
Quarterly Monitoring Report
Alameda County UST 1, 2, 3 Site
Santa Rita Correctional Facility
Dublin, California

6-19-95

Prepared for:
Alameda County General Services Agency
Engineering and Environmental
Management Department
1401 Lakeside Drive
Oakland, California 94612

Prepared by:
Environmental Science & Engineering, Inc.
Concord, CA

June 19, 1995

ESE Project No. 6-94-5240

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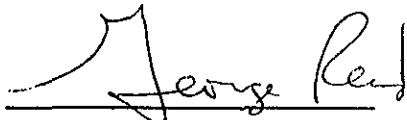
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REPORT PREPARATION AND CERTIFICATION

This quarterly monitoring 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 the site known as the UST 1, 2, 3 Site located at the Santa Rita Correctional Facility in Dublin, 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 report.

REPORT PREPARED BY:



George Reid

Senior Geologist

Registered California Geologist No. 3608

June 20, 1995
Date

Project No. 6945240\Qtr2.95

1.0 Introduction and Background

1.1 Introduction

This report presents the results of the quarterly ground water monitoring activity conducted by Environmental Science & Engineering, Inc. (ESE) for the Alameda County General Services Agency, Engineering and Environmental Management Department (County) at the UST 1, 2, 3 Site ("site") on May 15, 1995 (Figure 1 - Location Map).

The objective of this quarterly monitoring event was to confirm that no detectable concentrations of petroleum hydrocarbons occur in ground water samples collected from wells located adjacent to the former underground storage tanks (USTs) identified as USTs 1, 2, and 3. Methods for ground water sampling and testing and results are described in Sections 2.0 and 3.0. Section 4.0 provides recommendations for future site activities.

1.2 Background

In March, 1988, Environmental Technology directed the removal of three USTs at the site under permit from the Alameda County Health Care Services Agency (HCSA) and the Dougherty Regional Fire Authority. The site consisted of one 3,000-gallon capacity UST (UST 1) for the storage of diesel fuel and two 5,000-gallon capacity USTs (UST 2 and UST 3) for the storage of Bunker C fuel oil. The fuels were used to operate a series of boilers formerly located at the site. Each UST was of single-wall carbon steel construction. The County has indicated that the USTs may have been abandoned during the mid 1950s.

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

A preliminary site assessment was performed by Gregg & Associates on March 22, 1988 to determine the areal extent of soil impacted with petroleum hydrocarbons. One soil sample was

collected at a depth of 15 feet from each of the four borings (1C, 3D, 3E, and 3F) drilled during the preliminary site assessment and analyzed for TPH-D. No detectable concentrations of TPH-D were reported in the four samples. Detectable concentrations of TOG were reported for each sample and ranged from 22 to 42 ppm. Based on these findings, Gregg & Associates supervised the overexcavation of soil impacted with petroleum hydrocarbons on March 31, 1988. An outline of the excavated area is shown on Figure 2 - Ground Water Elevation Map.

On November 3, 1993, ESE measured and mapped the stockpiled soil at the subject site. ESE estimated the total volume of the stockpiled soil at the site to be approximately 400 cubic yards.

On November 24, 1993, ESE submitted a workplan to the HCSA for sampling the stockpiled soil (ESE, 1993a). Subsequently, ESE collected soil samples from the stockpile on November 30, 1993 at a frequency of one sample for every 50 cubic yards and analyzed each for TPH-D and benzene, toluene, ethylbenzene, and total xylenes (BTEX) using EPA Method 8015 (modified per CA LUFT) and EPA Method 8020, respectively. Of the eight soil samples analyzed, one sample was reported to contain TPH-D at a concentration of 130 ppm. All other samples were reported to not contain detectable concentrations of TPH-D and BTEX. Results of the stockpile sampling were presented to the HCSA in a letter report dated December 7, 1993 (ESE, 1993b).

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

On June 24, 1994, ESE submitted a workplan to the County and HCSA describing the tasks to be performed to determine if petroleum hydrocarbons occur in the soil adjacent to the former USTs 1, 2, and 3 (ESE, 1994b).

