ADDITIONAL SITE CHARACTERIZATION REPORT
1200 20th AVENUE, OAKLAND

Introduction: The site is located at the east corner of the intersection of 20th Avenue and Solano Way in Oakland, California (Figure 1). This report discusses the additional site characterization, which included advancing 2 hydropunch borings and collecting soil and groundwater samples at the site. The additional site characterization was conducted to determine the extent of petroleum contamination at the site.

Site History: Two underground storage tanks (USTs) were previously located at the site. The two 600-gallon tanks, which reportedly contained gasoline, were removed in January 1994. The physical size of both of the tanks (estimated during the removal activities) was 8 feet long by 3.5 feet in diameter. During the removal of the USTs, it was noted that the single-walled steel tanks had rusted through and had leaked. The approximate surface area of the removal excavation was about 20 feet by 10 feet. Approximately 80 cubic yards of soil was over-excavated and transported off site for disposal. The bottom of the excavation was approximately 15 feet below the ground surface (bgs). The exact depth to the bottom of the USTs was not recorded during the removal activities; the estimated depth to the bottom of the former USTs is 6 to 8 feet bgs.

Six soil samples were collected from the sidewalls and the bottom of the removal excavation. The soil samples were analyzed for benzene, toluene, ethylbenzene, and xylenes (BTEX), total petroleum hydrocarbons (TPH) as gasoline (TPH-g), TPH as diesel (TPH-d), and total lead. The highest concentrations of BTEX and TPH-g were detected along 20th Avenue at the western end of the removal excavation. Groundwater was not encountered during removal of USTs. As part of the UST removal action activities, three groundwater monitoring wells were installed at the site. The wells were sampled one to three times a year from 1995 to 1998.

Monitoring Well Groundwater Sampling: As part of the additional site characterization, the three monitoring wells at the site were sampled on April 1, 1999. Each well was purged with a dedicated disposable teflon-bailer. The well volume was calculated and a minimum of 3 well volumes was removed from each well prior to sampling. During removal of 3 well volumes from each well, the pH, temperature, electrical conductivity, dissolved oxygen, and turbidity of the groundwater being removed were monitored to determine when the physical parameters of the groundwater entering the well casing had stabilized. After the physical parameters of the groundwater had stabilized and a minimum of 3 well volumes had been removed from each well, groundwater samples were collected from each well. The groundwater samples were sent to an analytical laboratory to be analyzed for BTEX, methyl tertiary-butyl ether (MTBE), and TPH-g.

Hydropunch Sampling: As part of the 1999 additional site characterization, two hydropunch borings, shown on Figure 2 as SB-1 and SB-2, were advanced at the site. SB-1 is located on Solano Way, south of the location of the former USTs as proposed in the Work Plan. However, SB-2 was moved to a different location than that proposed in the Work Plan (approximately 60 feet southwest of the location of the former USTs). The boring (SB-2) was relocated and completed at the location shown on Figure 2, approximately 25 feet southwest of the location of the former USTs. Because soil

from SB-1 was observed to be clean, SB-2 was relocated closer to the location of the former USTs to better delineate the extent of contamination southwest of the former USTs. The Work Plan called for a soil sample to be collected from each soil boring at the groundwater vadose zone. Because the groundwater vadose zone was not discernible in SB-1, a soil sample was not collected from this boring. Although the groundwater vadose zone was also not discernible in SB-2, two soil samples were collected from SB-2 at depths of 8.5-9.0 feet bgs and 26.5-27.0 feet bgs.

A macro-core soil sampler, a 2-inch outside-diameter by 48-inch-long continuous sampling tool, was used to collect soil from the borings for lithologic logging and analytical sampling purposes. Soil samples were collected in 1.5-inch-diameter clear acetate sleeves. The soil samples were sent to an analytical laboratory and analyzed for BTEX, MTBE, and TPH-g.

The Work Plan called for 2 grab groundwater samples to be collected; one from each of the hydropunch borings. The grab groundwater samples were to be analyzed for BTEX, MTBE, and TPH-g. However, because groundwater was not encountered in sufficient volume in either of the soil borings, grab groundwater samples were not collected. Boring SB-1 was advanced to 36 feet bgs and left open to allow groundwater time to seep into the boring. Groundwater was not detected in the boring after 24 hours. After one week, only 6 inches of water was measured in the bottom of the boring. It was not possible to collect a complete groundwater sample from this amount of water. After 2 weeks, the boring had closed in at 34.5 feet bgs and groundwater was not detected at this depth. Boring SB-2 was advanced until equipment refusal at 37.7 feet bgs. Groundwater was not encountered in SB-2.

Site Lithology: Boring logs for the 1999 additional site characterization hydropunch borings show that the soil underlying the site consists primarily of low and high plasticity clay. Hydrocarbon staining was not visually discernible during advancement of the soil borings. The boring logs are located in Appendix A.

Groundwater Flow Direction and Gradient: Groundwater elevations were measured in the groundwater monitoring wells during the additional site characterization sampling activities. The depth to groundwater from the top of casing at each well, the top of casing elevations for each well, and the groundwater elevations measured at the site are shown in Table 1. The groundwater flow direction and gradient were calculated using these data. The groundwater flow direction is north 24 degrees east (N24E), as shown on Figure 3; this flow direction is nearly opposite to the direction of the ground surface slope at the site. MW-2 is downgradient from the location of the former USTs. The groundwater gradient was calculated to be 0.06 feet/foot (ft/ft). The direction of groundwater flow and the groundwater gradient are consistent with those calculated using previous water-level measurements from the three wells.

Laboratory Analytical Program: For the additional site characterization, the soil and groundwater samples were sent to Curtis & Tompkins Analytical Laboratories (C&T), in Berkeley, California for analysis. C&T is a California state-certified laboratory. Analyses for BTEX and MTBE were conducted using U.S. Environmental Protection Agency (US EPA) Method 8021B. Analyses for TPH-g were conducted using US EPA Method 8015M.

Groundwater Sample Analytical Results: BTEX, MTBE, and TPH-g were not detected in the groundwater samples collected from MW-2 and MW-3 during the additional site characterization. These compounds were detected in the groundwater sample collected from MW-1. For quality control purposes, a blind duplicate groundwater sample was collected from MW-1 and also analyzed for BTEX , MTBE, and TPH-g. The detected concentrations of BTEX, MTBE, and TPH-g were comparable in the groundwater and the duplicate groundwater sample collected from MW-1. The detected concentrations of the compounds in the groundwater sample and duplicate groundwater sample collected from MW-1 are presented on Table 2, which also presents the analytical results for the groundwater samples collected from MW-2 and MW-3. For the MW-1 groundwater sample and duplicate groundwater sample, the average detected benzene, toluene, ethylbenzene, and zylene concentrations were 2,500 micrograms per liter (ug/L), 325, 540, and 1,600 ug/L, respectively. The average detected concentration of MTBE in these samples was 110 ug/L, and the average detected TPH-g concentration was 13,500 ug/L. Tables 3, 4, and 5 provide the analytical groundwater sample results for BTEX and TPH-g for monitoring wells MW-1, MW-2, and MW-3, respectively, since February 1995. The complete laboratory analytical package for the 1999 additional site characterization is provided in Appendix B.

Soil Sample Analytical Results: BTEX, MTBE, and TPH-g were not detected in the two soil samples collected during the additional site characterization. Figure 4 shows TPH-g concentrations, and Figure 5 shows benzene concentrations in all soil samples from the site; the depths of the soil samples are also presented on these figures. The soil samples shown on Figures 4 and 5 include those collected during the UST removal activities, during the monitoring well installation associated with the UST removal activities, and during the 1999 additional site characterization. The complete laboratory analytical package for the 1999 additional site characterization is provided in Appendix B.

Conclusions and Recommendations: The analytical results of all samples collected from the site, including previous and current samples, show that contamination related to the former USTs is present in a relatively localized area. Detected soil and groundwater contamination is generally localized in the area including the northwest sidewall of the removal excavation and MW-1. Although one soil sample collected at 9 feet bgs from the southeast sidewall of the removal excavation during removal of the USTs contained TPH-g at 8.5 mg/kg, TPH-g was not detected in any of the remaining soil samples collected from the site. Free product was not discovered in (1) the UST excavation, (2) the soil borings, or (3) groundwater during investigation of the site.

TtEMI has discussed this site with the Alameda County Health Care Services Agency. Their office has recommended that the groundwater contamination in MW-1 be addressed through some form of remediation such that site closure can be attained. TtEMI will install an oxygen-releasing compound (ORC) sock into MW-1 in March 1999. Subsequent groundwater sampling data from MW-1 will show whether or not contaminant concentrations in groundwater in the vicinity of the well are decreasing over time and whether or not natural attenuation is occurring.

An additional soil boring inside of the building (southeast of the removal excavation) at 1200 20th Avenue may also be required to attain site closure. However, because the building is a warehouse with a large open door and a high ceiling, and because the existing site data shows that soil contamination in this location is unlikely, TtEMI recommends postponing completion of this boring. If the ORC sock successfully decreases the existing contaminant concentrations in the vicinity

of MW-1, TtEMI believes that the additional soil boring could possibly be eliminated using risk assessment calculations by showing that the interior of the building is not an area of concern.

