MISSION VALLEY ROCK COMPANY
ASPHALT COMPANY
READY MIX COMPANY

7999 ATHENOUR WAY SUNOL, CA 94586 (925) 862-2257

December 11, 1998

Mr. Scott Seery
Alameda County Health Care Services Agency
1131 Harbor Bay Parkway Suite 250
Alameda, CA 94502-6577

Dear Mr. Seery:

Enclosed herewith is the "Preliminary Site Assessment Report" prepared by Tank Protect Engineering (TPE) in accordance with the work plan approved March 20, 1998. If there are questions or a need for clarifications, please contact TPE directly. I would appreciate being copied on all correspondence. Thank you.

Very truly yours,
MISSION VALLEY ROCK CO.

W.M.Calvert

cc: TPE - Jeff Farhoomand

PRELIMINARY SITE ASSESSMENT REPORT

10-30-98

MISSION VALLEY ROCK
799 ATHENOUR WAY
SUNOL, CA 94586

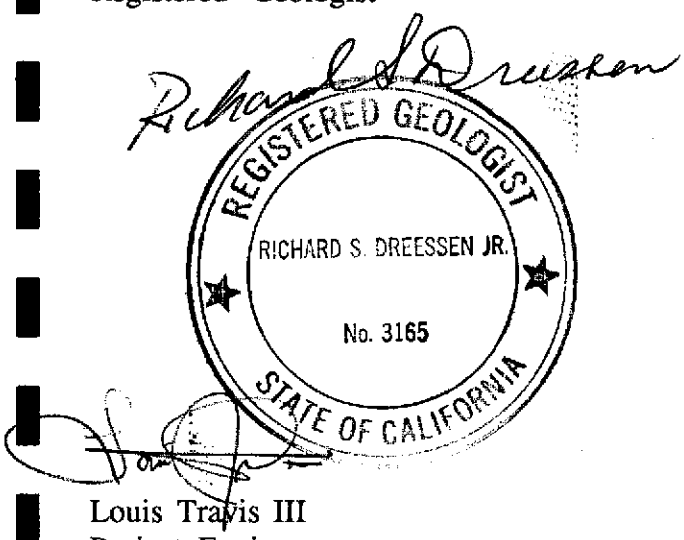
Prepared For:
MORT CALVERT
MISSION VALLEY ROCK
799 ATHENOUR WAY
SUNOL, CA 94586

Submitted By:
TANK PROTECT ENGINEERING
Of Northern California, Inc.
2821 WHIPPLE ROAD
UNION CITY, CA 94587
(510) 429-8088

October 30, 1998

Project Number 384

Richard S. Dreessen
Registered Geologist



Louis Travis III
Project Engineer

Jeff J. Farhoomand, M.S.
Principal Engineer

PRELIMINARY SITE ASSESSMENT REPORT

MISSION VALLEY ROCK
799 ATHENOUR WAY
SUNOL, CA 94586

Prepared For:
MR. MORT CALVERT
MISSION VALLEY ROCK
799 ATHENOUR WAY
SUNOL,CA 94586

October 30, 1998

This report has been prepared by the staff of **Tank Protect Engineering of Northern California, Inc.** under direction of an Engineer and/or Geologist whose seal(s) and/or signature(s) appear hereon.

The findings, recommendations, specifications or professional opinions are presented, within the limits prescribed by the client, after being prepared in accordance with generally accepted professional engineering and geologic practice. We make no other warranty, either expressed or implied.

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1.0 INTRODUCTION

The subject site is located at 799 Athenour Way, in the City of Sunol, in Alameda County, California (see Figure 1). The contact person for the site is Mr. Mort Calvert; telephone number (510) 862-2257.

This PRELIMINARY SITE ASSESSMENT REPORT (PSAR) presents site history, monitoring well installation and presents analytical results of soil and groundwater sampling.

2.0 SITE HISTORY

Tank Protect Engineering of Northern California, Inc. (TPE) was contracted by Mission Valley Rock (MVR) to remove two 10,000-gallon underground steel, diesel storage tanks, and one 2,000-gallon underground steel, gasoline storage tank.

Because of obvious hydrocarbon contamination as evidenced by soil staining and odors from the excavation and the stockpiled soil, Alameda County Health Care Services Agency (ACHCSA) verbally authorized (MVR) to conduct overexcavation of the floor of the excavation to investigate for possible soil contamination. With the verbal approval of the ACHCSA and MVR, TPE conducted overexcavation activities on June 26, 1996. TPE excavated about 177 cubic yards (cyds) of contaminated soil from the floor of the former diesel tanks and gasoline tank area. No horizontal excavation was conducted. Vertical excavation was conducted to an estimated maximum depth of about 15.5 feet.

Verification sampling was conducted under the supervision of a representative from the ACHCSA. Six discrete verification soil samples were collected from the excavation sidewalls and floor at depths of 9.0 to 13.5 feet. Sixteen discrete verification soil samples were collected from the stockpiled soil for laboratory compositing into 4 composite samples (SP1-A,B,C,D through SP5-A,B,C,D). A "grab" groundwater sample (WS-1) was collected from the excavation at a depth of 10 feet (see Figure 2 of TPE's March 13, 1997 PRELIMINARY SITE ASSESSMENT REPORT, MISSION VALLEY

ROCK, 799 ATHENOUR WAY, SUNOL, CA 94587). Soil and groundwater samples were analyzed for total petroleum hydrocarbons as diesel (TPHD), as gasoline (TPHG), benzene, toluene, ethylbenzene, and xylenes (BTEX) and methyl t-butyl ether (MTBE).

All discrete soil samples, with the exception of sample S-2, showed detectable limits of hydrocarbon contamination. TPHG was detected in soil samples S-1 and S-3 through S-6 in concentrations of 170 parts per million (ppm), 16 ppm, 790 ppm, 130 ppm and 670 ppm, respectively. TPHD was detected in samples S-4 through S-6 at concentrations of 12 ppm, 450 ppm and 49 ppm, respectively. Some or all BTEX chemicals were detected, with sample S-4 showing the highest detection levels. MTBE was nondetectable in all samples.

Chemical analysis of stockpile soil detected TPHG at a concentrations of 160 ppm, 4.5 ppm, 49 ppm, 280 ppm and 47 ppm for SP-1 through SP-5, respectively. TPHD was detected in stockpile samples SP-1 through SP-5 at concentrations of 150 ppm, 90 ppm, 39 ppm, 16 ppm and 45 ppm, respectively. Some or all BTEX chemicals were detected. MTBE was nondetectable in all samples.

Chemical analysis of "grab" groundwater sample WS-1 detected TPHG and TPHD at concentrations of 12,000 parts per billion (ppb) and 1,200 ppb, respectively. All BTEX chemicals were detected, and results for MTBE were nondetectable.

All soil and groundwater sample analytical results are documented in TPE's March 13, 1997 PRELIMINARY SITE ASSESSMENT REPORT, MISSION VALLEY ROCK, 799 ATHENOUR WAY, SUNOL, CA 94587.

Tank removal and subsequent soil sampling activities are documented in TPE's August 12, 1996 TANK CLOSURE REPORT, MISSION VALLEY ROCK, 799 ATHENOUR WAY, SUNOL, CA 94586.

Because soil and groundwater samples obtained during tank removal showed concentrations of hydrocarbons to be present, the Alameda County Health Care Services Agency (ACHCSA) requested on October 28, 1996 that a environmental investigation be conducted to determine the lateral and vertical extent of soil and groundwater impact resulting from a release at the site.

In response to ACHCSA request, TPE prepared a December 4, 1996 WORKPLAN FOR SOIL BORING INVESTIGATION AND STOCKPILE SOIL REMEDIATION, MISSION VALLEY ROCK, 799 ATHENOUR WAY, SUNOL, CA 94586 proposing a scope of work to delineate the vertical and horizontal extent of soil and groundwater hydrocarbon contamination.

On December 13, 1996 the ACHCSA in a letter titled MISSION VALLEY ROCK, SUNOL FACILITY approved the workplan with the following modifications: 1) add an additional boring (SB-6) at the south end of the former tank excavation; and 2) adjust the spatial placement of the remaining borings. These modifications were intended to provide the coverage necessary to reflect observations made at the time of the underground storage tank closures.

Chemical results of soil samples collected during the soil boring investigation detected TPHD and TPHG in concentrations up to 2,500 parts per million (ppm) and 160 ppm, respectively. Groundwater "grab" samples obtained during the soil boring investigation detected TPHD and TPHG in concentrations ranging up to 500,000 part per billion (ppb) and 400,000 ppb, respectively. Results from the soil boring investigation are documented in TPE's March 13, 1997 PRELIMINARY SITE ASSESSMENT REPORT, MISSION VALLEY ROCK, 799 ATHENOUR WAY, SUNOL, CA 94586.

Because of the above analytical results, the ACHCSA requested on January 19, 1998 that a soil and water investigation (SWI) be conducted to determine the lateral and vertical extent of soil and groundwater impact resulting from a release at the site.

In response to the above ACHCSA letter, MVR contracted with TPE to drill up to 3 soil borings and convert up to 3 of the borings into groundwater monitoring wells as an investigation of the horizontal and vertical extent of contaminated vadose zone soil and groundwater. TPE submitted a February 13, 1998 WORKPLAN FOR SOIL AND WATER INVESTIGATION, MISSION VALLEY ROCK, 799 ATHENOUR WAY, SUNOL, CA 94586 (SWI) to MVR for approval and submittal to the ACHCSA and the California Regional Water Quality Control Board-San Francisco Bay Region (CRWQCB) for their approval. The SWI was approved by the ACHCSA in a March 20, 1998, letter (see Appendix A).

3.0 SCOPE OF WORK

As an investigation of the vertical and horizontal extent of soil and groundwater contamination, TPE conducted the following scope of work:

- Excavated contaminated soil from the sidewalls of the former underground tank excavation.
- After excavating contaminated soil in the above task, collected verification soil samples from the sidewalls and floor of the excavation for chemical analysis to document cleanup concentrations of TPHD, TPHG and MBTEX.
- Conducted onsite remediation of the stockpiled soil and collected verification soil samples to document cleanup concentrations of TPHD, TPHG and MBTEX contamination.
- Reused the remediated soil to backfill the excavation.
- Conducted an Underground Service Alert (USA) location request to minimize the potential of encountering unexpected utilities, if necessary.
- Obtained monitoring well installation permits from the Alameda County Flood Control and Water Conservation District, Water Resources Management, Zone 7 (Zone 7).
- Obtained a permit for installing groundwater monitoring wells and notified appropriate agencies prior to conducting field activities.
- Drilled three soil borings to further investigate the horizontal and vertical extent of vadose zone soil contamination (approximately 25 feet).
- Collected soil samples from each boring at approximately 5-foot depth intervals, at changes in lithology and at the occurrence of apparent soil contamination for construction of a boring log and for chemical analysis.

- Analyzed selected vadose zone soil samples from the borings for TPHD, TPHG and MBTEX.

- Converted the borings into groundwater monitoring wells.

- Developed, purged and sampled groundwater from the monitoring wells for chemical analysis.

- Analyzed 1 groundwater sample from each well for TPHD, TPHG, and MBTEX and a trip blank sample for TPHG and MBTEX.

- Prepared this Preliminary Site Assessment Report (PSAR).

Details of the proposed scope of work are presented below.

3.1 Predrilling Activities

Before commencing drilling activities, TPE obtained soil boring permits from Zone 7 and visited the site to mark the proposed exploratory soil boring locations. TPE also contacted USA to conduct an underground utility survey to minimize the potential of encountering underground utilities and objects while conducting soil borings, and notified ACHCSA.

3.2 Rationale for Soil Boring/Monitoring Well Locations

The soil boring program results indicated high concentrations of TPHD and TPHG in groundwater to the west and south of the former excavation. The assumed regional flow direction based upon topography would be to the northwest towards Niles Canyon. Figure 2 shows the locations of the three soil borings/groundwater monitoring wells. The well locations were based upon the results of the previous soil boring program.

3.3 Soil Boring and Sampling Procedures

date?

The soil borings/monitoring wells were drilled by PC Exploration Inc., located in Rocklin, California (California contractor's license #C57-26556), using 8-inch diameter, hollow-stem, auger drilling equipment. The augers were steam-cleaned before drilling each boring to minimize the potential of cross-contamination between borings or introducing offsite contamination to the initial boring.

For construction of geologic logs and examination of soil for evidence of contamination, representative soil samples were collected for chemical analyses at approximately 5-foot depth intervals below the ground surface, at changes in lithology, and the occurrence of apparent hydrocarbon contamination by advancing a California split-spoon sampler, equipped with 2-inch diameter by 6-inch long brass tubes, into the undisturbed soil beyond the tip of the augers. The sampling equipment were cleaned before each sampling event by washing with an Alconox® solution and rinsing in tap water.

All soil core samples were field-screened for the presence of apparent hydrocarbon soil contamination based on visible hydrocarbon stains, odors, and headspace analyses of soil samples using a Gastech, Inc., Trace-Techtor Hydrocarbon Vapor Tester (HVT).

Headspace analysis were conducted by sealing a soil sample in a quart-size plastic bag and allowing hydrocarbons, if present, to volatilize into the headspace of the bag. The headspace is tested by inserting the probe of the HVT into the headspace, while minimizing the entry of fresh air, and recording the response in ppm.

Drill cuttings were stored on site in 55-gallon steel drums labeled to show contents, date filled, suspected chemical contaminant, expected date of removal, company's name, contact person and telephone number. Disposal of the drummed soil and the drums containing the soil will be the responsibility of the client. After the soil is characterized by chemical analysis, TPE will provide recommendations to the client and, upon their request, assist them in remediation or disposal of the soil and drums, or both, in an appropriate manner as an additional work item.

A detailed boring log (see Appendix D) was prepared from auger return material and split-spoon samples according to the Unified Soil Classification System under the direction of a California Registered Geologist and/or Engineer.

Appendices B and C document TPE's protocols relative to hollow-stem auger drilling and soil sampling procedures, and waste handling and decontamination procedures, respectively.

3.3.1 Soil Sample Selection for Chemical Analyses

One soil sample was selected from each boring for laboratory analysis. Samples containing apparent hydrocarbon contamination were selected for chemical analysis.

TPE collected soil samples for chemical analysis from soil boring/monitoring well MW-1 (15'-15.5'), MW-2 (10'-10.5'), and MW-3 (20'-20.5').

The lead tube of each soil sample was collected for chemical analysis for TPHG, TPHD and MBTEX by DHS Method 5030/8015 5030/8015M, and 8020, respectively. Each sample was preserved in the tube by quickly covering the open ends with Teflon tape and capping the ends with plastic end-caps. Each tube was labeled to show site name, project number, date, time, sample name, depth collected, and sampler and stored in an iced cooler for transport to California State Department of Health Services (DHS) certified Entech Analytical Labs, Inc., located in Sunnyvale, California, accompanied by chain-of-custody documentation.

Appendix E documents TPE's protocol relative to sample handling procedures.

3.4 Groundwater Investigation

The following discusses groundwater monitoring well construction, development and sampling procedures and chemical analysis. Appendices F, G and H document TPE's protocols relative to groundwater monitoring well construction, development and sampling procedures.

3.4.1 Groundwater Monitoring Well Construction

The borings were converted into groundwater monitoring well by installing 2-inch diameter, flush-threaded, schedule 40, polyvinyl chloride (PVC) casing and 0.010-inch machine-slotted screen. The exact depth of each boring and screen length were determined by the geologic profile and depth of groundwater. Monitoring well construction was based on encountering unconfined groundwater in each boring. The screen extended about 5 feet above and about 15 feet below the water table surface. The length of screen below the water table surface been less than 15 feet. A sand pack of Number 2/12 filter sand was placed in the annular space from the bottom of the boring to a maximum of 2 feet above the top of the screened interval. Approximately 1 foot of bentonite was placed above the sand pack followed by a neat cement slurry seal. A traffic rated, bolt-locked, vault box will be set in concrete to protect the well. A water tight locking well cap with lock was installed on each well casing.

A well construction detail for each well is documented in Appendix D.

3.4.2 Groundwater Monitoring Well Development

Groundwater monitoring wells MW-1, MW-2, and MW-3, were developed on June 22, 1998. Before development, depth-to-groundwater was measured from the TOC to the nearest 0.01 foot using an electronic Solinst water level meter. A minimum of 3 repetitive measurements were made for each level determination to ensure accuracy. Each well was checked for floating product using a dedicated polyethylene bailer; approximately 1/16" of floating product was observed in MW-2, during well development (see Appendix I).

Each well was developed by bailing the water using a dedicated polyethylene bailer and surging until the well is free of sand, silt and turbidity or no further improvement is apparent.

Development water was stored on site in 55-gallon steel drums labeled to show contents, date filled, suspected chemical contaminant, expected date of removal,

company's name, contact person and telephone number. Disposal of the drummed water and the drums containing the water will be the responsibility of the client. After the water is characterized by chemical analysis, TPE will provide recommendations to the client and, upon their request, assist them in remediation or disposal of the fluids and drums, or both, in an appropriate manner as an additional work item.

