General Services Agency

Darlene A. Smith, Director

95 MAR 8 AM 9:22

March 8, 1995

① Why weren't MW4 screened through gravelly sand here at 35-40'?
OR why not more screen into clayey gravel 58-60' on down?
② check soil boring results on extent of soil contam
③ Cont. GW - can still detect since there are wells and contam to NW, N-NE, SSW

Ms. Eva Chu
Hazardous Materials Specialist
Alameda County Health Care Services
Department of Environmental Health
1131 Harbor Bay Parkway, Second Floor
Alameda, California 94502

SUBJECT: REPORT OF ADDITIONAL SITE ASSESSMENT
Above Ground Storage Tank AGT-5, Staples Ranch Property
El Charro Road, Pleasanton, California

Dear Ms. Chu:

Enclosed please find one copy of the February 13, 1995, report entitled "Report of Additional Site Assessment, Alameda County, General Services Agency, Engineering and Environmental Management Department, Staples Ranch Property, El Charro Road, Pleasanton, California." This report was prepared by Environmental Science and Engineering, Inc. (ES&E), and documents the additional investigations conducted at the Staples Ranch Above Ground Storage Tank site 5 (AGT-5) conducted December 1994.

Please note that ES&E is recommending the following:

- Quarterly groundwater monitoring and sampling at wells MW1, MW2, MW3, and MW4, be performed and reported to the HCSA for a period of three consecutive quarters.

- If petroleum hydrocarbon constituents are not reported to be present in the samples collected that a recommendation of no further action be made and a request for site closure be granted.

At this time we are beginning collection of the three quarters of groundwater monitoring as recommended by ES&E. I will forward to you a copy of each of the three quarterly reports, including laboratory sample data, as they become available.

Engineering & Environmental Management Department
1401 Lakeside Drive, 11th Floor, Oakland, California 94612
Telephone (510) 208-9525 • FAX (510) 208-9530

Mr. Andy Garcia, who previously managed this project, has left The Agency. I will now be the primary contact for this project. Thank you for your cooperation on this matter. Should you have any additional questions or comments, please call me at (510) 208-9520.

Sincerely,

Thomas McKimmy, REA
Environmental Project Manager

enclosure

g:\crspndc\tmckimmy\ec0308.doc

FEB 27 1995

ENVIRONMENTAL
PROTECTION

95 MAR 13 AM 9:22

REPORT OF ADDITIONAL SITE ASSESSMENT
ALAMEDA COUNTY
GENERAL SERVICES AGENCY
ENGINEERING AND ENVIRONMENTAL MANAGEMENT DEPARTMENT
STAPLES RANCH PROPERTY, EL CHARRO ROAD
PLEASANTON, CALIFORNIA

(ESE PROJECT #6-94-5353)

MW 2+3 installed in 12/12-13/94 and MW 1, MW 4 MW5 were installed at 12/20-21/94, not as proposed in WP dated 12/94. Note, work began before WP was approved.

PRESENTED TO:

ALAMEDA COUNTY HEALTH CARE SERVICES AGENCY
DIVISION OF HAZARDOUS MATERIALS
DEPARTMENT OF ENVIRONMENTAL HEALTH
80 SWAN WAY, ROOM 350
OAKLAND, CALIFORNIA 94621

screen interval appears wrong. Previous detected GW at 35'; new wells are screened in silty clay, not in saturated zone

PREPARED BY:

ENVIRONMENTAL SCIENCE & ENGINEERING, INC.
4090 NELSON AVENUE, SUITE J
CONCORD, CALIFORNIA 94520
(510) 685-4053

FEBRUARY 13, 1995

ESE
A CILCORP Company

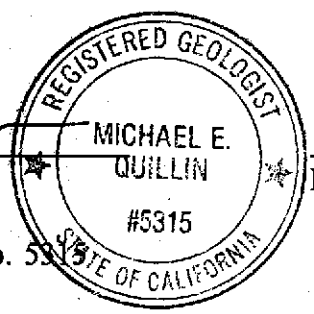
This site assessment report has been prepared by Environmental Science and Engineering, Inc. (ESE) for the exclusive use of the Alameda County General Services Agency as it pertains to their site known as the Staples Ranch Property located at El Charro Road, Pleasanton, California. This report was prepared with that degree of care and skill ordinarily exercised by other geologists and engineers practicing in this field. No other warranty, either express or implied, is made as to professional advice in this workplan.

REPORT PREPARED BY:

Bart S. Miller
Project Geologist

FEBRUARY 23, 1995
Date

UNDER THE PROFESSIONAL SUPERVISION OF:



Michael E. Quillin
Senior Hydrogeologist
Registered California Geologist No. 5315

FEBRUARY 23, 1995
Date

February 13, 1995

ESE Project No. 6-94-5353

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REPORT OF ADDITIONAL SITE ASSESSMENT
STAPLES RANCH PROPERTY, EL CHARRO ROAD
PLEASANTON, CALIFORNIA

1.0 INTRODUCTION

This report presents the results of site assessment activities performed by Environmental Science & Engineering, Inc. (ESE) for the Alameda County General Services Agency (GSA) at the Staples Ranch Property ("site") during the month of December, 1994 (Figure 1 - Location Map). ESE submitted a workplan dated December 6, 1994 to the GSA and the Alameda County Health Care Services Agency (HCSA) describing the tasks to be performed during this site assessment (ESE, 1994c).

The primary objectives of the site investigation were to investigate the ground water gradient beneath the area of the former aboveground storage tank (AGT) referred to as AGT-5 and to determine the approximate extent of the diesel plume in ground water beneath the site (Figure 2 - Site Map).

Site history, a summary of the regional geology and hydrology, field methodologies for soil sampling, well installation and ground water sampling, and the reported analytical results for soil and ground water samples collected during this site assessment are presented in the following sections. This report also discusses the findings obtained from this investigation, presents conclusions, and provides recommendations for future site activities.

2.0 SITE HISTORY

The County of Alameda owned and operated three AGTs (AGT-1, AGT-4 and AGT-5) of 250-gallon-capacity at the site. One underground storage tank (UST) of 500-gallon capacity, UST-2, was also identified at the site. The AGTs and the UST were of single-wall, carbon steel construction. Their installation dates are reportedly unknown. Heating oil was reportedly stored in both AGT-1 and AGT-4 and diesel fuel was reportedly stored in AGT-5 and UST-2.

A Phase I Preliminary Site Assessment was performed by Harza Kaldveer Consulting Engineers (Harza Kaldveer) at the site during 1993 (Harza Kaldveer, 1993). Soil samples collected from one soil boring, EB-5, located approximately five feet west of AGT-5, were reported to contain concentrations of total petroleum hydrocarbons as diesel fuel (TPH-D) ranging from 1.5 to 1,900 milligrams per kilogram (mg/Kg), to a depth of 40-feet below grade. The sediments in the unsaturated zone at EB-5 were reported to be comprised of a sequence of clays, silts, and sands. Ground water was reported to occur at a depth of 35-feet below grade. No other soil borings were drilled in the vicinity of AGT-5 during the Phase I. Soil samples collected from borings drilled at the other AGT and UST locations were reported not to contain detectable concentrations of TPH-D.

Under permit from the HCSA and the Alameda County Fire Department, ESE directed the removal and disposal of the AGTs and UST on April 26 and October 20, 1994. The AGTs and UST were noted to be in good condition based on visual observations made during removal. AGT/UST closure reports were prepared by ESE and submitted to the GSA and the HCSA on June 8 and November 30, 1994. Site closures for UST-2 and AGT-4 were obtained on July 14, 1994 and for AGT-1 on December 28, 1994.

A preliminary site investigation consisting of eight soil borings was performed by ESE at the AGT-5 location on April 28 and 29, 1994. Results confirmed that diesel fuel had been released to the ground surface at that location and that the diesel plume had migrated downward through the unsaturated zone and impacted the upper zone of ground water beneath the site at a depth of

approximately 35 feet. The approximate dimensions of the diesel plume in the unsaturated zone were defined during the preliminary site investigation. ESE has estimated the volume of impacted soil to be 200 cubic yards. These findings were documented in a site investigation report dated June 15, 1994 (ESE, 1994a) and submitted to the GSA and the HCSA.

Pursuant to the request of the HCSA, the GSA was requested to investigate the potential impact to local ground water beneath the site in the area of AGT-5. A workplan was prepared by ESE and submitted to GSA and HCSA on December 7, 1994. The proposed scope of work was intended to investigate the vadose zone and ground water lateral to the area of known impact. ESE performed all field activities described in the workplan during December, 1994 and January, 1995.

3.0 REGIONAL GEOLOGY AND REGIONAL HYDROLOGY

3.1 REGIONAL GEOLOGY

The site is located within the Coast Ranges geomorphic province (Norris and Webb, 1976) at the western boundary of the Livermore Valley depression, located midway between the southern part of San Francisco Bay and the San Joaquin Valley. The Livermore Valley is approximately 13 miles long in an east-west direction and approximately 4 miles wide and is completely surrounded by hills of the Diablo Range.

The site is situated within an alluviated lowland portion of the Livermore Valley referred to as the Amador Sub-basin (State of California Department of Water Resources, 1974). Unconsolidated alluvial sediments, also referred to as valley fill materials, in this basin are reported to be greater than 500 feet in thickness and are underlain by semi-consolidated to consolidated sedimentary rocks of Tertiary age.

The Livermore Valley fill materials are comprised of alluvial sediments of Quaternary age (State of California Department of Water Resources, 1974). Alluvium of Pleistocene to Holocene age has also been deposited in the gently sloping central area of the Livermore Valley and adjacent to active streams in the ravines and canyons tributary to Livermore Valley. The alluvium consists of unconsolidated deposits of interbedded clay, silt, fine sand, and lenses of clayey gravel. These sediments overlie the finer-grained sedimentary rocks of the Livermore Formation.

The Livermore Valley is bisected by six major faults or fault groups and at least five other faults of a more local nature (State of California Department of Water Resources, 1974). The major faults are the Carnegie, Tesla, Mocho, Livermore, Pleasanton, and Calaveras Faults. The minor faults include the Parks, Verona, and several unnamed faults. The site is located on a downdropped block of land bounded by the Parks Fault to the north, the Verona Fault to the south, the Pleasanton Fault to the west, and the Livermore Fault to the east.

3.2 REGIONAL HYDROLOGY

The water-bearing sediment series in the Livermore Valley are multi-layered systems having an unconfined upper aquifer over a sequence of leaky or semi-confined aquifers (State of California Department of Water Resources, 1974). The Livermore Valley Ground Water Basin has been divided into approximately 12 hydrologic sub-basins on the basis of fault traces and hydrologic discontinuities. The northern boundary of the Amador sub-basin is a permeability barrier formed by the interfingering of alluvial deposits and the southern boundary of the sub-basin is formed partly by the contact of the water-bearing Livermore Formation with nonwater-bearing rocks and partly by the drainage divide between Livermore Valley and Sunol Valley.

Regional ground water flow maps indicate that water in the uppermost aquifer beneath the site flow toward the southwest (Alameda County Flood Control and Water Conservation District, 1990; 1991). Ground water in the sub-basin has been analyzed by the State of California Department of Water Resources (1974) and is classified as sodium carbonate water of irrigation Class II quality.

The northern portion of the site is crossed by the east-southeast flowing Arroyo Las Positas and the southern portion of the site is crossed by the east-southeast flowing Arroyo Mocho. Both streams are considered to be major drainages for the Livermore Valley and are located in modified earth channels which converge just west of the site.