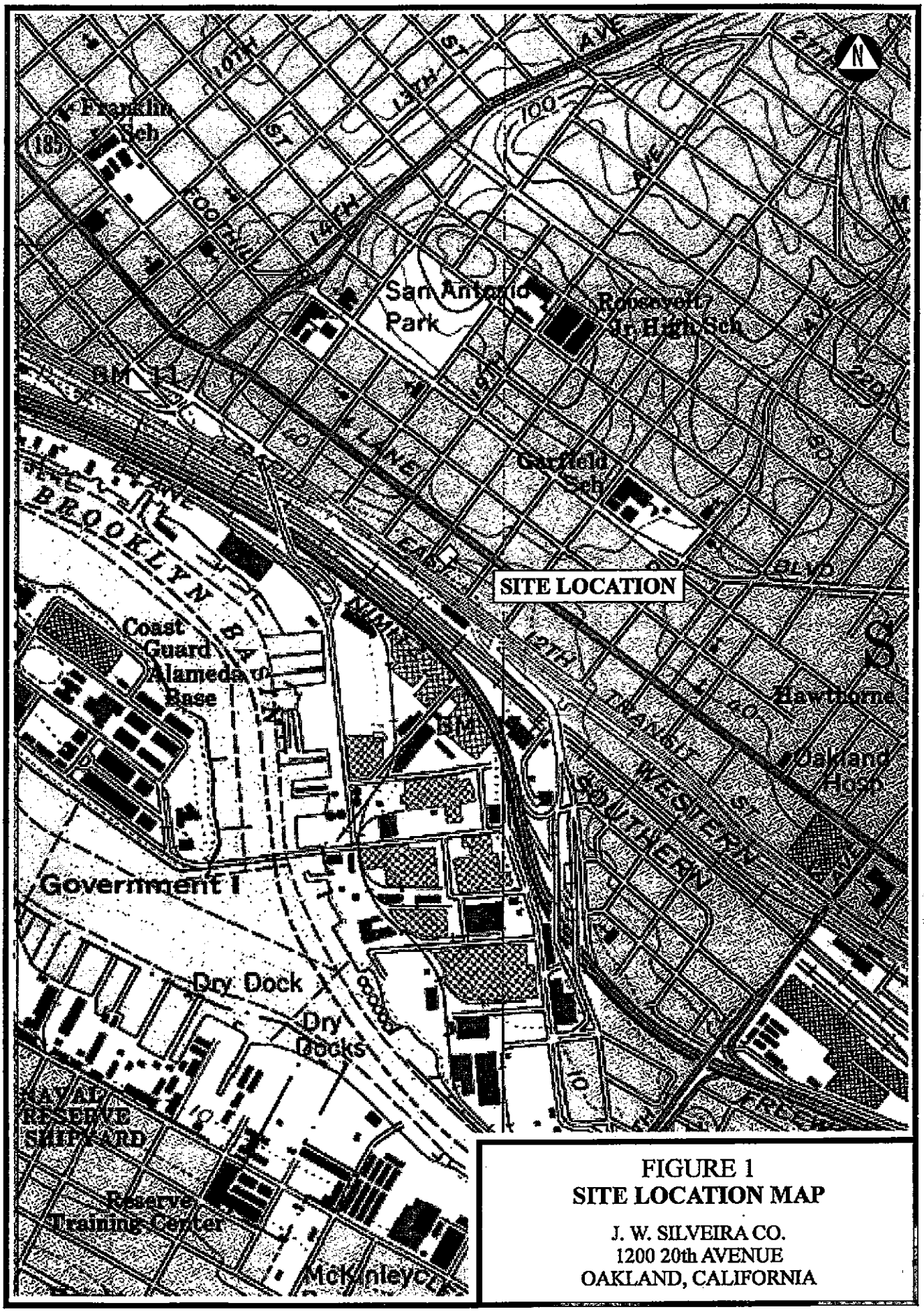
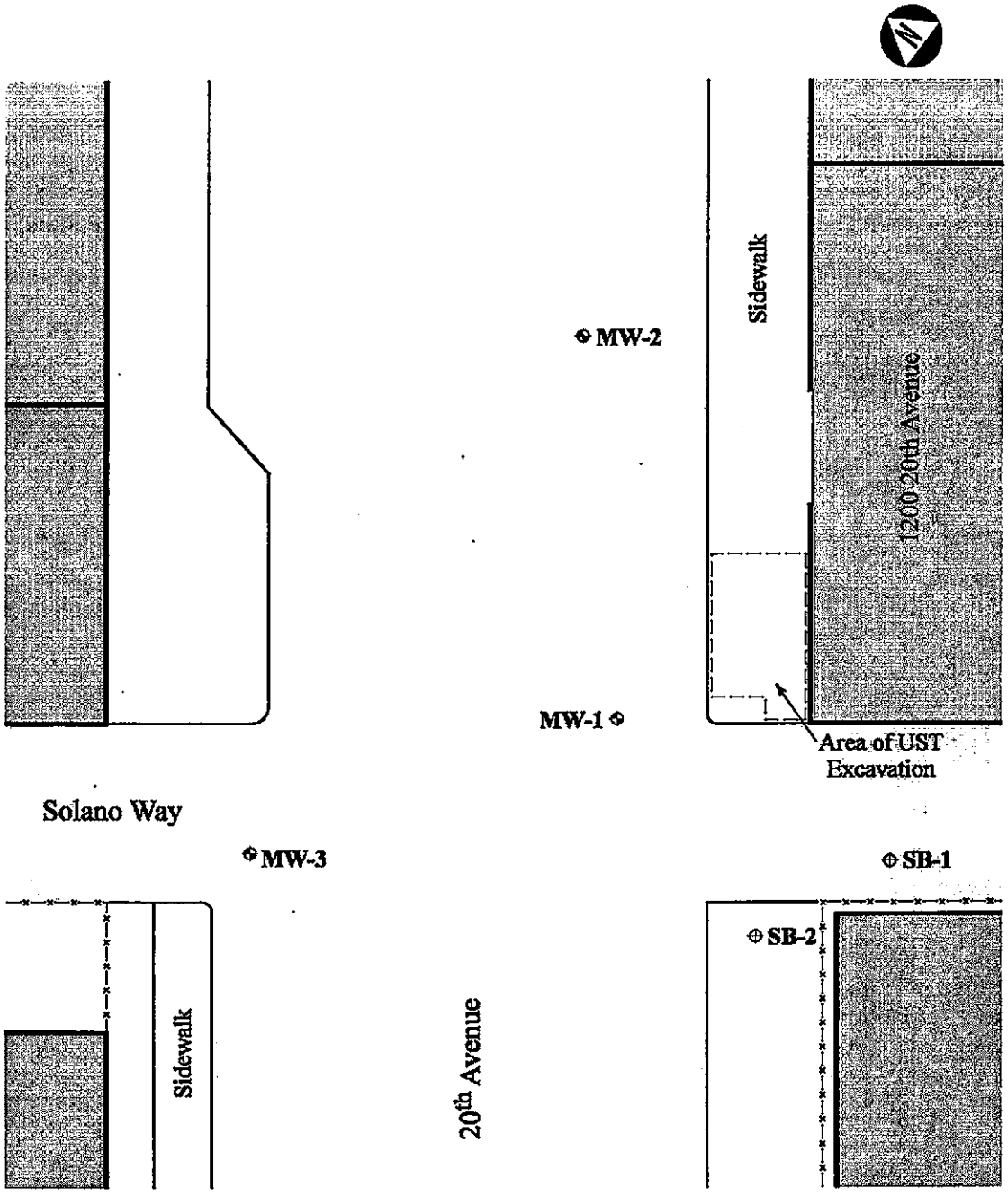


FIGURE 1
SITE LOCATION MAP

J. W. SILVEIRA CO.
1200 20th AVENUE
OAKLAND, CALIFORNIA



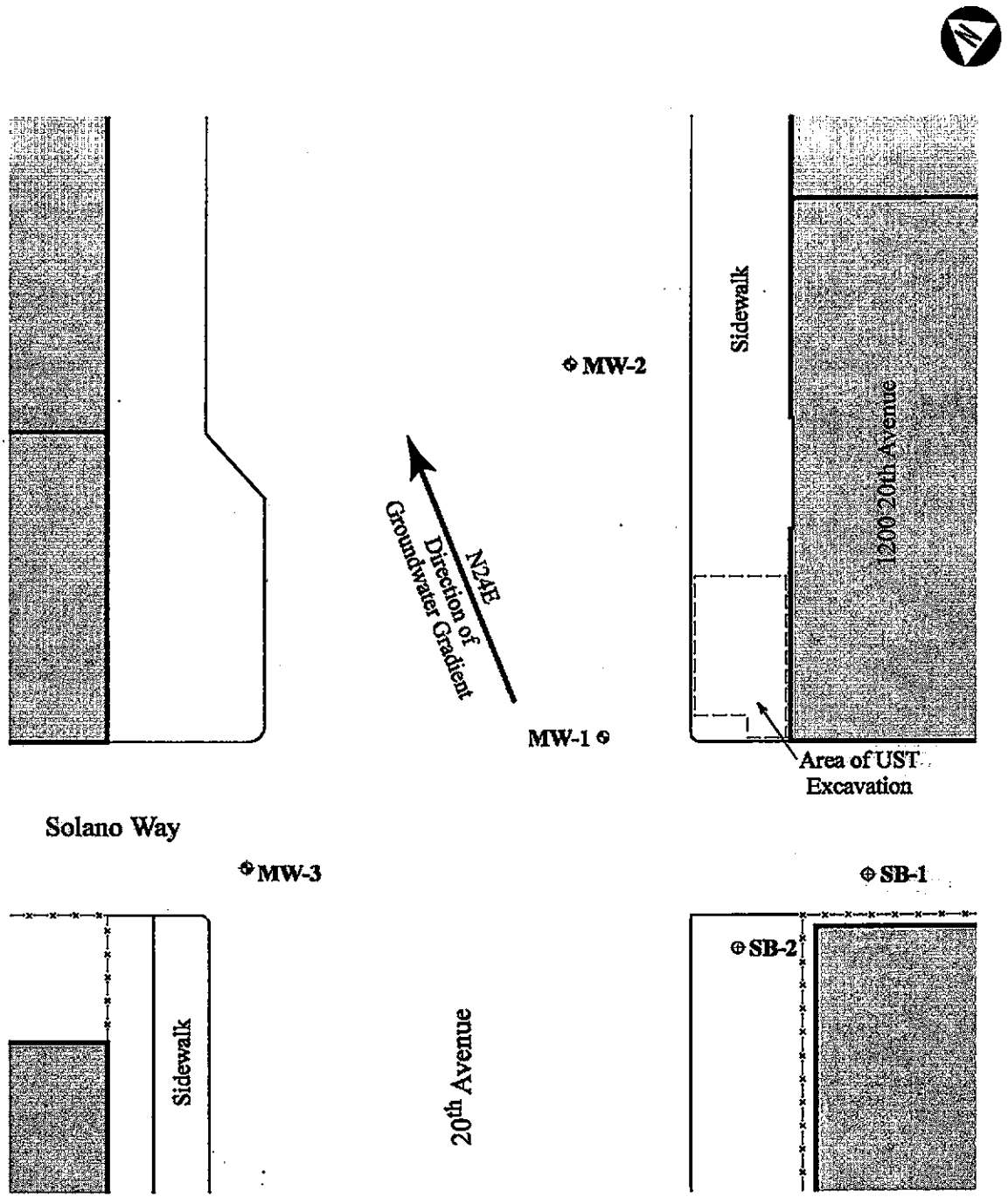
Notes:

- ⊕ Monitoring Well (MW)
- ⊕ Soil Boring (SB)

Scale: 1 inch = 20 feet

0 10 20 30 40

FIGURE 2
MONITORING WELL AND SOIL BORING LOCATIONS
J. W. SILVEIRA CO.
1200 20th AVENUE
OAKLAND, CALIFORNIA



Notes:

