Environmental
Science &
Engineering, Inc.

ALCO
HAZMAT
93 DEC -9 PM 4:04

December 7, 1993

Mr. Scott O. Seery
Senior Hazardous Materials Specialist
Alameda County Health Care Services Agency
80 Swan Way, Room 350
Oakland, CA 94621

**SUBJECT: REPORT OF STOCKPILED SOIL SAMPLING**
**UST 1, 2, AND 3 SITE**
**SANTA RITA CORRECTIONAL FACILITY**
**DUBLIN, CALIFORNIA**
**ESE PROJECT NO. 6-93-5175**

Dear Mr. Seery:

Environmental Science & Engineering, Inc. (ESE) presents the following results associated with the sampling of stockpiled soil located at the subject site (Figure 1 - Location Map). ESE was contracted by the Alameda County General Services Agency (GSA) to perform this sampling. The objective of this work was to characterize the soil by assessing the concentrations of petroleum hydrocarbons in samples collected.

## BACKGROUND

In March 1988, Environmental Technology directed the removal of three USTs at the subject site (Figure 2 - Site Plan) under permit from the Alameda County Health Care Services Agency (HCSA). The GSA owned and operated one 3,000-gallon capacity UST (Tank 1; Figure 2) for the storage of and two 5,000-gallon capacity USTs (Tanks 2 and 3; Figure 2) for the storage of Bunker C fuel oil and one 3,000-gallon capacity UST for the storage of diesel fuel. The diesel fuel was used to operate a series of boilers formerly located at the site. All USTs were of single-wall carbon steel construction. The installation dates for the tanks are unknown.

During 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 analytical method 8015 (modified per CA LUFT), and total oil and grease (TOG) using Standard Method for Water and Wastewater (SMWW) 503E. Four samples (1A, 3A, 3B, and 3C) were reported to contain detectable concentrations of TPH-D ranging from 25 to 15,500 parts per million (ppm) and two samples (1A and 3C) 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 1097 ppm.

A preliminary site assessment was performed by Gregg & Associates during March, 1988 to determine the areal extent of soil impacted with petroleum hydrocarbons. ~~One~~ soil sample ~~was~~ collected at a depth of 15 feet from each of ~~four~~ soil borings drilled during the preliminary site assessment and analyzed for TPH-D and TOG. No detectable concentrations of TPH-D were reported for the four samples (~~1C~~, 3D, 3E, and 3F). 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 impacted soil to the approximate limits indicated in Figure 2.

All findings were documented in an Underground Tank Removal and Site Remediation Report prepared by Gregg & Associates and submitted to the HCSA during May, 1988. To date, all soil overexcavated during the UST removal remains stockpiled at the site.

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

## SITE ACTIVITIES

ESE collected samples at a frequency of one discrete soil sample per approximately 50 cubic yards of stockpiled soil, for a total of 8 samples. All sampling was performed on November 30, 1993.

Prior to work start, all onsite personnel attended a brief health and safety tailgate meeting. The purpose of the meeting was to summarize the health and safety plan and describe the potential hazards. All work was performed in level D personal protective gear.

Soil stockpile sample locations were marked on the pile using colored plastic flags. The sample number and depth at each location was recorded on the appropriate flag and is shown on Figure 3 - Soil Stockpile Sample Locations. Each location delineates approximately 50 cubic yards of soil.

Soil samples were collected at random depths ranging from 1.5 to 3.5 feet (maximum stockpile height) at each location. Each sample was collected by augering to the specified depth at each location within the stockpile using a hand auger and, subsequently, driving a six-inch long sampler lined with a new, thin-wall brass sleeve. The sampler was advanced into the soil by manually dropping a weighted handle onto a rod attached to the sampler. Shredded plastic, concrete fragments, and other inert debris were not included in the sample. Upon retrieval, the sample was immediately capped with teflon-lined plastic caps, sealed with tape, labeled, and documented on a chain of custody form. The sample was then placed under ice in a cooler. Upon completion of the sampling, the samples were transported under chain of custody documentation to McCampbell Analytical of Pacheco,

California (a State-certified laboratory). All sampling equipment was cleaned between each sample location using a soap and water solution followed by a clean water rinse.