6.0 DISCUSSION AND SUMMARY

6.1 GROUND WATER GRADIENT

Site geology indicates that the gravelly sand layer occurring at a depth of approximately 35 to 38 feet may act as a seasonal, perched water-bearing zone. Selective infiltration of the perched water into some site wells may be due to well construction parameters, anisotropic characteristics of the gravelly sand layer, or a combination of both. When compared to observations made during past site activities (ESE, 1994b), it appears the volume of water in the gravelly sand layer has increased significantly. This is most probably due to recent heavy precipitation events in the vicinity and at the site.

Based on the ground water measurements obtained on February 1, 1995, the ground water beneath the site is estimated to flow toward the northeast. To accurately determine ground water gradient, three ground water elevations are required from wells completed over and being influenced by the same water-bearing zones. One additional well of similar completion to two existing site wells would be required to determine ground water gradient. However, the objective of this study is to determine whether a petroleum hydrocarbon plume is migrating from the site in ground water. Analytical results for ground water and soil samples collected during this site assessment and past site assessment activities (ESE, 1994b) indicate that the plume has not migrated. ESE concludes that the installation of additional wells for gradient determination at the site is unnecessary. However, additional monitoring of ground water elevations in existing site wells will provide a hydrological history of the site with which to determine an appropriate course of action.

6.2 SOIL AND GROUND WATER SAMPLES

Field screening results using a PID indicated no detectable concentrations of volatile organic compounds in any of the drill cuttings from MW1, MW2, MW3, and MW4. In addition, the analytical results for the four soil samples collected at the vadose zone-saturated zone interface indicated no detectable concentrations of TPH-D or BTEX. Analytical results for ground water samples collected from the site wells indicated no detectable amounts of TPH-D or BTEX.

5.0 RESULTS

5.1 SOIL

Sediments of the unsaturated zone in the four soil borings are comprised of an interbedded sequence of gravelly sandy silt, gravelly silty sand, clay, and gravelly sand (Appendix B). The borings indicated a small layer of permeable, damp to wet gravelly sand over a depth interval of approximately 35 feet to 38 feet in all four borings. The sediments beneath the gravelly sand layer to a depth of approximately 46 feet are comprised of low permeability, dry to moist clay. Below a depth of 46 feet the clay sediments become water saturated. Water-bearing clayey gravel was identified at a depth of approximately 57 to 60 feet in all borings.

The results of field screening drill cuttings with a PID indicated no detectable concentrations of volatile organic vapors. Soil samples collected at the vadose zone-ground water interface in all borings were not reported to contain any detectable concentrations of petroleum hydrocarbon constituents. Soil sample analytical results are summarized in Table 2 and the analytical reports with the chain-of-custody documentation are presented in Appendix D.

5.2 GROUND WATER

Significant differences in measured ground water elevations in the site wells suggest the influence of more than one water-bearing zone (Table 1 - Ground Water Elevation Data). Ground water elevations in wells MW1 and MW2 (309.95 feet and 312.57 feet, respectively) were determined to be significantly different than in wells MW3 and MW4 (294.68 feet and 294.69 feet, respectively). The lack of three ground water elevation measurements collected from wells known to be completed over the same potential water-bearing zones prevents the determination of ground water gradient by a three-point solution method.

No detectable concentrations of petroleum hydrocarbons were reported to occur in the ground water samples collected at the site. These analytical results are summarized in Table 2 and the analytical report with the chain-of-custody documentation is presented in Appendix D.

Monitoring and Sampling From Monitoring Wells (Appendix A). The results of the site survey, the depth to ground water measurements, and the calculated ground water elevations are summarized in Table 1: Ground Water Elevation Data. Also, the relative ground water elevation in each well on February 1, 1995 is presented in Figure 3.

On December 30, 1994, ESE sampled the ground water at the four new wells. All wells were sampled in accordance with ESE SOP No. 3 (Appendix A). Sample collection logs are presented in Appendix C. A total of four ground water samples were collected and placed in a cooler with ice and transported under chain of custody documentation to McCampbell Analytical. Samples were received by the laboratory on December 30, 1994. Ground water samples were analyzed for TPH-D and BTEX using methods EPA 8015 (modified per CA LUFT) and EPA 8020, respectively.

For sample handling quality assurance/quality control (QA/QC) purposes, a laboratory-supplied travel blank was included in the cooler with the ground water samples. This travel blank was analyzed for BTEX using method EPA 8020. Also, for laboratory QA/QC purposes, one duplicate ground water sample was collected at site well MW1 and submitted as a blind sample to the laboratory to be analyzed for TPH-D and BTEX using methods EPA 8015 (modified per CA LUFT) and EPA 8020, respectively. The analytical results for the four ground water samples are presented in Section 5.0 and discussed in Section 6.0.

4.3 WASTE MANAGEMENT

As a result of this investigation, various waste materials were generated including soil as drill cuttings from the boring activities, rinsates from the decontamination of drilling and sampling equipment, and ground water from well development and sampling. The cuttings from the borings were placed on and under plastic adjacent to their respective boring locations. Rinsates and ground water from development and sampling were placed in 55-gallon-capacity, Department of Transportation (DOT)-rated steel drums. These materials were left at the site pending receipt of analytical results for proper disposal.

Borings MW1 and MW4 were drilled to a depth of 60 feet on December 20 and 21, 1994. Ground water was encountered at a depth of approximately 46 feet bgs. The soil cuttings were screened in the field for VOCs using a PID. Screening results indicated no detectable zones of soil impacted with volatile petroleum hydrocarbons. One soil sample was collected from each boring at the vadose zone-ground water interface (Sample Nos. MW1-46 and MW4-46), placed in a cooler with ice, and transported under chain of custody to McCampbell Analytical for analysis. Samples were received by the laboratory on December 22, 1994. All soil samples were analyzed for TPH-D using EPA Method 8015 (modified per CA LUFT) and benzene, toluene, ethylbenzene, and total xylenes (BTEX) using EPA Method 8020. The results are presented in Section 5.0 and discussed in Section 6.0.

4.2 GROUND WATER MONITORING WELL INSTALLATION AND SAMPLING

Ground water monitoring wells (MW1, MW2, MW3, and MW4) were installed in each of the four borings and developed (Figure 3: Ground Water Monitoring Well Locations). All well installation and development activities were conducted in accordance with ESE SOP No. 2 presented in Appendix A.

All wells were constructed using four-inch schedule 40 polyvinyl chloride (PVC). From the ground surface to a depth of approximately 40 feet, blank PVC casing was used. From a depth of approximately 40 feet to the bottom of the wells at 60 feet, four-inch diameter PVC screen with a slot size of 0.010 inches was used. Ground water monitoring well completion information is presented in Appendix B. After the wells were completed, a monument of three-foot height with a lock was installed over each well.

The ESE geologist performed a vertical and horizontal survey of the top of each well casing using a Leitz automatic level. The northwest corner of the bridge crossing Arroyo Las Positas acted as the benchmark reference for the surveying activities. Using an arbitrary datum of 350 feet Above Mean Sea Level (AMSL), as estimated from the topographic contours presented in the USGS Livermore 7.5 Minute Quadrangle Map, ESE calculated relative ground water elevations using depth-to-water measurements collected on February 1, 1995. All ground water monitoring activities were conducted in accordance with ESE SOP No. 3 for Ground Water

4.0 FIELD METHODOLOGY

Prior to beginning fieldwork, ESE obtained all necessary permits for drilling soil borings and installing ground water monitoring wells at the site. In addition, ESE reviewed the site-specific Health and Safety Plan (HASP) prepared for this investigation with all onsite personnel, subcontractors, and qualified visitors. ESE performed all fieldwork in accordance with Tri-Regional Water Quality Control Board guidelines (RWQCB, 1990) and other applicable State regulations and standards.

4.1 SOIL BORING AND SOIL SAMPLE COLLECTION

ESE supervised the drilling and sampling of four soil borings (MW1, MW2, MW3 and MW4) which would be converted to ground water monitoring wells. The locations of the borings in the area of the former AGT-5 are presented on Figure 3 - Ground Water Monitoring Well Locations. Drilling activities were performed by Exploration Geoservices, Inc. (EGI) of San Jose, California using a mobile B-61 hollow-stem auger drill rig.

All soil sampling was 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 A). The four borings were logged by an ESE geologist according to the Unified Soil Classification System (USCS). Boring logs are presented in Appendix B.

Borings MW2 and MW3 were completed on December 12 and 13, 1994, to a depth of 60 feet. Ground water was encountered at approximately 49 feet below ground surface (bgs) in both of the borings. The soil cuttings were screened in the field for volatile organic compounds (VOCs) using a photoionization detector (PID). Screening results indicated no detectable zones of soil impacted with volatile petroleum hydrocarbons. One soil sample was collected from each boring at the approximate vadose zone-ground water interface (Sample Nos. MW2-45 and MW3-48.5) and submitted to a laboratory for analysis. The two soil samples were placed in a cooler with ice and transported under chain of custody documentation to McCampbell Analytical, Inc. (a State-certified laboratory) of Pacheco, California. Samples were received by the laboratory on December 13, 1994.

In summary, the analytical results indicate that the soil and ground water at locations MW1, MW2, MW3 and MW4 are not impacted with diesel fuel. These sampling locations surround the petroleum hydrocarbon plume identified during previous site assessment activities (ESE, 1994b) and indicate that the plume has not migrated laterally in the vadose zone or local groundwater.

7.0 RECOMMENDATIONS

Based on the results and conclusions of this site investigation at the Staples Ranch site, ESE recommends the following:

- Quarterly ground water monitoring and sampling at wells MW1, MW2, MW3, and MW4 be performed and reported to the HCSA for a period of three consecutive quarters; and

- If petroleum hydrocarbon constituents are not reported to be present in samples collected during the next three quarters, ESE, on behalf of the GSA, will request from the HCSA that no further site investigation of the former AGT-5 site be performed and that site closure be granted. In the event petroleum hydrocarbon constituents are detected in ground water samples collected at the site during the next three quarters, ESE will present appropriate recommendations to the GSA.

8.0 REFERENCES

Alameda County Flood Control and Water Conservation District (Zone 7), 1990 - 1991. Regional Ground Water Flow Maps of the Livermore Valley.

Environmental Science & Engineering, Inc. (ESE), 1994a. Site Assessment Report, Alameda County General Services Agency, Staples Ranch Property; June 15, 1994.

Environmental Science & Engineering, Inc. (ESE), 1994b. UST/AGT Closure Report, Alameda County General Services Agency, Staples Ranch Property; June 24, 1994.

Environmental Science & Engineering, Inc. (ESE), 1994c. Workplan for Additional Site Investigation, Alameda County General Services Agency, Staples Ranch Property; December 6, 1994.

Harza Kaldveer Consulting Engineers, 1993. Unpublished Phase I Preliminary Site Assessment Report For Proposed Community Park Site, Pleasanton, California; November 9, 1993.

Norris, R.M., and Webb, R.W., 1976. Geology of California; John Wiley & Sons, Inc., New York. 365pp.

State of California Department of Water Resources (DWR), 1974. Evaluation of Ground Water Resources: Livermore and Sunol Valleys; Bull. 118-2, pp.153.

State of California Regional Water Quality Control Board (RWQCB), 1990. Tri-Regional Board Staff Recommendations for Preliminary Evaluation and Investigation of Underground Tank Sites; August 10, 1990.

