site have ranged from not detected to 41,000 ppb of TPHg, not detected to 3,200 ppb of benzene, not detected to 12,200 ppb of MtBE, and not detected to 4,380 ppb of TPHd. Depth to groundwater has fluctuated from approximately 49.63 to 92.23 feet bgs (GR, 2000b). Groundwater flow has ranged from southeast to northwest with a hydraulic gradient of approximately 0.07 to 0.2 feet/feet.

PROPOSED SCOPE OF WORK

The dissolved hydrocarbon plume remains undefined to the northwest (downgradient). GR proposed to install two groundwater monitoring wells northwest of the site to further delineate the dissolved plume. 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 permit from Zone 7 Water Agency. Tosco will obtain right-of -way agreements for the wells to be installed on private property. 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. Off-Site Well Installation

Install two off-site 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 110 feet bgs. Groundwater is expected to be encountered at approximately 95 feet bgs. Depth to groundwater was calculated by extrapolating previously obtained lithology and groundwater depths in the downgradient direction.

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 5 feet above to 15 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 minimum five-foot intervals, starting at 40 feet bgs. Although the actual number of samples submitted for chemical analysis will depend on site conditions and field screening data, we anticipate a minimum of three unsaturated soil samples from each boring will be submitted for chemical analysis as described in Task 5.

Drill cuttings will be stockpiled at the site pending disposal. Stockpiled cuttings will either be placed on and covered with plastic sheeting or stored in DOT-approved drums. 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 on-site in properly labeled drums pending disposal.

Task 3. 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 4. 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 DOT-approved 55-gallon drums, pending disposal at an approved disposal facility. In addition, quarterly 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.

Task 5. Laboratory Analyses

All samples will be submitted to Sequoia Analytical of Walnut Creek, California (ELAP #1271). Soil and groundwater samples will be analyzed for TPHg, benzene, toluene, ethylbenzene, and xylenes (BTEX) and MtBE by EPA Methods 5030/8015/8020, and an MtBE confirmation by EPA Method 8260B. Groundwater samples will be analyzed for TPHg, TPHd, BTEX and MtBE by EPA Methods 5030/8015/8020, and an MtBE confirmation by EPA Method 8260B. The disposal characterization sample from the soil stockpile will be analyzed for TPHg, BTEX, MtBE and total lead.

Task 6. 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 an offsite access agreement.