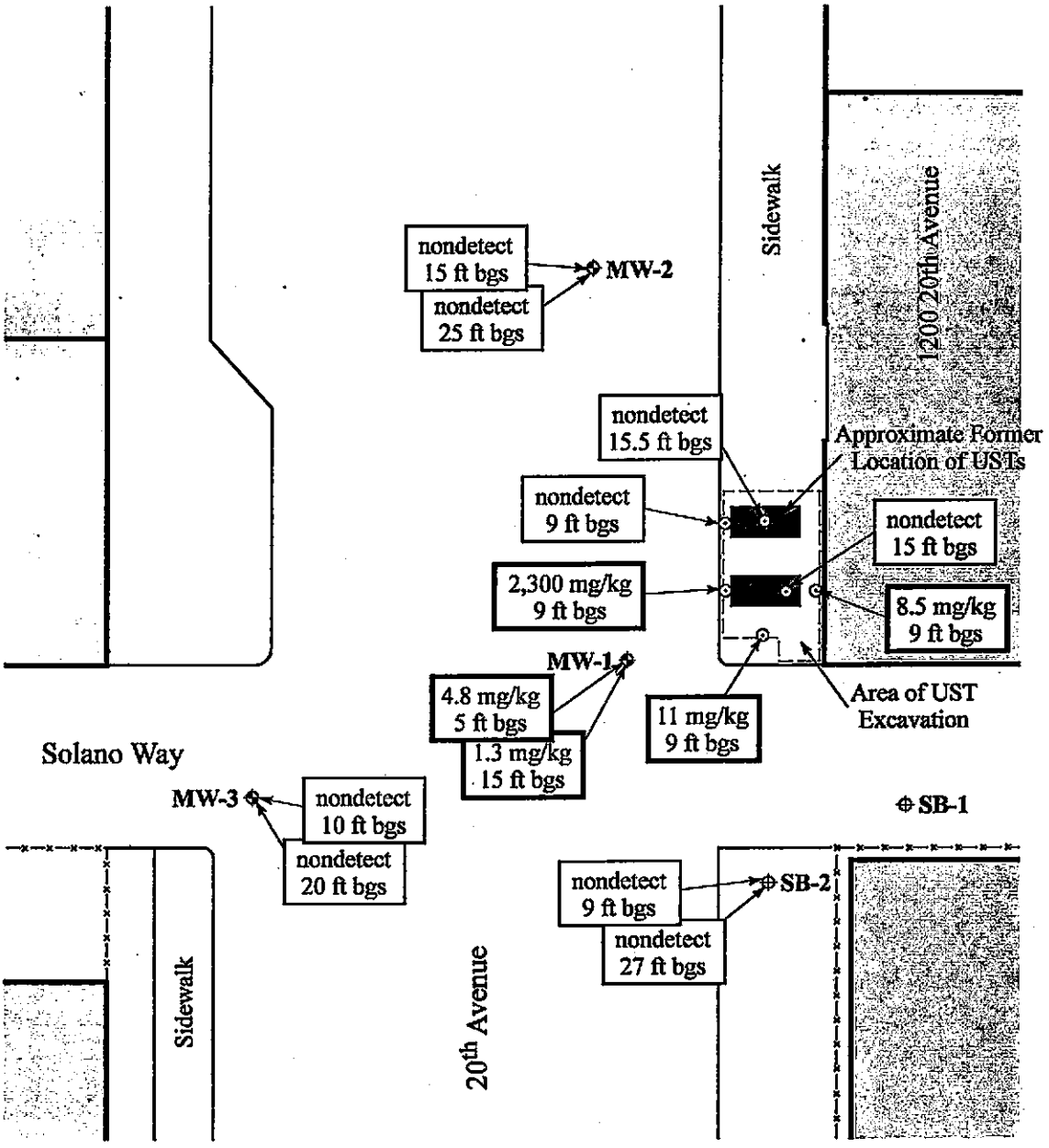
- ⊕ Monitoring Well (MW)
- ⊕ Soil Boring (SB)

Scale: 1 inch = 20 feet

0 10 20 30 40

FIGURE 3
GROUNDWATER GRADIENT

J. W. SILVEIRA CO.
1200 20th AVENUE
OAKLAND, CALIFORNIA



Notes:

- Monitoring Well (MW)
- Soil Boring (SB)
- Soil Sample from excavation

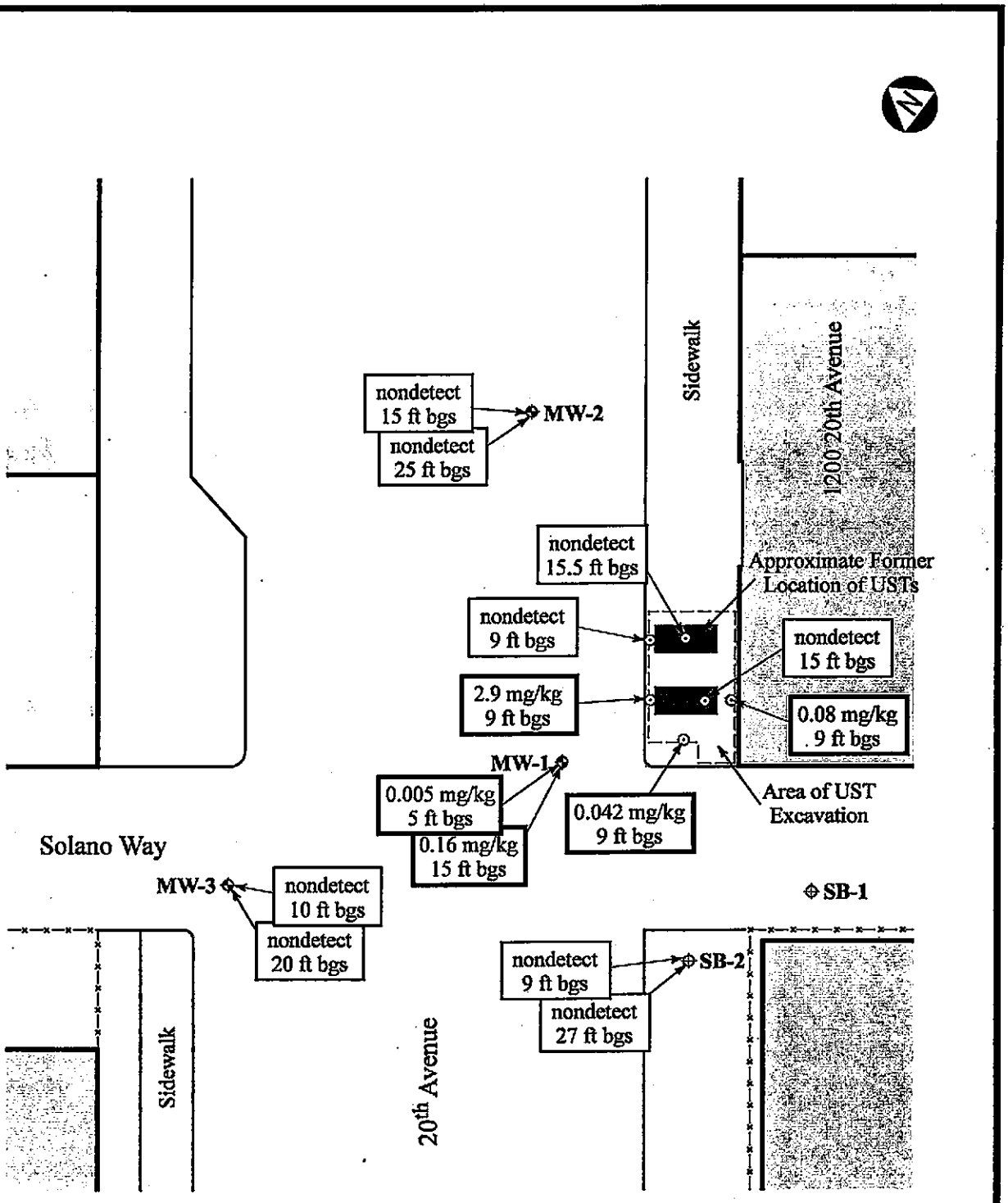
mg/kg milligrams per kilogram

Scale: 1 inch = 20 feet

0 10 20 30 40

FIGURE 4
TPH-GASOLINE IN SOIL

J. W. SILVEIRA CO.
1200 20th AVENUE
OAKLAND, CALIFORNIA



Notes:

- Monitoring Well (MW)
- Soil Boring (SB)
- Soil Sample from excavation

mg/kg milligrams per kilogram

Scale: 1 inch = 20 feet

0 10 20 30 40

FIGURE 5
BENZENE IN SOIL

J. W. SILVEIRA CO.
1200 20th AVENUE
OAKLAND, CALIFORNIA

TABLE 1
GROUNDWATER ELEVATIONS
1200 20TH AVENUE

Date	Groundwater Elevations (msl)		
	MW-1	MW-2	MW-3
4/1/99	0.07	-2.50	-0.10

Notes:
MW-1 TOC Elevation: 17.15 ft
MW-2 TOC Elevation: 20.11 ft
MW-3 TOC Elevation: 16.06 ft
TOC top of casing
msl mean sea level

TABLE 2
DETECTED VOC AND TPH COMPOUNDS IN GROUNDWATER
FROM MONITORING WELLS, APRIL 1999
1200 20TH AVENUE

Analyte	Monitoring Well			
VOC (µg/L)	MW-1 Sample JW2-01	MW-1 Dup Sample JW2-02	MW-2 Sample JW2-03	MW-3 Sample JW2-04
Benzene	2,400	2,600	*ND*	*ND*
Ethylbenzene	520	560	*ND*	*ND*
Toluene	310	340	*ND*	*ND*
m,p-Xylenes	1,600	1,600	*ND*	*ND*
o-Xylene	590	620	*ND*	*ND*
MTBE	100	120	*ND*	*ND*
TPH (µg/L)	**MW-1** Sample JW2-01	**MW-1 Dup** Sample JW2-02	**MW-2** Sample JW2-03	**MW-3** Sample JW2-04
Gasoline	13,000	14,000	*ND*	*ND*

Notes:

Dup	blind duplicate groundwater sample
µg/L	micrograms per Liter
ND	not detected
TPH	total petroleum hydrocarbons
VOC	volitile organic compound

TABLE 3
VOC AND TPH COMPOUNDS IN GROUNDWATER
MW-1 FROM FEBRUARY 1995 TO APRIL 1999
1200 20TH AVENUE

Date	TPH (µg/L)	VOC (µg/L)			
	Gasoline	Benzene	Toluene	Ethylbenzene	Xylenes
Feb-95	1,900	92	39	57	260
Jun-95	4,100	410	32	14	180
Oct-95	1,300	180	22	32	81
Feb-96	1,700	200	21	41	120
Jun-96	1,900	160	7	34	31
Sep-96	4,700	460	66	190	680
Jan-97	2,200	230	35	100	330
Jul-98	23,000	3,500	450	1,000	3,100
Apr-99	14,000	2,600	560	340	1,600

Notes:

µg/L	micrograms per Liter
- -	not analyzed
ND	not detected
TPH	total petroleum hydrocarbons
VOC	volitile organic compound