A Site Assessment Report was prepared by ESE and submitted to the County and HCSA on December 21, 1994 (ESE, 1994c). A comprehensive description of site history, regional geology, and regional hydrology was presented in this report. This site assessment report also included analytical results for ground water samples collected from the four ground water wells. The results for the samples collected indicated no detectable concentrations of TPH-D, TOG, and BTEX. The report recommended that three additional quarters of ground water monitoring be performed at the site prior to requesting site closure from the HCSA.

On December 30, 1994, the second quarterly ground water monitoring event was performed by ESE. The results for the ground water samples collected indicated no detectable concentrations of TPH-D and BTEX. An additional quarterly monitoring report, dated March 13, 1995, provided information for the third quarterly sampling event. No detectable concentrations of TPH-D and BTEX were reported in the four wells.

2.0 Field Methodology

Prior to beginning fieldwork, ESE reviewed the site specific Health and Safety Plan (HASP) prepared for this work 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.

ESE monitored ground water levels and collected one ground water sample from each site well (MW1, MW2, MW3, and MW4; Figure 2) and one duplicate ground water sample from well MW4 (Appendix A - Sample Collection Logs). All monitoring and sampling activities were conducted in accordance with ESE SOP No. 3 (Appendix B - ESE SOP No. 3).

Ground water samples were analyzed for TPH-D using EPA Method 8015 (modified per CA LUFT) and BTEX using EPA Method 8020. A travel blank was supplied by the laboratory for quality assurance/quality control (QA/QC) purposes. The travel blank, consisting of deionized water, was analyzed for BTEX only and serves as a check on ESE's sampling handling and transport procedures. The duplicate ground water sample was submitted to the laboratory as a blind sample for TPH-D and BTEX analyses, and serves as a QA/QC check on the laboratory's analytical procedures and on ESE's sample collection procedures.

As a result of these site activities, waste materials including rinsates from the decontamination of sampling equipment and purge water, were generated. One 55-gallon-capacity, Department of Transportation (DOT)-rated steel drum containing rinsates and purge water was generated at each well (total of four) by ESE during this fieldwork and left at the site pending receipt of analytical results for proper disposal.

3.0 Results

Ground water was estimated to flow toward the north-northeast at a gradient of approximately 0.003 foot per foot. A ground water elevation map based on the May 15, 1995 data is presented on Figure 2. The gradient and ground water flow direction are consistent with that observed at the site during the past three quarterly monitoring events.

The analytical results for the ground water samples collected indicated no detectable concentrations of TPH-D and BTEX in any of the four wells. Detection limits are at levels specified in the Tri-Regional Board guidelines (RWQCB, 1990). Copies of the laboratory reports and the chain-of-custody documents are presented in Appendix C. No detectable concentrations of TPH-D and BTEX have been detected in ground water during the past four quarters. A summary table of ground water monitoring analytical results are presented in Table 1.

4.0 Recommendations

Based on the results of this monitoring event at the UST 1, 2, 3 site, ESE recommends the following:

- Based on the results of four quarters of ground water monitoring (non-detected hydrocarbons in all four wells), the County should request site closure from the HCSA.
- Upon approval of site closure, the ground monitoring wells should be properly abandoned.

5.0 References

- Environmental Science & Engineering, Inc. (ESE), 1993a. Workplan for Soil Stockpile Sampling, Alameda County General Services Agency (GSA), UST 1, 2, 3 Site; November 24, 1993.
- Environmental Science & Engineering, Inc. (ESE), 1993b. Report of Soil Stockpile Sampling, Alameda County General Services Agency (GSA), UST 1, 2, 3 Site; December 7, 1993.
- Environmental Science & Engineering, Inc. (ESE), 1994a. Report of Stockpiled Soil Spreading and Disposal, Alameda County General Services Agency (GSA), UST 1, 2, 3 Site; June 20, 1994.
- Environmental Science & Engineering, Inc. (ESE), 1994b. Workplan for Site Investigation, Alameda County General Services Agency (GSA), UST 1, 2, 3 Site; June 24, 1994.
- Environmental Science & Engineering, Inc. (ESE), 1994c. Site Assessment Report, Alameda County General Services Agency (GSA), UST 1, 2, 3 Site; December 21, 1994.
- Environmental Science & Engineering, Inc. (ESE), 1995a. Quarterly Monitoring Report, Alameda County General Services Agency (GSA), UST 1, 2, 3 Site; January 30, 1995.
- Environmental Science & Engineering, Inc. (ESE), 1995b. Quarterly Monitoring Report, Alameda County General Services Agency (GSA), UST 1, 2, 3 Site; March 13, 1995.
- 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.

