General Services Agency

Darlene A. Smith, Director

July 10, 1995

Ms. Eva Chu
Hazardous Materials Specialist
Alameda County Health Care Services
Department of Environmental Health
1131 Harbor bay Parkway, Second Floor
Alameda, California 94502
QIC 30440

SUBJECT: First Quarter Groundwater Monitoring Report
Staples Ranch Property, May 1995

Dear Ms. Chu:

Enclosed please find the first quarter monitoring report for the County property located at Staples Ranch, El Charro Road, Pleasanton. As you can see in the report, no detectable amounts of contamination were identified in the samples collected. The next round of monitoring took place the last week of June, and results will be forwarded to you once the final report has been completed. Should you have any additional questions concerning this matter please contact me at (510) 208-9520.

Sincerely,

Thomas McKimmy, REA
Environmental Project Manager

enclosure

g:\crspndc\tmckimmy\ec0710.doc
File: Project 7057, Building 1262

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

REPORT OF GROUND WATER MONITORING
FIRST QUARTER 1995

ALAMEDA COUNTY SERVICES AGENCY
ENGINEERING AND ENVIRONMENTAL
MANAGEMENT DEPARTMENT
STAPLES RANCH PROPERTY, EL CHARRO ROAD
PLEASANTON, CALIFORNIA

COUNTY PROJECT NO. 7057
COUNTY BUILDING NO. 1262

PRESENTED TO:

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

PREPARED BY:

ENVIRONMENTAL SCIENCE & ENGINEERING, INC.
4090 NELSON AVENUE, SUITE J
CONCORD, CALIFORNIA 94520

(ESE PROJECT #6-94-5353)

MAY 25, 1995

ESE
A CILCORP Company

REPORT PREPARATION

This quarterly 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 expressed or implied, is made as to professional advice in this quarterly report.

REPORT PREPARED BY:

FOR:

Carl S. Kelley III
Senior Environmental Engineer

MAY 25, 1995
Date

REVIEWED BY:

George Reid

George O. Reid, R.G No. 3608
Senior Geologist

May 25, 1995
Date

PROJECT NO. 6-94-5353

TABLE OF CONTENTS

1.0 INTRODUCTION

This report describes the activities and presents the findings of the First Quarter, 1995 ground water monitoring event conducted by Environmental Science & Engineering, Inc. (ESE) for the Alameda County General Services Agency (GSA) at the Staples Ranch Property ("site") located in Pleasanton, California during March, 1995 (Figure 1 - Location Map). The primary objectives of the ground water monitoring event were to measure the ground water elevations, determine ground water flow direction, and sample the ground water for hydrocarbon constituents beneath the area of a former aboveground storage tank (AGT) referred to as AGT-5. This report presents the procedures and methods used during this monitoring event and the results of the event. Previous investigations conducted at the site are summarized in Section 2.0 - Background.

1.1 WORK PERFORMED

For the first quarter of 1995 ground water monitoring event, ESE performed the following tasks:

- Measured depth to ground water in monitoring wells MW-1 through MW-4;
- Purged and sampled ground water from monitoring wells MW-1 through MW-4;
- Analyzed ground water samples for total petroleum hydrocarbons as diesel (TPH-D) and benzene, toluene, ethylbenzene, and total xylenes (BTEX); and
- Reviewed field and analytical data and prepared a report of the findings.

2.0 BACKGROUND

2.1 SITE SETTING

The site is located in the central portion of the Livermore Valley just east of Pleasanton, California. The approximate elevation of the site is 355 feet above mean sea level (AMSL) in an area of relatively flat topography (U.S.G.S., 1980). It is situated in a rural area characterized by undeveloped grazing land (Figure 2 - Site Map).

The nearest surface waters are the Arroyo Las Positas (located on the northern portion of the site and flowing intermittently in an east-southeast direction) and the Arroyo Mocho (located on the southern portion of the site and flowing intermittently in an east-southeast direction). Both streams are considered to be major drainages for the Livermore Valley.

Regional ground water flow maps indicate that water in the uppermost aquifer beneath the site flows toward the southwest (Alameda County Flood Control and Water Conservation District, 1990-1991).

2.2 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 reported non-detected concentrations of TPH-D.

Under permit from the Alameda County Health Care Services Agency (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, respectively. 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 (ESE, 1994b and 1994c). 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 approximately 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 (ESE, 1994d). 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. The results of the investigation indicated that the soils and ground water have apparently not been impacted in the areas of the four borings and ground water monitoring wells. ESE recommended that three additional ground water monitoring events be performed prior to requesting site closure from the HCSA (ESE, 1995a).

3.0 PROCEDURES

3.1 GROUND WATER LEVEL MONITORING

On March 30, 1995, ESE's geologist measured the depth to ground water and checked for the presence of free-phase product in wells MW-1 through MW-4. An electric well sounder with a detection limit of 0.01 feet was used to measure the depth to ground water in each well.

