



Environmental
Science &
Engineering, Inc.

ENVIRONMENTAL
PROTECTION
28 NOV 29 PM 2:25

TO: Alameda County General Services Agency
Engineering & Environmental Management
1401 Lakeside Drive
Oakland, CA 94612

DATE: November 28, 1995

ATTN: Mr. Rod Freitag

JOB NUMBER: 65-95-108

SUBJECT: 1131 HARBOR BAY PARKWAY, ALAMEDA CALIFORNIA

WE ARE TRANSMITTING THE FOLLOWING:

One (1) copy of the Workplan for Site Investigation UST 1,2,3 Site Santa Rita Correctional Facility, Dublin, California. If you have any questions or comments regarding this matter please call me at (510) 685-4053.

CC: Mr. Scott Seery, Alameda County Health Care Services Agency

DIST:

LB

File

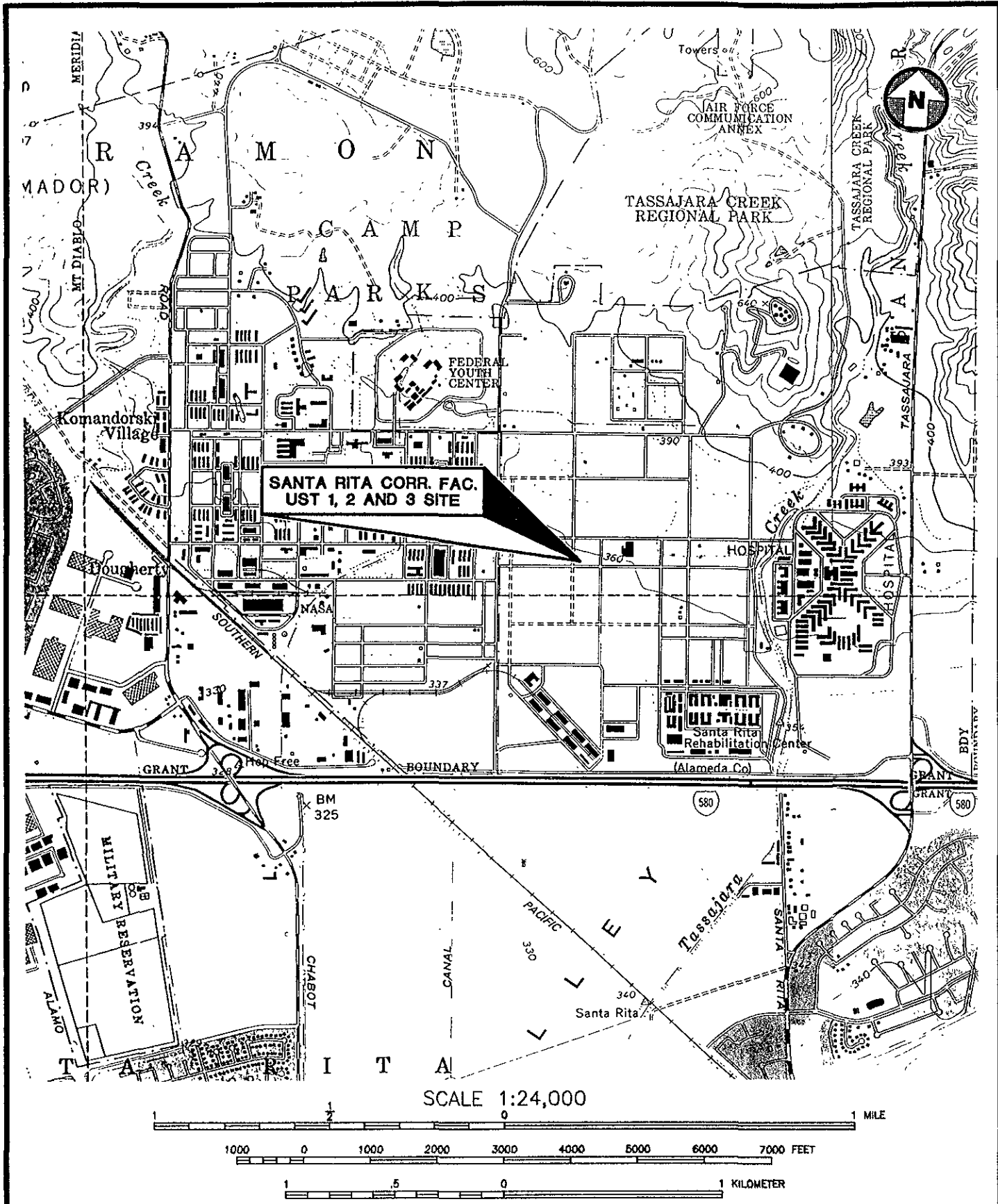
Originator

ENVIRONMENTAL SCIENCE & ENGINEERING, INC.

BY:  For

Bart Miller
Marketing Manager

FIGURES



ADAPTED FROM U.S.G.S. DUBLIN AND LIVERMORE, CALIFORNIA, 7.5 MINUTE TOPOGRAPHIC QUADRANGLE MAPS, 1980.