TABLE 4
VOC AND TPH COMPOUNDS IN GROUNDWATER
MW-2 FROM FEBRUARY 1995 TO APRIL 1999
1200 20TH AVENUE

Date	TPH (µg/L)	VOC (µg/L)			
	Gasoline	Benzene	Toluene	Ethylbenzene	Xylenes
Feb-95	*ND*	*ND*	*ND*	*ND*	*ND*
Jun-95	*ND*	1.8	*ND*	1.1	0.62
Oct-95	55	2.2	*ND*	1.5	*ND*
Feb-96	*ND*	3.3	2.7	0.99	2.4
Jun-96	*ND*	*ND*	0.6	*ND*	1.2
Sep-96	*ND*	9.3	0.57	1.3	1.9
Jan-97	*ND*	2.6	*ND*	*ND*	0.76
Jul-98	*ND*	*ND*	*ND*	*ND*	*ND*
Apr-99	*ND*	*ND*	*ND*	*ND*	*ND*

Notes:

µg/L	micrograms per Liter
- -	not analyzed
ND	not detected
TPH	total petroleum hydrocarbons
VOC	volitile organic compound

TABLE 5
VOC AND TPH COMPOUNDS IN GROUNDWATER
MW-3 FROM FEBRUARY 1995 TO APRIL 1999
1200 20TH AVENUE

Date	TPH (µg/L)	VOC (µg/L)			
	Gasoline	Benzene	Toluene	Ethylbenzene	Xylenes
Feb-95	*ND*	*ND*	*ND*	*ND*	*ND*
Jun-95	160	0.6	*ND*	0.6	0.72
Oct-95	130	5.8	*ND*	3.2	*ND*
Feb-96	54	5.6	2.8	2.9	8.1
Jun-96	*ND*	*ND*	*ND*	*ND*	*ND*
Sep-96	96	12	7.1	4	6.2
Jan-97	*ND*	*ND*	*ND*	*ND*	*ND*
Jul-98	*ND*	*ND*	*ND*	*ND*	*ND*
Apr-99	*ND*	*ND*	*ND*	*ND*	*ND*

Notes:

µg/L	micrograms per Liter
- -	not analyzed
ND	not detected
TPH	total petroleum hydrocarbons
VOC	volitile organic compound

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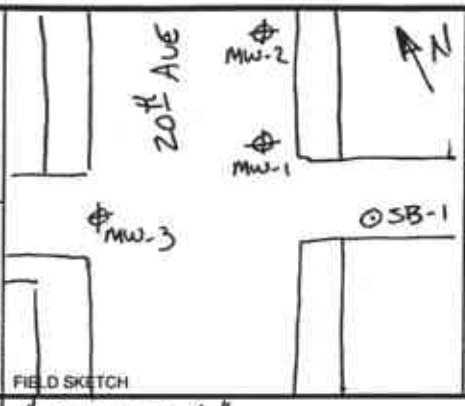


BORING ID: SB-1
SITE: 1200 20th AVE
PROJECT: SILVEIRA - OAKLAND
PROJECT NO.: P1106
DATE: 6-7-99
LOGGED BY: ROY GLENN

SAMPLE ID	SAMPLE TIME	SAMPLE DEPTH	PID READING	DRIVE INTERVAL	INCHES RECOVERED / INCHES DRIVEN	DEPTH (ft bgs)	USCS SOIL TYPE	
					40/48	1		ASPHALT 6".
						2	CL	FILL, SANDY-SILT, VERY PALE BROWN (10YR 7/4), MOIST, SOFT.
						3		SILTY-CLAY, LIGHT YELLOWISH BROWN (10YR 6/4), LOW PLASTICITY, DRY, STIFF
						4		
					48/48	5	GC	CLAYEY-GRAVEL, BROWN (10YR 4/3), FINE, SUB-ROUNDED, MEDIUM DENSE GRAVEL, WELL GRADED, DRY
						6		
						7		
						8		
					44/48	9	CL	SANDY-CLAY, GRAYISH-BROWN (2.5Y 5/2), LOW PLASTICITY DAMP, VERY STIFF, W/15% COARSE SAND.
						10		
						11	SC	CLAYEY-SAND, BROWN (10YR 4/3), SUB-ANGULAR, COARSE GRAINED SAND, MOIST, DENSE
						12	CH	CLAY, OLIVE YELLOW (2.5Y 6/6), HIGH PLASTICITY, DAMP, VERY STIFF.
					45/48	13		GRAVELY-CLAY, MOTTLED BROWN (7.5YR 5/2) & GRAY (5Y 6/1) LOW PLASTICITY, MOIST, STIFF, W/20% FINE GRAVEL.
						14	CL	
						15		
						16		
					0/36	17		NO RECOVERY
						18		
						19		
					35/36	20	CH	CLAY, REDDISH BROWN (5YR 4/4), HIGH PLASTICITY, DAMP, VERY STIFF

SAMPLE ID	SAMPLE TIME	SAMPLE DEPTH	PID READING	DRIVE INTERVAL	INCHES RECOVERED / INCHES DRIVEN	DEPTH (ft bgs)	USCS SOIL TYPE	
						22		SAME AS ABOVE: CLAY, REDDISH BROWN (5YR 4/4) HIGH PLASTICITY, DAMP, VERY STIFF.
					22/24	23	CH	
						24		
					21/24	25		
						26		w/1.5% VERY FINE GRAVEL 2-5mm
					23/24	27		
						28		
					18/18	29		NO GRAVEL PRESENT
						30		
					24/24	31		
						32		w/10% MEDIUM SAND
					17/18	33		
						34		
					22/24	35		
					11/12	36		TD = 36 ft bgs. SAMPLER REFUSAL
						37		
						38		
						39		
						40		
						41		
						42		
						43		
						44		

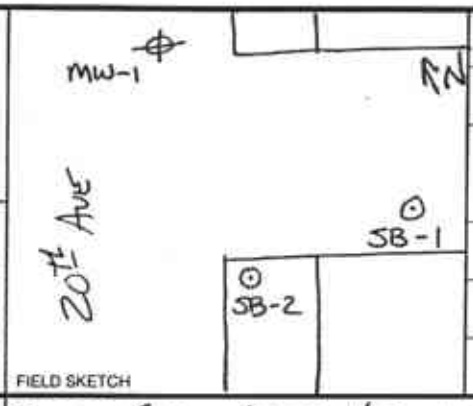
Tetra Tech EM Inc.
135 MAIN STREET, SUITE 1800
SAN FRANCISCO, CA 94105
415-543-4880

BORING ID: SB-1
SITE: 1200 20th AVENUE
PROJECT: SILVEIRA - OAKLAND

Tetra Tech EM Inc.
135 MAIN STREET, SUITE 1800
SAN FRANCISCO, CA 94105
415-543-4880

BORING ID: SB-2
SITE: 1200 20th Ave
PROJECT: Silveira - Oakland
PROJECT NO.: P1106
DATE: 8-10-99
LOGGED BY: Roy Glenn

FIELD SKETCH



SAMPLE ID	SAMPLE TIME	SAMPLE DEPTH	PID READING	DRIVE INTERVAL	INCHES RECOVERED / INCHES DRIVEN	DEPTH (ft bgs)	USCS SOIL TYPE
					42/46	1	CL
						2	
						3	GC
						4	
					46/46	5	
						6	CL
						7	
						8	
JW2-05	1055				46/46	9	
						10	
						11	CL
						12	
					45/46	13	
						14	
						15	
						16	CH
					46/46	17	
						18	
						19	
						20	

Silty-Clay, Light Yellowish Brown (10 YR 6/4), Low Plasticity, Dry, Stiff.

Clayey-Gravel, Brown (10 YR 4/3), Medium Grained, Sub-Rounded, Well Graded Gravel., Medium Dense, Dry.

Damp

Sandy-Clay, Olive Brown (2.5 Y 4/3), Low Plasticity, Damp, Very Stiff, w/20% medium sand.

Gravely-Clay, Mottled Brown (7.5 YR 5/2) & Gray (5Y 4/1) Low Plasticity, Moist, Stiff, w/15% Fine Gravel 5-6 mm

Clay, Dark Red (2.5 YR 4/6), High Plasticity, Damp, Very Stiff

w/10% Very Fine Gravel 2-4 mm

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415-543-4880

BORING ID: SB-2
SITE: 1200 20th AVE
PROJECT: SILVEIRA - OAKLAND

SAMPLE ID	SAMPLE TIME	SAMPLE DEPTH	PID READING	DRIVE INTERVAL	INCHES RECOVERED / INCHES DRIVEN	DEPTH (ft bgs)	USCS SOIL TYPE	
					34/36	22	CH	SAME AS ABOVE: CLAY, DARK RED (2.5 YR 4/6) HIGH PLASTICITY, DAMP, VERY STIFF, w/10% VERY FINE GRAVEL 2-4mm
						23		
					31/36	24		
						25		
						26	SC	CLAYEY-SAND, BROWN (7.5 YR 5/2), MEDIUM GRAINED, POORLY GRADED SAND, VERY DENSE, DAMP
JW2-006	1200				36/36	27		
						28	CL	SANDY-CLAY, GRAYISH BROWN (2.5 Y 5/2), LOW PLASTICITY, DAMP, VERY STIFF, w/15% FINE GRAINED SAND
					21/24	29		
						30		
						31		w/5% MEDIUM GRAVEL 8-12mm
					24/24	32		
						33		GRAVELY-CLAY, YELLOWISH BROWN (10YR 5/4), LOW PLASTICITY, DAMP, VERY STIFF, w/20% FINE TO MEDIUM GRAVEL 6-14mm
					16/18	34		
						35	CL	
					17/18	36		
					12/12	37		
					8/9	38		TD = 37.7 ft bgs. EQUIPMENT REFUSAL
						39		DRY, NO GROUNDWATER ENCOUNTERED.
						40		
						41		
						42		
						43		
						44		

APPENDIX B
ANALYTICAL DATA PACKAGE

Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878
2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900, Fax (510) 486-0532

RECEIVED
APR 28 1999
TETRA TECH EM INC.

Laboratory Number 138737

Tetra Tech EMI
135 Main Street
Suite 1800
San Francisco, CA 94105

Project#: P110604
Location: JW Silveira Props

Sample ID	Lab ID
JW2-01 MW-2 GW	138737-001
JW2-02 MW-1 GW	138737-002
JW2-03 MW-1, DUP GW	138737-003
JW2-04 MW-3 GW	138737-004
[redacted]	[redacted]

I certify that this data package has been reviewed for technical correctness and completeness. Please see attached narrative for a discussion of any analytical problems related to this sample set. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signatures.

Signature: _____ Date: 4.27.99
Title: Operations Manager

Signature: Carol Wortham Date: 4/27/99
Title: Project Manager

Curtis & Tompkins, Ltd.

Laboratory Number: **138737**
Client: **Tetra Tech EMI**
Location: **JW Silveira Props**
Project#: **P110604**

Receipt Date: **04/01/99**

CASE NARRATIVE

This hardcopy data package contains sample and QC results for nine water samples that were received on April 1, 1999.

Volatile Organics: The TIC compounds were not included in the electronic data deliverables. There were bubbles present in the vial analyzed for JW1-08 (CT#138737-009). No analytical problems were encountered.