As requested by the GSA, each of the eight stockpile soil samples collected were analyzed for TPH-D and benzene, toluene, ethylbenzene, and total xylenes (BTEX) using EPA Method 8015 (modified per CA LUFT) and EPA Method 8020, respectively.

## RESULTS

Analytical results for TPH-D and BTEX constituents in the stockpile soil samples are presented on Table 1 - Soil Sample TPH-D and BTEX Analytical Results (November 30, 1993). Copies of analytical reports and chain of custody documents are provided in Attachment A. Of the eight samples collected, one sample (SP-3-2.5') was reported to contain a detectable TPH-D concentration of 130 milligrams per kilogram (mg/kg). The laboratory report indicates that the petroleum hydrocarbon constituent detected is not characteristic of diesel fuel but rather a product such as asphalt or hydraulic oil. All samples were reported to have no detectable concentrations of BTEX constituents.

o o O o o

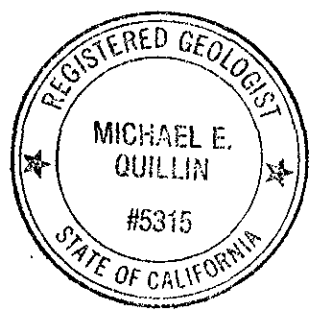
Our professional services have been performed using that degree of care and skill ordinarily exercised under similar circumstances by other geologists and engineers practicing in this field. No other warranty, express or implied, is made as to the professional advice in this report. Please feel free to contact Bart Miller at (510) 685-4053 with any questions or comments pertaining to this report.

Sincerely,
ENVIRONMENTAL SCIENCE & ENGINEERING, INC.