3.4.3 Groundwater Monitoring Well Sampling

All wells were sampled on June 23, 1998. Prior to sampling, depth-to-groundwater was measured from the TOC to the nearest 0.01 foot using an electronic Solinst water level meter. A minimum of 3 repetitive measurements were made for each level determination to ensure accuracy. Each well was checked for floating product using a dedicated polyethylene bailer; floating product was observed in MW-2. Each well was purged a minimum of 3 wetted well volumes with dedicated polyethylene bailers. Temperature, pH, and electrical conductivity were monitored until they stabilized. A slight hydrocarbon odor was detected in all 3 wells during purging. After purging, the water in all 3 wells remained slightly turbid (see Appendix I for Record of Water Sampling).

Samples were collected in laboratory provided, sterilized glass vials having Teflon-lined screw caps, immediately sealed in the vials, and labeled to include: date, time, sample location, project number, and sampler. The samples were stored in an iced cooler for transport to California State Department of Health Services (DHS) certified Entech Analytical Labs, Inc., located in Sunnyvale, California, accompanied by chain-of-custody documentation.

Purged water was stored on site in 55-gallon steel drums labeled to show contents, date filled, suspected chemical contaminant, expected date of removal, company's name, contact person and telephone number. Disposal of the drummed water and the drums containing the water will be the responsibility of the client. After the water is characterized by chemical analysis, TPE will provide recommendations to the client and, upon their request, assist them in remediation or disposal of the fluids and drums, or both, in an appropriate manner as an additional work item.

3.4.4 Results of Groundwater "Grab" Sample Analyses

One water sample was collected from each monitoring well for laboratory analysis. All groundwater samples were analyzed for TPHD, TPHG, and MBTEX by EPA Methods 5030/8015M, 3510/8015, and 8020, respectively.

As an evaluation of quality assurance/quality control, a trip blank sample (MW-4) were analyzed for TPHG and MBTEX chemicals. TPHG and MBTEX chemicals were nondetectable.

TPHG was detected in MW-1, MW-2, and MW-3, at concentrations of 3,100 ppb, 2,500 ppb, and 300 ppb, respectively. TPHD was non detectable in MW-1; however, TPHD was detected in wells MW-2, and MW-3 at concentrations of 12,000 ppb, and 12,000 ppb, respectively.

MTBE chemicals were detected in all three wells from a low concentration of 14 ppb in MW-2, to a high concentration level of 150 ppb in MW-3.

Results of chemical analyses are summarized in Table 4 and documented with a certified analytical report and chain-of-custody in Appendix J.

Analytical results for water samples collected from monitoring wells MW-1, MW-2, and MW-3, were used to construct groundwater concentration maps for TPHD, TPHG, and benzene (see Figures 8, 9, and 10).

4.0 FINDINGS

4.1 Regional Setting

The site is located in the Coast Range physiographic Province of California. The site is at an elevation of about 260 feet above Mean Sea Level (MSL) and has a southeasterly to northwesterly topographic gradient. The largest surface water body is the San Antonio Reservoir which lies approximately 1.5 miles to the east northeast.

Alameda Creek, a seasonal creek, runs through the property about 2000 feet east northeast from the former underground storage tank complex.

4.2 Site Geology and Hydrogeology

Figure 3 presents the locations of cross section A-A'. As shown in cross-sections A-A' site stratigraphy consists of slightly weathered, poorly sorted, clay, sand and gravels (see figure 4).

4.3 Groundwater Flow Direction and Gradient

On June 23, 1998 depth-to-groundwater was measured from the top of casing (TOC) in all wells to the nearest 0.01 foot using an electronic Keck Instrument, Inc., KIR-89 interface probe. A minimum of 3 repetitive measurements were made for each level determination to ensure accuracy. Depth-to-groundwater was subtracted from the TOC elevation, measured relative to mean sea level, to calculate the elevation of the groundwater level in each well (see attached Table 1). When floating product was present, the groundwater elevation was corrected by multiplying the floating product thickness by a density of .75 and adding the resultant value to the groundwater elevation.

Attached Figure 11 is a groundwater gradient map constructed from the data collected on June 23, 1998. Groundwater flow direction was to the northeast with a gradient about .012 feet per foot.

4.4 Floating Product

Table 3 summarizes the thickness of floating product measured in each well.

Floating product was observed in monitoring well MW-2 during well development and sampling events. Floating product was not observed in any of the other wells.*

* Sheen was noted in well MW-3

4.5 Results of Chemical Analyses of Soil Boring Samples

These are all saturated samples!

Chemical analyses for soil samples collected from soil boring/monitoring well MW-1 (15'-15.5'), MW-2 (10'-10.5'), and MW-3 (20'-20.5') were nondetectable for TPHG and all MBTEX chemicals. TPHD was detected in MW-2 (10'-10.5') and MW-3 (20'-20.5') at concentrations of 14 ppm and 18 ppm, respectively.

Results of chemical analyses are summarized in Table 3 and documented with a certified analytical report and chain-of-custody in Appendix J.

Analytical results for soil samples collected from soil boring/monitoring well MW-1, MW-2, and MW-3, were used to construct vadose zone concentration maps for TPHD, TPHG, and benzene (see Figures 5, 6, and 7).

5.0 CONCLUSIONS

TPHD concentrations in soil samples collected from the borings ranged from nondetectable to 18 ppm. TPHG and MBTEX chemicals were nondetectable in all soil samples collected from all three borings.

The lack of TPHG, and MBTEX chemicals in soil samples collected from the soil borings is probably due to the elevated water levels at the site. Soil samples collected from the soil borings were in the most part from beneath the elevated water level, normally the vadose zone. The elevated water levels within the borings are probably due the large amount of precipitation received during the month of December and January.

Groundwater "grab" samples from the all three monitoring wells detected TPHD ranging from nondetectable to 12,000 ppb. TPHG ranged from 300 ppb to 3,100 ppb. Some or all BTEX chemical and MTBE were detected in all groundwater "grab" samples.

6.0 RECOMMENDATIONS

TPE recommends that quarterly groundwater sampling of all 3 groundwater monitoring wells be continued to evaluate groundwater flow directions and gradient, and to monitor contaminant concentrations. TPE recommends that other options for free product removal should be evaluated to reduce the concentrations of TPHD and TPHG from the wells.

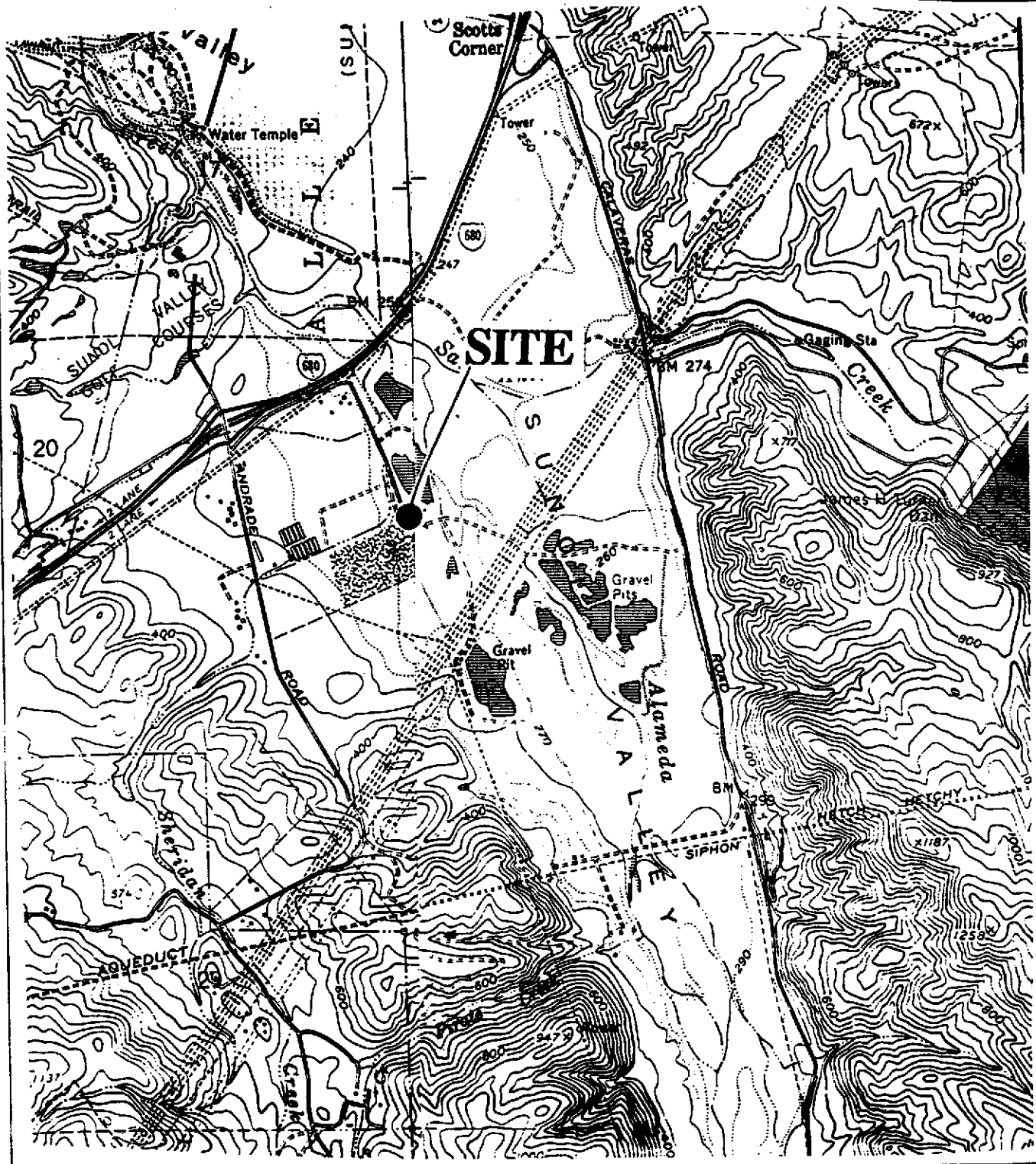
7.0 STUDY LIMITATIONS

This PSAR is based on subsurface exploration, laboratory analyses of soil and groundwater samples, and subsurface geologic correlations. The chemical analytical results for the samples are considered applicable to that borehole or location from which they were collected. The soil encountered in the borings is believed to be representative of the site; however, the soil may vary in character between observation points. The conclusions contained herein are based on the field observations, analytical data, and professional judgement which is in accordance with current standards of professional practice. Representations made of soil and groundwater conditions between sample locations are extrapolations based on professional opinions and judgements and accepted industry practice. Therefore, TPE cannot and will not provide guarantees, certifications, or warranties that the subject property is or is not free of all contaminated soil or groundwater and such assessments are provided only in order that the client may make an informed decision.

The extent of testing and data collection directly affects the statistical confidence level of all work performed. As a practical matter, to reach or even approach a 100 percent statistical confidence level would be prohibitively expensive. Therefore, if a reassessment of the subject property becomes necessary in the future, TPE will not reassess the area at its own cost. No other warranty is expressed or implied.

The findings and conclusions of this report are valid as of the present time; however, the passing of time could change the conditions of the subsurface due to natural processes or the influence of man. Accordingly, the findings of this report may be

invalidated, wholly or partly, by changes beyond TPE's control. Therefore, this report should not be relied upon after an extended period of time without being reviewed by a Civil Engineer or Registered Geologist.



LEGEND

REFERENCE: USGS 7.5 MINUTE
SERIES QUADRANGLE MAPS
LA COSTA VALLEY, CALIFORNIA
PHOTOREVISED 1968
NILES, CALIFORNIA
PHOTOREVISED 1980

-N-

0 2,000
SCALE IN FEET

TANK PROTECT ENGINEERING

SITE VICINITY MAP

MISSION VALLEY ROCK
799 ATHENOUR WAY
SUNOL, CA 94586

DATE	08/03/98
FIGURE	1
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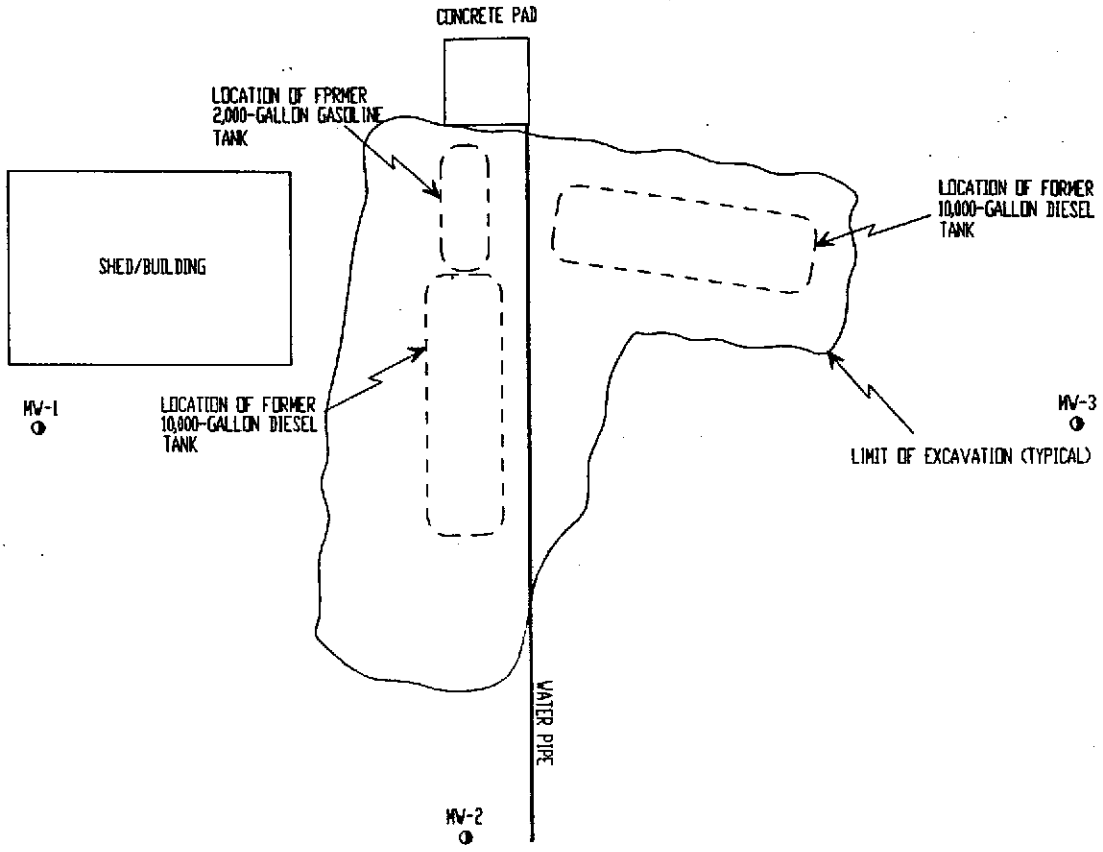
DRAWN BY	VK
CHECKED BY	RD



LEGEND

S-1 NAME AND LOCATION OF SOIL SAMPLE

SB-1 SOIL BORING LOCATIONS

MW-1 PROPOSED GROUNDWATER MONITORING WELL LOCATIONS

0 20

APPROXIMATE SCALE IN FEET

TANK PROTECT ENGINEERING

SITE PLAN:
PROPOSED MONITORING WELL LOCATIONS

MISSION VALLEY ROCK
799 ATHENOUR WAY
SUNOL, CA 94586

DATE	08/03/98
FIGURE	2
FILE #	384-02N
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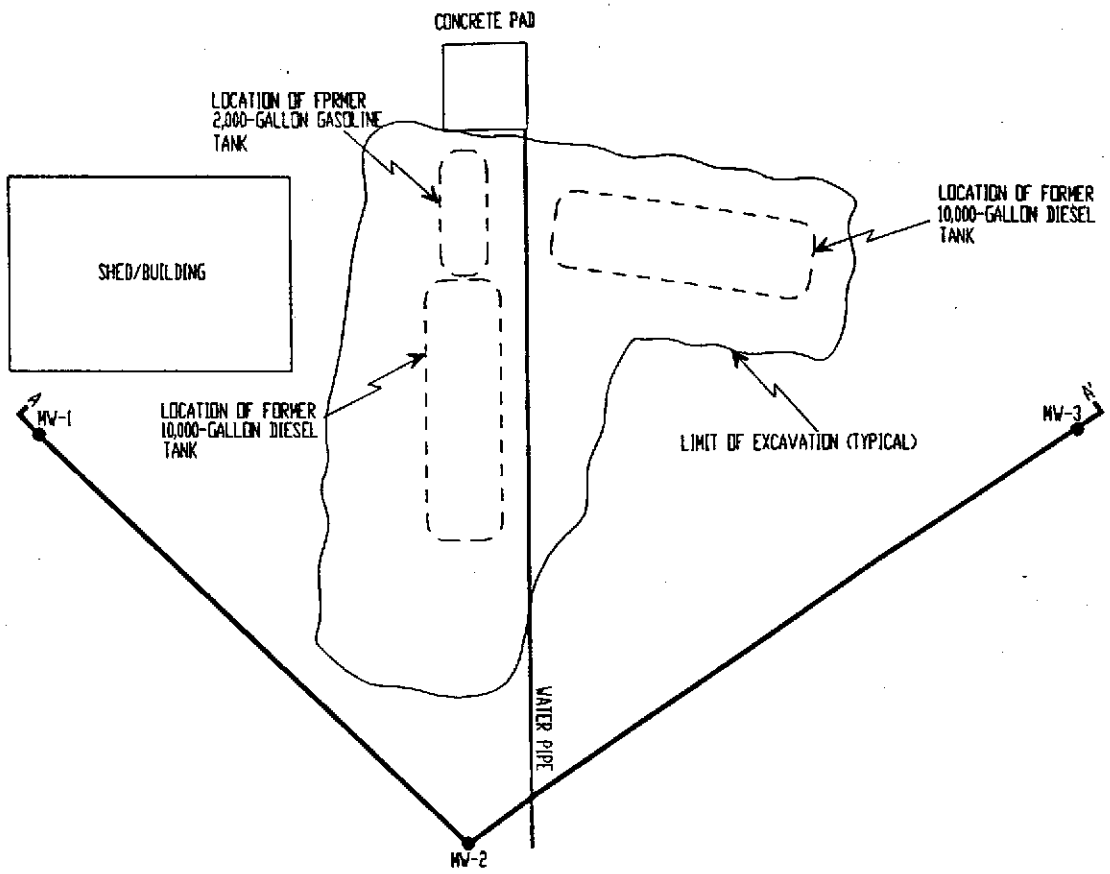
CHECKED BY	RD