Tables

TABLE 1

SUMMARY OF ANALYTICAL RESULTS FOR GROUND WATER SAMPLES

Alameda County UST 1, 2, 3 Site
 Santa Rita Correctional Facility
 Dublin, California

Sample Event	Well No.	TPH-D µg/mL	TOG mg/L	Benzene µg/mL	Toluene µg/mL	Ethylbenzene µg/mL	Total Xylenes µg/mL
Sep-94	MW-1	ND (50)	ND (5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Sep-94	MW-2	ND (50)	ND (5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Sep-94	MW-3	ND (50)	ND (5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Sep-94	MW-4	ND (50)	ND (5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Dec-94	MW-1	ND (50)	NA	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Dec-94	MW-2	ND (50)	NA	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Dec-94	MW-3	ND (50)	NA	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Dec-94	MW-4	ND (50)	NA	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Feb-95	MW-1	ND (50)	NA	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Feb-95	MW-2	ND (50)	NA	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Feb-95	MW-3	ND (50)	NA	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Feb-95	MW-4	ND (50)	NA	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
May-95	MW-1	ND (50)	NA	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
May-95	MW-2	ND (50)	NA	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
May-95	MW-3	ND (50)	NA	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
May-95	MW-4	ND (50)	NA	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)

Notes:

TPH-D = Total Petroleum Hydrocarbons as Diesel

TOG = Total Oil and Grease

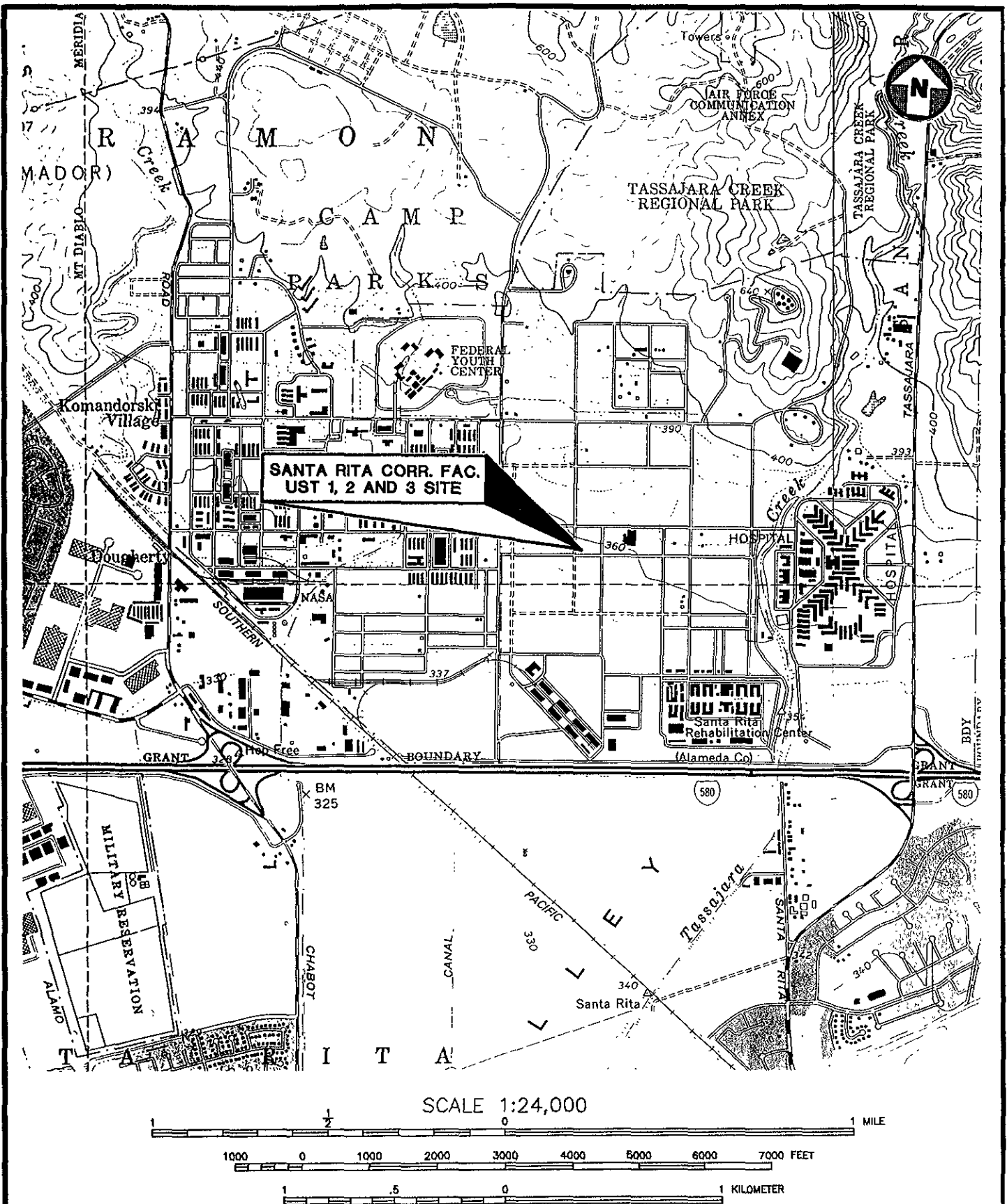
mg/L = Milligrams per Liter

ug/L = Micrograms per Liter

ND (50 µg/mL) = Not Detected at a detection limit of 50 µg/mL

NA = Not Analyzed

Figures



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



**Environmental
Science &
Engineering, Inc.**

4090 NELSON AVENUE, SUITE J
CONCORD, CA 94520

DATE
11/23/94

REVISED

CAD FILE
52400005

LOCATION MAP

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

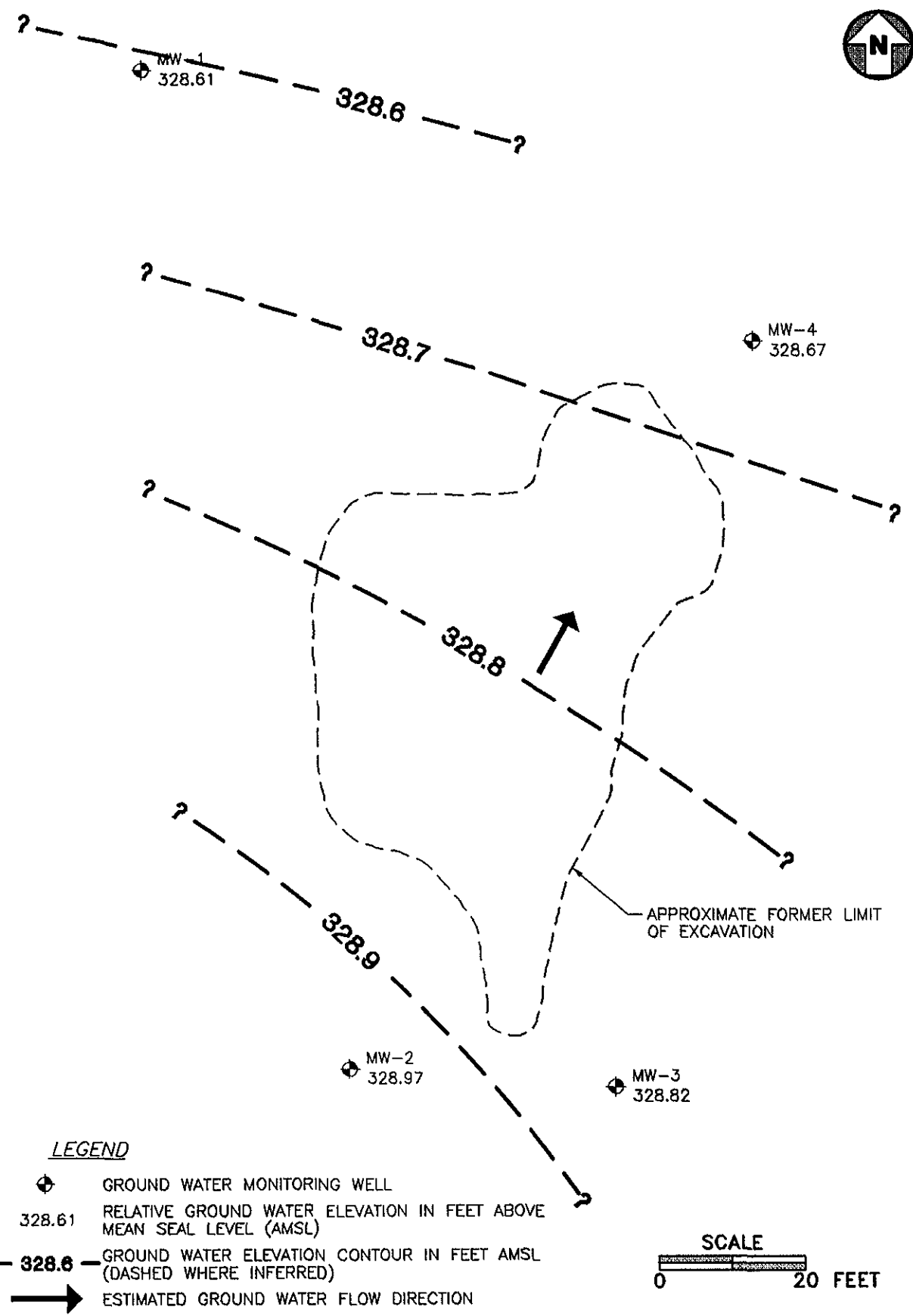
FIGURE NO.

