MISSION VALLEY ROCK COMPANY
ASPHALT COMPANY
READY MIX COMPANY

7999 ATHENOUR WAY SUNOL, CA 94586 (510) 862-2257

December 6, 1996

Scott O. Seery, CHMM
Sr. Hazardous Material Specialist
Alameda County Health Care Services Agency
1131 Harbor Bay Parkway, Ste. 250
Alameda, CA 94502-6577

Dear Mr. Seery:

Enclosed is the work plan prepared by Tank Protect Engineering requested by your letter of October 28, 1996.

Please route your comments/approval to me so that I may schedule the work promptly.

Thank you.

Very truly yours,
MISSION VALLEY ROCK CO.

W. M. Calvert

W.M. Calvert, Chief Engineer

WORKPLAN
FOR
SOIL BORING INVESTIGATION
AND
STOCKPILE SOIL REMEDIATION

12-4-96

MISSION VALLEY ROCK
799 ATHENOUR WAY
SUNOL, CA 94586

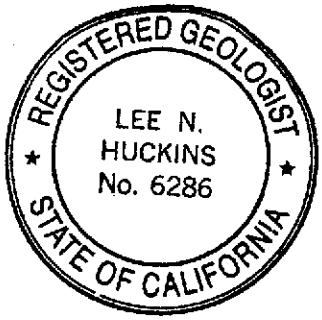
Prepared For:
MORT CALVERT
MISSION VALLEY ROCK
799 ATHENOUR WAY
SUNOL, CA 94586

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

December 4, 1996

Project Number 384

Lee N. Huckins
Registered Geologist



Jeff J. Farhoomand, M.S.
Principal Engineer

WORKPLAN
FOR
SOIL BORING INVESTIGATION
AND
STOCKPILE SOIL REMEDIATION

MISSION VALLEY ROCK
799 ATHENOUR WAY
SUNOL, CA 94586

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

December 4, 1996

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.

Because of soil and groundwater samples obtained during a recent tank removal showed concentrations of hydrocarbons to be present, the Alameda County Health Care Services Agency (ACHCSA) requested by letter dated October 28, 1996 (see Appendix A) 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. This WORKPLAN FOR SOIL BORING INVESTIGATION AND STOCKPILE SOIL REMEDIATION(WP) proposes a scope of work for conducting the investigation and remediating previously stockpiled contaminated soil.

2.0 BACKGROUND

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, 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 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 (see Figure 2).

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

composites 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). 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 (see Table 1), 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 (see Table 1). 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 (see Table 2), and results for MTBE were nondetectable.

All soil and groundwater sample analytical results are summarized in Tables 1 and 2.

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.

3.0 PROPOSED SCOPE OF WORK

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

- Conduct an Underground Service Alert (USA) location request to minimize the potential of encountering unexpected utilities, if necessary.

- Obtain soil boring permits from the Alameda County Flood Control and Water Conservation District, Water Resources Management, Zone 7 (Zone 7).

- Drill 5 exploratory soil borings to the depth of groundwater (approximately 15 feet) to further investigate the horizontal and vertical extent of contamination.

- Collect soil samples from each boring at approximately 5-foot depth intervals, changes in lithology, and occurrence of apparent soil contamination for construction of a boring log and selection for chemical analysis.

- At a minimum, analyze the vadose zone soil sample nearest to groundwater for TPHD, TPHG, BTEX, and MTBE.

- Collect a groundwater "grab" sample from each boring for chemical analysis.

- Analyze the groundwater samples for TPHD, TPHG, BTEX, and MTBE.

- Seal the soil borings to ground surface with neat Portland cement.

- Prepare a Preliminary Site Assessment Report.

Details of the proposed scope of work are presented below.

3.1 Predrilling Activities

Before commencing drilling activities, TPE will obtain soil boring permits from Zone 7 and visit the site to mark the proposed exploratory soil boring locations. TPE will

contact USA to minimize the potential of encountering underground utilities and objects while conducting soil borings, if necessary, and notify ACHCSA.

3.2 Rationale for Soil Boring Locations

Soil borings, SB-1 through SB-5, were located to further define the extent of vadose zone hydrocarbon contamination defined in soil samples S-1 through S-6. No borings were selected for the south and southwest corner of the excavation as soil samples S-2 and S-3 were nondetectable for TPHD and TPHG was only detected in soil sample S-3 in a concentration of 16 ppm.

3.3 Soil Boring and Sampling Procedures

The exploratory soil borings are proposed to be drilled to depths up to 15 feet or groundwater (whichever occurs first) by a State of California licensed water well driller (C-57 Water Well Driller contractor's license) using 8-inch diameter, hollow-stem, auger drilling equipment. Hollow-stem augers were selected due to the large amount of cobbles and gravels observed during excavation activities. Rapid site assessment tools, "Geoprobe", etc.., would have difficulties in obtaining samples. The augers will be steam-cleaned before drilling each boring to minimize the potential of cross-contamination between borings or introducing offsite contamination to the initial boring. Representative soil samples will be collected for chemical analyses in the vadose zone 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 will be cleaned before each sampling event by washing with an Alconox® solution and rinsing in tap water.

All soil borings will be sealed to ground surface by tremie with neat cement. Drill cuttings will be added to onsite stockpiled soil and remediated.

Detailed boring logs will be prepared from auger return material and split-spoon samples. The soil will be logged according to the Unified Soil Classification System under the direction of a California Registered Geologist.