TPH-Purgeables/BTXE: High surrogate recoveries were observed for samples JW1-04 (CT#138737-005) and JW1-06 (CT#138737-007) due to coelution with hydrocarbon peaks. No other analytical problems were encountered.

TPH-Extractables: No analytical problems were encountered.

Wet Chemistry: Samples were diluted due to high levels of hydrocarbons present in the sample. No analytical problems were encountered.

Tetra Tech EM Inc.
San Francisco Office

B873J

1209

Chain of Custody Record

Page 1 of 1

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San Francisco, CA 94105
415-543-4880
Fax 415-543-5480

PO#

Lab: C&T

Project name: JW SILVEIRA

TtEMI technical contact: JACKIE LUTA

Field samplers: HAL DAWSON, ROY GLENN

Project number: P110604

TtEMI project manager: HAL DAWSON

Field samplers' signatures:

Sample ID	Sample Description/Notes	Date	Time	Matrix	40 ml VOA	1 Liter Amber	1 Liter Poly	Brass Tube	Glass Jar	8oz Poly	CLP VOA	CLP SVOA	CLP Pest/PCBs	CLP Metals	TPH Purgeables	TPH Extractables	MTBE	BTEX	VOC	NITRATE	SULFATE
JW2-01	MW-2 GW	4/1/99	0930	WATER	21										X		X	X			
JW2-02	MW-1 GW		1045		9										X		X	X			
JW2-03	MW-1 DUPLICATE GW		1050		9										X		X	X			
JW2-04	MW-3		1148		9										X		X	X			
~~FW1-04~~			1403		9	2				1					X	X	X		X	X	X
~~FW1-05~~			1440		9	2				1					X	X	X		X	X	X
~~FW1-06~~			1615		9	2				1					X	X	X		X	X	X
~~FW1-07~~			1645		9	2				1					X	X	X		X	X	X
~~FW1-08~~			1700		5										X		X		X		
								HOLD													
	TRIPBLK																				

Preservative Added: HCl | | HCl | HCl | | |

Analysis Required: MTBE, BTEX, VOC, NITRATE, SULFATE

No./Container Types: 40 ml VOA, 1 Liter Amber, 1 Liter Poly, Brass Tube, Glass Jar, 8oz Poly

	Name (print)	Company Name	Date	Time
Relinquished by:	ROY GLENN	TtEMI	4-1-99	1851
Received by:	J.W. LAB	C&T	4/1/99	1851
Relinquished by:				
Received by:				
Relinquished by:				
Received by:				
Relinquished by:				
Received by:				

Turnaround time/remarks:

3

WHITE-Laboratory Copy YELLOW-Project Office Copy

JW Sluder

COOLER RECEIPT CHECKLIST

Login#: 139737 Date Received: 4/1 Number of Coolers: 2
Client: TENI Project: PL10604

A. Preliminary Examination Phase
Date Opened: 4/1 By (print): Justin (sign) [signature]

1. Did cooler come with a shipping slip (airbill, etc.)? YES (NO)
If YES, enter carrier name and airbill number:
2. Were custody seals on outside of cooler? YES NO
How many and where? Seal date: Seal name:
3. Were custody seals unbroken and intact at the date and time of arrival? YES NO NA
4. Were custody papers dry and intact when received? (YES) NO
5. Were custody papers filled out properly (ink, signed, etc.)? (YES) NO
6. Did you sign the custody papers in the appropriate place? (YES) NO
7. Was project identifiable from custody papers? (YES) NO
If YES, enter project name at the top of this form.
8. If required, was sufficient ice used? (YES) NO
Type of ice: Wet Temperature: 5.0°C i 5.0°C

B. Login Phase
Date Logged In: 4/1 By (print): Justin (sign) [signature]

1. Describe type of packing in cooler: foam
2. Did all bottles arrive unbroken? (YES) NO
3. Were labels in good condition and complete (ID, date, time, signature, etc.)? (YES) NO
4. Did bottle labels agree with custody papers? (YES) NO OK JW
5. Were appropriate containers used for the tests indicated? (YES) NO
6. Were correct preservatives added to samples? (YES) NO
7. Was sufficient amount of sample sent for tests indicated? (YES) NO
8. Were bubbles absent in VOA samples? If NO, list sample Ids below. (YES) NO
9. Was the client contacted concerning this sample delivery? YES (NO)
If YES, give details below.
Who was called? By whom? Date:

Additional Comments:
~~If bubble > 6mm see~~ JW

TVH-Total Volatile Hydrocarbons

Client: Tetra Tech EMI
Project#: P110604
Location: JW Silveira Props

Analysis Method: EPA 8015M
Prep Method: EPA 5030

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
138737-001	JW2-01	47225	04/01/99	04/06/99	04/06/99	
138737-002	JW2-02	47248	04/01/99	04/06/99	04/06/99	
138737-003	JW2-03	47248	04/01/99	04/06/99	04/06/99	
138737-004	JW2-04	47225	04/01/99	04/06/99	04/06/99	

Matrix: Water

Analyte	Units	138737-001 JW2-01 MW-2 GW	138737-002 JW2-02 MW-1 GW	138737-003 JW2-03 MW-1 DUP GW	138737-004 JW2-04 MW-3 GW
Diln Fac:		1	20	20	1
Gasoline C7-C12	ug/L	<50	13000	14000	<50
Surrogate					
Trifluorotoluene	%REC	87	102	102	86
Bromofluorobenzene	%REC	86	114	110	85

BTXE

Client: Tetra Tech EMI
Project#: P110604
Location: JW Silveira Props

Analysis Method: EPA 8021B
Prep Method: EPA 5030

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
138737-001	JW2-01	47344	04/01/99	04/09/99	04/09/99	
138737-002	JW2-02	47248	04/01/99	04/06/99	04/06/99	
138737-003	JW2-03	47248	04/01/99	04/06/99	04/06/99	
138737-004	JW2-04	47344	04/01/99	04/09/99	04/09/99	

Matrix: Water

Analyte	Units	138737-001 JW2-01 MW-2 GW	138737-002 JW2-02 MW-1 GW	138737-003 JW2-03 MW-1 DUP GW	138737-004 JW2-04 MW-3 GW
Diln Fac:		1	20	20	1
MTBE	ug/L	<2	100	120	<2
Benzene	ug/L	<0.5	2400	2600	<0.5
Toluene	ug/L	<0.5	310	340	<0.5
Ethylbenzene	ug/L	<0.5	520	560	<0.5
m,p-Xylenes	ug/L	<0.5	1600	1600	<0.5
o-Xylene	ug/L	<0.5	590	620	<0.5
Surrogate					
Trifluorotoluene	%REC	106	96	95	103
Bromofluorobenzene	%REC	104	100	95	105

Lab #: 138737

BATCH QC REPORT

Curtis & Tompkins, Ltd.

TVH-Total Volatile Hydrocarbons

Client:	Tetra Tech EMI	Analysis Method:	EPA 8015M
Project#:	P110604	Prep Method:	EPA 5030
Location:	JW Silveira Props		

METHOD BLANK

Matrix:	Water	Prep Date:	04/05/99
Batch#:	47225	Analysis Date:	04/05/99
Units:	ug/L		
Diln Fac:	1		

MB Lab ID: QC94480 LAB QC

Analyte	Result
Gasoline C7-C12	<50

Surrogate	%Rec	Recovery Limits
Trifluorotoluene	95	53-150
Bromofluorobenzene	95	53-149

Lab #: 138737

BATCH QC REPORT

Curtis & Tompkins, Ltd.

TVH-Total Volatile Hydrocarbons

Client:	Tetra Tech EMI	Analysis Method:	EPA 8015M
Project#:	P110604	Prep Method:	EPA 5030
Location:	JW Silveira Props		

METHOD BLANK

Matrix:	Water	Prep Date:	04/05/99
Batch#:	47228	Analysis Date:	04/05/99
Units:	ug/L		
Diln Fac:	1		

MB Lab ID: QC94495 LAB QC

Analyte	Result
Gasoline C7-C12	<50

Surrogate	%Rec	Recovery Limits
Trifluorotoluene	116	53-150
Bromofluorobenzene	108	53-149

Lab #: 138737

BATCH QC REPORT

Curtis & Tompkins, Ltd.

TVH-Total Volatile Hydrocarbons

Client:	Tetra Tech EMI	Analysis Method:	EPA 8015M
Project#:	P110604	Prep Method:	EPA 5030
Location:	JW Silveira Props		

METHOD BLANK

Matrix:	Water	Prep Date:	04/06/99
Batch#:	47248	Analysis Date:	04/06/99
Units:	ug/L		
Diln Fac:	1		

MB Lab ID: QC94574 LAB QC

Analyte	Result
Gasoline C7-C12	<50

Surrogate	%Rec	Recovery Limits
Trifluorotoluene	101	53-150
Bromofluorobenzene	97	53-149

BTXE

Client:	Tetra Tech EMI	Analysis Method:	EPA 8021B
Project#:	P110604	Prep Method:	EPA 5030
Location:	JW Silveira Props		

METHOD BLANK

Matrix:	Water	Prep Date:	04/06/99
Batch#:	47248	Analysis Date:	04/06/99
Units:	ug/L		
Diln Fac:	1		

MB Lab ID: QC94574 LAB QC

Analyte	Result
MTBE	<2.0
Benzene	<0.5
Toluene	<0.5
Ethylbenzene	<0.5
m,p-Xylenes	<0.5
o-Xylene	<0.5

Surrogate	%Rec	Recovery Limits
Trifluorotoluene	89	51-143
Bromofluorobenzene	90	37-146

Lab #: 138737

BATCH QC REPORT

Curtis & Tompkins, Ltd.

TVH-Total Volatile Hydrocarbons

Client:	Tetra Tech EMI	Analysis Method:	EPA 8015M
Project#:	P110604	Prep Method:	EPA 5030
Location:	JW Silveira Props		

METHOD BLANK

Matrix:	Water	Prep Date:	04/09/99
Batch#:	47344	Analysis Date:	04/09/99
Units:	ug/L		
Diln Fac:	1		

MB Lab ID: QC94937 LAB QC

Analyte	Result
Gasoline C7-C12	<50

Surrogate	%Rec	Recovery Limits
Trifluorotoluene	106	53-150
Bromofluorobenzene	92	53-149

Lab #: 138737

BATCH QC REPORT

Curtis & Tompkins, Ltd.

BTXE

Client: Tetra Tech EMI
Project#: P110604
Location: JW Silveira Props

Analysis Method: EPA 8021B
Prep Method: EPA 5030

METHOD BLANK

Matrix: Water
Batch#: 47344
Units: ug/L
Diln Fac: 1

Prep Date: 04/09/99
Analysis Date: 04/09/99

MB Lab ID: QC94937 LAB QC

Analyte	Result
MTBE	<2.0
Benzene	<0.5
Toluene	<0.5
Ethylbenzene	<0.5
m,p-Xylenes	<0.5
o-Xylene	<0.5

Surrogate	%Rec	Recovery Limits
Trifluorotoluene	108	51-143
Bromofluorobenzene	104	37-146

Lab #: 138737

BATCH QC REPORT

Curtis & Tompkins, Ltd.