1

PROJ. NO.
6-94-5240

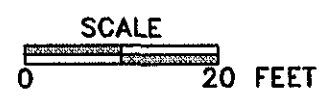


OFFUTT AVENUE



LEGEND

- GROUND WATER MONITORING WELL
- 328.61 RELATIVE GROUND WATER ELEVATION IN FEET ABOVE MEAN SEAL LEVEL (AMSL)
- 328.6 - GROUND WATER ELEVATION CONTOUR IN FEET AMSL (DASHED WHERE INFERRED)
- ESTIMATED GROUND WATER FLOW DIRECTION



Environmental Science & Engineering, Inc.

DATE
11/23/94

REVISED
5/30/95

CAD FILE
52400004

GROUND WATER ELEVATION MAP
MAY 15, 1995

FIGURE NO.
2

4090 NELSON AVENUE, SUITE J
CONCORD, CA 94520

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

PROJ. NO.
6-94-5240

Appendix A
Sample Collection Logs



Environmental
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SAMPLE COLLECTION LOG

PROJECT NAME: Alameda Co. GSA - UST 1,2,3
PROJECT NO.: 6945340
DATE: 5-15-95

SAMPLE LOCATION I.D.: MW-1
SAMPLER: Eric W. Garcia
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: - (ft.) PRODUCT THICKNESS: - (ft.) MINIMUM PURGE VOLUME
DEPTH TO WATER: 34.65 (ft.) WATER COLUMN: 16.35 (ft.) (3 or 4 WC): 32.1 (gal)
DEPTH OF WELL: 51.00 (ft.) WELL CASING VOLUME: 10.7 (gal) ACTUAL VOLUME PURGED: 53 (gal)

TIME	Volume (GAL)	pH (Units)	E.C. (Micromhos)	Temperature (F°)	Turbid. (NTU)	Other
<u>0720</u>	<u>0</u>	<u>7.05</u>	<u>1120</u>	<u>69.3</u>	<u>-</u>	<u>clear/cloudy</u>
<u>0725</u>	<u>20</u>	<u>7.15</u>	<u>1310</u>	<u>70.2</u>	<u>-</u>	<u>clear/cloudy</u>
<u>0728</u>	<u>40</u>	<u>7.12</u>	<u>1220</u>	<u>71.3</u>	<u>-</u>	<u>clear/cloudy</u>
<u>0732</u>	<u>55</u>	<u>7.07</u>	<u>1230</u>	<u>72.1</u>	<u>-</u>	<u>clear/cloudy</u>