Bart S. Miller
Project Geologist

Michael E. Quillin, R.G. 5315
Senior Hydrogeologist

Table
Figures
Attachment



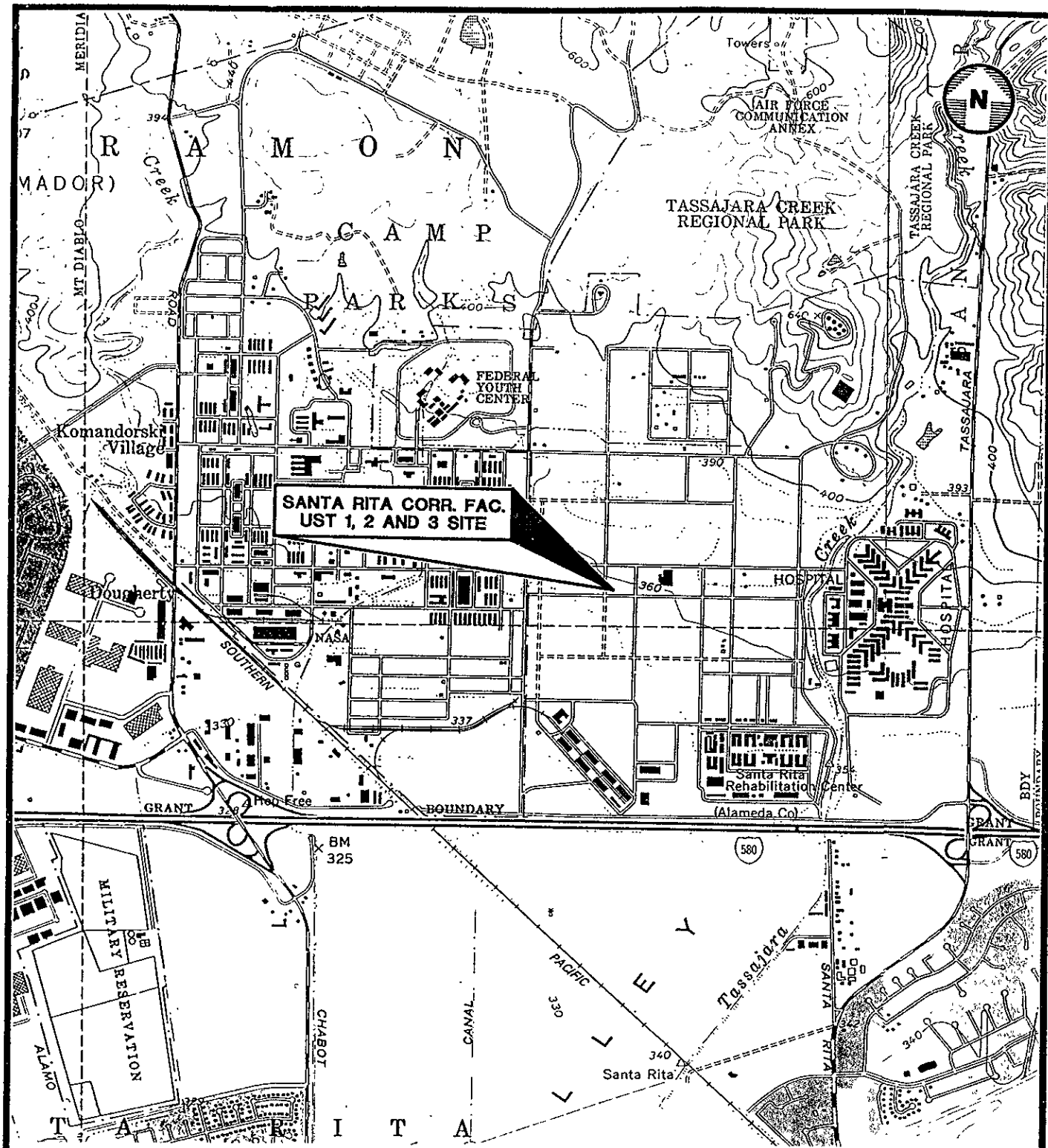
**TABLE**

| TABLE 1. SOIL SAMPLE TPH-D AND BTEX ANALYTICAL RESULTS (NOVEMBER 30, 1993) | | | | | |
|---|---|---|---|---|---|
| **Sample No. (with depth)** | **TPH-D (mg/kg)** | **Benzene (mg/kg)** | **Toluene (mg/kg)** | **Ethylbenzene (mg/kg)** | **Xylenes (mg/kg)** |
| SP-1-3.5' | ND | ND | ND | ND | ND |
| SP-2-1.5' | ND | ND | ND | ND | ND |
| SP-3-2.5' | 130 | ND | ND | ND | ND |
| SP-4-2.0' | ND | ND | ND | ND | ND |
| SP-5-3.0' | ND | ND | ND | ND | ND |
| SP-6-2.5' | ND | ND | ND | ND | ND |
| SP-7-1.5' | ND | ND | ND | ND | ND |
| SP-8-2.0' | ND | ND | ND | ND | ND |

