



Environmental  
Science &  
Engineering, Inc.

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September 24, 1992

ESE Project No. 6-92-5393

Mr. Ravi Arulanantham  
Alameda County  
Department of Environmental Health  
80 Swan Way, Room 200  
Oakland, California 94621

165-13<sup>th</sup> St

**SUBJECT: Workplan for the Preliminary Assessment of Underground Storage Tanks at the Alameda County ALCOPARK Facility, Eastern Corner of Jackson Street and 12th Avenue, Oakland, Alameda County, California.**

94612

Dear Mr. Arulanantham:

Environmental Science & Engineering, Inc. (ESE) has prepared this workplan on behalf of Alameda County General Services Agency (ACGSA). This workplan describes the procedures to be undertaken for a preliminary assessment of soil and ground water quality adjacent to and beneath the location of two underground storage tanks (USTs) located at the eastern corner of the intersection of Jackson and 12th Streets in Oakland, California (Figure 1). These USTs were used by Alameda County to fuel county vehicles. The objective of this investigation is to determine if the soil and ground water in the vicinity of the tanks has been impacted by petroleum hydrocarbons. To achieve this objective, ESE proposes to perform the following:

### HEALTH AND SAFETY PLAN

ESE will prepare a Health and Safety Plan (HASP) prior to beginning work at the site. This document will be reviewed by a Certified Industrial Hygienist (CIH). The HASP will delineate general and site specific safe work practices to be followed by all ESE personnel, subcontractors and site visitors. The HASP will also list local and national emergency telephone numbers, and will provide a detailed description and map of the route to the nearest hospital.

## FIELD WORK

ESE will drill three soil borings at locations surrounding two USTs, and one boring adjacent to tank fill piping. The two tanks and their associated piping are located at the eastern corner of Jackson and 12th Streets. The soil boring locations, shown on Figure 2, will be within ten feet of the lateral extent of the tanks, and will be located to provide two downgradient locations and one upgradient location with respect to the tanks and the direction of ground water flow. Through work on projects in the vicinity of this site, ESE has determined that the ground water flow direction in the area is towards the east to southeast.

Due to limited access in the vicinity of the USTs the soil borings will be drilled using a low clearance skid mounted hollow stem auger drill rig. The borings will be drilled to the occurrence of ground water, approximately 23 feet below ground surface (bgs). Soil samples will be collected during drilling at approximate five foot intervals. The soil borings and soil sampling will be conducted in accordance with ESE Standard Operating Procedures Document No. 1, included as Attachment No. 1.

At the base of each boring ground water samples will be collected by driving a Hydropunch® tool through the center of the hollow-stem augers into the saturated zone beneath the lower extent of the augers. The outer sheath of the Hydropunch® will then be retracted approximately 36-inches to expose an unused Teflon® screen. The Teflon® screen will remain exposed to the subsurface for a period of approximately 15 to 30 minutes after which a clean polyethylene bailer will be lowered into the screened interval. Ground water collected will be decanted into appropriate laboratory supplied glassware, labeled, and placed in a cooler with ice for transport to a State-Certified laboratory under Chain-of-Custody documentation. The polyethylene bailer will be washed in an Alconox® and tap water solution followed by a clean water rinse between sampling events in order to prevent cross-contamination. A new Teflon screen will be used for each Hydropunch location.

## ANALYTICAL LABORATORY

ESE will contract Sequoia Analytical Laboratory (Sequoia), of Concord, California to perform analyses on soil and water samples collected from this site. Sequoia is a state certified laboratory. Since the former contents of the USTs is reported to have been only gasoline, the two soil samples from each boring will be analyzed by EPA Methods 8015 and 8020 for Total Petroleum Hydrocarbons as Gasoline (TPH-G) and Benzene, Toluene, Ethylbenzene, and Total Xylenes (BTEX), respectively. The four ground water samples

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collected using the hydropunch will also be analyzed by EPA Methods 8015 and 8020 for TPH-G and BTEX, respectively.

### REPORTING

ESE will prepare a report of the investigation documenting the methods employed while conducting field activities. The report will also present the findings of the investigation and present conclusions and recommendations based upon the findings. The report will include geologic boring logs, and figures showing concentrations of petroleum hydrocarbons in soil and ground water (if applicable). Copies of the report will be submitted to ACGSA, Alameda County Department of Environmental Health (ACDEH), and the Regional Water Quality Control Board, San Francisco Bay Region.


If you have any questions or comments concerning this workplan, please call the undersigned at (510) 685-4053. ESE would like to begin drilling at this site during the week off October 12, 1992.

Sincerely,

ENVIRONMENTAL SCIENCE & ENGINEERING, INC.



Michael K. Edmonson  
Project Geologist



Susan S. Wickham  
Senior Geologist  
California Registered Geologist No. 3851

cc: Mr. Peter Kinney, ACGSA

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

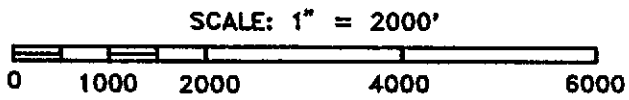
**STANDARD OPERATING PROCEDURE NO. 1  
FOR SOIL BORINGS AND SOIL SAMPLING WITH HOLLOW-STEM AUGERS  
IN UNCONSOLIDATED FORMATIONS**


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. 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.