TVH-Total Volatile Hydrocarbons

Client:	Tetra Tech EMI	Analysis Method:	EPA 8015M
Project#:	P110604	Prep Method:	EPA 5030
Location:	JW Silveira Props		

LABORATORY CONTROL SAMPLE

Matrix:	Water	Prep Date:	04/05/99
Batch#:	47225	Analysis Date:	04/05/99
Units:	ug/L		
Diln Fac:	1		

LCS Lab ID: QC94479 LAB QC

Analyte	Result	Spike Added	%Rec #	Limits
Gasoline C7-C12	1732	2000	87	77-117

Surrogate	%Rec	Limits
Trifluorotoluene	105	53-150
Bromofluorobenzene	112	53-149

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits
Spike Recovery: 0 out of 1 outside limits

Lab #: 138737

BATCH QC REPORT

Curtis & Tompkins, Ltd.

TVH-Total Volatile Hydrocarbons

Client: Tetra Tech EMI
Project#: P110604
Location: JW Silveira Props

Analysis Method: EPA 8015M
Prep Method: EPA 5030

LABORATORY CONTROL SAMPLE

Matrix: Water
Batch#: 47228
Units: ug/L
Diln Fac: 1

Prep Date: 04/05/99
Analysis Date: 04/05/99

LCS Lab ID: QC94494 LAB QC

Analyte	Result	Spike Added	%Rec #	Limits
Gasoline C7-C12	1939	2000	97	77-117

Surrogate	%Rec	Limits
Trifluorotoluene	142	53-150
Bromofluorobenzene	110	53-149

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits
Spike Recovery: 0 out of 1 outside limits

Lab #: 138737 BATCH QC REPORT

Curtis & Tompkins, Ltd.

TVH-Total Volatile Hydrocarbons

Client:	Tetra Tech EMI	Analysis Method:	EPA 8015M
Project#:	P110604	Prep Method:	EPA 5030
Location:	JW Silveira Props		

LABORATORY CONTROL SAMPLE

Matrix:	Water	Prep Date:	04/06/99
Batch#:	47248	Analysis Date:	04/06/99
Units:	ug/L		
Diln Fac:	1		

LCS Lab ID: QC94572 LAB QC

Analyte	Result	Spike Added	%Rec #	Limits
Gasoline C7-C12	1744	2000	87	77-117

Surrogate	%Rec	Limits
Trifluorotoluene	99	53-150
Bromofluorobenzene	105	53-149

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits
Spike Recovery: 0 out of 1 outside limits

Lab #: 138737 BATCH QC REPORT

Curtis & Tompkins, Ltd.

BTXE

Client:	Tetra Tech EMI	Analysis Method:	EPA 8021B
Project#:	P110604	Prep Method:	EPA 5030
Location:	JW Silveira Props		

LABORATORY CONTROL SAMPLE

Matrix:	Water	Prep Date:	04/06/99
Batch#:	47248	Analysis Date:	04/06/99
Units:	ug/L		
Diln Fac:	1		

LCS Lab ID: QC94573 LAB QC

Analyte	Result	Spike Added	%Rec #	Limits
MTBE	17.14	20	86	66-126
Benzene	20.04	20	100	65-111
Toluene	21.01	20	105	76-117
Ethylbenzene	20.93	20	105	71-121
m,p-Xylenes	42.89	40	107	80-123
o-Xylene	21.2	20	106	75-127

Surrogate	%Rec	Limits
Trifluorotoluene	93	51-143
Bromofluorobenzene	93	37-146

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits
Spike Recovery: 0 out of 6 outside limits

Lab #: 138737

BATCH QC REPORT

Curtis & Tompkins, Ltd.

TVH-Total Volatile Hydrocarbons

Client:	Tetra Tech EMI	Analysis Method:	EPA 8015M
Project#:	P110604	Prep Method:	EPA 5030
Location:	JW Silveira Props		

LABORATORY CONTROL SAMPLE

Matrix:	Water	Prep Date:	04/09/99
Batch#:	47344	Analysis Date:	04/09/99
Units:	ug/L		
Diln Fac:	1		

LCS Lab ID: QC94934 LAB QC

Analyte	Result	Spike Added	%Rec #	Limits
Gasoline C7-C12	2004	2000	100	77-117

Surrogate	%Rec	Limits
Trifluorotoluene	95	53-150
Bromofluorobenzene	108	53-149

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits
Spike Recovery: 0 out of 1 outside limits

Lab #: 138737 BATCH QC REPORT Curtis & Tompkins, Ltd. Page 1 of 1

BTXE

Client: Tetra Tech EMI
Project#: P110604
Location: JW Silveira Props

Analysis Method: EPA 8021B
Prep Method: EPA 5030

BLANK SPIKE/BLANK SPIKE DUPLICATE

Matrix: Water
Batch#: 47344
Units: ug/L
Diln Fac: 1

Prep Date: 04/09/99
Analysis Date: 04/09/99

BS Lab ID: QC94935 LAB QC

Analyte	Spike Added	BS	%Rec #	Limits
MTBE	20	17.84	89	66-126
Benzene	20	18.91	95	65-111
Toluene	20	18.4	92	76-117
Ethylbenzene	20	17.79	89	71-121
m,p-Xylenes	40	37.25	93	80-123
o-Xylene	20	18.86	94	75-127

Surrogate	%Rec	Limits
Trifluorotoluene	110	51-143
Bromofluorobenzene	103	37-146

BSD Lab ID: QC94936

Analyte	Spike Added	BSD	%Rec #	Limits	RPD #	Limit
MTBE	20	16.35	82	66-126	9	12
Benzene	20	17.17	86	65-111	10	10
Toluene	20	17.75	89	76-117	4	10
Ethylbenzene	20	17.28	86	71-121	3	11
m,p-Xylenes	40	35.89	90	80-123	4	10
o-Xylene	20	18.36	92	75-127	3	11

Surrogate	%Rec	Limits
Trifluorotoluene	109	51-143
Bromofluorobenzene	102	37-146

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits
RPD: 0 out of 6 outside limits
Spike Recovery: 0 out of 12 outside limits

Lab #: 138737

BATCH QC REPORT

Curtis & Tompkins, Ltd.

TVH-Total Volatile Hydrocarbons

Client:	Tetra Tech EMI	Analysis Method:	EPA 8015M
Project#:	P110604	Prep Method:	EPA 5030
Location:	JW Silveira Props		

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Field ID:	JW2-01	Sample Date:	04/01/99
Lab ID:	138737-001	Received Date:	04/01/99
Matrix:	Water	Prep Date:	04/05/99
Batch#:	47225	Analysis Date:	04/05/99
Units:	ug/L		
Diln Fac:	1		

MS Lab ID: QC94483 LAB QC

Analyte	Spike Added	Sample	MS	%Rec #	Limits
Gasoline C7-C12	2000	<50	1901	95	69-131

Surrogate	%Rec	Limits
Trifluorotoluene	106	53-150
Bromofluorobenzene	118	53-149

MSD Lab ID: QC94484

Analyte	Spike Added	MSD	%Rec #	Limits	RPD #	Limit
Gasoline C7-C12	2000	1788	89	69-131	6	13

Surrogate	%Rec	Limits
Trifluorotoluene	61	53-150
Bromofluorobenzene	72	53-149

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits
RPD: 0 out of 1 outside limits
Spike Recovery: 0 out of 2 outside limits

Lab #: 138737 BATCH QC REPORT

Curtis & Tompkins, Ltd.

TVH-Total Volatile Hydrocarbons

Client:	Tetra Tech EMI	Analysis Method:	EPA 8015M
Project#:	P110604	Prep Method:	EPA 5030
Location:	JW Silveira Props		

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Field ID:	ZZZZZZ	Sample Date:	03/31/99
Lab ID:	138703-021	Received Date:	03/31/99
Matrix:	Water	Prep Date:	04/05/99
Batch#:	47228	Analysis Date:	04/05/99
Units:	ug/L		
Diln Fac:	1		

MS Lab ID: QC94496 LAB QC

Analyte	Spike Added	Sample	MS	%Rec #	Limits
Gasoline C7-C12	2000	<50	1873	94	69-131

Surrogate	%Rec	Limits
Trifluorotoluene	148	53-150
Bromofluorobenzene	117	53-149

MSD Lab ID: QC94497

Analyte	Spike Added	MSD	%Rec #	Limits	RPD #	Limit
Gasoline C7-C12	2000	1851	93	69-131	1	13

Surrogate	%Rec	Limits
Trifluorotoluene	147	53-150
Bromofluorobenzene	115	53-149

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits
RPD: 0 out of 1 outside limits
Spike Recovery: 0 out of 2 outside limits

Lab #: 138737

BATCH QC REPORT

Curtis & Tompkins, Ltd.

BTXE

Client:	Tetra Tech EMI	Analysis Method:	EPA 8021B
Project#:	P110604	Prep Method:	EPA 5030
Location:	JW Silveira Props		

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Field ID:	ZZZZZZ	Sample Date:	03/30/99
Lab ID:	138712-003	Received Date:	04/01/99
Matrix:	Water	Prep Date:	04/07/99
Batch#:	47248	Analysis Date:	04/07/99
Units:	ug/L		
Diln Fac:	1		

MS Lab ID: QC94575 LAB QC

Analyte	Spike Added	Sample	MS	%Rec #	Limits
MTBE	20	<2	18.55	93	49-136
Benzene	20	<0.5	20.55	103	55-122
Toluene	20	<0.5	21.33	107	63-139
Ethylbenzene	20	<0.5	21.19	106	61-137
m,p-Xylenes	40	<0.5	42.56	106	57-148
o-Xylene	20	<0.5	21.74	109	70-141

Surrogate	%Rec	Limits
Trifluorotoluene	96	51-143
Bromofluorobenzene	99	37-146

MSD Lab ID: QC94576

Analyte	Spike Added	MSD	%Rec #	Limits	RPD #	Limit
MTBE	20	18.39	92	49-136	1	11
Benzene	20	21.16	106	55-122	3	10
Toluene	20	21.98	110	63-139	3	10
Ethylbenzene	20	21.85	109	61-137	3	10
m,p-Xylenes	40	44.06	110	57-148	3	10
o-Xylene	20	22.33	112	70-141	3	10

Surrogate	%Rec	Limits
Trifluorotoluene	97	51-143
Bromofluorobenzene	100	37-146

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits
RPD: 0 out of 6 outside limits
Spike Recovery: 0 out of 12 outside limits

Lab #: 138737

BATCH QC REPORT

Curtis & Tompkins, Ltd.