LEGEND

MW-1 ● GROUNDWATER MONITORING WELL LOCATIONS

A ⌐¬ A' LOCATION OF GEOLOGIC CROSS SECTION

0 20

APPROXIMATE SCALE IN FEET

TANK PROTECT ENGINEERING

SITE PLAN:
LOCATION OF GEOLOGIC CROSS SECTION A-A'

MISSION VALLEY ROCK
799 ATHENOUR WAY
SUNOL, CA 94586

DATE	08/03/98
FIGURE	3
FILE #	384-03N
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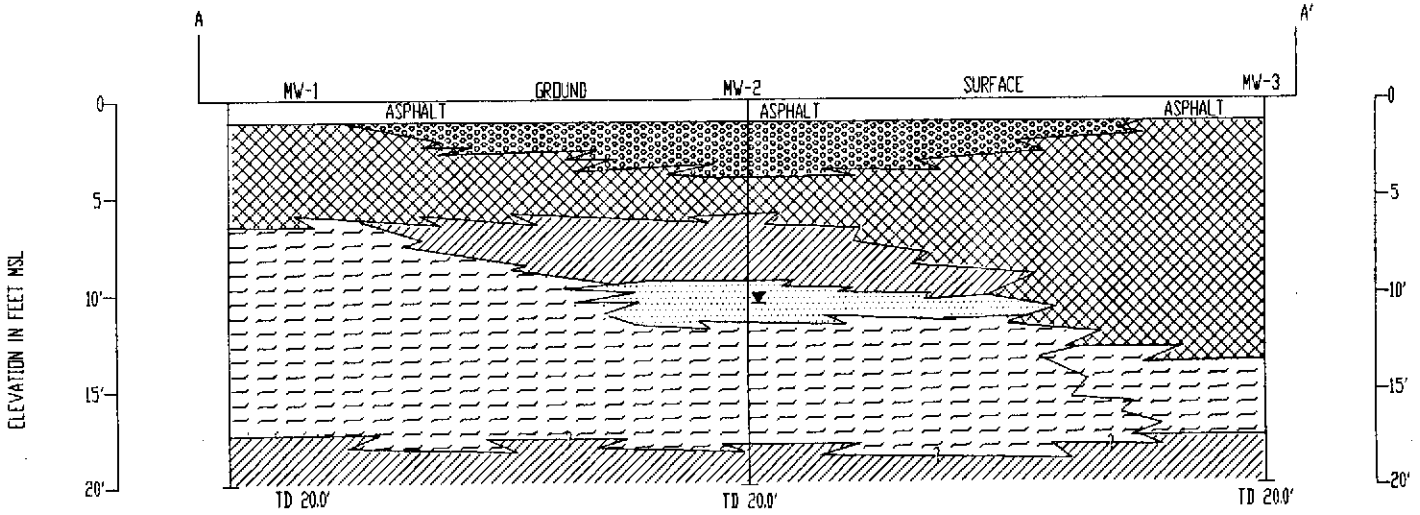
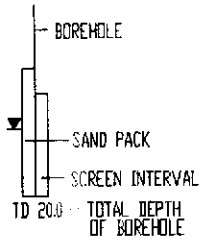


LEGEND



- BLACK SILTY CLAY (CH)
- CLAYEY GRAVEL (CL/GW)
- GRAVELLY CLAY (GW/CL)
- SAND (SP)
- CLAYEY SANDY GRAVEL (SP/GW)
- CONTACT

NOTE: SEE FIGURE 3 FOR LOCATION OF GEOLOGIC CROSS SECTION

0 10
SCALE IN FEET

NO VERTICAL EXAGGERATION

TANK PROTECT ENGINEERING

SITE PLAN:
GEOLOGIC CROSS SECTION A-A'

MISSION VALLEY ROCK
799 ATHENOUR WAY
SUNOL, CA 94586

DATE	08/03/98
FIGURE	4
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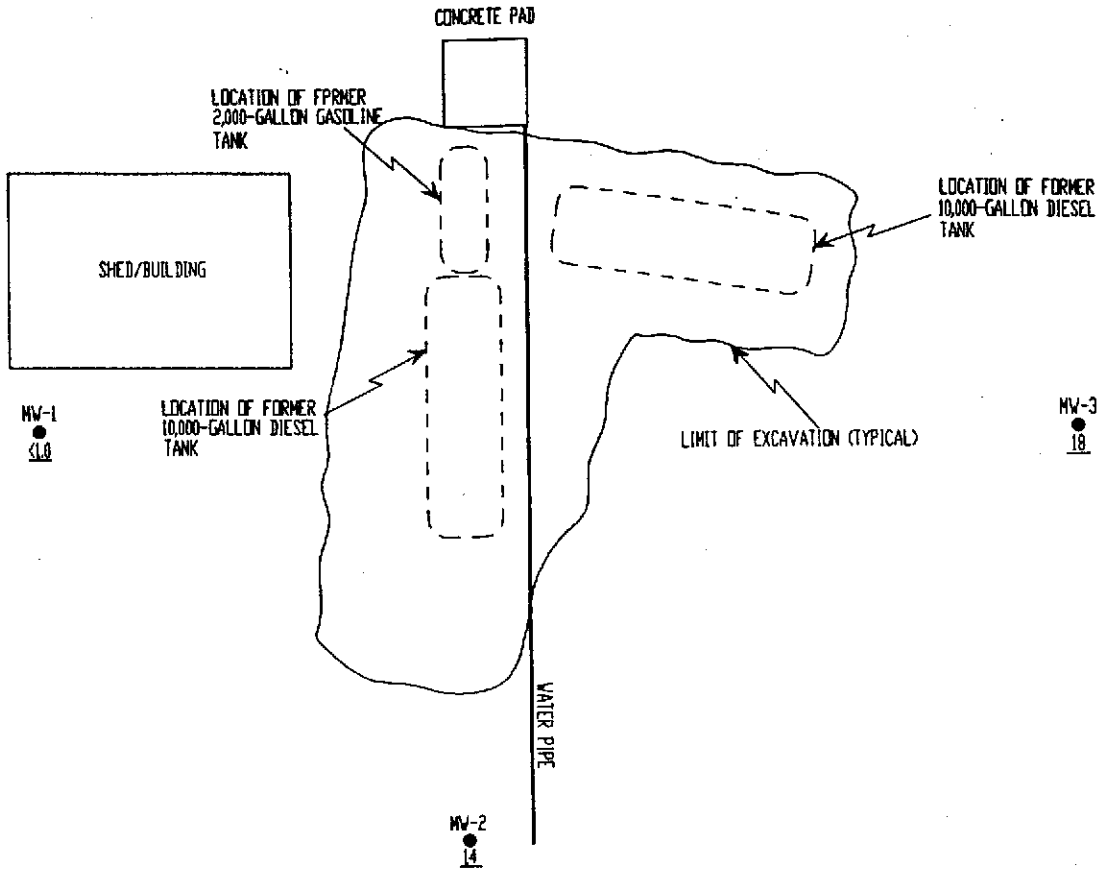

LEGEND

MW-1 ● GROUNDWATER MONITORING WELL LOCATIONS

14 CONCENTRAION (ppm)

0 20

APPROXIMATE SCALE IN FEET

TANK PROTECT ENGINEERING

SITE PLAN:
VADOSE ZONE TPHD CONCENTRATIONS

MISSION VALLEY ROCK
799 ATHENOUR WAY
SUNOL, CA 94586

DATE	08/03/98
FIGURE	5
FILE #	384-05N
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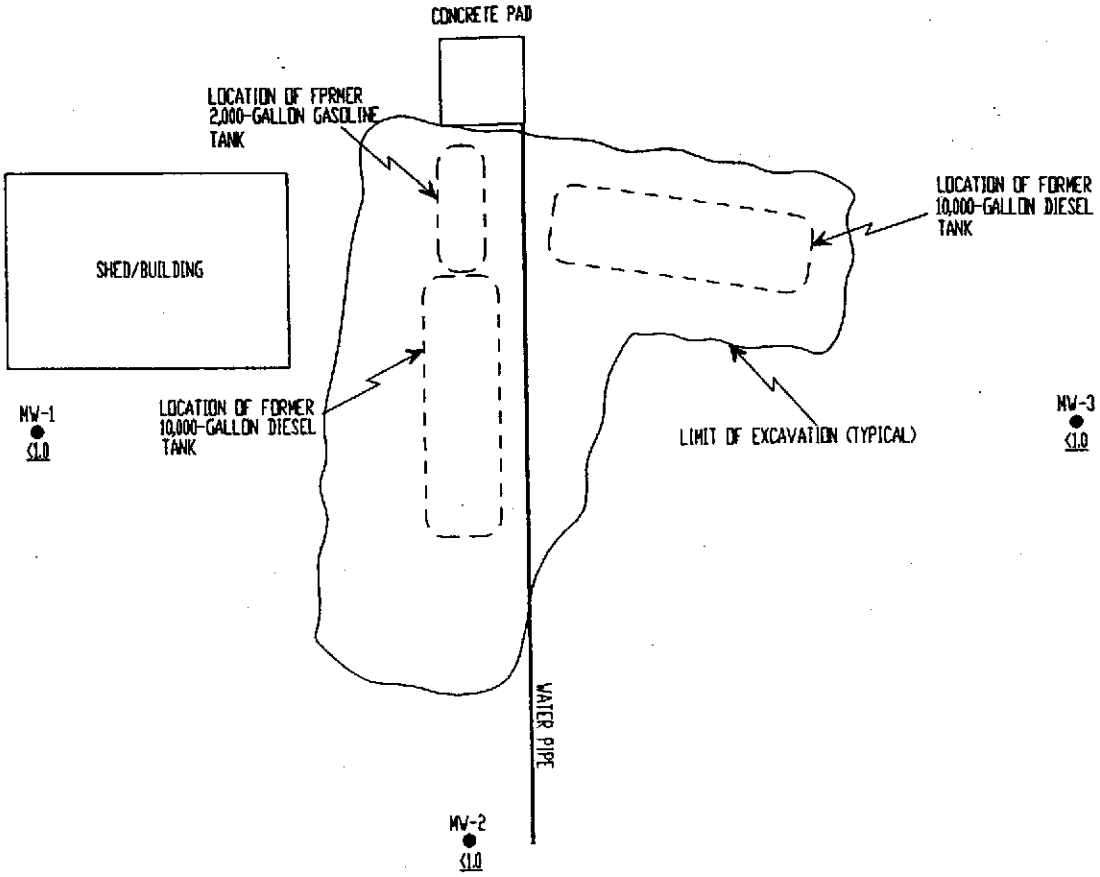
CHECKED BY	RD