**Environmental
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DATE
11/22/95
REVISED
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LOCATION MAP

ALAMEDA COUNTY GSA — UST 1,2,3 SITE
SANTA RITA CORRECTIONAL FACILITY
DUBLIN, CALIFORNIA

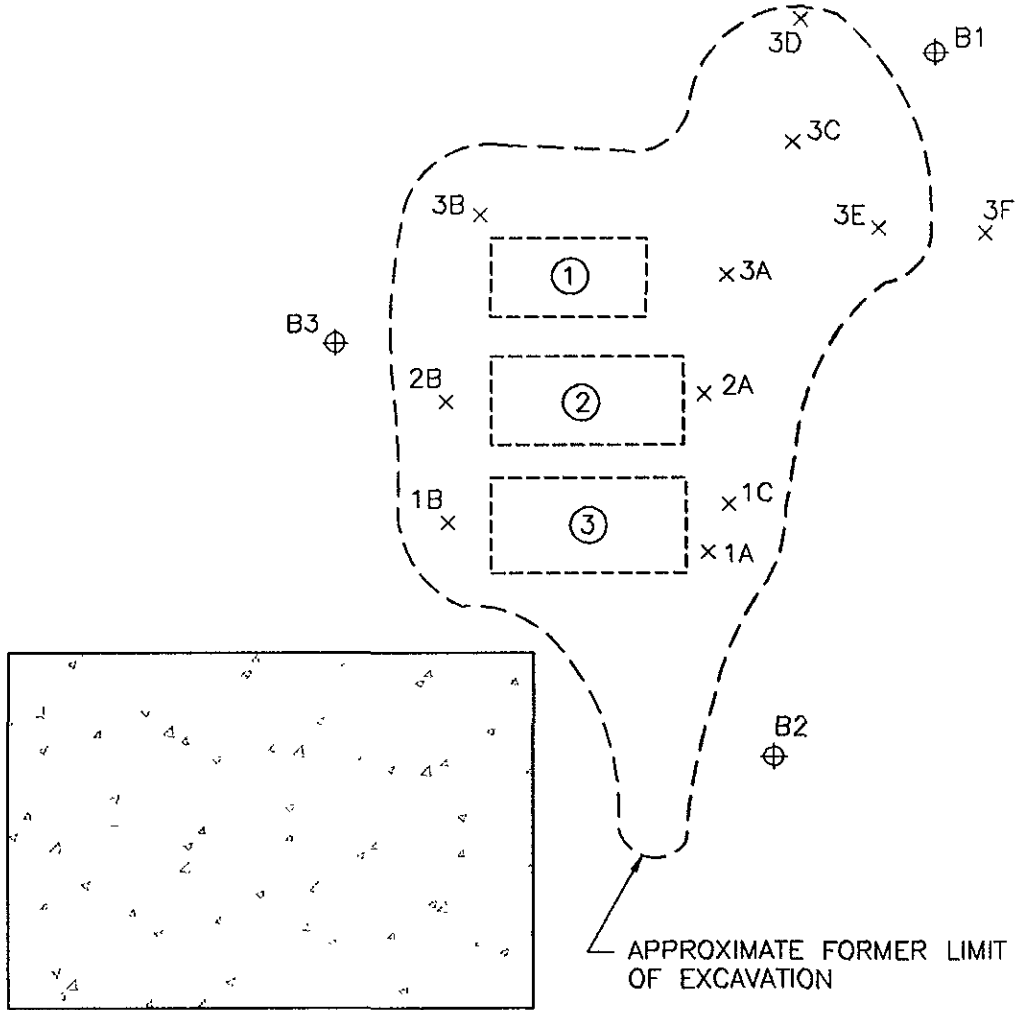
FIGURE NO.
1

PROJ. NO.
65-95-108

4090 NELSON AVENUE, SUITE J
CONCORD, CA 94520



OFFUTT AVENUE



APPROXIMATE LIMIT OF EXISTING CONCRETE PAD

APPROXIMATE FORMER LIMIT OF EXCAVATION

4th STREET

LEGEND

- ① FORMER 3,000 GALLON DIESEL FUEL UST
- ② FORMER 5,000 GALLON BUNKER C FUEL OIL UST
- ③ FORMER 5,000 GALLON BUNKER C FUEL OIL UST
- 2B x FORMER SOIL SAMPLE LOCATION WITH SAMPLE NUMBER
- B3 ⊕ APPROXIMATE LOCATION OF PROPOSED BORING/HYDROPUNCH



Environmental Science & Engineering, Inc.

DATE
11/22/95

REVISED

CAD FILE
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SITE MAP

ALAMEDA COUNTY GSA
SANTA RITA CORRECTIONAL FACILITY
DUBLIN, CALIFORNIA

FIGURE NO.

2

PROJ. NO.
65-95-108

4090 NELSON AVENUE, SUITE J
CONCORD, CA 94520

APPENDIX A
HEALTH AND SAFETY PLAN

ENVIRONMENTAL SCIENCE & ENGINEERING, INC.

HASP APPROVAL

Project: Alameda County GSA Site: UST 1,2,3 Site
Project Number: 65-95-108 Site Location: Santa Rita Correctional Facility
Dublin, CA

We have reviewed the attached HASP for the above referenced site. We recognize that when this form is completed, the attached HASP is approved for field activities on the above referenced site. Changes to this HASP shall be documented in writing.

<hr/>	<hr/>
Project Manager Signature	Date
<hr/>	<hr/>
Field Team Leader Signature	Date
<hr/>	<hr/>
Site Health & Safety Officer Signature	Date
<hr/>	<hr/>
Signature of HASP Reviewer	Date
<hr/>	<hr/>
Signature of Site Representative	Date

ENVIRONMENTAL SCIENCE & ENGINEERING, INC.

EMERGENCY INFORMATION

Address & Phone Numbers (Note - All facility telephones require a 9 prefix to secure an outside line)

Police: 9-911

Fire: 9-911

Ambulance: 9-911

Primary Medical Facility Name: Valley Care Medical Center

Route: South on Santa Rita Road to intersection with West Las Positas Boulevard. Facility at northwest corner of intersection at 5555 West Las Positas Boulevard (Emergency Tel: 510-847-3000)

FTM Who Drove Route: Route known by SHSO, Site Team Leader, and site personnel.

Secondary Medical Facility Name: Valley Memorial Hospital

Route: South on Santa Rita Road to intersection with East Stanley Boulevard. Proceed east on East Stanley Boulevard to intersection with Murrieta. Facility on southeast corner of intersection at 1111 East Stanley Boulevard (Emergency Tel: 510-447-7000).

FTM Who Drive Route: Route known by SHSO, Site Team Leader, and site personnel.

*Provide Map Showing Route: Map showing route to Medical Facilities provided as Attachment 1.