INSTRUMENT CALIBRATION

pH/COND./TEMP.: TYPE Hydric UNIT# 9010 DATE: 5-15-95 TIME: 0600 BY: [Signature]
TURBIDITY: TYPE _____ UNIT# _____ DATE: _____ TIME: _____ BY: _____

PURGE METHOD

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

SAMPLE METHOD

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

SAMPLES COLLECTED

SAMPLE	ID	TIME	DATE	LAB	ANALYSES
DUPLICATE	<u>MW-1</u>	<u>0725</u>	<u>5-15-95</u>	<u>McLampbell</u>	_____
SPLIT	_____	_____	_____	_____	_____
FIELD BLANK	_____	_____	_____	_____	_____

COMMENTS:

SAMPLER: [Signature]
4090 Nelson Avenue, Suite J

Concord, CA 94520

PROJECT MANAGER [Signature]

Phone (510) 685-4053

Fax (510) 685-5323



Environmental
Science &
Engineering, Inc.

SAMPLE COLLECTION LOG

PROJECT NAME: Alameda Co. GSA - UST 1,2,3
PROJECT NO.: 6945340
DATE: 5-15-95

SAMPLE LOCATION I.D.: MW-2
SAMPLER: Eric W. Garcia
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: - (ft.) PRODUCT THICKNESS: - (ft.) MINIMUM PURGE VOLUME
DEPTH TO WATER: 37.64 (ft.) WATER COLUMN: 18.86 (ft.) 3 or 4 WCV: 36.9 (gal)
DEPTH OF WELL: 51.53 (ft.) WELL CASING VOLUME: 12.3 (gal) ACTUAL VOLUME PURGED: 55 (gal)

TIME	Volume (GAL)	pH (Units)	E.C. (Micromhos)	Temperature (F°)	Turbid. (NTU)	Other
<u>0840</u>	<u>0</u>	<u>6.85</u>	<u>980</u>	<u>71.0</u>	<u>-</u>	<u>Silty</u>
<u>0843</u>	<u>25</u>	<u>7.12</u>	<u>1100</u>	<u>72.3</u>	<u>-</u>	<u>Silty</u>
<u>0845</u>	<u>40</u>	<u>7.08</u>	<u>1180</u>	<u>72.1</u>	<u>-</u>	<u>Silty</u>
<u>0849</u>	<u>55</u>	<u>7.11</u>	<u>1210</u>	<u>73.2</u>	<u>-</u>	<u>cloudy</u>

INSTRUMENT CALIBRATION

pH/COND./TEMP.: TYPE Hydac UNIT# 9010 DATE: 5-15-95 TIME: 0600 BY: [Signature]
TURBIDITY: TYPE _____ UNIT# _____ DATE: _____ TIME: _____ BY: _____

PURGE METHOD

SAMPLE METHOD

____ Displacement Pump ____ Other
____ Bailer (Teflon/PVC/SS) Submersible Pump
____ Bailer (Teflon/PVC/SS) Bailer (Disposable) ____ Dedicated
____ Other

SAMPLES COLLECTED

SAMPLE	ID	TIME	DATE	LAB	ANALYSES
DUPLICATE	<u>MW-2</u>	<u>0900</u>	<u>5-15-95</u>	<u>McCampbell</u>	_____
SPLIT	<u>Dup</u>	<u>0900</u>	<u>"</u>	<u>"</u>	_____
FIELD BLANK	_____	_____	_____	_____	_____

COMMENTS:

SAMPLER: [Signature]
4090 Nelson Avenue, Suite J

Concord, CA 94520

PROJECT MANAGER [Signature]

Phone (510) 685-4053

Fax (510) 685-5323



Environmental
Science &
Engineering, Inc.