LEGEND

MW-1 ● GROUNDWATER MONITORING WELL LOCATIONS

14 CONCENTRAION (ppm)

0 20

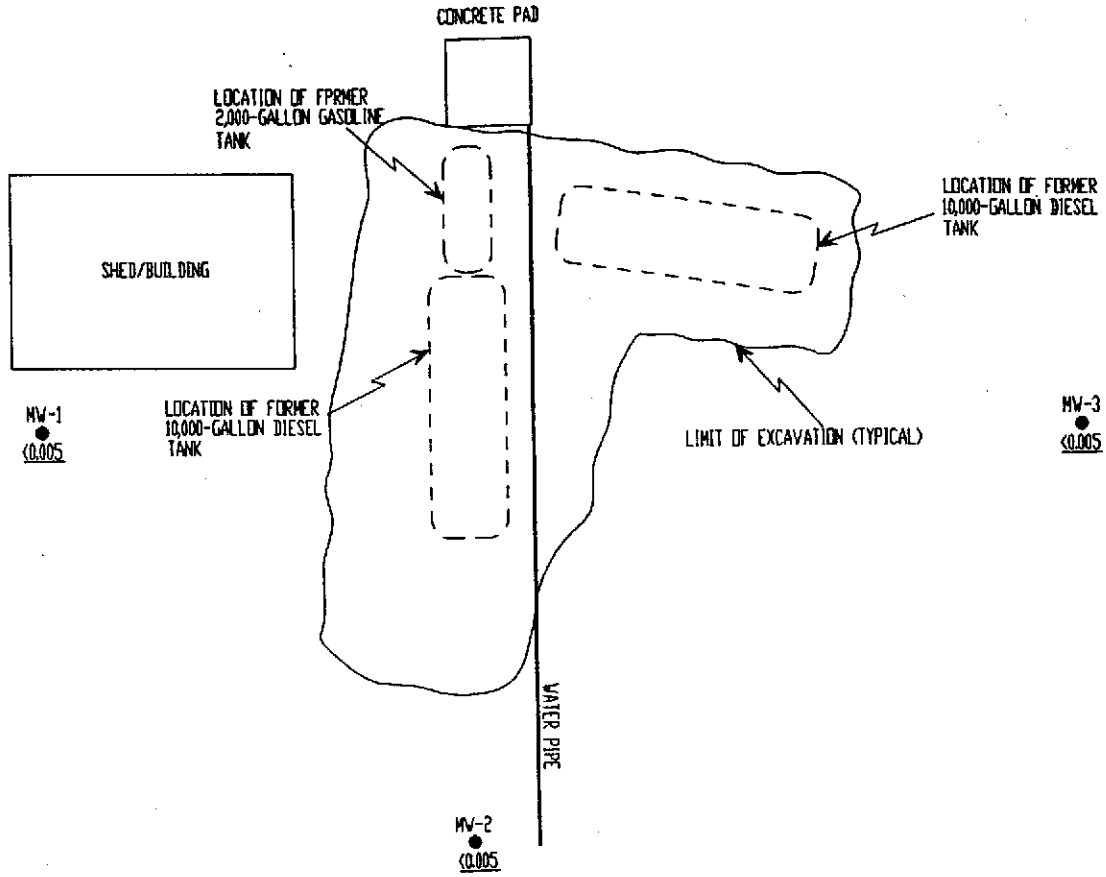
APPROXIMATE SCALE IN FEET

TANK PROTECT ENGINEERING

SITE PLAN:
VADOSE ZONE TPHG CONCENTRATIONS

MISSION VALLEY ROCK
799 ATHENDUR WAY
SUNOL, CA 94586

DATE	08/03/98
FIGURE	6
FILE #	384-06N
DRAWN BY	VK
CHECKED BY	RD



LEGEND

MW-1 ● GROUNDWATER MONITORING WELL LOCATIONS

14 CONCENTRAION (ppm)

0 20

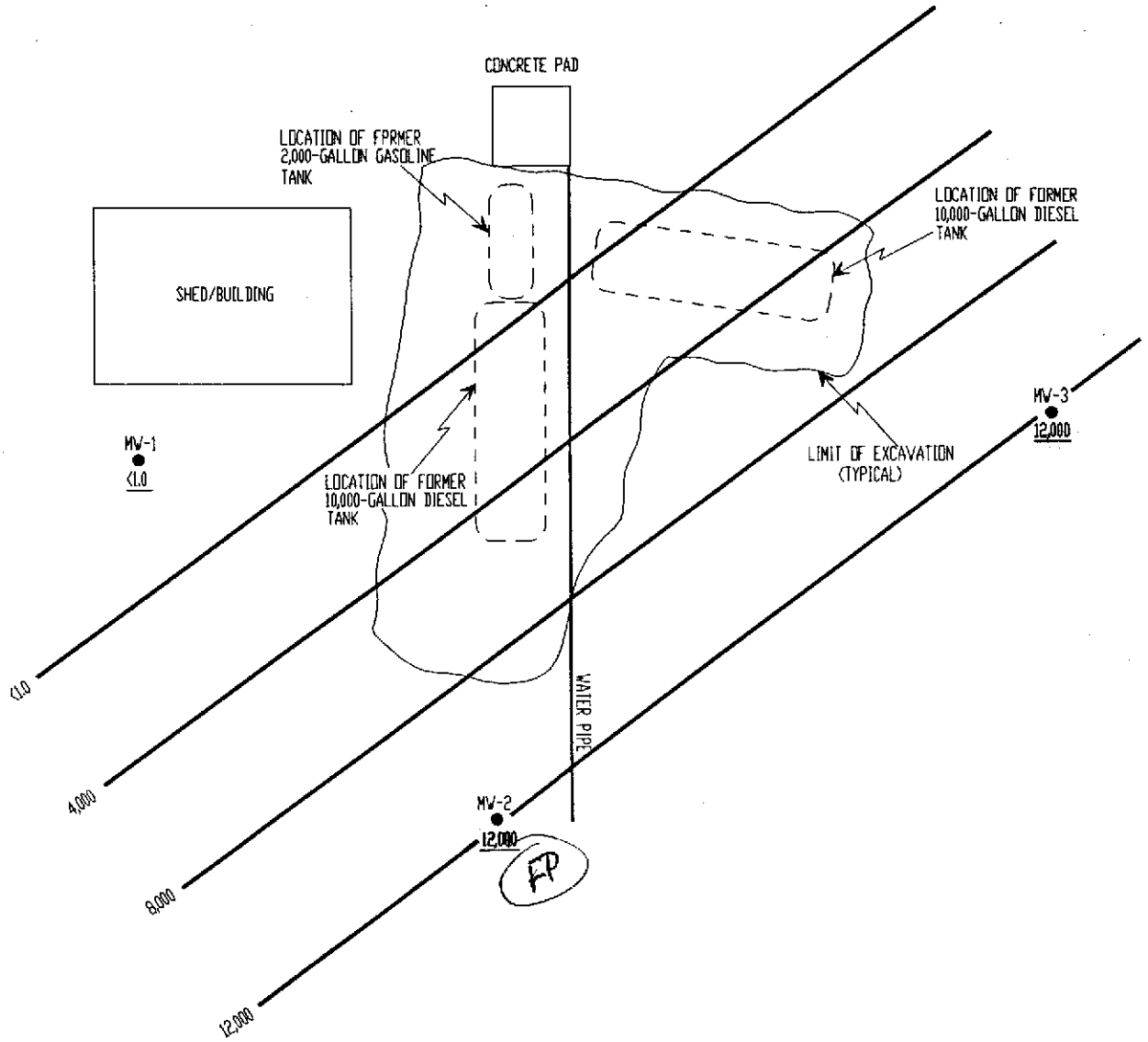
APPROXIMATE SCALE IN FEET

TANK PROTECT ENGINEERING

SITE PLAN:
VADOSE ZONE BENZENE CONCENTRATIONS

MISSION VALLEY ROCK
799 ATHENDUR WAY
SUNOL, CA 94586

DATE	08/03/98
FIGURE	7
FILE #	384-07N
DRAWN BY	VK
CHECKED BY	RD



LEGEND

MW-1 ● GROUNDWATER MONITORING WELL LOCATIONS

12,000 CONCENTRATION (ppb)

0 20

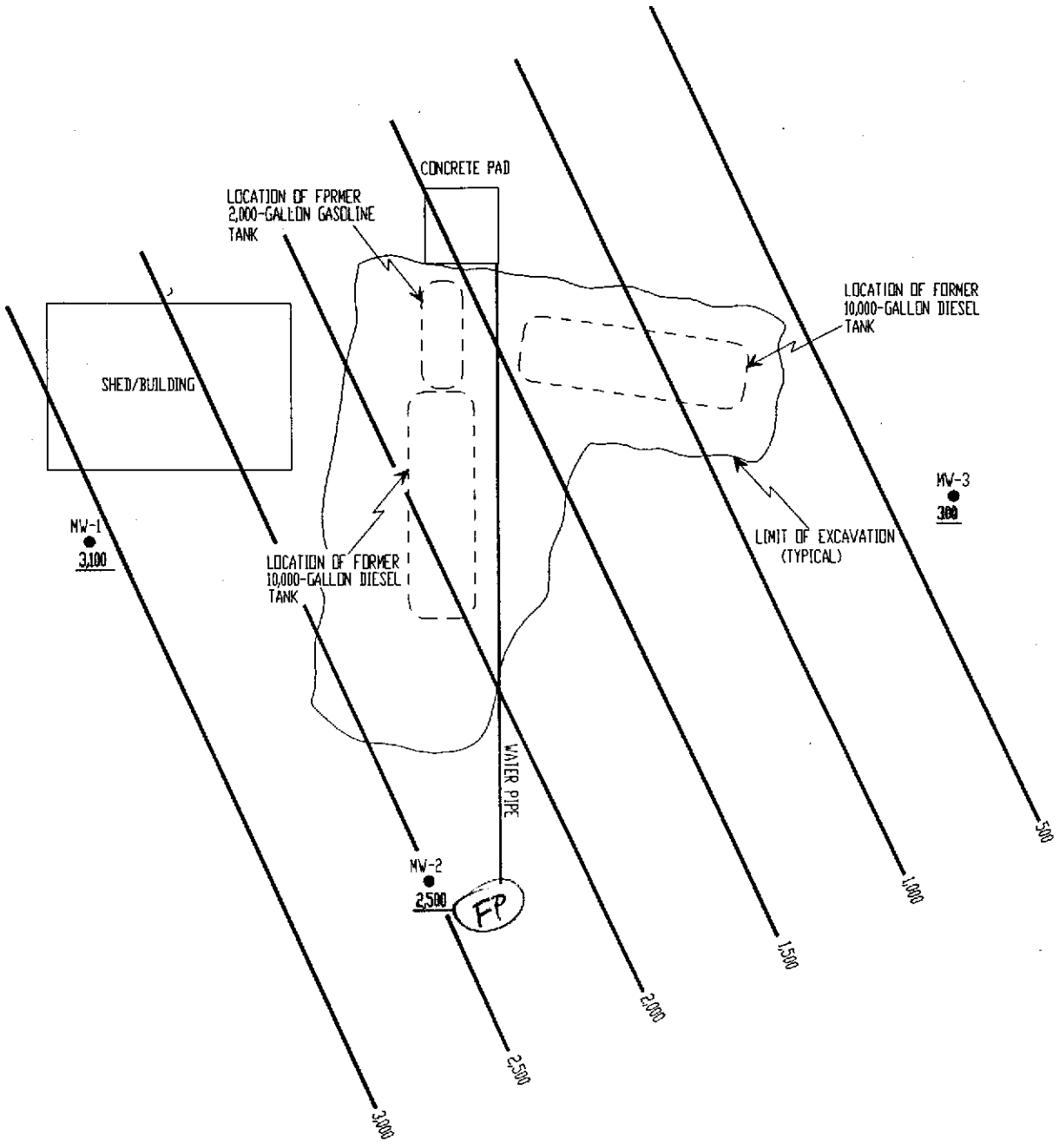
APPROXIMATE SCALE IN FEET

TANK PROTECT ENGINEERING

SITE PLAN:
GROUNDWATER TPHD CONCENTRATIONS (06/23/98)

MISSION VALLEY ROCK
799 ATHENOUR WAY
SUNOL, CA 94586

DATE	08/03/98
FIGURE	8
FILE #	384-08N
DRAWN BY	VK
CHECKED BY	RD



LEGEND

MW-1 ● GROUNDWATER MONITORING WELL LOCATIONS

12,000 CONCENTRATION (ppb)

0 20

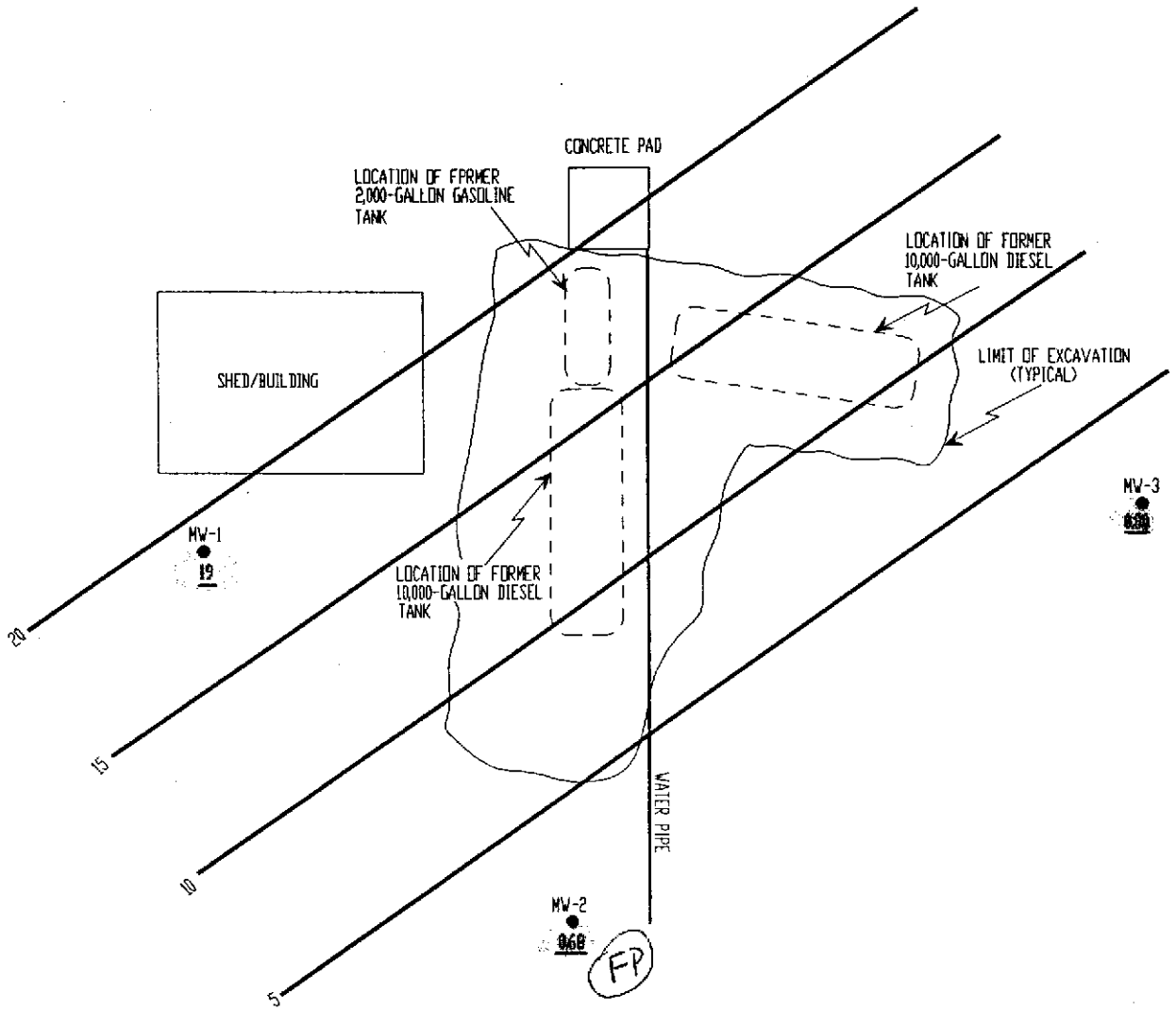
APPROXIMATE SCALE IN FEET

TANK PROTECT ENGINEERING

SITE PLAN:
GROUNDWATER **TPHG CONCENTRATIONS** (06/23/98)

MISSION VALLEY ROCK
799 ATHENOUR WAY
SUNOL, CA 94586

DATE	08/03/98
FIGURE	9
FILE #	384-09N
DRAWN BY	VK
CHECKED BY	RD



LEGEND

MW-1 ● GROUNDWATER MONITORING WELL LOCATIONS

12,000 CONCENTRATION (ppb)

0 20

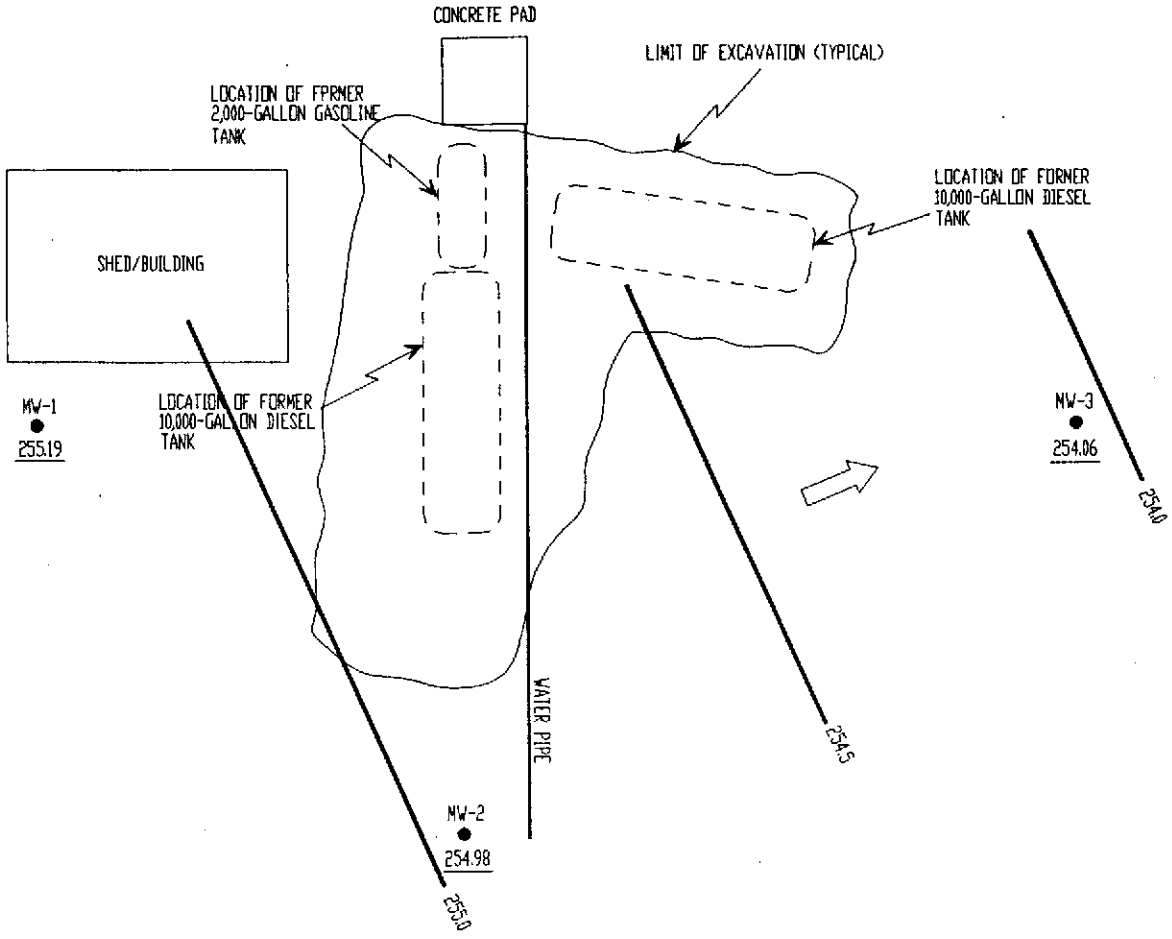
APPROXIMATE SCALE IN FEET

TANK PROTECT ENGINEERING

SITE PLAN:
GROUNDWATER BENZENE CONCENTRATIONS (06/23/98)

MISSION VALLEY ROCK
799 ATHENDUR WAY
SUNOL, CA 94586

DATE	08/03/98
FIGURE	10
FILE #	384-D10N
DRAWN BY	VK
CHECKED BY	RD



LEGEND

MW-1 ● GROUNDWATER MONITORING WELL LOCATIONS

255.19 POTENTIOMETRIC ELEVATION

255.0 POTENTIOMETRIC CONTOUR

GROUNDWATER FLOW DIRECTION

0 20

APPROXIMATE SCALE IN FEET

TANK PROTECT ENGINEERING

SITE PLAN:
GROUNDWATER ELEVATION AND GRADIENT MAP (06/23/98)

MISSION VALLEY ROCK
799 ATHENDUR WAY
SUNOL, CA 94586

DATE	08/03/98
FIGURE	11
FILE #	384-011N
DRAWN BY	VK
CHECKED BY	RD

TABLE 1
GROUNDWATER ELEVATION

Well Name	Elevation TOC[1] (Feet MSL[2])	Date	Depth-to-Water From TOC	Groundwater Elevation (Feet MSL)
MW-1	256.51[2]	06/23/98	1.32	255.19
MW-2	256.70[2]	06/23/98	1.72	254.98
MW-3	256.72[2]	06/23/98	2.66	254.06

[1] TOP-OF-CASING

[2] TOC SURVEYED 10/09/98 BY PROFESSIONAL ENGINEER.
ELEVATION BASED ON ONSITE BENCHMARK ELEVATION 257.10,
NATIONAL GEODETIC VERTICAL DATUM (NGVD), ESTABLISHED 1929.

TABLE 2
SUMMARY OF FLOATING PRODUCT THICKNESS

Well Name	Date	Depth-to-Water From TOC[1] (Feet)	Depth-to-Product From TOC (Feet)	Product Thickness (Feet)
MW-1	06/23/98	1.32	ND[2]	---
MW-2	06/23/98	1.72	1.715	.005
MW-3	06/23/98	2.66	ND	---

[1] TOP-OF-CASING.
[2] NOT DETECTED.