REGIONAL RESOURCES

Poison Control Center: 1-800-523-2222

Chemtrec: 1-800-424-9300

Regulatory Agency: Alameda County Health Care Services Agency (510-567-6700)

Waste Clean-up Contacts: Integrated Wastestream Management (408-942-8955)

SITE RESOURCES

List equipment and locations:

First Aid: Fully stocked Field First Aid Kit to be kept in Site Team Leader's vehicle

Fire Control: ABC 5lb. fire extinguisher to be kept in Site Team Leader's vehicle

Transportation: Site Team Leader's vehicle shall be in safe zone and available to transport injured to hospital

Communication: Verbal

Other:

EMERGENCY CONTACTS

ESE Phone: (510) 685-4053

Other: Alameda Co. GSA (Rod Frietag, PE) Phone: (510) 208-9522

Exploration Geoservices, Inc. Phone: (408) 280-6822

ENVIRONMENTAL SCIENCE & ENGINEERING, INC.

**SITE CONTAMINANTS/MONITORING INFORMATION
FOR ALL IDENTIFIED OR SUSPECTED SITE CONTAMINANTS**

**UST 1,2,3 SITE
SANTA RITA
CORRECTIONAL
FACILITY
DUBLIN, CA**

CONTAMINANT NAME (SYNONYMS)	APPEARANCE AND PHYSICAL FORM	EXPOSURE LIMIT OSHA PEL (ppm)	ROUTE OF ENTRY	IDLH (ppm)	PID IONIZATION POTENTIAL	HEALTH EFFECTS ACUTE/CHRONIC	FIRST AID	PHYSICAL HAZARDS
Benzene	Colorless to light yellow liquid with aromatic odor	1 (TWA) 5 (PEL)	Inhalation, Skin absorption, Ingestion	3000	9.24	Carcinogen, irritates mucous membranes, headache, fatigue, nausea, narcotic effects.	Irrigate and wash contact area immediately Seek medical attention.	Incompatible with strong oxidizers, flash point 12°F
Toluene	Colorless liquid with a sweet pungent odor	100 (TWA) 150 (STEL)	Inhalation, Skin absorption, Ingestion	2000	8.82	Dermatitis, narcotic effects	Irrigate and wash contact area immediately Seek medical attention	Incompatible with strong oxidizers, flash point 40°F
Ethyl Benzene	Colorless liquid with an aromatic odor.	100 (TWA) 125 (STEL)	Inhalation, Skin absorption, Ingestion	2000	8.76	Irritates eyes and mucous membranes, dermatitis, narcotic effects.	Irrigate and wash contact area immediately. Seek medical attention	Incompatible with strong oxidizers, flash point 55°F.
Xylenes	Colorless liquid with an aromatic odor.	100 (TWA) 150 (STEL)	Inhalation, Skin absorption, Ingestion	1000	8.56	Irritates eyes and mucous membranes, dermatitis, narcotic effects	Irrigate and wash contact area immediately Seek medical attention.	Incompatible with strong oxidizers, flash point 55°F
1,2-Dichloroethylene	Colorless liquid with a chloroform-like odor.	200	Inhalation, Skin and eye absorption, Ingestion.	4000	9.65 eV	Irritates eyes, respiratory system, central nervous system, depression.	Irrigate eyes, soap wash skin	Incompatible with strong oxidizers, alkalis, potassium hydroxide, and copper
1,1-Dichloromethylene	Colorless liquid with a sweet chloroform-like odor.	5 (TWA) 20 (STEL)	Inhalation, Skin and eye absorption, Ingestion	4000	9.65 eV	Irritates eyes, respiratory system, central nervous system, depression.	Irrigate eyes, soap wash skin	Incompatible with strong oxidizers, alkalis, potassium hydroxide, and copper
1,1-Dichloroethane	Colorless, oily liquid with a chloroform-like odor.	100	Inhalation, Skin and eye absorption, Ingestion	4000	11.06 eV	Irritates eyes, respiratory system, central nervous system, depression	Irrigate eyes, soap wash skin	Incompatible with strong oxidizers and caustics.
Tetrachloroethylene	Colorless liquid; chloroform-like odor	25	Inhalation, Skin and eye absorption, Ingestion.	500	9.32 eV	Carcinogen Irritates eyes and throat, nausea, flush face, headache, dizziness, liver damage	Irrigate eyes, soap wash skin, respiratory support, seek medical attention	Incompatible with strong oxidizers, lithium metals

UST 1,2,3 SITE
SANTA RITA
CORRECTIONAL
FACILITY
DUBLIN, CA

Tnchloroethylene	Colorless or blue liquid, chloroform-like odor	25	Inhalation, Skin and eye absorption, Ingestion	1000	9.45 eV	Carcinogen Headache, visual disturbance, tremors, nausea, vomiting, cardiac arrhythmias	Irrigate eyes, soap wash skin, respiratory support, seek medical attention	Incompatible with strong caustics, alkalis, metals
Vinyl Chloride	Colorless gas; mild, sweet odor	1	Inhalation, Skin and eye absorption, Ingestion.	Carcinogen	9.995 eV	Carcinogen Weakness, abdominal pain, gastrointestinal bleeding.	Irrigate eyes, soap wash skin, respiratory support, seek medical attention.	Incompatible with copper oxidizing materials
Acetone	Colorless liquid with a fragrant, mint-like odor	1000	Inhalation, Skin and eye absorption, Ingestion.	20,000	9.69 eV	Irritates eyes, nose, throat, headache, dizziness.	Irrigate eyes, soap wash skin, respiratory support, seek medical attention.	Incompatible with oxidizing materials and acids
MIBK (methylisobutylketone or 4-methyl-2-pentanone or hexone)	Colorless liquid with pleasant odor.	100	Inhalation, Skin and eye absorption, Ingestion.	3000	none available	Irritates eyes, respiratory system, central nervous system.	Irrigate eyes, soap wash skin, respiratory support, seek medical attention.	Incompatible with strong oxidizers.