3.2 GROUND WATER SAMPLE COLLECTION

On March 30, 1995, ESE's geologist sampled ground water from wells MW-1 through MW-4 after purging a minimum of three well-casing volumes of ground water from each well. Each well was purged using a disposable bailer.

During the well purging process, pH, conductivity, and temperature of the ground water were monitored and recorded for stabilization to ensure the collection of representative samples of the ground water surrounding each well. The ground water sampling data forms with recorded measurements of pH, conductivity, and temperature of the purged water from each well are included as Appendix A - Ground Water Sampling Data Forms. All purged ground water and equipment rinse solutions were contained onsite in DOT approved 55-gallon drums pending receipt of analytical results.

Ground water samples were obtained from wells MW-1 through MW-4 by lowering a new disposable polyethylene bailer into each well. A new bailer was used to sample each of the 4-inch diameter wells. The ground water from the bailer was decanted into a laboratory-supplied one liter glass container and two 40-milliliter glass vials for each of the wells sampled. The samples were then sealed with a Teflon-lined cap, labeled, placed on ice in a cooler and transported under chain-of-custody documentation to McCampbell Analytical, Inc. of Pacheco,

California (a State-certified analytical laboratory) for the analysis requested. All ground water monitoring and sampling was performed in accordance with ESE Standard Operating Procedure No. 3 (Appendix B).

3.3 QUALITY CONTROL

One duplicate sample of ground water, collected from well MW-4, and a laboratory-supplied trip blank, consisting of deionized water, were submitted to the laboratory with the other samples. The duplicate sample and trip blank provide a quality control check on ESE's sample collection and handling procedures and laboratory handling procedures.

4.0 RESULTS

4.1 GROUND WATER LEVEL AND GRADIENT

Ground water elevations in monitoring wells MW-1 through MW-4 for March 30, 1995, are presented in Table 1 and on Figure 3 (Ground Water Elevations: 3/30/95). The elevation of ground water at the site ranged from 300.92 to 321.36 feet AMSL. Free-phase product was not found in any of the wells.

4.2 GROUND WATER SAMPLE ANALYSES

Ground water samples, the duplicate sample and the trip blank were analyzed by the laboratory for TPH-D by EPA Method 8015 modified for diesel and BTEX by EPA Method 8020. The analytical results are presented in Table 2 while the laboratory reports with chain-of-custody documentation are presented in Appendix C.

No detectable concentrations of TPH-D were reported to occur in the ground water samples collected from wells MW-1 through MW-4.

No detectable concentrations of BTEX constituents were reported to occur in the ground water samples collected from wells MW-1 through MW-4.

4.3 QUALITY CONTROL

The duplicate sample collected by ESE on March 30, 1995 was reported to contain no detectable analytes. The trip blank was also reported to contain no detectable analytes. These results indicate satisfactory sample handling and analytical quality control.

5.0 DISCUSSION

5.1 GROUND WATER GRADIENT

Significant differences in measured ground water elevations at the site suggests the influence of more than one water-bearing zone (Table 1). Ground water elevations in wells MW-1 and MW-2 (317.00 feet and 321.36 feet, respectively) were determined to be significantly different than in wells MW-3 and MW-4 (301.15 feet and 300.92 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.

5.2 GROUND WATER SAMPLES

The analytical results for ground water samples collected from MW-1 through MW-4 indicate that the ground water at the locations of these wells has not been impacted with diesel fuel and indicates that the plume has not migrated into the local ground water.

6.0 RECOMMENDATIONS

Based on the results and conclusions of this ground water monitoring event for the Staples Ranch site, ESE recommends the following:

- Quarterly ground water monitoring and sampling at wells MW-1, MW-2, MW-3, and MW-4 be performed and reported to the HCSA for a period of two additional consecutive quarters; and

- If petroleum hydrocarbon constituents are not reported to be present in samples collected during the next two quarters, ESE, on behalf of the GSA, will request from the HCSA that no further studies of the former AGT-5 site be performed and that site closure be granted.

7.0 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. UST/AGT Closure Report, Alameda County General Services Agency, Staples Ranch Property; November 30, 1994.

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

Environmental Science & Engineering, Inc. (ESE), 1995a. Report of Additional Site Assessment, Alameda County General Services Agency, Staples Ranch Property; February 13, 1995.

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

USGS, 1980, 7.5-Minute Livermore Quadrangle Topographic Map.