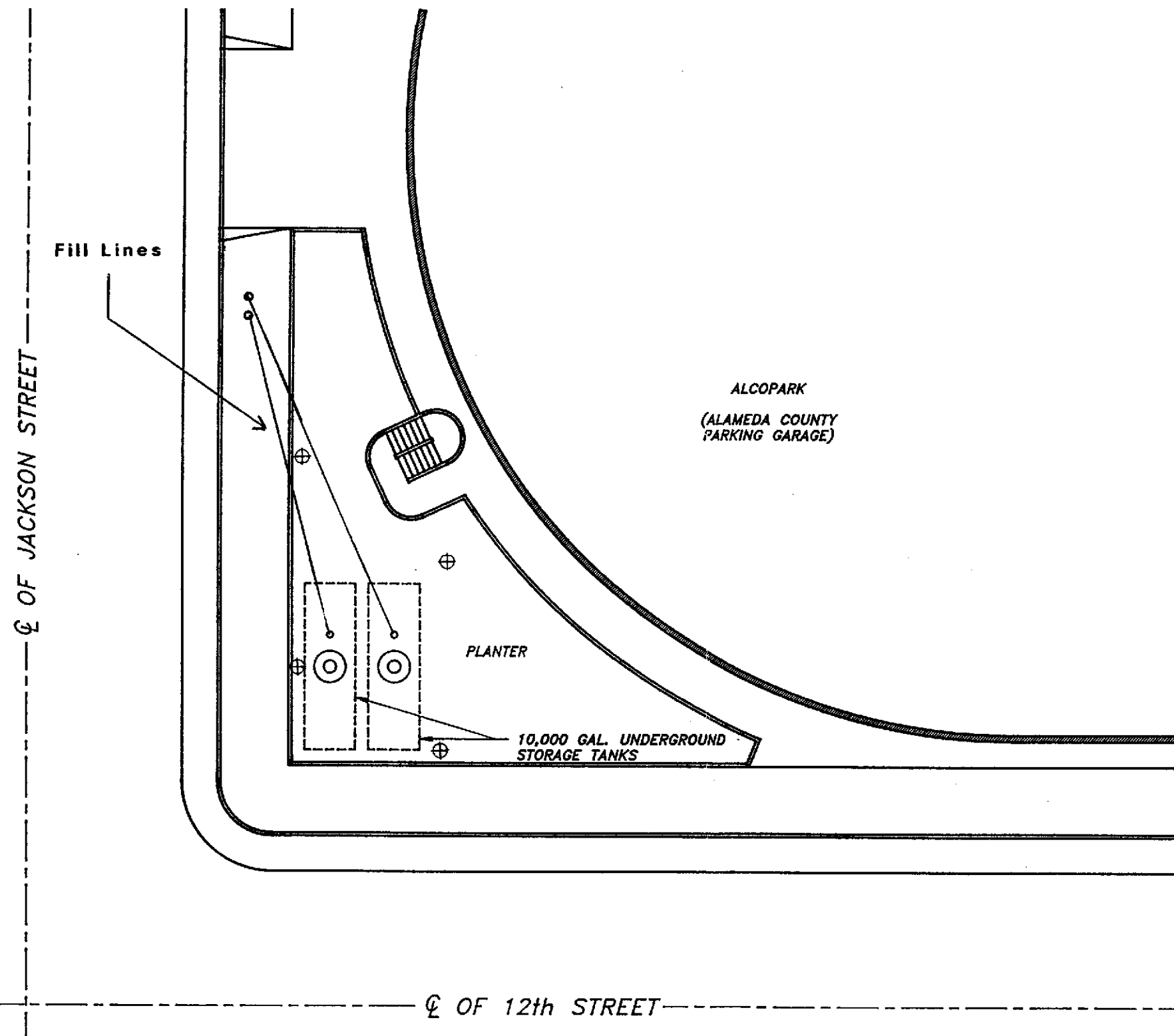
Soil samples are collected during drilling at a minimum of five-foot intervals by driving an 18-inch long Modified California Split-spoon sampler (sampler), lined with new, thin-wall brass sleeves, through the center of and ahead of the hollow stem augers, thus collecting a relatively undisturbed soil sample core. The brass sleeves are typically 2-inches in diameter and 6-inches in length. The sampler is driven by dropping a 140-pound hammer 30-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 10 to 15-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.




		<b>Environmental Science &amp; Engineering, Inc.</b>
<b>ALEMEDA COUNTY ALCOPARK OAKLAND, CALIFORNIA</b>		
<b>FIGURE 1 LOCATION MAP</b>		
<small>DRAWN BY</small> DWR	<small>APPROVED BY</small> 	<small>REVISED</small> 
<small>DATE</small> 10/91	<small>FILE NAME</small> F2TOP010	<small>PROJ. NO.</small> 6-90-6042



**LEGEND**

⊕ Proposed Soil Boring with Hydropunch™



		<b>Environmental Science &amp; Engineering, Inc.</b> <small>A GOLDER COMPANY</small>
<b>ALAMEDA COUNTY G.S.A. ALCOPARK FACILITY OAKLAND, CALIFORNIA</b>		
<b>FIGURE 2 PARTIAL SITE PLAN</b>		
<small>DRAWN BY</small> CVS	<small>APPROVED BY</small>	<small>REVISED</small>
<small>DATE</small> 9/92	<small>FILE NAME</small> 53932001	<small>PROJ. NO.</small> 6-92-5393



Environmental  
Science &  
Engineering, Inc.

FACSIMILE

DATE: September 24, 1992 TIME: 14:00

TO: RAVI ARULANATHAM FROM: ESE - Mike Edmonson  
ALAMEDA COUNTY 4090 Nelson Way, Suite J  
DEPT. ENVIRONMENTAL HEALTH Concord, CA 94520

FAX #: 569-4757 JOB #: 6-92-5393

SUBJECT: Preliminary Investigation of Alameda County  
ALCO PARK

Number of Pages

(Including this Cover Sheet)

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ADDITIONAL MESSAGE:

ESE would like to begin drilling on  
October 10, 1992. Please review and  
return comments to Michael Edmonson, ESE.

If you have any questions, please call us immediately at (510) 685-4053.