ENVIRONMENTAL SCIENCE & ENGINEERING, INC.

HAZARD EVALUATION AND CONTROLS

For each task to be performed onsite, list any associated hazards and potential hazards.
For each task hazard or potential hazard, provide the control method and/or the level of protection (LOP) which shall be used to control that hazard.

TASK	DESCRIPTION OF HAZARD	CONTROL METHOD/LOP*
SUBSURFACE SITE INVESTIGATION	<p>PHYSICAL - heavy machinery with moving parts, noise, flying particles, electrical hazards, and other physical hazards associated with the operation of the James River Corporation facility. This plan incorporates the Hazardous Materials Management Plan for the site.</p>	<ul style="list-style-type: none"> • No loose clothing or hair allowed near moving parts. • Hard hats, safety glasses, safety shoes, hearing protection. • Full compliance with ESE H&S Standard Operating Procedures (SOP) for monitoring and sampling. • Full compliance with James River Corporation site safety rules.
	<p>CHEMICAL - airborne vapors and particulates and liberated volatile organic compounds.</p>	<p>Level D personal protective equipment including disposable rubber gloves, protective eyewear, steel toe leather or rubber boots, and hearing protection. Modified to include half-face personal air purifying respirator equipped with dust and organic vapor filters, when VOC's exceed 5 ppm at breathing zone on a continuous basis or 50 ppm on an intermittent basis.</p>
GROUND WATER AND SOIL SAMPLING	<p>CHEMICAL - Exposure to airborne vapors and contact with impacted ground water.</p>	<p>Level D personal protective equipment including disposable rubber gloves, protective eyewear, steel toe leather or rubber boots, and hearing protection. Modified to include half-face personal air purifying respirator equipped with dust and organic vapor filters, when VOC's exceed 5 ppm at breathing zone on a continuous basis or 50 ppm on an intermittent basis.</p>

<u>Specific Condition/Contaminants/Level</u>		<u>Level of Protection or Action</u>
SITE INVESTIGATION	Visible airborne dust/volatile organic compound concentration greater than 5 ppm sustained or 50 ppm on an intermittent basis.	Don personal air-purifying respirator equipped with dust and organic vapor filters.
SAMPLING	Volatile organic compound concentration greater than 5 ppm sustained or 50 ppm on an intermittent basis.	Don personal air-purifying respirator equipped with dust and organic vapor filters.
Note: Monitoring Comments (e.g. Breathing Zone).		
Background levels of volatile organic compounds shall be collected every hour using Organic Vapor Meter. Measurements will be collected from the breathing zone of site workers periodically. Measurements shall be made with a Organic Vapor Meter. Upwind and downwind measurements shall be collected every hour. Noise levels above 85 dba will require hearing protection. Historical data indicates heavy equipment operations exceed 90dba, therefore hearing protection will be required during use of Heavy Equipment. [§29 CFR 1910.95.7]		

ENVIRONMENTAL SCIENCE & ENGINEERING, INC.

Physical Hazard Control:

SITE SAFETY MEETING PRIOR TO WORK TO IDENTIFY PHYSICAL HAZARDS. PROPER HANDLING, SERVICING, AND USE OF PERSONAL PROTECTIVE EQUIPMENT DESCRIBED ABOVE. NO PERSONS TO ENTER EXCLUSION (SAMPLING) ZONE OR APPROACH ANY MACHINE OPERATOR ON BLIND SIDE. NO PERSONS TO ENTER AREAS DESIGNATED BY SITE OWNER AS RESTRICTED UNLESS APPROVED. NO NONQUALIFIED PERSONS TO ENTER EXCLUSION ZONE. QUALIFIED PERSONS TO ENTER SAMPLING ZONE ONLY AFTER REVIEW OF HASP. DRY POWDER FIRE EXTINGUISHER AT WORK LOCATION AT ALL TIMES.

Chemical Hazard Control:

SITE SAFETY MEETING PRIOR TO WORK TO IDENTIFY CHEMICAL HAZARDS. PROPER HANDLING, SERVICING, AND USE OF PERSONAL PROTECTIVE EQUIPMENT DESCRIBED ABOVE. NO PERSONS TO ENTER CONFINED SPACE. NO NONQUALIFIED PERSONS TO ENTER EXCLUSION (SAMPLING) ZONE. NO PERSONS TO ENTER AREAS DESIGNATED BY SITE OWNER AS RESTRICTED UNLESS APPROVED. QUALIFIED PERSONS TO ENTER EXCLUSION (SAMPLING) ZONE ONLY AFTER REVIEW OF HASP. BREATHING ZONE TO BE MONITORED FOR VOLATILE ORGANIC COMPOUNDS. DUST TO BE MONITORED VISIBLY.

Personnel Protective Equipment:

RUBBER GLOVES, STEEL-TOED BOOTS WITH CHEMICAL RESISTANT SOLES, EAR PROTECTION, EYE PROTECTION AND HARD HAT. PERSONAL AIR-PURIFYING RESPIRATORS EQUIPPED WITH DUST AND ORGANIC VAPOR CARTRIDGES TO BE READILY AVAILABLE.

Site Control Methods and Procedures:

EXCLUSION (SAMPLING) ZONE OF 20 FEET WILL EXIST AROUND WORK AREA. ALL PERSONNEL ENTERING EXCLUSION (SAMPLING) ZONE WILL HAVE CURRENT/VALID OSHA HAZARDOUS MATERIALS TRAINING, CURRENT HAZARDOUS MATERIALS WORKER MEDICAL BASELINE MONITORING (ANNUAL), AND WILL BE REQUIRED FOR THE WORK BEING PERFORMED AT THE SITE.

Monitoring Equipment:		PID -- 10.6 EV Lamp	X	FID		OXYGEN METER		EXPLOSIMETER		
-----------------------	--	---------------------------	---	-----	--	-----------------	--	--------------	--	--

Instrument Calibrated: Daily

Date:

Where Documented*:
Daily Field Logs

Personnel and Area Monitoring Tasks and Frequency:

Periodic breathing zone measurements with PID (10.6 EV Lamp). Upwind and downwind measurements every hour. Constant monitoring will commence if concentration consistently greater than 10 ppm in breathing zone. These measurements will be documented in the Daily Field Logs of the Site Health & Safety Officer or the Site Team Leader.