TABLE 1

GROUND WATER ELEVATION DATA
Alameda County General Services Agency
Staples Ranch Property, El Charro Road
Pleasanton, California

Well Number	Date	Top of Well Casing Elevation (feet AMSL)	Depth to Ground Water from Top of Casing (feet)	Ground Water Elevation (feet AMSL)	Screened interval
MW-1	1-Feb-95	347.6	37.65	309.95	40-60'
	30-Mar-95		30.60	317.00	
MW-2	1-Feb-95	348.34	35.77	312.57	40-60'
	30-Mar-95		26.98	321.36	
MW-3	1-Feb-95	348.37	53.69	294.68	40-60'
	30-Mar-95		47.22	301.15	
MW-4	1-Feb-95	348.59	53.90	294.69	40-65'
	30-Mar-95		47.67	300.92	

Note: (1) Elevation based on an arbitrary datum of 350 feet Above Mean Sea Level (AM

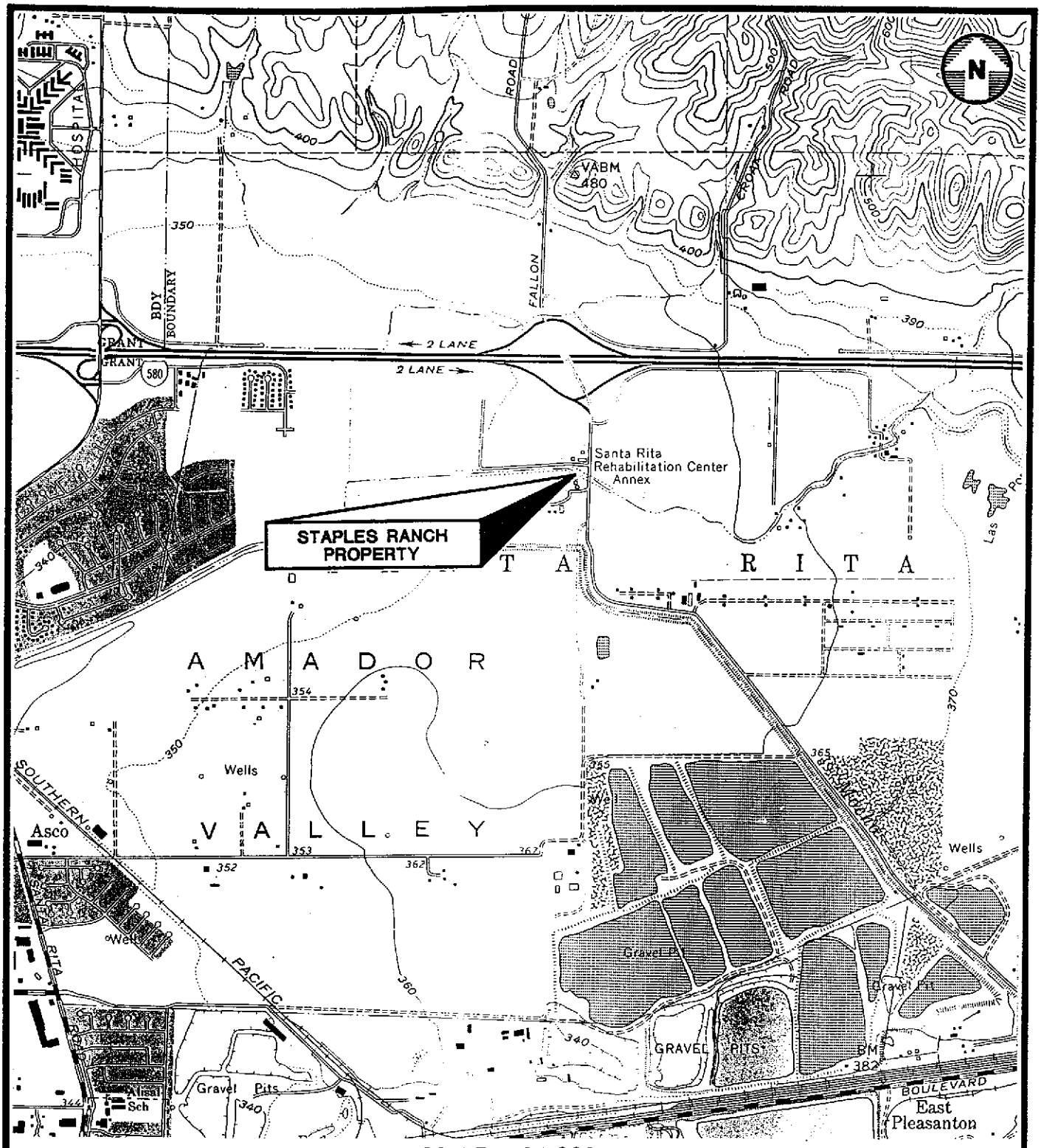
TABLE 2

ANALYTICAL RESULTS FOR GROUND WATER SAMPLES
Alameda County General Services Agency
Staples Ranch Property, El Charro Road
Pleasanton, California