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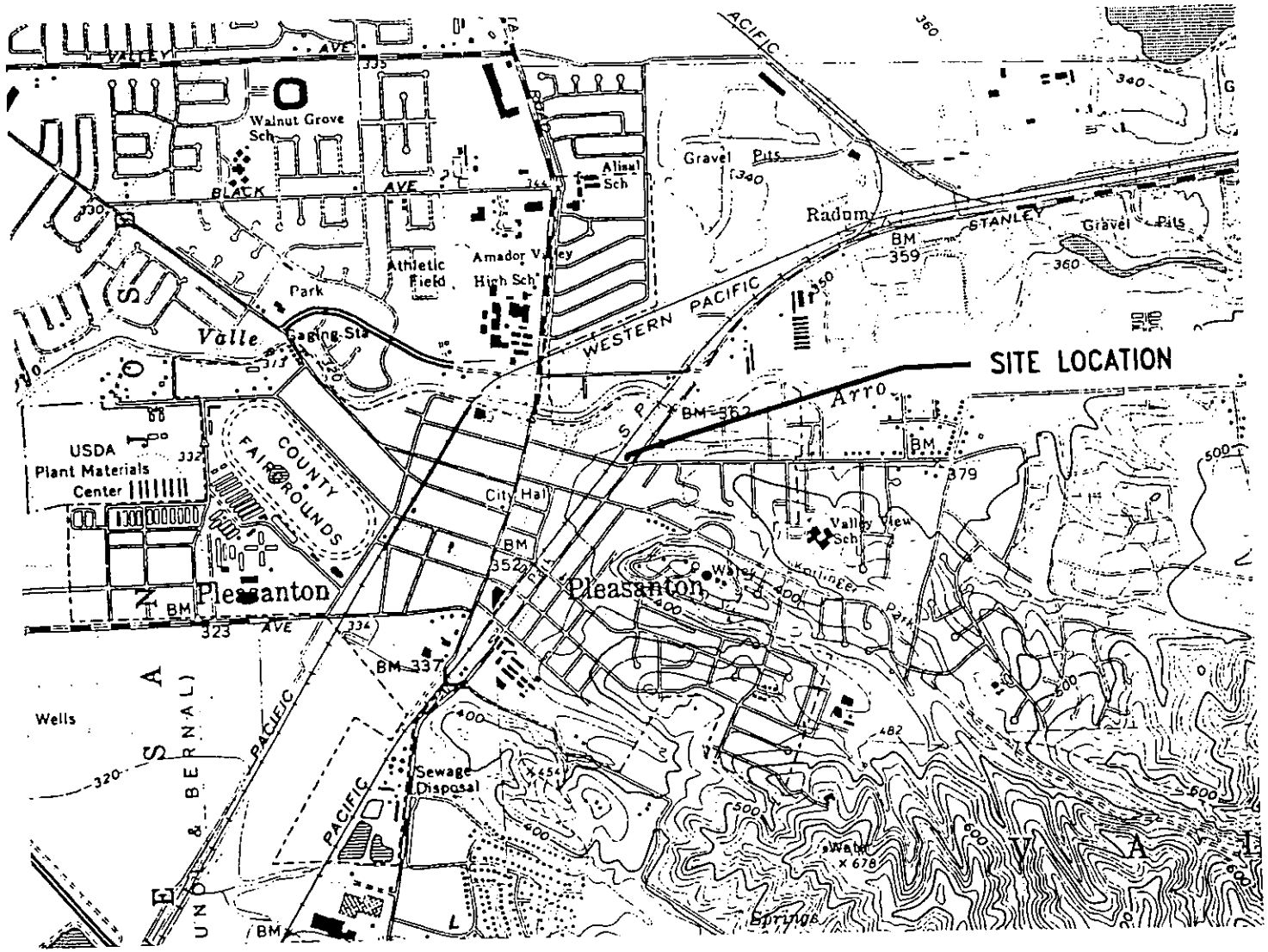


Base Map: USGS Topographic Map

FIGURE 1

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

VICINITY MAP
Tosco (Unocal) Service Station No. 7376
4191 First Street
Pleasanton, California

JOB NUMBER	REVIEWED BY	DATE	REVISED DATE
140107		February, 1999	

EXPLANATION

- Groundwater monitoring well
- Abandoned well
- Soil boring
- Proposed groundwater monitoring well

Planter

Planter

Planter

TESSA PLACE

JAY CT.

BENJAMIN COURT

CALI COURT

COLBY COURT

CRAIG COURT

Residential

Residential

Residential

Residential

Residential

Fence

MW-7

MW-9

Former Railroad Right-of-Way

MW-6

MW-5

MW-8

Redwood Retaining Wall

B-8

MW-4

B-9

B-3

Planter

B-13

B-4

B-11

Building

EB-1

Kiosk

MW-3

B-10

B-1

Walkway

Planter

Walkway

MW-2B

Storage Building

MW-2

B-12

RAY STREET

Approximate Property Boundary

UST's

B-2

MW-10

Fence

Dispenser Islands

MW-1

Planter

Planter

Planter

Driveway

Driveway

Driveway

Driveway

FIRST STREET

N

0 60

Scale in Feet

Source: Figure modified from drawing provided by County Assessor's map of surrounding areas.

FIGURE 2

EXTENDED SITE PLAN
Tosco (76) Service Station No. 7376
4191 First Street
Pleasanton, California