TABLE 1

GROUND WATER ELEVATION DATA
(2/01/95)

Alameda County General Services Agency
Staples Ranch Property, El Charro Road
Pleasanton, California

Well No.	Elevation (feet AMSL)	Depth to Groundwater (feet).	Ground Water Elevation (feet)
MW-1	347.60	37.65	309.95
MW-2	348.34	35.77	312.57
MW-3	348.37	53.69	294.68
MW-4	348.59	53.90	294.69

Notes:

- Elevation based on an arbitrary datum of 350 feet Above Mean Sea Level (AMSL) at north east corner of bridge at site;
- Depth to Ground Water based on level measurements collected on February 1, 1995.

TABLE 2

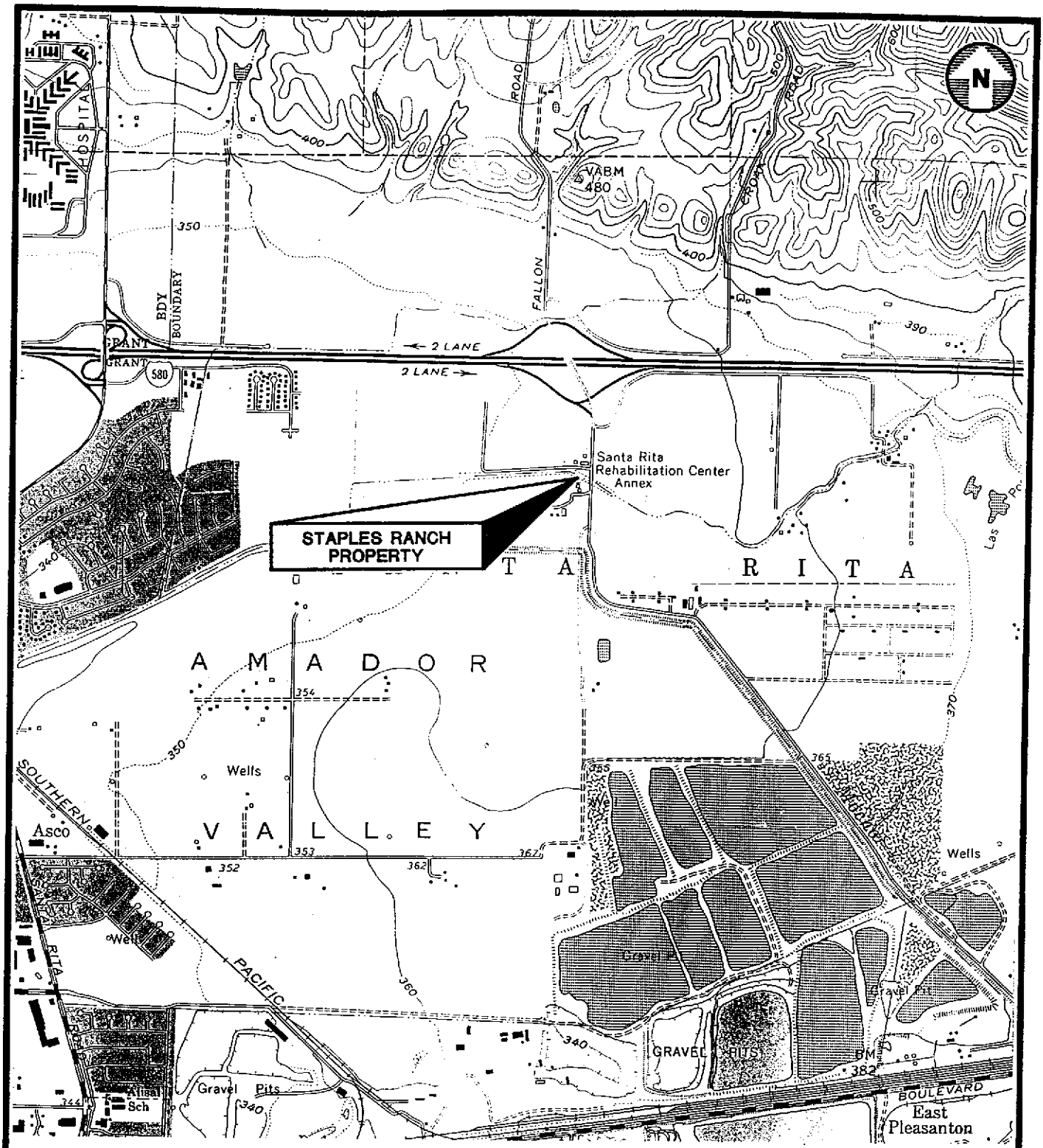
ANALYTICAL RESULTS FOR SOIL AND GROUND WATER SAMPLES (12/13/94 - 12/30/94)

Alameda County General Services Agency
Staples Ranch Property, El Charro Road
Pleasanton, California

Sample No.	Sample Type	Depth (feet)	TPH-D	Benzene	Toluene	Ethylbenzene	Total Xylenes
MW-1	S	46	ND (1.0)	ND (0.005)	ND (0.005)	ND (0.005)	ND(0.005)
MW-2	S	45	ND (1.0)	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.005)
MW-3	S	48.5	ND (1.0)	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.005)
MW-4	S	46	ND (1.0)	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.005)
MW-1	GW	---	ND (0.05)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)
MW-2	GW	---	ND (0.05)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)
MW-3	GW	---	ND (0.05)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)
MW-4	GW	---	ND (0.05)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)
Duplicate	GW	---	ND (0.05)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)
Trip	GW	---	---	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)

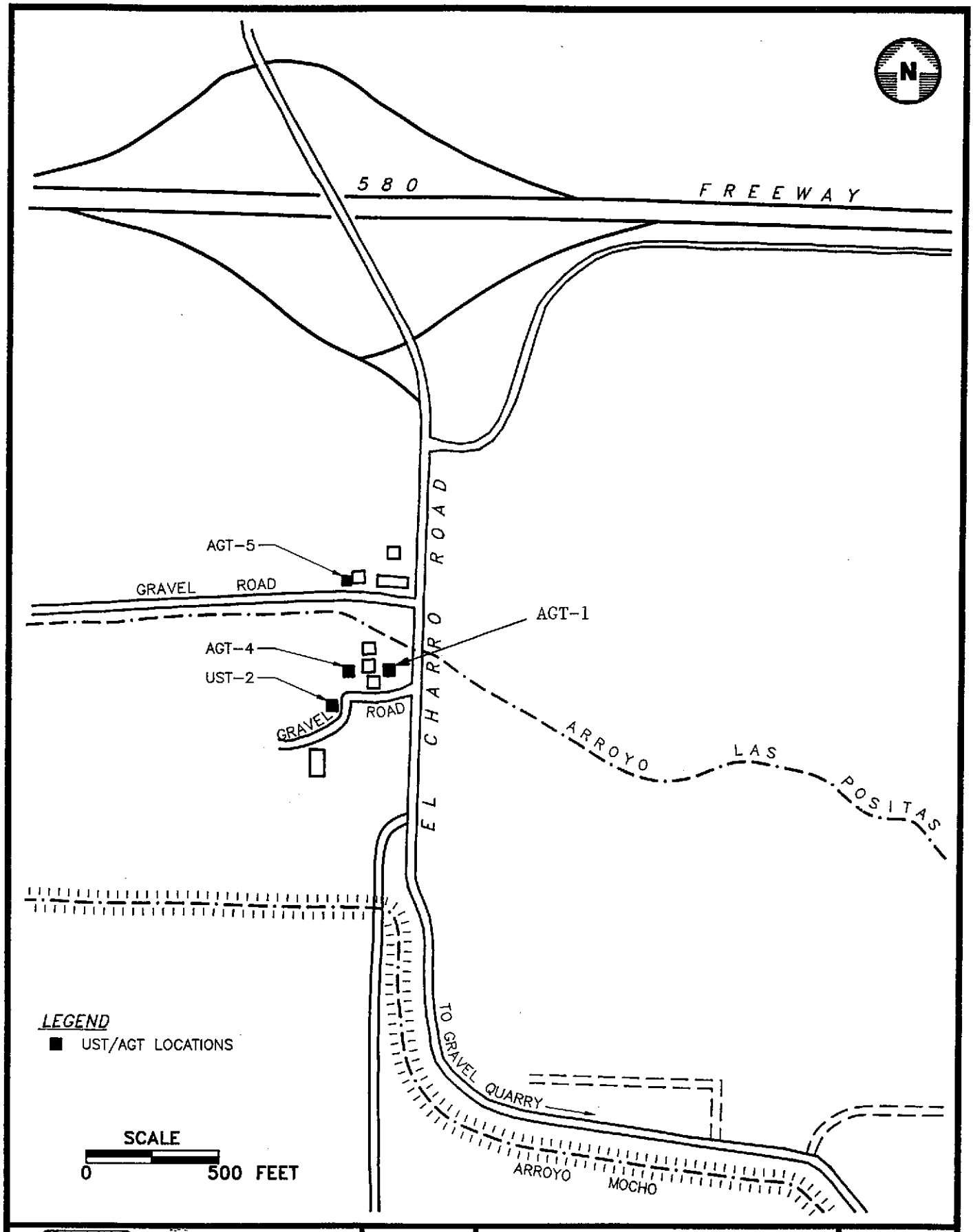
Notes:

- Units for Soil Samples are mg/Kg or milligrams per Kilogram;
- Units for Ground Water Samples are mg/L or milligrams per Liter;
- TPH-D (Total Petroleum Hydrocarbons as Diesel) analyzed using EPA Method 8015 (modified per CA LUFT);
- Sample Type, S = Soil and GW = Ground Water;
- Benzene, Toluene, Ethylbenzene, and Total Xylenes analyzed using EPA Method 8020;
- ND (0.05) indicates not detected at method detection limit;
- Analytical Reports are presented in Appendix D of this report.