Screened Interval

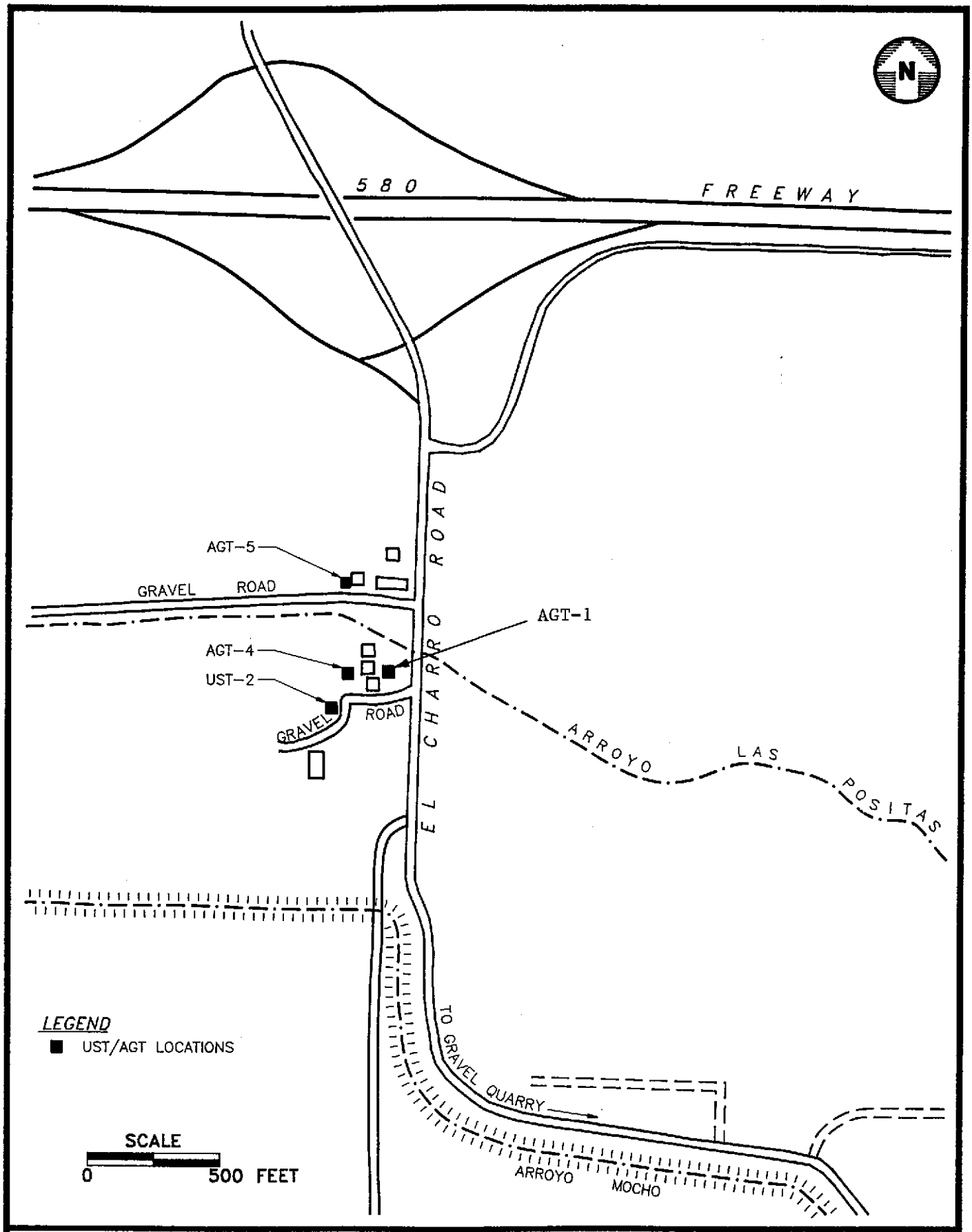
Well No.	Date Sampled	TPH-D (mg/L)	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Total Xylenes (mg/L)	
MW-1	12/30/94	ND (0.05)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	
Dup	12/30/94	ND (0.05)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	40-60'
	03/30/95	ND (0.05)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	
MW-2	12/30/94	ND (0.05)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	
	03/30/95	ND (0.05)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	40-60'
MW-3	12/30/94	ND (0.05)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	
	03/30/95	ND (0.05)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	40-6'
MW-4	12/30/94	ND (0.05)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	
	03/30/95	ND (0.05)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	40-65'
Dup	03/30/95	ND (0.05)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	
Trip	12/30/94	NA	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	
	03/30/95	NA	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	

Notes:
(1) TPH-D is total petroleum hydrocarbons as diesel analyzed using EPA Method 8015 modified per CA LUF
(2) Benzene, Toluene, Ethylbenzene, and Total Xylenes analyzed using EPA Method 8020.
(3) mg/L refers to milligrams per liter.
(4) ND (0.05) indicates not detected at method detection limit of 0.05 mg/L.
(5) NA stands for not analyzed for in the sample.
(6) Analytical reports are presented in Appendix C of this report.