TABLE 3
SUMMARY OF SOIL SAMPLE ANALYTICAL RESULTS
(ppm[1])

Sample ID Name	Date	Depth (Feet)	TPHG	TPHD	Benzene	Toluene	Ethyl-benzene	Xylenes	MTBE
MW-1	06/18/98	15.0-15.5	<1.0	<1.0	<0.005	<0.005	<0.005	<0.005	<0.05
MW-2	06/18/98	10.0-10.5	<1.0	14	<0.005	<0.005	<0.005	<0.005	<0.05
MW-3	06/18/98	20.0-50.5	<1.0	18	<0.005	<0.005	<0.005	<0.005	<0.05

[1] PARTS PER MILLION

TABLE 4
SUMMARY OF GROUNDWATER SAMPLE ANALYTICAL RESULTS
(ppb)[1]

Sample ID Name	Date	TPHD	TPHG	MTBE	Benzene	Toluene	Ethyl-benzene	Xylenes
MW-1	06/23/98	<1.0	3,100	110	19	2.3	91	48
MW-2	06/23/98	12,000	2,500	14	0.68	<0.50	1.2	0.57
MW-3	06/23/98	12,000	300	150	0.80	<0.50	<0.50	<0.50
MW-4	06/23/98	NA[2]	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50

[1] PARTS PER BILLION
[2] NOT ANALYZED

APPENDIX A

* ALAMEDA COUNTY HEALTH CARE SERVICES AGENCY, LETTER DATED March 20, 1998.
* SURVEYING ELEVATIONS OF MONITORING WELLS BY PROFESSIONAL ENGINEER.
* ZONE 7 WATER RESOURCES MANAGEMENT, DRILLING PERMIT APPLICATION

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

ENVIRONMENTAL HEALTH SERVICES
ENVIRONMENTAL PROTECTION (LOP)
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577
(510) 567-6700
FAX (510) 337-9335

March 20, 1998

STID 2786

Mr. Robert A. Saia
Mission Valley Rock Company
P.O. Box 567
Sunol, CA 94586

RE: MISSION VALLEY ROCK COMPANY, 7999 ATHENOUR WAY, SUNOL - SOIL AND WATER INVESTIGATION

Dear Mr. Saia:

I have reviewed the February 13, 1998 Tank Protect Engineering, Inc. (TPE) soil and water investigation (SWI) work plan, as submitted under Mission Valley Rock Company cover dated March 5, 1998. The TPE work plan, among other elements, calls for the installation of three (3) permanent ground water monitoring wells, the locations of which are based on the results of the preliminary site assessment performed in January 1997.

The cited TPE work plan also calls for the excavation of soil material from around the former underground storage tank (UST) complex. Excavated soil is proposed for treatment on-site with eventual reintroduction to the UST excavation once treatment has been completed.

At this time, only the well installation element of the TPE work plan is accepted. However, as soil removal constitutes "corrective action," the need for such work has not yet been demonstrated. Therefore, the excavation and soil treatment element is not accepted officially at this time.

Please call me at (510) 567-6783 should you have any questions regarding the SWI, and when field work has been scheduled.

Sincerely,

Scott O. Seery, CHMM
Hazardous Materials Specialist

cc: Mee Ling Tung, Director
Robert Weston, ACDEH
Stephen Hill, RWQCB
Lee Huckins, Tank Protect Engineering, Inc.

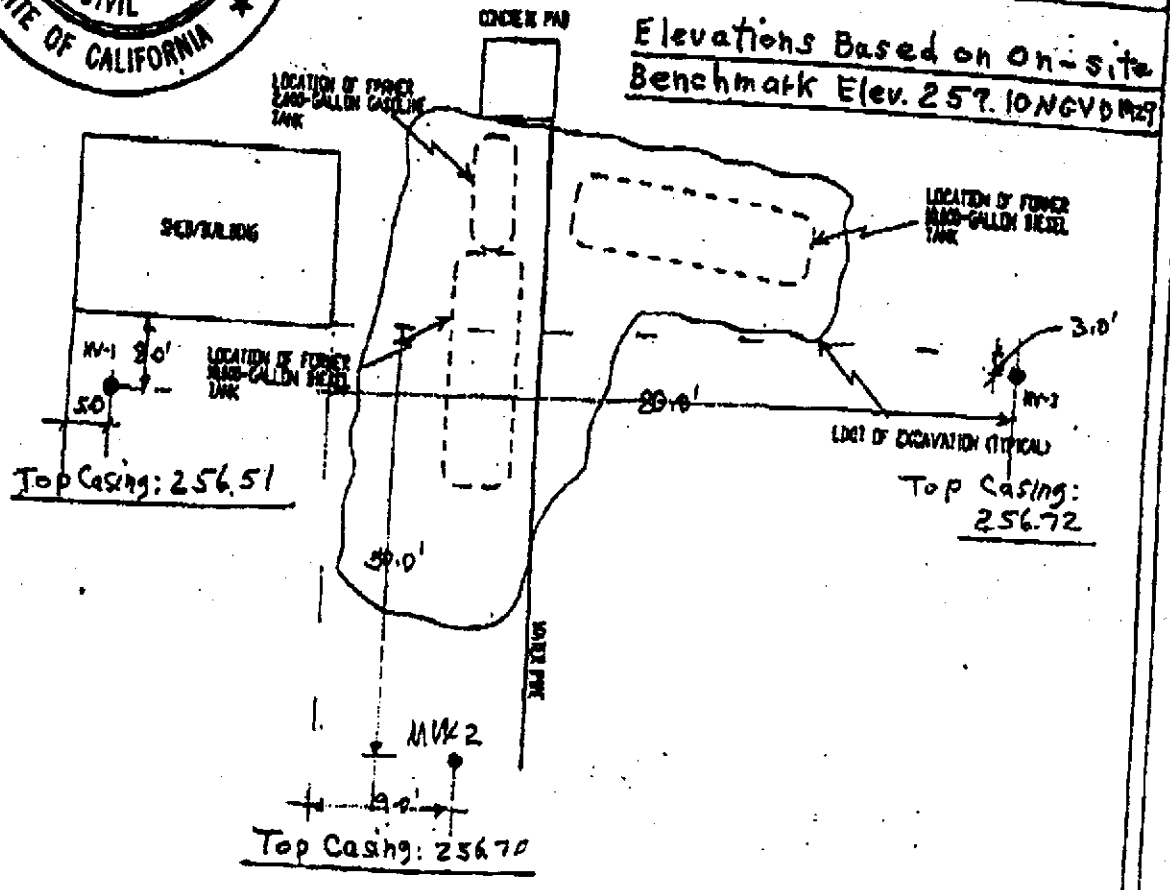
REGISTERED PROFESSIONAL ENGINEER
MARVIN W. WOLFF
No. 8137
Exp 9/30/00
CIVIL
STATE OF CALIFORNIA

MARVIN WOLFF C.E.
2060 YORKSHIRE WAY
MOUNTAIN VIEW, CALIF 94040
650-967-5060
FAX 650-967-1518

10/9/98

Well Number	Top Casing
MW 1	256.51
MW 2	256.70
MW 3	256.72

Elevations Based on On-site Benchmark Elev. 257.10 NGVD Mag



Note: these are the actual coordinates of the 3 monitoring wells that were installed

LEGEND

S-1 ⊗ NAME AND LOCATION OF SOIL SAMPLE

SB-1 ○ SOIL BORING LOCATIONS

MW-1 ◇ PROPOSED GROUNDWATER MONITORING WELL LOCATIONS

0 20
APPROXIMATE SCALE IN FEET

TANK PROTECT ENGINEERING

SITE PLAN
PROPOSED MONITORING WELL LOCATIONS

MISSION VALLEY ROCK
799 ATHENOUR WAY
SUNOL, CA 94586

JOB NO.	27-98
DATE	10-9-98
FILE #	98-27
DRAWN BY	MW
CHECKED BY	MW

ZONE 7 WATER AGENCY

5997 PARKSIDE DRIVE, PLEASANTON, CALIFORNIA 94588-5127 PHONE (510) 484-2600 X235
FAX (510) 462-3914

6/15/98

USA # 155947

DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

LOCATION OF PROJECT Mission Valley Rock, Inc.
799 Athenour Way
Sunole, CA 94586

California Coordinates Source _____ ft. Accuracy ± _____ ft.
CCN _____ ft. CCE _____ ft.
APN _____

CLIENT
Name Mission Valley Rock, Inc.
Address 799 Athenour Way Phone (925) 862-2257
City Sunole, CA Zip 94586

APPLICANT
Name Tank Protect Engieering of Northern Californa, Inc. Fax (510) 429-8089
Address 2821 Whipple Road Phone (510) 429-8088
City Union City, CA Zip 94587-1233

TYPE OF PROJECT

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

PROPOSED WATER SUPPLY WELL USE

New Domestic	☐	Replacement Domestic	☐
Municipal	☐	Irrigation	☐
Industrial	☐	Other _____	☐

DRILLING METHOD:

Mud Rotary	☐	Air Rotary	☐	Auger	☒
Cable	☐	Other	☐		

DRILLER'S LICENSE NO. C57 265556

WELL PROJECTS
Drill Hole Diameter 26 in. Maximum
Casing Diameter 2 in. Depth 25 ft.
Surface Seal Depth _____ ft. Number 13

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

ESTIMATED STARTING DATE 06/17/98
ESTIMATED COMPLETION DATE 06/17/98

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

APPLICANT'S SIGNATURE _____ Date 6-2-98

FOR OFFICE USE

PERMIT NUMBER 98088
WELL NUMBER _____
APN _____

PERMIT CONDITIONS

Circled Permit Requirements Apply

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

B. WATER SUPPLY WELLS
1. Minimum surface seal thickness is two inches of cement gr placed by tremie.
2. Minimum seal depth is 50 feet for municipal and indust wells or 20 feet for domestic and irrigation wells unles lesser depth is specially approved.

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

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

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

F. WELL DESTRUCTION. See attached.

G. SPECIAL CONDITIONS

Approved Wyman Hong Date 3 Jun 98
Wyman Hong

10

APPENDIX B

HOLLOW-STEM AUGER DRILLING AND SOIL SAMPLING PROCEDURES

APPENDIX B

HOLLOW-STEM AUGER DRILLING AND SOIL SAMPLING PROCEDURES

Undisturbed soil samples will be recovered from soil without introducing liquids into the borings. At a minimum, soil samples as core will be taken at 5-foot depth intervals, changes in lithology and when encountering apparent soil contamination to termination depth, or through the aquifer zone of interest for lithologic logging.

Borings will be drilled with a hollow-stem auger and sampled with a California or modified California-type split-spoon sampler. Soil samples will be of sufficient volume to perform the analyses which may be required, including replicate analyses.

Soil from all borings will be described in detail using the Unified Soil Classification System and will be logged under the direction of a geologist, civil engineer or engineering geologist who is registered or certified by the State of California and is experienced in the use of the Unified Soil Classification System.

All wet zones above the free water zone will be noted and accurately logged.

Soil samples will be collected in clean brass or stainless steel sampling tubes in the split-spoon. Sediment traps will be used when unconsolidated sands and gravels fall from the sampler during retrieval. The brass tubes will be cut apart using a clean knife. The ends of the tubes will be covered with Teflon sheets or aluminum foil beneath plastic end caps and sealed with electrical or duct tape and properly labeled. In lieu of electrical or duct tape, the tubes may be individually sealed in plastic bags. The samples will be stored in an iced-cooler at a temperature of 4 degrees Celsius. In the Alameda County Water District, the samples will be stored in an iced-cooler containing dry ice.

Drill cuttings will be stored on site in 55-gallon drums or covered with plastic sheeting. Analytical results will be submitted immediately to the site owner for determination of appropriate disposal procedures. The soil borings not completed as wells will be backfilled with a cement grout.

APPENDIX C

WASTE HANDLING AND DECONTAMINATION PROCEDURES

APPENDIX C

WASTE HANDLING AND DECONTAMINATION PROCEDURES

Decontamination: Any drilling, sampling or field measurement equipment that comes into contact with soil or groundwater will be properly decontaminated prior to its use at the site and after each incident of contact with the soil or groundwater being investigated. Proper decontamination is essential to obtain samples that are representative of environmental conditions and to accurately characterize the extent of soil and groundwater contamination. Hollow-stem auger flights and the drill bit will be steam-cleaned between the drilling of each well.

All sample equipment, including the split-spoon sampler and brass tubes, will be cleaned by washing with trisodium phosphate or alconox detergent, followed by rinsing with tap water. Where required by specific regulatory guidelines, a nonphosphate detergent will be used.

Waste Handling: Waste materials generated during site characterization activities will be handled and stored as hazardous waste and will be stored on site in appropriately labeled containers. Waste materials anticipated include excavated soil, drill cuttings, development and purge water, water generated during aquifer testing, water generated during decontamination and used personnel protection equipment such as gloves and Tyvek. The site owner will be responsible for providing the storage containers and will be responsible for the disposal of the waste materials. Drill cuttings from individual borings will be stored separately in drums or covered by plastic sheeting, and the appropriate disposal procedure will be determined by the site owner or TPE following receipt of the soil sample analytical results. Drums will be labeled to show material stored, known or suggested contaminant, date stored, expected removal date, company name, contact and telephone number.

APPENDIX D

LOGS OF EXPLORATORY BORINGS AND WELL COMPLETION DETAILS

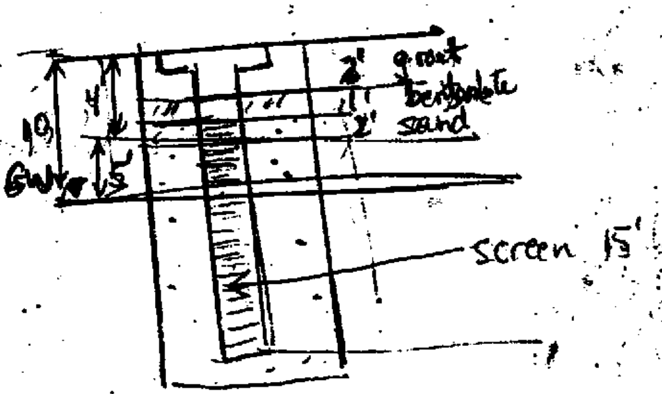
SB-5

LOG OF EXPLORATORY BORING

PROJECT NUMBER 384
PROJECT NAME Mission Valley Rock, 799 Athenour Way; Sunol
BY LTA   DATE 6/18/98

BORING NO. MW-1
PAGE 1
SURFACE ELEV.

Recovery (ft/ft)	OVA (ppm)	Penetration (blws/ft)	Ground Water Levels	Depth in Feet	Samples	Litho-graphic Column	DESCRIPTION
							0-3" Aggregate Base (GW): brown, dry, no odor 3"-6' Clay (CH): black, stiff, moist
18/18	8	4/6/11	G.W. ▽	5'		5-6.0' 6-6.5'	Clay (CH): black, stiff, no odor, very dense Clay (CH) mottled: black-brown, scattered gravel, dry to moist, very stiff, no odor
14/18	28	25/20/15		10		10-11.5	Clayey gravel (CL/GW): mottled; green to brown color, moist to wet, med. dense, no odor observed thru th drilling (10')
9/18	38	30/D to 2' (50 for 1")	(Sampler Refusal)	15		15-15.5'	Clayey gravel (CL/GW) mottled green-brown color, scattered sand, wet, no odor, very soft Note: top → sandy gravel (SP/GW): grey, wet
	820	(50 for 2") >50	Sampler Refusal	20		20-20.2'	Gravelly Clay (GW/CL): mottled, green-gray color, very stiff, hydrocarbon odor, moist. Driller thinks that he encountered rock - having a hard time drilling: recovered 2" from 6" of brass Boring terminated @ 19.5'; unable to collect sample.
				25			



REMARKS P.C. Exploration (Frank)

Started @ 9:20
Ended @ 11:00
Soil drums #2/1
Bentonite 1 bag
Water drums (5 sacks)

SHED
⊕ MW-1

SB-6

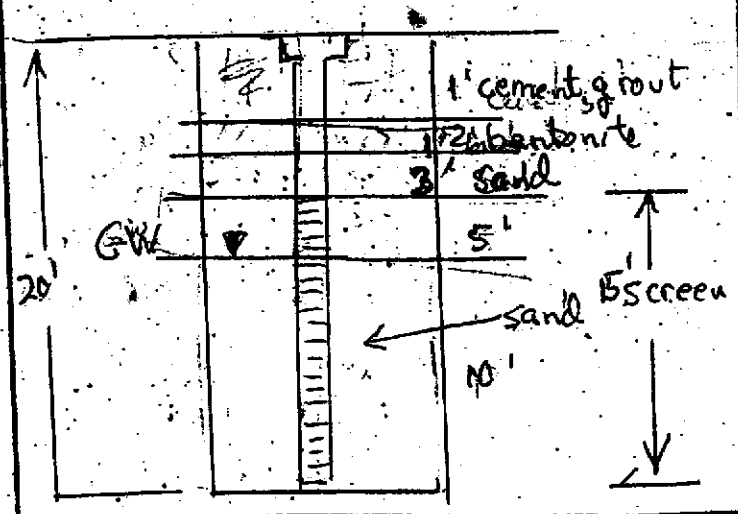
LOG OF EXPLORATORY BORING

PROJECT NUMBER 384 — BORING NO. MW-2

PROJECT NAME Mission Valley Tech, 799 Atherton Way, Simi — PAGE 1

BY LTE — DATE 6/18/93 — SURFACE ELEV.