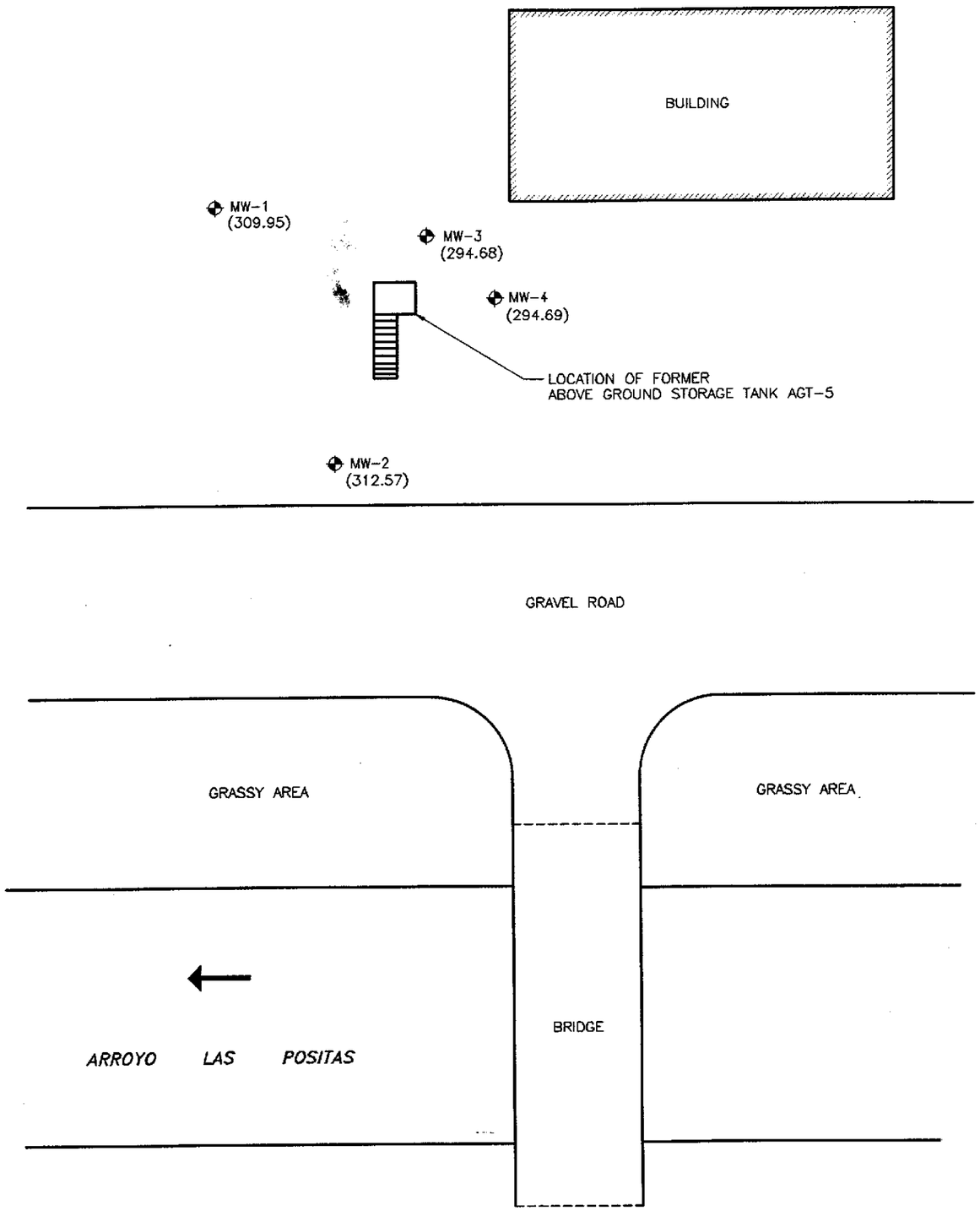


ADAPTED FROM U.S.G.S. LIVERMORE, CALIFORNIA 7.5 MINUTE TOPOGRAPHIC QUADRANGLE MAP, 1961, PHOTOREVISED 1980.

ESE A CILCORP Company — Environmental Science & Engineering, Inc.	DATE 4/94	LOCATION MAP	FIGURE NO. 1
4090 NELSON AVENUE, SUITE J CONCORD, CA 94520	REVISED	ALAMEDA COUNTY GENERAL SERVICES AGENCY STAPLES RANCH PROPERTY EL CHARRO ROAD, PLEASANTON, CALIFORNIA	PROJ. NO. 6-94-5228
	CAD FILE 52281001		



ESE A CILCORP Company — Environmental Science & Engineering, Inc.	DATE 4/94	SITE MAP	FIGURE NO. 2
4090 NELSON AVENUE, SUITE J CONCORD, CA 94520	REVISED	ALAMEDA COUNTY GENERAL SERVICES AGENCY STAPLES RANCH PROPERTY EL CHARRO ROAD, PLEASANTON, CALIFORNIA	PROJ. NO. 6-94-5228
	CAD FILE 52281002		



LEGEND

- APPROXIMATE GROUND WATER MONITORING WELL LOCATION
- SURFACE WATER FLOW DIRECTION
- (309.95) RELATIVE GROUND WATER ELEVATION, FEET (2/1/95)

SCALE
0 20 FEET

ESE A DAMES & MOORE Company Environmental Science & Engineering, Inc. 4090 NELSON AVENUE, SUITE J CONCORD, CA 94520	DATE 12/5/94 REVISED 2/2/95 CAD FILE 53530001	GROUND WATER MONITORING WELL LOCATIONS ALAMEDA COUNTY GENERAL SERVICES AGENCY STAPLES RANCH PROPERTY EL CHARRO ROAD, PLEASANTON, CALIFORNIA	FIGURE NO. 3 PROJ. NO. 6-94-5353

APPENDIX A

ESE STANDARD OPERATING PROCEDURES

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 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.

ENVIRONMENTAL SCIENCE & ENGINEERING, INC.
CONCORD, CALIFORNIA OFFICE

STANDARD OPERATING PROCEDURE NO. 2
FOR MONITORING WELL INSTALLATION AND DEVELOPMENT

Environmental Science & Engineering, Inc. (ESE) typically installs ground-water monitoring wells in unconsolidated sediments drilled using a truck-mounted hollow-stem auger drill rig. The design and installation of all monitoring wells is performed and supervised by an experienced ESE geologist. Figure A - Typical ESE Monitoring Well Construction Diagram (attached) graphically displays a typical ESE well completion. Prior to the construction of the well, the portion of the borehole that penetrates a lower confining layer (if any) is filled with bentonite pellets. The monitoring well is then constructed by inserting polyvinylchloride (PVC) pipe through the center of the hollow stem augers. The pipe (well-casing) is fastened together by joining the factory threaded pipe ends. ESE typically uses two-inch or four-inch diameter pipe for ground-water monitoring wells. The diameter of the borehole is typically 6-inches greater than that of the diameter of the well-casing, but is at least four-inches greater than that of the well casing. The lowermost portion of the well-casing will be factory perforated (typically having slot widths of 0.010-inch or 0.020-inch). The slotted portion of the well-casing will extend from the bottom of the boring up to approximately five-feet above the occurrence of ground water. A PVC slip or threaded cap will be placed at the bottom end of the well-casing, and a locking expandable well cap will be placed over the top (or surface) end of the well-casing. A sand pack (typically No. 2/12 or No. 3 Monterey sand) will be placed in the borehole annulus, from the bottom of the well-casing up to one to two-feet above the top of the slotted portion, by pouring the clean sand through the hollow stem augers. One to two-feet of bentonite pellets will be placed on top of the sand pack. The bentonite pellets will then be hydrated with three to four-gallons of potable water, to protect the sand pack from intrusion during the placement of the sanitary seal. The sanitary seal (grout) will consist of either neat cement, a neat cement and bentonite powder mixture (containing no more than 5% bentonite), or a neat cement and sand mixture (containing no more than a 2:1 sand to cement ratio). If, the grout seal is to be greater than 30-feet in depth or if standing water is present in the boring on top of the bentonite pellet seal, then the grout mixture will be tremied into the boring from the top of the bentonite seal using either a hose, pipe or the hollow-stem augers, which serve as a tremie. The well will be protected at the surface by a water tight utility box. The utility box will be set into the grout mixture so that it is less than 0.1-foot above grade, to prevent the collection of surface water at the well head. If the well is set within the public right of way, then the utility box will be Department of Transportation (DOT) traffic rated, and the top of the box will be set flush to grade. If the well is constructed in a vacant field a brightly painted metal standpipe may be used to protect the well from traffic. If a standpipe is used, it will be held in place with a grout mixture and will extend one to two-feet above ground surface. All well completion details will be recorded by the ESE geologist on the geologic boring logs.

Subsequent to the solidification of the sanitary seal of the well (a minimum of 72 hours), the new well will be developed by an ESE geologist or field technician. Well development will be performed using surging, bailing and overpumping techniques. Surging is performed by raising and lowering a surge block through the water column within the slotted interval of the well casing. The surge block utilized has a diameter just smaller than that of the well casing, thus, forcing water flow through the sand pack due to displacement and vacuum caused by the movement of the surge block. Bailing is performed by lowering a bailer to the bottom of the well and gently bouncing the bailer off of the well end cap, then removing the full bailer and repeating the procedure. This will bring any material (soil or PVC fragments) that may have accumulated in the well into suspension for removal. Overpumping is performed by lowering a submersible pump to the bottom of each well and pumping at the highest sustainable rate without completely evacuating the well casing. Effective well development will settle the sand pack surrounding the well-casing, which will improve the filtering properties of the sand pack and allow water to flow more easily through the sand pack; improve the communication between the aquifer and the well by aiding the removal of any smearing of fine sediments along the borehole penetrating the aquifer; and, remove fine sediments and any foreign objects (PVC fragments) from the well casing. The ESE geologist or technician will monitor the ground water purged from the well during development for clarity, temperature, pH and conductivity. Development of the well will proceed until the well produces relatively clear, sand-free water with stable temperature, pH and conductivity measurements. At a minimum, 10 well-casing volumes of ground water will be removed during the development process. Measurements of temperature, conductivity, pH and volume of the purged water and observations of purge water clarity and sediment content will be recorded on the ESE Well Development Data Forms. All equipment used during the well development procedure will be cleaned using an Alconox® detergent and tap water solution followed by a tap water rinse prior to use in each well. All ground water purged during the well development process and all equipment rinse water will be collected and contained onsite in DOT approved containers (typically 55-gallon drums) pending analytical results and proper disposal or recycling.

ENVIRONMENTAL SCIENCE & ENGINEERING, INC.
CONCORD, CALIFORNIA OFFICE

STANDARD OPERATING PROCEDURE NO. 3
FOR GROUND-WATER MONITORING AND SAMPLING FROM MONITORING WELLS

Environmental Science & Engineering, Inc. (ESE) typically performs ground-water monitoring at project sites on a quarterly basis. As part of the monitoring program an ESE staff member will first gauge the depth to water and free product (if present) in each well, then collect ground-water samples from each well. Depth to water measurements are taken by lowering an electric fiberglass tape measure into the well and recording the occurrence of water in feet below a fixed datum set on the top of the well-casing. If free-phase liquid hydrocarbons (free product) are known or suspected to be present in the well, then an electric oil/water interface probe is used to determine the depth to the occurrence of ground-water and the free product in feet below the fixed datum on the top of the well-casing. Depth to water and depth to product measurements are measured and recorded within an accuracy of 0.005-foot. The electric tape and the electric oil/water interface probe are washed with an Alconox® detergent and tap water solution then rinsed with tap water between uses in different wells.

Ground-water samples are collected from a well subsequent to purging a minimum of three to four well-casing volumes of ground water from the well, if the well bails dry prior to the removal of the required minimum volume, then the samples are collected upon the recovery of the ground water in that well to 80% of its initial static level. Ground water is typically purged from monitoring wells using either a hand-operated positive displacement pump, constructed of polyvinylchloride (PVC); a new (precleaned), disposable polyethylene bailer; or, a variable-flow submersible pump, constructed of stainless steel and Teflon®. The hand pumps and the submersible pumps are cleaned between each use with an Alconox® detergent and tap water solution followed by a tap water rinse. During the well purging process the conductivity, pH and temperature of the ground water are monitored by the ESE staff member. Ground-water samples are collected from the well subsequent to the stabilization of the of the conductivity, pH and temperature of the purge water, and the removal of four well-casing volumes of ground-water (unless the well bails dry). The parameters are deemed to have stabilized when two consecutive measurements are within 10% of each other, for each respective parameter. The temperature, pH, conductivity and purge volume measurements, and observations of water clarity and sediment content will be documented by the ESE staff member on ESE Ground-Water Sampling Data Forms.