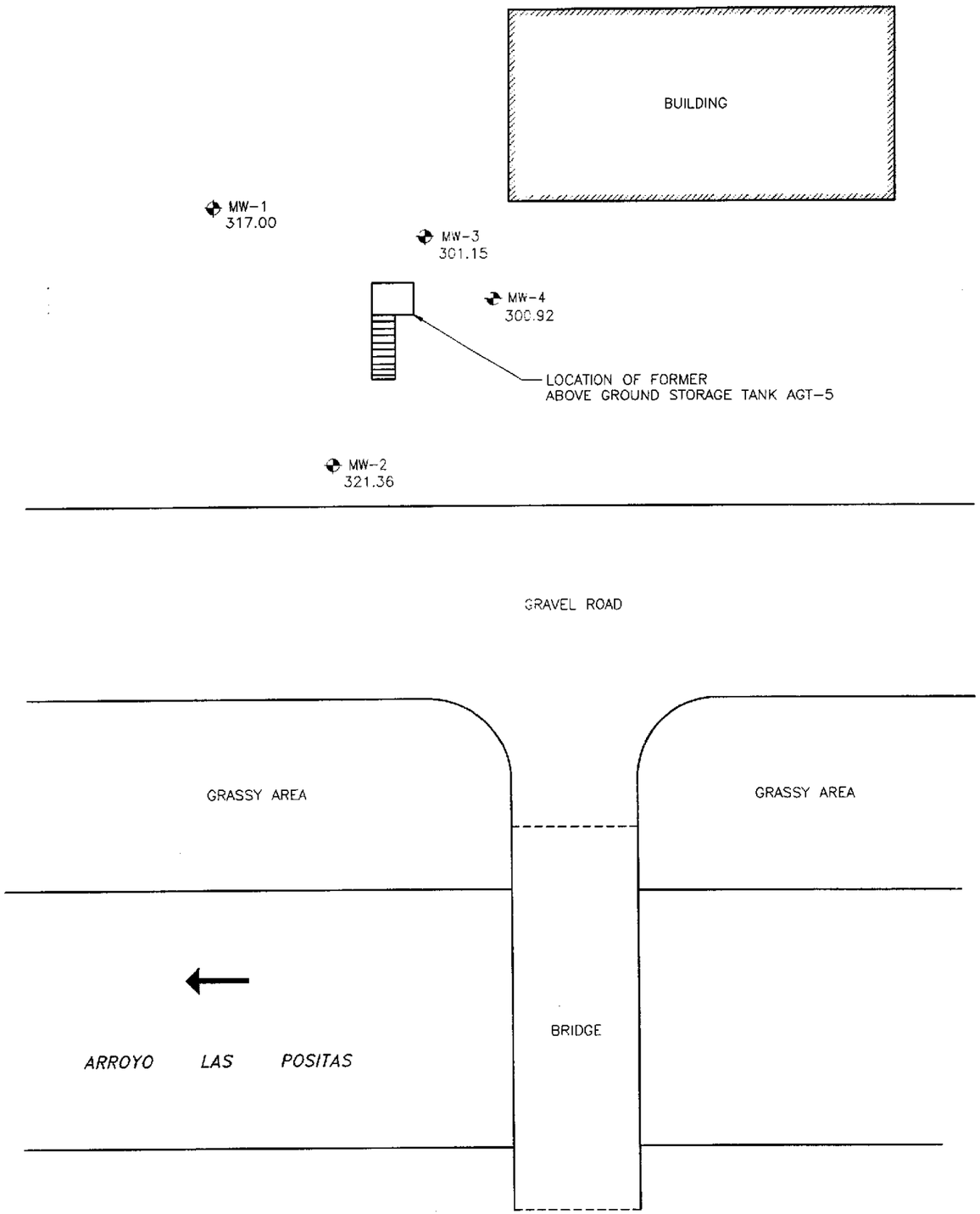


ADAPTED FROM U.S.G.S. LIVERMORE, CALIFORNIA 7.5 MINUTE TOPOGRAPHIC QUADRANGLE MAP, 1961, PHOTOREVISED 1980.

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
- 317.00 RELATIVE GROUND WATER ELEVATION IN FEET

SCALE
0 20 FEET

Environmental Science & Engineering, Inc. 4090 NELSON AVENUE, SUITE J CONCORD, CA 94520	DATE 4/26/95 REVISED CAD FILE 53530002	GROUND WATER ELEVATIONS MARCH 30, 1995 ALAMEDA COUNTY GENERAL SERVICES AGENCY STAPLES RANCH PROPERTY EL CHARRO ROAD, PLEASANTON, CALIFORNIA	FIGURE NO. 3 PROJ. NO. 6-94-5353

APPENDIX A

GROUND WATER SAMPLING DATA FORMS

Environmental Science & Engineering, Inc.
A CH2MHILL Company

SAMPLE COLLECTION LOG

PROJECT NAME: Staples Ranch
PROJECT NO.: 6-94-5353
DATE: March 30, 95

SAMPLE LOCATION I.D.: MW - 1
SAMPLER: Paul Marsden
PROJECT MANAGER:

CASING DIAMETER

2" ___
4" X
Other ___

SAMPLE TYPE

Ground Water X
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: 30.60 (ft.)
DEPTH OF WELL: 62.55 (ft.)