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

All vadose zone soil core samples will be field-screened for the presence of apparent hydrocarbon soil contamination based on visible hydrocarbon stains, odors, and headspace analysis for volatile organic compounds using a Gastech, Inc., Trace-Techtor hydrocarbon vapor tester (HVT). Headspace analysis will be conducted by partially filling a quart-size plastic bag with a soil sample, sealing the bag air tight, and warming the bag to promote volatilization of hydrocarbons, if any, into the air space of the bag. After allowing for volatilization, the headspace of the bag will be sampled by the HVT and the response recorded in ppm.

Samples containing apparent hydrocarbon contamination will be selected for chemical analysis. If no contamination is apparent, the sample nearest to groundwater will be selected for chemical analysis.

yes!

Selected samples will be preserved in the brass tubes by quickly covering the open ends with Teflon sheeting and capping with plastic end-caps. The tubes will be labeled to show site name, project number, date and time collected, sample name and depth, and sampler name; sealed in quart-size plastic bags; and placed in an iced-cooler for transport to a California Department of Health Services (DHS) certified laboratory accompanied by chain-of-custody documentation.

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

3.3.1.1 Chemical Analyses

Soil samples are proposed to be analyzed for TPHD and TPHG by the United States Environmental Protection Agency (EPA) Methods 3550/8015 and 5030/8015, respectively, and for BTEX and MTBE by EPA Method 8020.

3.3.2 Groundwater "Grab" Sampling for Chemical Analyses

Groundwater grab samples will be obtained after each borehole has reached groundwater by passing a dedicated teflon bailer through the hollow stem augers. Since dedicated bailers will be used for each groundwater sample, no decontamination of sampling equipment will be necessary between borings. The water samples will be collected in sterilized 1-liter glass bottles and 40-milliliter glass vials having Teflon-lined screw caps, filled with no headspace, and labeled to include: date, time, sample location, project number, and sampler name. The samples will be immediately stored in an iced-cooler for transport to a DHS certified laboratory accompanied by chain-of-custody documentation. Appendix D documents TPE's protocol relative to sample handling procedures

Appendices C and E document TPE's protocols relative to waste handling and decontamination procedures, and quality assurance and quality control procedures, respectively.

3.3.2.1 Chemical Analyses

The groundwater "grab" samples and a trip blank sample are proposed to be analyzed for TPHD and TPHG by EPA Method 5030/8015 and 3510/8015, respectively, and for BTEX and MTBE by EPA Method 602.

4.0 PROPOSED REMEDIATION OF STOCKPILED SOIL

To remediate contaminated stockpiled soil from excavation activities at the time of tank removal, TPE proposes the following scope of work:

- Use bioremediation/aeration to remediate the contaminated soil to acceptable county levels for potential re-use.
- Sample remediated soil stockpiles for TPHD, TPHG and BTEX and MTBE.
- Obtain ACHCSA approval for re-use.

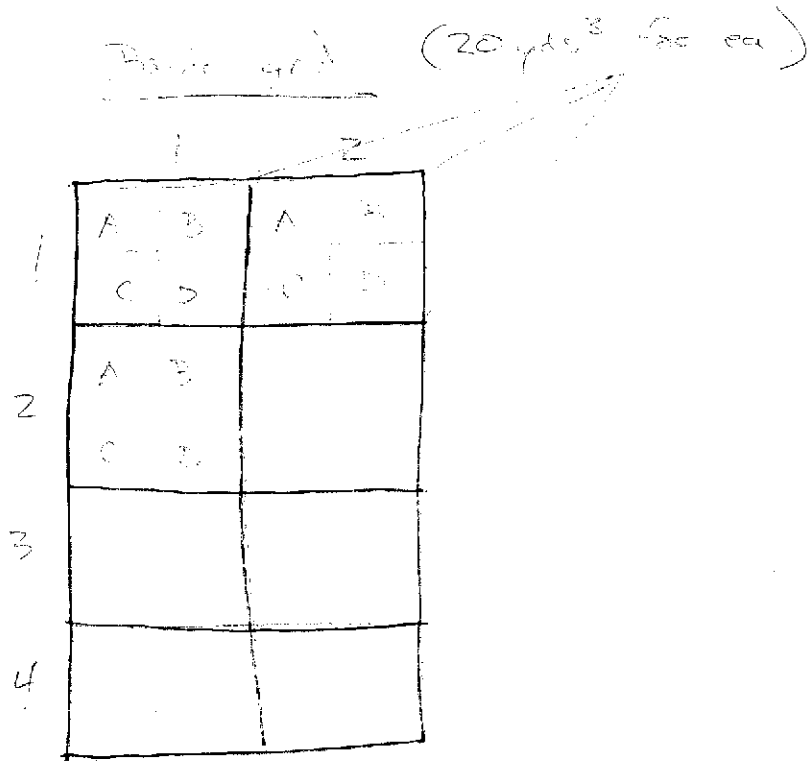
4.1 Method of Soil Remediation

TPE proposes to conduct onsite remediation of the stockpiled soil by bioremediation to remediate the contaminated soil stockpile for potential reuse onsite.

Prior to beginning work, TPE will obtain approval of the WP from the ACHCSA and notify the Bay Area Air Quality Management District (BAAQMD).

Aeration of the soil will be conducted by moving the soil between onsite treatment areas with a front-end loader and dumping the soil from the bucket of the loader while in an elevated position.