*NOTES:*

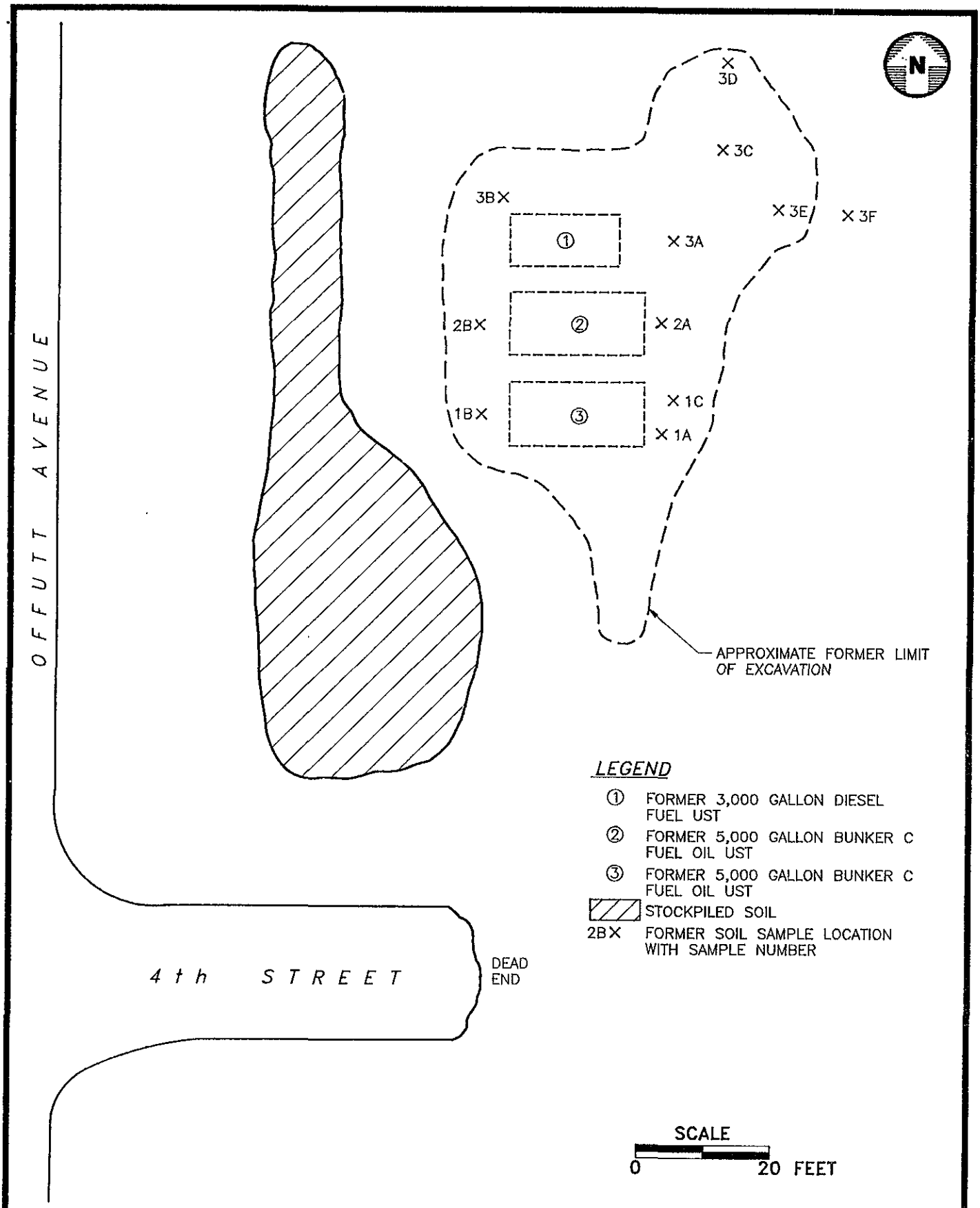
- *TPH-D refers to Total Petroleum Hydrocarbons as Diesel detected using EPA analytical method 8015 (modified per CA LUFT);*
- *Benzene, Toluene, Ethylbenzene, and Total Xylenes analyzed using EPA analytical method 8020;*
- *mg/kg refers to milligrams per kilogram;*
- *ND refers to not detected at method detection limit.*