Decontamination Procedures:

Personnel/Equipment - Segregated equipment drop with plastic liner established. Rubber gloves to be washed and rinsed with detergent and clean water. The washed rubber gloves will be discarded into a plastic bag. All reusable exposed equipment including eyewear and respirators will be washed and rinsed prior to removal of rubber gloves. Inner teflon gloves will be removed and placed in a plastic bag. Workers to wash hands and face with tap water.

Sampling Equipment - All sampling equipment will be steam cleaned or washed with detergent and rinsed with clean water prior to departing site. All rinsates will be placed in 55-gallon capacity DOT-rated drums and left at the site pending receipt of analytical results.

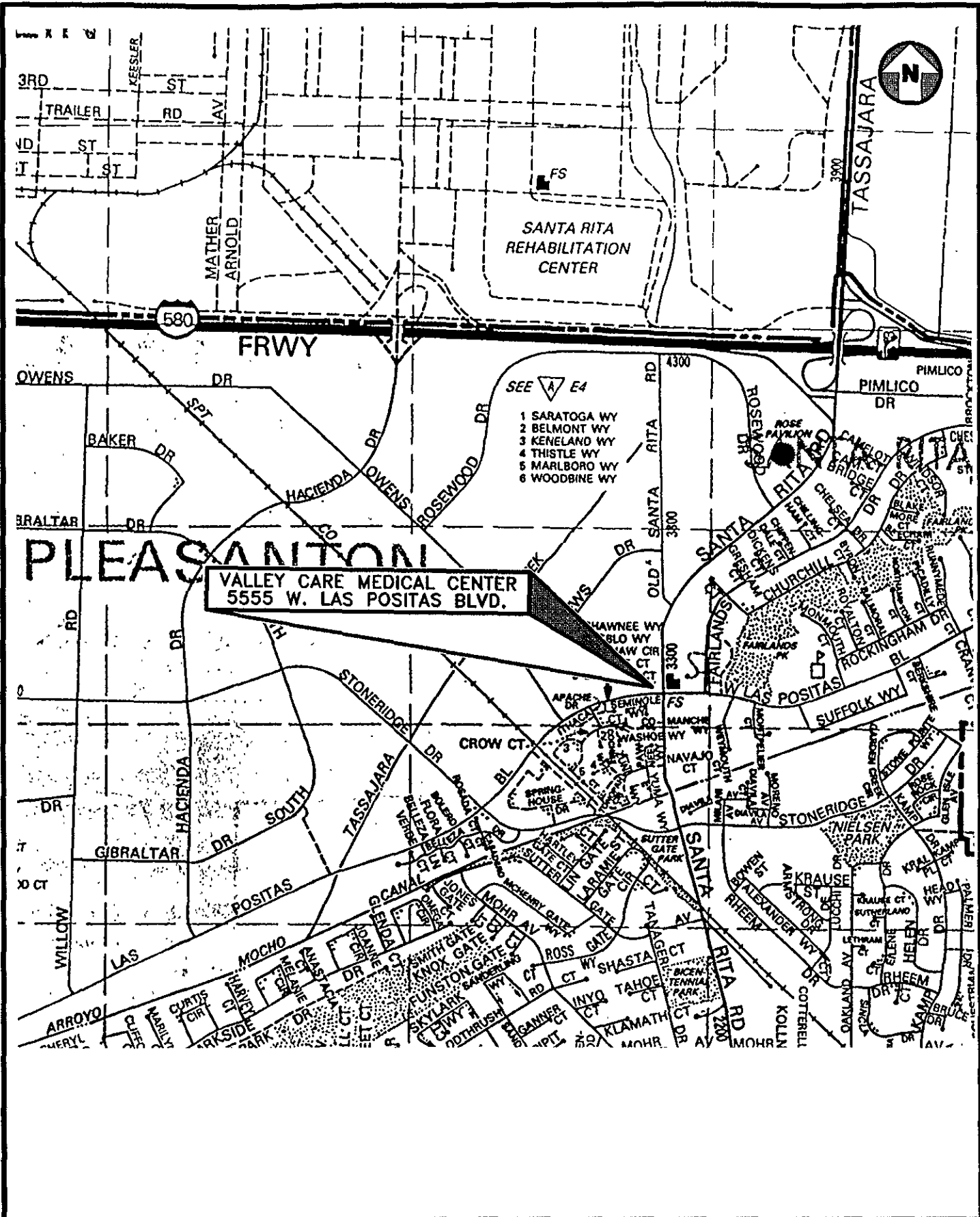
Equipment Required: Two bristle brushes; large container of clean water; pump/heater for steam cleaning; detergent for wash water; plastic containers lined with plastic bags for disposal. Two plastic containers, one for washing and one for rinsing.

Site Specific Training: Site worker documentation will show they meet the training requirements. [§ 29CFR 1910.120] Prior to starting field work the Field Team Leader or the Site Health and Safety Officer shall brief site workers on contents of this HASP and hazards. Each ESE employee shall sign HASP acknowledgement form, and site specific training log attached to HASP.

Site Specific Medical Requirements: Obtain pertinent MSDS's and Personnel training Certificates.

ATTACHMENT 1

ROUTE TO PRIMARY MEDICAL FACILITY



VALLEY CARE MEDICAL CENTER
5555 W. LAS POSITAS BLVD.

- SEE ∇ E4
- 1 SARATOGA WY
 - 2 BELMONT WY
 - 3 KENELAND WY
 - 4 THISTLE WY
 - 5 MARLBORO WY
 - 6 WOODBINE WY



**Environmental
Science &
Engineering, Inc.**

4090 NELSON AVENUE, SUITE J
CONCORD, CA 94520

DATE
11/22/95

REVISED

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**ATTACHMENT 1
PRIMARY MEDICAL FACILITY
ROUTE MAP**

ALAMEDA COUNTY GSA
SANTA RITA CORRECTIONAL FACILITY
DUBLIN, CALIFORNIA

ATTACHMENT NO.