Ground-water samples are collected by lowering a new (precleaned), disposable polyethylene bailer into the well using new, disposable nylon cord. The filled bailer is retrieved, emptied, then filled again. The ground water from this bailer is decanted into appropriate laboratory supplied glassware and/or plastic containers (if sample preservatives are required, they are added to the empty containers at the laboratory prior to the sampling event). The containers are filled carefully so that no headspace is present to avoid volatilization of the sample. The filled sample containers are then labeled and placed in a cooler with ice for transport under chain of custody documentation to the designated analytical laboratory. The ESE staff member will document the time and method of sample collection, and the type of sample containers and preservatives (if any) used. These facts will appear on the ESE Ground-Water Sampling Data Forms. ESE will collect a duplicate ground-water sample from one well for every ten wells sampled at each site. The duplicate will be a blind sample (its well designation will be unknown to the laboratory). The duplicate sample is for Quality Assurance and Quality Control (QA/QC) purposes, and provides a check on ESE sampling procedures and laboratory sample handling procedures. When VOCs are included in the laboratory analyses, ESE will include a trip blank, if required, in the cooler with the ground-water samples for analysis for the identical VOCs. The trip blank is supplied by the laboratory and consists of deionized water. The trip blank is for QA/QC purposes and provides a check on both ESE and laboratory sample handling and storage procedures. Since disposable bailers are used for sample collection, and are not reused, no equipment blank (rinsate) samples are collected.

APPENDIX B

SOIL BORING AND WELL INSTALLATION LOGS

ESE
A CH2M HILL COMPANY

LOG OF EXPLORATORY BORING WITH WELL INSTALLATION DATA

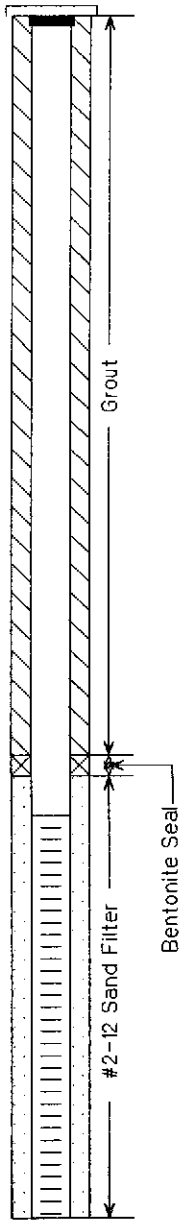
PROJECT NO. 6-94-5353 | WELL NO. MW-1
CLIENT: Alameda County GSA | DATE: 12/20/94
LOCATION: Pleasanton, CA | DRILLER: Exploration Geosvcs.
LOGGED BY: H.W. Short | PAGE: 1 of 1

FIELD LOCATION: Staples Ranch Prop., El Charo Rd.
BENCHMARK ELEVATION:
WELL CASING ELEVATION:
WELL CASING TYPE: PVC
SCREEN PERFORATION: 0.010"

WELL COMPLETION DEPTH: 60'
TOTAL DEPTH: 60'
BORING DIAMETER: 10"
WELL DIAMETER: 4"
FILTER PACK TYPE: 2-12 Sand

SEAL TYPE: Bentonite Pellets, Grout
WATER DEPTH FIRST: 46'
WATER DEPTH COMPLETED: 38'
WATER DEPTH 24HRS:

DEPTH	VAPOR CONC. (PPM)	BLOW/FT	SAMPLE TYPE	USCS SOIL TYPE	GRAPHICS LOG	DESCRIPTION
0				ml		GRAVELLY, SANDY SILT; brown, low plasticity, dry, no odor, gravel fragments average one-inch diameter
10				sp		GRAVELLY, SILTY SAND; brown, friable, dry, no odor, gravel fragments average one-inch diameter
15						As above, moist
20				cl		CLAY; brown, moderate plasticity, moist, no odor
30						SANDY CLAY; brown, moderate plasticity; moist; no odor
35				sp		GRAVELLY SAND; brown, friable, wet, no odor
40				cl		CLAY; brown, moderate plasticity, moist, no odor
45	wet	18	Jar			CLAY; as above
50						
55						
60				gc		CLAYEY GRAVEL; brown, friable, wet, no odor
						Total Depth: 60'



A CILCORP COMPANY

LOG OF EXPLORATORY BORING WITH WELL INSTALLATION DATA

PROJECT NO. 6-94-5353	WELL NO. MW-2
CLIENT: Alameda County GSA	DATE: 12/12/94
LOCATION: Pleasanton, CA	DRILLER: Exploration Geosvcs
LOGGED BY: C. Valcheff	PAGE: 1 of 1

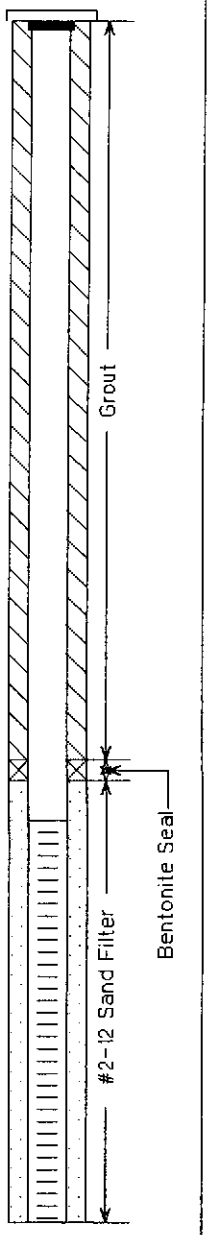
FIELD LOCATION: Staples Ranch Prop., El Charo Rd.
BENCHMARK ELEVATION:
WELL CASING ELEVATION:
WELL CASING TYPE: PVC
SCREEN PERFORATION: 0.010"

WELL COMPLETION DEPTH: 60'
TOTAL DEPTH: 60'
BORING DIAMETER: 10"
WELL DIAMETER: 4"
FILTER PACK TYPE: 2-12 Sand

SEAL TYPE: Bentonite Pellets, Grout
WATER DEPTH FIRST: 49'
WATER DEPTH COMPLETED:
WATER DEPTH 24HRS:

DEPTH	VAPOR CONC. (PPM)	BLOW/FT	SAMPLE TYPE	USCS SOIL TYPE	DESCRIPTION
0				ml	GRAVELLY, SANDY SILT; brown, low plasticity, dry, no odor, gravel fragments average one-inch diameter
10				sp	GRAVELLY, SILTY SAND; brown, friable, dry, no odor, gravel fragments average one-inch diameter
20				cl	CLAY; brown, moderate plasticity, moist, no odor
30					SANDY CLAY; brown, moderate plasticity; moist; no odor
35		5	Jar	sp	GRAVELLY SAND; brown, friable, wet; no odor
40				cl	CLAY; brown, moderate plasticity, moist, no odor
45		4	Jar		CLAY; as above
50					
55					
60		...		gc	CLAYEY GRAVEL; brown, friable, wet, no odor
					Total Depth: 60'

WELL DIAGRAM



A CILCORP COMPANY

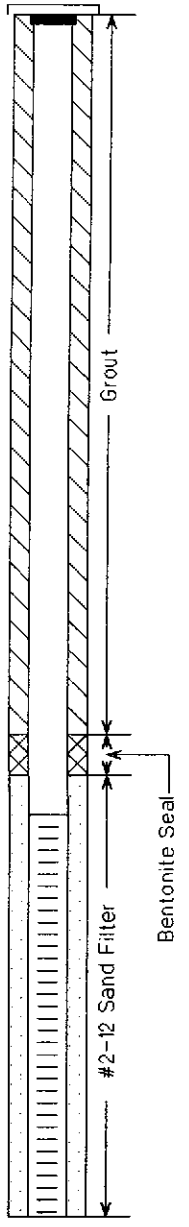
LOG OF EXPLORATORY BORING WITH WELL INSTALLATION DATA

PROJECT NO. 6-94-5353	WELL NO. MW-3
CLIENT: Alameda County GSA	DATE: 12/12/94
LOCATION: Pleasanton, CA	DRILLER: Exploration Geosvcs
LOGGED BY: C. Valcheff	PAGE: 1 of 1

FIELD LOCATION: Staples Ranch Prop., El Charo Rd.	WELL COMPLETION DEPTH: 60'	SEAL TYPE: Bentonite Pellets, Grout
BENCHMARK ELEVATION:	TOTAL DEPTH: 60'	WATER DEPTH FIRST: 49'
WELL CASING ELEVATION:	BORING DIAMETER: 10"	WATER DEPTH COMPLETED:
WELL CASING TYPE: PVC	WELL DIAMETER: 4"	WATER DEPTH 24HRS:
SCREEN PERFORATION: 0.010"	FILTER PACK TYPE: 2-12 Sand	

DEPTH	VAPOR CONC. (PPM)	BLOW/FT	SAMPLE TYPE	USCS SOIL TYPE	GRAPHICS LOG	DESCRIPTION
0				ml		GRAVELLY, SANDY SILT; brown, low plasticity, dry, no odor, gravel fragments average one-inch diameter
10				sp		GRAVELLY, SILTY SAND; brown, friable, dry, no odor, gravel fragments average one-inch diameter
20				cl		CLAY; brown, moderate plasticity, moist, no odor
30						SANDY CLAY; brown, moderate plasticity; moist; no odor
35				sp		GRAVELLY SAND; brown, friable, [illegible], no odor
40				cl		CLAY; brown, moderate plasticity, moist, no odor
45						
50		8	Jar			CLAY; as above
55						
60				gc		CLAYEY GRAVEL; brown, friable, [illegible], no odor
						Total Depth: 60'

WELL DIAGRAM



ESE
A CILCORP COMPANY

LOG OF EXPLORATORY BORING WITH WELL INSTALLATION DATA

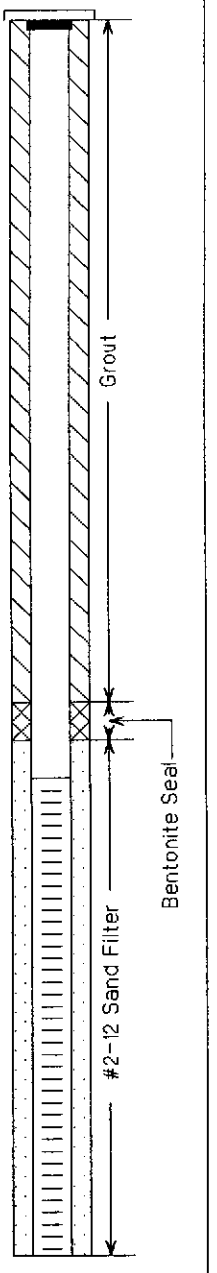
PROJECT NO. 6-94-5353 | WELL NO. MW-4
CLIENT: Alameda County GSA | DATE: 12/21/94
LOCATION: Pleasanton, CA | DRILLER: Exploration Geosvcs
LOGGED BY: H.W. Short | PAGE: 1 of 1

FIELD LOCATION: Staples Ranch Prop., El Charo Rd.
BENCHMARK ELEVATION:
WELL CASING ELEVATION:
WELL CASING TYPE: PVC
SCREEN PERFORATION: 0.010"

WELL COMPLETION DEPTH: 65'
TOTAL DEPTH: 65'
BORING DIAMETER: 10"
WELL DIAMETER: 4"
FILTER PACK TYPE: 2-12 Sand

SEAL TYPE: Bentonite Pellets, Grout
WATER DEPTH FIRST: 46'
WATER DEPTH COMPLETED:
WATER DEPTH 24HRS:

DEPTH	VAPOR CONC. (PPM)	BLOW/FT	SAMPLE TYPE	USCS SOIL TYPE	GRAPHICS LOG	DESCRIPTION
0				ml		GRAVELLY, SANDY SILT; brown, low plasticity, dry, no odor, gravel fragments average one-inch diameter
10				sp		GRAVELLY, SILTY SAND; brown, friable, dry, no odor, gravel fragments average one-inch diameter
20				cl		CLAY; brown, moderate plasticity, moist, no odor
30						SANDY CLAY; brown, moderate plasticity; moist; no odor
35				sp		GRAVELLY SAND; brown, friable, wet, no odor
40				cl		CLAY; brown, moderate plasticity, moist, no odor
45	sat	18	Jar			CLAY; as above
50						CLAY; as above
55						CLAY; as above
60				gc		CLAYEY GRAVEL; brown, friable, wet, no odor
65						Total Depth: 65'



WELL DIAGRAM

APPENDIX C
SAMPLE COLLECTION LOGS

MW1

Environmental Science & Engineering, Inc.
A CILCORP Company

SAMPLE COLLECTION LOG

PROJECT NAME: STAPLES RANCH, ALAMEDA CO GSA
PROJECT NO.: 6-94-5335
DATE: 12/30/94

SAMPLE LOCATION I.D.: MW1
SAMPLER: JAY CARPENTER
PROJECT MANAGER: BART MILLER

CASING DIAMETER

2"_____
4" ✓
Other___

SAMPLE TYPE

Ground Water ✓
Surface Water____
Treat. Influent____
Treat. Effluent____
Other_____

WELL VOLUMES PER UNIT

Well Casing I.D. (inches)	Gal/Ft.
2.0	0.1632
4.0	0.6528
6.0	1.4690

DEPTH TO PRODUCT: 0 (ft.)
DEPTH TO WATER: 56.77 (ft.)
DEPTH OF WELL: 62.85 (ft.)

PRODUCT THICKNESS: 0 (ft.)
WATER COLUMN: 6.08 (ft.)
WELL CASING VOLUME: 4.0 (gal)

MINIMUM PURGE VOLUME (3 or 4 WCV): 16.0 (gal)
ACTUAL VOLUME PURGED:_____(gal)

TIME	Volume (GAL)	pH (Units)	E.C. (Micromhos)	Temperature (F°)	Turbid. (NTU)	Other

INSTRUMENT CALIBRATION

pH/COND./TEMP.: TYPE_____ UNIT#_____ DATE:_____ TIME:_____ BY:_____
TURBIDITY: TYPE_____ UNIT#_____ DATE:_____ TIME:_____ BY:_____

PURGE METHOD

___Displacement Pump
___Bailer (Teflon/PVC/SS)
___Other
✓Submersible Pump

SAMPLE METHOD

___Bailer (Teflon/PVC/SS)
✓Bailer (Disposable)
___Dedicated
___Other

SAMPLES COLLECTED

	ID	TIME	DATE	LAB	ANALYSES
SAMPLE	MW1	17:30	12/30/94	M°CAMPBELL	TPH-D/BTEX
DUPLICATE	DUP	17:30	"	"	"
SPLIT					
FIELD BLANK					

COMMENTS: WELL PUMPED DRY AT 10 GALLONS; WELL PUMPED DRY AT 20 GALLONS

SAMPLER: _____ PROJECT MANAGER _____

4090 Nelson Avenue, Suite J Concord, CA 94520 Phone (510) 685-4053 Fax (510) 685-5323

MW2

Environmental Science & Engineering, Inc.
A CILCORP Company

SAMPLE COLLECTION LOG

PROJECT NAME: STAPLES RANCH, AL. CO. GSA
PROJECT NO.: 6-94-5335
DATE: 12/30/94

SAMPLE LOCATION I.D.: MW2
SAMPLER: JAY CARPENTER
PROJECT MANAGER: BART MILLER

CASING DIAMETER

2"_____
4" ✓
Other___

SAMPLE TYPE

Ground Water ✓
Surface Water_____
Treat. Influent_____
Treat. Effluent_____
Other_____

WELL VOLUMES PER UNIT

Well Casing I.D. (inches)	Gal/Ft.
2.0	0.1632
4.0	0.6528
6.0	1.4690

DEPTH TO PRODUCT: 0 (ft.)
DEPTH TO WATER: 39.85 (ft.)
DEPTH OF WELL: 61.05 (ft.)

PRODUCT THICKNESS: 0 (ft.)
WATER COLUMN: 21.2 (ft.)
WELL CASING VOLUME: 13.8 (gal)

MINIMUM PURGE VOLUME (3 or 4 WCV): 55 (gal)
ACTUAL VOLUME PURGED:_____(gal)

TIME	Volume (GAL)	pH (Units)	E.C. (Micromhos)	Temperature (F°)	Turbid. (NTU)	Other

INSTRUMENT CALIBRATION

pH/COND./TEMP.: TYPE_____ UNIT#_____ DATE:_____ TIME:_____ BY:_____
TURBIDITY: TYPE_____ UNIT#_____ DATE:_____ TIME:_____ BY:_____

PURGE METHOD

___Displacement Pump
___Bailer (Teflon/PVC/SS)
___Other
✓ Submersible Pump

SAMPLE METHOD

___Bailer (Teflon/PVC/SS)
✓ Bailer (Disposable)
___Dedicated
___Other

SAMPLES COLLECTED

	ID	TIME	DATE	LAB	ANALYSES
SAMPLE	MW2	17:55	12/30/94	MCCAMPBELL	TPH-gBTEX
DUPLICATE					
SPLIT					
FIELD BLANK					

COMMENTS: WELL PUMPED DRY AT 15 GALLONS

SAMPLER: _____ PROJECT MANAGER _____

4090 Nelson Avenue, Suite J Concord, CA 94520 Phone (510) 685-4053 Fax (510) 685-5323

MW3

Environmental Science & Engineering, Inc.
A CILCORP Company

SAMPLE COLLECTION LOG

PROJECT NAME: STAPLES RANCH, AL CO. GSA
PROJECT NO.: 6-94-5335
DATE: 12/30/94

SAMPLE LOCATION I.D.: MW3
SAMPLER: JAY CARPENTER
PROJECT MANAGER: BART MILLER

CASING DIAMETER

2"_____
4" ✓
Other___

SAMPLE TYPE

Ground Water ✓
Surface Water_____
Treat. Influent_____
Treat. Effluent_____
Other_____

WELL VOLUMES PER UNIT

Well Casing I.D. (inches)	Gal/Ft.
2.0	0.1632
4.0	0.6528
6.0	1.4690

DEPTH TO PRODUCT: 0 (ft.)
DEPTH TO WATER: 41.09 (ft.)
DEPTH OF WELL: 61.40 (ft.)

PRODUCT THICKNESS: 0 (ft.)
WATER COLUMN: 20.32 (ft.)
WELL CASING VOLUME: 13.3 (gal)

MINIMUM PURGE VOLUME (3 or 4 WCV): 53 (gal)
ACTUAL VOLUME PURGED:_____(gal)

TIME	Volume (GAL)	pH (Units)	E.C. (Micromhos)	Temperature (F°)	Turbid. (NTU)	Other

INSTRUMENT CALIBRATION

pH/COND./TEMP.: TYPE_____ UNIT#_____ DATE:_____ TIME:_____ BY:_____
TURBIDITY: TYPE_____ UNIT#_____ DATE:_____ TIME:_____ BY:_____

PURGE METHOD

___Displacement Pump ___Other
___Bailer (Teflon/PVC/SS) ✓Submersible Pump

SAMPLE METHOD

___Bailer (Teflon/PVC/SS) ___Dedicated
✓Bailer (Disposable) ___Other

SAMPLES COLLECTED

	ID	TIME	DATE	LAB	ANALYSES
SAMPLE	MW3	17:50	12/30/94	McCAMPBELL	TPH-D/BTEX
DUPLICATE					
SPLIT					
FIELD BLANK					

COMMENTS: WELL PUMPED DRY AT 20 GALLONS

SAMPLER: _____ PROJECT MANAGER _____

4090 Nelson Avenue, Suite J Concord, CA 94520 Phone (510) 685-4053 Fax (510) 685-5323

MW4

Environmental Science & Engineering, Inc.
A CILCORP Company

SAMPLE COLLECTION LOG

PROJECT NAME: STAPLES RANCH, AL. CO. GSA
PROJECT NO.: 6-94-5335
DATE: 12/30/94

SAMPLE LOCATION I.D.: MW4
SAMPLER: JAY CARPENTER
PROJECT MANAGER: BART MILLER

CASING DIAMETER

2"____
4" ✓
Other___

SAMPLE TYPE

Ground Water ✓
Surface Water____
Treat. Influent____
Treat. Effluent____
Other____

WELL VOLUMES PER UNIT

Well Casing I.D. (inches)	Gal/Ft.
2.0	0.1632
4.0	0.6528
6.0	1.4690

DEPTH TO PRODUCT: 0 (ft.)
DEPTH TO WATER: 57.01 (ft.)
DEPTH OF WELL: 67.71 (ft.)

PRODUCT THICKNESS: 0 (ft.)
WATER COLUMN: 10.7 (ft.)
WELL CASING VOLUME: 7.0 (gal)

MINIMUM PURGE VOLUME (3 or 4 WCV): 28 (gal)
ACTUAL VOLUME PURGED: ____ (gal)

TIME	Volume (GAL)	pH (Units)	E.C. (Micromhos)	Temperature (F°)	Turbid. (NTU)	Other
15:50	20	7.32	1276	56.8		TRANSLUCENT-BROWN

INSTRUMENT CALIBRATION

pH/COND./TEMP.: TYPE HYDAC UNIT#____ DATE: 12/30/94 TIME: 11:15 BY: JEC
TURBIDITY: TYPE____ UNIT#____ DATE:____ TIME:____ BY:____

PURGE METHOD

___Displacement Pump
___Bailer (Teflon/PVC/SS)
___Other
✓ Submersible Pump

SAMPLE METHOD

___Bailer (Teflon/PVC/SS)
✓ Bailer (Disposable)
___Dedicated
___Other

SAMPLES COLLECTED

	ID	TIME	DATE	LAB	ANALYSES
SAMPLE	MW4	17:25	12/30/94	McCAMPBELL	TPH-D/BTEX
DUPLICATE					
SPLIT					
FIELD BLANK					

COMMENTS: WELL PUMPED DRY AT 23 GALLONS

SAMPLER: ____ PROJECT MANAGER ____

4090 Nelson Avenue, Suite J Concord, CA 94520 Phone (510) 685-4053 Fax (510) 685-5323

APPENDIX D

ANALYTICAL REPORTS WITH CHAIN OF CUSTODY DOCUMENTS

McCAMPBELL ANALYTICAL INC.

110 2nd Avenue South, #D7, Pacheco, CA 94553
Tele: 510-798-1620 Fax: 510-798-1622

12/30/94

Dear Bart:

Enclosed are:

1). the results of **2** samples from your **# 6-94-5353; Alameda County GSA, Staples Ranch** project,

2). a QC report for the above samples

3). a copy of the chain of custody, and

4). a bill for analytical services.

If you have any questions please contact me. McCampbell Analytical Laboratories strives for excellence in quality, service and cost. Thank you for your business and I look forward to working with you again.