# FIGURES

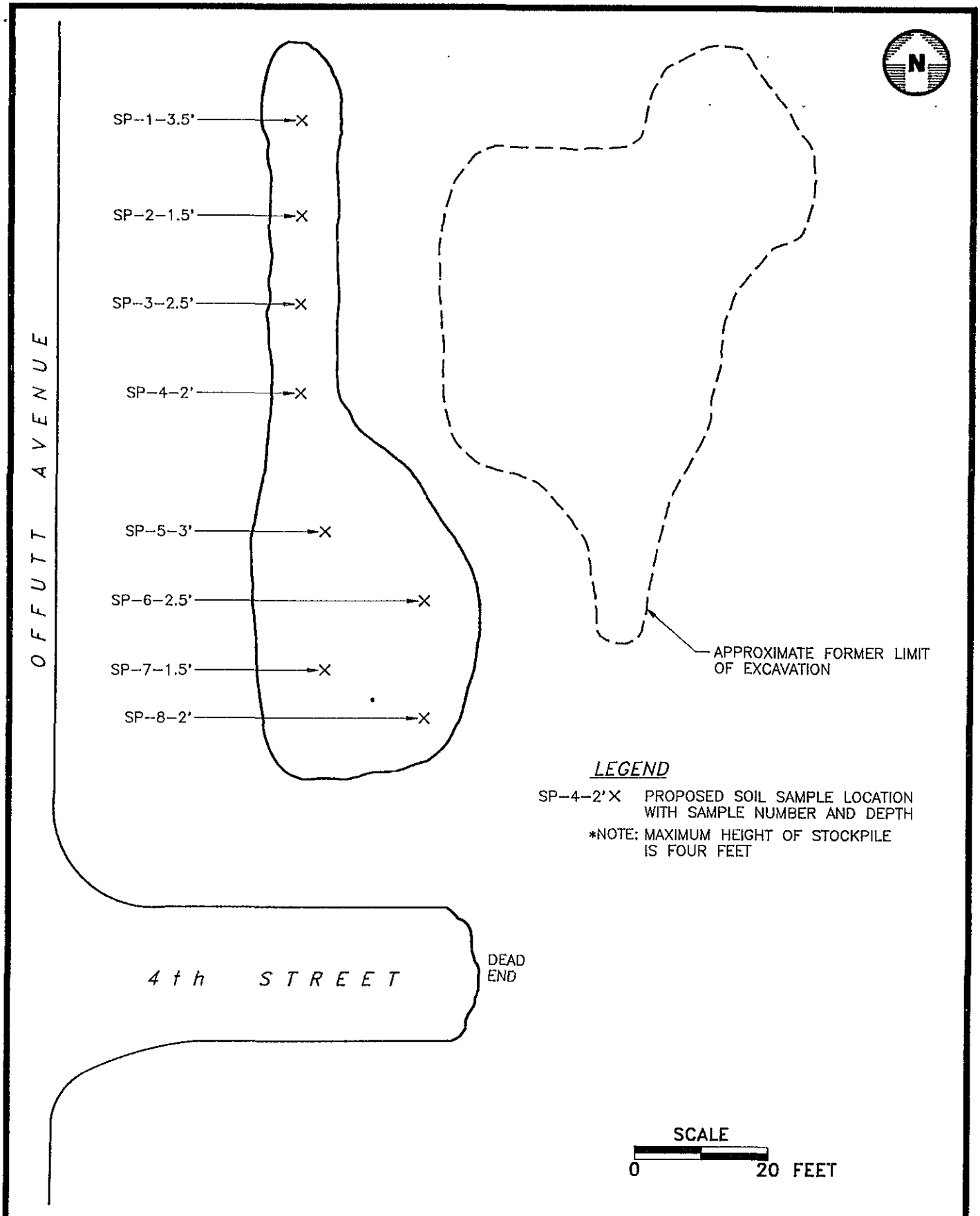



ADAPTED FROM U.S.G.S. DUBLIN AND LIVERMORE, CALIFORNIA 7.5 MINUTE TOPOGRAPHIC QUADRANGLE MAPS, 1980.

| | | | |
|---|---|---|---|
| ESE Environmental Science & Engineering, Inc. A CILCORP Company | DATE 12/93 | LOCATION MAP | FIGURE NO. 1 |
| 4090 NELSON AVENUE, SUITE J CONCORD, CA 94520 | REVISED | ALAMEDA COUNTY GSA SANTA RITA CORRECTIONAL FACILITY DUBLIN, CALIFORNIA | PROJ. NO. 6-93-5175 |
| | CAD FILE 51751001 | | |




| | | | |
|---|---|---|---|
| ESE A CILCORP Company — Environmental Science & Engineering, Inc. | DATE 12/93 | SITE PLAN | FIGURE NO. 2 |
| 4090 NELSON AVENUE, SUITE J CONCORD, CA 94520 | REVISED | ALAMEDA COUNTY GSA SANTA RITA CORRECTIONAL FACILITY DUBLIN, CALIFORNIA | PROJ. NO. 6-93-5175 |
| | CAD FILE 51751002 | | |




| | | | |
|---|---|---|---|
| ESE A CRLCORP Company<br>Environmental Science & Engineering, Inc. | DATE 12/93<br>REVISED | SOIL STOCKPILE SAMPLE LOCATIONS | FIGURE NO. 3 |
| 4090 NELSON AVENUE, SUITE J<br>CONCORD, CA 94520 | CAD FILE 51751003 | ALAMEDA COUNTY GSA<br>SANTA RITA CORRECTIONAL FACILITY<br>DUBLIN, CALIFORNIA | PROJ. NO. 6-93-5175 |

