Environmental
Science &
Engineering, Inc.

July 19, 1993

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

SUBJECT: ADDENDUM TO WORKPLAN FOR STOCKPILED SOIL REMEDIATION AND SAMPLING
OLD GRAYSTONE FUELING AREA
SANTA RITA CORRECTIONAL FACILITY
DUBLIN, CALIFORNIA
ESE PROJECT #6-93-5077

Dear Mr. Seery:

Environmental Science & Engineering, Inc. (ESE) presents the following addendum to a workplan prepared by ESE on June 28, 1993 for the Alameda County General Services Agency (GSA). The workplan prepared by ESE proposed three tasks which included:

- Verification sampling of gasoline-impacted soil stockpiled at the subject site;
- Analytical testing of stockpile soil samples; and,
- Preparation of a report for the Alameda County Health Care Services Agency (HCSA) documenting the results of analytical testing of the verification samples.

This addendum to the workplan documents the analytical findings of preliminary stockpile soil samples collected by ESE at the subject site and introduces the additional task of soil tilling to facilitate the effective aeration of the impacted soil.

BACKGROUND

PREVIOUS WORK

In February, 1993, ESE directed the excavation of approximately 6,500 cubic yards of soil from the former vehicle fueling facility in the Old Graystone area of the Santa Rita Correctional Facility (ESE Corrective Action Report - April 27, 1993). ESE estimated that approximately 5,000 cubic yards of this soil was impacted with gasoline and stockpiled on site. Based on visual and olfactory observations made during excavation and removal of this soil, approximately 1,500 cubic yards of soil were presumed to be non-impacted and was stockpiled at separate locations.

During April, 1993, ESE measured, mapped, and sampled the stockpiled soil at the subject site for the purpose of characterization and re-estimated the volume of impacted soil to be 4,235 cubic yards (ESE Letter Report - June 7, 1993). A total of 100 soil samples were collected by ESE from the stockpiles of impacted soil and analyzed for total petroleum hydrocarbons as gasoline (TPH-g) and benzene, toluene, ethylbenzene, and total xylenes (BTEX). The 1,500 cubic yards of stockpiled soil presumed to be non-impacted were not sampled and analyzed for verification.

Reported analytical results indicated an average TPH-g concentration of 209 milligrams per kilogram (mg/kg) with associated detectable concentrations of BTEX constituents. Detectable concentrations of TPH-g greater than 1 mg/kg were reported in soil samples representing 1,350 cubic yards of the stockpiled soil. ESE recommended that the GSA perform controlled aeration of the 1,350 cubic yards of soil following guidelines set forth by the Bay Area Air Quality Management District (BAAQMD) Regulation 8, Rule 40. The GSA has advised ESE that the remaining 2,885 cubic yards of soil has been spread on the ground surface at another location on the property.

The GSA directed the spreading of the 1,350 cubic yards of impacted soil at the site. The soil is spread over an area of approximately 115 feet by 320 feet by an approximate depth of one foot. The soil was initially spread on June 15, 1993.

CURRENT ACTIVITY

PRELIMINARY SOIL SAMPLE RESULTS

To determine whether gasoline constituents had been effectively aerated and remediation of the soil could be considered complete, ESE performed preliminary verification sampling of the stockpile on July 1, 1993. A total of 27 soil samples were collected by ESE and submitted to McCampbell Analytical, Inc. (a State-certified laboratory) for TPH-g and BTEX analysis using analytical methods EPA 8015 (modified per CA LUFT) and EPA 8020, respectively. Soil samples were collected at the locations shown on Figure 1- Soil Stockpile Sample Locations.

A total of 18 of the 27 soil samples were reported to contain detectable concentrations of TPH-g and BTEX (Attachment 1 - Analytical Results and Chain of Custody Documentation). Stockpile soil sample TPH-g analytical results are shown in Figure 2 - Soil Sample Analytical Results.

TILLING OF STOCKPILED SOIL

Based on the analytical findings for soil samples collected from the stockpile at the subject site, ESE recommended to the GSA that the additional task of tilling the stockpiled soil be performed to facilitate the aeration of the volatile gasoline constituents. Upon receipt of approval from the GSA, ESE proceeded to till the stockpiled soil on both July 9 and July 16, 1993.