Bioremediation of the soil will be accomplished by inoculating the soil with a proprietary bacterial culture formulated to destroy TPHD and TPHG chemicals. Nutrients will be applied to the soil prior to inoculating with bacteria. The nutrients will be applied with a spray machine while the soil is being aerated by turning with a front-end loader. Within 1 to 2 days after applying the nutrients, the soil will again be aerated by turning with a front-end loader and sprayed (inoculated) with the bacterial culture. After about 2 to 4 weeks, the soil will be sampled and analyzed for TPHD, TPHG and BTEX and MTBE chemicals to test the effectiveness of remediation.


1
2
1
2
3
4
A B
C D
A B
C D

If the treatment areas are covered with concrete or asphalt, no plastic underlayment of the soil is proposed. Plastic underlayment is proposed for all areas not covered with asphalt or concrete.

4.2 Verification Sampling Plan

maybe reduced

TPE understands that chemical analyses of 1 discrete soil sample for about each 20 cyds of stockpiled soil is acceptable to the CRWQCB and the ACHCSA for soil characterization.

TPE understands that the CRWQCB and ACHCSA will accept cleanup concentrations of 10 ppm and nondetectable for TPHD and TPHG, and BTEX and MTBE, respectively, for onsite reuse of remediated soil.

4.3 Location and Depth of Verification Soil Samples

The stockpile of remediated soil will be well mixed and spread over a square or rectangular area to a height of about 5 or 6 feet. The stockpile will be subdivided by a grid, such that, each cell of the grid contains about 20 cyds of soil prior to sampling. Each cell will be further subdivided into 4 equal quadrants labeled A, B, C, and D. A systematic random sampling plan will be implemented with a discrete sample being collected in numerical and alphabetical order from each larger cell. For example, the first sample will be collected from the approximate center of quadrant A in cell 1; the second sample will be collected from the approximate center of quadrant B in cell 2, and so forth, until all larger cells are sampled. The sample depth will be rotated, if stockpile depth is adequate. For example, the first sample will be collected at a depth of 2 feet; the second sample will be collected at a depth of 3 feet; the third sample will be collected at a depth of 4 feet; the fourth sample will be collected at a depth of 2 feet; and so forth, until all samples are collected (see Appendix B for TPE's protocol relative to sample handling procedures).

Samples will be collected by digging holes to the target depths and collecting soil in a 2-inch diameter by 6-inch long brass tube driven by a slide-hammer corer. The ends

of each tube will be quickly covered with Teflon sheeting followed by an end-cap. Each tube will be labeled to show site name, project number, date and time sampled, sample name and depth, and sampler name; sealed in individual plastic bags; and preserved in an iced-cooler for delivery to a DHS certified laboratory for analysis for TPHD, TPHG BTEX and MTBE (see Appendix D for TPE's protocol relative to sample handling procedures).

5.0 SITE ASSESSMENT REPORT

The information collected, analytical results, and TPE's conclusions and recommendations will be summarized in a report. The report will describe the work performed and include: copies of all required permits, an area map, a detailed site plan showing location of the drilled soil borings and stockpile verification sampling points, graphic boring logs, tables summarizing results of soil and groundwater chemical analyses, and copies of certified analytical reports and chain-of-custodies.

Conclusions regarding the extent and type(s) of contamination will be presented within the context of this workplan. Recommendations for feasible remedial alternatives and/or supplemental sampling and analyses will be included.

The report will be reviewed and signed by a California Registered Geologist or Professional Engineer.

6.0 SITE SAFETY PLAN

The above scope of work will be conducted according to the Site Health and Safety Plan developed for the subject site and is included in Appendix F.

7.0 TIME SCHEDULE

The projected time schedule for implementation of the activities described in this workplan is presented below. The schedule reflects a relatively problem-free program. However, delays in the workplan review, permitting, or laboratory analyses could lengthen the project schedule. Access difficulties, adverse weather, and regulator review could also delay the proposed time schedule. TPE will make every effort to adhere to the project schedule.

Week 1: Regulator Approval Received; Subcontracting, Conduct Underground Utility Survey, if Necessary.