SAMPLE COLLECTION LOG

PROJECT NAME: Alameda Co. GSA - UST 1,2,3
PROJECT NO.: 6945240
DATE: 5-15-95

SAMPLE LOCATION I.D.: MW-3
SAMPLER: Eric W. Garcia
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: - (ft.) PRODUCT THICKNESS: - (ft.) MINIMUM PURGE VOLUME
DEPTH TO WATER: 33.63 (ft.) WATER COLUMN: 15.94 (ft.) (3 or 4 WCV): 31.3 (gal)
DEPTH OF WELL: 49.62 (ft.) WELL CASING VOLUME: 104 (gal) ACTUAL VOLUME PURGED: 55 (gal)

TIME	Volume (GAL)	pH (Units)	E.C. (Micromhos)	Temperature (F°)	Turbid. (NTU)	Other
<u>0808</u>	<u>0</u>	<u>7.12</u>	<u>1080</u>	<u>71.2</u>	<u>-</u>	<u>Silty</u>
<u>0815</u>	<u>20</u>	<u>7.08</u>	<u>980</u>	<u>72.6</u>	<u>-</u>	<u>Silty</u>
<u>0824</u>	<u>40</u>	<u>7.15</u>	<u>1120</u>	<u>71.8</u>	<u>-</u>	<u>Silty</u>
<u>0830</u>	<u>55</u>	<u>7.13</u>	<u>1150</u>	<u>70.1</u>	<u>-</u>	<u>Silty</u>

INSTRUMENT CALIBRATION

pH/COND./TEMP.: TYPE Hydric UNIT# 9010 DATE: 5-15-95 TIME: 0600 BY: [Signature]
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

SAMPLE	ID	TIME	DATE	LAB	ANALYSES
DUPLICATE	<u>MW-3</u>	<u>0915</u>	<u>5-15-95</u>	<u>McCampbell</u>	_____
SPLIT	_____	_____	_____	_____	_____
FIELD BLANK	_____	_____	_____	_____	_____

COMMENTS: _____

SAMPLER: _____

4090 Nelson Avenue, Suite J

PROJECT MANAGER _____

Concord, CA 94520

Phone (510) 685-4053

Fax (510) 685-5323



Environmental
Science &
Engineering, Inc.

SAMPLE COLLECTION LOG

PROJECT NAME: Alameda Co. GSA - UST 1,2,3
PROJECT NO.: 6945240
DATE: 5-15-95

SAMPLE LOCATION I.D.: MW-4
SAMPLER: Eric W. Garcia
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: - (ft.) PRODUCT THICKNESS: - (ft.) MINIMUM PURGE VOLUME
DEPTH TO WATER: 34.53 (ft.) WATER COLUMN: 16.41 (ft.) or 4 WCV: 32.1 (gal)
DEPTH OF WELL: 50.94 (ft.) WELL CASING VOLUME: 16.7 (gal) ACTUAL VOLUME PURGED: 55 (gal)

TIME	Volume (GAL)	pH (Units)	E.C. (Micromhos)	Temperature (F°)	Turbid. (NTU)	Other
<u>0745</u>	<u>0</u>	<u>6.89</u>	<u>1320</u>	<u>69.5</u>	<u>-</u>	<u>Silty</u>
<u>0748</u>	<u>25</u>	<u>7.05</u>	<u>1280</u>	<u>71.2</u>	<u>-</u>	<u>Silty</u>
<u>0756</u>	<u>40</u>	<u>7.28</u>	<u>1110</u>	<u>72.2</u>	<u>-</u>	<u>cloudy</u>
<u>0807</u>	<u>55</u>	<u>7.10</u>	<u>1200</u>	<u>71.6</u>	<u>-</u>	<u>cloudy</u>

INSTRUMENT CALIBRATION

pH/COND./TEMP.: TYPE Hydax UNIT# 9010 DATE: 5-15-95 TIME: 0600 BY: [Signature]
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

SAMPLE	ID	TIME	DATE	LAB	ANALYSES
DUPLICATE	<u>MW-4</u>	<u>0920</u>	<u>5-15-95</u>	<u>McCampbell</u>	_____
SPLIT	_____	_____	_____	_____	_____
FIELD BLANK	_____	_____	_____	_____	_____

COMMENTS: _____

SAMPLER: [Signature] PROJECT MANAGER: [Signature]
4090 Nelson Avenue, Suite J Concord, CA 94520 Phone (510) 685-4053 Fax (510) 685-5323

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

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

05/22/95

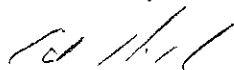
Dear Bart:

Enclosed are:

- 1). the results of 6 samples from your # 6-94-5240; Alameda County GSA, UST 1,2,3 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

Environmental Science & Eng. 4090 Nelson Ave., Suite J Concord, CA 94520	Client Project ID: # 6-94-5240; Alameda County GSA, UST 1,2,3	Date Sampled: 05/12/95
	Client Contact: Bart Miller	Date Received: 05/12/95
	Client P.O.: # SMSA-C-021	Date Extracted: 05/13/95
		Date Analyzed: 05/13/95

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	Ethylbenzene	Xylenes	% Rec. Surrogate
52450	MW1	W	---	ND	ND	ND	ND	102
52451	MW2	W	---	ND	ND	ND	ND	104
52452	MW3	W	---	ND	ND	ND	ND	100
52453	MW4	W	---	ND	ND	ND	ND	99
52454	Dup	W	---	ND	ND	ND	ND	98
52455	Trip	W	---	ND	ND	ND	ND	101
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.

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		Date Analyzed: 05/13/95

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
52450	MW1	W	ND	96
52451	MW2	W	ND	100
52452	MW3	W	ND	99
52453	MW4	W	ND	98
52454	Dup	W	ND	97
Reporting Limit unless otherwise stated; ND means not detected above the reporting limit	W		50 ug/L	
	S		10 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.

QC REPORT FOR HYDROCARBON ANALYSES

Date: 05/13/95

Matrix: Water

Analyte	Concentration (ug/L)			Amount Spiked	% Recovery		
	Sample	MS	MSD		MS	MSD	RPD
TPH (gas)	0.0	105.5	97.3	100	105.5	97.3	8.1
Benzene	0	9	9.5	10	90.0	95.0	5.4
Toluene	0	9.2	9.7	10	92.0	97.0	5.3
Ethyl Benzene	0	9.3	9.9	10	93.0	99.0	6.2
Xylenes	0	29.3	30.6	30	97.7	102.0	4.3
TPH (diesel)	0	148	149	150	98	100	1.2
TRPH (oil & grease)	N/A	N/A	N/A	N/A	N/A	N/A	N/A

$$\% \text{ Rec.} = (\text{MS} - \text{Sample}) / \text{amount spiked} \times 100$$

$$\text{RPD} = (\text{MS} - \text{MSD}) / (\text{MS} + \text{MSD}) \times 2 \times 100$$

4118 AESE X149

DATE 5-12-95 PAGE 1 OF 1

CHAIN OF CUSTODY RECORD

PROJECT NAME ALAMEDA Co. GSA
 ADDRESS UST 1, 2, 3
SANTA RITA COLLECTION FACILITY
DUBLIN, CALIFORNIA
 PROJECT NO. 6-94-5240
 SAMPLED BY Eric W Gracera
 LAB NAME McCAMPBELL ANALYTICAL

ANALYSES TO BE PERFORMED										MATRIX	M A T R I X	N U M B E R O F	C O N T A I N E R S
TPH-D (8015m)	BTEX (8020)									MATRIX			
✓	✓									52450	WATER	3	
✓	✓									52451	"	↓	
✓	✓									52452	"	↓	
✓	✓									52453	"	↓	
✓	✓									52454	"	1	1 @ 40 ml VOA
										52455			



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

REMARKS (CONTAINER, SIZE, ETC.)

1 @ 100 ml VOA
 2 @ 40 ml VOA
 1 @ 40 ml VOA

CE/GOOD HEAD SPACE ABSENT ✓
 PRESERVATIVE APPROPRIATE ✓
 CONTAINERS ✓

RELINQUISHED BY: (signature)
 1. [Signature]
 2.
 3.
 4.
 5.

RECEIVED BY: (signature) date time
Erinn Mahoney 5/12 1:30

TOTAL NUMBER OF CONTAINERS 16
 REPORT RESULTS TO: BARB MILLER ESE
 SPECIAL SHIPMENT REQUIREMENTS: COLD TRANSPORT
 SAMPLE RECEIPT

INSTRUCTIONS TO LABORATORY (handling, analyses, storage, etc.):
 NORMAL T.A.T. INVOICE DIRECTLY TO ALAMEDA Co. GSA ATTN: MR. ROD FREITAG

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