PRODUCT THICKNESS: 0 (ft.)
WATER COLUMN: 32.25 (ft.)
WELL CASING VOLUME: 21 (gal)

MINIMUM PURGE VOLUME (3 ~~or 4~~ WCV): 63 (gal)
ACTUAL VOLUME PURGED: 60 (gal)

TIME	Volume (GAL)	pH (Units)	E.C. (Micromhos)	Temperature (F°)	Turbid. (NTU)	Other
			X1000			
1200	0	7.23	1.14	63.5°		
1230	30	7.30	0.98	65.1°		
1300	60	7.22	0.99	64.9°		

INSTRUMENT CALIBRATION

pH/COND./TEMP.: TYPE Hydac 9 UNIT# 9010 DATE: 3/30/95 TIME: 6am BY: PM
TURBIDITY: TYPE ___ UNIT# ___ DATE: ___ TIME: ___ BY: ___

PURGE METHOD

___ Displacement Pump
X Bailer (Teflon/PVC/SS)
___ Other
___ Submersible Pump

SAMPLE METHOD

___ Bailer (Teflon/PVC/SS)
X Bailer (Disposable)
___ Dedicated
___ Other

SAMPLES COLLECTED

	ID	TIME	DATE	LAB	ANALYSES
SAMPLE	MW-1	1320	3/30/95	McCampbell	
DUPLICATE					
SPLIT					
FIELD BLANK					

COMMENTS: Dry after 15 gal.

SAMPLER: Paul Marsden PROJECT MANAGER

Environmental Science & Engineering, Inc.
A CILCORP Company

SAMPLE COLLECTION LOG

PROJECT NAME: Staples Ranch
PROJECT NO.: 6-94-5353
DATE: March 30, 95

SAMPLE LOCATION I.D.: MW-2
SAMPLER: Paul Marsden
PROJECT MANAGER:

CASING DIAMETER

2"
4" X
Other

SAMPLE TYPE

Ground Water X
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: Ø (ft.)
DEPTH TO WATER: 26.98 (ft.)
DEPTH OF WELL: 61.05 (ft.)

PRODUCT THICKNESS: Ø (ft.)
WATER COLUMN: 34.07 (ft.)
WELL CASING VOLUME: 22 (gal)

MINIMUM PURGE VOLUME (3.0 ~~4 WCV~~): 66 (gal)
ACTUAL VOLUME PURGED: 65 (gal)

TIME	Volume (GAL)	pH (Units)	E.C. (Micromhos)	Temperature (F°)	Turbid. (NTU)	Other
			X1000			
1330	Ø	6.99	1.21	65.4°		
1405	30	7.21	1.01	66.2°		
1430	65	7.11	1.09	65.9°		

INSTRUMENT CALIBRATION

pH/COND./TEMP.: TYPE Hydac 9 UNIT# 9010 DATE: 3/30/95 TIME: 6am BY: RM
TURBIDITY: TYPE ____ UNIT# ____ DATE: ____ TIME: ____ BY: ____

PURGE METHOD

___Displacement Pump ___Other
X Bailer (Teflon/PVC/SS) ___Submersible Pump

SAMPLE METHOD

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

SAMPLES COLLECTED

	ID	TIME	DATE	LAB	ANALYSES
SAMPLE	MW-2	1430	3/30/95	McCampbell	
DUPLICATE					
SPLIT					
FIELD BLANK					

COMMENTS: Day after 20gal.

SAMPLER: Paul Marsden PROJECT MANAGER

Environmental Science & Engineering, Inc.
A CILCORP Company

SAMPLE COLLECTION LOG

PROJECT NAME: Stapler Ranch
PROJECT NO.: 6-94-5353
DATE: March 30, 95

SAMPLE LOCATION I.D.: MW-3
SAMPLER: Paul Marsden
PROJECT MANAGER:

CASING DIAMETER

2"
4" X
Other

SAMPLE TYPE

Ground Water X
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: Ø (ft.)
DEPTH TO WATER: 47.22 (ft.)
DEPTH OF WELL: 61.40 (ft.)