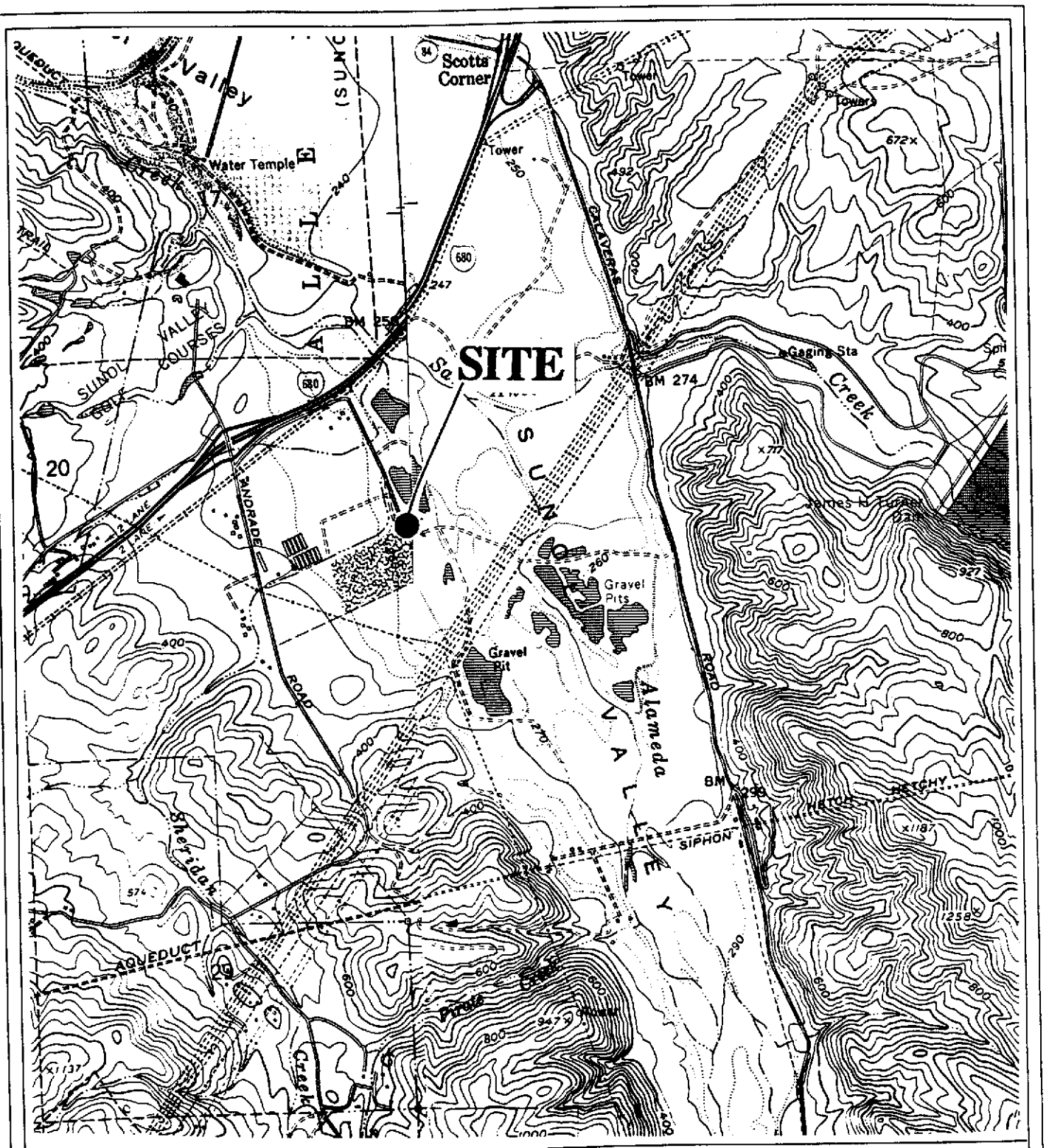
Week 2: Begin Soil Remediation Activities.

Week 3: Drill 5 Soil Borings and Submit Soil and Groundwater Samples for Chemical Analyses.

Week 5: Conduct Verification Soil Sampling.

Week 7: Receive Chemical Analyses, Interpret Data, and Write Preliminary Site Assessment Report.

Week 10: Submit Preliminary Site Assessment Report to Client.



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	12/3/96
FIGURE	1
FILE #	384-IN
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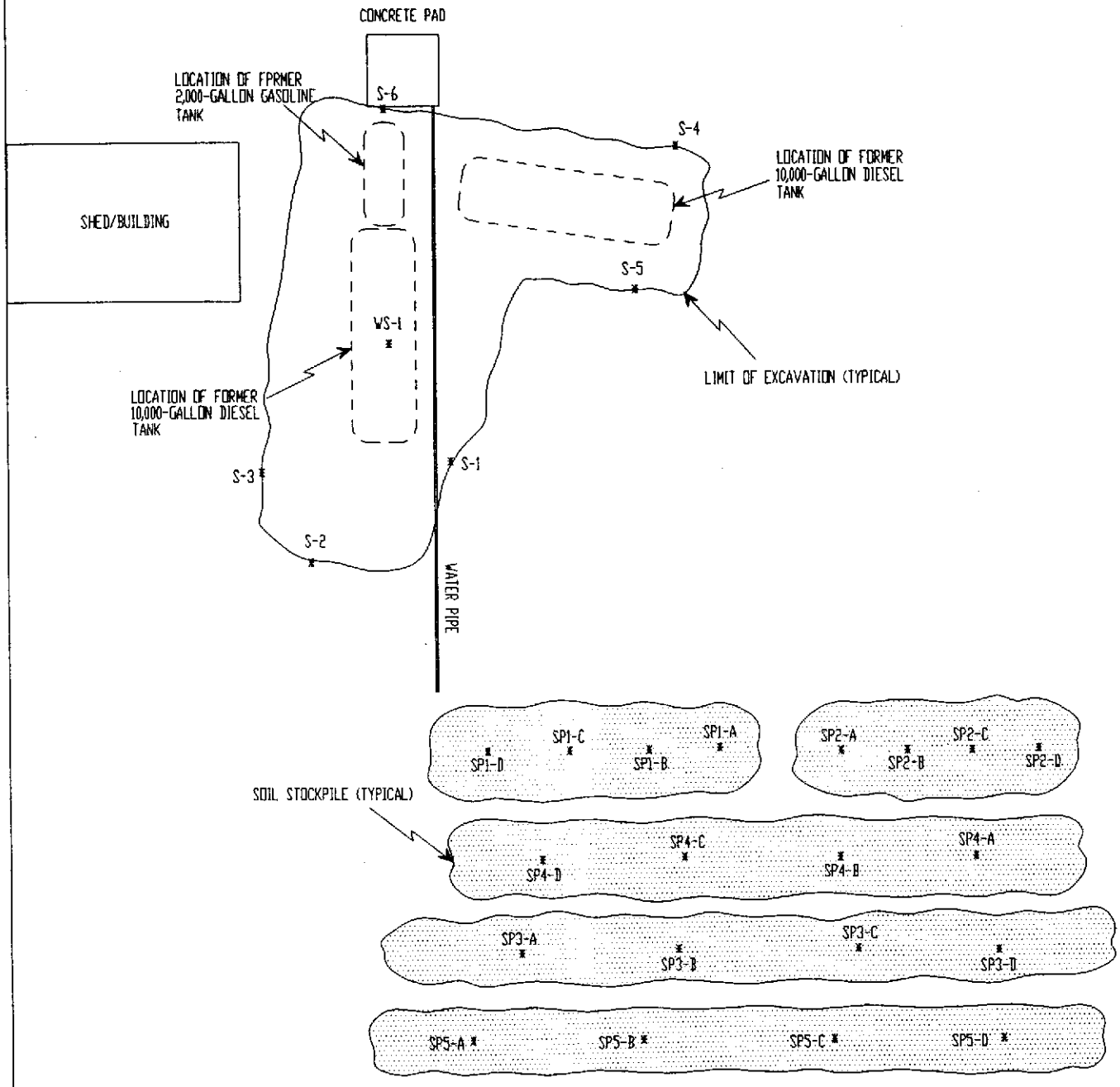
CHECKED BY	LNH