1

PROJ. NO.
65-95-108

APPENDIX B
ESE STANDARD OPERATING PROCEDURE NO. 1

**ENVIRONMENTAL SCIENCE & ENGINEERING, INC.
CONCORD, CALIFORNIA OFFICE**

**STANDARD OPERATING PROCEDURE NO. 1
FOR SOIL BORINGS AND SOIL SAMPLING WITH HOLLOW-STEM AUGERS
IN UNCONSOLIDATED FORMATIONS**

Environmental Science & Engineering, Inc. (ESE) typically drills soil borings using a truck-mounted, continuous-flight, hollow-stem auger drill rig. The drill rig is owned and operated by a drilling company possessing a valid State of California C-57 license. The soil borings are conducted under the direct supervision and guidance of an experienced ESE geologist. Prior to drilling, the ESE geologist will clear the borehole location with a hand auger to a depth of five feet. The ESE geologist logs each borehole during drilling in accordance with the Unified Soil Classification System (USCS). Additionally, the ESE geologist observes and notes the soil color, relative density or stiffness, moisture content, odor (if obvious) and organic content (if present). The ESE geologist will record all observations on geologic boring logs.

Soil samples are collected during drilling at a minimum of five-foot intervals by driving an 18-inch long Modified California Split-spoon sampler (sampler), lined with new, thin-wall brass sleeves, through the center of and ahead of the hollow stem augers, thus collecting a relatively undisturbed soil sample core. The brass sleeves are typically two inches in diameter and six inches in length. The sampler is driven by dropping a 140-pound hammer thirty inches onto rods attached to the top of the sampler. Soil sample depth intervals and the number of hammer blows required to advance the sampler each six-inch interval are recorded by the ESE geologist on geologic boring logs. The ends of one brass sleeve are covered with Teflon sheeting, then covered with plastic end caps. The end caps are sealed to the brass sleeve using duct tape. Each sample is then labeled and placed on ice in a cooler for transport under chain-of-custody documentation to the designated analytical laboratory. A portion of the remaining soil in the sampler is placed in either a new Ziploc® bag or a clean Mason Jar® and set in direct sunlight to enhance the volatilization of any Volatile Organic Compounds (VOCs) present in the soil. After approximately 15 minutes that sample is screened for VOCs using a photoionization detector (PID). The PID measurements will be noted on the geologic boring logs. The PID provides qualitative data for use in selecting samples for laboratory analysis. Soil samples from the saturated zone (beneath the ground-water table) are collected as described above, are not screened with the PID, and are not submitted to the analytical laboratory. The samples from the saturated zone are used for descriptive purposes. Soil samples from the saturated zone may be retained as described above for physical analyses (grain size, permeability and porosity testing).

If the soil boring is not going to be completed as a well, then the boring is typically terminated upon penetrating the saturated soil horizon or until a predetermined interval of soil containing no evidence of contamination is penetrated. This predetermined interval is typically based upon site specific regulatory or client guidelines. The boring is then backfilled using either neat cement, neat cement and bentonite powder mixture (not exceeding 5% bentonite), bentonite pellets, or a sand and cement mixture (not exceeding a 2:1 ratio of sand to cement). However, if the boring is to be completed as a monitoring well, then the boring is continued until either a competent, low estimated-permeability, lower confining soil layer is found or ten to fifteen feet of the saturated soil horizon is penetrated, whichever occurs first. If a low estimated-permeability soil layer is found, the soil boring will be advanced approximately five-feet into that layer to evaluate its competence as a lower confining layer, prior to the termination of that boring.

All soil sampling equipment is cleaned between each sample collection event using an Alconox® detergent and tap water solution followed by a tap water rinse. Additionally, all drilling equipment and soil sampling equipment is cleaned between borings, using a high pressure steam cleaner, to prevent cross-contamination. All wash and rinse water is collected and contained onsite in Department of Transportation approved containers (typically 55-gallon drums) pending laboratory analysis and proper disposal/recycling.

Nov. 1995

**Workplan for Site Investigation
UST 1,2,3 Site
Santa Rita Correctional Facility
Dublin, California**

Prepared for:

Alameda County Health Care Services Agency
Division of Hazardous Materials
Department of Environmental Health
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577

Prepared by:

Environmental Science & Engineering, Inc.
4090 Nelson Avenue, Suite J
Concord, CA 94520
(510) 685-4053

November 1995

ESE Project No. 6595108

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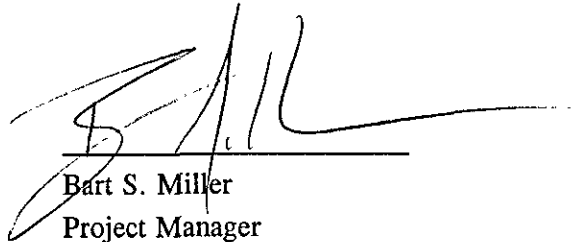
- Appendix A Health and Safety Plan (HASP)
- Appendix B ESE Standard Operating Procedures No. 1

This workplan has been prepared by Environmental Science and Engineering, Inc. (ESE) for the exclusive use of the Alameda County General Services Agency as it pertains to their site located at the UST 1,2,3 Site, Santa Rita Correctional Facility, Dublin, California. This workplan was prepared with that degree of care and skill ordinarily exercised by other geologists and engineers practicing in this field. No other warranty, either expressed or implied, is made as to professional advice in this workplan.