ESE will collect verification soil samples from the stockpile locations where preliminary sampling indicated TPH-g concentrations in excess of 1.5 milligrams per kilogram (mg/kg). A total of 14 soil samples were reported to have a TPH-g concentration greater than 1.5 mg/kg (Figure 2). It is ESE's understanding that the GSA will backfill and compact the upper approximate six feet of the site excavation using the aerated soil having an average TPH-g concentration of less than 1 mg/kg.

Soil sample collection is scheduled for July 21, 1993. Please contact Bart Miller or Patrick Galvin at (510) 685-4053 with any questions regarding this work.

Sincerely,
ENVIRONMENTAL SCIENCE & ENGINEERING, INC.

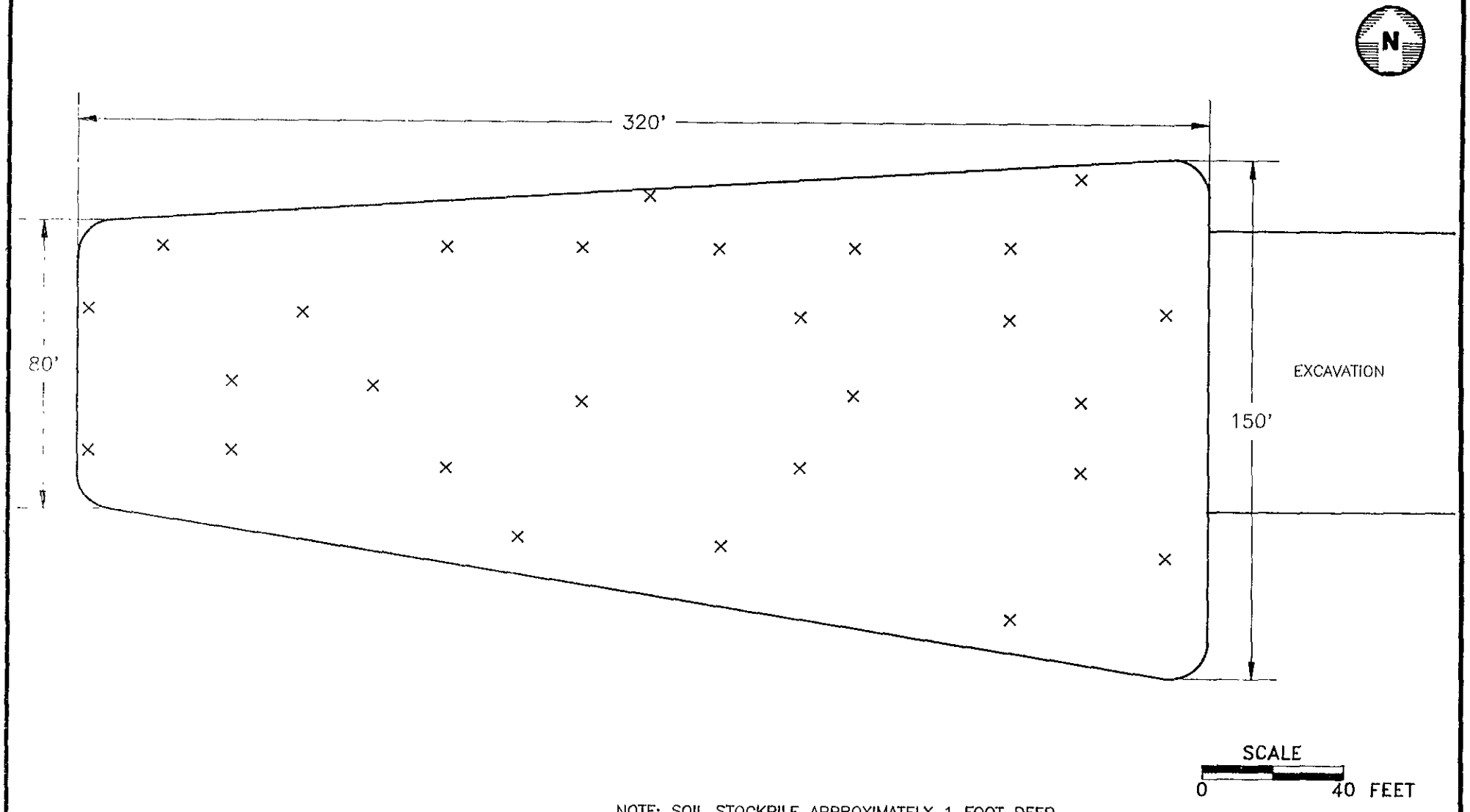
Bart S. Miller
Senior Staff Geologist

Patrick E. Galvin
Senior Engineer

Figures
Attachment

F:\Projects\5077\071993.WKP

FIGURES

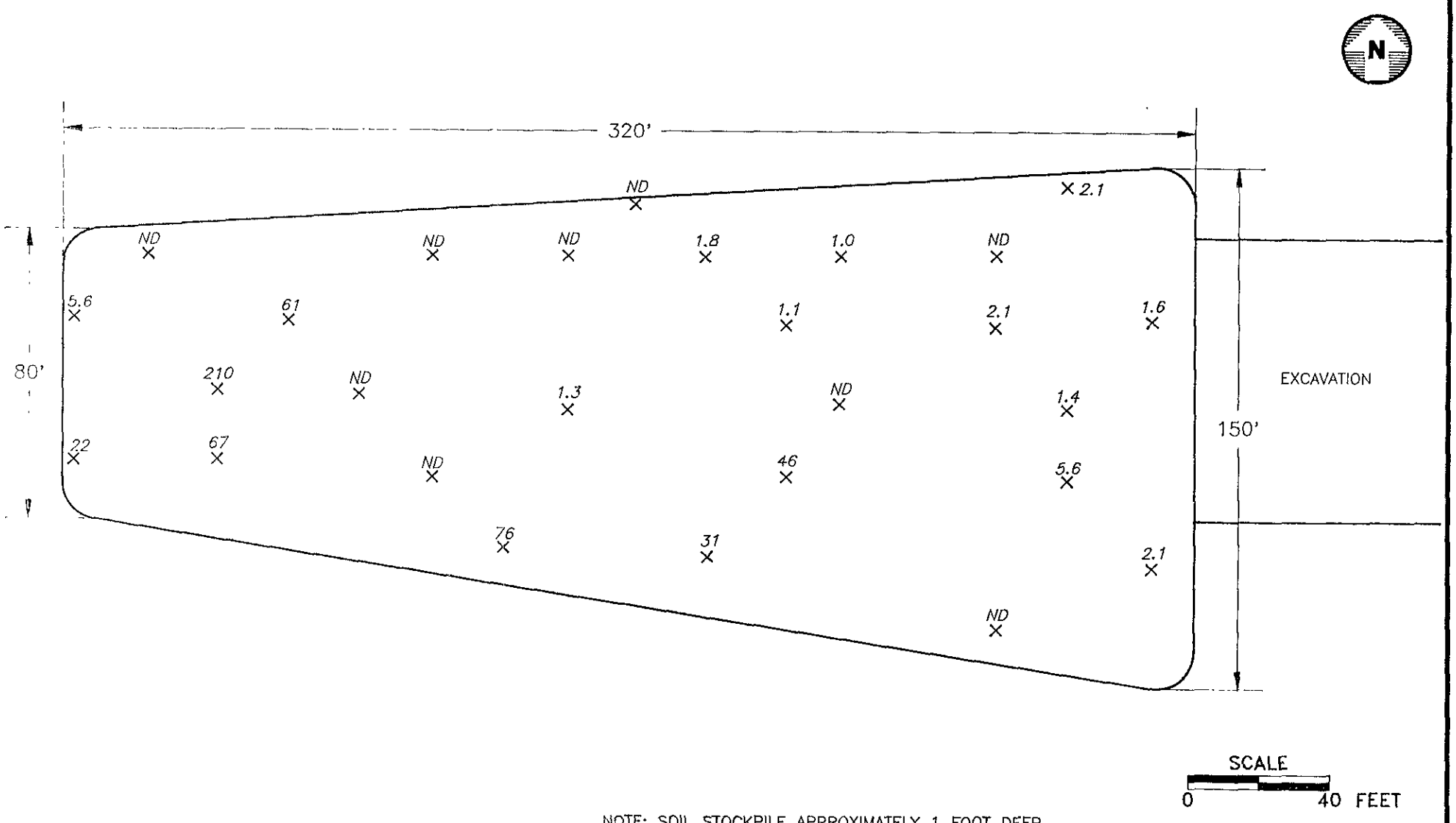


NOTE: SOIL STOCKPILE APPROXIMATELY 1 FOOT DEEP

LEGEND

× SOIL SAMPLE LOCATIONS

ESE A CILCORP Company **Environmental Science & Engineering, Inc.**	DATE 6/93	PROJ. NO. 6-93-5077	OLD GRAYSTONE FUELING AREA SANTA RITA CORRECTIONAL FACILITY DUBLIN, CALIFORNIA