LEGEND

SP1-A * NAME AND LOCATION OF SOIL SAMPLE

-N-

0 20

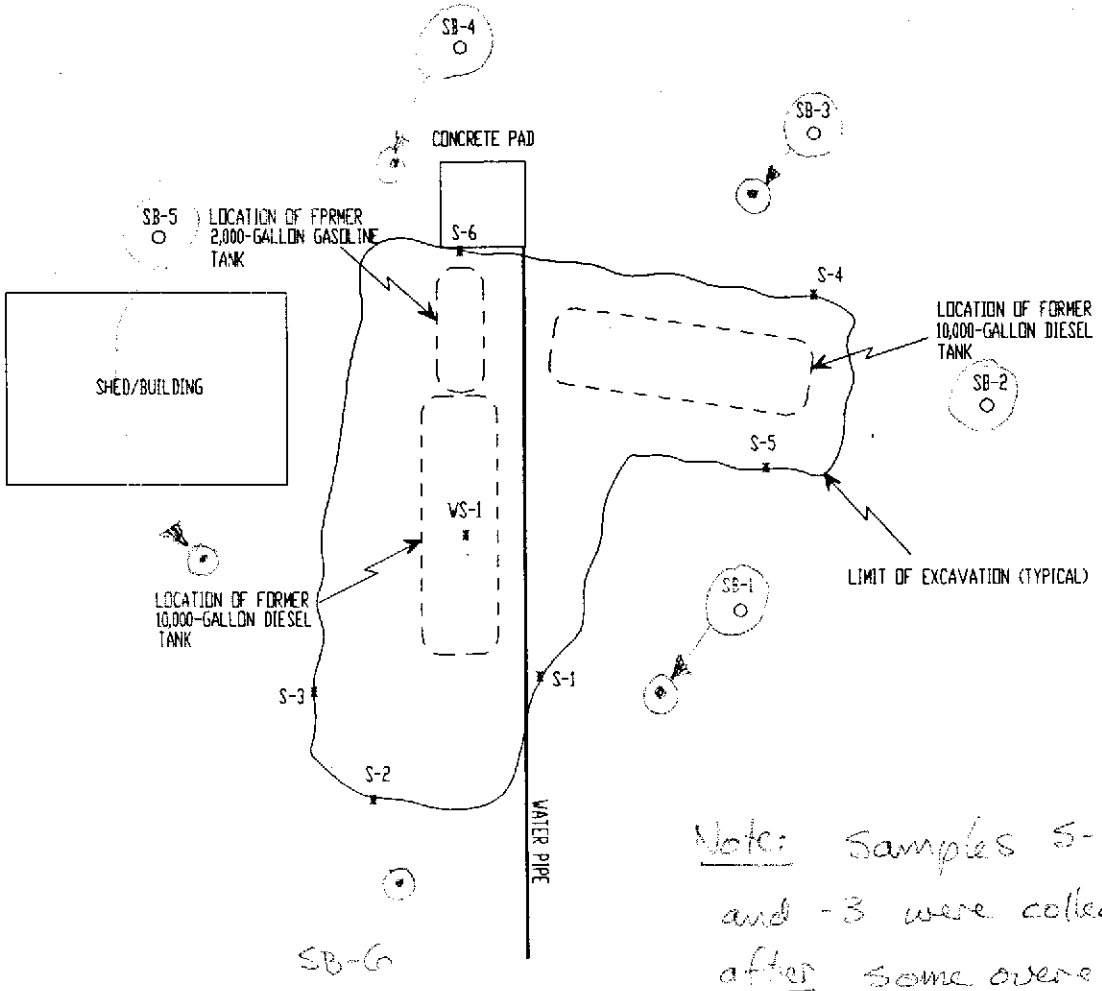
APPROXIMATE SCALE IN FEET

TANK PROTECT ENGINEERING

SITE PLAN:
OVEREXCAVATION (6/26/96)

MISSION VALLEY ROCK
799 ATHENOUR WAY
SUNOL, CA 94586

DATE	12/3/96
FIGURE	2
FILE #	384-2N
DRAWN BY	VK
CHECKED BY	LNH



Note: Samples S-1, -2, and -3 were collected after some overex was performed.