Yours truly,

Edward Hamilton

McCAMPBELL ANALYTICAL INC.
110 2nd Avenue South, #D7, Pacheco, CA 94553
Tele: 510-798-1620 Fax: 510-798-1622

Environmental Science & Eng. 4090 Nelson Avenue, Suite J Concord, CA 94520	Client Project ID: # 6-94-5353; Alameda County GSA, Staples Ranch	Date Sampled: 12/20-12/21/94
		Date Received: 12/22/94
	Client Contact: Bart Miller	Date Extracted: 12/22/94
	Client P.O:	Date Analyzed: 12/22/94

Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline*, with BTEX*

EPA methods 5030, modified 8015, and 8020 or 602; California RWQCB (SF Bay Region) method GCFID(5030)

Lab ID	Client ID	Matrix	TPH(g)+	Benzene	Toluene	Ethylbenzene	Xylenes	% Rec. Surrogate
43264	MW-1-46	S	---	ND	ND	ND	ND	108
43265	MW-4-46	S	---	ND	ND	ND	ND	108
Detection Limit unless otherwise stated; ND means Not Detected		W	50 ug/L	0.5	0.5	0.5	0.5	
		S	1.0 mg/kg	0.005	0.005	0.005	0.005	

*water samples are reported in ug/L, soil samples in mg/kg, and all TCLP extracts in mg/L

cluttered chromatogram; sample peak co-elutes with surrogate peak

+ The following descriptions of the TPH chromatogram are cursory in nature and McCampbell Analytical is not responsible for their interpretation: a) unmodified or weakly modified gasoline is significant; b) heavier gasoline range compounds are significant(aged gasoline?); c) lighter gasoline range compounds (the most mobile fraction) are significant; d) gasoline range compounds are significant; no recognizable pattern; e) TPH pattern that does not appear to be derived from gasoline (?); f) one to a few isolated peaks present; g) strongly aged gasoline or diesel range compounds are significant; h) lighter than water immiscible phase is present.

DHS Certification No. 1644

Edward Hamilton, Lab Director

McCAMPBELL ANALYTICAL INC. | 110 2nd Avenue South, #D7, Pacheco, CA 94553
Tele: 510-798-1620 Fax: 510-798-1622

Environmental Science & Eng. 4090 Nelson Avenue, Suite J Concord, CA 94520	Client Project ID: # 6-94-5353; Alameda County GSA, Staples Ranch	Date Sampled: 12/20-12/21/94
		Date Received: 12/22/94
	Client Contact: Bart Miller	Date Extracted: 12/22/94
	Client P.O:	Date Analyzed: 12/22/94

Diesel Range (C10-C23) Extractable Hydrocarbons as Diesel *

EPA methods modified 8015, and 3550 or 3510; California RWQCB (SF Bay Region) method GCFID(3550) or GCFID(3510)

Lab ID	Client ID	Matrix	TPH(d)+	% Recovery Surrogate
43264	MW-1-46	S	ND	97
43265	MW-4-46	S	ND	102
Detection Limit unless otherwise stated; ND means Not Detected		W	50 ug/L	
		S	1.0 mg/kg	

*water samples are reported in ug/L, soil samples in mg/kg, and all TCLP extracts in mg/L

cluttered chromatogram; surrogate and sample peaks co-elute or surrogate peak is on elevated baseline

+ The following descriptions of the TPH chromatogram are cursory in nature and McCampbell Analytical is not responsible for their interpretation: a) unmodified or weakly modified diesel is significant; b) diesel range compounds are significant; no recognizable pattern; c) modified diesel?; light(c_L) or heavy(c_H) diesel compounds are significant); d) gasoline range compounds are significant; e) medium boiling point pattern that does not match diesel(?); f) one to a few isolated peaks present; g) oil range compounds are significant; h) lighter than water immiscible phase is present.

DHS Certification No. 1644

Edward Hamilton, Lab Director

McCAMPBELL ANALYTICAL INC.
110 2nd Avenue South, #D7, Pacheco, CA 94553
Tele: 510-798-1620 Fax: 510-798-1622

QC REPORT FOR HYDROCARBON ANALYSES

Date: 12/22-12/24/94 Matrix: Soil

Analyte	Concentration (mg/kg)			Amount Spiked	% Recovery		RPD
	Sample	MS	MSD		MS	MSD	
TPH (gas)	0.000	1.775	1.795	2.03	87	88	1.1
Benzene	0.000	0.186	0.192	0.2	93	96	3.2
Toluene	0.000	0.194	0.202	0.2	97	101	4.0
Ethylbenzene	0.000	0.194	0.198	0.2	97	99	2.0
Xylenes	0.000	0.604	0.614	0.6	101	102	1.6
TPH (diesel)	0	284	285	300	95	95	0.4
TRPH (oil & grease)	0.0	22.8	22.2	20.8	110	107	2.7

% Rec. = (MS - Sample) / amount spiked x 100

RPD = (MS - MSD) / (MS + MSD) x 2 x 100

AESE1026439

CHAIN OF CUSTODY RECORD

DATE JANUARY 22 1994 PAGE 1 OF 1

PROJECT NAME ALAMEDA CO. GSA

ADDRESS STAPLES RANCH
EL CHARRO RD. : HWY. 580

PROJECT NO. 6-94-5353

SAMPLED BY HARRY SHORT W.W.S.

LAB NAME MCCAMPBELL ANALYTICAL

ESE Environmental Science & Engineering, Inc.
A CILCORP Company
4090 Nelson Avenue
Suite J
Concord, CA 94520
Phone (510) 685-4053
Fax (510) 685-5323

SAMPLE #	DATE	TIME	LOCATION	TPH-D (8015m)	BTEX (8020)	MATRIX	NUMBER OF CONTAINERS	REMARKS (CONTAINER, SIZE, ETC.)
MW-1-46	12/29/94	1005		✓	✓	SOIL	1	2" brass sleeve 43264
MW-4-46	12/31/94	935		✓	✓	"	"	" " 43265

ICE/T° ✓
GOOD CONDITION ✓
HEAD SPACE ABSENT ✓

PRESERVATIVE APPROPRIATE ✓ VOAS | O&G | METALS | OTHER

CONTAINERS ✓

RELINQUISHED BY: (signature)	RECEIVED BY: (signature)	date	time
1. W. W. Short		12/22/94	12:00
2.	Ron Hamilton	12/22/94	12:15
3. Ron Hamilton	Ed Hirc	12/22	1225
4.			
5.			

2 TOTAL NUMBER OF CONTAINERS

REPORT RESULTS TO: BART MICHAEL ESE

SPECIAL SHIPMENT REQUIREMENTS: COLD TRANSPORT

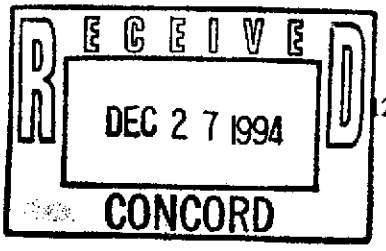
SAMPLE RECEIPT

CHAIN OF CUSTODY SEALS	
REC'D GOOD CONDTN/COLD	
CONFORMS TO RECORD	

INSTRUCTIONS TO LABORATORY (handling, analyses, storage, etc.):
INVOICE DIRECTLY TO ALAMEDA CO. GSA ; NORMAL TAT

McCAMPBELL ANALYTICAL INC.

110 2nd Avenue South, #D7, Pacheco, CA 94553
Tele: 510-798-1620 Fax: 510-798-1622



12/21/94

Dear Bart:

Enclosed are:

1). the results of **2** samples from your **# 6-94-5353; Alameda County GSA-Staples Ranch** project,

2). a QC report for the above samples

3). a copy of the chain of custody, and

4). a bill for analytical services.

If you have any questions please contact me. McCampbell Analytical Laboratories strives for excellence in quality, service and cost. Thank you for your business and I look forward to working with you again.

Yours truly,

Edward Hamilton

McCAMPBELL ANALYTICAL INC.

110 2nd Avenue South, #D7, Pacheco, CA 94553
Tele: 510-798-1620 Fax: 510-798-1622

Environmental Science & Eng. 4090 Nelson Avenue, Suite J Concord, CA 94520	Client Project ID: # 6-94-5353; Alameda County GSA-Staples Ranch	Date Sampled: 12/12-12/13/94
		Date Received: 12/13/94
	Client Contact: Bart Miller	Date Extracted: 12/13/94
	Client P.O:	Date Analyzed: 12/13/94

Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline*, with BTEX*

EPA methods 5030, modified 8015, and 8020 or 602; California RWQCB (SF Bay Region) method GCFID(5030)

Lab ID	Client ID	Matrix	TPH(g)+	Benzene	Toluene	Ethylbenzene	Xylenes	% Rec. Surrogate
43042	MW-2-45	S	---	ND	ND	ND	ND	90
43043	MW-3-48.5	S	---	ND	ND	ND	ND	104
Detection Limit unless otherwise stated; ND means Not Detected		W	50 ug/L	0.5	0.5	0.5	0.5	
		S	1.0 mg/kg	0.005	0.005	0.005	0.005	

*water samples are reported in ug/L, soil samples in mg/kg, and all TCLP extracts in mg/L

cluttered chromatogram; sample peak co-elutes with surrogate peak

+ The following descriptions of the TPH chromatogram are cursory in nature and McCampbell Analytical is not responsible for their interpretation: a) unmodified or weakly modified gasoline is significant; b) heavier gasoline range compounds are significant(aged gasoline?); c) lighter gasoline range compounds (the most mobile fraction) are significant; d) gasoline range compounds are significant; no recognizable pattern; e) TPH pattern that does not appear to be derived from gasoline (?); f) one to a few isolated peaks present; g) strongly aged gasoline or diesel range compounds are significant; h) lighter than water immiscible phase is present.

DHS Certification No. 1644

Edward Hamilton, Lab Director

McCAMPBELL ANALYTICAL INC. | 110 2nd Avenue South, #D7, Pacheco, CA 94553
Tele: 510-798-1620 Fax: 510-798-1622

Environmental Science & Eng. 4090 Nelson Avenue, Suite J Concord, CA 94520	Client Project ID: # 6-94-5353; Alameda County GSA-Staples Ranch	Date Sampled: 12/12-12/13/94
		Date Received: 12/13/94
	Client Contact: Bart Miller	Date Extracted: 12/13/94
	Client P.O:	Date Analyzed: 12/13-12/14/94

Diesel Range (C10-C23) Extractable Hydrocarbons as Diesel *

EPA methods modified 8015, and 3550 or 3510; California RWQCB (SF Bay Region) method GCFID(3550) or GCFID(3510)

Lab ID	Client ID	Matrix	TPH(d)+	% Recovery Surrogate
43042	MW-2-45	S	ND	98
43043	MW-3-48.5	S	ND	103
Detection Limit unless otherwise stated; ND means Not Detected		W	50 ug/L	
		S	1.0 mg/kg	

*water samples are reported in ug/L, soil samples in mg/kg, and all TCLP extracts in mg/L

cluttered chromatogram; surrogate and sample peaks co-elute or surrogate peak is on elevated baseline

+ The following descriptions of the TPH chromatogram are cursory in nature and McCampbell Analytical is not responsible for their interpretation: a) unmodified or weakly modified diesel is significant; b) diesel range compounds are significant; no recognizable pattern; c) modified diesel?; light(C_L) or heavy(C_H) diesel compounds are significant); d) gasoline range compounds are significant; e) medium boiling point pattern that does not match diesel(?); f) one to a few isolated peaks present; g) oil range compounds are significant; h) lighter than water immiscible phase is present.