WORKPLAN PREPARED BY:

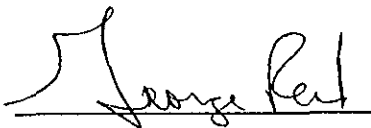


Eric Garcia
Senior Staff Geologist



Bart S. Miller
Project Manager

UNDER THE PROFESSIONAL SUPERVISION OF:



George Reid
Senior Geologist
Registered California Geologist No. 3608

November 16, 1995

ESE Project No. 65-95-108

1.0 Introduction

This workplan has been prepared by Environmental Science & Engineering, Inc. (ESE) for the Alameda County Health Care Services Agency (HCSA) on behalf of the Alameda County General Services Agency (GSA). It pertains to the UST 1,2,3 Area (site) located at the Santa Rita Correctional Facility, Dublin, Alameda County, California (Figure 1 - Location Map). The GSA formerly owned and operated three underground storage tanks (USTs) at the site (Figure 2 -Site Map). UST removal activities performed during 1988 indicated the presence of soil impacted with petroleum hydrocarbons in the excavation. The plume of impacted soil in the unsaturated zone was defined during a preliminary site investigation conducted in 1988. The impacted soil was reportedly overexcavated during the same year.

ESE has been retained by the GSA to perform a limited site investigation at the site. The objectives of the work described in this workplan are to:

- Determine whether all soil at the site impacted with petroleum hydrocarbons was removed during overexcavation;
- If impacted, determine the vertical and lateral extent of petroleum hydrocarbons in the soil;
- Determine whether ground water beneath the site has been impacted; and
- Properly abandon four existing ground water monitoring wells located approximately 300 feet to the east of the UST 1,2,3 location.

2.0 Background

In March, 1988, Environmental Technology directed the removal of three USTs at the subject site under permit from the HCSA and the Dougherty Regional Fire Authority. The County of Alameda owned and operated one 3,000-gallon capacity UST (UST 1) for the storage of diesel fuel and two 5,000-gallon capacity USTs (UST 2 and UST 3) for the storage of Bunker C fuel oil. The fuels were used to operate a series of boilers formerly located at the site. Each UST was of single-wall carbon steel construction.

During the removal of the USTs, the HCSA witnessed the collection of eight soil samples from the base of the excavation. All samples were analyzed for total petroleum hydrocarbons as diesel fuel (TPH-D) and gasoline (TPH-G) using EPA Method 8015 (modified per CA LUFT) and total oil and grease (TOG) using Standard Method for the Examination of Water and Waste Water (SMWW) Method 503E. Four samples were reported to contain detectable concentrations of TPH-D ranging from 25 to 15,500 parts per million (ppm) and two samples were reported to contain TPH-G concentrations of 50 ppm and 195 ppm, respectively. All eight samples were reported to contain detectable concentrations of TOG ranging from 6 to 1,097 ppm.

A preliminary site assessment was performed by Gregg & Associates during March 1988 to determine the areal extent of soil impacted with petroleum hydrocarbons. One soil sample was collected at a depth of 15 feet from each of the four borings (1C, 3D, 3E, and 3F) drilled during the preliminary site assessment and analyzed for TPH-D. No detectable concentrations of TPH-D were reported to occur in the four samples. Detectable concentrations of TOG were reported for each sample and ranged from 22 to 42 ppm. Based on these findings, Gregg & Associates supervised the overexcavation of soil impacted with petroleum hydrocarbons. All findings were documented in an Underground Tank Removal and Site Remediation Report prepared by Gregg & Associates and submitted to the HCSA during May, 1988.

On November 3, 1993, ESE measured and mapped the stockpiled soil at the subject site. ESE estimated the total volume of the stockpiled soil at the site to be approximately 400 cubic yards. On November 24, 1993, ESE submitted a workplan to the HCSA for sampling the stockpiled soil. Subsequently, ESE collected soil samples from the stockpile on November 30, 1993 at a frequency of one sample for every 50 cubic yards and analyzed each for TPH-D and benzene, toluene, ethylbenzene, and total xylenes (BTEX) using EPA Method 8015 (modified per CA LUFT) and EPA Method 8020, respectively. Of the eight soil samples analyzed, one sample (SP-3-2.5') was reported to contain TPH-D at a concentration of 130 ppm. Results of the stockpile sampling were presented to the HCSA in a letter report dated December 7, 1993.

On May 11, 1994, ESE supervised the loading, hauling, and disposal of the 50 cubic yards of stockpiled soil reported to contain detectable concentrations of TPH-D. The impacted soil was hauled to the BFI-Vasco Road landfill for disposal. The remaining 350 cubic yards of stockpiled soil were spread at the site on the ground surface.

On June 24, 1994, ESE submitted a workplan to the GSA and HCSA describing the tasks to be performed to determine if petroleum hydrocarbons occur in the soil adjacent to the former USTs 1, 2, and 3. Subsurface investigation field activities were performed at the site on September 6, 1994.⁴ A Site Assessment Report was prepared by ESE and submitted to the GSA and HCSA on December 21, 1994. A comprehensive description of site history, regional geology, and regional hydrology was presented in this report. This Site Assessment Report also included analytical results for ground water samples collected from the four ground water wells installed. The results for the samples collected indicated no detectable concentrations of TPH-D, TOG, and BTEX. The report recommended that three additional quarters of ground water monitoring be performed at the site prior to requesting site closure from the HCSA.

However, wells located @ wrong site!

Subsequently, three ground water monitoring events were performed at the site during December 1994, February 1995, and May 1995. No detectable concentrations of TPH-D or BTEX were reported to occur in any of the ground water samples collected during the monitoring events.

The location of the monitoring wells is approximately 300 feet east of the former USTs. GSA, HCSA, and ESE met at the site on November 8, 1995 to discuss the need for supplemental information on subsurface conditions closer to the former UST location. Both GSA and HCSA agreed that some additional subsurface investigation is appropriate.

3.0 Site Investigation

To accomplish the stated objectives of this investigation, ESE will perform a site investigation which includes drilling soil borings, collecting and analyzing soil samples, collecting and analyzing Hydropunch® ground water samples, properly abandoning four existing ground water monitoring wells, and preparing a site investigation report.