	DRAWN BY CVS	CAD FILE 50774001	
4090 NELSON AVENUE, SUITE J CONCORD, CA 94520	APPROVED BY	REVISED 7/93 BSM	FIGURE 1 SOIL STOCKPILE SAMPLE LOCATIONS



NOTE: SOIL STOCKPILE APPROXIMATELY 1 FOOT DEEP

LEGEND

× SOIL SAMPLE LOCATIONS

1.8 TPH–G CONCENTRATION (mg/kg)

ND NOT DETECTED USING METHOD 8015 (modified per CA LUFT)

ESE A CILCORP Company
Environmental Science & Engineering, Inc.

4090 NELSON AVENUE, SUITE J
CONCORD, CA 94520

DATE	PROJ. NO.
7/93	6–93–5077
DRAWN BY	CAD FILE
CVS	50774002
APPROVED BY	REVISED

OLD GRAYSTONE FUELING AREA
SANTA RITA CORRECTIONAL FACILITY
DUBLIN, CALIFORNIA

FIGURE 2
SOIL SAMPLE TPH–G
ANALYTICAL RESULTS

ATTACHMENT 1

Analytical Results and Chain of Custody Documentation

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: # 6-93-5077 Santa Rita Corr. Fac, Dublin, CA	Date Sampled: 07/01/93
		Date Received: 07/01/93
	Client Contact: Bart Miller	Date Extracted: 07/02/93
	Client P.O:	Date Analyzed: 07/04-07/06/93

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	Ethylbenzene	Xylenes	% Rec. Surrogate
31124	SP-1	S	1.6,b	ND	0.008	ND	0.038	94
31125	SP-2	S	2.1,b	ND	ND	ND	0.021	98
31126	SP-3	S	2.1,b	ND	0.006	ND	0.029	103
31127	SP-4	S	1.4,b	ND	0.007	0.007	0.036	104