LEGEND

S-1 * NAME AND LOCATION OF SOIL SAMPLE

SB-1 ○ PROPOSED SOIL BORING LOCATIONS

-N-

0 20

APPROXIMATE SCALE IN FEET

TANK PROTECT ENGINEERING

SITE PLAN:
PROPOSED SOIL BORING LOCATIONS

MISSION VALLEY ROCK
799 ATHENOUR WAY
SUNOL, CA 94586

DATE	12/3/96
FIGURE	3
FILE #	384-3N
DRAWN BY	VK
CHECKED BY	LNH

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

Sample ID Name	Date	Depth (Feet)	TPHG	TPHD	Benzene	Toluene	Ethyl-benzene	Xylenes	MTBE
S-1	06/18/96	13.5-14.0	170	<1.0	0.065	0.075	0.14	0.23	<0.005
S-2	06/18/96	13.0-13.5	<1.0	<1.0	<.0050	<.0050	<.0050	<.0050	<0.005
S-3	06/18/96	12.5-13.0	16	<1.0	0.0061	0.0071	0.027	0.047	<0.005
S-4	06/18/96	12.0-12.5	790	12	1.1	2.8	4.4	14	<0.005
S-5	06/18/96	12.0-12.5	130	450	0.6	0.21	0.7	28	<0.005
S-6	06/18/96	9.0-9.5	670	49	0.26	0.077	0.2	0.44	<0.005
SP1-A,B,C,D	06/18/96	2.0-2.5	160	150	0.033	0.028	0.13	0.19	<0.005
SP2-A,B,C,D	06/18/96	2.0-2.5	4.5	90	0.0096	<0.005	0.014	0.058	<0.005
SP3-A,B,C,D	06/18/96	2.0-2.5	49	39	0.021	0.023	0.12	0.13	<0.005
SP4-A,B,C,D	06/18/96	2.0-2.5	280	16	0.53	0.019	2.1	3.3	<0.005
SP5-A,B,C,D	06/26/96	2.0-2.5	47	45	0.35	0.13	0.53	1.6	<0.005

[1] PARTS PER MILLION

TABLE 2
SUMMARY OF GROUNDWATER SAMPLE ANALYTICAL RESULTS
(ppb)[1]

Sample ID Name	Date	DEPTH (FEET)	TPHG	TPHD	Benzene	Toluene	Ethyl-benzene	Xylenes	MTBE
WS-1	06/18/96	10.0-10.5	12,000	1,200	35	26	29	72	<0.5

[1] PARTS PER BILLION

APPENDIX A

ALAMEDA COUNTY HEALTH CARE SERVICES, LETTER DATED OCTOBER 28, 1996

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

October 28, 1996

STID 2786

Mr. William M. Calvert
Mission Valley Rock
799 Athenour Way
Sunol, CA 94586

RE: MISSION VALLEY ROCK, SUNOL FACILITY - REQUEST FOR PRELIMINARY SITE ASSESSMENT WORK PLAN

Dear Mr. Calvert:

Thank you for submitting a copy of the August 12, 1996 Tank Protect Engineering (TPE) report documenting the June 18 and 19, 1996 closures of three (3) fuel underground storage tanks (UST) from the referenced site. Data presented in this report in context with observations made during UST closure activities confirm that an unauthorized release from one or more of the UST systems has occurred at the site.

Current regulations codified under Article 11 *Corrective Action Requirements*, Title 23, California Code of Regulations (CCR), Section 2720 et seq., require environmental investigations to be conducted whenever an unauthorized release is discovered at an UST site. Initial investigations are in the form of a Preliminary Site Assessment (PSA). The information derived from a PSA is used to determine the apparent severity of the release and whether additional investigation is required before an appropriate corrective action plan (CAP) can be developed. Projects must be conducted in conformance with the California Regional Water Quality Control Board's (RWQCB) Staff Recommendations for the Initial Evaluation and Investigation of Underground Tanks, the State Water Resources Control Board Leaking Underground Fuel Tank (LUFT) Field Manual, and Article 11, 23 CCR.

A PSA is required at this site. To proceed, you should obtain the professional services of a reputable environmental consultant. Your responsibility is to have the consultant submit a PSA work plan which outlines planned activities conforming to the criteria described in the referenced guidance documents. These criteria are broadly outlined in the attached **Appendix A** from the RWQCB.

The PSA work plan is due within 60 days of the date of this letter. Work should commence within 60 days of work plan approval.

All reports and proposals must be submitted under seal of a California-registered geologist or civil engineer with the appropriate environmental assessment background. Please include a statement of qualifications for each lead professional involved with this project.

Please be advised that this letter constitutes a formal request to undertake corrective action pursuant to California Health and Safety Code Section 25299.37(c)(1).

Please call me at (510) 567-6783 should you have any questions.

Sincerely,

Scott O. Seery, CHMM
Senior Hazardous Materials Specialist

attachment

cc: Mee Ling Tung, Director, Environmental Health
Kevin Graves, RWQCB
Rob Weston, ACDEH
Jim Ferdinand, Alameda County Fire Department

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

SAMPLE HANDLING PROCEDURES

APPENDIX D

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 E

QUALITY ASSURANCE AND QUALITY CONTROL PROCEDURES

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The overall objectives of the field sampling program include generation of reliable data that will support development of a remedial action plan. Sample quality will be checked by the use of proper sampling, handling and testing methods. Additional sample quality control methods may include the use of background samples, equipment rinsate samples and trip and field blanks. Chain-of-custody forms, use of a qualified laboratory, acceptable detection limits and proper sample preservation and holding times also provide assurance of accurate analytical data.

TPE will follow a quality assurance and quality control (QA/QC) program in the field to ensure that all samples collected and field measurements taken are representative of actual field and environmental conditions and that data obtained are accurate and reproducible. These activities and laboratory QA/QC procedures are described below.