Recovery (ft/ft)	OVA (ppm)	Penetration (blws/ft)	GROUND WATER LEVELS	DEPTH IN FEET	SAMPLES	LITHOGRAPHIC COLUMN	DESCRIPTION
7/18	4	6/10/13		5	3'-5.5' 5.5'-5.1 5.1'-10'		0-3" A-B(GW) Brown, dry, no odor 3"-3' Sand (SP) med grain, moist to wet, light brown, odorless (poss. used to backfill around utility trench) clay(CH): black, stiff, dry, slight odor Sand (SP): brown, hydrocarbon odor, med. grained Sandy Clay (CH/CL): mottled black-green ~~strong~~ hydrocarbon odor, wet, soft
14	800	14/24/44		10			clayey-sandy-gravel (SP/GW): grey to grey color, strong hydrocarbon odor, moist to wet, med grain sand, soft
8/18	10	10 wt for 6" >50	15' 15.5'	15 15.8'	15-15.5'		bottom of this @ 10' clayey gravel (CL/GW): grey, wet, hydrocarbon odor, soft
—	—	>50/4		20			No recovery terminated boring @ 20.0' (3 >50/4")
				25			



REMARKS

sand 5 sacks
bentonite 1 sack

5 HEA

*MW-2

SD-2

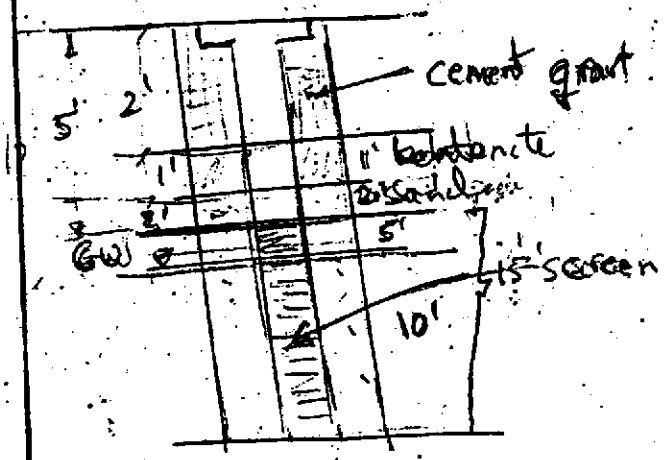
LOG OF EXPLORATORY BORING

PROJECT NUMBER 384 — BORING NO. MW-3

PROJECT NAME Mission Valley: Rock, 799 Athenair Way, Sunset — PAGE 1

BY LT III — DATE 6/19/93 — SURFACE ELEV.

Recovery (ft/ft)	OVA (ppm)	Penetration (blws/ft)	GROUND WATER LEVELS	DEPTH IN FEET	SAMPLES	LITHOGRAPHIC COLUMN	DESCRIPTION
4/18		8/12/13		5			0' 3" Aggregate base (GW): Brown, dry, no odor 3"-5' clay (CH): mottled: brown - black, dry, no odor, dense clay (CH): black, dense, no odor, dry to moist
5"/18		5"/50	GW	10			clay (CH): black, dense, no odor, dry to moist occasional moisture in borings @ 10' bgs
6/18		6/35 1/50		15			clayey gravel (GW/GC): mottled: black - green, sand/gravel, wet, no odor
4/18		6/30 1st 6/50 2nd		20			gravelly clay (GW/CL): gray, wet, no odor Bottom terminated @ 20'
				25			



REMARKS

started drilling @ 11:30 am
Sand - Monterey #2/12 (5 sacks)
bentonite - 1 bag
drums - 2 pcs

SITED

MW-3

APPENDIX E

SAMPLE HANDLING PROCEDURES

APPENDIX E

SAMPLE HANDLING PROCEDURES

Soil and groundwater samples will be packaged carefully to avoid breakage or contamination and will be delivered to the laboratory in an iced-cooler. The following sample packaging requirements will be followed.

- Sample bottle/sleeve lids will not be mixed. All sample lids will stay with the original containers and have custody seals affixed to them.

- Samples will be secured in coolers to maintain custody, control temperature and prevent breakage during transportation to the laboratory.

- A chain-of-custody form will be completed for all samples and accompany the sample cooler to the laboratory.

- Ice, blue ice or dry ice (dry ice will be used for preserving soil samples collected for the Alameda County Water District) will be used to cool samples during transport to the laboratory.

- Water samples will be cooled with crushed ice. In the Alameda County Water District, water samples will be buried in the crushed ice with a thermometer, and the laboratory will be requested to record thermometer temperature at the time of receipt.

- Each sample will be identified by affixing a pressure sensitive, gummed label or standardized tag on the container(s). This label will contain the site identification, sample identification number, date and time of sample collection and the collector's initials.

- Soil samples collected in brass tubes will be preserved by covering the ends with Teflon tape and capping with plastic end-caps. The tubes will

be labeled, sealed in quart size bags and placed in an iced-cooler for transport to the laboratory.

All groundwater sample containers will be precleaned and will be obtained from a State Department of Health Services certified analytical laboratory.

Sample Control/Chain-of-Custody: All field personnel will refer to this workplan to verify the methods to be employed during sample collection. All sample gathering activities will be recorded in the site file; all sample transfers will be documented in the chain-of-custody; samples will be identified with labels; all sample bottles will be custody-sealed. All information is to be recorded in waterproof ink. All TPE field personnel are personally responsible for sample collection and the care and custody of collected samples until the samples are transferred or properly dispatched.

The custody record will be completed by the field technician or professional who has been designated by the TPE project manager as being responsible for sample shipment to the appropriate laboratory. The custody record will include, among other things, the following information: site identification, name of person collecting the samples, date and time samples were collected, type of sampling conducted (composite/grab), location of sampling station, number and type of containers used and signature of the TPE person relinquishing samples to a non-TPE person with the date and time of transfer noted. The relinquishing individual will also put all the specific shipping data on the custody record.

Records will be maintained by a designated TPE field employee for each sample: site identification, sampling location, station number, date, time, sampler's name, designation of the sample as a grab or composite, notation of the type of sample (e.g., groundwater, soil boring, etc.), preservatives used, onsite measurement data and other observations or remarks.

APPENDIX F

GROUNDWATER MONITORING WELL CONSTRUCTION PROCEDURES

APPENDIX F

GROUNDWATER MONITORING WELL CONSTRUCTION PROCEDURES

BOREHOLE DESIGN

Casing Diameter: The minimum diameter of well casings will be 2 inches (nominal).

Borehole Diameter: The diameter of the borehole will be a minimum of 4 inches and a maximum of 12 inches greater than the diameter of the well casing. The minimum annular space will be 2.5 inches as measured from the outside diameter of the casing to the drill hole wall.

Shallow (Unconfined Zone) Wells: When unconfined groundwater is encountered, the borehole will be advanced through the aquifer to an underlying clay layer or aquitard or to a maximum depth of 15 feet into the saturated zone, or the maximum depths required by regulatory guidelines. The screened interval will begin a minimum of 5 feet above the saturated zone or above the anticipated seasonal high level of groundwater. The screen will extend the full thickness of the aquifer or no more than 15 feet (or 20 feet if required by regulatory guidelines) into the saturated zone, whichever is reached first. The well screen will not extend into the aquitard, nor will the screened interval exceed 20 feet in length (or 30 feet if required by regulatory guidelines).

Deep (Confined Zone) Wells: Any monitoring well to be screened below the upper aquifer will be installed as a double-cased well. A steel conductor casing will be placed through the upper water-bearing zone to prevent aquifer cross-contamination.

The conductor casing will be installed in the following manner: a large diameter borehole (typically 18 inches) will be drilled until it is determined that the first competent aquitard has been reached; a low carbon steel conductor casing will be placed in the borehole to the depth drilled and centralizers will be used to center the casing in the borehole. The annular space between the conductor casing and the

formation will be cement-grouted from bottom to top by the tremie pipe method. The grout will be allowed to set for a minimum of 72 hours.

Drilling will continue inside the conductor casing, with a drill bit of smaller diameter than the conductor casing. If additional known aquifers are to be fully penetrated, the procedure will be repeated with successively smaller diameter conductor casings.

The bottom of the well screen in a confined aquifer will be determined by presence or lack of a clay layer or aquitard as described above. The screened interval in a confined zone will extend across the entire saturated zone of the aquifer or up to a length of 20 feet, whichever is less. The screened zone and filter pack will not cross-connect to another aquifer.

CONSTRUCTION MATERIALS

Casing and Screen Materials: Well casing and screen will be constructed of clean materials that have the least potential for affecting the quality of the sample. The most suitable material for a particular installation will depend upon the parameters to be monitored. Acceptable materials include PVC, stainless steel or low carbon steel.

Casing Joints: Joints will be connected by flush threaded couplers. Organic bonding compounds and solvents will not be used on joints.

Well Screen Slots: Well screen will be factory slotted. The size of the slots will be selected to allow sufficient groundwater flow to the well for sampling, minimize the passage of formation materials into the well and ensure sufficient structural integrity to prevent the collapse of the intake structure.

Casing Bottom Plug: The bottom of the well casing will be permanently plugged, either by flush threaded screw-on or friction cap. Friction caps will be secured with stainless steel set screws. No organic solvents or cements will be applied.

Filter Pack Material: Filter envelope materials will be durable, water worn, and washed clean of silt, dirt and foreign matter. Sand size particles will be screened silica sand.

Particles will be well rounded and graded to an appropriate size for retention of aquifer materials.

Bentonite Seal Material: Bentonite will be pure and free of additives that may affect groundwater quality. Bentonite will be hydrated with potable or tap water.

Grout Seal Material: Neat cement grout or sand-cement grout will consist of a proper mixture of Type 1/11 Portland cement, hydrated with potable or tap water. Up to 3% bentonite may be added to the mixture to control shrinkage.

CONSTRUCTION PROCEDURES

Decontamination: All downhole tools, well casings, casing fittings, screens, and all other components that are installed in the well will be thoroughly cleaned immediately before starting each well installation. When available, each component will be cleaned with a high temperature, high pressure washer for a minimum of 5 minutes. When a washer is not available, components will be cleaned with water and detergent, rinsed in potable or tap water, then rinsed in distilled water.

Soil and water sampling equipment and material used to construct the wells will not donate to, capture, mask or alter the chemical composition of the soil and groundwater.

Drilling Methods: Acceptable drilling methods include solid and hollow-stem auger, percussion, direct circulation mud and air rotary and reverse rotary. The best alternative is that which minimizes the introduction of foreign materials or fluids. If drilling fluid is employed, drilling fluid additives will be limited to inorganic and non-hazardous compounds. Compressed air introduced into the borehole will be adequately filtered to remove oil and particulates.

Casing Installation: The casing will be set under tension, when necessary, to ensure straightness. Centralizers will be used where necessary to prevent curvature or stress to the casing.

Sand Pack Installation: The sand pack will be installed so as to avoid bridging and the creation of void spaces. The tremie pipe method will be used where installation conditions or local regulations require. Drilling mud, when used, will be thinned prior to pack placement. The sand pack will cover the entire screened interval and rise a minimum of 2 feet above the highest perforation.

Bentonite Seal Placement: A bentonite seal will be placed above the sand pack by a method that prevents bridging. Bentonite pellets can be placed by free fall if proper sinking through annular water can be assured. Bentonite slurry will be placed by the tremie pipe method from the bottom upward. The bentonite seal will not be less than 1 to 3-feet in thickness, depending on regulatory guidelines. In the Alameda County Water District, the bentonite seal will be less than 1 foot in thickness.

Grout Seal Placement: The cement grout mixture will be hydrated with potable or tap water and thoroughly mixed prior to placement. If substantial groundwater exists in the bore hole, the grout will be placed by the tremie pipe method from the bottom upward. In a dry borehole, the grout may be surface poured to a depth of 30 feet. Below a depth of 30 feet, grout will be placed by tremie pipe. Grout will be placed in 1 continuous lift and will extend to the surface or to the well vault if the well head is completed below grade. A minimum of 5 feet of grout seal will be installed, unless impractical due to the shallow nature of the well.

Surface Completion: The well head will be protected from fluid entry, accidental damage, unauthorized access and vandalism. A watertight, locking cap will be installed on the well casing. Access to the casing will be controlled by a keyed lock.

Well heads completed below grade will be completed in a concrete and/or steel vault, installed to drain surface runoff away from the vault.

Well Identification: Each well will be labeled to show well number, depth, hole and casing diameter and screened interval.

APPENDIX G

GROUNDWATER MONITORING WELL DEVELOPMENT PROCEDURES

APPENDIX G

GROUNDWATER MONITORING WELL DEVELOPMENT PROCEDURES

INTRODUCTION

Newly installed groundwater monitoring wells will be developed to restore natural hydraulic conductivity of the formation, remove sediments from well casing and filter pack, stabilize the filter pack and aquifer material and promote turbidity-free groundwater samples.

Wells may be developed by bailing, hand pumping, mechanical pumping, air lift pumping, surging, swabbing or an effective combination of methods. Wells will be developed until the water is free of sand and silt and minimum turbidity has stabilized.

In some cases where low permeability formations are involved or the drilling mud used fails to respond to cleanup, initial development pumping may immediately dewater the well casing and thereby inhibit development. When this occurs, clean, potable grade water may be introduced into the well, followed by surging of the introduced waters with a surge block. This operation will be followed by pumping or bailing. The procedure may be repeated as required to establish full development.

METHODOLOGY

Seal Stabilization: Cement and bentonite annular seals will set and cure not less than 24 to 72 hours (according to local regulatory guidelines) prior to well development.

Decontamination: All well development tools and equipment will be thoroughly cleaned immediately before starting each well installation. When available, each component will be cleaned with a high temperature, high pressure washer for a minimum of 5 minutes. When a washer is not available, components will be cleaned with potable or tap water, then rinsed with distilled water.

Development equipment will not donate to, capture, mask or alter the chemical composition of the soil and groundwater.

Introduction of Water: Initial development of wells in low permeability formations may dewater the casing and filter pack. When this occurs, clean, potable or tap water will be introduced into the well to enhance development.

Bailing: Development will begin by bailing to remove heavy sediments from the well casing. Care will be taken not to damage the well bottom cap during lowering of the bailer.

Surging: Care will be exercised when using a surge block to avoid damaging the well screen and casing. When surging wells screened in coarse (sandy/gravelly) aquifers, the rate of surge block lifting will be slow and constant. When surging wells screened in fine (silty) aquifers, more vigorous lifting may be required. Between surging episodes, wells will be bailed to remove accumulated sediments.

Pumping: Development pumping rates will be less than the recharge rate of the well in order to avoid dewatering.

Discharged Water Containment and Disposal: All water and sediment generated by well development will be collected in labeled 55-gallon steel drums. Development water will be temporarily contained on site, pending sampling and laboratory analysis. No hazardous development water will be released to the environment. Disposal of development water will be the responsibility of the client

APPENDIX H

GROUNDWATER MONITORING WELL SAMPLING PROCEDURES

APPENDIX H

GROUNDWATER MONITORING WELL SAMPLING PROCEDURES

Groundwater monitoring wells will not be sampled until at least 24 to 72 hours (according to local regulatory guidelines) after well development. Groundwater samples will be obtained using a bladder pump, clear Teflon bailer or dedicated polyethylene bailer. Prior to collecting samples, the sampling equipment will be thoroughly decontaminated to prevent introduction of contaminants into the well and to avoid cross-contamination. Monitoring wells will be sampled after 3 to 10 wetted casing volumes of groundwater have been evacuated and pH, electrical conductivity and temperature have stabilized as measured with a Hydac Digital Tester. If the well is emptied before 3 to 10 well volumes are removed, the sample will be taken when the water level in the well recovers to 80% or more of its initial water level.

When a water sample is collected, turbidity of the water will be measured and recorded with a digital turbidimeter. Degree of turbidity will be measured and recorded in nephelometric turbidity units (NTU).

TPE will also measure the thickness of any floating product in the monitoring wells using an interface probe or clear Teflon or polyethylene bailer. The floating product will be measured after well development but prior to the collection of groundwater samples. If floating product is present in the well, TPE will recommend to the client that product removal be commenced immediately and reported to the appropriate regulatory agency.

Unless specifically waived or changed by the local, prevailing regulatory agency, water samples will be handled and preserved according to the latest United States Environmental Protection Agency methods as described in the Federal Register (Volume 44, No. 233, Page 69544, Table ll) for the type of analysis to be performed.

Development and/or purge water will be stored on site in labeled containers. The disposal of the containers and development and/or purge water is the responsibility of the client.

MEASUREMENTS

Purged Water Parameter: During purging, discharged water will be measured for the following parameters.