31128	SP-5	S	5.6,b	ND	ND	0.005	0.029	103
31129	SP-6	S	ND	ND	ND	ND	ND	107
31130	SP-7	S	ND	ND	ND	ND	0.008	107
31131	SP-8	S	2.1,b,d	ND	ND	ND	0.006	108
31132	SP-9	S	1.0,b	ND	ND	ND	0.010	106
31133	SP-10	S	ND	ND	ND	ND	ND	108
31134	SP-11	S	1.1,d	ND	ND	ND	ND	102
31135	SP-12	S	46,d	ND	0.11	0.080	0.51	100
31136	SP-13	S	1.8,d	ND	ND	ND	ND	96
31137	SP-14	S	31,d	ND	0.073	0.084	0.17	99
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: # 6-93-5077 Santa Rita Corr. Fac, Dublin, CA	Date Sampled: 07/01/93
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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
31138	SP-15	S	ND	ND	ND	ND	ND	103
31139	SP-16	S	ND	ND	ND	ND	ND	108
31140	SP-17	S	1.3,d	ND	ND	ND	0.008	107
31141	SP-18	S	76,b,d	ND< 0.05	0.094	0.11	0.79	94
31142	SP-19	S	ND	ND	ND	ND	ND	106
31143	SP-20	S	ND	ND	ND	ND	ND	108
31144	SP-21	S	ND	ND	ND	ND	ND	120
31145	SP-22	S	61,b,d	ND	0.18	ND	ND	99
31146	SP-23	S	210,b,d	ND< 0.1	1.3	1.7	18	122#
31147	SP-24	S	67,b,d	ND	0.17	0.10	0.44	95
31148	SP-25	S	ND	ND	ND	ND	0.009	107
31149	SP-26	S	5.6,d	ND	0.010	0.011	0.006	101
31150	SP-27	S	22,b,d	ND	0.056	0.025	0.011	96
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