TVH-Total Volatile Hydrocarbons

Client:	Tetra Tech EMI	Analysis Method:	EPA 8015M
Project#:	P110604	Prep Method:	EPA 5030
Location:	JW Silveira Props		

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Field ID:	ZZZZZZ	Sample Date:	04/07/99
Lab ID:	138834-007	Received Date:	04/08/99
Matrix:	Water	Prep Date:	04/09/99
Batch#:	47344	Analysis Date:	04/09/99
Units:	ug/L		
Diln Fac:	1		

MS Lab ID: QC94938 LAB QC

Analyte	Spike Added	Sample	MS	%Rec #	Limits
Gasoline C7-C12	2000	<50	1972	99	69-131

Surrogate	%Rec	Limits
Trifluorotoluene	97	53-150
Bromofluorobenzene	115	53-149

MSD Lab ID: QC94939

Analyte	Spike Added	MSD	%Rec #	Limits	RPD #	Limit
Gasoline C7-C12	2000	1967	98	69-131	0	13

Surrogate	%Rec	Limits
Trifluorotoluene	96	53-150
Bromofluorobenzene	115	53-149

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits
RPD: 0 out of 1 outside limits
Spike Recovery: 0 out of 2 outside limits

Lab #: 138737

BATCH QC REPORT

Curtis & Tompkins, Ltd.

TEH-Tot Ext Hydrocarbons

Client: Tetra Tech EMI
Project#: P110604
Location: JW Silveira Props

Analysis Method: EPA 8015M
Prep Method: EPA 3520

METHOD BLANK

Matrix: Water
Batch#: 47268
Units: ug/L
Diln Fac: 1

Prep Date: 04/06/99
Analysis Date: 04/08/99

MB Lab ID: QC94630 LAB QC

Analyte	Result
Diesel C10-C24	<50
Motor Oil C24-C36	<300

Surrogate	%Rec	Recovery Limits
Hexacosane	80	58-128

Lab #: 138737

BATCH QC REPORT

Curtis & Tompkins, Ltd.

TEH-Tot Ext Hydrocarbons

Client: Tetra Tech EMI
Project#: P110604
Location: JW Silveira Props

Analysis Method: EPA 8015M
Prep Method: EPA 3520

BLANK SPIKE/BLANK SPIKE DUPLICATE

Matrix: Water
Batch#: 47268
Units: ug/L
Diln Fac: 1

Prep Date: 04/06/99
Analysis Date: 04/10/99

BS Lab ID: QC94631 LAB QC

Analyte	Spike Added	BS	%Rec #	Limits
Diesel C10-C24	2475	1660	67	50-114

Surrogate	%Rec	Limits
Hexacosane	67	58-128

BSD Lab ID: QC94632

Analyte	Spike Added	BSD	%Rec #	Limits	RPD #	Limit
Diesel C10-C24	2475	1725	70	50-114	4	25

Surrogate	%Rec	Limits
Hexacosane	66	58-128

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits
RPD: 0 out of 1 outside limits
Spike Recovery: 0 out of 2 outside limits

Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878
2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900, Fax (510) 486-0532

RECEIVED
SEP 17 1999
TETRA TECH EM INC.

Laboratory Number 140946

Tetra Tech EMI
135 Main Street
Suite 1800
San Francisco, CA 94105

Project#: P1106.05
Location: JW Silveria UST,Oak.

Sample ID	Lab ID
JW2-05 SB-2 9'	140946-001
JW2-06 SB-2 27'	140946-002
[redacted]	[redacted]
[redacted]	[redacted]

I certify that this data package has been reviewed for technical correctness and completeness. Please see attached narrative for a discussion of any analytical problems related to this sample set. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signatures.

The case narrative is an integral and inseparable part of this report.

Signature: _____ Date: 9-14-99
Title: Operations Manager

Signature: Carol Wortham Date: 9/13/99 001
Title: Project Manager

Curtis & Tompkins, Ltd.

Laboratory Number: 140946
Client: Tetra Tech EMI
Location: JW Silveria UST
Project#: P1106.05

Receipt Date: 08/13/99

CASE NARRATIVE

This hardcopy data package contains sample and QC results for three soil samples and one water sample that were received on August 13, 1999. The soil results were reported on a dry-weight basis.

TPH-Purgeables/BTXE: No analytical problems were encountered.

TPH-Extractables: No analytical problems were encountered.

Volatiles: Due to limitations with the computer system, TIC results were not included in the electronic deliverables. High percent differences were observed for freon 12, chloroethane, n-butylbenzene, and 1,2,3-trichlorobenzene in the continuing calibration verification that was analyzed on August 16, 1999 (bhg15). These compounds met the minimum response criteria and were not detected in the associated samples or method blanks. No other analytical problems were encountered.

1206

Tetra Tech EM Inc.
San Francisco Office

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San Francisco, CA 94105
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140946

Chain of Custody Record

Page 1 of 1

Project name: JW SILVEIRA UST	**PO#**	**Lab:** C&T	
Project number: P1106.05	**TtEMI technical contact:** JACKIE LUTA	**Field samplers:** ROY GLENN	
	TtEMI project manager: HAL DAWSON	**Field samplers' signatures:**	

Sample ID	Sample Description/Notes	Date	Time	Matrix	No./Container Types: 40 ml VOA	1 Liter Amber	1 Liter Poly	Brass Tube	Glass Jar	Acetate	Preservative Added: HCl	Analysis Required: CLP VOA	CLP SVOA	CLP Pest/PCBs	CLP Metals	TPH Purgeables	TPH Extractables	BTEX	MTBE
JW2-05	SB-2 9'	8-10-99	1055	Soil						1						X		X	X
JW2-06	SB-2 27'		1200	Soil						1						X		X	X
~~JW1-20~~			1400	Soil						1		X				X	X		
~~JW1-21~~			1530	WATER	6	2						X				X	X		

	Name (print)	Company Name	Date	Time
Relinquished by: Roy D. Glenn	Roy	TT EMI	8-13	0930
Received by: Steven E. Stanley	Steven E. Stanley	C&T	8-13-99	0930
Relinquished by:				
Received by:				
Relinquished by:				
Received by:				
Relinquished by:				
Received by:				

Turnaround time/remarks:

3

To Silvia GST

Curtis & Tompkins, Ltd.

COOLER RECEIPT CHECKLIST

Login#: 160646 Date Received: 8/13 Number of Coolers: 1

Client: ITEMS Project: P11 06.05

A. Preliminary Examination Phase

Date Opened: 8/13 By (print): Justin (sign)

1. Did cooler come with a shipping slip (airbill, etc.)? YES NO
   If YES, enter carrier name and airbill number:
2. Were custody seals on outside of cooler? YES NO
   How many and where? Seal date: Seal name:
3. Were custody seals unbroken and intact at the date and time of arrival? YES NO NA
4. Were custody papers dry and intact when received? YES NO
5. Were custody papers filled out properly (ink, signed, etc.)? YES NO
6. Did you sign the custody papers in the appropriate place? YES NO
7. Was project identifiable from custody papers? YES NO
   If YES, enter project name at the top of this form.
8. If required, was sufficient ice used? YES NO
   Type of ice: Wet Blue Temperature: 5.0°C

B. Login Phase

Date Logged In: 8/13 By (print): Justin (sign)

1. Describe type of packing in cooler: foam - bubble wrap
2. Did all bottles arrive unbroken? YES NO
3. Were labels in good condition and complete (ID, date, time, signature, etc.)? YES NO
4. Did bottle labels agree with custody papers? YES NO
5. Were appropriate containers used for the tests indicated? YES NO
6. Were correct preservatives added to samples? YES NO
7. Was sufficient amount of sample sent for tests indicated? YES NO
8. Were bubbles absent in VOA samples? If NO, list sample Ids below YES NO
9. Was the client contacted concerning this sample delivery? YES NO
   If YES, give details below.
   Who was called? By whom? Date:

Additional Comments:

Filename: F:\qc\forms\cooler.wpd

Rev. 1 4/95

004

Percent Moisture Summary Report

Date: 17-AUG-99
Batch: 49951
Analyst: MR

Sample	Method	Date	Tare(g)	Wet(g)	Dry(g)	Percent Solids	Percent Moisture
140927-001	CLP SOW 390	17-AUG-99	15.2168	22.7692	22.1258	91	9
140927-002	CLP SOW 390	17-AUG-99	15.6307	23.3987	22.5222	89	11
140927-003	CLP SOW 390	17-AUG-99	15.1542	23.4093	22.6205	90	10
140927-004	CLP SOW 390	17-AUG-99	15.7928	22.7369	22.004	89	11
140927-005	CLP SOW 390	17-AUG-99	14.978	22.6982	21.1103	79	21
140927-006	CLP SOW 390	17-AUG-99	15.4962	24.0242	22.927	87	13
140927-007	CLP SOW 390	17-AUG-99	15.2088	22.9498	22.0673	89	11
140927-008	CLP SOW 390	17-AUG-99	15.661	23.837	23.2404	93	7
140927-009	CLP SOW 390	17-AUG-99	15.8898	22.9358	22.1682	89	11
140927-010	CLP SOW 390	17-AUG-99	15.4917	22.9277	21.8261	84	16
140943-001	CLP SOW 390	17-AUG-99	15.8471	22.4576	19.371	53	47
140946-001	CLP SOW 390	17-AUG-99	15.9416	24.0225	23.0076	87	13
140946-002	CLP SOW 390	17-AUG-99	15.4184	22.6676	21.4602	83	17
140946-003	CLP SOW 390	17-AUG-99	15.4901	23.3183	22.1374	85	15
QC05104 of 140943-001	CLP SOW 390	17-AUG-99	15.6771	23.1163	19.5075	51	49
					RPD:	3.5%	3.8%

TVH-Total Volatile Hydrocarbons

Client: Tetra Tech EMI
Project#: P1106.05
Location: JW Silveria UST,Oak.

Analysis Method: EPA 8015M
Prep Method: EPA 5030

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
140946-001	JW2-05	50066	08/11/99	08/21/99	08/21/99	13%
140946-002	JW2-06	50066	08/11/99	08/21/99	08/21/99	17%
[redacted]		50066	08/11/99	08/21/99	08/21/99	15%

Matrix: Soil

JW2-05 SB-2 9' JW2-06 SB-2 27'

Analyte	Units	140946-001	140946-002	[redacted]
Diln Fac:		1	1	1
Gasoline C7-C12	mg/Kg	<1.1	<1.2	<1.2
Surrogate				
Trifluorotoluene	%REC	93	80	79
Bromofluorobenzene	%REC	88	113	97

BTXE

Client: Tetra Tech EMI
Project#: P1106.05
Location: JW Silveria UST,Oak.

Analysis Method: EPA 8021B
Prep Method: EPA 5030

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
140946-001	JW2-05	50066	08/11/99	08/21/99	08/21/99	13%
140946-002	JW2-06	50066	08/11/99	08/21/99	08/21/99	17%

Matrix: Soil

JW2-05 SB-2 9' JW2-06 SB-2 27'

Analyte	Units	140946-001	140946-002
Diln Fac:		1	1
MTBE	ug/Kg	<23	<24
Benzene	ug/Kg	<5.7	<6
Toluene	ug/Kg	<5.7	<6
Ethylbenzene	ug/Kg	<5.7	<6
m,p-Xylenes	ug/Kg	<5.7	<6
o-Xylene	ug/Kg	<5.7	<6
Surrogate			
Trifluorotoluene	%REC	110	105
Bromofluorobenzene	%REC	109	107

Lab #: 140946

BATCH QC REPORT

Curtis & Tompkins, Ltd.