Parameter	Units of Measurement
pH	None
Electrical Conductivity	Micromhos
Temperature	Degrees F or C
Depth to Water	Feet/Hundredths
Volume of Water Discharged	Gallons
Turbidity	NTU

Documentation: All parameter measurements will be documented in writing on TPE development logs.

APPENDIX I

RECORDS OF WELL DEVELOPMENT AND RECORDS OF WATER SAMPLING

RECORD OF WELL DEVELOPMENT

PROJECT NO.: 384 DATE: 6/22/93

WELL NO.: MW-1

PROJECT NAME: Mission Valley Blvd

WELL DIAMETER: 2"ϕ

PROJECT LOCATION: 799 Athenaur Way

TOC ELEV:

DEVELOPER: LTA

LOCK NO.:

WELL DEPTH (from construction detail):

WELL DEPTH (measured): 18.5' SOFT BOTTOM?: YES

DEPTH TO WATER: 1.40' TIME: 9.15

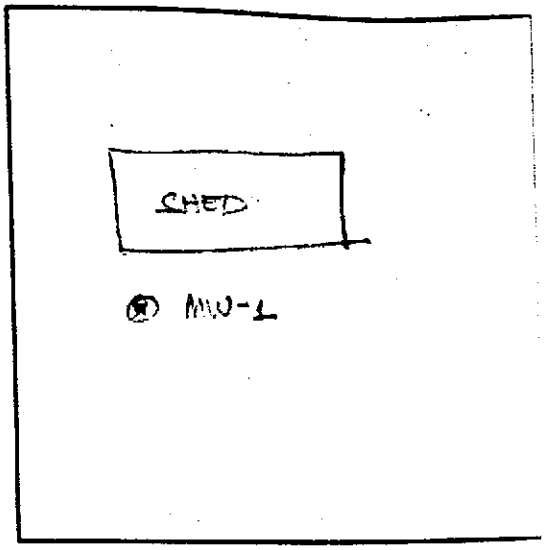
PRESSURE (circle one)?: YES OR (NO)

IF YES, WAS PRESSURE (circle one): POSITIVE OR NEGATIVE?

WATER VOLUME IN WELL: 2.70 gal

[2-INCH CASING = 0.16 GAL/FT] [4-INCH CASING = 0.65 GAL/FT]

[6-INCH CASING = 1.47 GAL/FT] [1 GAL = 3.78L]



LOCATION MAP

DEVELOPMENT METHOD:

FLOATING PRODUCT PRESENT: YES ☐ NO ☑

SHEEN PRESENT: YES ☐ NO ☑

ODOR PRESENT: YES ☑ NO ☐

FIELD MEASUREMENTS

Time	Depth to Water (FT)	Vol (Gal)	Clarity (NTU'S)	Remarks
9:26	1.40			Very turbid observed PVC cutting in well during development.
				No sheen or floating product. Odor: hydrocarbon odor.
				Observed alot of silts in bailed developed H_2O
11:36	1.80	40		Bottom of well = ft. 18, still turbid, not much
				silt; hard bottom

TOTAL VOLUME DEVELOPED (GAL): 40 (L):

WATER VOL. IN DRUM: 40 gal

SIGNATURE:

NEED NEW DRUM?: YES

RECORD OF WELL DEVELOPMENT

PROJECT NO.: 38 DATE: 6/22/18

PROJECT NAME: Mesa Valley Rock

PROJECT LOCATION: 799 Alpenair Way

DEVELOPER: LT

WELL DEPTH (from construction detail):

WELL DEPTH (measured): 19.24' SOFT BOTTOM?: YES

DEPTH TO WATER: 1.96 TIME: 11:57

PRESSURE (circle one)?: (YES) OR NO

IF YES, WAS PRESSURE (circle one): POSITIVE OR NEGATIVE?

WATER VOLUME IN WELL: 2.76 gal

[2-INCH CASING = 0.16 GAL/FT] [4-INCH CASING = 0.65 GAL/FT]

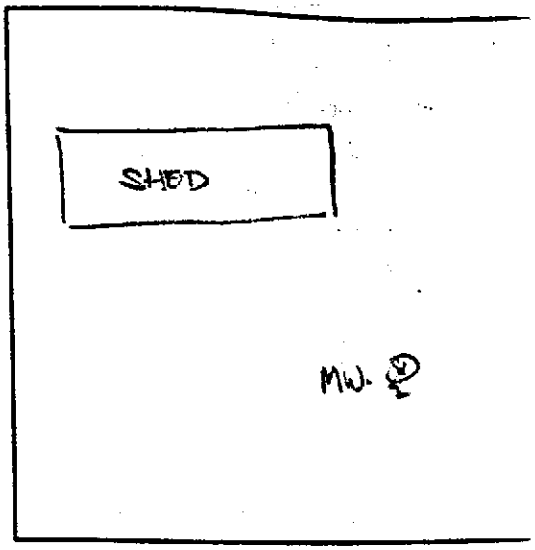
[6-INCH CASING = 1.47 GAL/FT] [1 GAL = 3.78L]

WELL NO.: MW-2

WELL DIAMETER: 2"Ø

TOC ELEV:

LOCK NO.:



LOCATION MAP

DEVELOPMENT METHOD: Poly / Bailer

FLOATING PRODUCT PRESENT: YES ☑ NO ☐

SHEEN PRESENT: YES ☑ NO ☐

ODOR PRESENT: YES ☑ NO ☐

FIELD MEASUREMENTS

Time	Depth to Water (FT)	Vol (Gal)	Clarity (NTU'S)	Remarks
12:00	1.76			Turbid, floating product = 1/16", odor
"				
"				
"				
"				
2:19				Turbid, slight sheen, odor, hard bottom

TOTAL VOLUME DEVELOPED (GAL): 45 gal (L):

WATER VOL. IN DRUM: 45 gal

SIGNATURE:

NEED NEW DRUM?: YES

RECORD OF WELL DEVELOPMENT

PROJECT NO.: 384 DATE: 6/22/98

WELL NO.: MW-3

PROJECT NAME: Mission Valley Rock

WELL DIAMETER: 2"

PROJECT LOCATION: 799 Atherton Way

TOC ELEV:

DEVELOPER: LT

LOCK NO.:

WELL DEPTH (from construction detail):

WELL DEPTH (measured): 19.40 SOFT BOTTOM?: YES

DEPTH TO WATER: 2.78' TIME: 7:15 A.M

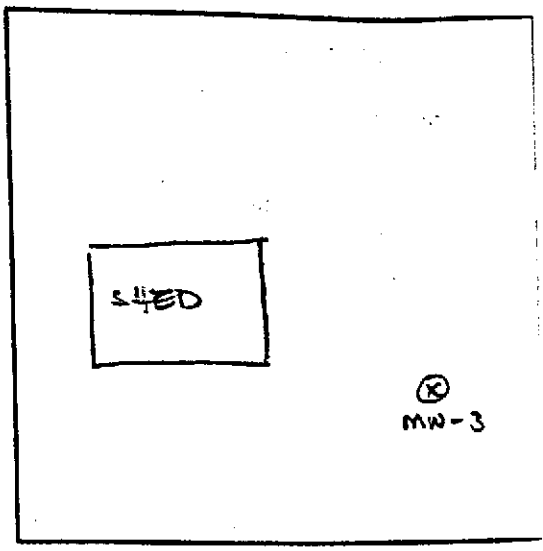
PRESSURE (circle one)?: (YES) OR NO

IF YES, WAS PRESSURE (circle one): (POSITIVE) OR NEGATIVE?

WATER VOLUME IN WELL: 2.70 gal

[2-INCH CASING = 0.16 GAL/FT] [4-INCH CASING = 0.65 GAL/FT]

[6-INCH CASING = 1.47 GAL/FT] [1 GAL = 3.78L]



LOCATION MAP

DEVELOPMENT METHOD: Pdy / Bailer

FLOATING PRODUCT PRESENT: YES ☐ NO ☑

SHEEN PRESENT: YES ☑ NO ☐

ODOR PRESENT: YES ☑ NO ☐

FIELD MEASUREMENTS

Time	Depth to Water (FT)	Vol (Gal)	Clarity (NTU'S)	Remarks
7:26	2.78		turbid	Slight sheen, hydrocarbon odor, turbid, muddy.
				Observed PVC cuttings from well during development
9:20			turbid	hydrocarbon odor, muddy (turbid) slight sheen

TOTAL VOLUME DEVELOPED (GAL): 45 gal (L): WATER VOL. IN DRUM: 95gal

SIGNATURE: NEED NEW DRUM?: YES

RECORD OF WATER SAMPLING

PROJECT NO.: 324 DATE: 6/23/98

WELL NO.: MW-1

PROJECT NAME: Mission Valley Rock

WELL DIAMETER: 2" ϕ

PROJECT LOCATION: 799 Alhambra Way

TOC ELEV:

SAMPLER: LTE

LOCK NO.: 605

ANALYSES: TPHG, TPHD & BTEX

WELL DEPTH (from construction detail):

WELL DEPTH (measured): 18.16 SOFT BOTTOM?:

DEPTH TO WATER: 1.32' TIME: 8:19 AM

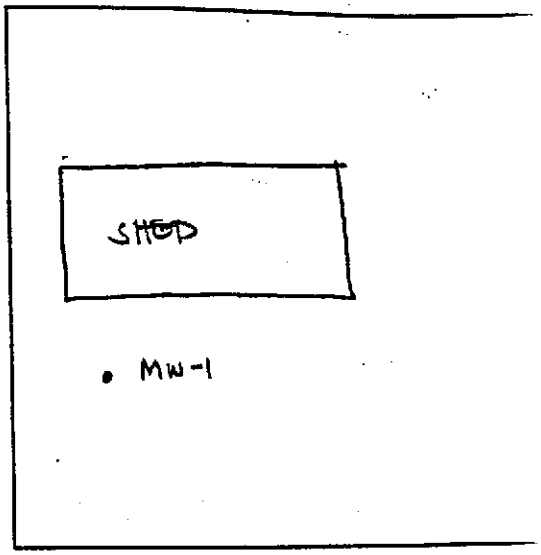
PRESSURE (circle one)?: YES OR NO

IF YES, WAS PRESSURE (circle one): POSITIVE OR NEGATIVE?

WATER VOLUME IN WELL: 2.69

[2-INCH CASING = 0.16 GAL/FT] [4-INCH CASING = 0.65 GAL/FT]

[6-INCH CASING = 1.47 GAL/FT] [1 GAL = 3.78 L]



LOCATION MAP

CALCULATED PURGE VOL. (GAL): 10.8 (L): 43.2 ACTUAL PURGE VOL. (GAL): (L): 44

PURGE METHOD: Pdy | Bailer SAMPLE METHOD:

FIELD MEASUREMENTS

Time	Depth to Water (FT)	Vol (L)	Temp (Deg. F)	pH	EC X10³	Clarity	Turbidity (NTU)	Remarks
8:26	1.32	1	62.2	8.78	8.24	clear		Turbid no NTU readings,
		41	60.3	7.61	0.91			hydrocarbon odor
		41	61.0	7.70	8.15			
		42	61.0	7.74	12.26			
		43	61.2	7.64	12.26			
9:28		44	61.2	7.64	12.11			* Sampled MW-1

SIGNATURE:

WATER VOL. IN DRUM: 55 gal

NEED NEW DRUM?:

RECORD OF WATER SAMPLING

PROJECT NO.: 384 DATE: 4/23/93

WELL NO.: MW-2

PROJECT NAME: Mission Valley Rock

WELL DIAMETER: 2"

PROJECT LOCATION: 799 Athenour Way

TOC ELEV:

SAMPLER: LT. VE

LOCK NO.: 605

ANALYSES: TPHG, TPHD, MBTEX

WELL DEPTH (from construction detail):

WELL DEPTH (measured): 19.16 SOFT BOTTOM?: YES

DEPTH TO WATER: 11.72 TIME: 11:07

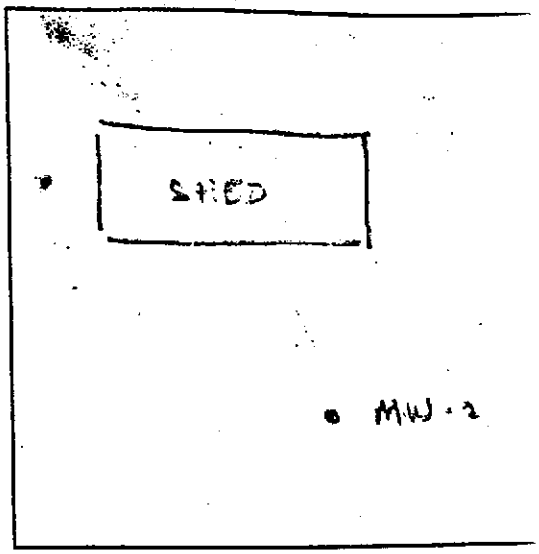
PRESSURE (circle one)?: YES OR NO

IF YES, WAS PRESSURE (circle one): POSITIVE OR NEGATIVE?

WATER VOLUME IN WELL: 2.80

[2-INCH CASING = 0.16 GAL/FT] [4-INCH CASING = 0.65 GAL/FT]

[6-INCH CASING = 1.47 GAL/FT] [1 GAL = 3.78 L]



LOCATION MAP

CALCULATED PURGE VOL. (GAL): 11.2 (L): 448 ACTUAL PURGE VOL. (GAL): (L):

PURGE METHOD: SAMPLE METHOD:

FIELD MEASUREMENTS

Time	Depth to Water (FT)	Vol (L)	Temp (Deg. F)	pH	EC X10	Clarity	Turbidity (NTU)	Remarks
11:07		1	73.0	15.77	8.78	Clear	clear 33	sheen/slight odor
		91	72.2	14.40	16.m			
		42	68.7	15.33	14.94			
		43	67.5	15.39	15.39			
		44	68.5	16.82	13.01			
		45	68.4	16.41	12.41			
11:48		96	67.2	16.93	12.97			* Sampled MW-2

WATER VOL. IN DRUM:

NEED NEW DRUM?:

SIGNATURE:

RECORD OF WATER SAMPLING

PROJECT NO.: 384 DATE: 6/23/93

WELL NO.: MW-3

PROJECT NAME: Mission Valley Rock

WELL DIAMETER: 2"

PROJECT LOCATION: 799 Athenour Way

TOC ELEV:

SAMPLER: LTIII

LOCK NO.: 625

ANALYSES: TPHG, TPHD, MBTEX

WELL DEPTH (from construction detail):

WELL DEPTH (measured): 18.70 SOFT BOTTOM?: YES

DEPTH TO WATER: 2.06 TIME: 10:08

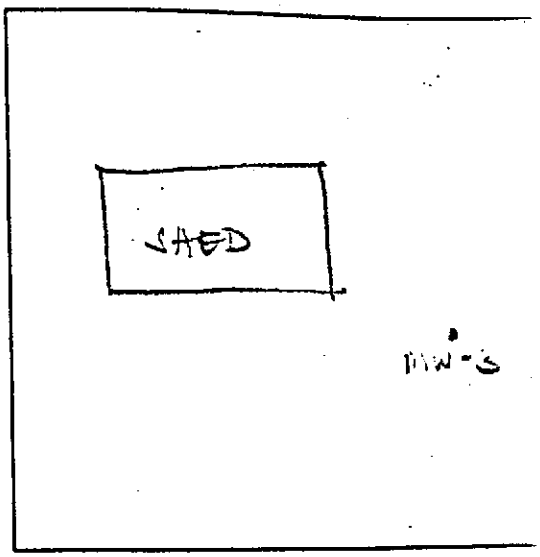
PRESSURE (circle one)?: YES OR NO

IF YES, WAS PRESSURE (circle one): POSITIVE OR NEGATIVE?

WATER VOLUME IN WELL: 2.57 gal

[2-INCH CASING = 0.16 GAL/FT] [4-INCH CASING = 0.65 GAL/FT]

[6-INCH CASING = 1.47 GAL/FT] [1 GAL = 3.78 L]



LOCATION MAP

CALCULATED PURGE VOL. (GAL): 10.28 (L): 41 ACTUAL PURGE VOL. (GAL): (L):

PURGE METHOD: Bailer SAMPLE METHOD: Poly Bailer

FIELD MEASUREMENTS

Time	Depth to Water (FT)	Vol (L)	Temp (Deg. F)	pH	EC x10³	Clarity	Turbidity (NTU)	Remarks
10:03		1	65.5	8.10	12.99			Turbid, color, slight sheen
		41	64.3	16.52	15.01			observed silt in bailer
		42	65.1	16.33	14.44			
		43	65.0	16.25	13.92			
10:42		43	65.0	16.35	12.91			@ Sampled MW-3.

WATER VOL. IN DRUM:

NEED NEW DRUM?:

SIGNATURE:

APPENDIX J

CERTIFIED ANALYTICAL REPORTS AND CHAIN-OF-CUSTODY DOCUMENTATION

Entech Analytical Labs, Inc.