QC REPORT FOR HYDROCARBON ANALYSES

Date: 07/02-07/04/93 Matrix: Soil

Analyte	Concentration (mg/kg)			Amount Spiked	% Recovery		RPD
	Sample	MS	MSD		MS	MSD	
TPH (gas)	0.000	1.474	1.619	2.03	73	80	9.4
Benzene	0.000	0.162	0.168	0.2	81	84	3.6
Toluene	0.000	0.160	0.168	0.2	80	84	4.9
Ethyl Benzene	0.000	0.156	0.164	0.2	78	82	5.0
Xylenes	0.000	0.458	0.484	0.6	76	81	5.5
TPH (diesel)	60	401	408	300	113	116	1.8
TRPH (oil & grease)	0.0	21.1	20.7	20.8	101	100	1.9

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

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

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: 07/05/93 Matrix: Soil

Analyte	Concentration (mg/kg)			Amount Spiked	% Recovery		RPD
	Sample	MS	MSD		MS	MSD	
TPH (gas)	0.000	1.700	1.694	2.03	84	83	0.3
Benzene	0.000	0.188	0.188	0.2	94	94	0.0
Toluene	0.000	0.190	0.190	0.2	95	95	0.0
Ethyl Benzene	0.000	0.186	0.184	0.2	93	92	1.1
Xylenes	0.000	0.550	0.542	0.6	92	90	1.5
TPH (diesel)	N/A	N/A	N/A	N/A	N/A	N/A	N/A
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

AESE #11

CHAIN OF CUSTODY RECORD

DATE July 1, 1993 PAGE 1 OF 3

PROJECT NAME Santa Rita Corr. Fac.

ADDRESS Dublin, CA

PROJECT NO. 6-93-5077

SAMPLED BY Bart Miller

LAB NAME McCampbell

Environmental Science & Engineering, Inc.
4090 Nelson Avenue Suite J Concord, CA 94520
(415) 685-4053

SAMPLE #	DATE	TIME	LOCATION	TPH-G (8015m)	BTEX (8020)			MATRIX	NUMBER OF CONTAINERS	REMARKS (CONTAINER, SIZE, ETC.)
				ANALYSES TO BE PERFORMED				MATRIX		
							31124	MATRIX		
SP-1	7/01/93	7:10	AER. STKP.	X	X		31125	Soil	1	2" diam. brass sleeve
SP-2	"	7:5	"	X	X		31126	"	1	"
SP-3	"	7:21	"	X	X			"	1	"
SP-4	"	7:28	"	X	X		31127	"	1	"
SP-5	"	7:38	"	X	X		31128	"	1	"
SP-6	"	7:40	"	X	X		31129	"	1	"
SP-7	"	7:44	"	X	X			"	1	"
SP-8	"	7:57	"	X	X		31130	"	1	"
SP-9	"	8:05	"	X	X		31131	"	1	"
SP-10	"	8:10	"	X	X			"	1	"
SP-11	"	8:20	"	X	X		31132	"	1	"
SP-12	"	8:25	"	X	X		31133	"	1	"

RELINQUISHED BY: (signature)	RECEIVED BY: (signature)	date	time
1.	Ed	7-1-93	15:10
2.			
3.			31134
4.			31135
5.			

12 TOTAL NUMBER OF CONTAINERS

REPORT RESULTS TO: Bart Miller, ESE; Peter Kinney, GSA

SPECIAL SHIPMENT REQUIREMENTS: Cold Transport

INSTRUCTIONS TO LABORATORY (handling, analyses, storage, etc.): Normal TAT. Refer to GSA for invoicing, storage, etc.