Field Samples: Additional samples may be taken in the field to evaluate both sampling and analytical methods. Three basic categories of QA/QC samples that may be collected are trip blanks, field blanks and duplicate samples.

Trip blanks are a check for cross-contamination during sample collection, shipment, and laboratory analysis. They are water samples that remain with the collected samples during transportation and are analyzed along with the field samples to check for residual contamination. Analytically confirmed organic-free water will be used for organic parameters and deionized water for metal parameters. Blanks will be prepared by the laboratory supplying the sample containers. The blanks will be numbered, packaged and sealed in the same manner as the other samples. One trip blank will be used for each sample set of less than 20 samples. At least 5% blanks will be used for sets greater than 20 samples. The trip blank is not to be opened by either the sample collectors or the handlers.

The field blank is a water sample that is taken into the field and is opened and exposed at the sampling point to detect contamination from air exposure. The water

sample is poured into appropriate containers to simulate actual sampling conditions. Contamination due to air exposure can vary considerably from site to site.

The laboratory will not be informed about the presence of trip and field blanks, and false identifying numbers will be put on the labels. Full documentation of these collection and decoy procedures will be made in the site log book.

Duplicate samples are identical sample pairs (collected in the same place and at the same time), placed in identical containers. For soils, adjacent sample liners will be analyzed. For the purpose of data reporting, one is arbitrarily designated the sample, and the other is designated as a duplicate sample. Both sets of results are reported to give an indication of the precision of sampling and analytical methods.

The laboratory's precision will be assessed without the laboratory's knowledge by labeling one of the duplicates with false identifying information. Data quality will be evaluated on the basis of the duplicate results.

Laboratory QA/QC: Execution of a strict QA/QC program is an essential ingredient in high-quality analytical results. By using accredited laboratory techniques and analytical procedures, estimates of the experimental values can be very close to the actual value of the environmental sample. The experimental value is monitored for its precision and accuracy by performing QC tests designed to measure the amount of random and systematic errors and to signal when correction of these errors is needed.

The QA/QC program describes methods for performing QC tests. These methods involve analyzing method blanks, calibration standards, check standards (both independent and the United States Environmental Protection Agency-certified standards), duplicates, replicates and sample spikes. Internal QC also requires adherence to written methods, procedural documentation and the observance of good laboratory practices.

APPENDIX F

SITE SAFETY PLAN

SITE HEALTH AND SAFETY PLAN
TANK PROTECT ENGINEERING OF NORTHERN CALIFORNIA, INC.

Site: **Mission Valley Rock, Inc.**
799 Athenour Way
Sunol, CA 94586

Project Number: **384**

Original Site Safety Plan: Yes (X) No ( )
Revision Number:
Plan Prepared by: **Tank Protect Engineering**
Date: **12/04/96**
Plan Approved by: **Lee N. Huckins**
Date: **12/04/96**

Please respond to each item as completely as possible. Where an item is not applicable, please mark "N/A".

1. KEY PERSONNEL AND RESPONSIBILITIES

Project Manager:	**Louis Travis III**	**(510) 429-8088**
Site Safety Manager:	**Lee N. Huckins**	**(510) 429-8088**
Alternate Site Safety Manager:		
Field Team Members:	**Julio Pantoja**	
	James Bender	

Agency Reps: Please specify by one of the following symbols: Federal: (F), State: (S), Local: (L), Contractor(s): (C)

(L) Alameda County Health Care Services Agency: (510) 567-6700
(L) Alameda County Fire Department: (510) 670-5853

2. JOB HAZARD ANALYSIS

2.1 OVERALL HAZARD EVALUATION

Hazard Level:	High ( )	Moderate ( )	Low (X)	Unknown ( )
Hazard Type:	Liquid (X)	Solid ( )	Sludge ( )	Vapor/Gas (X)

Known or suspected hazardous materials present on site

Benzene, Toluene, Ethylbenzene, Xylenes (BTEX)

Characteristics of hazardous materials included above (complete for each chemical presents):

MATERIAL #1

Corrosive ( )	Ignitable (X)	Toxic (X)	Reactive ( )
Volatile (X)	Radioactive ( )	Biological Agent ( )	
Exposure Routes:	Inhalation (X)	Ingestion (X)	Contact (X)

MATERIAL #2

Corrosive ( )	Ignitable ( )	Toxic ( )	Reactive ( )
Volatile ( )	Radioactive ( )	Biological Agent ( )	
Exposure Routes:	Inhalation ( )	Ingestion ( )	Contact ( )

MATERIAL #3

Corrosive ( )	Ignitable ( )	Toxic ( )	Reactive ( )
Volatile ( )	Radioactive ( )	Biological Agent ( )	
Exposure Routes:	Inhalation ( )	Ingestion ( )	Contact ( )

MATERIAL #4

Corrosive ( )	Ignitable ( )	Toxic ( )	Reactive ( )
Volatile ( )	Radioactive ( )	Biological Agent ( )	
Exposure Routes:	Inhalation ( )	Ingestion ( )	Contact ( )

2.2 JOB-SPECIFIC HAZARDS

For each labor category specify the possible hazards based on information available (i.e., Task-driller, Hazards-trauma from drill rig accidents, etc.). For each hazard, indicate steps to be taken to minimize the hazard.

Driller/Helper/Geologist-Trauma from drilling rig accidents-wear hard hat, gloves, steel-toed boots.

The following additional hazards are expected on site (i.e., snake infested area, extreme heat, etc.):

Temporary open boreholes.

Measures to minimize the effects of the additional hazards are:

Protect with barricades, caution tape, or traffic cones when unattended.