CA ELAP# 2224

525 Del Rey Avenue, Suite E • Sunnyvale, CA 94086 • (408) 735-1550 • Fax (408) 735-1554

sampled 6/18/98

Tank Protect Engineering
2821 Whipple Road
Union City, CA 94587-1233
Attn: Louis Travis III

Date: 6/30/98
Date Received: 6/23/98
Project: 384-061998
PO #: 1476
Sampled By: Client

Certified Analytical Report

Soil Sample Analysis: (All results in mg/kg)

Sample ID	*MW-1 15'-15.5'*			*MW-2 10'-10.5'*			*MW-3 20-20.5'*				
Sample Date	6/18/98			6/18/98			6/18/98				
Sample Time	10:09			8:09			12:59				
Lab #	E12083			E12084			E12085				
	Result	DF	DLR	Result	DF	DLR	Result	DF	DLR	PQL	Method
Extraction	TTLC			TTLC			TTLC				3050
Analysis Date	6/25/98			6/25/98			6/25/98				
TPH-Diesel	**ND**	1.0	1	**14**	1.0	1	**18**	1.0	1	1	8015M
Analysis Date	6/29/98			6/29/98			6/29/98				
TPH-Gas	ND	1.0	1	ND	1.0	1	ND	1.0	1	1	8015M
MTBE	**ND**	1.0	0.05	ND	1.0	0.05	ND	1.0	0.05	0.05	8020
Benzene	**ND**	1.0	0.005	ND	1.0	0.005	ND	1.0	0.005	0.005	8020
Toluene	**ND**	1.0	0.005	ND	1.0	0.005	ND	1.0	0.005	0.005	8020
Ethyl Benzene	**ND**	1.0	0.005	ND	1.0	0.005	ND	1.0	0.005	0.005	8020
Xylenes	**ND**	1.0	0.005	ND	1.0	0.005	ND	1.0	0.005	0.005	8020

DF=Dilution Factor ND= None Detected above DLR PQL=Practical Quantitation Limit DLR=Detection Reporting Limit

· Analysis performed by Entech Analytical Labs, Inc. (CA ELAP #2224)

outside 7 days

- samples not delivered to lab for 5 days after collection

M. Golden, Lab Director

Environmental Analysis Since 1983

Entech Analytical Labs, Inc.

525 Del Rey Avenue, Suite E
Sunnyvale, CA 94086

QUALITY CONTROL RESULTS SUMMARY

METHOD: Gas Chromatography

QC Batch #: GBG4980626
Matrix: Soil
Units: ug/kg

Date Analyzed: 06/26/98
Quality Control Sample: Blank Spike

PARAMETER	Method #	MB ug/kg	SA ug/kg	SR ug/kg	SP ug/kg	SP % R	SPD ug/kg	SPD %R	RPD	QC LIMITS RPD	QC LIMITS %R
Benzene	8020	<5.0	80	ND	78	97	78	97	0.2	25	76-117
Toluene	8020	<5.0	80	ND	79	98	81	101	2.2	25	76-117
Ethyl Benzene	8020	<5.0	80	ND	77	97	78	98	1.4	25	74-119
Xylenes	8020	<5.0	240	ND	233	97	233	97	0.1	25	75-120
Gasoline	8015	<1000.00	1000	ND	1100	110	990	99	10.5	25	58-120

Note: LCS and LCSD results reported for the following Parameters:
All

Acceptable LCS and LCSD results are reported when matrix interferences cause MS and MSD results to fall outside established QC limits.

Definition of Terms:

na: Not Analyzed in QC batch
MB: Method Blank
SA: Spike Added
SR: Sample Result
RPD(%): Duplicate Analysis - Relative Percent Difference
SP: Spike Result
SP (%R): Spike % Recovery
SPD: Spike Duplicate Result
SPD (%R): Spike % Recovery
NC: Not Calculated

Entech Analytical Labs, Inc.

525 Del Rey Avenue, Suite E
Sunnyvale, CA 94086

QUALITY CONTROL RESULTS SUMMARY

METHOD: Gas Chromatography

QC Batch #: GBG4980629
Matrix: Soil
Units: ug/kg

Date Analyzed: 06/29/98
Quality Control Sample: Blank Spike

PARAMETER	Method #	MB ug/kg	SA ug/kg	SR ug/kg	SP ug/kg	SP % R	SPD ug/kg	SPD %R	RPD	QC LIMITS RPD	QC LIMITS %R
Benzene	8020	<5.0	80	ND	77	96	78	97	0.6	25	76-117
Toluene	8020	<5.0	80	ND	79	99	78	97	1.8	25	76-117
Ethyl Benzene	8020	<5.0	80	ND	79	99	79	98	0.8	25	74-119
Xylenes	8020	<5.0	240	ND	229	96	233	97	1.4	25	75-120
Gasoline	8015	<1000.00	1000	ND	940	94	940	94	0.0	25	58-120

Note: LCS and LCSD results reported for the following Parameters:
All

Acceptable LCS and LCSD results are reported when matrix interferences cause MS and MSD results to fall outside established QC limits.

Definition of Terms:

- na: Not Analyzed in QC batch
- MB: Method Blank
- SA: Spike Added
- SR: Sample Result
- RPD(%): Duplicate Analysis - Relative Percent Difference
- SP: Spike Result
- SP (%R): Spike % Recovery
- SPD: Spike Duplicate Result
- SPD (%R): Spike % Recovery
- NC: Not Calculated

Entech Analytical Labs, Inc.

525 Del Rey Avenue, Suite E
Sunnyvale, CA 94086

QUALITY CONTROL RESULTS SUMMARY

QC Batch #: DS980613
Matrix: Soil
Units: mg/Kg

Date analyzed: 06/25/98
Date extracted: 06/25/98
Quality Control Sample: Blank Spike

PARAMETER	Method #	MB mg/Kg	SA mg/Kg	SR mg/Kg	SP mg/Kg	SP %R	SPD mg/Kg	SPD %R	RPD	QC LIMITS RPD	QC LIMITS %R
Diesel	8015M	<1.0	25	ND	23	93	23	93	0.0	25	60-120

Note: LCS and LCSD results reported for the following Parameter:
Diesel

Acceptable LCS and LCSD results are reported when matrix interferences cause MS and MSD results to fall outside established QC limits.

Definition of Terms:

MB: Method Blank
na: Not Analyzed in QC batch
SA: Spike Added
SR: Sample Result
RPD(%): Duplicate Analysis - Relative Percent Difference
SP: Spike Result
SP (%R): Spike % Recovery
SPD: Spike Duplicate Result
SPD (%R): Spike Duplicate % Recovery
NC: Not Calculated

TANK PROTECT ENGINEERING
of Northern California, Inc.
2821 Whipple Rd., Union City, CA 94587-1233
(510) 429-8088 ■ (800) 523-8088 ■ Fax (510) 429-8089

LAB: Entech Labs
TURNAROUND: Normal
P.O. #: 1476

PAGE 1 OF 1

CHAIN OF CUSTODY

PROJECT NO.: 304-061998
SITE NAME & ADDRESS: Mission Valley Yacht 749 Athenaeum Way, Sunol, CA
SAMPLER NAME, ADDRESS AND TELEPHONE NUMBER: Louis Troiani II
2821 WHIPPLE ROAD, UNION CITY, CA 94587 (415) 429-8088

ID NO.	DATE	TIME	SOIL	WATER	SAMPLING LOCATION	(1) TYPE OF CONTAINER	ANALYTES REQUESTED: TOTAL LIGHT HC	AROMATIC HC (BTX)	TOTAL HEAVY HC	OIL & GREASE	VOC SCAN (624's)	OTHER	REMARKS
MW-1 15'-15.5'	6/10/98	10:09	✓		MW-1 B12083	Brass Tube	✓	✓	✓				Analyze for MBTEX
MW-2 10'-10.5'	"	8:09	"		MW-2 B12084	"	"	"	"				
MW-3 20-20.5'	"	12:59	"		MW-3 B12085	"	"	"	"				

Relinquished by : (Signature)	Date / Time	Received by : (Signature)	Relinquished by : (Signature)	Date / Time	Received by : (Signature)
[signature]	6/23/98 11:10	[signature]			
Relinquished by : (Signature)	Date / Time	Received by : (Signature)	Relinquished by : (Signature)	Date / Time	Received by : (Signature)
Relinquished by : (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	

DATE: _____

Entech Analytical Labs, Inc.

CA ELAP# 2224

525 Del Rey Avenue, Suite E • Sunnyvale, CA 94086 • (408) 735-1550 • Fax (408) 735-1554

Tank Protect Engineering
2821 Whipple Road
Union City, CA 94587-1233
Attn: Louis Travis III

Date: 7/1/98
Date Received: 6/24/98
Project: Mission Valley Rock
PO #: 1477
Sampled By: Client

Certified Analytical Report

Water Sample Analysis:

Sample ID	*MW-1*			*MW-2*			*MW-3*				
Sample Date	6/23/98 *			6/23/98			6/23/98				
Sample Time	9:28			11:48			10:42				
Lab #	**E12187**			**E12188**			**E12189**				
	Result	DF	DLR	Result	DF	DLR	Result	DF	DLR	PQL	Method
Results in µg/Liter:											
Analysis Date	6/25/98			6/25/98			6/25/98				
TPH-Diesel	**ND**	1.0	50	**12,000**	1.0	50	**12,000**	1.0	50	50	8015M
Analysis Date	6/29/98			6/30/98			6/30/98				
TPH-Gas	**3,100**	1.0	50	**2,500**	1.0	50	**300**	1.0	50	50	8015M
MTBE	**110**	1.0	5	**14**	1.0	5	**150**	10	50	5	8020
Benzene	**19**	1.0	0.50	**0.68**	1.0	0.50	**0.80**	1.0	0.50	0.50	8020
Toluene	**2.3**	1.0	0.50	**ND**	1.0	0.50	**ND**	1.0	0.50	0.50	8020
Ethyl Benzene	**91**	1.0	0.50	**1.2**	1.0	0.50	**ND**	1.0	0.50	0.50	8020
Xylenes	**48**	1.0	0.50	· 0.57	1.0	0.50	**ND**	1.0	0.50	0.50	8020

DF=Dilution Factor ND= None Detected above DLR PQL=Practical Quantitation Limit DLR=Detection Reporting Limit

· Analysis performed by Entech Analytical Labs, Inc. (CA ELAP #2224)

* sample date in report is 6/24/98, not 6/23/98 C.O.C says 6/23/98 sample date, however

M. Golden, Lab Director

Environmental Analysis Since 1983

Entech Analytical Labs, Inc.

CA ELAP# 2224

525 Del Rey Avenue, Suite E • Sunnyvale, CA 94086 • (408) 735-1550 • Fax (408) 735-1554

Tank Protect Engineering
2821 Whipple Road
Union City, CA 94587-1233
Attn: Louis Travis III

Date: 7/1/98
Date Received: **6/24/98**
Project: Mission Valley Rock
PO #: 1477
Sampled By: Client

Certified Analytical Report

Water Sample Analysis:

Sample ID	*MW-4*										
Sample Date	6/23/98										
Sample Time	12:18										
Lab #	E12190										
	Result	DF	DLR							PQL	Method
Results in µg/Liter:											
Analysis Date	6/29/98										
TPH-Gas	**ND**	1.0	50							50	8015M
MTBE	**ND**	1.0	5							5	8020
Benzene	**ND**	1.0	0.50							0.50	8020
Toluene	**ND**	1.0	0.50							0.50	8020
Ethyl Benzene	**ND**	1.0	0.50							0.50	8020
Xylenes	**ND**	1.0	0.50							0.50	8020

DF=Dilution Factor ND= None Detected above DLR PQL=Practical Quantitation Limit DLR=Detection Reporting Limit

· Analysis performed by Entech Analytical Labs, Inc. (CA ELAP #2224)

M. Golden, Lab Director

Environmental Analysis Since 1983

Entech Analytical Labs, Inc.

525 Del Rey Avenue, Suite E
Sunnyvale, CA 94086

QUALITY CONTROL RESULTS SUMMARY

METHOD: Gas Chromatography

QC Batch #: DW980609
Matrix: Water
Units: µg/L

Date analyzed: 06/24/98
Date extracted: 06/24/98
Quality Control Sample: Blank Spike

PARAMETER	Method #	MB µg/L	SA µg/L	SR µg/L	SP µg/L	SP %R	SPD µg/L	SPD %R	RPD	QC LIMITS RPD	QC LIMITS %R
Diesel	8015M	<50.0	950	ND	884	93	872	92	1	25	57-136

Definition of Terms:

- na: Not Analyzed in QC batch
- MB: Method Blank
- SA: Spike Added
- SR: Sample Result
- RPD(%): Duplicate Analysis - Relative Percent Difference
- SP: Spike Result
- SP (%R) Spike % Recovery
- SPD: Spike Duplicate Result
- SPD (%R) Spike Duplicate % Recovery
- NC: Not Calculated

Entech Analytical Labs, Inc.

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QUALITY CONTROL RESULTS SUMMARY

METHOD: Gas Chromatography

QC Batch #: GBG4980630
Matrix: Water
Units: ug/L

Date Analyzed: 06/30/98
Quality Control Sample: Blank Spike

PARAMETER	Method #	MB ug/L	SA ug/L	SR ug/L	SP ug/L	SP % R	SPD ug/L	SPD %R	RPD	QC LIMITS RPD	QC LIMITS %R
Benzene	8020	<0.50	80	ND	80	100	86	107	6.7	25	75-116
Toluene	8020	<0.50	80	ND	81	101	84	105	4.1	25	75-114
Ethyl Benzene	8020	<0.50	80	ND	83	104	83	104	0.5	25	76-115
Xylenes	8020	<0.50	240	ND	242	101	236	99	2.4	25	75-118
Gasoline	8015	<50.0	1000	ND	1060	106	1030	103	2.9	25	62-128

Note: LCS and LCSD results reported for the following Parameters:
All

Acceptable LCS and LCSD results are reported when matrix interferences cause MS and MSD results to fall outside established QC limits.

Definition of Terms:

- na: Not Analyzed in QC batch
- MB: Method Blank
- SA: Spike Added
- SR: Sample Result
- RPD(%): Duplicate Analysis - Relative Percent Difference
- SP: Spike Result
- SP (%R): Spike % Recovery
- SPD: Spike Duplicate Result
- SPD (%R): Spike % Recovery
- NC: Not Calculated

Entech Analytical Labs, Inc.

525 Del Rey Avenue, Suite E
Sunnyvale, CA 94086

QUALITY CONTROL RESULTS SUMMARY

METHOD: Gas Chromatography

QC Batch #: GBG4980629
Matrix: Water
Units: ug/L

Date Analyzed: 06/29/98
Quality Control Sample: Blank Spike

PARAMETER	Method #	MB ug/L	SA ug/L	SR ug/L	SP ug/L	SP % R	SPD ug/L	SPD %R	RPD	QC LIMITS RPD	QC LIMITS %R
Benzene	8020	<0.50	80	ND	77	96	78	97	0.6	25	75-116
Toluene	8020	<0.50	80	ND	79	99	78	97	1.8	25	75-114
Ethyl Benzene	8020	<0.50	80	ND	79	99	79	98	0.8	25	76-115
Xylenes	8020	<0.50	240	ND	229	96	233	97	1.4	25	75-118
Gasoline	8015	<50.0	1000	ND	940	94	940	94	0.0	25	62-128

Note: LCS and LCSD results reported for the following Parameters:
All

Acceptable LCS and LCSD results are reported when matrix interferences cause MS and MSD results to fall outside established QC limits.

Definition of Terms:

na: Not Analyzed in QC batch
MB: Method Blank
SA: Spike Added
SR: Sample Result
RPD(%): Duplicate Analysis - Relative Percent Difference
SP: Spike Result
SP (%R): Spike % Recovery
SPD: Spike Duplicate Result
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NC: Not Calculated

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LAB: Esteem Labs

TURNAROUND: Normal

P.O. #: 1477

PAGE 1 OF 1

CHAIN OF CUSTODY

PROJECT NO.: 384-062398

SITE NAME & ADDRESS: Mission Valley Rock, 799 Athenaeum Way, Sunol, CA

SAMPLER NAME, ADDRESS AND TELEPHONE NUMBER: Louis Trani
2821 WHIPPLE ROAD, UNION CITY, CA 94587 (415) 429-8088

ID NO.	DATE	TIME	SOIL	WATER	SAMPLING LOCATION	(1) TYPE OF CONTAINER	ANALYTES REQUESTED: TOTAL LIGHT HC	AROMATIC HC (BTX) MTBE	TOTAL HEAVY HC	OIL & GREASE	VOC SCAN (624's)	OTHER	REMARKS
MW-1	6/23/98	9:28		✓	MW-1	2-40ml 1-1 liter	✓	✓	✓				E12187
MW-2		11:48			MW-2								E12188
MW-3		10:42			MW-3								E12189
MW-4		12:18			MW-4	2-40 ml							E12190

Relinquished by : (Signature)	Date / Time	Received by : (Signature)	Relinquished by : (Signature)	Date / Time	Received by : (Signature)
	6/24/98 1208	M Black 6/24	M Black 6/24	6/24/98 1258	VMarco 6/24 12:58pm
Relinquished by : (Signature)	Date / Time	Received by : (Signature)	Relinquished by : (Signature)	Date / Time	Received by : (Signature)
Relinquished by : (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	

DATE: _____