# ATTACHMENT

## Laboratory Analytical Results and Chain of Custody Documents

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

| | | |
|---|---|---|
| Environmental Science & Eng. | Client Project ID: # 6-93-5175; Alameda County, Santa Rita Jail Complex | Date Sampled: 11/30/93 |
| 4090 Nelson Avenue, Suite J | | Date Received: 11/30/93 |
| Concord, CA 94520 | Client Contact: Bart Miller | Date Extracted: 12/01/93 |
| | Client P.O: Alameda County # 141-0-7925-00 | Date Analyzed: 12/01-12/02/93 |

**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 |
|---|---|---|---|---|---|---|---|---|
| 33351 | SP-1-3.5' | S | --- | ND | ND | ND | ND | 96 |
| 33352 | SP-2-1.5' | S | --- | ND | ND | ND | ND | 95 |
| 33353 | SP-3-2.5' | S | --- | ND | ND | ND | ND | 96 |
| 33354 | SP-4-2' | S | --- | ND | ND | ND | ND | 96 |
| 33355 | SP-5-3' | S | --- | ND | ND | ND | ND | 97 |
| 33356 | SP-6-2.5' | S | --- | ND | ND | ND | ND | 97 |
| 33357 | SP-7-1.5' | S | --- | ND | ND | ND | ND | 100 |
| 33358 | SP-8-2' | S | --- | ND | ND | ND | ND | 92 |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| Detection Limit unless other-wise 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. | Client Project ID: # 6-93-5175; Alameda County, Santa Rita Jail Complex | Date Sampled: 11/30/93 |
| 4090 Nelson Avenue, Suite J | | Date Received: 11/30/93 |
| Concord, CA 94520 | Client Contact: Bart Miller | Date Extracted: 12/02/93 |
| | Client P.O: Alameda County # 141-0-7925-00 | Date Analyzed: 12/02/93 |

**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 |
|---|---|---|---|---|
| 33351 | SP-1-3.5' | S | ND | 104 |
| 33352 | SP-2-1.5' | S | ND | 103 |
| 33353 | SP-3-2.5' | S | 130,e | 104 |
| 33354 | SP-4-2' | S | ND | 103 |
| 33355 | SP-5-3' | S | ND | 105 |
| 33356 | SP-6-2.5' | S | ND | 105 |
| 33357 | SP-7-1.5' | S | ND | 106 |
| 33358 | SP-8-2' | S | ND | 106 |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| 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(hydraulic oil?; asphalt?); 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

IW# K863 AESE40

DATE 11-30-93 PAGE 1 OF 1

# CHAIN OF CUSTODY RECORD

PROJECT NAME ALAMEDA CTY - SANTA RITA JAIL

ADDRESS SANTA RITA JAIL COMPLEX
DUBLIN, CA

PROJECT NO. 6-93-5175

SAMPLED BY CHRIS VACCHIFFF

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 | TPH-D (8015m) | BTEX (8020) | MATRIX | NUMBER OF CONTAINERS | REMARKS (CONTAINER, SIZE, ETC.) |
|---|---|---|---|---|---|---|---|---|
| SP 1 - 3.5 | 11-30-93 | 1000 | DUBLIN | ✓ | ✓ | SOIL | 1 | 6" BRASS RING |
| SP 2 - 1.5 | " | 1010 | " | ✓ | ✓ | " | 1 | " |
| SP 3 2.5 | " | 1020 | " | ✓ | ✓ | " | 1 | " |
| SP 4 - 2' | " | 1030 | " | ✓ | ✓ | " | 1 | " |
| SP 5 - 3 | " | 1040 | " | ✓ | ✓ | " | 1 | " |
| SP 6 2.5 | " | 1050 | " | ✓ | ✓ | " | 1 | " |
| SP 7 - 1.5 | " | 1100 | " | ✓ | ✓ | " | 1 | " |
| SP 8 - 2' | " | 1110 | " | ✓ | ✓ | " | 1 | " |

33351
33352
33353
33354
33355
33356
33357
33358

| RELINQUISHED BY: (signature) | RECEIVED BY: (signature) | date | time |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |

8 TOTAL NUMBER OF CONTAINERS

REPORT RESULTS TO:
BART MILLER ESE
PETER KINNEY ALAMEDA CO. GSA

SPECIAL SHIPMENT REQUIREMENTS
COLD TRANSPORT

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

SAMPLE RECEIPT

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