DHS Certification No. 1644

Edward Hamilton, Lab Director

McCAMPBELL ANALYTICAL INC.
110 2nd Avenue South, #D7, Pacheco, CA 94553
Tele: 510-798-1620 Fax: 510-798-1622

QC REPORT FOR HYDROCARBON ANALYSES

Date: 12/13/94 Matrix: Soil

Analyte	Concentration (mg/kg)			Amount Spiked	% Recovery		RPD
	Sample	MS	MSD		MS	MSD	
TPH (gas)	0.000	1.700	1.702	2.03	84	84	0.1
Benzene	0.000	0.182	0.206	0.2	91	103	12.4
Toluene	0.000	0.186	0.184	0.2	93	92	1.1
Ethylbenzene	0.000	0.184	0.176	0.2	92	88	4.4
Xylenes	0.000	0.572	0.542	0.6	95	90	5.4
TPH (diesel)	0	294	294	300	98	98	0.0
TRPH (oil & grease)	0.0	19.8	19.9	20.8	95	96	0.5

% Rec. = (MS - Sample) / amount spiked x 100

RPD = (MS - MSD) / (MS + MSD) x 2 x 100

3378/AESE100

DATE DEC. 13, 1994 PAGE 1 OF 1

CHAIN OF CUSTODY RECORD

PROJECT NAME ALAMEDA GSA - STAPLES RANCH

ADDRESS HWY 580 & EL CHARRO ROAD
DUBLIN, CA

PROJECT NO. 6-94-5353

SAMPLED BY CHRIS VALCHESS

LAB NAME MCCAMPBELL

ESE Environmental Science & Engineering, Inc.
A CILCORP Company
4090 Nelson Avenue
Suite j
Concord, CA 94520
Phone (510) 685-4053
Fax (510) 685-5323

SAMPLE #	DATE	TIME	LOCATION	TPH-D (SGC/SM)	BTEX (8020)	MATRIX	NUMBER OF CONTAINERS	REMARKS (CONTAINER, SIZE, ETC.)
MW-2-45	12-12-94	1030	DUBLIN	X	X	SOIL	1	6" BRASS RING — 43042
MW-3-48.5	12-13-94	0940	DUBLIN	X	X	↓	1	↓ — 43043

ANALYSES TO BE PERFORMED

MATRIX

VOAS | O&G | METALS | OTHER

ICE/T ✓
GOOD CONDITION ✓
HEAD SPACE ABSENT ✓
PRESERVATIVE APPROPRIATE ✓
CONTAINERS ✓

RELINQUISHED BY: (signature)	RECEIVED BY: (signature)	date	time
1.			
2.		12-13-94	17:25
3.			
4.			
5.			

2 TOTAL NUMBER OF CONTAINERS

REPORT RESULTS TO: BART MILLER

SPECIAL SHIPMENT REQUIREMENTS: COLD STORAGE/TRANSPORT

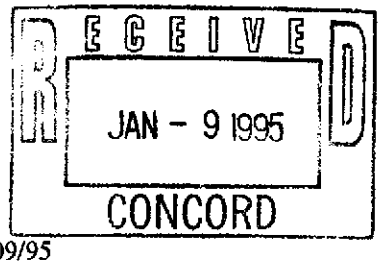
INSTRUCTIONS TO LABORATORY (handling, analyses, storage, etc.):
NORMAL TAT.
INVOICE DIRECTLY TO ALAMEDA COUNTY GSA

SAMPLE RECEIPT

CHAIN OF CUSTODY SEALS	
REC'D GOOD CONDTN/COLD	✓
CONFORMS TO RECORD	✓

McCAMPBELL ANALYTICAL INC.

110 2nd Avenue South, #D7, Pacheco, CA 94553
Tele: 510-798-1620 Fax: 510-798-1622



01/09/95

Dear Bart:

Enclosed are:

1). the results of 6 samples from your **# 6-94-5335; Alameda County GSA, Staples Ranch Site** project,

2). a QC report for the above samples

3). a copy of the chain of custody, and

4). a bill for analytical services.

If you have any questions please contact me. McCampbell Analytical Laboratories strives for excellence in quality, service and cost. Thank you for your business and I look forward to working with you again.

Yours truly,

Edward Hamilton

McCAMPBELL ANALYTICAL INC.
110 2nd Avenue South, #D7, Pacheco, CA 94553
Tele: 510-798-1620 Fax: 510-798-1622

Environmental Science & Eng. 4090 Nelson Avenue, Suite J Concord, CA 94520	Client Project ID: # 6-94-5335; Alameda County GSA, Staples Ranch Site	Date Sampled: 12/30/94
		Date Received: 12/30/94
	Client Contact: Bart Miller	Date Extracted: 12/31/94
	Client P.O: Alameda Co. # 141-0-7925-00	Date Analyzed: 12/31/94

Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline*, with BTEX*

EPA methods 5030, modified 8015, and 8020 or 602; California RWQCB (SF Bay Region) method GCFID(5030)

Lab ID	Client ID	Matrix	TPH(g)+	Benzene	Toluene	Ethylbenzene	Xylenes	% Rec. Surrogate
43451	MW1	W	---	ND	ND	ND	ND	100
43452	MW2	W	---	ND	ND	ND	ND	103
43453	MW3	W	---	ND	ND	ND	ND	99
43454	MW4	W	---	ND	ND	ND	ND	100
43455	Dup	W	---	ND	ND	ND	ND	98
43456	Trip	W	---	ND	ND	ND	ND	93
Detection Limit unless otherwise stated; ND means Not Detected		W	50 ug/L	0.5	0.5	0.5	0.5	
		S	1.0 mg/kg	0.005	0.005	0.005	0.005	

*water samples are reported in ug/L, soil samples in mg/kg, and all TCLP extracts in mg/L

cluttered chromatogram; sample peak co-elutes with surrogate peak

+ The following descriptions of the TPH chromatogram are cursory in nature and McCampbell Analytical is not responsible for their interpretation: a) unmodified or weakly modified gasoline is significant; b) heavier gasoline range compounds are significant(aged gasoline?); c) lighter gasoline range compounds (the most mobile fraction) are significant; d) gasoline range compounds are significant, no recognizable pattern; e) TPH pattern that does not appear to be derived from gasoline (?); f) one to a few isolated peaks present; g) strongly aged gasoline or diesel range compounds are significant; h) lighter than water immiscible phase is present.

DHS Certification No. 1644

Edward Hamilton, Lab Director

McCAMPBELL ANALYTICAL INC. | 110 2nd Avenue South, #D7, Pacheco, CA 94553
Tele: 510-798-1620 Fax: 510-798-1622

Environmental Science & Eng. 4090 Nelson Avenue, Suite J Concord, CA 94520	Client Project ID: # 6-94-5335; Alameda County GSA, Staples Ranch Site	Date Sampled: 12/30/94
		Date Received: 12/30/94
	Client Contact: Bart Miller	Date Extracted: 12/30/94
	Client P.O: Alameda Co. # 141-0-7925-00	Date Analyzed: 12/30-12/31/94

Diesel Range (C10-C23) Extractable Hydrocarbons as Diesel *

EPA methods modified 8015, and 3550 or 3510; California RWQCB (SF Bay Region) method GCFID(3550) or GCFID(3510)

Lab ID	Client ID	Matrix	TPH(d)+	% Recovery Surrogate
43451	MW1	W	ND	102
43452	MW2	W	ND	103
43453	MW3	W	ND	103
43454	MW4	W	ND	110
43455	Dup	W	ND	100
Detection Limit unless otherwise stated; ND means Not Detected		W	50 ug/L	
		S	10 mg/kg	

*water samples are reported in ug/L, soil samples in mg/kg, and all TCLP extracts in mg/L

cluttered chromatogram; surrogate and sample peaks co-elute or surrogate peak is on elevated baseline

+ The following descriptions of the TPH chromatogram are cursory in nature and McCampbell Analytical is not responsible for their interpretation: a) unmodified or weakly modified diesel is significant; b) diesel range compounds are significant; no recognizable pattern; c) modified diesel?; light(c_L) or heavy(c_H) diesel compounds are significant); d) gasoline range compounds are significant; e) medium boiling point pattern that does not match diesel(?); f) one to a few isolated peaks present; g) oil range compounds are significant; h) lighter than water immiscible phase is present.

DHS Certification No. 1644

Edward Hamilton, Lab Director

McCAMPBELL ANALYTICAL INC.
110 2nd Avenue South, #D7, Pacheco, CA 94553
Tele: 510-798-1620 Fax: 510-798-1622

QC REPORT FOR HYDROCARBON ANALYSES

Date: 12/31/94 Matrix: Water

Analyte	Concentration (ug/L)			Amount Spiked	% Recovery		RPD
	Sample	MS	MSD		MS	MSD	
TPH (gas)	0.0	98.9	92.9	100	98.9	92.9	6.3
Benzene	0	10.7	10.8	10	107.0	108.0	0.9
Toluene	0	10.7	10.6	10	107.0	106.0	0.9
Ethyl Benzene	0	10.7	10.6	10	107.0	106.0	0.9
Xylenes	0	32.9	31.6	30	109.7	105.3	4.0
TPH (diesel)	0	151	150	150	101	100	0.5
TRPH (oil & grease)	N/A	N/A	N/A	N/A	N/A	N/A	N/A

% Rec. = (MS - Sample) / amount spiked x 100

RPD = (MS - MSD) / (MS + MSD) x 2 x 100

3480 AESE 109

CHAIN OF CUSTODY RECORD

DATE 12/30/94 PAGE 1 OF 1

PROJECT NAME ALAMEDA COUNTY GSA STANLEY RANCH SITE

ADDRESS EL CHARRO ROAD
PLEASANTON, CA

PROJECT NO. 6-94-5335

SAMPLED BY

LAB NAME McCAMPBELL

ESE Environmental Science & Engineering, Inc.
A CH2M HILL Company
4090 Nelson Avenue
Suite J
Concord, CA 94520
Phone (510) 685-4053
Fax (510) 685-5323

SAMPLE #	DATE	TIME	LOCATION	TAH-D 8015m	BTEX 8020	MATRIX	NUMBER OF CONTAINERS	REMARKS (CONTAINER, SIZE, ETC.)
MW1	12/20/94	17:30		✓	✓	WATER	3	
MW2	"	17:55		✓	✓	"	3	
MW3	"	17:50		✓	✓	"	3	
MW4	"	17:35		✓	✓	"	3	
DUP	"			✓	✓	"	3	
TRIP	"				✓	"	1	

43451
43452
43453
43454
43455
43456

ICE/T° ✓
GOOD CONDITION ✓
HEAD SPACE ABSENT —
PRESERVATIVE APPROPRIATE ✓
CONTAINERS ✓

VOA ✓ O&G METALS OTHER

RELINQUISHED BY: (signature)	RECEIVED BY: (signature)	date	time
1.		12/30	6:48
2.			
3.			
4.			
5.			

16 TOTAL NUMBER OF CONTAINERS

REPORT RESULTS TO: Kent Miller ESE

SPECIAL SHIPMENT REQUIREMENTS
COLD TRANSPORT

INSTRUCTIONS TO LABORATORY (handling, analyses, storage, etc.):
NORMAL TAT. INVOICE TO ALAMEDA COUNTY GSA.

SAMPLE RECEIPT

CHAIN OF CUSTODY SEALS	
REC'D GOOD CONDTN/COLD	✓
CONFORMS TO RECORD	✓