PRODUCT THICKNESS: Ø (ft.)
WATER COLUMN: 14.18 (ft.)
WELL CASING VOLUME: 9.2 (gal)

MINIMUM PURGE VOLUME (3 or 4 WCV): 27 (gal)
ACTUAL VOLUME PURGED: 27 (gal)

TIME	Volume (GAL)	pH (Units)	E.C. (Micromhos)	Temperature (F°)	Turbid. (NTU)	Other
			X1000			
1440	Ø	7.47	1.01	65.1°		
1450	12	7.19	Ø.89	64.5°		
1500	27	7.21	Ø.91	64.9°		

INSTRUMENT CALIBRATION

pH/COND./TEMP.: TYPE Hydac 9 UNIT# 9010 DATE: 3/30/95 TIME: 6am BY: RM
TURBIDITY: TYPE ____ UNIT# ____ DATE: ____ TIME: ____ BY: ____

PURGE METHOD

___Displacement Pump ___Other
X Bailer (Teflon/PVC/SS) ___Submersible Pump

SAMPLE METHOD

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

SAMPLES COLLECTED

	ID	TIME	DATE	LAB	ANALYSES
SAMPLE	MW-3	1505	3/30/95	McCampbell	
DUPLICATE					
SPLIT					
FIELD BLANK					

COMMENTS: Dry after 20 gal

SAMPLER: Paul Marsden PROJECT MANAGER: B HL

Environmental Science & Engineering, Inc.
A CILCORP Company

SAMPLE COLLECTION LOG

PROJECT NAME: Staples Ranch
PROJECT NO.: 6-94-5353
DATE: March 30, 95

SAMPLE LOCATION I.D.: MW - 4
SAMPLER: Paul Marsden
PROJECT MANAGER:

CASING DIAMETER

2"
4" X
Other

SAMPLE TYPE

Ground Water X
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: 47.67 (ft.)
DEPTH OF WELL: 62.71 (ft.)

PRODUCT THICKNESS: 0 (ft.)
WATER COLUMN: 20 (ft.)
WELL CASING VOLUME: 13 (gal)

MINIMUM PURGE VOLUME (3 or 4 WCV): 39 (gal)
ACTUAL VOLUME PURGED: 40 (gal)

TIME	Volume (GAL)	pH (Units)	E.C. (Micromhos)	Temperature (F°)	Turbid. (NTU)	Other
			X1000			
1525	0	7.33	1.2	56.4°		
1540	20	7.03	1.1	60.9°		
1600	40	7.13	1.1	61.1°		

INSTRUMENT CALIBRATION

pH/COND./TEMP.: TYPE Hydac 9 UNIT# 9010 DATE: 3/30/95 TIME: 6am BY: RM
TURBIDITY: TYPE _____ UNIT# _____ DATE: _____ TIME: _____ BY: _____

PURGE METHOD

___Displacement Pump ___Other
X Bailer (Teflon/PVC/SS) ___Submersible Pump

SAMPLE METHOD

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

SAMPLES COLLECTED

	ID	TIME	DATE	LAB	ANALYSES
SAMPLE	MW-4	1610	3/30/95	McCampbell	
DUPLICATE	Dup	1610	3/30/95		
SPLIT					
FIELD BLANK					

COMMENTS: Dry after 25 gal

SAMPLER: Paul Marsden PROJECT MANAGER

APPENDIX B

ESE STANDARD OPERATING PROCEDURE NO. 3

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.

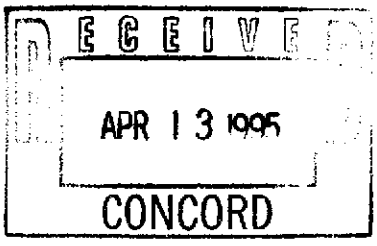
Ground-water samples are collected by lowering a new (precleaned), disposable polyethylene bailer into the well using new, disposable nylon cord. The filled bailer is retrieved, emptied, then filled again. The ground water from this bailer is decanted into appropriate laboratory supplied glassware and/or 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 C

LABORATORY ANALYTICAL REPORTS: GROUND WATER SAMPLES

McCAMPBELL ANALYTICAL INC.

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



04/07/95

Dear Bart:

Enclosed are:

1). the results of 6 samples from your # **6-94-5353; Alameda Co. 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 Ave., Suite J Concord, CA 94520	Client Project ID: # 6-94-5353; Alameda Co. GSA-Staples Ranch	Date Sampled: 03/30/95
		Date Received: 03/31/95
	Client Contact: Bart Miller	Date Extracted: 03/31/95
	Client P.O: # SMSA-C-021	Date Analyzed: 03/31/95

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	Ethylben-zene	Xylenes	% Rec. Surrogate
51250	MW-1	W	---	ND	ND	ND	ND	95
51251	MW-2	W	---	ND	ND	ND	ND	99
51252	MW-3	W	---	ND	ND	ND	ND	106
51253	MW-4	W	---	ND	ND	ND	ND	94
51254	Dup	W	---	ND	ND	ND	ND	96
51255	Trip	W	---	ND	ND	ND	ND	95
Reporting Limit unless otherwise stated; ND means not detected above the reporting limit		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 and vapor samples are reported in ug/L, soil samples in mg/kg, and all TCLP extracts in mg/L

cluttered chromatogram; sample peak coelutes 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 having broad chromatographic peaks are significant; biologically altered gasoline?; 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 sheen is present; i) liquid sample that contains greater than ~ 5 vol. % sediment; j) no recognizable pattern.