3. MONITORING PLAN

3.1 (a) Air Monitoring Plan

Action levels for implementation of air monitoring. Action levels should be based on published data available on contaminants of concern. Action levels should be set by persons experienced in industrial hygiene.

Level (i.e., .5 ppm)	Action Taken (i.e., commence perimeter monitoring)
5 ppm	**Cease work and commence perimeter monitoring until contamination disperses.**

(b) Air Monitoring Equipment

Outline the specific equipment to be used, calibration method, frequency of monitoring, locations to be monitored, and analysis of samples (if applicable).

Gastech, Inc., Trace-Techtor, hexane calibration. Monitor at borehole during each sampling event if vapors detected.

If air monitoring is not to be implemented for this site, explain why:

N/A

3.2 Personnel Monitoring

(Include hierarchy of responsibilities decision making on the site)

Site safety manager to make decision.

3.3 Sampling Monitoring

(a) Techniques used for sampling: **Sample air at borehole.**

(b) Equipment used for sampling: **Gastech, Inc., Trace-Techtor.**

(c) Maintenance and calibration of equipment: **Calibrate to hexane prior to operation.**

4. PERSONAL PROTECTIVE EQUIPMENT (PPE)

Equipment used by employees for the site tasks and operations being conducted. Be Specific (i.e., hard hat, impact resistance goggles, other protective glove, etc.).

Hard hat, protective gloves (when necessary), steel-toed boots.

5. SITE CONTROL AND SECURITY MEASURES

The following general work zone security guidelines should be implemented:

- Work zone shall be delineated with traffic cones.
- Boreholes shall be delineated with traffic cones when drilling and sampling activities are not actually taking place.
- Visitors will not be allowed to enter the work zone unless they have attended a project safety briefing.

6. DECONTAMINATION PROCEDURE

List the procedures and specific steps to be taken to decontaminate equipment and PPE.

Wash equipment with a trisodium phosphate/tap water solution and rinse with clean tap water.

7. TRAINING REQUIREMENTS

Prior to mobilization at the job site, employees will attend a safety briefing. The briefing will include the nature of the wastes and the site, donning personal protection equipment, decontamination procedures and emergency procedures.

Supervisory and key contractor personnel will take an instruction course and pass an airports operations test.

8. MEDICAL SURVEILLANCE REQUIREMENTS

If any task requires a very high personnel protection level (OSHA Level A or B), personnel shall provide assurances that they have received a physical examination and they are fit to do the task. Also personnel will be instructed

to look for any symptom of heat stress, heat stroke, heat exhaustion or any other unusual symptom. If there is any report of that kind it will be immediately followed through, and appropriate action will be taken.

9. STANDARD OPERATION PROCEDURES

Tank Protect Engineering of Northern California, Inc. (TPE) is responsible for the safety of all TPE employees on site. Each contractor shall provide all the equipment necessary to meet safe operation practices and procedures for their personnel on site and be responsible for the safety of their workers.

A "Three Warning" system is utilized to enforce compliance with Health and Safety procedures practices which will be implemented at the site for worker safety:

* Eating, drinking, chewing gum or tobacco, and smoking will be allowed only in designated areas.
* Wash facilities will be utilized by workers in the work areas before eating, drinking, or use of the toilet facilities.
* Containers will be labeled identifying them as waste, debris or contaminated clothing.
* All excavation/drilling work will comply with regulatory agency requirements.
* All site personnel will be required to wear hard hats and advised to take adequate measures for self protection.
* Any other action which is determined to be unsafe by the site safety officer.

10. CONFINED SPACE ENTRY PROCEDURES

No one is allowed to enter any confined space operation without proper safety measures. Specifically in case of an excavated Tank Pit no one should enter at any time.

11. EMERGENCY RESPONSE PLAN

Fire extinguisher(s) will be on site prior to excavation. Relevant phone numbers:

Person	Title	Phone No.
Louis Travis III	Project Manager	**(510) 429-8088**
	Fire	911 or
	Police	911 or
	Ambulance	911 or
	Poison Control Center	(800) 523-2222
	Nearest off-site no.	
Kaiser Hospital	Medical Advisor	**(510) 795-3444**
Mr. Mort Calvert	Client Contact	**(510) 862-2257**

U.S EPA - ERT (201) 321-6660
Chemtrec (800) 424-9300
Centers for Disease Control Day (404) 329-3311
Night (404) 329-2888
National Response Center (800) 424-8802
Superfund/RCRA Hotline (800) 424-8802
TSCA Hotline (800) 424-9065
National Pesticide Information Services (800) 845-7633
Bureau of Alcohol, Tobacco, and Firearms (800) 424-9555

HEALTH AND SAFETY COMPLIANCE STATEMENT

I, _____, have received and read a copy of the project Health and Safety Plan.

I understand that I am required to have read the aforementioned document and have received proper training under the occupational Safety and Health Act (29 CFR, Part 1910.120) prior to conducting site activities at the site.

_____ _____

Signature Date

_____ _____

Signature Date

Nearest Hospital:

Kaiser Hospital
39400 Paseo Padre Parkway
Fremont, CA 94538
Emergency (510) 795-3444
Gen. Info. (510) 795-3000

Directions From Site:

Drive 680 towards San Jose, exit Mission Blvd. Turn right onto Mission Blvd. Proceed on Mission Blvd. to Walnut. Turn left onto Walnut. Proceed on Walnut to Paseo Padre Parkway. Look for the hospital on the left side at corner of Walnut and Paseo Padre Parkway.