REVISED DATE

DATE 2/01

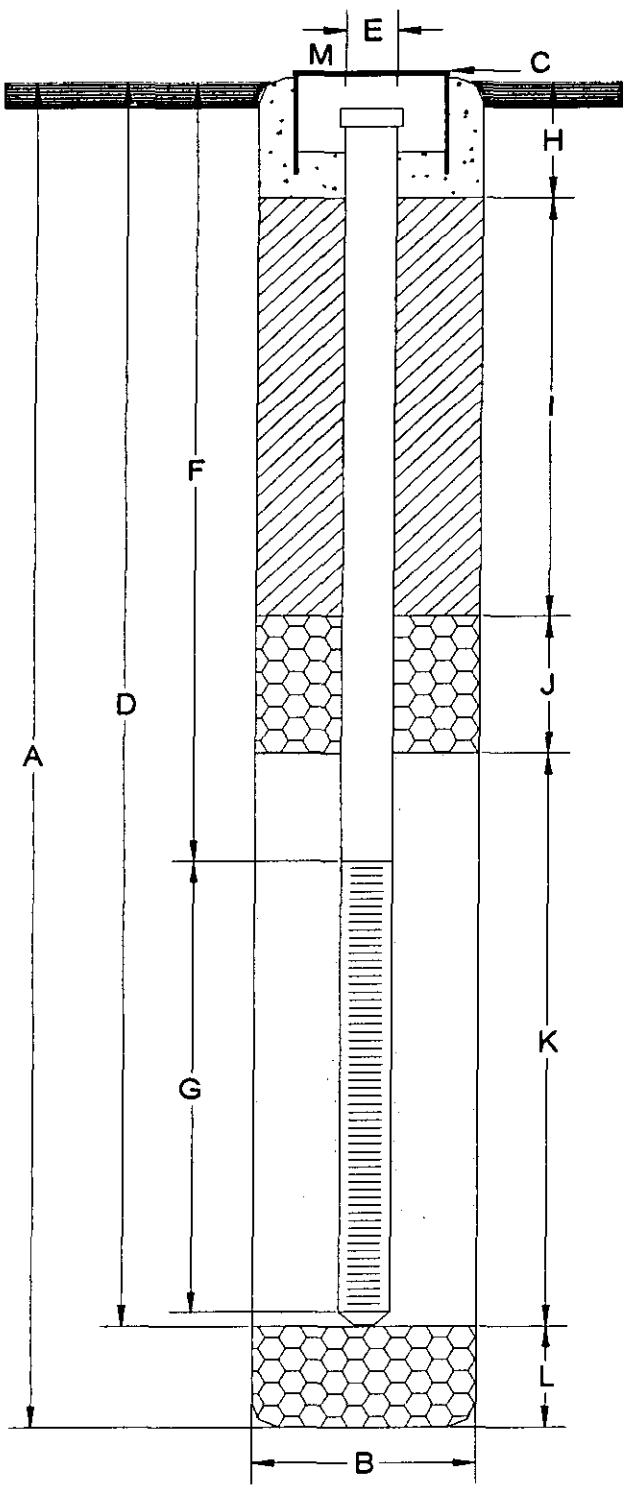
GETTLER-RYAN INC.
6747 Sierra Ct., Suite J
Dublin, CA 94568
(925) 551-7555

PROJECT NUMBER 140107

REVIEWED BY

FILE NAME: P:\ENVRO\TOSCO\7376\A01-7376.DWG | Layout Tab: Work Plan 2-01

WELL CONSTRUCTION DETAIL



A Total Depth of Boring 110 ft.

B *Diameter of Boring* 8 *in.*
Drilling Method Hollow Stem Auger

C Top of Casing Elevation ft.
[x] Referenced to Mean Sea Level
[ ] Referenced to Project-Datum

D Casing Length 110 ft.
Material PVC

E *Casing Diameter* 2 *in.*

F Depth to Top Perforations 90 ft.

G Perforated Length 20 ft.
Perforated Interval from 90 to 110 ft.
Perforation Size 0.02 in.

H Surface Seal from 0 to 1 ft.
Seal Material concrete

I Backfill from 1 to 85 ft.
Backfill Material neat cement

J Seal from 85 to 88 ft.
Seal Material bentonite

K Gravel Pack from 88 to 110 ft.
Pack Material #3 sand or equivalent

L Bottom Seal none ft.
Seal Material

M Traffic rated well box, locking well cap, and lock

Note: Depths measured from initial ground surface.

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WELL CONSTRUCTION DETAILS
Tosco (Unocal) Service Station No. 7376
4191 First Street
Pleasanton, California

FIGURE
3

JOB NUMBER	REVIEWED BY	DATE	REVISED DATE	REVISED DATE
140107.05		02/01/01		

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.

GR Field Methods and Procedures

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.