TVH-Total Volatile Hydrocarbons

Client:	Tetra Tech EMI	Analysis Method:	EPA 8015M
Project#:	P1106.05	Prep Method:	EPA 5030
Location:	JW Silveria UST,Oak.		

METHOD BLANK

Matrix:	Soil	Prep Date:	08/21/99
Batch#:	50066	Analysis Date:	08/21/99
Units:	mg/Kg		
Diln Fac:	1		

MB Lab ID: QC05515 LAB QC

Analyte	Result
Gasoline C7-C12	<1.0

Surrogate	%Rec	Recovery Limits
Trifluorotoluene	78	62-143
Bromofluorobenzene	91	59-150

Lab #: 140946

BATCH QC REPORT

Curtis & Tompkins, Ltd.

BTXE

Client:	Tetra Tech EMI	Analysis Method:	EPA 8021B
Project#:	P1106.05	Prep Method:	EPA 5030
Location:	JW Silveria UST,Oak.		

METHOD BLANK

Matrix:	Soil	Prep Date:	08/21/99
Batch#:	50066	Analysis Date:	08/21/99
Units:	ug/Kg		
Diln Fac:	1		

MB Lab ID: QC05515 LAB QC

Analyte	Result
MTBE	<20
Benzene	<5.0
Toluene	<5.0
Ethylbenzene	<5.0
m,p-Xylenes	<5.0
o-Xylene	<5.0

Surrogate	%Rec	Recovery Limits
Trifluorotoluene	110	59-134
Bromofluorobenzene	110	38-150

TVH-Total Volatile Hydrocarbons

Client:	Tetra Tech EMI	Analysis Method:	EPA 8015M
Project#:	P1106.05	Prep Method:	EPA 5030
Location:	JW Silveria UST,Oak.		

METHOD BLANK

Matrix:	Water	Prep Date:	08/22/99
Batch#:	50075	Analysis Date:	08/22/99
Units:	ug/L		
Diln Fac:	1		

MB Lab ID: QC05560 LAB QC

Analyte	Result
Gasoline C7-C12	<50

Surrogate	%Rec	Recovery Limits
Trifluorotoluene	103	53-150
Bromofluorobenzene	102	53-149

Lab #: 140946

BATCH QC REPORT

Curtis & Tompkins, Ltd.

TVH-Total Volatile Hydrocarbons

Client: Tetra Tech EMI
Project#: P1106.05
Location: JW Silveria UST,Oak.

Analysis Method: EPA 8015M
Prep Method: EPA 5030

LABORATORY CONTROL SAMPLE

Matrix: Soil
Batch#: 50066
Units: mg/Kg
Diln Fac: 1

Prep Date: 08/21/99
Analysis Date: 08/21/99

LCS Lab ID: QC05516 LAB QC

Analyte	Result	Spike Added	%Rec #	Limits
Gasoline C7-C12	9.31	10	93	77-122

Surrogate	%Rec	Limits
Trifluorotoluene	80	62-143
Bromofluorobenzene	93	59-150

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits
Spike Recovery: 0 out of 1 outside limits

TVH-Total Volatile Hydrocarbons

Client:	Tetra Tech EMI	Analysis Method:	EPA 8015M
Project#:	P1106.05	Prep Method:	EPA 5030
Location:	JW Silveria UST,Oak.		

LABORATORY CONTROL SAMPLE

Matrix:	Water	Prep Date:	08/22/99
Batch#:	50075	Analysis Date:	08/22/99
Units:	ug/L		
Diln Fac:	1		

LCS Lab ID: QC05558 LAB QC

Analyte	Result	Spike Added	%Rec #	Limits
Gasoline C7-C12	1782	2000	89	77-117

Surrogate	%Rec	Limits
Trifluorotoluene	109	53-150
Bromofluorobenzene	119	53-149

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits
Spike Recovery: 0 out of 1 outside limits

Lab #: 140946 BATCH QC REPORT

Curtis & Tompkins, Ltd.

BTXE

Client: Tetra Tech EMI
Project#: P1106.05
Location: JW Silveria UST,Oak.

Analysis Method: EPA 8021B
Prep Method: EPA 5030

LABORATORY CONTROL SAMPLE

Matrix: Soil
Batch#: 50066
Units: ug/Kg
Diln Fac: 1

Prep Date: 08/21/99
Analysis Date: 08/21/99

LCS Lab ID: QC05517 LAB QC

Analyte	Result	Spike Added	%Rec #	Limits
MTBE	100.3	100	100	59-135
Benzene	102	100	102	67-116
Toluene	103.1	100	103	77-122
Ethylbenzene	96.58	100	97	70-124
m,p-Xylenes	208.9	200	104	75-125
o-Xylene	103.3	100	103	75-126

Surrogate	%Rec	Limits
Trifluorotoluene	110	59-134
Bromofluorobenzene	105	38-150

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits
Spike Recovery: 0 out of 6 outside limits

Lab #: 140946

BATCH QC REPORT

Curtis & Tompkins, Ltd.

TVH-Total Volatile Hydrocarbons

Client:	Tetra Tech EMI	Analysis Method:	EPA 8015M
Project#:	P1106.05	Prep Method:	EPA 5030
Location:	JW Silveria UST,Oak.		

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Field ID:	JW2-06	Sample Date:	08/11/99
Lab ID:	140946-002	Received Date:	08/13/99
Matrix:	Soil	Prep Date:	08/21/99
Batch#:	50066	Analysis Date:	08/21/99
Units:	mg/Kg dry weight	Moisture:	17%
Diln Fac:	1		

MS Lab ID: QC05518 LAB QC

Analyte	Spike Added	Sample	MS	%Rec #	Limits
Gasoline C7-C12	12.05	<1.205	11.23	93	55-134

Surrogate	%Rec	Limits
Trifluorotoluene	79	62-143
Bromofluorobenzene	94	59-150

MSD Lab ID: QC05519

Analyte	Spike Added	MSD	%Rec #	Limits	RPD #	Limit
Gasoline C7-C12	12.05	11.71	97	55-134	4	30

Surrogate	%Rec	Limits
Trifluorotoluene	80	62-143
Bromofluorobenzene	90	59-150

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits
RPD: 0 out of 1 outside limits
Spike Recovery: 0 out of 2 outside limits

Lab #: 140946

BATCH QC REPORT

Curtis & Tompkins, Ltd.

TEH-Tot Ext Hydrocarbons

Client:	Tetra Tech EMI	Analysis Method:	EPA 8015M
Project#:	P1106.05	Prep Method:	EPA 3520
Location:	JW Silveria UST,Oak.		

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Field ID:	ZZZZZZ	Sample Date:	08/11/99
Lab ID:	140915-005	Received Date:	08/12/99
Matrix:	Water	Prep Date:	08/18/99
Batch#:	50020	Analysis Date:	08/25/99
Units:	ug/L		
Diln Fac:	1		

MS Lab ID: QC05356 LAB QC

Analyte	Spike Added	Sample	MS	%Rec #	Limits
Diesel C10-C24	2605	718.7	2475	67	51-104
Surrogate	**%Rec**	**Limits**			
Hexacosane	69	58-128			

MSD Lab ID: QC05357

Analyte	Spike Added	MSD	%Rec #	Limits	RPD #	Limit
Diesel C10-C24	2605	3019	88	51-104	20	33
Surrogate	**%Rec**	**Limits**				
Hexacosane	73	58-128				

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits
RPD: 0 out of 1 outside limits
Spike Recovery: 0 out of 2 outside limits

Lab #: 140946

BATCH QC REPORT

Curtis & Tompkins, Ltd.

TEH-Tot Ext Hydrocarbons

Client:	Tetra Tech EMI	Analysis Method:	EPA 8015M
Project#:	P1106.05	Prep Method:	CA LUFT
Location:	JW Silveria UST,Oak.		

LABORATORY CONTROL SAMPLE

Matrix:	Soil	Prep Date:	08/19/99
Batch#:	50031	Analysis Date:	08/21/99
Units:	mg/Kg		
Diln Fac:	1		

LCS Lab ID: QC05381 LAB QC

Analyte	Result	Spike Added	%Rec #	Limits
Diesel C10-C24	43.84	49.5	89	52-117

Surrogate	%Rec	Limits
Hexacosane	92	52-137

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits
Spike Recovery: 0 out of 1 outside limits

Lab #: 140946

BATCH QC REPORT

Curtis & Tompkins, Ltd.

TEH-Tot Ext Hydrocarbons

Client:	Tetra Tech EMI	Analysis Method:	EPA 8015M
Project#:	P1106.05	Prep Method:	EPA 3520
Location:	JW Silveria UST,Oak.		

LABORATORY CONTROL SAMPLE

Matrix:	Water	Prep Date:	08/18/99
Batch#:	50020	Analysis Date:	08/25/99
Units:	ug/L		
Diln Fac:	1		

LCS Lab ID: QC05355 LAB QC

Analyte	Result	Spike Added	%Rec #	Limits
Diesel C10-C24	1688	2475	68	50-114

Surrogate	%Rec	Limits
Hexacosane	63	58-128

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits
Spike Recovery: 0 out of 1 outside limits

Lab #: 140946

BATCH QC REPORT

Curtis & Tompkins, Ltd.

TEH-Tot Ext Hydrocarbons

Client:	Tetra Tech EMI	Analysis Method:	EPA 8015M
Project#:	P1106.05	Prep Method:	EPA 3520
Location:	JW Silveria UST,Oak.		

METHOD BLANK

Matrix:	Water	Prep Date:	08/18/99
Batch#:	50020	Analysis Date:	08/21/99
Units:	ug/L		
Diln Fac:	1		

MB Lab ID: QC05354 LAB QC

Analyte	Result	
Diesel C10-C24	<50	
Surrogate	**%Rec**	**Recovery Limits**
Hexacosane	68	58-128

Lab #: 140946

BATCH QC REPORT

Curtis & Tompkins, Ltd.

TEH-Tot Ext Hydrocarbons

Client:	Tetra Tech EMI	Analysis Method:	EPA 8015M
Project#:	P1106.05	Prep Method:	CA LUFT
Location:	JW Silveria UST,Oak.		

METHOD BLANK

Matrix:	Soil	Prep Date:	08/19/99
Batch#:	50031	Analysis Date:	08/21/99
Units:	mg/Kg		
Diln Fac:	1		

MB Lab ID: QC05380 LAB QC

Analyte	Result
Diesel C10-C24	<1.0

Surrogate	%Rec	Recovery Limits
Hexacosane	87	52-137