DHS Certification No. 1644

Edward Hamilton, Lab Director

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Environmental Science & Eng. 4090 Nelson Ave., Suite J Concord, CA 94520	Client Project ID: # 6-94-5353; Alameda Co. GSA-Staples Ranch	Date Sampled: 03/30/95
		Date Received: 03/31/95
	Client Contact: Bart Miller	Date Extracted: 03/31/95
	Client P.O: # SMSA-C-021	Date Analyzed: 04/01-04/03/95

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
51250	MW-1	W	ND	100
51251	MW-2	W	ND	100
51252	MW-3	W	ND	106
51253	MW-4	W	ND	100
51254	Dup	W	ND	102
Reporting Limit unless otherwise stated; ND means not detected above the reporting limit		W	50 ug/L	
		S	1.0 mg/kg	

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

cluttered chromatogram resulting in coeluted surrogate and sample peaks, or; surrogate peak is on elevated baseline, or; surrogate has been diminished by dilution of original extract.

+ 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) aged diesel? is 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 sheen is present; i) liquid sample that contains greater than ~ 5 vol. % sediment.

DHS Certification No. 1644

Edward Hamilton, Lab Director

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QC REPORT FOR HYDROCARBON ANALYSES

Date: 03/31/95 Matrix: Water

Analyte	Concentration (ug/L)			Amount Spiked	% Recovery		RPD
	Sample	MS	MSD		MS	MSD	
TPH (gas)	0.0	97.4	107.3	100	97.4	107.3	9.6
Benzene	0	9.1	9.3	10	91.0	93.0	2.2
Toluene	0	9.2	9.9	10	92.0	99.0	7.3
Ethyl Benzene	0	9.3	9.9	10	93.0	99.0	6.2
Xylenes	0	29	29.4	30	96.7	98.0	1.4
TPH (diesel)	0	147	163	150	98	108	10.0
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

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QC REPORT FOR HYDROCARBON ANALYSES

Date: 04/01-04/03/95 Matrix: Water

Analyte	Concentration (ug/L)			Amount Spiked	% Recovery		RPD
	Sample	MS	MSD		MS	MSD	
TPH (gas)	0.0	94.9	98.6	100	94.9	98.6	3.8
Benzene	0	9.3	8.3	10	93.0	83.0	11.4
Toluene	0	9.4	8.6	10	94.0	86.0	8.9
Ethyl Benzene	0	9.3	8.8	10	93.0	88.0	5.5
Xylenes	0	28.9	27.1	30	96.3	90.3	6.4
TPH (diesel)	0	172	175	150	115	117	1.9
TRPH (oil & grease)	0	18950	19000	23700	80	80	0.3

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

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

DATE March 30, 95 PAGE 1 OF 1

CHAIN OF CUSTODY RECORD

3887 AESEX138

PROJECT NAME ALAMEDA CO. GSA - STARLES RANCH

ADDRESS EL CHARRO ROAD
PLEASANTON, CA

PROJECT NO. 6-94-5353

SAMPLED BY Paul Marsden

LAB NAME CAMPBELL 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	ANALYSES TO BE PERFORMED: TPH-D (8015m)	ANALYSES TO BE PERFORMED: BTEX (8020)	MATRIX	NUMBER OF CONTAINERS	REMARKS (CONTAINER, SIZE, ETC.)
MW-1	3/30	1320	Staples Ranch	✓	✓	WATER	3	1 Liter 2 Vocs
MW-2	"	1420	"	✓	✓	"	3	
MW-3	"	1505	"	✓	✓	"	3	
MW-4	"	1610	"	✓	✓	"	3	
DUP	"	1610	"	✓	✓	"	3	
TRIP	"		"		✓	"	1	

51250
51251
51252
51253
51254
51255

RELINQUISHED BY: (signature)	RECEIVED BY: (signature)	date	time
1. Paul Marsden	Heidi Rucca	3-31-95	8:37
2.			
3.			
4.			
5.			

16 TOTAL NUMBER OF CONTAINERS

ICE/T: ✓ VOAS O&G METALS OTHER
GOOD CONDITION: ✓ PRESERVATIVE: ✓
HEAD SPACE ABSENT: ✓ APPROPRIATE CONTAINERS: ✓

REPORT RESULTS TO:
Bart Miller
ESE

SPECIAL SHIPMENT REQUIREMENTS
COLD TRANSPORT

INSTRUCTIONS TO LABORATORY (handling, analyses, storage, etc.):
NORMAL T.A.T. INVOICE TO MR. TOM McKIMMY OF ALAMEDA CO. GSA

SAMPLE RECEIPT

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