Prior to beginning work, ESE will obtain the necessary permits for drilling soil borings and abandoning existing monitoring wells at the site. In addition, ESE will review the site Health and Safety Plan (HASP) prepared for this investigation with all onsite personnel, subcontractors, and qualified visitors. The HASP is included as Appendix A - Health and Safety Plan. All work to be performed by ESE at the site will be in accordance with Tri-Regional Water Quality Control Board guidelines (RWQCB, 1990) and other applicable State regulations and standards.

3.1 Drilling and Soil Sampling

ESE will supervise Exploration Geoservices of San Jose, California in drilling and sampling three soil borings at the site. Boring locations have been selected based on information provided by the GSA and ESE knowledge of the site and the surrounding area (Figure 2). Ground water monitoring activities conducted by ESE in wells located approximately 300 feet to the east of the former UST area have consistently indicated a north-northeast ground water flow direction at a gradient of approximately 0.002 to 0.003 foot per foot (ESE, 1994; ESE, 1995a; ESE, 1995b; ESE, 1996c).

One boring (B1) will be drilled at a location approximately 40 feet northeast of the former UST 1 location, one boring (B2) will be drilled at a location approximately 25 feet southeast of the former UST 3 location, and one boring (B3) will be drilled at a location approximately 25 feet west of the former UST 1 location (Figure 2). All soil borings will be drilled to the first occurrence of ground water approximated to be at a depth of approximately 35 feet below grade. Given this, ESE anticipates the total depth of each boring to be approximately 35 to 40 feet below grade.

Soil samples will be collected from the soil borings to the occurrence of ground water at five-foot intervals, lithologic contacts, zones of obvious petroleum hydrocarbon impact, and the soil-ground water interface, if possible. All samples will be logged by an ESE geologist using the Unified Soil Classification System (USCS) and screened in the field for volatile organic compounds (VOCs) using a photoionization detector (PID). ESE will select three soil samples from each boring (total of 9 samples) for analyses based on the results of field sample logging and screening. All drilling and sampling activities will be conducted in accordance with ESE Standard

Operating Procedure (SOP) No. 1 for soil borings and soil sampling with hollow-stem augers in unconsolidated formations (Appendix B).

Soil samples will be labeled, placed in a cooler with ice, and transported under chain-of-custody documentation to McCampbell Analytical (a State-certified laboratory) of Pacheco, California. Each of the soil samples will be analyzed for TPH-D using EPA Method 8015M, and BTEX using EPA Method 8020 on a five-day turnaround time basis. Additional analyses for polynuclear aromatics (PNAs), using EPA Method 8310, will be included only if there are detectable concentrations of TPH-D. OK

All drill cuttings will be placed on and under heavy gauge plastic and left at the site pending receipt of analytical results. Decontamination rinsates will be placed in appropriately labeled, 55-gallon-capacity steel Department of Transportation (DOT)-rated drums and left at the site pending receipt of analytical results.

3.2 Hydropunch® Ground Water Sampling

One "grab" ground water sample will be collected from each soil boring using a Hydropunch® sampler. After each boring has been drilled to the first occurrence of water saturation, the Hydropunch® sampler will be mechanically advanced through the center of the hollow-stem augers into the relatively undisturbed soil beneath the lower extent of the augers. The outer sheath of the Hydropunch® will then be retracted approximately 36 inches to expose a new Teflon® screen. The Teflon® screen will be exposed to the subsurface for a period of approximately 30 minutes after which a clean stainless steel bailer will be lowered into the screened interval. Ground water will be collected in the bailer and decanted into appropriate laboratory-supplied glassware, labeled, and placed in a cooler with ice for transport under chain-of-custody documentation to McCampbell Analytical. The ground water samples will be analyzed for TPH-D using EPA Method 8015, and BTEX using EPA Method 8020 on a five-day turnaround time basis. Additional analyses for polynuclear aromatics (PNAs), using EPA Method 8310, will be included only if there are detectable concentrations of TPH-D. For quality assurance/quality control (QA/QC) purposes, ESE will also submit a trip blank supplied by the laboratory for BTEX analysis using EPA Method 8020. A trip blank consisting of deionized water will accompany the samples and will be analyzed to provide a check on sample handling and transport procedures. OK

Upon completion of sampling, the resultant borings will be backfilled to grade with neat cement grout using the hollow-stem auger as a tremie to place the grout beneath the occurrence of ground water.

Decontamination rinsates will be placed in appropriately labeled, 55-gallon-capacity steel Department of Transportation (DOT)-rated drums and left at the site pending receipt of analytical results.

3.3 Well Abandonment

ESE will supervise Exploration Geoservices during the abandonment of monitoring wells MW-1, MW-2, MW-3, and MW-4 located approximately 300 feet east of the former UST site. All well abandonment activities will be performed in accordance with the guidelines of the State of California Department of Water Resources Water Well Standards (1981) and the Zone 7 Water Agency.

The polyvinyl chloride (PVC) casing of each well will be drilled out using a Mobile hollow-stem auger drill rig. The resultant borings will then be backfilled to grade with neat cement grout using the hollow-stem auger as a tremie to place the grout beneath the occurrence of ground water. The soil cuttings generated during the well abandonment activities will be spread on the ground surface at the site. All inert waste products, including well monuments and PVC casing, will be hauled offsite for recycling/disposal.

3.4 Data Analysis and Report Preparation

ESE will prepare a site assessment report describing the procedures used in the field during this investigation. The report will also present the analytical results of the investigation and relevant conclusions based upon interpretations of the field observations and the analytical data. Geologic boring logs and laboratory reports with chain-of-custody documents will be presented as appendices to the report.

3.5 Estimated Schedule

Upon receipt of HCSA approval, ESE will complete the initial site assessment field work described in this workplan within a period of approximately two weeks. All samples (soil and ground water) will be analyzed on a five working-day turnaround basis. ESE will present a Site Assessment Report to the HCSA within two weeks after the receipt of the analytical results.