SAMPLE RECEIPT

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

PRESERVATIVE APPROPRIATE ✓ GOOD CONDITION ✓ HEAD SPACE ABSENT ✓ CONTAINERS ✓

PESE 13

CHAIN OF CUSTODY RECORD

ATE July 1, 1993 PAGE 2 OF 3

ROJECT NAME SANTA RITA CORR FAC.

ADDRESS DUBLIN, CA

PROJECT NO. 6-93-5077

SAMPLED BY [signature] BART MILLER

LAB NAME McCAMPBELL

ESE Environmental Science & Engineering, Inc.
4090 Nelson Avenue
Suite J
Concord, CA 94520
(415) 685-4053
Fax (415) 685-5323

SAMPLE #	DATE	TIME	LOCATION	TPH-G (8015m)	BTEX (8020)			Lab No.	MATRIX	NUMBER OF CONTAINERS	REMARKS (CONTAINER, SIZE, ETC.)
								31136			
								31137			
SP-13	7/01/93	8 35	AER. STRP.	X	X			31138	SOIL	1	2" diam. brass sleeve
SP-14	"	8 40	"	X	X			31139	"	1	"
SP-15	"	8.45	"	X	X				"	1	"
SP-16	"	8:50	"	X	X			31140	"	1	"
SP-17	"	8:55	"	X	X				"	1	"
SP-18	"	9:05	"	X	X			31141	"	1	"
SP-19	"	9:15	"	X	X			31142	"	1	"
SP-20	"	9:20	"	X	X				"	1	"
SP-21	"	9:40	"	X	X			31143	"	1	"
SP-22	"	9:46	"	X	X			31144	"	1	"
SP-23	"	9:55	"	X	X			31145	"	1	"
SP-24	"	10.00	"	X	X				"	1	"

RELINQUISHED BY: (signature)	RECEIVED BY: (signature)	date	time
1. [signature]	[signature]	7-1-93	1510
2.			
3.			
4.			
5.			

31146

31147

12 TOTAL NUMBER OF CONTAINERS

REPORT RESULTS TO: BART MILLER, ESE; PETER KINNEY, GSA

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.):

Normal TAT. Refer to GSA for invoicing, storage, etc.

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

ESE 13

CHAIN OF CUSTODY RECORD

DATE July 1, 1993 PAGE 3 OF 3

PROJECT NAME SANTA RITA CORR FAC.

ADDRESS DUBLIN, CA

PROJECT NO. 6-93-5077

SAMPLED BY [signature] BART MILLER

LAB NAME [illegible]

ESE Environmental Science & Engineering, Inc.

4090 Nelson Avenue
Suite J
Concord, CA 94520

(415) 685-4053

Fax (415) [illegible] 5023

SAMPLE #	DATE	TIME	LOCATION	ANALYSES TO BE PERFORMED: TPH-G (8015m)	ANALYSES TO BE PERFORMED: BTEX (8020)	MATRIX	NUMBER OF CONTAINERS	REMARKS (CONTAINER, SIZE, ETC.)
SP-25	7/01/93	10 10	AER. STRP.	X	X	SOIL	1	2" diam brass sleeve
SP-26	"	10 20	"	X	X	"	1	"
SP-27	"	10 30	"	X	X	"	1	"

31148
31149
31150

RELINQUISHED BY: (signature)	RECEIVED BY: (signature)	date	time
1. [signature]	[signature]	7-1-93	15:10
2.			
3.			
4.			
5.			

3

TOTAL NUMBER OF CONTAINERS

REPORT RESULTS TO:
BART MILLER, ESE
PETER KINNEY, GSA

SPECIAL SHIPMENT REQUIREMENTS
Cold Transport

INSTRUCTIONS TO LABORATORY (handling, analyses, storage, etc.):
Normal TAT. Refer to GSA for invoicing, ICE/Storage, etc.

SAMPLE RECEIPT

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

GOOD CONDITION ✓
HEAD SPACE ABSENT ✓
PRESERVATIVE
APPROPRIATE CONTAINERS ✓